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GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF SCIENCE AND INNOVATION

NO. 3688

18 July 2023

NOTICE OF INTENTION TO AMEND THE REGULATIONS ON THE PROTECTION OF THE KAROO CENTRAL ASTRONOMY ADVANTAGE AREAS IN TERMS OF THE ASTRONOMY GEOGRAPHIC ADVANTAGE ACT, 2007.

I, Dr. Bonginkosi Emmanuel Nzimande, Minister for Higher Education, Science and Innovation, in terms of Section 50 of the Astronomy Geographic Advantage Act, (Act No.21 of 2007), hereby give notice of my intention to amend the Regulations on the Protection of the Karoo Central Astronomy Advantage Areas (KCAAA), to the extent reflected in the attached Schedule A of this Notice.

In terms of section 1 of the KCAAA Regulations, published in Government Gazette No. 41321 under Notice No. 1411 on 15 December 2017, "protection corridors" is defined as "10-km wide corridors of land, centred on radio astronomical spiral arms configuration, within which SKA stations in the KCAAA 1 are to be positioned, that also applies to KCAAA 2 and 3 depending on the radio frequency spectrum used, as depicted in Annexure A of Schedule A" (see Figure 1).

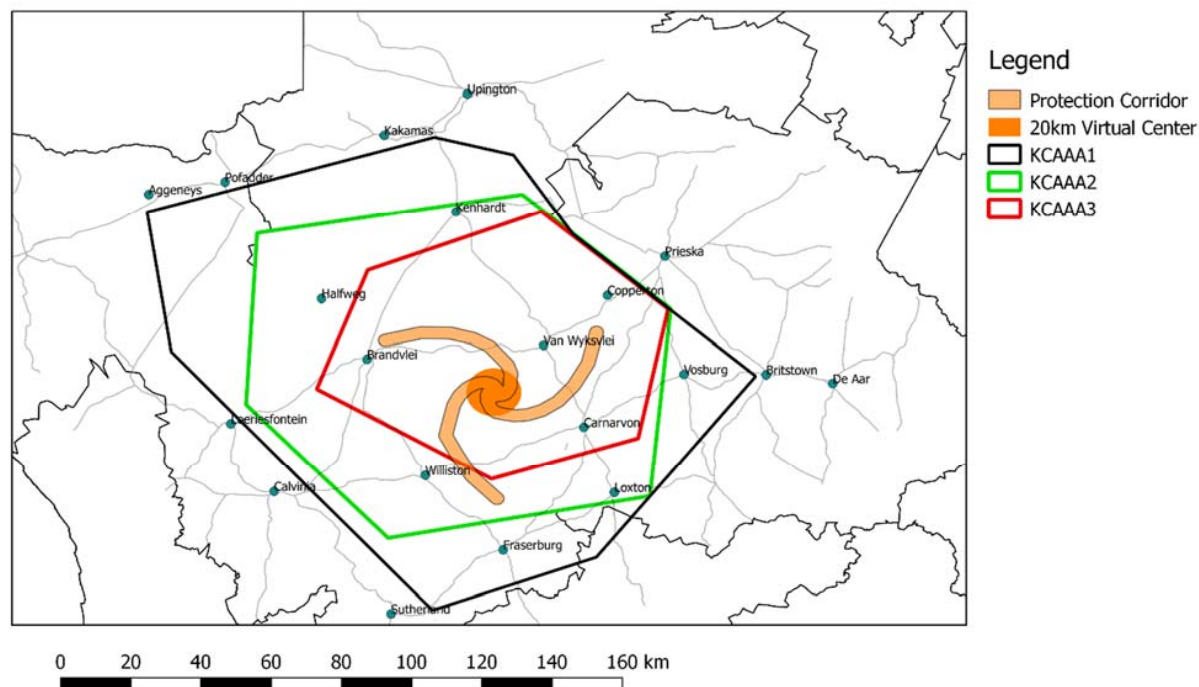


Figure 1: Illustration of the 20-km Virtual Centre and the Spiral Arms Protection corridors as per Annexure A of Schedule A of the KCAAA Regulations

At the time of the development of the KCAAA Regulations, the land for the final positions of the SKA_MID antennas was not yet finalised and the protection corridors were used to represent a possible area where the antennas could be located.

The final servitudes of the spiral arm SKA_MID antennas have now been determined and, as a result, the definition of protection corridors will now be amended to refer to 4 hectares of land, on the spiral arm configuration, within which SKA stations will be located.

In line with Section 51 (2) of the Astronomy Geographic Advantage Act, 2007, interested and affected parties are invited to submit written representations, within 60 (sixty) calendar days of the publication of this Notice, on the draft amendment of the KCAAA Regulations as outlined in Schedule A, below.

Any enquiries regarding this notice may be addressed to Mr. Mere Kgampe at 012 348 6644 or email Mere.kgampe@dst.gov.za.



DR B E NZIMANDE, MP
MINISTER FOR HIGHER EDUCATION, SCIENCE AND INNOVATION

NOTICE OF INTENTION TO AMEND THE REGULATIONS ON THE PROTECTION OF THE KAROO CENTRAL ASTRONOMY ADVANTAGE AREAS IN TERMS OF THE ASTRONOMY GEOGRAPHIC ADVANTAGE ACT, 2007.

SCHEDULE A

1. Amendment of the definitions in Section 1 of Schedule A of the Karoo Central Astronomy Advantage Areas (KCAAA) Regulations.

Regulation 1 of Schedule A of the KCAAA Regulations is hereby amended by the substitution of the definition of “protection corridors” with the following definition:

“protection corridors” means parcels of land, each measuring an area of 4 hectares, and each of which is centred on an SKA_MID station located along a defined route along one of three spiral arms as located within the KCAAA 1 and which also applies to KCAAA 2 and KCAAA 3, depending on the frequency spectrum being used.

2. Amendment of Annexure A to Schedule A of the KCAAA Regulations.

Annexure A to Schedule A of the KCAAA Regulations is hereby amended by the substitution of paragraph 1 with the following paragraph:

- (1) The map on the next page depicts the 20-km radius circle around the SKA Virtual Centre, within which 173 SKA radio astronomy stations will be located. The map also depicts 24 protection corridors required for 24 SKA radio astronomy stations located within the Karoo Central Astronomy Advantage Area 1.

The map of the protection corridors referred to in paragraph 1 of Annexure A to Schedule A of the KCAAA Regulations is hereby amended by its replacement with the map illustrated in Figure 1 of this Notice, below.

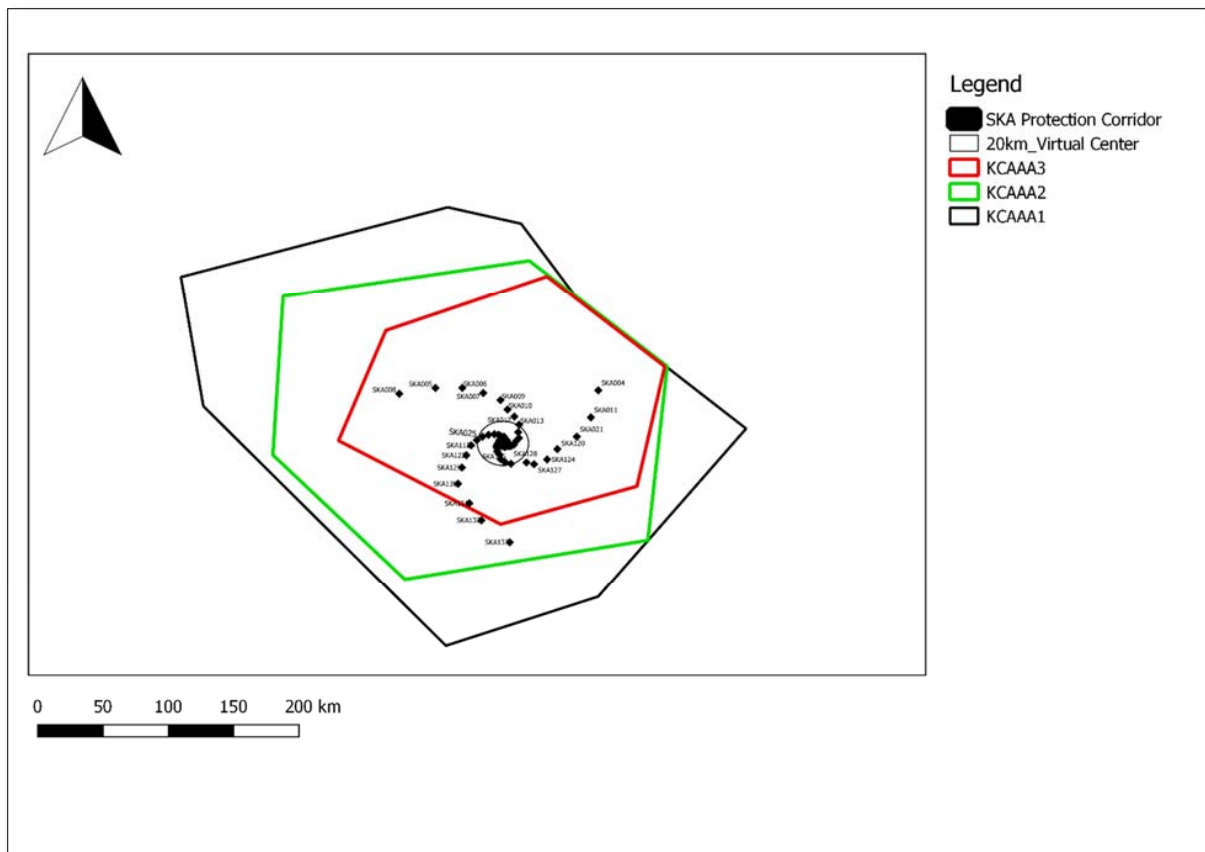


Figure 1: Map of the protection corridors and SKA Telescope station in the KCAAA

Annexure A to Schedule A of the KCAAA Regulations is hereby amended by the addition of the table 1 below to provide the geodetic coordinates of all SKA_MID antennas within the 20-km radius circle around the SKA Virtual Centre and in the radio astronomical spiral arms:

Table 1: Geolocation coordinates of all SKA_MID Antennas including the MeerKAT radio antennas.

SKA Site	Longitude	Latitude	Location
M000	21.443803	-30.712925	SKA Virtual Core
M001	21.443901	-30.712605	20-km Virtual Core radius
M002	21.443554	-30.713078	20-km Virtual Core radius
M003	21.443195	-30.71288	20-km Virtual Core radius
M004	21.442599	-30.713337	20-km Virtual Core radius
M005	21.442824	-30.713609	20-km Virtual Core radius
M006	21.443699	-30.71372	20-km Virtual Core radius
M007	21.442954	-30.714688	20-km Virtual Core radius
M008	21.442913	-30.715881	20-km Virtual Core radius

M009	21.444227	-30.714402	20-km Virtual Core radius
M010	21.444809	-30.715672	20-km Virtual Core radius
M011	21.444766	-30.714231	20-km Virtual Core radius
M012	21.445351	-30.714377	20-km Virtual Core radius
M013	21.446361	-30.714604	20-km Virtual Core radius
M014	21.44682	-30.713633	20-km Virtual Core radius
M015	21.446088	-30.713032	20-km Virtual Core radius
M016	21.446897	-30.712732	20-km Virtual Core radius
M017	21.445973	-30.712068	20-km Virtual Core radius
M018	21.444993	-30.713273	20-km Virtual Core radius
M019	21.445672	-30.713628	20-km Virtual Core radius
M020	21.444902	-30.713758	20-km Virtual Core radius
M021	21.4408	-30.714007	20-km Virtual Core radius
M022	21.440525	-30.712338	20-km Virtual Core radius
M023	21.439996	-30.711051	20-km Virtual Core radius
M024	21.440225	-30.709702	20-km Virtual Core radius
M025	21.44199	-30.709021	20-km Virtual Core radius
M026	21.442856	-30.710902	20-km Virtual Core radius
M027	21.444312	-30.711264	20-km Virtual Core radius
M028	21.443355	-30.711842	20-km Virtual Core radius
M029	21.442963	-30.712175	20-km Virtual Core radius
M030	21.445677	-30.710028	20-km Virtual Core radius
M031	21.446463	-30.71021	20-km Virtual Core radius
M032	21.448704	-30.709473	20-km Virtual Core radius
M033	21.44995	-30.703264	20-km Virtual Core radius
M034	21.447624	-30.711311	20-km Virtual Core radius
M035	21.44792	-30.712687	20-km Virtual Core radius
M036	21.447942	-30.713678	20-km Virtual Core radius
M037	21.447859	-30.715198	20-km Virtual Core radius
M038	21.446116	-30.716188	20-km Virtual Core radius
M039	21.446538	-30.716396	20-km Virtual Core radius
M040	21.443609	-30.717479	20-km Virtual Core radius
M041	21.440888	-30.717023	20-km Virtual Core radius
M042	21.440114	-30.715207	20-km Virtual Core radius
M043	21.437315	-30.712213	20-km Virtual Core radius
M044	21.434536	-30.70564	20-km Virtual Core radius
M045	21.424759	-30.708649	20-km Virtual Core radius
M046	21.428576	-30.695255	20-km Virtual Core radius
M047	21.437853	-30.715721	20-km Virtual Core radius
M048	21.414612	-30.686821	20-km Virtual Core radius
M049	21.406253	-30.707114	20-km Virtual Core radius
M050	21.422466	-30.718663	20-km Virtual Core radius
M051	21.435014	-30.717994	20-km Virtual Core radius

M052	21.437697	-30.721415	20-km Virtual Core radius
M053	21.443987	-30.72282	20-km Virtual Core radius
M054	21.452991	-30.715563	20-km Virtual Core radius
M055	21.456433	-30.710185	20-km Virtual Core radius
M056	21.460572	-30.706846	20-km Virtual Core radius
M057	21.446964	-30.681656	20-km Virtual Core radius
M058	21.473168	-30.686821	20-km Virtual Core radius
M059	21.482364	-30.704206	20-km Virtual Core radius
M060	21.479589	-30.727649	20-km Virtual Core radius
M061	21.443718	-30.732013	20-km Virtual Core radius
M062	21.428849	-30.733635	20-km Virtual Core radius
M063	21.408191	-30.727649	20-km Virtual Core radius
SKA001	21.449412	-30.71329	20-km Virtual Core radius
SKA002	21.443214	-30.711544	20-km Virtual Core radius
SKA003	21.442342	-30.710966	20-km Virtual Core radius
SKA004	22.221828	-30.280881	Spiral Arm
SKA005	20.893386	-30.262241	Spiral Arm
SKA006	21.112343	-30.260672	Spiral Arm
SKA007	21.28299	-30.303073	Spiral Arm
SKA008	20.597376	-30.308659	Spiral Arm
SKA009	21.423604	-30.360973	Spiral Arm
SKA010	21.481185	-30.437353	Spiral Arm
SKA011	22.162269	-30.501569	Spiral Arm
SKA012	21.536952	-30.495238	Spiral Arm
SKA013	21.576635	-30.56085	Spiral Arm
SKA014	21.568196	-30.622317	20-km Virtual Core radius
SKA015	21.374214	-30.638584	20-km Virtual Core radius
SKA016	21.325844	-30.643727	20-km Virtual Core radius
SKA017	21.406331	-30.642963	20-km Virtual Core radius
SKA018	21.425892	-30.653862	20-km Virtual Core radius
SKA019	21.276855	-30.658922	20-km Virtual Core radius
SKA020	21.451767	-30.659316	20-km Virtual Core radius
SKA021	22.04672	-30.65899	Spiral Arm
SKA022	21.573851	-30.669603	20-km Virtual Core radius
SKA023	21.460885	-30.674468	20-km Virtual Core radius
SKA024	21.462108	-30.686657	20-km Virtual Core radius
SKA025	21.23088	-30.68665	Spiral Arm
SKA026	21.464027	-30.692349	20-km Virtual Core radius
SKA027	21.551131	-30.694973	20-km Virtual Core radius
SKA028	21.43018	-30.70076	20-km Virtual Core radius
SKA029	21.434492	-30.701264	20-km Virtual Core radius
SKA030	21.439049	-30.702356	20-km Virtual Core radius
SKA031	21.421559	-30.702581	20-km Virtual Core radius

SKA032	21.464587	-30.702805	20-km Virtual Core radius
SKA033	21.44447	-30.704982	20-km Virtual Core radius
SKA034	21.413573	-30.706149	20-km Virtual Core radius
SKA035	21.440989	-30.706517	20-km Virtual Core radius
SKA036	21.445301	-30.707819	20-km Virtual Core radius
SKA037	21.462229	-30.708744	20-km Virtual Core radius
SKA038	21.440591	-30.708913	20-km Virtual Core radius
SKA039	21.443686	-30.709254	20-km Virtual Core radius
SKA040	21.435079	-30.708993	20-km Virtual Core radius
SKA041	21.441639	-30.710689	20-km Virtual Core radius
SKA042	21.44512	-30.711168	20-km Virtual Core radius
SKA043	21.43909	-30.711278	20-km Virtual Core radius
SKA044	21.443764	-30.711281	20-km Virtual Core radius
SKA045	21.45228	-30.711729	20-km Virtual Core radius
SKA046	21.444359	-30.711825	20-km Virtual Core radius
SKA047	21.440543	-30.711918	20-km Virtual Core radius
SKA048	21.442356	-30.712025	20-km Virtual Core radius
SKA049	21.443574	-30.712107	20-km Virtual Core radius
SKA050	21.444438	-30.712193	20-km Virtual Core radius
SKA051	21.443917	-30.712207	20-km Virtual Core radius
SKA052	21.442626	-30.712211	20-km Virtual Core radius
SKA053	21.443323	-30.712317	20-km Virtual Core radius
SKA054	21.447335	-30.712406	20-km Virtual Core radius
SKA055	21.441659	-30.712409	20-km Virtual Core radius
SKA056	21.443668	-30.712428	20-km Virtual Core radius
SKA057	21.442969	-30.71245	20-km Virtual Core radius
SKA058	21.442251	-30.712485	20-km Virtual Core radius
SKA059	21.444228	-30.712544	20-km Virtual Core radius
SKA060	21.40524	-30.712547	20-km Virtual Core radius
SKA061	21.445672	-30.712552	20-km Virtual Core radius
SKA062	21.44328	-30.712597	20-km Virtual Core radius
SKA063	21.435243	-30.712648	20-km Virtual Core radius
SKA064	21.442604	-30.712715	20-km Virtual Core radius
SKA065	21.442939	-30.712722	20-km Virtual Core radius
SKA066	21.444511	-30.71285	20-km Virtual Core radius
SKA067	21.445117	-30.712941	20-km Virtual Core radius
SKA068	21.441913	-30.71295	20-km Virtual Core radius
SKA069	21.442686	-30.712981	20-km Virtual Core radius
SKA070	21.458393	-30.712991	20-km Virtual Core radius
SKA071	21.444106	-30.712991	20-km Virtual Core radius
SKA072	21.442338	-30.713089	20-km Virtual Core radius
SKA073	21.443222	-30.713174	20-km Virtual Core radius
SKA074	21.442917	-30.713281	20-km Virtual Core radius

SKA075	21.443936	-30.713328	20-km Virtual Core radius
SKA076	21.444288	-30.713364	20-km Virtual Core radius
SKA077	21.440038	-30.713405	20-km Virtual Core radius
SKA078	21.442263	-30.713413	20-km Virtual Core radius
SKA079	21.443595	-30.713434	20-km Virtual Core radius
SKA080	21.443255	-30.713481	20-km Virtual Core radius
SKA081	21.444612	-30.713603	20-km Virtual Core radius
SKA082	21.44405	-30.713665	20-km Virtual Core radius
SKA083	21.437757	-30.713717	20-km Virtual Core radius
SKA084	21.441878	-30.713786	20-km Virtual Core radius
SKA085	21.442481	-30.713809	20-km Virtual Core radius
SKA086	21.443404	-30.713858	20-km Virtual Core radius
SKA087	21.442744	-30.714023	20-km Virtual Core radius
SKA088	21.443683	-30.714159	20-km Virtual Core radius
SKA089	21.445795	-30.714161	20-km Virtual Core radius
SKA090	21.44105	-30.714684	20-km Virtual Core radius
SKA091	21.443552	-30.714778	20-km Virtual Core radius
SKA092	21.447484	-30.714879	20-km Virtual Core radius
SKA093	21.442161	-30.714887	20-km Virtual Core radius
SKA094	21.444252	-30.715123	20-km Virtual Core radius
SKA095	21.439897	-30.715681	20-km Virtual Core radius
SKA096	21.455538	-30.715743	20-km Virtual Core radius
SKA097	21.443939	-30.716027	20-km Virtual Core radius
SKA098	21.437642	-30.716174	20-km Virtual Core radius
SKA099	21.444992	-30.716377	20-km Virtual Core radius
SKA100	21.449036	-30.717223	20-km Virtual Core radius
SKA101	21.444662	-30.718358	20-km Virtual Core radius
SKA102	21.436356	-30.718739	20-km Virtual Core radius
SKA103	21.440217	-30.719265	20-km Virtual Core radius
SKA104	21.447266	-30.720233	20-km Virtual Core radius
SKA105	21.532299	-30.723754	20-km Virtual Core radius
SKA106	21.432849	-30.720913	20-km Virtual Core radius
SKA107	21.3975	-30.722426	20-km Virtual Core radius
SKA108	21.433899	-30.725179	20-km Virtual Core radius
SKA109	21.437646	-30.729515	20-km Virtual Core radius
SKA110	21.511124	-30.73479	20-km Virtual Core radius
SKA111	21.442417	-30.734251	20-km Virtual Core radius
SKA112	21.18377	-30.728811	Spiral Arm
SKA113	21.391708	-30.736333	20-km Virtual Core radius
SKA114	21.452432	-30.739759	20-km Virtual Core radius
SKA115	21.49394	-30.73719	20-km Virtual Core radius
SKA116	21.460272	-30.742016	20-km Virtual Core radius
SKA117	21.472848	-30.736715	20-km Virtual Core radius

SKA118	21.394676	-30.752293	20-km Virtual Core radius
SKA119	21.397161	-30.778551	20-km Virtual Core radius
SKA120	21.887418	-30.75981	Spiral Arm
SKA121	21.41272	-30.80198	20-km Virtual Core radius
SKA122	21.14482	-30.809841	Spiral Arm
SKA123	21.423691	-30.841585	20-km Virtual Core radius
SKA124	21.804492	-30.84449	Spiral Arm
SKA125	21.458958	-30.86529	20-km Virtual Core radius
SKA126	21.50862	-30.87965	Spiral Arm
SKA127	21.697338	-30.883676	Spiral Arm
SKA128	21.635612	-30.869177	Spiral Arm
SKA129	21.108905	-30.910611	Spiral Arm
SKA130	21.077184	-31.041894	Spiral Arm
SKA131	21.169521	-31.201255	Spiral Arm
SKA132	21.267823	-31.340773	Spiral Arm
SKA133	21.499014	-31.519592	Spiral Arm

3. Amendment of the definitions in Section 1 of Schedule D of the KCAA Regulations.

Regulation 1 of Schedule D of the KCAA Regulations is hereby amended by the substitution of the definition of “*protection corridors*” with the following definition:

“**protection corridors**” means parcels of land, each measuring an area of 4 hectares, and each of which is centred on an SKA_MID station located along a defined route along one of three spiral arms as located within the KCAA 1 and which also applies to KCAA 2 and KCAA 3, depending on the frequency spectrum being used.

The map of the protection corridors referred to in paragraph 1 of Annexure A to Schedule D of the KCAA Regulations is hereby amended by its replacement with the map illustrated in figure 2, below.

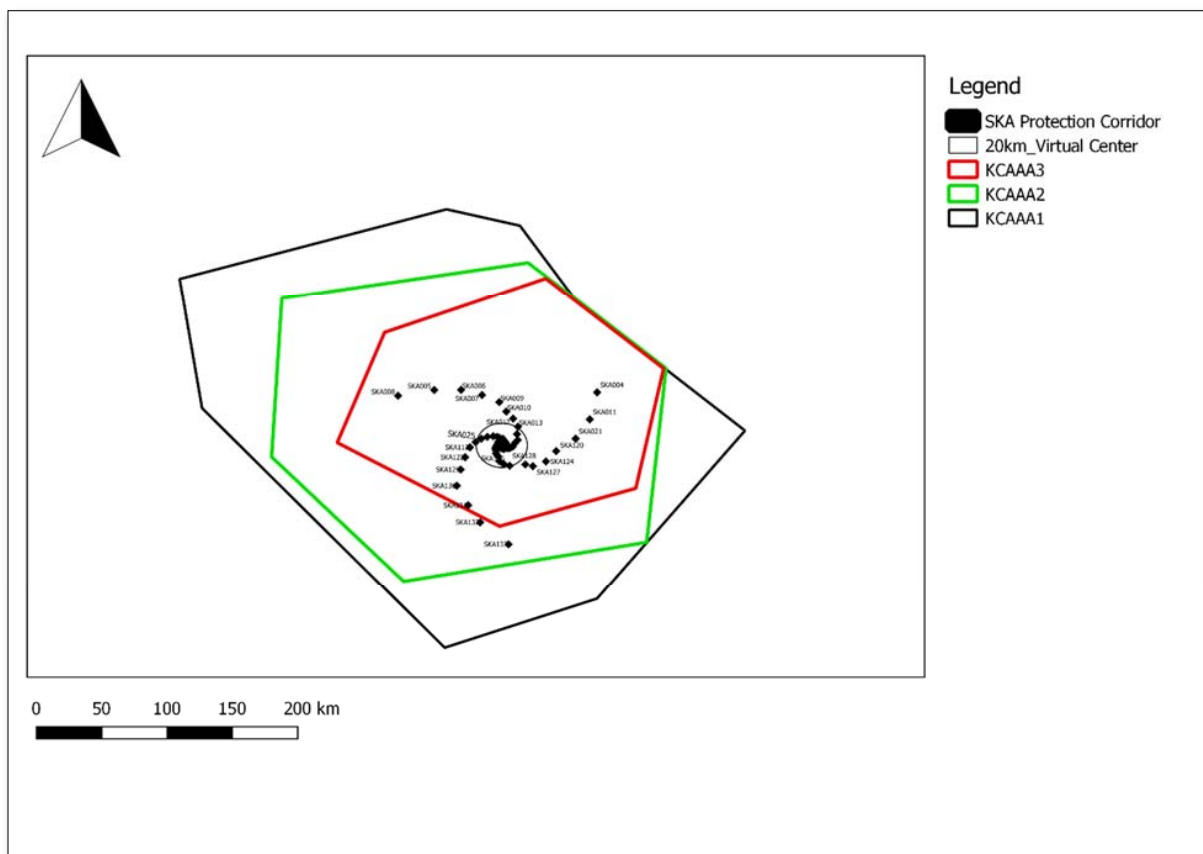


Figure 2: Map of the protection corridors and SKA Telescope station in the KCAA

Annexure A to Schedule D of the KCAA Regulations is hereby amended by the addition of Table 2, below, to provide the geodetic coordinates of all SKA_MID antennas within the 20-km radius circle around the SKA Virtual Centre and in the radio astronomical spiral arms:

Table 2: Geodetic coordinates of the SKA Radio Telescope stations.

SKA Site	Longitude	Latitude	Location
M000	21.443803	-30.712925	SKA Virtual Core
M001	21.443901	-30.712605	20-km Virtual Core radius
M002	21.443554	-30.713078	20-km Virtual Core radius
M003	21.443195	-30.71288	20-km Virtual Core radius
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M046	21.428576	-30.695255	20-km Virtual Core radius
M047	21.437853	-30.715721	20-km Virtual Core radius
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M049	21.406253	-30.707114	20-km Virtual Core radius
M050	21.422466	-30.718663	20-km Virtual Core radius
M051	21.435014	-30.717994	20-km Virtual Core radius
M052	21.437697	-30.721415	20-km Virtual Core radius

M053	21.443987	-30.72282	20-km Virtual Core radius
M054	21.452991	-30.715563	20-km Virtual Core radius
M055	21.456433	-30.710185	20-km Virtual Core radius
M056	21.460572	-30.706846	20-km Virtual Core radius
M057	21.446964	-30.681656	20-km Virtual Core radius
M058	21.473168	-30.686821	20-km Virtual Core radius
M059	21.482364	-30.704206	20-km Virtual Core radius
M060	21.479589	-30.727649	20-km Virtual Core radius
M061	21.443718	-30.732013	20-km Virtual Core radius
M062	21.428849	-30.733635	20-km Virtual Core radius
M063	21.408191	-30.727649	20-km Virtual Core radius
SKA001	21.449412	-30.71329	20-km Virtual Core radius
SKA002	21.443214	-30.711544	20-km Virtual Core radius
SKA003	21.442342	-30.710966	20-km Virtual Core radius
SKA004	22.221828	-30.280881	Spiral Arm
SKA005	20.893386	-30.262241	Spiral Arm
SKA006	21.112343	-30.260672	Spiral Arm
SKA007	21.28299	-30.303073	Spiral Arm
SKA008	20.597376	-30.308659	Spiral Arm
SKA009	21.423604	-30.360973	Spiral Arm
SKA010	21.481185	-30.437353	Spiral Arm
SKA011	22.162269	-30.501569	Spiral Arm
SKA012	21.536952	-30.495238	Spiral Arm
SKA013	21.576635	-30.56085	Spiral Arm
SKA014	21.568196	-30.622317	20-km Virtual Core radius
SKA015	21.374214	-30.638584	20-km Virtual Core radius
SKA016	21.325844	-30.643727	20-km Virtual Core radius
SKA017	21.406331	-30.642963	20-km Virtual Core radius
SKA018	21.425892	-30.653862	20-km Virtual Core radius
SKA019	21.276855	-30.658922	20-km Virtual Core radius
SKA020	21.451767	-30.659316	20-km Virtual Core radius
SKA021	22.04672	-30.65899	Spiral Arm
SKA022	21.573851	-30.669603	20-km Virtual Core radius
SKA023	21.460885	-30.674468	20-km Virtual Core radius
SKA024	21.462108	-30.686657	20-km Virtual Core radius
SKA025	21.23088	-30.68665	Spiral Arm
SKA026	21.464027	-30.692349	20-km Virtual Core radius
SKA027	21.551131	-30.694973	20-km Virtual Core radius
SKA028	21.43018	-30.70076	20-km Virtual Core radius
SKA029	21.434492	-30.701264	20-km Virtual Core radius
SKA030	21.439049	-30.702356	20-km Virtual Core radius
SKA031	21.421559	-30.702581	20-km Virtual Core radius
SKA032	21.464587	-30.702805	20-km Virtual Core radius
SKA033	21.44447	-30.704982	20-km Virtual Core radius

SKA034	21.413573	-30.706149	20-km Virtual Core radius
SKA035	21.440989	-30.706517	20-km Virtual Core radius
SKA036	21.445301	-30.707819	20-km Virtual Core radius
SKA037	21.462229	-30.708744	20-km Virtual Core radius
SKA038	21.440591	-30.708913	20-km Virtual Core radius
SKA039	21.443686	-30.709254	20-km Virtual Core radius
SKA040	21.435079	-30.708993	20-km Virtual Core radius
SKA041	21.441639	-30.710689	20-km Virtual Core radius
SKA042	21.44512	-30.711168	20-km Virtual Core radius
SKA043	21.43909	-30.711278	20-km Virtual Core radius
SKA044	21.443764	-30.711281	20-km Virtual Core radius
SKA045	21.45228	-30.711729	20-km Virtual Core radius
SKA046	21.444359	-30.711825	20-km Virtual Core radius
SKA047	21.440543	-30.711918	20-km Virtual Core radius
SKA048	21.442356	-30.712025	20-km Virtual Core radius
SKA049	21.443574	-30.712107	20-km Virtual Core radius
SKA050	21.444438	-30.712193	20-km Virtual Core radius
SKA051	21.443917	-30.712207	20-km Virtual Core radius
SKA052	21.442626	-30.712211	20-km Virtual Core radius
SKA053	21.443323	-30.712317	20-km Virtual Core radius
SKA054	21.447335	-30.712406	20-km Virtual Core radius
SKA055	21.441659	-30.712409	20-km Virtual Core radius
SKA056	21.443668	-30.712428	20-km Virtual Core radius
SKA057	21.442969	-30.71245	20-km Virtual Core radius
SKA058	21.442251	-30.712485	20-km Virtual Core radius
SKA059	21.444228	-30.712544	20-km Virtual Core radius
SKA060	21.40524	-30.712547	20-km Virtual Core radius
SKA061	21.445672	-30.712552	20-km Virtual Core radius
SKA062	21.44328	-30.712597	20-km Virtual Core radius
SKA063	21.435243	-30.712648	20-km Virtual Core radius
SKA064	21.442604	-30.712715	20-km Virtual Core radius
SKA065	21.442939	-30.712722	20-km Virtual Core radius
SKA066	21.444511	-30.71285	20-km Virtual Core radius
SKA067	21.445117	-30.712941	20-km Virtual Core radius
SKA068	21.441913	-30.71295	20-km Virtual Core radius
SKA069	21.442686	-30.712981	20-km Virtual Core radius
SKA070	21.458393	-30.712991	20-km Virtual Core radius
SKA071	21.444106	-30.712991	20-km Virtual Core radius
SKA072	21.442338	-30.713089	20-km Virtual Core radius
SKA073	21.443222	-30.713174	20-km Virtual Core radius
SKA074	21.442917	-30.713281	20-km Virtual Core radius
SKA075	21.443936	-30.713328	20-km Virtual Core radius
SKA076	21.444288	-30.713364	20-km Virtual Core radius
SKA077	21.440038	-30.713405	20-km Virtual Core radius

SKA078	21.442263	-30.713413	20-km Virtual Core radius
SKA079	21.443595	-30.713434	20-km Virtual Core radius
SKA080	21.443255	-30.713481	20-km Virtual Core radius
SKA081	21.444612	-30.713603	20-km Virtual Core radius
SKA082	21.444405	-30.713665	20-km Virtual Core radius
SKA083	21.437757	-30.713717	20-km Virtual Core radius
SKA084	21.441878	-30.713786	20-km Virtual Core radius
SKA085	21.442481	-30.713809	20-km Virtual Core radius
SKA086	21.443404	-30.713858	20-km Virtual Core radius
SKA087	21.442744	-30.714023	20-km Virtual Core radius
SKA088	21.443683	-30.714159	20-km Virtual Core radius
SKA089	21.445795	-30.714161	20-km Virtual Core radius
SKA090	21.44105	-30.714684	20-km Virtual Core radius
SKA091	21.443552	-30.714778	20-km Virtual Core radius
SKA092	21.447484	-30.714879	20-km Virtual Core radius
SKA093	21.442161	-30.714887	20-km Virtual Core radius
SKA094	21.444252	-30.715123	20-km Virtual Core radius
SKA095	21.439897	-30.715681	20-km Virtual Core radius
SKA096	21.455538	-30.715743	20-km Virtual Core radius
SKA097	21.443939	-30.716027	20-km Virtual Core radius
SKA098	21.437642	-30.716174	20-km Virtual Core radius
SKA099	21.444992	-30.716377	20-km Virtual Core radius
SKA100	21.449036	-30.717223	20-km Virtual Core radius
SKA101	21.444662	-30.718358	20-km Virtual Core radius
SKA102	21.436356	-30.718739	20-km Virtual Core radius
SKA103	21.440217	-30.719265	20-km Virtual Core radius
SKA104	21.447266	-30.720233	20-km Virtual Core radius
SKA105	21.532299	-30.723754	20-km Virtual Core radius
SKA106	21.432849	-30.720913	20-km Virtual Core radius
SKA107	21.3975	-30.722426	20-km Virtual Core radius
SKA108	21.433899	-30.725179	20-km Virtual Core radius
SKA109	21.437646	-30.729515	20-km Virtual Core radius
SKA110	21.511124	-30.73479	20-km Virtual Core radius
SKA111	21.442417	-30.734251	20-km Virtual Core radius
SKA112	21.18377	-30.728811	Spiral Arm
SKA113	21.391708	-30.736333	20-km Virtual Core radius
SKA114	21.452432	-30.739759	20-km Virtual Core radius
SKA115	21.49394	-30.73719	20-km Virtual Core radius
SKA116	21.460272	-30.742016	20-km Virtual Core radius
SKA117	21.472848	-30.736715	20-km Virtual Core radius
SKA118	21.394676	-30.752293	20-km Virtual Core radius
SKA119	21.397161	-30.778551	20-km Virtual Core radius
SKA120	21.887418	-30.75981	Spiral Arm
SKA121	21.41272	-30.80198	20-km Virtual Core radius

SKA122	21.14482	-30.809841	Spiral Arm
SKA123	21.423691	-30.841585	20-km Virtual Core radius
SKA124	21.804492	-30.84449	Spiral Arm
SKA125	21.458958	-30.86529	20-km Virtual Core radius
SKA126	21.50862	-30.87965	Spiral Arm
SKA127	21.697338	-30.883676	Spiral Arm
SKA128	21.635612	-30.869177	Spiral Arm
SKA129	21.108905	-30.910611	Spiral Arm
SKA130	21.077184	-31.041894	Spiral Arm
SKA131	21.169521	-31.201255	Spiral Arm
SKA132	21.267823	-31.340773	Spiral Arm
SKA133	21.499014	-31.519592	Spiral Arm

DEPARTEMENT VAN WETenskap EN INNOVASIE

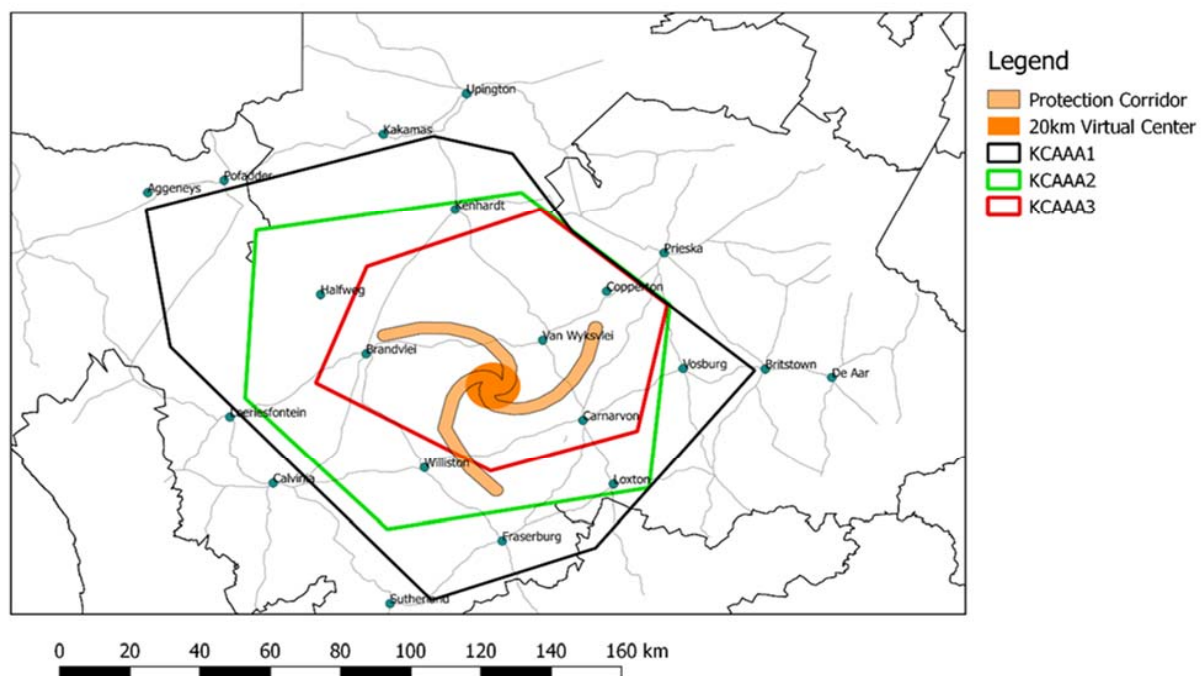
NO. 3688

18 Julie 2023

KENNISGEWING VAN VOORNEMING OM DIE REGULASIES VAN DIE BESKERMING VAN DIE KAROO SENTRALE ASTRONOMIEVOORDEELGEBIEDE, GEMAAK INGEVOLGE DIE WET OP GEOGRAFIESE ASTRONOMIEVOORDEELGEBIEDE, 2007 TE WYSIG

Ek, Dr. Bonginkosi Emmanuel Nzimande, Minister van Hoër Onderwys, Wetenskap en Innovasie, in terme van Artikel 50 van die Wet op Geografiese Astronomievoordeelgebiede (Wet Nr. 21 van 2007), gee hiermee kennis van my voorneme om die Regulasies van die Beskerming van die Karoo Sentrale Astronomievoordeelgebiede (KSA), uit te brei ingevolge Skedule A van dié Kennisgewing.

In terme van Artikel 1 van die KSA Regulasies, gepubliseer in die Staatskoerant Nr. 41321 onder Kennisgewing Nr. 1411 op 15 Desember 2017 word “*beskermingsgange*” gedefinieer as, “*10-km wye gange van grond, op die radio-astronomiese spiraal arms konfigurasie gesentreer, waar SKA-stasies binne die Karoo sentrale voordeelgebied 1 geplaas sal word, wat ook op die Karoo voordeelgebiede 2 en 3 van toepassing is, afhange van die radiofrekwensie spektrum in gebruik, soos uitgebeeld en omskryf in Bylae A van hierdie Skedule A*” (sien Figuur 1).



Figuur 1: Illustrasie van die 20-km Virtuele Middelpunt en die Spiraal Arms Bekermingsgange soos per Bylae A van Skedule A van die KSA

Ten tye van die ontwikkeling van die KSA Regulasies, was die ligging vir die plasing van die SKA_MID antennes nog nie gefinaliseer nie en die beskermingsgange was bloot gebruik as aanwysings van moontlike areas waar die antennes geplaas kon word.

Die finale serwitute, van die spiraal arm SKA_MID antennes, is nou vasgestel en as gevolg moet die definisie van "*beskeringsgange*" gewysig word om te verwys na die 4 hektaar grond, op die spiraal arm konfigurasie, waarbinne SKA stasies geplaas sal word.

In lyn met Artikel 51 (2) van die Wet op Geografiese Astronomievoordeelgebiede, 2007 , word belangstellende en geaffekteerde partye uitgenooi om binne 60 (sestig) dae, vanaf die publikasie van dié kennisgewing skriftelike versoë of besware teen die voorgenome wysiging tot die KSA Regulasies, soos uiteen gesit in die onderstaande Skedule A.

Enige navrae aangaande hierdie kennisgewing kan gerig word aan Mnr. Mere Kgampe by telefoonnommer: (012) 843 6644 of e-pos: mere.kgampe@dst.gov.za



DR B E NZIMANDE, LP
MINISTER VAN HOËR ONDERWYS, WETENSKAP EN INNOVASIE

KENNISGEWING VAN VOORNEMING OM DIE REGULASIES VAN DIE BESKERMING VAN DIE KAROO SENTRALE ASTRONOMIEVOORDEELGEBIEDE, GEMAAK INGEVOLGE DIE WET OP GEOGRAFIESE ASTRONOMIEVOORDEELGEBIEDE, 2007 TE WYSIG

SKEDULE A

1. Wysiging van die definisies in Artikel 1 van Skedule A van die Karoo Sentrale Astronomievoordeelgebiede (KSA) Regulasies

Regulasie 1 van Skedule A van die KSA Regulasies word hiermee gewysig deur die vervanging van die definisie van “*beskermingsgange*” met die volgende definisie:

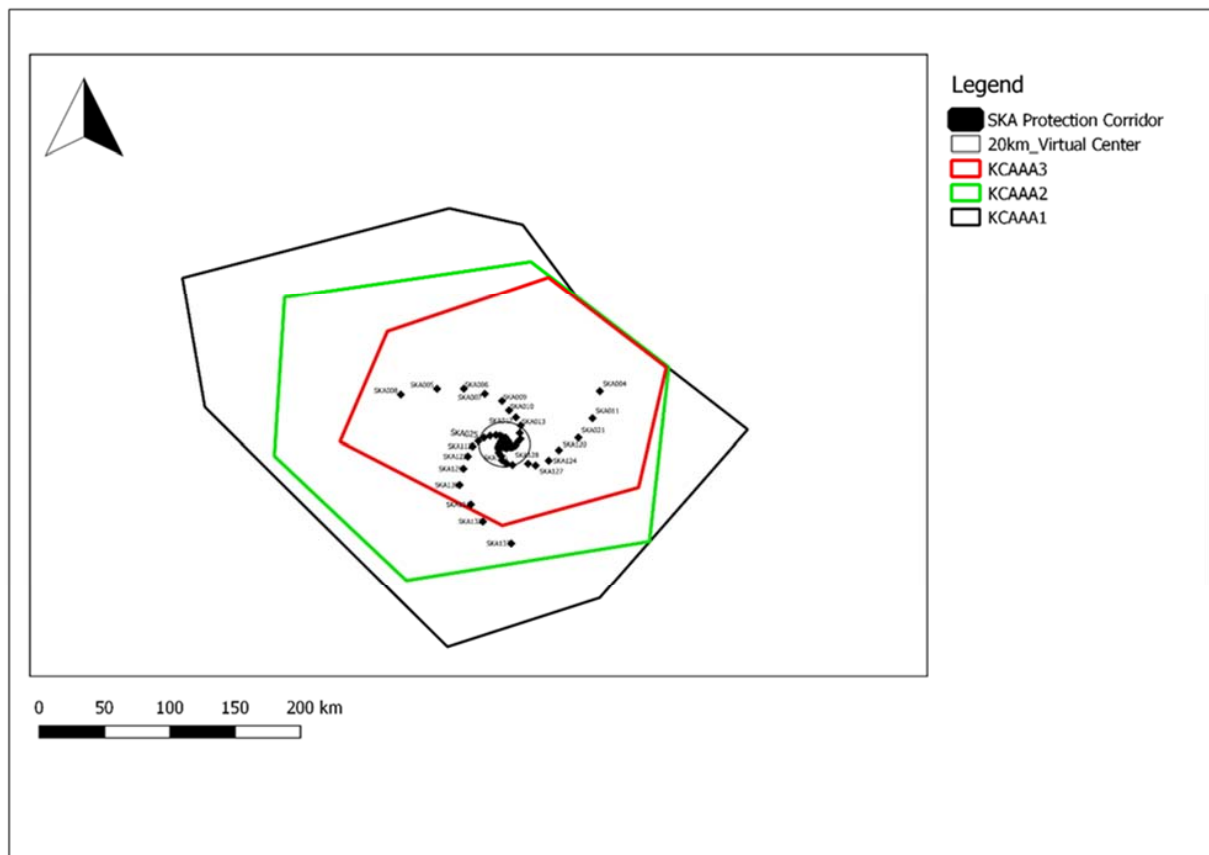
“**beskermingsgange**” beteken erwe, elk 4 hektaars groot, elk sentraal tot a SKA_MID stasie, geplaas langs ‘n bepaalde roete langs een van drie spiraal arms binne die KSA 1 en sal ook van toepassing wees op KSA 2 en 3, afhangende van die frekwensiespektrum in gebruik.

2. Wysiging van Bylae A van Skedule A van die KSA Regulasies

Bylae A van Skedule A van die KSA Regulasies word hiermee gewysig deur die vervanging van paragraaf 1 met die volgende paragraaf:

- (1) Die kaart op die volgende bladsy beeld die 20-km radius straal sirkel rondom die SKA Virtuele Middelpunt, waarbinne 173 SKA radio-astronomie stasies geplaas sal word. Die kaart toon ook 24 beskermingsgange nodig vir 24 SKA radio-astronomie stasies binne die Karoo Sentrale Astronomievoordeelgebied 1.

Die kaart vir die beskermingsgange, verwys na in paragraaf 1 van Bylae A van Skedule A van die KSA Regulasies, word hiermee gewysig deur dit te vervang met die kaart geïllustreer in *Figuur 1* van dié Kennisgewing, hieronder.



Figuur 1: Kaart van die beskermingsgange en SKA Teleskoopstasie in die KSA

Bylae A van Skedule A van die KSA Regulasies word hiermee gewysig deur die toevoeging van Tafel 1 hieronder om geodetiese koördinate van alle SKA_MID antennes binne die 20-km straal sirkel rondom die SKA Virtuele Middelpunt en in die radio-astronomiese spiraal arms te gee:

Tafel 1: Geodetiese koördinate van alle SKA_MID Antennes insluitend die MeerKAT radio antennes

SKA Tuiste	Lengtegraad	Breedtegraad	Ligging
M000	21.443803	-30.712925	SKA Virtuele Middelpunt
M001	21.443901	-30.712605	20-km Virtuele straal sirkel
M002	21.443554	-30.713078	20-km Virtuele straal sirkel
M003	21.443195	-30.71288	20-km Virtuele straal sirkel
M004	21.442599	-30.713337	20-km Virtuele straal sirkel
M005	21.442824	-30.713609	20-km Virtuele straal sirkel
M006	21.443699	-30.71372	20-km Virtuele straal sirkel
M007	21.442954	-30.714688	20-km Virtuele straal sirkel

M008	21.442913	-30.715881	20-km Virtuele straal sirkel
M009	21.444227	-30.714402	20-km Virtuele straal sirkel
M010	21.444809	-30.715672	20-km Virtuele straal sirkel
M011	21.444766	-30.714231	20-km Virtuele straal sirkel
M012	21.445351	-30.714377	20-km Virtuele straal sirkel
M013	21.446361	-30.714604	20-km Virtuele straal sirkel
M014	21.44682	-30.713633	20-km Virtuele straal sirkel
M015	21.446088	-30.713032	20-km Virtuele straal sirkel
M016	21.446897	-30.712732	20-km Virtuele straal sirkel
M017	21.445973	-30.712068	20-km Virtuele straal sirkel
M018	21.444993	-30.713273	20-km Virtuele straal sirkel
M019	21.445672	-30.713628	20-km Virtuele straal sirkel
M020	21.444902	-30.713758	20-km Virtuele straal sirkel
M021	21.4408	-30.714007	20-km Virtuele straal sirkel
M022	21.440525	-30.712338	20-km Virtuele straal sirkel
M023	21.439996	-30.711051	20-km Virtuele straal sirkel
M024	21.440225	-30.709702	20-km Virtuele straal sirkel
M025	21.44199	-30.709021	20-km Virtuele straal sirkel
M026	21.442856	-30.710902	20-km Virtuele straal sirkel
M027	21.444312	-30.711264	20-km Virtuele straal sirkel
M028	21.443355	-30.711842	20-km Virtuele straal sirkel
M029	21.442963	-30.712175	20-km Virtuele straal sirkel
M030	21.445677	-30.710028	20-km Virtuele straal sirkel
M031	21.446463	-30.71021	20-km Virtuele straal sirkel
M032	21.448704	-30.709473	20-km Virtuele straal sirkel
M033	21.44995	-30.703264	20-km Virtuele straal sirkel
M034	21.447624	-30.711311	20-km Virtuele straal sirkel
M035	21.44792	-30.712687	20-km Virtuele straal sirkel
M036	21.447942	-30.713678	20-km Virtuele straal sirkel
M037	21.447859	-30.715198	20-km Virtuele straal sirkel
M038	21.446116	-30.716188	20-km Virtuele straal sirkel
M039	21.446538	-30.716396	20-km Virtuele straal sirkel
M040	21.443609	-30.717479	20-km Virtuele straal sirkel
M041	21.440888	-30.717023	20-km Virtuele straal sirkel
M042	21.440114	-30.715207	20-km Virtuele straal sirkel
M043	21.437315	-30.712213	20-km Virtuele straal sirkel
M044	21.434536	-30.70564	20-km Virtuele straal sirkel
M045	21.424759	-30.708649	20-km Virtuele straal sirkel
M046	21.428576	-30.695255	20-km Virtuele straal sirkel
M047	21.437853	-30.715721	20-km Virtuele straal sirkel
M048	21.414612	-30.686821	20-km Virtuele straal sirkel
M049	21.406253	-30.707114	20-km Virtuele straal sirkel
M050	21.422466	-30.718663	20-km Virtuele straal sirkel

M051	21.435014	-30.717994	20-km Virtuele straal sirkel
M052	21.437697	-30.721415	20-km Virtuele straal sirkel
M053	21.443987	-30.72282	20-km Virtuele straal sirkel
M054	21.452991	-30.715563	20-km Virtuele straal sirkel
M055	21.456433	-30.710185	20-km Virtuele straal sirkel
M056	21.460572	-30.706846	20-km Virtuele straal sirkel
M057	21.446964	-30.681656	20-km Virtuele straal sirkel
M058	21.473168	-30.686821	20-km Virtuele straal sirkel
M059	21.482364	-30.704206	20-km Virtuele straal sirkel
M060	21.479589	-30.727649	20-km Virtuele straal sirkel
M061	21.443718	-30.732013	20-km Virtuele straal sirkel
M062	21.428849	-30.733635	20-km Virtuele straal sirkel
M063	21.408191	-30.727649	20-km Virtuele straal sirkel
SKA001	21.449412	-30.71329	20-km Virtuele straal sirkel
SKA002	21.443214	-30.711544	20-km Virtuele straal sirkel
SKA003	21.442342	-30.710966	20-km Virtuele straal sirkel
SKA004	22.221828	-30.280881	Spiraal Arm
SKA005	20.893386	-30.262241	Spiraal Arm
SKA006	21.112343	-30.260672	Spiraal Arm
SKA007	21.28299	-30.303073	Spiraal Arm
SKA008	20.597376	-30.308659	Spiraal Arm
SKA009	21.423604	-30.360973	Spiraal Arm
SKA010	21.481185	-30.437353	Spiraal Arm
SKA011	22.162269	-30.501569	Spiraal Arm
SKA012	21.536952	-30.495238	Spiraal Arm
SKA013	21.576635	-30.56085	Spiraal Arm
SKA014	21.568196	-30.622317	20-km Virtuele straal sirkel
SKA015	21.374214	-30.638584	20-km Virtuele straal sirkel
SKA016	21.325844	-30.643727	20-km Virtuele straal sirkel
SKA017	21.406331	-30.642963	20-km Virtuele straal sirkel
SKA018	21.425892	-30.653862	20-km Virtuele straal sirkel
SKA019	21.276855	-30.658922	20-km Virtuele straal sirkel
SKA020	21.451767	-30.659316	20-km Virtuele straal sirkel
SKA021	22.04672	-30.65899	Spiraal Arm
SKA022	21.573851	-30.669603	20-km Virtuele straal sirkel
SKA023	21.460885	-30.674468	20-km Virtuele straal sirkel
SKA024	21.462108	-30.686657	20-km Virtuele straal sirkel
SKA025	21.23088	-30.68665	Spiraal Arm
SKA026	21.464027	-30.692349	20-km Virtuele straal sirkel
SKA027	21.551131	-30.694973	20-km Virtuele straal sirkel
SKA028	21.43018	-30.70076	20-km Virtuele straal sirkel
SKA029	21.434492	-30.701264	20-km Virtuele straal sirkel
SKA030	21.439049	-30.702356	20-km Virtuele straal sirkel

SKA031	21.421559	-30.702581	20-km Virtuele straal sirkel
SKA032	21.464587	-30.702805	20-km Virtuele straal sirkel
SKA033	21.44447	-30.704982	20-km Virtuele straal sirkel
SKA034	21.413573	-30.706149	20-km Virtuele straal sirkel
SKA035	21.440989	-30.706517	20-km Virtuele straal sirkel
SKA036	21.445301	-30.707819	20-km Virtuele straal sirkel
SKA037	21.462229	-30.708744	20-km Virtuele straal sirkel
SKA038	21.440591	-30.708913	20-km Virtuele straal sirkel
SKA039	21.443686	-30.709254	20-km Virtuele straal sirkel
SKA040	21.435079	-30.708993	20-km Virtuele straal sirkel
SKA041	21.441639	-30.710689	20-km Virtuele straal sirkel
SKA042	21.44512	-30.711168	20-km Virtuele straal sirkel
SKA043	21.43909	-30.711278	20-km Virtuele straal sirkel
SKA044	21.443764	-30.711281	20-km Virtuele straal sirkel
SKA045	21.45228	-30.711729	20-km Virtuele straal sirkel
SKA046	21.444359	-30.711825	20-km Virtuele straal sirkel
SKA047	21.440543	-30.711918	20-km Virtuele straal sirkel
SKA048	21.442356	-30.712025	20-km Virtuele straal sirkel
SKA049	21.443574	-30.712107	20-km Virtuele straal sirkel
SKA050	21.444438	-30.712193	20-km Virtuele straal sirkel
SKA051	21.443917	-30.712207	20-km Virtuele straal sirkel
SKA052	21.442626	-30.712211	20-km Virtuele straal sirkel
SKA053	21.443323	-30.712317	20-km Virtuele straal sirkel
SKA054	21.447335	-30.712406	20-km Virtuele straal sirkel
SKA055	21.441659	-30.712409	20-km Virtuele straal sirkel
SKA056	21.443668	-30.712428	20-km Virtuele straal sirkel
SKA057	21.442969	-30.71245	20-km Virtuele straal sirkel
SKA058	21.442251	-30.712485	20-km Virtuele straal sirkel
SKA059	21.444228	-30.712544	20-km Virtuele straal sirkel
SKA060	21.40524	-30.712547	20-km Virtuele straal sirkel
SKA061	21.445672	-30.712552	20-km Virtuele straal sirkel
SKA062	21.44328	-30.712597	20-km Virtuele straal sirkel
SKA063	21.435243	-30.712648	20-km Virtuele straal sirkel
SKA064	21.442604	-30.712715	20-km Virtuele straal sirkel
SKA065	21.442939	-30.712722	20-km Virtuele straal sirkel
SKA066	21.444511	-30.71285	20-km Virtuele straal sirkel
SKA067	21.445117	-30.712941	20-km Virtuele straal sirkel
SKA068	21.441913	-30.71295	20-km Virtuele straal sirkel
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SKA070	21.458393	-30.712991	20-km Virtuele straal sirkel
SKA071	21.444106	-30.712991	20-km Virtuele straal sirkel
SKA072	21.442338	-30.713089	20-km Virtuele straal sirkel
SKA073	21.443222	-30.713174	20-km Virtuele straal sirkel

SKA074	21.442917	-30.713281	20-km Virtuele straal sirkel
SKA075	21.443936	-30.713328	20-km Virtuele straal sirkel
SKA076	21.444288	-30.713364	20-km Virtuele straal sirkel
SKA077	21.440038	-30.713405	20-km Virtuele straal sirkel
SKA078	21.442263	-30.713413	20-km Virtuele straal sirkel
SKA079	21.443595	-30.713434	20-km Virtuele straal sirkel
SKA080	21.443255	-30.713481	20-km Virtuele straal sirkel
SKA081	21.444612	-30.713603	20-km Virtuele straal sirkel
SKA082	21.44405	-30.713665	20-km Virtuele straal sirkel
SKA083	21.437757	-30.713717	20-km Virtuele straal sirkel
SKA084	21.441878	-30.713786	20-km Virtuele straal sirkel
SKA085	21.442481	-30.713809	20-km Virtuele straal sirkel
SKA086	21.443404	-30.713858	20-km Virtuele straal sirkel
SKA087	21.442744	-30.714023	20-km Virtuele straal sirkel
SKA088	21.443683	-30.714159	20-km Virtuele straal sirkel
SKA089	21.445795	-30.714161	20-km Virtuele straal sirkel
SKA090	21.44105	-30.714684	20-km Virtuele straal sirkel
SKA091	21.443552	-30.714778	20-km Virtuele straal sirkel
SKA092	21.447484	-30.714879	20-km Virtuele straal sirkel
SKA093	21.442161	-30.714887	20-km Virtuele straal sirkel
SKA094	21.444252	-30.715123	20-km Virtuele straal sirkel
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SKA097	21.443939	-30.716027	20-km Virtuele straal sirkel
SKA098	21.437642	-30.716174	20-km Virtuele straal sirkel
SKA099	21.444992	-30.716377	20-km Virtuele straal sirkel
SKA100	21.449036	-30.717223	20-km Virtuele straal sirkel
SKA101	21.444662	-30.718358	20-km Virtuele straal sirkel
SKA102	21.436356	-30.718739	20-km Virtuele straal sirkel
SKA103	21.440217	-30.719265	20-km Virtuele straal sirkel
SKA104	21.447266	-30.720233	20-km Virtuele straal sirkel
SKA105	21.532299	-30.723754	20-km Virtuele straal sirkel
SKA106	21.432849	-30.720913	20-km Virtuele straal sirkel
SKA107	21.3975	-30.722426	20-km Virtuele straal sirkel
SKA108	21.433899	-30.725179	20-km Virtuele straal sirkel
SKA109	21.437646	-30.729515	20-km Virtuele straal sirkel
SKA110	21.511124	-30.73479	20-km Virtuele straal sirkel
SKA111	21.442417	-30.734251	20-km Virtuele straal sirkel
SKA112	21.18377	-30.728811	Spiraal Arm
SKA113	21.391708	-30.736333	20-km Virtuele straal sirkel
SKA114	21.452432	-30.739759	20-km Virtuele straal sirkel
SKA115	21.49394	-30.73719	20-km Virtuele straal sirkel
SKA116	21.460272	-30.742016	20-km Virtuele straal sirkel

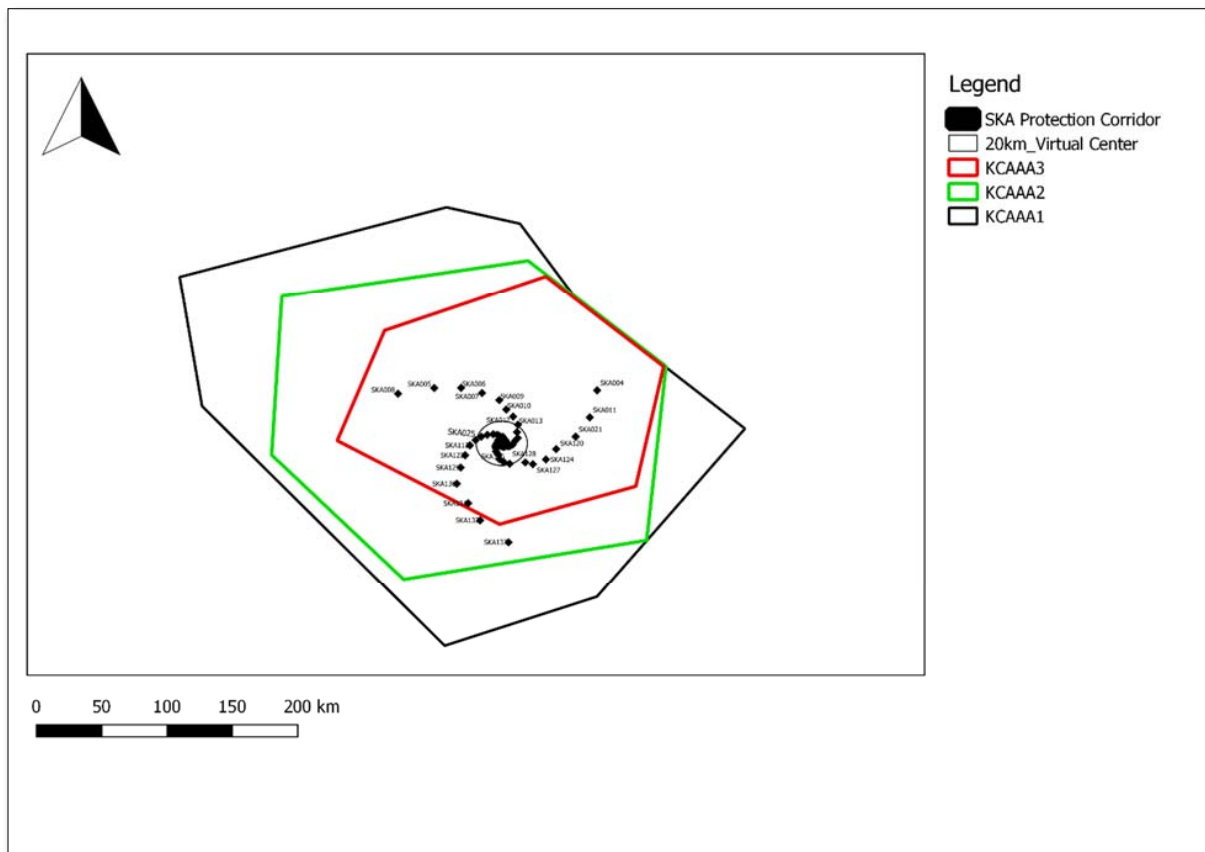
SKA117	21.472848	-30.736715	20-km Virtuele straal sirkel
SKA118	21.394676	-30.752293	20-km Virtuele straal sirkel
SKA119	21.397161	-30.778551	20-km Virtuele straal sirkel
SKA120	21.887418	-30.75981	Spiraal Arm
SKA121	21.41272	-30.80198	20-km Virtuele straal sirkel
SKA122	21.14482	-30.809841	Spiraal Arm
SKA123	21.423691	-30.841585	20-km Virtuele straal sirkel
SKA124	21.804492	-30.84449	Spiraal Arm
SKA125	21.458958	-30.86529	20-km Virtuele straal sirkel
SKA126	21.50862	-30.87965	Spiraal Arm
SKA127	21.697338	-30.883676	Spiraal Arm
SKA128	21.635612	-30.869177	Spiraal Arm
SKA129	21.108905	-30.910611	Spiraal Arm
SKA130	21.077184	-31.041894	Spiraal Arm
SKA131	21.169521	-31.201255	Spiraal Arm
SKA132	21.267823	-31.340773	Spiraal Arm
SKA133	21.499014	-31.519592	Spiraal Arm

3. Wysiging van die definisies in Artikel 1 van Skedule D van die KSA Regulasies

Regulasie 1 van Skedule D van die KSA Regulasies word hiermee gewysig deur die vervanging van die definisie van “*beskermingsgange*” met die volgende definisie:

“**beskermingsgange**” beteken erwe, elk 4 hektaars groot, elk sentraal tot a SKA_MID stasie, geplaas langs ‘n bepaalde roete langs een van drie spiraal arms binne die KSA 1 en sal ook van toepassing wees op KSA 2 en 3, afhangende van die frekwensiespektrum in gebruik.

Die kaart vir die beskermingsgange, verwys na in paragraaf 1 van Bylae A van Skedule D van die KSA Regulasies, word hiermee gewysig deur dit te vervang met die kaart geïllustreer in Figuur 2 hieronder.



Figuur 2: Kaart van die beskermingsgange en SKA Teleskoopstasie in die KSA

Bylae A van Skedule D van die KSA Regulasies word hiermee gewysig deur die toevoeging van Tafel 2 hieronder om geodetiese koördinate van alle SKA_MID antennas binne die 20-km straal sirkel rondom die SKA Virtuele Middelpunt en in die radio-astronomies spiraal arms te gee:

Tafel 2: Geodetiese koördinate van die SKA Radio Teleskoopstasies

SKA Tuiste	Lengtegraad	Breedtegraad	Ligging
M000	21.443803	-30.712925	SKA Virtuele Middelpunt
M001	21.443901	-30.712605	20-km Virtuele straal sirkel
M002	21.443554	-30.713078	20-km Virtuele straal sirkel
M003	21.443195	-30.71288	20-km Virtuele straal sirkel
M004	21.442599	-30.713337	20-km Virtuele straal sirkel
M005	21.442824	-30.713609	20-km Virtuele straal sirkel
M006	21.443699	-30.71372	20-km Virtuele straal sirkel

M007	21.442954	-30.714688	20-km Virtuele straal sirkel
M008	21.442913	-30.715881	20-km Virtuele straal sirkel
M009	21.444227	-30.714402	20-km Virtuele straal sirkel
M010	21.444809	-30.715672	20-km Virtuele straal sirkel
M011	21.444766	-30.714231	20-km Virtuele straal sirkel
M012	21.445351	-30.714377	20-km Virtuele straal sirkel
M013	21.446361	-30.714604	20-km Virtuele straal sirkel
M014	21.44682	-30.713633	20-km Virtuele straal sirkel
M015	21.446088	-30.713032	20-km Virtuele straal sirkel
M016	21.446897	-30.712732	20-km Virtuele straal sirkel
M017	21.445973	-30.712068	20-km Virtuele straal sirkel
M018	21.444993	-30.713273	20-km Virtuele straal sirkel
M019	21.445672	-30.713628	20-km Virtuele straal sirkel
M020	21.444902	-30.713758	20-km Virtuele straal sirkel
M021	21.4408	-30.714007	20-km Virtuele straal sirkel
M022	21.440525	-30.712338	20-km Virtuele straal sirkel
M023	21.439996	-30.711051	20-km Virtuele straal sirkel
M024	21.440225	-30.709702	20-km Virtuele straal sirkel
M025	21.44199	-30.709021	20-km Virtuele straal sirkel
M026	21.442856	-30.710902	20-km Virtuele straal sirkel
M027	21.444312	-30.711264	20-km Virtuele straal sirkel
M028	21.443355	-30.711842	20-km Virtuele straal sirkel
M029	21.442963	-30.712175	20-km Virtuele straal sirkel
M030	21.445677	-30.710028	20-km Virtuele straal sirkel
M031	21.446463	-30.71021	20-km Virtuele straal sirkel
M032	21.448704	-30.709473	20-km Virtuele straal sirkel
M033	21.44995	-30.703264	20-km Virtuele straal sirkel
M034	21.447624	-30.711311	20-km Virtuele straal sirkel
M035	21.44792	-30.712687	20-km Virtuele straal sirkel
M036	21.447942	-30.713678	20-km Virtuele straal sirkel
M037	21.447859	-30.715198	20-km Virtuele straal sirkel
M038	21.446116	-30.716188	20-km Virtuele straal sirkel
M039	21.446538	-30.716396	20-km Virtuele straal sirkel
M040	21.443609	-30.717479	20-km Virtuele straal sirkel
M041	21.440888	-30.717023	20-km Virtuele straal sirkel
M042	21.440114	-30.715207	20-km Virtuele straal sirkel
M043	21.437315	-30.712213	20-km Virtuele straal sirkel
M044	21.434536	-30.70564	20-km Virtuele straal sirkel
M045	21.424759	-30.708649	20-km Virtuele straal sirkel
M046	21.428576	-30.695255	20-km Virtuele straal sirkel
M047	21.437853	-30.715721	20-km Virtuele straal sirkel
M048	21.414612	-30.686821	20-km Virtuele straal sirkel
M049	21.406253	-30.707114	20-km Virtuele straal sirkel
M050	21.422466	-30.718663	20-km Virtuele straal sirkel

M051	21.435014	-30.717994	20-km Virtuele straal sirkel
M052	21.437697	-30.721415	20-km Virtuele straal sirkel
M053	21.443987	-30.72282	20-km Virtuele straal sirkel
M054	21.452991	-30.715563	20-km Virtuele straal sirkel
M055	21.456433	-30.710185	20-km Virtuele straal sirkel
M056	21.460572	-30.706846	20-km Virtuele straal sirkel
M057	21.446964	-30.681656	20-km Virtuele straal sirkel
M058	21.473168	-30.686821	20-km Virtuele straal sirkel
M059	21.482364	-30.704206	20-km Virtuele straal sirkel
M060	21.479589	-30.727649	20-km Virtuele straal sirkel
M061	21.443718	-30.732013	20-km Virtuele straal sirkel
M062	21.428849	-30.733635	20-km Virtuele straal sirkel
M063	21.408191	-30.727649	20-km Virtuele straal sirkel
SKA001	21.449412	-30.71329	20-km Virtuele straal sirkel
SKA002	21.443214	-30.711544	20-km Virtuele straal sirkel
SKA003	21.442342	-30.710966	20-km Virtuele straal sirkel
SKA004	22.221828	-30.280881	Spiraal Arm
SKA005	20.893386	-30.262241	Spiraal Arm
SKA006	21.112343	-30.260672	Spiraal Arm
SKA007	21.28299	-30.303073	Spiraal Arm
SKA008	20.597376	-30.308659	Spiraal Arm
SKA009	21.423604	-30.360973	Spiraal Arm
SKA010	21.481185	-30.437353	Spiraal Arm
SKA011	22.162269	-30.501569	Spiraal Arm
SKA012	21.536952	-30.495238	Spiraal Arm
SKA013	21.576635	-30.56085	Spiraal Arm
SKA014	21.568196	-30.622317	20-km Virtuele straal sirkel
SKA015	21.374214	-30.638584	20-km Virtuele straal sirkel
SKA016	21.325844	-30.643727	20-km Virtuele straal sirkel
SKA017	21.406331	-30.642963	20-km Virtuele straal sirkel
SKA018	21.425892	-30.653862	20-km Virtuele straal sirkel
SKA019	21.276855	-30.658922	20-km Virtuele straal sirkel
SKA020	21.451767	-30.659316	20-km Virtuele straal sirkel
SKA021	22.04672	-30.65899	Spiraal Arm
SKA022	21.573851	-30.669603	20-km Virtuele straal sirkel
SKA023	21.460885	-30.674468	20-km Virtuele straal sirkel
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SKA025	21.23088	-30.68665	Spiraal Arm
SKA026	21.464027	-30.692349	20-km Virtuele straal sirkel
SKA027	21.551131	-30.694973	20-km Virtuele straal sirkel
SKA028	21.43018	-30.70076	20-km Virtuele straal sirkel
SKA029	21.434492	-30.701264	20-km Virtuele straal sirkel
SKA030	21.439049	-30.702356	20-km Virtuele straal sirkel
SKA031	21.421559	-30.702581	20-km Virtuele straal sirkel

SKA032	21.464587	-30.702805	20-km Virtuele straal sirkel
SKA033	21.44447	-30.704982	20-km Virtuele straal sirkel
SKA034	21.413573	-30.706149	20-km Virtuele straal sirkel
SKA035	21.440989	-30.706517	20-km Virtuele straal sirkel
SKA036	21.445301	-30.707819	20-km Virtuele straal sirkel
SKA037	21.462229	-30.708744	20-km Virtuele straal sirkel
SKA038	21.440591	-30.708913	20-km Virtuele straal sirkel
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SKA112	21.18377	-30.728811	Spiraal Arm
SKA113	21.391708	-30.736333	20-km Virtuele straal sirkel
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SKA119	21.397161	-30.778551	20-km Virtuele straal sirkel

SKA120	21.887418	-30.75981	Spiraal Arm
SKA121	21.41272	-30.80198	20-km Virtuele straal sirkel
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SKA123	21.423691	-30.841585	20-km Virtuele straal sirkel
SKA124	21.804492	-30.84449	Spiraal Arm
SKA125	21.458958	-30.86529	20-km Virtuele straal sirkel
SKA126	21.50862	-30.87965	Spiraal Arm
SKA127	21.697338	-30.883676	Spiraal Arm
SKA128	21.635612	-30.869177	Spiraal Arm
SKA129	21.108905	-30.910611	Spiraal Arm
SKA130	21.077184	-31.041894	Spiraal Arm
SKA131	21.169521	-31.201255	Spiraal Arm
SKA132	21.267823	-31.340773	Spiraal Arm
SKA133	21.499014	-31.519592	Spiraal Arm

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