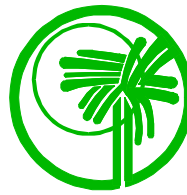


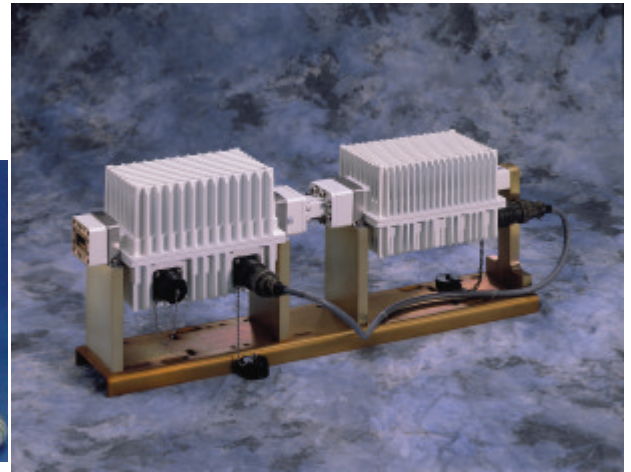
70 MHz Transceiver Solutions for C, Ku, and Ka Bands



PARADISE
DATACOM



70 MHz - L Band, Indoor Unit (IDU)



40W, 60W C Band Block Up Converter Assembly

DESCRIPTION

The Paradise Datacom family of VSAT equipment include the 70 MHz to L Band Indoor Transceiver along with companion outdoor LNB and Block Up Converter (ODU). The ODU is available in a variety of configurations depending on the desired output power.

Output power levels to :

- 170W in C-Band
- 100W in Ku-Band
- 2W in Ka-Band

ODU is phase locked to stable 10 MHz reference in the Indoor Unit.

ODU can be powered by separate 48 VDC input or by the IFL via the coaxial input. The coaxial IFL input can carry the L Band block, 10 MHz reference, 48 VDC, and an optional 650 KHz FSK monitor and control signal.

FEATURES

- Closed Loop, Constant Output Power Mode
- RS 232 / 485 remote M&C capability
- Excellent Spurious performance, meeting all ETSI requirements
- IESS compliant stability and phase noise performance

OPTIONS

- Antenna Mounting Kit
- 1:1 Redundant Systems
- Dual 1:1 Systems with LNBs
- DBS band (17.3 - 18.4 GHz)
- INSAT band (6.725 - 7.025 GHz)
- Palapa band (6.425 - 6.725 GHz)
- Remote indoor power supply
- Outdoor power supply

Paradise Datacom LLC
1012 East Boal Avenue
Boalsburg, PA 16827

www.paradisedata.com

Phone: (814) 466-6275
Fax: (814) 466-3341
Email: sales@paradisedata.com

70 MHz Transceiver Solutions

C Band CONFIGURATIONS

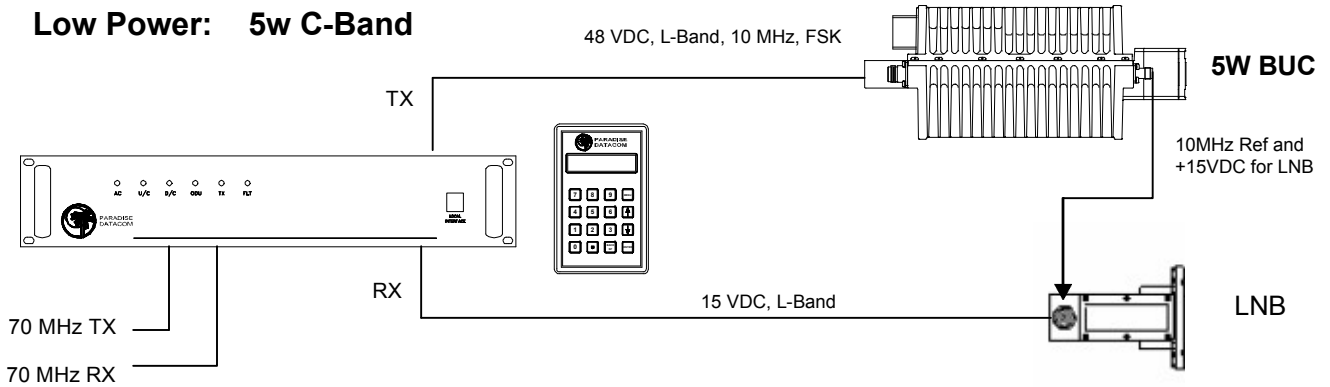


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Indoor Equipment

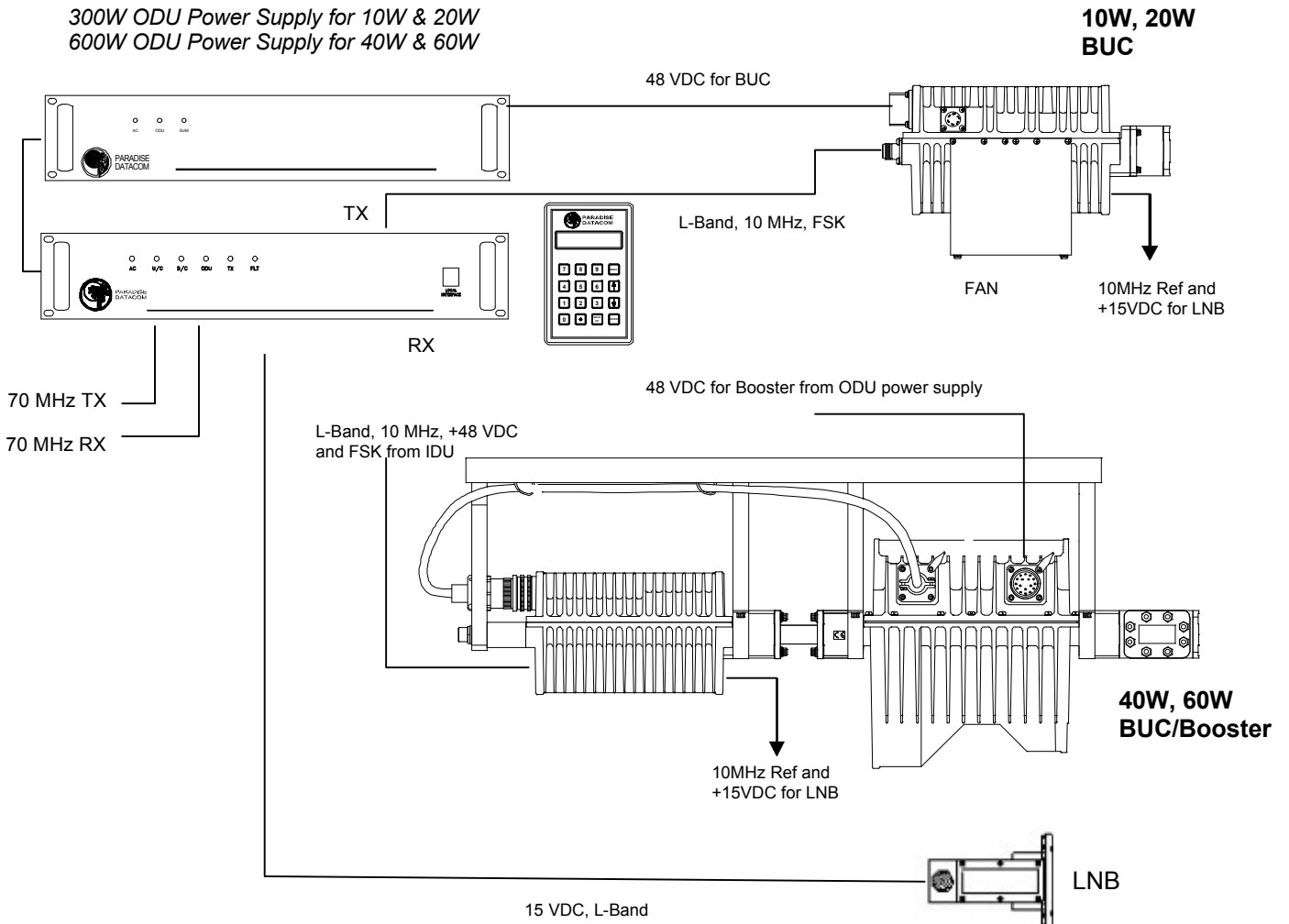
Outdoor Equipment

Low Power: 5w C-Band



Medium Power: 10W - 60W C-Band

300W ODU Power Supply for 10W & 20W
600W ODU Power Supply for 40W & 60W



70 MHz Transceiver Solutions

C Band CONFIGURATIONS

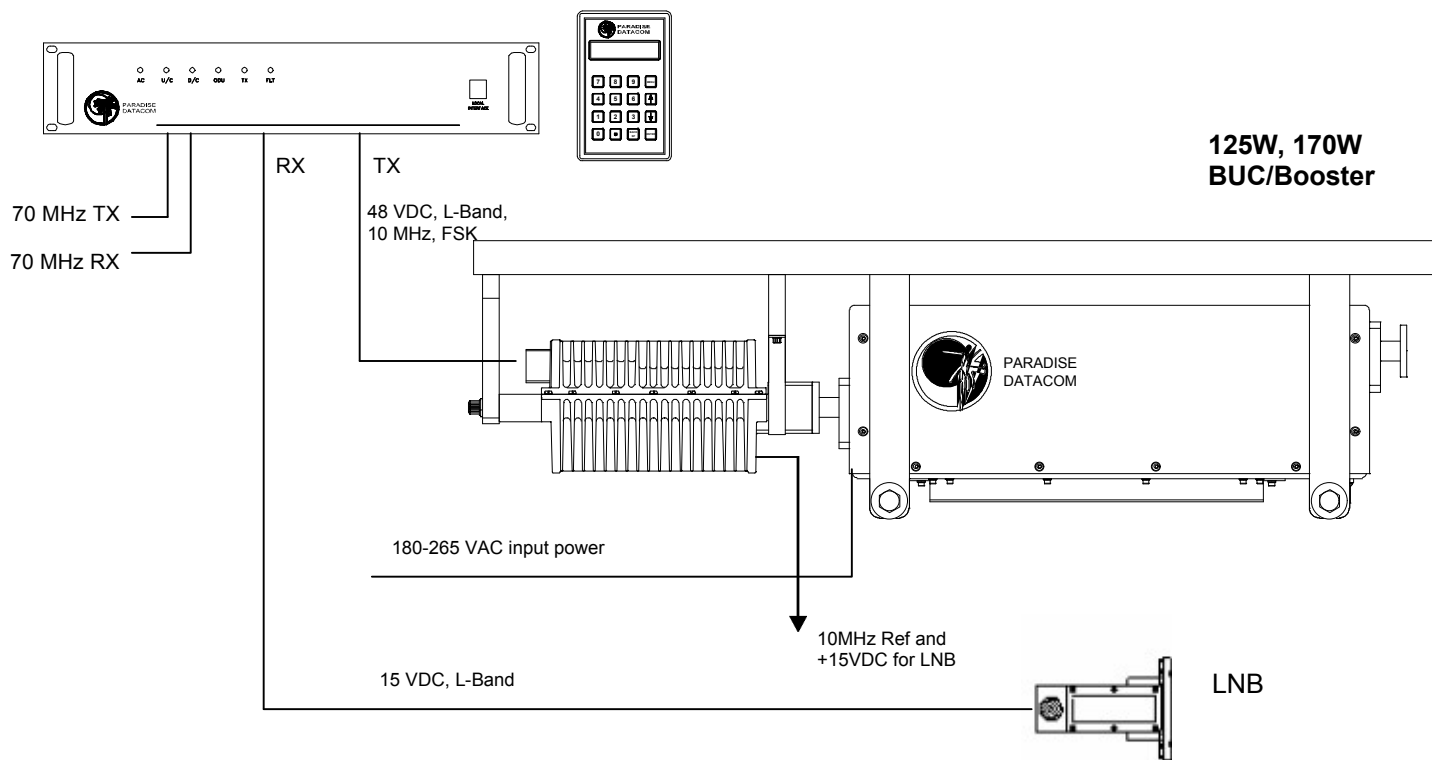


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Indoor Equipment

Outdoor Equipment

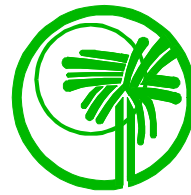
High Power: 125W, 170W C-Band



Output Power Level Summary (Guaranteed minimum P _{1dB})	
Power Level (watts)	P1dB, (dBm)
5W	37
10W	40
20W	43
40W	46
60W	48
125W	51
170W	52.3

70 MHz Transceiver Solutions

Ku Band CONFIGURATIONS

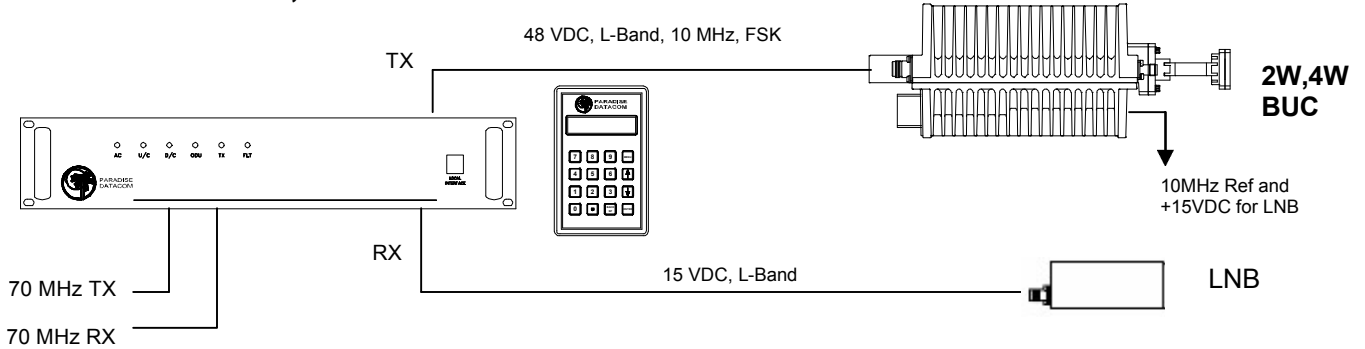


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Indoor Equipment

Outdoor Equipment

Low Power: 2w, 4W Ku-Band

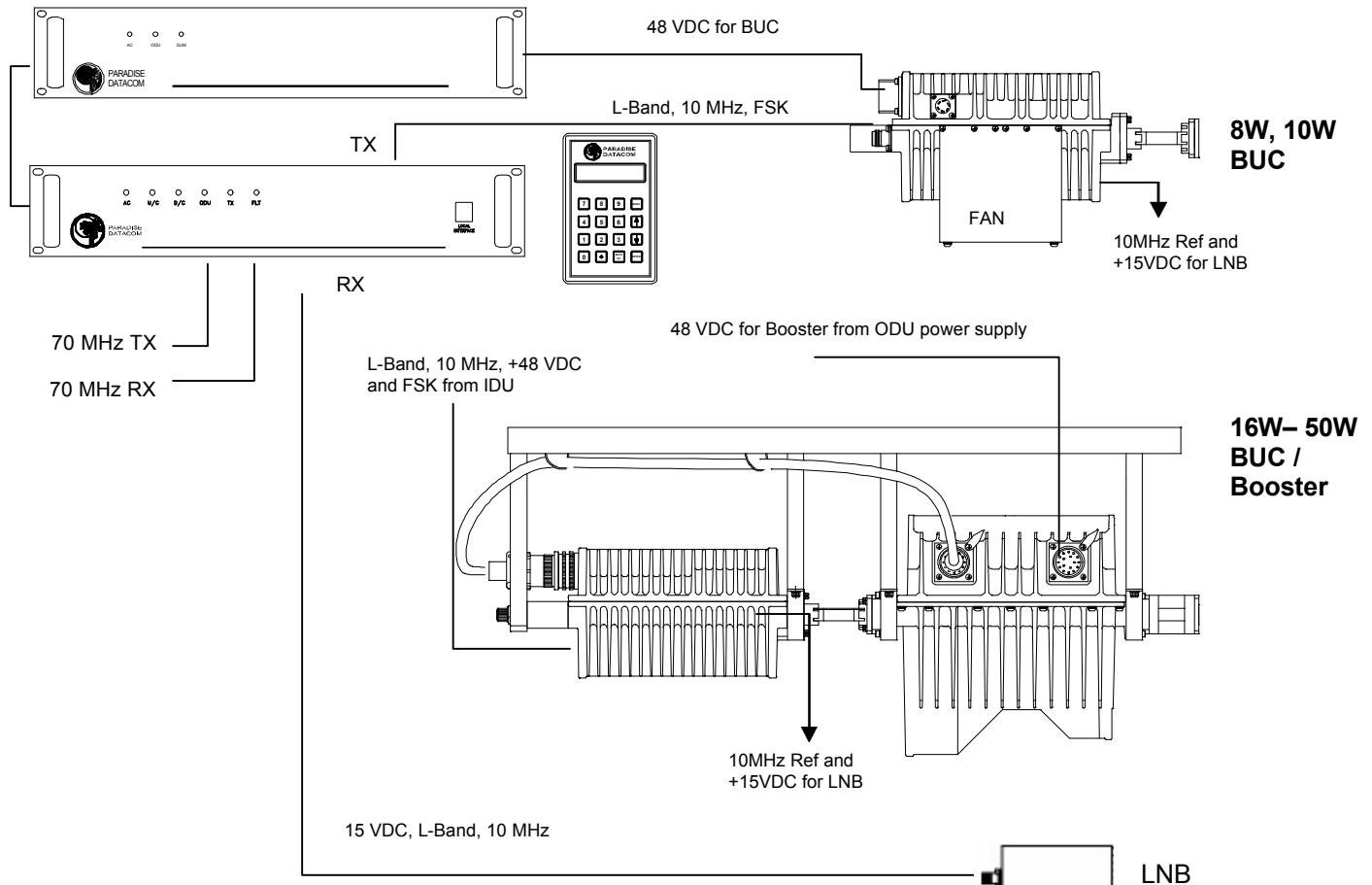


Medium Power: 8W - 50W Ku-Band

300W ODU Power Supply for 8W & 10W

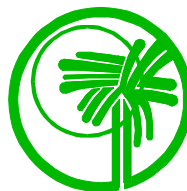
600W ODU Power Supply for 16W - 40W

1000W ODU Power Supply for 50W



70 MHz Transceiver Solutions

Ku Band CONFIGURATIONS

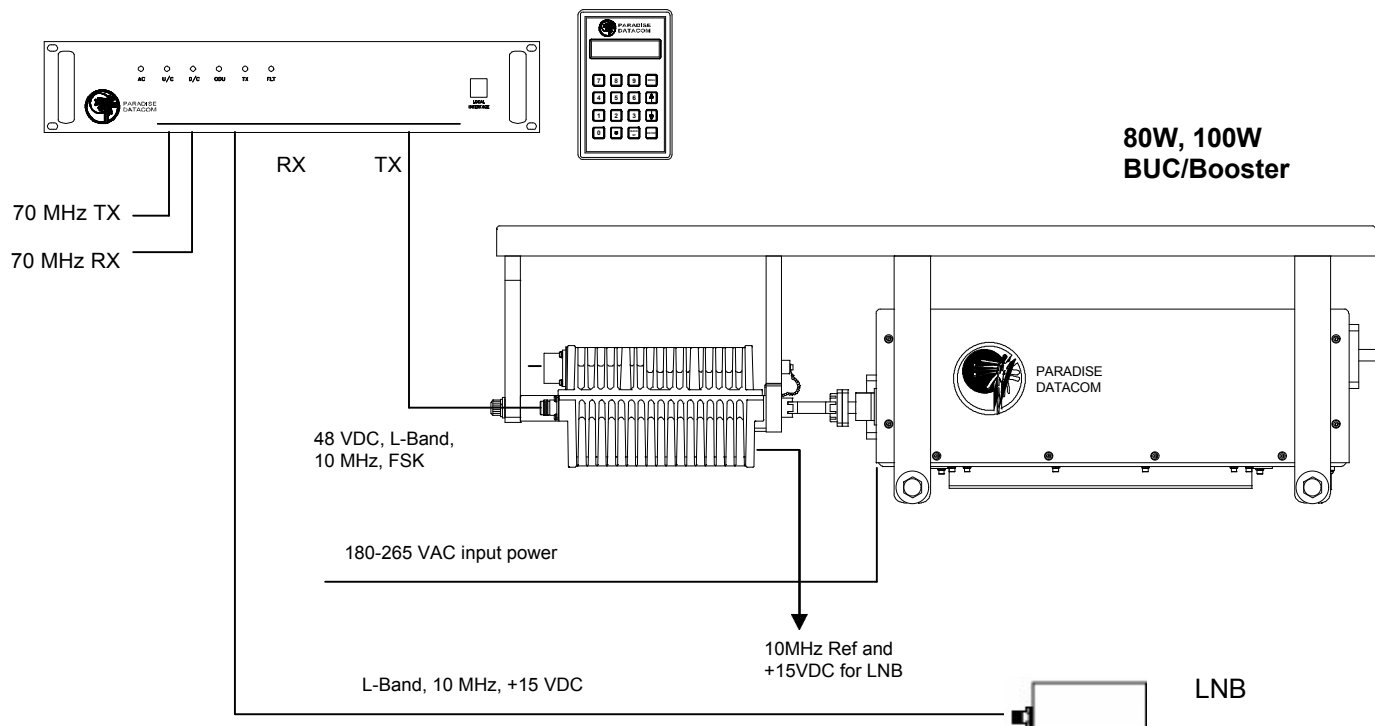


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Indoor Equipment

Outdoor Equipment

High Power: 80W, 100W Ku-Band



Output Power Level Summary (Guaranteed minimum P _{1dB})	
Power Level (watts)	P1dB, (dBm)
2W	33
4W	36
8W	39
10W	40
16W	42
25W	44
30W	45
40W	46
50W	47
80W	49
100W	50

70 MHz Transceiver Solutions

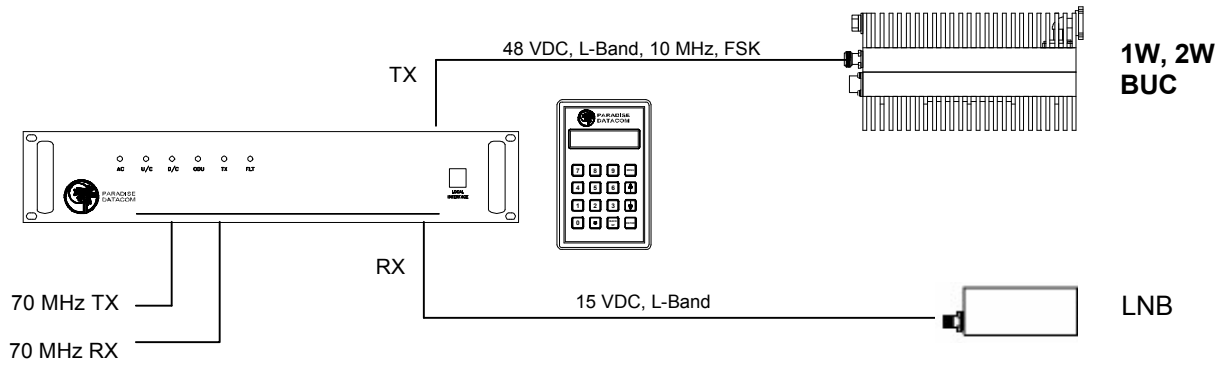
Ka Band CONFIGURATIONS



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Indoor Equipment

Outdoor Equipment



Output Power Level Summary (Guaranteed minimum P _{1dB})	
Power Level (watts)	P1dB, (dBm)
1W	29
2W	32

General Transmitter (BUC) Specifications

PARAMETER	C-Band	KU-BAND	Ka-Band
Standard Band	5.85 - 6.425 GHz	14.0 - 14.5 GHz	17.3 - 18.1 GHz
Option 1	6.425 - 6.725 GHz	13.75 - 14.25 GHz	17.3 - 18.4 GHz
Option 2	6.725 - 7.025 GHz		
TX Waveguide Feed	WR-137	WR-75	WR-62
TX Waveguide Flange	CPRG	Grooved	Grooved
Output Power	5W - 170W	2W - 100W	1W - 2W
BUC Gain	P1dB - (-30 dBm)	P1dB - (-30 dBm)	P1dB - (-30 dBm)
Gain Flatness	± 2 dB	± 2 dB	± 3 dB
TX Intermodulation (P1dB-3dB)	-26 dBc	-26 dBc	-26 dBc
Spurious in band	-50 dBc	-50 dBc	- 50 dBc
Phase Noise	IESS 308,309 compliant	IESS 308,309 compliant	IESS 308,309 compliant
Temperature Range	-40 to +55 C	-40 to +55 C	-40 to +55 C
Humidity	100%	100%	100%

70 MHz Transceiver Solutions for C, Ku, and Ka Bands



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General Receiver (LNB) Specifications

PARAMETER	C-Band	KU-BAND	Ka-Band
Standard Band with Internal Reference ($\pm 3 \times 10^{-6}$) Local Oscillator Frequency Paradise Part Number	3.625 - 4.200 GHz 5.15 GHz [3120-3008]	11.70 - 12.20 GHz 10.75 GHz [2660-3005]	11.70 - 12.20 GHz 10.75 GHz [2660-3005]
LNB Option 1 External Reference (IDU Ref stability) Local Oscillator Frequency Paradise Part Number	3.625 - 4.200 GHz 5.15 GHz [L201944-1]	11.70 - 12.20 GHz 10.75 GHz [L201946-1]	11.70 - 12.20 GHz 10.75 GHz [3110-3001]
LNB Option 2 with Internal Reference ($\pm 3 \times 10^{-6}$) Local Oscillator Frequency Paradise Part Number		10.95 - 11.45 GHz 10.0 GHz [2660-3006]	10.95 - 11.45 GHz 10.0 GHz [2660-3006]
LNB Option 3 with Internal Reference ($\pm 3 \times 10^{-6}$) Local Oscillator Frequency Paradise Part Number		11.2 - 11.7 GHz 10.25 GHz [2660-3007]	11.2 - 11.7 GHz 10.25 GHz [2660-3007]
LNB Option 4 with Internal Reference ($\pm 3 \times 10^{-6}$) Local Oscillator Frequency Paradise Part Number		12.25 - 12.75 GHz 11.30 GHz [2660-3008]	12.25 - 12.75 GHz 11.30 GHz [2660-3008]
LNB Option 5 External Reference (IDU Ref stability) Local Oscillator Frequency Paradise Part Number		10.95 - 11.70 GHz 10.0 GHz [L201945-1]	10.95 - 11.70 GHz 10.0 GHz [3110-3000]
LNB Option 6 External Reference (IDU Ref stability) Local Oscillator Frequency Paradise Part Number		12.25 - 12.75 GHz 11.3 GHz [L201947-1]	12.25 - 12.75 GHz 11.3 GHz [3110-3002]
IF Output Frequency	950-1525 MHz	950-1450 MHz	950-1450 MHz
Input Waveguide/Flange	WR-229 Grooved	WR-75 Grooved	WR-75 Grooved
Output Connector Internal Reference LNB External Reference LNB	Type F female Type N female	Type F female Type N female	Type F female Type N female
RX Noise Figure (typical)	25 K	65 K	65 K
LNB Conversion Gain	55-60 dB	55-60 dB	55-60 dB
Gain Flatness (any 40 MHz band)	± 0.5 dB	± 0.5 dB	± 0.5 dB
Output Power, P1dB	3 dBm	0 dBm	0 dBm
Input / Output VSWR	2.2:1	2.2:1	2.2:1
Output Third Order Intercept	+13 dBm	+10 dBm	+10 dBm
Image Rejection	40 dB	50 dB	50 dB
Group Delay Variation (any 40 MHz band)	< 10 ns	< 30 ns	< 30 ns
Spurious	-50 dBc	-50 dBc	-50 dBc
Typical Phase Noise	100 Hz 1 KHz 10 KHz 100 KHz	-60 dBc /Hz -70 dBc/Hz -80 dBc/Hz -90 dBc/Hz	-57 dBc /Hz -67 dBc/Hz -80 dBc/Hz -90 dBc/Hz
Input Power, +12 to +15 VDC	500 mA max	500 mA max	500 mA max

70 MHz Transceiver Solutions for C, Ku, and Ka Bands



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Indoor 70 MHz to L Band Transceiver Electrical Specifications

PARAMETER	NOTES	LIMITS
Transmitter		
Input Frequency		70 MHz \pm 18 MHz
Output Frequency	1 MHz Step Size	950 - 1525 MHz
Internal Reference	Adjustable	10 MHz
Internal Reference Stability	Standard	$1 * 10^{-7}$
	Optional	$1 * 10^{-8}$
Phase Noise	IESS 308/309	
	Double sideband	2.8 degree rms
Resultant mask at Ku band	1 KHz	-75 dBc /Hz
	10 KHz	-78 dBc/Hz
	100 KHz	-102 dBc/Hz
	1 MHz	-120 dBc/Hz
	10 MHz	-122 dBc/Hz
Input Level	70 MHz input	-5 to -25 dBm
Spurious	Full band	-50 dBc
Spurious	Close to carrier	-60 dBc
Gain	nominal	25 dB
Gain Flatness	Full band	7 dB
Gain Flatness	Per 36 MHz	\pm 0.5 dB
Gain Adjustment	1 dB steps	20 dB
Receiver		
Input Frequency	1 MHz Step Size	950 - 1525 MHz
Output Frequency		70 MHz \pm 18 MHz
Spurious	Full band	-60 dBm
Spurious	Close to carrier	-60 dBc
Gain	nominal	40 dB
Gain Flatness	Full band	7 dB
Gain Flatness	Per 36 MHz	\pm 0.5 dB
Gain Adjustment Range	1 dB steps	40 dB
Input Sample Port	L Band Input	-15 dBc
Environmental		
	Temperature Range	0 to +50 C
	Humidity	95% non condensing