

BTR 28-07 GHz MMIC

Quick Reference Guide

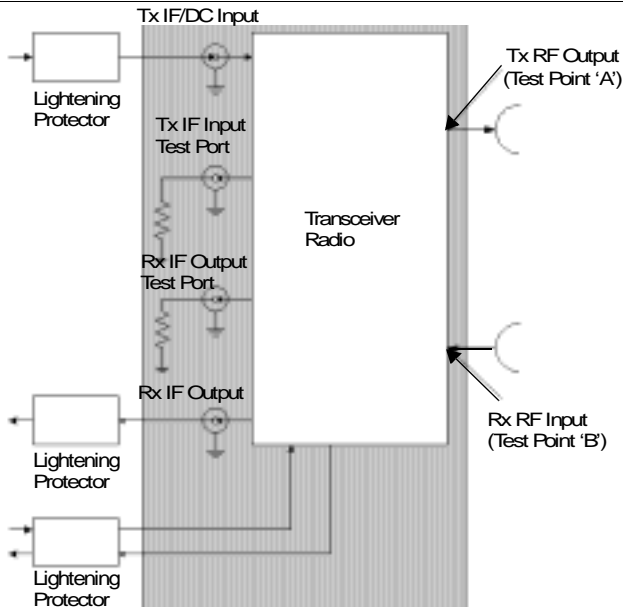
Product Overview

The BTR 28-07 GHz MMIC (NTVG14CA) outdoor transceiver is a state-of-the-art broadband microwave transceiver designed to operate at various frequency bands downstream. It is a combined broadband transmitter and receiver deployed in Nortel Networks Reunion point-to-multipoint system. It is compatible with Reunion's Release 1.2 and 1.3 equipment.



BTR 28-07M Transceiver

Figure 1: BTR 28-07M Block Diagram



BTR 28-07 MMIC Specification

Table 1: BTR 28-07M Technical Specifications

TX	IF Input	RF Output
Frequency Range 28-07M	500-650 MHz	29.10-29.25 GHz
Output Level (P1 dB)		≥ 27 dBm, -40° to $+55^{\circ}$ C
Output Level (IP3)		$> +35$ dBm
Input Impedance	50 Ohms	
Input/Output Connector	N-Type Female	WR-28
Input/Output VSWR	1.925:1, maximum	2.32:1, max (or 8 dB)
Gain (not including antenna)		32 ± 6 dB, minimum
Gain Variation		± 5.0 dB over all conditions
Gain Flatness		± 1.9 dB, maximum
LO leakage		-30 dBm
Frequency Stability		$< \pm 4$ ppm, (-40° to $+55^{\circ}$ C) and aging
Tx Noise Power		-115 dBm/Hz, maximum
Tx IF Test Port Coupling		-16 ± 1 dB

Antenna	BTR
Frequency	27.5-31.3 GHz
Frequency Band	2731
Bore-sight Gain (Azimuth)	15.75 \pm 1.25 dBi, 90° Horn 18.90 \pm 1.25 dBi, 45° 23.8 \pm 1.3 dBi, 15°
Wave-guide Interface	WR-28 size non-standard hole pattern
Size (Length x Height x Width)	10" x 9" x 2" (90°)
Polarity	single pole (H/H & V/V polarization)
Sectorized Angle Available	15°, 45°, and 90°

RX	RF Input	IF Output
Frequency Range 28-07M	28.20-28.35 GHz	250-400 MHz
Input/Output Connector	WR-28 non-standard hole pattern	N-Type Female
Input IP3 level	-10 dBm, minimum	
Output Impedance		50 Ohms
Input/Output VSWR	2.32:1, max (or 8.0 dB)	1.925:1 (10 dB)
Gain (not including antenna)		28.0 ± 0.6 dB
Gain Variation		±5.0 dB over all conditions
Gain Flatness		±1.9 dB over bandwidth
Gain Stability		±2.5 dB over temp.
Frequency Stability		<±4 ppm, over all conditions
LO Leakage	-35 dBm, maximum	
Noise Figure		≤ 7.2 dB, maximum
Rx IF Test Port Coupling		-14 ±1 dB

Power Requirements	BTR
Input Voltage	-48 VDC
Input Current	<2 Amp
Input Power	50 Watts, maximum
Environmental	BTR
Humidity	100% condensing
Altitude	10,000 feet
Operating Temperature	-40° to +55°C
Storage Temperature Range	-45° to +70°C
Mechanical	BTR
Size (Length x Height x Width)	19.2" x 10.3" x 6.7" (49 x 26 x 17 cm)
Weight without brackets	35 lbs. (16KG)

Converted Frequency Formula

Use the following formula to calculate the converted frequency:

$$\text{TX: } f_{\text{RF OUT}} (\text{GHz}) = 28.60 (\text{GHz}) + f_{\text{IF INPUT}} (\text{MHz})$$

$$\text{RX: } f_{\text{IF OUTPUT}} (\text{MHz}) = 28.60 (\text{GHz}) - f_{\text{RF INPUT}} (\text{GHz})$$

Note: The antenna has an option of a hydrophobic coating that can help to reduce ice build-up effect.

Note: Vent holes are covered with a Goretex™ patch.

Note: The transceiver mounts to a vertical pole of 2.5” to 4.5” outside diameter. It has a range of motion of 90° over and -60° under horizon. The bases of the antenna mount can rotate ±180°.

Note: The module connector is N-Type female. The receive IF input/output cables present a male N-Type connector. The Tx IF and the Rx IF test ports are SMA-Type female. The Telemetry port: 6 pin female military-style connector.

Technical Assistance Contact Information

In case additional technical assistance is required, or the transceiver unit is damaged upon receipt, contact Nortel Networks.

Nortel Networks Broadband Wireless Access (BWA) provides 24-hour customer service and technical support to ensure your service operation is trouble-free.

If you have questions or need technical support, contact Nortel Networks Broadband Wireless Access at the following telephone numbers:

- In the USA and Canada, call 972-BWA-ETAS/972-292-3827



Information is subject to change without notice. Nortel reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant.
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