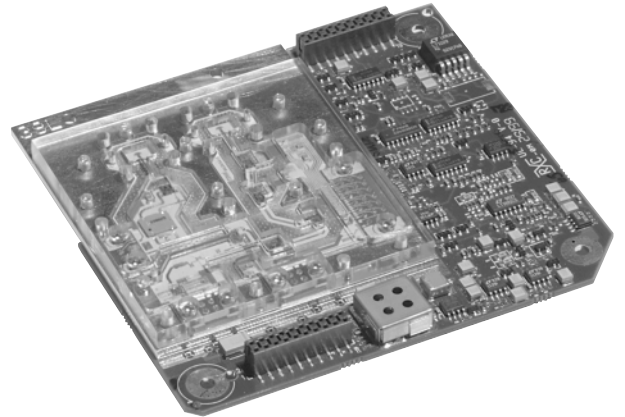


Features

- Complete Millimeter Wave Transceiver
- Output Power >+19 dBm
- Power Detect
- Variable Power Output
- Internal VCO
- Transmit Mute
- FCC and ETSI Compliant
- Single Compact Package
- Same Configuration 18 – 38 GHz



Description

The PDH point-to-point transceiver referenced below was designed and manufactured by Endwave for a major cellular infrastructure OEM. The transceiver provided a complete subsystem with all the necessary transmit, receive and source functions required for a full-featured QPSK millimeter wave digital point-to-point radio. A single mechanical design was required across all bands, including 18, 23, 26, and 38 GHz. An onboard VCO was utilized. The up converter section provided +20 dBm Psat, ALC, power control, and mute functions. The down converter section includes an LNA preamp for low noise and a total gain of 14 – 26 dB. Separate multiplier chains provide high Tx/Rx isolation to meet the most demanding spurious and interference requirements.

Specifications

	18 GHz	23 GHz	26 GHz	38 GHz
Transmit Modulator				
I and Q input impedance (Ω)	100	100	100	100
Mixer Amplitude Balance (dB)	<+/-2	<+/-2	<+/-2	<+/-2
Mixer Quadrature Error (Deg)	<+/-10	<+/-10	<+/-10	<+/-10
Transmit Section				
RF Frequency Range (GHz)	17.704 – 19.687	21.225 – 23.957	24.550 – 26.451	37.059 – 39.436
Bandwidth (MHz)	966	1364	893	1117
Maximum Output Power (dBm)	21.0	21.0	21.0	20.0
Output P1dB (dBm)	>20	>20	>20	>19.5
IM3 (dBc)	<-26.0	<-26.0	<-26.0	<-26.0
RF Output Return Loss (dB)	>12	>12	>12	>12
Output Power with Mute "On" (dBm)	<-35	<-35	<-35	<-35
Output Control Range (dB)	>30	>30	>30	>30
Detector Range (dB)	>30	>30	>30	>30
Detector Voltage Range (V)	-4.5 to +1.0	-4.5 to +1.0	-4.5 to +1.0	-4.5 to +1.0

PDH Point-to-Point Transceiver

Specifications *(Continued)*

	18 GHz	23 GHz	26 GHz	38 GHz
Receive Section				
RF Frequency Range (GHz)	17.704 – 19.687	21.225 – 23.957	24.550 – 26.451	37.059 – 39.436
Bandwidth (MHz)	966	1364	893	1117
IF Input Frequency (MHz)	1008, 1010	1008, 1232	1008	1008
Gain (dB)	14 to 26	14 to 26	13.5 to 25.5	13 to 25
Input Compression, P1dB (dBm)	-21	-21	-21	-21
Noise Figure (dB)	<5.0	<5.0	<5.5	<6.0
Image Rejection (dB)	>16.0	>16.0	>16.0	>16.0
Gain Flatness Over Temp. & Freq. (dB)	<+/-2.2	<+/-2.2	<+/-2.2	<+/-2.2
RF Input Return Loss (dB)	>10	>10	>10	>10
VCO Section				
Bandwidth Change (MHz)	966	1364	893	1117
Tuning Voltage Range (V)	2.5 to 20.0	2.5 to 20.0	2.5 to 20.0	2.5 to 20.0
Frequency Divider Output (dBm)	-6.0 to +4.0	-6.0 to +4.0	-6.0 to +4.0	-6.0 to +4.0
Divider Output Frequency (GHz)	<2.5	<2.5	<2.5	<2.5
Division Ratio	8	16	16	16
Phase Noise after Multiplication @10kHz (dBc/Hz)	<-48	<-48	<-48	<-45
Phase Noise after Multiplication @100kHz (dBc/Hz)	<-78	<-78	<-78	<-75
Phase Noise after Multiplication @1MHz (dBc/Hz)	<-103	<-103	<-103	<-100
Mechanical				
Dimensions (in)	4.6 x 4.3 x .79	4.6 x 4.3 x .79	4.6 x 4.3 x .79	4.6 x 4.3 x .79
Weight (Kg)	<0.500	<0.500	<0.500	<0.500
Waveguide Interface	WR-42	WR-42	WR-42	WR-28
Baseband, IF, Supply, Control Connectors	Multi-pin	Multi-pin	Multi-pin	Multi-pin
Operating Temperature (C)	-30° to +75°	-30° to +75°	-30° to +75°	-30° to +75°
Power Supply				
Positive Supply Voltage (V)	5.0 to 5.5	5.0 to 5.5	5.0 to 5.5	5.0 to 5.5
Positive Supply Current (A)	<1.85	<1.85	<1.85	<1.85
Negative Supply Voltage (V)	-5.0 +/-5%	-5.0 +/-5%	-5.0 +/-5%	-5.0 +/-5%
Negative Supply Current (mA)	<150	<150	<150	<150

Endwave #: DS-011-02-TRM Rev. 062002



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Endwave is an
ISO 9001 certified company