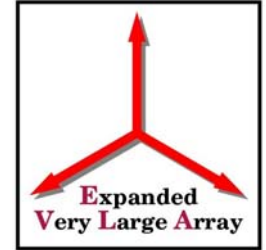


EVLA Receivers PDR

RFI Issues



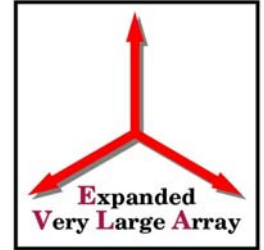
RFI Issues



- 1) Design-in RFI immunity. (Essential goal)
- 2) Engineer-in low radiation from all internal designs, accept only low radiation devices from external suppliers. (Essential goal)
- 3) Monitor & reduce external & internal RFI. (Important goal)
- 4) Excision & post-processing techniques. (Important goal)



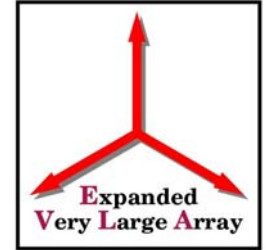
RFI Issues: Immunity



- 1) First stages gain limited to what is required to maintain low noise figure—Careful attention to IDR at all stages.
- 2) Use medium-level mixers where possible.
- 3) 8 bit ADC @ L-band where RFI is worst.
- 4) Wide LDR using post-dewar AGC.



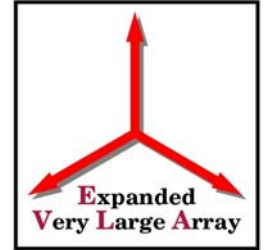
RFI Issues: Lower Internal Emissions



- 1) Keep MIB “static”—Only clock when transferring data or processing.
- 2) Use LVDS where possible to reduce emissions.
- 3) Use high-quality shielding for all radiating circuits.
- 4) Characterize & document all un-avoidable RFI.



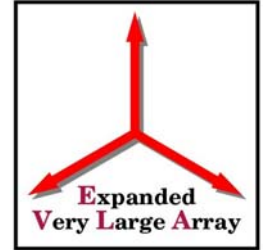
RFI Issues: Reduce External RFI



- 1) EMC-test all incoming electronic devices.
- 2) “Sweep” the site on a periodic basis.
- 3) Monitor & ID external RFI
- 4) Work with external sources to reduce unintended emissions.
- 5) Frequency Coordinate with “friendly” external spectrum users.



RFI Issues: Excision



- 1) Observe “around” the RFI in frequency.
- 2) Observe “around” the RFI in time.
- 3) ID transient signals in post- correlation data—Snip-it-out, in amplitude or time.
- 4) Fine DDS frequency resolution will allow more precise separation of non-sidereal “motion” emitters.