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Controls to Manage Radio Frequency Interference in a Radio Astronomy Environment

The Square Kilometre Array (SKA) project is an international effort to build the world's largest and most sensitive radio telescope. Although the SKA mid-frequency telescopes in South Africa will be located in an Astronomy Geographic Advantage (AGA) Area, the effective management of radio frequency interference (RFI) in the protected radio quiet zone (RQZ) will be crucial to the success of the project. Various RFI Controls and Management Tools have been developed internally to assist the SARAO RFI Team in this regard. RFI Policies and Procedures form the cornerstone of these tools. Equipment required on site is RFI Qualified in South Africa using either an Anechoic or Reverberation Chamber. The telescope protection thresholds (Continuum, Spectral Line and Saturation Thresholds) are applied to the measurements to produce RFI Controls in the form of a Permits, Certificates of Conformance (CoCs) or Non-Compliance Records (NCRs) accordingly. Each measurement report is filed and linked in a searchable RFI Reports Database, while an RFI Dashboard and automated mailing notification system ensures RFI Controls are tracked in a timely manner. RFI Detections and RFI Figure of Merit Dashboards have been developed to visually present the RFI environment as a function of time (day of the week, or month of the year, special activities on site, etc.).

Suggested duration

20 minutes

Primary author: Dr OTTO, Abraham Johannes (SKA-SA)

Co-authors: VAN DER MERWE, Carel (SKA-SA); TIPLADY, Adrian (SKA South Africa)

Presenter: Dr OTTO, Abraham Johannes (SKA-SA)

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