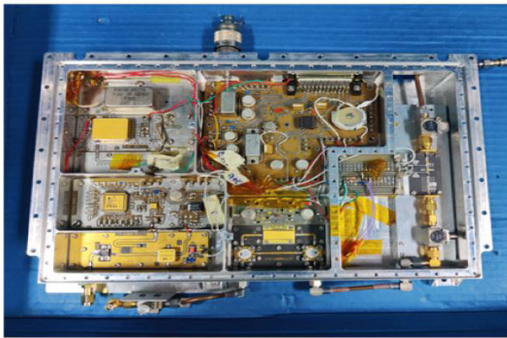


## X band Coherent Telemetry and Ranging Transmitter

U R Rao Satellite Centre (URSC) of Indian Space Research Organisation (ISRO) has developed X band coherent telemetry and Ranging transmitter with separate 10W SSPA for deep space missions with simultaneous ranging and telemetry function.



X band TM/RNG Transmitter

### Salient Features & Major Specifications

- ✦ Phase modulation at X-band.
- ✦ Coherent / Non-coherent changeover operation at  $\sim 38\text{MHz}$ .
- ✦ Synthesizer based carrier generation
- ✦ 10W transmitter output.
- ✦ Tone ranging support for tones of up to 500 kHz
- ✦ PN ranging support Frequency : 8400-8500 MHz
- ✦ Turn around ratio : 880/749
- ✦ Power : 10 W (nominal)
- ✦ Modulation type : PCM / PSK / PM
- ✦ Sub-carrier type : sine
- ✦ Sub carrier frequency : 32 kHz for HK TM
- ✦ Data rate : 1000/500/250/125 bps, selectable
- ✦ Modulation index : 1.0 Rad
- ✦ Ranging tones Type : sine/PN
- ✦ Frequency : Major tone 100, 500 kHz
- ✦ Minor tones :  $\sim 16\text{ kHz}$

## Technology Transfer

URSC-ISRO offers to transfer this technology of X band coherent telemetry and Ranging transmitter to industries in India with adequate experience and facilities. Industries interested in obtaining knowhow 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,  
Vimanapura Post, Bangalore – 560 017.

✉ Email-id: [tt-icd@ursc.gov.in](mailto:tt-icd@ursc.gov.in)

🌐 <https://www.ursc.gov.in/industry/index.jsp>