

# CTR 28-08 GHz MMIC

## Quick Reference Guide

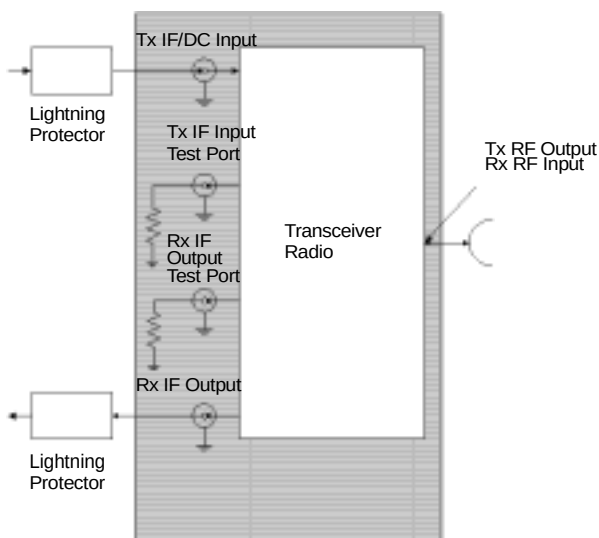
### Product Overview

The CTR 28-08 MMIC (NTVG16BH) outdoor transceiver is a customer premise transceiver designed to operate in various Receiver (Rx) and Transmitter (Tx) frequency bands. It is a Nortel Networks Reunion product that operates in conjunction with base station products, as well as customer premise products. It is compatible with Reunion's Release 1.2, 1.3 and 1.4 equipment.



CTR 28M Transceiver

**Figure 1: CTR 28M Block Diagram**



## CTR 28-08 MMIC Specification

**Table 1: CTR 28-08M Technical Specifications**

| TX                           | IF Input       | RF Output                          |
|------------------------------|----------------|------------------------------------|
| Frequency Range 28-08M       | 500-650 MHz    | 27.85-28.00 GHz                    |
| Output Level (P1 dB)         |                | $\geq 23$ dBm, -40° to +55° C      |
| Output Level (IP3)           |                | > +31 dBm                          |
| Input Impedance              | 50 Ohms        |                                    |
| Input/Output Connector       | N-Type Female  | N/A (integrated antenna)           |
| Input/Output VSWR            | 1:93:1 maximum | N/A                                |
| Gain (not including antenna) |                | 33 dB                              |
| Gain vs. Temperature         |                | $\pm 2.0$ dB ( -40° to +55° C)     |
| Gain Flatness                |                | $\pm 2.0$ dB over bandwidth        |
| Frequency Stability          |                | $< \pm 4$ ppm, Over all Conditions |
| Noise Figure                 | 24.5 dB        |                                    |
| Tx IF Test Port              |                | Type SMA jack (F)                  |

| Antenna                                        | CTR                                                |
|------------------------------------------------|----------------------------------------------------|
| Frequency                                      | 27.5 - 31.3 GHz                                    |
| Frequency band                                 | 2731                                               |
| Bore-sight Gain (Azimuth)                      | 37.4 $\pm$ 1.4 dB                                  |
| Polarity                                       | V/V or H/H determined mechanically on installation |
| Beam Width (azimuth)<br>Beam Width (elevation) | 2.6 $\pm$ TBD°, minimum<br>2.6 $\pm$ TBD°, minimum |
| Flanges                                        | WR-42                                              |
| Port-to-Port Isolation                         | 35 dB, minimum                                     |
| Cross-Polarization Discrimination              | > 30 dB                                            |
| Diameter                                       | 14" (35 cm)                                        |

| RX                           | RF Input                 | IF Output                |
|------------------------------|--------------------------|--------------------------|
| Frequency Range 28-08M       | 27.50 - 27.65 GHz        | 150-300 MHz              |
| Input/Output Connector       | N/A (integrated antenna) | N-Type Female            |
| Output Impedance             |                          | 50 Ohms                  |
| Input/Output VSWR            | N/A (integrated antenna) | 1:93:1 maximum           |
| Gain (not including antenna) |                          | 28.0 ±1.0 dB             |
| Gain Flatness                |                          | ±2.0 dB over bandwidth   |
| Gain Stability               |                          | ±2.0 dB over temperature |
| Frequency Stability          |                          | <±4 ppm                  |
| Noise Figure                 |                          | 7.8 dB, -40° to +55° C   |
| Rx IF Test Port              |                          | Type SMA jack (F)        |

| Power Requirements             | CTR                                                    |
|--------------------------------|--------------------------------------------------------|
| Input Voltage                  | ±48 VDC, 3A. max<br>diplexed with TX cable             |
| Input Inrush Current           | 4.5A max                                               |
| Input Power                    | 54 Watts, maximum                                      |
| Environmental                  | CTR                                                    |
| Humidity                       | 100% condensing                                        |
| Altitude                       | 10,000 feet                                            |
| Operating Wind Resistance      | 50m/second on all surfaces                             |
| Operating Temperature          | -40° to +55°C                                          |
| Storage Temperature Range      | -45° to +70°C (packaged)                               |
| Solar Loading                  | ETS 300 019 class 4.1 1120W/m <sup>2</sup> , 50°C max. |
| Mechanical                     | CTR                                                    |
| Size (Length x Height x Width) | 14" x 14" x 11" (35.6 x 35.6 x 27.9 cm)                |
| Weight without brackets        | 25 lbs. (11.41 KG)                                     |

## Converted Frequency Formula

Use the following formula to calculate the converted frequency:

$$\text{TX: } f_{\text{RF OUT}} (\text{GHz}) = f_{\text{IF IN}} (\text{GHz}) + 27.35$$

$$\text{RX: } f_{\text{IF OUT}} (\text{GHz}) = f_{\text{RF IN}} (\text{GHz}) - 27.35$$

**Note:** Electrostatic deposition powder coat, scratch free.

**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°.

## 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.  
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