

MBT-4000B Outdoor Multi-Band RF Transceiver



INTRODUCTION

Comtech EF Data's MBT-4000B Multi-Band RF Transceiver is designed to perform L-Band to C or Ku RF up conversion and support an LNB for C or Ku RF to L-Band down conversion. Additionally, the MBT-4000 provides the following features:

- Neither DC nor 10MHz are required from the modem, greatly simplifying multi-carrier and redundant operations
- Easy expansion for providing a redundant system or other frequency bands
- Rugged construction for mobile and transportable applications
- Automatic band identification for the BUC, LNB, and antenna feed (if the feeds provide an identifying connector)
- Easy system status verification via LEDs located behind a removable cover

SYSTEM OVERVIEW

The transceiver is constructed in a modular configuration. Common to the configuration for any frequency band of operation is a base module, which provides the M&C, Power Supply, and Reference function along with a tri-plexer for providing DC and 10 MHz to an LNB. Band-specific BUC modules can be quickly mounted to the base module with clip type fasteners. BUC and LNB modules for other bands and spares for all modules can be stored in a transit case until needed.

INSTALLATION AND OPERATION

The Common Module may be near or on the antenna. The band specific BUC is latched into place on top of the Common Module, while the LNB is mounted to the antenna's OMT. The cables to the antenna and the IDU complete the installation.

LNB SUPPORT

The OMT mounted LNB amplifies and translates a band specific input frequency block (C band or one of three Ku band s) down to L-Band in the 950 to 2000 MHz range. Because of the design of the MBT 4000B base unit, neither DC nor 10MHz are required from the modem.

BLOCK UP CONVERTER (BUC-4000)

The BUC-4000 translates the modems L-Band output carrier to the desired output frequency(C or Ku) with an output level capable of driving an HPA. Like the Rx side, no DC or 10 MHz reference is required from the modem.

BUC-4000C, Ku

C-Band: 5850 to 6650 MHz

Ku-Band: 13.75 to 14.50 GHz

- No spectral inversion
- 10 dB gain adjustment

Multi-Carrier/Redundant operation

Multi-carrier and redundant operation is greatly simplified by eliminating the requirement for DC and 10 MHz from the L band interface.

The MBT 4000B monitors the bias current of the LNBs and can control a Rx WG switch. Similarly, it monitors the BUC and the external amplifier status for Tx WG switch control.

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BUC-4000 Block Up Converter ODU

Input Frequency Range	950 to 2000 MHz
Output Frequency By Model:	
BUC-4000C	5860 – 6650 MHz
BUC-4000Ku	13.75 – 14.50 GHz

Input/Output Impedance	50Ω
Input Return Loss	15 dB minimum
Output Return Loss	18 dB minimum
Input Connector	Type – N, female
Output Connector	N, Female (C- and Ku-Band)
Gain	15 dB nominal at minimum attenuation (18 dB for Ku-Band BUC)
User Attenuation Range	0 to 10 dB
Output Power, P1dB	+10 dBm minimum
Third Order Intercept	+20 dBm minimum
Carrier Spurious	-60 dBc
Non-Carrier Spurious	-60 dBm
External Reference	Input, either 5 or 10 MHz ±5 dBm optional

Environmental and Physical

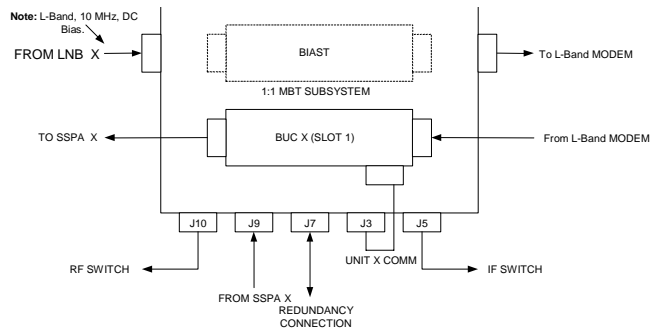
Operating Temperature:	
ODU: BUC-4000	-40° to +50°C (-40° to 122°F)

Operating Humidity	5 to 95 non-condensing
Operating Altitude	10,000 ft above sea level
Non-Operating Temperature:	
ODU: MBT-4000	-50° to +71°C (58° to 160°F)
Prime Power	90 to 260 VAC, 47 to 63 Hz
Size	Refer to the manual

Typical LNB Characteristics

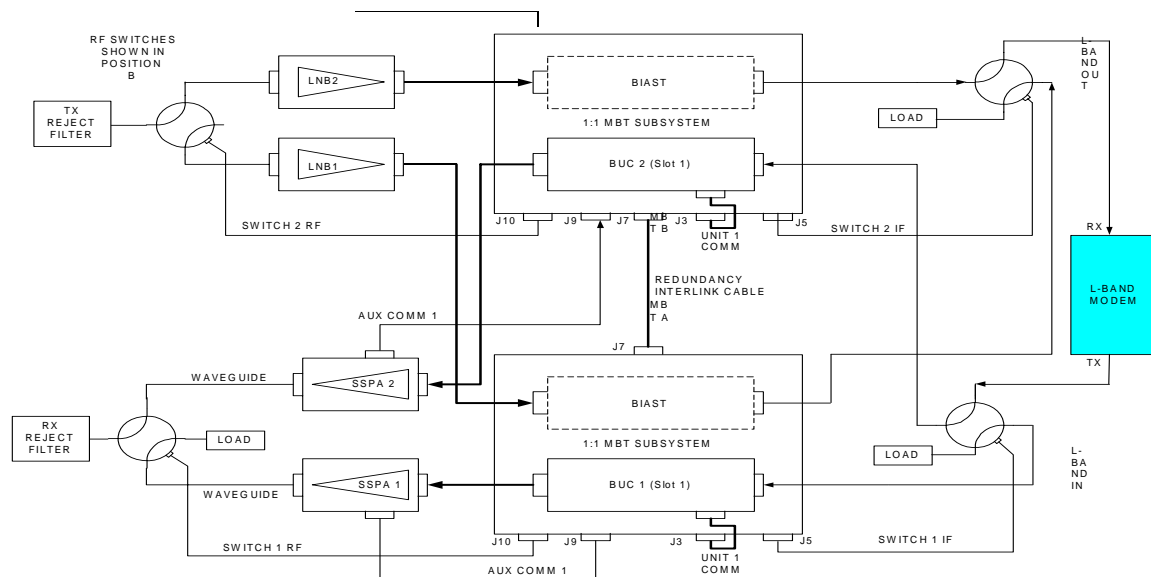
LNB Input Frequency By Model:

C Band Input Frequency	3.625 to 4.200 GHz
Noise Figure	≤ 35°K.
Ku Band Input Frequency Options	10.95 to 11.70 GHz 11.70 to 12.20 GHz 12.25 to 12.75 GHz
Noise Figure	1.0 dB max
Output Frequency Range	950 to 2000 MHz(depends on RF band)



MBT-4000B

Typical Tx/Rx Redundant System
(1:2 splitters/combiners may be substituted for the L-Band Input/Output switches)



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DUAL MBT-4000 REDUNDANT SWITCH



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