

Science Assessment Team Terms of Reference:

The frequency coverage of SKA1-Low and its Science Impact

Terms of Reference: 07/04/2017

The terms of reference for this science assessment team are the following:

- 1) Assess and document the scientific implications of a reduction of the optimised(/total) frequency coverage of the SKA1-Low antenna system from its current 100–300(/50–350) MHz range to the more restricted optimised range of 100–200(/50–350) MHz. You should assume that the full 300 MHz of processed bandwidth would still be available in either scenario. Consideration can also be given to the possibility that some (10 – 20%) improvement in sensitivity may be provided within the optimised frequency window, although accompanied by significantly reduced sensitivity (>50%) above 250 MHz.
- 2) Updates: since publication of the SKA science book chapters (URL below) two years have passed and scientific understanding has evolved. It is desirable to document any new insights or experience pertaining to the frequency range of SKA1-Low.
- 3) Any other matters relevant to the frequency coverage, sensitivity and spectral smoothness of SKA1-Low that the team feel should be addressed, or whether there are pertinent Level 1 requirements that may currently be incomplete or missing.

Timeline

The activity of this team is anticipated to proceed according to the following timeline:

- 1) Beginnings - the work of the team should commence as soon as is practicable. Any additional relevant information arising from the recent SKA Board Meeting of March 29/30 will be communicated by SKAO to the team as soon as possible.
- 2) May 10th - Interim Report/Update. An interim report to update both the SKAO and SWG Chairs of progress made. This will allow sufficient time to consider the findings of the team and how it relates to the preparation of the SKAO and the SWG Chairs for the SKA Town Hall Meeting scheduled for May 18/19.
- 3) June 1st - Interim Report/Update.
- 4) July 1st - Final report. This allows sufficient time for the team's output to be considered by the SKAO, including any impact on submitted board papers, ahead of the SKA Board Meeting scheduled for July 18/19.

It is not anticipated that in-person meetings would be necessary for the work of this team, and that video-conferencing etc. should be sufficient. However if the team deems it necessary the SKAO will help in any way it can to facilitate such meetings.

Useful Links

SKA Science Book Chapters,
<https://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=215>

Level 0 Requirements, Braun et al. 2015, SKA-TEL-SKO-0000007:
http://astronomers.skatelescope.org/wp-content/uploads/2015/11/SKA-TEL-SKO-0000007_SKA1_Level_0_Science_RequirementsRev02-part-1-signed.pdf

Level 1 Requirements, revision 10, SKA-TEL-SKO-0000008:
http://astronomers.skatelescope.org/wp-content/uploads/2016/12/SKA-TEL-SKO-0000008_10-SKA1_System_Requirement_Specification.pdf