

The background of the slide is a collage of space-related images. It includes a satellite dish, a satellite in orbit, the Earth with a rocket launch, and a view of the Earth from space. The text is centered on a white, curved shape that resembles a satellite component.

IRNSS User Receiver

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IRNSS User Receiver

Types of User Receiver:

- **Single Frequency**

- L-5 Band: BPSK (Civil Use) Or BOC (Restricted)
- S Band : BPSK (Civil Use) Or BOC (Restricted)

- **Dual Frequency**

- BPSK (Civil Use) Or BOC (Restricted)

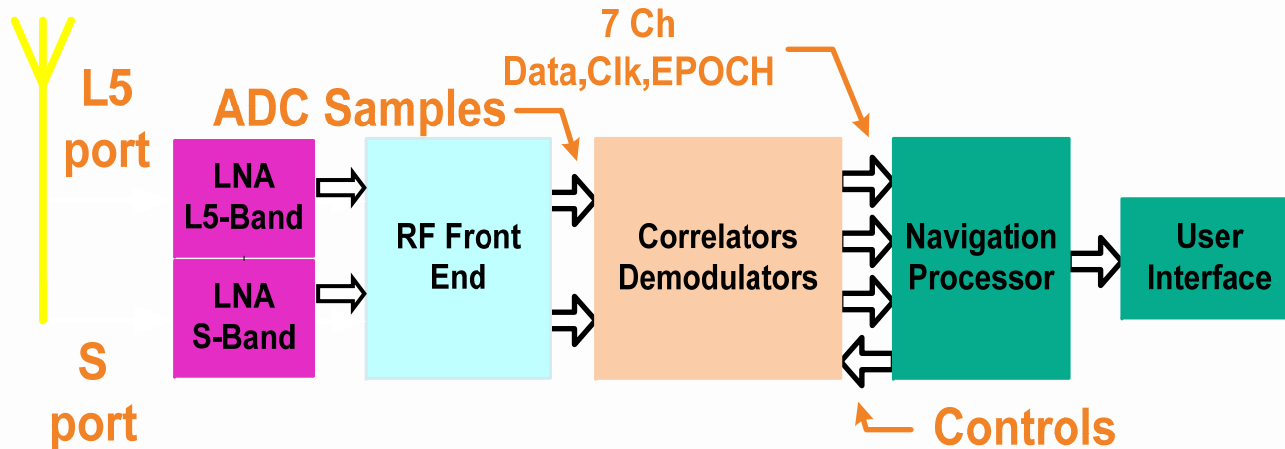
Building Blocks of IRNSS User Receiver

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L5 & S Band
Signals

Typical IRNSS User Receiver



- Antenna
- LNA
- RF Front End Processor
- Correlator & Demodulator
- Navigation Processor & User Interface

IRNSS User Receiver : Antenna

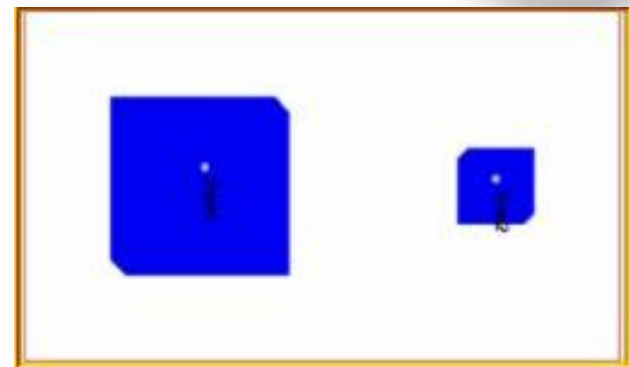
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Two Options:

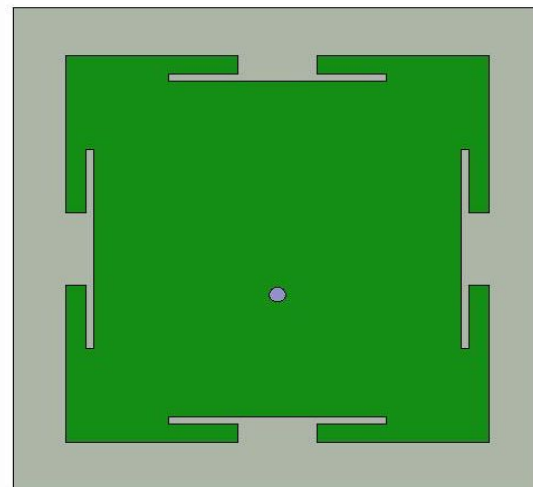
Option 1: Separate Band Patch Antenna

Gain: 2.2 dBi @ bore sight,
-4.5 dBi @ +/- 60°



Option 2: Dual Band Antenna

Gain: 2.2 dBi @ bore sight,
-4.5 dBi @ +/- 60°



IRNSS User Receiver : LNA

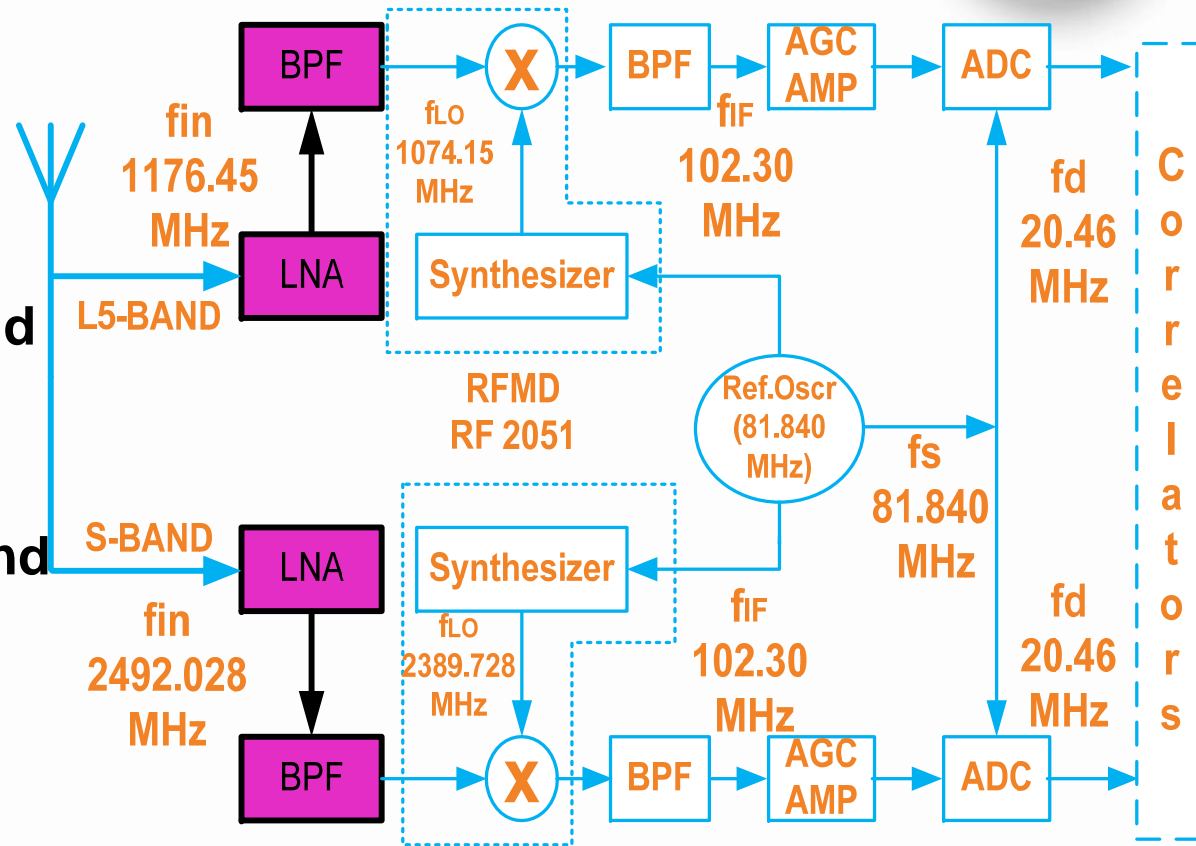
• Separate LNA's for L5 and S Band

– Gain :

- 31 dB @ L5 ,
- 30 dB @ S Band

– Noise Figure :

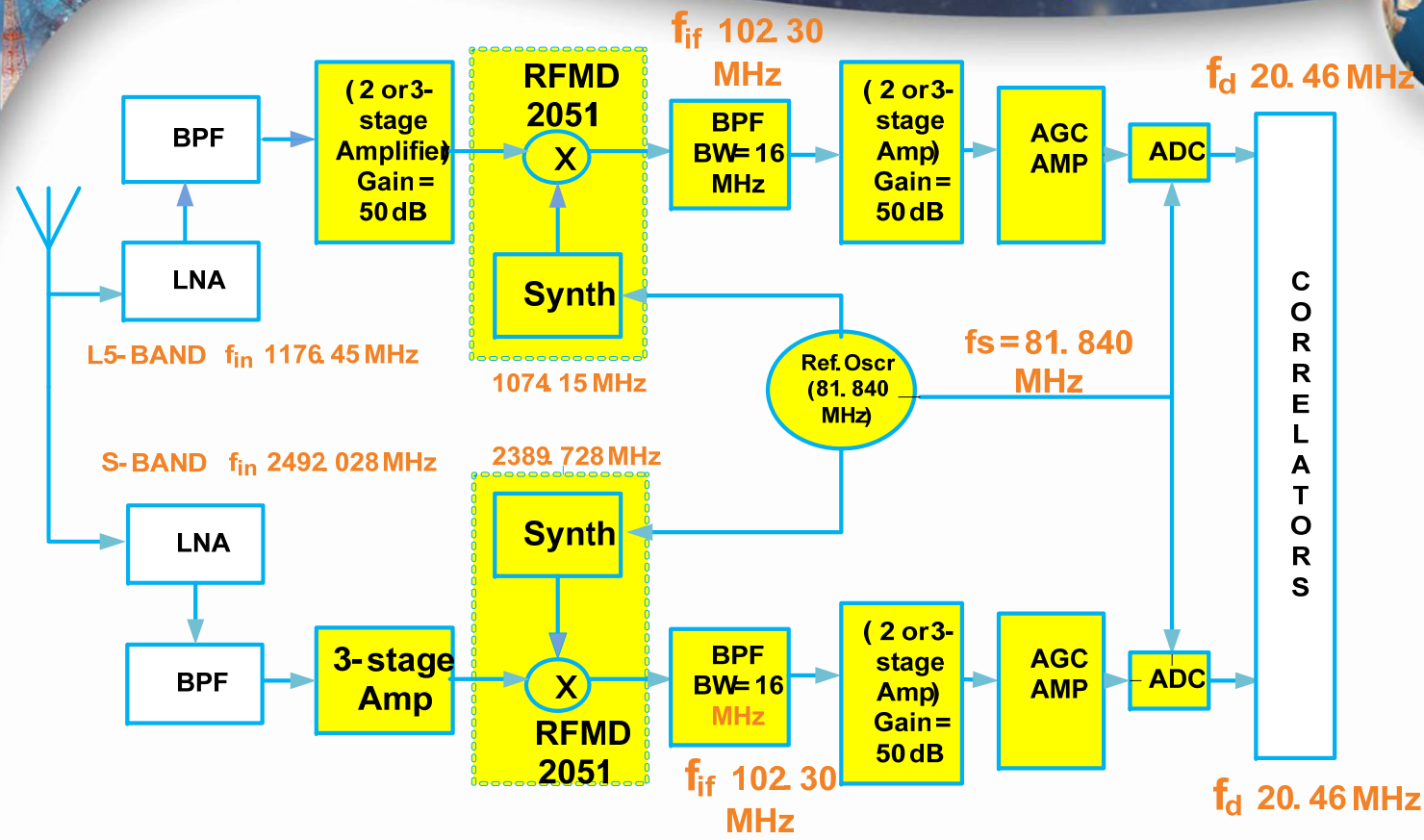
- 0.9 db @ L5
- 0.9 dB @ S Band



IRNSS User Receiver : RF Front End Processor



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- Separate chains for L5 band to IF & S to IF
- Down Conversion and IF (102.3 MHz) digitization.

Key Features:

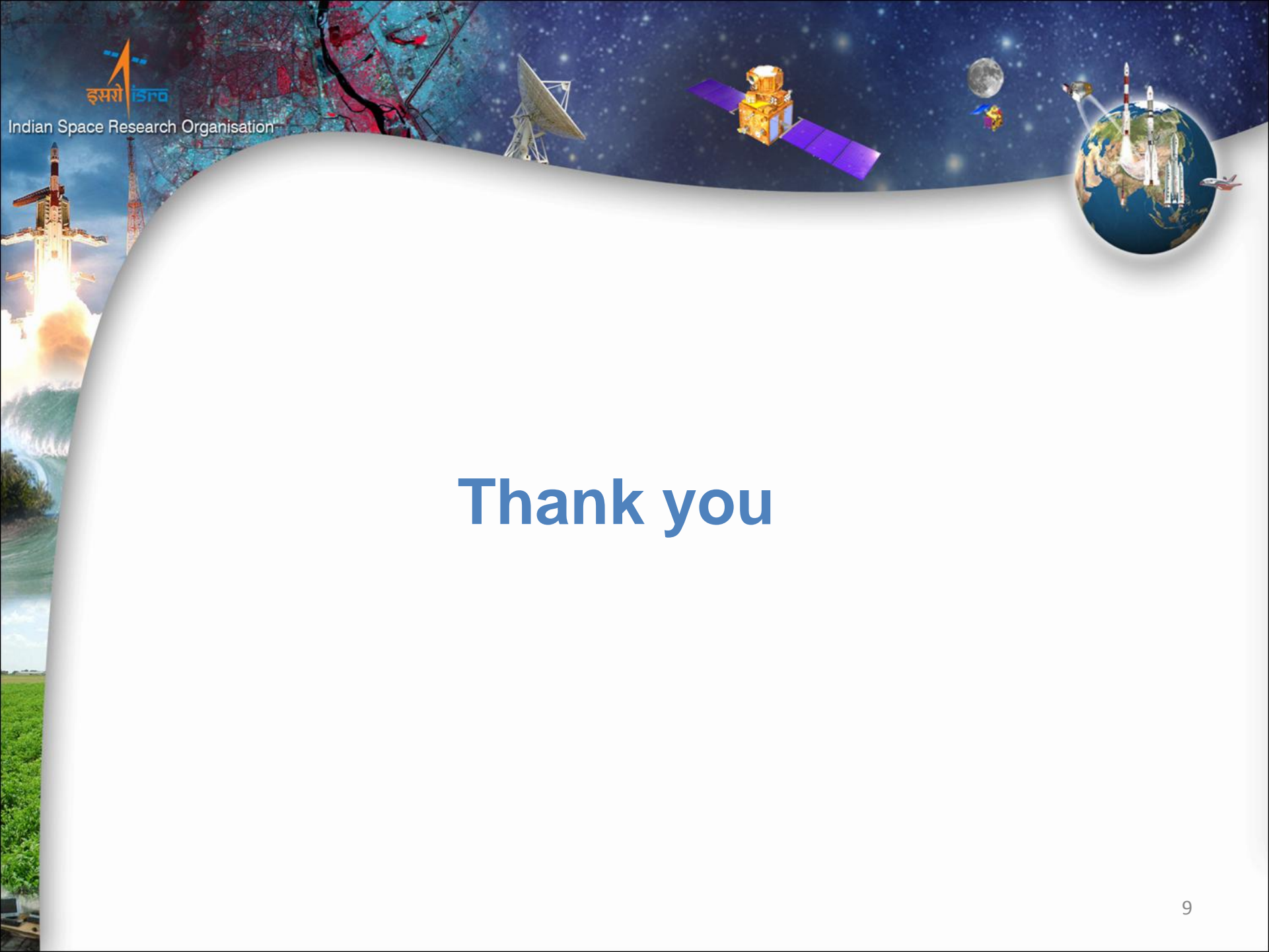
- Multi Channel Correlator and demodulator for SPS and RS services.
- 25 bps with Rate 1/2 FEC, Interleaver
- BOC(5,2), BPSK, Pilot and Interplex signals
- Very Early – Very Late Corelator, Double Estimator



IRNSS User Receiver :Navigation Processor

Key Features:

- Frame Extraction
- De-Encryption (for RS service only)
- Pseudo range calculation
- Iono / Tropo Corrections
- Kalman Filtering
- User Position Calculation



Thank you