



## Square Kilometre Array (SKA) SA

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Mr. Ndumiso Dana  
The Independent Communications  
Authority of South Africa (ICASA)  
Block A, Pinmill Farm  
Katherine Street  
Sandton 2146

Attention:  
Mr. Ndumiso Dana  
E-mail: [ndana@icasa.org.za](mailto:ndana@icasa.org.za)

Date: 04 June 2018

Dear Mr. Dana,

### **RE: A NOTICE INVITING COMMENTS ON THE DISCUSSION DOCUMENT ON DIGITAL SOUND BROADCASTING**

The attached submission is made by the South African Radio Astronomy Observatory (SARAO), a business unit of the National Research Foundation (NRF) established in terms of the National Research Foundation Act, Act 23 of 1998.

The submission is made in response to the invitation by the Authority to submit written representations on the Discussion Document (Document) on Digital Sound Broadcasting (DSB) as published in Government Gazettes No. 41534 on 29 March 2018.

We congratulate the Authority in its effort to develop digital sound broadcasting services and thank you for the opportunity to contribute to the developments. We further confirm our willingness to participate in any further public consultation processes that might be undertaken by the Authority.

Kind Regards,

Busang Sethole on behalf of  
Mr. Selaelo Matlhane  
Spectrum & Telecoms Manager  
[smatlhane@ska.ac.za](mailto:smatlhane@ska.ac.za)

Date: 06 June 2018

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SARAO spearheads South Africa's activities in the Square Kilometre Array Radio Telescope in engineering, science and construction. SARAO is a National Facility managed by the National Research Foundation and incorporates radio astronomy instruments such as MeerKAT and KAT-7 in the Karoo, the Hartebeesthoek Radio Astronomy Observatory in Gauteng, the African Very Long Baseline Interferometry (AVN) programme in nine African countries as well as the associated human capital development and commercialisation endeavours.

Our submission consists of two parts. The first part is more relevant and relates to specific areas that may directly affect the Square Kilometre Array Telescope (SKA) or Radio Astronomy equipment and activities outside the declared Karoo Central Astronomy Advantage Areas. The second relates to general comments for merely contributing to improving the quality of the Document.

SARAO is not directly involved in the broadcasting market and as such, we would prefer not to respond to the specific questions that were asked in the Document.

### **1. The Impact on the SKA.**

#### **1.1 Provincial SFN Allocation of DAB frequencies in the Northern Cape.**

SARAO has noted the Single Frequency Network (SFN), DAB frequency allocations in Annexure B of the Document for the Northern Cape Province. We would like to indicate to the Authority that the band of allocation falls within the radio frequency spectrum declared for radio astronomy purposes in the declaration of the Karoo Central Advantage Areas (KCAAA) as published under Notice No.141 of 2014 on Government Gazette No. 37397.

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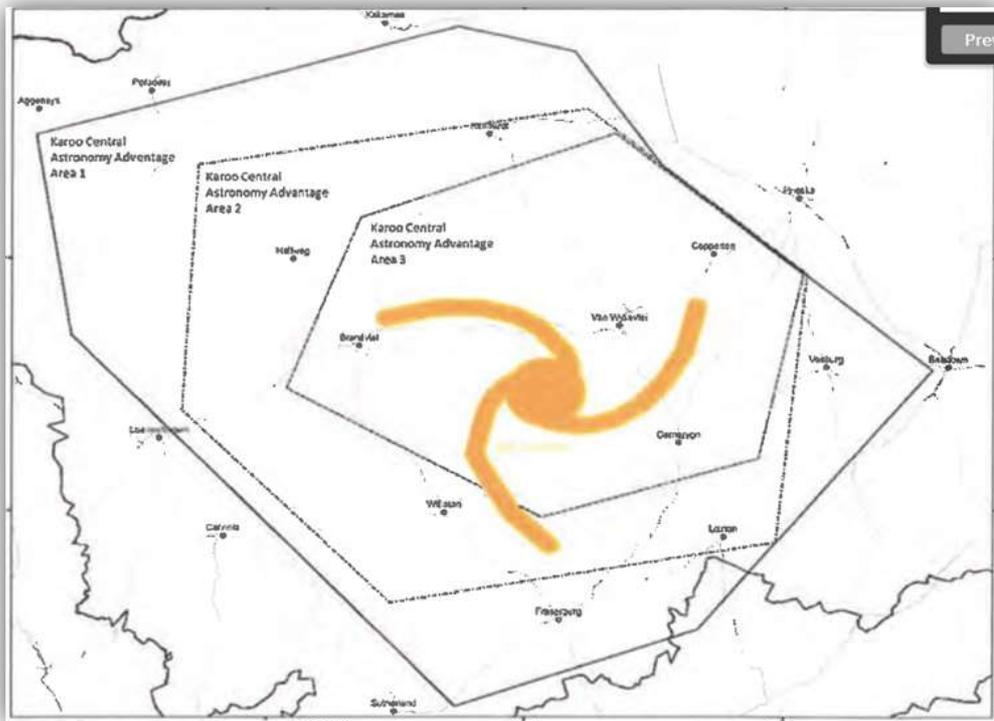


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As a result, the restrictions imposed by the KCAA Regulations published under Notice No. 1411 of in Government Gazette No. 41321 for the protection of radio astronomy observations would apply. The KCAA Regulations apply in the band 100 MHz to 25.5 GHz in the areas indicated in Figure 1.1 below. The restriction includes prohibitions of radio frequency spectrum usage within this spectrum unless it is exempted in accordance with a prescribe procedure and the protection requirements are complied with. We therefore, appeal to the Authority to take these provisions into account when it licenses DAB in the Northern Cape and apply the applicable restrictions and prohibitions to the licenses to be issued.



*Figure 1.1: Declared Karoo Central Advantage Areas.*

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## 1.2 DSB below 100 MHz

SARAO appreciates that the Authority has issued test licenses to assess DSB technologies that operates below 100 MHz to accommodate the protection of the SKA radio telescope. However, we would like to bring it to the Authority’s attention that Radio Astronomy Services (RAS) has the following allocations in terms of the ITU-R Table of Frequency Allocation and the National Radio Frequency Band Plan. As such, DRM30 broadcasting services operating adjacent to 25.55 – 25.67 MHz should ensure the protection of radio astronomy allocations as per No.5.149 of the ITU-R Radio Regulations, even outside the KCAAA.

RAS Allocation (MHz)	RAS Status	Comments
13.36 – 13.41	PRIMARY.	No adjacent BS allocation.
25.55 – 25.67	PRIMARY.	Any Broadcasting Services in the adjacent band (25.67 – 26.1 MHz) should consider 5.149 of the RR and ensure that RAS services are protected.
37.5 – 38.25	secondary.	No adjacent BS allocation.
73.0 – 74.6	secondary.	No adjacent BS allocation.

*Table 1.2: Radio Astronomy Allocations below 100 MHz.*

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### 2. General Comments

1. The second sentence in Paragraph 1.3 should start as, "The Policy has not..." instead of "The policy has not...". The word "policy" must begin with a capital letter.
2. The title of Annexure B of the Document is incorrectly written as DAB FREQUENCY ALLOTMENTS instead of DAB FREQUENCY ALLOCATIONS. The ITU-R differentiates between assignments, allocations and allotments. A similar error has been done in Paragraph 3.2.2.
3. In Paragraph 2.1, the main advantage of DSB is improved spectrum efficiency and not necessarily quality. DSB quality degrades rapidly with decreasing signal strength compared to analogue FM signal. In addition, it is not such a new technology anymore, the standards itself was developed in the 1980s while the first broadcasting was launched in 1995.
4. In Paragraph 3.2.2, the Authority must be consistent in the use of acronyms, the plan being referenced here should be TBFP 2013 and not TBFP. Again in this Paragraph, reference is incorrectly made to Annexure A of the Document instead of Annexure B.
5. In Paragraph 3.3.4(d), the Authority makes reference to FM Grade C. Grade C is not defined anywhere on the Document nor on any Regulations published by ICASA. This should, therefore, be removed and replaced with applicable levels as per TBFP 2013 or ITU definition.
6. With regard to test results in Paragraphs 3.3.4 (e) to 3.3.4(h), the Authority has previously indicated that one of the advantages of DSB is robustness, it is therefore, not clear why the power requirements are higher with DAB than with FM.
7. In Paragraph 4.1, the Authority should be cognisant that the GE06 Frequency Plan has been modified in 2013 as a results of the Resolutions of WRC-07 and WRC-12 and that the UHF band extends only to 690 MHz and not 862 MHz.

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