

RFI mitigation

1. Current Status

All the essential lines of defence (of which we are aware) are covered. All require further work and assessment.

- Site selection
- Front-end filters
- Noise canceling adaptive filters
- Null steering at the station level
- blanking
- Post-correlation procedures
- Dynamic scheduling

The coordination machinery (via the SKA/INTMIT web site) appears to be working well.

2. Problems

At this stage this discipline is largely non-quantitative, with consequences for other SKA areas.

- Site section (output): Measured levels from site surveys are needed to set design goals.
- Site selection (input) The cost of achieving required levels of attenuation are part of the trade-offs in site selection
- Mitigation schemes – there is a need to provide measures of the attenuation achievable.
- Different mitigation schemes will be affected in different ways by the system performance – the cost of achieving specified attenuation levels in the face of, eg. non-linearities, sampler precision, INR need to be quantified.
- Linearity - Need to know the RFI thresholds for the onset of non-linearity.

- Some mitigation schemes may have down-stream effects, posing problems for the calibration/imaging machinery.

3. Recommendations

- There should be a quantified report from each group on the performance achieved and planned. --- In one year's time?
- The work should be subjected to serious scrutiny – publication in refereed journals is recommended, along with reports on the SKA/INTMIT web.
- The standardization work should continue – as in the site RFI survey work, and in the test data (eg, baseband data with RFI).