STATEMENT BY SOUTH AFRICA

**June 2021**

**LEGAL SUBCOMMITTEE OF THE COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE: 60 TH SESSION**

**Agenda Item No 12: General exchange of views on the legal aspects of space traffic management**

# Coexistence of radio astronomy and mega-constellations

**Chairperson, and Distinguished delegates**

The South African delegation wishes to make an intervention regarding the need to exchange views on the co-existance of radio astronomy facilities and mega-constallation satellite system, as part of activities in space traffic management.

**Chairperson,**

Our delegation wishes to express some concerns on the rapid escalation in the number of low orbit satellites (so-called mega-constellations). As presented in AC105_C1_2021_CRP17E.pdf (unoosa.org) Recommendations to Keep Dark and Quiet Skies for Science and Society, from the International Astronomical Union (IAU) and Spain to the Scientific and Technical Subcommittee at the Fifty-eighth session meeting from 19 to 30 April 2021. The impact of large constellations on radio and optical astronomy is a very relevant topic and require attention at this Committee to provide guidance on legal models that will reap mutual benefits on both fields.

**Chairperson,**

South Africa has a vibrant scientific community working on astronomy (both radio and optical domain), it is home of the MeerKAT radio telescope and future home of the SKA-MID telescope. The MeerKAT telescope is currently the most powerful radio interferometer in the world and it is a precursor of the SKA-MID which will greatly expand its capabilities.

South Africa is closely following the developments on large satellite constellations. While the country will benefit from the connectivity that they will provide, it is important to protect the night skies and the very pristine site in the Karoo (in radio frequency terms) for radio astronomy. We also believe that more needs to be done on monitoring of satellites' operations as this is crucial to ensure the protection of our radio astronomy sites.

**Chairperson**

Upon request from the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS, an On-line Workshop on Dark and Quiet Skies for Science and Society took place from 5 to 9 October 2020, which resulted in a dqskies-book-29-12-20.pdf (iau.org) Report and recommendations. The following two recommendations distill the discussion and the experience of radio astronomers and radio astronomy spectrum managers into two practical tools that are needed to allow radio astronomy to continue to operate:

- RAS1: Non-GSO satellites should be required to be able to avoid direct illumination of radio telescopes and radio quiet zones, especially the radar and other high-power satellite applications that are capable of burning out radio astronomy's receivers;
- RAS2: Non-GSO satellites should be required to have sidelobe levels that are low enough that their indirect illuminations of radio telescopes and radio quiet zones do not interfere, individually or in the aggregate

The International Telecommunication Union (ITU) Report RA.2259 describes characteristics of Radio Quiet Zones. Different countries around the world update the Report RA.2259 on a regular basis to provide new information on each declared radio quiet zone.

**Chairperson**

The issue of Dark and Quiet Skies for Science and Society, and the issue of low orbit satellites (so-called mega-constellations) are both very important to South Africa. To facilitate co-existance, the view of South Africa is that it should be legally binding to have satellite monitoring stations in the vicinity of applicable ITU registered Radio Quiet Zones. The operators of low orbit satellites should make use of satellite monitoring stations to provide assurance to the Radio Quiet Zone operators of no direct illumination to the Radio Quiet Zone (RAS1), and sidelobe levels low enough (RAS2) to allow radio astronomy activities to continue.

**Thank you Chairperson**