AVIAT ODU 600v2

The Aviat ODU 600v2 is a next generation, universal Outdoor Unit (ODU) for split-mount applications, incorporating latest ASIC technology to combine ultra-small size and weight with smooth evolution to ultra-high capacity by supporting up to 4096QAM and 80 MHz channel spacings. ODU 600v2 is compatible with Aviat Eclipse and CTR indoor platforms, including backwards compatibility with already deployed hardware and software to facilitate easy introduction to existing networks.

Highlights

- Next generation, universal ODU to support software defined base and high power modes in a single ODU with Aviat's unique Flexible Power Mode (FPM) capability.
- Highest system gain in its class of ODU across frequency bands from 6-38 GHz, enabling high performance operation at higher modulations while minimizing antenna diameter and tower loading.
- Future-proof, high capacity support - 4096QAM and 80 MHz ready, enabling Gigabit link speeds in a single ODU.
- Interoperable and backwards compatible with the Eclipse and CTR 8000 series indoor units to facilitate easy upgrade and capacity evolution [1].
- Over-the air (OTA) compatible with previous Aviat ODU 600 outdoor units to simplify introduction and sparing for existing network deployments [1].
- Ultra-compact for low profile installation, lower shipping costs, with integrated handle
- Can be deployed in 1+0 unprotected, 1+1 MHSB (Monitored Hot Standby), 1+1 SD (Space Diversity) and 2+0 (with or without XPIC) configurations.
- Upgrade existing Aviat ODU links using optional adapter kit, without changing the antenna and mount.

Key Features

- Operating frequencies L6/U6, FCC7, 7/8, 10.5, 11, 13, 15, 18, 23, 26 and 38 GHz;
- High throughput per T/R, per polarization:
- Typically 716 Mbit/s data Up

  to 127xDS1

  1xOC3 up to 568 Mbit/s
- Flexible Power Mode (FPM) for software selectable standard or optional high power mode;
- Transport options- Carrier Ethernet, PDH/SDH/SONET or Hybrid (mixed-mode Carrier Ethernet + PDH/SDH/ SONET), IP/MPLS, in a single radio channel (dependent on indoor unit);
- Up to 4096QAM, with ACM (dependent on indoor unit/RAC);
- Channelsize support from 3.75 to 80 MHz, dependent on indoor unit/RAC;
- Wide diplexer tuning range to minimize spares holding, simplify ordering and inventory;
- Configurations supported include 1+0 NP, 1+1 MHSB, 1+1 MHSB SD, 2+0, 2+0 XPIC;
- Ultra-compact: 230 x 180 x 75mm, 2.7 L, all frequency bands;

ODU 600v2 General Specifications

General		
Frequency Band options		L6/U6, 7 FCC, 7, 8, 10.5, 11, 13, 15, 18, 23, 26** and 38 GHz
Modulation and Coding Options	Fixed and Adaptive	QPSK, 16, 32, 64, 128, 256, 512, 1024, 2048 and 4096 QAM
Channel Sizes Supported		3.75, 5, 10, 20, 25, 30, 40, 50, 60 and 80 MHz
Capacity Range	Airlink Capacity	8-716 Mbit/s
	Ethernet / IP Throughput	15-940 Mbit/s
	Native TDM	5 - 127 x DS1
	OC3	1 x OC3 + 2-568
Eclipse Compatibility		
Radio Access Cards (RACs)		RAC 60 and RAC 70
Electrical and Mechanical		
Power	Typical	50 Watts (6-11 GHz), 35W (13-42 GHz)
Size		230 mm x 180 mm x 75 mm, 2.7L
Weight		3.6 kg
Environmental		
Operating Temperature	Guaranteed	-27° to +131°F (-33° to +55°C)
	Extended	-40° to +149°F (-40° to +65°C)[2]
Humidity	Guaranteed	100%
Altitude	Guaranteed	15,000 ft (4500 m)
Standards Compliance		
EMC		FCC CFR 47, Part 15, ICES-003
Operation		EN 300 019-2-4, Class 4.1 (ODU 600)
Safety		UL 60950-1, UL 60950-22, UL 62368-1
RF Performance	All federal frequencies	FCC CFR 47, Part 101 Manual of Regulations for Federal Radio Frequency Management
Water Ingress		IEC 60529, IPX6
Lightning Protection		Internal, compliant to IEC 61000-4-5, Class 5
Electric power substations		IEEE 1613
Security	with Eclipse INUe	FIPS 197 validated (Certificate #C5)
		FIPS 140-2 validated (Certificate #3558)
IF Specifications		
IF Frequency	Transmit	311 MHz
	Receive	126 MHz
IF Cable Length	CNT-400	300 Meters
IF Cable connector		
IF Cable connector		N-Type
AGC monitor point		BNC
Antenna port Interface		Direct and Remote Antenna Mount
Polarisation, field selectable		ODU Rotation
RAC 70		
IF Connector		SMA
LED Indicators		2 x Tri-state
Dimensions inc Connectors		22mm(0.5RU) x 130mm x 268mm
Weight		<0.38Kg
Power Consumption		13 Watts

*[ ] See notes in last page

Transmitter Specifications

**ODU 600v2 is not ISED certified for 24.25 - 24.45GHz/25.05 - 25.25GHz and is not available for sale and use in Canada

Transmit Power Tolerance	6-26 GHz**	± 2.0 dB
	38 GHz	± 2.5 dB
Transmitter Source		Synthesized
Frequency Stability		± 5 ppm
Manual Transmitter Power Control Range	Configurable in 0.1 dB steps from min to max power levels (Refer Tx Power Specifications)	
Automatic Transmitter Power Control	Range	Configurable over the full available manual attenuation range
	Resolution / Speed	0.1 dB steps / 6 dB per second
Synthesizer Resolution		250 kHz
Transmitter Mute		> 50 dB

System

Frequency Band	**L6/U6 GHz**	**FCC 7 GHz**	**7 GHz**	**8 GHz**
Frequency Range (GHz)	5.925-7.125 GHz	6.875-7.125 GHz	7.125-7.9 GHz	7.7-8.5 GHz
TR-Spacings Supported (MHz)	150,160,170,180,240, 252.04,266,340,345	150	150, 160, 175, 300	300, 310, 360
Standard	FCC Part 101 SRSP 306.4 & 305.9	FCC Part 74 & 101	SRSP 307.1 NTIA Red Book	SRSP 307.7 NTIA Red Book
Antenna Waveguide Type	R70 (WR137)	R70 (WR137)	R84 (WR112)	R84 (WR112)
Maximum Tuning Range (Dependent upon T-R Spacing (MHz))	210	50	180	196
Frequency Band	**10.5 GHz**	**11 GHz**	**13 GHz**	**15 GHz**
Frequency Range (GHz)	10.5-10.68 GHz	10.7-11.7 GHz	12.7-13.15 GHz	14.4-15.35 GHz
TR-Spacings Supported (MHz)	65	490, 500, 520, 530	225	475, 640
Standard	FCC Part 101 SRSP 310.5	FCC Part 101 SRSP 310.7	Part 74 & 101	SRSP 314.5 NTIA Red Book
Antenna Waveguide Type	R100 (WR90)	R100 (WR90)	R140 (WR62)	R140 (WR62)
Maximum Tuning Range (Dependent upon T-R Spacing (MHz))	10	305	125	261
Frequency Band	**18 GHz**	**23 GHz**	**26 GHz****	**38 GHz**
Frequency Range (GHz)	17.7-19.7 GHz	21.2-23.6 GHz	24.549-26.472 GHz	38.6-40.0 GHz
TR-Spacings Supported (MHz)	1560, 340	1200, 1232	1008	700
Standard	FCC Part 101 SRSP 317.8	FCC Part 101 SRSP 321.8 NTIA Red Book	SRSP 325.25 NTIA Red Book	FCC Part 101 SRSP 338.6
Antenna Waveguide Type	R220 (WR42)	R220 (WR42)	R260 (WR34)	R320 (WR28)
Maximum Tuning Range (Dependent upon T-R Spacing (MHz))	440	616	467	400

Receiver Specifications

Receiver Source		Synthesized
Frequency Stability		± 5 ppm
Receiver Overload	BER = 1E-6	-20 dBm
Residual (Background) Bit Error Rate		Better than 1E-13
RSSI Accuracy [3]	-20 to -30 dBm (-27° to +131°F)	± 3.5dB
	-30 to -70 dBm (-27° to +131°F)	± 2.5dB
	-70 to -90 dBm (-27° to +131°F)	± 3.5dB

*[ ] See notes in last page

[1] Minimum SW version and configuration rules may apply. Please check with Aviat Networks for details.

[2] ATCP is recommended for operation at Extended temperature ranges. Contact Aviat Networks for more details.

[3] RSSI accuracy applies when there is no potential interferer signal present within +/- 28MHz of the Rx. Frequency.

Technical Specifications

AVIAT ODU 600v2

Used in conjunction with Eclipse RAC 70

ANSI

(ODUv2 mode)

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ODU 600v2 General Specifications

General		
Frequency Band options		L6/U6, 7 FCC, 7, 8, 10.5, 11, 13, 15, 18, 23 and 38 GHz
Modulation and Coding Options	Fixed and Adaptive	QPSK, 16, 32, 64, 128, 256, 512, 1024, 2048 and 4096 QAM
Channel Sizes Supported		3.75, 5, 10, 20, 25, 30, 40, 50, 60 and 80 MHz
Capacity Range	Airlink Capacity	8-716 Mbit/s
	Ethernet / IP Throughput	15-940 Mbit/s
	Native TDM	5 - 127 x DS1
Eclipse Compatibility		
Radio Access Cards (RACs)		RAC 70
Electrical and Mechanical		
Power	Typical	50 Watts (6-11 GHz), 35W (13-42 GHz)
Size [1]		230 mm x 180 mm x 75 mm, 2.7L
Weight		3.6 kg
Environmental		
Operating Temperature	Guaranteed	-27° to +131°F (-33° to +55°C)
	Extended	-40° to +149°F (-40° to +65°C)[2]
Humidity	Guaranteed	100%
Altitude	Guaranteed	15,000 ft (4500 m)
Standards Compliance		
EMC		FCC CFR 47, Part 15, ICES-003
Operation		EN 300 019-2-4, Class 4.1 (ODU 600)
Safety		UL 60950-1, UL 60950-22
RF Performance	All federal frequencies	FCC CFR 47, Part 101 Manual of Regulations for Federal Radio Frequency Management
Water Ingress		IEC 60529, IPX6
Lightning Protection		Internal, compliant to IEC 61000-4-5, Class 5
Electric power substations		IEEE 1613
Security	with Eclipse INUe	FIPS 197 validated (Certificate #C5)
		FIPS 140-2 validated (Certificate #3558)
IF Specifications		
IF Frequency	Transmit	311 MHz
	Receive	126 MHz
IF Cable Length	CNT-300	150 Meters
	CNT-400	300 Meters
IF Cable connector		
IF Cable connector		N-Type
AGC monitor point		BNC
Antenna port Interface		Direct Antenna Mount
Polarisation, field selectable		ODU Rotation
RAC 70		
IF Connector		SMA
LED Indicators		2 x Tri-state
Dimensions inc Connectors		22mm(0.5RU) x 130mm x 268mm
Weight		<0.38Kg
Power Consumption		13 Watts

*[ ] See notes in last page

Transmitter Specifications

Transmit Power Tolerance	6-23 GHz	± 2.0 dB
	38 GHz	± 2.5 dB
Transmitter Source		Synthesized
Frequency Stability		± 5 ppm
Manual Transmitter Power Control Range	Configurable in 0.1 dB steps from min to max power levels (Refer Tx Power Specifications)	
Automatic Transmitter Power Control	Range	Configurable over the full available manual attenuation range
	Resolution / Speed	0.1 dB steps / 6 dB per second
Synthesizer Resolution		250 kHz
Transmitter Mute		> 50 dB

Receiver Specifications

Receiver Source		Synthesized
Frequency Stability		± 5 ppm
Receiver Overload		-22 dBm
		-20 dBm
Residual (Background) Bit Error Rate		Better than 1E-13
RSSI Accuracy [3]	-40 to -70 dBm (-40° to +95°F)	± 2dB
	-25 to -85 dBm (-58° to +131°F)	± 4dB

*[ ] See notes in last page

Transmitter Specifications

(Operating with RAC70)

System

	L6/U6 GHz	FCC 7 GHz	7 GHz	8 GHz	10.5 GHz
Frequency Range (GHz)	5.925 - 7.125	6.875-7.125	7.125 - 7.9	7.725 - 8.5	10.5 - 10.68
TR-Spacings Supported (MHz)	252.04, 340, 345, 150, 180	150	150, 160, 175, 300	300, 310, 360	65
Standard	FCC Part 101 SRSP 306.4 & 305.9	FCC Part 74 & 101	SRSP 307.1 NTIA Red Book	SRSP 307.7 NTIA Red Book	FCC Part 101 SRSP 310.5
Maximum Tuning Range (Dependent upon T-R Spacing (MHz))	210	92	160	196	10

Antenna Interface

Waveguide Type	R70 (WR137)	R70 (WR137)	R84 (WR112)	R84 (WR112)	R100 (WR90)

Transmitter Power Output Specifications with High Power Option [8], in dBm (Nominal)

	L6/U6 GHz	FCC 7 GHz	7 GHz	8 GHz	10.5 GHz
QPSK	32.0	32.0	32.0	31.0	
16QAM	31.5	31.5	31.5	30.0	27.5
32QAM	31.5	31.5	31.5	30.0	27.5
64QAM	30.5	30.5	30.5	29.0	27.5
128QAM	30.0	30.0	30.0	28.5	27.5
256QAM	29.5	29.5	29.5	28.0	27.5
512QAM	29.0	29.0	29.0	27.5	
1024QAM	28.0	28.0	28.0	26.5	
2048QAM	27.0	27.0	27.0	25.5	
4096QAM	26.0	26.0	26.0	24.5	
Minimum Configurable Power Level	12	12	12	11	7.5

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6 [7], in dBm (Typical)

Air Link Capacity	Max Ethernet [4]	Max DS1s [5]	Modulation	L6 GHz	U6 GHz	FCC 7 GHz	7 GHz	8 GHz	10.5 GHz
3.75 MHz Channel									
ACM/Fixed	*4 Mbps*	*10 Mbps*	*3xDS1*	*QPSK*						
ACM/Fixed	*8 Mbps*	*15 Mbps*	*5xDS1*	*16QAM*	-94.0	-94.0				-92.0
ACM/Fixed	*11 Mbps*	*19 Mbps*	*7xDS1*	*32QAM*	-89.0	-89.0				-87.5
ACM/Fixed	*15 Mbps*	*22 Mbps*	*9xDS1*	*64QAM*	-86.0	-86.0				-84.5
ACM/Fixed	*17 Mbps*	*25 Mbps*	*10xDS1*	*128QAM*	-84.0	-84.0				-82.0
ACM/Fixed	*19 Mbps*	*16 Mbps*	*12xDS1*	*256QAM*	-80.0	-80.0				-78.5
5 MHz Channel										
ACM/Fixed	*5 Mbps*	*19 Mbps*	*3xDS1*	*QPSK*						
ACM/Fixed	*12 Mbps*	*24 Mbps*	*7xDS1*	*16QAM*	-92.0	-92.0	-92.0	-91.5	-92.0	-90.0
ACM/Fixed	*15 Mbps*	*29 Mbps*	*9xDS1*	*32QAM*	-88.5	-88.5	-88.5	-88.0	-88.5	-87.0
ACM/Fixed	*19 Mbps*	*35 Mbps*	*11xDS1*	*64QAM*	-86.0	-86.0	-86.0	-85.5	-86.0	-84.5
ACM/Fixed	*22 Mbps*	*17 Mbps*	*14xDS1*	*128QAM*	-83.0	-83.0	-83.0	-82.5	-83.0	-81.5
ACM/Fixed	*27 Mbps*	*38 Mbps*	*17xDS1*	*256QAM*	-79.5	-79.5	-79.5	-79.0	-79.5	-77.5

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6 [7], in dBm (Typical)

	Air Link Capacity	Max Ethernet [4]	Max DS1s [5]	Modulation	L6 GHz	U6 GHz	FCC 7 GHz	7 GHz	8 GHz	10.5 GHz
10 MHz Channel [6]										
ACM/Fixed	13 Mbps	47 Mbps	8xDS1	QPSK	-95.0	-95.0	-95.0	-94.5	-95.0	
ACM/Fixed	29 Mbps	59 Mbps	18xDS1	16QAM	-87.5	-87.5	-87.5	-87.0	-87.5	
ACM/Fixed	36 Mbps	67 Mbps	23xDS1	32QAM	-84.0	-84.0	-84.0	-83.5	-84.0	
ACM/Fixed	45 Mbps	74 Mbps	29xDS1	64QAM	-80.5	-80.5	-80.5	-80.0	-80.5	
ACM/Fixed	51 Mbps	88 Mbps	32xDS1	128QAM	-78.5	-78.5	-78.5	-78.0	-78.5	
ACM/Fixed	56 Mbps	96 Mbps	36xDS1	256QAM	-76.5	-76.5	-76.5	-76.0	-76.5	
ACM/Fixed	67 Mbps	85 Mbps	43xDS1	512QAM	-72.0	-72.0	-72.0	-71.5	-72.0	
ACM/Fixed	73 Mbps	93 Mbps	47xDS1	1024QAM	-69.5	-69.5	-69.5	-69.0	-69.5	
20 MHz Channel										
ACM/Fixed	26 Mbps	34 Mbps	16xDS1	QPSK		-92.5		-92.0	-92.5	
ACM/Fixed	61 Mbps	80 Mbps	39xDS1	16QAM		-84.0		-83.5	-84.0	
ACM/Fixed	71 Mbps	94 Mbps	45xDS1	32QAM		-81.5		-81.0	-81.5	
ACM/Fixed	89 Mbps	117 Mbps	57xDS1	64QAM		-79.0		-78.5	-79.0	
ACM/Fixed	102 Mbps	134 Mbps	65xDS1	128QAM		-76.5		-76.0	-76.5	
ACM/Fixed	119 Mbps	156 Mbps	76xDS1	256QAM		-73.0		-72.5	-73.0	
ACM/Fixed	132 Mbps	173 Mbps	85xDS1	512QAM		-70.5		-70.0	-70.5	
ACM/Fixed	150 Mbps	197 Mbps	96xDS1	1024QAM		-67.0		-66.5	-67.0	
ACM/Fixed	162 Mbps	212 Mbps	104xDS1	2048QAM		-64.0		-63.5	-64.0	
ACM/Fixed	176 Mbps	231 Mbps	113xDS1	4096QAM		-60.5		-60.0	-60.5	
25 MHz Channel										
ACM/Fixed	33 Mbps	43 Mbps	20xDS1	QPSK			-91.5			
ACM/Fixed	75 Mbps	98 Mbps	48xDS1	16QAM			-83.5			
ACM/Fixed	90 Mbps	118 Mbps	57xDS1	32QAM			-80.5			
ACM/Fixed	111 Mbps	145 Mbps	71xDS1	64QAM			-78.0			
ACM/Fixed	130 Mbps	170 Mbps	83xDS1	128QAM			-75.5			
ACM/Fixed	150 Mbps	197 Mbps	96xDS1	256QAM			-72.0			
ACM/Fixed	167 Mbps	219 Mbps	107xDS1	512QAM			-69.5			
ACM/Fixed	189 Mbps	249 Mbps	121xDS1	1024QAM			-66.0			
ACM/Fixed	205 Mbps	268 Mbps	127xDS1	2048QAM			-63.0			
ACM/Fixed	222 Mbps	291 Mbps	127xDS1	4096QAM			-59.0			
30 MHz Channel										
ACM/Fixed	39 Mbps	51 Mbps	25xDS1	QPSK	-90.5	-90.5		-90.0	-90.5	
ACM/Fixed	90 Mbps	118 Mbps	57xDS1	16QAM	-82.5	-82.5		-82.0	-82.5	
ACM/Fixed	109 Mbps	143 Mbps	70xDS1	32QAM	-80.0	-80.0		-79.5	-80.0	
ACM/Fixed	132 Mbps	174 Mbps	84xDS1	64QAM	-77.5	-77.5		-77.0	-77.5	
ACM/Fixed	155 Mbps	204 Mbps	100xDS1	128QAM	-74.5	-74.5		-74.0	-74.5	
ACM/Fixed	180 Mbps	237 Mbps	116xDS1	256QAM	-71.5	-71.5		-71.0	-71.5	
ACM/Fixed	200 Mbps	263 Mbps	127xDS1	512QAM	-69.0	-69.0		-68.5	-69.0	
ACM/Fixed	227 Mbps	298 Mbps	127xDS1	1024QAM	-65.0	-65.0		-64.5	-65.0	
ACM/Fixed	245 Mbps	322 Mbps	127xDS1	2048QAM	-62.0	-62.0		-61.5	-62.0	
ACM/Fixed	267 Mbps	350 Mbps	127xDS1	4096QAM	-58.5	-58.5		-58.0	-58.5	
40 MHz Channel										
ACM/Fixed	52 Mbps	69 Mbps	33xDS1	QPSK				-88.5	-89.0	
ACM/Fixed	121 Mbps	158 Mbps	77xDS1	16QAM				-80.5	-81.0	
ACM/Fixed	146 Mbps	191 Mbps	93xDS1	32QAM				-78.0	-78.5	
ACM/Fixed	178 Mbps	234 Mbps	113xDS1	64QAM				-75.5	-76.0	
ACM/Fixed	207 Mbps	272 Mbps	127xDS1	128QAM				-73.0	-73.5	
ACM/Fixed	237 Mbps	311 Mbps	127xDS1	256QAM				-70.0	-70.5	
ACM/Fixed	268 Mbps	351 Mbps	127xDS1	512QAM				-67.0	-67.5	
ACM/Fixed	300 Mbps	394 Mbps	127xDS1	1024QAM				-63.5	-64.0	
ACM/Fixed	329 Mbps	432 Mbps	127xDS1	2048QAM				-60.5	-61.0	
ACM/Fixed	358 Mbps	469 Mbps	127xDS1	4096QAM				-56.5	-57.0	

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6[7], in dBm (Typical)

	Air Link Capacity	Max Ethernet[4]	Max DS1s[5]	Modulation	L6 GHz	U6 GHz	FCC 7 GHz	7 GHz	8 GHz	10.5 GHz
60 MHz Channel										
ACM/Fixed	*78 Mbps*	*103 Mbps*	*49xDS1*	*QPSK*	-87.5					
ACM/Fixed	*167 Mbps*	*220 Mbps*	*106xDS1*	*16QAM*	-80.5					
ACM/Fixed	*217 Mbps*	*285 Mbps*	*127xDS1*	*32QAM*	-76.5					
ACM/Fixed	*267 Mbps*	*350 Mbps*	*127xDS1*	*64QAM*	-74.0					
ACM/Fixed	*301 Mbps*	*395 Mbps*	*127xDS1*	*128QAM*	-72.0					
ACM/Fixed	*344 Mbps*	*451 Mbps*	*127xDS1*	*256QAM*	-69.0					
ACM/Fixed	*403 Mbps*	*529 Mbps*	*127xDS1*	*512QAM*	-65.5					
ACM/Fixed	*454 Mbps*	*596 Mbps*	*127xDS1*	*1024QAM*	-62.0					
ACM/Fixed	*491 Mbps*	*645 Mbps*	*127xDS1*	*2048QAM*	-59.0					
ACM/Fixed	*534 Mbps*	*701 Mbps*	*127xDS1*	*4096QAM*	-55.5					

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6,[7] in dB (Typical)

	Air Link Capacity	Max Ethernet [4]	Max DS1s [5]	Modulation	L6 GHz	U6 GHz	FCC 7 GHz	7 GHz	8 GHz	10.5 GHz
3.75 MHz Channel										
ACM/Fixed	*4 Mbps*	*10 Mbps*	*3xDS1*	*QPSK*						
ACM/Fixed	*8 Mbps*	*15 Mbps*	*5xDS1*	*16QAM*	125.5	125.5				119.5
ACM/Fixed	*11 Mbps*	*19 Mbps*	*7xDS1*	*32QAM*	120.5	120.5				115.0
ACM/Fixed	*15 Mbps*	*22 Mbps*	*9xDS1*	*64QAM*	116.5	116.5				112.0
ACM/Fixed	*17 Mbps*	*25 Mbps*	*10xDS1*	*128QAM*	114.0	114.0				109.5
ACM/Fixed	*19 Mbps*	*16 Mbps*	*12xDS1*	*256QAM*	109.5	109.5				106.0
5 MHz Channel										
ACM/Fixed	*5 Mbps*	*19 Mbps*	*3xDS1*	*QPSK*						
ACM/Fixed	*12 Mbps*	*24 Mbps*	*7xDS1*	*16QAM*	123.5	123.5	123.5	123.0	122.0	117.5
ACM/Fixed	*15 Mbps*	*29 Mbps*	*9xDS1*	*32QAM*	120.0	120.0	120.0	119.5	118.5	114.5
ACM/Fixed	*19 Mbps*	*35 Mbps*	*11xDS1*	*64QAM*	116.5	116.5	116.5	116.0	115.0	112.0
ACM/Fixed	*22 Mbps*	*17 Mbps*	*14xDS1*	*128QAM*	113.0	113.0	113.0	112.5	111.5	109.0
ACM/Fixed	*27 Mbps*	*38 Mbps*	*17xDS1*	*256QAM*	109.0	109.0	109.0	108.5	107.5	105.0
10 MHz Channel[6]										
ACM/Fixed	*13 Mbps*	*47 Mbps*	*8xDS1*	*QPSK*	127.0	127.0	127.0	126.5	126.0	
ACM/Fixed	*29 Mbps*	*59 Mbps*	*18xDS1*	*16QAM*	119.0	119.0	119.0	118.5	117.5	
ACM/Fixed	*36 Mbps*	*67 Mbps*	*23xDS1*	*32QAM*	115.5	115.5	115.5	115.0	114.0	
ACM/Fixed	*45 Mbps*	*74 Mbps*	*29xDS1*	*64QAM*	111.0	111.0	111.0	110.5	109.5	
ACM/Fixed	*51 Mbps*	*88 Mbps*	*32xDS1*	*128QAM*	108.5	108.5	108.5	108.0	107.0	
ACM/Fixed	*56 Mbps*	*96 Mbps*	*36xDS1*	*256QAM*	106.0	106.0	106.0	105.5	104.5	
ACM/Fixed	*67 Mbps*	*85 Mbps*	*43xDS1*	*512QAM*	101.0	101.0	101.0	100.5	99.5	
ACM/Fixed	*73 Mbps*	*93 Mbps*	*47xDS1*	*1024QAM*	97.5	97.5	97.5	97.0	96.0	
20 MHz Channel										
ACM/Fixed	*26 Mbps*	*34 Mbps*	*16xDS1*	*QPSK*		124.5		124.0	123.5	
ACM/Fixed	*61 Mbps*	*80 Mbps*	*39xDS1*	*16QAM*		115.5		115.0	114.0	
ACM/Fixed	*71 Mbps*	*94 Mbps*	*45xDS1*	*32QAM*		113.0		112.5	111.5	
ACM/Fixed	*89 Mbps*	*117 Mbps*	*57xDS1*	*64QAM*		109.5		109.0	108.0	
ACM/Fixed	*102 Mbps*	*134 Mbps*	*65xDS1*	*128QAM*		106.5		106.0	105.0	
ACM/Fixed	*119 Mbps*	*156 Mbps*	*76xDS1*	*256QAM*		102.5		102.0	101.0	
ACM/Fixed	*132 Mbps*	*173 Mbps*	*85xDS1*	*512QAM*		99.5		99.0	98.0	
ACM/Fixed	*150 Mbps*	*197 Mbps*	*96xDS1*	*1024QAM*		95.0		94.5	93.5	
ACM/Fixed	*162 Mbps*	*212 Mbps*	*104xDS1*	*2048QAM*		91.0		90.5	89.5	
ACM/Fixed	*176 Mbps*	*231 Mbps*	*113xDS1*	*4096QAM*		86.5		86.0	85.0	
25 MHz Channel										
ACM/Fixed	*33 Mbps*	*43 Mbps*	*20xDS1*	*QPSK*			123.5			
ACM/Fixed	*75 Mbps*	*98 Mbps*	*48xDS1*	*16QAM*			115.0			
ACM/Fixed	*90 Mbps*	*118 Mbps*	*57xDS1*	*32QAM*			112.0			
ACM/Fixed	*111 Mbps*	*145 Mbps*	*71xDS1*	*64QAM*			108.5			
ACM/Fixed	*130 Mbps*	*170 Mbps*	*83xDS1*	*128QAM*			105.5			
ACM/Fixed	*150 Mbps*	*197 Mbps*	*96xDS1*	*256QAM*			101.5			
ACM/Fixed	*167 Mbps*	*219 Mbps*	*107xDS1*	*512QAM*			98.5			
ACM/Fixed	*189 Mbps*	*249 Mbps*	*121xDS1*	*1024QAM*			94.0			
ACM/Fixed	*205 Mbps*	*268 Mbps*	*127xDS1*	*2048QAM*			90.0			
ACM/Fixed	*222 Mbps*	*291 Mbps*	*127xDS1*	*4096QAM*			85.0			

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6,[7] in dB (Typical)

Air Link Capacity	Max Ethernet [4]	Max DS1s [5]	Modulation	L6 GHz	U6 GHz	FCC 7 GHz	7 GHz	8 GHz	10.5 GHz
30 MHz Channel									
ACM/Fixed *39 Mbps*	*51 Mbps*	*25xDS1*	*QPSK*	122.5	122.5		122.0	121.5	
ACM/Fixed *90 Mbps*	*118 Mbps*	*57xDS1*	*16QAM*	114.0	114.0		113.5	112.5	
ACM/Fixed *109 Mbps*	*143 Mbps*	*70xDS1*	*32QAM*	111.5	111.5		111.0	110.0	
ACM/Fixed *132 Mbps*	*174 Mbps*	*84xDS1*	*64QAM*	108.0	108.0		107.5	106.5	
ACM/Fixed *155 Mbps*	*204 Mbps*	*100xDS1*	*128QAM*	104.5	104.5		104.0	103.0	
ACM/Fixed *180 Mbps*	*237 Mbps*	*116xDS1*	*256QAM*	101.0	101.0		100.5	99.5	
ACM/Fixed *200 Mbps*	*263 Mbps*	*127xDS1*	*512QAM*	98.0	98.0		97.5	96.5	
ACM/Fixed *227 Mbps*	*298 Mbps*	*127xDS1*	*1024QAM*	93.0	93.0		92.5	91.5	
ACM/Fixed *245 Mbps*	*322 Mbps*	*127xDS1*	*2048QAM*	89.0	89.0		88.5	87.5	
ACM/Fixed *267 Mbps*	*350 Mbps*	*127xDS1*	*4096QAM*	84.5	84.5		84.0	83.0	
40 MHz Channel									
ACM/Fixed *52 Mbps*	*69 Mbps*	*33xDS1*	*QPSK*				120.5	120.0	
ACM/Fixed *121 Mbps*	*158 Mbps*	*77xDS1*	*16QAM*				112.0	111.0	
ACM/Fixed *146 Mbps*	*191 Mbps*	*93xDS1*	*32QAM*				109.5	108.5	
ACM/Fixed *178 Mbps*	*234 Mbps*	*113xDS1*	*64QAM*				106.0	105.0	
ACM/Fixed *207 Mbps*	*272 Mbps*	*127xDS1*	*128QAM*				103.0	102.0	
ACM/Fixed *237 Mbps*	*311 Mbps*	*127xDS1*	*256QAM*				99.5	98.5	
ACM/Fixed *268 Mbps*	*351 Mbps*	*127xDS1*	*512QAM*				96.0	95.0	
ACM/Fixed *300 Mbps*	*394 Mbps*	*127xDS1*	*1024QAM*				91.5	90.5	
ACM/Fixed *329 Mbps*	*432 Mbps*	*127xDS1*	*2048QAM*				87.5	86.5	
ACM/Fixed *358 Mbps*	*469 Mbps*	*127xDS1*	*4096QAM*				82.5	81.5	
60 MHz Channel									
ACM/Fixed *78 Mbps*	*103 Mbps*	*49xDS1*	*QPSK*	119.5					
ACM/Fixed *167 Mbps*	*220 Mbps*	*106xDS1*	*16QAM*	112.0					
ACM/Fixed *217 Mbps*	*285 Mbps*	*127xDS1*	*32QAM*	108.0					
ACM/Fixed *267 Mbps*	*350 Mbps*	*127xDS1*	*64QAM*	104.5					
ACM/Fixed *301 Mbps*	*395 Mbps*	*127xDS1*	*128QAM*	102.0					
ACM/Fixed *344 Mbps*	*451 Mbps*	*127xDS1*	*256QAM*	98.5					
ACM/Fixed *403 Mbps*	*529 Mbps*	*127xDS1*	*512QAM*	94.5					
ACM/Fixed *454 Mbps*	*596 Mbps*	*127xDS1*	*1024QAM*	90.0					
ACM/Fixed *491 Mbps*	*645 Mbps*	*127xDS1*	*2048QAM*	86.0					
ACM/Fixed *534 Mbps*	*701 Mbps*	*127xDS1*	*4096QAM*	81.5					

*[ ] See notes in last page

Transmitter Specifications

(Operating with RAC70)

System

	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	38 GHz
Frequency Range (GHz)	10.7 - 11.7	12.70 - 13.15	14.4 - 15.35	17.7 - 19.7	21.2 - 23.6	38.6 - 40.0
TR-Spacings Supported (MHz)	490, 500, 520, 530	225	475, 640	1560, 340	1200, 1232	700
Standard	FCC Part 101 SRSP 310.7	Part 74 & 101	SRSP 314.5 NTIA Red Book	FCC Part 101 SRSP 317.8	FCC Part 101 SRSP 321.8	FCC Part 101 SRSP 338.6
Maximum Tuning Range (Dependent upon T-R Spacing (MHz)	305	125	261	440	616	350

Antenna Interface

Waveguide Type	R100 (WR90)	R140 (WR62)	R140 (WR62)	R220 (WR42)	R220 (WR42)	R320 (WR28)

Transmitter Power Output Specifications with High Power Option[8], in dBm (Nominal)

	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	38 GHz
QPSK	29.5	26.5	26.5	23.0	23.5	20.5
16QAM	29.5	25.5	25.5	22.0	22.5	18.5
32QAM	29.5	24.5	24.5	21.0	21.5	18.5
64QAM	29.5	24.5	24.5	21.0	21.5	18.5
128QAM	29.5	24.5	24.5	21.0	21.5	18.0
256QAM	29.5	23.5	23.5	20.0	20.5	17.5
512QAM	29.0	22.0	22.0	18.5	19.0	17.0
1024QAM	28.0	21.5	21.5	18.0	18.5	16.0
2048QAM	27.0	21.0	21.0	18.0	18.0	15.0
4096QAM	26.0	20.0	20.0	17.0		
Minimum Configurable Power Level	9.5	6.5	6.5	3	3.5	0.5

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6[7], in dBm (Typical)

	Air Link Capacity	Max Ethernet[4]	Max DS1s[5]	Modulation	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	38 GHz
3.75 MHz Channel										
ACM/Fixed	*4 Mbps*	*10 Mbps*	*3xDS1*	*QPSK*						
ACM/Fixed	*8 Mbps*	*15 Mbps*	*5xDS1*	*16QAM*	-93.0					
ACM/Fixed	*11 Mbps*	*19 Mbps*	*7xDS1*	*32QAM*	-88.5					
ACM/Fixed	*15 Mbps*	*22 Mbps*	*9xDS1*	*64QAM*	-85.5					
ACM/Fixed	*17 Mbps*	*25 Mbps*	*10xDS1*	*128QAM*	-83.0					
ACM/Fixed	*19 Mbps*	*16 Mbps*	*12xDS1*	*256QAM*	-79.5					
5 MHz Channel										
ACM/Fixed	*5 Mbps*	*19 Mbps*	*3xDS1*	*QPSK*						
ACM/Fixed	*12 Mbps*	*24 Mbps*	*7xDS1*	*16QAM*	-91.0	-90.5	-91.0	-90.5	-90.5	
ACM/Fixed	*15 Mbps*	*29 Mbps*	*9xDS1*	*32QAM*	-88.0	-87.5	-88.0	-87.5	-87.5	
ACM/Fixed	*19 Mbps*	*35 Mbps*	*11xDS1*	*64QAM*	-85.5	-85.0	-85.5	-85.0	-85.0	
ACM/Fixed	*22 Mbps*	*17 Mbps*	*14xDS1*	*128QAM*	-82.5	-82.0	-82.5	-82.0	-82.0	
ACM/Fixed	*27 Mbps*	*38 Mbps*	*17xDS1*	*256QAM*	-78.5	-78.0	-78.5	-78.0	-78.0	

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6 [7], in dBm (Typical)

	Air Link Capacity	Max Ethernet [4]	Max DS1s [5]	Modulation	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	38 GHz
10 MHz Channel [6]										
ACM/Fixed	13 Mbps	47 Mbps	8xDS1	QPSK	-94.5	-94.0	-94.5	-94.0	-94.0	-93.0
ACM/Fixed	29 Mbps	59 Mbps	18xDS1	16QAM	-87.0	-86.5	-87.0	-86.5	-86.5	-85.0
ACM/Fixed	36 Mbps	67 Mbps	23xDS1	32QAM	-83.5	-83.0	-83.5	-83.0	-83.0	-81.5
ACM/Fixed	45 Mbps	74 Mbps	29xDS1	64QAM	-80.0	-79.5	-80.0	-79.5	-79.5	-78.0
ACM/Fixed	51 Mbps	88 Mbps	32xDS1	128QAM	-78.0	-77.5	-78.0	-77.5	-77.5	-76.0
ACM/Fixed	56 Mbps	96 Mbps	36xDS1	256QAM	-76.0	-75.5	-76.0	-75.5	-75.5	-74.0
ACM/Fixed	67 Mbps	85 Mbps	43xDS1	512QAM	-71.5	-71.0	-71.5	-71.0	-71.0	-70.0
ACM/Fixed	73 Mbps	93 Mbps	47xDS1	1024QAM	-68.5	-68.0	-68.5	-68.0	-68.0	-67.0
20 MHz Channel										
ACM/Fixed	26 Mbps	34 Mbps	16xDS1	QPSK	-91.5		-92.0	-91.5	-91.5	
ACM/Fixed	61 Mbps	80 Mbps	39xDS1	16QAM	-83.5		-83.5	-83.0	-83.0	
ACM/Fixed	71 Mbps	94 Mbps	45xDS1	32QAM	-81.0		-81.0	-80.5	-80.5	
ACM/Fixed	89 Mbps	117 Mbps	57xDS1	64QAM	-78.0		-78.0	-77.5	-77.5	
ACM/Fixed	102 Mbps	134 Mbps	65xDS1	128QAM	-76.0		-76.0	-75.5	-75.5	
ACM/Fixed	119 Mbps	156 Mbps	76xDS1	256QAM	-72.5		-72.5	-72.0	-72.0	
ACM/Fixed	132 Mbps	173 Mbps	85xDS1	512QAM	-70.0		-70.0	-69.5	-69.5	
ACM/Fixed	150 Mbps	197 Mbps	96xDS1	1024QAM	-66.0		-66.0	-65.5	-65.5	
ACM/Fixed	162 Mbps	212 Mbps	104xDS1	2048QAM	-63.5		-63.5	-63.0	-63.0	
ACM/Fixed	176 Mbps	231 Mbps	113xDS1	4096QAM	-59.5		-59.5	-59.0		
25 MHz Channel										
ACM/Fixed	33 Mbps	43 Mbps	20xDS1	QPSK		-90.5				
ACM/Fixed	75 Mbps	98 Mbps	48xDS1	16QAM		-82.5				
ACM/Fixed	90 Mbps	118 Mbps	57xDS1	32QAM		-79.5				
ACM/Fixed	111 Mbps	145 Mbps	71xDS1	64QAM		-77.0				
ACM/Fixed	130 Mbps	170 Mbps	83xDS1	128QAM		-74.5				
ACM/Fixed	150 Mbps	197 Mbps	96xDS1	256QAM		-71.0				
ACM/Fixed	167 Mbps	219 Mbps	107xDS1	512QAM		-68.5				
ACM/Fixed	189 Mbps	249 Mbps	121xDS1	1024QAM		-64.5				
ACM/Fixed	205 Mbps	268 Mbps	127xDS1	2048QAM		-62.0				
ACM/Fixed	222 Mbps	291 Mbps	127xDS1	4096QAM		-58.0				
30 MHz Channel										
ACM/Fixed	39 Mbps	51 Mbps	25xDS1	QPSK	-90.0		-90.0	-89.5	-89.5	-88.0
ACM/Fixed	90 Mbps	118 Mbps	57xDS1	16QAM	-82.0		-82.0	-81.5	-81.5	-80.5
ACM/Fixed	109 Mbps	143 Mbps	70xDS1	32QAM	-79.0		-79.5	-79.0	-79.0	-77.5
ACM/Fixed	132 Mbps	174 Mbps	84xDS1	64QAM	-76.5		-77.0	-76.5	-76.5	-75.0
ACM/Fixed	155 Mbps	204 Mbps	100xDS1	128QAM	-74.0		-74.0	-73.5	-73.5	-72.5
ACM/Fixed	180 Mbps	237 Mbps	116xDS1	256QAM	-70.5		-71.0	-70.5	-70.5	-69.0
ACM/Fixed	200 Mbps	263 Mbps	127xDS1	512QAM	-68.0		-68.5	-68.0	-68.0	-66.5
ACM/Fixed	227 Mbps	298 Mbps	127xDS1	1024QAM	-64.5		-64.5	-64.0	-64.0	-62.5
ACM/Fixed	245 Mbps	322 Mbps	127xDS1	2048QAM	-61.5		-61.5	-61.0	-61.0	-60.0
ACM/Fixed	267 Mbps	350 Mbps	127xDS1	4096QAM	-57.5		-57.5	-57.0		
40 MHz Channel										
ACM/Fixed	52 Mbps	69 Mbps	33xDS1	QPSK	-88.5		-88.5	-88.0	-88.0	-87.0
ACM/Fixed	121 Mbps	158 Mbps	77xDS1	16QAM	-80.5		-80.5	-80.0	-80.0	-79.0
ACM/Fixed	146 Mbps	191 Mbps	93xDS1	32QAM	-77.5		-78.0	-77.5	-77.5	-76.0
ACM/Fixed	178 Mbps	234 Mbps	113xDS1	64QAM	-75.5		-75.5	-75.0	-75.0	-73.5
ACM/Fixed	207 Mbps	272 Mbps	127xDS1	128QAM	-72.5		-73.0	-72.5	-72.5	-71.0
ACM/Fixed	237 Mbps	311 Mbps	127xDS1	256QAM	-69.5		-69.5	-69.0	-69.0	-68.0
ACM/Fixed	268 Mbps	351 Mbps	127xDS1	512QAM	-67.0		-67.0	-66.5	-66.5	-65.0
ACM/Fixed	300 Mbps	394 Mbps	127xDS1	1024QAM	-63.5		-63.5	-63.0	-63.0	-61.5
ACM/Fixed	329 Mbps	432 Mbps	127xDS1	2048QAM	-60.5		-60.5	-60.0	-60.0	-58.5
ACM/Fixed	358 Mbps	469 Mbps	127xDS1	4096QAM	-56.5		-56.5	-56.0		

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6[7], in dBm (Typical)

	Air Link Capacity	Max Ethernet [4]	Max DS1s [5]	Modulation	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	38 GHz
50 MHz Channel										
ACM/Fixed	*65 Mbps*	*86 Mbps*	*42xDS1*	*QPSK*		-87.0	-87.5	-87.0	-87.0	-86.0
ACM/Fixed	*140 Mbps*	*184 Mbps*	*89xDS1*	*16QAM*		-80.0	-80.5	-80.0	-80.0	-79.0
ACM/Fixed	*183 Mbps*	*240 Mbps*	*117xDS1*	*32QAM*		-76.0	-76.5	-76.0	-76.0	-75.0
ACM/Fixed	*220 Mbps*	*288 Mbps*	*127xDS1*	*64QAM*		-74.0	-74.5	-74.0	-74.0	-73.0
ACM/Fixed	*252 Mbps*	*330 Mbps*	*127xDS1*	*128QAM*		-72.0	-72.5	-72.0	-72.0	-70.5
ACM/Fixed	*308 Mbps*	*404 Mbps*	*127xDS1*	*256QAM*		-67.5	-68.0	-67.5	-67.5	-66.0
ACM/Fixed	*338 Mbps*	*444 Mbps*	*127xDS1*	*512QAM*		-65.0	-65.5	-65.0	-65.0	-64.0
ACM/Fixed	*382 Mbps*	*501 Mbps*	*127xDS1*	*1024QAM*		-61.5	-62.0	-61.5	-61.5	-60.0
ACM/Fixed	*410 Mbps*	*538 Mbps*	*127xDS1*	*2048QAM*		-59.0	-59.5	-59.0	-59.0	-57.5
ACM/Fixed	*446 Mbps*	*586 Mbps*	*127xDS1*	*4096QAM*		-55.0	-55.5	-55.0		
80 MHz Channel										
ACM/Fixed	*105 Mbps*	*138 Mbps*	*66xDS1*	*QPSK*	-85.0			-85.0		
ACM/Fixed	*241 Mbps*	*316 Mbps*	*127xDS1*	*16QAM*	-77.0			-77.0		
ACM/Fixed	*302 Mbps*	*397 Mbps*	*127xDS1*	*32QAM*	-73.5			-73.5		
ACM/Fixed	*352 Mbps*	*462 Mbps*	*127xDS1*	*64QAM*	-72.0			-72.0		
ACM/Fixed	*403 Mbps*	*530 Mbps*	*127xDS1*	*128QAM*	-70.0			-69.5		
ACM/Fixed	*470 Mbps*	*617 Mbps*	*127xDS1*	*256QAM*	-66.5			-66.0		
ACM/Fixed	*543 Mbps*	*712 Mbps*	*127xDS1*	*512QAM*	-63.0			-63.0		
ACM/Fixed	*612 Mbps*	*804 Mbps*	*127xDS1*	*1024QAM*	-59.5			-59.0		
ACM/Fixed	*658 Mbps*	*864 Mbps*	*127xDS1*	*2048QAM*	-57.0			-56.5		
ACM/Fixed	*716 Mbps*	*940 Mbps*	*127xDS1*	*4096QAM*	-53.0			-52.5		

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6,[7] in dB (Typical)

	Air Link Capacity	Max Ethernet [4]	Max DS1s [5]	Modulation	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	38 GHz
3.75 MHz Channel										
ACM/Fixed	*4 Mbps*	*10 Mbps*	*3xDS1*	*QPSK*						
ACM/Fixed	*8 Mbps*	*15 Mbps*	*5xDS1*	*16QAM*	122.5					
ACM/Fixed	*11 Mbps*	*19 Mbps*	*7xDS1*	*32QAM*	118.0					
ACM/Fixed	*15 Mbps*	*22 Mbps*	*9xDS1*	*64QAM*	115.0					
ACM/Fixed	*17 Mbps*	*25 Mbps*	*10xDS1*	*128QAM*	112.5					
ACM/Fixed	*19 Mbps*	*16 Mbps*	*12xDS1*	*256QAM*	109.0					
5 MHz Channel										
ACM/Fixed	*5 Mbps*	*19 Mbps*	*3xDS1*	*QPSK*						
ACM/Fixed	*12 Mbps*	*24 Mbps*	*7xDS1*	*16QAM*	120.5	116.0	116.5	112.5	113.0	
ACM/Fixed	*15 Mbps*	*29 Mbps*	*9xDS1*	*32QAM*	117.5	112.0	112.5	108.5	109.0	
ACM/Fixed	*19 Mbps*	*35 Mbps*	*11xDS1*	*64QAM*	115.0	109.5	110.0	106.0	106.5	
ACM/Fixed	*22 Mbps*	*17 Mbps*	*14xDS1*	*128QAM*	112.0	106.5	107.0	103.0	103.5	
ACM/Fixed	*27 Mbps*	*38 Mbps*	*17xDS1*	*256QAM*	108.0	101.5	102.0	98.0	98.5	
10 MHz Channel [6]										
ACM/Fixed	*13 Mbps*	*47 Mbps*	*8xDS1*	*QPSK*	124.0	120.5	121.0	117.0	117.5	113.5
ACM/Fixed	*29 Mbps*	*59 Mbps*	*18xDS1*	*16QAM*	116.5	112.0	112.5	108.5	109.0	103.5
ACM/Fixed	*36 Mbps*	*67 Mbps*	*23xDS1*	*32QAM*	113.0	107.5	108.0	104.0	104.5	100.0
ACM/Fixed	*45 Mbps*	*74 Mbps*	*29xDS1*	*64QAM*	109.5	104.0	104.5	100.5	101.0	96.5
ACM/Fixed	*51 Mbps*	*88 Mbps*	*32xDS1*	*128QAM*	107.5	102.0	102.5	98.5	99.0	94.0
ACM/Fixed	*56 Mbps*	*96 Mbps*	*36xDS1*	*256QAM*	105.5	99.0	99.5	95.5	96.0	91.5
ACM/Fixed	*67 Mbps*	*85 Mbps*	*43xDS1*	*512QAM*	100.5	93.0	93.5	89.5	90.0	87.0
ACM/Fixed	*73 Mbps*	*93 Mbps*	*47xDS1*	*1024QAM*	96.5	89.5	90.0	86.0	86.5	83.0
20 MHz Channel										
ACM/Fixed	*26 Mbps*	*34 Mbps*	*16xDS1*	*QPSK*	121.0		118.5	114.5	115.0	
ACM/Fixed	*61 Mbps*	*80 Mbps*	*39xDS1*	*16QAM*	113.0		109.0	105.0	105.5	
ACM/Fixed	*71 Mbps*	*94 Mbps*	*45xDS1*	*32QAM*	110.5		105.5	101.5	102.0	
ACM/Fixed	*89 Mbps*	*117 Mbps*	*57xDS1*	*64QAM*	107.5		102.5	98.5	99.0	
ACM/Fixed	*102 Mbps*	*134 Mbps*	*65xDS1*	*128QAM*	105.5		100.5	96.5	97.0	
ACM/Fixed	*119 Mbps*	*156 Mbps*	*76xDS1*	*256QAM*	102.0		96.0	92.0	92.5	
ACM/Fixed	*132 Mbps*	*173 Mbps*	*85xDS1*	*512QAM*	99.0		92.0	88.0	88.5	
ACM/Fixed	*150 Mbps*	*197 Mbps*	*96xDS1*	*1024QAM*	94.0		87.5	83.5	84.0	
ACM/Fixed	*162 Mbps*	*212 Mbps*	*104xDS1*	*2048QAM*	90.5		84.5	81.0	81.0	
ACM/Fixed	*176 Mbps*	*231 Mbps*	*113xDS1*	*4096QAM*	85.5		79.5	76.0		
25 MHz Channel										
ACM/Fixed	*33 Mbps*	*43 Mbps*	*20xDS1*	*QPSK*		117.0				
ACM/Fixed	*75 Mbps*	*98 Mbps*	*48xDS1*	*16QAM*		108.0				
ACM/Fixed	*90 Mbps*	*118 Mbps*	*57xDS1*	*32QAM*		104.0				
ACM/Fixed	*111 Mbps*	*145 Mbps*	*71xDS1*	*64QAM*		101.5				
ACM/Fixed	*130 Mbps*	*170 Mbps*	*83xDS1*	*128QAM*		99.0				
ACM/Fixed	*150 Mbps*	*197 Mbps*	*96xDS1*	*256QAM*		94.5				
ACM/Fixed	*167 Mbps*	*219 Mbps*	*107xDS1*	*512QAM*		90.5				
ACM/Fixed	*189 Mbps*	*249 Mbps*	*121xDS1*	*1024QAM*		86.0				
ACM/Fixed	*205 Mbps*	*268 Mbps*	*127xDS1*	*2048QAM*		83.0				
ACM/Fixed	*222 Mbps*	*291 Mbps*	*127xDS1*	*4096QAM*		78.0				

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6,[7] in dB (Typical)

	Air Link Capacity	Max Ethernet [4]	Max DS1s [5]	Modulation	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	38 GHz
30 MHz Channel										
ACM/Fixed	*39 Mbps*	*51 Mbps*	*25xDS1*	*QPSK*	119.5		116.5	112.5	113.0	108.5
ACM/Fixed	*90 Mbps*	*118 Mbps*	*57xDS1*	*16QAM*	111.5		107.5	103.5	104.0	99.0
ACM/Fixed	*109 Mbps*	*143 Mbps*	*70xDS1*	*32QAM*	108.5		104.0	100.0	100.5	96.0
ACM/Fixed	*132 Mbps*	*174 Mbps*	*84xDS1*	*64QAM*	106.0		101.5	97.5	98.0	93.5
ACM/Fixed	*155 Mbps*	*204 Mbps*	*100xDS1*	*128QAM*	103.5		98.5	94.5	95.0	90.5
ACM/Fixed	*180 Mbps*	*237 Mbps*	*116xDS1*	*256QAM*	100.0		94.5	90.5	91.0	86.5
ACM/Fixed	*200 Mbps*	*263 Mbps*	*127xDS1*	*512QAM*	97.0		90.5	86.5	87.0	83.5
ACM/Fixed	*227 Mbps*	*298 Mbps*	*127xDS1*	*1024QAM*	92.5		86.0	82.0	82.5	78.5
ACM/Fixed	*245 Mbps*	*322 Mbps*	*127xDS1*	*2048QAM*	88.5		82.5	79.0	79.0	75.0
ACM/Fixed	*267 Mbps*	*350 Mbps*	*127xDS1*	*4096QAM*	83.5		77.5	74.0		
40 MHz Channel										
ACM/Fixed	*52 Mbps*	*69 Mbps*	*33xDS1*	*QPSK*	118.0		115.0	111.0	111.5	107.5
ACM/Fixed	*121 Mbps*	*158 Mbps*	*77xDS1*	*16QAM*	110.0		106.0	102.0	102.5	97.5
ACM/Fixed	*146 Mbps*	*191 Mbps*	*93xDS1*	*32QAM*	107.0		102.5	98.5	99.0	94.5
ACM/Fixed	*178 Mbps*	*234 Mbps*	*113xDS1*	*64QAM*	105.0		100.0	96.0	96.5	92.0
ACM/Fixed	*207 Mbps*	*272 Mbps*	*127xDS1*	*128QAM*	102.0		97.5	93.5	94.0	89.0
ACM/Fixed	*237 Mbps*	*311 Mbps*	*127xDS1*	*256QAM*	99.0		93.0	89.0	89.5	85.5
ACM/Fixed	*268 Mbps*	*351 Mbps*	*127xDS1*	*512QAM*	96.0		89.0	85.0	85.5	82.0
ACM/Fixed	*300 Mbps*	*394 Mbps*	*127xDS1*	*1024QAM*	91.5		85.0	81.0	81.5	77.5
ACM/Fixed	*329 Mbps*	*432 Mbps*	*127xDS1*	*2048QAM*	87.5		81.5	78.0	78.0	73.5
ACM/Fixed	*358 Mbps*	*469 Mbps*	*127xDS1*	*4096QAM*	82.5		76.5	73.0		
50 MHz Channel										
ACM/Fixed	*65 Mbps*	*86 Mbps*	*42xDS1*	*QPSK*		113.5	114.0	110.0	110.5	106.5
ACM/Fixed	*140 Mbps*	*184 Mbps*	*89xDS1*	*16QAM*		105.5	106.0	102.0	102.5	97.5
ACM/Fixed	*183 Mbps*	*240 Mbps*	*117xDS1*	*32QAM*		100.5	101.0	97.0	97.5	93.5
ACM/Fixed	*220 Mbps*	*288 Mbps*	*127xDS1*	*64QAM*		98.5	99.0	95.0	95.5	91.5
ACM/Fixed	*252 Mbps*	*330 Mbps*	*127xDS1*	*128QAM*		96.5	97.0	93.0	93.5	88.5
ACM/Fixed	*308 Mbps*	*404 Mbps*	*127xDS1*	*256QAM*		91.0	91.5	87.5	88.0	83.5
ACM/Fixed	*338 Mbps*	*444 Mbps*	*127xDS1*	*512QAM*		87.0	87.5	83.5	84.0	81.0
ACM/Fixed	*382 Mbps*	*501 Mbps*	*127xDS1*	*1024QAM*		83.0	83.5	79.5	80.0	76.0
ACM/Fixed	*410 Mbps*	*538 Mbps*	*127xDS1*	*2048QAM*		80.0	80.5	77.0	77.0	72.5
ACM/Fixed	*446 Mbps*	*586 Mbps*	*127xDS1*	*4096QAM*		75.0	75.5	72.0		
80 MHz Channel										
ACM/Fixed	*105 Mbps*	*138 Mbps*	*66xDS1*	*QPSK*	114.5			108.0		
ACM/Fixed	*241 Mbps*	*316 Mbps*	*127xDS1*	*16QAM*	106.5			99.0		
ACM/Fixed	*302 Mbps*	*397 Mbps*	*127xDS1*	*32QAM*	103.0			94.5		
ACM/Fixed	*352 Mbps*	*462 Mbps*	*127xDS1*	*64QAM*	101.5			93.0		
ACM/Fixed	*403 Mbps*	*530 Mbps*	*127xDS1*	*128QAM*	99.5			90.5		
ACM/Fixed	*470 Mbps*	*617 Mbps*	*127xDS1*	*256QAM*	96.0			86.0		
ACM/Fixed	*543 Mbps*	*712 Mbps*	*127xDS1*	*512QAM*	92.0			81.5		
ACM/Fixed	*612 Mbps*	*804 Mbps*	*127xDS1*	*1024QAM*	87.5			77.0		
ACM/Fixed	*658 Mbps*	*864 Mbps*	*127xDS1*	*2048QAM*	84.0			74.5		
ACM/Fixed	*716 Mbps*	*940 Mbps*	*127xDS1*	*4096QAM*	79.0			69.5		

*[ ] See notes in last page

For Guaranteed values (over time and operational range) subtract 2 dB from Power Output, add 2dB to Threshold values and subtract 4 dB from System Gain values, up to and including 23GHz. For 38GHz, subtract 2.5 dB from Power Output, add 2.5dB to Threshold values and subtract 5 dB from System Gain values.

All threshold specifications are referenced to the ODU antenna flange.

[1] Dimensions Exclude ODU handle.

[2] ATCP is recommended for operation at Extended temperature ranges. Contact Aviat Networks for more details.

[3] RSSI accuracy applies when there is no potential interferer signal present within +/- 28MHz of the Rx. Frequency.

[4] 64 byte frames, physical layer, with DAC GE3.

[5] L1 throughput will vary based on average packet sizes. Enabling TDM transport will subtract equivalent capacity from available Ethernet throughput.

[6] The 10 MHz Channel capacity is used for 12.5 MHz Channel capacity in the FCC 7 GHz and 13 GHz bands.

[7] Rx Threshold values indicated are typically improved by 0.5 dB for BER=10-3.

[8] High Power FPM option shown. For standard power subtract 3 dB.

ECLIPSE PACKET NODE INTELLIGENT NODE UNIT

The Eclipse™ Packet Node Intelligent Node Unit is a highly modular and scalable indoor unit that delivers a unique combination of high capacity hybrid or all-packet transport, Carrier Ethernet/IP networking, and comprehensive Mission Critical Microwave features, enabling operators to prepare for the all-IP future.

PROTECT YOUR INVESTMENT

A highly modular architecture provides maximum protection of your investment.As your network and traffic requirements change over time, modules can be easily added to support additional radio directions or to change the traffic mix to facilitate the smooth migration from legacy TDM to advanced Carrier Ethernet/IP.

HIGHEST NODAL DENSITY

The Eclipse Packet Node INU comes in two platform options, a 1RU INU or a 2RU INUe which supports the highest nodal density in the smallest form factor, enabling the compact aggregation nodes that support up to 5 Gbit/s of packet handling capacity.

HIGH SPEED PACKET TRANSPORT

Eclipse Packet Node represents the very latest generation of microwave transmission, with a combination of advanced features to enable link speeds up to 2.8 Gbit/s from a single compact and modular unit.

MAXIMIZING FREQUENCY EFFICIENCY AND UTILIZATION

Adaptive Coding and Modulation, co-channel operation with XPIC, and optimized packet transmission drives more throughput than ever before, while also preserving valuable frequency resources.

ADVANCED CARRIER ETHERNET/IP INTELLIGENCE

A carrier-grade Ethernet switch provides traffic classification into 8 priority queues, QoS traffic priority assignment, VLAN support, Ethernet Optimization for improved throughput, and packet synchronization features.

MISSION CRITICAL FEATURES

Eclipse supports Mission Critical Microwave applications through a fully redundant architecture, native support for legacy TDM and new Ethernet/IP traffic for maximum efficiency and lowest latency, and exceptional security through integrated payload encryption and secure management options.

KEY FEATURES

- Compact 1RU (INU) and 2RU (INUe) shelf options, supporting 3x IF connected or 12 Ethernet connected RF units per rack unit
- FIPS 140-2 Level 2 validated; FIPS 197 validated
- Selection of hot swappable interface card options, including NxDS1, NxDS3, NxOC3, NxFE and NxGigE
- Hybrid native-TDM plus native-Ethernet/IP, or all-Ethernet/IP, transport
- Compact, modular design enabling simple expansion and upgrades
- High throughput, exceeding 460 Mbit/s per RF channel.
- Co-channel operation with optional XPIC to double frequency channel capacity
- QPSK to 256QAM, with hitless Adaptive Coding and Modulation (ACM) options
- Carrier Ethernet features, including Sync-E (G.8262), VLANs, and Ethernet OAM
- High density Ethernet interface capability with 6x Gigabit Ethernet ports per module
- Protected Configurations include Monitored Hot Standby, Frequency and Space Diversity, and 2+0 with L1 Link aggregation
- Fully protected traffic ports: electrical and optical Ethernet, and electrical T1 interfaces
- Integrated T1 Loop Switch
- Embedded Strong Security, featuring Payload Encryption, Secure Management and RADIUS client support
- Management support by Provision NMS and Eclipse Portal
- RoHS and WEEE compliant

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SYSTEM PARAMETERS

GENERAL		PER LINK	PER NODE
Throughput/Capacity Range	Native Carrier Ethernet/IP [1]	11 - 462 Mbit/s	2.77 Gbit/s
	Native TDM	7 - 127x DS1	127x DS1
		1, 3, 4x DS3	6x DS3
		1 , 2x OC-3	2x OC3
Fixed Modulation Options	Fixed		QPSK, 16, 32, 64, 128, 256 QAM
Adaptive Coding and Modulation	Modulation Options		QPSK, 16, 64, 256 QAM
	Coding Options		Max Throughput, Max System Gain
Co-Channel Operation with XPIC	Optional		>20dB XPOL improvement
Adaptive Equalization			24 tap T/2 spaced feed-forward filter
ETHERNET SPECIFI CATIONS			
Ethernet Standards Compliance	Ethernet		IEEE 802.3
User Ports, per Data Access Card (DAC)			3x 10/100/1000BaseT, 2x SFP Optical or Electrical
Networking Protocols			IPv4 and IPv6
Switch Capacity			5x 1Gbit/s user ports + 6x backplane ports
Maximum Frame Size			10000 bytes bi-directional
Throughput Acceleration (Frame Size Dependent)			IFG & Preamble Suppression
Traffic Prioritization			Per port based prioritization
VLAN Support			IEEE 802.1Q, 802.1ad (Q-in-Q)
Flow Control			IEEE 802.3x
Link Aggregation			802.1AX LAG L1LA (proprietary)
OAM			IEEE 802.1ag / ITU-T Y.1731
Monitoring	Port and Channel Status		Performance Graphs, RMON-1, Port and Channel
TDM SPECIFI CATIONS			
Interfaces per Data Access Card (DAC)	NxDS1		1 to 16x 1.544 Mbit/s (DS1)
(Multple DACs of the same or different kind can	NxDS3		1 to 3x 44.736 Mbit/s (DS3)
be used per shelf)	DS3 Mux		2x DS3 to 2x28x DS1 Mux, channelized
	NxOC3	Optical or Electrical	1 or 2x 155.52 Mbit/s (OC3)
	OC3 Mux		1x OC3 to 84x DS1 Mux
Standards Compliance	DS1, DS3		ITU-T Rec. G.703, G.823
	OC3, Electrical / Optical		ITU-T Rec. G.703, G.825 / ITU-T Rec. G.957, G.825
PROTECTION			
Link Protection options			Hot-Standby, Space or Freq Diversity
Ring/Network Protection options			Resilient Wireless Packet Ring (RWPRTM), IEEE 802.1w RSTP ITU-T G.8032 ERP
User Line Interface Protection			1+1: Ethernet, OC3, DS3, DS1
SECURITY COMPLIANCE			
Security and Encryption			Optional FIPS 197 validated, 128/256-bit AES encryption
			Optional FIPS 140-2 Level 2 validated
SYNCHRONIZATION			
Synchronization Options			Synchronous Ethernet (G.8262)
			IEEE 1588v2 frames passed transparently
			DS1 Line clock
STANDARDS COMPLIANCE			
EMC			FCC CFR 47, Part 15
Operation			EN 300 019, Class 3.1E
Safety			UL 60950-1
NEBS			GR-1089-CORE, GR-63-CORE
Electric power substations			IEEE 1613
MECHANICAL, ENVIRONMENTAL			
Plug-in card slots			INU: 4; INUe: 10
Rack Height			INU: 1RU; INUe: 2RU
Operating Temperature	Guaranteed		-5° to +55° C (23° to +131° F)
Humidity	Guaranteed		0 to 95%, non-condensing
FAULT AND CONFIGURATION MANAGEMENT			
Secure Management	Encryption		AES-128/256, DES, 3DES
Local/remote Configuration Tool			Eclipse Portal
Network Management			Aviat Networks ProVision™

All specifications are typical values unless otherwise stated, and are subject to change without notice.
[1] Maximum Ethernet Throughput is for one 80MHz RF channel, single polarization, for 64 byte frame sizes. Corresponding Airlink base capacity is 366 Mbit/s.

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Technical Specifications

Eclipse Packet Node INU/INUe

ANSI

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System Parameters

General

		Per Link	Per Node
Throughput/Capacity Range	*Native Carrier Ethernet/IP* [1]	11 - 462 Mbit/s	2.77 Gbit/s
	Native TDM	7 - 127x DS1	127x DS1
		1, 3, 4x DS3	6x DS3
		2x OC3	2x OC3
Fixed Modulation Options	*Fixed*	QPSK, 16, 32, 64, 128, 256 QAM	
Adaptive Coding and Modulation	*Modulation Options*	QPSK, 16, 64, 256 QAM	
	Coding Options	Max Throughput, Max System Gain	
Co-Channel Operation with XPIC	*Optional*	>20dB XPOL improvement	
Error Correction		LDPC	
Adaptive Equalization		24 tap T/2 spaced feed-forward filter	

Standards Compliance

EMC		FCC CFR 47, Part 15
Operation		EN 300 019, Class 3.1E
Storage		EN 300 019, Class 1.2
Transportation		EN 300 019, Class 2.3
Safety		UL 60950-1
NEBS		GR-1089-CORE, GR-63-CORE
Electric Power Substations		IEEE 1613

Security

Payload Encryption	*Compliance*	FIPS 197 validated
	Cryptography Support	AES-CCM (RFC-3610) Cipher suite
	Key	128-, 192-, or 256-bit symmetric key Diffie-Hellman Key agreement method (RFC-2631)
Management Encryption	*Compliance*	FIPS 140-2 Level 2 validated (Certificate #2206)

Environmental

Operating Temperature	*Guaranteed*	-5° to +55° C (23° to +131° F)
Humidity	*Guaranteed*	0 to 95%, non-condensing
Altitude	*Guaranteed*	4,500 meters (15,000 ft)

Fault and Configuration Management

Protocol		SNMP v2c (standard), v3 (optional)
Secure Management Features	*Encryption*	AES-128, -196 or -256
	Validated Algorithms	FIPS 140-2
	Key and Certificate Management	ITU-T X.509
	Centralized User Accounts	RADIUS Protocol (RFC-2865)
Local/remote Configuration Tool		Eclipse Portal
Element/Network Management		Aviat Networks ProVision™

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] Maximum Ethernet Throughput figures are L1 throughput based upon 64 byte frames, and will vary depending upon actual mix of traffic frame sizes.

System Parameters (cont.)

Emission Designator

Emission Designator	*3.75MHz*	*5MHz*	*10MHz*	*20MHz*	*30MHz*	*40MHz*	*50MHz*
QPSK	N/A	5M00G7W	10M0G7W	20M0G7W	30M0G7W	40M0G7W	50M0G7W
QAM	3M75D7W	5M00D7W	10M0D7W	20M0D7W	30M0D7W	40M0D7W	50M0D7W

Dispersive Fade Margin (DFM), typical

Capacity	*Channel BW*	*Modulation*	*Symbol Rate (Mbaud)*	*Gross Bit Rate (Mbit/s)*	*DFM (dB)*
12 Mbit/s	3.75 MHz	32 QAM	2.87	14	79
25 Mbit/s	5 MHz	128 QAM	3.98	28	67
11-13 Mbit/s	10 MHz	QPSK	8.4	17	66
23-27 Mbit/s	10 MHz	16 QAM	8.4	34	62
39-45 Mbit/s	10 MHz	64 QAM	8.4	50	62
50 Mbit/s	10 MHz	128 QAM	8.4	59	61
55-59 Mbit/s	10 MHz	256 QAM	8.4	67	61
24-28 Mbit/s	20 MHz	QPSK	17.1	34	66
48-57 Mbit/s	20 MHz	16 QAM	17.1	68	59
81-89 Mbit/s	20 MHz	64 QAM	17.1	103	57
114-122 Mbit/s	20 MHz	256 QAM	17.1	137	53
24-28 Mbit/s	30 MHz	QPSK	25.9	52	66
48-57 Mbit/s	30 MHz	16 QAM	25.9	104	59
81-89 Mbit/s	30 MHz	64 QAM	25.9	155	53
157 Mbit/s	30 MHz	128 QAM	25.9	181	50
178-189 Mbit/s	30 MHz	256 QAM	25.9	207	47
50-59 Mbit/s	40 MHz	QPSK	34.7	69	65
101-118 Mbit/s	40 MHz	16 QAM	34.7	139	58
135 Mbit/s	40 MHz	32 QAM	34.7	173	52
156-187 Mbit/s	40 MHz	64 QAM	34.7	208	51
238-255 Mbit/s	40 MHz	256 QAM	34.7	277	45
63-74 Mbit/s	50 MHz	QPSK	43.3	87	64
127-145 Mbit/s	50 MHz	16 QAM	43.3	173	55
212-243 Mbit/s	50 MHz	64 QAM	43.3	260	47
297-318 Mbit/s	50 MHz	256 QAM	43.3	346	38
72-85 Mbit/s	80 MHz	QPSK	49.6	99	54
145-170 Mbit/s	80 MHz	16 QAM	49.6	199	50
243-267 Mbit/s	80 MHz	64 QAM	49.6	298	44
318-365 Mbit/s	80 MHz	256 QAM	49.6	397	37

All specifications are typical values unless otherwise stated, and are subject to change without notice.

Intelligent Node Unit (INU) Common Units

IDC, Indoor Chassis 1RU		
Dedicated plug-in card slots		2 (NCC, FAN)
Universal plug-in card slots		4
Maximum number of ODUs supported		3
Dimensions (including mounting brackets)		44mm (1RU) x 482mm (19in) x 282.5mm (11.1in)
Weight	*Empty*	2.6 kg (5.8 lb)
IDCe, Extended Indoor Chassis 2RU		
Dedicated plug-in card slots		3 (NCC, NPC, 2RU FAN)
Universal plug-in card slots		9
Maximum number of ODUs supported		6
Dimensions (including mounting brackets)		88mm (2RU) x 482mm (19in) x 282.5mm (11.1in)
Weight	*Empty*	4.8 kg (10.6 lb)
NCC, Node Controller Card		
NMS LAN interface	*Type*	4-port 10/100Base-T Hub
	Connector	4x 8-pin RJ-45
Serial Maintenance Interface	*Standard*	Complies to TIA/EIA-561
	Speed	1200 bps to 115.2 kbps
	Connector	8-pin RJ-45
Configuration memory, removable		512 Mbyte CompactFlash card (on-board)
Electrical	*DC Supply input range*	-40.5 to -60 VDC
	DC Fuse type and rating	25A fast-acting ceramic body cartridge
	Over voltage protection	< -70 VDC
	Under voltage protection	-32 VDC
	DC connector	2-pin DSUB power type
Power consumption		11 W
LED Indicators		2x Tri-state ('Test', 'Status')
Dimensions (including front panel and rear connector)		22mm (0.5RU)x 260mm (10.2in) x 268mm (10.6in)
Weight		0.6 kg (1.35 lb)
NPC, Node Protection Card		
Electrical	*DC Supply input range*	-40.5 to -60 VDC
	DC Fuse type and rating	25A fast-acting ceramic body cartridge
	Over voltage protection	< -70 VDC
	Under voltage protection	-32 VDC
	DC connector type	2-pin DSUB power type
Power consumption		8 W
LED Indicators		2x Tri-state ('Protect', 'Status')
Dimensions (including front panel and rear connector)		22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in)
Weight		0.4 kg (0.88 lb)
FAN, Fan Card 1RU		
Fans		2
LED Indicators		1x Red LED ('Fault')
Power consumption		1 W
Dimensions (including front panel and rear connector)		44mm (1RU) x 40mm (1.6in) x 264mm (10.4in)
Weight		0.23 kg (0.5 lb)

Intelligent Node Unit (INU) Common Units (cont.)

FAN, Fan Card 2RU		
Fans		2
LED Indicators		1x Red LED ('Fault')
Power consumption		2 W
Weight		0.46 kg (1.0 lb)

AUX, Auxilary Services Card		
Aux Data Channels		3
Interface		RS232 or RS422
Line Rate	*Asynchronous*	1.2 to 19.2 kbit/s
	Synchronous	64 kbit/s
Aux Data Connector		High Density DSUB26
External Alarm Inputs	*TTL Inputs*	Up to 6 [1]
	TTL input thresholds	0.8V max low, 2.0V min high
External Alarm Outputs	*Form C Relays*	Up to 4 [1]
Alarms Connector		High Density DSUB15
LED Indicators		1x Tri-state ('Status')
Power consumption		1 W
Dimensions (including front panel and rear connector)		22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in)
Weight		0.35 kg (0.77 lb)

All specifications are typical values unless otherwise stated, and are subject to change without notice.
[1] For applications requiring additional alarm inputs or outputs, multiple AUX cards can be installed if free INU/INUe slots are available.

Radio Access Cards (RAC)

General		
IF connector		SMA[1]
IF interface	*Transmit*	311 MHz, -8.0 to -12.0 dBm
	Receive	126 MHz, -8 to -27 dBm
LED Indicators		2x Tri-state ('Online', 'Status')
Dimensions (including front panel and rear connector)		22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in)
Weight		< 0.38 kg (0.84 lb)
Secondary Lightning protection		Gas tube, 150 V

RAC 60E/RAC 6XE		
Data Packet Plane (DPP)	*Interfaces, electrical*	1x 1000Base-T
	Connector	RJ-45
RFUs supported		IRU600, ODU600, ODU300hp, ODU300ep
Capacities supported		Ethernet to 462 Mbit/s [2], 8-127x DS1, 1-4x DS3, 1-2x OC3
Modulations supported	*Fixed Modulation*	QPSK, 16, 32, 64, 128, 256QAM
Adaptive Coding and Modulation	*Modulation Options*	QPSK, 16, 64, 256 QAM
	Coding Options	Max Throughput, Max System Gain
XPD Improvement	*RAC 6XE only*	20 dB
XPIC connectors	*RAC 6XE only*	2x SMB
Power consumption	*RAC 60E / RAC 6XE*	13 W/ 19 W

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] RAC Installation Kit includes 3 meter jumper cable, SMA to N-type.

[2] Maximum Ethernet Throughput figures are L1 based upon 64 byte frames, and will vary depending upon actual mix of traffic frame sizes.

Data Access Cards (DAC) - Ethernet

General		
LED Indicators		2x Tri-state ('Online', 'Status')
		RJ-45 Ethernet Interface ("Link Status", "Activity")
Power Consumption (nominal)		4 W (DAC GE), 13 W (DAC GE3)
Dimensions (including front panel and rear connector)		22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in)
Weight (nominal)		< 0.34 kg (0.74 lb)

DAC GE3 - Carrier Ethernet/IP			
Ethernet Standards Compliance		*Ethernet*	IEEE 802.3
		Networking Protocols	IPv4 and IPv6
			DAC GE3
Backplane Throughput Maximum			200 Mbit/s
Packet Plane Throughput Maximum			2 Gbit/s
Switch Capacity			5x 1 Gbit/s user ports
			+ 6x channels
User Ports	*RJ-45*		3x 10/100/1000Base-T
	SFP		2x Optical LC or Electrical RJ-45
	Optical SFP Options	*1550 nm single mode*	1000Base-ZX
		1310 nm single mode	1000Base-LX
		850 nm multimode	1000Base-SX
	Electrical SFP Options		10/100/1000Base-T
			1000Base-T
Backplane Ports (Channels)			6
Burst and Frame Handling (Typical)		*Buffer Size Per Port*	Configurable up to 1.28 Mbytes[1]
		Max Frame Size	10000 bytes bi-directional
Throughput Acceleration		*IFG & Preamble Suppression*	Yes
			Frame Size Dependent
MAC address register			16000 entries
QoS		*Port Based Prioritization*	Yes
		IEEE 802.1p QoS/CoS Bits	Yes
		DSCP	IPv6/IPv4
		MPLS EXP bits	Yes
		Remarking	MPLS Exp and DSCP to 802.1p
		Transmission Queues	8
		Scheduling	Strict, DWRR or Strict+DWRR (flexible per port)
VLANs		*VLAN Tagging*	IEEE 802.1Q
		Q-in-Q (Provider Bridging)	IEEE 802.1ad
		VLAN Translation	Yes
Congestion Management		*Flow Control*	IEEE 802.3x
		Ingress Policing	TrTCM (per port and per flow)
			CIR, EIR, CBS, EBS
		Broadcast/Multicast Storm Protection	Yes

Data Access Cards (DAC) - Ethernet (cont.)

DAC GE3 - Carrier Ethernet/IP - cont.

Redundancy	*1+1 Card Protection*	Yes
	Link Status Propagation	Yes
Synchronization	*Synchronous Ethernet*	ITU-T G.8262
	ESMC/SSM	ITU-T G.8264
	Internal Reference	Built-in Stratum 3 clock
Link Aggregation	*L1LA (Layer 1)*	DPP ports Fixed or adaptive modulation
	LAG (Layer 2)	IEEE 802.1AX static or LACP Layer 2-4 hashing User ports, DPP ports, and channels (LACP on user ports only) Fixed modulation
Ring Protection	*RSTP*	IEEE 802.1w
	ERP	ITU-T G.8032v2
Ethernet OAM	*IEEE 802.1ag/ITU-T Y.1731 CFM*	ETH-CC, ETH-LB, ETH-LT, ETH-RDI, ETH-AIS
	ITU-T Y.1731 PM	ETH-LM, ETH-DM and ETH-DVM
Monitoring	*Port and Channel Status*	Yes
	Performance Graphs	Yes
	Per-Queue Performance Statistics	Yes
	RMON-1	Ports and Channels
Diagnostics	*Port Shutdown*	Yes
	Port Mirror	Yes

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] Dependent upon configuration settings and number of active interfaces.

Data Access Cards (DAC) - TDM

General

Power consumption (nominal)			Max 4 W
Dimensions (including front panel and rear connector)			22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in)
Weight (nominal)			< 0.34 kg (0.74 lb)

DAC 4x, DAC 16x v2 - TDM (NxDS1)

LED Indicators			1x Tri-state: 'Status'
Interface, configurable	*DAC 4x*	*Electrical*	1 to 4x 1.544 Mbit/s (DS1)
	DAC 16x v2	*Electrical*	1 to 16x 1.544 Mbit/s (DS1)
Electrical interface parameters	*Standards Compliance*	*DS1*	Compliant to ITU-T Rec. G.703, G.824
	Line code	*DS1*	AMI or B8ZS, selectable per Tributary
	Connectors	*DAC 4x*	4x RJ-45
		DAC 16x v2	2x 50-pin HDR
	Impedance	*DS1*	100Ω balanced
Redundancy			Hot-standby tributary protection (DAC 16x v2 only)
Ethernet over unframed DS1			1.5 Mbit/s per trib; 24 Mbit/s per DAC (DAC 16x v2 only)

DAC 3xDS3M - TDM (NxDS3)

LED Indicators		2x Tri-state: 'Online', 'Status'
Interface		1 to 3x 44.736 Mbit/s (DS3)
Functionality		2x DS3 (Interface) to 2x28x DS1 (TDM Bus) Mux, channelized; M13 3x DS3 (Interface) to 3x DS3 (TDM Bus) Transparent Ethernet over unframed DS3: 43 Mbit/s per DS3; 129 Mbit/s per DAC
Electrical interface parameters	*Standards Compliance*	Compliant to ITU-T Rec. G.703, G.824
	Line code	B3ZS
	Connectors	Slimline BNC
	Impedance	75Ω unbalanced
Redundancy		Hot-standby tributary protection

DAC 155o, 2x155o, 2x155e - SONET (1x/2xOC3/STS3)

LED Indicators			1x Tri-state: 'Status'
Interface, configurable	*DAC 155o*	*Optical*	1x 155.52 Mbit/s (OC3)
	DAC 2x155o	*Optical*	1 or 2x 155.52 Mbit/s (OC3)
	DAC 2x155e	*Electrical*	1 or 2x 155.52 Mbit/s (STS3)
Electrical interface parameters	*Standards Compliance*		Compliant to ITU-T Rec. G.703, G.825
	Line code		G703/CMI
	Connectors		BNC
	Impedance		75Ω unbalanced
Optical interface parameters	*Standards Compliance*		Compliant to ITU-T Rec. G.957, G.825
	Optical interface		Short Range S-1.1
	Connectors		SC
	Tx Output Center Wavelength		1310 nm
	Tx Average Optical Output Power		-15 to -8 dBm
	Rx Sensitivity		-31 dBm
	Rx Input Power Saturation		-7 dBm
Redundancy			Hot-standby tributary protection

All specifications are typical values unless otherwise stated, and are subject to change without notice.

Data Access Cards (DAC) - TDM (cont.)

DAC 155oM/DAC 155eM SONET Multiplexer (1xOC3/STS3)

LED Indicators	2x Tri-state: 'Online', 'Status'
Functionality	1x OC3/STS3 (Interface) to 84x DS1 (TDM Bus) Mux
DAC 155eM Electrical interface	Electrical SFP - Coaxial DIN 1.0/2.3 75 Ohm
DAC 155oM Optical interface	Optical SFP - LC

	Single Mode Long Range L1.1	*Single Mode Short Range S1.1*	*Multi Mode*
Tx Output Center Wavelength	1310 nm	1310 nm	850 nm
Tx Average Optical Output Power	-5 to 0 dBm	-15 to -8 dBm	-10 to -4 dBm
Rx Sensitivity	-35 dBm	-34 dBm	-24 dBm
Rx Input Power Saturation	0 dBm	0 dBm	0 dBm

Timing modes, configurable	Recovered Clock Local Reference Clock (XO)

All specifications are typical values unless otherwise stated, and are subject to change without notice.

NCM Network Capabilties Module

Interface Configurable	*Electrical*		1 to 8x 1.544 Mbit/s (DS1)
Electrical Interface Parameters	*Standards Compliance*	*DS1*	Compliant to ITU-T G.703, G.823
	Line Code	*DS1*	AMI or B8ZS, selectable per tributary
	Framing	*DS1*	Framed or Un-framed
	Connectors	*DS1*	50 pin HDR
		Electrical	RJ45 (not used for loopswitch option)
	Impedance	*DS1*	100 ohm balanced
Operational Mode	*Low latency non hitless*		Typ <5mS (20mS Max)
	Drops per INUe		Maximum 63 DS1
	Maximum Circuits per Loop		Maximum 63 DS1
	Links established over RAC or DAC Modules		Including DAC DS3M,DAC 155oM/eM
Protection	*1+1 Protection*		Requires 2 x NCM

Datasheet

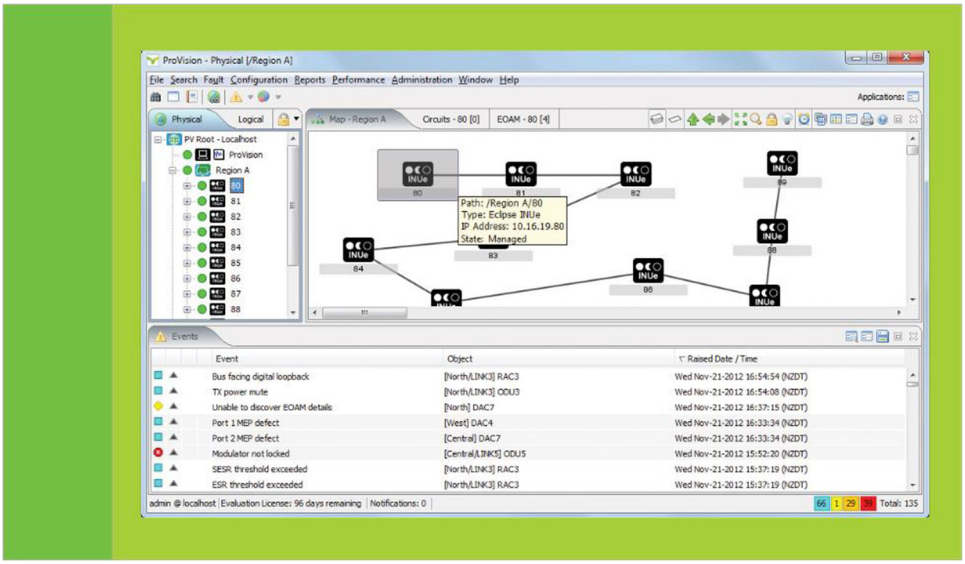
PROVISION® ELEMENT MANAGEMENT SYSTEM

SUPPORT FOR ALL NETWORK EQUIPMENT TYPES

ProVision provides the following Aviat Networks and third-party device support:

- CTR 8540/8300 microwave router platform
- Eclipse and Eclipse Packet Node Platform
- Aviat WTM series of all-indoor and all-outdoor microwave systems
- All Aviat current, legacy, and future devices
- Generic Device Support fault management for a wide range of third-party SNMP devices; 50+ third-party device packages currently available
- Application Integration including craft tools, PCR collector, PCR viewer, MSUU.

NETWORK INTELLIGENCE



The ProVision Element Management System delivers superior wireless networking intelligence by offering a unique feature set, based on industry standards, designed to support the increasing demands of growing networks. By leveraging Aviat Networks' innovative microwave systems, ProVision maximizes network availability and throughput while significantly reducing OPEX.

Designed with the user in mind, ProVision is intuitive and adaptable for a wide range of activities that users can customize to match their network requirements. In addition, ProVision automates time consuming and error prone processes, such as the provisioning of end-to-end TDM and Ethernet services, bulk upgrading network firmware, and diagnosing network clock distribution problems.

With the ability to provide network management across Aviat's complete product portfolio, including many key partner products, ProVision delivers an efficient, seamless end-to-end network management solution for TDM, Ethernet, and hybrid microwave networks.

SMOOTH TRANSITION TO ALL-IP

Transitioning networks from legacy TDM to all-IP takes time and money, as well as risk of network interruptions. ProVision smooths the process by harmonizing microwave, TDM and Ethernet network operations with common concepts and features, a shared operator experience, and automation of complex processes.

Advanced Carrier Ethernet capabilities spanning Synchronization, Ethernet OAM, ERPS, EVC/ VLAN and protection/diversity technologies include discovery of network and service resources, end-to-end visualizations, and automated provisioning. Collectively they remove significant complexity, deliver faster rollout with fewer mistakes, assure service availability and quality, providing confidence in transitioning from TDM, hybrid, to All-IP networks.

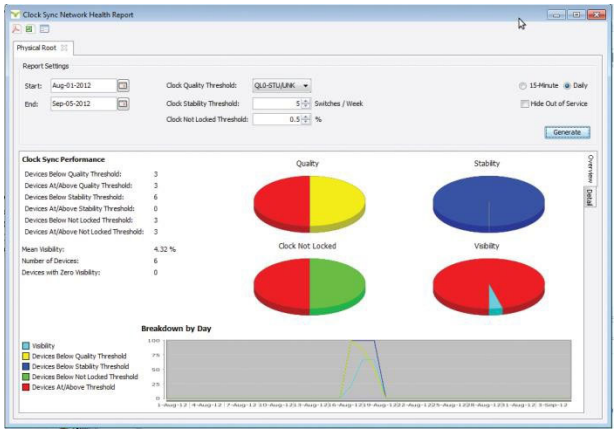
DEPLOYMENT PROFICIENCY THROUGH AUTOMATION

Deploy new element management with:

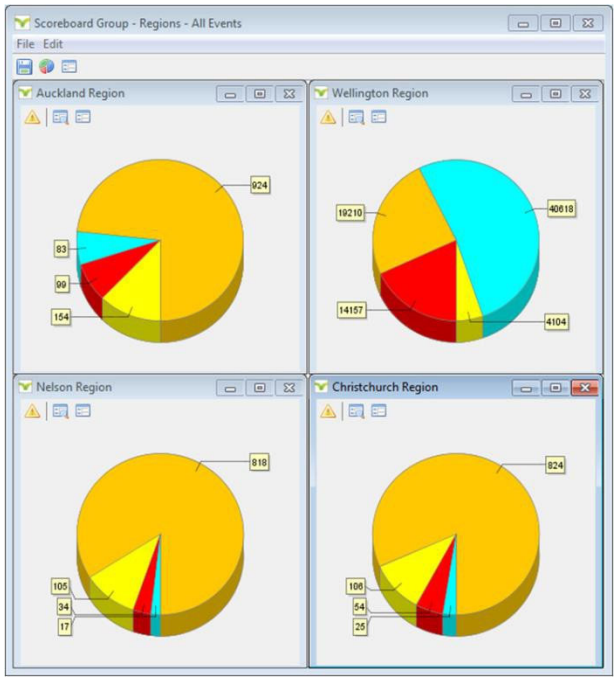
- Quick installation on Windows and Solaris and fast upgrade installations with automated database migration
- Automated discovery of network devices, inventory, configurations and end-to-end TDM and Ethernet services

SMART FAULT MANAGEMENT

ProVision's active health monitoring of critical microwave, TDM and Ethernet resources and service performance is smarter than traditional fault monitoring, delivering:



- Network Health Reports detect faults before an outage occurs by identifying performance degradation, for RF, Ethernet, Clock Sync
- Instant alerts of degraded performance via email, SMS and messaging, with deep-dive navigation to quickly investigate and resolve events
- Simple performance threshold management
- Flexible applications for networks, device types and more, via logical containers

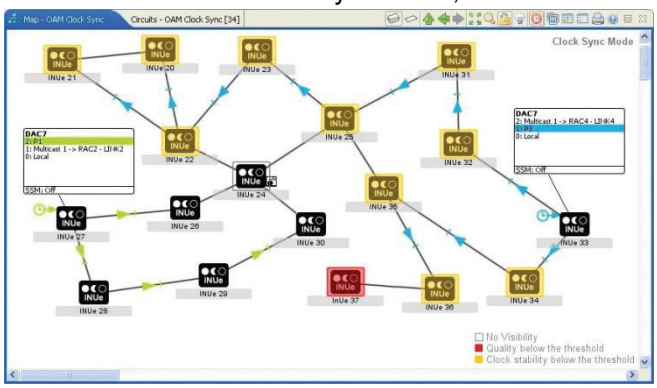


- Advanced end-to-end diagnostics, including Ethernet service OAM (ITU-TY.1731 and IEEE 802.1ag) and TDM circuit PRBS testing
- Ethernet clock distribution and clock synchronization related faults across Eclipse networks
- Intelligent fault monitoring using browsers with correlation and filtering, digital scoreboards with dynamic rendering, and flexible event notifications
- Smartphone and tablet client application enabling out-of-NOC fault detection, isolation and handover to field staff

-

INTELLIGENT NETWORK PROVISIONING

ProVision's automated provisioning processes reduce human error and save substantially on effort, time and OPEX. Intelligent provisioning involves:



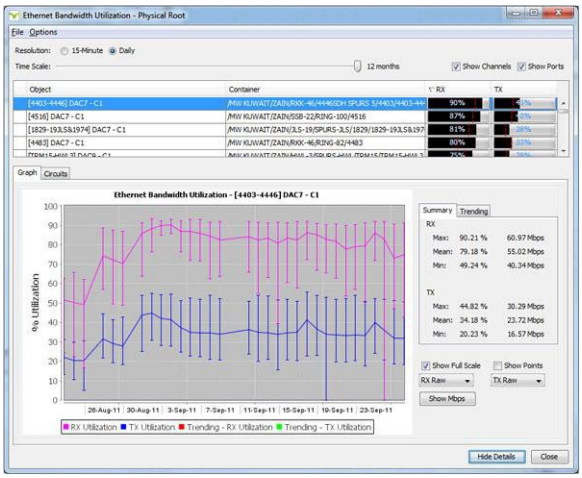
- Automated discovery of network and service resources, including end-to-end TDM and Ethernet services and network configurations
- End-to-end provisioning of TDM and Ethernet services through an intuitive graphical user interface
- Automatic and on-demand validation testing of end-to- end services and network design
- Bulk provisioning of device firmware and license upgrades

PROACTIVE NETWORK BANDWIDTH MANAGEMENT

To get the most data capacity out of networks, and to identify spare capacity, ProVision includes network bandwidth reporting. These capabilities support capacity planning, license management and congestion problem solving with:

- Ethernet Bandwidth Utilization instantly shows over or under utilization across all network ports, predicts future utilization, and provides navigation to deep-dive analysis tools
- RF Capacity Reports display the allocated, licensed, maximum & spare capacity available across all microwave interfaces in the network

SECURE, RELIABLE & TRUSTED ACCESS CONTROL



- Role based access control with Single-Sign-On
- Flexible containment based management providing access control by region, technology, etc.
- Secure device access including SNMPv3, HTTPS and SSH
- RADIUS based authentication, authorization and user access accounting
- Secure bulk provisioning of device security attributes including user accounts and Access Control Lists
- Audit logging, reporting and client session management

OSS AND DEVICE INTEGRATION READY

Operation Support Systems (OSS) manage networks and services on multiple levels. ProVision provides coherent management for your OSS platforms, significantly reducing system integration CAPEX:

- Proven OSS integration with many network providers and OSS vendors, spanning microwave, TDM and Ethernet resources.
- Easy to integrate traditional SNMP/XML/CSV based NBI provides events, performance, configuration/inventory, and network topology.

Scalable Solutions

- Up to 9,000 Network Elements and 150 concurrent user sessions per server
- Licensing based on network size and feature set
- Redundant server options available

Supported Platform Options

- Windows Server - 10, 2012, 2012R2, 2016, 2019
- Windows Client - 10, 2012, 2012R2, 2016, 2019
- UNIX Server - Solaris 10
- Mobile Client - Apple iOS, Android
- Internationalization available on request

Minimum Hardware Requirements

- Windows Server – 2 GHz processor, 8 GB RAM, 50 GB HD, Ethernet LAN card
- Windows Client – 2 GHz processor, 8 GB RAM (64-bit OS), 2 GB RAM (32-bit OS), 10 GB free HD, Ethernet LAN card, 10 Mbps LAN connection per Client connected to Server, Min. display resolution 1024 x 768, 32-bit color
- Solaris Server – 4-core SPARC processor, 16 GB RAM, 300 GB HD, Ethernet LAN card

Aviat Network Services And SupportOptions

- On-site training and installation services
- Custom software development
- 24/7 or 9/5 technical helpdesk available by email and telephone
- General Availability releases to AviatCare customers twice per year
- Expert network auditing available

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Performance Specifications

IRU600v4

Used in conjunction with Eclipse RAC 70

ANSI

Disclaimer:
This material is for informational purposes only and does not constitute a legal obligation to deliver any product, feature or functionality and should not be relied upon in making purchasing decisions. All specifications are guaranteed values, at room temperature (20 to 30ºC, 68 to 86ºF), referenced to the ACU antenna port (including ACU losses) unless otherwise stated, and are subject to change without notice. The development, release and timing of any features or functionality described for our products is at Aviat Networks' sole discretion. For details of availability, please contact your Aviat Networks Sales Representative.

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Transmitter Specifications

(Operating with RAC70)

Transmitter Power Output Specifications, in dBm, Guaranteed

(Guaranteed values at 1+0 ACU antenna port. Includes all ACU losses related to filters, circulators and RF coax cable loss)

	5.8 GHz		L6 GHz			U6 GHz		
	Standard Power	*High Power*	*Standard Power*	*High Power*	*EHP*	*Standard Power*	*High Power*	*EHP*
QPSK	26.50	29.00	29.50	32.00	38.50	29.50	32.00	38.50
16QAM	26.50	29.00	29.00	31.50	37.00	29.00	31.50	37.00
32QAM	26.50	29.00	29.00	31.50	37.00	29.00	31.50	37.00
64QAM	26.50	29.00	29.00	31.50	37.00	29.00	31.50	37.00
128QAM	26.50	29.00	29.00	31.50	37.00	29.00	31.50	37.00
256QAM	26.50	29.00	28.50	31.00	37.00	28.50	31.00	37.00
512QAM	26.50	29.00	28.00	30.50	36.00	28.00	30.50	36.00
1024QAM	26.00	28.50	27.00	29.50	34.50	27.00	29.50	34.50
2048QAM	24.50	27.00	25.50	28.00	33.50	25.50	28.00	33.50
4096QAM	24.00	26.50	25.00	27.50	31.50	25.00	27.50	31.50
256QAM (60/80MHz)			28.50	31.00	36.50			
512QAM (60/80MHz)			28.00	30.50	35.00			
1024QAM (60/80MHz)			27.00	29.50	33.50			
2048QAM (60/80MHz)			25.00	27.50	32.50			
4096QAM (60/80MHz)			24.50	27.00	30.50			
Min Power for channels ≤ 5MHz			11.5	11.5	17	11.5	11.5	17
Min Power for channels ≥ 10MHz	9	9	12.5	12.5	18.5	12.5	12.5	18.5

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6 , in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [1]	Max DS1s [2]	Modulation	5.8 GHz		L6 GHz			U6 GHz		
				Standard Power	*High Power*	*Standard Power*	*High Power*	*EHP*	*Standard Power*	*High Power*	*EHP*
3.75 MHz Channel											
ACM/Fixed *8 Mb/s*	*10 Mb/s*	*5xDS1*	*16QAM*			-93.00	-93.00	-93.00	-93.00	-93.00	-93.00
ACM/Fixed *11 Mb/s*	*15 Mb/s*	*7xDS1*	*32QAM*			-88.00	-88.00	-88.00	-88.00	-88.00	-88.00
ACM/Fixed *15 Mb/s*	*19 Mb/s*	*9xDS1*	*64QAM*			-85.00	-85.00	-85.00	-85.00	-85.00	-85.00
ACM/Fixed *17 Mb/s*	*22 Mb/s*	*10xDS1*	*128QAM*			-83.00	-83.00	-83.00	-83.00	-83.00	-83.00
ACM/Fixed *19 Mb/s*	*25 Mb/s*	*12xDS1*	*256QAM*			-79.00	-79.00	-79.00	-79.00	-79.00	-79.00
5 MHz Channel											
ACM/Fixed *12 Mb/s*	*16 Mb/s*	*7xDS1*	*16QAM*			-90.75	-90.75	-90.75	-90.75	-90.75	-90.75
ACM/Fixed *15 Mb/s*	*19 Mb/s*	*9xDS1*	*32QAM*			-87.50	-87.50	-87.50	-87.50	-87.50	-87.50
ACM/Fixed *19 Mb/s*	*24 Mb/s*	*11xDS1*	*64QAM*			-85.25	-85.25	-85.25	-85.25	-85.25	-85.25
ACM/Fixed *22 Mb/s*	*29 Mb/s*	*14xDS1*	*128QAM*			-82.00	-82.00	-82.00	-82.00	-82.00	-82.00
ACM/Fixed *27 Mb/s*	*35 Mb/s*	*17xDS1*	*256QAM*			-78.25	-78.25	-78.25	-78.25	-78.25	-78.25
10 MHz Channel											
ACM/Fixed *13 Mb/s*	*17 Mb/s*	*8xDS1*	*QPSK*	-93.00	-93.00	-94.25	-94.25	-94.25	-94.25	-94.25	-94.25
ACM/Fixed *29 Mb/s*	*38 Mb/s*	*18xDS1*	*16QAM*	-85.25	-85.25	-86.50	-86.50	-86.50	-86.50	-86.50	-86.50
ACM/Fixed *36 Mb/s*	*47 Mb/s*	*23xDS1*	*32QAM*	-81.75	-81.75	-83.00	-83.00	-83.00	-83.00	-83.00	-83.00
ACM/Fixed *45 Mb/s*	*59 Mb/s*	*29xDS1*	*64QAM*	-78.25	-78.25	-79.50	-79.50	-79.50	-79.50	-79.50	-79.50
ACM/Fixed *51 Mb/s*	*67 Mb/s*	*32xDS1*	*128QAM*	-76.25	-76.25	-77.50	-77.50	-77.50	-77.50	-77.50	-77.50
ACM/Fixed *56 Mb/s*	*74 Mb/s*	*36xDS1*	*256QAM*	-74.25	-74.25	-75.50	-75.50	-75.50	-75.50	-75.50	-75.50
ACM/Fixed *67 Mb/s*	*88 Mb/s*	*43xDS1*	*512QAM*	-70.00	-70.00	-71.25	-71.25	-71.25	-71.25	-71.25	-71.25
ACM/Fixed *73 Mb/s*	*96 Mb/s*	*47xDS1*	*1024QAM*	-67.00	-67.00	-68.25	-68.25	-68.25	-68.25	-68.25	-68.25

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6, in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [1]	Max DS1s [2]	Modulation	5.8 GHz Standard Power	5.8 GHz High Power	L6 GHz Standard Power	L6 GHz High Power	L6 GHz EHP	U6 GHz Standard Power	U6 GHz High Power	U6 GHz EHP
20 MHz Channel											
26 Mb/s	34 Mb/s	16xDS1	QPSK						-91.50	-91.50	-91.50
61 Mb/s	80 Mb/s	39xDS1	16QAM						-83.00	-83.00	-83.00
71 Mb/s	94 Mb/s	45xDS1	32QAM						-80.50	-80.50	-80.50
89 Mb/s	117 Mb/s	57xDS1	64QAM						-77.75	-77.75	-77.75
102 Mb/s	134 Mb/s	65xDS1	128QAM						-75.50	-75.50	-75.50
119 Mb/s	156 Mb/s	76xDS1	256QAM						-72.25	-72.25	-72.25
132 Mb/s	173 Mb/s	85xDS1	512QAM						-69.75	-69.75	-69.75
150 Mb/s	197 Mb/s	96xDS1	1024QAM						-65.75	-65.75	-65.75
162 Mb/s	212 Mb/s	104xDS1	2048QAM						-63.00	-63.00	-63.00
176 Mb/s	231 Mb/s	113xDS1	4096QAM						-59.25	-59.25	-59.25
30 MHz Channel											
39 Mb/s	51 Mb/s	25xDS1	QPSK	-88.25	-88.25	-89.50	-89.50	-89.50	-89.50	-89.50	-89.50
90 Mb/s	118 Mb/s	57xDS1	16QAM	-80.50	-80.50	-81.75	-81.75	-81.75	-81.75	-81.75	-81.75
109 Mb/s	143 Mb/s	70xDS1	32QAM	-77.50	-77.50	-79.00	-79.00	-79.00	-79.00	-79.00	-79.00
132 Mb/s	174 Mb/s	84xDS1	64QAM	-75.00	-75.00	-76.50	-76.50	-76.50	-76.50	-76.50	-76.50
155 Mb/s	204 Mb/s	100xDS1	128QAM	-72.50	-72.50	-73.75	-73.75	-73.75	-73.75	-73.75	-73.75
180 Mb/s	237 Mb/s	116xDS1	256QAM	-69.00	-69.00	-70.50	-70.50	-70.50	-70.50	-70.50	-70.50
200 Mb/s	263 Mb/s	127xDS1	512QAM	-66.50	-66.50	-68.00	-68.00	-68.00	-68.00	-68.00	-68.00
227 Mb/s	298 Mb/s	127xDS1	1024QAM	-62.75	-62.75	-64.00	-64.00	-64.00	-64.00	-64.00	-64.00
245 Mb/s	322 Mb/s	127xDS1	2048QAM	-60.00	-60.00	-61.25	-61.25	-61.25	-61.25	-61.25	-61.25
267 Mb/s	350 Mb/s	127xDS1	4096QAM	-56.00	-56.00	-57.25	-57.25	-57.25	-57.25	-57.25	-57.25
158 Mb/s	2 Mb/s	1xOC3	128QAM	-71.50	-71.50	-73.00	-73.00	-73.00	-73.00	-73.00	-73.00
179 Mb/s	24 Mb/s	1xOC3	256QAM	-69.25	-69.25	-70.50	-70.50	-70.50	-70.50	-70.50	-70.50
207 Mb/s	51 Mb/s	1xOC3	512QAM	-65.50	-65.50	-67.00	-67.00	-67.00	-67.00	-67.00	-67.00
226 Mb/s	71 Mb/s	1xOC3	1024QAM	-62.75	-62.75	-64.00	-64.00	-64.00	-64.00	-64.00	-64.00
245 Mb/s	90 Mb/s	1xOC3	2048QAM	-59.75	-59.75	-61.00	-61.00	-61.00	-61.00	-61.00	-61.00
267 Mb/s	111 Mb/s	1xOC3	4096QAM	-56.00	-56.00	-57.25	-57.25	-57.25	-57.25	-57.25	-57.25
60 MHz Channel											
78 Mb/s	103 Mb/s	49xDS1	QPSK			-86.25	-86.25	-86.25			
167 Mb/s	220 Mb/s	106xDS1	16QAM			-79.25	-79.25	-79.25			
217 Mb/s	285 Mb/s	127xDS1	32QAM			-75.50	-75.50	-75.50			
267 Mb/s	350 Mb/s	127xDS1	64QAM			-73.00	-73.00	-73.00			
301 Mb/s	395 Mb/s	127xDS1	128QAM			-71.00	-71.00	-71.00			
344 Mb/s	451 Mb/s	127xDS1	256QAM			-68.00	-68.00	-68.00			
403 Mb/s	529 Mb/s	127xDS1	512QAM			-64.50	-64.50	-64.50			
454 Mb/s	596 Mb/s	127xDS1	1024QAM			-60.75	-60.75	-60.75			
491 Mb/s	645 Mb/s	127xDS1	2048QAM			-58.00	-58.00	-58.00			
534 Mb/s	701 Mb/s	127xDS1	4096QAM			-54.25	-54.25	-54.25			
168 Mb/s	12 Mb/s	1xOC3	16QAM			-80.00	-80.00	-80.00			
218 Mb/s	62 Mb/s	1xOC3	32QAM			-76.00	-76.00	-76.00			
267 Mb/s	111 Mb/s	1xOC3	64QAM			-73.50	-73.50	-73.50			
307 Mb/s	152 Mb/s	1xOC3	128QAM			-71.00	-71.00	-71.00			
345 Mb/s	189 Mb/s	1xOC3	256QAM			-68.50	-68.50	-68.50			
407 Mb/s	252 Mb/s	1xOC3	512QAM			-64.50	-64.50	-64.50			
457 Mb/s	301 Mb/s	1xOC3	1024QAM			-61.00	-61.00	-61.00			
492 Mb/s	337 Mb/s	1xOC3	2048QAM			-58.50	-58.50	-58.50			
537 Mb/s	382 Mb/s	1xOC3	4096QAM			-54.75	-54.75	-54.75			

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max [1] Ethernet	Max [2] DS1s	Modulation	5.8 GHz		L6 GHz			U6 GHz		
				Standard Power	High Power	Standard Power	High Power	EHP	Standard Power	High Power	EHP
3.75 MHz Channel											
ACM/Fixed	8 Mb/s	10 Mb/s	5xDS1 16QAM			122.0	124.5	130.0	122.0	124.5	130.0
ACM/Fixed	11 Mb/s	15 Mb/s	7xDS1 32QAM			117.0	119.5	125.0	117.0	119.5	125.0
ACM/Fixed	15 Mb/s	19 Mb/s	9xDS1 64QAM			114.0	116.5	122.0	114.0	116.5	122.0
ACM/Fixed	17 Mb/s	22 Mb/s	10xDS1 128QAM			112.0	114.5	120.0	112.0	114.5	120.0
ACM/Fixed	19 Mb/s	25 Mb/s	12xDS1 256QAM			107.5	110.0	116.0	107.5	110.0	116.0
5 MHz Channel											
ACM/Fixed	12 Mb/s	16 Mb/s	7xDS1 16QAM			119.75	122.25	127.75	119.75	122.25	127.75
ACM/Fixed	15 Mb/s	19 Mb/s	9xDS1 32QAM			116.5	119.0	124.5	116.5	119.0	124.5
ACM/Fixed	19 Mb/s	24 Mb/s	11xDS1 64QAM			114.25	116.75	122.25	114.25	116.75	122.25
ACM/Fixed	22 Mb/s	29 Mb/s	14xDS1 128QAM			111.0	113.5	119.0	111.0	113.5	119.0
ACM/Fixed	27 Mb/s	35 Mb/s	17xDS1 256QAM			106.75	109.25	115.25	106.75	109.25	115.25
10 MHz Channel											
ACM/Fixed	13 Mb/s	17 Mb/s	8xDS1 QPSK	119.5	122.0	123.75	126.25	132.75	123.75	126.25	132.75
ACM/Fixed	29 Mb/s	38 Mb/s	18xDS1 16QAM	111.75	114.25	115.5	118.0	123.5	115.5	118.0	123.5
ACM/Fixed	36 Mb/s	47 Mb/s	23xDS1 32QAM	108.25	110.75	112.0	114.5	120.0	112.0	114.5	120.0
ACM/Fixed	45 Mb/s	59 Mb/s	29xDS1 64QAM	104.75	107.25	108.5	111.0	116.5	108.5	111.0	116.5
ACM/Fixed	51 Mb/s	67 Mb/s	32xDS1 128QAM	102.75	105.25	106.5	109.0	114.5	106.5	109.0	114.5
ACM/Fixed	56 Mb/s	74 Mb/s	36xDS1 256QAM	100.75	103.25	104.0	106.5	112.5	104.0	106.5	112.5
ACM/Fixed	67 Mb/s	88 Mb/s	43xDS1 512QAM	96.5	99.0	99.25	101.75	107.25	99.25	101.75	107.25
ACM/Fixed	73 Mb/s	96 Mb/s	47xDS1 1024QAM	93.0	95.5	95.25	97.75	102.75	95.25	97.75	102.75
20 MHz Channel											
ACM/Fixed	26 Mb/s	34 Mb/s	16xDS1 QPSK						121.0	123.5	130.0
ACM/Fixed	61 Mb/s	80 Mb/s	39xDS1 16QAM						112.0	114.5	120.0
ACM/Fixed	71 Mb/s	94 Mb/s	45xDS1 32QAM						109.5	112.0	117.5
ACM/Fixed	89 Mb/s	117 Mb/s	57xDS1 64QAM						106.75	109.25	114.75
ACM/Fixed	102 Mb/s	134 Mb/s	65xDS1 128QAM						104.5	107.0	112.5
ACM/Fixed	119 Mb/s	156 Mb/s	76xDS1 256QAM						100.75	103.25	109.25
ACM/Fixed	132 Mb/s	173 Mb/s	85xDS1 512QAM						97.75	100.25	105.75
ACM/Fixed	150 Mb/s	197 Mb/s	96xDS1 1024QAM						92.75	95.25	100.25
ACM/Fixed	162 Mb/s	212 Mb/s	104xDS1 2048QAM						88.5	91.0	96.5
ACM/Fixed	176 Mb/s	231 Mb/s	113xDS1 4096QAM						84.25	86.75	90.75
30 MHz Channel											
ACM/Fixed	39 Mb/s	51 Mb/s	25xDS1 QPSK	114.75	117.25	119.0	121.5	128.0	119.0	121.5	128.0
ACM/Fixed	90 Mb/s	118 Mb/s	57xDS1 16QAM	107.0	109.5	110.75	113.25	118.75	110.75	113.25	118.75
ACM/Fixed	109 Mb/s	143 Mb/s	70xDS1 32QAM	104.0	106.5	108.0	110.5	116.0	108.0	110.5	116.0
ACM/Fixed	132 Mb/s	174 Mb/s	84xDS1 64QAM	101.5	104.0	105.5	108.0	113.5	105.5	108.0	113.5
ACM/Fixed	155 Mb/s	204 Mb/s	100xDS1 128QAM	99.0	101.5	102.75	105.25	110.75	102.75	105.25	110.75
ACM/Fixed	180 Mb/s	237 Mb/s	116xDS1 256QAM	95.5	98.0	99.0	101.5	107.5	99.0	101.5	107.5
ACM/Fixed	200 Mb/s	263 Mb/s	127xDS1 512QAM	93.0	95.5	96.0	98.5	104.0	96.0	98.5	104.0
ACM/Fixed	227 Mb/s	298 Mb/s	127xDS1 1024QAM	88.75	91.25	91.0	93.5	98.5	91.0	93.5	98.5
ACM/Fixed	245 Mb/s	322 Mb/s	127xDS1 2048QAM	84.5	87.0	86.75	89.25	94.75	86.75	89.25	94.75
ACM/Fixed	267 Mb/s	350 Mb/s	127xDS1 4096QAM	80.0	82.5	82.25	84.75	88.75	82.25	84.75	88.75
ACM/Fixed	158 Mb/s	2 Mb/s	1xOC3 128QAM	98.0	100.5	102.0	104.5	110.0	102.0	104.5	110.0
ACM/Fixed	179 Mb/s	24 Mb/s	1xOC3 256QAM	95.75	98.25	99.0	101.5	107.5	99.0	101.5	107.5
ACM/Fixed	207 Mb/s	51 Mb/s	1xOC3 512QAM	92.0	94.5	95.0	97.5	103.0	95.0	97.5	103.0
ACM/Fixed	226 Mb/s	71 Mb/s	1xOC3 1024QAM	88.75	91.25	91.0	93.5	98.5	91.0	93.5	98.5
ACM/Fixed	245 Mb/s	90 Mb/s	1xOC3 2048QAM	84.25	86.75	86.5	89.0	94.5	86.5	89.0	94.5
ACM/Fixed	267 Mb/s	111 Mb/s	1xOC3 4096QAM	80.0	82.5	82.25	84.75	88.75	82.25	84.75	88.75

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [1]	Max DS1s [2]	Modulation	5.8 GHz		L6 GHz			U6 GHz		
				Standard Power	*High Power*	*Standard Power*	*High Power*	*EHP*	*Standard Power*	*High Power*	*EHP*
60 MHz Channel											
ACM/Fixed	*78 Mb/s*	*103 Mb/s*	*49xDS1 QPSK*			115.75	118.25	124.75			
ACM/Fixed	*167 Mb/s*	*220 Mb/s*	*106xDS1 16QAM*			108.25	110.75	116.25			
ACM/Fixed	*217 Mb/s*	*285 Mb/s*	*127xDS1 32QAM*			104.5	107.0	112.5			
ACM/Fixed	*267 Mb/s*	*350 Mb/s*	*127xDS1 64QAM*			102.0	104.5	110.0			
ACM/Fixed	*301 Mb/s*	*395 Mb/s*	*127xDS1 128QAM*			100.0	102.5	108.0			
ACM/Fixed	*344 Mb/s*	*451 Mb/s*	*127xDS1 256QAM*			96.5	99.0	104.5			
ACM/Fixed	*403 Mb/s*	*529 Mb/s*	*127xDS1 512QAM*			92.5	95.0	99.5			
ACM/Fixed	*454 Mb/s*	*596 Mb/s*	*127xDS1 1024QAM*			87.75	90.25	94.25			
ACM/Fixed	*491 Mb/s*	*645 Mb/s*	*127xDS1 2048QAM*			83.0	85.5	90.5			
ACM/Fixed	*534 Mb/s*	*701 Mb/s*	*127xDS1 4096QAM*			78.75	81.25	84.75			
ACM/Fixed	*168 Mb/s*	*12 Mb/s*	*1xOC3 16QAM*			109.0	111.5	117.0			
ACM/Fixed	*218 Mb/s*	*62 Mb/s*	*1xOC3 32QAM*			105.0	107.5	113.0			
ACM/Fixed	*267 Mb/s*	*111 Mb/s*	*1xOC3 64QAM*			102.5	105.0	110.5			
ACM/Fixed	*307 Mb/s*	*152 Mb/s*	*1xOC3 128QAM*			100.0	102.5	108.0			
ACM/Fixed	*345 Mb/s*	*189 Mb/s*	*1xOC3 256QAM*			97.0	99.5	105.0			
ACM/Fixed	*407 Mb/s*	*252 Mb/s*	*1xOC3 512QAM*			92.5	95.0	99.5			
ACM/Fixed	*457 Mb/s*	*301 Mb/s*	*1xOC3 1024QAM*			88.0	90.5	94.5			
ACM/Fixed	*492 Mb/s*	*337 Mb/s*	*1xOC3 2048QAM*			83.5	86.0	91.0			
ACM/Fixed	*537 Mb/s*	*382 Mb/s*	*1xOC3 4096QAM*			79.25	81.75	85.25			

*[ ] See notes in last page

Transmitter Specifications

Transmitter Power Output Specifications, in dBm (Guaranteed)

(Guaranteed values at 1+0 ACU antenna port. Includes all ACU losses related to filters, circulators and RF coax cable loss)

	7 GHz		8 GHz	
	MP	EHP	MP	EHP
QPSK	30.50	36.00	29.00	35.00
16QAM	29.50	36.00	28.00	35.00
32QAM	29.50	36.00	28.00	35.00
64QAM	28.00	36.00	27.00	35.00
128QAM	28.00	36.00	27.00	35.00
256QAM	28.00	36.00	27.00	35.00
512QAM	27.50	36.00	26.50	35.00
1024QAM	27.00	35.00	26.00	34.50
2048QAM	26.00	34.00	25.00	33.00
4096QAM	25.00	33.00	24.00	32.00
Min Power for channels ≤ 5MHz	10.5	16	9	15
Min Power for channels ≥ 10MHz	10.5	16	9	15

Receiver Specifications

Receiver Threshold BER=1E-6, in dBm (Guaranteed)

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

	Air Link Capacity	Max[2] DS1s	Modulation	7 GHz	8 GHz
10 MHz Channel					
ACM/Fixed	13 Mb/s	8xDS1	QPSK	-93.50	-93.50
ACM/Fixed	29 Mb/s	18xDS1	16QAM	-85.75	-85.75
ACM/Fixed	36 Mb/s	23xDS1	32QAM	-82.50	-82.50
ACM/Fixed	45 Mb/s	29xDS1	64QAM	-78.75	-78.75
ACM/Fixed	51 Mb/s	32xDS1	128QAM	-76.75	-76.75
ACM/Fixed	56 Mb/s	36xDS1	256QAM	-75.00	-75.00
ACM/Fixed	67 Mb/s	43xDS1	512QAM	-70.50	-70.50
ACM/Fixed	73 Mb/s	47xDS1	1024QAM	-67.50	-67.50
30 MHz Channel					
ACM/Fixed	39 Mb/s	25xDS1	QPSK	-89.00	-89.00
ACM/Fixed	90 Mb/s	57xDS1	16QAM	-81.00	-81.00
ACM/Fixed	109 Mb/s	70xDS1	32QAM	-78.25	-78.25
ACM/Fixed	132 Mb/s	84xDS1	64QAM	-75.75	-75.75
ACM/Fixed	155 Mb/s	100xDS1	128QAM	-73.00	-73.00
ACM/Fixed	180 Mb/s	116xDS1	256QAM	-69.75	-69.75
ACM/Fixed	200 Mb/s	127xDS1	512QAM	-67.25	-67.25
ACM/Fixed	227 Mb/s	127xDS1	1024QAM	-63.25	-63.25
ACM/Fixed	245 Mb/s	127xDS1	2048QAM	-60.50	-60.50
ACM/Fixed	267 Mb/s	127xDS1	4096QAM	-56.50	-56.50
ACM/Fixed	158 Mb/s	1xOC3	128QAM	-72.25	-72.25
ACM/Fixed	179 Mb/s	1xOC3	256QAM	-69.75	-69.75
ACM/Fixed	207 Mb/s	1xOC3	512QAM	-66.25	-66.25
ACM/Fixed	226 Mb/s	1xOC3	1024QAM	-63.50	-63.50
ACM/Fixed	245 Mb/s	1xOC3	2048QAM	-60.50	-60.50
ACM/Fixed	267 Mb/s	1xOC3	4096QAM	-56.50	-56.50

*[ ] See notes in last page

Receiver Specifications

Receiver Threshold BER=1E-6, in dBm (Guaranteed)

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

	Air Link Capacity	Max DS1s [2]	Modulation	7 GHz	8 GHz
40 MHz Channel					
ACM/Fixed	*52 Mb/s*	*33xDS1*	*QPSK*	-87.50	-87.50
ACM/Fixed	*121 Mb/s*	*77xDS1*	*16QAM*	-79.50	-79.50
ACM/Fixed	*146 Mb/s*	*93xDS1*	*32QAM*	-76.75	-76.75
ACM/Fixed	*178 Mb/s*	*113xDS1*	*64QAM*	-74.25	-74.25
ACM/Fixed	*207 Mb/s*	*127xDS1*	*128QAM*	-71.75	-71.75
ACM/Fixed	*237 Mb/s*	*127xDS1*	*256QAM*	-68.50	-68.50
ACM/Fixed	*268 Mb/s*	*127xDS1*	*512QAM*	-66.00	-66.00
ACM/Fixed	*300 Mb/s*	*127xDS1*	*1024QAM*	-62.50	-62.50
ACM/Fixed	*329 Mb/s*	*127xDS1*	*2048QAM*	-59.25	-59.25
ACM/Fixed	*358 Mb/s*	*127xDS1*	*4096QAM*	-55.50	-55.50
ACM/Fixed	*181 Mb/s*	*1xOC3*	*64QAM*	-74.00	-74.00
ACM/Fixed	*207 Mb/s*	*1xOC3*	*128QAM*	-72.00	-72.00
ACM/Fixed	*238 Mb/s*	*1xOC3*	*256QAM*	-68.50	-68.50
ACM/Fixed	*270 Mb/s*	*1xOC3*	*512QAM*	-65.75	-65.75
ACM/Fixed	*309 Mb/s*	*1xOC3*	*1024QAM*	-61.50	-61.50
ACM/Fixed	*329 Mb/s*	*1xOC3*	*2048QAM*	-59.50	-59.50
ACM/Fixed	*358 Mb/s*	*1xOC3*	*4096QAM*	-55.50	-55.50
50 MHz Channel[3]					
ACM/Fixed	*65 Mb/s*	*42xDS1*	*QPSK*	-86.00	-86.00
ACM/Fixed	*140 Mb/s*	*89xDS1*	*16QAM*	-79.50	-79.50
ACM/Fixed	*183 Mb/s*	*117xDS1*	*32QAM*	-75.00	-75.00
ACM/Fixed	*220 Mb/s*	*127xDS1*	*64QAM*	-73.00	-73.00
ACM/Fixed	*252 Mb/s*	*127xDS1*	*128QAM*	-71.00	-71.00
ACM/Fixed	*308 Mb/s*	*127xDS1*	*256QAM*	-66.50	-66.50
ACM/Fixed	*338 Mb/s*	*127xDS1*	*512QAM*	-64.00	-64.00
ACM/Fixed	*382 Mb/s*	*127xDS1*	*1024QAM*	-60.50	-60.50
ACM/Fixed	*410 Mb/s*	*127xDS1*	*2048QAM*	-58.00	-58.00
ACM/Fixed	*446 Mb/s*	*127xDS1*	*4096QAM*	-54.00	-54.00
60 MHz Channel[3]					
ACM/Fixed	*78 Mb/s*	*49xDS1*	*QPSK*	-85.50	-85.50
ACM/Fixed	*167 Mb/s*	*106xDS1*	*16QAM*	-78.50	-78.50
ACM/Fixed	*217 Mb/s*	*127xDS1*	*32QAM*	-74.75	-74.75
ACM/Fixed	*267 Mb/s*	*127xDS1*	*64QAM*	-72.25	-72.25
ACM/Fixed	*301 Mb/s*	*127xDS1*	*128QAM*	-70.25	-70.25
ACM/Fixed	*344 Mb/s*	*127xDS1*	*256QAM*	-67.25	-67.25
ACM/Fixed	*403 Mb/s*	*127xDS1*	*512QAM*	-63.75	-63.75
ACM/Fixed	*454 Mb/s*	*127xDS1*	*1024QAM*	-60.00	-60.00
ACM/Fixed	*491 Mb/s*	*127xDS1*	*2048QAM*	-57.50	-57.50
ACM/Fixed	*534 Mb/s*	*127xDS1*	*4096QAM*	-53.50	-53.50
ACM/Fixed	*168 Mb/s*	*1xOC3*	*16QAM*	-79.00	-79.00
ACM/Fixed	*218 Mb/s*	*1xOC3*	*32QAM*	-75.00	-75.00
ACM/Fixed	*267 Mb/s*	*1xOC3*	*64QAM*	-72.50	-72.50
ACM/Fixed	*307 Mb/s*	*1xOC3*	*128QAM*	-70.00	-70.00
ACM/Fixed	*345 Mb/s*	*1xOC3*	*256QAM*	-67.50	-67.50
ACM/Fixed	*407 Mb/s*	*1xOC3*	*512QAM*	-63.50	-63.50
ACM/Fixed	*457 Mb/s*	*1xOC3*	*1024QAM*	-60.00	-60.00
ACM/Fixed	*492 Mb/s*	*1xOC3*	*2048QAM*	-57.50	-57.50
ACM/Fixed	*537 Mb/s*	*1xOC3*	*4096QAM*	-53.50	-53.50

*[ ] See notes in last page

Receiver Specifications

Receiver Threshold BER=1E-6, in dBm (Guaranteed)

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

	Air Link Capacity	Max DS1s [2]	Modulation	7 GHz	8 GHz
80 MHz Channel[3]					
ACM/Fixed	*105 Mb/s*	*66xDS1*	*QPSK*	-84.00	-84.00
ACM/Fixed	*241 Mb/s*	*127xDS1*	*16QAM*	-76.00	-76.00
ACM/Fixed	*302 Mb/s*	*127xDS1*	*32QAM*	-72.50	-72.50
ACM/Fixed	*352 Mb/s*	*127xDS1*	*64QAM*	-71.00	-71.00
ACM/Fixed	*403 Mb/s*	*127xDS1*	*128QAM*	-68.50	-68.50
ACM/Fixed	*470 Mb/s*	*127xDS1*	*256QAM*	-65.00	-65.00
ACM/Fixed	*543 Mb/s*	*127xDS1*	*512QAM*	-62.00	-62.00
ACM/Fixed	*612 Mb/s*	*127xDS1*	*1024QAM*	-58.50	-58.50
ACM/Fixed	*658 Mb/s*	*127xDS1*	*2048QAM*	-55.50	-55.50
ACM/Fixed	*716 Mb/s*	*127xDS1*	*4096QAM*	-52.00	-52.00
ACM/Fixed	*243 Mb/s*	*1xOC3*	*16QAM*	-76.50	-76.50
ACM/Fixed	*309 Mb/s*	*1xOC3*	*32QAM*	-72.50	-72.50
ACM/Fixed	*365 Mb/s*	*1xOC3*	*64QAM*	-70.50	-70.50
ACM/Fixed	*408 Mb/s*	*1xOC3*	*128QAM*	-68.50	-68.50
ACM/Fixed	*471 Mb/s*	*1xOC3*	*256QAM*	-65.50	-65.50
ACM/Fixed	*542 Mb/s*	*1xOC3*	*512QAM*	-62.50	-62.50
ACM/Fixed	*612 Mb/s*	*1xOC3*	*1024QAM*	-58.50	-58.50
ACM/Fixed	*661 Mb/s*	*1xOC3*	*2048QAM*	-56.00	-56.00
ACM/Fixed	*723 Mb/s*	*1xOC3*	*4096QAM*	-51.50	-51.50

*[ ] See notes in last page

System Gain Specifications

System Gain BER=1E-6, in dB (Guaranteed)

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

	Air Link Capacity	Max DS1s [2]	Modulation	7 GHz		8 GHz	
				MP	EHP	MP	EHP
10 MHz Channel							
ACM/Fixed	13 Mb/s	8xDS1	QPSK	124.0	129.5	122.5	128.5
ACM/Fixed	29 Mb/s	18xDS1	16QAM	115.25	121.75	113.75	120.75
ACM/Fixed	36 Mb/s	23xDS1	32QAM	112.0	118.5	110.5	117.5
ACM/Fixed	45 Mb/s	29xDS1	64QAM	106.75	114.75	105.75	113.75
ACM/Fixed	51 Mb/s	32xDS1	128QAM	104.75	112.75	103.75	111.75
ACM/Fixed	56 Mb/s	36xDS1	256QAM	103.0	111.0	102.0	110.0
ACM/Fixed	67 Mb/s	43xDS1	512QAM	98.0	106.5	97.0	105.5
ACM/Fixed	73 Mb/s	47xDS1	1024QAM	94.5	102.5	93.5	102.0
30 MHz Channel							
ACM/Fixed	39 Mb/s	25xDS1	QPSK	119.5	125.0	118.0	124.0
ACM/Fixed	90 Mb/s	57xDS1	16QAM	110.5	117.0	109.0	116.0
ACM/Fixed	109 Mb/s	70xDS1	32QAM	107.75	114.25	106.25	113.25
ACM/Fixed	132 Mb/s	84xDS1	64QAM	103.75	111.75	102.75	110.75
ACM/Fixed	155 Mb/s	100xDS1	128QAM	101.0	109.0	100.0	108.0
ACM/Fixed	180 Mb/s	116xDS1	256QAM	97.75	105.75	96.75	104.75
ACM/Fixed	200 Mb/s	127xDS1	512QAM	94.75	103.25	93.75	102.25
ACM/Fixed	227 Mb/s	127xDS1	1024QAM	90.25	98.25	89.25	97.75
ACM/Fixed	245 Mb/s	127xDS1	2048QAM	86.5	94.5	85.5	93.5
ACM/Fixed	267 Mb/s	127xDS1	4096QAM	81.5	89.5	80.5	88.5
ACM/Fixed	158 Mb/s	1xOC3	128QAM	100.25	108.25	99.25	107.25
ACM/Fixed	179 Mb/s	1xOC3	256QAM	97.75	105.75	96.75	104.75
ACM/Fixed	207 Mb/s	1xOC3	512QAM	93.75	102.25	92.75	101.25
ACM/Fixed	226 Mb/s	1xOC3	1024QAM	90.5	98.5	89.5	98.0
ACM/Fixed	245 Mb/s	1xOC3	2048QAM	86.5	94.5	85.5	93.5
ACM/Fixed	267 Mb/s	1xOC3	4096QAM	81.5	89.5	80.5	88.5
40 MHz Channel							
ACM/Fixed	52 Mb/s	33xDS1	QPSK	118.0	123.5	116.5	122.5
ACM/Fixed	121 Mb/s	77xDS1	16QAM	109.0	115.5	107.5	114.5
ACM/Fixed	146 Mb/s	93xDS1	32QAM	106.25	112.75	104.75	111.75
ACM/Fixed	178 Mb/s	113xDS1	64QAM	102.25	110.25	101.25	109.25
ACM/Fixed	207 Mb/s	127xDS1	128QAM	99.75	107.75	98.75	106.75
ACM/Fixed	237 Mb/s	127xDS1	256QAM	96.5	104.5	95.5	103.5
ACM/Fixed	268 Mb/s	127xDS1	512QAM	93.5	102.0	92.5	101.0
ACM/Fixed	300 Mb/s	127xDS1	1024QAM	89.5	97.5	88.5	97.0
ACM/Fixed	329 Mb/s	127xDS1	2048QAM	85.25	93.25	84.25	92.25
ACM/Fixed	358 Mb/s	127xDS1	4096QAM	80.5	88.5	79.5	87.5
ACM/Fixed	181 Mb/s	1xOC3	64QAM	102.0	110.0	101.0	109.0
ACM/Fixed	207 Mb/s	1xOC3	128QAM	100.0	108.0	99.0	107.0
ACM/Fixed	238 Mb/s	1xOC3	256QAM	96.5	104.5	95.5	103.5
ACM/Fixed	270 Mb/s	1xOC3	512QAM	93.25	101.75	92.25	100.75
ACM/Fixed	309 Mb/s	1xOC3	1024QAM	88.5	96.5	87.5	96.0
ACM/Fixed	329 Mb/s	1xOC3	2048QAM	85.5	93.5	84.5	92.5
ACM/Fixed	358 Mb/s	1xOC3	4096QAM	80.5	88.5	79.5	87.5

*[ ] See notes in last page

System Gain Specifications

System Gain BER=1E-6, in dB (Guaranteed)

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

	Air Link Capacity	Max DS1s [2]	Modulation	7 GHz		8 GHz	
				MP	EHP	MP	EHP
50 MHz Channel [3]							
ACM/Fixed	65 Mb/s	42xDS1	QPSK	116.5	122.0	115.0	121.0
ACM/Fixed	140 Mb/s	89xDS1	16QAM	109.0	115.5	107.5	114.5
ACM/Fixed	183 Mb/s	117xDS1	32QAM	104.5	111.0	103.0	110.0
ACM/Fixed	220 Mb/s	127xDS1	64QAM	101.0	109.0	100.0	108.0
ACM/Fixed	252 Mb/s	127xDS1	128QAM	99.0	107.0	98.0	106.0
ACM/Fixed	308 Mb/s	127xDS1	256QAM	94.5	102.5	93.5	101.5
ACM/Fixed	338 Mb/s	127xDS1	512QAM	91.5	100.0	90.5	99.0
ACM/Fixed	382 Mb/s	127xDS1	1024QAM	87.5	95.5	86.5	95.0
ACM/Fixed	410 Mb/s	127xDS1	2048QAM	84.0	92.0	83.0	91.0
ACM/Fixed	446 Mb/s	127xDS1	4096QAM	79.0	87.0	78.0	86.0
60 MHz Channel [3]							
ACM/Fixed	78 Mb/s	49xDS1	QPSK	116.0	121.5	114.5	120.5
ACM/Fixed	167 Mb/s	106xDS1	16QAM	108.0	114.5	106.5	113.5
ACM/Fixed	217 Mb/s	127xDS1	32QAM	104.25	110.75	102.75	109.75
ACM/Fixed	267 Mb/s	127xDS1	64QAM	100.25	108.25	99.25	107.25
ACM/Fixed	301 Mb/s	127xDS1	128QAM	98.25	106.25	97.25	105.25
ACM/Fixed	344 Mb/s	127xDS1	256QAM	95.25	103.25	94.25	102.25
ACM/Fixed	403 Mb/s	127xDS1	512QAM	91.25	99.75	90.25	98.75
ACM/Fixed	454 Mb/s	127xDS1	1024QAM	87.0	95.0	86.0	94.5
ACM/Fixed	491 Mb/s	127xDS1	2048QAM	83.5	91.5	82.5	90.5
ACM/Fixed	534 Mb/s	127xDS1	4096QAM	78.5	86.5	77.5	85.5
ACM/Fixed	168 Mb/s	1xOC3	16QAM	108.5	115.0	107.0	114.0
ACM/Fixed	218 Mb/s	1xOC3	32QAM	104.5	111.0	103.0	110.0
ACM/Fixed	267 Mb/s	1xOC3	64QAM	100.5	108.5	99.5	107.5
ACM/Fixed	307 Mb/s	1xOC3	128QAM	98.0	106.0	97.0	105.0
ACM/Fixed	345 Mb/s	1xOC3	256QAM	95.5	103.5	94.5	102.5
ACM/Fixed	407 Mb/s	1xOC3	512QAM	91.0	99.5	90.0	98.5
ACM/Fixed	457 Mb/s	1xOC3	1024QAM	87.0	95.0	86.0	94.5
ACM/Fixed	492 Mb/s	1xOC3	2048QAM	83.5	91.5	82.5	90.5
ACM/Fixed	537 Mb/s	1xOC3	4096QAM	78.5	86.5	77.5	85.5
80 MHz Channel [3]							
ACM/Fixed	105 Mb/s	66xDS1	QPSK	114.5	120.0	113.0	119.0
ACM/Fixed	241 Mb/s	127xDS1	16QAM	105.5	112.0	104.0	111.0
ACM/Fixed	302 Mb/s	127xDS1	32QAM	102.0	108.5	100.5	107.5
ACM/Fixed	352 Mb/s	127xDS1	64QAM	99.0	107.0	98.0	106.0
ACM/Fixed	403 Mb/s	127xDS1	128QAM	96.5	104.5	95.5	103.5
ACM/Fixed	470 Mb/s	127xDS1	256QAM	93.0	101.0	92.0	100.0
ACM/Fixed	543 Mb/s	127xDS1	512QAM	89.5	98.0	88.5	97.0
ACM/Fixed	612 Mb/s	127xDS1	1024QAM	85.5	93.5	84.5	93.0
ACM/Fixed	658 Mb/s	127xDS1	2048QAM	81.5	89.5	80.5	88.5
ACM/Fixed	716 Mb/s	127xDS1	4096QAM	77.0	85.0	76.0	84.0
ACM/Fixed	243 Mb/s	1xOC3	16QAM	106.0	112.5	104.5	111.5
ACM/Fixed	309 Mb/s	1xOC3	32QAM	102.0	108.5	100.5	107.5
ACM/Fixed	365 Mb/s	1xOC3	64QAM	98.5	106.5	97.5	105.5
ACM/Fixed	408 Mb/s	1xOC3	128QAM	96.5	104.5	95.5	103.5
ACM/Fixed	471 Mb/s	1xOC3	256QAM	93.5	101.5	92.5	100.5
ACM/Fixed	542 Mb/s	1xOC3	512QAM	90.0	98.5	89.0	97.5
ACM/Fixed	612 Mb/s	1xOC3	1024QAM	85.5	93.5	84.5	93.0
ACM/Fixed	661 Mb/s	1xOC3	2048QAM	82.0	90.0	81.0	89.0
ACM/Fixed	723 Mb/s	1xOC3	4096QAM	76.5	84.5	75.5	83.5

*[ ] See notes in last page

Transmitter Specifications

(Operating with RAC70)

Transmitter Power Output Specifications, in dBm, Guaranteed

(Guaranteed values at 1+0 ACU antenna port. Includes all ACU losses related to filters, circulators and RF coax cable loss)

	FCC 7 GHz			10.5 GHz		11 GHz		
	Standard Power	High Power	EHP	Standard Power	High Power	Standard Power	High Power	EHP
QPSK	29.50	32.00	38.00			27.50	30.00	33.00
16QAM	29.00	31.50	36.50	26.00	28.50	26.50	29.00	32.50
32QAM	29.00	31.50	36.50	26.00	28.50	26.50	29.00	32.50
64QAM	29.00	31.50	36.50	26.00	28.50	26.50	29.00	32.50
128QAM	29.00	31.50	36.50	25.50	28.00	26.00	28.50	32.50
256QAM	28.50	31.00	36.50	25.00	27.50	25.50	28.00	32.50
512QAM	28.00	30.50	35.50			25.00	27.50	31.00
1024QAM	27.00	29.50	34.00			24.00	26.50	30.00
2048QAM	25.50	28.00	33.00			23.50	26.00	29.00
4096QAM	25.00	27.50	31.00			21.50	24.00	27.50
256QAM (60/80MHz)						25.50	28.00	32.00
512QAM (60/80MHz)						25.00	27.50	31.00
1024QAM (60/80MHz)						24.00	26.50	29.50
2048QAM (60/80MHz)						22.50	25.00	
4096QAM (60/80MHz)						20.50	23.00	
Min Power for channels ≤ 5MHz	11.5	11.5	16.5	8.5	8.5	9	9	12.5
Min Power for channels ≥ 10MHz	12.5	12.5	18			10	10	13

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6, in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

	Air Link Capacity	Max Ethernet [1]	Max DS1s [2]	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
					Standard Power	High Power	EHP	Standard Power	High Power	Standard Power	High Power	EHP
3.75 MHz Channel												
ACM/Fixed	8 Mb/s	10 Mb/s	5xDS1	16QAM				-91.50	-91.50	-92.00	-92.00	-92.00
ACM/Fixed	11 Mb/s	15 Mb/s	7xDS1	32QAM				-86.50	-86.50	-87.25	-87.25	-87.25
ACM/Fixed	15 Mb/s	19 Mb/s	9xDS1	64QAM				-83.50	-83.50	-84.25	-84.25	-84.25
ACM/Fixed	17 Mb/s	22 Mb/s	10xDS1	128QAM				-81.50	-81.50	-82.00	-82.00	-82.00
ACM/Fixed	19 Mb/s	25 Mb/s	12xDS1	256QAM				-77.50	-77.50	-78.25	-78.25	-78.25
5 MHz Channel												
ACM/Fixed	12 Mb/s	16 Mb/s	7xDS1	16QAM	-90.75	-90.75	-90.75	-89.25	-89.25	-90.00	-90.00	-90.00
ACM/Fixed	15 Mb/s	19 Mb/s	9xDS1	32QAM	-87.50	-87.50	-87.50	-86.00	-86.00	-86.75	-86.75	-86.75
ACM/Fixed	19 Mb/s	24 Mb/s	11xDS1	64QAM	-85.25	-85.25	-85.25	-83.75	-83.75	-84.50	-84.50	-84.50
ACM/Fixed	22 Mb/s	29 Mb/s	14xDS1	128QAM	-82.00	-82.00	-82.00	-80.50	-80.50	-81.25	-81.25	-81.25
ACM/Fixed	27 Mb/s	35 Mb/s	17xDS1	256QAM	-78.25	-78.25	-78.25	-76.75	-76.75	-77.50	-77.50	-77.50
10 MHz Channel												
ACM/Fixed	13 Mb/s	17 Mb/s	8xDS1	QPSK						-93.50	-93.50	-93.50
ACM/Fixed	29 Mb/s	38 Mb/s	18xDS1	16QAM						-85.75	-85.75	-85.75
ACM/Fixed	36 Mb/s	47 Mb/s	23xDS1	32QAM						-82.25	-82.25	-82.25
ACM/Fixed	45 Mb/s	59 Mb/s	29xDS1	64QAM						-78.75	-78.75	-78.75
ACM/Fixed	51 Mb/s	67 Mb/s	32xDS1	128QAM						-76.75	-76.75	-76.75
ACM/Fixed	56 Mb/s	74 Mb/s	36xDS1	256QAM						-74.75	-74.75	-74.75
ACM/Fixed	67 Mb/s	88 Mb/s	43xDS1	512QAM						-70.50	-70.50	-70.50
ACM/Fixed	73 Mb/s	96 Mb/s	47xDS1	1024QAM						-67.50	-67.50	-67.50

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6, in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [1]	Max DS1s [2]	Modulation	FCC 7 GHz Standard Power	FCC 7 GHz High Power	FCC 7 GHz EHP	10.5 GHz Standard Power	10.5 GHz High Power	11 GHz Standard Power	11 GHz High Power	11 GHz EHP
12.5 MHz Channel											
ACM/Fixed	13 Mb/s	17 Mb/s	8xDS1 QPSK	-94.25	-94.25	-94.25					
ACM/Fixed	29 Mb/s	38 Mb/s	18xDS1 16QAM	-86.50	-86.50	-86.50					
ACM/Fixed	36 Mb/s	47 Mb/s	23xDS1 32QAM	-83.00	-83.00	-83.00					
ACM/Fixed	45 Mb/s	59 Mb/s	29xDS1 64QAM	-79.50	-79.50	-79.50					
ACM/Fixed	50 Mb/s	67 Mb/s	32xDS1 128QAM	-77.50	-77.50	-77.50					
ACM/Fixed	56 Mb/s	74 Mb/s	36xDS1 256QAM	-75.50	-75.50	-75.50					
ACM/Fixed	67 Mb/s	88 Mb/s	43xDS1 512QAM	-71.25	-71.25	-71.25					
ACM/Fixed	73 Mb/s	96 Mb/s	47xDS1 1024QAM	-68.25	-68.25	-68.25					
20 MHz Channel											
ACM/Fixed	26 Mb/s	34 Mb/s	16xDS1 QPSK						-90.50	-90.50	-90.50
ACM/Fixed	61 Mb/s	80 Mb/s	39xDS1 16QAM						-82.25	-82.25	-82.25
ACM/Fixed	71 Mb/s	94 Mb/s	45xDS1 32QAM						-79.75	-79.75	-79.75
ACM/Fixed	89 Mb/s	117 Mb/s	57xDS1 64QAM						-77.00	-77.00	-77.00
ACM/Fixed	102 Mb/s	134 Mb/s	65xDS1 128QAM						-74.75	-74.75	-74.75
ACM/Fixed	119 Mb/s	156 Mb/s	76xDS1 256QAM						-71.50	-71.50	-71.50
ACM/Fixed	132 Mb/s	173 Mb/s	85xDS1 512QAM						-69.00	-69.00	-69.00
ACM/Fixed	150 Mb/s	197 Mb/s	96xDS1 1024QAM						-65.00	-65.00	-65.00
ACM/Fixed	162 Mb/s	212 Mb/s	104xDS1 2048QAM						-62.25	-62.25	-62.25
ACM/Fixed	176 Mb/s	231 Mb/s	113xDS1 4096QAM						-58.50	-58.50	-58.50
25 MHz Channel											
ACM/Fixed	33 Mb/s	43 Mb/s	20xDS1 QPSK	-90.50	-90.50	-90.50					
ACM/Fixed	75 Mb/s	98 Mb/s	48xDS1 16QAM	-82.50	-82.50	-82.50					
ACM/Fixed	90 Mb/s	118 Mb/s	57xDS1 32QAM	-79.50	-79.50	-79.50					
ACM/Fixed	111 Mb/s	145 Mb/s	71xDS1 64QAM	-77.25	-77.25	-77.25					
ACM/Fixed	130 Mb/s	170 Mb/s	83xDS1 128QAM	-74.50	-74.50	-74.50					
ACM/Fixed	150 Mb/s	197 Mb/s	96xDS1 256QAM	-71.25	-71.25	-71.25					
ACM/Fixed	167 Mb/s	219 Mb/s	107xDS1 512QAM	-68.75	-68.75	-68.75					
ACM/Fixed	189 Mb/s	249 Mb/s	121xDS1 1024QAM	-64.75	-64.75	-64.75					
ACM/Fixed	205 Mb/s	268 Mb/s	127xDS1 2048QAM	-62.00	-62.00	-62.00					
ACM/Fixed	222 Mb/s	291 Mb/s	127xDS1 4096QAM	-58.25	-58.25	-58.25					
30 MHz Channel											
ACM/Fixed	39 Mb/s	51 Mb/s	25xDS1 QPSK						-88.75	-88.75	-88.75
ACM/Fixed	90 Mb/s	118 Mb/s	57xDS1 16QAM						-81.00	-81.00	-81.00
ACM/Fixed	109 Mb/s	143 Mb/s	70xDS1 32QAM						-78.00	-78.00	-78.00
ACM/Fixed	132 Mb/s	174 Mb/s	84xDS1 64QAM						-75.50	-75.50	-75.50
ACM/Fixed	155 Mb/s	204 Mb/s	100xDS1 128QAM						-73.00	-73.00	-73.00
ACM/Fixed	180 Mb/s	237 Mb/s	116xDS1 256QAM						-69.50	-69.50	-69.50
ACM/Fixed	200 Mb/s	263 Mb/s	127xDS1 512QAM						-67.00	-67.00	-67.00
ACM/Fixed	227 Mb/s	298 Mb/s	127xDS1 1024QAM						-63.25	-63.25	-63.25
ACM/Fixed	245 Mb/s	322 Mb/s	127xDS1 2048QAM						-60.50	-60.50	-60.50
ACM/Fixed	267 Mb/s	350 Mb/s	127xDS1 4096QAM						-56.50	-56.50	-56.50
ACM/Fixed	158 Mb/s	2 Mb/s	1xOC3 128QAM						-72.00	-72.00	-72.00
ACM/Fixed	179 Mb/s	24 Mb/s	1xOC3 256QAM						-69.75	-69.75	-69.75
ACM/Fixed	207 Mb/s	51 Mb/s	1xOC3 512QAM						-66.00	-66.00	-66.00
ACM/Fixed	226 Mb/s	71 Mb/s	1xOC3 1024QAM						-63.25	-63.25	-63.25
ACM/Fixed	245 Mb/s	90 Mb/s	1xOC3 2048QAM						-60.25	-60.25	-60.25
ACM/Fixed	267 Mb/s	111 Mb/s	1xOC3 4096QAM						-56.50	-56.50	-56.50

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6, in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max [1] Ethernet	Max[2] DS1s	Modulation	FCC 7 GHz Standard Power	FCC 7 GHz High Power	FCC 7 GHz EHP	10.5 GHz Standard Power	10.5 GHz High Power	11 GHz Standard Power	11 GHz High Power	11 GHz EHP
40 MHz Channel											
ACM/Fixed	52 Mb/s	69 Mb/s	33xDS1 QPSK						-87.50	-87.50	-87.50
ACM/Fixed	121 Mb/s	158 Mb/s	77xDS1 16QAM						-79.50	-79.50	-79.50
ACM/Fixed	146 Mb/s	191 Mb/s	93xDS1 32QAM						-76.50	-76.50	-76.50
ACM/Fixed	178 Mb/s	234 Mb/s	113xDS1 64QAM						-74.25	-74.25	-74.25
ACM/Fixed	207 Mb/s	272 Mb/s	127xDS1 128QAM						-71.50	-71.50	-71.50
ACM/Fixed	237 Mb/s	311 Mb/s	127xDS1 256QAM						-68.50	-68.50	-68.50
ACM/Fixed	268 Mb/s	351 Mb/s	127xDS1 512QAM						-65.75	-65.75	-65.75
ACM/Fixed	300 Mb/s	394 Mb/s	127xDS1 1024QAM						-62.25	-62.25	-62.25
ACM/Fixed	329 Mb/s	432 Mb/s	127xDS1 2048QAM						-59.25	-59.25	-59.25
ACM/Fixed	358 Mb/s	469 Mb/s	127xDS1 4096QAM						-55.25	-55.25	-55.25
ACM/Fixed	181 Mb/s	26 Mb/s	1xOC3 64QAM						-74.00	-74.00	-74.00
ACM/Fixed	207 Mb/s	52 Mb/s	1xOC3 128QAM						-71.75	-71.75	-71.75
ACM/Fixed	238 Mb/s	83 Mb/s	1xOC3 256QAM						-68.50	-68.50	-68.50
ACM/Fixed	270 Mb/s	114 Mb/s	1xOC3 512QAM						-65.75	-65.75	-65.75
ACM/Fixed	309 Mb/s	154 Mb/s	1xOC3 1024QAM						-61.50	-61.50	-61.50
ACM/Fixed	329 Mb/s	174 Mb/s	1xOC3 2048QAM						-59.25	-59.25	-59.25
ACM/Fixed	358 Mb/s	203 Mb/s	1xOC3 4096QAM						-55.50	-55.50	-55.50
80 MHz Channel											
ACM/Fixed	105 Mb/s	138 Mb/s	66xDS1 QPSK						-84.00	-84.00	-84.00
ACM/Fixed	241 Mb/s	316 Mb/s	127xDS1 16QAM						-76.00	-76.00	-76.00
ACM/Fixed	302 Mb/s	397 Mb/s	127xDS1 32QAM						-72.50	-72.50	-72.50
ACM/Fixed	352 Mb/s	462 Mb/s	127xDS1 64QAM						-71.00	-71.00	-71.00
ACM/Fixed	403 Mb/s	530 Mb/s	127xDS1 128QAM						-68.75	-68.75	-68.75
ACM/Fixed	470 Mb/s	617 Mb/s	127xDS1 256QAM						-65.50	-65.50	-65.50
ACM/Fixed	543 Mb/s	712 Mb/s	127xDS1 512QAM						-62.00	-62.00	-62.00
ACM/Fixed	612 Mb/s	804 Mb/s	127xDS1 1024QAM						-58.50	-58.50	-58.50
ACM/Fixed	658 Mb/s	864 Mb/s	127xDS1 2048QAM						-55.75	-55.75	
ACM/Fixed	716 Mb/s	940 Mb/s	127xDS1 4096QAM						-52.00	-52.00	
ACM/Fixed	243 Mb/s	87 Mb/s	1xOC3 16QAM						-76.50	-76.50	-76.50
ACM/Fixed	309 Mb/s	154 Mb/s	1xOC3 32QAM						-72.50	-72.50	-72.50
ACM/Fixed	365 Mb/s	209 Mb/s	1xOC3 64QAM						-71.00	-71.00	-71.00
ACM/Fixed	408 Mb/s	252 Mb/s	1xOC3 128QAM						-68.75	-68.75	-68.75
ACM/Fixed	471 Mb/s	315 Mb/s	1xOC3 256QAM						-65.50	-65.50	-65.50
ACM/Fixed	542 Mb/s	386 Mb/s	1xOC3 512QAM						-62.50	-62.50	-62.50
ACM/Fixed	612 Mb/s	457 Mb/s	1xOC3 1024QAM						-58.75	-58.75	-58.75
ACM/Fixed	661 Mb/s	505 Mb/s	1xOC3 2048QAM						-56.00	-56.00	
ACM/Fixed	723 Mb/s	568 Mb/s	1xOC3 4096QAM						-52.00	-52.00	

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [1]	Max DS1s [2]	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
				Standard Power	High Power	EHP	Standard Power	High Power	Standard Power	High Power	EHP
3.75 MHz Channel											
ACM/Fixed 8 Mb/s	10 Mb/s	5xDS1	16QAM				117.5	120.0	118.5	121.0	124.5
ACM/Fixed 11 Mb/s	15 Mb/s	7xDS1	32QAM				112.5	115.0	113.75	116.25	119.75
ACM/Fixed 15 Mb/s	19 Mb/s	9xDS1	64QAM				109.5	112.0	110.75	113.25	116.75
ACM/Fixed 17 Mb/s	22 Mb/s	10xDS1	128QAM				107.0	109.5	108.0	110.5	114.5
ACM/Fixed 19 Mb/s	25 Mb/s	12xDS1	256QAM				102.5	105.0	103.75	106.25	110.75
5 MHz Channel											
ACM/Fixed 12 Mb/s	16 Mb/s	7xDS1	16QAM	119.75	122.25	127.25	115.25	117.75	116.5	119.0	122.5
ACM/Fixed 15 Mb/s	19 Mb/s	9xDS1	32QAM	116.5	119.0	124.0	112.0	114.5	113.25	115.75	119.25
ACM/Fixed 19 Mb/s	24 Mb/s	11xDS1	64QAM	114.25	116.75	121.75	109.75	112.25	111.0	113.5	117.0
ACM/Fixed 22 Mb/s	29 Mb/s	14xDS1	128QAM	111.0	113.5	118.5	106.0	108.5	107.25	109.75	113.75
ACM/Fixed 27 Mb/s	35 Mb/s	17xDS1	256QAM	106.75	109.25	114.75	101.75	104.25	103.0	105.5	110.0
10 MHz Channel											
ACM/Fixed 13 Mb/s	17 Mb/s	8xDS1	QPSK						121.0	123.5	126.5
ACM/Fixed 29 Mb/s	38 Mb/s	18xDS1	16QAM						112.25	114.75	118.25
ACM/Fixed 36 Mb/s	47 Mb/s	23xDS1	32QAM						108.75	111.25	114.75
ACM/Fixed 45 Mb/s	59 Mb/s	29xDS1	64QAM						105.25	107.75	111.25
ACM/Fixed 51 Mb/s	67 Mb/s	32xDS1	128QAM						102.75	105.25	109.25
ACM/Fixed 56 Mb/s	74 Mb/s	36xDS1	256QAM						100.25	102.75	107.25
ACM/Fixed 67 Mb/s	88 Mb/s	43xDS1	512QAM						95.5	98.0	101.5
ACM/Fixed 73 Mb/s	96 Mb/s	47xDS1	1024QAM						91.5	94.0	97.5
12.5 MHz Channel											
ACM/Fixed 13 Mb/s	17 Mb/s	8xDS1	QPSK	123.75	126.25	132.25					
ACM/Fixed 29 Mb/s	38 Mb/s	18xDS1	16QAM	115.5	118.0	123.0					
ACM/Fixed 36 Mb/s	47 Mb/s	23xDS1	32QAM	112.0	114.5	119.5					
ACM/Fixed 45 Mb/s	59 Mb/s	29xDS1	64QAM	108.5	111.0	116.0					
ACM/Fixed 50 Mb/s	67 Mb/s	32xDS1	128QAM	106.5	109.0	114.0					
ACM/Fixed 56 Mb/s	74 Mb/s	36xDS1	256QAM	104.0	106.5	112.0					
ACM/Fixed 67 Mb/s	88 Mb/s	43xDS1	512QAM	99.25	101.75	106.75					
ACM/Fixed 73 Mb/s	96 Mb/s	47xDS1	1024QAM	95.25	97.75	102.25					
20 MHz Channel											
ACM/Fixed 26 Mb/s	34 Mb/s	16xDS1	QPSK						118.0	120.5	123.5
ACM/Fixed 61 Mb/s	80 Mb/s	39xDS1	16QAM						108.75	111.25	114.75
ACM/Fixed 71 Mb/s	94 Mb/s	45xDS1	32QAM						106.25	108.75	112.25
ACM/Fixed 89 Mb/s	117 Mb/s	57xDS1	64QAM						103.5	106.0	109.5
ACM/Fixed 102 Mb/s	134 Mb/s	65xDS1	128QAM						100.75	103.25	107.25
ACM/Fixed 119 Mb/s	156 Mb/s	76xDS1	256QAM						97.0	99.5	104.0
ACM/Fixed 132 Mb/s	173 Mb/s	85xDS1	512QAM						94.0	96.5	100.0
ACM/Fixed 150 Mb/s	197 Mb/s	96xDS1	1024QAM						89.0	91.5	95.0
ACM/Fixed 162 Mb/s	212 Mb/s	104xDS1	2048QAM						85.75	88.25	91.25
ACM/Fixed 176 Mb/s	231 Mb/s	113xDS1	4096QAM						80.0	82.5	86.0
25 MHz Channel											
ACM/Fixed 33 Mb/s	43 Mb/s	20xDS1	QPSK	120.0	122.5	128.5					
ACM/Fixed 75 Mb/s	98 Mb/s	48xDS1	16QAM	111.5	114.0	119.0					
ACM/Fixed 90 Mb/s	118 Mb/s	57xDS1	32QAM	108.5	111.0	116.0					
ACM/Fixed 111 Mb/s	145 Mb/s	71xDS1	64QAM	106.25	108.75	113.75					
ACM/Fixed 130 Mb/s	170 Mb/s	83xDS1	128QAM	103.5	106.0	111.0					
ACM/Fixed 150 Mb/s	197 Mb/s	96xDS1	256QAM	99.75	102.25	107.75					
ACM/Fixed 167 Mb/s	219 Mb/s	107xDS1	512QAM	96.75	99.25	104.25					
ACM/Fixed 189 Mb/s	249 Mb/s	121xDS1	1024QAM	91.75	94.25	98.75					
ACM/Fixed 205 Mb/s	268 Mb/s	127xDS1	2048QAM	87.5	90.0	95.0					
ACM/Fixed 222 Mb/s	291 Mb/s	127xDS1	4096QAM	83.25	85.75	89.25					

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [1]	Max DS1s [2]	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
				Standard Power	High Power	EHP	Standard Power	High Power	Standard Power	High Power	EHP
30 MHz Channel											
39 Mb/s	51 Mb/s	25xDS1	QPSK						116.25	118.75	121.75
90 Mb/s	118 Mb/s	57xDS1	16QAM						107.5	110.0	113.5
109 Mb/s	143 Mb/s	70xDS1	32QAM						104.5	107.0	110.5
132 Mb/s	174 Mb/s	84xDS1	64QAM						102.0	104.5	108.0
155 Mb/s	204 Mb/s	100xDS1	128QAM						99.0	101.5	105.5
180 Mb/s	237 Mb/s	116xDS1	256QAM						95.0	97.5	102.0
200 Mb/s	263 Mb/s	127xDS1	512QAM						92.0	94.5	98.0
227 Mb/s	298 Mb/s	127xDS1	1024QAM						87.25	89.75	93.25
245 Mb/s	322 Mb/s	127xDS1	2048QAM						84.0	86.5	89.5
267 Mb/s	350 Mb/s	127xDS1	4096QAM						78.0	80.5	84.0
158 Mb/s	2 Mb/s	1xOC3	128QAM						98.0	100.5	104.5
179 Mb/s	24 Mb/s	1xOC3	256QAM						95.25	97.75	102.25
207 Mb/s	51 Mb/s	1xOC3	512QAM						91.0	93.5	97.0
226 Mb/s	71 Mb/s	1xOC3	1024QAM						87.25	89.75	93.25
245 Mb/s	90 Mb/s	1xOC3	2048QAM						83.75	86.25	89.25
267 Mb/s	111 Mb/s	1xOC3	4096QAM						78.0	80.5	84.0
40 MHz Channel											
52 Mb/s	69 Mb/s	33xDS1	QPSK						115.0	117.5	120.5
121 Mb/s	158 Mb/s	77xDS1	16QAM						106.0	108.5	112.0
146 Mb/s	191 Mb/s	93xDS1	32QAM						103.0	105.5	109.0
178 Mb/s	234 Mb/s	113xDS1	64QAM						100.75	103.25	106.75
207 Mb/s	272 Mb/s	127xDS1	128QAM						97.5	100.0	104.0
237 Mb/s	311 Mb/s	127xDS1	256QAM						94.0	96.5	101.0
268 Mb/s	351 Mb/s	127xDS1	512QAM						90.75	93.25	96.75
300 Mb/s	394 Mb/s	127xDS1	1024QAM						86.25	88.75	92.25
329 Mb/s	432 Mb/s	127xDS1	2048QAM						82.75	85.25	88.25
358 Mb/s	469 Mb/s	127xDS1	4096QAM						76.75	79.25	82.75
181 Mb/s	26 Mb/s	1xOC3	64QAM						100.5	103.0	106.5
207 Mb/s	52 Mb/s	1xOC3	128QAM						97.75	100.25	104.25
238 Mb/s	83 Mb/s	1xOC3	256QAM						94.0	96.5	101.0
270 Mb/s	114 Mb/s	1xOC3	512QAM						90.75	93.25	96.75
309 Mb/s	154 Mb/s	1xOC3	1024QAM						85.5	88.0	91.5
329 Mb/s	174 Mb/s	1xOC3	2048QAM						82.75	85.25	88.25
358 Mb/s	203 Mb/s	1xOC3	4096QAM						77.0	79.5	83.0

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [1]	Max DS1s [2]	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
				Standard Power	*High Power*	*EHP*	*Standard Power*	*High Power*	*Standard Power*	*High Power*	*EHP*
80 MHz Channel											
ACM/Fixed	*105 Mb/s*	*138 Mb/s*	*66xDS1 QPSK*						111.5	114.0	117.0
ACM/Fixed	*241 Mb/s*	*316 Mb/s*	*127xDS1 16QAM*						102.5	105.0	108.5
ACM/Fixed	*302 Mb/s*	*397 Mb/s*	*127xDS1 32QAM*						99.0	101.5	105.0
ACM/Fixed	*352 Mb/s*	*462 Mb/s*	*127xDS1 64QAM*						97.5	100.0	103.5
ACM/Fixed	*403 Mb/s*	*530 Mb/s*	*127xDS1 128QAM*						94.75	97.25	101.25
ACM/Fixed	*470 Mb/s*	*617 Mb/s*	*127xDS1 256QAM*						91.0	93.5	97.5
ACM/Fixed	*543 Mb/s*	*712 Mb/s*	*127xDS1 512QAM*						87.0	89.5	93.0
ACM/Fixed	*612 Mb/s*	*804 Mb/s*	*127xDS1 1024QAM*						82.5	85.0	88.0
ACM/Fixed	*658 Mb/s*	*864 Mb/s*	*127xDS1 2048QAM*						78.25	80.75	
ACM/Fixed	*716 Mb/s*	*940 Mb/s*	*127xDS1 4096QAM*						72.5	75.0	
ACM/Fixed	*243 Mb/s*	*87 Mb/s*	*1xOC3 16QAM*						103.0	105.5	109.0
ACM/Fixed	*309 Mb/s*	*154 Mb/s*	*1xOC3 32QAM*						99.0	101.5	105.0
ACM/Fixed	*365 Mb/s*	*209 Mb/s*	*1xOC3 64QAM*						97.5	100.0	103.5
ACM/Fixed	*408 Mb/s*	*252 Mb/s*	*1xOC3 128QAM*						94.75	97.25	101.25
ACM/Fixed	*471 Mb/s*	*315 Mb/s*	*1xOC3 256QAM*						91.0	93.5	97.5
ACM/Fixed	*542 Mb/s*	*386 Mb/s*	*1xOC3 512QAM*						87.5	90.0	93.5
ACM/Fixed	*612 Mb/s*	*457 Mb/s*	*1xOC3 1024QAM*						82.75	85.25	88.25
ACM/Fixed	*661 Mb/s*	*505 Mb/s*	*1xOC3 2048QAM*						78.5	81.0	
ACM/Fixed	*723 Mb/s*	*568 Mb/s*	*1xOC3 4096QAM*						72.5	75.0	

*[ ] See notes in last page

Regarding EHP L6 and U6 when using unpaired frequencies see Eclipse user Manual for “Small non-standard T/R spacings”.

[1] 64 byte frames, physical layer, with DAC GE3.

[2] Enabling TDM transport will subtract equivalent capacity from available Ethernet Throughput figures shown.

[3] Contact Aviat Networks for Availability.

Disclaimer:
This material is for informational purposes only and does not constitute a legal obligation to deliver any product, feature or functionality and should not be relied upon in making purchasing decisions. All specifications are guaranteed values, at room temperature (20 to 30ºC, 68 to 86ºF), referenced to the ACU antenna port (including ACU losses) unless otherwise stated, and are subject to change without notice. The development, release and timing of any features or functionality described for our products is at Aviat Networks’ sole discretion. For details of availability, please contact your Aviat Networks Sales Representative.

Technical Specifications

IRU600v4

Used in conjunction with Eclipse RAC 70

ANSI

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IRU General Specifications

General

Frequency Band options		5.8, L6, U6, FCC 7, 10.5 and 11 GHz
Modulation and Coding Options	Fixed and Adaptive	QPSK, 16, 32, 64, 128, 256, 512, 1024, 2048 and 4096 QAM
Channel Sizes Supported		3.75, 5, 10, 12.5, 20, 25, 30, 40, 60 and 80 MHz
Capacity Range	Airlink Capacity	8-716 Mbit/s
	Ethernet / IP Throughput	15-940 Mbit/s
	Native TDM	5 - 127 x DS1

Eclipse Compatibility

Radio Access Cards (RACs)	RAC 70/7X

Electrical and Mechanical

Power Consumption, typical

	32.0 dBm	29.5 dBm	29.0 dBm	25.0 dBm	20.0 dBm	TX Muted
1+0 SP/HP unit (typical) 5.8 GHz	NA	NA	62W	55W	48W	43W
1+0 SP/HP unit (typical) L6 GHz	62W	NA	NA	55W	48W	43W
1+0 SP/HP unit (typical) U6/FCC 7 GHz	62W	NA	NA	55W	48W	43W
1+0 SP/HP unit (typical) 10.5/11 GHz	NA	60W	NA	55W	48W	43W

	37.5 dBm	34.0 dBm	33 dBm	32.0 dBm	27.5 dBm	27.0 dBm	TX Muted
1+0 EHP unit (typical) L6 GHz	113 W	95 W	NA	85 W	77 W	NA	46 W
1+0 EHP unit (typical) U6/FCC 7 GHz	119 W	102 W	NA	90 W	83 W	NA	46 W
1+0 EHP unit (typical) 11 GHz	NA	NA	97 W	NA	NA	87 W	46 W

Size / Weight (1+1 configuration)		SP/HP units	EHP units
ACU+Chassis+2 RFU	2RU (3.5 in) x 19 in x 16.25 in[1]	32.5 lb	33.9 lb
	2RU (88mm) x 482mm x 412mm	14.7 kg	15.4 kg
Chassis+2 RFU	2RU (3.5 in) x 19 in x 12 in	28.0 lb	29.5 lb
	2RU (88mm) x 482mm x 412mm	12.7 kg	13.4 kg

Antenna Interface

	5.8/L6 GHz	U6/FCC 7GHz	10.5/11 GHz
ACU Main Antenna Port Interface	CMR-137	CMR-137	UG 39
ACU Expansion Antenna Port Interface	CMR-137	CMR-137	UG 39
Extension Kit Antenna Port Interface, near top of rack	CPR-137G	CPR-137G	CPR-90G

Environmental

Operating Temperature	Guaranteed	-10° to +55° C (14° to +131° F)
Humidity	Guaranteed	0 to 95%, non-condensing
Altitude	Guaranteed	4,500 meters (15,000 ft) AMSL

Standards Compliance

EMC		FCC CFR 47, Part 15, ICES-003
Operation		EN 300 019, Class 3.1E
Storage		EN 300 019, Class 1.2
Transportation		EN 300 019, Class 2.3
Safety	INU/e	UL 60950-1, CSA C22.2 No. 60950-1-07
	IRU 600v4	UL 62368-1, CAN/CSA C22.2 No. 62368-1-14
Radio Frequency	5.8 GHz	FCC Part 15.407, ISED RSS-247, Issue 2
	L6 to 11 GHz	FCC CFR 47, Part 101, ISED Canada's SRSPs
NEBS [2]		GR-1089-CORE, GR-63-CORE
Security	with Eclipse INUe	FIPS 197 validated (Certificate #C5)
Electric Power Substations [3]		IEEE 1613

IF Specifications

IF Frequency	Transmit/Receive	311 MHz/126 MHz
IF Cable Length		1000 ft (300m) max (limitation apply)

*[ ] See notes in last page

IRU General Specifications

IF Specifications Cont…

Test Point	RSSI Monitoring Point [4]	Test Points female
	TX Monitoring Port	SMA female

Emission Designators

	3.75 MHz	5 MHz	10 MHz	12.5 MHz	20 MHz	25 MHz
QPSK			10M0G7W	12M5G7W	20M0G7W	25M0G7W
QAM	3M75D7W	5M00D7W	10M0D7W	12M5D7W	20M0D7W	25M0D7W

	30 MHz	40 MHz	60 MHz	80 MHz
QPSK	30M0G7W	40M0G7W	60M0G7W	80M0G7W
QAM	30M0D7W	40M0D7W	60M0D7W	80M0D7W

General Transmitter Specifications

General

Transmit Power Tolerance		-0 +1 dB
Transmitter Source		Synthesized
Frequency Stability		± 5 ppm
Manual Transmitter Power Control Range		Configurable in 0.1 dB steps from min to max power levels (Refer to TX Power Specifications)
	Resolution	0.1 dB
Automatic Transmitter Power Control	Range	Configurable over full available manual attenuation range
	Resolution / Speed	0.1 dB steps / 6 dB per second
Synthesizer Resolution		5 KHz
Channel Selection		By software control within tuning range of RFU
Transmitter Mute		> 50 dB

General Receiver Specifications

General

Receiver Source		Synthesized
Frequency Stability		± 5 ppm
Receiver Overload	BER = 1E-6	-22 dBm
	No damage	0 dBm
Residual (Background) Bit Error Rate		Better than 1E-13
RSSI Accuracy [4]	-40 to -70 dBm, +0 to +35°C	± 2dB
	-25 to -85 dBm, -10 to +55°C	± 4dB

Additional Protection Losses

IRU600	Contact Aviat Networks for details

*[ ] See notes in last page

Transmitter Specifications

(Operating with RAC70)

System

	5.8 GHz	L6 GHz	U6 GHz
Frequency Range (GHz)	5.7275 - 5.8475 [5]	5.925 - 6.425	6.425 - 6.930
TR-Spacings Supported (MHz) (Non-standard T-R options supported with spot tuned filters)	≥60	252.04	160, 170, 340
Standard Frequency Assignments Supported per Regulatory Plans	FCC Part 15.407, RSS-247, Issue 2	FCC Part 101, SRSP 305.9	FCC Part 101, SRSP 306.4
Number of RFU Options per band per power level	1	1	1

Transmitter Power Output Specifications, in dBm, Guaranteed

(Guaranteed values at 1+0 ACU antenna port. Includes all ACU losses related to filters, circulators and RF coax cable loss)

	5.8 GHz		L6 GHz			U6 GHz		
	Standard Power	*High Power*	*Standard Power*	*High Power*	*EHP*	*Standard Power*	*High Power*	*EHP*
QPSK	26.50	29.00	29.50	32.00	38.50	29.50	32.00	38.50
16QAM	26.50	29.00	29.00	31.50	37.00	29.00	31.50	37.00
32QAM	26.50	29.00	29.00	31.50	37.00	29.00	31.50	37.00
64QAM	26.50	29.00	29.00	31.50	37.00	29.00	31.50	37.00
128QAM	26.50	29.00	29.00	31.50	37.00	29.00	31.50	37.00
256QAM	26.50	29.00	28.50	31.00	37.00	28.50	31.00	37.00
512QAM	26.50	29.00	28.00	30.50	36.00	28.00	30.50	36.00
1024QAM	26.00	28.50	27.00	29.50	34.50	27.00	29.50	34.50
2048QAM	24.50	27.00	25.50	28.00	33.50	25.50	28.00	33.50
4096QAM	24.00	26.50	25.00	27.50	31.50	25.00	27.50	31.50
256QAM (60/80MHz)			28.50	31.00	36.50			
512QAM (60/80MHz)			28.00	30.50	35.00			
1024QAM (60/80MHz)			27.00	29.50	33.50			
2048QAM (60/80MHz)			25.00	27.50	32.50			
4096QAM (60/80MHz)			24.50	27.00	30.50			
Min Power for channels ≤ 5MHz			11.5	11.5	17	11.5	11.5	17
Min Power for channels ≥ 10MHz	9	9	12.5	12.5	18.5	12.5	12.5	18.5

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6 , in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [6]	Max DS1s [7]	Modulation	5.8 GHz		L6 GHz			U6 GHz		
				Standard Power	*High Power*	*Standard Power*	*High Power*	*EHP*	*Standard Power*	*High Power*	*EHP*
3.75 MHz Channel											
ACM/Fixed *8 Mb/s*	*10 Mb/s*	*5xDS1*	*16QAM*			-93.00	-93.00	-93.00	-93.00	-93.00	-93.00
ACM/Fixed *11 Mb/s*	*15 Mb/s*	*7xDS1*	*32QAM*			-88.00	-88.00	-88.00	-88.00	-88.00	-88.00
ACM/Fixed *15 Mb/s*	*19 Mb/s*	*9xDS1*	*64QAM*			-85.00	-85.00	-85.00	-85.00	-85.00	-85.00
ACM/Fixed *17 Mb/s*	*22 Mb/s*	*10xDS1*	*128QAM*			-83.00	-83.00	-83.00	-83.00	-83.00	-83.00
ACM/Fixed *19 Mb/s*	*25 Mb/s*	*12xDS1*	*256QAM*			-79.00	-79.00	-79.00	-79.00	-79.00	-79.00
5 MHz Channel											
ACM/Fixed *12 Mb/s*	*16 Mb/s*	*7xDS1*	*16QAM*			-90.75	-90.75	-90.75	-90.75	-90.75	-90.75
ACM/Fixed *15 Mb/s*	*19 Mb/s*	*9xDS1*	*32QAM*			-87.50	-87.50	-87.50	-87.50	-87.50	-87.50
ACM/Fixed *19 Mb/s*	*24 Mb/s*	*11xDS1*	*64QAM*			-85.25	-85.25	-85.25	-85.25	-85.25	-85.25
ACM/Fixed *22 Mb/s*	*29 Mb/s*	*14xDS1*	*128QAM*			-82.00	-82.00	-82.00	-82.00	-82.00	-82.00
ACM/Fixed *27 Mb/s*	*35 Mb/s*	*17xDS1*	*256QAM*			-78.25	-78.25	-78.25	-78.25	-78.25	-78.25

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6, in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max [6] Ethernet	Max [7] DS1s	Modulation	5.8 GHz		L6 GHz			U6 GHz		
				Standard Power	*High Power*	*Standard Power*	*High Power*	*EHP*	*Standard Power*	*High Power*	*EHP*
10 MHz Channel											
ACM/Fixed *13 Mb/s*	*17 Mb/s*	*8xDS1*	*QPSK*	-93.00	-93.00	-94.25	-94.25	-94.25	-94.25	-94.25	-94.25
ACM/Fixed *29 Mb/s*	*38 Mb/s*	*18xDS1*	*16QAM*	-85.25	-85.25	-86.50	-86.50	-86.50	-86.50	-86.50	-86.50
ACM/Fixed *36 Mb/s*	*47 Mb/s*	*23xDS1*	*32QAM*	-81.75	-81.75	-83.00	-83.00	-83.00	-83.00	-83.00	-83.00
ACM/Fixed *45 Mb/s*	*59 Mb/s*	*29xDS1*	*64QAM*	-78.25	-78.25	-79.50	-79.50	-79.50	-79.50	-79.50	-79.50
ACM/Fixed *51 Mb/s*	*67 Mb/s*	*32xDS1*	*128QAM*	-76.25	-76.25	-77.50	-77.50	-77.50	-77.50	-77.50	-77.50
ACM/Fixed *56 Mb/s*	*74 Mb/s*	*36xDS1*	*256QAM*	-74.25	-74.25	-75.50	-75.50	-75.50	-75.50	-75.50	-75.50
ACM/Fixed *67 Mb/s*	*88 Mb/s*	*43xDS1*	*512QAM*	-70.00	-70.00	-71.25	-71.25	-71.25	-71.25	-71.25	-71.25
ACM/Fixed *73 Mb/s*	*96 Mb/s*	*47xDS1*	*1024QAM*	-67.00	-67.00	-68.25	-68.25	-68.25	-68.25	-68.25	-68.25
20 MHz Channel											
ACM/Fixed *26 Mb/s*	*34 Mb/s*	*16xDS1*	*QPSK*						-91.50	-91.50	-91.50
ACM/Fixed *61 Mb/s*	*80 Mb/s*	*39xDS1*	*16QAM*						-83.00	-83.00	-83.00
ACM/Fixed *71 Mb/s*	*94 Mb/s*	*45xDS1*	*32QAM*						-80.50	-80.50	-80.50
ACM/Fixed *89 Mb/s*	*117 Mb/s*	*57xDS1*	*64QAM*						-77.75	-77.75	-77.75
ACM/Fixed *102 Mb/s*	*134 Mb/s*	*65xDS1*	*128QAM*						-75.50	-75.50	-75.50
ACM/Fixed *119 Mb/s*	*156 Mb/s*	*76xDS1*	*256QAM*						-72.25	-72.25	-72.25
ACM/Fixed *132 Mb/s*	*173 Mb/s*	*85xDS1*	*512QAM*						-69.75	-69.75	-69.75
ACM/Fixed *150 Mb/s*	*197 Mb/s*	*96xDS1*	*1024QAM*						-65.75	-65.75	-65.75
ACM/Fixed *162 Mb/s*	*212 Mb/s*	*104xDS1*	*2048QAM*						-63.00	-63.00	-63.00
ACM/Fixed *176 Mb/s*	*231 Mb/s*	*113xDS1*	*4096QAM*						-59.25	-59.25	-59.25
30 MHz Channel											
ACM/Fixed *39 Mb/s*	*51 Mb/s*	*25xDS1*	*QPSK*	-88.25	-88.25	-89.50	-89.50	-89.50	-89.50	-89.50	-89.50
ACM/Fixed *90 Mb/s*	*118 Mb/s*	*57xDS1*	*16QAM*	-80.50	-80.50	-81.75	-81.75	-81.75	-81.75	-81.75	-81.75
ACM/Fixed *109 Mb/s*	*143 Mb/s*	*70xDS1*	*32QAM*	-77.50	-77.50	-79.00	-79.00	-79.00	-79.00	-79.00	-79.00
ACM/Fixed *132 Mb/s*	*174 Mb/s*	*84xDS1*	*64QAM*	-75.00	-75.00	-76.50	-76.50	-76.50	-76.50	-76.50	-76.50
ACM/Fixed *155 Mb/s*	*204 Mb/s*	*100xDS1*	*128QAM*	-72.50	-72.50	-73.75	-73.75	-73.75	-73.75	-73.75	-73.75
ACM/Fixed *180 Mb/s*	*237 Mb/s*	*116xDS1*	*256QAM*	-69.00	-69.00	-70.50	-70.50	-70.50	-70.50	-70.50	-70.50
ACM/Fixed *200 Mb/s*	*263 Mb/s*	*127xDS1*	*512QAM*	-66.50	-66.50	-68.00	-68.00	-68.00	-68.00	-68.00	-68.00
ACM/Fixed *227 Mb/s*	*298 Mb/s*	*127xDS1*	*1024QAM*	-62.75	-62.75	-64.00	-64.00	-64.00	-64.00	-64.00	-64.00
ACM/Fixed *245 Mb/s*	*322 Mb/s*	*127xDS1*	*2048QAM*	-60.00	-60.00	-61.25	-61.25	-61.25	-61.25	-61.25	-61.25
ACM/Fixed *267 Mb/s*	*350 Mb/s*	*127xDS1*	*4096QAM*	-56.00	-56.00	-57.25	-57.25	-57.25	-57.25	-57.25	-57.25
60 MHz Channel											
ACM/Fixed *78 Mb/s*	*103 Mb/s*	*49xDS1*	*QPSK*			-86.25	-86.25	-86.25			
ACM/Fixed *167 Mb/s*	*220 Mb/s*	*106xDS1*	*16QAM*			-79.25	-79.25	-79.25			
ACM/Fixed *217 Mb/s*	*285 Mb/s*	*127xDS1*	*32QAM*			-75.50	-75.50	-75.50			
ACM/Fixed *267 Mb/s*	*350 Mb/s*	*127xDS1*	*64QAM*			-73.00	-73.00	-73.00			
ACM/Fixed *301 Mb/s*	*395 Mb/s*	*127xDS1*	*128QAM*			-71.00	-71.00	-71.00			
ACM/Fixed *344 Mb/s*	*451 Mb/s*	*127xDS1*	*256QAM*			-68.00	-68.00	-68.00			
ACM/Fixed *403 Mb/s*	*529 Mb/s*	*127xDS1*	*512QAM*			-64.50	-64.50	-64.50			
ACM/Fixed *454 Mb/s*	*596 Mb/s*	*127xDS1*	*1024QAM*			-60.75	-60.75	-60.75			
ACM/Fixed *491 Mb/s*	*645 Mb/s*	*127xDS1*	*2048QAM*			-58.00	-58.00	-58.00			
ACM/Fixed *534 Mb/s*	*701 Mb/s*	*127xDS1*	*4096QAM*			-54.25	-54.25	-54.25			

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [6]	Max DS1s [7]	Modulation	5.8 GHz		L6 GHz			U6 GHz		
				Standard Power	High Power	Standard Power	High Power	EHP	Standard Power	High Power	EHP
3.75 MHz Channel											
ACM/Fixed	8 Mb/s	10 Mb/s	5xDS1 16QAM			122.0	124.5	130.0	122.0	124.5	130.0
ACM/Fixed	11 Mb/s	15 Mb/s	7xDS1 32QAM			117.0	119.5	125.0	117.0	119.5	125.0
ACM/Fixed	15 Mb/s	19 Mb/s	9xDS1 64QAM			114.0	116.5	122.0	114.0	116.5	122.0
ACM/Fixed	17 Mb/s	22 Mb/s	10xDS1 128QAM			112.0	114.5	120.0	112.0	114.5	120.0
ACM/Fixed	19 Mb/s	25 Mb/s	12xDS1 256QAM			107.5	110.0	116.0	107.5	110.0	116.0
5 MHz Channel											
ACM/Fixed	12 Mb/s	16 Mb/s	7xDS1 16QAM			119.75	122.25	127.75	119.75	122.25	127.75
ACM/Fixed	15 Mb/s	19 Mb/s	9xDS1 32QAM			116.5	119.0	124.5	116.5	119.0	124.5
ACM/Fixed	19 Mb/s	24 Mb/s	11xDS1 64QAM			114.25	116.75	122.25	114.25	116.75	122.25
ACM/Fixed	22 Mb/s	29 Mb/s	14xDS1 128QAM			111.0	113.5	119.0	111.0	113.5	119.0
ACM/Fixed	27 Mb/s	35 Mb/s	17xDS1 256QAM			106.75	109.25	115.25	106.75	109.25	115.25
10 MHz Channel											
ACM/Fixed	13 Mb/s	17 Mb/s	8xDS1 QPSK	119.5	122.0	123.75	126.25	132.75	123.75	126.25	132.75
ACM/Fixed	29 Mb/s	38 Mb/s	18xDS1 16QAM	111.75	114.25	115.5	118.0	123.5	115.5	118.0	123.5
ACM/Fixed	36 Mb/s	47 Mb/s	23xDS1 32QAM	108.25	110.75	112.0	114.5	120.0	112.0	114.5	120.0
ACM/Fixed	45 Mb/s	59 Mb/s	29xDS1 64QAM	104.75	107.25	108.5	111.0	116.5	108.5	111.0	116.5
ACM/Fixed	51 Mb/s	67 Mb/s	32xDS1 128QAM	102.75	105.25	106.5	109.0	114.5	106.5	109.0	114.5
ACM/Fixed	56 Mb/s	74 Mb/s	36xDS1 256QAM	100.75	103.25	104.0	106.5	112.5	104.0	106.5	112.5
ACM/Fixed	67 Mb/s	88 Mb/s	43xDS1 512QAM	96.5	99.0	99.25	101.75	107.25	99.25	101.75	107.25
ACM/Fixed	73 Mb/s	96 Mb/s	47xDS1 1024QAM	93.0	95.5	95.25	97.75	102.75	95.25	97.75	102.75
20 MHz Channel											
ACM/Fixed	26 Mb/s	34 Mb/s	16xDS1 QPSK						121.0	123.5	130.0
ACM/Fixed	61 Mb/s	80 Mb/s	39xDS1 16QAM						112.0	114.5	120.0
ACM/Fixed	71 Mb/s	94 Mb/s	45xDS1 32QAM						109.5	112.0	117.5
ACM/Fixed	89 Mb/s	117 Mb/s	57xDS1 64QAM						106.75	109.25	114.75
ACM/Fixed	102 Mb/s	134 Mb/s	65xDS1 128QAM						104.5	107.0	112.5
ACM/Fixed	119 Mb/s	156 Mb/s	76xDS1 256QAM						100.75	103.25	109.25
ACM/Fixed	132 Mb/s	173 Mb/s	85xDS1 512QAM						97.75	100.25	105.75
ACM/Fixed	150 Mb/s	197 Mb/s	96xDS1 1024QAM						92.75	95.25	100.25
ACM/Fixed	162 Mb/s	212 Mb/s	104xDS1 2048QAM						88.5	91.0	96.5
ACM/Fixed	176 Mb/s	231 Mb/s	113xDS1 4096QAM						84.25	86.75	90.75
30 MHz Channel											
ACM/Fixed	39 Mb/s	51 Mb/s	25xDS1 QPSK	114.75	117.25	119.0	121.5	128.0	119.0	121.5	128.0
ACM/Fixed	90 Mb/s	118 Mb/s	57xDS1 16QAM	107.0	109.5	110.75	113.25	118.75	110.75	113.25	118.75
ACM/Fixed	109 Mb/s	143 Mb/s	70xDS1 32QAM	104.0	106.5	108.0	110.5	116.0	108.0	110.5	116.0
ACM/Fixed	132 Mb/s	174 Mb/s	84xDS1 64QAM	101.5	104.0	105.5	108.0	113.5	105.5	108.0	113.5
ACM/Fixed	155 Mb/s	204 Mb/s	100xDS1 128QAM	99.0	101.5	102.75	105.25	110.75	102.75	105.25	110.75
ACM/Fixed	180 Mb/s	237 Mb/s	116xDS1 256QAM	95.5	98.0	99.0	101.5	107.5	99.0	101.5	107.5
ACM/Fixed	200 Mb/s	263 Mb/s	127xDS1 512QAM	93.0	95.5	96.0	98.5	104.0	96.0	98.5	104.0
ACM/Fixed	227 Mb/s	298 Mb/s	127xDS1 1024QAM	88.75	91.25	91.0	93.5	98.5	91.0	93.5	98.5
ACM/Fixed	245 Mb/s	322 Mb/s	127xDS1 2048QAM	84.5	87.0	86.75	89.25	94.75	86.75	89.25	94.75
ACM/Fixed	267 Mb/s	350 Mb/s	127xDS1 4096QAM	80.0	82.5	82.25	84.75	88.75	82.25	84.75	88.75

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [6]	Max DS1s [7]	Modulation	5.8 GHz		L6 GHz			U6 GHz		
				Standard Power	*High Power*	*Standard Power*	*High Power*	*EHP*	*Standard Power*	*High Power*	*EHP*
60 MHz Channel											
ACM/Fixed	*78 Mb/s*	*103 Mb/s*	*49xDS1 QPSK*			115.75	118.25	124.75			
ACM/Fixed	*167 Mb/s*	*220 Mb/s*	*106xDS1 16QAM*			108.25	110.75	116.25			
ACM/Fixed	*217 Mb/s*	*285 Mb/s*	*127xDS1 32QAM*			104.5	107.0	112.5			
ACM/Fixed	*267 Mb/s*	*350 Mb/s*	*127xDS1 64QAM*			102.0	104.5	110.0			
ACM/Fixed	*301 Mb/s*	*395 Mb/s*	*127xDS1 128QAM*			100.0	102.5	108.0			
ACM/Fixed	*344 Mb/s*	*451 Mb/s*	*127xDS1 256QAM*			96.5	99.0	104.5			
ACM/Fixed	*403 Mb/s*	*529 Mb/s*	*127xDS1 512QAM*			92.5	95.0	99.5			
ACM/Fixed	*454 Mb/s*	*596 Mb/s*	*127xDS1 1024QAM*			87.75	90.25	94.25			
ACM/Fixed	*491 Mb/s*	*645 Mb/s*	*127xDS1 2048QAM*			83.0	85.5	90.5			
ACM/Fixed	*534 Mb/s*	*701 Mb/s*	*127xDS1 4096QAM*			78.75	81.25	84.75			

*[ ] See notes in last page

Transmitter Specifications

(Operating with RAC70)

System

	FCC 7 GHz	10.5 GHz	11 GHz
Frequency Range (GHz)	6.875 - 7.125	10.500-10.680	10.700 - 11.700
TR-Spacings Supported (MHz) (Non-standard T-R options supported with spot tuned filters)	150	65	490, 500
Standard Frequency Assignments Supported per Regulatory Plans	FCC Part 74, 101	FCC Part 101, SRSP 310.5	FCC Part 101, SRSP 310.7
Number of RFU Options per band per power level	1 (same as U6 GHz)	1	1

Transmitter Power Output Specifications, in dBm, Guaranteed

(Guaranteed values at 1+0 ACU antenna port. Includes all ACU losses related to filters, circulators and RF coax cable loss)

	FCC 7 GHz			10.5 GHz		11 GHz		
	Standard Power	*High Power*	*EHP*	*Standard Power*	*High Power*	*Standard Power*	*High Power*	*EHP*
QPSK	29.50	32.00	38.00			27.50	30.00	33.00
16QAM	29.00	31.50	36.50	26.00	28.50	26.50	29.00	32.50
32QAM	29.00	31.50	36.50	26.00	28.50	26.50	29.00	32.50
64QAM	29.00	31.50	36.50	26.00	28.50	26.50	29.00	32.50
128QAM	29.00	31.50	36.50	25.50	28.00	26.00	28.50	32.50
256QAM	28.50	31.00	36.50	25.00	27.50	25.50	28.00	32.50
512QAM	28.00	30.50	35.50			25.00	27.50	31.00
1024QAM	27.00	29.50	34.00			24.00	26.50	30.00
2048QAM	25.50	28.00	33.00			23.50	26.00	29.00
4096QAM	25.00	27.50	31.00			21.50	24.00	27.50
256QAM (60/80MHz)						25.50	28.00	32.00
512QAM (60/80MHz)						25.00	27.50	31.00
1024QAM (60/80MHz)						24.00	26.50	29.50
2048QAM (60/80MHz)						22.50	25.00	
4096QAM (60/80MHz)						20.50	23.00	
Min Power for channels ≤ 5MHz	11.5	11.5	16.5	8.5	8.5	9	9	12.5
Min Power for channels ≥ 10MHz	12.5	12.5	18			10	10	13

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6, in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [6]	Max DS1s [7]	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
				Standard Power	*High Power*	*EHP*	*Standard Power*	*High Power*	*Standard Power*	*High Power*	*EHP*
3.75 MHz Channel											
ACM/Fixed	*8 Mb/s*	*10 Mb/s*	*5xDS1*	*16QAM*				-91.50	-91.50	-92.00	-92.00	-92.00
ACM/Fixed	*11 Mb/s*	*15 Mb/s*	*7xDS1*	*32QAM*				-86.50	-86.50	-87.25	-87.25	-87.25
ACM/Fixed	*15 Mb/s*	*19 Mb/s*	*9xDS1*	*64QAM*				-83.50	-83.50	-84.25	-84.25	-84.25
ACM/Fixed	*17 Mb/s*	*22 Mb/s*	*10xDS1*	*128QAM*				-81.50	-81.50	-82.00	-82.00	-82.00
ACM/Fixed	*19 Mb/s*	*25 Mb/s*	*12xDS1*	*256QAM*				-77.50	-77.50	-78.25	-78.25	-78.25
5 MHz Channel												
ACM/Fixed	*12 Mb/s*	*16 Mb/s*	*7xDS1*	*16QAM*	-90.75	-90.75	-90.75	-89.25	-89.25	-90.00	-90.00	-90.00
ACM/Fixed	*15 Mb/s*	*19 Mb/s*	*9xDS1*	*32QAM*	-87.50	-87.50	-87.50	-86.00	-86.00	-86.75	-86.75	-86.75
ACM/Fixed	*19 Mb/s*	*24 Mb/s*	*11xDS1*	*64QAM*	-85.25	-85.25	-85.25	-83.75	-83.75	-84.50	-84.50	-84.50
ACM/Fixed	*22 Mb/s*	*29 Mb/s*	*14xDS1*	*128QAM*	-82.00	-82.00	-82.00	-80.50	-80.50	-81.25	-81.25	-81.25
ACM/Fixed	*27 Mb/s*	*35 Mb/s*	*17xDS1*	*256QAM*	-78.25	-78.25	-78.25	-76.75	-76.75	-77.50	-77.50	-77.50

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6, in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max [6] Ethernet	Max[7] DS1s	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
				Standard Power	High Power	EHP	Standard Power	High Power	Standard Power	High Power	EHP
10 MHz Channel											
ACM/Fixed 13 Mb/s	17 Mb/s	8xDS1	QPSK						-93.50	-93.50	-93.50
ACM/Fixed 29 Mb/s	38 Mb/s	18xDS1	16QAM						-85.75	-85.75	-85.75
ACM/Fixed 36 Mb/s	47 Mb/s	23xDS1	32QAM						-82.25	-82.25	-82.25
ACM/Fixed 45 Mb/s	59 Mb/s	29xDS1	64QAM						-78.75	-78.75	-78.75
ACM/Fixed 51 Mb/s	67 Mb/s	32xDS1	128QAM						-76.75	-76.75	-76.75
ACM/Fixed 56 Mb/s	74 Mb/s	36xDS1	256QAM						-74.75	-74.75	-74.75
ACM/Fixed 67 Mb/s	88 Mb/s	43xDS1	512QAM						-70.50	-70.50	-70.50
ACM/Fixed 73 Mb/s	96 Mb/s	47xDS1	1024QAM						-67.50	-67.50	-67.50
12.5 MHz Channel											
ACM/Fixed 13 Mb/s	17 Mb/s	8xDS1	QPSK	-94.25	-94.25	-94.25					
ACM/Fixed 29 Mb/s	38 Mb/s	18xDS1	16QAM	-86.50	-86.50	-86.50					
ACM/Fixed 36 Mb/s	47 Mb/s	23xDS1	32QAM	-83.00	-83.00	-83.00					
ACM/Fixed 45 Mb/s	59 Mb/s	29xDS1	64QAM	-79.50	-79.50	-79.50					
ACM/Fixed 50 Mb/s	67 Mb/s	32xDS1	128QAM	-77.50	-77.50	-77.50					
ACM/Fixed 56 Mb/s	74 Mb/s	36xDS1	256QAM	-75.50	-75.50	-75.50					
ACM/Fixed 67 Mb/s	88 Mb/s	43xDS1	512QAM	-71.25	-71.25	-71.25					
ACM/Fixed 73 Mb/s	96 Mb/s	47xDS1	1024QAM	-68.25	-68.25	-68.25					
20 MHz Channel											
ACM/Fixed 26 Mb/s	34 Mb/s	16xDS1	QPSK						-90.50	-90.50	-90.50
ACM/Fixed 61 Mb/s	80 Mb/s	39xDS1	16QAM						-82.25	-82.25	-82.25
ACM/Fixed 71 Mb/s	94 Mb/s	45xDS1	32QAM						-79.75	-79.75	-79.75
ACM/Fixed 89 Mb/s	117 Mb/s	57xDS1	64QAM						-77.00	-77.00	-77.00
ACM/Fixed 102 Mb/s	134 Mb/s	65xDS1	128QAM						-74.75	-74.75	-74.75
ACM/Fixed 119 Mb/s	156 Mb/s	76xDS1	256QAM						-71.50	-71.50	-71.50
ACM/Fixed 132 Mb/s	173 Mb/s	85xDS1	512QAM						-69.00	-69.00	-69.00
ACM/Fixed 150 Mb/s	197 Mb/s	96xDS1	1024QAM						-65.00	-65.00	-65.00
ACM/Fixed 162 Mb/s	212 Mb/s	104xDS1	2048QAM						-62.25	-62.25	-62.25
ACM/Fixed 176 Mb/s	231 Mb/s	113xDS1	4096QAM						-58.50	-58.50	-58.50
25 MHz Channel											
ACM/Fixed 33 Mb/s	43 Mb/s	20xDS1	QPSK	-90.50	-90.50	-90.50					
ACM/Fixed 75 Mb/s	98 Mb/s	48xDS1	16QAM	-82.50	-82.50	-82.50					
ACM/Fixed 90 Mb/s	118 Mb/s	57xDS1	32QAM	-79.50	-79.50	-79.50					
ACM/Fixed 111 Mb/s	145 Mb/s	71xDS1	64QAM	-77.25	-77.25	-77.25					
ACM/Fixed 130 Mb/s	170 Mb/s	83xDS1	128QAM	-74.50	-74.50	-74.50					
ACM/Fixed 150 Mb/s	197 Mb/s	96xDS1	256QAM	-71.25	-71.25	-71.25					
ACM/Fixed 167 Mb/s	219 Mb/s	107xDS1	512QAM	-68.75	-68.75	-68.75					
ACM/Fixed 189 Mb/s	249 Mb/s	121xDS1	1024QAM	-64.75	-64.75	-64.75					
ACM/Fixed 205 Mb/s	268 Mb/s	127xDS1	2048QAM	-62.00	-62.00	-62.00					
ACM/Fixed 222 Mb/s	291 Mb/s	127xDS1	4096QAM	-58.25	-58.25	-58.25					
30 MHz Channel											
ACM/Fixed 39 Mb/s	51 Mb/s	25xDS1	QPSK						-88.75	-88.75	-88.75
ACM/Fixed 90 Mb/s	118 Mb/s	57xDS1	16QAM						-81.00	-81.00	-81.00
ACM/Fixed 109 Mb/s	143 Mb/s	70xDS1	32QAM						-78.00	-78.00	-78.00
ACM/Fixed 132 Mb/s	174 Mb/s	84xDS1	64QAM						-75.50	-75.50	-75.50
ACM/Fixed 155 Mb/s	204 Mb/s	100xDS1	128QAM						-73.00	-73.00	-73.00
ACM/Fixed 180 Mb/s	237 Mb/s	116xDS1	256QAM						-69.50	-69.50	-69.50
ACM/Fixed 200 Mb/s	263 Mb/s	127xDS1	512QAM						-67.00	-67.00	-67.00
ACM/Fixed 227 Mb/s	298 Mb/s	127xDS1	1024QAM						-63.25	-63.25	-63.25
ACM/Fixed 245 Mb/s	322 Mb/s	127xDS1	2048QAM						-60.50	-60.50	-60.50
ACM/Fixed 267 Mb/s	350 Mb/s	127xDS1	4096QAM						-56.50	-56.50	-56.50

*[ ] See notes in last page

Receiver Specifications

(Operating with RAC70)

Receiver Threshold BER=1E-6, in dBm, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [6]	Max DS1s [7]	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
				Standard Power	*High Power*	*EHP*	*Standard Power*	*High Power*	*Standard Power*	*High Power*	*EHP*
40 MHz Channel											
ACM/Fixed	*52 Mb/s*	*69 Mb/s*	*33xDS1 QPSK*						-87.50	-87.50	-87.50
ACM/Fixed	*121 Mb/s*	*158 Mb/s*	*77xDS1 16QAM*						-79.50	-79.50	-79.50
ACM/Fixed	*146 Mb/s*	*191 Mb/s*	*93xDS1 32QAM*						-76.50	-76.50	-76.50
ACM/Fixed	*178 Mb/s*	*234 Mb/s*	*113xDS1 64QAM*						-74.25	-74.25	-74.25
ACM/Fixed	*207 Mb/s*	*272 Mb/s*	*127xDS1 128QAM*						-71.50	-71.50	-71.50
ACM/Fixed	*237 Mb/s*	*311 Mb/s*	*127xDS1 256QAM*						-68.50	-68.50	-68.50
ACM/Fixed	*268 Mb/s*	*351 Mb/s*	*127xDS1 512QAM*						-65.75	-65.75	-65.75
ACM/Fixed	*300 Mb/s*	*394 Mb/s*	*127xDS1 1024QAM*						-62.25	-62.25	-62.25
ACM/Fixed	*329 Mb/s*	*432 Mb/s*	*127xDS1 2048QAM*						-59.25	-59.25	-59.25
ACM/Fixed	*358 Mb/s*	*469 Mb/s*	*127xDS1 4096QAM*						-55.25	-55.25	-55.25
80 MHz Channel											
ACM/Fixed	*105 Mb/s*	*138 Mb/s*	*66xDS1 QPSK*						-84.00	-84.00	-84.00
ACM/Fixed	*241 Mb/s*	*316 Mb/s*	*127xDS1 16QAM*						-76.00	-76.00	-76.00
ACM/Fixed	*302 Mb/s*	*397 Mb/s*	*127xDS1 32QAM*						-72.50	-72.50	-72.50
ACM/Fixed	*352 Mb/s*	*462 Mb/s*	*127xDS1 64QAM*						-71.00	-71.00	-71.00
ACM/Fixed	*403 Mb/s*	*530 Mb/s*	*127xDS1 128QAM*						-68.75	-68.75	-68.75
ACM/Fixed	*470 Mb/s*	*617 Mb/s*	*127xDS1 256QAM*						-65.50	-65.50	-65.50
ACM/Fixed	*543 Mb/s*	*712 Mb/s*	*127xDS1 512QAM*						-62.00	-62.00	-62.00
ACM/Fixed	*612 Mb/s*	*804 Mb/s*	*127xDS1 1024QAM*						-58.50	-58.50	-58.50
ACM/Fixed	*658 Mb/s*	*864 Mb/s*	*127xDS1 2048QAM*						-55.75	-55.75	
ACM/Fixed	*716 Mb/s*	*940 Mb/s*	*127xDS1 4096QAM*						-52.00	-52.00	

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [6]	Max DS1s [7]	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
				Standard Power	High Power	EHP	Standard Power	High Power	Standard Power	High Power	EHP
3.75 MHz Channel											
ACM/Fixed 8 Mb/s	10 Mb/s	5xDS1	16QAM				117.5	120.0	118.5	121.0	124.5
ACM/Fixed 11 Mb/s	15 Mb/s	7xDS1	32QAM				112.5	115.0	113.75	116.25	119.75
ACM/Fixed 15 Mb/s	19 Mb/s	9xDS1	64QAM				109.5	112.0	110.75	113.25	116.75
ACM/Fixed 17 Mb/s	22 Mb/s	10xDS1	128QAM				107.0	109.5	108.0	110.5	114.5
ACM/Fixed 19 Mb/s	25 Mb/s	12xDS1	256QAM				102.5	105.0	103.75	106.25	110.75
5 MHz Channel											
ACM/Fixed 12 Mb/s	16 Mb/s	7xDS1	16QAM	119.75	122.25	127.25	115.25	117.75	116.5	119.0	122.5
ACM/Fixed 15 Mb/s	19 Mb/s	9xDS1	32QAM	116.5	119.0	124.0	112.0	114.5	113.25	115.75	119.25
ACM/Fixed 19 Mb/s	24 Mb/s	11xDS1	64QAM	114.25	116.75	121.75	109.75	112.25	111.0	113.5	117.0
ACM/Fixed 22 Mb/s	29 Mb/s	14xDS1	128QAM	111.0	113.5	118.5	106.0	108.5	107.25	109.75	113.75
ACM/Fixed 27 Mb/s	35 Mb/s	17xDS1	256QAM	106.75	109.25	114.75	101.75	104.25	103.0	105.5	110.0
10 MHz Channel											
ACM/Fixed 13 Mb/s	17 Mb/s	8xDS1	QPSK						121.0	123.5	126.5
ACM/Fixed 29 Mb/s	38 Mb/s	18xDS1	16QAM						112.25	114.75	118.25
ACM/Fixed 36 Mb/s	47 Mb/s	23xDS1	32QAM						108.75	111.25	114.75
ACM/Fixed 45 Mb/s	59 Mb/s	29xDS1	64QAM						105.25	107.75	111.25
ACM/Fixed 51 Mb/s	67 Mb/s	32xDS1	128QAM						102.75	105.25	109.25
ACM/Fixed 56 Mb/s	74 Mb/s	36xDS1	256QAM						100.25	102.75	107.25
ACM/Fixed 67 Mb/s	88 Mb/s	43xDS1	512QAM						95.5	98.0	101.5
ACM/Fixed 73 Mb/s	96 Mb/s	47xDS1	1024QAM						91.5	94.0	97.5
12.5 MHz Channel											
ACM/Fixed 13 Mb/s	17 Mb/s	8xDS1	QPSK	123.75	126.25	132.25					
ACM/Fixed 29 Mb/s	38 Mb/s	18xDS1	16QAM	115.5	118.0	123.0					
ACM/Fixed 36 Mb/s	47 Mb/s	23xDS1	32QAM	112.0	114.5	119.5					
ACM/Fixed 45 Mb/s	59 Mb/s	29xDS1	64QAM	108.5	111.0	116.0					
ACM/Fixed 50 Mb/s	67 Mb/s	32xDS1	128QAM	106.5	109.0	114.0					
ACM/Fixed 56 Mb/s	74 Mb/s	36xDS1	256QAM	104.0	106.5	112.0					
ACM/Fixed 67 Mb/s	88 Mb/s	43xDS1	512QAM	99.25	101.75	106.75					
ACM/Fixed 73 Mb/s	96 Mb/s	47xDS1	1024QAM	95.25	97.75	102.25					
20 MHz Channel											
ACM/Fixed 26 Mb/s	34 Mb/s	16xDS1	QPSK						118.0	120.5	123.5
ACM/Fixed 61 Mb/s	80 Mb/s	39xDS1	16QAM						108.75	111.25	114.75
ACM/Fixed 71 Mb/s	94 Mb/s	45xDS1	32QAM						106.25	108.75	112.25
ACM/Fixed 89 Mb/s	117 Mb/s	57xDS1	64QAM						103.5	106.0	109.5
ACM/Fixed 102 Mb/s	134 Mb/s	65xDS1	128QAM						100.75	103.25	107.25
ACM/Fixed 119 Mb/s	156 Mb/s	76xDS1	256QAM						97.0	99.5	104.0
ACM/Fixed 132 Mb/s	173 Mb/s	85xDS1	512QAM						94.0	96.5	100.0
ACM/Fixed 150 Mb/s	197 Mb/s	96xDS1	1024QAM						89.0	91.5	95.0
ACM/Fixed 162 Mb/s	212 Mb/s	104xDS1	2048QAM						85.75	88.25	91.25
ACM/Fixed 176 Mb/s	231 Mb/s	113xDS1	4096QAM						80.0	82.5	86.0
25 MHz Channel											
ACM/Fixed 33 Mb/s	43 Mb/s	20xDS1	QPSK	120.0	122.5	128.5					
ACM/Fixed 75 Mb/s	98 Mb/s	48xDS1	16QAM	111.5	114.0	119.0					
ACM/Fixed 90 Mb/s	118 Mb/s	57xDS1	32QAM	108.5	111.0	116.0					
ACM/Fixed 111 Mb/s	145 Mb/s	71xDS1	64QAM	106.25	108.75	113.75					
ACM/Fixed 130 Mb/s	170 Mb/s	83xDS1	128QAM	103.5	106.0	111.0					
ACM/Fixed 150 Mb/s	197 Mb/s	96xDS1	256QAM	99.75	102.25	107.75					
ACM/Fixed 167 Mb/s	219 Mb/s	107xDS1	512QAM	96.75	99.25	104.25					
ACM/Fixed 189 Mb/s	249 Mb/s	121xDS1	1024QAM	91.75	94.25	98.75					
ACM/Fixed 205 Mb/s	268 Mb/s	127xDS1	2048QAM	87.5	90.0	95.0					
ACM/Fixed 222 Mb/s	291 Mb/s	127xDS1	4096QAM	83.25	85.75	89.25					

*[ ] See notes in last page

System Gain Specifications

(Operating with RAC70)

System Gain BER=1E-6, in dB, Guaranteed

(Guaranteed, includes all 1+0 ACU losses related to filters, circulators and RF coax cable loss)

Air Link Capacity	Max Ethernet [6]	Max DS1s [7]	Modulation	FCC 7 GHz			10.5 GHz		11 GHz		
				Standard Power	*High Power*	*EHP*	*Standard Power*	*High Power*	*Standard Power*	*High Power*	*EHP*
30 MHz Channel											
ACM/Fixed	*39 Mb/s*	*51 Mb/s*	*25xDS1 QPSK*						116.25	118.75	121.75
ACM/Fixed	*90 Mb/s*	*118 Mb/s*	*57xDS1 16QAM*						107.5	110.0	113.5
ACM/Fixed	*109 Mb/s*	*143 Mb/s*	*70xDS1 32QAM*						104.5	107.0	110.5
ACM/Fixed	*132 Mb/s*	*174 Mb/s*	*84xDS1 64QAM*						102.0	104.5	108.0
ACM/Fixed	*155 Mb/s*	*204 Mb/s*	*100xDS1 128QAM*						99.0	101.5	105.5
ACM/Fixed	*180 Mb/s*	*237 Mb/s*	*116xDS1 256QAM*						95.0	97.5	102.0
ACM/Fixed	*200 Mb/s*	*263 Mb/s*	*127xDS1 512QAM*						92.0	94.5	98.0
ACM/Fixed	*227 Mb/s*	*298 Mb/s*	*127xDS1 1024QAM*						87.25	89.75	93.25
ACM/Fixed	*245 Mb/s*	*322 Mb/s*	*127xDS1 2048QAM*						84.0	86.5	89.5
ACM/Fixed	*267 Mb/s*	*350 Mb/s*	*127xDS1 4096QAM*						78.0	80.5	84.0
40 MHz Channel											
ACM/Fixed	*52 Mb/s*	*69 Mb/s*	*33xDS1 QPSK*						115.0	117.5	120.5
ACM/Fixed	*121 Mb/s*	*158 Mb/s*	*77xDS1 16QAM*						106.0	108.5	112.0
ACM/Fixed	*146 Mb/s*	*191 Mb/s*	*93xDS1 32QAM*						103.0	105.5	109.0
ACM/Fixed	*178 Mb/s*	*234 Mb/s*	*113xDS1 64QAM*						100.75	103.25	106.75
ACM/Fixed	*207 Mb/s*	*272 Mb/s*	*127xDS1 128QAM*						97.5	100.0	104.0
ACM/Fixed	*237 Mb/s*	*311 Mb/s*	*127xDS1 256QAM*						94.0	96.5	101.0
ACM/Fixed	*268 Mb/s*	*351 Mb/s*	*127xDS1 512QAM*						90.75	93.25	96.75
ACM/Fixed	*300 Mb/s*	*394 Mb/s*	*127xDS1 1024QAM*						86.25	88.75	92.25
ACM/Fixed	*329 Mb/s*	*432 Mb/s*	*127xDS1 2048QAM*						82.75	85.25	88.25
ACM/Fixed	*358 Mb/s*	*469 Mb/s*	*127xDS1 4096QAM*						76.75	79.25	82.75
80 MHz Channel											
ACM/Fixed	*105 Mb/s*	*138 Mb/s*	*66xDS1 QPSK*						111.5	114.0	117.0
ACM/Fixed	*241 Mb/s*	*316 Mb/s*	*127xDS1 16QAM*						102.5	105.0	108.5
ACM/Fixed	*302 Mb/s*	*397 Mb/s*	*127xDS1 32QAM*						99.0	101.5	105.0
ACM/Fixed	*352 Mb/s*	*462 Mb/s*	*127xDS1 64QAM*						97.5	100.0	103.5
ACM/Fixed	*403 Mb/s*	*530 Mb/s*	*127xDS1 128QAM*						94.75	97.25	101.25
ACM/Fixed	*470 Mb/s*	*617 Mb/s*	*127xDS1 256QAM*						91.0	93.5	97.5
ACM/Fixed	*543 Mb/s*	*712 Mb/s*	*127xDS1 512QAM*						87.0	89.5	93.0
ACM/Fixed	*612 Mb/s*	*804 Mb/s*	*127xDS1 1024QAM*						82.5	85.0	88.0
ACM/Fixed	*658 Mb/s*	*864 Mb/s*	*127xDS1 2048QAM*						78.25	80.75	
ACM/Fixed	*716 Mb/s*	*940 Mb/s*	*127xDS1 4096QAM*						72.5	75.0	

*[ ] See notes in last page

Regarding EHP L6 and U6 when using unpaired frequencies see Eclipse user Manual for “Small non-standard T/R spacings”.

[1] Includes waveguide terminator (0.75 in/19mm).

[2] IRU 600v4 complies in all areas except for R9-16 and R10-5, GR-1089-CORE. INU complies in all areas except for R10-5, GR-1089-CORE and R4-34, O4-35, O4-36, GR-63-CORE.

[3] Complies with the exception of clause 3.1.1 (operational temperature range) and clause 10 (device cooling).

[4] RSSI accuracy applies when there is no potential interferer signal present within +/- 10MHz of the Rx. Frequency.

[5] Please contact your Aviat Networks representative for details.

[6] 64 byte frames, physical layer, with DAC GE3.

[7] Enabling TDM transport will subtract equivalent capacity from available Ethernet Throughput figures shown.

Disclaimer:
This material is for informational purposes only and does not constitute a legal obligation to deliver any product, feature or functionality and should not be relied upon in making purchasing decisions. All specifications are guaranteed values, at room temperature (20 to 30ºC, 68 to 86ºF), referenced to the ACU antenna port (including ACU losses) unless otherwise stated, and are subject to change without notice. The development, release and timing of any features or functionality described for our products is at Aviat Networks’ sole discretion. For details of availability, please contact your Aviat Networks Sales Representative.