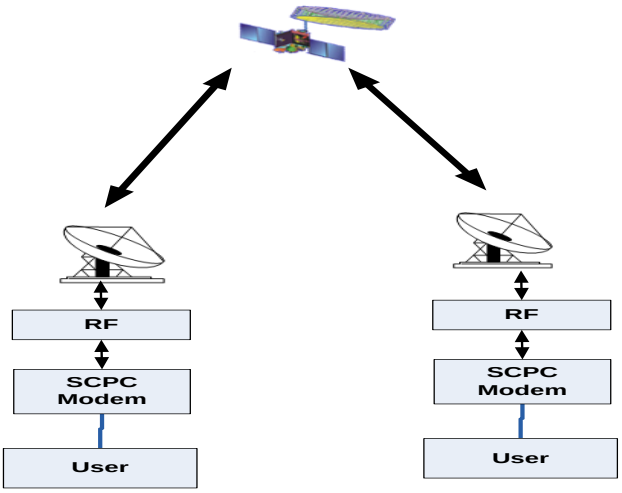

Typical Diagram of SATCOM link with SCPC Modem

SCPC MODEM IP CORE

SCPC modem IP core performs modulation & demodulation for enabling two communications through satellite network. Modem takes binary data from user, performs scrambling, FEC encoding & pulse shaping operations and provides modulated complex baseband samples for DAC. Similarly, it demodulates the modulated signal & performs FEC decoding & descrambling operations and provides binary data at output. SCPC modem have serial synchronous data interface with HDLC encapsulation option for packet type data.

Salient Features

Modulation	BPSK/QPSK
Data Rate	32Kbps-2Mbps
Data Interfaces	Serial Synchronous
Forward Error Correction (FEC)	Conv. (K=7, R= $\frac{1}{2}$, $\frac{3}{4}$) +Reed Solomon (short)-optional
Scrambler	V.35 (IESS-308)
Phase Ambiguity	Differential Encoding/Decoding
Acquisition Range	< ±Symbol Rate/8
Encapsulation	HDLC / Custom (details to be provided)
Required Eb/No for BER of 1x10-6	6.0dB (including implementation margin)
Dynamic Range	30 dB
ADC/DAC interface	12 bit I/Q Samples

SAC Technologies

Typical Application

- In SATCOM Hub stations & Terminals for enabling two-way point to point communication in continuous mode
- Two-way Audio/video & data communication over satellite network

Technology Transfer

SAC/ISRO, offers to transfer this technology of the **SCPC Modem IP Core** developed by SAC to industries in India with adequate experience and facilities. Enterprises interested in obtaining knowhow may write giving details of their present activities, infrastructure and facilities.

Technology Transfer & Industry Interface Division (TTID), PPG
Space Applications Centre (SAC), ISRO, Ambawadi Vistar,
Ahmedabad - 380 015
Email: ttid@sac.isro.gov.in
Fax: 079-26915817
https://www.sac.gov.in/SAC_Industry_Portal