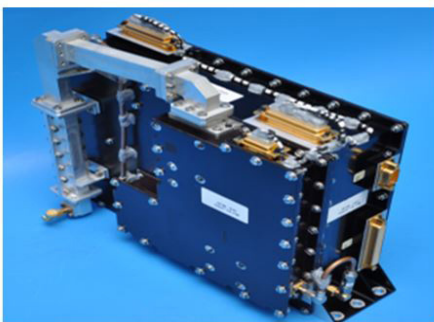
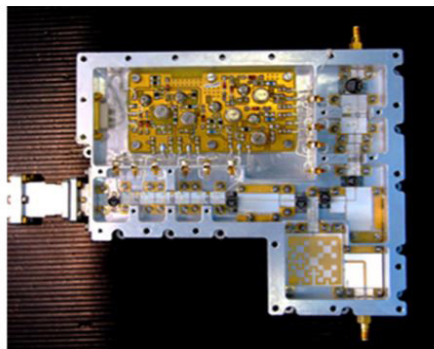


Ku-Band Telecommand and Ranging Receiver

U R Rao Satellite Centre (URSC) of Indian Space Research Organisation (ISRO) has developed a Ku-Band Telecommand and Ranging Receiver to provide TTC services for geostationary satellites.



Ku Receiver



Ku RF Front End

Salient Features

- ✦ Two stage super heterodyne receiver.
- ✦ Modular based design approach.
- ✦ RF Front end module acts as down converter for Ku band to UHF band.
- ✦ Synthesizer based local oscillator generation gives frequency setting flexibility with sub kHz resolution.
- ✦ Frequency generation using active multiplier, driver amplifier with filters at Ku band.
- ✦ Inhouse designed mixers operating at low LO drive.
- ✦ Linear FM demodulators with indigenous high VHF transformer.
- ✦ Novel compact microstrip filters designed.
- ✦ Vertically mounted, has less foot print area.

Major Specifications

Frequency of operation	: 12750- 13250 MHz
Receiver Bandwidth(3dB)	: 1.2 MHz
Command Modulation	: FM/PSK/PCM(NRZ-L)OR FM/FSK
Ranging Modulation	: FM
PSK TC bit rate, sub carrier	: 500 bps, 8 KHz
FSK TC bit rate, sub carrier	: 100 bps,3.125 KHz / 5.555 KHz
Ranging tones	: 27.7 KHz , 22 KHz , 4 KHz
FM deviation	: +400KHz
BER	: 1×10^{-5}
Command dynamic range	: -108 to -60 dBm
Ranging dynamic range	: -105 to -60 dBm
Command channel output	: Data, Clock, Lock (Differential)
Ranging Channel SNR	: 60 dB-Hz
Operating temperature	: -30 to +60 deg C
Size	: 280 x 91.5 x 237 mm ³
Mass	: 3.3 kg
Power	: 10 W

Technology Transfer

URSC/ISRO offers to transfer this technology of Ku-Band Telecommand and Ranging Receiver to industries in India with adequate experience and facilities. Industries interested in obtaining know how may write giving details of their present activities, infrastructure and facilities.

Technology Transfer & Industry Coordination Division (TTID),
Programme Planning and Evaluation Group (PPEG),

📍 U R Rao Satellite Centre (URSC), ISRO, HAL Airport Road,
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🌐 <https://www.ursc.gov.in/industry/index.jsp>