



RCF6001

C- or Ku-Band Satellite Terminal



HIGHLIGHTS

- ▶ The Most Versatile L-Band Terminal Manufactured Today
- ▶ DMD20 LBST Modem With Power and High Stability Reference (10 Mhz) to Outdoor RF Units
- ▶ Complete C- or Ku-Band Satellite Terminal System
- ▶ L-Band Operation (950 to 2050 MHz)
- ▶ Tx Port Supplies Power For 10 Watt BUC, Works With Up To 60 Watt BUC
- ▶ Rx Port Supplies LNB Power
- ▶ Optional Antennas and Cabling

OVERVIEW

The RCF6001 is a C- or Ku-Band satellite terminal that consists of a Radyne DMD20 LBST Satellite Modem, Block Upconverter (BUC) and Low Noise Block (LNB). The system is available in a variety of frequencies and power levels. Cabling and antennas can also be supplied for a single source solution.

The frequency agile DMD20 LBST is the heart of the RCF6001 system. The DMD2401 LBST modem supplies an L-Band output frequency of 950 to 2050 MHz.

The modem also supplies power and a high-stability 10 MHz reference signal through the center conductor of the transmit and receive cables. This design eliminates

the use of an outdoor power supply and diplexer. The LBST controls all parameters of the outdoor units remotely or via the front panel of the modem. The modulator and demodulator operate independently using BPSK, QPSK, OQPSK, and 8PSK modulation in either SCPC or VSAT modes.

The BUC comes in a variety of frequencies and power levels. The BUC is based on a simple block conversion with an L-Band input and a C- or Ku-Band output. A single LO does the conversion from L-Band to the desired output frequency. The output power levels that are available for C-Band BUCs are 5, 10, 20, 40, and 60 Watts. The available power levels for the Ku-Band BUCs are 2, 4, 8, 16, and 25 watts.

The LNB comes in a variety of frequencies & power levels. The LNB does a single LO conversion from C- or Ku-Band to an L-Band output. Typical gain of LNB is 60 dB.

Radyne offers a full line of complementary products that interface with the RCF6001 system. These products include:

- DMD50 Universal Satellite Modem
- DMD20 Universal Satellite Modem
- DMD2401VSAT Universal Satellite Modem
- DMD15 Universal IBS/IDR Satellite Modem
- CM701 PSK Digital Satellite Modem
- CM601 Satellite Modem

RCF6001 C- or Ku-Band Satellite Terminal

SPECIFICATIONS GENERAL

MODEM SPECIFICATIONS - DMD20 LBST

Modulator/Tx

Frequency:	950 to 2050 MHz
Reference Frequency	
Signal:	10 MHz
Reference Stability:	5 x 10 ⁻⁸
Output Level:	0 to -25 dBm
Impedance:	50 Ohms
Return Loss:	10 dB Minimum
Output Voltage:	24 V/48 Optional
Output Current:	4 A/3A Optional
10 MHz Reference Levels:	0 dBm, ± 3 dB
Connector:	N-Type Female

Demodulator/Rx

Frequency:	950 to 2050 MHz
Impedance:	50 Ohm
Return Loss:	10dB Minimum
Output Voltage:	13, 15, 18, 20 Selectable
Output Current:	750 ma
10 MHz Reference Levels:	0 dBm, ± 3 dB
Connector:	N-Type Female

C-BAND BLOCK UPCONVERTER

Output Connector:	CPR-137G
Output Frequency Range	
Standard C-Band:	5.850 to 6.425 GHz
Palapa C-Band:	6.425 to 6.725 GHz (Consult Factory)
Insat C-Band:	6.725 to 7.025 GHz (Consult Factory)
Input Connector:	N-Type-F
Input Frequency Range	
Standard C-Band:	950 to 1525 MHz
1 dB Compression Point:	-21 dBm Typical

Power Levels	Gain (IF to RF)
5 Watts	58 dB Minimum
10 Watts	61 dB Minimum
20 Watts	64 dB Minimum
40 Watts	67 dB Minimum
60 Watts	69 dB Minimum

KU-BAND BLOCK UPCONVERTER

Output Connector:	WR-75G
Output Frequency Range	
Standard Ku-Band:	14.00 to 14.50 GHz
Extended Ku-Band:	13.75 to 14.25 GHz (Consult Factory)
Input Connector:	N-Type F
Input Return Loss:	9 dB Minimum
Input Frequency Range	
L-Band:	950 to 1450 MHz
1 dB Compression Point:	-21 dBm

Power Levels	Gain (IF to RF)
2 Watt	50dB min.
4 Watt	55dB min.
8 Watt	60dB min.
16 Watt	63dB min.
25 Watt	65dB min.

C- AND KU-BAND BLOCK UPCONVERTER

Input Reference Frequency:	10 MHz
Reference Signal Level	-5 to +5 dBm
Intermodulation IMD3	>-26 dBc

(Two-Tone Signal With 5 MHz Distance and a Summary Output Power of 6 dB Below Rated Power, 6 dB Back-Off)

Gain Stability:	±0.5 dB/Day at Constant Temperature
Gain Variation, Flatness: (Over Frequency and Temperature):	±2 dB Over 500 MHz
Gain Flatness	
575 MHz:	3 dB p-p Maximum
36 MHz:	1 dB p-p Maximum
1 MHz:	0.25 dB p-p Maximum
Group delay:	<10 ns Over Any 80 MHz Band
Carriers Tx Interrupt:	>50 dB
LO Phase Noise:	<2.80 RMS Double Sideband
Spurious:	<-20 dBm (In-Band)
Noise Figure:	<20 dB
DC Input:	48 VDC For 8 and 10 Watt Units 24 VDC For 2, 4, and 5 Watt Units

Current Consumption

	C-Band	+24.0 VDC	+48.0 VDC
5W	5W	2.5A max	na
10W	10W	na	2.5A max
20W	20W	na	4.5A max
40W	40W	na	7.5A max
60W	60W	na	9.5A max
	Ku-Band	+24.0 VDC	+48.0 VDC
2W	2W	1.8A max.	na
4W	4W	3.1A max.	na
8W	8W	na	2.5A max.
16W	16W	na	6.5A max.
25W	25W	na	8.0A max.

SSB Phase Noise

	C-Band	Ku-Band
Offset	RF Output	RF Output
10 Hz	-35 dBc/Hz	-35 dBc/Hz
100 Hz	-72 dBc/Hz	-67 dBc/Hz
1 kHz	-82 dBc/Hz	-77 dBc/Hz
10 kHz	-90 dBc/Hz	-85 dBc/Hz
100 kHz	-100 dBc/Hz	-95 dBc/Hz
1 MHz	-110 dBc/Hz	-110 dBc/Hz

Operating Temperature: -40 to +60°C

* BUC specifications will vary by manufacturer

LNB SPECIFICATIONS

RF Input Interface	
C-Band:	CPR-229G
Ku-Band	WR-75 Cover With Groove
RF Input Frequency	
C-Band	
Standard C-Band:	3.625 to 4.200 GHz
Palapa C-Band:	3.400 to 4.200 GHz
Insat C-Band:	4.500 to 4.800 GHz
Ku-band	
Band 1:	10.95 to 11.70 GHz
Band 2:	11.70 to 12.20 GHz
Band 3:	12.25 to 12.75 GHz
Noise Temperature	
C-Band:	37 K Maximum @ 25°C
Ku-Band	0.9 dB Maximum @ 25°C
IF Output Connector:	N-Type Female
IF Output Impedance:	50 Ohms
External Reference	
Input:	10 MHz @ 5 to -5 dBm
IF Output Frequency	
C-Band	
Standard C-Band:	950 to 1525 MHz
Palapa C-Band:	950 to 1750 MHz
Insat C-Band:	960 to 1260 MHz
Ku-Band	
Band 1:	950 to 1700 MHz
Bands 2 and 3:	950 to 1450 MHz
1 dB Compression	
Point (P1dB)	
C-Band:	0 dBm Minimum
Ku-Band:	+5 dBm Minimum
Small Signal Gain(at 25°C)	
C-Band:	59 dB Typical
Ku-Band:	59 dB Typical
LNB DC Supply:	15 to 24 VDC
Power Consumption:	400 mA Maximum
Operating Temperature:	-40°C to +60°C

* LNB Specifications will vary by manufacturer

U.S.A./Canada: 3138 East Elwood Street, Phoenix, Arizona 85034 USA Tel: +(1) 602.437.9620 Fax: +(1) 602.437.4811
7330 Trade Street, San Diego, California 92121 USA Tel: +(1) 858.458.1800 Fax: +(1) 858.657.5400

Europe/Middle East/Africa: Charwell House, Wilsom Road, Alton, GU34 2PP, United Kingdom Tel: +(44) 1420.540.233 Fax: +(44) 1420.540.232

Latin America: 3138 East Elwood Street, Phoenix, Arizona 85034 USA Tel: +(1) 561.487.7972 Fax: +(1) 561.892.2363

China: Room 405, Building B, Heqiao Mansion, No. 8 Guanghua Road, Chaoyang District, Beijing 100026 China Tel: +(86) 10.658.31975 Fax: +(86) 10.658.31974

Asia-Pacific: 150 Cecil Street, #08-02, Singapore 069543 Tel: +(65) 6325.1956 Fax: +(65) 6325.1950

Jl M.T. Haryono Kav 25, Jakarta, Indonesia 12820 Tel: +(62) 21.521.3733 Fax: +(62) 21.252.0142

www.radn.com

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