INTERMEDIATE DATA RATE EQUIPMENT

सी-डॉट
C-DOT

HIGHLIGHT

- Operates in C-Band
- Low Phase noise synthesizer
- Frequency resolution of 125 KHz (Up/Down Converter)
- IESS 308/310 Compliant
- TEC GR/DR-01/03.JUN 2001
- Modulation Schemes
    - QPSK Rate
    - TCM8PSK Rate
- FEC Coding
    - Viterbi
    - Reed Solomon
    - Trellis
- G703 E1 Interface
- Two analog voice channels or 64 Kbps ESC and data interface & 8 Kbps ESC data interface.
- Redundancy
    - 1:N (N=8) for Modem
    - 1:1 for Up/Down Convertor
- RS 232 remote serial interface

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C-DOT Intermediate Data Rate equipment (IDR) is a state of art technology for E1 connectivity via satellite. It meets the INTELSAT'S IESS 308/310 performance characteristics of IDR carriers. These E1 carriers share transponders with carriers employing other approved modulation techniques and or with other IDR carriers. The occupied satellite bandwidth for these carrier is equal to 0.7 times transmission rate in case of QPSK and 0.467 times transmission rate in case of 8 PSK modulation.

The C-DOT IDR Equipment works with all types of earth stations working on INSAT systems.

The C-DOT IDR Equipment consists of Over Head unit, Modem, Up Converter, Down Converter, Modem Switchover Unit, Up Converter Switchover Unit and Down Converter switchover Unit. The modulation is user selectable between QPSK and 8 PSK .

The Up Converter converts IF (52 MHz to 88 MHz) output of Modem to C-band frequencies (5925 to 6425 MHz) with no Inversion.

The Down Converter converts C-band frequencies (3700 MHz to 4200 MHz) received from satellite to IF frequency (52 MHz to 88 MHz) with no inversion and is fed to the Modem.

The Modem Switch Over unit offers N:1 redundancy, where N can be up to 8. The Up/Down Converter Switch Over unit offers 1:1 redundancy.

The C-DOT IDR Equipment provides user interface which supports elaborate Monitoring, Diagnostics & Administrative functions.

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SPECIFICATION

• IF Frequency Range	52 to 88 MHz with 2.5 KHz Resolution
• Input / Output Impedance	75 Ohms
• IF Ports Return Loss	18 dB
• IF Connectors	BNC Type F
• Data interfaces	G.703 Balanced
• Data Rate	2048 kbps
• Voice Channels	Two Channels
• Scrambling	V.35
• Reed Solomon	219, 201, 9 (Intelsat Compliant)
• Form C Relays	Potential Free Contacts & Backward Alarms
• ESC Overhead	96 Kbps
• ESC interface	RS422 8 Kbps, RS422 64 Kbps and 2 Audio channel Ports
• Monitoring and Control	Front Panel & RS-232

MODULATOR SPECIFICATIONS

• Modulation	Switchable Between QPSK & TCM 8PSK
• Output Power Level	0 to –25dBm in steps of 0.5dB
• FEC	
• QPSK	Viterbi rate ½ & rate ¾
• 8 PSK	TCM rate 2/3
• Level Stability	±0.2dB per day at 25°c
• Spurious	40dBc
• Carrier On/Off Ratio	50dBc
• Transmit Clock Options	Terrestrial, External & Internal

DEMODULATOR SPECIFICATIONS

• Modulation	Switchable Between QPSK & TCM 8PSK
• Output Power Level	-30dBm to –50dBm
• Acquisition Range	Programmable up to ±30 KHz in steps of ± 1KHz
• FEC	
• QPSK	Viterbi rate ½ & rate ¾
• 8 PSK	TCM rate 2/3Receive Clock Options Satellite, •
• Receive Clock Options	Terrestrial, External & Internal
• Plesiochronous Buffer Size	2ms to 63ms

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BER SPECIFICATION

BER better than	(with RS Coding)			(Without RS Coding)		
	Rate ½ (QPSK)	Rate ¾ (QPSK)	Rate 2/3 (TCM 8PSK)	Rate ½ (QPSK)	Rate ¾ (QPSK)	Rate 2/3 (TCM 8PSK)
10^{-4}	-	-	6.1 dB	4.2 dB	5.3 dB	6.3 dB
10^{-6}	4.1 dB	5.6 dB	6.5 dB	-	-	7.3 dB
10^{-7}	4.2 dB	5.8 dB	6.7 dB	-	-	8.2 dB
10^{-8}	4.4 dB	6.0 dB	6.9 dB	6.1 dB	7.6 dB	9.0 dB
10^{-10}	5.0 dB	6.3 dB	7.3 dB	6.7 dB	8.3 dB	9.8 dB