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GOEWERMENTSKENNISGEWING.

DEPARTEMENT VAN VERVOER.

No. R. 140.] [2 Februarie 1968.
HANDELSKEEPVAART-RADIOREGULASIES, 1968.

Die Minister van Vervoer het met ingang van 13 Maart 1968 kragtens artikel 356 van die Handel-keepvaartwet, 1951 (Wet No. 57 van 1951), soos gewysig, die Handelskeepvaart-radioregulasies, 1961, soos afgekon- dig by Goewermentskennisgewing No. R. 1171 gedateer 8 Desember 1961, soos gewysig, herroep en die regulasies in die bylae hiervan uitgevaardig: —

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2. Uitleg.

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DEPARTMENT OF TRANSPORT.

No. R. 140.] [2 February 1968.
MERCHANT SHIPPING RADIO REGULATIONS, 1968.

The Minister of Transport has, under the provisions of section 356 of the Merchant Shipping Act, 1951 (Act No. 57 of 1951), as amended, repealed the Merchant Shipping Radio Regulations, 1961 promulgated by Government Notice No. R. 1171, dated 8 December 1961, as amended, and has in terms of the said section, made the regulations contained in the Schedule hereto, with effect in each case from 13 March 1968:—

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INLEIDING.

1. *Titel van hierdie Regulasies.*

Hierdie regulasies heet die Handelskeepvaart-radio-regulasies, 1968.

2. *Uitleg.**

In hierdie regulasies beteken die uitdrukking „die Wet” die Handelskeepvaartwet, 1951 (Wet No. 57 van 1951), en tensy die samehang anders aandui, het enige uitdrukking waaraan in die wet ’n betekenis toegeken is, in hierdie regulasies die aldus toegekende betekenis, en beteken— „owerheid”—

(a) die Minister ten opsigte van—

(i) ’n passasierskip gebruik op internasionale reise of vir spesiale passasiersvervoer op sodanige reise; en

(ii) ’n skip wat nie ’n passasierskip is nie, ’n tonne-maat van 300 ton of meer het en vir internasionale reise gebruik word; of

(b) die Sekretaris ten opsigte van—

(i) ’n passasierskip wat nie vir internasionale reise gebruik word nie; en

(ii) ’n skip wat nie ’n passasierskip is nie, ’n tonne-maat van 300 ton of meer het en nie vir internasionale reise gebruik word nie;

„verbind” elektries verbind;

„bestaande installasie”—

(a) ’n installasie wat in die geval van ’n skip waarop die Veiligheidskonvensie van toepassing is, voor 26 Mei 1965 en in die geval van ’n ander skip voor die inwerking-tredingsdatum van hierdie regulasies volkome geïnstalleer is; en

(b) ’n installasie waarvan ’n deel voor 26 Mei 1965 of die inwerking-tredingsdatum van hierdie regulasies, na gelang van die geval, geïnstalleer is en waarvan die res bestaan of uit dele wat ter vervanging van identiese dele geïnstalleer is of uit dele wat aan die betrokke bepalings van hierdie regulasies voldoen;

„steuring” die belemmering van die verwesenliking van die oogmerke van die telegrafie of telefonie (hetsy in die algemeen of gedeeltelik, en, sonder om afbreuk te doen aan die algemene strekking van die voorafgaande woorde, met betrekking tot al of enige van die ontvangers of bedoelde ontvangers van ’n berig, geluid of sigbare beeld wat bedoel is om deur middel van die telegrafie of telefonie oorgedra te word) deur die uitstraling of weerkaatsing van elektromagnetiese energie, en moet die uitdrukking „steur” dienooreenkomstig uitgelê word;

„myl” ’n seemyl van 6,080 voet;

„bedienposisie” met betrekking tot enige uitrusting die posisie wat gewoonlik deur iemand by die bediening van sodanige uitrusting ingeneem word;

„radiotelegraafskip” ’n skip wat met ’n radiotelegraaf-installasie toegerus is en nie ’n radiotelefoonskip is nie;

„radiotelefoonskip” ’n skip wat nie ’n passasierskip is nie en ’n tonne-maat van 300 ton of meer maar minder as 1,600 ton het en waarvan die eienaar die Sekretaris skriftelik kennis gegee het (welke kennisgewing nie teruggetrek is nie) dat die skip ooreenkomstig hierdie regulasies met ’n radiotelefooninstallasie toegerus is;

*Vir die toepassing van hierdie regulasies het die Minister die volgende beamptes as „bevoegde beamptes” in die Republiek aangewys:—

Te Kaapstad, Durban, Port Elizabeth, Walvisbaai en Saldanha-baai: Die Eerste Beampte van die Marine-afdeling.

Te Oos-Londen, Mosselbaai, Port Nolloth en Luderitz: Die Koopvaardymeester.

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PRELIMINARY.

1. *Title of these Regulations.*

These regulations are called the Merchant Shipping Radio Regulations, 1968.

2. *Interpretation.**

In these regulations the expression “the Act” means the Merchant Shipping Act, 1951 (Act No. 57 of 1951), and unless the context otherwise indicates, any expression used in these regulations to which a meaning has been assigned in the Act, bears the meaning so assigned, and—

“Authority” means—

(a) the Minister in respect of—

(i) a passenger ship engaged on international voyages or in any special passenger trade on such voyages; and

(ii) a ship, other than a passenger ship, of 300 tons or over, engaged on international voyages; or

(b) the Secretary in respect of—

(i) a passenger ship which does not engage on international voyages; and

(ii) a ship, other than a passenger ship, of 300 tons or over which does not engage on international voyages; “connected” means electrically connected;

“existing installation” means—

(a) an installation wholly installed in the case of a ship to which the Safety Convention applies, before 26 May 1965, and in the case of any other ship, before the date of coming into operation of these regulations; and

(b) an installation part of which was installed before 26 May 1965, or the date of coming into operation of these regulations, as the case may be, and the rest of which consists either of parts installed in replacement of identical parts, or parts which comply with the relative requirements of these regulations;

“interference” means the prejudicing by any emission or reflection of electro-magnetic energy of the fulfilment of the purposes of the telegraphy or telephony (either generally or in part, and, without prejudice to the generality of the proceeding words, as respects all, or as respects any, of the recipients or intended recipients of any message, sound, or visual image intended to be conveyed by the telegraphy or telephony), and the expression “interfere” shall be construed accordingly;

“mile” means a nautical mile of 6,080 feet;

“operating position” in relation to any equipment, means the position normally occupied by a person when operating such equipment;

“radiotelegraph ship” means a ship which is provided with a radiotelegraph installation, and which is not a radiotelephone ship;

“radiotelephone ship” means a ship, other than a passenger ship, of 300 tons or over but of less than 1,600 tons, the owner of which has given written notice to the Secretary (which notice has not been withdrawn) to the effect that the ship is provided with a radiotelephone installation in compliance with these regulations;

*For the purpose of these regulations, the Minister has designated the following officers as “proper officers” in the Republic:—

At Cape Town, Durban, Port Elizabeth, Walvis Bay and Saldanha Bay: The Principal Officer of the Marine Division;

At East London, Mossel Bay, Port Nolloth and Luderitz: The Shipping Master.

„radioluisterdiens” in die geval van ’n radiotelegraafskip om op luister te wees na seine op die internasionale noodfrekwensie van 500 kp/s, en in die geval van ’n radiotelefoonskip, om op luister te wees na seine op die internasionale noodfrekwensie van 2,182 kp/s;

„stilperiodes” die periodes van 3 minute wat vir die radiotelegrafie om 15 minute en 45 minute na elke uur en vir die radiotelefonie op en 30 minute na elke uur begin, welke tye in elke geval volgens Greenwich tyd bepaal moet word;

„ton” bruto registerton;
met betrekking tot klasse uitsending—

„klas A1” telegrafie deur sonder aanwending van ’n moduleringsoudiofrekwensie aan en af te sleutel;

„klas A2” telegrafie deur een of meer amplitude-moduleringsoudiofrekwensies aan en af te sleutel deur die gemoduleerde uitsending aan en af te sleutel;

„klas A3” dubbelsybandtelefonie met amplitude-modulasie; en

„klas B” gedempte golwe.

DEEL I.—RADIOTELEGRAFIE EN RADIO-TELEFONIE.

HOOFSTUK I.—ALGEMEEN.

3. Toepassing en Indeling van Skepe gedek deur Deel I.

(1) Behoudens die bepalinge van subregulasie (2) is hierdie deel van toepassing op—

(a) elke passasierskip; en

(b) elke skip van 300 ton of meer, uitgesonderd ’n passasierskip,

wat in die Republiek geregistreer is of wat ingevolge die Wet aldus geregistreer moet word, of wat in ’n ander land as die Republiek geregistreer is.

(2) Hierdie deel is nie op die volgende van toepassing nie, naamlik—

(a) ’n plesierjag;

(b) ’n skip wat nie meganies aangedryf word nie; of

(c) ’n vissersboot wat aan ’n ander land as die Republiek behoort.

(3) Die skepe waarop hierdie deel van toepassing is, word in die volgende klasse verdeel:—

Klas I.—’n Skip wat meer as 250 passasiers vervoer of ten opsigte waarvan daar ’n sertifikaat van die owerheid ten effekte dat hy geskik is om meer as 250 passasiers te vervoer, van krag is en wat meer as 16 uur lank tussen twee agtereenvolgende hawens op see is.

Klas II.—(a) ’n ander passasierskip as ’n skip van klas I.

(b) ’n Skip van 1,600 ton of meer, uitgesonderd ’n passasierskip of hawevaartuig van die Spoorwegadministrasie.

Klas III.—(a) ’n Skip van 500 ton of meer maar minder as 1,600 ton, uitgesonderd ’n passasierskip of ’n hawevaartuig van die Spoorwegadministrasie.

(b) ’n Hawevaartuig van 500 ton of meer van die Spoorwegadministrasie.

Klas IV.—’n Skip van 300 ton of meer maar minder as 500 ton, uitgesonderd ’n passasierskip.

4. Verskaffing van radio-installasies.

(1) Elke skip van klas I of klas II moet toegerus word met ’n radiotelegraafinstallasie, wat die uitrusting vermeld in aanhangsel 1 moet insluit; met dien verstande dat die radiotelegraaf-luidsprekerluisterontvanger met die reserve-radiotelegraafontvanger of met die radiotelegraaf-outo-alarmuitrusting vermeld in aanhangsel 6 in ’n enkele

„radio watch” in the case of a radiotelegraph ship, means listening for signalling on the international distress frequency of 500 kc/s, and in the case of a radiotelephone ship, means listening for signalling on the international distress frequency of 2182 kc/s;

„silence periods” means the periods of 3 minutes beginning for purposes of radiotelegraphy at 15 minutes and at 45 minutes after each hour; and for purposes of radiotelephony at each hour and at 30 minutes after each hour, in every case determined according to Greenwich Mean Time;

„tons” means gross register tons;

in relation to classes of emission—

„class A1” means telegraphy by on-off keying without the use of a modulating audio frequency;

„class A2” means telegraphy by the on-off keying of an amplitude-modulating audio frequency or audio frequencies, or by the on-off keying of the modulated emission;

„class A3” means double sideband amplitude modulated telephony; and

„class B” means damped waves.

PART I.—RADIOTELEGRAPHY AND RADIOTELEPHONY.

CHAPTER I.—GENERAL.

3. Application and Classification of Ships under Part I.

(1) Subject to the provisions of subregulation (2), this part applies to—

(a) every passenger ship; and

(b) every ship of 300 tons or over other than a passenger ship,

which is registered in the Republic or which is, in terms of the Act, required to be so registered or which is registered in a country other than the Republic.

(2) This part does not apply to—

(a) a pleasure yacht;

(b) a ship not propelled by mechanical means; or

(c) a fishing boat which belongs to a country other than the Republic.

(3) The ships to which this part applies are divided into the following classes:—

Class I.—A ship carrying more than 250 passengers or in respect of which there is in force a certificate issued by the Authority to the effect that it is fit to carry more than 250 passengers, and which is at sea for more than 16 hours between two consecutive ports.

Class II.—(a) A passenger ship other than a ship of class I.

(b) A ship of 1,600 tons or over other than a passenger ship or a Railway Administration harbour craft.

Class III.—(a) A ship of 500 tons or over but less than 1,600 tons other than a passenger ship or a Railway Administration harbour craft.

(b) A Railway Administration harbour craft of 500 tons or over.

Class IV.—A ship of 300 tons or over but of less than 500 tons other than a passenger ship.

4. Provision of Radio Installations.

(1) Every ship of class I or class II shall be provided with a radiotelegraph installation which shall include the equipment specified in annex 1: Provided that the radiotelegraph loudspeaker watchkeeping receiver may be combined with the reserve radiotelegraph receiver or with the radiotelegraph auto-alarm equipment specified in annex 6 in a single instrument, if such instrument is

instrument verenig kan word indien sodanige instrument in staat is om aan die bepalings van dele IV en VI van aanhangsel 1 of, na gelang van die geval, aan die bepalings van deel VI van aanhangsel 1 en die bepalings van aanhangsel 6 te voldoen.

(2) Elke skip van klas III of klas IV moet toegerus word met 'n radiotelefooninstallasie wat die uitrusting vermeld in dele I en II van aanhangsel 2 insluit, of met 'n radiotelegraafinstallasie wat die uitrusting vermeld in aanhangsel 1 insluit; met dien verstande dat die hoof- en reserweradiotelegraafsenders in 'n skip van klas III of klas IV in 'n enkele instrument verenig kan word indien sodanige instrument in staat is om aan die vereistes van dele I en III van aanhangsel 1 te voldoen.

5. Klimaats- en duursaamheidstoetse.

(1) Alle uitrusting waarvoor die vereistes in hierdie deel vermeld word, uitgesonderd toetsmeetinstrumente wat ooreenkomstig regulasie 14 of 24 (f) verskaf word, moet sodanig wees dat dit van meganiese gebreke vry is en aan vermelde vereistes voldoen—

(a) terwyl hy die trillings-, droëhitte- en laetemperatuurtoetse gespesifiseer in aanhangsel 3 ondergaan;

(b) wanneer hy aan die klamhittetoets gespesifiseer in vermelde aanhangsel onderwerp word; en

(c) onmiddellik nadat hy sodanige van die ander toetse genoem in vermelde aanhangsel ondergaan het as wat in die omstandighede op die uitrusting van toepassing is.

(2) Uitrusting wat in subregulasie (1) vermeld word en bedoel is om buite of in 'n oop boot gebruik te word, moet sodanig wees dat daar geen skimmelgroei aan sal wees nadat dit die skimmelgroei toets ondergaan het waarvan in aanhangsel 3 melding gemaak word nie.

6. Steuring van ontvangs.

(1) Die steuring of meganiese geraas veroorsaak deur die radio-installasie of deur ander uitrusting in die skip mag nooit solank die skip op see is, voldoende wees om te belet dat radiosone doeltreffend met sodanige installasie opgevang word nie.

(2) 'n Skip wat toegerus word met 'n radiotelegraafinstallasie wat nie 'n bestaande installasie is nie, moet ook toegerus word met 'n gemeenskaplike antennestelsel vir alle omroepontvangers ten opsigte waarvan dit ondoenlik is om doeltreffende en behoorlik geïnstalleerde antennes op te rig wat nie die doeltreffendheid van sodanige radiotelegraafinstallasie belemmer nie.

7. Hoëspanningsdele.

(1) In die geval van uitrusting gespesifiseer in hierdie deel moet alle dele en bedrading waarin die gelykstroom- en wisselstroomspannings (uitgesonderd radiofrekwensiespannings) te eniger tyd kombineer om 'n onmiddellike spanning van meer as 50 volt te gee, beveilig word sodat hulle nie per ongeluk bygekom kan word nie.

(2) In die geval van die uitrusting gespesifiseer in hierdie deel moet alle dele en bedrading (uitgesonderd die dele en bedrading van 'n roterende masjien) waarin die gelykstroom- en wisselstroomspannings (uitgesonderd radiofrekwensiespannings) te eniger tyd kombineer om 'n onmiddellike spanning te gee van meer as—

(a) 50 volt in die geval van uitrusting gespesifiseer in aanhangsel 2 en aanhangsel 4; of

(b) 250 volt in die geval van alle ander uitrusting, by verwydering van die beveiligingsmiddel outomaties van alle bronne van elektriese energie geïsoleer word.

capable of complying with the requirements of parts IV and VI of annex 1 or, as the case may be, with the requirements of part VI of annex 1 and the requirements of annex 6.

(2) Every ship of class III or class IV shall be provided with a radiotelephone installation which shall include the equipment specified in parts I and II of annex 2, or with a radiotelegraph installation which shall include the equipment specified in annex 1: Provided that the main and reserve radiotelegraph transmitters in a ship of class III or class IV may be combined in a single instrument, if such instrument is capable of complying with the requirements of parts I and III of annex 1.

5. Climatic and Durability Tests.

(1) All equipment the requirements for which are specified in this part, other than test measuring instruments provided in accordance with regulation 14 or 24 (f), shall be such that it will be free of mechanical defects and comply with the said requirements—

(a) while undergoing the vibration, dry heat, and low temperature tests specified in annex 3;

(b) when subjected to the damp heat test specified in the said annex; and

(c) immediately after undergoing such of the other tests specified in the said annex as are applicable to the equipment in the circumstances.

(2) Any equipment referred to in subregulation (1) which is intended for use in the open or in an open boat, shall be such that after undergoing the mould growth test specified in annex 3, no mould growth will be present on it.

6. Interference with Reception.

(1) At no time while the ship is at sea, shall the interference or mechanical noise produced by the radio installation or by other equipment in the ship, be sufficient to prevent the effective reception of radio signals by means of such installation.

(2) Any ship which is provided with a radiotelegraph installation not being an existing installation, shall also be provided with a communal aerial system for all broadcast receivers in respect of which it is impracticable to erect efficient and properly installed aerials which do not interfere with the efficiency of such radiotelegraph installation.

7. High Voltage Parts.

(1) All parts and wiring of the equipment specified in this part in which the direct and alternating voltages (other than radio frequency voltages) combine at any time to give an instantaneous voltage greater than 50 volts, shall be protected from accidental access.

(2) All parts and wiring of the equipment specified in this part (other than the parts and wiring of a rotating machine) in which the direct and alternating voltages (other than radio frequency voltages) combine at any time to give an instantaneous voltage greater than—

(a) 50 volts in the case of equipment specified in annex 2 and annex 4; or

(b) 250 volts in the case of all other equipment, shall be isolated automatically from all sources of electrical energy when the means of protection are removed.

8. Laai van batterye.

Indien batterye verskaf word as bron van elektriese energie vir enige deel van die uitrusting wat by hierdie deel vereis word, moet aan boord van elke skip middels verskaf word om sodanige batterye vanaf die skip se hoofbron van elektriese energie te laai.

HOOFSTUK II.—RADIOTELEGRAFIE.

9. Elektriese onafhanklikheid van hoof- en reserweradiotelegraafuitrusting.

Behoudens die bepalinge van regulasie 4 (2) moet die hoof- en reserweradiotelegraafuitrusting wat aan boord van 'n radiotelegraafskip verskaf word, elektries onafhanklik van mekaar wees.

10. Radiotelegraafkamer.

(1) Elke radiotelegraafinstallasie wat aan boord van 'n radiotelegraafskip verskaf word, moet in een of meer radiotelegraafkamers geïnstalleer word. Die radiotelegraafkamers mag nie gebruik word vir doeleindes wat nie met die funksie of werk van die radiobeampte verband het nie. Die radiotelegraafkamers moet—

(a) so geleë wees dat die doeltreffende ontvangs van radioseine nie deur geraas van buite of andersins belemmer sal word nie;

(b) so hoog as doenlik in die skip geleë wees;

(c) sulke afmetings hê dat die radiotelegraafuitrusting daarin te alle tye doeltreffend bedien kan word; en

(d) voldoende geventileer wees.

(2) Elke radiotelegraafinstallasie wat op 'n radiotelegraafskip verskaf word, moet in so 'n posisie geïnstalleer word dat sy doeltreffendheid nie deur water of deur temperatuuruiterses belemmer kan word nie, en moet terwyl die skip op see is, pal vir onmiddellike gebruik en vir herstelwerk gereedlik toeganklik wees.

(3) Elke radiotelegraafkamer moet toegerus wees met—

(a) 'n doeltreffende tweerigtingmiddel met behulp waarvan oproepe gedoen kan word na en gepraat kan word met die brug en enige ander plek waarvandaan die skip gewoonlik genavigeer word. Sodanige verbindingmiddel moet 'n spreekbuis of 'n telefoon, of iets ewe doeltreffends, en onafhanklik van die skip se hoofkommunikasiesstelsel en hoofbron van elektriese energie wees;

(b) 'n betroubare horlosie waarvan die wyserplaat 'n deursnee van minstens 5 duim het, die sekondewyser in die middel is en die stilperiodes op die wyserplaat aangedui is; sodanige horlosie moet stewig in sodanige posisie gemonteer wees dat die hele wyserplaat maklik en noukeurig gesien kan word vanaf die radiotelegraafbedienposisie en, indien die skip met 'n radiotelegraaf-outo-alarmuitrusting toegerus is, vanaf die posisie gewoonlik ingeneem deur die persoon wat die radiotelegraaf-outo-alarmuitrusting toets;

(c) 'n elektriese lamp wat met krag uit die bron van elektriese energie vereis by regulasie 13 (2) brand, permanent so opgestel is dat hy die kontroles van die hoof- en reserweradiotelegraafinstallasies en die horlosie vereis by paragraaf (b) voldoende verlig en deur middel van tweewegskakelaars onderskeidelik naby die ingang van die radiotelegraafkamer en by die radiotelegraafbedienposisie beheer word; vermeldde skakelaars moet duidelik geëtiketteer wees om hul doel aan te dui;

(d) 'n addisionele elektriese lamp vir gebruik as 'n inspeksielamp, en hierdie lamp moet met krag uit die bron van elektriese energie vermeld in paragraaf (c) brand en toegerus wees met 'n buigsame leiding wat lank genoeg is sodat alle dele van die radiotelegraafinstallasie maklik gesien kan word; en

8. Charging of Batteries.

If batteries are provided as a source of electrical energy for any part of the equipment required by this part, means shall be provided on board every ship for the charging of such batteries from the ship's main source of electrical energy.

CHAPTER II.—RADIOTELEGRAPHY.

9. Electrical Independence of Main and Reserve Radiotelegraph Equipments.

Subject to the provisions of regulation 4 (2), the main and reserve radiotelegraph equipments provided on board a radiotelegraph ship, shall be electrically independent of each other.

10. Radiotelegraph Room.

(1) Every radiotelegraph installation provided on board a radiotelegraph ship, shall be installed in one or more radiotelegraph rooms. The radiotelegraph rooms shall not be used for any purposes other than those associated with the function or duty of the radio officer. The radiotelegraph rooms shall be—

(a) in such a position that there will be no disturbance by extraneous noises or otherwise to the effective reception of radio signals;

(b) as high as practicable in the ship;

(c) of such dimensions as will be sufficient to enable efficient operation at all times of the radiotelegraph equipment installed therein; and

(d) adequately ventilated.

(2) Every radiotelegraph installation provided on board a radiotelegraph ship, shall be installed in such a position that it will be protected against disturbance of its effectiveness by water or by extremes of temperature, and shall at all times when the ship is at sea be readily accessible both for immediate use and for repair.

(3) Every radiotelegraph room shall be provided with—

(a) an efficient two-way means of calling and voice communication with the bridge and any other place from which the ship is normally navigated. Such means of communication shall be a voicepipe or a telephone, or some other means equally efficient, and shall be independent of the main communication system of the ship and the ship's main source of electrical energy;

(b) a reliable clock, equipped with a dial not less than 5 inches in diameter and a centre seconds hand, the face of which shall be marked to indicate the silence periods. It shall be securely mounted in such a position that the entire dial can be easily and accurately observed from the radiotelegraph operating position, and, if the ship is provided with radiotelegraph auto-alarm equipment, from the position normally occupied by a person testing the radio-telegraph auto-alarm equipment;

(c) an electric lamp, operated from the source of electrical energy required by regulation 13 (2) and permanently arranged so as to be capable of providing adequate illumination of the operating controls of the main and reserve radiotelegraph installations and of the clock required by paragraph (b), and controlled by two-way switches placed respectively near the entrance to the radiotelegraph room and at the radiotelegraph operating position. These switches shall be clearly labelled to indicate their purpose;

(d) an additional electric lamp, for use as an inspection lamp, operated from the source of electrical energy referred to in paragraph (c), and provided with a flexible lead of sufficient length to enable all parts of the radiotelegraph installation to be easily seen; and

(e) 'n stoel wat by die radiotelegraafbedienposisie vasgesit kan word.

(4) 'n Volledige lys van reserwe-uitrusting en reserwe-dele wat daar vir die onderhoud van die radiotelegraafinstallasie op die skip is, moet altyd in elke radiotelegraafkamer beskikbaar wees en aandui waar sodanige uitrusting en dele gehou word.

(5) 'n Yktabel of ykkrome vir elke sender en ontvanger wat deel van die radiotelegraafinstallasie uitmaak, moet altyd in 'n radiotelegraafkamer beskikbaar wees tensy die sender of ontvanger, na gelang van die geval, regstreeks geëyk is.

(6) 'n Volledige diagram van die bedrading van die radiotelegraafinstallasie moet altyd in 'n radiotelegraafkamer beskikbaar wees; met dien verstande dat hierdie vereiste nie op 'n bestaande radiotelegraafinstallasie in 'n skip van klas IV van toepassing is nie.

11. Antennes.

(1) Elke radiotelegraafskip moet met 'n hoofantenne en 'n reserwe-antenne toegerus wees.

(2) In die geval van 'n skip van klas I, klas II of klas III moet in elkeen van die hystoue wat gebruik word om die hoofantenne te ondersteun, en 'n veiligheidslus tussen die mastop of ander antennesteun en 'n antenne-isolator aangebring word. Sodanige veiligheidslus moet uit minstens 3 voet van die hystou bestaan en die lus moet gesluit word met 'n skakel van hoogstens 1 voet 3 duim lank en met 'n breekklas van hoogstens een-derde van die breekklas van die antenne of die hystou, na gelang van watter syfer die laagste is.

(3) 'n Montasieplan van die hoof- en reserwe-antennes moet in die radiotelegraafkamer beskikbaar wees, en moet die volgende aantoon:—

- (a) Vertikale en bo-aansigte van die antennes;
- (b) die afmetings van die antennes; en
- (c) die hoogte van die antennes in meters, gemeet soos in aanhangsel 10 gespesifiseer.

(4) Waar doenlik moet die hoofantenne en die reserwe-antenne so gemonteer word dat beskadiging van die een nie die doeltreffendheid van die ander sal beïnvloed nie.

(5) Middels moet verskaf word vir die snelle aansluiting van—

- (a) of die hoofantenne of die reserwe-antenne by die hoofsender en ook by die reserwesender; en
- (b) die hoof- en reserwe-ontvangers, die radiotelegraaf-ou-toe-alarmitrusting en die luidsprekerluisterontvangers by enige antenne waarmee dit nodig mag wees om hulle te gebruik.

12. Sendafstand van Senders.

(1) Die normale sendafstande van radiotelegraafsenders wat ooreenkomstig die voorafgaande bepalinge van hierdie deel verskaf word, moet minstens as volg wees wanneer hulle by die hoofantenne aangesluit is:—

- (a) In die geval van 'n skip van klas I, 175 myl vir die hoofsender en 150 myl vir die reserwesender;
- (b) in die geval van 'n skip van klas II, 150 myl vir die hoofsender en 100 myl vir die reserwesender;
- (c) in die geval van 'n skip van klas III, 100 myl vir die hoofsender en 75 myl vir die reserwesender;
- (d) in die geval van 'n skip van klas IV, 75 myl vir die hoofsender en 75 myl vir die reserwesender.

(2) 'n Sender se normale sendafstand vir die toepassing van hierdie deel moet na keuse van die eienaar van die skip hetsy deur berekening of deur toets bepaal word.

(3) Wanneer die normale sendafstand van 'n radiotelegraafsender deur berekening op 'n frekwensie van 500 kp/s bepaal word, moet die bepaling vir die toepassing van hierdie deel geskied soos in aanhangsel 10 gespesifiseer.

(e) a chair capable of being fixed at the radiotelegraph operating position.

(4) A complete list of spare equipment and spare parts carried on board the ship for the maintenance of the radiotelegraph installation, shall always be available in every radiotelegraph room and shall indicate where such equipment and parts are kept.

(5) A calibration table or calibration curve for each transmitter and receiver forming part of the radiotelegraph installation, shall always be available in a radiotelegraph room, unless the transmitter or receiver, as the case may be, is directly calibrated.

(6) A complete diagram of the wiring of the radiotelegraph installation, shall always be available in a radiotelegraph room: Provided that this requirement shall not apply to an existing radiotelegraph installation in a ship of class IV.

11. Aerials.

(1) Every radiotelegraph ship shall be fitted with a main aerial and a reserve aerial.

(2) In the case of a ship of class I, class II or class III, each of the halyards used for supporting the main aerial shall be fitted with a safety loop between the masthead or other aerial support and an aerial insulator. Such safety loop shall consist of part of the halyard not less than 3 feet long, the loop being closed by a link not more than 1 foot 3 inches long with a breaking load not more than one-third of the breaking load of the aerial or the halyard, whichever is less.

(3) A rigging plan of the main and reserve aerials shall be available in the radiotelegraph room, and shall show the following:—

- (a) Elevation and plan views of the aerials;
- (b) the measurements of the aerials; and
- (c) the height of the aerials in meters measured in the manner specified in annex 10.

(4) The main aerial and the reserve aerial shall, where practicable, be so rigged that damage to the one will not affect the efficiency of the other.

(5) Means shall be provided for quickly connecting—

- (a) either the main aerial or reserve aerial to the main transmitter and also to the reserve transmitter; and
- (b) the main and reserve receivers, the radiotelegraph auto-alarm equipment and the loudspeaker watch-keeping receivers, to any aerial with which they may require to be used.

12. Range of Transmitters.

(1) The normal ranges of radiotelegraph transmitters provided in accordance with the foregoing provisions of this part when connected to the main aerial, shall not be less than:—

- (a) In the case of a ship of class I, 175 miles for the main transmitter and 150 miles for the reserve transmitter;
- (b) in the case of a ship of class II, 150 miles for the main transmitter and 100 miles for the reserve transmitter;
- (c) in the case of a ship of class III, 100 miles for the main transmitter and 75 miles for the reserve transmitter;
- (d) in the case of a ship of class IV, 75 miles for the main transmitter and 75 miles for the reserve transmitter.

(2) The normal range of a transmitter for the purposes of this part, shall be determined at the option of the owner of the ship, either by calculation or by test.

(3) For the purposes of this part, the normal range of a radiotelegraph transmitter, when determined by calculation on a frequency of 500 kc/s, shall be calculated in the manner specified in annex 10.

(4) Wanneer die normale sendafstand van 'n radiotelegraafsender deur 'n toets bepaal word, is daardie afstand vir die toepassing van hierdie deel die afstand waarom daardie sender gedurende die dag onder normale toestande seine op 'n frekwensie van 500 kp/s oor die see kan stuur sodat by die ontvanger 'n totale effektiewe veldsterkte van minstens 50 mikrovolt per meter tot stand gebring word.

13. Toevoer van Elektriese Energie.

(1) Terwyl 'n radiotelegraafskip op see is en te alle redelike tye terwyl die skip in 'n hawe is, moet daar in sodanige skip voldoende elektriese energie uit die skip se hoofbron van elektriese energie beskikbaar wees sodat die hoofradiotelegraafuitrusting ooreenkomstig hierdie deel kan funksioneer, toetse uitvoer kan word en batterye gelaai kan word wat as bron van elektriese energie vir die radiotelegraafinstallasie gebruik word. Die aangeslane spanning van die toevoer van elektriese energie vir die hoofuitrusting moet binne plus of minus 10 persent gehandhaaf word. As die elektrisiteit gelykstroom is, moet die toevoer van elektriese energie die regte polariteit hê. Op 'n skip wat nie vir 'n internasionale reis gebruik word nie, kan voormelde toevoer van elektriese energie egter uit 'n battery verkry word, en in daardie geval moet ook 'n duplikaatbattery vir daardie doel verskaf word.

(2) Die reserwe-uitrusting moet 'n bron van elektriese energie insluit wat onafhanklik van die skip se dryfkrag en elektriese installasie en so hoog as moontlik in die skip geleë is. Hierdie bron van elektriese energie moet onmiddellik in werking gestel kan word deur middel van 'n skakelbord wat met behulp van 'n elektriese lamp verlig kan word en in 'n radiotelegraafkamer geleë is of maklik daarvandaan bereik kan word. Hy moet van sodanige kapasiteit wees en terwyl die skip op see is, pal in so 'n toestand gehou word dat hy, ongeag of hy vir 'n ander doel in gebruik is 6 uur lank onafgebroke 'n totale stroom kan lewer wat gelyk is aan die som van—

(a) die stroom wat nodig is om die reserwesender met die sleutel boontoe te laat werk;

(b) drie-vyftes van die verskil tussen die stroom wat nodig is om die reserwesender met die sleutel ondertoe te laat werk en die stroom wat nodig is om hom met die sleutel boontoe te laat werk;

(c) die stroom wat nodig is om die reserwe-ontvanger te laat werk; en

(d) die stroom verbruik deur die lampe wat by hierdie subregulasie en by regulasie 10 (3) (c) vereis word.

(3) Die bron van elektriese energie wat ingevolge subregulasie (2) verskaf word, mag op geen tydstop vir iets anders as die werking van die volgende dinge gebruik word nie:—

(a) Die reserwesender en -ontvanger;

(b) die lampe vereis by subregulasie (2) en regulasie 10 (3) (c) en (d);

(c) die outomatiese sleuteltoestel;

(d) die radiotelegraaf-outo-alarmuitrusting; en

(e) 'n rigtingsoeker.

(4) Ongeag die bepalings van subregulasie (3) en mits die owerheid dit toelaat, kan die reserwebron van elektriese energie wat by subregulasie (2) vereis word, in 'n skip van klas III of klas IV gebruik word om swak noodverbindings wat geheel en al tot die boonste deel van die skip beperk is, van elektriese energie te voorsien; met dien verstande dat sodanige verbindings maklik ontkoppel kan word en dat vermelde bron in staat is om die addisionele belasting of belastings te verskaf sonder dat sy kapasiteit benede die kerf daal wat by subregulasie (2) vereis word.

(4) For the purposes of this part, the normal range of a radiotelegraph transmitter, when determined by test, shall be the distance to which signals can be transmitted by such transmitter over the sea by day under normal conditions on a frequency of 500 kc/s so as to set up at the receiver a total root mean square field strength of at least 50 microvolts per metre.

13. Supply of Electrical Energy.

(1) There shall be available in every radiotelegraph ship while she is at sea and at all reasonable times when she is in port, a supply of electrical energy from the ship's main source of electrical energy sufficient for the operation of the main radiotelegraph equipment in accordance with this part and for testing purposes and for the charging of any batteries which are a source of electrical energy for the radiotelegraph installation. The rated voltage of the supply of electrical energy for the main equipment shall be maintained within plus or minus 10 per cent. The supply of electrical energy shall, if it is a direct current supply, be of correct polarity. Provided that in any ship not engaged on an international voyage, the aforesaid supply of electrical energy may be derived from a battery, in which case a duplicate battery shall also be provided for that purpose.

(2) The reserve equipment shall include a source of electrical energy, independent of the propelling power of the ship and of the ship's electrical installation, and situated as high as practicable in the ship. This source of electrical energy shall be capable of being brought into immediate operation by means of a switchboard which shall be capable of being illuminated by an electric lamp, and shall be situated in a radiotelegraph room or be readily accessible therefrom. It shall be of such capacity and shall be maintained at all times when at sea in such condition as to be able to supply continuously for a period of 6 hours, whether or not it is in use for any other purpose, a total current equal to the sum of—

(a) the current required to operate the reserve transmitter with the key up;

(b) three-fifths of the difference between the current required to operate the reserve transmitter with the key down and the current required to operate it with the key up;

(c) the current required to operate the reserve receiver; and

(d) the current consumed by the lamps required by this subregulation and by regulation 10 (3) (c).

(3) The source of electrical energy provided under subregulation (2), shall not be used at any time except for the operation of—

(a) the reserve transmitter and receiver;

(b) the lamps required by subregulation (2) and by regulation 10 (3) (c) and (d);

(c) the automatic keying device;

(d) the radiotelegraph auto-alarm equipment; and

(e) a direction-finder.

(4) Notwithstanding the provisions of subregulation (3), in any ship of class III or class IV the reserve source of electrical energy required by subregulation (2) may, if the Authority so permits, be used to supply any low-power emergency circuits which are wholly confined to the upper part of the ship: Provided that such circuits shall be capable of being readily disconnected and that the said source shall be capable of supplying the additional load or loads without falling below the capacity required by subregulation (2).

14. Gereedskap, Meetinstrumente, Reserwedele, Ens.

Elke radiotelegraafskip moet toegerus wees met die gereedskap, meetinstrumente, reserwedele en ander materiaal wat in deel I van aanhangsel 5 gespesifiseer word.

15. Verskaffing van Radiobeampptes.

(1) Elke radiotelegraafskip wat op die see uitvaar en nie toegerus is met radiotelegraaf-ou-to-alarmuitrusting wat aan die vereistes gestel in aanhangsel 6 voldoen nie, moet die volgende radiobeampptes hê:—

Klas I.—Drie radiobeampptes.

Klas II.—Twee radiobeampptes indien hy hoogstens 48 uur lank tussen agtereenvolgende hawens op see is, en drie radiobeampptes indien hy langer as 48 uur tussen agtereenvolgende hawens op see is.

Klas III of klas IV.—Een radiobeamppte indien hy hoogstens 12 uur lank tussen agtereenvolgende hawens op see is, twee radiobeampptes indien hy langer as 12 uur maar hoogstens 48 uur lank tussen agtereenvolgende hawens op see is, en drie radiobeampptes indien hy langer as 48 uur tussen agtereenvolgende hawens op see is.

(2) Elke radiotelegraafskip wat op die see uitvaar en toegerus is met radiotelegraaf-ou-to-alarmuitrusting wat aan die vereistes gestel in aanhangsel 6 voldoen, moet die volgende radiobeampptes hê:—

Klas I.—Twee radiobeampptes.

Klas II.—Een radiobeamppte.

Klas III.—Een radiobeamppte.

Klas IV.—Een radiobeamppte.

16. Kwalifikasies van Radiobeampptes.

(1) Behoudens die bepalinge van artikel 222 van die Wet is niemand bevoegd om 'n radiobeamppte te wees of om as sodanig op 'n radiotelegraafskip in diens te wees nie, tensy hy die houer is van 'n geldige eerste- of tweede-klas sertifikaat van bekwaamheid of bevoegdheid in radiotelegrafie uitgereik deur die Posmeester-generaal, of 'n sertifikaat wat deur die Posmeester-generaal as die ekwivalent van so 'n deur hom uitgereikte sertifikaat erken word en waaraan daar geheg is die Posmeester-generaal se geldige magtigingsbrief om 'n radiotelegraafstasie te bedien.

(2) Op 'n passasierskip moet minstens een van die radiobeampptes die houer van so 'n sertifikaat wees en bedoelde sertifikaat moet 'n eersteklasseertifikaat wees.

(3) Vir die toepassing van subregulasie (1) word geen bekwaamheid- of bevoegdheidsertifikaat op enige datum as geldig beskou indien hy meer as twee jaar voor daardie datum toegeken is en of—

(a) die houer se tydperke van ondervinding altesaam nie drie maande is nie; of

(b) die houer se jongste ondervinding meer as twee jaar voor daardie datum is nie,

tensy die houer die Posmeester-generaal by 'n herkamen of andersins daarvan oortuig dat hy nog steeds al die kwalifikasies besit wat in sy sertifikaat genoem word. Vir die toepassing van hierdie regulasie beteken die uitdrukking „ondervinding” ondervinding op see as 'n radiobeamppte of ondervinding as 'n bediener van radiotelegraafapparaat by 'n radiotelegraafstasie wat op land deur die Posmeester-generaal of die Spoorwegadministrasie vir kommunikasie met handelskepe onderhou word, of ander ondervinding wat die Posmeester-generaal bevredigend ag.

14. Tools, Measuring Instruments, Spare Parts, etc.

Every radiotelegraph ship shall be provided with the tools, measuring instruments, spare parts and other material specified in part I of annex 5.

15. Provision of Radio Officers.

(1) Every radiotelegraph ship which, upon proceeding to sea, is not provided with radiotelegraph auto-alarm equipment complying with the requirements specified in annex 6, shall be provided with radio officers as follows:—

Class I.—Three radio officers.

Class II.—Two radio officers if at sea for not more than 48 hours between consecutive ports, and three radio officers if at sea for more than 48 hours between consecutive ports.

Class III or class IV.—One radio officer if at sea for not more than 12 hours between consecutive ports, two radio officers if at sea for more than 12 hours but not more than 48 hours between consecutive ports, and three radio officers if at sea for more than 48 hours between consecutive ports.

(2) Every radiotelegraph ship which, upon proceeding to sea, is provided with radiotelegraph auto-alarm equipment complying with the requirements of annex 6 shall be provided with radio officers as follows:—

Class I.—Two radio officers.

Class II.—One radio officer.

Class III.—One radio officer.

Class IV.—One radio officer.

16. Qualifications of Radio Officers.

(1) Subject to the provisions of section 222 of the Act, no person shall be qualified to be a radio officer, or be employed as such on any radiotelegraph ship, unless he holds a valid certificate of proficiency or competency in radiotelegraphy of the first or second class granted by the Postmaster-General, or a certificate recognised by the Postmaster-General as the equivalent of such a certificate granted by him to which shall be attached the Postmaster-General's valid letter of authority to operate a radiotelegraph station.

(2) In any passenger ship, at least one of the radio officers shall hold such a certificate which shall be of the first class.

(3) For the purpose of subregulation (1), no certificate of proficiency or competency shall be deemed to be valid at any date if it was granted more than two years before that date and either—

(a) the holder's periods of experience do not total three months; or

(b) the holder's last experience was more than two years before that date,

unless the holder satisfies the Postmaster-General by re-examination or otherwise that he still possesses all of the qualifications described in his certificate. For the purposes of this regulation the expression “experience” means experience at sea as a radio officer or experience as an operator of radiotelegraph apparatus at a radiotelegraph station maintained on land by the Postmaster-General or the Railways Administration for communication with merchant ships, or any other experience which the Postmaster-General may deem satisfactory.

(4) Op 'n skip van klas I of klas II moet minstens een van die radiobeamptes iemand wees wat op see as radiobeampte ondervinding opgedoen het van altesaam minstens—

- (a) 2 jaar in die geval van 'n skip van klas I;
- (b) 1 jaar in die geval van 'n skip van klas II (a);
- (c) 6 maande in die geval van 'n skip van klas II (b) van 3,000 ton of meer; of
- (d) 3 maande in die geval van 'n skip van klas II (b) van 1,600 ton of meer maar minder as 3,000 ton.

17. Radioluisterdiens per Radiotelegraaf.

(1) Behoudens die bepalings van regulasie 18 (1) moet daar op see aan boord van elke radiotelegraafskip 'n radioluisterdiens as volg deur 'n radiobeampte onderhou word:—

(a) indien die skip op die see uitvaar sonder dat hy toegegerus is met radiotelegraaf-oto-alarmuitrusting wat aan die vereistes gestel in aanhangsel 6 voldoen, 'n onafgebroke luisterdiens; of

(b) indien die skip, wanneer hy op die see uitvaar, toegegerus is met radiotelegraaf-oto-alarmuitrusting wat aan die vereistes gestel in aanhangsel 6 voldoen—

(i) in die geval van 'n skip van klas I, 'n luisterdiens van 16 uur per dag gedurende die tyd wat in kolom 4 van aanhangsel 7 vermeld word ten opsigte van die sone waarin die skip hom dan bevind;

(ii) indien die geval van 'n skip van klas II, klas III of klas IV, 'n luisterdiens van 8 uur per dag gedurende die tyd wat in kolom 5 van aanhangsel 7 vermeld word ten opsigte van die sone waarin die skip hom dan bevind.

(2) Radiotelegraaf-oto-alarmuitrusting wat op 'n radiotelegraafskip verskaf is, moet pal in werking wees, wanneer daar nie 'n radioluisterdiens gehandhaaf word nie; met dien verstande dat indien die skip ooreenkomstig deel II met 'n rigtingsoeker toegegerus is, hierdie subregulasie nie terwyl radiopeilings met behulp van die rigtingsoeker bepaal word, van toepassing is nie indien—

(a) deur 'n toets bewys is dat, wanneer die radiotelegraaf-oto-alarmuitrusting in werking is, die noukeurigheid van radiopeilings wat met behulp van die rigtingsoeker verkry is, deur die antenne van sodanige uitrusting belemmer word; en

(b) dit ondoenlik is om vir die radiotelegraaf-oto-alarmuitrusting êrens op die skip 'n antenne op te rig sonder om die noukeurigheid van die radiopeilings wat met behulp van die rigtingsoeker verkry is, te belemmer wanneer die uitrusting in werking is.

18. Luisterdiens en Ander Pligte van Radiobeamptes.

(1) Elke radiobeampte aan boord van 'n radiotelegraafskip moet dwarsdeur sy diensperiode 'n luisterdiens met behulp van 'n koptelefoon handhaaf, behalwe wanneer 'n ander radiobeampte met behulp van 'n koptelefoon radioluisterdiens verrig; met dien verstande dat—

(a) radioluisterdiens met behulp van luidsprekerontvangs gehandhaaf kan word; of

(b) indien luidsprekerontvangs ondoenlik is, van radioluisterdiens afgesien kan word, behalwe gedurende 'n stilperiode,

vir sodanige tydperke as wat nodig mag wees om die radiobeampte in staat te stel om ander pligte ooreenkomstig hierdie deel of deel II te vervul of om verkeer op 'n ander frekwensie te behartig.

(4) In any ship of class I or class II, at least one of the radio officers shall be a person who has had experience at sea as a radio officer for a total of not less than—

- (a) 2 years in the case of a ship of class I;
- (b) 1 year in the case of a ship of class II (a);
- (c) 6 months in the case of a ship of class II (b) of 3,000 tons or over; or
- (d) 3 months in the case of a ship of class II (b) of 1,600 tons or over but of less than 3,000 tons.

17. Radio Watch by Radiotelegraph.

(1) Subject to the provisions of regulation 18 (1), radio watch shall be maintained at sea on board every radiotelegraph ship by a radio officer as follows:—

(a) If the ship, upon proceeding to sea, is not provided with radiotelegraph auto-alarm equipment complying with the requirements specified in annex 6, a continuous watch; or

(b) if the ship, upon proceeding to sea, is provided with radiotelegraph auto-alarm equipment complying with the requirements specified in annex 6—

(i) in the case of a ship of class I, a watch of 16 hours a day at the times specified in column 4 of annex 7 in relation to the zone in which the ship then is;

(ii) in the case of a ship of class II, class III or class IV, a watch of 8 hours a day at the times specified in column 5 of annex 7 in relation to the zone in which the ship then is.

(2) Any radiotelegraph auto-alarm equipment provided on board a radiotelegraph ship, shall be in operation at all times at which a radio watch is not maintained: Provided that if the ship is fitted with a direction-finder in compliance with part II and if—

(a) it has been proved by test that the aerial of the radiotelegraph auto-alarm equipment when in operation affects the accuracy of radio bearings obtained by means of the direction-finder; and

(b) it is impracticable to erect an aerial for the radiotelegraph auto-alarm equipment in any position on the ship without affecting the accuracy of the radio bearings obtained by means of the direction-finder when the equipment is in operation,

this subregulation shall not apply during such time as radio bearings are being determined by means of the direction-finder.

18. Watch-keeping and other Duties of Radio Officers.

(1) Every radio officer on board a radiotelegraph ship shall keep radio watch by means of headphone reception throughout his period of duty except when another radio officer keeps radio watch by headphone reception: Provided that—

(a) radio watch may be maintained by means of loud-speaker reception; or

(b) if loud-speaker reception is impracticable, radio watch may be dispensed with except during a silence period,

for such periods as may be necessary to enable the radio officer to perform other duties in compliance with this part or with part II or to handle traffic on another frequency.

(2) Elke radiobeampte aan boord van 'n radiotelegraafskip toegerus met radiotelegraaf-oto-alarmluitrusting wat aan die vereistes gestel in aanhangsel 6 voldoen, moet behoudens die bepalings van regulasie 17 by die staking van radioluisterdiens gedurende of aan die einde van sy diensperiode die radiotelegraaf-oto-alarmluitrusting by die skip se hoofantenne of by 'n ander doeltreffende antenne aansluit en die radiotelegraaf-oto-alarmluitrusting in werking stel. Elke radiobeampte wat die radiotelegraaf-oto-alarmluitrusting in werking laat wanneer hy van diens af gaan, moet voordat hy van diens af gaan—

(a) die doeltreffendheid van die radiotelegraaf-oto-alarmluitrusting toets; en

(b) die gesagvoerder of die offisier belas met die navigasie van die skip onmiddellik in kennis stel indien gevind word dat die radiotelegraaf-oto-alarmluitrusting nie doeltreffend werk nie.

(3) As 'n radiobeampte op diens gaan en vind dat die radiotelegraaf-oto-alarmluitrusting by 'n antenne aangesluit is, moet hy die doeltreffendheid van die radiotelegraaf-oto-alarmluitrusting onmiddellik toets alvorens daaraan te stel.

(4) Terwyl 'n radiotelegraafskip op see is, moet die radiobeampte of, indien daar meer as een is, die eerste radiobeampte die volgende toetse laat uitvoer:—

(a) Die reserweradiotelegraafssender, aangesluit by die kunsantenne wat ooreenkomstig paragraaf 9 van deel III van aanhangsel 1 verskaf is, moet een maal per dag getoets word.

(b) As die skip vir 'n internasionale reis gebruik word, moet die reserweradiotelegraafssender, aangesluit by die reserweantenne, as daar een is, een maal gedurende elke reis getoets word.

(c) Batterie wat vir die radiotelegraafinstallasie 'n bron van elektriese energie uitmaak, moet een maal per dag met 'n voltmeter en een maal per maand met 'n hidrometer getoets word.

(d) Enige ander bron van elektriese energie wat vir die reserweradiotelegraafuitrusting verskaf is, moet een maal per dag getoets word.

(e) Die kringe van die hoorbare alarms en van die klokke wat deel van die radiotelegraaf-oto-alarmluitrusting uitmaak, moet een maal per dag getoets word.

(f) Die behoorlike funksionering van die radiotelegraaf-oto-alarmluitruiver, aangesluit by sy gewone antenne, moet een maal per dag gekontroleer word deur na die seine wat deur middel van sodanige ontvanger opgevang word, te luister en hulle te vergelyk met dergelike seine wat deur middel van die hoofontvanger op 'n frekwensie van 500 kp/s ontvang word.

(5) Terwyl 'n radiotelegraafskip op see is, moet die radiobeampte of, as daar meer as een is, die eerste radiobeampte alles in sy vermoë doen om die uitrusting waarvan in hierdie deel melding gemaak word, behoorlik te laat onderhou en wanneer nodig te laat herstel en regstel. Sodanige beampte moet reël dat alle batterie wat vir enige deel van die radiotelegraafinstallasie 'n bron van elektriese energie uitmaak en ten opsigte waarvan gevind word dat hulle nie ten volle gelaai is nie, so spoedig doenlik in daardie toestand gebring word.

19. Beperking van die Gebruik van Reserwesender.

Die sender wat deel van die reserwe radiotelegraafuitrusting uitmaak, mag nie gebruik word om ander berigte as dié wat op die veiligheid van menseleuens op see betrekking het, uit te send nie, tensy sodanige sender aan die verdere vereistes gestel in paragraaf 11 van deel III van aanhangsel 1 voldoen.

(2) Subject to the provisions of regulation 17, every radio officer on board a radiotelegraph ship provided with radiotelegraph auto-alarm equipment complying with the requirements specified in annex 6 shall, whenever radio watch ceases to be maintained during or at the end of his period of duty, connect the radiotelegraph auto-alarm equipment with the ship's main aerial, or with any other efficient aerial, and shall put the radiotelegraph auto-alarm equipment into operation. Every radio officer who leaves the radiotelegraph auto-alarm equipment in operation when he goes off duty, shall before going off duty—

(a) test the efficiency of the radiotelegraph auto-alarm equipment; and

(b) immediately inform the master or the officer in charge of the navigation of the ship if the radiotelegraph auto-alarm equipment is found not to be operating effectively.

(3) Every radio officer who finds the radiotelegraph auto-alarm equipment connected to an aerial when he goes on duty, shall immediately test the efficiency of the radiotelegraph auto-alarm equipment before making any adjustment thereto.

(4) While a radiotelegraph ship is at sea, the radio officer, or if there is more than one, the first radio officer, shall cause the following tests to be made:—

(a) A test once a day of the reserve radiotelegraph transmitter connected with the artificial aerial provided in accordance with paragraph 9 of part III of annex 1.

(b) If the ship is engaged on an international voyage, a test once during every voyage of the reserve radiotelegraph transmitter connected with the reserve aerial, if any.

(c) A test once a day by voltmeter and once a month by hydrometer of any batteries which are a source of electrical energy for the radiotelegraph installation.

(d) A test once a day of any other source of electrical energy provided for the reserve radiotelegraph equipment.

(e) A test once a day of the audible alarm circuits and of the bells forming part of the radiotelegraph auto-alarm equipment.

(f) A test once a day to check the proper functioning of the radiotelegraph auto-alarm receiver connected to its normal aerial, by listening to signals received by means of such receiver, and by comparing them with similar signals received on a frequency of 500 kc/s by means of the main receiver.

(5) While a radiotelegraph ship is at sea, the radio officer, or if there is more than one, the first radio officer, shall take all steps within his power to cause the equipment referred to in this part to be properly maintained and when necessary to be repaired and adjusted. Such officer shall arrange for all batteries, being a source of electrical energy for any part of the radiotelegraph installation, which are found not to be fully charged to be brought up to that condition as soon as possible.

19. Restriction in the use of the Reserve Transmitter.

The transmitter forming part of the reserve radiotelegraph equipment, shall not be used to transmit messages other than those relating to the safety of life at sea, unless such transmitter complies with the additional requirements specified in paragraph 11 of part III of annex 1.

20. Radiotelegraaflogboek.

(1) 'n Radiotelegraaflogboek in vorm T.V.5/321 en T.V.5/321 (a) wat in aanhangsel 8 gespesifiseer word, moet in 'n radiotelegraafkamer op elke radiotelegraafskip gehou word en beskikbaar wees vir insae deur enigeen wat deur die Sekretaris of die Posmeester-generaal daartoe gemagtig is.

(2) Elke radiobeampte op die skip moet die volgende inligting in die radiotelegraaflogboek opteken wanneer hy op diens is:—

(a) Sy naam;

(b) hoe laat hy op diens kom en van diens af gaan;

(c) die kennummer van elke berig wat deur hom oorgesend of ontvang word, tesame met die tyd en datum van sodanige oorsending of ontvangs, die stasie waarheen hy elke berig oorsend en die stasie waarvandaan hy elke berig ontvang; en

(d) besonderhede van alle voorvalle wat gedurende sy diensperiode plaasvind, op die radiotelegraafinstallasie en die werking daarvan betrekking het en na sy oordeel vir die beveiliging van menselewens op see van belang is, en veral moet hy die volgende inligting opteken, naamlik:—

(i) Die volledige teks van alle berigte wat deur hom oorgesend of ontvang word en betrekking het op onmiddellike hulp wat persone nodig het wat op of bokant die see in nood verkeer;

(ii) die volledige teks van alle berigte wat deur hom oorgesend of ontvang word en voorafgegaan word deur 'n sein wat internasionaal gewoonlik as 'n spoedsein of veiligheidsein gebruik word;

(iii) besonderhede van die radioluisterdiens wat gedurende elkeen van die stilperiodes deur hom waargeneem is;

(iv) besonderhede van enige voorval wat gedurende sy diensperiode plaasvind en die doeltreffendheid van die radiotelegraafinstallasie beïnvloed; en

(v) besonderhede van die toetse wat ooreenkomstig regulasie 18 (2) en (3) deur hom uitgevoer is en van die resultate van sodanige toetse.

(3) Die radiobeampte of, as daar meer as een is, die eerste radiobeampte moet die volgende inskrywings in die radiotelegraaflogboek laat aanbring:—

(a) Besonderhede van die toetse uitgevoer ooreenkomstig regulasie 18 (4) en regulasie 31 (1);

(b) besonderhede van die laai van batterye wat as bron van elektriese energie vir die radiotelegraafinstallasie gebruik word; en

(c) indien die skip met radiotelegraaf-outo-alarmuitrusting toegerus is, besonderhede van enige defek daarin of herstelwerk daaraan.

(4) Die radiobeampte of, as daar meer as een is, die eerste radiobeampte moet minstens een maal per dag wanneer die stasie oop is, die tyd wat die horlosie in elke radiotelegraafkamer in vergelyking met Greenwich tyd aanwys, en enige korreksie ten opsigte van daardie horlosie in die radiotelegraaflogboek laat opteken.

(5) Die radiobeampte, of, as daar meer as een is, die eerste radiobeampte moet, indien die skip se reëls dit toelaat, minstens een maal per dag wanneer die stasie oop is, die lengte- en breedtegraad of, deur verwysing na 'n plek, die benaderde posisie van die skip in die radiotelegraaflogboek laat opteken.

(6) As daar meer as een radiobeampte is, moet die eerste radiobeampte elke dag daardie dag se inskrywings in die radiotelegraaflogboek nagaan en teken, en die gesagvoerder van die skip moet elke dag se inskrywings in sodanige logboek nagaan en teken. Die gebruik van 'n rubberstempel in plaas van 'n handtekening word nie toegelaat nie.

20. Radiotelegraph Log.

(1) A radiotelgraph log-book in form T.V. 5/321 and T.V. 5/321 (a), specified in annex 8, shall be kept in a radiotelgraph room on board every radiotelgraph ship and shall be available for inspection by any person authorised in that behalf by the Secretary or by the Postmaster-General.

(2) Every radio officer on board the ship shall, when on duty, enter in the radiotelgraph log-book:—

(a) His name;

(b) the times at which he goes on and off duty;

(c) the identifying number of each message transmitted by him, or received by him, together with the time and date of such transmission or reception, the station to which each message is transmitted by him and the station from which each message is received by him; and

(d) a record of all incidents occurring during his period of duty which relates to the radiotelgraph installation and the operation thereof and which appear to him to be of importance to the safety of life at sea; in particular, he shall make the following entries:—

(i) The full text of all messages transmitted by him or received by him which relate to immediate assistance required by persons in distress at or above the sea;

(ii) the full text of all messages transmitted by him or received by him which are preceded by a signal in general international use as an urgency signal or safety signal;

(iii) a record of the radio watch maintained by him during each of the silence periods;

(iv) a record of any incident occurring during his period of duty which affects the efficiency of the radiotelgraph installation; and

(v) a record of the tests conducted by him in accordance with regulation 18 (2) and (3) and of the results of such tests.

(3) The radio officer, or, if there is more than one, the first radio officer, shall cause the following entries to be made in the radiotelgraph log-book:—

(a) A record of the tests conducted in accordance with regulation 18 (4) and regulation 31 (1);

(b) a record of the charging of any batteries used as a source of electrical energy for the radiotelgraph installation; and

(c) if the ship is provided with radiotelgraph auto-alarm equipment, details of any failure or repair thereof.

(4) The radio officer, or, if there is more than one, the first radio officer, shall cause an entry to be made in the radiotelgraph log-book recording the time shown by the clock in each radiotelgraph room in comparison with Greenwich Mean Time and any correction made in respect of that clock at least once a day when the station is open.

(5) The radio officer, or, if there is more than one, the first radio officer, shall, if the ship's rules permit, cause an entry to be made in the radiotelgraph log-book recording in latitude and longitude, or by reference to a place, the approximate position of the ship at least once a day when the station is open.

(6) If there is more than one radio officer, the first radio officer, shall inspect and sign each day the entries for that day in the radiotelgraph log-book, and the master of the ship shall inspect and sign each day's entries in such log-book. The use of a rubber stamp in lieu of a signature shall not be permitted.

(7) Die radiotelegraaflogboek moet as deel van die amptelike logboek beskou word, en artikels 182, 184, 185 en 186, met uitsondering van artikel 182 (4), van die Wet is eweseer op die radiotelegraaflogboek as op die amptelike logboek van toepassing.

Die radiotelegraaflogboek moet afsonderlik van die amptelike logboek gehou word en is 'n dokument wat vir die toepassing van artikel 187 van die Wet op die navigasie van die skip betrekking het.

HOOFSTUK III.—RADIOTELEFONIE.

21. *Antenne.*

(1) Benewens die hoofantenne moet elke radiotelefoon-skip die volgende hê, naamlik—

(a) indien die hoofantenne 'n ondersteunde draad-antenne is, 'n reserweantenne wat volledig inmeekaargesit is sodat die hoofantenne gou vervang kan word; of

(b) indien die hoofantenne nie 'n ondersteunde draad-antenne is nie, 'n reserweantenne volledig met ondersteunde strukture en met die vermoë om gou opgerig te word terwyl die skip op see is.

(2) Elkeen van die hystoue wat vir die ondersteuning van die lugdraad op 'n radiotelefoon-skip van klas III gebruik word, moet 'n veiligheidslus tussen die mastop of ander antennesteun en 'n antenne-isolator hê. Sodanige veiligheidslus moet uit minstens 3 voet van die hystou bestaan en die lus moet gesluit word met 'n skakel wat minstens 1 voet 3 duim lank is en 'n breekbelasting het van hoogstens een derde van die breekbelasting van die antenne of die hystou, na gelang van watter die laagste is.

(3) 'n Montasieplan van die antenne wat aangebring is, moet aan boord beskikbaar wees en die volgende aantoon, naamlik—

(a) 'n vertikale aansig en plattegrond van die antenne;

(b) die afmetings van die antenne; en

(c) die hoogte van die antenne in meters, gemeet soos in regulasie 22 (3) gespesifiseer.

22. *Sendafstand van Senders.*

(1) Die radiotelefoon-sender wat ooreenkomstig die voorgaande bepalings van hierdie deel verskaf word, moet 'n normale sendafstand van minstens 150 myl hê.

(2) Die normale sendafstand van 'n radiotelefoon-sender vir die toepassing van hierdie deel moet na keuse van die eienaar van die skip hetsy deur berekening of deur 'n toets bepaal word.

(3) Wanneer die normale sendafstand van 'n radiotelefoon-sender vir die toepassing van hierdie deel deur berekening op frekwensie van 2182 kp/s bepaal word, moet dit bereken word deur die produk te bepaal van die effektiwe stroom in ampères aan die voet van die antenne en die maksimum hoogte van die antenne gemeet vanaf die uitlei-isolator. Die sender word geag aan die bepalings van hierdie regulasie te voldoen indien die aldus bepaalde produk nie minder is nie as—

(a) 7.5 meter-ampère indien die antenne 'n horisontale toplengte het van minstens die helfte van sy maksimum hoogte gemeet vanaf die uitlei-isolator;

(b) 12.8 meter-ampère in die geval van enige ander antenne.

(4) Wanneer die normale sendafstand van 'n radiotelefoon-sender vir die toepassing van hierdie deel deur 'n toets bepaal word, is dit die afstand waaroor seine deur sodanige sender gedurende die dag onder normale toestande op 'n frekwensie van 2182 kp/s oor die see gestuur kan word sodat daar by die ontvanger deur die ongemoduleerde draaggolf 'n totale effektiwe veldsterkte van minstens 25 mikrovolt per meter tot stand gebring word.

(7) The radiotelegraph log-book shall be regarded as being part of the official log-book, and sections 182, 184, 185 and 186 of the Act shall apply to the radiotelegraph log-book as they apply to the official log-book, with the exception of section 182 (4) of the Act.

The radiotelegraph log-book shall be kept distinct from the official log-book and shall be a document relating to the navigation of the ship for the purposes of section 187 of the Act.

CHAPTER III.—RADIOTELEPHONY.

21. *Aerial.*

(1) In addition to the main aerial, every radiotelephone ship shall carry—

(a) if the main aerial is a supported wire aerial, a spare aerial completely assembled for rapid replacement of the main aerial; or

(b) if the main aerial is not a supported wire aerial a spare aerial complete with supporting structures and capable of rapid erection while the ship is at sea.

(2) Each of the halyards used for supporting the aerial on a radiotelephone ship of class III, shall be fitted with a safety loop between the masthead or other aerial support and an aerial insulator. Such safety loop shall consist of a part of the halyard not less than 3 feet long, the loop being closed by a link not more than 1 foot 3 inches long with a breaking load not more than one-third of the breaking load of the aerial or the halyard, whichever is the less.

(3) A rigging plan of the fitted aerial shall be available on board and shall show—

(a) elevation and plan views of the aerial;

(b) the measurements of the aerial; and

(c) the height of the aerial in metres, measured in the manner specified in regulation 22 (3).

22. *Range of Transmitters.*

(1) The normal range of the radiotelephone transmitter provided in accordance with the foregoing provisions of this part shall not be less than 150 miles.

(2) The normal range of a radiotelephone transmitter for the purposes of this part, shall be determined at the option of the owner of the ship, either by calculation or by test.

(3) For the purposes of this part, the normal range of a radiotelephone transmitter, when determined by calculation on a frequency of 2182 kc/s, shall be calculated by ascertaining the product of the root mean square current in amperes at the base of the aerial and the maximum height of the aerial measured from the lead-out insulator. The transmitter shall be deemed to comply with the requirements of this regulation if the product so ascertained is not less than—

(a) 7.5 metre-amperes if the aerial has a horizontal top-length of not less than one-half of its maximum height measured from the lead-out insulator;

(b) 12.8 metre-amperes in the case of any other aerial.

(4) For the purposes of this part, the normal range of a radiotelephone transmitter, when determined by test, shall be the distance to which signals can be transmitted by such transmitter over the sea by day under normal conditions on a frequency of 2182 kc/s so as to set up at the receiver by the unmodulated carrier a total root mean square field strength of at least 25 micro-volts per metre.

23. *Toevoer van Elektriese Energie.*

(1) Op elke radiotelefoonskip moet daar, terwyl die skip op see is en te alle redelike tye wanneer hy in 'n hawe is, 'n toevoer van elektriese energie wees wat voldoende is om die radiotelefooninstallasie ooreenkomstig hierdie deel te laat werk, toetse uit te voer en batterye te laai wat 'n bron van elektriese energie vir die radiotelefooninstallasie is. Indien die elektriese energie gelykstroom is, moet dit die regte polariteit hê. In die geval van 'n radiotelefooninstallasie wat op of na 19 November 1952 in 'n radiotelefoonskip van klas III geïnstalleer is, en 'n radiotelefooninstallasie in 'n radiotelefoonskip van klas IV wat nie 'n bestaande installasie is nie, moet 'n reserwebron van elektriese energie in die boonste deel van die skip verskaf word tensy die hoofbron van elektriese energie daar geleë is. Elke bron van elektriese energie wat ooreenkomstig hierdie regulasie verskaf word, moet van so 'n kapasiteit wees dat hy 6 uur lank onafgebroke 'n totale stroom kan lewer wat gelyk is aan die som van—

(a) die helfte van die stroom wat nodig is om die radiotelefoonsender vir die uitsending van spraak te laat werk;

(b) die stroom wat nodig is om die radiotelefoonontvanger te laat werk; en

(c) die stroom verbruik deur die elektriese lamp wat by regulasie 24 (d) vereis word.

(2) Indien 'n enkele battery vir die nakoming van subregulasie (1) verskaf is, moet ook 'n middel verskaf word om óf—

(i) die radiotelefooninstallasie vanaf die skip se hoofbron van elektriese energie te laat werk; óf

(ii) die battery te vlotlaai terwyl dit in gebruik is, in welke geval daar voldoende beveiliging teen spannings-toename moet wees.

Sodanige middel moet so ontwerp wees dat die skip se hoofbron van elektriese energie nie geaard hoef te word nie, en waar nodig moet toereikende filtrering verskaf word ten einde te verhoed dat sturings wat deur die kragnet aangevoer word, die radio-uitrusting binnedring.

(3) 'n Reserwebron van elektriese energie wat ooreenkomstig subregulasie (1) verskaf is, mag nooit vir iets anders gebruik word nie as vir die werking van—

(a) die radiotelefooninstallasie; en

(b) die elektriese lamp wat by regulasie 24 (d) vereis word.

(4) Indien die owerheid dit toelaat kan 'n reserwebron van elektriese energie wat ooreenkomstig subregulasie (1) verskaf is, ongeag die bepalings van subregulasie (3) op 'n radiotelefoonskip gebruik word vir die verskaffing van elektriese energie aan—

(a) 'n rigtingsoeker indien daar een aangebring is; en

(b) noodkringe van lae vermoë wat geheel en al tot die boonste deel van die skip beperk is,

op voorwaarde dat vermelde bron die addisionele belasting of belastings kan verskaf sonder dat sy kapasiteit laer daal as wat by subregulasie (1) bepaal is.

(5) Wanneer 'n battery wat vir die radiotelefooninstallasie verskaf is, nie in gebruik is nie, moet hy binne 'n tydperk van hoogstens 16 uur ten volle gelaai kan word deur die laaimiddel wat by regulasie 8 vereis word.

23. *Supply of Electrical Energy.*

(1) There shall be available in every radiotelephone ship while she is at sea and at all reasonable times when she is in port, a supply of electrical energy sufficient to operate the radiotelephone installation in accordance with this part, and for testing purposes and for the charging of any batteries which are a source of electrical energy for the radiotelephone installation. The supply of electrical energy shall, if it is a direct current supply, be of correct polarity. In the case of a radiotelephone installation installed in a radiotelephone ship of class III on or after 19 November 1952 and a radiotelephone installation in a radiotelephone ship of class IV which is not an existing installation, a reserve source of electrical energy shall be provided in the upper part of the ship unless the main source of electrical energy is so situated. Each source of electrical energy provided in compliance with this regulation, shall be of such capacity as to be able to supply continuously for a period of 6 hours a total current equal to the sum of—

(a) one-half of the current required to operate the radiotelephone transmitter for the transmission of speech;

(b) the current required to operate the radiotelephone receiver; and

(c) the current consumed by the electric lamp required by regulation 24 (d).

(2) If a single battery is provided for the purpose of complying with subregulation (1), means shall also be provided for either—

(i) operating the radiotelephone installation from the ship's main source of electrical energy; or

(ii) float-charging the battery while it is in use, in which case there shall be adequate protection against voltage rise.

Such means shall be so designed as not to require the earthing of the ship's main source of electrical energy, and adequate filtering shall, where necessary, be provided to prevent mainsborne interference from entering the radio equipment.

(3) A reserve source of electrical energy provided in compliance with subregulation (1), shall not be used at any time except for the operation of—

(a) the radiotelephone installation; and

(b) the electric lamp required by regulation 24 (d).

(4) Notwithstanding the provisions of subregulation (3), in any radiotelephone ship a reserve source of electrical energy provided in compliance with subregulation (1) may, if the Authority so permits, be used to supply—

(a) a direction-finder, if fitted; and

(b) low-power emergency circuits which are wholly confined to the upper part of the ship,

on condition that the said source is capable of supplying the additional load or loads without falling below the capacity required by subregulation (1).

(5) When any battery provided for the radiotelephone installation is not in use, it shall be capable of being fully charged within a period of not more than 16 hours by the means for charging required by regulation 8.

24. Diverse Vereistes.

Die volgende bepalings is op elke radiotelefoonskip van toepassing:—

(a) Die radiotelefooninstallasie wat by hierdie deel vereis word, moet as volg geïnstalleer word:—

(i) So hoog as moontlik op die skip; en

(ii) in 'n posisie waar die effektiewe ontvangs van radio-seine die minste deur geraas van buite of andersins belemmer word;

(b) 'n doeltreffende middel vir tweerigtingverbinding onafhanklik van die skip se hoofkommunikasiestelsel en hoofbron van elektriese energie moet verskaf word tussen die plek waar die radiotelefooninstallasie geïnstalleer is en enige ander plek waarvandaan die skip gewoonlik genavigeer word;

(c) 'n betroubare horlosie moet stewig gemonteer word in so 'n posisie dat die hele wyserplaat maklik en noukeurig gesien kan word vanaf die posisie waar die radiotelefooninstallasie bedien word;

(d) 'n betroubare noodlamp moet verskaf word en dié moet onafhanklik van die skip se hoofverligtingsnet wees en so geplaas wees dat hy die radiotelefooninstallasie, die horlosie vereis by paragraaf (c) en die voorskrifkaart vereis by paragraaf (e) voldoende kan verlig; indien daar ooreenkomstig regulasie 23 'n reserwebron van elektriese energie verskaf is, moet die noodlamp 'n elektriese lamp wees wat vanaf voormelde bron werk en moet hy beheer word deur middel van tweewegskakelaars wat onderskeidelik naby 'n ingang van die kamer waarin die radiotelefooninstallasie geïnstalleer is, en by die bedieningsposisie daarvan in daardie kamer aangebring is; hierdie skakelaars moet duidelik geëtiketteer wees om hul funksie aan te dui;

(e) 'n voorskrifkaart bevattende 'n duidelike opsomming van die radiotelefoonnoodprosedure moet so vertoon word dat hy vanaf die radiotelefoonbedienposisie goed gesien kan word; en

(f) die gereedskap, meetinstrumente, reserwedeel en ander materiaal vermeld in deel II van aanhangsel 5 moet verskaf en gereedelik beskikbaar gehou word.

25. Verskaffing en Kwalifikasies van Radiotelefoon-operateurs.

(1) Elke radiotelefoonskip moet minstens een gekwalifiseerde radiotelefoonoperateur hê en dié kan 'n lid van die bemanning wees.

(2) Behoudens die bepalings van artikel 222 van die Wet is niemand bevoegd om 'n radiotelefoonoperateur te wees of om as sodanig diens te doen op 'n skip wat 'n radiotelefoonskip is nie, tensy hy die houer is van 'n geldige sertifikaat van bekwaamheid of bevoegdheid in radiotelefonie of radiotelegrafie wat deur die Posmeester-generaal uitgereik is, of 'n sertifikaat wat deur die Posmeester-generaal as die ekwivalent van so 'n deur hom uitgereikte sertifikaat erken word en waaraan daar geheg is die Posmeester-generaal se geldige magtigingsbrief om 'n radiotelefoon- of radiotelegraafstasie te bedien.

26. Radioluisterdiens per Radiotelefoon.

(1) Behoudens die bepalings van subregulasie (2) moet daar terwyl 'n radiotelefoonskip op see is, 'n onafgebroke radioluisterdiens op die plek op die skip waarvandaan die skip gewoonlik genavigeer word, gehandhaaf word deur 'n radiotelefoonoperateur of deur die gesagvoerder of deur 'n offisier of lid van die bemanning wat aangewys is om radioluisterdiens te verrig.

24. Miscellaneous Requirements.

The following provisions shall apply to every radiotelephone ship:—

(a) The radiotelephone installation required by this part shall be installed:—

(i) As high as practicable in the ship; and

(ii) in a position where there is least disturbance by extraneous noise or otherwise to the effective reception of radio signals;

(b) an efficient two-way means of communication independent of the ship's main communication system and main source of electrical energy, shall be provided between the place at which the radiotelephone installation is installed and any other place from which the ship is normally navigated;

(c) a reliable clock shall be securely mounted in such a position that the entire dial can be easily and accurately observed from the operating position of the radiotelephone installation;

(d) a reliable emergency lamp shall be provided which shall be independent of the main lighting system of the ship, and shall be arranged so as to be capable of providing adequate illumination of the radiotelephone installation, the clock required by paragraph (c) and the card of instructions required by paragraph (e). If a reserve source of electrical energy is provided in compliance with regulation 23, the emergency lamp shall be an electric lamp operated from the aforesaid source, and shall be controlled by two-way switches placed respectively near an entrance to the room in which the radiotelephone installation is installed and at the operating position thereof in that room. These switches shall be clearly labelled to indicate their purpose;

(e) a card of instructions giving a clear summary of the radiotelephone distress procedure, shall be displayed in full view of the radiotelephone operating position; and

(f) the tools, measuring instrument, spare parts and other material specified in part II of annex 5, shall be provided and shall be kept readily available.

25. Provision and Qualifications of Radiotelephone Operators.

(1) Every radiotelephone ship shall be provided with at least one qualified radiotelephone operator, who may be a member of the crew.

(2) Subject to the provisions of section 222 of the Act, no person shall be qualified to be a radiotelephone operator, or be employed as such on any ship which is a radiotelephone ship, unless he holds a valid certificate of proficiency or competency in radiotelephony or radiotelegraphy granted by the Postmaster-General, or a certificate recognised by the Postmaster-General, as the equivalent of such a certificate granted by him to which shall be attached the Postmaster-General's valid letter of authority to operate a radiotelephone or radiotelegraph station.

26. Radio Watch by Radiotelephone.

(1) Subject to the provisions of subregulation (2), while a radiotelephone ship is at sea, continuous radio watch shall be maintained by a radiotelephone operator or by the master or by an officer or member of the crew appointed to keep radio watch at the place on board from which the ship is normally navigated.

(2) Radioluisterdiens kan gestaak word—

(a) wanneer die ontvanger wat deel uitmaak van die radiotelefooninstallasie wat by regulasie 4 vereis word, vir verkeer op 'n ander frekwensie as 2182 kp/s gebruik word en 'n tweede ontvanger wat aan die vereistes gestel in deel III van aanhangsel 2 voldoen, nie beskikbaar is nie; of

(b) wanneer toestande na die mening van die gesagvoerder van die skip sodanig is dat handhawing van radioluisterdiens die veilige navigasie van die skip sal belemmer.

(3) Ongeag die bepalinge van subregulasie (2) (b) moet radioluisterdiens vir sover doenlik gedurende die stilperiodes gehandhaaf word.

27. *Pligte van Radiotelefoonoperateurs.*

(1) Elke radiotelefoonoperateur moet vertrouwd wees met die radiotelefoon-nood-, -spoed- en -veiligheidsprosedures.

(2) Terwyl 'n radiotelefoonskip op see is, moet die radiotelefoonoperateur of, indien daar meer as een is, 'n radiotelefoonoperateur aangewys deur die gesagvoerder reël dat batterye wat 'n bron van elektriese energie vir die radiotelefooninstallasie is, een maal per dag getoets en so spoedig doenlik ten volle gelaai word.

28. *Radiotelefoonlogboek.*

(1) 'n Radiotelefoonlogboek in vorm T.V.5/322 soos in aanhangsel 9 gespesifiseer, moet gehou word op die plek waar radioluisterdiens op elke radiotelefoonskip gehandhaaf word, en moet beskikbaar wees vir insae deur enigeen wat deur die Sekretaris of die Posmeester-generaal daartoe gemagtig is.

(2) Elke radiotelefoonoperateur moet die volgende besonderhede in die radiotelefoonlogboek opteken wanneer hy ooreenkomstig regulasie 26 (1) radioluisterdiens verrig, naamlik—

(a) sy naam;

(b) hoe laat sy radioluisterdiensperiodes begin en eindig;

(c) hoe laat die radioluisterdiens om enige rede gestaak word en die rede daarvoor, en hoe laat die radioluisterdiens hervat word;

(d) 'n opsomming van boodskappe gewissel tussen die skipstasie en kusstasies of ander skipstasies; en

(e) besonderhede van alle voorvalle wat gedurende sy radioluisterdiensperiode plaasvind, op die radiotelefooninstallasie en die werking daarvan betrekking het en na sy oordeel vir die beveiliging van menselewens op see van belang is, en veral moet hy die volgende inligting opteken, naamlik—

(i) die algemene strekking van alle boodskappe wat deur hom oorgesend en ontvang word en betrekking het op onmiddellike hulp wat persone nodig het wat op of bokant die see in nood verkeer;

(ii) die algemene strekking van alle boodskappe wat deur hom oorgesend en ontvang word en voorafgegaan word deur 'n sein wat internasionaal gewoonlik as 'n spoedsein of 'n veiligheidsein gebruik word;

(iii) besonderhede van die radioluisterdiens wat gedurende elkeen van die stilperiodes deur hom waargeneem is;

(iv) besonderhede van enige voorval wat gedurende sy radioluisterdiensperiode plaasvind en die doeltreffendheid van die radiotelefooninstallasie beïnvloed; en

(v) indien die skip se reëls dit toelaat, minstens een maal per dag wanneer die stasie oop is, die skip se benaderde posisie in lengte- en breedtegraad of deur verwysing na 'n plek.

(2) Radio watch may be discontinued—

(a) when the receiver forming part of the radiotelephone installation required by regulation 4 is being used for traffic on a frequency other than 2182 kc/s and a second receiver complying with the requirements specified in part III of annex 2 is not available; or

(b) when, in the opinion of the master of the ship, conditions are such that maintenance of radio watch would interfere with the safe navigation of the ship.

(3) Notwithstanding the provisions of subregulation (2) (b), radio watch shall, as far as practicable, be maintained during the silence periods.

27. *Duties of Radiotelephone Operators.*

(1) Every radiotelephone operator shall be familiar with the radiotelephone distress, urgency and safety procedures.

(2) While a radiotelephone ship is at sea, the radiotelephone operator, or if there is more than one, one designated by the master, shall arrange for any batteries which are a source of electrical energy for the radiotelephone installation to be tested once a day and brought up to fully-charged condition as soon as possible.

28. *Radiotelephone Log.*

(1) A radiotelephone log-book in form T.V.5/322 specified in annex 9, shall be kept at the place where radio watch is maintained in every radiotelephone ship, and shall be available for inspection by any person authorised in that behalf by the Secretary or the Postmaster-General.

(2) Every radiotelephone operator shall, when keeping radio watch in compliance with regulation 26 (1), enter in the radiotelephone log-book—

(a) his name;

(b) the times at which he begins and ends his periods of radio watch;

(c) the time at which radio watch is for any reason discontinued together with the reason, and the time at which radio watch is resumed;

(d) a summary of communications exchanged between the ship station and coast stations or other ship stations; and

(e) a record of all incidents occurring during his period of radio watch which relate to the radiotelephone installation and the operation thereof and which appear to him to be of importance to the safety of life at sea; in particular, he shall make the following entries:—

(i) the general sense of all messages transmitted by him and received by him which relate to immediate assistance required by persons in distress at or above the sea;

(ii) the general sense of all messages transmitted by him and received by him which are preceded by a signal in general international use as an urgency signal or a safety signal;

(iii) a record of the radio watch maintained by him during each of the silence periods;

(iv) a record of any incident occurring during his period of radio watch which affects the efficiency of the radiotelephone installation; and

(v) if the ship's rules permit, a record in latitude and longitude, or by reference to a place, of the approximate position of the ship at least once per day when the station is open.

(3) Elke radiotelefoonoperateur moet in die radiotelefoonlogboek besonderhede opteken van die toetse wat ooreenkomstig regulasie 27 (2) en regulasie 31 (3) uitgevoer is.

(4) Wanneer hy ooreenkomstig regulasie 26 (1) radioluisterdiens verrig, moet die gesagvoerder en elke offisier of lid van die bemanning die volgende besonderhede in die radiotelefoonlogboek opteken, naamlik—

(a) sy naam;

(b) hoe laat sy radioluisterdiensperiodes begin en eindig;

(c) hoe laat die radioluisterdiens om enige rede gestaak word en die rede daarvoor, en hoe laat die radioluisterdiens hervat word; en

(d) besonderhede van alle voorvalle wat gedurende sy luisterdiensperiode plaasvind, op die radiotelefooninstallasie en die werking daarvan betrekking het en na sy oordeel vir die beveiliging van menselewens op see belangrik is, en veral moet hy die volgende inligting opteken, naamlik—

(i) die algemene strekking van alle boodskappe wat deur hom ontvang word en betrekking het op onmiddellike hulp wat persone nodig het wat op of bokant die see in nood verkeer;

(ii) die algemene strekking van alle boodskappe wat deur hom ontvang word en voorafgegaan word deur 'n sein wat internasionaal gewoonlik as 'n spoedsein of 'n veiligheidsein gebruik word;

(iii) besonderhede van enige voorval wat gedurende sy radioluisterdiensperiode plaasvind en die doeltreffendheid van die radiotelefooninstallasie beïnvloed; en

(iv) indien die skip se reëls dit toelaat, minstens een maal per dag wanneer die stasie oop is, die skip se benaderde posisie in lengte- en breedtegraad of deur verwysing na 'n plek.

(5) Die radiotelefoonoperateur of, indien daar meer as een is, 'n radiotelefoonoperateur aangewys deur die gesagvoerder moet elke dag die inskrywings vir daardie dag in die radiotelefoonlogboek nagaan en teken, en die gesagvoerder van die skip moet elke dag se inskrywings in sodanige logboek nagaan en teken. Die gebruik van 'n rubberstempel in plaas van 'n handtekening word nie toegelaat nie.

(6) Die radiotelefoonlogboek moet as deel van die amptelike logboek beskou word, en artikels 182, 184, 185, en 186, met uitsondering van artikel 182 (4), van die Wet is eweser op die radiotelefoonlogboek as op die amptelike logboek van toepassing.

Die radiotelefoonlogboek moet afsonderlik van die amptelike logboek gehou word en is 'n dokument wat vir die toepassing van artikel 187 van die Wet op die navigasie van die skip betrekking het.

HOOFSTUK IV.—RADIO-UITRUSTING VIR REDDINGSBOTE EN REDDINGSVAARTUIE.

29. *Vaste Radio-uitrusting vir Motorreddingsbote.*

(1) Die uitrusting vereis by artikel 34 (1) (a) van die Regulasies vir Reddingsuitrusting, 1968, moet voldoen aan die spesifikasie uiteengesit in deel I van aanhangsel 4.

(2) Die battery inbegrepe in die uitrusting vermeld in subregulasie (1) mag nie gebruik word vir 'n ander doel as die werking van sodanige uitrusting en van die soeklig wat ooreenkomstig die Regulasies vir Reddingsuitrusting, 1968, verskaf is nie.

30. *Draagbare Radio-uitrusting vir Reddingsvaartuie.*

Die uitrusting vereis by regulasies 5 (5), 6 (10), 12 (9) en 13 (5) van die Regulasies vir Reddingsuitrusting, 1968, moet voldoen aan die spesifikasie uiteengesit in deel II van aanhangsel 4.

(3) Every radiotelephone operator shall enter in the radiotelephone log-book a record of the tests conducted in accordance with regulation 27 (2) and regulation 31 (3).

(4) The master and every officer or member of the crew shall, when keeping radio watch in compliance with regulation 26 (1), enter in the radiotelephone log-book—

(a) his name;

(b) the times at which he begins and ends his periods of radio watch;

(c) the time at which radio watch is for any reason discontinued together with the reason, and the time radio watch is resumed; and

(d) a record of all incidents occurring during his period of watch which relate to the radiotelephone installation and the operation thereof and which appear to him to be of importance to the safety of life at sea; in particular, he shall make the following entries:—

(i) The general sense of all messages received by him which relate to immediate assistance required by persons in distress at or above the sea;

(ii) the general sense of all messages received by him which are preceded by a signal in general international use as an urgency signal or a safety signal;

(iii) a record of any incident occurring during his period of radio watch which affects the efficiency of the radiotelephone installation; and

(iv) if the ship's rules permit, a record in latitude and longitude, or by reference to a place, of the approximate position of the ship at least once per day when the station is open.

(5) The radiotelephone operator or, if there is more than one, one designated by the master, shall inspect and sign each day the entries for that day in the radiotelephone log-book, and the master of the ship shall inspect and sign each day's entries in such log-book. The use of a rubber stamp in lieu of a signature shall not be permitted.

(6) The radiotelephone log-book shall be regarded as being part of the official log-book, and sections 182, 184, 185 and 186 of the Act shall apply to the radiotelephone log-book as they apply to the official log-book, with the exception of section 182 (4) of the Act.

The radiotelephone log-book shall be kept distinct from the official log-book and shall be a document relating to the navigation of the ship for the purposes of section 187 of the Act.

CHAPTER IV.—RADIO EQUIPMENT FOR LIFEBOATS AND SURVIVAL CRAFT.

29. *Motor Lifeboat Fixed Radio Equipment.*

(1) The equipment required by regulation 34 (1) (a) of the Life-Saving Equipment Regulations, 1968, shall comply with the specification set forth in part I of annex 4.

(2) The battery included in the equipment referred to in subregulation (1), shall not be used for any purpose other than the operation of such equipment and of the searchlight provided in compliance with the Life-Saving Equipment Regulations, 1968.

30. *Portable Radio Equipment for Survival Craft.*

The equipment required by regulations 5 (5), 6 (10), 12 (9) and 13 (5) of the Life-Saving Equipment Regulations, 1968, shall comply with the specification set forth in part II of annex 4.

31. *Toets van Radio-uitrusting vir Reddingsbote en -vaartuie.*

(1) Wanneer 'n radiotelegraafskip toegerus met die uitrusting vermeld in regulasie 29 of regulasie 30 op see is, moet die radiobeampte of, as daar meer as een is, die eerste radiobeampte reël dat die sender wat deel van sodanige installasie of uitrusting uitmaak, minstens een maal elke 7 dae getoets word met die kunsantenne wat ooreenkomstig paragraaf 2 (9) van deel I of paragraaf 2 (10) van deel II van aanhangsel 4 verskaf is, en dat batterye, uitgesonderd selflaai-batterye, wat vir sodanige installasie of uitrusting 'n bron van elektriese energie is, met 'n voltmeter en hidrometer getoets en so spoedig doenlik ten volle gelaai word.

(2) Die radiobeampte wat die toetse uitvoer waarvan in subregulasie (1) melding gemaak word, moet die uitslae van die toetse in die radiotelegraaflogboek opteken.

(3) Wanneer 'n radiotelefoonskip met die uitrusting vermeld in regulasie 30 op see is, moet die radiotelefoon-operateur of, indien daar meer as een is, 'n radiotelefoon-operateur aangewys deur die gesagvoerder die sender wat deel van sodanige uitrusting uitmaak, minstens een maal elke 7 dae met die kunsantenne toets wat ooreenkomstig paragraaf 2 (10) van deel II van aanhangsel 4 verskaf is.

(4) Die radiotelefoonoperateur wat die toets uitvoer waarvan in subregulasie (3) melding gemaak word, moet die uitslae van die toets in die radiotelefoonlogboek opteken.

HOOFTSTUK V.—VRYSTELLINGS.

32. *Vrystelling ten Opsigte van Reserweantenne.*

Die owerheid kan 'n radiotelegraafskip van regulasie 11 se bepalings ten opsigte van 'n reserweantenne vrystel indien hy daarvan oortuig is dat dit ondoenlik of in die omstandighede onredelik is om so 'n antenne aan te bring. 'n Skip wat aldus vrystel is, moet—

(a) indien die hoofantenne 'n ondersteunde draad-antenne is, 'n reserweantenne aan boord hê wat vir die snelle vervanging van die hoofantenne volledig in-mekaargesit is; of

(b) indien die hoofantenne nie 'n ondersteunde draad-antenne is nie, 'n reserweantenne aan boord hê wat met al die nodige ondersteunde strukture toegerus is en vinnig opgerig kan word terwyl die skip op see is.

33. *Algemene Vrystelling.*

Die owerheid kan, op sodanige voorwaardes as wat hy nodig ag, enige skip van enige van die vereistes van hierdie deel vrystel.

DEEL II.—RIGTINGSOEKERS.

HOOFTSTUK I.—ALGEMEEN.

34. *Toepassing van Deel II.*

Hierdie deel is van toepassing op elke skip van 500 ton of groter wat in die Republiek geregistreer is of ingevolge die Wet aldus geregistreer moet word, en op elke skip van 1600 ton of groter wat in 'n ander land as die Republiek geregistreer is, behalwe—

(a) 'n plesierjag;

(b) 'n skip wat nie meganies aangedryf word nie; of

(c) 'n vissersboot wat aan 'n ander land as die Republiek behoort.

35. *Verskaffing van Rigtingsoekers.*

Elke skip moet toegerus wees met 'n rigtingsoeker wat aan die vereistes uiteengesit in aanhangsel 11 voldoen en met die hand bedien kan word.

31. *Test of Radio Equipment for Lifeboats and Survival Craft.*

(1) When a radiotelegraph ship provided with the equipment referred to in regulation 29 or regulation 30 is at sea the radio officer, or if there is more than one, the first radio officer, shall at least once every 7 days, arrange for the transmitter forming part of such installation or equipment to be tested with the artificial aerial provided in accordance with paragraph 2 (9) of part I or paragraph 2 (10) of part II of annex 4 and arrange for any batteries, other than self-priming batteries, which are a source of electrical energy for such installation or equipment to be tested by voltmeter and hydrometer and brought up to fully-charged condition as soon as possible.

(2) The radio officer making the tests referred to in sub-regulation (1), shall enter the results of the tests in the radiotelegraph log-book.

(3) When a radiotelephone ship provided with the equipment referred to in regulation 30 is at sea, the radiotelephone operator, or if there is more than one, one designated by the master, shall, at least once every 7 days test the transmitter forming part of such equipment with the artificial aerial provided in accordance with paragraph 2 (10) of part II of annex 4.

(4) The radiotelephone operator making the test referred to in subregulation (3), shall enter the results of the test in the radiotelephone log-book.

CHAPTER V.—EXEMPTIONS.

32. *Exemption in Respect of Reserve Aerial.*

The Authority may exempt any radiotelegraph ship from the requirements of regulation 11 in respect of a reserve aerial, if he is satisfied that the fitting of such an aerial is impracticable or unreasonable in the circumstances. Any ship so exempted, shall carry—

(a) if the main aerial is a supported wire aerial, spare aerial completely assembled for rapid replacement of the main aerial; or

(b) if the main aerial is not a supported wire aerial, a spare aerial complete with supporting structures and capable of rapid erection while the ship is at sea.

33. *General Exemptions.*

The Authority may, on such conditions as he may deem necessary, exempt any ship from any of the provisions of this part.

PART II.—DIRECTION-FINDERS.

CHAPTER I.—GENERAL.

34. *Application of Part II.*

This part applies to every ship of 500 tons or over registered in the Republic or which is, in terms of the Act, required to be so registered, and to every ship of 1,600 tons or over which is registered in a country other than the Republic, except—

(a) a pleasure yacht;

(b) a ship not propelled by mechanical means; or

(c) a fishing boat which belongs to a country other than the Republic.

35. *Provision of Direction-finders.*

Every ship shall be provided with a direction-finder complying with the requirements set forth in annex 11 and capable of being operated manually.

36. *Klimaat- en Duursaamheidstoetse.*

(1) Die rigtingsoeker moet sonder meganiese gebreke wees en moet aan die vereistes van hierdie deel voldoen—

(a) terwyl hy die trillings-, droëhitte- en laetemperatuurtoetse gespesifiseer in aanhangsel 12 ondergaan;

(b) wanneer hy aan die klamhittetoets gespesifiseer in vermelde aanhangsel onderwerp word; en

(c) onmiddellik nadat hy die ander toetse gespesifiseer in vermelde aanhangsel ondergaan het.

(2) Die rigtingsoekerantennestelsel vermeld in aanhangsel 11 moet sodanig wees dat geen skimmel daarop is nadat dit die skimmeligroei-toetse gespesifiseer in aanhangsel 12 ondergaan het nie.

37. *Steuring van ontvangs.*

(1) Terwyl die skip op see is mag steurings of meganiese ruis opgelewer deur die rigtingsoeker of deur ander uitrusting in die skip nooit voldoende wees om die doeltreffende bepaling van radiopeilings deur middel van die rigtingsoeker te verhinder nie.

(2) 'n Skip toegerus met 'n rigtingsoeker wat nie 'n bestaande installasie is nie, moet ook toegerus wees met 'n gemeenskaplike antennestelsel vir alle uitsaai-ontvangers ten opsigte waarvan dit ondoenlik is om doeltreffende en behoorlik geïnstalleerde antennes op te rig wat—

(a) buite 'n straal van 50 voet vanaf die rigtingsoeker-antenne geleë is;

(b) nie bokant die voet van die rigtingsoekerantenne uitstyg nie; of

(c) gou neergelaat en maklik weggepak kan word wanneer die rigtingsoeker gebruik word.

38. *Hoëspanningsdele.*

(1) Alle dele en bedrading van die uitrusting wat in hierdie deel vermeld word en waarin die gelykstroom- en wisselstroomspannings (uitgesonderd radiofrekwensiespannings) te eniger tyd kombineer om 'n onmiddellike spanning van meer as 50 volt te gee, moet beskerm word sodat hulle nie per ongeluk bygekom word nie.

(2) Alle dele en bedrading van die uitrusting wat in hierdie deel vermeld word (uitgesonderd die dele en bedrading van 'n draaiende masjien) en waarin die gelykstroom- en wisselstroomspannings (uitgesonderd radiofrekwensiespannings) te eniger tyd kombineer om 'n onmiddellike spanning van meer as 250 volt te gee, moet by verwydering van die beskermingsmiddel outomaties van alle bronne van elektriese energie geïsoleer word.

39. *Toevoer van Elektriese Energie.*

Op elke skip moet daar terwyl hy op see en te alle redelike tye terwyl hy in 'n hawe is, voldoende elektriese energie beskikbaar wees vir die werking van die rigtingsoeker ooreenkomstig hierdie deel, vir toetsdoeleindes en vir die laai van batterye wat vir die rigtingsoeker 'n bron van elektriese energie is.

40. *Laai van Batterye.*

Indien daar op 'n skip batterye as bron van elektriese energie vir die rigtingsoeker verskaf word, moet op sodanige skip 'n middel verskaf word om sodanige batterye uit die skip se hoofbron van elektriese energie te laai. Die gesagvoerder van die skip moet sodanige batterye een maal per dag met 'n voltmeter en een maal per maand met 'n hidrometer laat toets en 'n batterye wat volgens bevinding nie ten volle gelaai is nie, so spoedig doenlik in daardie toestand laat bring.

36. *Climatic and Durability Tests.*

(1) The direction-finder shall be free from mechanical defects and shall comply with the requirements of this part—

(a) while undergoing the vibration, dry heat, and low temperature tests specified in annex 12;

(b) when subject to the damp heat test specified in the said annex; and

(c) immediately after undergoing the other tests specified in the said annex.

(2) The direction-finder aerial system referred to in annex 11, shall be such that after undergoing the mould growth tests specified in annex 12, no mould growth will be present on it.

37. *Interference with Reception.*

(1) At no time when the ship is at sea, shall interference or mechanical noise produced by the direction-finder or by other equipment in the ship, be sufficient to prevent the efficient determination of radio bearings by means of the direction-finder.

(2) Any ship which is provided with a direction-finder, not being an existing installation, shall also be provided with a communal aerial system for all broadcast receivers in respect of which it is impracticable to erect efficient and properly installed aerials which—

(a) are outside a radius of 50 feet from the direction-finder aerial;

(b) do not rise above the base of the direction-finder aerial; or

(c) can be lowered quickly and stowed easily when the direction-finder is in use.

38. *High Voltage Parts.*

(1) All parts and wiring of the equipment specified in this part in which the direct and alternating voltages (other than radio frequency voltages) combine at any time to give an instantaneous voltage greater than 50 volts, shall be protected from accidental access.

(2) All parts and wiring of the equipment specified in this part (other than the parts and wiring of a rotating machine) in which the direct and alternating voltages (other than radio frequency voltages) combine at any time to give an instantaneous voltage greater than 250 volts, shall be isolated automatically from all sources of electrical energy when the means of protection are removed.

39. *Supply of Electrical Energy.*

There shall be available in every ship while she is at sea and at all reasonable times when she is in port, a supply of electrical energy sufficient for the operation of the direction-finder in accordance with this part, and for testing purposes and for the charging of any batteries which are a source of electrical energy for the direction-finder.

40. *Charging of Batteries.*

If batteries are provided as a source of electrical energy for the direction-finder, means shall be provided on board every ship for the charging of such batteries from the ship's main source of electrical energy. The master of the ship shall cause such batteries to be tested once a day by voltmeter and once a month by hydrometer, and shall cause any battery which is found not to be fully charged to be brought up to that condition as soon as possible.

41. *Installing van Rigtingsoeker.*

(1) Elke rigtingsoeker moet in so 'n posisie geïnstalleer word dat doeltreffende bepaling van radiopeilings deur middel van 'n rigtingsoeker nie deur geluide van buite belemmer sal word nie.

(2) (a) Die rigtingsoekerantennestelsel waarvan in aanhangsel 11 melding gemaak word, moet so gemonteer word dat die doeltreffende bepaling van radiopeilings deur middel van die rigtingsoeker so min as moontlik deur die nabyheid van antennes, laaibome, hysdrade en ander groot metaalvoorwerpe belemmer sal word.

(b) Tensy die toevoerkabels wat die rigtingsoekerantennestelsel met die ontvanger verbind wat deel van die rigtingsoeker uitmaak, uit 'n kabel bestaan wat met soliede diëlektrikum afgeskerm is, moet hulle deur gearde metaalbuise beskerm word. Die lasse van die toevoerkabels moet waterdig wees.

42. *Kommunikasiemiddels.*

(1) Op elke skip moet daar 'n doeltreffende twee-rigtingmiddel vir oproep en mondelinge kommunikasie verskaf word tussen die ontvanger wat deel van die rigtingsoeker uitmaak, en die brug waarvandaan die skip gewoonlik genavigeer word.

(2) Op elke skip moet daar 'n doeltreffende seinmiddel verskaf word tussen die ontvanger wat deel van die rigtingsoeker uitmaak, en die skip se standaardkompas of tolkompasherhaler, as daar een is.

43. *Beperking van gebruik van rigtingsoeker.*

Die rigtingsoeker mag nie gebruik word—

(a) vir 'n ander doel as dié van die skip nie; of

(b) vir die verrigting van die radioluisterdiens wat by regulasie 17 vereis word nie.

44. *Yking.*

(1) Die gesagvoerder van elke skip moet die rigtingsoeker so spoedig doenlik na die installering daarvan op die skip en telkens wanneer die posisie van die rigtingsoekerantennestelsel verander is, ooreenkomstig hierdie regulasie laat yk.

(2) Die rigtingsoeker moet geyk word deur twee persone, van wie een in die maak van radiopeilings en die ander in die maak van visuele peilings ervaar is. Die yking moet uitgevoer word deur gelyktydig radio- en visuele peilings op 'n yksender te maak, en sodanige peilings moet oor 'n volle 360 grade hoogstens al om die 5 grade op 'n frekwensie tussen 285 kp/s en 315 kp/s gemaak word.

(3) Yktabelle en -krommes moet opgestel word aan die hand van die peilings wat ooreenkomstig subregulasie (2) gemaak is.

(4) Die gesagvoerder van die skip moet die yktabelle en -krommes wat ooreenkomstig die voorafgaande bepalinge van hierdie regulasie opgestel is, laat verifieer deur middel van kontrolepeilings—

(a) by tussenpose van hoogstens 12 maande; en

(b) telkens wanneer aan 'n struktuur of toebehore op dek 'n verandering aangebring word wat waarskynlik die noukeurigheid van die rigtingsoeker sal beïnvloed.

41. *Installation of Direction-Finder.*

(1) Every direction-finder shall be installed in such a position that efficient determination of radio bearings by means of the direction-finder will not be hindered by extraneous noises.

(2) (a) The direction-finder aerial system referred to in annex 11 shall be mounted in such manner that the efficient determination of radio bearings by means of the direction-finder will be hindered as little as possible by the proximity of aials, derricks, wire halyards and other large metal objects.

(b) Unless the feeder cables connecting the direction-finder aerial system with the receiver forming part of the direction-finder consist of solid-dielectric screened cable, they shall be protected by metal tubes which are bonded to earth. The joints of the feeder cables shall be watertight.

42. *Means of Communication.*

(1) In every ship, an efficient two-way means of calling and voice communication shall be provided between the receiver forming part of the direction-finder and the bridge from which the ship is normally navigated.

(2) In every ship, an efficient means of signalling shall be provided between the receiver forming part of the direction-finder and the ship's standard compass or gyro compass repeater, if any.

43. *Restriction of Use of the Direction-Finder.*

The direction-finder shall not be used—

(a) for any purpose other than the business of the ship; or

(b) for keeping the radio watch required by regulation 17.

44. *Calibration.*

(1) The master of every ship shall cause the direction finder to be calibrated in accordance with this regulation as soon as practicable after it has been installed in the ship and whenever any change is made in the position of the direction-finder aerial system.

(2) The direction-finder shall be calibrated by two persons, the one being experienced in the taking of radio bearings and the other experienced in the taking of visual bearings. The calibration shall be carried out by taking simultaneous radio and visual bearings on a calibrating transmitter, and such bearings shall be taken at intervals of not greater than 5 degrees throughout 360 degrees on a frequency between 285 kc/s and 315 kc/s.

(3) Calibration tables and curves shall be prepared on the basis of the bearings taken in accordance with subregulation (2).

(4) The master of the ship shall cause the calibration tables and curves prepared in accordance with the foregoing provisions of this regulation to be verified by means of check-bearings—

(a) at intervals not exceeding 12 months; and

(b) whenever any change is made in any structure or fitting on deck which is likely to affect the accuracy of the direction-finder.

Indien uit sodanige verifikasie blyk dat die yktabelle of -krommes wesenlik onnoukeurig is, moet die gesagvoerder van die skip die rigtingsoeker so spoedig doenlik laat her-yk soos in subregulasies (2) en (3) gespesifiseer.

45. *Rekord van yking en verifikasie.*

Die gesagvoerder van elke skip moet die volgende rekords aan boord laat hou op 'n plek toeganklik vir enigeen wat die rigtingsoeker bedien, en moet sorg dat hulle te eniger redelike tyd beskikbaar is vir insae deur enigeen wat deur die Sekretaris of die Posmeester-generaal daartoe gemagtig is:—

(a) 'n Lys of diagram wat aandui in watter toestand en posisie—

(i) die antennes; en

(ii) alle verplaasbare strukture waardeur die noukeurigheid van die rigtingsoeker beïnvloed mag word, op die skip was toe die rigtingsoeker laas geyk is;

(b) die yktabelle en -krommes wat by geleentheid van die jongste yking van die rigtingsoeker opgestel is;

(c) 'n yksertifikaat met betrekking tot die jongste geleentheid toe die rigtingsoeker geyk is, en wel in die vorm voorgeskryf in aanhangsel 13 en onderteken deur die persone deur wie die yking gedoen is; en

(d) 'n rekord van kontrolepeilings wat vir die verifikasie van die yking gemaak is, en wel in die vorm voorgeskryf in aanhangsel 14 en met die peilings genommer in die volgorde waarin hulle gemaak is.

46. *Bedradingdiagramme en aanwysings.*

'n Skematiese bedradingdiagram van die rigtingsoeker en 'n boek met toereikende aanwysings oor die gebruik van die rigtingsoeker moet verskaf word en te alle tye beskikbaar wees vir gebruik deur enigeen wat die rigtingsoeker bedien of toets.

HOOFSTUK II.—VRYSTELLINGS.

47. *Algemene Vrystelling.*

Die owerheid kan, op sodanige voorwaardes as wat hy nodig ag, enige skip van minder as 5,000 ton van enige van die vereistes van hierdie deel vrystel.

DEEL III.—KONSTRUKSIE EN EKWIVALENTE.

48. *Konstruksie: Algemeen.*

Die radiotelegraafinstallasie, radiotelefooninstallasie, rigtingsoeker en ander uitrusting gespesifiseer in hierdie regulasies moet geskik wees om op see op 'n skip gebruik te word.

49. *Ekwivalente.*

Waar hierdie regulasies vereis dat 'n bepaalde inrigting, toestel of apparaat of tipe daarvan op 'n skip aangebring moet word of moet wees of dat 'n bepaalde voorsiening gemaak moet word, kan die owerheid toelaat dat op daardie skip 'n ander inrigting, toestel of apparaat of tipe daarvan aangebring of gevoer of ander voorsiening gemaak word indien hy daarvan oortuig is dat sodanige ander inrigting, toestel of apparaat of tipe daarvan of sodanige ander voorsiening minstens net so doeltreffend is as wat by hierdie regulasies vereis word.

If such verification should show that the calibration tables or curves are materially inaccurate, the master of the ship shall cause the direction-finder to be recalibrated as soon as practicable in the manner specified in subregulations (2) and (3).

45. *Records of Calibration and Verification.*

The master of every ship shall cause the following records to be kept on board in a place accessible to any person operating the direction-finder, and to be available for inspection at any reasonable time by any person authorised by the Secretary or by the Postmaster-General:—

(a) A list or diagram indicating the condition and position, on the most recent occasion on which the direction-finder was calibrated, of—

(i) the aerials, and of

(ii) all movable structures

on board the ship which might affect the accuracy of the direction-finder;

(b) the calibration tables and curves which were prepared on the most recent occasion on which the direction-finder was calibrated;

(c) a certificate of calibration, in the form specified in annex 13, relating to the most recent occasion on which the direction-finder was calibrated and signed by the persons making the calibration; and

(d) a record, in the form specified in annex 14, of check-bearings taken for the verification of calibration, the bearings being numbered in the order in which they were taken.

46. *Wiring Diagrams and Instructions.*

A schematic wiring diagram of the direction-finder and a book containing adequate instructions as to the use of the direction-finder shall be provided and shall be available at all times for use by any person operating or testing the direction-finder.

CHAPTER II.—EXEMPTIONS.

47. *General Exemption.*

The Authority may, on such conditions as he may deem necessary, exempt any ship of less than 5,000 tons from any of the provisions of this Part.

PART III.—CONSTRUCTION AND EQUIVALENTS.

48. *Construction: General.*

The radiotelegraph installation, radiotelephone installation, direction-finder and other equipment specified in these regulations shall be suitable for use on board a ship at sea.

49. *Equivalents.*

Where these regulations require that a particular fitting, appliance or apparatus, or type thereof, shall be fitted or carried in a ship or that any particular provision shall be made, the Authority may allow any other fitting, appliance or apparatus, or type thereof, to be fitted or carried, or any other provision to be made in that ship if he is satisfied that such other fitting, appliance or apparatus, or type thereof, or such other provision, is at least as effective as that required by these regulations.

AANHANGSEL 1.

[Regulasie 4 (1).]

RADIOTELEGRAAFINSTALLASIE.

DEEL I.

HOOFRADIOTELEGRAAFSENDER.

1. Algemeen.

(1) Die hoofradiotelegraafsender (in hierdie deel die „sender” genoem) moet toegerus word met enige uitrusting wat nodig is om hom te laat werk vanaf die bron van elektriese energie waarvan in regulasie 13 (1) melding gemaak word, en moet ingestem kan word met die hoof- en reserwe-antennes waarvan in regulasie 11 melding gemaak word.

(2) Aan die vereistes van hierdie deel moet voldoen word waar die werklike toevoerspanning wissel van 10 persent meer tot 10 persent minder as die nominale toevoerspanning.

(3) Die sender moet aan die vereistes van hierdie deel voldoen wanneer hy getoets word onder die omstandighede wat in aanhangsel 3 vir klas B-uitrusting voorgeskryf word.

(4) Die sender moet nie die aarding van die skip se elektrisiteitsnet veroorsaak nie.

2. Frekwensiegebiede en Klasse Uitsendings.

Die sender moet in staat wees om klas A1- en klas A2-uitsendings op 500 kp/s en minstens 4 ander kol-frekwensies binne die frekwensiegebied 405 tot 525 kp/s uit te send.

3. Beveiligingsmaatreëls.

Voorsiening moet gemaak word om die sender teen die uitwerking van buitensporige stroom of spanning te beveilig.

4. Modulasie.

Wanneer klas A2-uitsendings gesend word, moet aan die volgende vereistes voldoen word:—

(a) Die fundamentele modulasiefrekwensie moet in die gebied 450 tot 1350 p/s wees;

(b) wanneer die uitgangsvermoë van die sender 25 watt te bowe gaan, moet die modulasiediepte tussen 80 en 95 persent wees; en

(c) wanneer die leweringsvermoë van die sender tot 25 watt of minder verlaag word, moet die modulasiediepte tussen 70 en 95 persent wees.

5. Bedieningsfasiliteite.

(1) Dit moet vir 'n operateur moontlik wees om die sender binne 'n tydperk van hoogstens 10 sekondes van funksionering op enige frekwensie na funksionering, binne die bepaling van hierdie deel op enige ander frekwensie oor te skakel.

(2) Die sender moet binne 60 sekondes na aanskakeling gereed wees om met volle krag te funksioneer.

(3) As dit nodig is om na aanskakeling die toepassing van spanning op enige deel van die sender te vertraag, moet die vertraging outomaties plaasvind.

(4) Dit moet moontlik wees om die sender te gebruik saam met die outomatiese sleutel-inrigting wat in deel V gespesifiseer word.

(5) 'n Middel moet ingelyf word om saam met 'n verbode ontvanger geriewe te verskaf om teen normale seinsnelhede gedurende pouses te luister.

6. Bestek van Belastingsimpedansie.

Die sender moet aan die vereistes van hierdie deel voldoen wanneer hy met die onderskeie kunsbelastings met waardes gespesifiseer in onderstaande tabel, of met belastings met tussenwaardes verbind is.

ANNEX 1.

[Regulation 4 (1).]

RADIOTELEGRAPH INSTALLATION.

PART I.

MAIN RADIOTELEGRAPH TRANSMITTER.

1. General.

(1) The main radiotelegraph transmitter (in this part referred to as “the transmitter”) shall be provided with any equipment which may be necessary to enable it to be operated from the source of electrical energy referred to in regulation 13 (1) and shall be capable of being tuned to the main and reserve aërials referred to in regulation 11.

(2) The requirements of this part shall be met for a range of supply voltage variations of plus and minus 10 per cent relative to the nominal supply voltage.

(3) The transmitter shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

(4) The transmitter shall not cause the ship's mains to be earthed.

2. Frequency Ranges and Classes of Emission.

The transmitter shall be capable of transmitting class A1 and class A2 emissions on 500 kc/s and at least 4 other spot frequencies in the range 405 to 525 kc/s.

3. Protective Arrangements.

Provision shall be made for protecting the transmitter from the effects of excessive current or voltage.

4. Modulation.

When class A2 emissions are being transmitted, the following requirements shall be met:—

(a) The fundamental modulation frequency shall be in the range 450 to 1350 c/s;

(b) when the output power of the transmitter exceeds 25 watts, the depth of modulation shall be between 80 and 95 per cent; and

(c) when the output power of the transmitter is reduced to 25 watts or less, the depth of modulation shall be between 70 and 95 per cent.

5. Operating Facilities.

(1) It shall be possible for an operator to change the transmitter from operation on any frequency to operation, within the provisions of this part, on any other frequency in a period not exceeding 10 seconds.

(2) The transmitter shall be ready for full-power operation within 60 seconds of switching on.

(3) If it is necessary to delay the application of voltage to any part of the transmitter after switching on, the delay shall be provided automatically.

(4) The transmitter shall be capable of being used in conjunction with the automatic keying device specified in part V.

(5) Means shall be incorporated to provide, in conjunction with an associated receiver, listening-through facilities at normal signalling speeds.

6. Range of Load Impedance.

The transmitter shall meet the requirements of this part when connected to each in turn of the artificial loads having values specified in the table below, or with loads having any intermediate values.

TABEL.
Kunsbelasting (elemente in serie).

C	300	400	500	600	750	Pikofarad.
R (nie-induktief)	3.6	2.8	2.2	2.0	1.9	Ohm.

7. Vermoë van die Sender.

(1) Vir die toepassing van hierdie paragraaf beteken „vermoë van die sender” ten opsigte van sowel klas A1- en klas A2-uitsendings die gemiddelde vermoë wat onder werktoestande in enige belasting binne die bestek gespesifiseer in paragraaf 6 ontwikkel word.

(2) Ongeag die kragtoevoerwisselings binne die perke gestel in paragraaf 1 (2) en die toetse vermeld in paragraaf 1 (3) mag die vermoë van die sender nie minder as 50 watt wees nie.*

(* Desnieteenstaande moet aan die betrokke meter-ampvereiste gespesifiseer in hierdie regulasies voldoen word.)

(3) Dit moet moontlik wees om die vermoë van die sender of deurlopend of in trappe van hoogstens 6 desibels tot 'n vermoë van hoogstens 10 watt te verlaag.

(4) Wanneer die sender vir volle of verminderde vermoë ingestel word, moet hy in staat wees om—

(a) sonder kritieke verstellings aanhoudend radio-telegraafseine uit te send teen alle snelhede tot 30 bauds;

(b) 15 minute lank onder egalige werk- of rustoestande te werk;

(c) die uitwerking van oopkring- of kortgesluite antenneklemme 15 minute lank te weerstaan.

In geen geval mag enige deel van die sender beskadig word nie.

8. Frekwensiestabiliteit.

(1) Die sender moet in verhouding tot nominale frekwensie aan 'n frekwensietoleransie van plus en minus 200 dele op 10^6 voldoen.

(2) Die sender moet die frekwensietoleransie wat in subparagraaf (1) vermeld word, sonder verstelling handhaaf ongeag wisselings van die impedansie van die las waarmee hy verbind is.

9. Onnodige Komponente in die Leweringsein.

(1) Die leweringsvermoë van parasietstraling mag nie 40 desibels onder die dragolfenergie of 20 miliwatt, na gelang van watter die laagste is, te bowe gaan nie. Vir hierdie doel omvat die uitdrukking „parasiet” bofrekwensies van die draagfrekwensie en intermodulasie-produkte, maar nie komponente wat 'n gevolg van die modulasieproses is nie.

(2) Wanneer die sender morsepunte teen snelhede tot 30 bauds uitsend, moet 95 persent van die totale uitgestraalde energie binne 'n band wees wat in verhouding tot die frekwensie van die gelykmatige dragolf nie wyer is as plus en minus 100 p/s vir klas A1-uitsendings en plus en minus 1500 p/s vir klas A2-uitsendings nie.

10. Kunsantenne.

'n Kunsantenne moet verskaf word om die sender op volle vermoë te toets.

TABLE.
Artificial load (Elements in series).

C	300	400	500	600	750	Picofarads.
R (non-inductive).....	3.6	2.8	2.2	2.0	1.9	Ohms.

7. Power of the Transmitter.

(1) For the purposes of this paragraph, the expression “the power of the transmitter” both for class A1 and class A2 emissions, means the mean power developed under mark conditions in any load within the range specified in paragraph 6.

(2) The power of the transmitter shall be not less than 50 watts *regardless of the power supply variations within the limits given in paragraph 1 (2) and the tests referred to in paragraph 1 (3).

(*Notwithstanding, the relevant metre-amp requirement specified in these regulations shall be met.)

(3) It shall be possible to reduce the power of the transmitter, either continuously or in steps of not more than 6 decibels, to a value not greater than 10 watts.

(4) When the transmitter is adjusted for full or reduced power, it shall be capable of—

(a) transmitting continuously, without critical adjustments, radiotelegraph signals at all speeds up to 30 bauds;

(b) operating for a period of 15 minutes under steady marking or spacing conditions;

(c) withstanding for a period of 15 minutes the effects of open-circuited or short-circuited aerial terminals;

In no case shall damage be caused to any part of the transmitter.

8. Frequency Stability.

(1) The transmitter shall conform to a frequency tolerance of plus and minus 200 parts in 10^6 relative to nominal frequency.

(2) The transmitter shall maintain the frequency tolerance specified in subparagraph (1), without adjustment, regardless of variations of the impedance of the load to which it is connected.

9. Unwanted Components in the Output Signal.

(1) The output power of any spurious emission shall not exceed a level of 40 decibels below the carrier power or 20 milliwatts, whichever is the less. For this purpose, the term “spurious” includes harmonics of the carrier frequency and intermodulation products, but not components which are a result of the modulation process.

(2) When the transmitter is transmitting morse dots at speeds up to 30 bauds, 95 per cent of the total power radiated shall be within a band not wider, relative to the frequency of the steady-state carrier, than plus and minus 100 c/s for class A1 emissions and plus and minus 1500 c/s for class A2 emissions.

10. Artificial Aerial.

An artificial aerial shall be provided for testing the transmitter on full power.

11. *Meters.*

(1) Die sender moet toegerus wees met 'n meter om die antennestroom in ampères aan te dui. As die meganisme van hierdie meter onklaar raak, moet dit nie die antenne diskonnekteer nie.

(2) Ander meters moet na gelang nodig ingesluit word sodat die sender nagegaan en gestel kan word.

DEEL II.

HOOFRADIOTELEGRAAFONTVANGER.

1. *Algemeen.*

(1) Die hoofradiotelegraafontvanger (in hierdie deel „die ontvanger” genoem) moet kan werk met elektriese energie uit die bron waarvan in regulasie 13 (1) melding gemaak word.

(2) Die ontvanger moet bestaan uit of 'n enkele eenheid of afsonderlike eenhede wat elkeen in staat is tot ontvangs op een of meer seksies van die frekwensiegebied gespesifiseer in paragraaf 2. Elke eenheid van die ontvanger moet 'n plaat hê waarop die frekwensiegebied vermeld word wat hy bedoel is om te dek.

(3) Die ontvanger mag nie trillers of primêre batterye gebruik nie.

(4) Tensy anders vermeld, moet aan die vereistes van hierdie deel voldoen word ten opsigte van spannings wat van 10 persent hoër tot 10 persent laer as die normale toevoerspanning wissel.

(5) Behalwe waar anders vermeld, moet die ontvanger aan die vereistes van hierdie deel voldoen wanneer hy getoets word onder omstandighede wat in aanhangsel 3 ten opsigte van klas B-uitrusting gespesifiseer word.

(6) Die ontvanger moet nie die aarding van die skip se kragnet veroorsaak nie.

2. *Frekwensiegebiede en Klasse Uitsendings.*

Die ontvanger moet seine kan ontvang in die frekwensiegebiede en van die uitsendingsklasse wat in onderstaande tabel genoem word:—

Frekwensiegebied.	Klas uitsending.
15 kp/s tot 160 kp/s.	A1.
Bo 160 kp/s en tot 1500 kp/s.	A1, A2.
Bo 1500 kp/s en tot 4 mp/s.	A1, A2, A3.
Bo 4 mp/s en tot 28 mp/s.	A1, A2, A3.

3. *Ontvangsfasiliteite.*

(1) Die ontvanger moet in staat wees om dwarsdeur die frekwensiegebied vermeld in paragraaf 2 deur middel van 'n koptelefoon en 'n luidspreker te ontvang. Die luidspreker moet buite werking gestel word wanneer ontvangs deur middel van die koptelefoon geskied.

(2) Die ontvanger moet gevoelig genoeg wees om in koptelefoon of luidsprekers seine te lewer wanneer die ontvangerinset so laag as 50 mikrovolt is.

4. *Instembeheer en -Skaal.*

(1) Die ontvanger moet toegerus wees met—

(a) 'n middel om die gevoeligheid van die ontvanger te verlaag wanneer die telegraafsleutel afgedruk is sodat teen normale seinsnelhede tydens pouses geluister kan word wanneer 'n verbonde sender in dieselfde frekwensieband funksioneer;

(b) handkontroles na gelang nodig, vir die verstelling van radio- en/of tussenfrekwensieversterking en van audiofrekwensieversterking;

11. *Meters.*

(1) The transmitter shall incorporate a meter to indicate the aerial current in amperes. Failure of the movement of this meter shall not disconnect the aerial.

(2) Other meters shall be included as necessary to enable the transmitter to be checked and adjusted.

PART II.

MAIN RADIOTELEGRAPH RECEIVER.

1. *General.*

(1) The main radiotelegraph receiver (in this part referred to as “the receiver”) shall be capable of being operated from the source of electrical energy referred to in regulation 13 (1).

(2) The receiver shall consist either of a single unit or of separate units each of which is capable of reception on one or more sections of the frequency range specified in paragraph 2. Each unit of the receiver shall bear a plate stating the frequency range it is intended to cover.

(3) The receiver shall not employ any vibrators or primary batteries.

(4) The requirements of this part shall be met, unless otherwise specified, for a range of voltage variations of plus and minus 10 per cent relative to the nominal supply voltage.

(5) Except where otherwise stated, the receiver shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

(6) The receiver shall not cause the ship's mains to be earthed.

2. *Frequency Ranges and Classes of Emission.*

The receiver shall be capable of receiving signals within the frequency ranges and of the classes of emission specified in the following table:—

Frequency range.	Class of emission.
15 kc/s to 160 kc/s.	A1.
Over 160 kc/s to 1500 kc/s.	A1, A2.
Over 1500 kc/s to 4 Mc/s.	A1, A2, A3.
Over 4 Mc/s to 28 Mc/s.	A1, A2, A3.

3. *Reception Facilities.*

(1) The receiver shall be capable of headphone and loudspeaker reception throughout the frequency range specified in paragraph 2. The loudspeaker shall be rendered in operative when reception is by headphones.

(2) The receiver shall have sufficient sensitivity to produce signals in headphones or by means of a loudspeaker when the receiver input is as low as 50 microvolts.

4. *Tuning Control and Scale.*

(1) The receiver shall be provided with—

(a) means for reducing the receiver sensitivity when the telegraph key is depressed so as to permit listening-through at normal signalling speeds when an associated transmitter is operating in the same frequency band;

(b) manual controls, as necessary, for the adjustment of radio and/or intermediate-frequency gain and of audio-frequency gain;

(c) 'n middel om die operateur in staat te stel om binne 5 sekondes op enige frekwensie in dieselfde mobiele seeband en binne 15 sekondes op frekwensies in ander bande in te stem;

(d) 'n instemskaal wat regstreeks in frekwensie gekalibreer is;

(e) 'n logskaal of ander goedgekeurde middel om die instemfrekwensie noukeurig oor te stel; en

(f) 'n fyn kontrole waarvan die knop 'n deursnee van minstens 2 duim het, tensy die frekwensie in trappe van 100 p/s of minder verstelbaar is.

(2) Nadat die ontvanger 30 minute aangeskakel was, moet die oorstelnoukeurigheid vermeld in subparagraaf (1) (e) binne die toleransie wees wat in onderstaande tabel aangegee word:—

Frekwensiegebied.	Oorstelfout, p/s.
15 kp/s tot 20 kp/s.	Minder as 40.
Bo 20 kp/s en tot 160 kp/s.	Minder as 300.
Bo 160 kp/s en tot 1500 kp/s.	Minder as 2500.
Bo 1.5 mp/s en tot 4 mp/s.	Minder as 4,000.
Bo 4 mp/s en tot 28 mp/s.	Minder as 8,000.

(3) Met betrekking tot subparagraaf (1) (f) moet dooiegang nie 'n drywingsonsekerheid van meer as 1 graad veroorsaak en moet 'n rotasie van 1 graad nie die instemfrekwensie met meer as die volgende hoeveelhede verander nie:—

Frekwensiegebied.	Frekwensieveranderings per graad, dele op 10^4 .
15 kp/s tot 1500 kp/s.	3
Bo 1.5 mp/s tot 28 mp/s.	1

5. Standaardleweringspeil.

(1) Die standaard-oudiofrekwensie-leweringspeil vir koptelefoonontvangs moet wees 1 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die koptelefone teen 1000 p/s.

(2) Die standaard-oudiofrekwensie-leweringspeil vir luidsprekerontvangs moet wees 50 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die luidspreker teen 1000 p/s.

6. Toetsmetode.

(1) Die kunsantennes wat vir die uitvoer van toetse gebruik word, moet as volg wees:—

(a) Vir frekwensies onder 4 mp/s 'n nie-induktiewe weerstand van 10 ohm in serie met 'n kapasitor met enige en elke waarde tussen 200 en 600 pikofarad; en

(b) vir frekwensies bo 4 mp/s 'n nie-induktiewe weerstand van 75 ohm.

(2) Tensy anders bepaal moet 'n klas A2-toetssein 30 persent teen 1000 p/s gemoduleer word.

7. Selektiwiteit.

(1) Die selektiwiteit wat die einddefektor voorafgaan, moet hetsy deurlopend of in trappe reëlbaar wees en dwarsdeur die gespesifiseerde frekwensiegebiede aan ondervermelde vereistes voldoen. Vir hierdie toets moet die outomatiese versterkingskontrole buite werking gestel word.

(c) means for enabling the operator to tune to any frequency in the same maritime mobile band within 5 seconds, and within 15 seconds if the frequencies are in different bands;

(d) a tuning scale calibrated directly in frequency;

(e) a logging scale or other approved means for the accurate resetting of tune; and

(f) a fine control, the knob of which shall be at least 2 inches in diameter, unless the frequency is adjustable in steps of 100 c/s or less.

(2) After the receiver has been switched on for 30 minutes, the resetting accuracy referred to in subparagraph (1) (e) shall be within the tolerance specified in the following table:—

Frequency range.	Resetting error, c/s.
15 kc/s to 20 kc/s.	Less than 40.
Over 20 kc/s to 160 kc/s.	Less than 300.
Over 160 kc/s to 1500 kc/s.	Less than 2500.
Over 1.5 Mc/s to 4 Mc/s.	Less than 4,000.
Over 4 Mc/s to 28 Mc/s.	Less than 8,000.

(3) In regard to subparagraph (1) (f), backlash shall not cause an uncertainty of drive exceeding 1 degree and a rotation of 1 degree shall not change the frequency of tune by more than the following amounts:—

Frequency range.	Changes of frequency per degree, parts in 10^4 .
15 kc/s to 1500 kc/s.	3
Over 1.5 Mc/s to 28 Mc/s.	1

5. Standard Output Level.

(1) The standard audio-frequency output level for headphone reception shall be 1 milliwatt into a resistance substantially equal to the modulus of the impedance of the headphones at 1000 c/s.

(2) The standard audio-frequency output level for loudspeaker reception shall be 50 milliwatts into a resistance substantially equal to the modulus of the impedance of the loudspeaker at 1000 c/s.

6. Method of Test.

(1) The artificial aerials employed for testing shall be as follows:—

(a) For frequencies below 4 Mc/s, a 10-ohm noninductive resistor in series with a capacitor having any and every value between 200 and 600 picofarads; and

(b) for frequencies above 4 Mc/s, a 75-ohm noninductive resistor.

(2) A class A2 test signal shall, unless otherwise specified, be modulated 30 per cent at 1000 c/s.

7. Selectivity.

(1) The selectivity preceding the final detector shall be variable either continuously or in steps and shall satisfy the requirements appearing below throughout the frequency ranges specified. For this test, the automatic gain control shall be rendered inoperative.

Bandbreedtestelling.	Breed.	Tussen-breedte.	Smal.	Baie smal.
Frekwensiegebied.	1.5 mp/s tot 28 mp/s.	160 kp/s tot 28 mp/s.	15 kp/s tot 28 mp/s.	15 kp/s tot 160 kp/s.
Diskriminasie van hoogstens 6 dB moet verkry word wat van instemfrekwensies verwyder is met	4 kp/s.	1.5 kp/s.	0.5 kp/s. (geld nie onder 100 kp/s nie).	—
Diskriminasie van minstens 6 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	6 kp/s.	2.5 kp/s.	1 kp/s.	0.25 kp/s.
Diskriminasie van minstens 30 dB moet verkry word op frekwensie wat van instemfrekwensies verwyder is met	10 kp/s.	5 kp/s.	2.5 kp/s.	0.75 kps.
Diskriminasie van minstens 60 dB moet verkry word op frekwensies (uitgesonderd beeldfrekwensie) wat van instemfrekwensie verwyder is met	20 kp/s.	10 kp/s.	5 kp/s.	5 kp/s.
Diskriminasie van minstens 90 dB moet verkry word op frekwensies (uitgesonderd die tf. en beeldfrekwensies) wat van instemfrekwensie verwyder is met	45 kp/s.	35 kp/s.	25 kp/s.	25 kp/s.
Vir die doel van hierdie toets word geen diskriminasie van meer as 60 dB teen 'n steursein met 'n frekwensie van meer as 1.6 mp/s vereis nie.				

(2) Die beeldblokkeringsverhouding en die tussenfrekwensieblokkeringsverhouding van 'n superheterodyne-ontvanger mag nie laer wees as die waardes wat in onderstaande tabelle aangegee word nie. Vir hierdie toetse moet die outomatiese versterkingskontrolle buite werking gestel word.

Frekwensie van verlangde sein.	Beeldblokkeringsverhouding.
15 kp/s tot 1,000 kp/s. Bo 1 mp/s en tot 1.5 mp/s. Bo 1.5 mp/s en tot 7 mp/s. Bo 7 mp/s en tot 15 mp/s. Bo 15 mp/s.	80 dB. 70 dB. 60 dB. 40 dB. 30 dB.
Tussenfrekwensie.	Tf.-blokkeringsverhouding.
Tussen 150 en 1600 kp/s. Buite bovermelde perke.	90 dB. 60 dB.

8. Gevoeligheid.

Die standaardleweringspeile vermeld in paragrawe 5 (1) en 5 (2) moet verkrygbaar wees by alle bandbreedtestellings met die outomatiese versterkingskontrolle sowel aan as afgeskakel en met die volgende peile:—

Frekwensie.	Inset vir klas A1-uitsendings.	Inset vir klas A2-uitsendings.
15 kp/s tot 160 kp/s.	30 dB bo 1 mikrovolt.	Nie van toepassing nie.
Bo 160 kp/s en tot 1500 kp/s.	20 dB bo 1 mikrovolt.	30 dB bo 1 mikrovolt.
Bo 1.5 mp/s en tot 10 mp/s.	10 dB bo 1 mikrovolt.	20 dB bo 1 mikrovolt.
Bo 10 mp/s en tot 28 mp/s.	20 dB bo 1 mikrovolt.	30 dB bo 1 mikrovolt.

Bandwidth Setting.	Wide.	Intermediate.	Narrow.	Very Narrow.
Frequency range.	1.5 Mc/s to 28 Mc/s.	160 kc/s to 28 Mc/s.	15 kc/s to 28 Mc/s.	15 kc/s to 160 kc/s.
Not more than 6 db discrimination to be obtained at frequencies removed from tune by	4 kc/s.	1.5 kc/s.	0.5 kc/s (does not apply below 100 kc/s).	—
At least 6 db discrimination to be obtained at frequencies removed from tune by	6 kc/s.	2.5 kc/s.	1 kc/s.	0.25 kc/s.
At least 30 db discrimination to be obtained at frequencies removed from tune by	10 kc/s.	5 kc/s.	2.5 kc/s.	0.75 kc/s.
At least 60 db discrimination to be obtained at frequencies (other than the image frequency) removed from tune by	20 kc/s.	10 kc/s.	5 kc/s.	5 kc/s.
At least 90 db discrimination to be obtained at frequencies (other than the I.F. and image frequencies) removed from tune by	45 kc/s.	35 kc/s.	25 kc/s.	25 kc/s.
For the purpose of this test, no discrimination exceeding 60 db shall be required against any interfering signal of frequency greater than 1.6 Mc/s.				

(2) The image rejection ratio and the intermediate-frequency rejection ratio of a superheterodyne receiver shall not be less than the values given in the tables below. For these tests, the automatic gain control shall be rendered inoperative.

Frequency of wanted signal.	Image rejection ratio.
15 kc/s to 1,000 kc/s. Over 1 Mc/s to 1.5 Mc/s. Over 1.5 Mc/s to 7 Mc/s. Over 7 Mc/s to 15 Mc/s. Over 15 Mc/s.	80 db. 70 db. 60 db. 40 db. 30 db.
Intermediate frequency.	I.F. rejection ratio.
Between 150 and 1600 kc/s. Outside the above limits.	90 db. 60 db.

8. Sensitivity.

The standard output levels specified in paragraphs 5 (1) and 5 (2) shall be obtainable at all bandwidth settings, with the automatic gain control both on and off and with the following levels:—

Frequency.	Input for Class A1 emissions.	Input for Class A2 emissions.
15 kc/s to 160 kc/s.	30 db above 1 microvolt.	Does not apply.
Over 160 kc/s to 1500 kc/s.	20 db above 1 microvolt.	30 db above 1 microvolt.
Over 1.5 Mc/s to 10 Mc/s.	10 db above 1 microvolt.	20 db above 1 microvolt.
Over 10 Mc/s to 28 Mc/s.	20 db above 1 microvolt.	30 db above 1 microvolt.

9. Sein/Ruisverhouding.

(1) Met 'n klas A1- of klas A2-insetsein van die peil vermeld in paragraaf 8 en met die ontvangerversterking gestel om standaardlewering te lewer, moet die sein/ruis-verhouding nie laer wees as die waardes wat hieronder aangetoon word nie. Vir hierdie toets moet aan die vereistes voldoen word ongeag of die outomatiese versterkingskontrole in werking is of nie.

Frekwensiegebied.	Bandbreedtestelling.	Minimum sein/ruis-verhouding.
15 kp/s tot 160 kp/s. Bo 160 kp/s en tot 1500 kp/s.	Smal. Tussenbreedte.	10 dB. 10 dB.
Bo 1.5 mp/s en tot 4 mp/s.	Breed.	10 dB.
Bo 4 mp/s tot 10 mp/s. Bo 10 mp/s tot 28 mp/s	Breed. Breed.	20 dB. 25 dB.

(2) Geen verslapping van die perke gespesifiseer in sub-paragraaf (1) word vir parasietfluïte toegelaat nie.

10. Outomatiese Versterkingskontrole.

(1) Die ontvanger moet toegerus wees met 'n outomatiese versterkingskontrole wat op klas A1-, klas A2- en klas A3-seine op alle frekwensies tussen 1500 kp/s en 28 mp/s doeltreffend kan werk.

(2) Met 'n insetsein van klas A2 op die toepaslike peil gespesifiseer in paragraaf 8 en met 'n frekwensie tussen 1500 kp/s en 28 mp/s—

(a) wanneer die ontvanger gestel is om die standaardlewering te gee, moet 'n insetverhoging van 20 dB 'n verbetering in die sein/ruisverhouding tot minstens 15 desibels bo die toepaslike minimum sein/ruisverhouding gespesifiseer in paragraaf 9 lewer;

(b) wanneer die ontvanger gestel is om 10 desibels onder standaardlewering te gee, moet 'n vermeerdering van 60 desibels in die inset nie die lewering met meer as 10 desibels verhoog nie. Volgens hierdie voorwaarde moet die totale bofrekwensiegehalte van die uitgangsspanning nie 5 persent te bowe gaan nie.

(3) Die laaitydkonstant van die outomatiese versterkingskontrolestelsel moet tussen 0.05 en 0.2 sekondes en die ontlaaitydkonstant tussen 0.5 en 2 sekondes wees.

(4) 'n Middel moet verskaf word om die outomatiese versterkingskontrole af te skakel.

11. Bepierking.

Met die outomatiese versterkingskontrole afgeskakel en met die ontvanger gestel om standaardlewering te gee met 'n klas A1-insetsein 20 desibels bo die toepaslike peil gespesifiseer in paragraaf 8, moet 'n vermeerdering van 60 desibels in die inset nie die lewering met meer as 10 desibels vermeerder nie.

12. Blokkering.

(1) Met die bandbreedte gestel op „tussenbreedte” en die outomatiese versterkingskontrole aangeskakel waar dié beskikbaar is, moet die ontvanger gestel word om die standaardlewering te gee met 'n verlangde insetsein van klas A2 op 'n peil 60 desibels bo 1 mikrovolt en met 'n frekwensie tussen 160 kp/s tot 28 mp/s.

Die gelyktydige aanwending van 'n klas A1-insetsein op 'n peil 100 desibels bo 1 mikrovolt en op 'n frekwensie 10 kp/s bo of onder dié van die verlangde sein moet nie die lewering meer as 3 desibels laat verander nie.

(2) Met die bandbreedte op „smal” en die outomatiese versterkingskontrole afgeskakel, moet die ontvanger gestel word om met 'n verlangde insetsein van klas A1 op 'n peil 30 desibels bo 1 mikrovolt en met 'n frekwensie tussen 15 en 160 kp/s die standaardlewering te gee.

9. Signal/Noise Ratio.

(1) With any input signal, either of class A1 or class A2, of the level specified in paragraph 8 and with the receiver gain adjusted to give standard output, the signal/noise ratio shall be not less than the values given below. For this test, the requirements shall be met whether the automatic gain control is operative or not.

Frequency range.	Bandwidth condition.	Minimum signal/noise ratio.
15 kc/s to 160 kc/s.	Narrow.	10 db.
Over 160 kc/s to 1500 kc/s.	Intermediate.	10 db.
Over 1.5 Mc/s to 4 Mc/s.	Wide.	10 db.
Over 4 Mc/s to 10 Mc/s.	Wide.	20 db.
Over 10 Mc/s to 28 Mc/s.	Wide.	25 db.

(2) No relaxation of the limits specified in subparagraph (1) shall be allowed for spurious whistles.

10. Automatic Gain Control.

(1) The receiver shall be fitted with an automatic gain control capable of efficient operation on signals of class A1, class A2 and class A3 at all frequencies in the range between 1500 kc/s and 28 Mc/s.

(2) With an input signal of class A2 at the appropriate level specified in paragraph 8 and of any frequency within the ranges between 1500 kc/s and 28 Mc/s—

(a) when the receiver is adjusted to give standard output, an increase in input of 20 db shall result in an improvement in the signal/noise ratio to at least 15 decibels above the appropriate minimum signal/noise ratio specified in paragraph 9;

(b) with the receiver adjusted to give an output 10 decibels below standard output, an increase in input of 60 decibels shall not increase the output by more than 10 decibels. Under this condition the total harmonic content of the output voltage shall not exceed 5 per cent.

(3) The charge time-constant of the automatic gain control system shall be between 0.05 and 0.2 second and the discharge time-constant shall be between 0.5 and 2 seconds.

(4) Means shall be provided for switching off the automatic gain control.

11. Limiting.

With the automatic gain control switched off and with the receiver adjusted to give standard output with a class A1 input signal 20 decibels above the appropriate level specified in paragraph 8, an increase in the input of 60 decibels shall not increase the output by more than 10 decibels.

12. Blocking.

(1) With the bandwidth set to “intermediate” and the automatic gain control switched on wherever available, the receiver shall be adjusted to give standard output with an input wanted signal of class A2 at a level of 60 decibels above 1 microvolt and of any frequency in the range 160 kc/s to 28 Mc/s.

The simultaneous application of a class A1 input signal at a level of 100 decibels above 1 microvolt and at a frequency 10 kc/s above or below that of the wanted signal, shall not cause a change in output exceeding 3 decibels.

(2) The receiver shall be adjusted, with the bandwidth at “narrow” and the automatic gain control switched off, to give standard output with an input wanted signal of class A1 at a level of 30 decibels above 1 microvolt and of any frequency between 15 and 160 kc/s.

Die gelyktydige aanwending van 'n klas A1-insetsein op 'n peil 70 desibels bo 1 mikrovolt en op 'n frekwensie 5 kp/s bo of onder die verlangde sein moet die lewering nie meer as 3 desibels laas verander nie.

13. Kruismodulasie.

(1) Die ontvanger moet gestel word soos in paragraaf 12 (1) beskryf en alleen die modulasie van die sein moet dan afgeskakel word.

(2) Die gelyktydige aanwending van 'n klas A2-insetsein op 'n peil 90 desibels bo 1 mikrovolt en op 'n frekwensie 10 kp/s bo of onder dié van die verlangde sein moet nie 'n leweringspeil hoër as 30 desibels onder die standaard-lewering gee nie.

14. Intermodulasie.

(1) Met die bandbreedte op „tussenbreedte” gestel en die outomatiese versterkingskontrole afgeskakel, moet die ontvanger gestel word om die standaardlewering te gee met 'n verlangde insetsein van klas A2 op 'n peil 30 desibels bo 1 mikrovolt en op enige frekwensie tussen 160 en 550 kp/s. Die verlangde sein moet dan verwyder word.

(2) Die gelyktydige aanwending van enige twee „steur”-seine, naamlik een van klas A1 en die ander van klas A2, moet nie 'n lewering gee wat die standaard-lewering oortref nie. Albei steruseine moet 'n peil hê van 110 desibels bo 1 mikrovolt en nie een van hulle mag 'n draagfrekwensie binne 35 kp/s van die verlangde sein hê of mag 'n groter lewering as 20 desibels laer as die standaardlewering gee wanneer hy gemoduleer is en alleen aangewend word nie.

(3) Die ontvanger moet verstel word soos in subparagraaf (1) aangedui maar met 'n verlangde sein met 'n frekwensie tussen 280 en 550 kp/s. Die verlangde sein moet dan verwyder word.

(4) As 'n klas A2-sein 'n frekwensie het wat 'n onderfrekwensie van die verlangde sein is en sodanige sein op 'n peil 116 desibels bo 1 mikrovolt aangewend word, moet dit nie 'n lewering gee wat die standaardlewering oortref nie.

15. Getrouheid.

Op alle instemfrekwensies bo 1500 kp/s moet die modulasiefrekwensieweergawekekenmerk van die ontvanger, met die bandbreedte op „breed” gestel, binne 8 desibels vir modulasiefrekwensies tussen 300 en 3000 p/s wees. Op frekwensies bo 3000 p/s moet die lewering met minstens 8 desibels per oktaaf daal.

Vir hierdie toets moet die peil en modulasiediepte van die insetsein konstant gehou word. Die insetsein kan enige peil en modulasiediepte hê, op voorwaarde dat die lewering van die ontvanger nie die standaardlewering oortref nie.

16. Nie-Lineêre Vervorming.

Op alle instemfrekwensies bo 1500 kp/s met die outomatiese versterkingskontrole aangeskakel en die bandbreedte op „breed” gestel en—

(a) met 'n klas A2-toetssein op enige peil tussen 30 en 80 desibels bo 1 mikrovolt moet die totale bofrekwensie-inhoud van die oudiofrekwensieleweringspanning by enige lewering gelyk aan hoogstens die standaardlewering nie 5 persent te bowe gaan nie; en

(b) sonder verdere verstelling van die ontvanger en met die toetssein gemoduleer tot 'n diepte van 80 persent moet die totale bofrekwensie-inhoud van die oudiofrekwensielewering nie 10 persent te bowe gaan nie.

The simultaneous application of a class A1 input signal at a level of 70 decibels above 1 microvolt and at a frequency 5 kc/s above or below the wanted signal shall not cause a change in output exceeding 3 decibels.

13. Cross Modulation.

(1) The receiver shall be adjusted as described in paragraph 12 (1) and the modulation only of the signal then switched off.

(2) The simultaneous application of a class A2 input signal at a level of 90 decibels above 1 microvolt and at a frequency 10 kc/s above or below that of the wanted signal shall not produce an output level higher than 30 decibels below the standard output.

14. Intermodulation.

(1) The receiver shall be adjusted, with the bandwidth set to “intermediate” and the automatic gain control switched off, to give standard output with an input wanted signal of class A2 at a level of 30 decibels above 1 microvolt and at any frequency between 160 and 550 kc/s. The wanted signal shall then be removed.

(2) The simultaneous application of any two “interfering” signals, one of class A1 and the other of class A2, shall not produce an output exceeding standard output. Both interfering signals shall be at a level of 110 decibels above 1 microvolt and neither shall have a carrier frequency within 35 kc/s of the wanted signal or shall give an output greater than minus 20 decibels relative to the standard output when modulated and applied alone.

(3) The receiver shall be readjusted as in subparagraph (1), but with a wanted signal having a frequency between 280 and 550 kc/s. The wanted signal shall then be removed.

(4) The application of a class A2 signal, the frequency of which is a sub-harmonic of the wanted signal, at a level of 116 decibels above 1 microvolt, shall not produce an output exceeding standard output.

15. Fidelity.

At all frequencies of tune above 1500 kc/s, the modulation frequency response characteristic of the receiver, with the bandwidth set to “wide”, shall be within a range of 8 decibels for modulation frequencies between 300 and 3000 c/s. At frequencies above 3000 c/s, the output should fall by at least 8 decibels per octave.

For this test, the level and modulation depth of the input signal shall be kept constant. The input signal may have any level and modulation depth, provided the output of the receiver does not exceed the standard output.

16. Non-Linear Distortion.

At all frequencies of tune above 1500 kc/s with the automatic gain control switched on and the bandwidth set to “wide”—

(a) with a class A2 test signal at any level between 30 and 80 decibels above 1 microvolt, the total harmonic content of the audio-frequency output voltage shall not exceed 5 per cent at any output not exceeding the standard output; and

(b) without further adjustment of the receiver and with the test signal modulated to a depth of 80 per cent, the total harmonic content of the audio-frequency output shall not exceed 10 per cent.

17. Straling.

Wanneer die ontvanger in gebruik is, moet hy nie 'n veld van meer as 0.1 mikrovolt per meter op 'n afstand van 1 myl van die ontvanger af oplewer nie. Gewoonlik sal beskou word dat aan hierdie bepaling voldoen is indien die volgende vereistes nagekom word:—

(a) Die ontvanger moet in die middel van 'n afgeskermde, geaarde omslote ruimte met afmetings 6 voet by 6 voet by 6 voet geplaas word;

(b) die aardklem van die ontvanger moet met die binnekant van die skerm verbind word;

(c) die antenneklem moet deur 'n onafgeskermde reghoekige 4-windingsoekspoel (1 voet in die vierkant) en 'n onafgeskermde leiding verbind word met 'n weerstandsmetinstrument wat buite die omslote ruimte gemonteer en waarvan die ander klem geaard is;

(d) die koptelefoon moet aangesluit word; en

(e) ongeag die weerstand van die meetinstrument of die stelling van die ontvanger moet die krag gemeet deur die meetinstrument nie 4×10^{-10} watt te bowe gaan nie. Na goedvinde van die toetsbeampte kan die seekspoel gedurende die toets op enige wyse beweeg word mits hy nie binne 6 duim van die ontvanger se kas kom nie, of hy kan kortgesluit word.

18. Instemstabiliteit.

(1) Nadat die ontvanger 5 minute lank aangeskakel was, moet die instemfrekwensie nie binne 'n verdere tydperk van 5 minute meer afwyk as wat in kolom A in subparagraaf (3) aangetoon word nie.

(2) As daar nadat die ontvanger 'n uur lank aangeskakel was, binne die gebied 0°C tot 50°C 'n verandering van 5°C in die omgewingstemperatuur aangebring word, moet die instemfrekwensie nie met meer verander as wat in kolom B in subparagraaf (3) aangetoon word nie.

(3) As enige van die toevoerspannings na die ontvanger of na 'n kragvoorsieningseenheid verbonde daaraan met 5 persent verander, moet die instemfrekwensie nie met meer verander as wat in onderstaande kolom A aangetoon word nie:—

Frekwensie.	A.	B.
15 kp/s tot 160 kp/s. Bo 160 kp/s en tot 1.5 mp/s. Bo 1.5 mp/s tot 28 mp/s.	50 p/s. 3 dele op 10^4 1 deel op 10^4	150 p/s. 10 dele op 10^4 3 dele op 10^4

19. Heterodinetoonstabiliteit.

(1) As 'n insetsein oor die gebied 20 tot 60 desibels bo die toepaslike peil gespesifiseer in paragraaf 8 gevarieer word, moet die frekwensie van 'n heterodinetoon wat aanvanklik 1 kp/s is, nie meer as 100 p/s wissel nie.

(2) Met alle insetpeile binne die gebied vermeld in subparagraaf (1) moet dit moontlik wees om 'n swewings-toon van 200 p/s te verkry wanneer instemming of na of weg van nulswewing geskied.

20. Ruisonderdrukking.

Indien 'n inrigting verskaf word om die uitwerking van impulsiewe ruis te verminder, moet 'n skakelaar verskaf word om sodanige inrigting af te skakel.

DEEL III.**RESERWERADIOTELEGRAAFSENDER.****1. Algemeen.**

(1) Die reserweradiotelegraafsender (in hierdie deel „die sender” genoem) moet toegerus word met enige uitrusting wat nodig is om hom te laat werk vanaf die reserwebron

17. Radiation.

The receiver, when in use, shall not produce a field exceeding 0.1 microvolt per metre at a distance of 1 mile from the receiver. This will normally be regarded as satisfied if the following requirements are met:—

(a) the receiver shall be placed centrally in a screened earthed enclosure of dimensions at least 6 feet cube;

(b) the earth terminal of the receiver shall be connected to the inside of the screen;

(c) the aerial terminal shall be connected through an unscreened 4-turn rectangular search-coil (of dimensions 1 foot square) and an unscreened lead, to a resistive measuring instrument mounted outside the enclosure, having its other terminal earthed;

(d) the headphones shall be connected; and

(e) the power measured by the measuring instrument shall not exceed 4×10^{-10} watts, no matter what the resistance of the measuring instrument or the adjustment of the receiver may be. At the discretion of the testing officer, the search coil may be moved during the test in any way provided it does not approach within 6 inches of the receiver case; or it may be short-circuited.

18. Tuning Stability.

(1) After the receiver has been switched on for 5 minutes, the tune frequency shall not change in any further period of 5 minutes by more than that shown in column A in subparagraaf (3).

(2) For any change of ambient temperature of 5°C within the range of 0°C to 50°C , applied after the receiver has remained switched on for 1 hour, the tune frequency shall not change by more than that shown in column B in subparagraaf (3).

(3) For a change of 5 per cent in any one of the supply voltages to the receiver, or to a power supply unit associated therewith, the tune frequency shall not change by more than that in column A below:—

Frequency.	A.	B.
15 kc/s to 160 kc/s. Over 160 kc/s to 1.5 Mc/s. Over 1.5 Mc/s to 28 Mc/s.	50 c/s. 3 parts in 10^4 1 part in 10^4	150 c/s. 10 parts in 10^4 . 3 parts in 10^4 .

19. Heterodyne Note Stability.

(1) For an input signal which is varied over the range 20 to 60 decibels above the appropriate level specified in paragraph 8, the frequency of a heterodyne note which is initially 1 kc/s, shall not vary by more than 100 c/s.

(2) For all input levels within the range mentioned in subparagraaf (1), it shall be possible to obtain a beat note of 200 c/s when tuning either towards or away from zero beat.

20. Noise Suppression.

If a device is provided to reduce the effect of impulsive noise, a switch shall be provided to disconnect it.

PART III.**RESERVE RADIOTELEGRAPH TRANSMITTER.****1. General.**

(1) The reserve radiotelegraph transmitter (in this Part referred to as “the transmitter”) shall be provided with any equipment which may be necessary to enable it to be

van elektriese energie waarvan in regulasie 13 (2) melding gemaak word, en moet ingestem kan word op die hoof- en reserve-antennes waarvan in regulasie 11 melding gemaak word.

(2) (a) Indien die sender ontwerp is om net met 'n battery bestaande uit sekondêre selle te werk, moet hierdie deel se vereistes nagekom word waar toevoerspannings van 20 persent hoër tot 10 persent laer as die nominale battery-spanning wissel.

(b) As die sender ontwerp is om te werk vanaf 'n bron van elektriese energie wat nie 'n battery van sekondêre selle is nie, moet hierdie deel se vereistes nagekom word waar toevoerspannings van 10 persent hoër tot 10 persent laer as die normale toevoerspanning wissel.

(3) Die sender mag nie trillers of primêre selle gebruik nie.

(4) Die sender moet aan die vereistes van hierdie deel voldoen wanneer hy getoets word onder die omstandighede wat met betrekking tot klas B-uitrusting in aanhangsel 3 gespesifiseer word.

(5) Die sender moet nie die aarding van die skip se kragnet veroorsaak nie.

2. Frekwensie en Klas Uitsending.

Die sender moet in staat wees om klas A2-uitsendings op die frekwensie 500 kp/s te send.

3. Beveiligingsmaatreëls.

Voorsiening moet daarvoor gemaak word om die sender teen die uitwerking van buitensporige stroom of spanning te beveilig.

4. Modulasie.

(1) Die fundamentele modulasiefrekwensie moet binne die gebied 450 tot 1350 p/s wees.

(2) Die modulasiediepte moet minstens 70 persent en hoogstens 95 persent wees, en die bofrekwensie-inhoud van die moduleerspanning, soos dit in die gemoduleerde leweringsein voorkom, mag nie 30 persent te bowe gaan nie.

5. Werkfasiliteite.

(1) Die sender moet binne 6 sekondes nadat hy aangestakel is, 15 watt of minstens 75 persent van sy volle vermoë, na gelang van watter die grootste is, lewer.

(2) Die sender moet saam met die outomatiese sleutel-inrigting vermeld in deel V gebruik kan word.

(3) Die sender moet so ontwerp wees dat 'n ongeskoolde persoon hom vir funksionering op 500 kp/s binne die bestek van hierdie deel kan stel en die outomatiese sleutelinrigting kan aansluit.

6. Gebied van Lasimpedansie.

Die sender moet aan die vereistes van hierdie deel voldoen wanneer hy om die beurt aangesluit is by elkeen van die kunsmatige laste met waardes vermeld in onderstaande tabel of by laste met tussenwaardes.

TABEL.

Kunsmatige las (elemente in serie).

C.	250	300	400	500	600	750	Pikofarad.
R (nie-induktief)	4.0	3.6	2.8	2.2	2.0	1.9	Ohm.

7. Vermoë van die Sender.

(1) Vir die toepassing van hierdie paragraaf beteken die uitdrukking „die vermoë van die sender” die vermoë wat in enige las binne die gebied vermeld in paragraaf 6 onder werktostande ontwikkel word.

operated from the reserve source of electrical energy referred to in regulation 13 (2), and shall be capable of being tuned to the main and reserve aerials referred to in regulation 11.

(2) (a) If the transmitter is designed for operation only from a battery of secondary cells, the requirements of this Part shall be met for a range of supply voltage variations of plus 20 and minus 10 per cent relative to the nominal battery voltage.

(b) If the transmitter is designed for operation from a source of electrical energy which is not a battery of secondary cells, the requirements of this part shall be met for a range of supply voltage variations of plus and minus 10 per cent relative to the nominal supply voltage.

(3) The transmitter shall not employ any vibrators or primary cells.

(4) The transmitter shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

(5) The transmitter shall not cause the ship's mains to be earthed.

2. Frequency and Class of Emission.

The transmitter shall be capable of transmitting class A2 emissions on the frequency 500 kc/s.

3. Protective Arrangements.

Provision shall be made for protecting the transmitter from the effects of excessive current or voltage.

4. Modulation.

(1) The fundamental modulation frequency shall be in the range 450 to 1350 c/s.

(2) The depth of modulation shall be not less than 70 per cent and not more than 95 per cent, and the harmonic content of the modulating voltage as it appears in the modulated output signal shall not exceed 30 per cent.

5. Operating Facilities.

(1) The transmitter shall deliver 15 watts or at least 75 per cent of its full output, whichever is the greater, within 6 seconds of switching on.

(2) The transmitter shall be capable of being used in conjunction with the automatic keying device specified in part V.

(3) The transmitter shall be so designed as to enable an unskilled person to set it for operation on 500 kc/s within the terms of this part and to connect the automatic keying device.

6. Range of Load Impedance.

The transmitter shall meet the requirements of this part when connected to each in turn of the artificial loads having values specified in the table below or with loads having any intermediate values.

TABLE.

Artificial load (Elements in series).

C.	250	300	400	500	600	750	Picofarads.
R (non-inductive)	4.0	3.6	2.8	2.2	2.0	1.9	Ohms.

7. Power of the Transmitter.

(1) For the purpose of this paragraph, the expression “the power of the transmitter” means the power developed under mark conditions in any load within the range specified in paragraph 6.

(2) Ongeag die kragvoorsieningswisselings binne die perke aangegee in paragraaf 1 (2) en die toetse vermeld in paragraaf 1 (4) mag die vermoë van die sender nie minder as 15 watt* wees nie.

(3) Wanneer die sender gestel is om sy volle vermoë te lewer, moet hy in staat wees om—

(a) sonder kritieke verstellings aanhoudend radiotelegraafseine teen alle snelhede tot en met 30 bauds uit te stuur;

(b) 15 minute lank onder gelykmatige werk- of rustoestande te funksioneer; en

(c) die uitwerking van oopkring- of kortgesluite antenne-klemme 15 minute lank te weerstaan.

In geen geval mag enige deel van die sender beskadig word nie.

8. Frekwensiestabiliteit.

(1) Die sender moet aan 'n frekwensietoleransie van plus en minus 1000 dele op 10^6 in verhouding tot die nominale frekwensie voldoen.

(2) Die sender moet die frekwensietoleransie vermeld in subparagraaf (1) ongeag wisselings van die impedansie van die las waarby hy aangesluit is, sonder verstelling handhaaf.

9. Kunsantenne.

'n Kunsantenne moet verskaf word om die sender teen sy volle vermoë te toets.

10. Meters.

(1) Die sender moet 'n meter hê om die antennestroom in ampères aan te toon. As die meganiek van hierdie meter onklaar is, moet dit nie die antenne ontkoppel nie.

(2) Ander meters moet na gelang nodig ingesluit word ten einde dit moontlik te maak om die sender na te gaan en te stel.

11. Gebruik vir normale kommunikasie.

Indien die sender anders gebruik moet word as in 'n noodgeval of vir die toetse wat by regulasie 18 (4) vereis word—

(a) is paragrawe 2, 4, 5 (1), 5 (5), 8 en 9 van deel I op hom van toepassing net soos hulle op die hoofradio-telegraafsender van toepassing is; en

(b) moet die sender in staat wees om vanaf 'n ander kragbron as die reserwebron van energie te werk en moet inrigtings verskaf word om gou van die een toevoerbron na die ander oor te skakel.

12. Gebruik van radiotelefoonnooddrekwensie.

Indien die sender ontwerp is om op die radiotelefoonnooddrekwensie te werk, moet die volgende voorwaardes ook nagekom word:—

(a) Die sender moet in staat wees om klas A3-uitsettings net op 'n frekwensie van 2182 kp/s oor te send;

(b) dit moet moontlik wees om die draaggolf volledig deur spraak te moduleer;

(c) die sender moet voldoen aan die toepaslike frekwensietoleransie vereis by die radioregulasies van die Internasionale Telekomunikasië-unie wat ten tyde van tiepatoetsing van krag is; die sender moet aan hierdie frekwensietoleransie voldoen sonder om gestel te word;

(d) die leweringsvermoë van enige parasietstraling moet minstens 40 desibels laer as die draaggolfvermoë wees;

(e) die sender moet 'n antenne-instemkontrole hê;

(*Desnietemin moet aan die betrokke meter-ampvereiste vermeld in hierdie regulasies voldoen word.)

(2) The power of the transmitter shall not be less than 15 watts* regardless of the power supply variations within the limits in paragraph 1 (2) and the tests referred to in paragraph 1 (4).

(3) When the transmitter is adjusted for full power, it shall be capable of—

(a) transmitting continuously, without critical adjustments, radiotelegraph signals at all speeds up to 30 bauds;

(b) operating under steady marking or spacing conditions for a period of 15 minutes; and

(c) withstanding the effects of open-circuited or short-circuited aerial terminals for a period of 15 minutes.

In no case shall damage be caused to any part of the transmitter.

8. Frequency Stability.

(1) The transmitter shall conform to a frequency tolerance of plus and minus 1000 parts in 10^6 relative to nominal frequency.

(2) The transmitter shall maintain the frequency, tolerance specified in subparagraph (1), without adjustment, regardless of variations of the impedance of the load to which it is connected.

9. Artificial Aerial.

An artificial aerial shall be provided for testing the transmitter on full power.

10. Meters.

(1) The transmitter shall incorporate a meter to indicate the aerial current in amperes. Failure of the movement of this meter shall not disconnect the aerial.

(2) Other meters shall be included as necessary to enable the transmitter to be checked and adjusted.

11. Use for Normal Communications.

If the transmitter is to be used otherwise than in an emergency or for the tests required by regulation 18 (4)—

(a) paragraphs 2, 4, 5 (1), 5 (5), 8 and 9 of part I shall apply in relation to it as they apply in relation to the main radiotelegraph transmitter; and

(b) the transmitter shall be capable of operation from a power supply other than the reserve source of energy, and arrangements for rapidly changing from one source of supply to the other shall be provided.

12. Use of Radiotelephone Distress Frequency.

If the transmitter is designed for operation on the radiotelephone distress frequency, the following conditions shall also be met:—

(a) The transmitter shall be capable of transmitting class A3 emissions on a frequency of 2182 kc/s only;

(b) it shall be possible to modulate the carrier wave fully by speech;

(c) the transmitter shall conform to the relevant frequency tolerance required by the Radio Regulations of the International Telecommunication Union current at the time of type-testing. The transmitter shall comply with this frequency tolerance without adjustment;

(d) the output power of any spurious emission shall be at least 40 decibels below the carrier power;

(e) an aerial tuning control shall be incorporated;

(*Notwithstanding, the relevant metre-amp requirement specified in these regulations shall be met.)

(f) die vermoë van die sender word omskryf as die totale draaggolfvermoë gelewer met 'n kunsmatige las bestaande uit 'n kapasitor van 250 pikofarad in serie met 'n nie-induktiewe weerstand van 6 ohm wanneer die omgewingstemperatuur minstens 5° C en hoogstens 30° C is; en

(g) die draaggolfvermoë van die sender moet teen nominale toevoerspanning tussen 4.0 watt en 100 watt wees.

DEEL IV.

RESERWERADIOTELEGRAAFONTVANGER.

1. Algemeen.

(1) Die reserweradiotelegraafontvanger (in hierdie deel „die ontvanger” genoem) moet kan werk vanaf die hoofbron van elektriese energie wat by regulasie 13 (1) en die reserwebron van elektriese energie wat by regulasie 13 (2) vereis word, en die ontvanger moet inrigtings bevat om gou van die een bron van elektriese energie na die ander oor te skakel.

(2) Die ontvanger moet nie van trillers of primêre selle gebruik maak nie.

(3) Wanneer die ontvanger vanaf die skip se hooftoevoer werk, moet voldoen word aan hierdie deel se vereistes vir toevoerspanning wat wissel van 10 persent hoër tot 10 persent laer as die nominale kragtnetspanning.

(4) Wanneer die ontvanger vanaf 'n battery sekondêre selle werk, moet voldoen word aan hierdie deel se vereistes vir toevoerspanning wat wissel van 20 persent hoër tot 10 persent laer as die nominale batteryspanning.

(5) Die ontvanger moet aan die vereistes van hierdie deel voldoen wanneer hy getoets word onder die omstandighede wat met betrekking tot klas B-uitrusting in aanhangsel 3 gespesifiseer word.

(6) Die ontvanger moet nie die aarding van die skip se kragnet veroorsaak nie.

2. Frekwensiegebiede en Klasse Uitsending.

Die ontvanger moet in staat wees om die volgende te ontvang:—

(a) Klas A1- en klas A2-uitsendings op frekwensies van 405 tot 535 kp/s; en

(b) klas A1-, klas A2- en klas A3-uitsendings op frekwensies van 1605 tot 3800 kp/s en dwarsdeur elkeen van die mobiele seebande tussen 4 en 23 mp/s.

3. Ontvangsfasiliteite.

(1) Die ontvanger moet in staat wees om sowel koptelefoon- as luidsprekerontvangs dwarsdeur die frekwensiegebiede vermeld in paragraaf 2 te lewer. Die luidspreker moet buite werking gestel word wanneer ontvangs deur middel van koptelefoon geskied.

(2) Wanneer 'n verbonde sender op dieselfde frekwensieband laat werk word, moet 'n middel verskaf word om die ontvangerversterking met die telegraaf-sleutel afgedruk, te verminder sodat daar teen normale seinsnelhede tydens pouses geluister kan word.

(3) Die ontvanger moet gevoelig genoeg wees om seine in koptelefoon of deur middel van 'n luidspreker op te lewer wanneer die ontvangerinset maar net 100 mikrovolt beloop.

4. Kontroles.

Die ontvanger moet met die volgende toegerus wees:—

(a) Na gelang nodig, handkontroles vir die stel van die radio en/of tussenfrekwensieversterking en/of audio-frekwensieversterking;

(f) the power of the transmitter shall be defined as the total carrier power delivered to an artificial load consisting of a capacitor of 250 picofarads in series with a 6-ohm non-inductive resistor, when the ambient temperature is not less than 5° C and not greater than 30° C; and

(g) the carrier power of the transmitter shall be between 4.0 watts and 100 watts at nominal supply voltage.

PART IV.

RESERVE RADIOTELEGRAPH RECEIVER.

1. General.

(1) The reserve radiotelegraph receiver (in this part referred to as “the receiver”) shall be capable of operation both from the main source of electrical energy required by regulation 13 (1) and the reserve source of electrical energy required by regulation 13 (2). Arrangements for quickly changing from one source of electrical energy to the other, shall be incorporated.

(2) The receiver shall not employ any vibrators or primary cells.

(3) When the receiver is operated from the ship's main supply, the requirements of this part shall be met for a range of supply voltage variations of plus and minus 10 per cent relative to the nominal mains voltage.

(4) When the receiver is operated from a battery of secondary cells, the requirements of this part shall be met for a range of supply voltage variations of plus 20 per cent and minus 10 per cent relative to the nominal battery voltage.

(5) The receiver shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

(6) The receiver shall not cause the ship's mains to be earthed.

2. Frequency Ranges and Classes of Emission.

The receiver shall be capable of receiving:—

(a) Class A1 and class A2 emissions on frequencies in the range 405 to 535 kc/s; and

(b) class A1, class A2 and class A3 emissions on frequencies in the range 1605 to 3800 kc/s and throughout each of the maritime mobile bands between 4 and 23 Mc/s.

3. Reception Facilities.

(1) The receiver shall be capable of both headphone and loudspeaker reception throughout the frequency ranges specified in paragraph 2. The loudspeaker shall be rendered inoperative when reception is by headphones.

(2) When an associated transmitter is operated in the same frequency band, means shall be provided for reducing the receiver gain when the telegraph key is depressed so as to permit listening-through at normal signalling speeds.

(3) The receiver shall have sufficient sensitivity to produce signals in headphones or by means of a loudspeaker when the receiver input is as low as 100 microvolts.

4. Controls.

The receiver shall be provided with:—

(a) Manual controls, as necessary, for the adjustment of radio and/or intermediate frequency gain and/or audio frequency gain;

- (b) 'n gepas gemerkte selektiwiteitskakelaar; en
(c) 'n middel vir die afskakeling van die outomatiese versterkingskontrole waarvan in paragraaf 10 melding gemaak word, en sodanige middel kan met 'n dienskakelaar verenig word.

5. Standaardleweringspeil.

(1) Die standaardaudiofrekwensieleweringspeil vir kop-telefoonontvangs is 1 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die kop-telephone teen 1000 p/s.

(2) Die standaardradiofrekwensieleweringspeil vir luidsprekerontvangs is 50 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die luidspreker teen 1000 p/s.

6. Toetsmetode.

(1) Die kunsantennes wat vir toetswerk gebruik word, moet as volg wees:—

(a) Vir frekwensies onder 4 mp/s 'n nie-induktiewe weerstand van 10 ohm in serie met 'n kapasitor met enige en elke waarde tussen 200 en 600 pikofarad; en

(b) vir frekwensies bo 4 mp/s 'n nie-induktiewe weerstand van 75 ohm.

(2) Tensy anders bepaal, moet 'n klas A2-toetssein 30 persent teen 1000 p/s gemoduleer word.

7. Selektiwiteit.

(1) Die selektiwiteit wat die einddetektor voorafgaan, moet aan die volgende vereistes voldoen en die „BREE” en „SMALL” toestande moet met die selektiwiteitskakelaar geselekteer word:—

Bandbreedte.	Breed.	Smal.
Diskriminasie van hoogstens 6 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	4 kp/s. (Geld nie onder 1605 kp/s nie.)	1 kp/s.
Diskriminasie van minstens 6 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	—	2 kp/s.
Diskriminasie van minstens 30 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	10 kp/s.	7 kp/s.
Diskriminasie van minstens 60 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	20 kp/s.	20 kp/s.

(2) Die beeldonderskeidings- en tussenfrekwensiegevoelighedsverhoudings van superheterodyneontvangers mag nie laer as die volgende waardes wees nie:—

Frekwensie van verlangde sein.	Beeldonderskeiding.
405 tot 3,800 kp/s. 4-, 6-, 8- en 12-mp/s-bande. 16- en 22-mp/s-bande.	50 dB. 30 dB. 20 dB.
Tussenfrekwensie.	Minimum tf.-gevoelighedsverhouding.
140 tot 1600 kp/s. Buite bostaande perke.	70 dB. 50 dB.

(b) a selectivity switch, suitably marked; and

(c) means for switching off the automatic gain control referred to in paragraph 10, and such means may be combined with the functions of a service switch.

5. Standard Output Level.

(1) The standard audio-frequency output level for head-phone reception shall be 1 milliwatt into a resistance substantially equal to the modulus of the impedance of the headphones at 1000 c/s.

(2) The standard audio-frequency output level for loudspeaker reception shall be 50 milliwatts into a resistance substantially equal to the modulus of the impedance of the loudspeaker at 1000 c/s.

6. Method of Test.

(1) The artificial aerials employed for testing shall be as follows:—

(a) For frequencies below 4 Mc/s, a 10-ohm non-inductive resistor in series with a capacitor having any and every value between 200 and 600 picofarads; and

(b) for frequencies above 4 Mc/s, a 75-ohm non-inductive resistor.

(2) A class A2 test signal shall, unless otherwise specified, be modulated 30 per cent at 1000 c/s.

7. Selectivity.

(1) The selectivity preceding the final detector shall satisfy the following requirements and the “WIDE” and “NARROW” conditions shall be selected by the selectivity switch:—

Bandwidth condition.	Wide.	Narrow.
Not more than 6 db discrimination to be obtained at frequencies removed from tune by	4 kc/s. (Does not apply below 1605 kc/s).	1 kc/s.
At least 6 db discrimination to be obtained at frequencies removed from tune by	—	2 kc/s.
At least 30 db discrimination to be obtained at frequencies removed from tune by	10 kc/s.	7 kc/s.
At least 60 db discrimination to be obtained at frequencies removed from tune by	20 kc/s.	20 kc/s.

(2) The image discrimination and intermediate frequency response ratios of superheterodyne receivers shall be not less than the following values:—

Frequency of wanted signal.	Image Discrimination.
405 to 3,800 kc/s. 4, 6, 8 and 12 Mc/s bands. 16 and 22 Mc/s bands.	50 db. 30 db. 20 db.
Intermediate Frequency.	Minimum I.F. response ratio.
140 to 1600 kc/s. Outside the above limits.	70 db. 50 db.

8. Gevoeligheid.

Die standaardleweringsepele moet op albei bandbreedtes, met die outomatiese versterkingskontrole sowel aan- as afgeskakel en met insette op die volgende peile behaal kan word:—

Frekwensie.	Inset vir klas A1-uit-sendings.	Inset vir klas A2-uit-sendings.
405 tot 535 kp/s.	30 dB bo 1 mikrovolt.	40 dB bo 1 mikrovolt.
1605 tot 3800 kp/s.	20 dB bo 1 mikrovolt.	30 dB bo 1 mikrovolt.
4-, 6- en 8-mp/s-bande.	20 dB bo 1 mikrovolt.	30 dB bo 1 mikrovolt.
12-, 16- en 22-mp/s-bande.	30 dB bo 1 mikrovolt.	40 dB bo 1 mikrovolt.

9. Sein/Ruisverhouding.

Met 'n klas A1- of 'n klas A2-insetsein met die peil gespesifiseer in paragraaf 8 en die ontvangerversterking gestel om standaardlewering te gee, moet die sein/ruisverhouding ongeag die bandbreedte nie minder as die volgende waardes wees nie:—

Frekwensiegebied.	Minimum sein/ruisverhouding.
405 tot 535 kp/s.	10 dB.
1605 tot 3800 kp/s.	20 dB.
4-, 6- en 8-mp/s-bande.	20 dB.
12-, 16- en 22-mp/s-bande.	25 dB.

10. Outomatiese Versterkingskontrole.

(1) Die ontvanger moet toegerus wees met 'n outomatiese versterkingskontrole wat op seine van klas A2 en klas A3 op alle frekwensies in die gebiede tussen 1605 kp/s en 23 mp/s doeltreffend kan werk.

(2) Met 'n insetsein van klas A2 op die gepaste peil vermeld in paragraaf 8 en met 'n frekwensie binne die gebiede tussen 1605 kp/s en 23 mp/s—

(a) met die ontvanger gestel om standaardlewering te gee, moet 'n insetverhoging van 20 desibels 'n verbetering in die sein/ruisverhouding ter waarde van minstens 15 desibels bo die toepaslike minimum sein/ruisverhouding vermeld in paragraaf 9 meebring; en

(b) met die ontvanger gestel om 10 desibels onder die standaardlewering te gee, moet 'n insetverhoging van 50 desibels nie die lewering met meer as 10 desibels verhoog nie.

11. Blokkering.

(1) Met die bandbreedte op „BREED” gestel en die outomatiese versterkingskontrole waar beskikbaar aangeskakel, moet die ontvanger gestel word om op 'n peil van 60 desibels bo 1 mikrovolt en van 'n frekwensie in die gebiede tussen 405 kp/s en 23 mp/s standaardlewering met 'n verlangde insetsein van klas A2 te gee.

(2) Die gelyktydige aanwending van 'n klas A1-insetsein op 'n peil 90 desibels bo 1 mikrovolt en op 'n frekwensie 20 kp/s bo of onder dié van die verlangde sein moet nie 'n verandering van meer as 3 desibels in die lewering veroorsaak nie.

12. Kruismodulasie.

(1) Die ontvanger moet ooreenkomstig paragraaf 11 (1) gestel en net die modulasie van die sein dan afgeskakel word.

(2) Die gelyktydige aanwending van 'n klas A2-insetsein op 'n peil 90 desibels bo 1 mikrovolt en op 'n frekwensie 20 kp/s bo of onder dié van die verlangde sein moet nie 'n leweringsepeil hoër as 20 desibels onder die standaardlewering gee nie.

8. Sensivity.

The standard output levels shall be obtainable, at both bandwidth settings and with automatic gain control both on and off, with inputs at the following levels:—

Frequency.	Input for Class A1 emissions.	Input for Class A2 emissions.
405 to 535 kc/s.	30 db above 1 microvolt.	40 db above 1 microvolt.
1605 to 3800 kc/s.	20 db above 1 microvolt.	30 db above 1 microvolt.
4, 6, and 8 Mc/s bands.	20 db above 1 microvolt.	30 db above 1 microvolt.
12, 16 and 22 Mc/s bands.	30 db above 1 microvolt.	40 db above 1 microvolt.

9. Signal/Noise Ratio.

With any input signal, either of class A1 or class A2, of the level specified in paragraph 8 and the receiver gain adjusted to give standard output, the signal/noise ratio shall be not less than the following values, irrespective of the bandwidth setting:—

Frequency range.	Minimum signal/noise ratio.
405 to 535 kc/s.	10 db.
1605 to 3800 kc/s.	20 db.
4, 6 and 8 Mc/s bands.	20 db.
12, 16 and 22 Mc/s bands.	25 db.

10. Automatic Gain Control.

(1) The receiver shall be fitted with an automatic gain control capable of efficient operation on signals of class A2 and class A3 at all frequencies in the ranges between 1605 kc/s and 23 Mc/s.

(2) With an input signal of class A2, at the appropriate level specified in paragraph 8 and of any frequency within the ranges between 1605 kc/s and 23 Mc/s—

(a) with the receiver adjusted to give standard output, an increase in input of 20 decibels shall result in an improvement in the signal/noise ratio to a value at least 15 decibels above the appropriate minimum signal/noise ratio specified in paragraph 9; and

(b) with the receiver adjusted to give an output 10 decibels below standard output, an increase in input of 50 decibels shall not increase the output by more than 10 decibels.

11. Blocking.

(1) With the bandwidth set to “WIDE” and the automatic gain control switched on wherever available, the receiver shall be adjusted to give standard output with an input wanted signal of class A2 at a level of 60 decibels above 1 microvolt and of any frequency in the ranges between 405 kc/s and 23 Mc/s.

(2) The simultaneous application of a class A1 input signal, at a level of 90 decibels above 1 microvolt and at a frequency 20 kc/s above or below that of the wanted signal, shall not cause a change in output exceeding 3 decibels.

12. Cross Modulation.

(1) The receiver shall be adjusted as described in paragraph 11 (1) and the modulation only of the signal then switched off.

(2) The simultaneous application of a class A2 input signal, at a level of 90 decibels above 1 microvolt and at a frequency 20 kc/s above or below that of the wanted signal, shall not produce an output level higher than 20 decibels below standard output.

13. *Intermodulasie.*

(1) Met die bandbreedte op „BREED” gestel en die outomatiese versterkingskontrole afgeskakel, moet die ontvanger gestel word om standaardlewing te gee met 'n verlangde insetsein van klas A2 op 'n peil 40 desibels bo 1 mikrovolt en op 'n frekwensie tussen 405 en 535 kp/s. Die verlangde sein moet dan verwyder word.

(2) Die gelyktydige aanwending van enige twee „steur”-seine, naamlik een van klas A1 en die ander van klas A2, moet nie 'n lewing gee wat die standaardlewing oortref nie. Albei seurseine moet op 'n peil 100 desibels bo 1 mikrovolt wees en nie een van hulle moet 'n frekwensie hê wat 'n beduidende lewing sal gee as dit gemoduleer en alleen aangewend word nie.

14. *Getrouheid.*

Op alle instemfrekwensies bo 1605 kp/s moet die ontvanger se modulasiefrekwensieweergawekenmerk met die bandbreedte op „BREED” gestel, binne 'n gebied van 8 desibels vir modulasiefrekwensies tussen 300 en 3000 p/s wees.

15. *Straling.*

Wanneer die ontvanger in gebruik is, moet hy nie 'n veld van meer as 0.1 mikrovolt per meter op 'n afstand van 1 myl van die ontvanger af oplewer nie. Gewoonlik sal hierdie bepaling geag word nagekom te wees indien aan die volgende vereistes voldoen word:—

(a) Die ontvanger moet in die middel van 'n afgeskermde, gemaakte omslote ruimte van minstens 6 voet by 6 voet by 6 voet geplaas word;

(b) die aardklem van die ontvanger moet met die binnekant van die skerm verbind word;

(c) die antenneklem moet deur 'n onafgeskermde reghoekige 4-windingsoekspoel (1 voet in die vierkant) en 'n onafgeskermde leiding verbind word met 'n weerstandmeetinstrument wat buite die omslote ruimte gemonteer en waarvan die ander klem geaard is;

(d) die ontvanger moet bekrag en die koptelefone aangesluit word; en

(e) ongeag die weerstand van die meetinstrument of die instelling van die ontvanger moet die vermoë gemeet deur die meetinstrument nie 4×10^{-10} watt te bowe gaan nie, en na goedvinde van die toetsbeampte kan die soekspoel gedurende die toets op enige wyse beweeg word mits hy nie binne 6 duim van die ontvangerkas kom nie, of anders kan hy kortgesluit word.

16. *Instemmingsdwinging en -Stabiliteit.*

(1) Nadat die ontvanger 5 minute lank aangeskakel was, moet die instemfrekwensie nie binne 'n verdere tydperk van 5 minute meer verander as wat in kolom A in subparagraaf (3) aangetoon word nie.

(2) As die ontvanger een uur lank aangeskakel was en die omgewingstemperatuur binne die gebied 0°C tot 50°C met 5°C verander, moet die instemfrekwensie nie meer verander as wat in kolom B in subparagraaf (3) aangetoon word nie.

(3) Vir 'n verandering van 5 persent in een van die toevoerspannings van die ontvanger of van 'n kragtoevoereenheid wat daaraan verbonde is, moet die instemfrekwensie nie meer verander as wat hieronder in kolom A aangetoon word nie.

Frekwensie.	A.	B.
405 tot 535 kp/s.	5 dele op 10^4	15 dele op 10^4 .
1605 kp/s tot 23 mp/s.	2 dele op 10^4	5 dele op 10^4 .

13. *Intermodulation.*

(1) The receiver shall be adjusted, with the bandwidth set to “WIDE” and the automatic gain control switched off, to give standard output with an input wanted signal of class A2 at a level of 40 decibels above 1 microvolt and at any frequency between 405 and 535 kc/s. The wanted signal shall then be removed.

(2) The simultaneous application of any two “interfering” signals, one of class A1 and the other of class A2, shall not produce an output exceeding standard output. Both interfering signals shall be at a level of 100 decibels above 1 microvolt and neither shall be of such frequency as to give an appreciable output when modulated and applied alone.

14. *Fidelity.*

At all frequencies of tune above 1605 kc/s, the modulation frequency response characteristic of the receiver, with the bandwidth set to “WIDE” shall be within a range of 8 decibels for modulation frequencies between 300 and 3000 c/s.

15. *Radiation.*

The receiver when in use, shall not produce a field exceeding 0.1 microvolt per metre at a distance of 1 mile from the receiver. This will normally be regarded as satisfied if the following requirements are met:—

(a) The receiver shall be placed centrally in a screened earthed enclosure of dimensions at least 6 feet cube;

(b) the earth terminal of the receiver shall be connected to the inside of the screen;

(c) the aerial terminal shall be connected through an unscreened 4-turn rectangular search-coil (of dimensions 1 foot square) and an unscreened lead, to a resistive measuring instrument mounted outside the enclosure, having its other terminal earthed;

(d) the receiver shall be energised and the headphones connected; and

(e) the power measured by the measuring instrument shall not exceed 4×10^{-10} watts, no matter what the resistance of the measuring instrument or the adjustment of the receiver may be. At the discretion of the testing officer, the search coil may be moved during the test in any way, provided it does not approach within 6 inches of the receiver case; or it may be short-circuited.

16. *Tuning Drift and Stability.*

(1) After the receiver has been switched on for 5 minutes, the tune frequency shall not change in any further period of 5 minutes by more than that shown in column A in subparagraaf (3).

(2) For any change of ambient temperature of 5° C within the range 0° C to 50° C, applied after the receiver has remained switched on for 1 hour, the tune frequency shall not change by more than that shown in column B in subparagraaf (3).

(3) For a change of 5 per cent in any one of the supply voltages to the receiver, or to a power supply unit associated therewith, the tune frequency shall not change by more than that shown in column A below.

Frequency.	A.	B.
405 to 535 kc/s.	5 parts in 10^4	15 parts in 10^4
1605 kc/s to 23 Mc/s.	2 parts in 10^4	5 parts in 10^4 .

17. *Heterodinetoonstabiliteit.*

(1) Vir 'n insetsein wat oor die gebied van 40 tot 90 desibels bo 1 mikrovolt gewissel word, moet die frekwensie van 'n heterodinetoon wat aanvanklik 1 kp/s is, nie met meer as 200 p/s wissel nie.

(2) Vir alle insetpeile binne die gebied vermeld in subparagraaf (1) moet dit moontlik wees om 'n swewingstoon van 200 p/s te verkry wanneer na of weg van nulswewing ingestel word.

DEEL V.

OUTOMATIESE RADIOTELEGRAAFSLEUTEL-TOESTEL.

1. *Algemeen.*

(1) Die outomatiese radiotelegraafsleuteltoestel (in hierdie deel „die toestel” genoem) moet in staat wees om die seine gespesifiseer in paragraaf 2 outomaties uit te send wanneer hy in die plek van die handsleutel by die kring ingeskakel word.

(2) 'n Middel moet verskaf word om die toestel na gelang nodig gou aan te sluit by en te ontkoppel van die hooftelegraafsender, die reserweradiotelegraafsender en die radiotelegraaf-oto-alarmtoetsseinoepwekker waarvan in paragraaf 4 van aanhangsel 6 melding gemaak word.

(3) Indien die toestel met elektrisiteit werk, moet hy geskik wees om te werk vanaf die reserwebron van elektriese energie wat by regulasie 13 (2) vereis word.

(4) Die vereistes van hierdie deel moet nagekom word met betrekking tot toevoerspannings wat wissel van 20 persent hoër tot 10 persent laer as die nominale toevoerspanning.

(5) Die toestel moet aan die vereistes van hierdie deel voldoen wanneer hy getoets word onder die toestande wat in aanhangsel 3 met betrekking tot klas B-uitrusting gespesifiseer word.

(6) Die toestel moet nie die aarding van die skip se kragnet veroorsaak nie.

2. *Seine.*

Die toestel moet in staat wees om alleen die volgende seine te sleutel wanneer hy by die kring ingeskakel is:—

(a) Die radiotelegraafalarmsein bestaande uit 12 strepe van vier sekondes geskei deur russeine van een sekonde en die duur van die strepe en russeine moet binne 'n toleransie van plus of minus 0.2 sekonde gehandhaaf word;

(b) die radiotelegraafnoodoproep bestaande uit die volgende seine in die volgende volgorde, naamlik:—

(i) Die radiotelegraafnoodsein SOS drie maal uitgesend;

(ii) die woord DE;

(iii) die skip se roepsein drie maal uitgesend; en

(iv) twee strepe wat elkeen 10 tot 15 sekondes duur.

3. *Prestasie.*

(1) Nadat die alarmsein uitgesend is, moet die toestel sleuteling staak en die sleutelkring ooplaat totdat hy teruggestel word.

(2) Die tekens van die noodoproep moet teen 10 tot 16 woorde per minuut gesleutel word. Die sleutelreeks beskryf in paragraaf 2 (b) moet nie altesaam langer as 90 sekondes duur nie.

Die toestel moet in hierdie toestand hierdie sleutelreeks outomaties al om die 12 minute (naastenby) herhaal en wel—

(a) totdat die skip se reserwebron van energie uitgeput is, indien die toestel met elektrisiteit werk; en

(b) minstens 36 uur lank, indien die toestel nie met elektrisiteit werk nie.

17. *Heterodyne Note Stability.*

(1) For an input signal which is varied over the range of 40 to 90 decibels above 1 microvolt, the frequency of a heterodyne note which is initially 1 kc/s, shall not vary by more than 200 c/s.

(2) For all input levels within the range mentioned in subparagraph (1), it shall be possible to obtain a beat note of 200 c/s, when tuning either towards or away from zero.

PART V.

RADIOTELEGRAPH AUTOMATIC KEYING DEVICE.

1. *General.*

(1) The radiotelegraph automatic keying device (in this part referred to as “the device”) shall be capable of sending automatically the signals specified in paragraph 2 when switched into circuit in place of the manual key.

(2) Means shall be provided for quickly connecting and disconnecting the device, as required, to and from the main radiotelegraph transmitter, the reserve radiotelegraph transmitter, and the radiotelegraph auto-alarm test signal generator referred to in paragraph 4 of annex 6.

(3) If the device is electrically operated, it shall be suitable for operation from the reserve source of electrical energy required by regulation 13 (2).

(4) The requirements of this part shall be met for a range of supply voltage variations from plus 20 to minus 10 per cent relative to the nominal supply voltage.

(5) The device shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

(6) The device shall not cause the ship's mains to be earthed.

2. *Signals.*

The device shall be capable of keying only the following signals when switched into circuit:—

(a) the radiotelegraph alarm signal consisting of 12 four second dashes separated by one second spaces, the length of the dashes and spaces being maintained within a tolerance of plus or minus 0.2 second;

(b) the radiotelegraph distress call consisting of the following signals in the following order:—

(i) the radiotelegraph distress signal SOS, sent three times;

(ii) the word DE;

(iii) the ship's call sign, sent three times; and

(iv) two dashes, each of 10 to 15 seconds duration.

3. *Performance.*

(1) After the alarm signal has been sent, the device shall stop keying, leaving the keying circuit open, until it is re-set.

(2) The characters of the distress call shall be keyed at 10 to 16 words per minute. The total duration of the keying sequence described in paragraph 2 (b), shall not exceed 90 seconds.

The device shall, in this condition, automatically repeat this keying sequence once every 12 minutes (approximately)—

(a) until the ship's reserve source of energy is exhausted, if the device is electrically powered; and

(b) for at least 36 hours, if the device is not electrically powered.

(3) Die toestel moet so ingerig wees dat, indien hy van die kring uitgeskakel word nadat 'n aanvang gemaak is met die uitsending van die sein waarvan in paragraaf 2 (b) melding gemaak word, hy teruggestel kan word sodat sleuteling binne 10 sekondes by die begin van die noodseinreeks kan begin nadat die toestel weer by die kring ingeskakel is.

4. Werkfasiliteite.

(1) Die toestel moet geskik wees om deur 'n ongeskoolde persoon bedien te word.

(2) Indien terugstelling met die hand geskied, moet die toestel 'n middel insluit om aan te dui wanneer terugstelling nodig is.

(3) Die toestel moet te eniger tyd buite werking gestel kan word ten einde dit moontlik te maak om die sender onmiddellik met die hand te sleutel.

DEEL VI.

RADIOTELEGRAAF-LUIDSPREKERLUISTER-ONTVANGER.

1. Algemeen.

(1) Die radiotelegraaf-luidsprekerluisterontvanger (in hierdie deel „die ontvanger” genoem) moet vas op 'n frekwensie van 500 kp/s ingestem en vir die ontvangs van klas A2-uitsendings in die gebied 496 tot 504 kp/s geskik wees.

(2) Die ontvanger moet 'n luidspreker insluit.

(3) (a) Indien die ontvanger ontwerp is om net met 'n battery sekondêre selle te werk, moet hierdie deel se vereistes nagekom word met betrekking tot toevoerspannings wat wissel van 20 persent bo tot 10 persent onder die nominale batteryspanning.

(b) Indien die ontvanger ontwerp is om te werk vanaf die skip se hoofbron van elektriese energie wat nie 'n battery sekondêre selle is nie, moet hierdie deel se vereistes nagekom word met betrekking tot toevoerspannings wat van 10 persent bo tot 10 persent onder nie nominale krag-netspanning wissel.

(4) Behalwe waar anders vermeld, moet die ontvanger aan hierdie deel se vereistes voldoen wanneer hy getoets word onder die toestande wat in aanhangsel 3 met betrekking tot klas B-uitrusting gespesifiseer word.

(5) Die ontvanger moet nie die aarding van die skip se kragnet veroorsaak nie.

2. Kontroles.

(1) Die ontvanger moet toegerus wees met 'n handversterkingskontrole en 'n outomatiese versterkingskontrole, en tensy anders bepaal, moet hy met die outomatiese versterkingskontrole in werking getoets word. Behoudens die bepalinge van subparagraaf (2) mag aan die buitekant van die ontvanger geen ander kontroles as 'n handversterkingskontrole en 'n aan-en-afskakelaar beskikbaar wees nie.

(2) As die ontvangerfasiliteite ingesluit is in 'n gekombineerde ontvanger, d.w.s. in 'n reserweradiotelegraafontvanger wat aan deel IV voldoen of 'n radiotelegraafoutoalarmuitrusting wat aan die vereistes van aanhangsel 6 voldoen—

(a) moet dit moontlik wees om sodanige gekombineerde ontvanger geredelik vir luidsprekerluisterdiens te stel, en as hierdie stelling nie deur middel van 'n enkele kontrole geskied nie, moet 'n positiewe aanduiding deur middel van een of meer lampe gegee word wanneer die ontvanger vir luidsprekerluisterdiens op 500 kp/s gestel is;

(3) The device shall be so arranged that, if it is switched out of circuit after transmission of the signal described in paragraph 2 (b) has commenced, it shall be capable of being reset so that, after the device has been again switched into circuit, keying shall commence within 10 seconds at the beginning of the distress signal sequence.

4. Operating Facilities.

(1) The device shall be suitable for operation by an unskilled person.

(2) If the resetting is by manual means, the device shall include a means for indicating when resetting is necessary.

(3) The device shall be capable of being taken out of service at any time in order to permit immediate hand keying of the transmitter.

PART VI.

RADIOTELEGRAPH LOUDSPEAKER WATCH-KEEPING RECEIVER.

1. General.

(1) The radiotelegraph loudspeaker watchkeeping receiver (in this part referred to as “the receiver”) shall be fixed in tune on a frequency of 500 kc/s and shall be suitable for the reception of class A2 emissions in the range 496 to 504 kc/s.

(2) The receiver shall include a loudspeaker.

(3) (a) If the receiver is designed for operation only from a battery of secondary cells, the requirements of this part shall be met for a range of supply voltage variations from plus 20 to minus 10 per cent relative to the nominal battery voltage.

(b) If the receiver is designed for operation from the ship's main supply of electrical energy which is not a battery of secondary cells, the requirements of this part shall be met for a range of supply voltage variations of plus and minus 10 per cent relative to the nominal mains voltage.

(4) Except where otherwise stated, the receiver shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

(5) The receiver shall not cause the ship's mains to be earthed.

2. Controls.

(1) The receiver shall be provided with a manual gain control and an automatic gain control, and the receiver shall be tested with the automatic gain control operative unless otherwise specified. Subject to the provisions of subparagraph (2), no controls other than a manual gain control and an on-off switch shall be available at the exterior of the receiver.

(2) If the receiver facilities are incorporated in a combined receiver that is to say in a reserve radiotelegraph receiver complying with part IV or a radiotelegraph auto-alarm equipment complying with the requirements of annex 6—

(a) it shall be possible readily to set such combined receiver to the loudspeaker watchkeeping condition. If this setting is not by means of a single control, a positive indication shall be given by means of a lamp or lamps when the receiver is in the 500 kc/s loudspeaker watch-keeping condition;

(b) moet kontroles van die reserweradiotelegraafontvanger of radiotelegraaf-oto-alarmuitrusting, na gelang van die geval, uitgesonderd dié waarvan in subparagraaf (1) melding gemaak word, nie die werking van die gekombineerde ontvanger beïnvloed wanneer sodanige ontvanger vir luidsprekerluisterdiens gestel is nie; en

(c) moet kontroles van die gekombineerde ontvanger wat die werking van sodanige ontvanger beïnvloed wanneer hy vir luidsprekerluisterdiens gestel is, duidelik geëtiketteer wees.

3. Standaardlewering.

Die standaardaudiofrekwensielewering moet wees 50 milliwatt in 'n weerstand gelyk aan die modulus van die impedansie van die luidspreker of 100 p/s.

4. Toetsmetode.

(1) Tensy anders bepaal, moet 'n klas A2-toetssein 'n frekwensie van 500 kp/s hê en 30 persent op 1000 p/s gemoduleer word.

(2) Die kunsantenne wat vir die toetswerk gebruik word, moet bestaan uit 'n nie-induktiewe weerstand van 10 ohm in serie met 'n kapasitor met enige en elke waarde tussen—

(a) 200 en 750 pikofarad;

(b) 200 en 600 pikofarad, indien die ontvanger gekombineer is met 'n reserweradiotelegraafontvanger wat aan deel IV voldoen; of

(c) 300 en 750 pikofarad, indien die ontvanger gekombineer is met 'n radiotelegraaf-oto-alarmuitrusting wat aan die vereistes van aanhangsel 6 voldoen.

5. Selektiwiteit.

Die selektiwiteit wat die einddetektor voorafgaan, moet aan die volgende vereistes voldoen wanneer die outomatiese versterkingskontrole buite werking is:—

Frekwensie (kp/s).	Diskriminasie (dB in verhouding tot maksimum weer-gawe).
496 tot 504. Onder 487 en bo 513. Onder 475 en bo 525.	Hoogstens 3. Minstens 40. Minstens 80.

6. Gevoeligheid en Sein/Ruisverhouding.

Die standaardlewering moet met 'n klas A2-insetsein op 'n peil 40 desibels bo 1 mikrovolt verkry kan word. Die sein/ruisverhouding moet onder hierdie toestande minstens 20 desibels wees.

7. Outomatiese Versterkingskontrole.

Wanneer die ontvanger gestel is om met 'n klas A2-toetssein op 'n peil 40 desibels bo 1 mikrovolt standaardlewering te gee, moet 'n insetverhoging van 50 desibels nie die lewering met meer as 10 desibels verhoog nie.

8. Beperking.

(1) Die ontvanger moet gestel word om die standaardlewering te gee met 'n klas A2-toetssein op 'n peil 40 desibels bo 1 mikrovolt.

(2) Sonder verdere stelling van die ontvanger en met die toetssein gemoduleer tot 'n diepte van 80 persent moet die lewering tot minstens 250 milliwatt styg.

9. Blokkering.

Die ontvanger moet gestel word om standaardlewering te gee met 'n verlangde insetsein van klas A2 op 'n peil 60 desibels bo 1 mikrovolt. Die gelyktydige aanwending van 'n klas A1-insetsein op 'n peil 100 desibels bo 1 mikrovolt en 'n frekwensie van 480 kp/s of 520 kp/s moet nie die lewering met meer as 3 desibels laat verander nie.

(b) when the combined receiver is in the loudspeaker watch-keeping condition, controls of the reserve radio-telegraph receiver or radiotelegraph auto-alarm equipment as the case may be, other than those referred to in subparagraph (1), shall not affect its operation; and

(c) controls of the combined receiver which affect the operation when in a loudspeaker watch-keeping condition shall be clearly labelled.

3. Standard Output Level.

The standard audio-frequency output level shall be 50 milliwatts into a resistance substantially equal to the modulus of the impedance of the loudspeaker at 1000 c/s.

4. Method of Test.

(1) A class A2 test signal shall, unless otherwise specified, be at a frequency of 500 kc/s and shall be modulated 30 per cent at 1000 c/s.

(2) The artificial aerial employed for testing, shall consist of a 10-ohm non-inductive resistor in series with a capacitor having any and every value between—

(a) 200 and 750 picofarads;

(b) 200 and 600 picofarads, if the receiver is combined with a reserve radiotelegraph receiver complying with part IV; or

(c) 300 and 750 picofarads, if the receiver is combined with a radiotelegraph auto-alarm equipment complying with the requirements of annex 6.

5. Selectivity.

The selectivity preceding the final detector shall satisfy the following requirements with the automatic gain control inoperative:—

Frequency (kc/s).	Discrimination (db relative to maximum response).
496 to 504. Below 487 and above 513. Below 475 and above 525.	Not more than 3. At least 40. At least 80.

6. Sensitivity and Signal/Noise Ratio.

The standard output level shall be obtainable with a class A2 input signal at a level of 40 decibels above 1 microvolt. The signal/noise ratio shall be at least 20 decibels under these conditions.

7. Automatic Gain Control.

When the receiver is adjusted to give the standard output with a class A2 test signal at a level of 40 decibels above 1 microvolt, an increase in input of 50 decibels shall not increase the output by more than 10 decibels.

8. Limiting.

(1) The receiver shall be adjusted to give the standard output with a class A2 test signal at a level of 40 decibels above 1 microvolt.

(2) Without further adjustment of the receiver and with the test signal modulated to a depth of 80 per cent, the output shall increase to at least 250 milliwatts.

9. Blocking.

The receiver shall be adjusted for standard output with an input wanted signal of class A2 at a level of 60 decibels above 1 microvolt. The simultaneous application of a class A1 input signal at a level of 100 decibels above 1 microvolt and at a frequency of 480 kc/s or 520 kc/s shall not cause a change in output exceeding 3 decibels.

10. Kruismodulasie.

(1) Die ontvanger moet ooreenkomstig paragraaf 9 gestel en alleen die modulasie van die sein dan afgeskakel word.

(2) Die gelyktydige aanwending van 'n klas A2-insetsein op 'n peil 90 desibels bo 1 mikrovolt en 'n frekwensie van 480 kp/s of 520 kp/s moet nie 'n lewering gee wat hoër as 30 desibels onder die standaardlewering is nie.

11. Intermodulasie en Bofrekwensieproduksie.

(1) Met die outomatiese versterkingskontrole buite werking, moet die ontvanger gestel word om standaardlewering te gee met 'n insetsein van klas A2 op 'n peil 40 desibels bo 1 mikrovolt, en dan moet die verlangde sein verwyder word.

(2) Die gelyktydige aanwending van enige twee „steur“-seine, naamlik een van klas A1 en die ander van klas A2, wat 'n intermodulasieproduk van 500 kp/s mag oplewer, moet nie 'n lewering gee wat die standaardlewering oortref nie. Albei steurseine moet op 'n peil 110 desibels bo 1 mikrovolt wees en nie een van hulle moet 'n frekwensie binne die gebied 475 tot 525 kp/s hê nie.

(3) Die aanwending van 'n klas A2-sein op 'n peil 116 desibels bo 1 mikrovolt waarvan die frekwensie 'n onderfrekwensie van 500 kp/s is, moet nie 'n lewering gee wat die standaardlewering oortref nie.

12. Getrouheid.

Die modulasiefrekwensiewêrengawekenmerk van die ontvanger moet vir modulasiefrekwensies van 300 tot 1500 p/s binne 'n gebied van 8 desibels wees en die modulasiediepte van die insetsein moet konstant gehou word. Op modulasiefrekwensies bo 3000 p/s moet die weergawe met minstens 10 desibels per oktaaf afneem. Vir hierdie toets kan die insetsein enige peil en modulasiediepte hê, op voorwaarde dat die lewering van die ontvanger nie die standaardlewering te bowe gaan nie.

13. Straling.

Wanneer die ontvanger in gebruik is, moet hy nie op 'n afstand van 1 myl vanaf die ontvanger 'n veld van meer as 0.1 mikrovolt per meter lewer nie. Gewoonlik sal hierdie bepaling geag word nagekom te wees indien aan die volgende vereistes voldoen word:—

(a) Die ontvanger moet in die middel van 'n afgeskermde, geaarde omslote ruimte van minstens 6 voet by 6 voet by 6 voet geplaas word;

(b) die aardklem van die ontvanger moet met die binnekant van die skerm verbind word;

(c) die antenneklem moet deur 'n onafgeskermde reghoekige 4-windingsoekspoel (1 voet in die vierkant) en 'n onafgeskermde leiding verbind word met 'n weerstandmeetinstrument wat buite die omslote ruimte gemonteer en waarvan die ander klem geaard is;

(d) indien koptelefoonontvangs verskaf word, moet die koptelefoon aangesluit word; en

(e) ongeag die weerstand van die meetinstrument of die stelling van die ontvanger moet die vermoë gemeet deur die meetinstrument nie 4×10^{-10} watt te bowe gaan nie, en na goedvinde van die toetsbeampste kan die seekspoel gedurende die toets op enige wyse beweeg word, op voorwaarde dat hy nie binne 6 duim van die ontvangerkas kom nie, of anders kan hy kortgesluit word.

14. Instemmingsdwinging en -stabiliteit.

Aan die vereistes van paragraaf 5 moet voldoen word binne 5 minute nadat vir die eerste maal aangeskakel is. Die toepassing van hierdie toets word beperk tot omgewingstemperatuur tussen 0°C en 50°C .

10. Cross Modulation.

(1) The receiver shall be adjusted as described in paragraph 9 and the modulation only of the signal then switched off.

(2) The simultaneous application of a class A2 input signal at a level of 90 decibels above 1 microvolt and at a frequency of 480 kc/s or 520 kc/s, shall not produce an output level higher than 30 decibels below the standard output.

11. Intermodulation and Harmonic Production.

(1) The receiver shall be adjusted with the automatic gain control inoperative to give standard output with an input signal of class A2 at a level of 40 decibels above 1 microvolt and the wanted signal shall then be removed.

(2) The simultaneous application of any two “interfering” signals, one of class A1 and the other of class A2, which may produce an intermodulation product of 500 kc/s, shall not produce an output exceeding the standard output. Both interfering signals shall be at a level of 110 decibels above 1 microvolt and neither shall be at a frequency within the range 475 to 525 kc/s.

(3) The application of class A2 signal at a level of 116 decibels above 1 microvolt, the frequency of which is a sub-harmonic of 500 kc/s, shall not produce an output exceeding the standard output.

12. Fidelity.

The modulation-frequency response characteristic of the receiver shall be within a range of 8 decibels for modulation frequencies from 300 to 1500 c/s, the modulation depth of the input signal being kept constant. The response shall fall by at least 10 decibels per octave at modulation frequencies above 3000 c/s. For this test, the input signal may have any level and modulation depth, provided the output of the receiver does not exceed the standard output.

13. Radiation.

The receiver when in use, shall not produce a field exceeding 0.1 microvolt per metre at a distance of 1 mile from the receiver. This will normally be regarded as satisfied if the following requirements are met:—

(a) The receiver shall be placed centrally in a screened earthed enclosure of dimensions at least 6 feet cube;

(b) the earth terminal of the receiver shall be connected to the inside of the screen;

(c) the aerial terminal shall be connected through an unscreened 4-turn rectangular search coil (of dimensions 1 foot square) and an unscreened lead, to a resistive measuring instrument mounted outside the enclosure, having its other terminal earthed;

(d) if headphone reception is provided, the headphones shall be connected; and

(e) the power measured by the measuring instrument shall not exceed 4×10^{-10} watts no matter what the resistance of the measuring instrument or the adjustment of the receiver may be. At the discretion of the testing officer, the search coil may be moved during the test in any way provided it does not approach within 6 inches of the receiver case; or it may be short-circuited.

14. Tuning Drift and Stability.

The requirements of paragraph 5 shall be met within 5 minutes of first switching on. The range of ambient temperature variation over which this test is applied, shall be limited to between 0°C and 50°C .

15. *Beveiligingsreëlins.*

(1) Voorsiening moet gemaak word vir die beveiliging van die ontvanger wanneer die skip se sender met uitsending op 500 kp/s besig is.

(2) Die ontvanger moet in staat wees om 30 volt w.g.k. wat op enige frekwensie in die mobiele seebande tussen 100 kp/s en 26 mp/s op sy antenneklemme deur middel van 'n kunsantenne ooreenkomstig paragraaf 4 (2) aangevend word, 15 minute lank te weerstaan sonder om beskadig te word.

AANHANGSEL 2.

[Regulasie 4 (2).]

RADIOTELEFOONINSTALLASIE.

DEEL I.

HOOFRADIOTELEFOONINSTALLASIE.

1. *Algemeen.*

(1) In hierdie deel sluit die uitdrukking „die uitrusting” in 'n radiotelefoonsender en -ontvanger en alle ander uitrusting wat vir die werking van die installasie nodig is, maar nie 'n antenne of 'n bron van elektriese energie nie.

(2) Die uitrusting moet in staat wees om te werk vanaf 'n bron van elektriese energie soos by regulasie 23 vereis.

(3) (a) Indien die uitrusting ontwerp is om net met 'n battery sekondêre selle te werk, moet hierdie deel se vereistes nagekom word met betrekking tot toevoerspannings wat wissel van 20 persent bo tot 10 persent onder die nominale battery spanning.

(b) Indien die uitrusting ontwerp is om te werk vanaf die skip se hoofbron van elektriese energie wat nie 'n battery sekondêre selle is nie, moet hierdie deel se vereistes nagekom word met betrekking tot toevoerspannings wat wissel van 10 persent bo tot 10 persent onder die nominale kragtnetspanning.

(4) Voorsiening moet gemaak word om die uitrusting teen die uitwerking van oormatige stroom of spanning te beveilig.

(5) Behalwe waar anders vermeld, moet die uitrusting aan hierdie deel se vereistes voldoen wanneer hy getoets word onder toestande wat in aanhangsel 3 met betrekking tot klas B-uitrusting gespesifiseer word.

(6) Die uitrusting moet nie die aarding van die skip se kragtnet veroorsaak nie.

2. *Frekwensiegebiede en Klasse Uitsendings.*

(1) Behoudens die bepalings van subparagraaf (5) moet die uitrusting in staat wees om klas A3-uitsendings op 'n frekwensie van 2182 kp/s en op minstens 4 ander kolfrekwensies in die gebied 1605 tot 3800 kp/s te send.

(2) Behoudens die bepalings van subparagraaf (5) moet die uitrusting in staat wees om klas A2- en klas A3-uitsendings op 'n frekwensie van 2182 kp/s en op minstens 4 ander kolfrekwensies in die gebied 1605 tot 3800 kp/s te ontvang.

(3) Send- en ontvangfrekwensies moet onafhanklik geselekteer kan word.

(4) Indien vir funksionering in enige van die mobiele seebande tussen 4 en 23 mp/s voorsiening gemaak word, moet voldoen word aan die toepaslike vereistes van die Radioregulasies van die Internasionale Telekomunikasiëunie en sodanige van die vereistes van deel IV van aanhangsel 1 as wat toepaslik en ten tyde van tipetoetsing gangbaar is.

(5) Indien die uitrusting toegerus is met frekwensiesintetiseerders deur middel waarvan die werkfrekwensie op 'n digitale grondslag op wyserplate opgewek kan word, verval die noodsaaklikheid om kolfrekwensies te verskaf, mits die frekwensienoukeurigheid wat aldus verkry word, beter as een deel op 10^6 is.

15. *Protective Arrangements.*

(1) Provision shall be made for protecting the receiver when the ship's transmitter is radiating on 500 kc/s.

(2) The receiver shall be capable of withstanding, for 15 minutes without damage, 30 volts r.m.s. applied to its aerial terminals via an artificial aerial in accordance with paragraph 4 (2), at any frequency in the maritime mobile bands between 100 kc/s and 26 Mc/s.

ANNEX 2.

[Regulation 4 (2).]

RADIOTELEPHONE INSTALLATION.

PART I.

MAIN RADIOTELEPHONE INSTALLATION.

1. *General.*

(1) In this part, the expression “the equipment” includes a radiotelephone transmitter and receiver and all other equipment necessary for the operation of the installation, but does not include an aerial or a source of electrical energy.

(2) The equipment shall be capable of operation from the source of electrical energy required by regulation 23.

(3) (a) If the equipment is designed for operation only from a battery of secondary cells, the requirements of this part shall be met for a range of supply voltage variations of plus 20 and minus 10 per cent relative to the nominal battery voltage.

(b) If the equipment is designed for operation from the ship's main source of electrical energy which is not a battery of secondary cells, the requirements of this part shall be met for a range of supply voltage variations of plus and minus 10 per cent relative to the nominal mains voltage.

(4) Provision shall be made for protecting the equipment from the effects of excessive current or voltage.

(5) Except where otherwise stated, the equipment shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

(6) The equipment shall not cause the ship's mains to be earthed.

2. *Frequency Ranges and Classes of Emission.*

(1) Subject to the provisions of subparagraph (5), the equipment shall be capable of transmitting class A3 emissions on a frequency of 2182 kc/s and on at least 4 other spot frequencies in the range 1605 to 3800 kc/s.

(2) Subject to the provisions of subparagraph (5), the equipment shall be capable of receiving class A2 and class A3 emissions on a frequency of 2182 kc/s and at least 4 other spot frequencies in the range 1605 to 3800 kc/s.

(3) Independent selection of transmit and receive frequencies shall be provided.

(4) If provision is made for operation in any of the maritime mobile bands between 4 and 23 Mc/s, the relevant requirements of the Radio Regulations of the International Telecommunication Union and such of the requirements of part IV of annex 1 as are appropriate and which are current at the time of type-testing, shall be met.

(5) If the equipment is fitted with frequency synthesisers by means of which the operating frequency may be set up on dials on a digital basis, provided that the accuracy of frequency thus obtained is better than 1 part in 10^6 , the necessity for the provision of spot frequencies falls away.

3. *Sender.*

(1) *Spraakmodulasie.*—(a) In normale werking moet die sender op 2182 kp/s 'n modulasiediepte van minstens 70 persent teen spitsintensiteit hê.

(b) Die frekwensieweergawe van die mikrofoon en sender saam moet geleë wees tussen twee ewewydige lyne wat 15 desibels uit mekaar is en met 'n steilheid van 6 desibels per oktaaf van 300 tot 2500 p/s styg. Die weer-gawe in verhouding tot die spitsweergawe moet op alle frekwensies bo 3500 p/s nie hoër as minus 20 desibels en op alle frekwensies bo 5000 p/s nie hoër as minus 40 desibels wees nie.

(c) 'n Spitsbegrenser moet verskaf word om oormodulasie van die sender te verhoed.

(d) Die modulasiediepte van die leweringsein moet minstens 80 persent en hoogstens 95 persent wees vir 'n klankdruk met enige en elke effektiewe waarde (gemeet in die vlak van die mikrofoonmondstuk met 'n suiwer frekwensiegolf van 1000 p/s) tussen 25 en 100 dine per vierkante sentimeter.

(e) Met die sender in werking teen sy aangeslane of verminderde vermoë en tot 'n diepte van 90 persent gemoduleer deur 'n sinusfrekwensiegolf van 1000 p/s aangewend op die mikrofoonklemme moet die bofrekwensie-inhoud van die leweringsspanning na lineêre deteksie nie 10 persent te bowe gaan nie. Te dien einde moet die begrenser buite werking gestel word.

(2) *Werkfasiliteite.*—(a) Dit moet vir 'n operateur moontlik wees om die sender binne 'n tydperk van hoogstens 10 sekondes van funksionering op die een frekwensie na funksionering op 'n ander frekwensie oor te skakel.

(b) Die sender moet binne 60 sekondes na aanskakeling gereed wees om sy maksimum vermoë te lewer.

(c) As dit nodig is om na aanskakeling die aanwending van spanning op enige deel van die uitrusting te vertraag, moet die vertraging outomaties verskaf word.

(d) Die sender moet toegerus wees met 'n inrigting vir die opwekking van die radiotelefoonalarmsein wat in deel II gespesifiseer word.

(3) *Lasimpedansiegebied.*—Die sender moet aan die vereistes van hierdie deel voldoen wanneer hy onderskeidelik met die volgende kunsmatige laste verbind is:—

Frekwensiegebied.	Kunsmatige las (alle elemente in serie).		
	R	C	L
Onder 3 mp/s.	6 ohm.	250 pF	—
Bo 3 mp/s.	{ 10 ohm. 40 ohm.	{ 250 pF. 250 pF.	{ — 8 Micro-henrys.

(4) *Vermoë van die sender.*—(a) Die uitdrukking „die vermoë van die sender” beteken die draagvermoë wat aan die laste gemeld in subparagraaf (3) gelever word wanneer die omgewingstemperatuur minstens 5°C en hoogstens 30°C is.

(b) Met 'n nominale toevoerspanning op enige frekwensie binne die gebied 1605 tot 3800 kp/s moet die vermoë van die sender tussen 15 en 100 watt wees.

(c) Die vermoëverandering veroorsaak deur 'n frekwensieverandering binne die gebied gespesifiseer in subparagraaf (4) (b) moet nie 3 desibels te bowe gaan nie.

(d) Dit moet moontlik wees om die vermoë van die sender tot tussen 5 en 10 watt te verminder.

(e) Wanneer die sender gestel is om sy volle of 'n verminderde vermoë te lewer, moet hy in staat wees—

(i) om 15 minute lank aanhoudend uit te send wanneer hy tot 'n diepte van minstens 80 persent gemoduleer is;

3. *Transmitter.*

(1) *Speech modulation.*—(a) In normal operation, the transmitter shall have a depth of modulation on 2182 kc/s of not less than 70 per cent at peak intensity.

(b) The frequency response of the microphone and transmitter together shall lie between two parallel lines 15 decibels apart, rising at a slope of 6 decibels per octave from 300 to 2500 c/s. The response relative to the peak response shall be not higher than minus 20 decibels at all frequencies above 3500 c/s and not higher than minus 40 decibels at all frequencies above 5000 c/s.

(c) A peak limiter shall be provided to prevent over-modulation of the transmitter.

(d) The modulation depth of the output signal shall be not less than 80 per cent and not more than 95 per cent for a sound pressure having any and every root mean square value (measured in the plane of the microphone mouthpiece with a pure wave of frequency 1000 c/s) between 25 and 100 dynes per square centimetre.

(e) With the transmitter operating at its rated or reduced power and modulated to a depth of 90 per cent by a sinusoidal wave of frequency 1000 c/s applied to the microphone terminals, the harmonic content of the output voltage after linear detection shall not exceed 10 per cent. For this purpose, the limiter shall be rendered inoperative.

(2) *Operating facilities.*—(a) It shall be possible for an operator to change the transmitter from operation on any frequency to operation on any other frequency in a period not exceeding 10 seconds.

(b) The transmitter shall be ready for full-power operation within 60 seconds of switching on.

(c) If it is necessary to delay the application of voltage to any part of the equipment after switching on, the delay shall be provided automatically.

(d) The transmitter shall be provided with a device for generating the radiotelephone alarm signal specified in part II.

(3) *Range of load impedance.*—The transmitter shall meet the requirements of this part when connected to each in turn of the following artificial loads.

Frequency Range.	Artificial load (all elements in series).		
	R	C	L
Below 3 Mc/s.	6 ohms.	250 pF.	—
Above 3 Mc/s.	{ 10 ohms. 40 ohms.	{ 250 pF. 250 pF.	{ — 8 Micro-henrys.

(4) *Power of the transmitter.*—(a) The expression “the power of the transmitter” means the carrier power delivered to the loads specified in subparagraph (3), when the ambient temperature is not less than 5°C. and not greater than 30°C.

(b) The power of the transmitter shall be between 15 and 100 watts at nominal supply voltage on any frequency in the range 1605 to 3800 kc/s.

(c) The change of power caused by any frequency change within the range specified in subparagraph (4) (b) shall not exceed 3 decibels.

(d) It shall be possible to reduce the power of the transmitter to between 5 and 10 watts.

(e) When the transmitter is adjusted for full or reduced power, it shall be capable of—

(i) transmitting continuously, when modulated to a depth of at least 80 per cent, for a period of 15 minutes;

(ii) om die uitwerking van oopkring- of kortgesluite antenneklemme 15 minute lank te weerstaan.

In geen geval mag enige deel van die uitrusting beskadig word nie.

(5) *Frekwensiestabiliteit*.—(a) Die sender moet aan 'n frekwensietoleransie van plus en minus 50 dele op 10^6 in verhouding tot nominale frekwensie binne die gebied 1605 tot 3800 kp/s voldoen.

(b) Die sender moet die frekwensietoleransie vermeld in subparagraaf (a) sonder verstelling handhaaf ongeag wisselings van die lasimpedansie waarmee hy verbind is.

(6) *Ongewenste komponente in die leweringsein*.—(a) Die lewering van 'n parasietstraling moet nie 'n peil 40 desibels onder die draagvermoë te bowe gaan nie. Vir hierdie doel omvat die uitdrukking „parasiet” bofrekwensies van die draagfrekwensie en intermodulasieprodukte, maar nie komponente wat die gevolg van die modulasieproses is nie.

(b) Met die mikrofoon oop- of kortgesluit moet die totale ruis- en bromkrag in die leweringsein minstens 40 desibels onder die draagvermoë wees.

(7) *Instemkontroles*.—(a) Selektoring van enige van die senderfrekwensies wat by paragraaf 2 (1) vereis word, moet deur middel van 'n enkele kontrole geskied.

(b) 'n Antennefynsteller moet verskaf word.

(c) Indien addisionele kontroles verskaf word, moet hulle alleen funksionering dek op gemagtigde frekwensies bo en behalwe dié wat by paragraaf 2 (1) vereis word.

(d) Die drukknop of skakelaarposisie vir die selektoring van 2182 kp/s moet duidelik en onderskeidend gemerk wees.

(8) *Meters*.—(a) Die sender moet 'n meter bevat om die antennestroom in ampères aan te dui. As die meganiek van hierdie meter onklaar maak, moet dit nie die antenne ontkoppel nie.

(b) Ander meters moet na gelang nodig ingesluit word sodat die sender nagegaan en gestel kan word.

4. Ontvanger.

(1) *Algemeen*.—(a) Die ontvanger moet voorsiening maak vir die ontvangs van uitsendings van klas A2 en klas A3 op die frekwensies gespesifiseer in paragraaf 2 (2).

(b) Die ontvanger moet voorsiening bevat vir beide telefoon- en luidsprekerontvangs.

(c) 'n Oudiofrekwensieversterkingshandkontrole moet verskaf word.

(d) Die ontvanger moet gevoelig genoeg wees om deur middel van 'n luidspreker seine voort te bring selfs wanneer die ontvangerinset maar net 50 mikrovolt is.

(2) *Instemkontroles*.—(a) Voortdurende instemming van die ontvanger op enige frekwensie in die gebied 1605 tot 3800 kp/s moet deur middel van 'n enkele kontrole geskied; met dien verstande dat 'n enkele kontrole nie nodig is indien 'n frekwensiesintetiseerder met 'n noukeurigheid van 1 deel op 10^6 vir die eerste plaaslike ossillator gebruik word nie.

(b) Selektoring van 'n frekwensie in die gebied 1605 tot 3800 kp/s op 'n ander wyse as deur voortdurende instemming moet nie die bediening van ander kontroles as die volgende vereis nie, naamlik—

(i) 'n middel om frekwensies van die plaaslike ossillator vinnig te selekteer; en

(ii) een radiofrekwensie-instemkontrole.

(c) Instemming van die ontvanger ooreenkomstig subparagrafe (a) en (b) moet nie meer as 10 sekondes in beslag neem nie.

(d) Indien 'n antenrefynstelkontrole aan die buitekant van die ontvanger beskikbaar is, moet hy vooraf gestel word en moet dit nie nodig wees om hom net as gevolg van 'n verandering van frekwensie binne die gebied 1605 tot 3800 kp/s te verstel nie.

(ii) withstanding the effects of open-circuited or short-circuited aerial terminals for a period of 15 minutes.

In neither case shall damage be caused to any part of the equipment.

(5) *Frequency stability*.—(a) The transmitter shall conform to a frequency tolerance of plus and minus 50 parts in 10^6 relative to nominal frequency within the range 1605 to 3800 kc/s.

(b) The transmitter shall maintain the frequency tolerance specified in subparagraph (a), without adjustment, regardless of variations of the impedance of the load to which it is connected.

(6) *Unwanted components in the output signal*.—

(a) The output power of any spurious emission shall not exceed a level of 40 decibels below the carrier power. For this purpose, the term “spurious” shall include harmonics of the carrier frequency and intermodulation products, but not components which are a result of the modulation process.

(b) With the microphone open or short-circuited, the total noise and hum power in the output signal shall be at least 40 decibels below the carrier power.

(7) *Tuning controls*.—(a) Selection of any of the transmitter frequencies required by paragraph 2 (1) shall be by a single control.

(b) An aerial trimmer shall be provided.

(c) If additional controls are provided, they shall only cover operation on authorised frequencies which are additional to those required by paragraph 2 (1).

(d) The push-button or switch position which selects 2182 kc/s, shall be clearly and distinctively marked.

(8) *Meters*.—(a) The transmitter shall incorporate a meter to indicate the aerial current in amperes. Failure of the movement of this meter shall not disconnect the aerial.

(b) Other meters shall be included, as necessary, to enable the transmitter to be checked and adjusted.

4. Receiver.

(1) *General*.—(a) The receiver shall provide for the reception of emissions of class A2 and class A3 on the frequencies specified in paragraph 2 (2).

(b) The receiver shall have provision for both telephone receiver and loudspeaker reception.

(c) A manual audio-frequency gain control shall be provided.

(d) The receiver shall have sufficient sensitivity to produce signals by means of a loudspeaker when the receiver input is as low as 50 microvolts.

(2) *Tuning controls*.—(a) Continuous tuning of the receiver to any frequency in the range 1605 to 3800 kc/s shall be by a single control: Provided that, if a frequency synthesiser with an accuracy of 1 part in 10^6 is used for the first local oscillator, the necessity for single control falls away.

(b) Selection of any frequency in the range 1605 to 3800 kc/s, other than by continuous tune, shall not require operation of controls other than—

(i) a means of rapidly selecting frequencies of the local oscillator; and

(ii) one radio-frequency tuning control.

(c) Tuning the receiver in accordance with subparagraphs (a) and (b) shall not take more than 10 seconds.

(d) If an aerial trimmer control is available at the exterior of the receiver, it shall be preset and shall not require adjustment merely as a result of change of frequency within the range 1605 to 3800 kc/s.

(e) Addisionele instemkontroles mag alleen verskaf word om die ontvangs van frekwensies buite die gebied 1605 tot 3800 kp/s te dek.

(3) *Standaardlewering.*—(a) Die standaardaudiofrekwensielewering vir ontvangs met 'n telefoonontvanger moet wees 1 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die telefoonontvanger teen 1000 p/s.

(b) Die standaardaudiofrekwensielewering vir ontvangs met 'n luidspreker moet wees 50 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die luidspreker teen 1000 p/s.

(4) *Toetsmetode.*—(a) Die kunsantennes wat vir toetswerk gebruik word, moet wees soos in paragraaf 3 (3) gespesifiseer.

(b) Tensy anders bepaal moet 'n klas A2-toetssein 30 persent teen 1000 p/s gemoduleer word.

(c) Tensy anders bepaal, moet die ontvanger met die outomatiese versterkingskontrole in werking getoets word.

(5) *Selektiwiteit.*—(a) Die selektiwiteit wat die eind-detektor voorafgaan, moet op alle frekwensies gespesifiseer in paragraaf 2 (2) aan onderstaande vereistes voldoen. Vir hierdie toets moet die outomatiese versterkingskontrole buite werking gestel word.

Diskriminasie van hoogstens 6 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met met hoogstens	000 kp/s.
Diskriminasie van minstens 30 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	7.5 k/s.
Diskriminasie van minstens 60 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	15 kp/s.
Diskriminasie van minstens 80 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	30 kp/s.

(b) Die beeldblokkeringsverhouding en die tussenfrekwensieblokkeringsverhouding van 'n superheterodine-ontvanger moet nie kleiner wees as die waardes wat in onderstaande tabel aangegee word nie. Vir hierdie toets moet die outomatiese versterkingskontrole buite werking gestel word.

Beeldblokkeringsverhouding (3 mp/s en laer).....	40 dB.
Beeldblokkeringsverhouding (bo 3 mp/s).....	35 dB.
Tussenfrekwensieblokkeringsverhouding.....	80 dB.

(6) *Gevoeligheid en sein/ruisverhouding.*—Die standaardlewering gespesifiseer in subparagraaf (3) moet behaal kan word met 'n klas A2-insetsein op 'n peil 30 desibels bo 1 mikrovolt.

Indien 'n middel verskaf is om die outomatiese versterkingskontrole af te skakel, moet aan hierdie vereiste voldoen word ongeag of die outomatiese versterkingskontrole in werking is of nie.

Die sein/ruisverhouding onder hierdie toestande moet minstens 20 desibels wees.

Geen verslapping van hierdie beperkings word vir parasietfluïte toegelaat nie.

(7) *Outomatiese versterkingskontrole.*—(a) Die ontvanger moet toegerus wees met 'n outomatiese versterkingskontrole wat op seine van klas A2 en klas A3 kan funksioneer.

(b) Wanneer die ontvanger gestel is om met 'n insetsein van klas A2 en 'n peil 30 desibels bo 1 mikrovolt die standaardlewering te gee—

(i) moet 'n insetverhoging van 20 desibels die sein/ruisverhouding met minstens 35 desibels verbeter;

(ii) moet 'n verhoging van 50 desibels in die inset nie die lewering met meer as 10 desibels verhoog nie, en onder hierdie omstandighede moet die totale bo-frekwensie-inhoud van die leweringspanning nie 10 persent te bowe gaan nie.

(e) Additional tuning controls may be provided only to cover reception of frequencies outside the range 1605 to 3800 kc/s.

(3) *Standard output level.*—(a) The standard audio-frequency output level for telephone receiver reception shall be 1 milliwatt into a resistance substantially equal to the modulus of the impedance of the telephone receiver at 1000 c/s.

(b) The standard audio-frequency output level for loudspeaker reception shall be 50 milliwatts into a resistance substantially equal to the modulus of the impedance of the loudspeaker at 1000 c/s.

(4) *Method of test.*—(a) The artificial aerials employed for testing shall be as specified in paragraph 3 (3).

(b) A class A2 test signal shall, unless otherwise specified, be modulated 30 per cent at 1000 c/s.

(c) The receiver shall be tested with the automatic gain control operative unless otherwise specified.

(5) *Selectivity.*—(a) The selectivity preceding the final detector shall satisfy the requirements appearing below at all frequencies specified in paragraph 2 (2). For this test, the automatic gain control shall be rendered inoperative.

Not more than 6 db discrimination to be obtained at frequencies removed from tune by not more than	3000 c/s.
At least 30 db discrimination to be obtained at frequencies removed from tune by	7.5 kc/s.
At least 60 db discrimination to be obtained at frequencies removed from tune by	15 kc/s.
At least 80 db discrimination to be obtained at frequencies removed from tune by	30 kc/s.

(b) The image rejection ratio and the intermediate frequency rejection ratio of a superheterodyne receiver shall be not less than the values given in the table below. For this test, the automatic gain control shall be rendered inoperative.

Image rejection ratio (3 Mc/s and below).	40 db.
Image rejection ratio (above 3 Mc/s).	35 db.
Intermediate frequency rejection ratio.	80 db.

(6) *Sensitivity and signal/noise ratio.*—The standard output levels specified in subparagraph (3) shall be obtainable with a class A2 input signal at a level of 30 decibels above 1 microvolt.

If means are provided for switching off the automatic gain control, this requirement shall be met whether the automatic gain control is operative or not.

The signal/noise ratio under these conditions shall be at least 20 decibels.

No relaxation of these limits shall be allowed for spurious whistles.

(7) *Automatic gain control.*—(a) The receiver shall be fitted with an automatic gain control capable of operation on signals of class A2 and class A3.

(b) When the receiver is adjusted to give the standard output with an input signal of class A2 and of level 30 decibels above 1 microvolt, then—

(i) an increase in input of 20 decibels shall result in an improvement in the signal/noise ratio to a value of at least 35 decibels;

(ii) an increase in input of 50 decibels shall not increase the output by more than 10 decibels. Under this condition, the total harmonic content of the output voltage shall not exceed 10 per cent.

(8) *Blokkering*.—(a) Die ontvanger moet gestel word vir standaardlewering met 'n verlangde insetsein klas A2 op 'n peil 60 desibels bo 1 mikrovolt.

(b) Die gelyktydige aanwending van 'n klas A1-insetsein op 'n peil 100 desibels bo 1 mikrovolt en op 'n frekwensie 20 kp/s bo of onder die verlangde frekwensie moet nie die lewering meer as 3 desibels laat wissel nie.

(9) *Kruismodulasie*.—(a) Die ontvanger moet gestel word soos in subparagraaf (8) beskryf en dan moet net die modulasie van die verlangde sein afgeskakel word.

(b) Die gelyktydige aanwending van 'n klas A2-insetsein op 'n peil 90 desibels bo 1 mikrovolt en met 'n frekwensie 20 kp/s bo of onder dié van die verlangde sein moet nie 'n lewering gee wat hoër as 30 desibels onder die standaardlewering is nie.

(10) *Intermodulasie*.—(a) Met die outomatiese versterkingskontrole buite werking maar met 'n spanning kunsmatig op die outomatiese versterkingskontrolelyn toegepas om met 'n verlangde insetsein van klas A2 op 'n peil 30 desibels bo 1 mikrovolt die standaardlewering te gee, moet die ontvanger gestel en die verlangde sein dan verwyder word.

(b) Die gelyktydige aanwending van enige twee „steur”-seine, naamlik een van klas A1 en die ander van klas A2, moet nie 'n lewering gee wat die standaardlewering oortref nie. Albei steurseine moet op 'n peil 100 desibels bo 1 mikrovolt wees, en nie een van hulle moet 'n draagfrekwensie binne 30 kp/s van dié van die verlangde sein hê of mag 'n frekwensie hê wat, indien gemoduleer en alleen aangewend, 'n leweringspeil hoër as 20 desibels onder die standaardlewering gee nie.

(11) *Getrouheid*. — (a) Die modulasiefrekwensieweer-gawekenmerk van die ontvanger moet vir modulasiefrekwensies van 300 tot 3000 p/s binne 'n gebied van 8 desibels wees, en bo daardie frekwensie moet die lewering met minstens 8 desibels per oktaaf daal, terwyl die peil en modulasiediepte van die insetsein konstant gehou word. Vir hierdie toets kan die insetsein enige peil tot 100 desibels bo 1 mikrovolt en enige modulasiediepte hê, mits die lewering van die ontvanger nie die standaardlewering te bowe gaan nie.

(12) *Nie-lineêre vervorming*.—(a) Met 'n insetsein op enige peil tussen 40 en 80 desibels bo 1 mikrovolt en sinusoidaal gemoduleer tot 'n diepte van 30 persent teen 1000 p/s moet die totale bofrekwensie-inhoud van die oudiofrekwensieleweringsspanning nie meer wees as 5 persent by enige lewering wat nie die standaardlewering te bowe gaan nie.

(b) Sonder verdere stelling van die ontvanger en wanneer dieselfde insetsein tot 'n diepte van 80 persent gemoduleer is, moet die totale bofrekwensie-inhoud van die leweringsspanning nie 10 persent te bowe gaan nie.

(13) *Straling*.—Wanneer die ontvanger in gebruik is, moet hy nie 'n veld van meer as 0.1 mikrovolt per meter op 'n afstand van 1 myl van die ontvanger af oplewer nie. Gewoonlik sal geag word dat hierdie bepaling nagekom is indien aan die volgende vereistes voldoen word:—

(a) Die ontvanger moet in die middel van 'n afgeskermde, gearde omslote ruimte van minstens 6 voet by 6 voet by 6 voet geplaas word;

(b) die aardklem van die ontvanger moet met die binnekant van die skerm verbind word;

(c) die antenneklem moet deur 'n onafgeskermde, reg-hoekige 4-windingsoekspoel (1 voet in die vierkant) en 'n onafgeskermde leiding verbind word met 'n weerstand-meetinstrument wat buite die omslote ruimte gemonteer is, en sy ander klem moet geaard word;

(8) *Blocking*.—(a) The receiver shall be adjusted for standard output with an input wanted signal of class A2 at a level of 60 decibels above 1 microvolt.

(b) The simultaneous application of a Class A1 input signal at a level of 100 decibels above 1 microvolt and at a frequency 20 kc/s above or below the wanted frequency shall not cause a change in output exceeding 3 decibels.

(9) *Cross modulation*.—(a) The receiver shall be adjusted as described in subparagraph (8) and the modulation only of the wanted signal then switched off.

(b) The simultaneous application of a class A2 input signal at a level of 90 decibels above 1 microvolt, having a frequency 20 kc/s above or below that of the wanted signal, shall not produce an output level higher than 30 decibels below the standard output.

(10) *Intermodulation*.—(a) The receiver shall be adjusted with the automatic gain control rendered inoperative, but with a voltage artificially applied to the automatic gain control line to give the standard output with an input wanted signal of class A2 at a level of 30 decibels above 1 microvolt, and the wanted signal then removed.

(b) The simultaneous application of any two “interfering” signals, one of class A1 and the other of class A2, shall not produce an output exceeding the standard output. Both interfering signals shall be at a level of 100 decibels above 1 microvolt, and neither shall have a carrier frequency within 30 kc/s of that of the wanted signal or shall be of such frequency as to produce an output greater than 20 decibels below the standard output when modulated and applied alone.

(11) *Fidelity*.—The modulation frequency response characteristic of the receiver shall be within a range of 8 decibels for modulation frequencies from 300 to 3000 c/s, above which frequency the output shall fall by at least 8 decibels in an octave, the level and modulation depth of the input signal being kept constant. For this test, the input signal may have any level up to 100 decibels above 1 microvolt and any modulation depth, provided that the output of the receiver does not exceed the standard output.

(12) *Non-linear distortion*.—(a) With an input signal at any level between 40 and 80 decibels above 1 microvolt and sinusoidally modulated to a depth of 30 per cent at 1000 c/s, the total harmonic content of the audio-frequency output voltage shall not exceed 5 per cent at any output not exceeding the standard output.

(b) Without further adjustment of the receiver and when the same input signal is modulated to a depth of 80 per cent, the total harmonic content of the output voltage shall not exceed 10 per cent.

(13) *Radiation*.—The receiver when in use shall not produce a field exceeding 0.1 microvolt per metre at a distance of 1 mile from the receiver. This will normally be regarded as satisfied if the following requirements are met:—

(a) The receiver shall be placed centrally in a screened earthed enclosure of dimensions at least 6 feet cube;

(b) the earth terminal of the receiver shall be connected to the inside of the screen;

(c) the aerial terminal shall be connected through an unscreened 4-turn rectangular search coil (of dimensions 1 foot square) and an unscreened lead, to a resistive measuring instrument mounted outside the enclosure, having its other terminal earthed;

(d) die koptelefone moet aangesluit wees; en

(e) ongeag die weerstand van die meetinstrument of die stelling van die ontvanger moet die vermoë gemeet deur die meetinstrument nie 4×10^{-10} watt te bowe gaan nie, en na goedvinde van die toetsbeampte kan die soekspoel gedurende die toets op enige wyse beweeg word mits hy nie binne 6 duim van die ontvangerkas kom nie, of hy kan kortgesluit word.

(14) *Instemmingstabiliteit*.—Nadat die ontvanger twee minute lank aangeskakel was, moet elke kol-instemfrequentie binne 1 kp/s van sy nominale waarde gehandhaaf word, ongeag wisselings van plus en minus 10 persent in toevoerspanning of van minus 10°C tot plus 40°C in die omgewingstemperatuur.

(15) *Ruisonderdrukking*.—Indien 'n inrigting verskaf word om die uitwerking van impulsiewe ruis te verminder, moet hy met 'n aan-en-afskakelaar toegerus wees.

5. *Faciliteite vir Tweekrigingkommunikasie.*

(1) Die uitrusting moet gou van „send” na „ontvang” en omgekeerd oorgeskakel kan word, en 'n middel moet verskaf word om die ontvanger teen beskadiging te beveilig wanneer die uitrusting vir uitsending gebruik word.

(2) Vir send/ontvangskakeling moet 'n nie-sluitende skakelaar verskaf word wat in sy normale posisie die uitrusting in die ontvangtoestand en met die luidspreker en/of die koptelefone ingeskakel laat.

Wanneer die uitrusting in die sendtoestand verkeer, moet die mikrofoon ingeskakel wees en die luidspreker outomaties ontkoppel word.

(3) Indien 'n inrigting verskaf word wat deur die stem in werking gebring word, moet sodanige inrigting aan die volgende vereistes voldoen:—

(a) Die werkpeil van die inrigting moet 25 desibels laer wees as die peil wat maksimum modulasie van die sender oplewer, maar die inrigting moet nie op 'n peil 28 desibels laer as die peil vir maksimum modulasie werk nie;

(b) die in- en uitskakeltye van die inrigting moet binne die perke val wat in onderstaande tabel aangegee word, en vir die doel van hierdie toets beteken „werkpeil” die minimum peil van die insetsein wat konsekwent die inrigting laat werk.

Insetpeil (dB in verhouding tot werkpeil).	Tyd vir draaggolf om 50% maks. amplitude na aanwending van toets- sein te bereik (millisekon- des).	Tyd vir draaggolf om tot 50% maks. amplitude na verwydering van toets- sein te daal (millisekon- des).
0	Hoogstens 15.	{ Hoogstens 70. Minstens 40.
+6	Hoogstens 5	{ Hoogstens 200. Minstens 150.

(c) 'n Middel moet verskaf word om die inrigting buite werking te stel.

6. *Radiotelegraaffasiliteite.*

Indien die sender vir die stuur van klas A1- en/of klas A2-uitsendings toegerus is, moet aan die volgende vereistes voldoen word:—

(a) Die sender moet in staat wees om teen alle snelhede tot 30 bauds (ongeveer 40 woorde per minuut) vir die stuur van telegraafseine te werk;

(b) die grondmodulasiefrekwensie vir klas A2-uitsendings moet in die gebied 450 tot 1350 p/s en die modulasiediepte 70 tot 100 persent wees;

(d) the headphones shall be connected; and

(e) the power measured by the measuring instrument shall not exceed 4×10^{-10} watts, no matter what the resistance of the measuring instrument or the adjustment of the receiver may be. At the discretion of the testing officer, the search coil may be moved during the test in any way, provided it does not approach within 6 inches of the receiver case; or it may be short-circuited.

(14) *Tuning stability*.—After the receiver has been switched on for 2 minutes, each spot frequency of tune shall be maintained within 1 kc/s of its nominal value, regardless of variations in supply voltage of plus and minus 10 per cent or of ambient temperature changes from minus 10°C to plus 40°C .

(15) *Noise suppression*.—If a device is provided to reduce the effect of impulsive noise, it shall be fitted with an on-off switch.

5. *Facilities for Two-Way Communication.*

(1) The equipment shall be capable of being changed rapidly from “transmit” to “receive” and vice versa and means shall be provided for protecting the receiver from damage when the equipment is transmitting.

(2) A non-locking switch shall be provided for transmit/receive switching which, in its normal position, leaves the equipment in the receive condition with the loudspeaker and/or the headphones in circuit.

When the equipment is in the transmit condition, the microphone shall be in circuit and the loudspeaker shall be disconnected automatically.

(3) If a voice operated device is provided, it shall meet the following requirements:—

(a) The operate level of the device shall be 25 decibels below the level which produces maximum modulation of the transmitter, but the device shall not operate at 28 decibels below the level for maximum modulation;

(b) the operate and release times of the device shall be within the limits given in the table below. For the purpose of this test, the operate level means the minimum level of the input signal which consistently operates the device.

Input level (db relative to operate level).	Time for carrier to reach 50% max. amplitude af- ter test signal applied. (milliseconds).	Time for carrier to fall to 50% max. amplitude af- ter test signal removed. (milliseconds).
0	Not greater than 15.	{ Not greater than 70. Not smaller than 40.
+6	Not greater than 5.	{ Not greater than 200. Not smaller than 150.

(c) Means shall be provided for disabling the device.

6. *Radiotelegraph Facilities.*

If the transmitter is fitted for the transmission of class A1 and/or class A2 emissions, the following requirements shall be met:—

(a) The transmitter shall be capable of operation for the transmission of telegraph signals at all speeds up to 30 bauds (approximately 40 words per minute);

(b) the fundamental modulation frequency for class A2 emissions shall be in the range 450 to 1350 c/s, and the depth of modulation shall be 70 to 100 per cent;

(c) wanneer morsepunte teen snelhede tot 30 bauds uitgesend word, moet 95 persent van die totale uitgestraalde vermoë binne 'n band wees wat in verhouding tot die frekwensie van die gelykmatige draaggolf nie breër as plus en minus 100 p/s vir klas A1-uitsendings en plus en minus 1500 p/s vir klas A2-uitsendings is nie;

(d) die sender moet 'n middel bevat om in aansluiting met 'n verbonde ontvanger fasiliteite te verskaf om teen normale seinsnelhede tydens pouses te luister;

(e) indien die sender vir die stuur van klas A1-uitsendings toegerus is, moet die ontvanger vir die ontvangs van klas A1-uitsendings ontwerp wees; en

(f) die sender moet toegerus wees met 'n goedgekeurde middel om die radiotelegraaffasiliteit te ontkoppel.

7. Kontroles.

Alle kontroles moet groot genoeg wees sodat normale stelwerk verrig kan word deur iemand met dik handskoene aan.

DEEL II.

INRIGTING VIR DIE OPWEKKING VAN RADIOTELEFOONALARMSSEIN.

1. Algemeen.

(1) Indien die inrigting vir die opwekking van radiotelefoonalarmsseine (in hierdie deel „die inrigting” genoem) 'n integrerende deel van 'n radiotelefoonuitrusting uitmaak, moet hy—

(a) voldoen aan die klimaats- en duursaamheidsvereistes van toepassing op sodanige uitrusting; en

(b) oor die reeks toevoerspanningswisselings van toepassing op sodanige uitrusting aan die vereistes van hierdie deel voldoen.

(2) Indien die inrigting nie 'n integrerende deel van 'n radiotelefoonuitrusting uitmaak nie, moet hy—

(a) aan die vereistes van hierdie deel voldoen wanneer hy getoets word onder die omstandighede wat in aanhangsel 3 met betrekking tot klas B-uitrusting gespesifiseer word; en

(b) wanneer hy met 'n battery sekondêre selle werk, aan hierdie deel se vereistes voldoen vir toevoerspannings wat wissel van 20 persent bo tot 10 persent onder die nominale battery spanning; of

(c) wanneer hy vanaf die skip se hoofkragnet werk, voldoen aan hierdie deel se vereistes vir toevoerspannings wat wissel van 10 persent bo tot 10 persent onder die nominale kragnet spanning.

(3) Die inrigting moet in staat wees om die radiotelefoonalarmsseine op te wek wat in paragraaf 2 gespesifiseer word.

(4) Die inrigting moet binne 30 sekondes na sy bekragting gereed wees om die radiotelefoonalarmssein op te wek en moet in staat wees om sodanige sein vir 'n outomaties afgebakende periode van minstens 30 en hoogstens 60 sekondes op te wek.

(5) Nadat die radiotelefoonalarmssein opgewek is, moet die inrigting in staat wees om die sein na 'n tussenpoos van hoogstens 2 minute te herhaal.

(6) 'n Middel moet verskaf word om die inrigting te eniger tyd buite werking te stel.

(7) Die inrigting moet nie die aarding van die skip se kragnet veroorsaak nie.

2. Alarmssein.

Die radiotelefoonalarmssein waarvan in paragraaf 1 (3) melding gemaak word, moet bestaan uit 2 wesenlik sinusoidale tone wat beurt-om-beurt opgelewer word en waarvan die een 'n frekwensie van 2200 p/s plus of minus 1.5 persent en die ander 'n frekwensie van 1300 p/s plus

(c) when sending morse dots at speeds up to 30 bauds, 95 per cent of the total power radiated shall be within a band not wider than plus and minus 100 c/s for class A1 emissions and plus and minus 1500 c/s for class A2 emissions, relative to the frequency of the steady-state carrier;

(d) means shall be incorporated to provide, in conjunction with an associated receiver, listening-through facilities at normal signalling speeds;

(e) if the transmitter is fitted for the transmission of class A1 emissions, the receiver shall be designed for the reception of class A1 emissions; and

(f) the transmitter shall be fitted with approved means of disconnecting the radiotelegraph facility.

7. Controls.

All controls shall be of such size as to permit normal adjustments to be performed by a person wearing thick gloves.

PART II.

RADIOTELEPHONE ALARM SIGNAL GENERATING DEVICE.

1. General.

(1) If the radiotelephone alarm signal generating device (in this part referred to as “the device”) is an integral part of a radiotelephone equipment, it shall—

(a) comply with the climatic and durability requirements applicable to such equipment; and

(b) meet the requirements of this part over the range of supply voltage variations applicable to such equipment.

(2) If the device is not an integral part of a radiotelephone equipment, it shall—

(a) meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment; and

(b) when operated from a battery of secondary cells, meet the requirements of this part for a variation in supply voltage of plus 20 per cent and minus 10 per cent relative to the nominal battery voltage; or

(c) when operated from the ship's main supply, meet the requirements of this part for a variation in supply voltage of plus and minus 10 per cent relative to the nominal mains supply voltage.

(3) The device shall be capable of generating the radiotelephone alarm signal specified in paragraph 2.

(4) The device shall be ready to generate the radiotelephone alarm signal within a period of 30 seconds from the time the device is energised and shall be capable of generating for an automatically timed period of not less than 30 and not more than 60 seconds.

(5) After generating the radiotelephone alarm signal, the device shall be ready to repeat the signal after an interval of not more than 2 minutes.

(6) Means shall be provided so that the device can be taken out of service at any time.

(7) The device shall not cause the ship's mains to be earthed.

2. Alarm Signal.

The radiotelephone alarm signal referred to in paragraph 1 (3), shall consist of 2 substantially sinusoidal tones, one having a frequency of 2200 c/s plus or minus 1.5 per cent and the other 1300 c/s plus or minus 1.5 per

of minus 1.5 percent het, en elke toon moet 250 millisekondes plus of minus 50 millisekondes duur, terwyl die pouse tussen opeenvolgende tone nie 50 millisekondes te bowe moet gaan nie. Die verhouding van die amplitude van die sterker toon tot dié van die swakker toon moet binne die gebied 1 tot 1.2 wees.

3. Prestasie.

(1) (a) Indien die inrigting 'n integrerende deel van 'n radiotelefoonuitrusting uitmaak, moet hy in staat wees om die skip se radiotelefoonsender op elke toon tot 'n diepte binne die gebied 80 tot 95 persent te moduleer.

(b) Indien die inrigting nie 'n integrerende deel van 'n radiotelefoonuitrusting uitmaak nie en vir gebruik met 'n bepaalde fabrikantstipe radio telefoonsender bedoel is, moet hy in 'n installasie in staat wees om sodanige tipe sender op elke toon te moduleer tot 'n diepte binne die gebied 80 tot 95 persent of binne die gebied 0.83 tot 1.0 van die sender se maksimum moontlike modulasiediepte indien sodanige maksimum modulasiediepte laer as 95 persent is. Die inrigting moet geëtiketteer wees om die tipe sender aan te dui waartoe sy gebruik beperk is.

(c) Indien die inrigting nie 'n integrerende deel van 'n radiotelefoonuitrusting uitmaak nie en vir algemene gebruik bedoel is, moet hy in 'n installasie in staat wees om die skip se radiotelefoonsender op elke toon te moduleer tot 'n diepte binne die gebied 80 tot 95 persent of binne die gebied 0.83 tot 1.0 van die maksimum modulasiediepte wat op die sender moontlik is, op voorwaarde dat die maksimum modulasiediepte nie 95 persent te bowe gaan nie.

(2) (a) Indien die inrigting vir algemene gebruik bedoel is, nie 'n integrerende deel van 'n radiotelefoonuitrusting uitmaak nie en nie geredelik by die fabriek met betrekking tot nakoming van die vereistes van subparagraaf (1) (c) getoets kan word nie, moet hy aanvanklik aan die vereistes van of subparagraaf (2) (b) of subparagraaf (2) (c) voldoen.

(b) Wanneer die inrigting elektries gekoppel is, moet dit moontlik wees om die relatiewe peil van die twee tone tot mekaar volgens enige waarde van 0 tot plus 6 dB te stel.

As die vermoë van die twee tone gelyk is, moet dit moontlik wees om die lewering van die inrigting oor die gebied 20 desibels onder tot 10 desibels bo 1 milliwatt in 'n belastingsweerstand van alle waardes in die gebied 30 tot 300 ohm te varieer.

(c) Wanneer die inrigting akoesties gekoppel is, moet die lewering op elke toonfrekwensie afsonderlik gestel kan word ten einde in die vlak van die mikrofoonmondstuk waarmee die inrigting verbonde sal wees, enige klankdruk te gee waarvan die effektiewe waarde tussen 15 en 50 dines per vierkante sentimeter geleë is.

Vir hierdie toets moet die afstand tussen die klankweergewer en die vlak waarin die klankdruk gemeet word, die afstand wees wat deur die fabrikant genoem word.

(d) 'n Inrigting wat aan subparagraaf (2) (b) of (2) (c) voldoen, moet ook aan subparagraaf (1) (c) voldoen wanneer hy geïnstalleer word.

(3) Waar die inrigting 'n integrerende deel van 'n radiotelefoonuitrusting uitmaak—

(a) moet sodanige uitrusting 'n klankweergewer insluit wat die opgewekte sein hoorbaar kan weergee wanneer die radiotelefoonalarmsin deur die inrigting opgewek word; en

(b) moet dit moontlik wees om die inrigting te toets sonder dat radiofrekwensie-energie opgewek word.

(4) Waar die inrigting nie 'n integrerende deel van 'n radiotelefoonuitrusting uitmaak nie—

(a) moet die inrigting 'n klankweergewer insluit waardeur die opgewekte sein hoorbaar weergegee word wanneer die inrigting die radiotelefoonalarmsin opwek;

cent, produced alternatively; the duration of each tone shall be 250 milliseconds plus or minus 50 milliseconds; the interval between successive tones shall not exceed 50 milliseconds. The ratio of the amplitude of the stronger tone to that of the weaker shall be within the range 1 to 1.2.

3. Performance.

(1) (a) If the device is an integral part of a radiotelephone equipment, it shall be capable of modulating the ship's radiotelephone transmitter by each tone to a depth in the range 80 to 95 per cent.

(b) If the device is not an integral part of a radiotelephone equipment, and is intended for use with a specific manufacturer's type of radiotelephone transmitter, it shall be capable in an installation of modulating such type of transmitter, by each tone, to a depth in the range 80 to 95 per cent, or within the range 0.83 to 1.0 of the maximum depth of modulation possible on the transmitter if such maximum depth of modulation is less than 95 per cent. The device shall be labelled to show the type of transmitter to which its use is restricted.

(c) If the device is not an integral part of a radiotelephone equipment and is intended for general use, it shall be capable in an installation of modulating the ship's radiotelephone transmitter, by each tone, to a depth in the range 80 to 95 per cent, or within the range 0.83 to 1.0 of the maximum depth of modulation possible on the transmitter providing the maximum depth of modulation does not exceed 95 per cent.

(2) (a) The device if for general use and not being an integral part of a radiotelephone equipment and which cannot readily be tested at works for compliance with the requirements of subparagraph (1) (c), shall meet initially the requirements of either subparagraph (2) (b) or subparagraph (2) (c).

(b) When the device is electrically coupled, it shall be possible to adjust the relative level of the two tones, each to the other, to any value from 0 to plus 6 db.

With the power of the 2 tones equal, it shall be possible to vary the power output of the device over the range minus 20 to plus 10 decibels relative to 1 milliwatt into a load resistance of all values in the range 30 to 300 ohms.

(c) When the device is acoustically coupled, the output at each tone frequency shall be separately adjustable so as to give, in the plane of the microphone mouthpiece with which the device will be associated, any sound pressure whose root mean square value lies between 15 and 50 dynes per square centimetre.

For this test, the distance between the sound reproducer and the plane in which the sound pressure is measured, shall be that quoted by the manufacturer.

(d) A device which satisfies subparagraph (2) (b) or (2) (c) shall also comply with subparagraph (1) (c) when installed.

(3) Where the device is an integral part of a radiotelephone equipment—

(a) there shall be included in such equipment a sound reproducer to give an audible reproduction of the generated signal whenever the radiotelephone alarm signal is generated by the device; and

(b) it shall be possible to test the device without the generation of radio-frequency energy.

(4) Where the device is not an integral part of a radiotelephone equipment—

(a) the device shall include a sound reproducer whereby an audible reproduction of the generated signal is present whenever the radiotelephone alarm signal is generated by the device;

(b) moet die inrigting so ontwerp wees dat hy getoets kan word deur van 'n outomatiese inrigting vir die ontvang van radiotelefoonalarmseine gebruik te maak; en

(c) moet dit moontlik wees om die inrigting te toets sonder dat radiofrekwensie-energie opgewek word.

4. Kontroles.

(1) Hoogstens 2 bedieningskontroles moet aan die buitekant van die inrigting beskikbaar wees. Elke kontrole moet duidelik geëtiketteer wees om sy doel aan te dui, en moet sodanig wees dat normale bediening deur iemand met dik handskoene aan kan plaasvind.

(2) Waar kontroles vir die stel van frekwensie, die duur of peil van die seinelemente, verskaf word, moet hulle vooraf gestelde kontroles wees wat nie aan die buitekant van die inrigting beskikbaar is nie.

5. Sekerings.

Elektriese inrigtings moet een of meer sekerings bevat.

DEEL III.

RADIOTELEFOON-LUIDSPEKERLUISTER-ONTVANGER.

1. Algemeen.

(1) Die radiotelefoon-luidsprekerluisterontvanger (in hierdie deel „die ontvanger” genoem) moet 'n vaste toon op 'n frekwensie van 2182 kp/s hê en moet geskik wees om klas A2- en klas A3-uitsendings te ontvang behalwe wanneer die skip se eie radiotelefoonsender op 2182 kp/s uitstraal.

(2) Die ontvanger moet 'n luidspreker insluit.

(3) Die ontvanger moet gevoelig genoeg wees om deur middel van die luidspreker seine op te lewer wanneer die ontvangerinset maar net 50 mikrovolt beloop.

(4) (a) Wanneer die ontvanger vanaf die skip se hoofkragnet werk, moet hierdie deel se vereistes nagekom word met betrekking tot toevoerspannings wat wissel van 10 persent bo tot 10 persent onder die nominale kragnet-spanning.

(b) Wanneer die ontvanger met 'n battery sekondêre selle werk, moet hierdie deel se vereistes nagekom word met betrekking tot toevoerspannings wat van 20 persent bo tot 10 persent onder die nominale batteryspanning wissel.

(5) Die ontvanger moet aan die vereistes van hierdie deel voldoen wanneer hy getoets word onder die omstandighede soos met betrekking tot klas B-uitrusting in aanhangsel 3 gespesifiseer.

(6) Die ontvanger moet nie die aarding van die skip se kragnet veroorsaak nie.

2. Kontroles.

(1) Die ontvanger moet toegerus wees met—

(a) 'n handkontrole gemerk „GEBIED” vir die stel van radiofrekwensie- en/of tussenfrekwensieversterking, en die beheerbestek moet minstens 17 en hoogstens 23 desibels wees;

(b) 'n vooraf gestelde kontrole vir die stel van radiofrekwensie- en/of tussenfrekwensieversterking, maar hierdie kontrole moet nie aan die buitekant van die ontvanger beskikbaar wees nie en die beheerbestek moet minstens 20 en hoogstens 30 desibels wees;

(c) 'n handkontrole gemerk „VOLUME” vir die stel van oudiofrekwensieversterking, en die beheerbestek moet minstens 17 en hoogstens 23 desibels wees; en

(d) 'n voorafgestelde kontrole vir die stel van oudiofrekwensieversterking en hierdie kontrole moet nie aan die buitekant van die ontvanger beskikbaar wees nie, terwyl die beheerbestek minstens 13 desibels en hoogstens 17 desibels moet wees.

(b) the device shall be so designed that it can be tested using a radiotelephone alarm signal automatic receiving device; and

(c) it shall be possible to test the device without the generation of radio-frequency energy.

4. Controls.

(1) Not more than 2 operating controls shall be available at the exterior of the device. Each control shall be clearly labelled to show its purpose and shall be such as to permit normal operation to be carried out by a person wearing thick gloves.

(2) Controls, where provided, for the adjustment of frequency, duration or level of the signal elements, shall be preset controls not available at the exterior of the device.

5. Fuses.

Electrical devices shall incorporate a fuse or fuses.

PART III.

RADIOTELEPHONE LOUDSPEAKER WATCH-KEEPING RECEIVER.

1. General.

(1) The radiotelephone loudspeaker watchkeeping receiver (in this part referred to as “the receiver”) shall be fixed in tune on a frequency of 2182 kc/s and shall be suitable for the reception of class A2 and class A3 emissions except when the ship's own radiotelephone transmitter is radiating on 2182 kc/s.

(2) The receiver shall include a loudspeaker.

(3) The receiver shall have sufficient sensitivity to produce signals by means of the loudspeaker when the receiver input is as low as 50 microvolts.

(4) (a) When the receiver is operated from the ship's main supply, the requirements of this part shall be met for a range of supply voltage variations of plus and minus 10 per cent relative to the nominal mains voltage.

(b) When the receiver is operated from a battery of secondary cells, the requirements of this part shall be met for a range of supply voltage variations of plus 20 per cent and minus 10 per cent relative to the nominal battery voltage.

(5) The receiver shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

(6) The receiver shall not cause the ship's mains to be earthed.

2. Controls.

(1) The receiver shall be provided with—

(a) a manual control labelled “RANGE” for the adjustment of radio-frequency or intermediate-frequency gain, or both, the range control being not less than 17 decibels and not more than 23 decibels;

(b) a preset control not available at the exterior of the receiver, for the adjustment of radio-frequency or intermediate-frequency gain, or both, the range of control being not less than 20 decibels and not more than 30 decibels;

(c) a manual control labelled “VOLUME” for the adjustment of audio-frequency gain, the range of control being not less than 17 decibels and not more than 23 decibels; and

(d) a preset control not available at the exterior of the receiver, for the adjustment of audio-frequency gain, the range of control being not less than 13 decibels and not more than 17 decibels.

(2) Met uitsondering van die kontroles genoem in paragrawe (1) (a) en (1) (c) en 'n aan-en-afskakelaar vir die ontvanger moet geen ander kontrole aan die buitekant van die ontvanger beskikbaar wees nie.

3. Toetsmetode.

(1) Tensy anders bepaal, moet 'n klas A2-toetssein 30 persent op 1000 p/s gemoduleer word.

(2) Die kunsantenne wat vir die toetswerk gebruik word, moet wees 'n nie-induktiewe weerstand van 10 ohm in serie met 'n kapasitor met enige en elke waarde tussen 100 en 250 pikofarad.

4. Selektiwiteit.

Die selektiwiteit wat die detektor voorafgaan, moet aan die volgende vereistes voldoen:—

Frekwensie (kp/s).	Diskriminasie (dB in verhouding tot maksimum weergawe).
2178.5 tot en met 2185.5.	Hoogstens 6.
Onder 2172 en bo 2192.	Minstens 30.
Onder 2162 en bo 2202.	Minstens 60.
Onder 2142 en bo 2222.	Minstens 80.

5. Gevoeligheid en Sein/Ruisverhouding.

(1) Dit moet moontlik wees om die outomatiese versterkingskontroledrumpel tussen die perke 20 desibels en 55 desibels bo 1 mikrovolt deur middel van die radiofrekwensie- en/of tussenfrekwensieversterkingskontroles te wysig.

(2) Met 'n klas A2-toetssein op 'n peil wat met die outomatiese versterkingskontroledrumpel ooreenstem, moet dit moontlik wees om die oudiofrekwensielewering oor die gebied 1 tot 100 milliwatt deur verstelling van die oudiofrekwensieversterkingskontroles te varieer.

(3) Met 'n klas A2-toetssein 20 desibels bo 1 mikrovolt en die outomatiese versterkingskontroledrumpel gestel op 20 desibels bo 1 mikrovolt moet die sein/ruisverhouding minstens 10 desibels wees.

6. Outomatiese Versterkingskontroledrumpel.

„Outomatiese versterkingskontroledrumpel” beteken die insetpeil van 'n klas A2-toetssein waarop 'n verandering van 1 desibel in lewering die resultaat is van 'n verandering van 2 desibels in inset.

7. Outomatiese Versterkingskontrole.

(1) Die ontvanger moet toegerus wees met 'n outomatiese versterkingkontrole wat in staat is om doeltreffend te werk op klas A2- en klas A3-seine.

(2) Met 'n klas A2-toetssein 20 desibels bo 1 mikrovolt, die outomatiese versterkingskontroledrumpel gestel 20 desibels bo 1 mikrovolt, en die oudiofrekwensieversterkingskontroles gestel om 'n oudiofrekwensielewering van 50 milliwatt te gee—

(a) moet 'n verhoging van 30 desibels in insetpeil 'n sein/ruisverhouding van minstens 30 desibels oplewer; en

(b) moet 'n verhoging van 80 desibels in insetpeil die leweringspeil nie met meer as 10 desibels verhoog nie.

8. Blokkering.

Met 'n verlangde sein van klas A2, 'n frekwensie van 2182 kp/s, 'n peil 60 desibels bo 1 mikrovolt, die outomatiese versterkingskontroledrumpel gestel op enige waarde tussen die perke 20 desibels en 55 desibels bo 1 mikrovolt en die oudiofrekwensieversterkingskontroles gestel om 'n oudiofrekwensielewering van 50 milliwatt te gee, moet die oudiofrekwensielewering nie met meer as 3 desibels verander wanneer 'n sein van klas A1 en met 'n frekwensie van 2142 kp/s of 2222 kp/s op 'n peil 100 desibels bo 1 mikrovolt op die ontvanger toegepas word nie.

(2) With the exception of the controls specified in subparagraphs (1) (a) and (1) (c) and a receiver on-off switch, no other control shall be available at the exterior of the receiver.

3. Method of Test.

(1) A class A2 test signal shall, unless otherwise specified, be modulated 30 per cent at 1000 c/s.

(2) The artificial aerial employed for testing shall be a 10-ohm non-inductive resistor in series with a capacitor having any and every value between 100 and 250 picofarads.

4. Selectivity.

The selectivity preceding the detector, shall satisfy the following requirements:—

Frequency (kc/s).	Discrimination (db relative to maximum response).
2178.5 to 2185.5 inclusive.	Not more than 6.
Below 2172 and above 2192.	At least 30.
Below 2162 and above 2202.	At least 60.
Below 2142 and above 2222.	At least 80.

5. Sensitivity and Signal/noise Ratio.

(1) It shall be possible to adjust, by means of the radio-frequency and/or intermediate-frequency gain controls, the automatic gain control threshold between the limits of 20 decibels and 55 decibels above 1 microvolt.

(2) With a class A2 test signal at a level corresponding to the automatic gain control threshold, it shall be possible to vary the audio-frequency output over the range 1 to 100 milliwatts by the adjustment of the audio-frequency gain controls.

(3) With a class A2 test signal at 20 decibels above 1 microvolt and the automatic gain control threshold adjusted to 20 decibels above 1 microvolt, the signal/noise ratio shall be at least 10 decibels.

6. Automatic Gain Control Threshold.

“Automatic gain control threshold” means the input level of a class A2 test signal at which a 1 decibel change of output results from a 2 decibel change of input.

7. Automatic Gain Control.

(1) The receiver shall be fitted with an automatic gain control capable of efficient operation on class A2 and class A3 signals.

(2) With a class A2 test signal at 20 decibels above 1 microvolt, the automatic gain control threshold adjusted to 20 decibels above 1 microvolt, and the audio-frequency gain controls adjusted to give an audio-frequency output of 50 milliwatts—

(a) an increase in input level of 30 decibels shall result in a signal/noise ratio of at least 30 decibels; and

(b) an increase in input level of 80 decibels shall not increase the output level by more than 10 decibels.

8. Blocking.

With a wanted signal of class A2 of frequency 2182 kc/s, at a level of 60 decibels above 1 microvolt, the automatic gain control threshold adjusted to any value between the limits 20 decibels and 55 decibels above 1 microvolt and the audio-frequency gain controls adjusted to give an audio-frequency output of 50 milliwatts, the audio-frequency output shall not change by more than 3 decibels when a signal of class A1 and of frequency 2142 kc/s or 2222 kc/s is applied to the receiver at a level of 100 decibels above 1 microvolt.

9. Kruismodulasie.

(1) Die ontvanger moet met die outomatiese versterkings-kontroleddrumpel op enige waarde tussen die perke 20 desibels en 55 desibels bo 1 mikrovolt gestel word om met 'n insetsein van klas A2 op 'n peil 60 desibels bo 1 mikrovolt en met 'n frekwensie van 2182 kp/s 'n lewering van 50 milliwatt te gee. Dan moet net die modulasie van hierdie sein afgeskakel word.

(2) Die gelyktydige aanwending van 'n klas A2-insetsein op 'n peil 100 desibels bo 1 mikrovolt en met 'n frekwensie van 2142 kp/s of 2222 kp/s moet nie 'n lewering van meer as 50 mikrowatt gee nie.

10. Intermodulasie.

(1) Vir hierdie toets moet die radiofrekwensie- en/of tussenfrekwensieversterkingskontroles so gestel word dat die outomatiese versterkingskontroleddrumpel 40 desibels bo 1 mikrovolt is. Die oudiofrekwensieversterkingskontroles moet gestel word om met 'n klas A2-insetsein van 2182 kp/s op 'n peil 30 desibels bo 1 mikrovolt 'n lewering van 1 milliwatt te gee, en die verlangde sein moet dan verwyder word.

(2) Die gelyktydige aanwending van enige twee „steur“-seine, naamlik een van klas A1 en die ander van klas A2, moet nie 'n lewering gee wat 1 milliwatt te bowe gaan nie. Albei steurseine moet op 'n peil 100 desibels bo 1 mikrovolt wees en nie een van hulle moet so 'n frekwensie hê dat daar 'n aanmerklike lewering is wanneer hy alleen gemoduleer en aangewend word nie.

11. Getrouheid.

(1) Wanneer 'n klas A2-toetssein met 'n frekwensie van 2182 kp/s op die ontvanger toegepas word, moet die weergawe sodanig wees dat die oudiofrekwensielewering binne 'n gebied van 8 desibels geleë is wanneer die modulasiefrekwensie van die sein aanhoudend van 250 tot 3000 p/s verander word terwyl die peil en modulasiediepte van die insetsein konstant gehou word. Vir hierdie toets kan die insetsein enige peil en modulasiediepte hê, mits die lewering van die ontvanger nie 50 milliwatt te bowe gaan nie. Die lewering moet vir modulasiefrekwensies bo 3000 p/s met minstens 6 desibels per oktaaf daal.

(2) 'n Uitrustings wat aan die vereistes van subparagraaf (1) voldoen teen die maksimum stelling van die oudiofrekwensieversterkingshandkontrole wat by paragraaf 2 (1) (c) vereis word, kan nogtans 'n lewering handhaaf wat op die twee alarmseintoonfrekwensies, naamlik 1300 p/s en 2200 p/s, tot binne 6 desibels konstant is wanneer die versterkingshandkontrole afgestel is om die ruis- of spraakleweringseil te verlaag. By alle stellings van hierdie kontrole en ongeag die stelling van die voorafgestelde oudiofrekwensieversterkingskontrole wat by paragraaf 2 (1) (d) vereis word, moet die verstaanbaarheid van spraakontvangs gehandhaaf word.

(3) Die maksimum weergawefrekwensies van filters wat gebruik word, moet binne 1.5 persent bo en 1.5 persent onder die nominale frekwensies 1300 en 2200 p/s wees. Hierdie diskriminasie moet op frekwensies binne 3 persent van die maksimum weergawefrekwensie nie 3 desibels te bowe gaan nie.

12. Nie-lineêre vervorming.

Met die radiofrekwensie- en/of tussenfrekwensieversterkingskontroles vir maksimum versterking gestel, moet die oudiofrekwensieversterkingskontroles gestel word om met 'n klas A2-toetssein met 'n frekwensie van 2182 kp/s op 'n peil 60 desibels bo 1 mikrovolt 'n lewering van 100 milliwatt te gee. 'n Toename in modulasiediepte tot 80 persent moet 'n lewering van minstens 500 milliwatt gee. Die totale bofrekwensievervorming moet dan nie 15 persent te bowe gaan nie.

9. Cross Modulation.

(1) The receiver shall be adjusted with the automatic gain control threshold at any value between the limits 20 decibels and 55 decibels above 1 microvolt, to give an output of 50 milliwatts with an input signal of class A2 at a level of 60 decibels above 1 microvolt and of frequency 2182 kc/s. The modulation only of this signal shall then be switched off.

(2) The simultaneous application of a class A2 input signal at a level of 100 decibels above 1 microvolt and of frequency 2142 kc/s or 2222 kc/s shall not produce an output of more than 50 microwatts.

10. Intermodulation.

(1) For this test, the radio-frequency and/or intermediate-frequency gain controls shall be adjusted so that the automatic gain control threshold is 40 decibels above 1 microvolt. The audio-frequency gain controls shall be adjusted to give an output of 1 milliwatt with a 2182 kc/s input signal of class A2 at a level of 30 decibels above 1 microvolt and the wanted signal shall then be removed.

(2) The simultaneous application of any two "interfering" signals, one of class A1 and the other of class A2, shall not produce an output exceeding 1 milliwatt. Both interfering signals shall be at a level of 100 decibels above 1 microvolt and neither shall be at such frequency as to give an appreciable output when modulated and applied alone.

11. Fidelity.

(1) When a class A2 test signal of frequency 2182 kc/s is applied to the receiver, the response shall be such that the audio-frequency output shall lie within a range of 8 decibels as the modulation frequency of the signal is varied continuously from 250 to 3000 c/s, the level and modulation depth of the input signal being kept constant. For this test, the input signal may have any level and modulation depth, provided the output of the receiver does not exceed 50 milliwatts. The response shall fall by at least 6 decibels per octave for modulation frequencies above 3000 c/s.

(2) Nevertheless, an equipment which meets the requirements of subparagraph (1) at the maximum setting of the manual audio-frequency gain control required by paragraph 2 (1) (c), may maintain an output constant to within 6 decibels at the two alarm signal tone frequencies, 1300 c/s and 2200 c/s, as the manual gain control is turned down to reduce the output level of noise or speech. At all settings of this control and irrespective of the adjustment of the preset control of audio-frequency gain required by paragraph 2 (1) (d), the intelligibility of speech reception must be maintained.

(3) The maximum response frequencies of the filters, if used, shall be within plus and minus 1.5 per cent of the nominal frequencies of 1300 and 2200 c/s. This discrimination should not exceed 3 decibels at frequencies within 3 per cent of the maximum response frequency.

12. Non-Linear Distortion.

With the radio-frequency and/or intermediate-frequency gain controls adjusted for maximum gain, the audio-frequency gain controls shall be adjusted to give an output of 100 milliwatts with a class A2 test signal of frequency 2182 kc/s at a level of 60 decibels above 1 microvolt. An increase of modulation depth to 80 per cent shall produce an output of not less than 500 milliwatts. The total harmonic distortion shall not then exceed 15 per cent.

13. Straling.

Wanneer die ontvanger in gebruik is, moet hy nie 'n veld oplewer wat op 'n afstand van 1 myl van die ontvanger af 0.1 mikrovolt per meter te bowe gaan nie. Gewoonlik sal beskou word dat hierdie bepaling nagekom is indien aan die volgende vereistes voldoen word:—

(a) Die ontvanger moet in die middel van 'n afgeskermde, geaarde omslote ruimte van minstens 6 voet by 6 voet by 6 voet wees;

(b) die aardklem van die ontvanger moet met die binnekant van die skerm verbind word;

(c) die antenneklem moet deur 'n onafgeskermde, reghoekige 4-windingsoekspoel (1 voet in die vierkant) en 'n onafgeskermde leiding verbind word met 'n weerstandmeetinstrument wat buite die omslote ruimte gemonteer en waarvan die ander klem geaard is;

(d) die ontvanger moet bekrag word; en

(e) ongeag die weerstand van die meetinstrument of die stelling van die ontvanger moet die vermoë gemeet deur die meetinstrument nie 4×10^{-10} watt te bowe gaan nie, en na goedvinde van die toetsbeampste kan die soekspoel gedurende die toets op enige wyse beweeg word op voorwaarde dat hy nie binne 6 duim van die ontvangerkas kom nie, of hy kan kortgesluit word.

14. Instemmingsdwinging en -stabiliteit.

Die vereistes van paragraaf 4 moet binne 5 minute na die eerste aanskakeling nagekom word. Daarna moet hulle nagekom word—

(a) by alle omgewingstemperature tussen minus 10°C en plus 40°C ; en

(b) ongeag wisselings in toevoerspanning binne die perke gespesifiseer in paragraaf 1 (4).

15. Beveiligingsreëlins.

(1) Die ontvanger moet een of meer sekerings bevat.

(2) Voorsiening moet gemaak word vir die beveiliging van die ontvanger en vir die stilling van sy lewering wanneer die skip se sender besig is om op 2182 kp/s uit te straal.

(3) Die ontvanger moet in staat wees om 30 volt w.g.k. wat deur middel van 'n kunsantenne ooreenkomstig paragraaf 3 (2) op sy antenneklemme toegepas word, op enige frekwensie in die mobiele seebande tussen 100 kp/s en 25 mp/s 15 minute lank te weerstaan sonder om beskadig te word.

AANHANGSEL 3.

(Regulasie 5.)

KLIMAATS- EN DUURSAAMHEIDSTOETSE VIR RADIOTELEGRAAF- EN RADIOTELEFOON-UITRUSTING.**1. Algemeen.**

(1) (a) Alle seeradio-uitrusting wat vir tipetoetse voorgelê word, moet na goedvinde van die bevoegde beampste aan enige van of al die toetse gespesifiseer in hierdie aanhangsel onderwerp word.

(b) Die bevoegde beampste kan na eie oordeel inwillig om die volgorde van die toetse te wissel en kan ook van enige van die voorgeskrewe toetse afsien waar die fabrikant in staat is om bewys te lewer dat die komponente, materiale en afwerkings van die uitrusting wat deur hom voorgelê word, aan hierdie toetse sou voldoen.

(c) Waar die bevoegde beampste bepaal dat toetse by die fabrikant se fabriek uitgevoer word, moet die fabrikant op versoek die nodige toetsuitrusting en material verskaf.

13. Radiation.

The receiver when in use shall not produce a field exceeding 0.1 microvolt per metre at a distance of 1 mile from the receiver. This will normally be regarded as satisfied if the following requirements are met:—

(a) The receiver shall be placed centrally in a screened earthed enclosure of dimensions at least 6 feet cube;

(b) the earth terminal of the receiver shall be connected to the inside of the screen;

(c) the aerial terminal shall be connected through an unscreened 4-turn rectangular search coil (of dimensions 1 foot square) and an unscreened lead, to a resistive measuring instrument mounted outside the enclosure, having its other terminal earthed;

(d) the receiver shall be energised; and

(e) the power measured by the measuring instrument shall not exceed 4×10^{-10} watts, no matter what the resistance of the measuring instrument or the adjustment of the receiver may be. At the discretion of the testing officer, the search coil may be moved during the test in any way, provided it does not approach within 6 inches of the receiver case; or it may be short-circuited.

14. Tuning Drift and Stability.

The requirements of paragraph 4 shall be met within 5 minutes of first switching on. Thereafter they shall be met—

(a) at all ambient temperatures between minus 10°C . and plus 40°C .; and

(b) irrespective of variations in supply voltage within the limits specified in paragraph 1 (4).

15. Protective Arrangements.

(1) The receiver shall incorporate a fuse or fuses.

(2) Provision shall be made for protecting the receiver and muting its output when the ship's transmitter is radiating on 2182 kc/s.

(3) The receiver shall be capable of withstanding for 15 minutes without damage, 30 volts r.m.s. applied to its aerial terminals via an artificial aerial in accordance with paragraph 3 (2), at any frequency in the maritime mobile bands between 100 kc/s and 25 Mc/s.

ANNEX 3.

(Regulation 5.)

CLIMATIC AND DURABILITY TESTS FOR RADIOTELEGRAPH AND RADIOTELEPHONE EQUIPMENT.**1. General.**

(1) (a) All marine radio equipment submitted for typetests, shall be subjected to any or all of the tests specified in this annex, at the discretion of the proper officer.

(b) The proper officer may, at his discretion, agree to vary the sequence of the tests and may also waive any of the tests specified where the manufacturer is able to provide evidence that the components, materials and finishes employed in the equipment submitted by him would satisfy these tests.

(c) Where the proper officer requires any tests to be carried out at the manufacturer's works, the manufacturer shall, if requested to do so, provide the necessary testing equipment and materials.

(2) In hierdie aanhangsel—

(a) word melding van klas B-uitrusting vertolk as melding van uitrusting wat net vir gebruik onderdeks of in 'n dekhuis of ander dergelike kompartement toegewys is;

(b) word melding van klas X-uitrusting vertolk as melding van uitrusting toegewys vir gebruik of opberging in die buiteloof of in 'n oop skuit.

2. Toetsprosedure.

(1) Klas B- en klas X-uitrusting moet onderwerp word aan toetse wat uitgevoer word in die volgorde waarin hulle in onderstaande tabel genoem word:—

Aard van toets.	Klasse uitrusting waarop die toets toegepas moet word.
Visuele inspeksie en prestasietoets.	B en X.
Inspeksie onder trilling.	B en X.
Stamp-toets.	B en X.
Droëhittesiklus.	B en X.
Klamhittesiklus.	B en X.
Laetemperatuursiklus.	B en X.
Reëntoets.	X.
Indompelingstoets.	X.
Korrosietoets.	B en X.
Skimmelgroeitoets.	X.
Visuele inspeksie en prestasietoets.	B en X.

(2) Die volgorde aangegee in subparagraaf (1) moet minstens een maal gevolg word.

(3) Tensy anders bepaal, moet die uitrusting alleen van krag voorsien word gedurende die tydperke wat vir die elektriese toetse bepaal is.

(4) Tensy die betrokke aanhangsel in verband met die uitrusting anders bepaal, moet die stroomspanning wat gedurende die toetse op die uitrusting toegepas word, die nominale stroomspanning wees.

3. Beskrywing van Toetse.

(1) *Visuele inspeksie en prestasietoets.*—Visuele inspeksie moet uitgevoer word ten einde te verseker dat die uitrusting van gawe konstruksie is. Dit moet gevolg word deur die prestasietoets ooreenkomstig die betrokke aanhangsel in verband met die uitrusting.

(2) *Inspeksie onder trilling.*—Hierdie toets is daarop gemik om gebrekkige werking onder trilling aan die lig te bring:—

(a) Die uitrusting, volledig met sy onderstel bekledings en skokbrekers (indien verskaf), moet in sy normale werkposisie aan 'n triltafel vasgeklamp word.

(b) Die tafel moet met 'n totale speling van 0.32 cm op alle frekwensies tussen 0 en 12½ p/s gevibreer word. Die hele frekwensiegebied moet in minstens 8 minute verken word en gedurende hierdie tydperk moet die uitrusting pal aan die werk gehou word.

(c) Gedurende bovermelde toets moet prestasie gekontroleer word.

(N.B.—'n Prestasiekontrole is 'n verkorte vorm van die toets wat by die betrokke aanhangsel vereis word, naamlik 'n toets wat binne 5 tot 15 minute uitgevoer kan word. Waar van vertraagde skakeling gebruik gemaak word, sluit hierdie tyd nie die tyd in wat deur voorverwarming in beslag geneem word nie.)

(d) Die prosedure kan met trillings in 3 onderling vertikale rigtings herhaal word.

(3) *Stamp-toets.*—(a) Die uitrusting moet vasgeklamp word soos in subparagraaf (2) (a) beskryf.

(2) In this annex—

(a) reference to class B equipment shall be construed as references to equipment appropriated for use only below deck or in a deckhouse or other similar compartment;

(b) references to class X equipment shall be construed as references to equipment appropriated for use or storage in the open or in an open boat.

2. Testing Procedure.

(1) Class B and class X equipment shall be subjected to tests conducted in the order in which they appear in the following table:—

Nature of test.	Classes of equipment to which the test shall be applied.
Visual inspection and performance test.	B and X.
Inspection under vibration.	B and X.
Bump test.	B and X.
Dry heat cycle.	B and X.
Damp heat cycle.	B and X.
Low temperature cycle.	B and X.
Rain test.	X.
Immersion test.	X.
Corrosion test.	B and X.
Mould growth test.	X.
Visual inspection and performance test.	B and X.

(2) The sequence given in subparagraph (1) shall be followed at least once.

(3) Unless otherwise specified, power shall be supplied to the equipment only during the periods specified for the electrical tests.

(4) Unless otherwise specified in the relevant annex dealing with the equipment, the voltage applied to the equipment during the tests shall be the nominal voltage.

3. Description of Tests.

(1) *Visual inspection and performance test.*—Visual inspection shall be carried out to ensure that the equipment is of sound construction. This is to be followed by the performance test in accordance with the relevant annex dealing with the equipment.

(2) *Inspection under vibration.*—This test is designed to reveal faulty performance under vibration.

(a) The equipment, complete with its chassis covers and shock absorbers (if supplied), shall be clamped in its normal operating position to a vibration table.

(b) The table shall be vibrated at all frequencies between 0 and 12½ c/s with a total excursion of 0.32 cm. The whole frequency range shall be explored in not less than 8 minutes, during which period the equipment shall be kept working continuously.

(c) A performance check shall be carried out during the above test.

(Note.—A performance check is a shortened form of the test required by the relevant annex, such as could be carried out in 5 to 15 minutes. This time does not include a period of pre-heating in cases where delayed switching is used.)

(d) The procedure may be repeated with vibrations in 3 mutually perpendicular directions.

(3) *Bump test.*—(a) The equipment shall be clamped as described in subparagraph (2) (a).

(b) Die uitrusting moet onderwerp word aan minstens 500 stampe teen 'n konstante tempo van 1 tot 4 stampe per sekonde met 'n vrye val van minstens 2.5 cm. Die oppervlak waarop die uitrusting gemonteer is, moet aan 'n gemiddelde spitsremming van 40g ($\pm 4g$) onderwerp word. Die toets moet deur visuele inspeksie gevolg word en die uitrusting moet nie geag word te gefaal het indien alleen eenvoudige herstelwerk gedoen hoef te word nie.

(c) Bovermelde toets moet deur 'n prestasiekontrolle gevolg word.

(4) *Droëhittesiklus.*—(a) Klas B-uitrusting:—

(i) Die uitrusting moet geplaas word in 'n kamer waarin die temperatuur 2 uur lank konstant op plus 55° C ($\pm 1^\circ$ C) gehou word. Die uitrusting moet pal aan die werk gehou word. Telegraafsenders moet ingerig word om morsepunte te send, en telefoonsenders moet met 'n onafgebroke toon tot 'n diepte van 50 persent gemoduleer word.

(ii) Na verstryking van die 2 uur moet die uitrusting by die gekontroleerde temperatuur aan 'n prestasiekontrolle onderwerp word.

(b) Klas X-uitrusting—

(i) Die uitrusting moet in 'n kamer geplaas word waarin die temperatuur 10 uur lank konstant op plus 70° C ($\pm 1^\circ$ C) gehou word.

(ii) Die kamer moet dan tot plus 55° C ($\pm 1^\circ$ C) afgekoel word en die uitrusting moet 2 uur lank onafgebroke by daardie temperatuur aan die werk gehou word. Telegraafsenders moet ingerig word om morsepunte te send, en telefoonsenders moet met 'n onafgebroke toon tot 'n diepte van 50 persent gemoduleer word.

(iii) Na verstryking van die 2 uur moet die uitrusting by 'n temperatuur van plus 55° C ($\pm 1^\circ$ C) aan 'n prestasietoets onderwerp word.

(c) Klas B- en klas X-uitrusting: Na afloop van die prestasiekontrolle moet die uitrusting minstens 3 uur lank voor die klamhittesiklus aan gewone kamertemperatuur blootgestel word.

(5) *Klamhittesiklus.*—(a) Die uitrusting moet in 'n kamer geplaas word wat binne 'n tydperk van hoogstens 2 uur van kamertemperatuur tot plus 40° C ($\pm 1^\circ$ C) verhit en die relatiewe voggehalte op minstens 95 persent te staan gebring moet word.

(b) Die kamer se temperatuur moet op plus 40° C ($\pm 1^\circ$ C) en sy relatiewe voggehalte op minstens 95 persent gehou word en wel minstens 12 uur lank.

(c) Aan die begin van die laaste 60 minute van die tydperk vermeld in subparagraaf (b) kan waaiers en enige hittebronne waarmee die uitrusting toegerus is, aangeskakel word.

(d) Gedurende die laaste 30 minute van die tydperk vermeld in subparagraaf (b) en terwyl die kamer se temperatuur nog steeds op plus 40° C ($\pm 1^\circ$ C) en sy relatiewe voggehalte op minstens 95 persent staan, moet die uitrusting aan 'n prestasiekontrolle onderwerp word.

(e) Daarna, terwyl die uitrusting nog in die kamer is, moet die temperatuur toegelaat word om in minstens 1 uur tot onder plus 25° C te daal; daarna moet die uitrusting 3 tot 6 uur lank voor die laetemperatuursiklus aan normale kamertemperatuur blootgestel word.

(6) *Laetemperatuursiklus.*—(a) Klas B-uitrusting:—

(i) Die uitrusting moet in 'n kamer geplaas word waarvan die temperatuur minstens 12 uur lank teen normale lugdruk op minus 15° C ($\pm 2^\circ$ C) gehandhaaf word.

(ii) Gedurende die laaste 30 minute van die tydperk vermeld in subparagraaf (i) moet die uitrusting aan 'n prestasiekontrolle by die gekontroleerde temperatuur onderwerp word.

(b) The equipment shall be subjected to not less than 500 bumps at a fixed rate in the range of 1 to 4 bumps per second with a free drop of at least 2.5 cm. The surface on which the equipment is mounted shall be subjected to a mean peak deceleration of 40g ($\pm 4g$). The test shall be followed by a visual inspection, the equipment not being deemed to have failed if only simple repairs need to be carried out.

(c) A performance check shall follow the above test.

(4) *Dry heat cycle.*—(a) Class B equipment:—

(i) The equipment shall be placed in a chamber which is maintained at a constant temperature of plus 55° C ($\pm 1^\circ$ C.) for a period of 2 hours. The equipment shall be kept working continuously. Telegraph transmitters shall be arranged to send morse dots, and telephone transmitters modulated to a depth of 50 per cent by a continuous tone.

(ii) At the end of the 2 hours, the equipment shall be subjected to a performance check at the controlled temperature.

(b) Class X equipment:—

(i) The equipment shall be placed in a chamber which is maintained at a constant temperature of plus 70° C ($\pm 1^\circ$ C.) for a period of 10 hours.

(ii) The chamber shall then be cooled to plus 55° C ($\pm 1^\circ$ C.) and the equipment shall be kept working continuously at that temperature for a period of 2 hours. Telegraph transmitters shall be arranged to send morse dots, and telephone transmitters modulated to a depth of 50 per cent by a continuous tone.

(iii) At the end of the 2 hours, the equipment shall be subjected to a performance check at a temperature of plus 55° C ($\pm 1^\circ$ C.).

(c) Class B and class X equipment: At the conclusion of the performance check, the equipment shall be exposed to normal room temperature for at least 3 hours before the damp heat cycle.

(5) *Damp heat cycle.*—(a) The equipment shall be placed in a chamber which, within a period not exceeding 2 hours, shall be heated from room temperature to plus 40° C ($\pm 1^\circ$ C.) and shall be brought to a relative humidity of not less than 95 per cent.

(b) The chamber shall be maintained at a temperature of plus 40° C ($\pm 1^\circ$ C.) for a minimum period of 12 hours and at a relative humidity of not less than 95 per cent.

(c) At the beginning of the last 60 minutes of the period mentioned in subparagraph (b), fans and any sources of heat provided in the equipment may be switched on.

(d) During the last 30 minutes of the period mentioned in subparagraph (b), and while the temperature of the chamber is still at plus 40° C ($\pm 1^\circ$ C.), at a relative humidity of not less than 95 per cent, the equipment shall be subjected to a performance check.

(e) The temperature shall then be allowed to fall below plus 25° C. in not less than 1 hour, while the equipment is enclosed in the chamber, and shall then be exposed to normal room temperature and humidity for a period of 3 to 6 hours before the low temperature cycle.

(6) *Low temperature cycle.*—(a) Class B equipment:—

(i) The equipment shall be placed in a chamber which is maintained at a temperature of minus 15° C ($\pm 2^\circ$ C.), at normal atmospheric pressure, for a minimum period of 12 hours.

(ii) During the last 30 minutes of the period mentioned in subparagraph (i), the equipment shall be subjected to a performance check at the controlled temperature.

(b) Klas X-uitrusting:—

(i) Die uitrusting moet in 'n kamer geplaas word waarvan die temperatuur teen normale lugdruk minstens 12 uur lank op minus 25° C ($\pm 2^\circ$ C) gehandhaaf word.

(ii) Gedurende die laaste 30 minute van die tydperk vermeld in subparagraaf (i) moet die uitrusting by die gekontroleerde temperatuur aan 'n prestasiekontrole onderwerp word.

(7) *Reëntoets.*—[N.B.—In die geval van rigtingsoeker-antennestelsels kan die fabrikante kies tussen—

(i) 'n reëntoets met waterdruk 15 tot 25 pond per vierkante duim en ook 'n indompelingstoets; of

(ii) 'n reëntoets met waterdruk 45 tot 55 pond per vierkante duim maar geen indompelingstoets nie.]

(a) Die uitrusting moet in 'n kamer geplaas word wat toegerus is met 8 spuitkoppe waarvan die uitlaatkant moet bestaan uit 'n plat korrosiebestande plaat van 0.16 cm dik, elkeen met 36 gaatjies met 'n deursnee van 0.1 cm en ewe ver uit mekaar op konsentriese sirkels, as volg:—

Sestien gaatjies op die buitelyn van 'n sirkel met 'n deursnee van 5.1 cm;

aght gaatjies op die buitelyn van 'n sirkel met 'n deursnee van 3.8 cm;

aght gaatjies op die buitelyn van 'n sirkel met 'n deursnee van 2.5 cm; en

vier gaatjies op die buitelyn van 'n sirkel met 'n deursnee van 1.3 cm.

(b) Die spuitkoppe moet op 'n afstand van 50 tot 80 cm van die uitrusting af gerangskik word op sodanige wyse dat die strale van 4 van die spuitkoppe 45° skuins ondertoe op die 4 boonste hoeke van die uitrusting gerig is. Die strale uit die ander 4 spuitkoppe moet horisontaal op die middel van elke oppervlak van die 4 sye van die uitrusting gerig word.

(c) Vars water met kamertemperatuur en 'n statiese druk van minstens 15 of hoogstens 25 pond per vierkante duim moet uit die 8 spuitkoppe op die uitrusting gespuut word.

(d) Die uitrusting moet een uur lank aan voormelde toets onderwerp word:—

(i) Met die kontrolepaneel in sy normale posisie; en

(ii) met die kontrolepaneel bo, indien dit nie sy normale posisie is nie.

Dwarsdeur die toets moet die uitrusting 12 tot 20 maal per minuut in die rondte gedraai word om 'n vertikale as wat deur die middel van die uitrusting loop.

(e) Prestasiekontrole moet plaasvind onmiddellik na afloop van die blootstelling maar nie terwyl dit nog aan die gang is nie.

(8) *Indompelingstoets.*—[N.B.—In die geval van rigtingsoekerantennestelsels kan die fabrikante kies tussen—

(i) 'n reëntoets met waterdruk 15 tot 25 pond per vierkante duim en ook 'n indompelingstoets; of

(ii) 'n reëntoets met waterdruk 45 tot 55 pond per vierkante duim maar geen indompelingstoets nie.]

(a) Die uitrusting moet in water gedompel word waarvan die oppervlak minstens 10 cm bokant die hoogste punt van die uitrusting is, en die uitrusting moet 1 uur lank onder die water bly.

(b) 'n Prestasiekontrole moet uitgevoer word onmiddellik nadat die uitrusting uit die water gehaal is.

(c) Die uitrusting moet nagegaan word om te sien of water binnegedring het.

(9) *Korrosietoets.*—(a) Soutwater:—

(i) Die toets geld, benewens vir klas X-uitrusting, ook vir sodanige komponente, materiale en deklare van Klas B-uitrusting as wat die bevoegde beampte bepaal.

(b) Class X equipment:—

(i) The equipment shall be placed in a chamber which is maintained at a temperature of minus 25° C. ($\pm 2^\circ$ C), at normal atmospheric pressure, for a minimum period of 12 hours.

(ii) During the last 30 minutes of the period mentioned in subparagraph (i), the equipment shall be subjected to a performance check at the controlled temperature.

(7) *Rain test.*—[Note:—For direction-finder aerial systems, the manufactures have the option of—

(i) a rain test with water pressure in the range 15—25 lb. per square inch and also an immersion test; or

(ii) a rain test with water pressure in the range 45—55 lb per square inch, but no immersion test.]

(a) The equipment shall be placed in a chamber fitted with 8 shower-heads, the discharge end of which shall consist of a flat non-corrodable plate 0.16 cm. thick, having 36 holes each of 0.1 cm. diameter evenly spaced on concentric circles as follows:—

Sixteen holes on the periphery of a circle of 5.1 cm diameter;

eight holes on the periphery of a circle of 3.8 cm diameter;

eight holes on the periphery of a circle of 2.5 cm diameter; and

four holes on the periphery of a circle of 1.3 cm diameter.

(b) The shower-heads shall be arranged at a distance of 50 to 80 cm. from the equipment in such a manner that spray from 4 of the shower-heads is directed downwards at an angle of 45° at each of the 4 uppermost corners of the equipment. Spray from the other 4 shower-heads shall be directed horizontally at the centre of each area of the 4 sides of the equipment.

(c) Fresh water at room temperature and at a static pressure of not less than 15 or more than 25 lb per square inch shall be sprayed on to the equipment from the 8 shower-heads.

(d) The equipment shall be subjected to the foregoing test for a period of 1 hour, viz:—

(i) With the control panel in its normal position; and

(ii) with the control panel uppermost, if this is not its normal position.

Throughout the test, the equipment shall be continuously rotated between 12 and 20 revolutions per minute about a vertical axis passing through the centre of the equipment.

(e) A performance check shall be carried out immediately after, but not during, exposure.

(8) *Immersion test.*—[Note: For direction-finder aerial systems, the manufactures have the option of—

(i) a rain test with water pressure in the range 15—25 lb per square inch and also an immersion test; or

(ii) a rain test with water pressure in the range 45—55 lb per square inch, but no immersion test.]

(a) The equipment shall be immersed in water, the surface of which is at least 10 cm. above the highest point of the equipment, and shall remain immersed for a period of 1 hour.

(b) Upon removal of the equipment from the water, a performance check shall be carried out immediately.

(c) The equipment shall be inspected for water penetration.

(9) *Corrosion test.*—(a) Salt water:—

(i) In addition to class X equipment, the test shall apply to such components, materials and finishes of class B equipment as the proper officer may require.

(ii) Die uitrusting moet geplaas word in 'n kamer toegerus met apparaat wat in staat is om koue kraanwater bevattende die volgende soute in oplossing te sproei in die vorm van 'n fyn mis soos deur 'n sproeispuut voortgebring sal word:—

Natriumchloried: 2.7 persent;
Magnesiumchloried: 0.6 persent;
Kalsiumchloried: 0.1 persent;
Kaliumchloried: 0.07 persent.

Die hoeveelheid van elke sout is onderworpe aan 'n toleransie van ± 10 persent. Die sproeiapparaat moet sodanig wees dat die produkte van korrosie nie met die soutoplossing in die sproeivat kan meng nie.

(iii) Die uitrusting moet 1 uur lank gelyktydig op al sy buitevlakke met die soutoplossing gesproei en die laaste 30 minute van daardie tydperk onafgebroke aan die werk gehou word.

(iv) Hierdie bespuiting moet vier maal plaasvind en tussen herhalings daarvan moet die uitrusting 7 dae lank by 'n temperatuur van plus 40° C ($\pm 1^\circ$ C) opgeberg word. Die relatiewe voggehalte gedurende opberging moet tussen 60 en 80 persent wees.

(v) Na verstryking van die totale tydperk moet die uitrusting aan visuele ondersoek onderwerp word. Daar moet geen onnodige verswakking of korrosie van die metaaldele, deklae, materiale of onderdele wees nie. Die uitrusting moet dan aan 'n prestasiekontrole onderwerp word. In die geval van lugdig verseelde uitrusting moet daar by die opening van die omhulsel geen teken wees dat vog binnegebring het nie.

(b) Batterydampe: Vir uitrusting wat batterye bevat:—

(i) Enige battery inbegrepe in die uitrusting moet vol gelaai en dan in die uitrusting aangebring word. Indien die uitrusting so ingerig is dat die battery gelaai kan word sonder om daaruit verwyder te word, moet die battery 24 uur lank onafgebroke teen die maksimum toelaatbare tempo gelaai word.

(ii) Die uitrusting moet dan 4 weke lank by 'n temperatuur van plus 40° C ($\pm 1^\circ$ C) en 'n relatiewe voggehalte van tussen 60 en 80 persent gebêre word.

(iii) Na verstryking van bovermelde tydperk moet die uitrusting aan visuele ondersoek onderwerp word. Daar moet geen onnodige verswakking of korrosie van die metaaldele, deklae, materiale of onderdele wees nie. Die uitrusting moet dan, hetsy met dieselfde of met nuutgelaai battery, aan 'n prestasiekontrole onderwerp word.

(10) *Skimmelgroei-toets*.—(a) Beide die eksterne en die interne materiale en deklae van die uitrusting moet aan hierdie toets onderwerp word.

(b) Die uitrusting moet ingeënt word deur bespuiting met 'n watersuspensie van skimmelspore wat al die volgende kulture bevat:—

Aspergillus Niger;
Aspergillus Amstelodami;
Paecilomyces Varioti;
Stachybotrys Atra;
Penicillium Brevi-compactum;
Penicillium Cyclopium;
Chaetomium Globosum.

(c) Die uitrusting moet dan geplaas word in 'n skimmelgroei-kamer waar die temperatuur op enige vaste waarde binne die gebied plus 31° C tot plus 33° C met 'n toleransie van $\pm 1^\circ$ C en 'n relatiewe voggehalte van minstens 95 persent gehandhaaf moet word. Die ontkiemingstydperk is 28 dae en na verstryking van daardie tydperk moet geen skimmelgroei met die blote oog waarneembaar wees nie.

(d) Die uitrusting moet dan aan 'n toets ooreenkomstig die betrokke aanhangsel onderwerp word.

(ii) The equipment shall be placed in a chamber fitted with apparatus capable of spraying in the form of a fine mist, such as would be produced by a spray gun, cold tap water containing the following salts in solution:—

Sodium chloride 2.7 per cent;
Magnesium chloride 0.6 per cent;
Calcium chloride 0.1 per cent;
Potassium chloride 0.07 per cent.

The quantity of each salt shall be subject to a tolerance of ± 10 per cent. The spraying apparatus shall be such that the products of corrosion cannot mix with the salt solution contained in the spray reservoir.

(iii) The equipment shall be sprayed simultaneously on all its external surfaces with the salt solution for a period of 1 hour, and shall be kept working continuously for the last 30 minutes thereof.

(iv) This spraying shall be carried out 4 times with a storage period of 7 days at plus 40° C. ($\pm 10^\circ$ C.) between the repetitions. The relative humidity during storage shall be between 60 and 80 per cent.

(v) At the conclusion of the total period, the equipment shall be visually examined. There shall be no undue deterioration or corrosion of the metal parts, finishes, materials, or component parts. The equipment shall then be subjected to a performance check. In the case of hermetically sealed equipment, there shall be no evidence of moisture penetration on opening the cover.

(b) Battery fumes: For equipment containing batteries:—

(i) Any battery included in the equipment shall be fully charged and shall then be fitted into the equipment. If the arrangements are such that the battery can be charged without being removed from the equipment, the battery shall continue to be charged at the maximum permissible rate for a period of 24 hours.

(ii) The equipment shall then be stored for a period of 4 weeks at a temperature of plus 40° C. ($\pm 1^\circ$ C.) and at a relative humidity of between 60 and 80 per cent.

(iii) At the conclusion of the above period, the equipment shall be visually examined. There shall be no undue deterioration or corrosion of the metal parts, finishes, materials, or component parts. The equipment shall then be subjected to a performance check, either with the same or with freshly charged batteries.

(10) *Mould growth test*.—(a) Both the external and internal materials and finishes of the equipment shall be subjected to this test.

(b) The equipment shall be inoculated by spraying with an aqueous suspension of mould spores containing all the following cultures:—

Aspergillus Niger;
Aspergillus Amstelodami;
Paecilomyces Varioti;
Stachybotrys Atra;
Penicillium Brevi-compactum;
Penicillium Cyclopium;
Chaetomium Globosum.

(c) The equipment shall then be placed in a mould growth chamber, the temperature of which shall be maintained at any fixed value within the range plus 31° C. to plus 33° C. with a tolerance of $\pm 1^\circ$ C. at a relative humidity of not less than 95 per cent. The period of incubation should be 28 days, after which no mould growth shall be visible to the naked eye.

(d) The equipment shall then be subjected to a test in accordance with the relevant annex.

AANHANGSEL 4.

(Regulasie 29.)

RADIO-UITRUSTING VIR REDDINGSBOTE EN REDDINGSVAARTUIE.

DEEL I.—VASTE RADIO-UITRUSTING VIR MOTORREDDINGSBOTE.

1. *Algemeen.*

(1) Die vaste radio-uitrusting van 'n motorreddingsboot (in hierdie deel „die uitrusting” genoem) moet so ontwerp wees dat dit in 'n noodgeval deur 'n ongeskoolde persoon gebruik kan word.

(2) Die uitrusting, met uitsluiting van laaidinamo's, batterye en die antennestelsel, moet in 'n kas met 'n los bedekking vir die beskerming van die kontroles wees en geredelik met die oog op onderhoud uit die reddingsboot verwyder kan word.

(3) Hierdie deel se vereistes moet nagekom word met betrekking tot toevoerspannings wat van 10 persent bo tot 10 persent onder die nominale toevoerspanning wissel.

(4) Met uitsondering van die antenneklemme moet alle punte wat nie aardpotensiaal het nie, bedek wees. Die antenneklemme moet teen toevallige aanraking beskut wees.

(5) Die uitrusting moet aan die vereistes van hierdie deel voldoen wanneer dit getoets word onder die omstandighede soos met betrekking tot klas B-uitrusting in Aanhangel 3 gespesifiseer.

2. *Sender.*

(1) *Algemeen.*—Die uitrusting moet 'n sender insluit wat in staat is om aanhoudend, dog nie gelyktydig nie, klas A2-uitsendings op frekwensies van 500 en 8364 kp/s en klas A3-uitsendings op 'n frekwensie van 2182 kp/s te send.

(2) *Outomatiese sending.*—Benewens 'n sleutel vir uit-sending met die hand, moet die sender toegerus wees met 'n elektriese outomatiese sleutelinrigting wat vir gebruik deur 'n ongeskoolde persoon geskik is:—

(a) Die inrigting moet in staat wees om na inskakeling by 'n kring alleen die volgende seine te sleutel:—

(i) Die radiotelegraafalarmsein bestaande uit 12 strepe van 4 sekondes elk geskei deur russeine van 1 sekonde elk, en die duur van die strepe en russeine moet binne 'n toleransie van plus of minus 0.2 sekondes gehandhaaf word;

(ii) die radiotelegraafnoodoproep bestaande uit die volgende seine in die volgende volgorde:—

Die radiotelegraafnoodsein SOS, drie keer uitgesend; die woord DE;

die reddingsboot se oproepsein, drie keer uitgesend; en twee strepe, elkeen met 'n duur van 10 tot 15 sekondes.

(b) Die outomatiese uitsendings vermeld in subparagraaf (a) (i) en (ii) moet op 500 kp/s beskikbaar wees.

(c) Die outomatiese uitsending op 8364 kp/s moet bestaan uit die noodoproepreeks uiteengesit in subparagraaf (a) (ii). Die alarmsein vermeld in subparagraaf (a) (i) kan ook op 8364 kp/s uitgesend word.

(d) Nadat die alarmsein uitgesend is, moet die inrigting ophou sleutel en die sleutelkring ooplaai totdat hy opnuut gestel is.

(e) Wanneer die noodoproepreeks uitgesend moet word, moet die inrigting binne 40 sekondes na inskakeling die reeks laat sleutel en wel vanaf die begin van die noodoproep.

(f) Wanneer die noodoproep gesleutel word, moet die sleutelspoed tussen 10 en 16 woorde per minuut wees. Die sleutelreeks beskryf in subparagraaf (a) (ii) moet altesaam nie langer as 90 sekondes duur nie.

ANNEX 4.

(Regulation 29.)

RADIO EQUIPMENT FOR LIFEBOATS AND SURVIVAL CRAFT.

PART I.—MOTOR LIFEBOAT FIXED RADIO EQUIPMENT.

1. *General.*

(1) The motor lifeboat fixed radio equipment (in this part referred to as “the equipment”) shall be so designed that it can be used in an emergency by an unskilled person.

(2) The equipment, excluding charging dynamos, batteries and the aerial system, shall be enclosed in a case having a removable cover to protect the controls and shall be readily removable from the lifeboat for maintenance purposes.

(3) The requirements of this part shall be met for a range of supply voltage variations of plus and minus 10 per cent relative to the nominal supply voltage.

(4) With the exception of the aerial terminals, all points which are not at earth potential shall be enclosed. The aerial terminals shall be guarded against accidental contact.

(5) The equipment shall meet the requirements of this part when tested under the conditions specified in annex 3 applicable to class B equipment.

2. *Transmitter.*

(1) *General.*—The equipment shall include a transmitter capable of sending continuously, but not simultaneously, class A2 emissions on frequencies of 500 and 8364 kc/s and class A3 emissions on a frequency of 2182 kc/s.

(2) *Automatic transmission.*—In addition to a key for manual transmissions, the transmitter shall be provided with an electrically-powered automatic keying device suitable for operation by an unskilled person:—

(a) The device shall be capable of keying only the following signals when switched into circuit:—

(i) The radiotelegraph alarm signal consisting of 12 four second dashes separated by one second spaces, the length of the dashes and spaces being maintained within a tolerance of plus or minus 0.2 seconds;

(ii) the radiotelegraph distress call consisting of the following signals in the following order:—

the radiotelegraph distress signal SOS, sent three times; the word DE;

the lifeboat's call sign, sent three times; and two dashes each of 10 to 15 seconds duration.

(b) The automatic transmissions mentioned in subparagraph (a) (i) and (ii) shall be available on 500 kc/s.

(c) The automatic transmission on 8364 kc/s shall consist of the distress call sequence detailed in subparagraph (a) (ii). The alarm signal mentioned in subparagraph (a) (i) may also be transmitted on 8364 kc/s.

(d) After the alarm signal has been sent, the device shall stop keying, leaving the keying circuit open until it is reset.

(e) When the distress call sequence is to be sent, the device shall, within 40 seconds of being switched into circuit, cause the sequence to be keyed, starting at the beginning of the distress call.

(f) When keying the distress call, the speed of keying shall be between 10 and 16 words per minute. The total duration of the keying sequence described in subparagraph (a) (ii) shall not exceed 90 seconds.

Die inrigting moet in hierdie toestand die sleutelreeks outomaties 1 maal elke 12 minute (ongeveer) herhaal en moet die sender tussen opeenvolgende uitsendings afskakel.

(3) *Modulasie*.—(a) Wanneer klas A2-uitsendings gesend word, moet die draaggolf deur 'n naastenby vierkantsgolf met 'n frekwensie tussen 450 en 1350 p/s tot 'n diepte van 100 persent gemoduleer word sodat die draaggolf vir 30 tot 50 persent van 'n modulasiesiklus aangeskakel word.

(b) Wanneer klas A3-uitsendings gesend word, moet die draaggolf ten volle deur spraak gemoduleer kan word.

(4) *Sendafstand*.—Op die frekwensie van 500 kp/s moet die sender 'n minimum normale sendafstand van 25 myl hê wanneer die antenne vermeld in paragraaf 5 (1) gebruik word. Vir die toepassing van hierdie deel moet die normale sendafstand van die sender bereken word soos in aanhangsel 10 bepaal.

(5) *Sendspoed*.—Die sender moet in staat wees om sonder kritieke relêverstelling telegraafseine teen alle snelhede tot minstens 25 bauds te send.

(6) *Frekwensiestabiliteit*.—Die sender moet sonder verstelling en ongeag enige wisseling van die impedansie van die antenne of ander las waarmee hy verbind is, voldoen aan die frekwensietoleransies gespesifiseer in die radio-regulasies van die Internasionale Telekommunikasieunie wat ten tyde van tipetoetsing van krag is.

(7) *Werkfasiliteite*.—Die sender moet binne 30 sekondes na aanskakeling gereed wees om sy volle vermoë te lewer. As dit nodig is om die aanwending van sekere toevoerspannings te vertraag, moet die vertraging outomaties plaasvind.

(8) *Beveiligingsreëlins*.—Die sender moet so ontwerp wees dat, wanneer hy vir die lewering van sy maksimum vermoë gestel is, die antenne ontkoppel of die antenneklemme kortgesluit kan word sonder dat enige deel van die uitrusting beskadig word.

(9) *Kunsantenne*.—'n Kunsantenne moet verskaf word om die sender op sy volle vermoë te toets.

(10) *Aantenneammeter en lumineserende aanwyser*.—'n Aantenneammeter en 'n lumineserende aanwyser moet verskaf word om die deurvloei van radiofrekwensieleweringstroom aan te dui. As hulle onklaar raak, moet dit nie die antennekring ontkoppel nie.

(11) *Vermoë*.—(a) Vir die toepassing van hierdie deel beteken die uitdrukking „die vermoë van die sender”—

(i) in die geval van telegrafie, die gemiddelde radiofrekwensievermoë wat gedurende 'n werkperiode in die las ontwikkel word; en

(ii) in die geval van telefonie, die totale ongemoduleerde draagvermoë wat aan die las gelever word.

In geen geval sluit dit vermoë in wat verlore gaan in 'n komponent, bv. 'n antenne-insteminduktor, wat na regte as 'n deel van die sender beskou moet word nie.

(b) Op 500 kp/s moet die vermoë van die sender gelyk wees aan minstens—

(i) 30 watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 6 ohm in serie met 'n kapasitor met enige en elke waarde van 125 tot 200 pikofarad; en

(ii) 50 watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 30 ohm in serie met 'n kapasitor met enige en elke waarde van 200 tot 300 pikofarad.

The device shall in this condition automatically repeat the keying sequence once every 12 minutes (approximately) and shall switch off the transmitter between successive transmissions.

(3) *Modulation*.—(a) When class A2 emissions are being transmitted, the carrier wave shall be modulated to a depth of 100 per cent by an approximately rectangular wave of frequency between 450 and 1350 c/s so that the carrier wave is switched on for 30 to 50 per cent of a modulation cycle.

(b) When class A3 emissions are being transmitted, full modulation of the carrier wave by speech shall be possible.

(4) *Range*.—On the frequency of 500 kc/s, the transmitter shall have a minimum normal range of 25 miles using the aerial referred to in paragraph 5 (1). For the purposes of this part, the normal range of the transmitter shall be calculated in accordance with the manner specified in annex 10.

(5) *Speed of transmission*.—The transmitter shall be capable of sending telegraph signals at all speeds up to at least 25 bauds without critical relay adjustment.

(6) *Frequency stability*.—The transmitter shall comply with the frequency tolerances specified in the Radio Regulations of the International Telecommunication Union current at the time of type testing, without adjustment and regardless of any variations of the impedance of the aerial or other load to which it is connected.

(7) *Operating facilities*.—The transmitter shall be ready for full power operation within 30 seconds of switching on. Should it be necessary to delay the application of certain supply voltages, the delay shall be provided automatically.

(8) *Protective arrangements*.—The transmitter shall be so designed that, when it is adjusted for maximum power, the aerial may be disconnected or the aerial terminals short-circuited without damage being caused to any part of the equipment.

(9) *Artificial aerial*.—An artificial aerial shall be provided for testing the transmitter on full power.

(10) *Aerial ammeter and luminescent indicator*.—An aerial ammeter and a luminescent indicator to show the passage of radio-frequency output current shall be provided. Their failure shall not disconnect the aerial circuit.

(11) *Power*.—(a) For the purpose of this part, the expression “the power of the transmitter” means—

(i) on telegraphy—the mean radio-frequency power developed in the load during a marking period; and

(ii) on telephony—the total unmodulated carrier power delivered to the load.

In neither case shall it include power dissipated in any component, such as an aerial tuning inductor, properly to be regarded as part of the transmitter.

(b) On 500 kc/s, the power of the transmitter shall be at least—

(i) 30 watts when measured with an artificial load consisting of a 6-ohm non-inductive resistor in series with a capacitor having any and every value from 125 to 200 picofarads; and

(ii) 50 watts when measured with an artificial load consisting of a 30-ohm non-inductive resistor in series with a capacitor having any and every value from 200 to 300 picofarads.

(c) Op 2182 kp/s moet die sender 'n vermoë hê van minstens—

(i) vyf watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 15 ohm in serie met 'n kapasitor met enige en elke waarde van 125 tot 200 pikofdraad; en

(ii) tien watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 30 ohm in serie met 'n kapasitor met enige en elke waarde van 300 tot 400 pikofarad.

(d) Op 8364 kp/s moet die sender 'n vermoë hê van minstens 15 watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 40 ohm in serie met enige en elke reaktansie in die gebied plus en minus 60 ohm.

3. Ontvanger.

(1) *Algemeen.*—(a) Die uitrusting moet 'n ontvanger insluit wat oor die gebiede 488 tot 513 kp/s en 8320 tot 8745 kp/s vir die ontvangs van klas A1- en klas A2-uitsendings ingestem kan word.

(b) Die ontvanger moet ook in staat wees om klas A3-uitsendings op 'n kolfrekwensie van 2182 kp/s te ontvang.

(c) 'n Handversterkingskontrole moet verskaf word.

(d) Ontvangs moet geskied per waterdigte koptelefoon wat afgeskerm is om uitwendige ruis uit te skakel.

(2) *Toetsmetode.*—Die kunsantennes wat vir toetswerk gebruik word, moet wees soos in paragraaf 2 (11) gespesifiseer.

(3) *Standaardleweringspeil.*—Die standaardaudio-frekwensielewering moet wees 1 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die koptelefoonontvangers op 1000 p/s.

(4) *Selektiwiteit.*—(a) Die selektiwiteit wat die eind-detektor voorafgaan, moet as volg wees:—

(i) Wanneer ingestem op 'n frekwensie van 500 kp/s of 8364 kp/s.

Diskriminasie van hoogstens 6 dB moet verkry word op frekwensies wat van instemfrekwensie verwyder is met	1 kp/s.
Diskriminasie van minstens 6 dB moet verkry word op alle frekwensies wat van instemfrekwensie verwyder is met	4 kp/s.
Diskriminasie van minstens 30 dB moet verkry word op alle frekwensies wat van instemfrekwensie verwyder is met	15 kp/s.
Diskriminasie van minstens 60 dB moet verkry word op alle frekwensies wat van instemfrekwensie verwyder is met	40 kp/s.

(ii) Met kolinstemming op 'n frekwensie van 2182 kp/s:—

Diskriminasie van hoogstens 6 dB moet verkry word op frekwensies binne die gebied	2179 tot en met 2185 kp/s.
Diskriminasie van minstens 30 dB moet verkry word op frekwensies van	2167 kp/s en laer. 2197 kp/s en hoër.
Diskriminasie van minstens 60 dB moet verkry word op frekwensies van	2142 kp/s en laer. 2222 kp/s en hoër.

(b) In die geval van 'n superheterodineontvanger moet die beeld- en tf-versperringsverhoudings minstens 30 desibels wees.

(c) On 2182 kc/s, the power of the transmitter shall be at least—

(i) 5 watts when measured with an artificial load consisting of a 15-ohm non-inductive resistor in series with a capacitor having any and every value from 125 to 200 picofarads; and

(ii) 10 watts when measured with an artificial load consisting of a 30-ohm non-inductive resistor in series with a capacitor having any and every value from 300 to 400 picofarads.

(d) On 8364 kc/s, the power of the transmitter shall be at least 15 watts when measured with an artificial load consisting of a 40-ohm non-inductive resistor in series with any and every reactance in the range plus and minus 60 ohms.

3. Receiver.

(1) *General.*—(a) The equipment shall include a receiver tunable over the ranges 488 to 513 kc/s and 8320 to 8745 kc/s for reception of class A1 and class A2 emissions.

(b) The receiver shall also be capable of receiving class A3 emissions on a spot frequency of 2182 kc/s.

(c) A manual gain control shall be provided.

(d) Reception shall be by watertight headphones shrouded to exclude external noise.

(2) *Method of test.*—The artificial aerials employed for testing shall be as specified in paragraph 2 (11).

(3) *Standard output level.*—The standard audio-frequency output level shall be 1 milliwatt into a resistance substantially equal to the modulus of the impedance of the headphone receivers at 1000 c/s.

(4) *Selectivity.*—(a) The selectivity preceding the final detector shall be as follows:—

(i) When tuned to a frequency of 500 kc/s or 8364 kc/s:—

Not more than 6 dB discrimination to be obtained at frequencies removed from tune by	1 kc/s.
At least 6 db discrimination to be obtained at all frequencies removed from tune by	4 kc/s.
At least 30 db discrimination to be obtained at all frequencies removed from tune by	15 kc/s.
At least 60 db discrimination to be obtained at all frequencies removed from tune by	40 kc/s.

(ii) When spot-tuned to a frequency of 2182 kc/s:—

Not more than 6 db discrimination to be obtained at frequencies in the range	2179 to 2185 kc/s inclusive.
At least 30 db discrimination to be obtained at frequencies of	2167 kc/s and below. 2197 kc/s and above.
At least 60 db discrimination to be obtained at frequencies of	2142 kc/s and below. 2222 kc/s and above.

(b) In the case of a superheterodyne receiver, the image and I.F. rejection ratios shall be at least 30 decibels.

(5) *Gevoeligheid en sein/ruisverhouding.*—(a) Op frekwensies in die gebied 488 tot 513 kp/s moet standaard-lewering met 'n klas A2-insetsein wat 30 persent op 1000 p/s gemoduleer is, op 'n peil 40 desibels bo 1 mikrovolt en met 'n klas A1-insetsein op 'n peil 30 desibels bo 1 mikrovolt verkry word. Die sein/ruisverhouding moet onder hierdie omstandighede minstens 15 desibels wees.

(b) Op 'n frekwensie van 2182 kp/s moet standaard-lewering met 'n klas A2-insetsein wat 30 persent op 1000 p/s gemoduleer is, op 'n peil van 30 desibels bo 1 mikrovolt verkry word. Die sein/ruisverhouding moet onder hierdie omstandighede minstens 20 desibels wees.

(c) Op frekwensies in die gebied 8320 tot 8745 kp/s moet standaardlewering met 'n klas A2-insetsein wat 30 persent op 1000 p/s gemoduleer is, op 'n peil 40 desibels bo 1 mikrovolt, en met 'n klas A1-insetsein op 'n peil 30 desibels bo 1 mikrovolt verkry word. Die sein/ruisverhouding moet onder hierdie omstandighede minstens 25 desibels wees.

(6) *Getrouheid.*—(a) Vir die toetse wat in subparagrafe (b) en (c) vereis word, kan die insetsein enige peil en modulasiediepte hê, mits die lewering van die ontvanger nie die standaardlewering te bowe gaan nie. Die modulasiediepte en die peil van die insetsein moet gedurende elke toets konstant gehou word.

(b) Die modulasiefrekwensieweergawe kenmerk van die ontvanger moet vir modulasiefrekwensies tussen 300 en 1500 p/s binne 'n gebied van 8 desibels wees wanneer ontvangs geskied op die frekwensies wat in subparagraaf (1) (a) gespesifiseer word.

(c) Die modulasiefrekwensieweergawe kenmerk van die ontvanger moet vir modulasiefrekwensies tussen 250 en 3000 p/s binne 'n gebied van 8 desibels wees wanneer ontvangs op 'n frekwensie van 2182 kp/s geskied.

(7) *Instemstabiliteit.*—Met ontvangs op 2182 kp/s moet binne 5 minute na aanskakeling aan die vereistes van subparagraaf (4) (a) (ii) voldoen word.

4. Bron van Elektriese Energie.

(1) Die uitrusting moet 'n battery insluit wat uit sekondêre selle saamgestel is en so 'n kapasiteit het dat die spanning onder volle belasting nie met meer as 10 persent sal daal nadat die battery die sender 4 uur lank onafgebroke met volle krag laat werk het nie. Vir hierdie toets moet die sender ingestem word op die frekwensie waar die meeste krag verbruik word.

(2) Die battery moet nie aan die aansitmotor of ontstekingsstelsel van 'n masjien krag verskaf nie.

(3) As die plan is om 'n soeklig met die battery te laat werk, moet die kapasiteit van die battery voldoende wees om die addisionele las van die soeklig te dra.

(4) Die battery moet in staat wees om sonder verwydering uit die reddingsboot herlaai te word—

(a) vanaf 'n dinamo wat deur die masjien van die reddingsboot aangedryf word teen 'n snelheid wat nodig is om die battery in 'n volgelaaide toestand te herstel binne 20 uur nadat hy aan die uitrusting krag verskaf het soos in subparagraaf (1) gespesifiseer; en

(b) uit die skip se hoofbron van elektriese energie indien dit nie die tewaterlating van die reddingsboot sal belemmer en nie die aarding van die skip se kragnet sal veroorsaak nie.

(5) Daar moet nie vloeistof uit die battery loop as hy in enige rigting in vergelyking met sy normale posisie 60 grade skuins gehou word nie.

(6) Die sender en die ontvanger moet in staat wees om doeltreffend te werk ongeag of die reddingsboot se masjien loop of nie en of die battery besig is om gelaai te word of nie.

(7) Die battery moet elektries geïsoleer wees van enige deel van die uitrusting wat afgeskakel is.

(5) *Sensitivity and signal/noise ratio.*—(a) At frequencies in the range 488 to 513 kc/s, standard output shall be obtained with a class A2 input signal modulated 30 per cent at 1000 c/s, at a level of 40 decibels above 1 microvolt, and with a class A1 input signal at a level of 30 decibels above 1 microvolt. The signal/noise ratio shall be at least 15 decibels under these conditions.

(b) At a frequency of 2182 kc/s, standard output shall be obtained with a class A2 input signal modulated 30 per cent at 1000 c/s, at a level of 30 decibels above 1 microvolt. The signal/noise ratio shall be at least 20 decibels under these conditions.

(c) At frequencies in the range 8320 to 8745 kc/s, standard output shall be obtained with a class A2 input signal modulated 30 per cent at 1000 c/s, at a level of 40 decibels above 1 microvolt, and with a class A1 input signal at a level of 30 decibels above 1 microvolt. The signal/noise ratio shall be at least 25 decibels under these conditions.

(6) *Fidelity.*—(a) For the tests required in subparagraph (b) and (c), the input signal may have any level and modulation depth, provided the output of the receiver does not exceed the standard output. The modulation depth and the level of the input signal shall be kept constant during each test.

(b) The modulation frequency response characteristic of the receiver shall be within a range of 8 decibels for modulation frequencies between 300 and 1500 c/s when receiving on the frequencies specified in subparagraph (1) (a).

(c) The modulation frequency response characteristic of the receiver shall be within a range of 8 decibels for modulation frequencies between 250 and 3000 c/s when receiving on a frequency of 2182 kc/s.

(7) *Tuning stability.*—When receiving on 2182 kc/s, the requirements of subparagraph (4) (a) (ii) shall be met within 5 minutes of switching on.

4. Source of Electrical Energy.

(1) The equipment shall include a battery, composed of secondary cells, having a capacity such that, after continuously operating the transmitter (under fullpower mark condition) for 4 hours, the voltage under full-load conditions shall not fall by more than 10 per cent. For this test, the transmitter shall be tuned to the frequency at which the power consumed is maximum.

(2) The battery shall not supply power to any engine starting-motor or ignition system.

(3) If it is intended to operate a searchlight from the battery, the capacity thereof shall be sufficient to provide for the additional load of the searchlight.

(4) The battery shall be capable of being recharged without being removed from the lifeboat—

(a) from a dynamo driven by the lifeboat's engine at a rate necessary to restore the battery to a fully-charged condition within 20 hours after it has supplied power to the equipment as specified in subparagraph (1); and

(b) from the ship's main source of electrical energy, if this will not interfere with the launching of the lifeboat and will not cause the ship's mains to be earthed.

(5) The battery shall not spill when tilted to an angle of 60 degrees in any direction from its normal position.

(6) The transmitter and receiver shall be capable of efficient operation whether the lifeboat's engine is running or not and whether the battery is on charge or not.

(7) The battery shall be electrically isolated from any part of the equipment which is switched off.

(8) Indien 'n trillerkrageneheid gebruik word, moet 'n reserwetriller verskaf en deur 'n oorskakelaar so beheer word dat hy onmiddellik ingeskakel kan word.

5. Antenne- en Aardstelsels.

(1) Die uitrusting moet onder meer bestaan uit 'n enkel-draadantenne van stringdraad of omvlegte draad van hoë geleidingsvermoë wat deur die reddingsbootmas, sonder gebruik van topmaste, minstens 22 voet bokant die waterlyn gestut kan word.

(2) Indien verlang, kan ander goedgekeurde tipes langdraadantennes bestaande uit tussen 90 en 95 voet stringdraad of omvlegte draad van hoë geleidingsvermoë verskaf word.

(3) Alle dele van die antenne(s) wat met insittendes van die reddingsboot in aanraking kan kom wanneer die uitrusting in gebruik is, moet geïsoleer word.

(4) Die aardaansluiting moet bewerkstellig word deur middel van minstens 3 onafhanklike verbindings wat vasgebout is aan die romp van 'n metaalreddingsboot of, in die geval van 'n reddingsboot wat nie van metaal is nie, aan 'n kaal aardplaat van koper met 'n oppervlakte van minstens 6 vierkante voet wat onder die waterlyn aan die buitekant van die romp bevestig is. Die aardstelsel moet so ontwerp wees dat verslegting as gevolg van korrosie tot die minimum beperk word.

(5) Alle moontlike stappe moet gedoen word om antenneverliese onder nat toestande te beperk.

6. Kontroles en Werkfasiliteite.

(1) Voorskrifte vir die bediening van die outomatiese sleutelinrigting en vir die send en ontvang van radiotelefonie op 'n frekwensie van 2182 kp/s moet in duidelike en duursame vorm verskaf word.

(2) Kontroles wat nie vir bediening ooreenkomstig subparagraaf (1) nodig is nie, moet so gerangskik of gemerk word dat dit die ongeskoolde gebruiker sal ontmoedig om hulle aan te raak.

(3) Die kontroles moet duidelik gemerk word en so groot wees (noot met 'n deursnee van minder as 2 duim nie) dat normale stelwerk deur iemand met dik handskoene aan verrig kan word.

(4) Elektriese gloeidraadlamp met 'n aangeslane vermoë van tussen 3 en 15 watt, of 'n ander goedgekeurde vorm van gelykwaardige verligting, moet verskaf word om die kontrolepaneel en voorskrifte te verlig; die omhulsel van die lamp moet waterdig wees. Die lamp moet met 'n aan-afskakelaar toegerus wees.

(5) Sendontvangskakeling moet deur middel van 'n enkele kontrole geskied.

7. Konstruksie.

Voorsiening moet gemaak word om die binnekant van die kas gewoonlik deur middel van 'n elektriese verwarmmer wat by die skip se kragnet aangesluit is, by 'n temperatuur van minstens 10° C bo die omgewings-temperatuur te hou. Die verwarmmer moet so gemonteer word dat dit die gevaar dat die kontroles of bedekking van die uitrusting vas sal vrys, sal verminder en sal verhoed dat enige deel van die uitrusting te warm word. Die inrigting moet die tewaterlating van die reddingsboot geensins belemmer nie.

DEEL II.—DRAAGBARE RADIO-UITRUSTING VIR REDDINGSVAARTUIE.

1. Algemeen.

(1) Die draagbare radio-uitrusting vir reddingsvaartuie (in hierdie deel „die uitrusting” genoem) moet sowel in reddingsbote as op reddingsvlotte gebruik kan word.

(2) Die uitrusting moet so ontwerp wees dat dit in 'n noodgeval deur 'n ongeskoolde persoon gebruik kan word.

(8) If any vibrator power unit is employed, as standby vibrator shall be provided and so controlled by a change-over switch that it may be put into circuit immediately.

5. Aerial and Earth Systems.

(1) The equipment shall include a single-wire aerial of high conductivity stranded or braided wire capable of being supported by the lifeboat mast, without the use of top-masts, at a height of at least 22 feet above the water-line.

(2) Other approved types of long-wire aerial consisting of between 90 and 95 feet of high-conductivity stranded or braided wire may be provided if desired.

(3) All parts of the aerial/s which may come in contact with occupants of the lifeboat when the equipment is in use, shall be insulated.

(4) The earth connection shall be made by at least 3 independent bolted connections to the hull of a metal lifeboat, or to a bare copper earth-plate having an area of at least 6 square feet below the water-line, affixed to the exterior of the hull of a non-metallic lifeboat. The earthing system shall be so designed as to minimize deterioration due to corrosion.

(5) All practicable steps shall be taken to minimize aerial losses under wet conditions.

6. Controls and Operating Facilities.

(1) Instructions for the operation of the automatic keying device and for transmitting and receiving radiotelephony on a frequency of 2182 kc/s shall be provided in clear and durable form.

(2) Controls not required for operation in accordance with subparagraph (1), shall be so arranged or marked as to discourage the unskilled user from touching them.

(3) The controls shall be clearly marked and of such size (in no case smaller than 2 inches in diameter) as will permit normal adjustments to be made by a person wearing thick gloves.

(4) An electric filament lamp of power rating between 3 and 15 watts, or other approved form of equivalent illumination, shall be provided to illuminate the control panels and instructions; the case of the lamp shall be waterproof. The lamp shall be provided with an on-off switch.

(5) Send-receive switching shall be by means of a single control.

7. Construction.

Provision shall be made for the interior of the case normally to be kept at a temperature of at least 10° C. above ambient temperature by means of an electrical heater connected to the ship's mains. The heater shall be mounted so that it will reduce the risk of the controls or cover of the equipment becoming frozen into position and so as to avoid any part of the equipment becoming overheated. The arrangement shall in no way interfere with the launching of the lifeboat.

PART II.—PORTABLE RADIO EQUIPMENT FOR SURVIVAL CRAFT.

1. General.

(1) The portable radio equipment for survival craft (in this Part referred to as “the equipment”) shall be capable of use in both lifeboats and liferafts.

(2) The equipment shall be so designed that it can be used in an emergency by an unskilled person.

(3) Die hele uitrusting, met inbegrip van die antennes gespesifiseer in paragraaf 4 (1), moet 'n enkele eenheid uitmaak en moet nie swaarder as 30 lb weeg nie.

(4) Die uitrusting moet waterdig wees en in water kan dryf. Die uitrusting moet 'n neerlaatmiddel aan hê, maar dit moet moontlik wees om hom in sy opbergtoestand van 'n hoogte van 30 voet in die water te laat val sonder dat hy beskadig word.

(5) Voorsiening moet gemaak word om die uitrusting in die werktoestand aan die operateur vas te maak. Daarbenewens kan voorsiening gemaak word om die uitrusting aan 'n reddingsboot vas te maak.

(6) Bedieningsaanwysings in 'n duidelike en duursame vorm moet aan die uitrusting bevestig word. Die toevoerspanning en stroom uit 'n eksterne bron van elektriese energie vir die werking van die uitrusting moet ook duidelik aangedui word. Daarbenewens moet daar aan die uitrusting 'n verwyderbare plaat wees waarop die reddingsvaartuig se roepsein met letters en syfers en morse tekens aangegee word.

(7) Geskikte beveiliging teen gevaarlike stroomspannings moet vir insittendes van reddingsvaartuie verskaf word. Vir die toepassing van hierdie subparagraaf beteken die uitdrukking „gevaarlike stroomspanning” 'n onmiddellike spanning van meer as 50 volt en bestaande uit gelykstroom en/of wisselstroomspannings (uitgesonderd radiofrekwensiespannings).

(8) Die uitrusting is onderworpe aan toetsing ooreenkomstig aanhangsel 3 se vereistes met betrekking tot klas X-uitrusting. Vir hierdie doel moet die uitrusting in die werkende toestand verkeer wanneer dit getoets word, maar die indompelingstoets moet op die uitrusting in sy opgebergde toestand uitgevoer word.

2. Sender.

(1) *Algemeen.*—Die uitrusting moet 'n sender insluit wat in staat is om onafgebroke, dog nie gelyktydig nie, klas A2-uitsendings op 500 en 8364 kp/s en klas A3-uitsendings op 2182 kp/s te send.

(2) *Outomatiese uitsending en uitsending met die hand.*—(a) Benewens 'n sleutel vir uitsending met die hand moet die sender toegerus wees met 'n outomatiese sleutel-inrigting vir die uitsending van die radiotelegraafalarm- en noodseine en twee strepe van 10 tot 15 sekondes elk.

(b) Die outomatiese uitsending op 500 kp/s moet bestaan uit die radiotelegraafalarmsein, bestaande uit 12 strepe van 4 sekondes geskei deur russeine van 1 sekonde en gevolg deur die noodsein (3 maal) en 2 strepe van 10 tot 15 sekondes elk. Hierdie strepe moet geskei word deur 'n russein met 'n duur van tussen 0.5 en 1.5 sekondes.

(c) Die outomatiese uitsending op 8364 kp/s moet die radiotelegraafnoodsein (3 maal), gevolg deur 2 strepe van 10 tot 15 sekondes elk, insluit. Hierdie strepe moet deur 'n russein met 'n duur van tussen 0.5 en 1.5 sekondes geskei word. Geen beswaar sal daarteen gemaak word dat die radiotelegraafalarmsein, indien verlang, ingesluit word nie.

(d) Die outomatiese uitsending van die noodsein (3 maal) moet binne 7 tot 14 sekondes voltooi word, en die toleransie van die radiotelegraafalarmseinstrepe en rusperiodes moet oor die normale snelhede van 'n hand-opwekker plus of minus 0.2 sekondes wees.

(e) Tensy die meganisme teruggestel of opnuut opgewen word, moet die outomatiese radiotelegraafuitsending na een volledige uitsending staak en die sleutelkring verbreek word; die operateur moet 'n aanduiding gegee word as dit nodig is om die meganisme terug te stel of opnuut op te wen, en 'n middel moet verskaf word om te verseker dat die uitsending met die begin van die sein begin.

(3) The entire equipment, including the aerials specified in paragraph 4 (1), shall be contained in a single unit and shall not exceed 30 lb in weight.

(4) The equipment shall be watertight and capable of floating in water. Means shall be provided on the equipment for lowering, but it shall be capable of being dropped in the stored condition, from a height of 30 feet into water without damage.

(5) Provision shall be made for securing the equipment, in the operating condition, to the person of the operator. Additionally, provision may be made for securing the equipment to a lifeboat.

(6) Operating instructions in a clear and durable form shall be affixed to the equipment. The supply voltage and current to operate the equipment from an external source of electrical energy shall also be clearly indicated. In addition, a removable plate, on which is shown the survival craft's call sign in letters and digits and in morse characters, shall be attached to the equipment.

(7) Suitable protection to occupants of survival craft from dangerous voltages, shall be provided. For the purpose of this subparagraph, the expression "dangerous voltage" means an instantaneous voltage, composed of direct and/or alternating voltages (other than radio-frequency voltages), greater than 50 volts.

(8) The equipment shall be subject to test in accordance with the requirements of annex 3 applicable to class X equipment. For this purpose, tests shall be applied to the equipment in the operating condition, except that the immersion test shall be applied to the equipment in the stored condition.

2. Transmitter.

(1) *General.*—The equipment shall include a transmitter capable of sending continuously, but not simultaneously, class A2 emissions on 500 and 8364 kc/s and class A3 emissions on a frequency of 2182 kc/s.

(2) *Automatic and manual transmission.*—(a) In addition to a key for manual transmission, the transmitter shall be provided with an automatic keying device for the transmission of the radiotelegraph alarm and distress signals and two dashes each of 10 to 15 seconds duration.

(b) The automatic transmission on 500 kc/s shall consist of the radiotelegraph alarm signal, comprising 12 4-second dashes separated by 1-second spaces, followed by the distress signal (3 times) and 2 dashes of 10 to 15 seconds duration each. These dashes shall be separated by a space of between 0.5 and 1.5 seconds.

(c) The automatic transmission on 8364 kc/s shall include the radiotelegraph distress signal (3 times) followed by 2 dashes of 10 to 15 seconds duration each. These dashes shall be separated by a space of between 0.5 and 1.5 seconds. No objection will be made to the inclusion of the radiotelegraph alarm signal if so desired.

(d) The automatic transmission of the distress signal (3 times) shall be completed within a period of 7 to 14 seconds, and the tolerance in the radiotelegraph alarm signal dashes and spaces shall be plus or minus 0.2 second over the normal range of man-powered generator speeds.

(e) The automatic radiotelegraph transmission shall cease and open the keying circuit after one complete transmission unless the mechanism is re-set or re-wound; an indication of the necessity for re-setting or re-winding shall be given to the operator and means shall be provided to ensure that the transmission commences at the beginning of the signal.

(f) Vir radiotelegraafuitsending met die hand moet 'n morsesleutel van 'n goedgekeurde ontwerp in 'n posisie goedgekeur deur die bevoegde beampte aan die uitrusting aangebring word.

(g) Die fasiliteite vir uitsending op die frekwensie van 2182 kp/s moet 'n inrigting insluit vir die opwekking van die radiotelefoonalarmsein wat in deel II van aanhangsel 2 gespesifiseer word, behalwe dat die duur van die radiotelefoonalarmsein deur middel van 'n hand-kontrole gereël mag word.

(3) *Modulasie.*—(a) Wanneer klas A2-uitsendings plaasvind, moet die draaggolf deur 'n nagenoeg reghoekige golf met 'n frekwensie tussen 450 en 1350 p/s tot 'n diepte van 100 persent gemoduleer word sodat die draaggolf vir 30 tot 50 persent van 'n modulasiesiklus aangeskakel is.

(b) Wanneer klas A3 uitsendings plaasvind, moet volle modulasie van die draaggolf deur spraak moontlik wees, maar daar moet beskerming teen ernstige oormodulasie wees. Die mikrofoon wat verskaf word, moet waterdig wees.

(4) *Uitsendingsnelheid.*—Die sender moet in staat wees om telegraafseine teen alle snelhede tot 16 bauds te send.

(5) *Frekwensiestabiliteit.*—Die sender moet aan die frekwensietoleransies gespesifiseer in die Radioregulasies van die Internasionale Telekomunikasië-unie van krag ten tyde van tipetoetsing voldoen sonder dat 'n kontrole gestel word en ongeag enige wisselings van die impedansie van die antenne of kunsmatige belasting waarmee hy verbind is. Die sender moet ook oor die normale snelhede van die handopwekker aan hierdie frekwensietoleransies voldoen.

(6) *Werkfasiliteite.*—Die sender moet binne 30 sekondes na aanskakeling gereed wees om met volle krag te werk. In hierdie verband omvat "aanskakeling" volgehoue opwekking van die nodige krag en aansluiting van die antenne of kunsmatige las.

(7) *Beveiligingstappe.*—Die sender moet so ontwerp wees dat, wanneer hy in die werktoestand verkeer en vir die lewering van sy maksimum vermoë gestel is, die antenne ontkoppel of die insetklemme kortgesluit kan word sonder om enige deel van die uitrusting te beskadig.

(8) *Vermoë van die sender.*—(a) Vir die toepassing van hierdie deel beteken die uitdrukking "die vermoë van die sender"—

(i) in die geval van telegrafie, die gemiddelde radio-frekwensievermoë wat gedurende 'n werkperiode in die las ontwikkel word; en

(ii) in die geval van telefonie, die totale ongemoduleerde draaggolfvermoë wat aan die belasting gelewer word.

In nie een van die twee gevalle moet dit vermoë insluit wat verlore gaan in 'n komponent, bv. 'n antenneinstem-induktor, wat eintlik as 'n deel van die sender beskou moet word nie.

(b) Op 500 kp/s moet die vermoë van die sender as volg wees:—

(i) Minstens $[(3 \cdot 8 \log_{10} C) - 5 \cdot 5]$ watt, (waar C die kunsmatige las se kapasitansie in pikofarads is), of 1 watt, na gelang van watter een die grootste is, wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 15 ohm in serie met 'n kapasitor met enige en elke waarde tussen 'n minimum van 10 pikofarad minder as dié van die antenne wat ooreenkomstig paragraaf 4 (1) (b) verskaf is, en 'n maksimum van 110 pikofarad.

(f) For manual radiotelegraph transmission, a morse key of approved design shall be fitted to the equipment in a position approved by the proper officer.

(g) The facilities for transmission on the frequency of 2182 kc/s shall include a device for the generation of the radiotelephone alarm signal specified in part II of annex 2, except that the duration of the radiotelephone alarm signal may be determined by manual control.

(3) *Modulation.*—(a) When class A2 emissions are being transmitted, the carrier wave shall be modulated to a depth of 100 per cent by an approximately rectangular wave of frequency between 450 and 1350 c/s so that the carrier wave is switched on for 30 to 50 per cent of a modulation cycle.

(b) When class A3 emissions are being transmitted, full modulation of the carrier wave by speech shall be possible, but there shall be protection against serious overmodulation. The microphone provided shall be watertight.

(4) *Speed of transmission.*—The transmitter shall be capable of sending telegraph signals at all speeds up to 16 bauds.

(5) *Frequency stability.*—The transmitter shall comply with the frequency tolerances specified in the Radio Regulations of the International Telecommunication Union current at the time of type-testing, without adjustment of any control and regardless of any variations of the impedance of the aerial or artificial load to which it is connected. The transmitter shall also comply with these frequency tolerances over the normal range of speeds of the man-powered generator.

(6) *Operating facilities.*—The transmitter shall be ready for full-power operation within 30 seconds of switching on. In this context "switching on" shall include continuous generation of the requisite power supplies and connection of the aerial or artificial load.

(7) *Protective arrangements.*—The transmitter shall be so designed that when it is in the marking condition and adjusted for maximum power, the aerial may be disconnected or the input terminals short-circuited without damage being caused to any part of the equipment.

(8) *Power of the transmitter.*—(a) For the purposes of this part, the expression "the power of the transmitter" means—

(i) on telegraphy—the mean radio-frequency power developed in the load during a marking period; and

(ii) on telephony—the total unmodulated carrier power delivered to the load.

In neither case shall it include power dissipated in any component such as an aerial tuning inductor properly to be regarded as a part of the transmitter.

(b) On 500 kc/s, the power of the transmitter shall be:—

(i) Not less than $[(3 \cdot 8 \log_{10} C) - 5 \cdot 5]$ watts (C being the capacitance of the dummy load in picofarads) or 1 watt, whichever is the greater, when measured with an artificial load consisting of a 15-ohm non-inductive resistor in series with a capacitor having any and every value between a minimum of 10 picofarads less than that of the aerial provided in accordance with the requirement of paragraph 4 (1) (b) and a maximum of 110 picofarads.

(ii) Minstens 3.5 watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 30 ohm in serie met 'n kapasitor met enige en elke waarde tussen 200 en 300 pikofarad.

(c) Op 2182 kp/s moet die vermoë van die sender as volg wees:—

(i) Minstens 1.5 watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 15 ohm in serie met 'n kapasitor met enige en elke waarde tussen 'n minimum van 10 pikofarad minder as dié van die antenne wat ooreenkomstig paragraaf 4 (1) (b) verskaf is, en 'n maksimum van 110 pikofarad.

(ii) Minstens 3.5 watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 30 ohm in serie met 'n kapasitor met enige en elke waarde tussen 300 en 400 pikofarad.

(d) Op 8364 kp/s moet die vermoë van die sender as volg wees:—

(i) Minstens 1.5 watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 20 ohm in serie met 'n kapasitor met enige en elke waarde tussen 70 en 100 pikofarad.

(ii) Minstens 3 watt wanneer dit gemeet word met 'n kunsmatige las bestaande uit 'n nie-induktiewe weerstand van 40 ohm in serie met enige en elke reaktansie in die gebied minus 200 tot plus 60 ohm.

(9) *Instemkontroles.*—'n Instemkontrole moet in die antennekring(e) vir gebruik met alle verskafte tipes antenne verskaf word, en die antennekring(e) moet een of meer instemaanwysers insluit wat cnklaar kan raak sonder om die antenne te ontkoppel.

(10) *Toets van sender.*—Die volgende moet verskaf word:—

(a) 'n Kunsantenne in die uitrusting vir die korttermyn-toetsing van die sender op volle vermoë; en

(b) 'n middel om die fasiliteite vir outomatiese uitsending sonder die opwekking van radiofrekwensie-energie te toets.

3. Ontvanger.

(1) *Algemeen.*—(a) Die uitrusting moet 'n ontvanger insluit wat in staat is om op 500 en 2182 kp/s te ontvang.

(b) Wanneer die ontvanger op 500 kp/s werk, moet hy vas ingestem wees, asook geskik vir die ontvangs van A2-uitsendings oor die band 495 tot 505 kp/s.

(c) Wanneer die ontvanger op 2182 kp/s werk, moet hy vas ingestem wees, asook geskik vir die ontvangs van klas A3-uitsendings oor die band 2177 tot 2187 kp/s.

(d) Die ontvanger moet gebruik word met koptelefone wat waterdig is en 'n vorm het wat daarop gemik is om geraas van buite uit te sluit. Hierdie koptelefone moet permanent aan die ontvanger bevestig wees.

(2) *Toetsmetode.*—(a) Tensy anders bepaal, moet die kunsantennes wat vir toetswerk gebruik word, uit die volgende bestaan:—

(i) 'n Nie-induktiewe weerstand van 15 ohm in serie met 'n kapasitor met enige en elke waarde in die gebied gespesifiseer in paragraaf 2 (8) (a) (i); en

(ii) 'n nie-induktiewe weerstand van 30 ohm in serie met 'n kapasiteit met enige en elke waarde in die gebied 200 tot 400 pikofarad.

(b) Tensy anders bepaal, moet seine wat vir toetswerk gebruik word, klas A2-seine wees wat op 1000 p/s tot 'n diepte van 30 persent gemoduleer is.

(3) *Standaardlewering.*—Die standaardoudiofrekwensielewering moet wees 1 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die koptelefoonontvangers op 1000 p/s.

(ii) Not less than 3.5 watts when measured with an artificial load consisting of a 30-ohm non-inductive resistor in series with a capacitor having any and every value between 200 and 300 picofarads.

(c) On 2182 kc/s, the power of the transmitter shall be:—

(i) Not less than 1.5 watts when measured with an artificial load consisting of a 15-ohm non-inductive resistor in series with a capacitor having any and every value between a minimum of 10 picofarads less than that of the aerial provided in accordance with the requirement of paragraph 4 (1) (b) and a maximum of 110 picofarads.

(ii) Not less than 3.5 watts when measured with an artificial load consisting of a 30-ohm non-inductive resistor in series with a capacitor having any and every value between 300 and 400 picofarads.

(d) On 8364 kc/s, the power of the transmitter shall be:—

(i) Not less than 1.5 watts when measured with an artificial load consisting of a 20-ohm non-inductive resistor in series with a capacitor having any and every value between 70 and 100 picofarads.

(ii) Not less than 3 watts when measured with an artificial load consisting of a 40-ohm non-inductive resistor in series with any and every reactance in the range minus 200 to plus 60 ohms.

(9) *Tuning controls.*—A tuning control shall be provided in the aerial circuit/s for use with all types of aerial provided, and the aerial circuit/s shall include a tuning indicator (or indicators), failure of which shall not disconnect the aerial.

(10) *Transmitter testing.*—There shall be provided:—

(a) An artificial aerial within the equipment for short period testing of the transmitter on full-power; and

(b) means for testing the automatic transmission facilities without the generation of radio-frequency energy.

3. Receiver.

(1) *General.*—(a) The equipment shall include a receiver capable of receiving on 500 and 2182 kc/s.

(b) When the receiver is operating on 500 kc/s, it shall be fixed-tuned and suitable for reception of class A2 emissions over the band 495 to 505 kc/s.

(c) When the receiver is operating on 2182 kc/s, it shall be fixed-tuned and suitable for reception of class A3 emissions over the band 2177 to 2187 kc/s.

(d) The receiver shall be used with headphones which are watertight and of a form designed to exclude extraneous noise. These headphones shall be permanently attached to the receiver.

(2) *Method of test.*—(a) The artificial aerials employed for testing shall, unless otherwise specified, consist of:—

(i) a 15-ohm non-inductive resistor in series with a capacitor having any and every value in the range specified in paragraph 2 (8) (a) (i); and

(ii) a 30-ohm non-inductive resistor in series with a capacitor having any and every value in the range 200 to 400 picofarads.

(b) Signals employed for testing shall, unless otherwise specified, be class A2 signals modulated to a depth of 30 per cent at 1000 c/s.

(3) *Standard output level.*—The standard audio-frequency output level shall be 1 milliwatt into a resistance substantially equal to the modulus of the impedance of the headphone receivers at 1000 c/s.

(4) *Selektiwiteit*.—(a) Die ontvanger moet aan die volgende vereistes betreffende die selektiwiteit voor die eind-detektor voldoen:—

By funksionering op 'n frekwensie van.	500 kp/s.	2182 kp/s.
Weergawe moet tot binne 6dB uniform wees oor die gebied.	495 tot 505 kp/s.	2177 tot 2187 kp/s.
Diskriminasie van minstens 40 dB in verhouding tot die weergawe in die middel van die band moet verkry word op alle frekwensies.	Onder 470 kp/s en bo 530 kp/s.	Onder 2147 kp/s en bo 2217 kp/s.

(b) Die oudiofrekwensieweergawekenmerk van die ontvanger moet vir modulasiefrekwensies tussen 400 en 3000 p/s binne 'n gebied van 8 desibels geleë wees. Vir frekwensies buite hierdie perke moet die weergawe wesenlik afneem.

(5) *Gevoeligheid en sein/ruisverhouding*.—Die standaardlewing gespesifiseer in subparagraaf (3), moet verkry word—

(a) met 'n toetssein van 500 kp/s op 'n peil 40 desibels bo 1 mikrovolt, en onder hierdie omstandighede moet die sein/ruisverhouding minstens 15 desibels wees;

(b) met 'n toetssein van 2182 kp/s op 'n peil 30 desibels bo 1 mikrovolt, en onder hierdie omstandighede moet die sein/ruisverhouding minstens 15 desibels wees.

(6) *Beheer oor ontvangerversterking*.—Beheer oor ontvangerversterking moet deur middel van 'n enkele handkontrole verskaf word.

(7) *Beperking van lewering*.—'n Doeltreffende en outomatiese middel moet verskaf word om die lewering van die ontvanger gedurende die ontvangs van sterk seine te beperk sonder om onnodige vervorming mee te bring.

4. Antenne- en Aardstelsels.

(1) Die uitrusting moet die volgende insluit:—

(a) 'n Enkeldraadantenne bestaande uit tussen 25 en 30 voet stringdraad of omvlegte draad van hoë geleidingsvermoë wat sonder die gebruik van topmaste op die maksimum praktiese hoogte deur 'n reddingsbootmas gestut kan word; en

(b) 'n voubare staafantenne van minstens 16 voet hoog, of 'n alternatiewe antenne van goedgekeurde ontwerp, waarvan die voet nie dikker as 2 duim moet wees nie en wat maklik en gou in 'n reddingsboot en op 'n reddingsvlot geïnstalleer kan word.

(2) Indien verlang, kan ander goedgekeurde tipes langdraadantennes bestaande uit tussen 90 en 95 voet stringdraad of omvlegte draad van hoë geleidingsvermoë verskaf word.

(3) 'n Aarddraad van tussen 12 en 13 voet lank en met 'n hoë geleidingsvermoë, stewig bevestig aan die uitrusting en beswaar met 'n geskikte sinklood, moet verskaf word.

5. Kragbron.

(1) Die uitrusting moet 'n handopwekker insluit wat in staat is om al die nodige elektriese krag op te wek. (N.B.: Hierdie vereiste hoef nie geag te word die gebruik van 'n addisionele eksterne opbergimiddel of bron van energie vir die verskaffing van elektriese krag aan die uitrusting uit te sluit nie. Aanbevelings in verband met so 'n middel verskyn in die bylae van hierdie deel.)

(2) Werking van die opwekker moet nie die werking van 'n handkontrole aan die uitrusting belemmer nie.

(4) *Selectivity*.—(a) The receiver shall meet the following requirements for the selectivity preceding the final detector:—

When operating on a frequency of.	500 kc/s.	2182 kc/s.
Response to be uniform to within 6 db over the range.	495 to 505 kc/s.	2177 to 2187 kc/s.
At least 40 db discrimination relative to the response at midband to be obtained at all frequencies.	Below 470 kc/s and above 530 kc/s.	Below 2147 kc/s and above 2217 kc/s.

(b) The audio-frequency response characteristic of the receiver shall lie within a range of 8 decibels for modulation frequencies between 400 and 3000 c/s. The response shall fall substantially for frequencies outside these limits.

(5) *Sensitivity and signal/noise ratio*.—The standard output level specified in subparagraph (3) shall be obtained—

(a) with a 500 kc/s test signal at a level of 40 decibels above 1 microvolt, and under this condition the signal/noise ratio shall be at least 15 decibels;

(b) with a 2182 kc/s test signal at a level of 30 decibels above 1 microvolt, and under this condition the signal/noise ratio shall be at least 15 decibels.

(6) *Control of receiver gain*.—Control of receiver gain shall be provided by means of a single manual control.

(7) *Output limiting*.—An efficient and automatic means shall be provided to limit the output of the receiver during the reception of strong signals, without introducing undue distortion.

4. Aerial and Earth Systems.

(1) The equipment shall include:—

(a) A single-wire aerial consisting of between 25 and 30 feet of high-conductivity stranded or braided wire, capable of being supported from a lifeboat mast, without the use of topmasts, at the maximum practicable height; and

(b) a collapsible rod aerial at least 16 feet in height, or an alternative aerial of approved design, the base of which should not be greater than 2 inches in diameter, capable of being easily and quickly installed in a lifeboat and in a liferaft.

(2) Other approved types of long-wire aerial consisting of between 90 and 95 feet of high conductivity stranded or braided wire may be provided if desired.

(3) A high conductivity earth wire between 12 and 13 feet in length, securely connected to the equipment and loaded with a suitable sinker, shall be provided.

5. Power Supply.

(1) The equipment shall include a man-powered generator capable of generating all the required electrical power. (Note: This requirement need not be taken to preclude the use of an additional external storage device or source of energy to supply electrical power to the equipment. Recommendations for such a device are given in the appendix of this part.)

(2) Operation of the generator shall not impede the operation of any manual control on the equipment.

(3) 'n Middel, wat te alle tye sigbaar moet wees, moet verskaf word om aan te dui dat die opwekker teen sulke snelhede werk dat die vereistes van paragraaf 2 (8) nagekom kan word. Vir die toepassing van hierdie deel sal van hierdie bestek van snelhede as die „normale bestek” van opwekkersnelhede gepraat word. Die normale bestek van opwekkersnelhede moet in verhouding tot die laagste snelheidswaarde in daardie bestek 'n speling van minstens 40 persent hê.

(4) Die opwekker moet so ontwerp wees dat hy deur een persoon of deur twee persone tegelyk bedien kan word en dat hy nie in die verkeerde rigting gedraai kan word nie.

(5) Oor die normale bestek van opwekkersnelhede moet die uitrusting aan die vereistes van paragrafe 2 en 3 voldoen, en die doeltreffendheid van die uitrusting in sy geheel moet sodanig wees dat die vermoë van die sender met 'n draaimoment van hoogstens 325 (lb.-vt vermenigvuldig met omwentelings per minuut) by die slinger of pedaal of, in die geval van ander vorms van beweging, met 'n ekwivalente krag aan die vereistes van paragraaf 2 (8) voldoen.

(6) Die uitrusting moet kan werk vanaf en moet gereedlik verbind kan word met 'n eksterne akkumulator of ander bron van elektriese energie. Die vereiste polariteit uit hierdie eksterne bron moet duidelik op die uitrusting aangedui wees.

(7) As dit moontlik is om die opwekker en die eksterne bron van elektriese energie gelyktydig te verbind, moet reëlins getref word om te verseker dat geen deel van die uitrusting beskadig kan word nie.

6. Kontroles en Werkfasiliteite.

(1) Alle handkontroles moet van sodanige grootte en vorm wees dat normale stelwerk deur iemand met dik handskoene aan verrig kan word. Die getal handkontroles moet tot die minimum beperk word.

(2) Die uitrusting moet 'n hand-sendontvangskakelaar hê en waar dit vir snelle oorskakeling van „ontvang” na „send” nodig is, moet daar 'n skakelaarposisie vir „sender gereed” wees.

(3) Die bediening van die handkontroles moet nie die opwekking van elektriese energie belemmer of daardeur belemmer word nie.

BYLAE VAN DEEL II.—AANBEVELINGS TEN OPSIGTE VAN 'N EKSTERNE KRAGBRON.

(1) Indien 'n addisionele, eksterne inrigting vir die voorsiening van krag aan die uitrusting verskaf word, moet dié aan die vereistes van hierdie bylae voldoen. Die uitdrukking „inrigting” sluit in enige houer waarin die eksterne bron van energie gehuisves word.

(2) Tensy anders vermeld, moet die inrigting aan die vereistes voldoen wat by paragraaf 1 (4) en 1 (8) van deel II op die uitrusting van toepassing gemaak word.

(3) Die inrigting moet gereedlik so met die uitrusting verbind kan word dat die regte polariteit verseker word.

(4) Die inrigting moet nie stowwe uitlaat wat op enige wyse vir personeel nadelig of vir die uitrusting of die stof van 'n reddingsvaartuig skadelik is nie. Hierdie vereiste moet nagekom word ongeag of die inrigting in die opbergttoestand verkeer of in normale gebruik is.

(5) Die inrigting moet in staat wees om 72 uur lank elektriese krag aan die uitrusting te verskaf. Gedurende hierdie tyd moet die sender 3 maal per uur 2 minute aan-een met volle krag werk en vermelde tydperke van 2 minute elk moet van mekaar geskei word deur periodes van 18 minute, gedurende welke periodes die ontvanger in werking moet wees.

(6) Die inrigting moet in staat wees om aan die vereistes van paragraaf (5) te voldoen nadat hy 18 maande lank opgeberg was.

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(3) Means shall be provided, visible at all times, to indicate that the generator is being operated at speeds such that the requirements of paragraph 2 (8) can be met. For the purpose of this part, this range of speeds will be referred to as the “normal range” of generator speeds. The extent of the normal range of generator speeds shall be at least 40 per cent relative to the lowest speed value in that range.

(4) The generator shall be so designed that it can be operated by one person or by two persons simultaneously, and that it cannot be rotated in the wrong direction.

(5) Over the normal range of generator speeds, the equipment shall meet the requirements of paragraphs 2 and 3, and the efficiency of the equipment as a whole shall be such that the power of the transmitter shall conform with the requirements of paragraph 2 (8), with a torque-speed at the handle or pedal of not more than 325 (lb. ft. multiplied by revs. per minute) or, in the case of other forms of motion, equivalent power.

(6) The equipment shall be capable of being operated from, and readily connected to, an external storage device or other source of electrical energy. The required polarity from this external source shall be clearly indicated on the equipment.

(7) If it is possible to connect the generator and the external source of electrical energy simultaneously, arrangements shall be made to ensure that no damage can be caused to any part of the equipment.

6. Controls and Operating Facilities.

(1) All manual controls shall be of such size and form as to permit normal adjustment being performed by a person wearing thick gloves. The number of manual controls shall be kept to a minimum.

(2) The equipment shall incorporate manual send/receive switching and where necessary, in order to provide rapid changeover from “receive” to “send”, there shall be a “transmitter standby” switch position.

(3) The operation of the manual controls shall not be impeded by nor shall it impede the generation of electrical energy.

APPENDIX TO PART II.—RECOMMENDATIONS IN RESPECT OF AN EXTERNAL POWER SUPPLY.

(1) If an additional external device is provided to supply power to the equipment, it should meet the requirements of this appendix. The term “device” includes any container in which the external source of energy is housed.

(2) The device should, unless otherwise stated, meet the requirements applied to the equipment by paragraph 1 (4) and 1 (8) of part II.

(3) The device should be capable of being readily connected to the equipment so that the correct polarity is ensured.

(4) The device should not emit substances which may in any way be injurious to personnel or damaging to the equipment or the fabric of a survival craft. This requirement should be met whether the device is in the stored condition or in normal use.

(5) The device should be capable of supplying electrical power to the equipment over a period of 72 hours, during which time the transmitter should be in operation on full power for 2 consecutive minutes 3 times per hour, each 2-minute period being separated by 18 minutes, during which time the receiver should be in operation.

(6) The device should be capable of fulfilling the requirements of paragraph (5) after it has been stored for 18 months.

AANHANGSEL 5.

[Regulasie 14 en 24 (f).]

GEREEDSKAP, MEETINSTRUMENTE, RESERWE-
DELE, ENS.

DEEL I.—RADIOTELEGRAAFSKIP.

(Regulasie 14.)

(1) Gereedskap.

- Een kontakbruiuerder;
- Een 6-duim-soetvyl;
- Een lasmes;
- Een geïsoleerde draadwerkerstang van 7 duim;
- Een langbeksykniptang van 6 duim;
- (a) Een geïsoleerde skroewedraaier van minstens 8 duim lank en met 'n punt van 'n $\frac{1}{4}$ duim;
- (a) Een geïsoleerde skroeftakdraaier met punt van $\frac{1}{8}$ duim;
- (a) Een horlosieskroewedraaier met punt van $\frac{1}{16}$ de duim;
- (a) Een stel geskikte moersleutels (plat en dop) vir herstelwerk aan radiotelegraafuitrusting;
- (a) Een moersleutel waarvan die opening tot 1 duim gestel kan word;
- (b) Een handboor van $\frac{1}{4}$ duim;
- (b) Een stel snelspiraalbore, moerdraad- en vryruimte-groottes 0-8 B.A.;
- Een bankskroef;
- Een elektriese soldeerbout met 'n spanning wat by die skip s'n pas en met 'n kragverbruik van minstens 75 watt en hoogstens 125 watt;
- Een elektriese soldeerbout met 'n spanning wat by die skip s'n pas en met 'n kragverbruik van minstens 25 watt en hoogstens 30 watt;
- Een stofborsel;
- Een balpenhamer van 'n $\frac{1}{2}$ lb;
- Een ystersaag met lemme;
- Een gereedskapkas of -vak waarin voormelde gereedskap gehou en toegesluit kan word.

(2) Meetinstrumente.

- Een hidrometer;
- Een dampel-Fahrenheittermometer;
- 'n Ammeter in staat om gelykstroom van 1 tot 500 milliampère te meet; 'n voltmeter in staat om wissel- en gelykstroomspannings van 1 tot 1,000 volt te meet; en 'n ohmmeter in staat om weerstand van 10 tot 20,000 ohm te meet; met dien verstande dat 'n meetinstrument waarin bovermelde hoedanighede ten opsigte van 'n ammeter, 'n voltmeter en 'n ohmmeter verenig is, in die plek van vermelde instrumente gestel kan word.

(3) Reserwedele en reserwe-uitrusting.

- Een stel borsels vir elke geïnstalleerde masjien;
- Drie patroonsekerings vir elke patroonsekering in gebruik;
- Een opgemaakte hoofantenne (net draad);
- Een veiligheidslus vir antenne;
- Vyftig persent van getal isolators in gebruik (uitgesonderd inlei-isolators);
- Honderd persent van die getal harpe en doppies in gebruik;
- Twaalf boelknelle wat by die antennedraad pas;
- Een stel telefone en leidings (met stekers, indien gebruik) vir elke tipe telefoon en leiding in gebruik;
- Een buis vir elke 2 van die eerste 6 van elke tipe buis in gebruik, en dan 1 buis vir elke addisionele 3 buise of deel van 3 buise van daardie tipe in gebruik;

ANNEX 5.

[Regulation 14 and 24 (f).]

TOOLS, MEASURING INSTRUMENTS, SPARE
PARTS, ETC.

PART I.—RADIOTELEGRAPH SHIP.

(Regulation 14.)

(1) Tools.

- One contact burnisher;
- One 6-in. smooth file;
- One jointing knife;
- One pair 7-in. wireman's insulated pliers;
- One pair 6-in. long nose pliers with side cutters;
- (a) One insulated screwdriver, not less than 8 in. in length, with $\frac{1}{4}$ in. blade;
- (a) One insulated grub screwdriver with $\frac{1}{8}$ -in. blade;
- (a) One watch screwdriver with one-sixteenth in. blade;
- (a) One set of suitable spanners (Flat and Box) to effect repairs to the radiotelegraph equipment;
- (a) One spanner adjustable to 1-in. gap;
- (b) One $\frac{1}{4}$ -in. hand drill;
- (b) One set of high-speed twist drills, tapping and clearance sizes 0-8 B.A.;
- One clamp vice;
- One electric soldering iron to suit ship's voltage with a power consumption of not less than 75 watts or more than 125 watts;
- One electric soldering iron to suit ship's voltage with a power consumption of not less than 25 watts or more than 30 watts;
- One dusting brush;
- One $\frac{1}{2}$ -lb. ball pein hammer;
- One hacksaw and blades;
- A tool box or compartment for containing the foregoing tools and capable of being locked.

(2) Measuring Instruments.

- One hydrometer;
- One dipping fahrenheit thermometer;
- An ammeter capable of measuring direct current from 1 milliampere to 500 milliamperes; a voltmeter capable of measuring alternating and direct current voltage from 1 volt to 1,000 volts; and an ohm-meter capable of measuring resistance from 10 ohms to 20,000 ohms; provided that a measuring instrument in which the requirements for an ammeter, a voltmeter and an ohm-meter specified above are combined may be substituted for the said instruments.

(3) Spare parts and spare equipment.

- One set of brushes for each machine installed;
- Three cartridge fuses for each one in use;
- One main aerial made up (wire only);
- One safety loop for aerial;
- Fifty per cent of the number of insulators in use (excluding lead-in insulators);
- One hundred per cent of the number of shackles and thimbles in use;
- Twelve bulldog grips to suit the aerial wire;
- One set telephones and leads (with plugs if used) for each type of telephones and leads in use;
- One valve for each two of the first six of each type of valve in use, and then one valve for each additional three valves or part of three valves of that type in use;

Drie trillers vir elke tipe triller in gebruik;
 Een aanwyserlamp vir elke aanwyserlamp in gebruik;
 Een noodlamp;
 Een laaimat indien 'n matlaai-eenheid in gebruik is.

(4) *Diverse items.*

Vier onse petroleumjellie;
 Vier velle glaspapier;
 Agt onse harssoldeersel;
 Vier onse isoleerband;
 Twee onse smeerolie vir algemene gebruik;
 (c) 'n Half pint smeerolie;
 'n Half pond ghries vir masjien in gebruik;
 Tien jaart van elke klas smeltdraad, naamlik 1 ampère, 5 ampère en 15 ampère;
 Een stuk antennedraad gelyk aan die lengte van die reserweantenne plus 100 voet (ongesny);
 Vier onse koperbinddraad;
 Ses jaarts buigsame draad (5 ampère) vir verstelbare verbindings;
 Vier onse trichlooretileen vir kontakreiniging.

(a) Waar spesiale moere en skroewe vir bevestiging gebruik word, moet geskikte gereedskap verskaf word.

(b) Hierdie items hoef nie verskaf te word in 'n skip wat nie vir 'n internasionale reis in gebruik is nie.

(c) Hierdie item hoef alleen verskaf te word waar 'n masjien met oliesmering 'n deel van die installasie uitmaak.

DEEL II.—RADIOTELEFOONSKIP.

[Regulasie 24 (f).]

(1) *Gereedskap.*

Een soetvyl van 6 duim;
 Een lasmes;
 (a) Een geïsoleerde skroewedraaier van minstens 8 duim lank en met 'n punt van $\frac{1}{4}$ duim;
 (a) Een moersleutel waarvan die opening tot 1 duim gestel kan word;
 Een ystersaag met lemme.

(2) *Meetinstrumente.*

Een hidrometer.

(3) *Reserwedele en reserwe-uitrusting.*

Vyftig persent van die getal isolators in gebruik (uitgesonderd inlei-isolators).

(4) *Diverse items.*

Tien jaarts van elke klas smeltdraad, naamlik 1 ampère, 5 ampère en 15 ampère.

(a) Waar spesiale moere en skroewe vir bevestiging gebruik word, moet geskikte gereedskap verskaf word.

AANHANGSEL 6.

(Regulasie 15.)

RADIOTELEGRAAF-OUTO-ALARMUITRUSTING.

1. *Algemeen.*

(1) Die radiotelegraaf-outo-alarmuitrusting (in hierdie aanhangsel „die uitrusting” genoem) moet—

(a) 'n hoorbare alarmstelsel, 'n ontvanger, 'n toetssein-opwekker, monitorgeriewe en 'n kieser insluit;

(b) by afwesigheid van enige steuring in staat wees om sonder verstelling met die hand hoorbaar waarskuwing te gee van die ontvangs van 'n radiotelegraaf-alarmsein wat op 'n frekwensie van 500 kp/s uitgesend word en bestaan uit 'n reeks van 12 agtereenvolgende strepe met 'n duur van 4 sekondes elk en geskei deur pouses van 1 sekonde elk, onderworpe aan die toleransies gespesifiseer in paragraaf 6; met dien verstande dat die sein teen die ontvangerinset sterker as 100 mikrovolt en swakker as 1 volt is.

Three vibrators for each type of vibrator in use;
 One indicator lamp for each indicator lamp in use;
 One emergency lamp;
 One charging mat if a mat-type charging unit is in use.

(4) *Miscellaneous items.*

Four ozs. petroleum jelly;
 Three sheets of glass paper;
 Eight ozs. resin-cored solder;
 Four ozs. insulating tape;
 Two ozs. lubricating oil for general purposes;
 (c) $\frac{1}{2}$ pint lubricating oil;
 $\frac{1}{2}$ lb. grease suitable for machine in use;
 Ten yards of each rating of fuse wire, 1 ampere, 5 ampere and 15 ampere;
 One length of aerial wire equal to the length of the reserve aerial plus 10 feet (uncut);
 Four ozs. copper binding wire;
 Six yards flexible wire (5 ampere) for adjustable connections;
 Four ozs. trichloroethylene for contact cleaning.

(a) Where special nuts and screws are used for fastening, suitable tools should be provided.

(b) These items need not be provided in a ship which is not engaged on an international voyage.

(c) This item need only be supplied where a machine lubricated with oil forms part of the installation.

PART II.—RADIOTELEPHONE SHIP.

[Regulation 24 (f).]

(1) *Tools.*

One 6 in. smooth file;
 One jointing knife;
 (a) One insulated screwdriver, not less than 8 in. in length, with $\frac{1}{4}$ in. blade;
 (a) One spanner adjustable to 1 inch gap;
 One hacksaw and blades.

(2) *Measuring instruments.*

One hydrometer.

(3) *Spare parts and spare equipment.*

Fifty per cent of the number of insulators in use (excluding lead-in insulators).

(4) *Miscellaneous items.*

Ten yards of each rating of fuse wire, 1 ampere, 5 ampere and 15 ampere.

(a) Where special nuts and screws are used for fastening, suitable tools shall be provided.

ANNEX 6.

(Regulation 15.)

RADIOTELEGRAAPH AUTO-ALARM EQUIPMENT.

1. *General.*

(1) The radiotelegraph auto-alarm equipment (in this annex referred to as “the equipment”) shall—

(a) include an audible alarm system, a receiver, a test signal generator, monitoring facilities and a selector;

(b) in the absence of interference of any kind, be capable without manual adjustment, of giving audible warning of the receipt of a radiotelegraph alarm signal transmitted on a frequency of 500 kc/s and consisting of a series of 12 consecutive dashes, each with a duration of 4 seconds and separated by intervals of 1 second, in each case subject to the tolerances specified in paragraph 6; provided that the strength of the signal at the receiver input is greater than 100 microvolts and less than 1 volt.

(2) In die geval van uitrusting wat met 'n battery sekondêre selle moet werk, moet hierdie aanhangsel se vereistes nagekom word met betrekking tot toevoerspannings wat wissel van 20 persent bo tot 10 persent onder die nominale batteryspanning.

(3) In die geval van uitrusting wat vanaf die skip se kragnet werk, moet die uitrusting aan hierdie aanhangsel se vereistes voldoen met betrekking tot toevoerspannings wat wissel van 10 persent bo tot 10 persent onder die nominale kragnetspanning.

(4) Behalwe waar anders vermeld, moet die uitrusting aan die vereistes van hierdie aanhangsel voldoen wanneer dit getoets word onder die omstandighede wat in aanhangsel 3 met betrekking tot klas B-uitrusting gespesifiseer word.

(5) Die uitrusting moet nie die aarding van die skip se kragnet veroorsaak nie.

2. Hoorbare Alarmstelsel.

(1) 'n Hoorbare alarmstelsel moet in staat wees om gelyktydig 'n klok op die brug, 'n klok in die radio-telegraafkamer en 'n klok in die slaapvertrek van die radiobeampte te laat lui.

(2) Die kragbron van die hoorbare alarms moet die skip se reserwekragbron wees. Die kragtoevoerkring van die alarms moet deur middel van een of meer sekerings wat net vir hierdie doel gebruik word, verbind wees met 'n sekeringlose kring wat vanaf die reserwebron van energie gelei word, en moet sodanig wees dat die kring van die hoorbare alarms nie geraak word as 'n ander sekering as sy eie sekering of sekerings smelt nie.

(3) Die hoorbare alarms moet in werking kom indien 'n alarmsein reg geregistreer is [sien paragraaf 6 (2)].

(4) (a) Die hoorbare alarms moet binne 15 sekondes na 'n onderbreking van die hoog-gelykstroomtoevoerspanning in werking kom, maar moet nie in werking kom as hierdie spanning korter as 3 sekondes onderbreek word nie.

(b) Waar die uitrusting een of meer trillers bevat, moet die hoorbare alarms binne 15 sekondes na die onderbreking van die lewering van 'n triller in werking kom, maar hulle moet nie in werking kom as hierdie lewering korter as 3 sekondes onderbreek word nie.

(c) Waar die uitrusting direk verhitte buise bevat, moet die hoorbare alarms binne 15 sekondes na 'n verbreking van die kringe van die gloeidrade van die buise in werking kom, maar hulle moet nie in werking kom as hierdie verbreking korter as 3 sekondes duur nie. Waar die gloeidrade van hierdie buise regstreeks vanaf 'n battery bekrag word, moet die hoorbare alarms egter binne 15 sekondes na 'n verbreking van die kringe van hul gloeidrade in werking kom.

(d) Waar 'n kiesereenheid 'n gedurig roterende meganisme bevat, moet die hoorbare alarms binne 15 sekondes na staking van die rotasie in werking kom, maar hulle moet nie in werking kom as die meganisme korter as 3 sekondes ophou roteer nie. Waar hierdie meganisme regstreeks vanaf 'n battery bekrag word, moet die hoorbare alarms egter in werking kom binne 15 sekondes nadat die meganisme ophou roteer.

(5) Dit moet nie nodig wees om die uitrusting met die hand terug te stel nie tensy die hoorbare alarms in werking gebring was.

(6) (a) Die uitrusting moet 'n handterugsteller bevat sodat die kiesereenheid teruggestel kan word nadat hy 'n sein binne die toleransieperke aangegee in paragraaf 6 (1) geregistreer het.

(b) Net een skakelaar vir die afskakeling van die hoorbare alarms moet verskaf word en dié moet in die radio-telegraafkamer wees.

(2) In the case of equipment which is to be operated from a battery of secondary cells, the requirements of this annex shall be met for a range of supply voltage variation of plus 20 per cent and minus 10 per cent relative to the nominal battery voltage.

(3) In the case of equipment which is operated from the ship's main supply, the equipment shall satisfy the requirements of this annex for a range of supply voltage variation of plus and minus 10 per cent relative to the nominal mains voltage.

(4) Except where otherwise stated, the equipment shall meet the requirements of this annex when tested under the conditions specified in annex 3 applicable to class B equipment.

(5) The equipment shall not cause the ship's mains to be earthed.

2. Audible Alarm System.

(1) An audible alarm system shall have provision to operate simultaneously a bell on the bridge, a bell in the radiotelegraph room and a bell in the sleeping room of the radio officer.

(2) The power supply for the audible alarms shall be the ship's reserve source of energy. The power supply circuit for the alarms shall be connected via a fuse or fuses used only for this purpose to an unfused circuit taken from the reserve source of energy and shall be such that the audible alarms circuit is not affected should any fuse other than its own fuse/s be ruptured.

(3) The audible alarms shall be actuated should an alarm signal be correctly registered [see paragraph 6 (2)].

(4) (a) The audible alarms shall be actuated within 15 seconds of a sustained failure of the principal direct current supply voltage, but shall not be actuated should this voltage fail for a period shorter than 3 seconds.

(b) Where the equipment incorporates a vibrator or vibrators, the audible alarms shall be actuated within 15 seconds of the sustained failure of the output of any vibrator, but shall not be actuated should this output fail for a period shorter than 3 seconds.

(c) Where the equipment incorporates directly-heated valves, the audible alarms shall be actuated within 15 seconds of a sustained disconnection in the circuits of the filaments of the valves but shall not be actuated should this disconnection occur for a period shorter than 3 seconds. However, where the filaments of these valves are energised directly from a battery, the audible alarms shall be actuated within 15 seconds of a disconnection in the circuits of their filaments.

(d) Where a selector unit incorporates a continuously rotating mechanism, the audible alarms shall be actuated within 15 seconds of a sustained failure to rotate but shall not be actuated should the mechanism fail to rotate for a period shorter than 3 seconds. However, where this mechanism is energised directly from a battery, the audible alarms shall be actuated within 15 seconds of a failure of the mechanism to rotate.

(5) The equipment shall not require manual re-setting unless the audible alarms have been actuated.

(6) (a) The equipment shall include a manual re-setting device so that the selector unit can be re-set after registering a signal falling within the tolerance limits indicated in paragraph 6 (1).

(b) Only one switch for stopping the audible alarms shall be provided and this shall be situated in the radiotelegraph room.

(c) Die uitrusting moet 'n nie-sluitende inrigting bevat waardeur die klok op die brug en die klok in die radio-beampte se kajuit afgeskakel kan word sonder om die werking van die klok in die radiokamer te beïnvloed.

(d) Die kragkring wat ooreenkomstig subparagraaf (2) vir die werking van die hoorbare alarms verskaf word, moet beheer word deur die skakelaar wat die uitrusting in werking stel.

(e) Geen ander skakelaar as die een waarvan in subparagraaf (d) melding gemaak word, mag aangebring word met die doel om die hoorbare alarms te ontvrag nadat hulle in werking gestel is nie.

(f) Elke kontrole van elkeen van die inrigtings vermeld in subparagrafe (a), (c) en (d) moet duidelik geëtiketteer wees om sy doel aan te dui.

Opmerking.—Daar word besef dat sekere vereistes van paragraaf 2 nie nagekom kan word as die reserwebron van energie self ingee nie.

3. Ontvanger.

(1) *Algemeen.*—(a) Die ontvanger moet geskik wees vir die ontvangs van klas A1-uitsendings, en van klas A2- en klas B-uitsendings met 'n toonfrekwensie tussen 400 en 1,400 p/s, en die draaggolf moet binne die frekwensiegebied 496 kp/s tot 504 kp/s wees.

(b) Afsien van vooraf gestelde kontroles wat nodig is vir die aanvanklike stelling van die ontvanger deur die fabrikant of installeerder mag geen instemkontroles verskaf word nie. Waar versterkingskontroles verskaf is en die werking van die outomatiese alarmuitrusting as sodanig beïnvloed, moet hulle vooraf gestelde kontroles wees wat nie buitekant die uitrusting vandaan bedien kan word nie.

(2) *Toetsmetode.*—(a) Wanneer klas A2-seine vir toetswerk gebruik word, moet hulle behoudens 'n andersluidende bepaling tot 'n diepte van 70 persent op 1000 p/s gemoduleer wees.

(b) Die kunsantenne wat vir toetswerk gebruik word, moet bestaan uit 'n nie-induktiewe weerstand van 10 ohm in serie met 'n kapasitor met enige en elke waarde tussen 300 en 750 pikofarad.

(c) Tensy anders bepaal, het insetseinpeile betrekking op die inset wat in serie met die kunsantenne ingevoer word.

(3) *Selektiwiteit.*—(a) Die radiofrekwensie-weergawe van die ontvanger moet in die frekwensieband 496 tot 504 kp/s tot binne 3 desibels uniform wees.

(b) Die diskriminasie op alle frekwensies onder 487 kp/s en bo 513 kp/s moet minstens 40 desibels in verhouding tot die weergawe op 500 kp/s wees.

(c) Die uitrusting moet op 'n insetpeil van 42 desibels bo 1 mikrovolt in die teenwoordigheid van 'n ander sein met die volgende kenmerke betroubaar reageer op 'n toetsalarmsein met 'n frekwensie van 500 kp/s en van klas A1 of klas A2:—

Tipe uitsending.	Modulasie-frekwensie.	Modulasie-diepte.	Draagfrekwensie.	Insetpeil (dB bo 1 mikrovolt).
A1. A2.	— Enige audio-frekwensie in die gebied 50 tot 1400 p/s.	— 70	Onder 475 kp/s en bo 525 kp/s.	120 dB.

(4) *Gevoeligheid en kontrolering van versterking.*—

(a) Die gevoeligheid van die uitrusting moet gemeet word as die minimum insetpeil van 'n toetsalarmsein op 500 kp/s wat die kieser betroubaar laat werk, en moet sodanig wees dat die kieser in werking gestel sal word deur die invoer van 'n sein vanaf die toetsinrigting wat in paragraaf 4 beskryf word.

(c) The equipment shall include a non-locking device whereby the bridge bell and the radio officer's cabin bell can be disconnected without affecting the operation of the radio room bell.

(d) The power circuit provided to operate the audible alarms, as required by subparagraph (2), shall be controlled by the switch which brings the equipment into operation.

(e) No switch, other than the one referred to in subparagraph (d), shall be fitted for the purpose of de-energising the audible alarms once they have been actuated.

(f) The controls for each of the devices in subparagraphs (a), (c) and (d) shall be clearly labelled to show its purpose.

Note.—It is recognized that certain requirements of paragraph 2 cannot be met if there is a failure of the reserve source of energy itself.

3. Receiver.

(1) *General.*—(a) The receiver shall be suitable for the reception of class A1 emissions, and of class A2 and class B emissions having a note frequency between 400 and 1400 c/s, the carrier wave being in the frequency range 496 kc/s to 504 kc/s.

(b) Apart from preset controls required for the initial adjustment of the receiver by the manufacturer or installer, no tuning controls shall be provided. Gain controls which affect the operation of the automatic alarm equipment as such, shall, where provided, be preset controls not available at the exterior of the equipment.

(2) *Method of test.*—(a) When class A2 signals are employed for testing they shall, unless otherwise specified, be modulated to a depth of 70 per cent at 1000 c/s.

(b) The artificial aerial employed for testing shall be a 10-ohm non-inductive resistor in series with a capacitor having any and every value between 300 and 750 picofarads.

(c) Input signal levels, unless otherwise specified, refer to the input injected in series with the artificial aerial.

(3) *Selectivity.*—(a) The radio frequency response of the receiver shall be uniform to within 3 decibels in the frequency band 496 to 504 kc/s.

(b) The discrimination at all frequencies below 487 kc/s and above 513 kc/s shall be at least 40 decibels relative to the response at 500 kc/s.

(c) The equipment shall respond reliably to a test alarm signal of frequency 500 kc/s and of class A1 or class A2, at an input level of 42 decibels above 1 mikrovolt, in the presence of another signal having the following characteristics:—

Type of emission.	Modulation frequency.	Modulation depth.	Carrier frequency.	Input level (db above 1 microvolt).
A1. A2.	— Any audio frequency in the range 50 to 1400 c/s.	— 70	Below 475 kc/s and above 525 kc/s.	120 db.

(4) *Sensitivity and control of gain.*—(a) The sensitivity of the equipment is to be measured as the minimum input level of a test alarm signal on 500 kc/s which reliably operates the selector and shall be such that the selector will be operated by injection of a signal from the testing device described in paragraph 4.

(b) Sodat die uitrusting 'n alarmsein in die teenwoordigheid van steurseine kan onderskei, moet outomatiese kontrolering van ontvangerversterking verskaf word.

(c) (i) Die outomatiese versterkingskontrolle moet die uitrusting se gevoeligheid gestadig verminder gedurende die tydperke wanneer die kieser aanhoudend werk. Die tempo van vermindering kan toegelaat word om vir 'n gevoeligheidsgebied van 40 tot 70 desibels bo 1 mikrovolt na gelang van gevoeligheid tussen die perke 7.5 tot 15 desibels per minuut te wissel. Ongeag hoeveel die insetpeil van 'n aangewende sein die nodige minimum vir die werking van die kieser oortref, mag die tempo van gevoeligheidswisseling nie buite vermelde perke geleë wees nie.

(ii) Gedurende die tye wanneer die kieser in werking is, moet die outomatiese versterkingskontrolle die gevoeligheid van die uitrusting geleidelik tot 'n maksimum waarde van tussen 35 en 40 desibels bo 1 mikrovolt vermeerder. Die vermeerderingstempo kan toegelaat word om vir 'n gevoeligheidsgebied van 40 tot 70 desibels bo 1 mikrovolt na gelang van gevoeligheid tussen die perke 30 tot 60 desibels per minuut te wissel. Ongeag hoeveel die insetpeil van 'n aangewende sein laer is as die waarde wat met die kieservrymakingsdrumpel ooreenstem, mag die tempo waarteen gevoeligheid wissel, nie buite die vermelde perke geleë wees nie.

(iii) Die outomatiese versterkingskontrolle moet aan die volgende prestasietoets voldoen:—

Metode om morsesteuring na te boots.

Morsesteuring moet nageboots word deur aanhoudende sleuteling van 'n toetssein met 'n frekwensie van 500 kp/s en insetpeil 100 desibels bo 1 mikrovolt en met 'n werk/rusverhouding van 19 tot 1. Wisseling van die onderbrekingsfrekwensie van hierdie toetssein sal deur wisseling van sy uitsendingsnelheid verkry word.

Prestasie van outomatiese versterkingskontrolle.

Met die uitsendingsnelheid van die toetssein so gereël dat daar 3 onderbrekings per sekonde is, moet die gevoeligheid van die ontvanger nie verminder word tot 'n waarde laer as wat vir die ontvangs van 'n sein met 'n insetpeil 40 desibels bo 1 mikrovolt nodig is nie.

Met die uitsendingsnelheid van die toetssein so gereël dat daar 3 onderbrekings in 2 sekondes is, moet die gevoeligheid van die ontvanger gedurende 'n tydperk van 15 minute geleidelik verminder word tot so 'n waarde dat 'n sein van minstens 70 desibels bo 1 mikrovolt nodig sal wees om die kieser te laat werk.

(d) Benewens die outomatiese versterkingskontrolle vermeld in subparagraaf (c) kan 'n vooraf gestelde handkontrolle van ontvangerversterking verskaf word. Die gevoeligheidswisseling wat deur hierdie kontrolle verskaf word, moet nie 10 desibels te bowe gaan nie.

(5) *Oorbelasting.*—Betroubare registrasie van 'n toetsalarmsein van enige frekwensie tussen 496 en 504 kp/s en met 'n insetpeil 50 desibels bo 1 mikrovolt moet in die teenwoordigheid van 'n steursein plaasvind. Hierdie steursein moet 'n frekwensie in die gebied 496 tot 504 kp/s en 'n insetpeil van 120 desibels bo 1 mikrovolt hê, of ongemoduleer of deur enige oudiofrekwensie in die gebied 400 tot 1,400 p/s tot 'n diepte van 70 persent gemoduleer wees en teen 'n tempo van minstens 15 woorde per minuut en hoogstens 40 woorde per minuut gesleutel word.

(6) *Intermodulasie.*—Die gelyktydige aanwending van enige twee seine met 'n frekwensieverskil of -totaal in die gebied 496 tot 504 kp/s moet nie die kieser in werking stel nie. Een van hierdie seine moet wees 'n gelykdraag-

(b) In order that the equipment shall distinguish an alarm signal in the presence of interfering signals, automatic control of receiver gain shall be provided.

(c) (i) The automatic gain control shall steadily reduce the sensitivity of the equipment during the periods when the selector is continuously operated. The rate of reduction may be permitted to vary with sensitivity between the limits 7.5 to 15 decibels per minute for a range of sensitivity of 40 to 70 decibels above 1 microvolt. The rate of change of sensitivity shall not lie outside the specified rates however much the input level of an applied signal is above the minimum necessary to operate the selector.

(ii) The automatic gain control shall steadily increase the sensitivity of the equipment during the periods when the selector is operated to a maximum value of between 35 and 40 decibels above 1 microvolt. The rate of increase may be permitted to vary with sensitivity between the limits 30 to 60 decibels per minute for a range of sensitivity of 40 to 70 decibels above 1 microvolt. The rate of change of sensitivity shall not lie outside the specified rates however much the input level of an applied signal is below the value corresponding to the threshold of selector release.

(iii) The automatic gain control shall meet the following performance test:—

Method of simulating morse interference.

Morse interference shall be simulated by continuous keying of a test signal of frequency 500 kc/s and input level 100 decibels above 1 microvolt, with a mark-to-space ratio of 19 to 1. The variation of frequency of interruption of this test signal will be obtained by varying the speed of its transmission.

Performance of automatic gain control.

With the speed of transmission of the test signal arranged so that there are 3 interruptions per second, the sensitivity of the receiver shall not be reduced below the value necessary for the reception of a signal of input level 40 decibels above 1 microvolt.

With the speed of transmission of the test signal arranged so that there are 3 interruptions in 2 seconds the sensitivity of the receiver shall be progressively reduced during a period of 15 minutes to a value such that a signal of at least 70 decibels above 1 microvolt is required to operate the selector.

(d) In addition to the automatic gain control specified in subparagraph (c), a preset manual control of receiver gain may be provided. The range of sensitivity variation provided by this control shall be not more than 10 decibels.

(5) *Overload.*—Reliable registration of a test alarm signal of any frequency between 496 and 504 kc/s and at an input level of 50 decibels above 1 microvolt shall take place in the presence of an interfering signal. This interfering signal shall be of any frequency in the range 496 to 504 kc/s, at an input level of 120 decibels above 1 microvolt, either unmodulated or modulated to a depth of 70 per cent by any audio-frequency in the range 400 to 1400 c/s, and keyed at not less than 15 words per minute and not more than 40 words per minute.

(6) *Intermodulation.*—The simultaneous application of any 2 signals, whose frequency difference or sum falls in the range 496 to 504 kc/s, shall not operate the selector. One of these signals shall be a continuous carrier wave

golf en die ander een 'n gelykdraaggolf wat deur enige oudiofrekwensie in die gebied 400 tot 1,400 p/s tot 'n diepte van 70 persent gemoduleer is. Elke sein moet 'n insetpeil 1200 desibels bo 1 mikrovolt hê en nie een van die seine moet binne die gebied 475 tot 525 kp/s val nie.

(7) *Straling*.—(a) Hierdie subparagraaf is nie van toepassing wanneer daar gewerk word met die toetsinrigting wat in paragraaf 4 voorgeskryf word nie.

(b) Wanneer die ontvanger in gebruik is, moet hy nie 'n veld van meer as 0.1 mikrovolt per meter op 'n afstand van 1 myl van die ontvanger oplewer nie. Gewoonlik sal hierdie bepaling geag word nagekom te wees indien aan die volgende vereistes voldoen word:—

(i) Die ontvanger moet in die middel van 'n afgeskermde, gearde omslote ruimte van minstens 6 voet by 6 voet by 6 voet geplaas word;

(ii) die aardklem van die ontvanger moet met die binnekant van die skerm verbind word;

(iii) die antenneklem moet deur middel van 'n onafgeskermde reghoekige vierwindingsoekspoel (1 voet in die vierkant) en 'n onafgeskermde leiding verbind word met 'n weerstandmeetinstrument wat buite die omslote ruimte gemonteer en waarvan die ander klem gearde is;

(iv) die ontvanger moet bekrag en koptelefone moet verbind word; en

(v) die vermoë gemeet deur die meetinstrument moet ongeag die weerstand van die meetinstrument of die stelling van die ontvanger nie 4×10^{-10} watt te bowe gaan nie, en na goedvinde van die toetsbeampte kan die soekspoel gedurende die toets op enige wyse beweeg word mits hy nie binne 6 duim van die ontvangerkas kom nie, of kan hy kortgesluit word.

4. Toetsseinopwekker.

Met die oog op sy gereelde toetsing moet die uitrusting die volgende insluit, naamlik 'n opwekker wat vooraf op 'n frekwensie binne plus of minus 3 kp/s van 500 kp/s ingestem is, 'n handsleutel van 'n nie-sluitende tipe en 'n middel vir die aansluiting van die outomatiese sleutelinrigting wat in deel V van aanhangsel 1 gespesifiseer is. Dit moet moontlik wees om met behulp van die opwekker en handsleutel 'n alarmsein met die volgende kenmerke in die ontvanger in te voer:—

Klas sein.	Ekwivalente insetpeil.*
Klas A1.	Binne die gebied 37 tot 43 dB bo 1 mikrovolt.

* Gelyk aan hierdie spanning in serie met die kunsantenne.

Die invoermetode moet sodanig wees dat hierdie toetssein nie die alarm in werking sal stel wanneer die antenne self ont koppel is nie.

Daarbenewens moet dit moontlik wees om die insetpeil van hierdie sein met behulp van 'n nie-sluitende skakelaar met ongeveer 20 desibels te verhoog.

5. Monitorgeriewe.

(1) Die ontvanger moet voorsiening bevat vir die koptelefoon- en luidsprekerontvangs van klas A2-uitsendings en moet aan die vereistes van subparagrafe (2) en (3) voldoen met 'n klas A2-insetsein op 'n frekwensie van 500 kp/s en op enige en elke insetpeil in die gebied 40 tot 120 desibels bo 1 mikrovolt.

(2) Vir koptelefoonontvangs moet die ontvanger in staat wees tot 'n lewering van minstens 1 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die koptelefone op 1000 p/s.

and the other shall be a continuous carrier wave modulated to a depth of 70 per cent by any audio-frequency in the range 400 to 1400 c/s. Each signal shall be at an input level of 1200 decibels above 1 microvolt and neither signal shall fall within the range 475 to 525 kc/s.

(7) *Radiation*.—(a) This subparagraph is not applicable when the testing device prescribed in paragraph 4 is being operated.

(b) The receiver, when in use, shall not produce a field exceeding 0.1 microvolt per metre at a distance of 1 mile from the receiver. This will normally be regarded as satisfied if the following requirements are met:—

(i) The receiver shall be placed centrally in a screened earthed enclosure of dimensions at least 6 feet cube;

(ii) the earth terminal of the receiver shall be connected to the inside of the screen;

(iii) the aerial terminal shall be connected through an unscreened 4-turn rectangular search coil (of dimensions 1 foot square) and an unscreened lead, to a resistive measuring instrument mounted outside the enclosure, having its other terminal earthed;

(iv) the receiver shall be energised and headphones connected; and

(v) the power measured by the measuring instrument shall not exceed 4×10^{-10} watts no matter what the resistance of the measuring instrument or the adjustment of the receiver may be. At the discretion of the testing officer, the search coil may be moved during the test in any way provided it does not approach within 6 inches of the receiver case; or it may be short-circuited.

4. Test Signal Generator.

For the purpose of regularly testing the equipment, it shall include a generator pre-tuned to a frequency within plus or minus 3 kc/s of 500 kc/s, a manual key of a non-locking type and means for connecting the automatic keying device specified in part V of annex 1. With the aid of the generator and manual key, it shall be possible to inject into the receiver an alarm signal of the following characteristics:—

Class of signal.	Equivalent input level.*
Class A1.	Within the range 37 to 43 db above 1 microvolt.

* Equivalent to this voltage in series with the dummy aerial.

The method of injection shall be such that this test signal will not operate the alarm when the aerial itself is disconnected.

In addition, it shall be possible to increase the input level of this signal by approximately 20 decibels with the aid of a non-locking switch.

5. Monitoring Facilities.

(1) The receiver shall have provision for headphone and loudspeaker reception of class A2 emissions and shall meet the requirements of subparagraphs (2) and (3) with a class A2 input signal at a frequency of 500 kc/s, at any and every input level in the range 40 to 120 decibels above 1 microvolt.

(2) For the purpose of headphone reception, the receiver shall be capable of producing an output of at least 1 milliwatt into a resistance substantially equal to the modulus of the impedance of the headphones at 1000 c/s.

(3) Vir luidsprekerontvangs moet die ontvanger in staat wees tot 'n lewering van minstens 50 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die luidspreker op 1000 p/s.

(4) Die luidspreker moet buite werking gestel word wanneer ontvangs deur middel van die koptelefoon plaasvind.

(5) 'n Handkontrole vir oudiofrekwensieversterking met sowel koptelefoon- as luidsprekerontvangs moet verskaf word.

(6) Die stelling van 'n kontrole wat verskaf is om aan die vereistes van subparagraaf (5) te voldoen, en die aansluiting of ontkoppeling van die koptelefone en die luidspreker moet nie die werking van die outomatiese alarm raak nie.

6. Kieser.

(1) Die kieser, in aansluiting met die ontvanger, moet—

(a) strepe met 'n duur van 3.5 sekondes tot 6.0 sekondes en, tussen strepe, russeine met 'n duur van hoogstens 0.01 tot 1.5 sekondes deurlaat; en

(b) strepe met 'n duur van 3.4 sekondes of korter of strepe van 6.2 sekondes of langer en, tussen strepe, russeine met 'n duur van 1.6 sekondes of langer blokkeer.

Waar tydreëlinskongroles verskaf word, moet hulle vooraf gestel word en nie buitekant die uitrusting vandaan bedien kan word nie.

(2) Die kieser moet die hoorbare alarms alleen in werking stel na die korrekte registrasie van 'n bepaalde getal agtereenvolgende strepe. Die bepaalde getal agtereenvolgende strepe moet of 3 of 4 wees. Korrekte registrasie van die 4e agtereenvolgende streep kan enige langer tydskuur van die 4e streep as 3.5 sekondes insluit.

7. Veldtoetse.

(1) *Algemeen.*—Die uitrusting moet geïnstalleer en 28 dae lank gebruik word in 'n gebied ten opsigte waarvan bekend is dat seinsteurings op 500 kp/s kwaai is. Die antenne wat vir hierdie toetse gebruik word, moet ooreenstem met 'n skip se gewone mediumfrekwensie-antenne.

(2) *Reaksie op toetsalarmseine.*—Ten einde te toets hoe betroubaar die uitrusting in die praktyk werk wanneer daar steurings is, moet 'n toetsalarmsein met 'n draagfrekwensie van 500 kp/s en van klas A1 of klas A2 een maal per uur ingevoer word.

Die bevoegde beampte moet met die uitrusting se reaksie op hierdie toetse tevrede wees.

(3) *Vals alarms.*—Gedurende die toetsperiode gespesifiseer in subparagraaf (1) moet die uitrusting nie op ander seine as die alarmsein of plaaslike opgewekte toetsalarmseine reageer nie; met dien verstande dat die ontvangseine nie inderdaad 'n sein uitmaak wat binne die toleransieperke val wat in paragraaf 6 (1) aangedui word nie.

8. Toetse—Algemeen.

(1) Die laboratoriumtoetse sal gewoonlik by die fabrikant se fabriek uitgevoer word, maar kan op 'n plek gespesifiseer deur die bevoegde beampte plaasvind. In eersgenoemde geval moet die fabrikant al die apparaat beskikbaar hê wat vir die laboratoriumtoetse nodig is. In laasgenoemde geval is die fabrikant verantwoordelik vir verpakking en vervoer in albei rigtings, vir installering van die uitrusting en vir alle aanvanklike stelwerk met betrekking tot instemming en tydreëling.

(2) Vir die veldtoetse is die fabrikant verantwoordelik vir verpakking en vir vervoer in albei rigtings en vir die installering en stel van die uitrusting. Na die aanvanklike stelwerk mag die apparaat nie gedurende die veldtoetse meer as een maal per week oorgestel word nie. As dit om enige rede duidelik word dat die uitrusting nie aan die

(3) For the purpose of loudspeaker reception, the receiver shall be capable of producing an output of at least 50 milliwatts into a resistance substantially equal to the modulus of the impedance of the loudspeaker at 1000 c/s.

(4) The loudspeaker shall be rendered inoperative when reception is by headphone.

(5) Manual control of audio-frequency gain, effective on both headphone and loudspeaker reception, shall be provided.

(6) The adjustment of any control provided to meet the requirements of subparagraph (5) and the connection or disconnection of the headphones and the loudspeaker shall not affect the performance of the automatic alarm.

6. Selector.

(1) The selector, in conjunction with the receiver, shall—

(a) accept dashes of from 3.5 seconds to 6.0 seconds duration and spaces between dashes of not more than 0.01 second to 1.5 seconds duration; and

(b) reject dashes of a duration of 3.4 seconds or less or dashes of 6.2 seconds or greater and spaces between dashes of 1.6 seconds or greater duration.

Timing controls, where provided, shall be preset controls not available at the exterior of the equipment.

(2) The selector shall actuate the audible alarms only after correct registration of a chosen number of consecutive dashes. The chosen number of consecutive dashes shall be either 3 or 4. Correct registration of the 4th consecutive dash may include any time of duration of the 4th dash greater than 3.5 seconds.

7. Field Tests.

(1) *General.*—The equipment shall be installed and operated for 28 days in an area where signal interference on 500 kc/s is known to be severe. The aerial used for these tests shall be similar to a ship's normal medium-frequency aerial.

(2) *Response to test alarm signals.*—To test the reliability of operation of the equipment under practical interference conditions, a test alarm signal of carrier frequency 500 kc/s and of class A1 or class A2 shall be injected once per hour.

The response of the equipment to these tests shall be to the satisfaction of the proper officer.

(3) *False alarms.*—During the test period specified in subparagraph (1), the equipment shall not respond to signals other than the alarm signal or locally-generated test alarm signals, provided that the received signals do not in fact constitute a signal falling within the tolerance limits indicated in paragraph 6 (1).

8. Tests—General.

(1) The laboratory tests will normally be carried out at the manufacturer's works, but may be carried out at a place specified by the proper officer. In the former case, the manufacturer shall have available all the apparatus required for the laboratory tests. In the latter case, the manufacturer shall be responsible for packing and transport in both directions, for installing the equipment and for all initial adjustments of tuning and timing.

(2) For the field tests, the manufacturer shall be responsible for packing and transport in both directions and for the installation and adjustment of the equipment. Subsequent to initial adjustments, the apparatus may not be re-adjusted during the field tests more than once every week. Should it become apparent for any reason that the

vereistes van die toets van 28 dae kan voldoen nie, behou die bevoegde beampte hom die reg voor om die veldtoetse onmiddellik te staak en dan sal die toetse alleen hervat word as die bevoegde beampte en die fabrikant dit eens in dat prestasie redelik verbeter is.

(3) Die fabrikant kan twee uitrustings vir tipetoetsing verskaf, naamlik een vir die toets vermeld in paragraaf 1 (4) en die ander vir toetsing ooreenkomstig paragraaf 7, en albei uitrustings moet eerstens die laboratoriumtoetse [uitgesonderd die toetse vermeld in paragraaf 1 (4)] deurkom. Ongeag of daar een of twee uitrustings vir toetsing verskaf word, moet die toetse vermeld in paragraaf 1 (4) deurgekom word voordat met veldtoetse 'n aanvang gemaak word.

equipment cannot meet the requirements of the 28-day test, the proper officer reserves the right to discontinue the field tests forthwith, and the tests will only be recommenced when the proper officer and the manufacturer are agreed that a reasonable improvement in performance has been achieved.

(3) The manufacturer may provide two equipments for typetesting purposes, one of which shall be for the testing referred to in paragraph 1 (4) and the other for testing under paragraph 7, both equipments being required initially to pass the laboratory tests [except for the tests referred to in paragraph 1 (4)]. Whether one or two equipments are provided for testing, the tests referred to in paragraph 1 (4) shall be satisfied before field tests are commenced.

AANHANGSEL 7./ANNEX 7.

(Regulasie 17.)/(Regulation 17.)

TABEL VAN LUISTERURE/TABLE OF WATCH HOURS.

Zones/Sones. (1)	Western Limits/ Westelike grense. (2)	Eastern Limits/ Oostelike grense. (3)	Hours of watch (Greenwich Mean Time)/Luisterure (Greenwich-tyd).	
			16 hours/uur. (4)	8 hours/uur. (5)
A. Eastern Atlantic Ocean, Mediterranean, North Sea, Baltic/Oostelike Atlantiese Oseaan, Middellandse See, Noordsee, Oossee.	Meridian of 30°W. Coast of Greenland/30° westerlengte Kus van Groenland.	Meridian of 30°E. to the South of the Coast of Africa, Eastern limits of the Mediterranean, of the Black Sea, and of the Baltic, Meridian of 30°E. northwards from the coastline of Norway/30° oosterlengte tot die suide van die kus van Afrika, oostelike grense van die Middellandse See, van die Swart See en van die Oossee, 30° oosterlengte noord van die kuslyn van Noorweë.	From Van	To. tot.
			0 h./u. 8 h./u. 4 h./u. 14 h./u. 8 h./u. 14 h./u. 16 h./u. 18 h./u. 20 h./u. 22 h./u.	8 h./u. 10h./u. 12 h./u. 14h./u. 16 h./u. 18 h./u. 20 h./u. 22 h./u.
B. Western Indian Ocean, Eastern Arctic Ocean/Westelike Indiese Oseaan, oostelike deel van Noordelike Yssee.	Eastern Limit of Zone A/Oostelike grens van sone A.	Meridian of 80°E., West Coast of Ceylon to Adam's Bridge, thence westward round the coast of India, Meridian 80°E to northwards from the coastline of the U.S.S.R./80° oosterlengte, weskus van Ceylon tot by Adam's Bridge, daarvandaan weswaarts om die kus van Indië, 80° oosterlengte tot noord van die kuslyn van die U.S.S.R.	0 h./u. 2 h./u. 4 h./u. 10 h./u. 12 h./u. 14 h./u. 16 h./u. 18 h./u. 20 h./u. 24 h./u.	4 h./u. 6h./u. 8 h./u. 10h./u. 12 h./u. 14h./u. 16 h./u. 18 h./u. —
C. Eastern Indian Ocean, China Sea, Western Pacific Ocean, Eastern Arctic Ocean/Oostelike Indiese Oseaan, Chinese See, westelike Stille Oseaan, oostelike deel van die Noordelike Yssee.	Eastern Limit of Zone B/Oostelike grens van sone B.	Meridian of 160°E. as far as the coast of Kamchatka, Meridian of 160°E. northwards from the coastline of the U.S.S.R./160° oosterlengte tot by die kus van Kamtsjatka, 160° oosterlengte noordwaarts van die kuslyn van die U.S.S.R.	0 h./u. 6 h./u. 8 h./u. 10 h./u. 12 h./u. 14 h./u. 16 h./u. 22 h./u.	0 h./u. 2h./u. 4 h./u. 6h./u. 8 h./u. 10h./u. 12 h./u. 14h./u.
D. Central Pacific Ocean/Sentrale Stille Oseaan.	Eastern Limit of Zone C/Oostelike grens van sone C.	Meridian of 140°W/140° westerlengte.	0 h./u. 2 h./u. 4 h./u. 6 h./u. 8 h./u. 10 h./u. 12 h./u. 18 h./u. 20 h./u. 24 h./u.	0 h./u. 2h./u. 4 h./u. 6h./u. 8 h./u. 10h./u. 20 h./u. 22h./u. —
E. Eastern Pacific Ocean/Oostelike Stille Oseaan.	Eastern Limit of Zone D/Oostelike grens van sone D.	Meridian of 90°W., as far as the Coast of Central America, then the West Coast of Central America and North America/90° westerlengte tot by die kus van Sentraal-Amerika, dan die weskus van Sentraal-Amerika en Noord-Amerika.	0 h./u. 2 h./u. 4 h./u. 6 h./u. 8 h./u. 14 h./u. 16 h./u. 22 h./u.	0 h./u. 2h./u. 4 h./u. 6h./u. 16 h./u. 18h./u. 20 h./u. 22h./u.
F. Western Atlantic Ocean and Gulf of Mexico/Westelike Atlantiese Oseaan en Golf van Mexico.	Meridian of 90°W. Gulf of Mexico, East Coast of North America/90° westerlengte, Golf van Mexico, ooskus van Noord-Amerika.	Meridian of 30°W. Coast of Greenland/30° westerlengte Kus van Groenland.	0 h./u. 2 h./u. 4 h./u. 10 h./u. 12 h./u. 18 h./u. 20 h./u. 22 h./u.	0 h./u. 2h./u. 12 h./u. 14h./u. 16 h./u. 18h./u. 20 h./u. 22h./u.

AANHANGSEL 8.

(Regulasie 20.)

T.V. 5/321.

REPUBLIEK VAN SUID-AFRIKA.

DEPARTEMENT VAN VERVOER.

MARINE-AFDELING.

Handelskeepvaartwet, 1951 (Wet No. 57 van 1951).

RADIOTELEGRAAFLOGBOEK.

DEEL I.

VOORSKRIFTE VIR DIE BYHOU VAN DIE
RADIOTELEGRAAFLOGBOEK.

Elke skip wat noodwendig met 'n radiotelegraafinstallasie toegerus is, moet 'n radiotelegraaflogboek op hom hê. Hierdie dokument moet gedurende die reis in die radiotelegraafkamer gehou word en moet beskikbaar wees vir insae deur enigeen wat deur die Sekretaris van Vervoer of deur die Posmeester-generaal daartoe gemagtig is.

(1) *Invol van Radiotelegraaflog.*

Die log bestaan uit twee dele, wat ooreenkomstig onderstaande voorskrifte ingevul moet word:—

(a) *Deel I.*

Afdeling A.—Besonderhede van die radiopersoneel moet in die verskafte vorm opgeteken word.

Afdeling B.—'n Lys van alle batterye wat deel uitmaak van die hoof- en reserwe-installasies, met inbegrip van dié wat gebruik word vir die noodligte, die outo-alarm, die rigtingsoeker en die outomatiese sendinginrigting (indien afsonderlike batterye vir hierdie doel verskaf is) en vir die reddingsbootinstallasies, met inbegrip van die draagbare radio-uitrusting vir reddingsvaartuie, moet op die verskafte vorm ingevul word.

Afdeling C.—'n Daaglikse verslag oor die laaitoestand van elke batterye moet ingeskryf word. Die verslag moet besonderhede bevat van die mate waarin die batterye gelaai is indien lading plaasgevind het, en van enige ander onderhoudswerk, bv. byvulling wat gedoen is.

Afdeling D.—Een maal per maand moet elke batterye volledig, sel vir sel, nagegaan en in hierdie afdeling 'n verslag oor die algemene toestand van elke sel ingeskryf word.

Afdelings B, C en D moet in duplo ingevul word.—Die deurslagkopieë (geperforeerde velle) moet voor die inlewering van die log uitgeskeur en sorgvuldig in die radiotelegraafkamer bewaar word sodat daar altyd 'n permanente rekord van die batterye vir die inligting van latere radiobeampies, kusonderhoudspersoneel en radio-opnemers beskikbaar sal wees.

(b) *Deel II.*

Hierdie deel van die log sal 'n volledige rekord uitmaak van die werk van die skip se radiotelegraafstasie gedurende die reis. By die aanlê van die log moet die radiobeampie die name van die vertrek- en bestemmingshawens opteken. Daarna moet hy die volgende besonderhede in chronologiese volgorde inskryf:—

(i) Sy naam, en die tye wanneer sy luisterdiens begin en eindig;

(ii) alle noodberigte en -verkeer volledig;

(iii) elke halfuur gedurende die luisterure 'n positiewe inskrywing om te meld of die skip se stasie die stilperiodes nagekom het;

(iv) alle spoed- en veiligheidsberigte;

(v) die posisie van die skip minstens een maal per dag, mits die skip se reëls dit toelaat;

ANNEX 8.

(Regulation 20.)

T.V. 5/321.

REPUBLIC OF SOUTH AFRICA.

DEPARTMENT OF TRANSPORT.

MARINE DIVISION.

Merchant Shipping Act, 1951 (Act No. 57 of 1951).

RADIOTELEGRAPH LOG-BOOK.

PART I.

INSTRUCTIONS FOR KEEPING THE RADIO-
TELEGRAPH LOG-BOOK.

Every ship which is compulsorily fitted with a radio-telegraph installation shall carry a radiotelegraph log-book. This document shall be kept in the radiotelegraph room during the voyage, and shall be available for inspection by any person authorised by the Secretary for Transport or by the Postmaster-General.

(1) *Completion of Radiotelegraph Log.*

The log is compiled in two parts, which shall be completed in accordance with the following instructions:—

(a) *Part I.*

Section A.—Particulars of the radio staff shall be entered in the form provided.

Section B.—A list of all batteries forming part of the main and reserve installations, including those used for the emergency lighting, the auto-alarm, the direction finder and the automatic sending device (if separate batteries are provided for this purpose) and for the life-boat installations including the portable radio equipment for survival craft shall be entered in the form provided.

Section C.—A daily report on the charge condition of each battery shall be entered. The report shall contain details of the amount of charge given, if any, and any other maintenance, such as topping up, which has been carried out.

Section D.—Once a month a full examination of each battery, cell by cell, shall be made, and a report on the general condition entered, cell by cell, in this section.

Sections B, C and D shall be prepared in duplicate.—The carbon copies (perforated sheets) shall, prior to the handling in of the log, be detached and carefully filed in the radiotelegraph room so that a permanent record of the batteries will always be available for the information of succeeding radio officers, shore maintenance staff and radio surveyors.

(b) *Part II.*

This part of the log will form a complete record of the work of the ship's radiotelegraph station for the period of the voyage. In opening the log the radio officer shall record the names of the ports of departure and destination. He shall then enter, in chronological order, the following:—

(i) His name, and the times at which he goes on and off watch;

(ii) all distress messages and distress traffic in full;

(iii) a positive entry each half hour during the hours of watch as to whether the ship's station has observed the silence periods;

(iv) all urgency and safety communications;

(v) the position of the ship at least once a day, if the ship's rules permit;

(vi) besonderhede van reis (sendontvangboodschappe) aan die gebiedstasies gestuur;

(vii) oproepe en werkseine gewissel (Inskrywings ten opsigte van private berigte moet beperk word tot die oproep, volnommer van die boodskap en hoe laat dit ontvang of gestuur is. Moeilikhede teëgekome by die afhandeling van verkeer moet opgeteken word, maar die adres en inhoud van private korrespondensie moet verswyg word.);

(viii) besonderhede van oproepe en werkseine van ander skepe en kusstasies (inskrifings oor die werking van ander stasies moet ongeveer een keer elke 10 minute gemaak word);

(ix) ander diensvoorvalle, met inbegrip van enigiets wat gedurende die luisterdiens verbonde aan die radiotelegraafdiens voorval en vir die veiligheid van menselewens op see belangrik lyk;

(x) tye van aankoms in en vertrek uit tussenhawens;

(xi) 'n positiewe inskrywing wanneer hy luidspreker-luisterdiens op die noodfrekwensie begin of eindig of wanneer luisterdiens op die noodfrekwensie gestaak word ten einde die radiobeampte in staat te stel om ander noodsaaklike radiotelegraafwerk te doen wat dit onmoontlik maak om met die luisterdiens voort te gaan;

(xii) onderbrekings van die hoofkragtoevoer of onklaarheid van apparaat, en besonderhede van herstelwerk gedoen;

(xiii) 'n rekord van die daaglikse en ander toetse van die reserwesender en 'n daaglikse verklaring dat die reserwekragtoevoer bevredigend is of nie;

(xiv) 'n daaglikse verklaring wat bevestig dat alle batterye getoets en tot die normale peil gelaai is;

(xv) besonderhede van die toetse en enige onklaarheid van die outo-alarm (indien aangebring). (Hierdie toetse moet voor die aanvang van elke outo-alarmluisterdiens uitgevoer word.);

(xvi) die tye wanneer die outo-alarmluisterdiens begin en eindig;

(xvii) besonderhede van die toetsing van reddingsboot-radio-uitrusting;

(xviii) 'n daaglikse inskrywing oor die vergelyking van die tyd volgens die radiotelegraafkamer se horlosie met standaardtyd, insluitende vermelding van enige foute wat opgemerk en regstellings wat aangebring is. Outentieke tydseine wat van landstasies ontvang is, kan as standaardtyd aanvaar word.

Die inskrywings in hierdie deel van die log moet in duplo gedoen word. Die deurslagkopieë (geperforeerde velle) moet uitgeskeur en sorgvuldig in die regte volgorde aan mekaar geheg word om 'n eksemplaar van die dagboek te vorm waarmee uiteindelik gehandel moet word soos bepaal deur die maatskappy wat die radiodiens lewer, of deur die skeepseienaar, na gelang van die geval.

(2) Opmerkings oor die Byhou van die Log.

Die belangrikheid daarvan om die log reg by te hou deur alle inskrywings op die regte tyd en met die strengste inagneming van vorm te doen, kan die radiobeampte nie te sterk op die hart gedruk word nie.

By 'n personeelverwisseling moet sorg gedra word dat die log by oorhandiging volledig en bygewerk is.

Inskrywings moet altyd in tyds- en datumvolgorde geskied en geen oop ruimtes mag gelaat word nie.

Die inskrywing „op luisterdiens” moet aangebring word deur die radiobeampte wat 'n luisterdiens begin, en dit moet deur sy handtekening gevolg word. Die inskrywing „van luisterdiens” moet aangebring word deur die radiobeampte wat afgehoor word of sy luisterdiens beëindig, en dit moet deur sy handtekening gevolg word. Alle loginskrifings moet aan die einde van die luisterdiens

(vi) details of voyage particulars (T.R.s) forwarded to area stations;

(vii) calls and operating signals exchanged (entries in respect of private correspondence should be restricted to the call, serial number of the message and time received or sent. Difficulties encountered in disposing of traffic should be recorded, but the address and text of private correspondence should be omitted);

(viii) details of calls and operating signals of other ships and coast stations (entries relating to the working of other stations should be made about once every ten minutes);

(ix) other service incidents including any incident which occurs during the watch connected with the radio-telegraph service which may appear to be of importance to safety of life at sea;

(x) times of arrival and departure from intermediate ports;

(xi) a positive entry when beginning, or terminating loud-speaker watch on the distress frequency, or when watch on the distress frequency is discontinued to enable the radio officer to perform other essential radiotelegraph duties which make it impracticable to maintain the watch;

(xii) any failures of the main power supply or breakdowns of apparatus and details of repairs effected;

(xiii) a record of the daily and other tests of the reserve transmitter and a daily statement that the reserve power supply is satisfactory or otherwise;

(xiv) a daily statement confirming that all batteries have been tested and brought up to the normal fully charged condition;

(xv) details of the tests and any failures of the auto-alarm (if fitted). (These tests must be made before the commencement of each auto-alarm watch.);

(xvi) the times at which auto-alarm watch is set and terminated;

(xvii) details of the tests of lifeboat radio equipment;

(xviii) a daily entry regarding comparison of the radio-telegraph room clock with Standard Time, including an indication of any errors observed and corrections made. Authentic time signals received from land stations shall be acceptable as Standard Time.

The entries in this part of the log shall be prepared in duplicate. The carbon copies (perforated sheets) shall be detached and carefully fastened together in correct order to form a copy of the diary which should be finally disposed of in the manner directed by the company operating the radio service or by the ship-owner as the case may be.

(2) Notes on the Keeping of the Log.

The importance of keeping the log correctly by duly making all entries at the proper time and with the strictest regard to form cannot be too strongly stressed on the radio officer.

Care should be taken when there is a change of staff to see that the log, when handed over, is complete and up to date.

Entries shall always be made in order of time and date and no blanks left.

The entry “on watch” shall be made by the radio officer beginning a watch followed by his signature. The entry “off watch” shall be made by the radio officer being relieved or terminating his watch, followed by his signature. All log entries shall be completed at the end of the watch

voltooi word deur die radiobeampte wat vir die luisterdiens inskrywings verantwoordelik is. 'n Paraaf of teken in plaas van die radiobeampte se handtekening kan nie aanvaar word nie.

As daar te min blaaie in deel II van die logboek is, moet een of meer verdere eksemplare van deel II gebruik word. Die volgorde moet duidelik op vervolgekseemplare aangedui word.

(3) *Nagaan van Log.*

Albei dele van die log moet daaglik deur die verantwoordelike radiobeampte nagegaan en geteken word; hulle moet ook daaglik aan die gesagvoerder om sy handtekening voorgelê en laasgenoemde se aandag moet op belangrike of interessante inskrywings gevestig word.

(4) *Wat met Logboek gedoen moet word.*

Binne 48 uur na die skip se aankoms in sy finale hawe van bestemming of by die ontslag van die bemanning, na gelang van wat die eerste gebeur, moet die gesagvoerder die radiotelegraaflogboek saam met die amptelike logboek oorhandig aan die bevoegde beampte voor wie die bemanning ontslaan word. Voordat die radiotelegraaflogboek aldus oorhandig word, moet sorg gedra word dat die deurslagkopieë verwyder en mee gehandel word soos hierbo voorgeskryf.

by the radio officer responsible for the watch entries. The use of initials or signs cannot be accepted in lieu of the radio officer's signature.

If the number of pages in part II of the log are insufficient, use should be made of a further copy or copies of part II. Any copies used in continuation shall be clearly marked with the order of sequence.

(3) *Inspection of Log.*

Both parts of the log shall be inspected daily and signed by the radio officer in charge; it shall also be submitted daily to the Master for his signature and his attention directed to entries of importance or interest.

(4) *Disposal of Log-Book.*

The Master shall within 48 hours after the ship's arrival at its final port of destination or upon the discharge of the crew, whichever first happens, deliver the radiotelegraph log-book together with the official log-book to the proper officer before whom the crew is discharged. Before the radiotelegraph log-book is so delivered, care shall be taken to remove and dispose of the carbon copies as directed above.

RADIOTELEGRAAFLOGBOEK, DEEL I. / RADIOTELEGRAPH LOG-BOOK, PART I.

Name of Ship/ <i>Naam van skip.</i>	Official Number and International Call Sign/ <i>Amptelike nommer en internasionale roepsein.</i>	Port of Registry/ <i>Registrasiehawe.</i>	Gross Tonnage/ <i>Bruto tonnemaat.</i>

Naam van maatskappy wat die radiodiens lewer

Name of company operating the radio service.....

Port at which and Date when Voyage Commenced/ <i>Hawe waar en datum waarop reis begin het.</i>	Nature of the Voyage or Employment/ <i>Aard van die reis of werk.</i>	Port at which and Date when Voyage Terminated/ <i>Hawe waar en datum waarop reis geëindig het.</i>
Date/ <i>Datum</i>		Date/ <i>Datum</i>
Port/ <i>Hawe</i>		Port/ <i>Hawe</i>

Aan die bevoegde beampte in die hawe van
 oorhandig op diedag
 van..... 19..... tesame met die radio-
 telegraaflogboek.

Deel II, volnommers tot

Medeonderteken
 Bevoegde Beampte. Gesagvoerder.

.....Adres.

Delivered to the proper officer at the port of
 on the day of 19.....
 together with radiotelegraph log-book.

Part II, serial numbers..... to

Countersigned.....

Proper Officer.

.....
 Master.

.....
 Address.

AFDELING A.—BESONDERHEDE VAN RADIOPERSONEEL./SECTION A.—PARTICULARS OF RADIO STAFF.

Name/ <i>Naam.</i>	Home Address/ <i>Huisadres.</i>	Certificate No. and Class. <i>No. en klas van sertifikaat.</i>

AFDELING B.—BESONDERHEDE VAN BATTERYE AAN BOORD./SECTION B.—PARTICULARS OF BATTERIES ON BOARD.

Battery Number*/ <i>Batterynommer.*</i>	Number of Cells/ <i>Getal selle.</i>	Type/ <i>Tipe.</i>	Date Supplied/ <i>Datum verskaf.</i>	Voltage and Ampere- hour Capacity/ <i>Stroomspanning en ampère-uurkapasiteit.</i>	Purpose for which Used. <i>Doel waarvoor gebruik.</i>

*Wanneer in afdelings C en D op 'n bepaalde battery bedoel word, sal die volnommer in hierdie kolom gebruik word.

* The serial number in this column will be used when referring to a particular battery in Sections C and D.

AFDELING C.—DAAGLIKSE ONDERSOEK VAN BATTERYE./SECTION C.—DAILY EXAMINATION OF BATTERIES.

Date/ <i>Datum.</i>	Battery Number/ <i>Batterynommer.</i>	Voltage off Load. <i>Stroomspanning son- der belasting.</i>	Voltage on Load. <i>Stroomspanning onder belasting.</i>	Remarks/ <i>Opmerkings.</i>

AFDELING D.—MAANDELIKSE VERSLAG OOR BATTERYE/SECTION D.—MONTHLY REPORT ON BATTERIES.

Date/Datum.	Battery Number (Cell by Cell)/Batterynommer (sel vir sel).	Specific Gravity as Measured/Soortlike gewig soos gemeet.		Date/Datum.	Battery Number (Cell by Cell)/Batterynommer (sel vir sel).	Specific Gravity as Measured/Soortlike gewig soos gemeet.		Remarks/Opmmerkings.
		Before Charge/Voor lading.	After Charge/Na lading.			Before Charge/Voor lading.	After Charge/Na lading.	

T.V. 5/321 (a).

T.V. 5/321 (a).

REPUBLIEK VAN SUID-AFRIKA/REPUBLIC OF SOUTH AFRICA.
 DEPARTEMENT VAN VERVOER/DEPARTMENT OF TRANSPORT.
 MARINE-AFDELING/MARINE DIVISION.

Handelskeepvaartwet, 1951 (Wet No. 57 van 1951)/Merchant Shipping Act, 1951 (Act No. 57 of 1951).

RADIOTELEGRAAFLOGBOEK, DEEL II/RADIOTELEGRAPH LOG-BOOK, PART II.

Name of Ship/Naam van skip.	Official Number and International Call Sign/Amtelike nommer en internasionale roepsein.	Port of Registry. Registrasiehawe.	Gross Tonnage. Bruto tonnemaat.

Volgnommers..... van..... tot.....
 Naam van Maatskappy WAT DIE RADIODIENS LEWER.....
 MS..... Gebied bewaak.....
 SS.

Serial numbers.....from.....to.....
 Name of company OPERATING THE RADIO SERVICE
 S.S.Area guarded.....

DAGBOEK VAN DIE RADIOTELEGRAAFDIENS/DIARY OF THE RADIOTELEGRAPH SERVICE.

Date and Time G.M.T. <i>Datum en tyd G.T.</i>	Station From/ <i>Stasie waarvandaan.</i>	Station To/ <i>Stasie waarheen.</i>	Full Details of Calls, Signals and Distress Working, etc., as required by Paragraph 1 (b) of the Instructions in Part I of the Radiotelegraph Log-book/ <i>Volledige besonderhede van oproepe, seine en noodwerking, ens., soos by paragraaf 1 (b) van die voorskrifte in deel I van die radiotelegraafboek vereis.</i>	Strength of Signals and Frequency (KC/S)/ <i>Sterkte van seine en frekwensie (KP/S).</i>

AANHANGSEL 9. T.V. 5/322.

(Regulasie 28.)

REPUBLIEK VAN SUID-AFRIKA.

DEPARTMENT VAN VERVOER.

MARINE-AFDELING.

Handelskeepvaartwet, 1951 (Wet No. 57 van 1951).

RADIOTELEFOONLOGBOEK.

VOORSKRIFTE VIR DIE BYHOU VAN DIE
RADIOTELEFOONLOGBOEK.

Ooreenkomstig deel I van die Handelskeepvaartradio-regulasies, 1968, moet daar op elke radiotelefoonskip 'n radiotelefoonlogboek wees. Die boek moet gehou word op die plek waar die radioluisterdiens plaasvind, en moet beskikbaar wees vir insae deur enigeen wat deur die Sekretaris van Vervoer of deur die Posmeester-generaal daartoe gemagtig is.

1. *Invol van Log.*

(1) *Afdeling A.*—Besonderhede van die lede van die bemanning met die kwalifikasies om met die installasie te werk, moet op die verskafte vorm ingevul word.

(2) *Afdeling B.*—Hierdie deel van die log sal 'n volledige dagboek van die radiodiens uitmaak. Die inskrywings in hierdie deel van die log moet in duplo gedoen word. Die deurslagkopieë (geperforeerde velle) moet uitgeskeur en sorgvuldig in die regte volgorde aan mekaar geheg word om 'n eksemplaar van die dagboek te vorm, waarmee uiteindelik gehandel moet word soos gelas deur die maatskappy wat die radiodiens lewer, of deur die skeepseienaar, na gelang van die geval. Die inskrywings in hierdie deel moet die volgende insluit:—

(i) Die naam van die operateur en die tye wanneer hy op luisterdiens kom en van luisterdiens gaan.

(ii) Besonderhede van alle noodberigte wat gehoor en uitgestuur is, en van enige noodverkeer wat plaasvind. Optekening van die algemene strekking van hierdie berigte is belangrik.

(iii) Elke halfuur gedurende die luisterdiensure 'n verklaring dat die stilperiode nagekom is. [Ten einde groter veiligheid vir menselewens op see te verseker, vereis die Internasionale Radioregulasies dat skepe twee maal elke

T.V. 5/322.

ANNEX 9.

(Regulation 28.)

REPUBLIC OF SOUTH AFRICA.

DEPARTMENT OF TRANSPORT.

MARINE DIVISION.

Merchant Shipping Act, 1951 (Act No. 57 of 1951).

RADIOTELEPHONE LOG-BOOK.

INSTRUCTIONS FOR KEEPING THE RADIO-
TELEPHONE LOG-BOOK.

In accordance with the provisions of part I of the Merchant Shipping Radio Regulations, 1968, a radiotelephone log-book shall be carried on board every radiotelephone ship. The book shall be kept at the place where radio watch is maintained, and shall be available for inspection by any person authorised by the Secretary for Transport or by the Postmaster-General.

1. *Completion of Log.*

(1) *Section A.*—Particulars of the members of the crew qualified to operate the installation shall be entered in the form provided.

(2) *Section B.*—This section of the log will form a complete diary of the radio service. The entries in this part of the log shall be prepared in duplicate. The carbon copies (perforated sheets) shall be detached and carefully fastened together in correct order to form a copy of the diary, which should be finally disposed of in the manner directed by the company operating the radio service or by the shipowner as the case may be. The entries to be made in this section shall include:—

(i) The name of the operator, and the times at which he goes on and off watch.

(ii) Details of all distress messages heard or sent and of any distress traffic which takes place. It is important that the general sense of these messages should be entered.

(iii) A statement, each half hour during the hours of watch that the silence period has been observed. [The International Radio Regulations, to ensure greater safety to life at sea, require ships to keep watch on the distress frequency twice each hour for three minutes commencing

uur op die uur en dertig minute na die uur (G.T.) drie minute lank luisterdiens waarneem. Gedurende hierdie tussenpose moet alle uitsendings, uitgesonderd nood-, spoed- en veiligheidsuitsendings, in die band rondom die radiotelefoonnoodfrekwensie gestaak word en moet die operateur op die radiotelefoonnoodfrekwensie luister.]

(iv) 'n Opsomming van alle ontvange spoed- en veiligheidsberigte.

(v) 'n Opsomming van berigte gewissel tussen die skip en landstasies of ander skepe. Inskrywings ten opsigte van oproepe moet beperk word tot die volgnommer van die berig en die tyd van ontvangs of uitsending. Moeilikhede wat met die behartiging van verkeer ondervind word, moet opgeteken word maar die adres en inhoud van sodanige berigte moet verswyg word. Die werklike berig moet op die gepaste vorm opgeteken word.

(vi) Belangrike diensvoorvalle van allerlei aard, byvoorbeeld onklarheid van die installasie en verrigte herstelwerk.

(vii) Besonderhede in verband met die laai van batterye. Die tyd moet vermeld word wanneer met die laai van die batterye begin en opgehou word. In gevalle waar die batterye op land gelaai of vir gelaaide batterye omgeruil word, moet die log meld wanneer en waar die lading of omruiling plaasgevind het.

(viii) Minstens een maal per dag die posisie van die skip indien die skip se reëls dit toelaat.

2. *Opmerking oor die Byhou van die Log.*

Dit is belangrik dat die log reg bygehou word deur alle inskrywings op die regte tyd te doen, sodat die log altyd volledig en bygewerk is.

Inskrywings moet altyd in datum- en tydsvolgorde geskied en geen oop ruimtes moet gelaat word nie.

Die inskrywings „op luisterdiens” en „van luisterdiens” moet deur die operateur se handtekening gevolg word.

Berigte moet daaglik vanaf 0001 G.T. van 1 af genommeword en elke kusstasie moet 'n afsonderlike reeks gebruik word.

Alle logboekinskrifings moet teen die einde van die luisterdiens voltooi wees.

Wanneer die radiotelefoonoperateur sy inskrifings doen, moet hy hom laat lei deur die voorbeelde wat op hierdie voorskrifte volg.

As daar in afdeling B nie genoeg blaaie is om die tydperk te dek waarop die log betrekking het nie, moet die inskrifings in 'n tweede boek voortgesit word.

3. *Nagaan van Log.*

Die log moet daaglik deur die radiotelefoonoperateur nagegaan en geteken word; hy moet ook daaglik om ondertekening aan die gesagvoerder voorgelê word en laasgenoemde se aandag moet gevestig word op inskrifings wat van belang of interessant is.

4. *Wat om met Log te doen.*

Binne 48 uur na die skip se aankoms in sy finale hawe van bestemming of by die ontslag van die bemanning, wat ook al die eerste plaasvind, moet die gesagvoerder die radiotelefoonlogboek saam met die amptelike logboek aan die bevoegde beampte oorhandig voor wie die bemanning ontslaan word. Voordat die radiotelefoonlogboek aldus oorhandig word, moet sorg gedra word dat die deurslagkopieë verwyder en mee gehandel word soos hierbo voorgeskryf.

at the hour and at thirty minutes past the hour (G.M.T.). During these intervals all transmission in the band around the radiotelephone distress frequency except distress, urgency and safety transmissions shall cease and the operator shall listen on the radiotelephone distress frequency.]

(iv) A summary of all urgency and safety communications received.

(v) A summary of communications exchanged between the ship and land stations or other ships. Entries in respect of calls should be restricted to the serial number of the message, and the time received or sent. Difficulties experienced in disposing of traffic should be recorded, but the address and text of such messages should be omitted. The actual message should be recorded on the appropriate form.

(vi) Important service incidents of all kinds, such as breakdowns of the installation and repairs effected.

(vii) Details of the charging of batteries. The times when the batteries are placed on and taken off charge shall be stated. In cases where the batteries are charged or exchanged for charged batteries on shore the log should state when and where the charging or changing was made.

(viii) The position of the ship at least once a day if the Rules of the ship permit.

2. *Notes on the Keeping of the Log.*

It is important that the log should be correctly kept by making all entries at the proper time, being always complete and up to date.

Entries shall always be made in order of date and time and no blanks left.

The entries “on watch” and “off watch” shall be followed by the operator's signature.

Messages should be numbered in sequence beginning with No. 1 at 0001 G.M.T. daily and using a fresh series for each coast station.

All log entries shall be completed by the end of the watch.

In making his entries the radiotelephone operator should be guided by the specimen entries which follow these instructions.

If the number of pages in section B are insufficient to cover the period of currency of the log, the log should be continued in a second book.

3. *Inspection of Log.*

The log shall be inspected daily and signed by the radio-telephone operator; it shall also be submitted daily to the Master for his signature and his attention directed to entries of importance or interest.

4. *Disposal of Log.*

The Master shall within 48 hours after the ship's arrival at its final port of destination or upon the discharge of the crew, whichever first happens, deliver the radiotelephone log-book together with the official log-book to the proper officer before whom the crew is discharged. Before the radiotelephone log-book is so delivered, care shall be taken to remove and dispose of the carbon copies as directed above.

VOORBEELD: S. S. NONESUCH/EXAMPLE: S. S. NONESUCH.

Date and Time (G.M.T.)/Datum en tyd (G.T.).	Station From/ Stasie waarvandaan.	Station To/ Stasie waarheen.	Frequency Used/ Frekwensie gebruik.	RECORD OF WORKING, etc. as required by Paragraph 1 (2) of the instructions on the cover/REKORD VAN WERK, ens., soos vereis by paragraaf 1 (2) van die instruksies op die omslag.
2/2/66 0800				On watch. J. Jones. Position of ship 5 miles West Green Point Lt. Ho. S.P. Observed. Batteries connected, fully charged and satisfactory/Op luisterdiens. J. Janse. Posisie van skip 5 myl wes van Groenpunt se vuurtoring. SP. nagekom. Batterye verbind, volgelaa en bevredigend.
0810	Nonesuch	Cape Town/Kaap Stad.	2182	T.R. Listen working frequency 2012/SO Op werkfrekwensie 2012.
0811	Cape Town/Kaapstad.	Nonesuch.	2182	Listen for Me 1665/Stem in op 1665.....
0812	Nonesuch	Cape Town/Kaapstad.	2012	T.R. Sent/SO gestuur.
0814	Cape Town/Kaapstad.	Nonesuch	1665	TR. Received, Nothing For You/SO ontvang. Niks vir u nie.
0830	—	—	—	SP. Observed/SP nagekom.
0845	—	—	—	Receiver breakdown; faulty valve replaced; satisfactory/Ontvanger onklaar; defekte buis vervang; bevredigend.
0900	—	—	—	S.P. Observed/SP nagekom.
0930	—	—	—	SP. Observed/SP nagekom.
0948	Cape Town/Kaapstad.	All ships/Alle skepe.	2182/1665	Weather Forecast. Traffic List. Nothing for Nonesuch/Weervoorspelling. Verkeerslys. Niks vir Nonesuch nie.
1000	—	—	—	Off Watch. J. Jones. Lifeboat Portable set tested and found satisfactory/Van luisterdiens. J. Janse. Reddings boot se draagbare toestel getoets en bevredigend gevind.
1200	—	—	—	On Watch. J. Jones. SP. Observed/Op luisterdiens. J. Janse. SP nagekom.
1202	Thrush.	All ships/Alle skepe.	2182	MAYDAY—Thrush 20 miles ESE from Cape Point. Steering Gear damaged require tug. (Master Informed). MAYDAY—Thrush 20 myl OSO van Kaappunt. Stuur beskadig, sleepboot nodig. (Gesagvoerder ingelig.)
1210	Cape Town/Kaapstad.	Thrush.	2182	Tug sent to your assistance. (Master Informed)/Sleepboot gestuur om u te help. (Gesagvoerder ingelig.)
1230	—	—	—	S.P. Observed/SP nagekom.
1300	—	—	—	S.P. Observed/SP nagekom.
1330	—	—	—	S.P. Observed/SP nagekom.
1340	Nonesuch.	Cape Town/Kaapstad.	2182	Radiotelegram For You. Working Frequency 2012/Radiotelegram vir u. Werkfrekwensie 2012.
1341	Cape Town/Kaapstad.	Nonesuch.	2182	Listen For Me 2163/Stem in op 2163.
1343	Nonesuch.	Cape Town/Kaapstad.	2012	Sent Number 1/Stuur nommer 1.
1345	Cape Town/Kaapstad.	Nonesuch.	2163	Your Number 1. Received/U nommer 1 ontvang.
1400	—	—	—	Off Watch. J. Jones/Van luisterdiens. J. Janse.
1600	—	—	—	On Watch. J. Jones. SP. Observed/Op luisterdiens. J. Janse. SP. nagekom.
1630	—	—	—	SP. Observed/SP nagekom.
1700	—	—	—	SP. Observed/SP nagekom.
1730	—	—	—	SP. Observed/SP nagekom.
1748	Cape Town/Kaapstad.	All Ships/Alle skepe.	2182/1665	Weather Forecast and Traffic List Radiotelephone call for Nonesuch/Weervoorspelling en verkeerslys. Radiotelefoonoproep vir Nonesuch.
1755/58	Cape Town/Kaapstad.	Nonesuch.	2163/2012	Received Radiotelephone call for Master/Ontvang radiotelefoonoproep vir gesagvoerder.
1800	—	—	—	Off Watch. J. Jones/Van luisterdiens. J. Janse.
2000	—	—	—	On Watch. J. Jones. SP. Observed/Op luisterdiens. J. Janse. SP nagekom.
2030	Port Elizabeth.	All Ships/Alle skepe.	2182/1665	SECURITE—Cape Recife D/F Station inoperative until further notice. (Message passed to Master)/SECURITE—Kaap Recife se R/S-stasie buite werking tot nader kennisgewing. (Berig aan gesagvoerder oorhandig.)
2045	Cape Town/Kaapstad.	All Ships/Alle skepe.	2182/1665	SECURITE—Gale Warning: Westerly Gales expected between C. Agulhas and East London. (Master Informed)/SECURITE—Stormwindwaarskuwing: westelike stormwinde verwag tussen Kaap Agulhas en Oos-London. (Gesagvoerder ingelig.)
2100	—	—	—	S.P. Observed/SP nagekom.
2130	—	—	—	S.P. Observed/SP nagekom.
2140	Nonesuch.	Port Elizabeth.	2012	Midnight Pos'n. 300 miles West Port Elizabeth. ETA 0600 on 4/2/66/Posisie om middernag: 300 myl wes van Port Elizabeth. ETA 0600 op 4/2/66.
2142	Port Elizabeth.	Nonesuch.	1665	Your Message Received. No Traffic for you/U berig ontvang. Geen verkeer vir u nie.
2200	—	—	—	All batteries placed on charge. Off Watch. J. Jones/Alle batterye word gelaai. Van luisterdiens. J. Janse.

RADIOTELEFOONLOGBOEK./RADIOTELEPHONE LOG-BOOK.

Name of Ship/ <i>Naam van skip.</i>	Official Number/ <i>Amptelike nommer.</i>	Port of Registry/ <i>Registrasiehawe.</i>	Gross Tonnage. <i>Bruto tonnemaat.</i>

Naam van maatskappy wat die radiodiens lewer.....
 Tydperk gedek deur log: Van..... tot.....
 Oorhandig aan die bevoegde beampte by die hawe.....
op die.....dag van
19...

Medeonderteken.....
 Bevoegde beampte. Gesagvoerder.

 Adres

Name of company operating the radio service.....
 Period covered by log: from.....to.....
 Delivered to the proper officer at the port of.....
 on the.....day of.....19.....
 Countersigned.....

Proper Officer. Master

 Address.

AFDELING A.—BESONDERHEDE VAN RADIOTELEFOONOPERATEURS./SECTION A.—PARTICULARS OF RADIOTELEPHONE OPERATORS.

Name/ <i>Naam.</i>	Home Address/ <i>Huisadres.</i>	Certificate No. and Class/ <i>Sertifikaatno. en klas.</i>

S.S.....
 M.V.....

AFDELING B.—DAGBOEK VAN DIE RADIOTELEFOONDIENS./SECTION B.—DIARY OF THE RADIOTELEPHONE SERVICE.

Date and Time (G.M.T.)/ <i>Datum en tyd (G.T.).</i>	Station From/ <i>Stasie waarvandaan.</i>	Station To/ <i>Stasie waarheen.</i>	Frequency Used/ <i>Frekwensie gebruik.</i>	Record of Working as Prescribed by Regulation/ <i>Werkrekord soos voorgeskryf by regulasie.</i>

AANHANGSEL 10.

(Regulasie 12.)

SEDAFSTAND VAN RADIOTELEGRAAFSENDER.

1. Wanneer die normale sendafstand van 'n radiotelegraafsender vir die toepassing van hierdie aanhangsel deur berekening op 'n frekwensie van 500 kp/s bepaal word, moet dit bereken word soos in paragraaf 2 of 3 gespesifiseer.

2. (1) In die geval van alle tipes sendantennes behalwe L- en T-tipes moet die produk van (Ie) die effektiewe uitstralingstroom in ampères en (He) die effektiewe hoogte in meters van die antenne bereken en ooreenkomstig onderstaande tabelle in myle omsit word:—

Produk in meter-ampères.	Ekwivalent in myle.
56	175
44	150
21	100
15	75
5	25

(2) Die effektiewe uitstralingstroom (Ie) moet verkry word deur die wortel van die gemiddelde kwadraat (WGK) van die stroom in ampère wat in die antennestelsel ingevoer word, te vermenigvuldig deur 'n faktor $\frac{Cr}{Ct}$, wat bepaal moet word deur die verhouding van die stralingskapasitansie (Cr) tot die totale gemete kapasitansie (Ct).

(3) Die stralingskapasitansie (Cr) moet verkry word van die produk van die stralingslengte (Lr) en die kapasitansie per eenheidlengte soos in onderstaande tabel aangegee:—

Stralingslengte (Lr). Deursnee van antenne.	pF per meter.
25	15.4
35	14.0
50	12.9
70	11.9
100	11.1
200	9.8
400	8.7
600	8.2
800	7.8
1,500	7.2
3,000	6.6
6,000	6.0
10,000	5.7

(4) Die stralingslengte moet as volg wees:—

(a) Enkele, vertikale antenne sonder kapasitiewe belasting: Stralingslengte (Lr)=gemete lengte van antenne in meters.

(b) Enkele, vertikale antenne met hoogste kapasitiewe belasting: Stralingslengte (Lr)=gemete lengte van antenne plus twee maal die deursnee van belastingstruktuur in meters.

(c) Ander tipes antennes: Stralingslengte (Lr) = Totale lengte van geleier (vertikaal en horisontaal).

(5) Die stralingskapasitansie van N-gelyksoortige vertikale antennes wat parallel verbind is, moet aanvaar word as N maal die stralingskapasitansie van een, mits die ruimte tussen hulle groter is as $\frac{Lr}{4}$.

(6) Die totale kapasitansie (Ct) van die antenne moet verkry word deur meting met behulp van 'n kapasitansiebrug.

(7) Om die effektiewe stralingstroom (Ie) te verkry, moet die verhouding $\frac{Cr}{Ct}$ vermenigvuldig word met die gemete effektiewe stroom in ampères wat in die antennestelsel ingevoer word.

ANNEX 10.

(Regulation 12.)

RANGE OF RADIOTELEGRAPH TRANSMITTER.

1. For the purpose of this Annex, the normal range of a radiotelegraph transmitter when determined by calculation on a frequency of 500 kc/s, shall be calculated in the manner specified in paragraph 2 or 3.

2. (1) In the case of all types of transmitting aerials, except "L" and "T" types, the product of (Ie) the effective radiation current in amperes and (He) the effective height in metres of the aerial shall be calculated and converted to miles in accordance with the following table:—

Product in metre-amperes.	Equivalent in miles.
56	175
44	150
21	100
15	75
5	25

(2) The effective radiation current (Ie) shall be obtained by multiplying the root mean square (RMS) current in amperes fed into the aerial system by a factor $\frac{Cr}{Ct}$ which shall be determined by the ratio of the radiation capacitance (Cr) to the total measured capacitance (Ct).

(3) The radiation capacitance (Cr) shall be obtained from the product of the radiation length (Lr) and the capacitance per unit length as given in the following table:—

Radiation length (Lr). Diameter of aerial.	pF per metre.
25	15.4
35	14.0
50	12.9
70	11.9
100	11.1
200	9.8
400	8.7
600	8.2
800	7.8
1,500	7.2
3,000	6.6
6,000	6.0
10,000	5.7

(4) The radiation length shall be as follows:—

(a) Single vertical aerial without capacitive loading: Radiation length (Lr)=measured length of aerial in metres.

(b) Single vertical aerial with top capacitive loading: Radiation length (Lr)=measured length of aerial + 2 times the diameter of loading structure in metres.

(c) Other types of aerial: Radiation length (Lr) =total length of conductor (vertical and horizontal).

(5) The radiation capacitance of N similar vertical aerials joined in parallel shall be taken to be N times the radiation capacitance of one provided the spacing between them is greater than $\frac{Lr}{4}$.

(6) The total capacitance (Ct) of the aerial shall be obtained by measurement using a capacitance bridge.

(7) The ratio $\frac{Cr}{Ct}$ shall be multiplied by the measured RMS current in amperes fed into the aerial system to give the effective radiation current (Ie).

(8) Die effektiewe hoogte van die antenne (He) moet verkry word deur meting van die vertikale afstand van die laslynmerk wat die grootste diepte aandui wat die skip te eniger tyd of plek ooreenkomstig die Laslynregulasies, 1960, in die water mag wees, of, as daar nie so 'n merk aan die skip is nie, die vertikale afstand van die gemiddelde hoogte van die oppervlakte van die water waarin die skip dryf, tot by die voet van die antenne, plus die helfte van die stralingslengte (Lr) van die antenne of sy fisiese hoogte, na gelang van watter die kleinste is.

3. In die geval van sendantennes van die L- en T-tipes moet die produk van die effektiewe stroom in ampères by die voet van die hoofantenne en die maksimum hoogte in meters van die antenne gemeet vanaf die laslynmerk wat die grootste diepte aandui wat die skip te eniger tyd of plek ooreenkomstig die Laslynregulasies, 1960, in die water mag wees of as daar nie so 'n merk aan die skip is nie, gemeet vanaf die gemiddelde hoogte van die oppervlak van die water waarin die skip dryf, ooreenkomstig onderstaande tabel in myle omgesit word:—

Produk in meter-ampères.	Ekwivalent in myle.
102	175
76	150
45	100
34	75
10	25

AANHANGSEL 11.

(Regulasie 35.)

RIGTINGSOEKER.

1. Algemeen.

(1) Die rigtingsoeker moet 'n ontvanger en 'n rigtingsoekerantennestelsel insluit, asook enige ander uitrusting wat geskik is om beide peiling en oord deur die „gehoornul“-metode of op 'n ander wyse te bepaal.

[Opmerking.—Indien die rigtingsoeker meer as een radio-ontvanger (of deel van 'n ontvanger) insluit wat eenderse werk verrig, moet elke afsonderlike ontvanger (of deel van 'n ontvanger) aan hierdie aanhangsel voldoen waar dié van toepassing is. Indien die ontvangers of dele van 'n ontvanger volkome eenders is, d.w.s. eenderse kringkonfigurasies en seinpeile het, kan egter van afsonderlike toetse afgesien word.]

(2) Die meganiese dele van die rigtingsoeker se antennestelsel, uitgesonderd koeëllaers, slangklemme, klemskroewe en ander dergelike klein onderdele, moet uit nie-magnetiese materiaal bestaan.

(3) Die uitrusting moet geskik wees om met koptelefone gebruik te word.

(4) As die rigtingsoeker in staat is om vanaf meer as een bron van elektriese energie te werk, moet hy inrigting bevat wat dit moontlik maak om vinnig van die een toevoerbron na die ander oor te skakel.

(5) Tensy anders bepaal, moet aan hierdie aanhangsel se vereistes betreffende 'n spanningswisseling van 10 persent bo tot 10 persent onder die nominale toevoerspanning voldoen word.

(6) Handkontroles vir die reëling van radio- en/of tussenfrekwensieversterking en van oudiofrekwensieversterking moet na gelang nodig verskaf word.

(7) Ongeag die metode wat vir rigtingsoeking gebruik word, moet 'n oudiomonitormiddel verskaf word.

(8) Indien 'n luidspreker verskaf is, moet hy deur 'n eenvoudige, goedgekeurde middel buite werking gestel kan word.

(9) Die rigtingsoeker moet binne een minuut na aanskakeling gereed wees om te werk.

(10) Geen trillers of primêre selle mag gebruik word nie.

(8) The effective height of the aerial (He) shall be obtained by measurement of the vertical distance from the load line mark indicating the greatest depth to which the ship may at any time or any place be submerged in accordance with the Load Line Regulations, 1960, or, if there is no such mark on the ship, from the mean level of the surface of the water in which the ship is afloat, to the base of the aerial, plus half the radiation length (Lr) of the aerial or its physical height, whichever is the smaller.

3. In the case of transmitting aerals of the "L" and "T" types, the product of the root mean square current in amperes at the base of the main aerial and the maximum height in metres of the aerial measured from the load line mark indicating the greatest depth to which the ship may at any time or place be submerged in accordance with the Load Line Regulations, 1960, or, if there is no such mark on the ship, from the mean level of the surface of the water in which the ship is afloat, shall be converted to miles in accordance with the following table:—

Product in metre-amperes.	Equivalent in miles.
102	175
76	150
45	100
34	75
10	25

ANNEX 11.

(Regulation 35.)

DIRECTION-FINDER.

1. General.

(1) The direction-finder shall include a receiver and a direction-finder aerial system as well as any other equipment suitable for the determination of both bearing and sense, by "aural-null" or other means.

[Note.—If the direction-finder includes more than one radio receiver (or section of receiver) performing similar functions, this annex shall be met, where applicable, by each individual receiver (or section of receiver). However, separate tests may be waived if the receivers or sections of receiver are completely similar, i.e. have similar circuit configuration and signal levels.]

(2) The mechanical parts of the direction-finder aerial system, other than ball-bearings, hose clips, set screws and other similar small parts, shall consist of non-magnetic material.

(3) The equipment shall be suitable for use with headphones.

(4) If the direction-finder is capable of operation from more than one source of electrical energy, arrangements for rapidly changing from one source of supply to the other shall be incorporated.

(5) The requirements of this annex shall be met, unless otherwise specified, for a range of voltage variation of plus and minus 10 per cent relative to the nominal supply voltage.

(6) Manual controls shall be provided, as necessary, for the adjustment of radio and/or intermediate-frequency gain and of audio-frequency gain.

(7) Means of audio monitoring shall be provided regardless of the method used for direction-finding.

(8) The loudspeaker, if provided, shall be capable of being rendered inoperative by simple approved means.

(9) The direction-finder shall be ready for operation within 1 minute of switching on.

(10) No vibrators or primary cells shall be employed.

(11) Die rigtingsoeker moet aan die vereistes van hierdie aanhangsel voldoen wanneer hy getoets word onder die omstandighede wat in aanhangsel 12 ten opsigte van klas B- of klas X-uitrusting gespesifiseer word.

(12) Die rigtingsoeker moet nie die aarding van die skip se kragnet veroorsaak nie.

2. Vereistes vir verskillende tipes rigtingsoekuitrusting

Die rigtingaanwys- en oudiomonitorgedeeltes van die uitrusting moet voldoen aan die betrokke paragrawe van hierdie aanhangsel soos in onderstaande tabel aangegee:—

TABEL VAN VEREISTES/TABLE OF REQUIREMENTS.

Direction indicator/Rigtingaanwyser.		Audio monitor/Oudiomonitor.	
(1) Aural-null/Gehoor-nul.	(2) Non Aural-null/Nie-gehoor-nul.	(3) Aural-null/Gehoor-nul.	(4) Non Aural-null/Nie-gehoor-nul.
1 (1), 1 (3) to/tot 1 (12), 3	1 (1), 1 (3) to/tot 1 (12), 3	1 (1), 1 (3) to/1 tot (12), 3	1 (1), 1 (3) to/tot 1 (12), 3
4	4	4	4
5	—	5	5
6 (1)	6 (1)	6 (1)	6 (1)
6 (2)	—	6 (2)	—
7	—	7	7 (automatic gain control rendered inoperative/outomatiese versterkingskontrole buite werking gestel.)
10	—	10	—
9 (1), (2), (5) and/en (6).	—	9 (1), (2), (5) and/en (6).	9 (3), (4), (5) and/en (6).
11	—	11	11
12	*	12	12
13	*	13	13
14	—	14	14 (with receiver set for A3 reception/met ontvanger ingestel vir A3-ontvangs.)
15	15	15	15
16	16	16	16
17	17	17	17
18	—	18	18
19	19 (1) [see paragraph/sien paragraaf 20 (2) (a)].	—	—
—	20	—	See paragraph/Sien paragraaf 20 (4) (a) (i).

*Tensy die ontvanger [of dele van die ontvanger—sien opmerking by paragraaf 1 (1)] volkome met die oudiomonitordeel ooreenstem, sal toetse vereis word om blokkering en intermodulasie te dek.

3. Frekwensiegebiede en klasse uitsendings.

Die ontvanger moet in staat wees om klas A1-, klas A2- en klas B-uitsendings op enige frekwensie binne die gebied 255 kp/s tot 525 kp/s te ontvang.

4. Standaardinsetpeil.

Die uitdrukking „standaardinsetpeil” word geag aan te dui dat die elektromotiese krag van die ekwivalente opwekker waarvan in paragraaf 6 melding gemaak word, 50 h_e effektiewe mikrovolts is, waar h_e die effektiewe hoogte van die rigtingsoekantennestelsel in meters verteenwoordig.* Die waardes van h_e op 300, 400 en 500 kp/s moet deur die fabrikant vermeld word en dié moet bereid wees om die waardes deur meting met behulp van 'n goedgekeurde metode te bevestig.

[*Dit geld vir die effektiewe hoogte van die antennestelsel wanneer dié vir die meting van peilings, d.w.s. sonder die oordbepaler in werking, en vir maksimum ontvangs ingerig is. Die effektiewe hoogte h_e beteken die verhouding E/e , waar E die spanning is wat deur 'n vertikaal gepolariseerde veld (met 'n sterkte van e volts per meter) tussen die twee klemme van die antennestelsel waarmee die eintlike ontvanger gewoonlik verbind is, opgelewer word wanneer die antennestelsel soos in die vorige sin vereis, gereël en die ontvanger nie daarmee verbind is nie.]

(11) The direction-finder shall meet the requirements of this annex when tested under the conditions specified in annex 12 applicable to class B or class X equipment.

(12) The direction-finder shall not cause the ship's mains to be earthed.

2. Requirements for Different Types of Direction-finding Equipment.

The direction-indication and audio-monitoring portions of the equipment shall meet the requirements of the relevant paragraphs of this annex as given in the following table:—

*Unless the receiver is [or sections of receiver are, see the note to paragraph 1 (1)] completely similar to the audio-monitoring section, tests will be required to cover blocking and Intermodulation.

3. Frequency Ranges and Classes of Emission.

The receiver shall be capable of receiving class A1, class A2 and class B emissions of any frequency within the range of 255 kc/s to 525 kc/s.

4. Standard Input Level.

The expression “standard input level” shall be taken to indicate that the electromotive force of the equivalent generator referred to in paragraph 6 is 50 h_e microvolts root mean square, where h_e represents the effective height of the direction-finding aerial system in metres.*

The values of h_e at 300, 400 and 500 kc/s shall be stated by the manufacturer, who must be prepared to confirm the values by measurement, using an approved method.

[*This refers to the effective height of the aerial system when arranged for measurements of bearing, i.e. without the sense finder in operation, and for maximum pick-up. The effective height h_e means the ratio E/e , where E is the voltage produced by a vertically-polarized field (of strength e volts per metre) between the two terminals of the aerial system to which the receiver proper is normally connected, when the aerial system is adjusted as required in the previous sentence and the receiver is not connected thereto.]

5. Standaardlewering.

(1) Die standaard-udiofrekwensielewering vir koptelefoonontvangs is 1 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die koptelefone op 400 p/s.

(2) Die standaard-udiofrekwensielewering vir luidsprekerontvangs, indien verskaf, is 50 milliwatt in 'n weerstand wesenlik gelyk aan die modulus van die impedansie van die luidspreker op 400 p/s.

6. Toetsmetode.

(1) Wanneer die ontvanger in 'n laboratorium getoets word, moet die seine deur so 'n netwerk ingevoer word dat die bron en die netwerk saam gelyk is aan 'n nulimpedansieopwekker in serie met 'n impedansie wesenlik gelyk aan dié van die antennestelsel* op die toetsfrekwensie.

(2) Die vervaardiger van die uitrusting moet die impedansiekenmerke van die antennestelsel vermeld en fasiliteite verskaf om hulle met behulp van 'n goedgekeurde metode te verifieer.

(3) Die radiofrekwensies waarop toetse uitgevoer moet word, is gewoonlik 300, 400 en 500 kp/s.

(4) Tensy anders gespesifiseer, moet 'n klas A2-toetssein 30 persent op 400 p/s gemoduleer word.

(5) Tensy anders bepaal, moet die ontvanger getoets word terwyl die outomatiese versterkingskontrole, indien daar een is, buite werking is.

7. Sein- en Tussenfrekwensieselektiwiteit.

(1) Die ontvanger moet aan die volgende vereistes voldoen:—

Minimum bandbreedte vir diskriminasie van 6 dB.	Maksimum bandbreedte vir diskriminasie van		
	30 dB	60 dB	90 dB
2 kp/s.	8 kp/s	16 kp/s	35 kp/s

(2) Op geen frekwensie buite 'n band van plus en minus 20 kp/s mag die diskriminasie minder as 90 desibels wees nie, behalwe op die beeldfrekwensie in superheterodine-ontvangers, waar die diskriminasie minstens 80 desibels moet wees.

8. Gevoeligheid.

In die afwesigheid van sturings moet die rigtingsoeker gevoelig genoeg wees om juiste peilings op 'n sein met 'n veldsterkte van net 50 mikrovolt per meter moontlik te maak.

9. Sein/Ruisverhouding.

(1) [Sien kolomme (1) en (3) van die tabel in paragraaf 2.] Met 'n klas A1-insetsein op standaardinsetpeil en die ontvangerversterking met die hand gestel om standaardlewering te gee, moet die sein/ruisverhouding* minstens 20 desibels wees.

(*Vir die toepassing van hierdie aanhangsel is die sein/ruisverhouding die verhouding van sein plus ruis tot net die ruis.)

(2) [Sien kolomme (1) en (3) van die tabel in paragraaf 2.] Met 'n klas A2-insetsein van dieselfde peil moet die ooreenstemmende sein/ruisverhouding minstens 10 desibels wees.

[*Dit geld vir die impedansie van die antennestelsel wanneer dié ingerig is vir die meting van peilings, d.w.s. sonder die oordbepaler in werking, gemeet tussen die twee klemme waarmee die eintlike ontvanger gewoonlik verbind is.]

5. Standard Output Level.

(1) The standard audio-frequency output level for headphone reception shall be 1 milliwatt into a resistance substantially equal to the modulus of the impedance of the headphones at 400 c/s.

(2) The standard audio-frequency output level for loudspeaker reception, if provided, shall be 50 milliwatts into a resistance substantially equal to the modulus of the impedance of the loudspeaker at 400 c/s.

6. Method of Test.

(1) When the receiver is tested in a laboratory, the signals shall be injected through a network such that the source and the network are, together, equivalent to a zero impedance generator in series with an impedance substantially equal to that of the aerial system* at the test frequency.

(2) The manufacturer of the equipment shall be required to state the impedance characteristics of the aerial system, and to afford facilities for their verification using an approved method.

(3) The radio frequencies at which tests shall be carried out shall normally be 300, 400, and 500 kc/s.

(4) A class A2 test signal shall, unless otherwise specified, be modulated 30 per cent at 400 c/s.

(5) The receiver shall be tested with the automatic gain control, if provided, inoperative unless otherwise specified.

7. Signal and Intermediate-Frequency Selectivity.

(1) The receiver shall meet the following requirements:—

Minimum bandwidth for 6 db discrimination.	Maximum bandwidth for discrimination of		
	30 db	60 db	90 db
2 kc/s.	8kc/s.	16 kc/s.	35 kc/s.

(2) At no frequency outside a band of plus and minus 20 kc/s shall the discrimination be less than 90 decibels, except at the image frequency in superheterodyne receivers, where the discrimination shall be not less than 80 decibels.

8. Sensitivity.

In the absence of interference, the direction-finder shall have sufficient sensitivity to permit accurate bearings being taken on a signal having a field strength as low as 50 microvolts per metre.

9. Signal/noise Ratio.

(1) [See columns (1) and (3) of the table in paragraph 2.] With a class A1 input signal at standard input level and the receiver gain adjusted manually to give standard output, the signal/noise ratio* shall be not less than 20 decibels.

(*For the purpose of this annex, the signal/noise ratio shall be the signal-plus-noise to the noise alone.)

(2) [See columns (1) and (3) of the table in paragraph 2.] With a class A2 input signal of the same level, the corresponding signal/noise ratio shall be not less than 10 decibels.

(*This refers to the impedance of the aerial system when arranged for the measurement of bearings, i.e. without the sense finder in operation, measured between the two terminals to which the receiver proper is normally connected.)

(3) [Sien kolom (4) van die tabel in paragraaf 2.] Met 'n klas A1-insetsein op standaardinsetpeil en die ontvangerversterking met die hand gestel om standaardlewering te gee, moet die sein/ruisverhouding minstens 15 desibels wees.

(4) [Sien kolom (4) van die tabel in paragraaf 2.] Met 'n klas A2-insetsein van dieselfde peil moet die ooreenstemmende sein/ruisverhouding minstens 6 desibels wees.

(5) [Sien kolomme (1), (3) en (4) van die tabel in paragraaf 2.] As daar 'n toonfilter verskaf is, moet dié vir hierdie toetse uitgeskakel word.

(6) [Sien kolomme (1), (3) en (4) van die tabel in paragraaf 2.] Hierdie beperkings sal nie op grond van parasietfluïte verslap word nie.

10. Versterking.

Met die ontvanger in die toestand om klas A1-uitsettings te ontvang, moet die versterking sodanig wees dat ontvangergeruis op enige frekwensie in die werkgebied 'n lewering van minstens minus 10 desibels (in verhouding tot die standaardlewering) gee wanneer die insetklemme van die ontvanger gesluit is deur 'n uitwendige impedansie wesenlik gelyk aan dié van die peilantennestelsel op die toetsfrekwensie. (Sien paragraaf 6.)

11. Lineariteit.

(1) Met die ontvanger gestel om standaardlewering te gee met 'n klas A1-insetsein 20 desibels bo standaardinsetpeil moet die inset/leweringskenmerk sodanig wees dat enige verhoging van inset tot en met 60 desibels bo standaardinsetpeil nie die lewering in verhouding tot die maksimum lewering met meer as 1 desibel sal laat daal nie.

(2) Met die ontvanger weer gestel om standaardlewering te gee met 'n klas A1-insetsein 40 desibels bo standaardinsetpeil, moet die inset/leweringskenmerk sodanig wees dat enige verhoging van inset tot en met 60 desibels bo standaardinsetpeil nie die lewering in verhouding tot maksimum lewering met meer as 1 desibel sal laat daal nie.

12. Blokkering.

(1) Die ontvanger moet gestel word om standaardlewering te gee met 'n verlangde insetsein van klas A2 op 'n peil 50 desibels bo die standaardinsetpeil en met enige frekwensie in die gebied gespesifiseer in paragraaf 3.

(2) Die gelyktydige aanwending van 'n sein van klas A1 op 'n peil 85 desibels bo die standaardlewering en met 'n frekwensie 10 kp/s bo of onder dié van die verlangde sein, moet nie die lewering meer as 3 desibels laat verander nie.

13. Intermodulasie en Bofrekwensie Produksie.

(1) Die ontvanger moet gestel word om standaardlewering te gee met 'n verlangde insetsein van klas A2 op die standaardinsetpeil en op enige frekwensie in die gebied gespesifiseer in paragraaf 3. Die verlangde sein moet dan verwyder word.

Die gelyktydige aanwending van enige twee seine, nl. een van klas A1 en die ander van klas A2, moet nie 'n lewering gee wat die standaardlewering oortref nie. Albei seine moet op 'n peil 70 desibels bo die standaardinsetpeil wees en nie een van hulle moet 'n draagfrekwensie binne 50 kp/s van die verlangde sein hê nie.

(2) Die ontvanger moet op 500 kp/s ingestel word soos in subparagraaf (1) bepaal, en die verlangde sein moet dan verwyder word.

As 'n klas A2-sein met 'n frekwensie, wat 'n onderfrekwensie van 500 kp/s is, op 'n peil 80 desibels bo die standaardinsetpeil aangewend word, moet die lewering nie die standaardlewering oortref nie.

(3) [See column (4) of the table in paragraph 2.] With a class A1 input signal at standard input level and the receiver gain adjusted manually to give standard output, the signal/noise ratio shall be not less than 15 decibels.

(4) [See column (4) of the table in paragraph 2.] With a class A2 input signal of the same level, the corresponding signal/noise ratio shall be not less than 6 decibels.

(5) [See columns (1), (3) and (4) of the table in paragraph 2.] Any note filter provided shall be switched out of circuit for these tests.

(6) [See columns (1), (3) and (4) of the table in paragraph 2.] No relaxation of these limits will be allowed for spurious whistles.

10. Gain.

With the receiver in the class A1 reception condition, the gain shall be such that receiver noise produces an output level of at least minus 10 decibels (relative to the standard output level) at any frequency in the operating range, when the input terminals of the receiver are closed through an external impedance substantially equal to that of the direction-finding aerial system at the test frequency. (See paragraph 6.)

11. Linearity.

(1) With the receiver adjusted to give standard output with a class A1 input signal 20 decibels above standard input level, the input/output characteristic shall be such that any increase of input, up to 60 decibels above standard input level, shall not cause a diminution of the output level exceeding 1 decibel relative to maximum output level.

(2) With the receiver readjusted to give standard output with a class A1 input signal 40 decibels above standard input level, the input/output characteristic shall be such that any increase of input, up to 60 decibels above standard input level shall not cause a diminution of the output level exceeding 1 decibel relative to maximum output level.

12. Blocking.

(1) The receiver shall be adjusted to give standard output with an input wanted signal of class A2 at a level of 50 decibels above the standard input level and of any frequency in the range specified in paragraph 3.

(2) The simultaneous application of a signal of class A1 at a level of 85 decibels above the standard input level, and at a frequency 10 kc/s above or below that of the wanted signal, shall not cause a change in output exceeding 3 decibels.

13. Intermodulation and Harmonic Production.

(1) The receiver shall be adjusted to give standard output with an input wanted signal of class A2 at standard input level and at any frequency in the range specified in paragraph 3. The wanted signal shall then be removed.

The simultaneous application of any two signals, one of class A1 and the other of class A2, shall not produce an output exceeding standard output. Both signals shall be at a level of 70 decibels above the standard input level and neither shall have a carrier frequency within 50 kc/s of the wanted signal.

(2) The receiver shall be adjusted as in subparagraph (1) at 500 kc/s and the wanted signal shall then be removed.

The application of a class A2 signal, whose frequency is any sub-harmonic of 500 kc/s, at a level of 80 decibels above the standard input level, shall not produce an output exceeding standard output.

14. *Getrouheid.*

(1) Op alle instemfregkwensies in die gebied gespesifiseer in paragraaf 3 moet die modulasiefregkwensieweergawekenmerk van die ontvanger vir modulasiefregkwensies tussen 300 en 1350 p/s 'n speling van hoogstens 8 desibels hê.

(2) Vir hierdie toets moet die peil en modulasiediepte van die insetsein konstant gehou word. Die insetsein kan enige peil en modulasiediepte hê, mits die lewering van die ontvanger nie die standaardlewering oortref nie.

15. *Straling.*

Wanneer die ontvanger in gebruik is, moet hy nie 'n veld van meer as 0.1 mikrovolt per meter op 'n afstand van 1 myl van die ontvanger oplewer nie. Gewoonlik sal hierdie bepaling geag word nagekom te wees as aan die volgende vereistes voldoen word:—

(a) Die ontvanger moet in die middel van 'n afgeskermdede, gearde omslote ruimte van minstens 6 voet by 6 voet by 6 voet geplaas wees;

(b) die aardklem van die ontvanger moet met die binnekant van die skerm verbind wees;

(c) elke antenneklem moet op sy beurt deur 'n onafgeskermdede reghoekige vierwindingsoekspoel (1 voet in die vierkant) en 'n onafgeskermdede leiding verbind word met 'n weerstandmeetinstrument wat buite die omslote ruimte gemonteer en waarvan die ander klem geaard is, en enige van of al die ander antenneklemme kan na goedvinde van die toetsbeampte geaard word of nie;

(d) die koptelefone moet verbind wees; en

(e) ongeag die weerstand van die meetinstrument of die stelling van die ontvanger moet die vermoë gemeet deur die meetinstrument nie 4×10^{-10} watt te bowe gaan nie, en na goedvinde van die toetsbeampte kan die soekspoel gedurende die toets op enige wyse beweeg word mits hy nie binne 6 duim van die ontvangerkas kom nie, of hy kan kortgesluit word.

Die toets moet met elke antenneklem om die beurt herhaal word.

16. *Instemmingstabiliteit.*

(1) Nadat die ontvanger 5 minute lank aangeskakel was, moet die instemfregkwensie nie in enige verdere tydperk van 5 minute met meer as 5 dele op 10^4 wissel nie.

(2) As die omgewingstemperatuur binne die gebied 0°C tot 50°C met 5°C verander nadat die ontvanger een uur lank aangeskakel was, moet die instemfregkwensie met hoogstens 10 dele op 10^4 wissel.

(3) Met 'n verandering van 5 persent in enigeen van die toevoerspannings van die ontvanger of van 'n kragvoorsieningseenheid wat daaraan verbonde is, moet die instemfregkwensie met hoogstens 3 dele op 10^4 wissel.

17. *Instem- en Peilingsaanwysskaal.*

(1) Daar moet 'n instemskaal verskaf word wat regstreeks in fregkwensie gekalibreer is. Nêrens in die instemgebied moet 'n tussenruimte van $\frac{1}{8}$ duim op die instemskaal 'n fregkwensieverandering van meer as 8 kp/s verteenwoordig nie.

(2) Indien 'n ronde peilingsaanwysskaal aangebring is, moet voorsiening gemaak word vir 'n merk na elke tussenruimte van 1 graad, en die peilingsaanwyser moet nie meer as 0.5 van 'n graad van die skaal verberg nie. Dit moet moontlik wees om aflesings met tussenruimtes van 0.25 van 'n graad te onderskei. Elke 5° graadmerk moet onderskeidend en elke 10° graadmerk nog meer onderskeidend wees. Syfers moet minstens al om die tien grade gebruik word en hulle moet langs die graadmerk verskyn.

(3) Indien die peilingsaanwyser besyfer is, moet die syfers maklik leesbaar wees, en dit moet moontlik wees om peilings tot minstens 0.25 van 'n graad af te lees.

14. *Fidelity.*

(1) At all frequencies of tune in the range specified in paragraph 3, the modulation-frequency response characteristic of the receiver shall be within a range of 8 decibels for modulation frequencies between 300 and 1350 c/s.

(2) For this test the level and modulation depth of the input signal shall be kept constant. The input signal may have any level and modulation depth, provided the output of the receiver does not exceed the standard output.

15. *Radiation.*

The receiver when in use, shall not produce a field exceeding 0.1 microvolt per metre at a distance of 1 mile from the receiver. This will normally be regarded as satisfied if the following requirements are met:—

(a) the receiver shall be placed centrally in a screened earthed enclosure of dimensions at least 6 feet cube;

(b) the earth terminal of the receiver shall be connected to the inside of the screen;

(c) each aerial terminal in turn shall be connected through an unscreened 4-turn rectangular search-coil (of dimensions 1 foot square) and an unscreened lead, to a resistive measuring instrument mounted outside the enclosure, having its other terminal earthed. Any or all of the remaining aerial terminals may be earthed or not, at the discretion of the testing officer;

(d) the headphones shall be connected; and

(e) the power measured by the measuring instrument shall not exceed 4×10^{-10} watts, no matter what the resistance of the measuring instrument or the adjustment of the receiver may be. At the discretion of the testing officer, the search coil may be moved during the test in any way provided it does not approach within 6 inches of the receiver case; or it may be short-circuited.

The test shall be repeated with each aerial terminal in turn.

16. *Tuning Stability.*

(1) After the receiver has been switched on for 5 minutes, the tune frequency shall not change in any further period of 5 minutes by more than 5 parts in 10^4 .

(2) For any change of ambient temperature of 5°C . within the range of 0°C . to 50°C ., applied after the receiver has remained switched on for 1 hour, the tune frequency shall not change by more than 10 parts in 10^4 .

(3) For a change of 5 per cent in any one of the supply voltages to the receiver, or to a power supply unit associated therewith, the tune frequency shall not change by more than 3 parts in 10^4 .

17. *Tuning and Bearing Indicator Scales.*

(1) There shall be provided a tuning scale calibrated directly in frequency. At no point in the tuning range shall an interval on the tuning scale of $\frac{1}{8}$ inch correspond to a frequency change exceeding 8 kc/s.

(2) If a circular bearing indicator scale is fitted, provision shall be made for a marking at each 1 degree interval and the bearing indicator shall not obscure more than 0.5 of a degree of the scale. It shall be possible to resolve readings at 0.25 degree intervals. Degree markings shall be distinctive at each 5th degree marking, and more distinctive at each 10th degree marking. Numeral indication shall be provided at least at every 10th degree and shall be placed adjacent to the degree marking.

(3) If a digital display is provided for the bearing indicator, it shall be easily readable and it shall be possible to read bearings to at least 0.25 degree.

18. *Heterodinetoonstabiliteit.*

(1) Vir 'n insetsein wat wissel oor die gebied 0 tot 60 desibels bo die standaardinsetpeil wat in paragraaf 4 gespesifiseer word, moet die frekwensie van 'n heterodinetoon van aanvanklik 1 kp/s nie met meer as 100 p/s wissel nie.

(2) Met alle insetpeile binne hierdie gebied moet dit moontlik wees om 'n swewingstoon van 200 p/s te verkry wanneer daar na of weg van nulswewing ingestem word.

19. *Gehoor-nul-rigtingspeiling.*

(1) *Noukeurigheid van peilings.*—(a) Wanneer die rigtingsoeker getoets word en nadat met omgewingsfoute rekening gehou is, moet die peiling soos deur die skaal van die rigtingsoeker aangedui, binne 1 graad van die regte peiling wees. Hierdie vereiste moet op alle frekwensies in die frekwensiegebied gespesifiseer in paragraaf 3 en dwarsdeur die volle 360 grade asimut nagekom word, ongeag die vorige stand van die peilingsaanwyser.

(b) Die toets moet uitgevoer word deur aanwending van—

(i) klas A2-seine gemoduleer tot 'n diepte van 80 tot 100 persent en met 'n peil 40 desibels bo 1 mikrovolt per meter; en

(ii) klas A1-seine met 'n peil 40 desibels bo 1 mikrovolt per meter.

In die geval van beide subparagrafe (i) en (ii) moet die veld wesenlik vertikaal gepolariseer wees.

(2) *Gehalte van minimums.*—Die uitrusting moet ingerig word om peilings te doen en moet getoets word onder die omstandighede gespesifiseer in subparagraaf (1) maar met 'n veldsterkte wat voldoende is om, met die antenneselsel vir maksimum lewering gestel, 'n sein/ruisverhouding van minstens 50 desibels te verseker. As die peilingsaanwyser in een van die twee rigtings 5 grade en 90 grade van die stand of stande van minimum lewering wyk, moet dit die oudiofrekwensielewering minstens met onderskeidelik 18 desibels en 35 desibels laat toeneem. Hierdie vereiste moet op alle frekwensies in die werkgebied van die uitrusting nagekom word. Enige minimumverhelderingskontrole wat aangebring word, moet in dieselfde posisie wees as vir toetse ingevolge subparagraaf (1).

(3) *Doeltreffendheid van oordbepaler.*—(a) Wanneer die uitrusting vir oordbepaling gestel is en onder die omstandighede gespesifiseer in subparagraaf (1) getoets word maar 'n veldsterkte het wat voldoende is om 'n sein/ruisverhouding van minstens 50 desibels te verseker terwyl die antenneselsel vir maksimum lewering gestel is, moet dit aan die volgende vereistes voldoen:—

Wanneer die oordaanwyser gestel is om 'n peiling binne plus en minus 10 grade van die juiste peiling aan te wys, moet die ontvanger se oudiofrekwensieleweringsepeil as gevolg van die verlangde sein minstens 20 desibels laer wees as die lewering wat verkry word wanneer die oordaanwyser gestel is om 'n peiling binne 180 (plus en minus 10) grade van die regte peiling aan te wys. Daar moet op gelet word dat wanneer die oordbepaler gebruik word, bostaande bepaling vereis dat die oord aan die hand van die minimum bepaal word.

20. *Ander Metodes van Rigtingbepaling.*

(1) *Aanduiding van seinstrekte.*—Daar moet 'n aanduiding wees dat die ontvangerversterking en seinstrekte voldoende is om 'n juiste peiling moontlik te maak.

18. *Heterodyne Note Stability.*

(1) For an input signal which is varied over the range 0 to 60 decibels above the standard input level specified in paragraph 4, the frequency of a heterodyne note which is initially 1 kc/s, shall not vary by more than 100 c/s.

(2) For all input levels within this range, it shall be possible to obtain a beat note of 200 c/s, when tuning either towards or away from zero beat.

19. *Aural-Null Direction-Finding.*

(1) *Accuracy of bearings.*—(a) When the direction-finder is tested, and after due allowance has been made for any site errors, the bearing as indicated by the scale of the direction-finder shall be within 1 degree of the correct bearing. This requirement shall be met at all frequencies in the range of frequencies specified in paragraph 3 and throughout the whole 360 degrees of azimuth, regardless of the previous setting of the bearing indicator.

(b) The test shall be carried out using—

(i) Class A2 signals modulated to a depth of 80 to 100 per cent having a level of 40 decibels above 1 microvolt per metre; and

(ii) Class A1 signals having a level of 40 decibels above 1 microvolt per metre.

For both subparagraphs (i) and (ii), the field shall be substantially vertically polarized.

(2) *Quality of minima.*—The equipment shall be arranged for the taking of bearings and tested under the conditions specified in subparagraph (1), but with a field strength sufficient to ensure a signal/noise ratio of at least 50 decibels with the aerial system adjusted for maximum output. Changes in the setting of the bearing indicator, from the position or positions of minimum output, of 5 degrees and 90 degrees in either direction, shall then cause the audio-frequency output to increase by not less than 18 decibels and not less than 35 decibels respectively. This requirement shall be met at all frequencies in the operating range of the equipment. Any minimum-clearing control which may be fitted shall be in the same position as for the tests under subparagraph (1).

(3) *Efficiency of sense-finder.*—(a) When adjusted for the determination of sense and tested under the conditions specified in subparagraph (1), but with a field strength sufficient to ensure a signal/noise ratio of at least 50 decibels with the aerial system adjusted to maximum output, the equipment shall meet the following requirements:—

The audio-frequency output level of the receiver due to the wanted signal, when the sense indicator is adjusted to indicate any bearing within plus and minus 10 degrees of the correct bearing, shall be at least 20 decibels below the output which is obtained when the sense indicator is adjusted to indicate any bearing within 180 (plus and minus 10) degrees of the correct bearing. It should be noted that when the sense-finder is used, the above requirement demands that the sense shall be determined with reference to the minimum.

20. *Other Methods of Direction-finding.*

(1) *Signal strength indication.*—There shall be an indication that the receiver gain and signal strength are sufficient to enable a correct bearing to be taken.

(2) *Noukeurigheid van peiling.*—(a) Wanneer ander rigtingbepalingsmetodes as die gehoor-nul-metode gebruik word, is die vereistes van paragraaf 19 (1) nog steeds van toepassing en mag die aangeduide peiling nie meer as plus en minus 0.5 grade van die gemiddelde waarde afwyk nie. Die toets moet uitgevoer word—

(i) deur aanwending van die seinpeile gespesifiseer in paragraaf 19 (1) (b) (i) en (ii); en

(ii) deur aanwending van seinpeile 60 desibels hoër as dié gespesifiseer in paragraaf 19 (1) (b) (i) en (ii) en sonder om weer aan ander kontroles te stel as 'n handversterkingskontrole indien daar een verskaf is.

(b) Wanneer gebruik gemaak word van seinpeile 10 desibels laer as die gespesifiseer in paragraaf 19 (1) (b) (i) en (ii) moet die aangeduide peiling binne 2 grade van die juiste peiling wees en mag die aangeduide peiling nie meer as plus en minus 1 graad van die gemiddelde waarde afwyk nie.

(3) *Gevoeligheid van rigtingsoekeraanwyser.*—(a) Met 'n verlangde A1-sein met 'n veldsterkte 40 desibels bo 1 mikrovolt per meter of 'n sein 6 desibels bo standaardinsetpeil moet die verandering in aangeduide peiling nie 1 graad oortref wanneer 'n tweede sein van klas A1 uit 'n bron 90 grade van dié verlangde sein aangewend word nie. Die tweede sein moet 'n ander frekwensie as die verlangde sein hê en sy veldsterkte of ekwivalente insetspanning moet wees soos in onderstaande tabel aangedui:—

Frekwensieskeiding (kp/s plus en minus).	Veldsterkte (dB in verhouding tot 1 mikrovolt per meter).	Insetsein (dB in ver- houding tot stan- daardinset).
1	+30	-4
4	+60	+26
20	+100	+66

(b) Wanneer seine van klas A2 op die peile gespesifiseer in subparagraaf (a) gebruik word, moet nog steeds aan die vereistes van daardie subparagraaf voldoen word.

(4) *Uitwerking van ontvangerversteking.*—(a) Met 'n veldsterkte 60 desibels bo 1 mikrovolt per meter of 'n sein 30 desibels bo standaardinsetpeil en met die outomatiese versterkingskontrole (indien een aangebring is) in werking, moet die ontvanger verstem word totdat of—

(i) die oudiofrekwensielewering met 6 desibels daal; of

(ii) die aanswysing vermeld in subparagraaf (1) toon dat die sein gedaal het tot die minimum wat 'n peiling moontlik maak.

(b) Ongeag watter van die twee voorvalle vermeld in subparagraaf (a) (i) of (ii) die eerste plaasvind, moet die aangeduide peiling nie met meer as 1 graad verander nie.

(5) *Oordbepaler.*—Met die uitrustig gestel om peilings te doen en met die regte verhouding (die syfer moet deur die vervaardiger versterk word) van seine toegepas op die rigtingsbepalings- en oordbane moet 'n toename of afname van 10 desibels in die oordpeil—

(a) waar oordbepaling nie afsonderlik plaasvind nie, nie die aangeduide peiling met meer as 1 graad verander nie; of

(b) waar oordbepaling afsonderlik plaasvind, geen oordonsekerheid laat nie.

(6) *Aanwysingsnelheid.*—Met die peilingsaanwyser in enige „rus”-posisie moet 'n sein wat 'n peiling 175 grade van die peiling aangedui deur die „rus”-posisie op enige en elk peil in die gebied tussen 6 en 60 desibels bo standaardinsetpeil aangewend word. 'n Nuwe aangeduide

(2) *Accuracy of bearing.*—(a) When direction-finding methods other than auralnull are used, the requirements of paragraph 19 (1) shall still apply and the fluctuations of the indicated bearing shall not exceed plus and minus 0.5 degree from the mean value. The test shall be carried out—

(i) using signal levels as specified in paragraph 19 (1) (b) (i) and (ii); and

(ii) using signal levels 60 decibels higher than those specified in paragraph 19 (1) (b) (i) and (ii) and without re-adjustment of controls other than a manual gain control if provided.

(b) Using signal levels 10 decibels lower than those specified in paragraph 19 (1) (b) (i) and (ii), the indicated bearing shall then be within 2 degrees of the correct bearing and the fluctuations of the indicated bearing shall not exceed plus and minus 1 degree from the mean value.

(3) *Selectivity of direction-finder indicator.*—(a) With a wanted A1 signal of field strength 40 decibels above 1 microvolt per metre, or a signal 6 decibels above standard input level, the change in indicated bearing shall not exceed 1 degree when a second signal of class A1 from a source 90 degrees from that of the wanted signal is applied. The second signal shall differ in frequency from the wanted signal and be of field strength or equivalent input voltage as indicated in the following table:—

Frequency separation (kc/s plus and minus).	Field strength (db relative to 1 microvolt per metre).	Input signal (db relative to stan- dard input).
1	+30	-4
4	+60	+26
20	+100	+66

(b) When signals of class A2 are used at the levels specified in subparagraph (a), the requirements of that subparagraph shall still be met.

(4) *Effect of receiver mistune.*—(a) With a field strength of 60 decibels above 1 microvolt per metre, or a signal 30 decibels above standard input level and with the automatic gain control operative if fitted, the receiver shall be mistuned until either—

(i) the audio-frequency output falls by 6 decibels; or

(ii) the indication referred to in subparagraph (1) shows that the signal has fallen to the minimum at which a bearing can be taken.

(b) Regardless of whether the event in subparagraph (a) (i) or (ii) occurs first, the indicated bearing shall not change by more than 1 degree.

(5) *Sense finder.*—With the equipment adjusted for taking bearings and with the correct ratio (the figure of which shall be given by the manufacturer) of signals applied to the Direction-finding and Sense paths, an increase or decrease of 10 decibels in Sense Level shall not—

(a) where sense finding is not a separate operation, change the indicated bearing by more than 1 degree; or

(b) where sense finding is a separate operation, leave any ambiguity of sense.

(6) *Speed of indication.*—With the bearing indicator in any “rest” position, a signal simulating a bearing 175 degrees from that indicated by the “rest” position shall be applied at any and every level in the range between 6 and 60 decibels above standard input level. A new

peiling, binne 1 graad van die juiste peiling, moet by kamertemperatuur binne 2 sekondes en by minus 15° C binne 4 sekondes verkry word. Sonder verder verstelling van die uitrusting of die seinbron moet die aangeduide peiling nog 20 minute lank binne 1 graad van die juiste peiling bly.

(7) *Uitwerking van swewingsfrekwensie-ossillator.*—Vir enige sein wat sterk genoeg is om 'n peilingsaanwysing te gee, moet daar geen waarneembare verandering van aangeduide peiling wees wanneer die swewingsfrekwensie-ossillator aangeskakel is nie.

(8) *Kontrolering en verstelling.*—Indien die peiling van 'n stasie verlang word en dit na identifisering van sodanige stasie nodig is om die stelling van enige kontrole as deel van die proses van rigtingbepaling te kontroleer of te verander, moet dit moontlik wees om hierdie kontrolering en verstelling binne 10 sekondes uit te voer.

AANHANGSEL 12.

(Regulasie 36.)

KLIMAATS- EN DUURSAAMHEIDSTOETSE VIR RIGTINGSOEKER.

1. In hierdie aanhangsel—

(1) moet melding van klas B-uitrusting vertolk word as melding van elke deel van die rigtingsoeker, uitgesonderd die antennestelsel van die rigtingsoeker; en

(2) moet melding van klas X-uitrusting vertolk word as melding van die antennestelsel van die rigtingsoeker.

2. Klas B- en klas X-uitrusting moet onderwerp word aan toetse wat uitgevoer word in die volgorde waarin hulle in onderstaande tabel opgenoem word:—

Aard van toets.	Klas uitrusting wat aan die toets onderwerp moet word.
Visuele inspeksie en prestasietoets.	B en X.
Inspeksie onder trilling.	B en X.
Stamptoets.	B en X.
Droëhittesiklus.	B en X.
Klamhittesiklus.	B en X.
Laetemperatuursiklus.	B en X.
Reëntoets.	X.
Indompelingsstoets.	X.
Korrosietoets.	B en X.
Skimmelgroeitoets.	X.
Visuele inspeksie en prestasietoets.	B en X.

3. Die bepalings van aanhangsel 3, met uitsondering van paragrawe 1 (2) en 2 (1) daarvan, is van toepassing op die toetse vermeld in paragraaf 2.

AANHANGSEL 13.

[Regulasie 45 (c).]

SERTIFIKAAT VAN YKING VAN RIGTINGSOEKER.

Ons, die ondergetekendes, sertifiseer hierby dat ons vandag—

(a) die rigtingsoeker geïnstalleer in
s.s.

m.v.
ooreenkomstig deel II (handelende oor rigtingsoekers) van die Handelskeepvaart-radioregulasies, 19....., geïk het;

(b) ykkorreksietabelle aan die gesagvoerder van daardie skip oorhandig het;

(c) vermelde rigtingsoeker gestel het sodat die aflesings met behulp daarvan na korreksie aan die hand van sodanige tabelle met nie meer as plus of minus twee grade van die juiste peiling verskil het nie.

indicated bearing, within 1 degree of the correct bearing, shall be obtained within 2 seconds at room temperature, and within 4 seconds at minus 15° C. Without further adjustment of the equipment or the signal source, the indicated bearing shall remain within 1 degree of the correct bearing during a further 20 seconds.

(7) *Effect of beat frequency oscillator.*—For any signal of strength sufficient to give a bearing indication, there shall be no observable change of indicated bearing when the Beat Frequency Oscillator is switched on.

(8) *Check and adjustment.*—If, after identifying a station the bearing of which is required, it is necessary to check or alter the adjustment of any control as part of the process of direction-finding, this check and adjustment shall be capable of being made within 10 seconds.

ANNEX 12.

(Regulation 36.)

CLIMATIC AND DURABILITY TESTS FOR DIRECTION-FINDER.

1. In this annex—

(1) references to class B equipment shall be construed as references to each part of the direction-finder other than the direction-finder aerial system; and

(2) references to class X equipment shall be construed as references to the direction-finder aerial system.

2. Class B and class X equipment shall be subjected to tests conducted in the order in which they appear in the following table:—

Nature of test.	Class of equipment to which the test shall be applied.
Visual inspection and performance test.	B and X.
Inspection under vibration.	B and X.
Bump test.	B and X.
Dry heat cycle.	B and X.
Damp heat cycle.	B and X.
Low temperature cycle.	B and X.
Rain test.	X.
Immersion test.	X.
Corrosion test.	B and X.
Mould growth test.	X.
Visual inspection and performance test.	B and X.

3. The provisions of annex 3, except paragraphs 1 (2) and 2 (1) thereof, shall apply to the tests referred to in paragraph 2.

ANNEX 13.

[Regulation 45 (c).]

CERTIFICATE OF CALIBRATION OF DIRECTION-FINDER.

We, the undersigned, hereby certify that we have this day—

(a) calibrated in accordance with Part II (which Part deals with direction-finder) of the Merchant Shipping Radio Regulation 19 the direction-finder installed in the

s.s.

m.v.

(b) handed to the Master of that ship tables of calibration corrections;

(c) adjusted the said direction-finder so that the readings taken thereby, when corrected with such tables differed from the correct bearings by no more than plus or minus 2 degrees.

Voorts sertifiseer ons hierby dat aan die gesagvoerder van genoemde skip 'n lys of diagram verstrek is waarin aangedui word die toestand en posisie waarin die antennes en alle beweegbare strukture aan boord van die skip wat die noukeurigheid van die rigtingsoeker mag beïnvloed, ten tyde van sodanige yking verkeer het.

.....Radiowaarnemer.
Visuelewaarnemer.
Datum.

AANHANGSEL 14.

[Regulasie 45 (d).]

REKORD VAN KONTROLEPEILINGS DEUR MIDDEL VAN DIE RIGTINGSOEKER.

- (1) Volgnommer van peiling
- (2) Datum
- (3) Tye (G.T.)
- (4) Breedtegraad } Skip se posisie by
- (5) Lengtegraad } benadering.....
- (6) Afstand van sender
- (7) Rigtingpeiling van (naam)
- (8) Relatiewe peiling volgens rigtingsoeker met korreksie vir kwadrantfout
- (9) Boegrigting volgens kompas 0/360°
- (10) Totale kompasfout
- (11) Halfkonvergensië toegepas
- (12) Boegrigting gekorrigeer (juis)
- (13) Juiste peiling volgens rigtingsoeker [item (8) en item (12)]
- (14) Juiste peiling volgens visuele kontrole of berekening (daar moet aangedui word of dit visueel of volgens berekening is en in die geval van berekening moet die metode vermeld word)
- (15) Korreksie nodig om item (13) aan item (14) gelyk te maak (meld of dit - of + is).
- (16) Handtekening(s) van waarnemer(s).....

We hereby further certify that the Master of the said ship has been furnished with a list or diagram indicating the condition and position, at the time of such calibration, of the aerals and of all moveable structures on board the ship which might affect the accuracy of the direction-finder.

..... Radio Observer.
 Visual Observer.
 Date.

ANNEX 14.

[Regulation 45 (d).]

RECORD OF CHECK-BEARINGS TAKEN BY MEANS OF THE DIRECTION-FINDER.

- (1) Serial Number of Bearings
- (2) Date
- (3) Times (G.M.T.)
- (4) Latitude } Ship's Approximate Position
- (5) Longitude }
- (6) Distance from Transmitter
- (7) Direction-Finder Bearing of (Name) ...
- (8) Direction-Finder relative Bearing corrected for Quadrantal Error
- (9) Ship's Head by Compass 0/360°
- (10) Total Compass Error
- (11) $\frac{1}{2}$ Convergency Applied
- (12) Ship's Head Corrected (True)
- (13) True Bearing by Direction-Finder [item (8) and item (12)]
- (14) True Bearing by Visual check or Calculation (whether Visual or Calculation to be indicated; if by Calculation, the method to be stated)
- (15) Correction required to make item (13) equal item (14) (indicating whether - or +)
- (16) Signature(s) of Observer or Observers ...

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