

Altium SDH/SONET Microwave Radios



ALTUM SDH /SONET

- Supports high capacity, including 155 Mbps ATM and Fast Ethernet
- Powerful network management capabilities, including end-to-end management
- Reduced operating costs, simplified provisioning and faster network rollout
- Flexible wireless synchronous solution that accommodates multiple network topologies
- Protection of traffic, rapid restoration of services, and zero downtime for normal maintenance
- Fiber-level performance with full system integrity
- System architecture that supports operation in multivendor environments

Altium SDH/SONET Specifications

System Parameters

Operating Frequency	6 to 26 GHz
Intermediate Frequency	310 MHz Transmit/70 MHz Receive
Residual BER	$<10^{-13}$
RF Cable	Belden 9292 (RG-11) 75 Ω (850 feet)

Interface Parameters

Digital Line Rate	STM-1/OC-3
Bit Rate	155.52 Mbps
Optical Interface	LED/PIN Photodiode
Output Power (Tx)	-19.0 to -14.0 dBm
Input Power (Rx)	-30.0 to -14.0 dBm

System	6 GHz	7/8 GHz	10/11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz
Frequency Range	5.9-7.125 GHz	7.1-8.5 GHz	10.5-11.7 GHz	12.75-13.25 GHz	14.20-15.35 GHz	17.7-19.7 GHz	21.2-23.6 GHz	24.25-26.5 GHz
System Gain at 10^{-6} BER	92.0 dB	92.0 dB	86.0 dB	84.0 dB	82.0 dB	81.5 dB	81.5 dB	79.5 dB
Additional Losses								
MHSB								
TX	0.5 dB	0.5 dB	0.5 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB
RX Side A	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB	1.0 dB
RX Side B	10.0 dB	10.0 dB	10.0 dB	10.0 dB	10.0 dB	10.0 dB	10.0 dB	10.0 dB
Frequency Diversity								
Side A	1.0 dB	1.0 dB	1.0 dB	N/A	N/A	N/A	N/A	N/A
Side B	1.0 dB	1.0 dB	1.0 dB	N/A	N/A	N/A	N/A	N/A
Space Diversity								
Side A/B	0 dB	0 dB	0 dB	0 dB	N/A	N/A	N/A	N/A
Dual Non Protected	0 dB	0 dB	0 dB	0 dB	0 dB	0 dB	0 dB	0 dB
Transmitter								
Transmitter Source	Synthesized VCO							
Frequency Stability	$\pm 0.001\%$	$\pm 0.001\%$	$\pm 0.001\%$	$\pm 0.0007\%$	$\pm 0.0007\%$	$\pm 0.0005\%$	$\pm 0.0005\%$	$\pm 0.0003\%$
Modulation Type	128 QAM	128 QAM	128 QAM	128 QAM	128 QAM	128 QAM	128 QAM	128 QAM
Channel Bandwidth (MHz)	28	28	28	28	28	28	28	28
Aggregate Data Rate (Mbps)	166.9	166.9	166.9	166.9	166.9	166.9	166.9	166.9
Automatic Transmit Power Control	7.0 dB	7.0 dB	7.0 dB	7.0 dB	7.0 dB	7.0 dB	7.0 dB	7.0 dB
Output Power (@ Antenna Port)	24.0 dBm	24.0 dBm	19.0 dBm	18.0 dBm	16.0 dBm	16.5 dBm	16.5 dBm	16.5 dBm
Receiver								
Receiver Source	Synthesized VCO							
Frequency Stability	$\pm 0.001\%$	$\pm 0.001\%$	$\pm 0.001\%$	$\pm 0.0007\%$	$\pm 0.0007\%$	$\pm 0.0005\%$	$\pm 0.0005\%$	$\pm 0.0003\%$
Threshold at 10^{-6} BER	-68.0 dBm	-68.0 dBm	-67.0 dBm	-66.0 dBm	-66.0 dBm	-65.0 dBm	-64.5 dBm	-63.5 dBm
Dispersive Fade Margin (BER= 10^{-3})*	46.0 dB	46.0 dB	46.0 dB	46.0 dB	46.0 dB	46.0 dB	46.0 dB	46.0 dB

* Typical

VF Service Channel

Quantity	2
Frequency	300-3400 Hz
I/O Impedance	600 Ω
Input Level	-3.5 or -16.0 dBm
Output Level	-3.5 or +7.0 dBm
Features	
DTMF Selective Call Engineering Orderwire (VF1 Only)	
Bridge	
VF Channel 1	Three User Ports Available
VF Channel 2	Three User Ports Available

Operating Environment

Altitude	4,500 meters (15,000 ft)
Ambient Temperature	IDU -10° to +55° C
	ODU -33° to +55° C *
Humidity	IDU 95% at 45° C
	ODU All Weather

* -45° option available

Electrical

Input Voltage	-40.5 to -72 Vdc
Power Consumption (ATPC-High)	QDU IDU
Protected	140W 70W
Non-Protected	75W 35W
Power Consumption (ATPC-Low)	QDU IDU
Protected	120W 70W
Non-Protected	65W 35W

Specifications subject to change without notice.

Digital Service Channels

Quantity	2
Option 1 (RS-422B)	64 Kbps, synch.
Option 2 (RS-422B)	19.2 Kbps, asynch.
(Each channel independent for synchronous or asynchronous operation)	

External Alarms

External Alarm Input	8 - TTL
External Alarm Output	4 - Form C dry contact
	2 Latched
	2 Unlatched
	4 - TTL

Mechanical

IDU	
Height	133 mm (3 RMU)
Width	483 mm (19 in rack mount)
Depth	300 mm (12 in)
Weight	6 kg (NP) or 7 kg (P)
ODU	
Height	483 mm (19 in)
Width	300 mm (12 in)
Depth	239 mm (9.4 in)
Weight	16.5 kg (NP) or 21.5 kg (P)

Antenna Port

DMC Slip-fit
Standard waveguide flange options available

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