

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
1	INITIAL RELEASE	09-06-15	
2	SEE ECO - KF/FG	09-08-21	
3	SEE ECO – KF	10-04-01	
4	SEE ECO – KF	11-04-08	
A	SEE ECO - KF	12-06-28	
B	SEE ECO - KF	12-11-29	

001-70002 REV A TEMPLATE, ATS/ATE

DOCUMENT NO.: 040-50032		All sheets same revision. All text and graphics computer generated, do not revise manually
TITLE: ODU PRODUCT DESCRIPTION CTTH		
REMEC Broadband Wireless PROPRIETARY INFORMATION This document is the sole property of REMEC Broadband Wireless. The release of data contained in this document and the reproduction of this document in whole or in part, without the written permission of REMEC Broadband Wireless is prohibited.		SHEET 1 of 24

TABLE OF CONTENTS

1.0	SCOPE	3
2.0	APPLICABLE DOCUMENTS	3
2.1	040-50022 ODU Control Interface Protocol CTT.....	3
2.2	CXX ODU COMMON ASSY, CTT	3
3.0	GENERAL REQUIREMENTS	3
3.1	ODU Model Numbers	4
3.2	Antenna Mechanical Interface	4
4.0	Change to Product.....	4
4.1	Change Approvals	4
5.0	Tables	5
5.1	Table 1	5
5.2	Table 2	5
5.3	Table 3	6
5.4	Table 4	6
6.0	MODEL NUMBERS.....	7
7.0	Figures.....	16
7.1	Figure 1	16
7.2	Figure 2	17
7.3	Figure 3	18
7.4	Figure 4	19
8.0	ODU Specifications	20

REVISION HISTORY

Rev 1	Initial Release.
Rev 2	Updated Modes of Operation Table. Added information on channel bandwidth support for 8GHz T/R 119 and 11GHz T/R 490 Models. Updated Channel Flatness, Frequency Accuracy, Power Dissipation, Size sections and Transmit Power and Noise Figure specs for 38GHz T/R 700 Models in ODU Specifications Table.
Rev 3	Updated Modes of Operation Table. Added Model Numbers for 18GHz T/R 1092.5 and 1120. Updated ODU-Antenna mechanical interface Figures. Updated Transmitter Minimum Power Command, TX Power Accuracy, Synthesizer Step Size, Modulation, Rx Noise Figure, Phase Noise, Wide Channels, Return Loss specs in ODU Specifications Table.
Rev 4	Added MTBF. Change to Note (2) to include Rx error rate performance. Changes to Env Specs (8.0). Change in ETSI References. Added 7G TR300 B1, B2 and B3. Added 8G TR310 B1, B2 and B3. Added 8G TR360 B1, B2 and B3. Changes to 18G TR1092.5 and TR1120 frequency extends. Updated finish, ground lug and cover for enclosure.
Rev A	Added 6G TR150 B1 and B2, TR160 B1 and B2, TR170 B1, TR240 B1, B2 and B3, TR252.5 B1, B2, B3, B4 and B5, TR340 B1, B2, B3 and B4. Added 13G TR200 B1, B2, B3 and B4, TR225 B1, B2, B3, B4 and B5. Added 42G TR1500 B1 and B2. Updated ODU Specs Table to include 6G and 42G. Changes to Environmental specification (8.0). Added Temperature Storage spec.
Rev B	Corrected T to R column in Model Numbers Table for 6G TR252 to 252.04

1.0 SCOPE

This specification describes the REMEC Broadband Wireless CTT-H Outdoor Unit (ODU) product line in terms of the various frequency ODUs that are being offered (Main Band), the range of coverage within a given frequency band (Sub-band), the ODU-to-antenna mechanical interface, and the ODU Specifications.

2.0 APPLICABLE DOCUMENTS

2.1 040-50022 ODU Control Interface Protocol CTT

2.2 CXX ODU COMMON ASSY, CTT

3.0 GENERAL REQUIREMENTS

This document specifies electrical performance for both a terminal (ODU/IDU) and a link (SYSTEM) configuration. Herein, a terminal configuration is a REMEC Broadband Wireless ODU interconnected to a TEST IDU with a low loss coaxial cable (e.g. RG8). Also, a link configuration is two terminals interconnected with variable attenuation between the two ODU antenna ports (to simulate path loss).

The specifications are guaranteed for an ODU ambient temperature range of –33 to +55 deg C with the IDU maintained at room ambient.

ETSI throughout this document refers to ETSI EN 302 217-2-2 V1.4.1 (including spectral efficiency classes) and ETSI EN 302 217-2-1 V1.3.1 unless otherwise stated.

ETSI Modes of Operation & Radio Data Throughput *
(Inclusive of fixed Radio overhead)

Modulation Type	Channel Bandwidth (MHz)				
	7	14	28	40	56
QPSK	11 Mbps	22 Mbps	44 Mbps	64 Mbps	89 Mbps
16 QAM	22 Mbps	44 Mbps	89 Mbps	128 Mbps	179 Mbps
32 QAM	28 Mbps	56 Mbps	112 Mbps	160 Mbps	224 Mbps
64 QAM	33 Mbps	67 Mbps	134 Mbps	192 Mbps	268 Mbps
128 QAM	39 Mbps	78 Mbps	156 Mbps	224 Mbps	313 Mbps
256 QAM	44 Mbps	89 Mbps	179 Mbps	256 Mbps	358 Mbps

* Throughput estimates based on Customer IDU with Symbol Rate @ 88% of Channel Bandwidth and approximately 10% FEC overhead.

Some modes of operation (esp. high modulations in narrow channel bandwidths) require substantial suppression of ODU phase noise by the Customer's MODEM.

ANSI Modes of Operation & Radio Data Throughput *
(Inclusive of fixed Radio overhead)

Modulation Type	Channel Bandwidth (MHz)				
	10	20	30	40	50
QPSK	15 Mbps	30 Mbps	46 Mbps	61 Mbps	77 Mbps
16 QAM	30 Mbps	61 Mbps	92 Mbps	123 Mbps	154 Mbps
32 QAM	38 Mbps	77 Mbps	115 Mbps	154 Mbps	193 Mbps
64 QAM	46 Mbps	92 Mbps	139 Mbps	185 Mbps	231 Mbps
128 QAM	54 Mbps	108 Mbps	162 Mbps	216 Mbps	270 Mbps
256 QAM	61 Mbps	123 Mbps	185 Mbps	247 Mbps	309 Mbps

* Throughput estimates based on Customer IDU with Symbol Rate @ 85% of Channel Bandwidth and approximately 10% FEC overhead.

Some modes of operation (esp. high modulations in narrow channel bandwidths) require substantial suppression of ODU phase noise by the Customer's MODEM.

3.1 ODU Model Numbers

REMEC Broadband Wireless uses a "smart" model numbering system to describe, either explicitly or implicitly (coded) the key parameters of a given ODU. Tables 1-4 describe the Model Number Structure and provide an illustrative example.

3.2 Antenna Mechanical Interface

The mechanical interface between the ODU and antenna is described in Figures 1, 2 and 3.

4.0 CHANGE TO PRODUCT

The generic model number list is subject to changes and additions in response to customer and market demands.

4.1 Change Approvals

A representative from each of the following functions must approve any change to this document prior to release:

- Marketing Management
- Engineering Management
- Program Management

5.0 TABLES

MODEL NUMBER STRUCTURE

C	0	H	-	1	5	0	4	9	0	-	0	0	4	X	Y	-	Z	1	0	0	
																					Option (Ref Table 2)
																					Power Supply Polarity (e.g. Negative, ref Table 4)
																					Antenna Interface (e.g. Circular, ref Table 3)
																					Customer, Firmware Labeling (REMEC assigned)
																					Customer, Firmware Labeling (REMEC assigned)
																					RXIF/TXIF-Telemetry (REMEC assigned)
																					Sub-band, Frequency (e.g. Band 4)
																					Lo/Hi Band (e.g. Lo)
																					T-R Spacing (e.g. 490MHz)
																					Main Frequency Band (e.g. 15GHz)
ODU Platform																					

5.1 Table 1

The Model Number Example used in Table 1 is a C0H Platform, 15GHz, 490TR, Low Band 4, with an unidentified Customer (RXIF/TXIF-Telemetry) Firmware and Labeling Requirements, Circular Antenna Interface and Negative Polarity Power Supply.

Options

(REMEC assigned)

eg. C0H-xxxxxx-xxxxx-xxxN

Description	"N"
Standard ODU	0

5.2 Table 2

Antenna Interface

Dash #	"0"	"1"
	Rectangular WG	Circular WG
Band		
6L	Non-Standard	N/A
6U	Non-Standard	N/A
7	N/A	1.025" dia
8	N/A	1.025" dia
11	WR-75	0.740" dia
13	WR-75	0.620" dia
15	WR-62	0.560" dia
18	WR-42	0.455" dia
23	WR-42	0.375" dia
26	WR-42	0.370" dia
32	WR-28	0.250" dia
38	N/A	0.219" dia
42	WR-19	NA

5.3 Table 3

Power Supply Polarity	
"0"	"1"
Negative Polarity	Positive Polarity

5.4 Table 4

6.0 MODEL NUMBERS

NOTE: Model Numbers shown are for variants with circular waveguide (except 6 GHz and 42 GHz) and negative polarity power supply. Refer to Table 3 for Antenna Port Options and Table 4 for Power Supply Polarity Options.

Model Number	Description	Transmit Range (1)		T to R	Diplexer
		Min Freq (MHz)	Max Freq (MHz)	(MHz)	Range (MHz)
6 GHz ODUs					
C0H-060150-001XY-Z000	ODU,6G,TR150,Lo,B1,CTTH,WR,Neg	6875.0	6925.0	150	50***
C0H-060150-101XY-Z000	ODU,6G,TR150,Hi,B1,CTTH,WR,Neg	7025.0	7075.0	150	50***
C0H-060150-002XY-Z000	ODU,6G,TR150,Lo,B2,CTTH,WR,Neg	6925.0	6975.0	150	50***
C0H-060150-102XY-Z000	ODU,6G,TR150,Hi,B2,CTTH,WR,Neg	7075.0	7125.0	150	50***
C0H-060160-001XY-Z000	ODU,6G,TR160,Lo,B1,CTTH,WR,Neg	6580.0	6640.0	160	60
C0H-060160-101XY-Z000	ODU,6G,TR160,Hi,B1,CTTH,WR,Neg	6740.0	6800.0	160	60
C0H-060160-002XY-Z000	ODU,6G,TR160,Lo,B2,CTTH,WR,Neg	6640.0	6710.0	160	70
C0H-060160-102XY-Z000	ODU,6G,TR160,Hi,B2,CTTH,WR,Neg	6800.0	6870.0	160	70
C0H-060170-001XY-Z000	ODU,6G,TR170,Lo,B1,CTTH,WR,Neg	6530.0	6580.0	170	50***
C0H-060170-101XY-Z000	ODU,6G,TR170,Hi,B1,CTTH,WR,Neg	6700.0	6750.0	170	50***
C0H-060240-001XY-Z000	ODU,6G,TR240,Lo,B1,CTTH,WR,Neg	5925.0	6025.0	240	100
C0H-060240-101XY-Z000	ODU,6G,TR240,Hi,B1,CTTH,WR,Neg	6175.0	6275.0	240	100
C0H-060240-002XY-Z000	ODU,6G,TR240,Lo,B2,CTTH,WR,Neg	6000.0	6100.0	240	100
C0H-060240-102XY-Z000	ODU,6G,TR240,Hi,B2,CTTH,WR,Neg	6250.0	6350.0	240	100
C0H-060240-003XY-Z000	ODU,6G,TR240,Lo,B3,CTTH,WR,Neg	6075.0	6175.0	240	100
C0H-060240-103XY-Z000	ODU,6G,TR240,Hi,B3,CTTH,WR,Neg	6325.0	6425.0	240	100
C0H-060252-001XY-Z000	ODU,6G,TR252,Lo,B1,CTTH,WR,Neg	5925.0	6025.0	252.04	100
C0H-060252-101XY-Z000	ODU,6G,TR252,Hi,B1,CTTH,WR,Neg	6175.0	6275.0	252.04	100
C0H-060252-002XY-Z000	ODU,6G,TR252,Lo,B2,CTTH,WR,Neg	6000.0	6100.0	252.04	100
C0H-060252-102XY-Z000	ODU,6G,TR252,Hi,B2,CTTH,WR,Neg	6250.0	6350.0	252.04	100
C0H-060252-003XY-Z000	ODU,6G,TR252,Lo,B3,CTTH,WR,Neg	6075.0	6175.0	252.04	100
C0H-060252-103XY-Z000	ODU,6G,TR252,Hi,B3,CTTH,WR,Neg	6325.0	6425.0	252.04	100
C0H-060252-004XY-Z000	ODU,6G,TR252,Lo,B4,CTTH,WR,Neg	5985.0	6085.0	252.04	100
C0H-060252-104XY-Z000	ODU,6G,TR252,Hi,B4,CTTH,WR,Neg	6235.0	6335.0	252.04	100
C0H-060252-005XY-Z000	ODU,6G,TR252,Lo,B5,CTTH,WR,Neg	6045.0	6145.0	252.04	100
C0H-060252-105XY-Z000	ODU,6G,TR252,Hi,B5,CTTH,WR,Neg	6295.0	6395.0	252.04	100
C0H-060340-001XY-Z000	ODU,6G,TR340,Lo,B1,CTTH,WR,Neg	6430.0	6540.0	340	110
C0H-060340-101XY-Z000	ODU,6G,TR340,Hi,B1,CTTH,WR,Neg	6770.0	6880.0	340	110
C0H-060340-002XY-Z000	ODU,6G,TR340,Lo,B2,CTTH,WR,Neg	6520.0	6630.0	340	110
C0H-060340-102XY-Z000	ODU,6G,TR340,Hi,B2,CTTH,WR,Neg	6860.0	6970.0	340	110
C0H-060340-003XY-Z000	ODU,6G,TR340,Lo,B3,CTTH,WR,Neg	6600.0	6710.0	340	110
C0H-060340-103XY-Z000	ODU,6G,TR340,Hi,B3,CTTH,WR,Neg	6940.0	7050.0	340	110
C0H-060340-004XY-Z000	ODU,6G,TR340,Lo,B4,CTTH,WR,Neg	6670.0	6780.0	340	110
C0H-060340-104XY-Z000	ODU,6G,TR340,Hi,B4,CTTH,WR,Neg	7010.0	7120.0	340	110

Model Number	Description	Transmit Range (1)		T to R	Duplexer
		Min Freq (MHz)	Max Freq (MHz)	(MHz)	Range (MHz)
7 GHz ODUs					
C0H-070154-001XY-Z100	ODU,7G,TR154,Lo,B1,CTTH,WC,Neg	7428.0	7484.0	154	56
C0H-070154-101XY-Z100	ODU,7G,TR154,Hi,B1,CTTH,WC,Neg	7582.0	7638.0	154	56
C0H-070154-002XY-Z100	ODU,7G,TR154,Lo,B2,CTTH,WC,Neg	7470.0	7526.0	154	56
C0H-070154-102XY-Z100	ODU,7G,TR154,Hi,B2,CTTH,WC,Neg	7624.0	7680.0	154	56
C0H-070154-003XY-Z100	ODU,7G,TR154,Lo,B3,CTTH,WC,Neg	7512.0	7568.0	154	56
C0H-070154-103XY-Z100	ODU,7G,TR154,Hi,B3,CTTH,WC,Neg	7666.0	7722.0	154	56
C0H-070160-001XY-Z100	ODU,7G,TR160,Lo,B1,CTTH,WC,Neg	7433.5	7496.5	160	63
C0H-070160-101XY-Z100	ODU,7G,TR160,Hi,B1,CTTH,WC,Neg	7593.5	7656.5	160	63
C0H-070160-002XY-Z100	ODU,7G,TR160,Lo,B2,CTTH,WC,Neg	7478.5	7541.5	160	63
C0H-070160-102XY-Z100	ODU,7G,TR160,Hi,B2,CTTH,WC,Neg	7638.5	7701.5	160	63
C0H-070160-003XY-Z100	ODU,7G,TR160,Lo,B3,CTTH,WC,Neg	7526.0	7589.0	160	63
C0H-070160-103XY-Z100	ODU,7G,TR160,Hi,B3,CTTH,WC,Neg	7686.0	7749.0	160	63
C0H-070161-001XY-Z100	ODU,7G,TR161,Lo,B1,CTTH,WC,Neg	7114.0	7177.0	161	63
C0H-070161-101XY-Z100	ODU,7G,TR161,Hi,B1,CTTH,WC,Neg	7275.0	7338.0	161	63
C0H-070161-002XY-Z100	ODU,7G,TR161,Lo,B2,CTTH,WC,Neg	7149.0	7212.0	161	63
C0H-070161-102XY-Z100	ODU,7G,TR161,Hi,B2,CTTH,WC,Neg	7310.0	7373.0	161	63
C0H-070161-003XY-Z100	ODU,7G,TR161,Lo,B3,CTTH,WC,Neg	7184.0	7247.0	161	63
C0H-070161-103XY-Z100	ODU,7G,TR161,Hi,B3,CTTH,WC,Neg	7345.0	7408.0	161	63
C0H-070161-004XY-Z100	ODU,7G,TR161,Lo,B4,CTTH,WC,Neg	7219.0	7282.0	161	63
C0H-070161-104XY-Z100	ODU,7G,TR161,Hi,B4,CTTH,WC,Neg	7380.0	7443.0	161	63
C0H-070161-005XY-Z100	ODU,7G,TR161,Lo,B5,CTTH,WC,Neg	7239.0	7302.0	161	63
C0H-070161-105XY-Z100	ODU,7G,TR161,Hi,B5,CTTH,WC,Neg	7400.0	7463.0	161	63
C0H-070161-006XY-Z100	ODU,7G,TR161,Lo,B6,CTTH,WC,Neg	7274.0	7337.0	161	63
C0H-070161-106XY-Z100	ODU,7G,TR161,Hi,B6,CTTH,WC,Neg	7435.0	7498.0	161	63
C0H-070161-007XY-Z100	ODU,7G,TR161,Lo,B7,CTTH,WC,Neg	7309.0	7372.0	161	63
C0H-070161-107XY-Z100	ODU,7G,TR161,Hi,B7,CTTH,WC,Neg	7470.0	7533.0	161	63
C0H-070161-008XY-Z100	ODU,7G,TR161,Lo,B8,CTTH,WC,Neg	7344.0	7407.0	161	63
C0H-070161-108XY-Z100	ODU,7G,TR161,Hi,B8,CTTH,WC,Neg	7505.0	7568.0	161	63
C0H-070161-009XY-Z100	ODU,7G,TR161,Lo,B9,CTTH,WC,Neg	7414.0	7477.0	161	63
C0H-070161-109XY-Z100	ODU,7G,TR161,Hi,B9,CTTH,WC,Neg	7575.0	7638.0	161	63
C0H-070161-010XY-Z100	ODU,7G,TR161,Lo,B10,CTTH,WC,Neg	7449.0	7512.0	161	63
C0H-070161-110XY-Z100	ODU,7G,TR161,Hi,B10,CTTH,WC,Neg	7610.0	7673.0	161	63
C0H-070161-021XY-Z100	ODU,7G,TR161,Lo,B21,CTTH,WC,Neg	7484.0	7547.0	161	63
C0H-070161-121XY-Z100	ODU,7G,TR161,Hi,B21,CTTH,WC,Neg	7645.0	7708.0	161	63
C0H-070161-022XY-Z100	ODU,7G,TR161,Lo,B22,CTTH,WC,Neg	7519.0	7582.0	161	63
C0H-070161-122XY-Z100	ODU,7G,TR161,Hi,B22,CTTH,WC,Neg	7680.0	7743.0	161	63
C0H-070161-023XY-Z100	ODU,7G,TR161,Lo,B23,CTTH,WC,Neg	7539.0	7602.0	161	63
C0H-070161-123XY-Z100	ODU,7G,TR161,Hi,B23,CTTH,WC,Neg	7700.0	7763.0	161	63
C0H-070161-024XY-Z100	ODU,7G,TR161,Lo,B24,CTTH,WC,Neg	7574.0	7637.0	161	63
C0H-070161-124XY-Z100	ODU,7G,TR161,Hi,B24,CTTH,WC,Neg	7735.0	7798.0	161	63
C0H-070161-025XY-Z100	ODU,7G,TR161,Lo,B25,CTTH,WC,Neg	7609.0	7672.0	161	63
C0H-070161-125XY-Z100	ODU,7G,TR161,Hi,B25,CTTH,WC,Neg	7770.0	7833.0	161	63

Model Number	Description	Transmit Range (1)		T to R	Duplexer
		Min Freq (MHz)	Max Freq (MHz)	(MHz)	Range (MHz)
7 GHz ODUs cont.					
C0H-070161-026XY-Z100	ODU,7G,TR161,Lo,B26,CTTH,WC,Neg	7644.0	7707.0	161	63
C0H-070161-126XY-Z100	ODU,7G,TR161,Hi,B26,CTTH,WC,Neg	7805.0	7868.0	161	63
C0H-070168-001XY-Z100	ODU,7G,TR168,Lo,B1,CTTH,WC,Neg	7443.0	7499.0	168	56
C0H-070168-101XY-Z100	ODU,7G,TR168,Hi,B1,CTTH,WC,Neg	7611.0	7667.0	168	56
C0H-070168-002XY-Z100	ODU,7G,TR168,Lo,B2,CTTH,WC,Neg	7485.0	7541.0	168	56
C0H-070168-102XY-Z100	ODU,7G,TR168,Hi,B2,CTTH,WC,Neg	7653.0	7709.0	168	56
C0H-070168-003XY-Z100	ODU,7G,TR168,Lo,B3,CTTH,WC,Neg	7527.0	7583.0	168	56
C0H-070168-103XY-Z100	ODU,7G,TR168,Hi,B3,CTTH,WC,Neg	7695.0	7751.0	168	56
C0H-070196-001XY-Z100	ODU,7G,TR196,Lo,B1,CTTH,WC,Neg	7093.0	7149.0	196	56
C0H-070196-101XY-Z100	ODU,7G,TR196,Hi,B1,CTTH,WC,Neg	7289.0	7345.0	196	56
C0H-070196-002XY-Z100	ODU,7G,TR196,Lo,B2,CTTH,WC,Neg	7121.0	7177.0	196	56
C0H-070196-102XY-Z100	ODU,7G,TR196,Hi,B2,CTTH,WC,Neg	7317.0	7373.0	196	56
C0H-070196-003XY-Z100	ODU,7G,TR196,Lo,B3,CTTH,WC,Neg	7149.0	7205.0	196	56
C0H-070196-103XY-Z100	ODU,7G,TR196,Hi,B3,CTTH,WC,Neg	7345.0	7401.0	196	56
C0H-070196-004XY-Z100	ODU,7G,TR196,Lo,B4,CTTH,WC,Neg	7177.0	7233.0	196	56
C0H-070196-104XY-Z100	ODU,7G,TR196,Hi,B4,CTTH,WC,Neg	7373.0	7429.0	196	56
C0H-070196-005XY-Z100	ODU,7G,TR196,Lo,B5,CTTH,WC,Neg	7205.0	7261.0	196	56
C0H-070196-105XY-Z100	ODU,7G,TR196,Hi,B5,CTTH,WC,Neg	7401.0	7457.0	196	56
C0H-070245-001XY-Z100	ODU,7G,TR245,Lo,B1,CTTH,WC,Neg	7400.0	7484.0	245	84
C0H-070245-101XY-Z100	ODU,7G,TR245,Hi,B1,CTTH,WC,Neg	7645.0	7729.0	245	84
C0H-070245-002XY-Z100	ODU,7G,TR245,Lo,B2,CTTH,WC,Neg	7484.0	7568.0	245	84
C0H-070245-102XY-Z100	ODU,7G,TR245,Hi,B2,CTTH,WC,Neg	7729.0	7813.0	245	84
C0H-070245-003XY-Z100	ODU,7G,TR245,Lo,B3,CTTH,WC,Neg	7568.0	7652.0	245	84
C0H-070245-103XY-Z100	ODU,7G,TR245,Hi,B3,CTTH,WC,Neg	7813.0	7897.0	245	84
C0H-070300-001XY-Z100	ODU,7G,TR300,Lo,B1,CTTH,WC,Neg	7090.0	7210.0	300	120
C0H-070300-101XY-Z100	ODU,7G,TR300,Hi,B1,CTTH,WC,Neg	7390.0	7510.0	300	120
C0H-070300-002XY-Z100	ODU,7G,TR300,Lo,B2,CTTH,WC,Neg	7210.0	7330.0	300	120
C0H-070300-102XY-Z100	ODU,7G,TR300,Hi,B2,CTTH,WC,Neg	7510.0	7630.0	300	120
C0H-070300-003XY-Z100	ODU,7G,TR300,Lo,B3,CTTH,WC,Neg	7330.0	7450.0	300	120
C0H-070300-103XY-Z100	ODU,7G,TR300,Hi,B3,CTTH,WC,Neg	7630.0	7750.0	300	120
8 GHz ODUs					
C0H-080119-001XY-Z100	ODU,8G,TR119,Lo,B1,CTTH,WC,Neg	8279.0	8307.0	119 & 126*	28**
C0H-080119-101XY-Z100	ODU,8G,TR119,Hi,B1,CTTH,WC,Neg	8398.0	8426.0	119 & 126*	28**
C0H-080119-002XY-Z100	ODU,8G,TR119,Lo,B2,CTTH,WC,Neg	8293.0	8321.0	119 & 126*	28**
C0H-080119-102XY-Z100	ODU,8G,TR119,Hi,B2,CTTH,WC,Neg	8412.0	8440.0	119 & 126*	28**
C0H-080119-003XY-Z100	ODU,8G,TR119,Lo,B3,CTTH,WC,Neg	8307.0	8335.0	119 & 126*	28**
C0H-080119-103XY-Z100	ODU,8G,TR119,Hi,B3,CTTH,WC,Neg	8426.0	8454.0	119 & 126*	28**
C0H-080119-004XY-Z100	ODU,8G,TR119,Lo,B4,CTTH,WC,Neg	8321.0	8349.0	119 & 126*	28**
C0H-080119-104XY-Z100	ODU,8G,TR119,Hi,B4,CTTH,WC,Neg	8440.0	8468.0	119 & 126*	28**

Model Number	Description	Transmit Range (1)		T to R	Diplexer
		Min Freq (MHz)	Max Freq (MHz)	(MHz)	Range (MHz)
8 GHz ODUs cont.					
C0H-080119-005XY-Z100	ODU,8G,TR119,Lo,B5,CTTH,WC,Neg	8335.0	8363.0	119 & 126*	28**
C0H-080119-105XY-Z100	ODU,8G,TR119,Hi,B5,CTTH,WC,Neg	8454.0	8482.0	119 & 126*	28**
C0H-080119-006XY-Z100	ODU,8G,TR119,Lo,B6,CTTH,WC,Neg	8349.0	8377.0	119 & 126*	28**
C0H-080119-106XY-Z100	ODU,8G,TR119,Hi,B6,CTTH,WC,Neg	8468.0	8496.0	119 & 126*	28**
C0H-080151-001XY-Z100	ODU,8G,TR151,Lo,B1,CTTH,WC,Neg	8203.0	8271.0	151.614	68
C0H-080151-101XY-Z100	ODU,8G,TR151,Hi,B1,CTTH,WC,Neg	8355.0	8423.0	151.614	68
C0H-080151-002XY-Z100	ODU,8G,TR151,Lo,B2,CTTH,WC,Neg	8240.0	8308.0	151.614	68
C0H-080151-102XY-Z100	ODU,8G,TR151,Hi,B2,CTTH,WC,Neg	8392.0	8460.0	151.614	68
C0H-080151-003XY-Z100	ODU,8G,TR151,Lo,B3,CTTH,WC,Neg	8277.0	8345.0	151.614	68
C0H-080151-103XY-Z100	ODU,8G,TR151,Hi,B3,CTTH,WC,Neg	8429.0	8497.0	151.614	68
C0H-080208-001XY-Z100	ODU,8G,TR208,Lo,B1,CTTH,WC,Neg	8043.0	8113.0	208	70
C0H-080208-101XY-Z100	ODU,8G,TR208,Hi,B1,CTTH,WC,Neg	8251.0	8321.0	208	70
C0H-080208-002XY-Z100	ODU,8G,TR208,Lo,B2,CTTH,WC,Neg	8099.0	8169.0	208	70
C0H-080208-102XY-Z100	ODU,8G,TR208,Hi,B2,CTTH,WC,Neg	8307.0	8377.0	208	70
C0H-080208-003XY-Z100	ODU,8G,TR208,Lo,B3,CTTH,WC,Neg	8155.0	8225.0	208	70
C0H-080208-103XY-Z100	ODU,8G,TR208,Hi,B3,CTTH,WC,Neg	8363.0	8433.0	208	70
C0H-080208-004XY-Z100	ODU,8G,TR208,Lo,B4,CTTH,WC,Neg	8211.0	8281.0	208	70
C0H-080208-104XY-Z100	ODU,8G,TR208,Hi,B4,CTTH,WC,Neg	8419.0	8489.0	208	70
C0H-080266-001XY-Z100	ODU,8G,TR266,Lo,B1,CTTH,WC,Neg	7905.0	8024.0	266	119
C0H-080266-101XY-Z100	ODU,8G,TR266,Hi,B1,CTTH,WC,Neg	8171.0	8290.0	266	119
C0H-080266-002XY-Z100	ODU,8G,TR266,Lo,B2,CTTH,WC,Neg	8017.0	8136.0	266	119
C0H-080266-102XY-Z100	ODU,8G,TR266,Hi,B2,CTTH,WC,Neg	8283.0	8402.0	266	119
C0H-080310-001XY-Z100	ODU,8G,TR310,Lo,B1,CTTH,WC,Neg	7905.0	8017.0	310	112
C0H-080310-101XY-Z100	ODU,8G,TR310,Hi,B1,CTTH,WC,Neg	8215.0	8327.0	310	112
C0H-080310-002XY-Z100	ODU,8G,TR310,Lo,B2,CTTH,WC,Neg	7989.0	8101.0	310	112
C0H-080310-102XY-Z100	ODU,8G,TR310,Hi,B2,CTTH,WC,Neg	8299.0	8411.0	310	112
C0H-080310-003XY-Z100	ODU,8G,TR310,Lo,B3,CTTH,WC,Neg	8073.0	8185.0	310	112
C0H-080310-103XY-Z100	ODU,8G,TR310,Hi,B3,CTTH,WC,Neg	8383.0	8495.0	310	112
C0H-080311-001XY-Z100	ODU,8G,TR311,Lo,B1,CTTH,WC,Neg	7731.0	7867.0	311.32	136
C0H-080311-101XY-Z100	ODU,8G,TR311,Hi,B1,CTTH,WC,Neg	8042.0	8178.0	311.32	136
C0H-080311-002XY-Z100	ODU,8G,TR311,Lo,B2,CTTH,WC,Neg	7835.0	7971.0	311.32	136
C0H-080311-102XY-Z100	ODU,8G,TR311,Hi,B2,CTTH,WC,Neg	8146.0	8282.0	311.32	136
C0H-080311-003XY-Z100	ODU,8G,TR311,Lo,B3,CTTH,WC,Neg	7717.0	7867.0	311.32	150
C0H-080311-103XY-Z100	ODU,8G,TR311,Hi,B3,CTTH,WC,Neg	8028.0	8178.0	311.32	150
C0H-080360-001XY-Z100	ODU,8G,TR360,Lo,B1,CTTH,WC,Neg	7750.0	7870.0	360	120
C0H-080360-101XY-Z100	ODU,8G,TR360,Hi,B1,CTTH,WC,Neg	8110.0	8230.0	360	120
C0H-080360-002XY-Z100	ODU,8G,TR360,Lo,B2,CTTH,WC,Neg	7870.0	7990.0	360	120
C0H-080360-102XY-Z100	ODU,8G,TR360,Hi,B2,CTTH,WC,Neg	8230.0	8350.0	360	120
C0H-080360-003XY-Z100	ODU,8G,TR360,Lo,B3,CTTH,WC,Neg	7990.0	8110.0	360	120
C0H-080360-103XY-Z100	ODU,8G,TR360,Hi,B3,CTTH,WC,Neg	8350.0	8470.0	360	120

REMEC Broadband Wireless PROPRIETARY INFORMATION

Use or disclosure of data contained on this sheet is subject to the restriction on the cover or title page of this document.

DWG NO
040-50032

REV
B

SHEET
10

Model Number	Description	Transmit Range (1)		T to R	Diplexer
		Min Freq (MHz)	Max Freq (MHz)	(MHz)	Range (MHz)
11 GHz ODUs					
C0H-110490-001XY-Z100	ODU,11G,TR490,Lo,B1,CTTH,WC,Neg	10675.0	10855.0	490	180
C0H-110490-101XY-Z100	ODU,11G,TR490,Hi,B1,CTTH,WC,Neg	11165.0	11345.0	490	180
C0H-110490-002XY-Z100	ODU,11G,TR490,Lo,B2,CTTH,WC,Neg	10795.0	10975.0	490	180
C0H-110490-102XY-Z100	ODU,11G,TR490,Hi,B2,CTTH,WC,Neg	11285.0	11465.0	490	180
C0H-110490-003XY-Z100	ODU,11G,TR490,Lo,B3,CTTH,WC,Neg	10915.0	11095.0	490	180
C0H-110490-103XY-Z100	ODU,11G,TR490,Hi,B3,CTTH,WC,Neg	11405.0	11585.0	490	180
C0H-110490-004XY-Z100	ODU,11G,TR490,Lo,B4,CTTH,WC,Neg	11035.0	11215.0	490	180
C0H-110490-104XY-Z100	ODU,11G,TR490,Hi,B4,CTTH,WC,Neg	11525.0	11705.0	490	180
C0H-110490-005XY-Z100	ODU,11G,TR490,Lo,B5,CTTH,WC,Neg	10700.0	10890.0	490 & 500*	190**
C0H-110490-105XY-Z100	ODU,11G,TR490,Hi,B5,CTTH,WC,Neg	11200.0	11390.0	490 & 500*	190**
C0H-110490-006XY-Z100	ODU,11G,TR490,Lo,B6,CTTH,WC,Neg	10855.0	11045.0	490 & 500*	190**
C0H-110490-106XY-Z100	ODU,11G,TR490,Hi,B6,CTTH,WC,Neg	11355.0	11545.0	490 & 500*	190**
C0H-110490-007XY-Z100	ODU,11G,TR490,Lo,B7,CTTH,WC,Neg	11010.0	11200.0	490 & 500*	190**
C0H-110490-107XY-Z100	ODU,11G,TR490,Hi,B7,CTTH,WC,Neg	11510.0	11700.0	490 & 500*	190**
C0H-110530-001XY-Z100	ODU,11G,TR530,Lo,B1,CTTH,WC,Neg	10675.0	10855.0	530	180
C0H-110530-101XY-Z100	ODU,11G,TR530,Hi,B1,CTTH,WC,Neg	11205.0	11385.0	530	180
C0H-110530-002XY-Z100	ODU,11G,TR530,Lo,B2,CTTH,WC,Neg	10795.0	10975.0	530	180
C0H-110530-102XY-Z100	ODU,11G,TR530,Hi,B2,CTTH,WC,Neg	11325.0	11505.0	530	180
C0H-110530-003XY-Z100	ODU,11G,TR530,Lo,B3,CTTH,WC,Neg	10915.0	11135.0	530	220
C0H-110530-103XY-Z100	ODU,11G,TR530,Hi,B3,CTTH,WC,Neg	11445.0	11665.0	530	220
C0H-110530-004XY-Z100	ODU,11G,TR530,Lo,B4,CTTH,WC,Neg	11035.0	11215.0	530	180
C0H-110530-104XY-Z100	ODU,11G,TR530,Hi,B4,CTTH,WC,Neg	11565.0	11745.0	530	180
13 GHz ODUs					
C0H-130200-001XY-Z100	ODU,13G,TR200,Lo,B1,CTTH,WC,Neg	12700.0	12750.0	200	50***
C0H-130200-101XY-Z100	ODU,13G,TR200,Hi,B1,CTTH,WC,Neg	12900.0	12950.0	200	50***
C0H-130200-002XY-Z100	ODU,13G,TR200,Lo,B2,CTTH,WC,Neg	12750.0	12800.0	200	50***
C0H-130200-102XY-Z100	ODU,13G,TR200,Hi,B2,CTTH,WC,Neg	12950.0	13000.0	200	50***
C0H-130200-003XY-Z100	ODU,13G,TR200,Lo,B3,CTTH,WC,Neg	12800.0	12850.0	200	50***
C0H-130200-103XY-Z100	ODU,13G,TR200,Hi,B3,CTTH,WC,Neg	13000.0	13050.0	200	50***
C0H-130200-004XY-Z100	ODU,13G,TR200,Lo,B4,CTTH,WC,Neg	12850.0	12900.0	200	50***
C0H-130200-104XY-Z100	ODU,13G,TR200,Hi,B4,CTTH,WC,Neg	13050.0	13100.0	200	50***
C0H-130225-001XY-Z100	ODU,13G,TR225,Lo,B1,CTTH,WC,Neg	12700.0	12750.0	225	50***
C0H-130225-101XY-Z100	ODU,13G,TR225,Hi,B1,CTTH,WC,Neg	12925.0	12975.0	225	50***
C0H-130225-002XY-Z100	ODU,13G,TR225,Lo,B2,CTTH,WC,Neg	12750.0	12800.0	225	50***
C0H-130225-102XY-Z100	ODU,13G,TR225,Hi,B2,CTTH,WC,Neg	12975.0	13025.0	225	50***
C0H-130225-003XY-Z100	ODU,13G,TR225,Lo,B3,CTTH,WC,Neg	12800.0	12850.0	225	50***
C0H-130225-103XY-Z100	ODU,13G,TR225,Hi,B3,CTTH,WC,Neg	13025.0	13075.0	225	50***
C0H-130225-004XY-Z100	ODU,13G,TR225,Lo,B4,CTTH,WC,Neg	12850.0	12900.0	225	50***
C0H-130225-104XY-Z100	ODU,13G,TR225,Hi,B4,CTTH,WC,Neg	13075.0	13125.0	225	50***
C0H-130225-005XY-Z100	ODU,13G,TR225,Lo,B5,CTTH,WC,Neg	12900.0	12950.0	225	50***
C0H-130225-105XY-Z100	ODU,13G,TR225,Hi,B5,CTTH,WC,Neg	13125.0	13175.0	225	50***

Model Number	Description	Transmit Range (1)		T to R	Duplexer
		Min Freq (MHz)	Max Freq (MHz)	(MHz)	Range (MHz)
13 GHz ODUs cont.					
C0H-130266-001XY-Z100	ODU,13G,TR266,Lo,B1,CTTH,WC,Neg	12751.0	12814.0	266	63
C0H-130266-101XY-Z100	ODU,13G,TR266,Hi,B1,CTTH,WC,Neg	13017.0	13080.0	266	63
C0H-130266-002XY-Z100	ODU,13G,TR266,Lo,B2,CTTH,WC,Neg	12807.0	12870.0	266	63
C0H-130266-102XY-Z100	ODU,13G,TR266,Hi,B2,CTTH,WC,Neg	13073.0	13136.0	266	63
C0H-130266-003XY-Z100	ODU,13G,TR266,Lo,B3,CTTH,WC,Neg	12863.0	12926.0	266	63
C0H-130266-103XY-Z100	ODU,13G,TR266,Hi,B3,CTTH,WC,Neg	13129.0	13192.0	266	63
C0H-130266-004XY-Z100	ODU,13G,TR266,Lo,B4,CTTH,WC,Neg	12919.0	12982.0	266	63
C0H-130266-104XY-Z100	ODU,13G,TR266,Hi,B4,CTTH,WC,Neg	13185.0	13248.0	266	63
15 GHz ODUs					
C0H-150315-001XY-Z100	ODU,15G,TR315,Lo,B1,CTTH,WC,Neg	14627.0	14746.0	315 & 322*	119
C0H-150315-101XY-Z100	ODU,15G,TR315,Hi,B1,CTTH,WC,Neg	14942.0	15061.0	315 & 322*	119
C0H-150315-002XY-Z100	ODU,15G,TR315,Lo,B2,CTTH,WC,Neg	14725.0	14844.0	315 & 322*	119
C0H-150315-102XY-Z100	ODU,15G,TR315,Hi,B2,CTTH,WC,Neg	15040.0	15159.0	315 & 322*	119
C0H-150315-003XY-Z100	ODU,15G,TR315,Lo,B3,CTTH,WC,Neg	14823.0	14942.0	315 & 322*	119
C0H-150315-103XY-Z100	ODU,15G,TR315,Hi,B3,CTTH,WC,Neg	15138.0	15257.0	315 & 322*	119
C0H-150420-004XY-Z100	ODU,15G,TR420,Lo,B4,CTTH,WC,Neg	14501.0	14613.0	420	112
C0H-150420-104XY-Z100	ODU,15G,TR420,Hi,B4,CTTH,WC,Neg	14921.0	15033.0	420	112
C0H-150420-005XY-Z100	ODU,15G,TR420,Lo,B5,CTTH,WC,Neg	14606.0	14725.0	420	119
C0H-150420-105XY-Z100	ODU,15G,TR420,Hi,B5,CTTH,WC,Neg	15026.0	15145.0	420	119
C0H-150420-006XY-Z100	ODU,15G,TR420,Lo,B6,CTTH,WC,Neg	14718.0	14837.0	420	119
C0H-150420-106XY-Z100	ODU,15G,TR420,Hi,B6,CTTH,WC,Neg	15138.0	15257.0	420	119
C0H-150420-007XY-Z100	ODU,15G,TR420,Lo,B7,CTTH,WC,Neg	14816.0	14928.0	420	112
C0H-150420-107XY-Z100	ODU,15G,TR420,Hi,B7,CTTH,WC,Neg	15236.0	15348.0	420	112
C0H-150490-004XY-Z100	ODU,15G,TR490,Lo,B4,CTTH,WC,Neg	14403.0	14522.0	490	119
C0H-150490-104XY-Z100	ODU,15G,TR490,Hi,B4,CTTH,WC,Neg	14893.0	15012.0	490	119
C0H-150490-005XY-Z100	ODU,15G,TR490,Lo,B5,CTTH,WC,Neg	14515.0	14634.0	490	119
C0H-150490-105XY-Z100	ODU,15G,TR490,Hi,B5,CTTH,WC,Neg	15005.0	15124.0	490	119
C0H-150490-006XY-Z100	ODU,15G,TR490,Lo,B6,CTTH,WC,Neg	14627.0	14746.0	490	119
C0H-150490-106XY-Z100	ODU,15G,TR490,Hi,B6,CTTH,WC,Neg	15117.0	15236.0	490	119
C0H-150490-007XY-Z100	ODU,15G,TR490,Lo,B7,CTTH,WC,Neg	14739.0	14858.0	490	119
C0H-150490-107XY-Z100	ODU,15G,TR490,Hi,B7,CTTH,WC,Neg	15229.0	15348.0	490	119
C0H-150475-001XY-Z100	ODU,15G,TR475,Lo,B1,CTTH,WC,Neg	14500.0	14668.0	475	168
C0H-150475-101XY-Z100	ODU,15G,TR475,Hi,B1,CTTH,WC,Neg	14975.0	15143.0	475	168
C0H-150475-002XY-Z100	ODU,15G,TR475,Lo,B2,CTTH,WC,Neg	14660.0	14828.0	475	168
C0H-150475-102XY-Z100	ODU,15G,TR475,Hi,B2,CTTH,WC,Neg	15135.0	15303.0	475	168
C0H-150475-003XY-Z100	ODU,15G,TR475,Lo,B3,CTTH,WC,Neg	14783.0	14883.0	475	100
C0H-150475-103XY-Z100	ODU,15G,TR475,Hi,B3,CTTH,WC,Neg	15258.0	15358.0	475	100
C0H-150640-001XY-Z100	ODU,15G,TR640,Lo,B1,CTTH,WC,Neg	14500.0	14610.0	640	110
C0H-150640-101XY-Z100	ODU,15G,TR640,Hi,B1,CTTH,WC,Neg	15140.0	15250.0	640	110

Model Number	Description	Transmit Range (1)		T to R (MHz)	Diplexer Range (MHz)
		Min Freq (MHz)	Max Freq (MHz)		
15 GHz ODUs cont.					
C0H-150640-002XY-Z100	ODU,15G,TR640,Lo,B2,CTTH,WC,Neg	14605.0	14715.0	640	110
C0H-150640-102XY-Z100	ODU,15G,TR640,Hi,B2,CTTH,WC,Neg	15245.0	15355.0	640	110
C0H-150644-001XY-Z100	ODU,15G,TR644,Lo,B1,CTTH,WC,Neg	14400.0	14512.0	644	112
C0H-150644-101XY-Z100	ODU,15G,TR644,Hi,B1,CTTH,WC,Neg	15044.0	15156.0	644	112
C0H-150644-002XY-Z100	ODU,15G,TR644,Lo,B2,CTTH,WC,Neg	14498.0	14610.0	644	112
C0H-150644-102XY-Z100	ODU,15G,TR644,Hi,B2,CTTH,WC,Neg	15142.0	15254.0	644	112
C0H-150644-003XY-Z100	ODU,15G,TR644,Lo,B3,CTTH,WC,Neg	14596.0	14708.0	644	112
C0H-150644-103XY-Z100	ODU,15G,TR644,Hi,B3,CTTH,WC,Neg	15240.0	15352.0	644	112
C0H-150728-001XY-Z100	ODU,15G,TR728,Lo,B1,CTTH,WC,Neg	14500.0	14615.0	728	115
C0H-150728-101XY-Z100	ODU,15G,TR728,Hi,B1,CTTH,WC,Neg	15228.0	15343.0	728	115
C0H-150728-002XY-Z100	ODU,15G,TR728,Lo,B2,CTTH,WC,Neg	14500.0	14625.0	728	125
C0H-150728-102XY-Z100	ODU,15G,TR728,Hi,B2,CTTH,WC,Neg	15228.0	15353.0	728	125
18 GHz ODUs					
C0H-181010-001XY-Z100	ODU,18G,TR1010,Lo,B1,CTTH,WC,Neg	17685.0	17985.0	1010 & 1008*	300
C0H-181010-101XY-Z100	ODU,18G,TR1010,Hi,B1,CTTH,WC,Neg	18695.0	18995.0	1010 & 1008*	300
C0H-181010-002XY-Z100	ODU,18G,TR1010,Lo,B2,CTTH,WC,Neg	17930.0	18230.0	1010 & 1008*	300
C0H-181010-102XY-Z100	ODU,18G,TR1010,Hi,B2,CTTH,WC,Neg	18940.0	19240.0	1010 & 1008*	300
C0H-181010-003XY-Z100	ODU,18G,TR1010,Lo,B3,CTTH,WC,Neg	18180.0	18480.0	1010 & 1008*	300
C0H-181010-103XY-Z100	ODU,18G,TR1010,Hi,B3,CTTH,WC,Neg	19190.0	19490.0	1010 & 1008*	300
C0H-181010-004XY-Z100	ODU,18G,TR1010,Lo,B4,CTTH,WC,Neg	18400.0	18700.0	1010 & 1008*	300
C0H-181010-104XY-Z100	ODU,18G,TR1010,Hi,B4,CTTH,WC,Neg	19410.0	19710.0	1010 & 1008*	300
C0H-181092-001XY-Z100	ODU,18G,TR1092,Lo,B1,CTTH,WC,Neg	17712.5	18060.0	1092.5	347.5
C0H-181092-101XY-Z100	ODU,18G,TR1092,Hi,B1,CTTH,WC,Neg	18805.0	19152.5	1092.5	347.5
C0H-181092-002XY-Z100	ODU,18G,TR1092,Lo,B2,CTTH,WC,Neg	17987.5	18335.0	1092.5	347.5
C0H-181092-102XY-Z100	ODU,18G,TR1092,Hi,B2,CTTH,WC,Neg	19080.0	19427.5	1092.5	347.5
C0H-181092-003XY-Z100	ODU,18G,TR1092,Lo,B3,CTTH,WC,Neg	18247.5	18595.0	1092.5	347.5
C0H-181092-103XY-Z100	ODU,18G,TR1092,Hi,B3,CTTH,WC,Neg	19340.0	19697.5	1092.5	347.5
C0H-181120-001XY-Z100	ODU,18G,TR1120,Lo,B1,CTTH,WC,Neg	17700.0	18045.0	1120	345
C0H-181120-101XY-Z100	ODU,18G,TR1120,Hi,B1,CTTH,WC,Neg	18820.0	19165.0	1120	345
C0H-181120-002XY-Z100	ODU,18G,TR1120,Lo,B2,CTTH,WC,Neg	17975.0	18320.0	1120	345
C0H-181120-102XY-Z100	ODU,18G,TR1120,Hi,B2,CTTH,WC,Neg	19095.0	19440.0	1120	345
C0H-181120-003XY-Z100	ODU,18G,TR1120,Lo,B3,CTTH,WC,Neg	18235.0	18580.0	1120	345
C0H-181120-103XY-Z100	ODU,18G,TR1120,Hi,B3,CTTH,WC,Neg	19355.0	19700.0	1120	345
C0H-181560-001XY-Z100	ODU,18G,TR1560,Lo,B1,CTTH,WC,Neg	17700.0	18000.0	1560	300
C0H-181560-101XY-Z100	ODU,18G,TR1560,Hi,B1,CTTH,WC,Neg	19260.0	19560.0	1560	300
C0H-181560-002XY-Z100	ODU,18G,TR1560,Lo,B2,CTTH,WC,Neg	17840.0	18140.0	1560	300
C0H-181560-102XY-Z100	ODU,18G,TR1560,Hi,B2,CTTH,WC,Neg	19400.0	19700.0	1560	300
C0H-181560-003XY-Z100	ODU,18G,TR1560,Lo,B3,CTTH,WC,Neg	17700.0	18140.0	1560	440
C0H-181560-103XY-Z100	ODU,18G,TR1560,Hi,B3,CTTH,WC,Neg	19260.0	19700.0	1560	440

Model Number	Description	Transmit Range (1)		T to R	Diplexer
		Min Freq (MHz)	Max Freq (MHz)	(MHz)	Range (MHz)
23 GHz ODUs					
C0H-231008-001XY-Z100	ODU,23G,TR1008,Lo,B1,CTTH,WC,Neg	21994.0	22330.0	1008	336
C0H-231008-101XY-Z100	ODU,23G,TR1008,Hi,B1,CTTH,WC,Neg	23002.0	23338.0	1008	336
C0H-231008-002XY-Z100	ODU,23G,TR1008,Lo,B2,CTTH,WC,Neg	22274.0	22610.0	1008	336
C0H-231008-102XY-Z100	ODU,23G,TR1008,Hi,B2,CTTH,WC,Neg	23282.0	23618.0	1008	336
C0H-231200-001XY-Z100	ODU,23G,TR1200,Lo,B1,CTTH,WC,Neg	21200.0	21530.0	1200	330
C0H-231200-101XY-Z100	ODU,23G,TR1200,Hi,B1,CTTH,WC,Neg	22400.0	22730.0	1200	330
C0H-231200-002XY-Z100	ODU,23G,TR1200,Lo,B2,CTTH,WC,Neg	21490.0	21820.0	1200	330
C0H-231200-102XY-Z100	ODU,23G,TR1200,Hi,B2,CTTH,WC,Neg	22690.0	23020.0	1200	330
C0H-231200-003XY-Z100	ODU,23G,TR1200,Lo,B3,CTTH,WC,Neg	21780.0	22110.0	1200	330
C0H-231200-103XY-Z100	ODU,23G,TR1200,Hi,B3,CTTH,WC,Neg	22980.0	23310.0	1200	330
C0H-231200-004XY-Z100	ODU,23G,TR1200,Lo,B4,CTTH,WC,Neg	22070.0	22400.0	1200	330
C0H-231200-104XY-Z100	ODU,23G,TR1200,Hi,B4,CTTH,WC,Neg	23270.0	23600.0	1200	330
C0H-231200-005XY-Z100	ODU,23G,TR1200,Lo,B5,CTTH,WC,Neg	21200.0	21600.0	1200	400
C0H-231200-105XY-Z100	ODU,23G,TR1200,Hi,B5,CTTH,WC,Neg	22400.0	22800.0	1200	400
C0H-231200-006XY-Z100	ODU,23G,TR1200,Lo,B6,CTTH,WC,Neg	21600.0	22000.0	1200	400
C0H-231200-106XY-Z100	ODU,23G,TR1200,Hi,B6,CTTH,WC,Neg	22800.0	23200.0	1200	400
C0H-231200-007XY-Z100	ODU,23G,TR1200,Lo,B7,CTTH,WC,Neg	22000.0	22400.0	1200	400
C0H-231200-107XY-Z100	ODU,23G,TR1200,Hi,B7,CTTH,WC,Neg	23200.0	23600.0	1200	400
C0H-231232-001XY-Z100	ODU,23G,TR1232,Lo,B1,CTTH,WC,Neg	21200.0	21500.0	1232	300
C0H-231232-101XY-Z100	ODU,23G,TR1232,Hi,B1,CTTH,WC,Neg	22432.0	22732.0	1232	300
C0H-231232-002XY-Z100	ODU,23G,TR1232,Lo,B2,CTTH,WC,Neg	21472.0	21786.0	1232	314
C0H-231232-102XY-Z100	ODU,23G,TR1232,Hi,B2,CTTH,WC,Neg	22704.0	23018.0	1232	314
C0H-231232-003XY-Z100	ODU,23G,TR1232,Lo,B3,CTTH,WC,Neg	21779.0	22093.0	1232	314
C0H-231232-103XY-Z100	ODU,23G,TR1232,Hi,B3,CTTH,WC,Neg	23011.0	23325.0	1232	314
C0H-231232-004XY-Z100	ODU,23G,TR1232,Lo,B4,CTTH,WC,Neg	22086.0	22386.0	1232	300
C0H-231232-104XY-Z100	ODU,23G,TR1232,Hi,B4,CTTH,WC,Neg	23318.0	23618.0	1232	300
26 GHz ODUs					
C0H-260800-001XY-Z100	ODU,26G,TR800,Lo,B1,CTTH,WC,Neg	24250.0	24450.0	800	200
C0H-260800-101XY-Z100	ODU,26G,TR800,Hi,B1,CTTH,WC,Neg	25050.0	25250.0	800	200
C0H-261008-001XY-Z100	ODU,26G,TR1008,Lo,B1,CTTH,WC,Neg	24549.0	24885.0	1008	336
C0H-261008-101XY-Z100	ODU,26G,TR1008,Hi,B1,CTTH,WC,Neg	25557.0	25893.0	1008	336
C0H-261008-002XY-Z100	ODU,26G,TR1008,Lo,B2,CTTH,WC,Neg	24829.0	25165.0	1008	336
C0H-261008-102XY-Z100	ODU,26G,TR1008,Hi,B2,CTTH,WC,Neg	25837.0	26173.0	1008	336
C0H-261008-003XY-Z100	ODU,26G,TR1008,Lo,B3,CTTH,WC,Neg	25109.0	25445.0	1008	336
C0H-261008-103XY-Z100	ODU,26G,TR1008,Hi,B3,CTTH,WC,Neg	26117.0	26453.0	1008	336
32 GHz ODUs					
C0H-320812-001XY-Z100	ODU,32G,TR812,Lo,B1,CTTH,WC,Neg	31815.0	32207.0	812	392
C0H-320812-101XY-Z100	ODU,32G,TR812,Hi,B1,CTTH,WC,Neg	32627.0	33019.0	812	392

Model Number	Description	Transmit Range (1)		T to R	Diplexer
		Min Freq (MHz)	Max Freq (MHz)	(MHz)	Range (MHz)
32 GHz ODUs cont.					
C0H-320812-002XY-Z100	ODU,32G,TR812,Lo,B2,CTTH,WC,Neg	32179.0	32571.0	812	392
C0H-320812-102XY-Z100	ODU,32G,TR812,Hi,B2,CTTH,WC,Neg	32991.0	33383.0	812	392
38 GHz ODUs					
C0H-380700-001XY-Z100	ODU,38G,TR700,Lo,B1,CTTH,WC,Neg	38595.0	38805.0	700	210
C0H-380700-101XY-Z100	ODU,38G,TR700,Hi,B1,CTTH,WC,Neg	39295.0	39505.0	700	210
C0H-380700-002XY-Z100	ODU,38G,TR700,Lo,B2,CTTH,WC,Neg	38795.0	39005.0	700	210
C0H-380700-102XY-Z100	ODU,38G,TR700,Hi,B2,CTTH,WC,Neg	39495.0	39705.0	700	210
C0H-380700-003XY-Z100	ODU,38G,TR700,Lo,B3,CTTH,WC,Neg	38995.0	39205.0	700	210
C0H-380700-103XY-Z100	ODU,38G,TR700,Hi,B3,CTTH,WC,Neg	39695.0	39905.0	700	210
C0H-380700-004XY-Z100	ODU,38G,TR700,Lo,B4,CTTH,WC,Neg	39195.0	39405.0	700	210
C0H-380700-104XY-Z100	ODU,38G,TR700,Hi,B4,CTTH,WC,Neg	39895.0	40105.0	700	210
C0H-381260-001XY-Z100	ODU,38G,TR1260,Lo,B1,CTTH,WC,Neg	37044.0	37632.0	1260	588
C0H-381260-101XY-Z100	ODU,38G,TR1260,Hi,B1,CTTH,WC,Neg	38304.0	38892.0	1260	588
C0H-381260-002XY-Z100	ODU,38G,TR1260,Lo,B2,CTTH,WC,Neg	37604.0	38192.0	1260	588
C0H-381260-102XY-Z100	ODU,38G,TR1260,Hi,B2,CTTH,WC,Neg	38864.0	39452.0	1260	588
42 GHz ODUs					
C0H-421500-001XY-Z000	ODU,42G,TR1500,Lo,B1,CTTH,WR,Neg	40500.0	41278.0	1500	778
C0H-421500-101XY-Z000	ODU,42G,TR1500,Hi,B1,CTTH,WR,Neg	42000.0	42778.0	1500	778
C0H-421500-002XY-Z000	ODU,42G,TR1500,Lo,B2,CTTH,WR,Neg	41222.0	42000.0	1500	778
C0H-421500-102XY-Z000	ODU,42G,TR1500,Hi,B2,CTTH,WR,Neg	42722.0	43500.0	1500	778

(1) Frequency ranges shown are TX minimum / maximum limits, i.e. not channel center frequencies. The lowest available channel center frequency is at least the minimum frequency shown plus one half of the selected channel bandwidth. The highest available channel center frequency is at most the maximum frequency shown less one half of the selected channel bandwidth.

* Alternate TR supported by IDU commanding TR or RX Frequency.

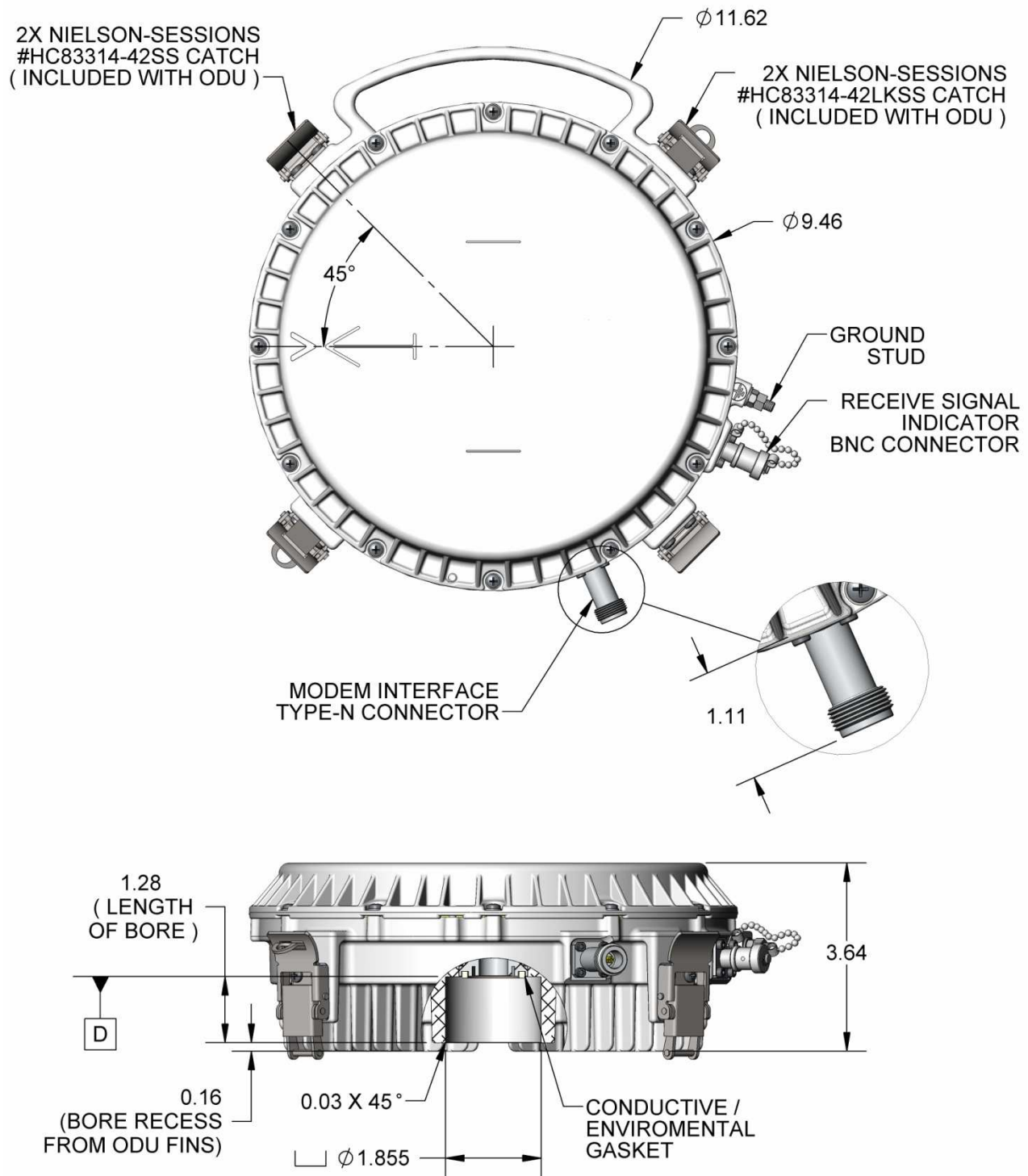
** C0H-080119 Models support (per ITU) up to 28 MHz Channel Bandwidth with T/R = 119 MHz and multiple Channel Bandwidths ≤ 14 MHz with T/R = 126 MHz. C0H-110490 Models support (per FCC) up to 40 MHz Channel Bandwidth with a designated T/R of either 490 or 500 MHz.

*** C0H-060150 Models support (per FCC) up to 25 MHz Channel Bandwidth with T/R = 150 MHz.
 C0H-060170 Models support (per FCC) up to 30 MHz Channel Bandwidth with T/R = 170 MHz.
 C0H-130200 Models support (per FCC) a 50 MHz Channel Bandwidth with T/R = 200 MHz.
 C0H-130225 Models support (per FCC) up to 25 MHz Channel Bandwidth with T/R = 225 MHz.

7.0 FIGURES

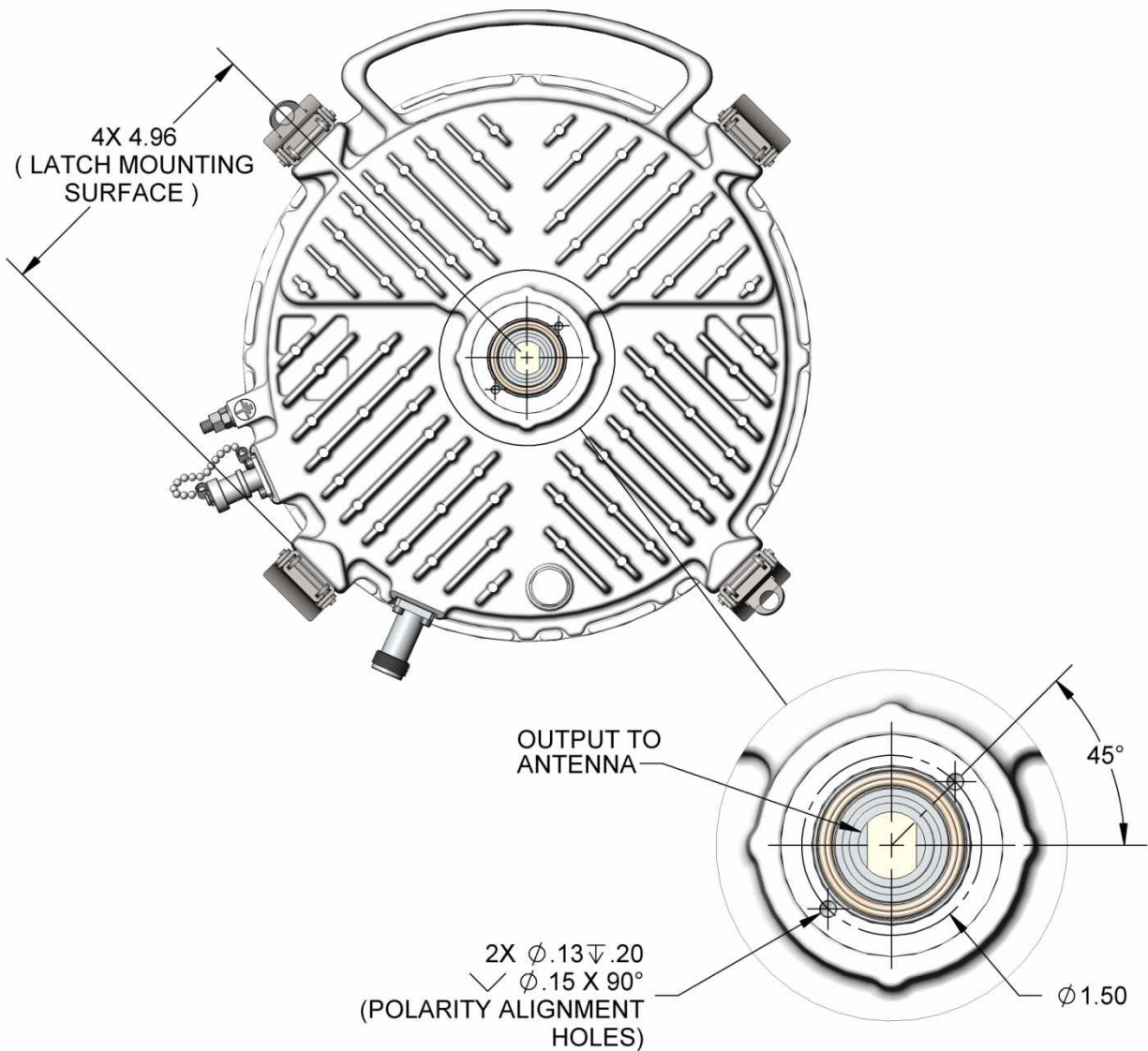
Units of dimension for all figures are in inches, unless otherwise indicated on the specific figure.

7.1 Figure 1



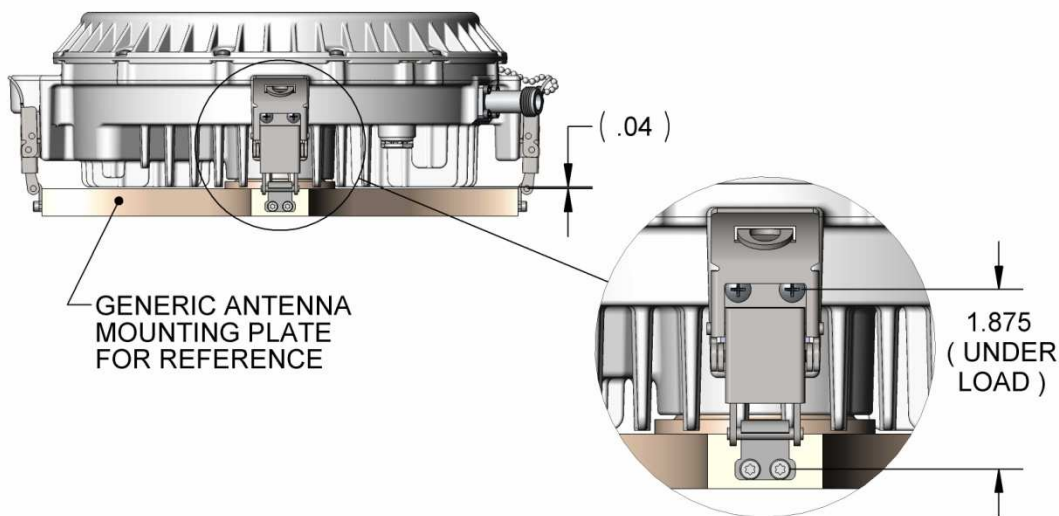
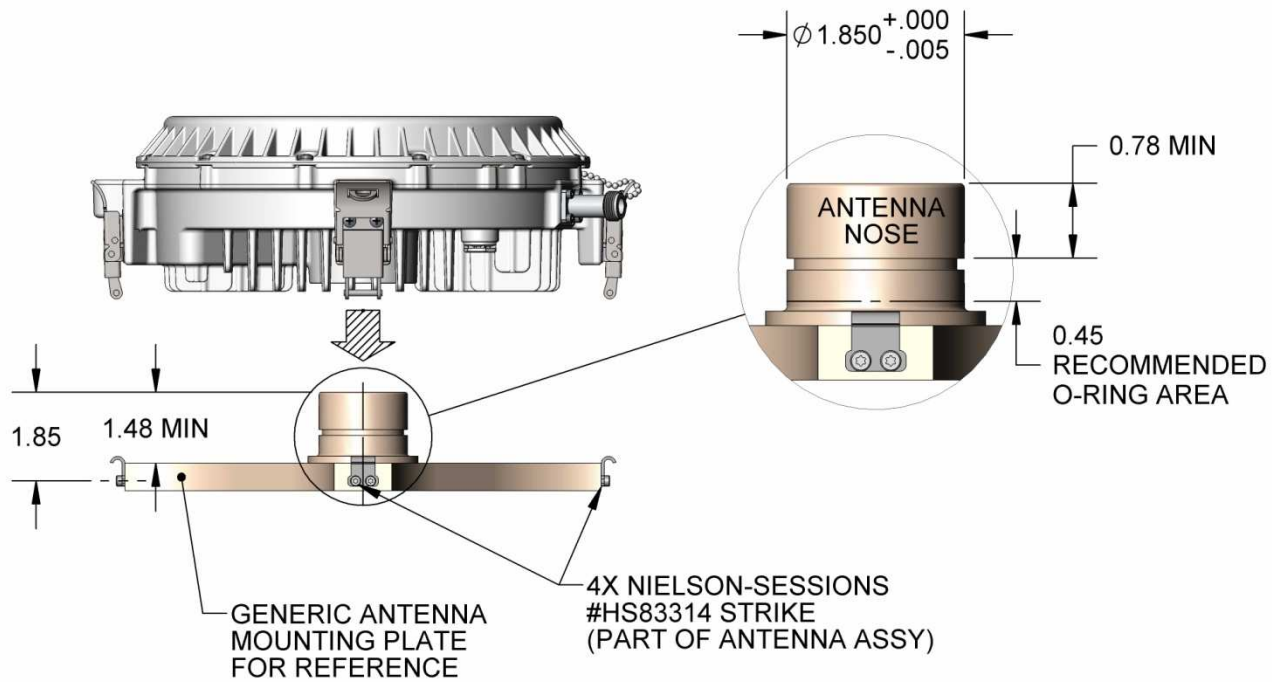
ALL DIMENSIONS NOMINAL UNLESS OTHERWISE SPECIFIED

7.2 Figure 2



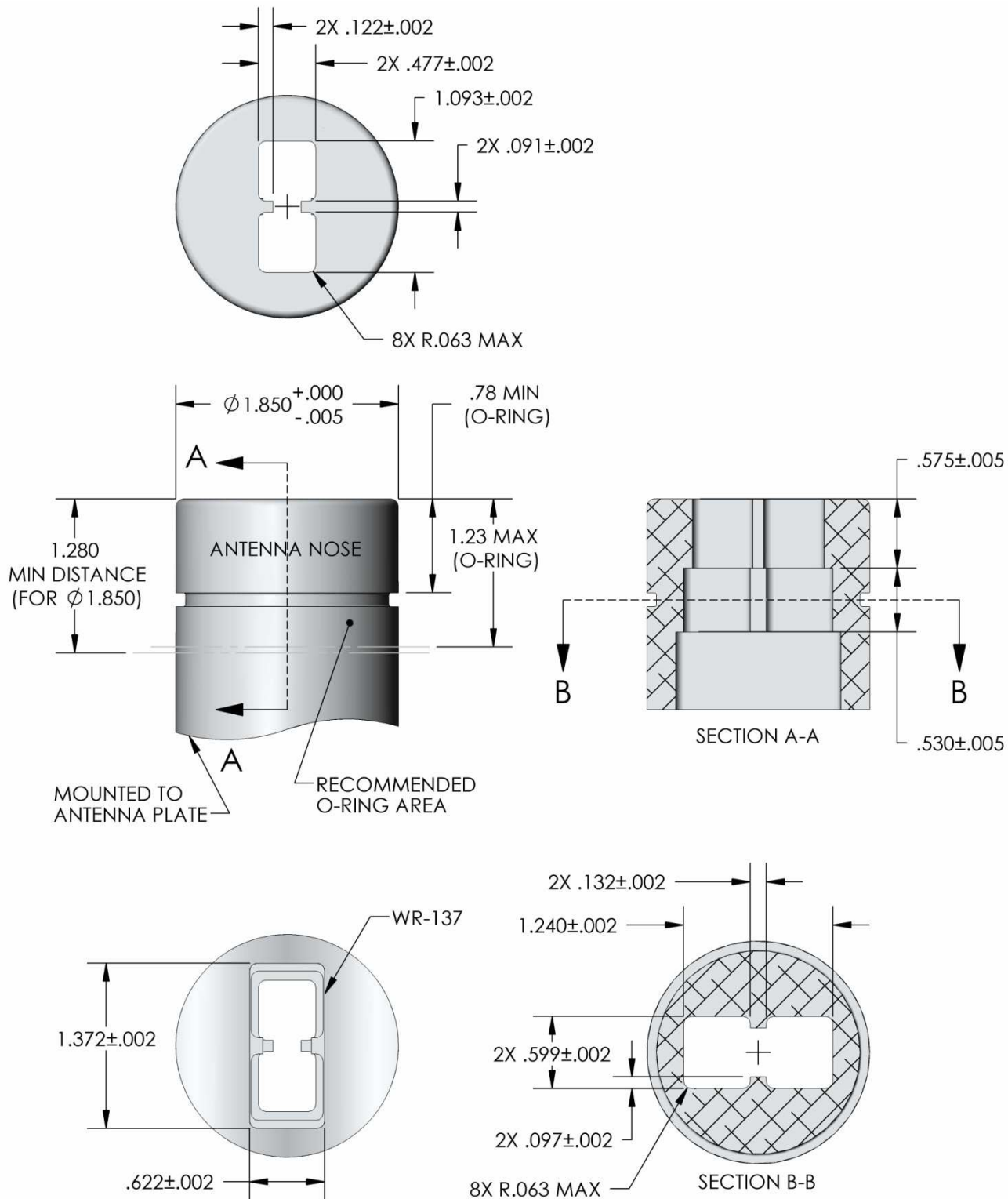
ALL DIMENSIONS NOMINAL UNLESS OTHERWISE SPECIFIED

7.3 Figure 3



ALL DIMENSIONS NOMINAL UNLESS OTHERWISE SPECIFIED

7.4 Figure 4



Non-Standard Rectangular to WR137 Waveguide Transition

8.0 ODU SPECIFICATIONS

Test #	Description	Specifications												
1.0		Frequency Bands												
1.1	Frequency Range (GHz)	6L	6U	7	8	11	13	15	18	23	26	32	38	42
		5.9 To 6.4	6.4 To 7.1	7.1 to 7.9	7.7 to 8.5	10.7 to 11.7	12.7 to 13.3	14.4 to 15.4	17.7 to 19.7	21.2 to 23.6	24.2 to 26.5	31.8 to 33.4	37.0 to 40.0	40.5 To 43.5
1.2	T/R Spacing (MHz)	240, 252.04	150, 160, 170, 340	154, 160, 161, 168, 196, 245, 300	119, 126, 151.61 4, 208, 266, 310, 311.32, 360	490, 500, 530	200, 225, 266	315, 322, 420, 475, 490, 640, 644, 728	1008, 1010, 1092.5, 1120, 1560	1008, 1200, 1232	800, 1008	812	700 ⁽⁴⁾ , 1260	1500
2.0		Transmitter												
2.1	Type	Dual Conversion												
2.2	Transmitter Power by Modulation Type													
2.2.1	Recommended Maximum Command (dBm)													
	QPSK (Firmware Limit, 'QPSK _{max} ')	30.0	30.0	30.0	30.0	28.0	26.0	26.0	26.0	25.0	25.0	23.0	23.0 ⁽⁴⁾	20.0
	16/32 QAM	28.0	28.0	28.0	28.0	26.0	24.0	24.0	23.0	23.0	22.0	21.0	20.0 ⁽⁴⁾	17.0
	64/128 QAM	25.0	25.0	25.0	25.0	22.0	20.0	20.0	19.0	19.0	19.0	17.0	17.0 ⁽⁴⁾	14.0
	256 QAM	23.0	23.0	23.0	23.0	20.0	18.0	18.0	17.0	17.0	17.0	15.0	15.0 ⁽⁴⁾	12.0
2.2.2	Transmitter Minimum Power Command (dBm) (Firmware Limit, 'Tx_min')	8.0	8.0	8.0	8.0	5.0	3.0	3.0	2.0	2.0	2.0	0.0	0.0	0.0
2.3	TX Power Accuracy over Command Range	± 1.5dB for QPSK _{max} - 10dB < P _{COMMAND} < QPSK _{max} , All modulations ± 2.0dB for Tx_min < P _{COMMAND} < QPSK _{max} - 10dB, All modulations												
2.4	Channel Flatness (dB) (+/- 25 MHz)	2.0dB												
2.4.1	TX Spectrum Mask ⁽¹⁾	Per applicable ETSI ⁽²⁾												
2.5	Output Power Muted (dBm)	< -50												
2.6	Frequency Accuracy	± 7 ppm maximum, includes temp variation and aging, ± 8 ppm for 8GHz TR311.32 & TR151.614												
2.7	Instantaneous Stability													
	Peak Deviation (KHz)	± 25								± 37.5				
	Slew Rate (KHz/μs)	7.85												

REMEC Broadband Wireless PROPRIETARY INFORMATION

Use or disclosure of data contained on this sheet is subject to the restriction on the cover or title page of this document.

DWG NO
040-50032

REV
B

SHEET
20

Test #	Description	Specifications												
	Frequency Range (GHz)	6L	6U	7	8	11	13	15	18	23	26	32	38	42
2.8	Synthesizer Step Size (KHz)	250 (except for 8GHz TR311.32 & TR151.614 which comply with regulatory rasters)												
2.9	Modulation	QPSK, 16QAM, 32QAM, 64QAM, 128QAM, 256QAM												
2.10	Output Return Loss (dB)	≥ 10								≥ 6				
3.0		Receiver												
3.1	Max Receiver Noise Figure @ -65 dBm RSL (dB)	7.0	7.0	6.5	6.5	6.5	6.5	6.5	6.5	7.0	7.0	8.0	9.0 ⁽⁴⁾	9.5
3.2	Typical High RSL ⁽²⁾ (dBm) Limit	-20 (QPSK, 16/32 QAM) -23 (64/128 QAM) -25 (256 QAM)												
3.3	Typical Threshold ⁽²⁾	Meets ETSI Requirements												
3.4	CW Interference ⁽²⁾	Meets ETSI Requirements												
3.5	Receiver Selectivity (CW)													
3.5.1	Wide Channels (dB)													
	± 56 MHz	> 9												
	± 112 MHz	> 20												
3.5.2	Narrow Channels (dB)													
	± 14 MHz	> 9												
	± 28 MHz	> 20												
3.6	Receive Signal Level Indicator (V _{BNC})	4.5 (typical) @ -20 dBm RSL, 0.1(typical) @ -90 dBm RSL, monotonic												
3.6.1	RSL versus V _{BNC}	RSL (dBm) = 15.77V _{BNC} - 91.58												
3.6.2	RSL Accuracy ⁽³⁾ [@V _{BNC}] (dB) (Max)	±3.0, -70 ≤ RSL ≤ -30dBm												
3.7	RSL Accuracy ⁽³⁾ (dB)	±2.0, -70 ≤ RSL ≤ -30dBm , ±3.0, -90 ≤ RSL ≤ -20dBm												
3.8	Synthesizer Step Size (KHz)	250 (except for 8GHz TR311.32 & TR151.614 which comply with regulatory rasters)												
3.9	Input Return Loss (dB)	≥ 10								≥ 6				
4.0		Over-Link (Tx + Rx)												
4.1	Phase Noise (max dBc/Hz) @ Offsets:													
	30 KHz	-83	-83	-83	-83	-83	-83	-83	-82	-82	-82	-81	-81	-81
	100 KHz	-97	-97	-97	-97	-97	-97	-97	-97	-97	-97	-95	-95	-95

Test #	Description	Specifications												
	Frequency Range (GHz)	6L	6U	7	8	11	13	15	18	23	26	32	38	42
4.2	Group Delay (Typ.)													
4.2.1	Wide Channels (+/- 25 MHz)													
	Linear (ns)	15												
	Parabolic (ns)	17												
4.2.2	Narrow Channels (+/- 6 MHz)													
	Total (ns)	100.0												
4.3	Channel Flatness (Typ.)													
4.3.1	Wide Channels (+/- 25 MHz)													
	Linear (dB)	< 4.0												
	Parabolic (dB)	< 4.0												
4.3.2	Narrow Channels (+/- 6 MHz)													
	Total (dB)	4.0												
5.0		ODU Interface												
5.1	Cable Connector Type	N Type [Connector engagement torque = 6 inch-lbs (max)]												
5.2	Cable Port Impedance (Ohms)	50												
5.3	TXIF Carrier Freq (MHz)	350												
5.4	TXIF Carrier Power @ ODU (dBm)	-22 to + 5												
5.5	RXIF Carrier Freq (MHz)	140												
5.6	RXIF Carrier Power @ ODU (dBm)	-12 ±2 (Excluding ETSI Interferers)												
5.7	Return Loss at IF Frequencies (dB)	≥ 16 (140 ± 25 MHz, 350 ± 25 MHz)												
5.8	Telemetry Input (ASK)													
5.8.1	Signal Level (mV _{p-p})	100 - 250												
5.8.2	Carrier Frequency (MHz)	5.5 ± 0.5												
5.8.3	Data Rate (kbps)	19.2 ± 1.0%												
5.8.4	Command/Control Functions:	Transmitter Power, Transmitter Carrier Frequency, Transmitter Mute, Receiver Carrier Frequency, Modulation Type, Channel Bandwidth												
5.9	Telemetry Output (ASK)													
5.9.1	Signal Level (mV _{p-p})(Nom.)	200												
5.9.2	Carrier Frequency (MHz)	10.0 ± 0.1												
5.9.3	Data Rate (kbps)	19.2 ± 1.0%												
5.9.4	Monitored/Reported Functions:	Loss of TXIF Input Alarm, Transmitter Power Range Limits, Transmitter Power, Transmitter Mute, Transmitter Synthesizer PLL Alarm, Receiver Synthesizer PLL Alarm, Common Synthesizer PLL Alarm, Receiver Signal Strength Indication (RSSI), ODU Internal Temperature												

REMEC Broadband Wireless PROPRIETARY INFORMATION

Use or disclosure of data contained on this sheet is subject to the restriction on the cover or title page of this document.

DWG NO
040-50032

REV
B

SHEET
22

Test #	Description	Specifications												
	Frequency Range (GHz)	6L	6U	7	8	11	13	15	18	23	26	32	38	42
6.0		Primary Power												
6.1	Protection Circuit	Powered and Protected by IDU												
6.2	Voltage Range (VDC)	-30.0 to −72.0 or +30.0 to +72.0												
6.3	Power Dissipation (Watts) Typ / Max	35 / 38					27 / 30			33 / 36				
6.4	Inrush current	ETS 300 132-2												
7.0		Transmitter and Receiver Emissions at Antenna Port												
7.1	30 MHz to 21.2 GHz (dBm)	< -50												
7.2	21.2 GHz to 26.5 GHz or second harmonic whichever is greater (dBm)	< -30												
8.0		Environmental												
8.1	Operational Temperature	ETSI EN 300 019-2-4 T4.1 (Ref. IEC 60068-2-1; IEC 60068-2-2) [2] (-33° to +55° C)												
8.2	Temperature Cycling	(Ref. IEC 60068-2-14), -40° C; +60° C; 5° C/min												
8.3	Temperature Storage	(Ref. ETS 300 019-1-2 class 2.3 and IEC 60068-2-2)												
8.4	Cold Start	(Ref. IEC 60068-2-1), Power Supply Operational at -45° C, ODU will transmit, no guarantee of quality of service.												
8.5	Transportation Temperature	(Ref. ETSI EN 300-019-2 class 2.3, IEC 60068-2-2 and IEC 60068-2-1), +70° C, -55° C												
8.6	Operational Vibration	(Ref. ETSI EN 300 019-2-4 and IEC 60068-2-6)												
8.7	Transportation/Survival Vibration	(Ref. ETSI EN 300 019-2-2, Class T 2.3 and IEC 60068-2-64)												
8.8	Operational Shock	(Ref. ETSI EN 300-019-2-4, Class 4M5 and IEC 60068-2-29)												
8.9	Transportation Shock	(Ref. ETSI EN 300 019-2-2, Class T 2.3 and IEC 60068-2-29)												
8.10	Survival/Drop Test	(Ref. IEC 60068-2-32, Special IEC class 2M3, Bellcore GR-63 and ISTA Test Procedure 2, Impact Test Procedure1A)												
8.11	Altitude	(Ref Bellcore GR-63-CORE 4.1.3) Operational to 5000 meters, Transportation to 15243 meters												
8.12	Humidity	ETSI EN 300 019-2-4 T 4.1 (Ref. IEC 60068-2-30) [2] (15 to 90-100% @ 30°C)												
8.13	Salt Mist	Test per (Ref. IEC 60950-22 or IEC 60068-2-52)												
8.14	Safety	Certification per UL 60950-1 and UL 60950-22 (Health and Safety: Directive: Low Voltage Directive 2006/95/EC, modified by 1995/95/EC)												
8.15	EMI-EMC	ETSI EN 301 489-1 v1.8.1:(2008-04) and ETSI EN 301 489-4 v1.4.1 :(2009-05) (Electromagnetic Compatibility: Directive: EMC Directive 2004/108/EC)												
8.16	Surge/Lighting	Test per IEC 61000-4-5												
8.17	Resistance to Ultra Violet Radiation	(Ref. IEC 60950-22, PARA 8.2)												
8.18	Enclosure Protection	(Ref. IEC 60529, IP67, Category 2 – UL50E PARA 8.10)												
8.19	Gasket	(Ref. IEC 60950-22, PARA 8.5)												

REMEC Broadband Wireless PROPRIETARY INFORMATION

Use or disclosure of data contained on this sheet is subject to the restriction on the cover or title page of this document.

DWG NO
040-50032

REV
B

SHEET
23

Test #	Description	Specifications												
		6L	6U	7	8	11	13	15	18	23	26	32	38	42
9.0		Mechanical												
9.1	Weight (lbs/kg)	≤ 8.6 / 3.9												
9.2	Size (inch/cm)	See Figures 1, 2, 3												
9.3	Finish	Corro-Coat PE-SDF 71-248 (Powder Coat), Gloss White												
9.4	Ground Lug (mm)	M5 x .8 x 9.5 long (with hex nut)												
9.5	Antenna Interface WR Or Circular (inches)	(5)	(5)	1.025	1.025	75 or .740	75 or .620	62 or .560	42 or .455	42 or .375	42 or .370	28 or .250	.219	19
10.0		Reliability												
10.1	MTBF (years)	> 50												

⁽¹⁾ FCC Mask compliance depends on Customer's unique MODEM attributes. Compliance with FCC Masks (which are not based on Class or Modulation Type) may either allow higher TX Power levels (except for QPSK), or may require a reduction (esp. narrow channel bandwidths below 15 GHz).

⁽²⁾ ETSI Tx Mask compliance and Rx error rate performance depends on Customer's unique MODEM attributes. Recommended TX Power levels for Class 4 refer to compliance with ETSI 4L Masks. Compliance with more stringent Class 4H Masks will require a reduction in TX Power.

⁽³⁾ Values provided are guaranteed to be met over temperature as tested on calibrated and certified factory test stations, using industry standard best practices and equipment. An additional reduction in accuracy should be expected for Customer modulation bandwidths different than those used for receiver calibration.

⁽⁴⁾ Both TX Power and RX Noise Figure values must be degraded by 1 dB for T/R = 700, Bands 3 and 4.

⁽⁵⁾ Dielectrically loaded rectangular waveguide interface (non standard), which requires an external waveguide transition to WR137.

Contact Factory for Test Conditions.