



Contribution ID: 50

Type: not specified

## Three stage Low Noise Amplifier (LNA) design for G/Tsys improvement in L band

G/Tsys is defined as the ratio of gain (K/Jy) and the system temperature. The system temperature (Tsys) depends on ground temperature, sky temperature, and receiver temperature. Receiver temperature primarily depends on the noise of the low noise amplifier (LNA). The objective of this work is to design a three-stage LNA in the L band (1 GHz-1.7 GHz) with a noise temperature of less than 40 K and increased gain of 45 dB. The ATF-54143 (HEMT) is used as a device for designing this LNA. The first stage and second stage of the LNA minimize the noise with a compromise of its gain whereas in the third stage we improve the gain so that overall gain is maintained. The dynamic range of the LNA was taken care of by reducing the gain on the first and second stage and improved the gain in the third stage. The LNA is installed in the GMRT antenna and its performance is studied. The new LNA shows improved sensitivity compared to our existing LNA.

### Presentation type

Poster

**Primary authors:** RAUT, Anil (NCRA-TIFR, Pune); CHATTERJEE, Sougata (NCRA-TIFR)

**Presenters:** RAUT, Anil (NCRA-TIFR, Pune); CHATTERJEE, Sougata (NCRA-TIFR)

**Track Classification:** Antenna and RF