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Table 7-L. Radio profiles: MPT-HC, static modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY				
		5 MHz	10 MHz	30 MHz	40 MHZ	50 MHz
Unlicensed	4 QAM		14.02 Mbps	43.85 Mbps		
	8PSK		21.13 Mbps	66.50 Mbps		
	16 QAM		28.27 Mbps	87.45 Mbps		
	32 QAM		35.23 Mbps	108.75 Mbps		
	64 QAM		44.73 Mbps	138.02 Mbps		
	128 QAM	24.36 Mbps	52.69 Mbps	162.88 Mbps		
	256 QAM		60.30 Mbps	185.37 Mbps		
Lower 6 GHz	4QAM			43.85 Mbps		
	16QAM			87.45 Mbps		
	32QAM			108.75. Mbps		
	64QAM			138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		
Upper 6 GHz	4QAM		14.02 Mbps	43.85 Mbps		
	8PSK		21.13 Mbps	66.50 Mbps		
	16QAM		28.27 Mbps	87.45 Mbps		
	32QAM		35.23 Mbps	108.75. Mbps		
	64QAM		44.73 Mbps	138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		
7/8 GHz	4QAM		14.02 Mbps	43.85 Mbps		
	8PSK		21.13 Mbps	66.50 Mbps		
	16QAM		28.27 Mbps	87.45 Mbps		
	32QAM		35.23 Mbps	108.75 Mbps		
	64QAM		44.73 Mbps	138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		
11 GHz	64QAM		44.73 Mbps	138.02 Mbps	186.97 Mbps	
	128QAM		52.69 Mbps	162.88 Mbps	220.63 Mbps	
	256QAM		60.30 Mbps	185.37 Mbps	251.09 Mbps	

Table 7-L. Radio profiles: MPT-HC, static modulation (cont.)

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY				
		5 MHz	10 MHz	30 MHz	40 MHZ	50 MHz
15 GHz	4QAM			43.85 Mbps	59.48 Mbps	74.59 Mbps
	64QAM		44.73 Mbps	138.02 Mbps	186.978 Mbps	234.22 Mbps
	128QAM		52.69 Mbps	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM		60.30 Mbps	185.37 Mbps	251.09 Mbps	314.46 Mbps
18 GHz	4QAM		14.02 Mbps	43.85 Mbps	59.48 Mbps	74.59 Mbps
	8PSK		21.13 Mbps	65.50 Mbps	88.81 Mbps	111.29 Mbps
	16QAM		28.27 Mbps	87.45 Mbps	118.51 Mbps	148.49 Mbps
	32QAM		35.23 Mbps	108.75 Mbps	147.36 Mbps	184.60 Mbps
	64QAM		44.74 Mbps	138.02 Mbps	186.97 Mbps	234.22 Mbps
	128QAM		52.70 Mbps	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM		60.31 Mbps	185.37 Mbps	251.09 Mbps	314.46 Mbps
23 GHz	64QAM		44.73 Mbps	138.02 Mbps	186.97 Mbps	234.22 Mbps
	128QAM		52.69 Mbps	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM		60.30 Mbps	185.37 Mbps	251.09 Mbps	314.46 Mbps
38 GHz	4QAM			43.85 Mbps	59.48 Mbps	74.59 Mbps
	16QAM			87.45 Mbps		
	32QAM			108.75 Mbps		
	64QAM		44.73 Mbps	138.02 Mbps	186.97 Mbps	234.22 Mbps
	128QAM		52.69 Mbps	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM		60.30 Mbps	185.37 Mbps	251.09 Mbps	314.46 Mbps

Table 7-M. Radio profiles: MPT-HC, high gain static modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY	
		40 MHz	50 MHZ
11 GHz	256QAM	220 Mbps	
15 GHz	256QAM	220 Mbps	
18 GHz	256QAM	220 Mbps	276 Mbps
23 GHz	256QAM	220 Mbps	276 Mbps
38 GHz	256QAM	220 Mbps	276 Mbps

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Table 7-N. Radio profiles: MPT-HC, XPIC, static modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / DATA PAYLOAD CAPACITY		
		30 MHz	40 MHz	50 MHz
Lower 6 GHz	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		
Upper 6 GHz	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		
7/8 GHz	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		
11 GHz	128QAM	162.88 Mbps	220.63 Mbps	
	256QAM	185.37 Mbps	251.09 Mbps	
15 GHz	128QAM	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM	185.37 Mbps	251.10 Mbps	314.46 Mbps
18 GHz	128QAM	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM	185.37 Mbps	251.09 Mbps	314.46 Mbps
23 GHz	128QAM	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM	185.37 Mbps	251.09 Mbps	314.46 Mbps
38 GHz	128QAM	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM	185.37 Mbps	251.09 Mbps	314.46 Mbps

Table 7-O. Radio profiles: MPT-HC, high gain, XPIC, static modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY	
		40 MHz	50 MHZ
11 GHz	256QAM	220 Mbps	
15 GHz	256QAM	220 Mbps	
18 GHz	256QAM	220 Mbps	276 Mbps
23 GHz	256QAM	220 Mbps	276 Mbps
38 GHz	256QAM	220 Mbps	276 Mbps

Table 7-P. Radio profiles: MPT-HC, adaptive modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / DATA PAYLOAD CAPACITY				
		5 MHz	10 MHz	30 MHz	40 MHz	50 MHz
Unlicensed	4 QAM	6.33 Mbps	14.02 Mbps	43.85 Mbps		
	8PSK	9.69 Mbps	21.13 Mbps	66.50 Mbps		
	16 QAM	13.03 Mbps	28.27 Mbps	87.45 Mbps		
	32 QAM	16.13 Mbps	35.23 Mbps	108.75 Mbps		
	64 QAM	20.58 Mbps	44.73 Mbps	138.02 Mbps		
	128 QAM	24.36 Mbps	52.69 Mbps	162.88 Mbps		
	256 QAM		60.30 Mbps	185.37 Mbps		
Lower 6 GHz	4QAM[1]			43.85 Mbps		
	16QAM[1]			87.45 Mbps		
	32QAM[1]			108.75 Mbps		
	64QAM			138.02 Mbps		
	128QAM			162.88 Mbps		
	256QAM			185.37 Mbps		
Upper 6 GHz	4QAM[1]		14.02 Mbps	43.85 Mbps		
	8PSK[1]		21.13 Mbps	66.50 Mbps		
	16QAM[1]		28.27 Mbps	87.45 Mbps		
	32QAM[1]		35.23 Mbps	108.75 Mbps		
	64QAM		44.73 Mbps	138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		
7/8 GHz	4QAM		14.02 Mbps	43.85 Mbps		
	8PSK		21.13 Mbps	66.50 Mbps		
	16QAM		28.27 Mbps	87.45 Mbps		
	32QAM		35.23 Mbps	108.75 Mbps		
	64QAM		44.73 Mbps	138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		
11 GHz	4QAM[1]			43.85 Mbps	59.48 Mbps	74.59 Mbps
	64QAM			138.02 Mbps	186.97 Mbps	234.22 Mbps
	128QAM			162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM			185.37 Mbps	251.09 Mbps	314.46 Mbps

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Table 7-P. Radio profiles: MPT-HC, adaptive modulation (cont.)

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / DATA PAYLOAD CAPACITY				
		5 MHz	10 MHz	30 MHz	40 MHz	50 MHz
15 GHz	4QAM			43.85 Mbps	59.48 Mbps	74.59 Mbps
	64QAM		44.73 Mbps	138.02 Mbps	186.98 Mbps	234.23 Mbps
	128QAM		52.69 Mbps	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM		60.30 Mbps	185.37 Mbps	251.09 Mbps	314.46 Mbps
18 GHz	4QAM		14.02 Mbps	43.85 Mbps	59.48 Mbps	74.59 Mbps
	8PSK		21.13 Mbps	65.50 Mbps	88.81 Mbps	111.29 Mbps
	16QAM		28.27 Mbps	87.45 Mbps	118.51 Mbps	148.49 Mbps
	32QAM		35.23 Mbps	108.75 Mbps	147.36 Mbps	184.60 Mbps
	64QAM		44.73 Mbps	138.02 Mbps	186.97 Mbps	234.22 Mbps
	128QAM		52.69 Mbps	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM		60.30 Mbps	185.37 Mbps	251.09 Mbps	314.46 Mbps
23 GHz	4QAM			43.85 Mbps	59.48 Mbps	74.59 Mbps
	64QAM			138.02 Mbps	186.97 Mbps	234.22 Mbps
	128QAM			162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM			185.37 Mbps	251.09 Mbps	314.46 Mbps
38 GHz	4QAM			43.85 Mbps	59.48 Mbps	74.59 Mbps
	16QAM			87.45 Mbps		
	32QAM			108.75 Mbps		
	64QAM			138.02 Mbps	186.97 Mbps	234.22 Mbps
	128QAM			162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM			185.37 Mbps	251.09 Mbps	314.46 Mbps

[1] Subject to FCC Part 101 Rules.

Table 7-Q. Radio profiles: MPT-HC, XPIC, adaptive modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / DATA PAYLOAD CAPACITY		
		30 MHz	40 MHz	50 MHz
Upper 6 GHz	64QAM	138.02 Mbps		
	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		
7/8 GHz	64QAM	138.02 Mbps		
	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		

Table 7-Q. Radio profiles: MPT-HC, XPIC, adaptive modulation (cont.)

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / DATA PAYLOAD CAPACITY		
		30 MHz	40 MHz	50 MHz
15 GHz	64QAM	138.02 Mbps	186.98 Mbps	234.23 Mbps
	128QAM	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM	185.37 Mbps	251.10 Mbps	314.46 Mbps
18 GHz	64QAM	138.02 Mbps	186.98 Mbps	234.23 Mbps
	128QAM	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM	185.37 Mbps	251.10 Mbps	314.46 Mbps
23 GHz	64QAM	138.02 Mbps	186.98 Mbps	234.23 Mbps
	128QAM	162.88 Mbps	220.63 Mbps	276.37 Mbps
	256QAM	185.37 Mbps	251.10 Mbps	314.46 Mbps

Table 7-R. Radio profiles: MPT-XP, static modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY				
		5 MHz	10 MHz	30 MHz	40 MHZ	50 MHz
Lower 6 GHz	4QAM			43.85 Mbps		
	16QAM			87.45 Mbps		
	32QAM			108.75. Mbps		
	64QAM			138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		
Upper 6 GHz	4QAM		14.02 Mbps	43.85 Mbps		
	8PSK		21.13 Mbps	66.50 Mbps		
	16QAM		28.27 Mbps	87.45 Mbps		
	32QAM		35.23 Mbps	108.75. Mbps		
	64QAM		44.73 Mbps	138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		
7/8 GHz	4QAM		14.02 Mbps	43.85 Mbps		
	8PSK		21.13 Mbps	66.50 Mbps		
	16QAM		28.27 Mbps	87.45 Mbps		
	32QAM		35.23 Mbps	108.75 Mbps		
	64QAM		44.73 Mbps	138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		

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Table 7-S. Radio profiles: MPT-XP, XPIC, static modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / DATA PAYLOAD CAPACITY		
		30 MHz	40 MHz	50 MHz
Lower 6 GHz	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		
Upper 6 GHz	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		
7/8 GHz	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		

Table 7-T. Radio profiles: MPT-XP, adaptive modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / DATA PAYLOAD CAPACITY				
		5 MHz	10 MHz	30 MHz	40 MHz	50 MHz
Lower 6 GHz	4QAM[1]			43.85 Mbps		
	16QAM[1]			87.45 Mbps		
	32QAM[1]			108.75 Mbps		
	64QAM			138.02 Mbps		
	128QAM			162.88 Mbps		
	256QAM			185.37 Mbps		
Upper 6 GHz	4QAM[1]		14.02 Mbps	43.85 Mbps		
	8PSK[1]		21.13 Mbps	66.50 Mbps		
	16QAM[1]		28.27 Mbps	87.45 Mbps		
	32QAM[1]		35.23 Mbps	108.75 Mbps		
	64QAM		44.73 Mbps	138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		
7/8 GHz	4QAM		14.02 Mbps	43.85 Mbps		
	8PSK		21.13 Mbps	66.50 Mbps		
	16QAM		28.27 Mbps	87.45 Mbps		
	32QAM		35.23 Mbps	108.75 Mbps		
	64QAM		44.73 Mbps	138.02 Mbps		
	128QAM		52.69 Mbps	162.88 Mbps		
	256QAM		60.30 Mbps	185.37 Mbps		

[1] Subject to FCC Part 101 Rules.

Table 7-U. Radio profiles: MPT-XP, XPIC, adaptive modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / DATA PAYLOAD CAPACITY		
		30 MHz	40 MHz	50 MHz
Upper 6 GHz	64QAM	138.02 Mbps		
	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		
7/8 GHz	64QAM	138.02 Mbps		
	128QAM	162.88 Mbps		
	256QAM	185.37 Mbps		

Table 7-V. Radio profiles: MPT-HL, static modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY			
		5 MHz	10 MHz	30 MHZ	40 MHZ
Unlicensed	4 QAM			114.2 Mbps	
	16 QAM			114.2 Mbps	
	32 QAM		37.3 Mbps	114.2 Mbps	
	64 QAM				
	128 QAM	25.8 Mbps	52.6 Mbps	160.2 Mbps	
	256 QAM			183.3 Mbps	
Lower 6 GHz	32 QAM		52.6 Mbps	160.2 Mbps	
	128 QAM	25.8 Mbps	52.6 Mbps	160.2 Mbps	
	256 QAM			183.3 Mbps	
Upper 6 GHz	128 QAM	25.8 Mbps	52.6 Mbps	160.2 Mbps	
	256 QAM			183.3 Mbps	
7/8 GHz	32 QAM		37.3 Mbps	114.2 Mbps	
	128 QAM	25.8 Mbps	52.6 Mbps	160.2 Mbps	
	256 QAM			183.3 Mbps	
10.5 GHz	128 QAM	25.8 Mbps			
11 GHz	32 QAM		37.3 Mbps	114.2 Mbps	
	128 QAM	25.8 Mbps	52.6 Mbps	160.2 Mbps	213.9 Mbps
	256 QAM			183.3 Mbps	245.2 Mbps

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Table 7-W. Radio profiles: MPT-HL, high gain, static modulation

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY
		30 MHZ
Lower 6 GHz	128 QAM	131.1 Mbps
	256 QAM	160.2 Mbps
Upper 6 GHz	128 QAM	131.1 Mbps
	256 QAM	160.2 Mbps
7/8 GHz	128 QAM	131.1 Mbps
	256 QAM	160.2 Mbps
11 GHz	128 QAM	131.1 Mbps
	256 QAM	160.2 Mbps

Table 7-X. Radio profiles: MPT-HL, adaptive modulation Note from writer: the SIT metrics sheet shows only L6 profiles supported. Figures in bold are from the SRS.Should the other profiles be removed?

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY
		30 MHZ
Unlicensed	4 QAM	44.9 Mbps
	16 QAM	90.9 Mbps
	64 QAM	136.9 Mbps
	128 QAM	159.9 Mbps
	256 QAM	182.9 Mbps
Lower 6 GHz	4 QAM	44.4 Mbps
	16 QAM	89.9 Mbps
	64 QAM	135.4 Mbps
	128 QAM	158.1Mbps
	256 QAM	180.9 Mbps
Upper 6 GHz	4 QAM	44.9 Mbps
	16 QAM	90.9 Mbps
	64 QAM	136.9 Mbps
	128 QAM	159.9 Mbps
	256 QAM	182.9 Mbps
7/8 GHz	4 QAM	44.9 Mbps
	16 QAM	90.9 Mbps
	64 QAM	136.9 Mbps
	128 QAM	159.9 Mbps
	256 QAM	182.9 Mbps

Table 7-X. Radio profiles: MPT-HL, adaptive modulation (cont.) Note from writer: the SIT metrics sheet shows only L6 profiles supported. Figures in bold are from the SRS.Should the other profiles be removed?

CHANNEL FREQUENCY	MODULATION SCHEME	BANDWIDTH / MAXIMUM DATA PAYLOAD CAPACITY
		30 MHZ
10.5 GHz	4 QAM	44.9 Mbps
	16 QAM	90.9 Mbps
	64 QAM	136.9 Mbps
	128 QAM	159.9 Mbps
	256 QAM	182.9 Mbps
11 GHz	4 QAM	44.9 Mbps
	16 QAM	90.9 Mbps
	64 QAM	136.9 Mbps
	128 QAM	159.9 Mbps
	256 QAM	182.9 Mbps

DS1 interface

Table 7-Y. DS1 interface specifications

ITEM	CHARACTERISTICS
1. Location	DS1 connectors on P32E1DS1 card equipped in MSS-8 shelf
2. Function	Couples DS1s into and out of P32E1DS1 card equipped in MSS-8 shelf
3. Capacity	32 unprotected DS1s per P32E1DS1 card 32 protected DS1s per pair of P32E1DS1 cards
4. Frequency	1.544 Mb/s ±32 pulse position modulation (ppm)
5. Line code	AMI (bipolar) with B8ZS coding

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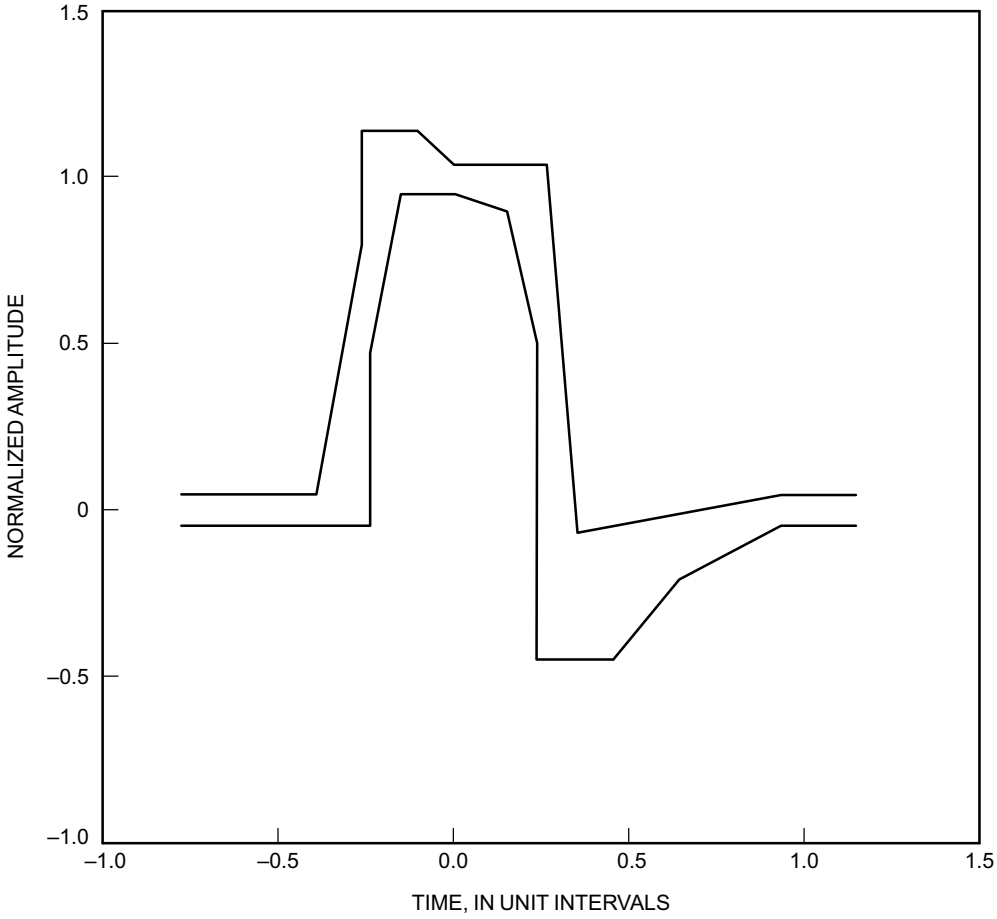
Table 7-Y. DS1 interface specifications (cont.)

ITEM	CHARACTERISTICS
6. Line impedance	100 ohms ±5%, balanced
7. Level	Measured with all 1's signal in 3 kHz bandwidth centered at 772 kHz into100 ohms ±5%
Input @ 772 kHz	+12.6 to +17.9 dBm at equal-level point plus attenuation of 0 to 655 ft of cable
Output @ 772 kHz	+12.6 to +17.9 dBm at equal-level point after attenuation of 0 to 655 ft of cable
Output @ 1.544 MHz	More than 29 dB below level at 772 kHz
8. Pulse shape:	
Output	Complies with GR-499-CORE. Meets DS1 format template requirements (see figure 7-1).
9. Cable type	Twisted-pair cable, typical 22 AWG ABAM. Complies with ANSI T1.102-1993
Maximum cable length	660 ft from defined DSX-level point

Figure 7-1. DS1 format template



MAXIMUM CURVE

TIME UNIT INTERVALS	–0.77	–0.39	–0.27	–0.27	–0.12	0.00	0.27	0.35	0.93	1.16
NORMALIZED AMPLITUDE	0.05	0.05	0.80	1.15	1.15	1.05	1.05	–0.07	0.05	0.05

MINIMUM CURVE

TIME UNIT INTERVALS	–0.77	–0.23	–0.23	–0.15	0.00	0.15	0.23	0.23	0.46	0.66	0.93	1.16
NORMALIZED AMPLITUDE	–0.05	–0.05	0.50	0.95	0.95	0.90	0.50	–0.45	–0.45	–0.20	–0.05	–0.05

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Figure 7-2. DS1 input jitter accommodation

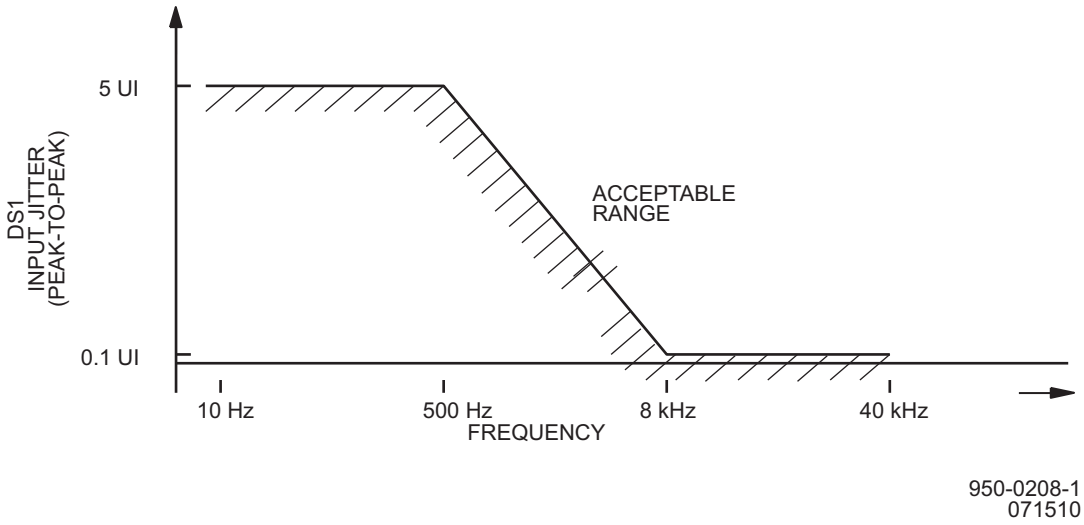


Figure 7-3. DS1 jitter transfer characteristics

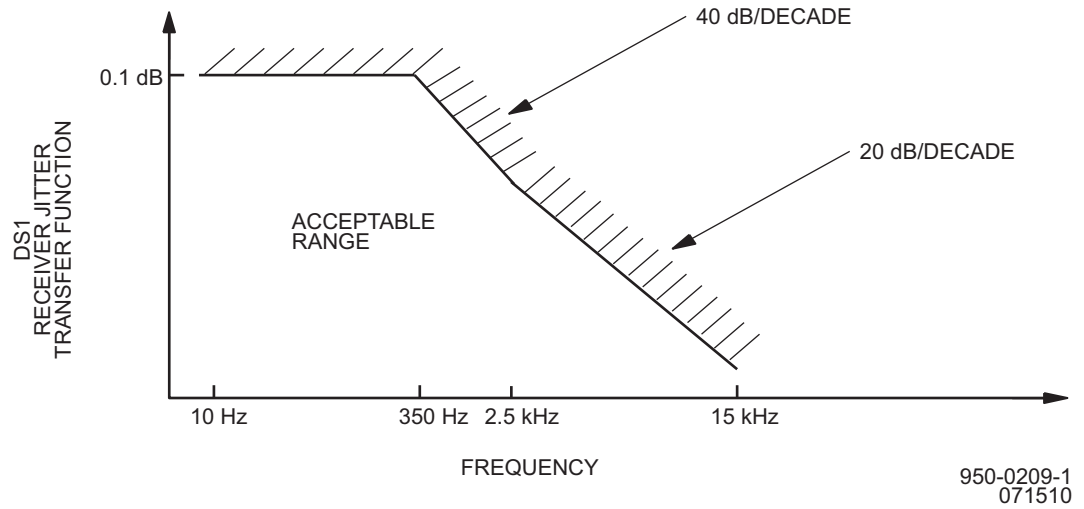
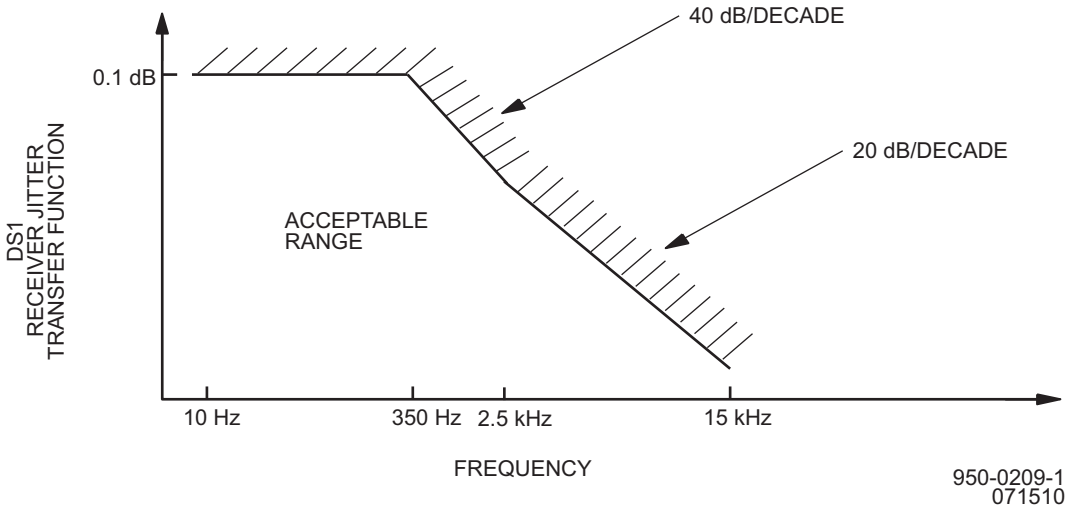


Figure 7-4. DS1 jitter measurement filter characteristics



DS3 interface

Table 7-Z. DS3 interface specifications

ITEM	CHARACTERISTICS
1. Location	Mini-BNC connectors on the P2E3DS3 card equipped in the MSS-8 shelf
2. Function	Couples DS3s into and out of P2E3DS3 card
3. Capacity	1 to 2 full-duplex DS3 ports per P2E3DS3 card
4. Frequency	44.736 Mb/s ±20 ppm
5. Line code	AMI (bipolar) with B3ZS coding
6. Format	Asynchronous framed DS3 per ANSI T1.107-1997 standard. See figure 7-5. DS3 C-bit parity with C-bit mode operation per ANSI Standard T1.107a (R5.0)
7. Line impedance	75 ohms +5%, unbalanced
8. Level	Measured with all 1's signal and 3 kHz bandwidth into 75 ohms +5%
Input @ 22 MHz	-1.8 to +5.7 dBm at equal-level point less attenuation of 0 to 450 ft of cable
Output @ 44 MHz	More than 20 dB below level @ 22 MHz
9. Pulse shape:	
Output	Compliant with GR-499-CORE. Meets DS3 format template requirements (see figure 7-5).
10. Cable type	75 ohm BNC coaxial cables, 728A
11. Mating connector type	Mini-BNC male

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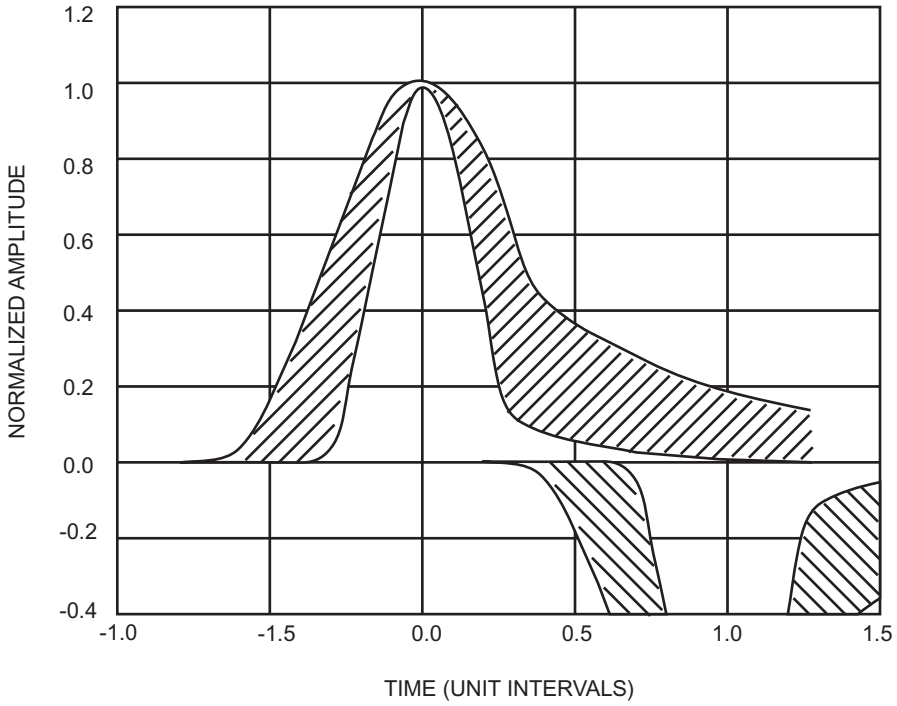
Table 7-Z. DS3 interface specifications (cont.)

ITEM	CHARACTERISTICS
12. Jitter	All measurements are made on a half-duplex cross-connection.
Input accommodation	See figure 7-6.
Output transfer	See figure 7-7.
Generation	0.5 unit interval (UI) p-p nominal 0.7 unit interval (UI) p-p maximum Filter used to measure jitter must have shape shown in figure 7-8.

Figure 7-5. Asynchronous DS3 format template



INVERTED PULSE SHOWN TO AID OSCILLOSCOPE TIME-BASE ADJUSTMENT

CURVE	TIME UNIT INTERVALS	NORMALIZED AMPLITUDE
MAXIMUM CURVE	$-0.85 \le T \le -0.68$	0.03
	$-0.68 \le T \le 0.36$	$0.5\left\{1 + \sin\left[\left(\frac{\pi}{2}\right)\left(1 + \frac{T}{0.34}\right)\right]\right\} + 0.03$
	$0.36 \le T \le 1.4$	$0.08 + 0.407\, e^{-1.84\,(T - 0.36)}$
MINIMUM CURVE	$-0.85 \le T \le -0.36$	-0.03
	$-0.36 \le T \le 0.36$	$0.5\left\{1 + \sin\left[\left(\frac{\pi}{2}\right)\left(1 + \frac{T}{0.18}\right)\right]\right\} - 0.03$
	$0.36 \le T \le 1.4$	-0.03

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PRELIMINARY

Figure 7-6. DS3 input jitter accommodation

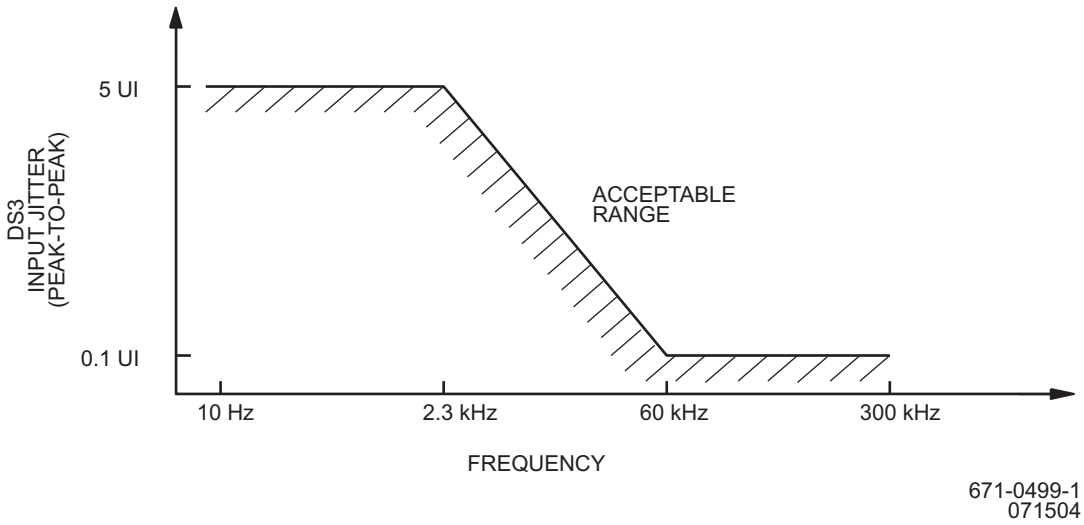


Figure 7-7. DS3 jitter transfer characteristics

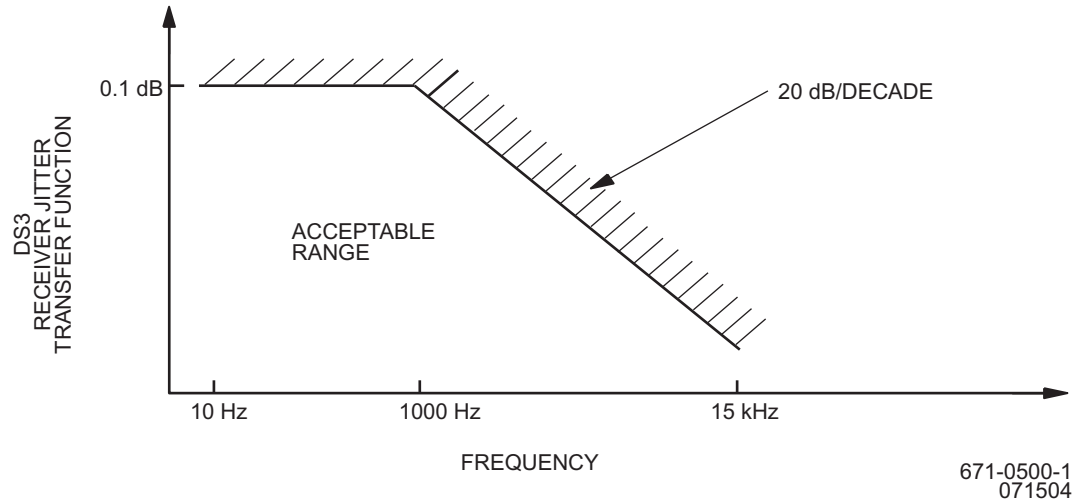
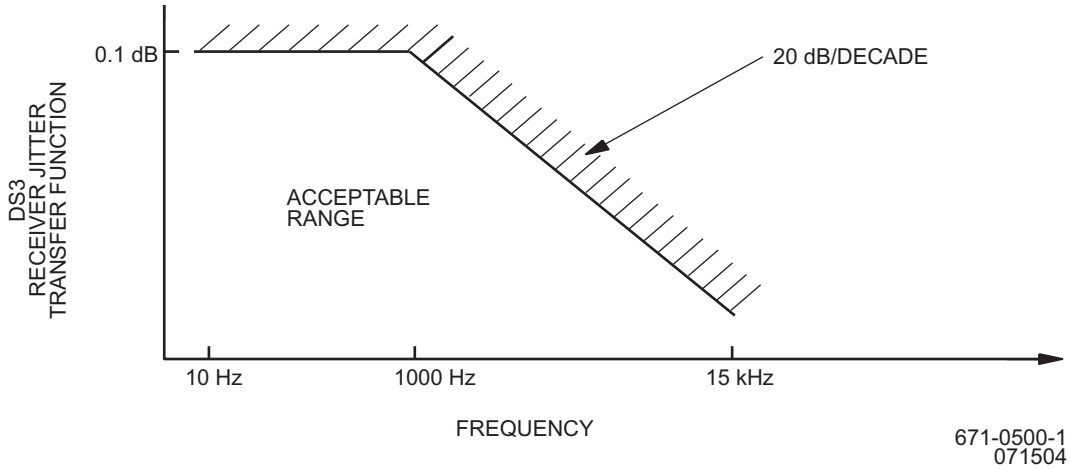
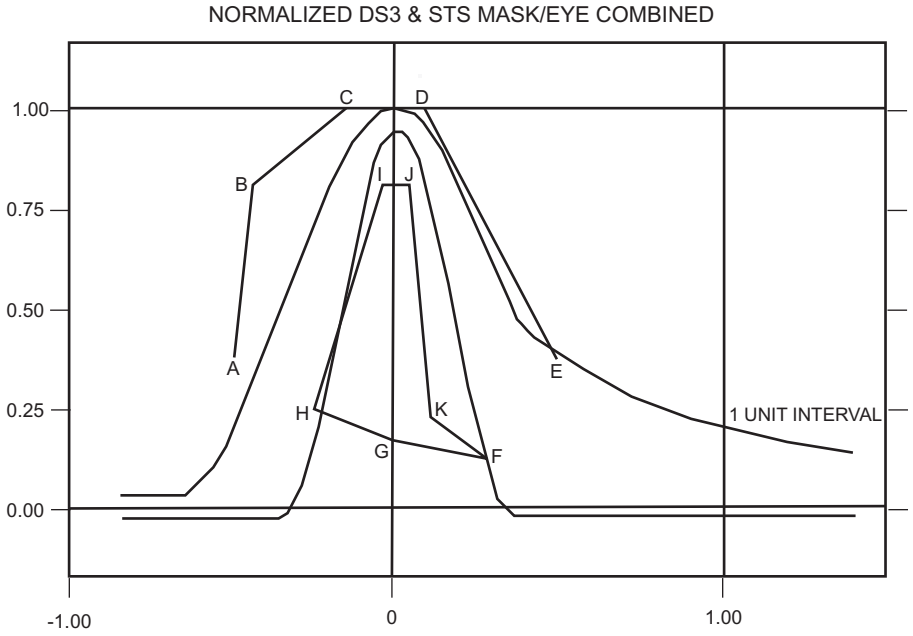


Figure 7-8. DS3 jitter measurement filter characteristics



PRELIMINARY

Figure 7-9. Combined STS-1 and DS3 Format Template



DS3 MASK

UPPER CURVE	AMPLITUDE
$-0.85 \le T \le -0.68$	0.03
$-0.68 \le T \le 0.36$	$0.5\left\{1 + \sin\left[\left(\frac{\pi}{2}\right)\left(1 + \frac{T}{0.34}\right)\right]\right\} + 0.03$
$0.36 \le T \le 1.4$	$0.08 + 0.407\, e^{-1.84\,(T - 0.36)}$
LOWER CURVE	
$-0.85 \le T \le -0.36$	-0.03
$-0.36 \le T \le 0.36$	$0.5\left\{1 + \sin\left[\left(\frac{\pi}{2}\right)\left(1 + \frac{T}{0.18}\right)\right]\right\} - 0.03$
$0.36 \le T \le 1.4$	-0.03

STS EYE DIAGRAM

OUTER REGION CORNER POINTS	TIME	AMPLITUDE	INNER REGION CORNER POINTS	TIME	AMPLITUDE
A	-0.50	0.37	F	0.28	0.12
B	-0.44	0.80	G	0.00	0.16
C	-0.15	1.00	H	-0.25	0.24
D	0.08	1.00	I	-0.04	0.80
E	0.50	0.37	J	0.04	0.80
			K	0.11	0.22

STS-1 MASK

UPPER CURVE	AMPLITUDE
$-0.85 \le T \le -0.68$	0.03
$-0.68 \le T \le 0.26$	$0.5\left\{1 + \sin\left[\left(\frac{\pi}{2}\right)\left(1 + \frac{T}{0.34}\right)\right]\right\} + 0.03$
$0.26 \le T \le 1.4$	$0.1 + 0.61\, e^{-2.4\,(T - 0.26)}$
LOWER CURVE	
$-0.85 \le T \le -0.36$	-0.03
$-0.36 \le T \le 0.36$	$0.5\left\{1 + \sin\left[\left(\frac{\pi}{2}\right)\left(1 + \frac{T}{0.18}\right)\right]\right\} - 0.03$
$0.36 \le T \le 1.4$	-0.03

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UDS-100
9500 MPR-A unit data sheet cross-reference

Unit Data Sheet Cross-Reference by UDS Number

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-100	9500 MPR-A unit data sheet cross-reference	N/A	N/A	N/A
UDS-101	MSS-8 Microwave Service Switch Shelf	N/A	Inactive	3DB18485AA
	MSS-8 Microwave Service Switch Shelf	CRMLB10HRA	Active	3DB18485AB
UDS-102	MPT-HL Microwave Packet transport-Long Haul Shelf	N/A	Active	3EM22618AB
UDS-103	CSM-E Enhanced Control and Switching Module	CRCCAEVEAA	Active	3DB18326AC
UDS-104	MOD300 Radio Interface	N/A	Inactive	3DB18136AC
	MOD300 Radio Interface	N/A	Inactive	3DB18136AD
	MOD300 Radio Interface	CRG2ABVDAA	Active	3DB18136AE
	MOD300EN Radio Interface	CRG2ABWDAA	Active	3DB18538AC
UDS-105	P32E1DS1 DS1 PDH Card	N/A	Inactive	3DB18126AD
	P32E1DS1 DS1 PDH Card	CRG2ABUDAA	Active	3DB18126AE
UDS-106	P2E3DS3 DS3 PDH Card	N/A	Inactive	3DB18194AB
	P2E3DS3 DS3 PDH Card	CRG2AA9DAA	Active	3DB18194AC
UDS-107	P8ETH Ethernet Access Switch Card	CRCCACGJAA	Active	3DB18206AC
UDS-108	**ODU300, L6 GHz, 252.04 MHz SEPARATION**			
	ODU300, 5930 - 6020 MHZ, HP, TX LOW	N/A	Inactive	3DB23215AA
	ODU300, 5989 - 6079 MHZ, HP, TX LOW	N/A	Inactive	3DB23215AB
	ODU300, 6078 - 6168 MHZ, HP, TX LOW	N/A	Inactive	3DB23215AC
	ODU300, 6182 - 6272 MHZ, HP, TX HIGH	N/A	Inactive	3DB23215AD
	ODU300, 6241 - 6331 MHZ, HP, TX HIGH	N/A	Inactive	3DB23215AE
	ODU300, 6330 - 6420 MHZ HP, TX HIGH	N/A	Inactive	3DB23215AF
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR, L6 GHz, 252.04 MHz SEPARATION**			
	ODU300, 5930 - 6020 MHZ, HP, TX LOW	CRMLT10HRB	Active	3DB23215HA
	ODU300, 5989 - 6079 MHZ, HP, TX LOW	CRMLV10HRB	Active	3DB23215HB
	ODU300, 6078 - 6168 MHZ, HP, TX LOW	CRMLX10HRB	Active	3DB23215HC
	ODU300, 6182 - 6272 MHZ, HP, TX HIGH	CRMLU10HRB	Active	3DB23215HD
	ODU300, 6241 - 6331 MHZ, HP, TX HIGH	CRMLW10HRB	Active	3DB23215HE
	ODU300, 6330 - 6420 MHZ HP, TX HIGH	CRMLY10HRB	Active	3DB23215HF

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-108	**ODU300, U6 GHz, 160 MHz SEPARATION**			
	ODU300, 6540 - 6610 MHZ, HP, TX LOW	N/A	Inactive	3DB23214AA
	ODU300, 6710 - 6780 MHZ, HP, TX HIGH	N/A	Inactive	3DB23214AB
	ODU300, 6590 - 6660 MHZ, HP, TX LOW	N/A	Inactive	3DB23214AC
	ODU300, 6760 - 6830 MHZ, HP, TX HIGH	N/A	Inactive	3DB23214AD
	ODU300, 6640 - 6710 MHZ, HP, TX LOW	N/A	Inactive	3DB23214AE
	ODU300, 6800 - 6870 MHZ, HP, TX HIGH	N/A	Inactive	3DB23214AF
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR, U6 GHz, 160 MHz SEPARATION**			
	ODU300, 6540 - 6610 MHZ, HP, TX LOW	CRMLZ10HRB	Active	3DB23214HA
	ODU300, 6710 - 6780 MHZ, HP, TX HIGH	CRML110HRB	Active	3DB23214HB
	ODU300, 6590 - 6660 MHZ, HP, TX LOW	CRML210HRB	Active	3DB23214HC
	ODU300, 6760 - 6830 MHZ, HP, TX HIGH	CRML310HRB	Active	3DB21214HD
	ODU300, 6640 - 6710 MHZ, HP, TX LOW	CRML410HRB	Active	3DB23214HE
	ODU300, 6800 - 6870 MHZ, HP, TX HIGH	CRML510HRB	Active	3DB23214HF
UDS-108	**ODU300, U6 GHz, 340 MHz SEPARATION**			
	ODU300, 6430 - 6590 MHz, HP TX LOW	N/A	Inactive	3DB23216AA
	ODU300, 6770 - 6930 MHz, HP TX HIGH	N/A	Inactive	3DB23216AB
	ODU300, 6515 - 6675 MHz, HP TX LOW	N/A	Inactive	3DB23216AC
	ODU300, 6855 - 7015 MHz, HP TX HIGH	N/A	Inactive	3DB23216AD
	ODU300, 6600 - 6760 MHz, HP TX LOW	N/A	Inactive	3DB23216AE
	ODU300, 6940 - 7100 MHz, HP TX HIGH	N/A	Inactive	3DB23216AF
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR, U6 GHz, 340 MHz SEPARATION**			
	ODU300, 6430 - 6590 MHz, HP TX LOW	CRML610HRB	Active	3DB23216HA
	ODU300, 6770 - 6930 MHz, HP TX HIGH	CRML710HRB	Active	3DB23216HB
	ODU300, 6515 - 6675 MHz, HP TX LOW	CRML810HRB	Active	3DB23216HC
	ODU300, 6855 - 7015 MHz, HP TX HIGH	CRML910HRB	Active	3DB23216HD
	ODU300, 6600 - 6760 MHz, HP TX LOW	CRMMA00ARB	Active	3DB23216HE
	ODU300, 6940 - 7100 MHz, HP TX HIGH	CRMMB00ARB	Active	3DB23216HF
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR, 7 GHz, 175 MHz SEPARATION**			
	ODU300, 7124 - 7185 MHz, HP, TX Low	N/A	Active	3DB23223HA
	ODU300, 7299 - 7360 MHz, HP, TX High	N/A	Active	3DB23224HA
	ODU300, 7157.5 - 7217.5 MHz, HP, TX Low	N/A	Active	3DB23225HA
	ODU300, 7332.5 - 7392.5 MHz, HP, TX High	N/A	Active	3DB23226HA
	ODU300, 7190 - 7250 MHz, HP, TX Low	N/A	Active	3DB23227HA
	ODU300, 7365 - 7425 MHz, HP, TX High	N/A	Active	3DB23228HA

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR, 7 GHz, 150 MHz SEPARATION**			
	ODU300, 7424 - 7485 MHz, HP, TX Low	N/A	Active	3DB23217HA
	ODU300, 7574 - 7635 MHz, HP, TX High	N/A	Active	3DB23218HA
	ODU300, 7470 - 7530 MHz, HP, TX Low	N/A	Active	3DB23219HA
	ODU300, 7620 - 7680 MHz, HP, TX High	N/A	Active	3DB23220HA
	ODU300, 7515 - 7575 MHz, HP, TX Low	N/A	Active	3DB23221HA
	ODU300, 7665 - 7725 MHz, HP, TX High	N/A	Active	3DB23222HA
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR, 8 GHz, 300 MHz SEPARATION**			
	ODU300, 7722.5 - 7859 MHz, HP, TX Low	N/A	Active	3DB23033HA
	ODU300, 8025 - 8171 MHz, HP, TX High	N/A	Active	3DB23033HC
	ODU300, 7844 - 7981 MHz, HP, TX Low	N/A	Active	3DB23033HB
	ODU300, 8145 - 8287 MHz, HP, TX High	N/A	Active	3DB23033HD
UDS-108	**ODU300 11 GHz, 590-490 MHz SEPARATION**			
	ODU300, 10675 - 10835 MHZ, TX LOW	N/A	Inactive	3DB23035AA
	ODU300, 10795 - 10955 MHZ, TX LOW	N/A	Inactive	3DB23035AB
	ODU300, 10915 - 11075 MHZ, TX LOW	N/A	Inactive	3DB23035AC
	ODU300, 11035 - 11200 MHZ, TX LOW	N/A	Inactive	3DB23035AD
	ODU300, 11200 - 11345 MHZ, TX HIGH	N/A	Inactive	3DB23035AE
	ODU300, 11310 - 11465 MHZ, TX HIGH	N/A	Inactive	3DB23035AF
	ODU300, 11430 - 11585 MHZ, TX HIGH	N/A	Inactive	3DB23035AG
	ODU300, 11550 - 11705 MHZ, TX HIGH	N/A	Inactive	3DB23035AH
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR 11 GHz, 590-490 MHz SEPARATION**			
	ODU300, 10675 - 10835 MHZ, TX LOW	CRMMC00ARB	Active	3DB23035HA
	ODU300, 10795 - 10955 MHZ, TX LOW	CRMME00ARB	Active	3DB23035HB
	ODU300, 10915 - 11075 MHZ, TX LOW	CRMMG00ARB	Active	3DB23035HC
	ODU300, 11035 - 11200 MHZ, TX LOW	CRMMJ00ARB	Active	3DB23035HD
	ODU300, 11200 - 11345 MHZ, TX HIGH	CRMMD00ARB	Active	3DB23035HE
	ODU300, 11310 - 11465 MHZ, TX HIGH	CRMMF00ARB	Active	3DB23035HF
	ODU300, 11430 - 11585 MHZ, TX HIGH	CRMMH00ARB	Active	3DB23035HG
	ODU300, 11550 - 11705 MHZ, TX HIGH	CRMMK00ARB	Active	3DB23035HH
UDS-108	**ODU300 15 GHz, 475/490 MHz SEPARATION**			
	ODU300, 14500 - 14660 MHZ, TX LOW	N/A	Inactive	3DB23039AC
	ODU300, 14975 - 15135 MHZ, TX HIGH	N/A	Inactive	3DB23039AD

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR 15 GHz, 475/490 MHz SEPARATION**			
	ODU300, 14500 - 14660 MHZ, TX LOW	N/A	Active	3DB23039HC
	ODU300, 14975 - 15135 MHZ, TX HIGH	N/A	Active	3DB23039HD
UDS-108	**ODU300 18 GHz, 340 MHz SEPARATION**			
	ODU300, 18580 - 18660 MHZ, TX LOW	N/A	Inactive	3DB23041AA
	ODU300, 18660 - 18740 MHZ, TX LOW	N/A	Active	3DB23041AB
	ODU300, 18740 - 18820 MHZ, TX LOW	N/A	Inactive	3DB23041AC
	ODU300, 18920 - 19000 MHZ, TX HIGH	N/A	Active	3DB23041AD
	ODU300, 19000 - 19080 MHZ, TX HIGH	N/A	Inactive	3DB23041AE
	ODU300, 19080 - 19160 MHZ, TX HIGH	N/A	Active	3DB23041AF
UDS-108	**ODU300 18 GHz, 1008/1010/1092/1120 MHz SEPARATION**			
	ODU300, 17700 - 18060 MHZ, TX LOW	N/A	Active	3DB23042AA
	ODU300, 17905 - 18275 MHZ, TX LOW	N/A	Active	3DB23042AB
	ODU300, 18110 - 18490 MHZ, TX LOW	N/A	Inactive	3DB23042AC
	ODU300, 18330 - 18690 MHZ, TX LOW	N/A	Inactive	3DB23042AD
	ODU300, 18710 - 19070 MHZ, TX HIGH	N/A	Active	3DB23042AE
	ODU300, 18920 - 19290 MHZ, TX HIGH	N/A	Inactive	3DB23042AF
	ODU300, 19130-19510 MHZ, TX HIGH	N/A	Active	3DB23042AG
	ODU300, 19340 - 19700 MHZ, TX HIGH	N/A	Inactive	3DB23042AH
UDS-108	**ODU300 18 GHz, 1560 MHz SEPARATION**			
	ODU300, 17700 - 18060 MHZ, TX LOW	N/A	Inactive	3DB23062AC
	ODU300, 19260 - 19620 MHZ, TX HIGH	N/A	Inactive	3DB23062AD
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR 18 GHz, 1560 MHz SEPARATION**			
	ODU300, 17700 - 18060 MHZ, TX LOW	CRMML00ARB	Active	3DB23062HC
	ODU300, 19260 - 19620 MHZ, TX HIGH	CRMMM00ARB	Active	3DB23062HD
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR 18 GHz, 1560 MHz SEPARATION, HIGH POWER**			
	ODU300, 17700 - 18140 MHZ, TX LOW, HP	N/A	Active	3DB23062HE
	ODU300, 19260 - 19700 MHZ, TX HIGH, HP	N/A	Active	3DB23062HF

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-108	**ODU300 23 GHz, 1200 MHz SEPARATION**			
	ODU300, 21200 - 21570 MHZ, TX LOW	N/A	Inactive	3DB23045AA
	ODU300, 21475 - 21845 MHZ, TX LOW	N/A	Inactive	3DB23045AB
	ODU300, 21750 - 22120 MHZ, TX LOW	N/A	Inactive	3DB23045AC
	ODU300, 22030 - 22400 MHZ, TX LOW	N/A	Inactive	3DB23045AD
	ODU300, 22400 - 22770 MHZ, TX HIGH	N/A	Inactive	3DB23045AE
	ODU300, 22675 - 23045 MHZ, TX HIGH	N/A	Inactive	3DB23045AF
	ODU300, 22950 - 23320 MHZ, TX HIGH	N/A	Inactive	3DB23045AG
	ODU300, 23230 - 23600 MHZ, TX HIGH	N/A	Inactive	3DB23045AH
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR 23 GHz, 1200 MHz SEPARATION**			
	ODU300, 21200 - 21570 MHZ, TX LOW	CRMMN00ARB	Active	3DB23045HA
	ODU300, 21475 - 21845 MHZ, TX LOW	CRMMR00ARB	Active	3DB23045HB
	ODU300, 21750 - 22120 MHZ, TX LOW	CRMMT00ARB	Active	3DB23045HC
	ODU300, 22030 - 22400 MHZ, TX LOW	CRMMV00ARB	Active	3DB23045HD
	ODU300, 22400 - 22770 MHZ, TX HIGH	CRMMP00ARB	Active	3DB23045HE
	ODU300, 22675 - 23045 MHZ, TX HIGH	CRMMS00ARB	Active	3DB23045HF
	ODU300, 22950 - 23320 MHZ, TX HIGH	CRMMU00ARB	Active	3DB23045HG
	ODU300, 23230 - 23600 MHZ, TX HIGH	CRMMW00ARB	Active	3DB23045HH
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR 23 GHz, 1200 MHz SEPARATION, HIGH POWER**			
	ODU300, 21200 - 21570 MHZ, TX LOW, HP	N/A	Active	3DB23045HI
	ODU300, 21475 - 21845 MHZ, TX LOW, HP	N/A	Active	3DB23045HJ
	ODU300, 21750 - 22120 MHZ, TX LOW, HP	N/A	Active	3DB23045HK
	ODU300, 22030 - 22400 MHZ, TX LOW, HP	N/A	Active	3DB23045HL
	ODU300, 22400 - 22770 MHZ, TX HIGH, HP	N/A	Active	3DB23045HM
	ODU300, 22675 - 23045 MHZ, TX HIGH, HP	N/A	Active	3DB23045HN
	ODU300, 22950 - 23320 MHZ, TX HIGH, HP	N/A	Active	3DB23258HO
	ODU300, 23230 - 23600 MHZ, TX HIGH, HP	N/A	Active	3DB23045HP

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-108	**ODU300 W/LIGHTNING SURGE SUPPRESSOR 38 GHz, 700 MHz SEPARATION**			
	ODU300, 38600 - 38800 MHZ, TX LOW	N/A	Active	3DB23258HO
	ODU300, 39300 - 39500 MHZ, TX HIGH	N/A	Active	3DB23258HP
	ODU300, 38750 - 38950 MHZ, TX LOW	N/A	Active	3DB23258HQ
	ODU300, 39450 - 39650 MHZ, TX HIGH	N/A	Active	3DB23258HR
	ODU300, 38950 - 39150 MHZ, TX LOW	N/A	Active	3DB23258HS
	ODU300, 39650 - 39850 MHZ, TX HIGH	N/A	Active	3DB23258HT
	ODU300, 39100 - 39300 MHZ, TX LOW	N/A	Active	3DB23258HU
	ODU300, 39800 - 40000 MHZ, TX HIGH	N/A	Active	3DB23258HV
UDS-109	**MPT-HL Transceivers 6/11 GHz**			
	MPT-HL Transceiver L6, 5725-6425 MHz	CRTUAAXFAA	Active	3EM22617AA
	MPT-HL Transceiver U6, 6425-6930 MHz	CRTUAAYFAA	Active	3EM22617AB
	MPT-HL Transceiver L6, 5925-6425 MHz, HP	CRTUABLFAA	Active	3EM22617AC
	MPT-HL Transceiver U6, 6425-6930 MHz, HP	CRTUABMFAA	Active	3EM22617AD
	MPT-HL Transceiver 7, 7125-7775 MHz	N/A	Active	3EM24627AA
	MPT-HL Transceiver 8, 7725-8500 MHz	N/A	Active	3EM24627AB
	MPT-HL Transceiver 10.5, 10400-10700 MHz	CRTUABPCAA	Active	3EM23888AA
	MPT-HL Transceiver 11, 10700-11200 MHz	CRTUABRCAA	Active	3EM23888AB
	MPT-HL Transceiver 11, 11200-11700 MHz	CRTUABSCAA	Active	3EM23888AC
UDS-110	Fan 2U Card	N/A	Active	3DB18134BA
	Fan 2U Card	CRCCACPJAA	Active	3DB18134BB
	Fan 2U Card W/Alarms	CRCCADYJAA	Active	3EM23911AA
	Fan 1U Card	N/A-4	Active-4	3DB18218AD
UDS-111	GigE SFP 1000Base-SX, 850 nm	DRR3AA3CAA	Active	3EM20277AA
	GigE SFP 1000Base-LX, 1310 nm	DRR3AA4CAA	Active	3EM20277AB
	GigE SFP 1000Base-EX, 1310 nm	DRR3AA5CAA	Active	3EM20277AC
	GigE SFP 1000Base-ZX, 1550 nm	DRR3AA6CAA	Active	3EM20277AD
UDS-112	PDU Power Distribution Unit	N/A	Active	3EM13317AA
UDS-114	Type N Adapter Bracket	N/A	Active	3EM23272AA
UDS-113	DS1 RJ-45 Patch Panel	N/A	Active	1AF15245AB
UDS-115	DS1 D-Connector Patch Panel	N/A	Active	3DB16102AA
UDS-116	DS3 Hybrid Splitter	N/A	Active	3EM22900AA
UDS-116	DS3 Patch Panel	N/A	Active	3EM24462AA

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-117	MSS-4 Microwave Service Switch Shelf	N/A	Active	3DB18219AB
UDS-118	MPTACC MPT Access	N/A	Active	3DB18634AB
UDS-119	**MPT-HC L6 GHz, 252.04 MHz separation with embedded diplexer**			
	MPT-HC, 5929 - 6050 MHZ, TX LOW	N/A	Active	3DB20441BA
	MPT-HC, 6182 - 6302.04 MHZ, TX HIGH	N/A	Active	3DB20443BA
	MPT-HC, 6047.96 - 6168 MHZ, TX LOW	N/A	Active	3DB20442BA
	MPT-HC, 6300 - 6420.04 MHZ, TX HIGH	N/A	Active	3DB20444BA
UDS-119	**MPT-HC U6 GHz, 160 MHz separation with embedded diplexer**			
	MPT-HC, 6540 - 6610 MHZ, TX LOW	N/A	Active	3DB20367BA
	MPT-HC, 6710 - 6780 MHZ, TX HIGH	N/A	Active	3DB20435BA
	MPT-HC, 6590 - 6660 MHZ, TX LOW	N/A	Active	3DB20434BA
	MPT-HC, 6750 - 6820 MHZ, TX HIGH	N/A	Active	3DB20436BA
	MPT-HC, 6640 - 6710 MHZ, TX LOW	N/A	Active	3DB20462BA
	MPT-HC, 6800 - 6870 MHZ, TX HIGH	N/A	Active	3DB20463BA
UDS-119	**MPT-HC U6 GHz, 340 MHz separation with embedded diplexer**			
	MPT-HC, 6420 - 6600 MHZ, TX LOW	N/A	Active	3DB20437BA
	MPT-HC, 6760 - 6940 MHZ, TX HIGH	N/A	Active	3DB20439BA
	MPT-HC, 6565 - 6720 MHZ, TX LOW	N/A	Active	3DB20438BA
	MPT-HC, 6905 - 7060 MHZ, TX HIGH	N/A	Active	3DB20440BA
	MPT-HC, 6595 - 6775 MHZ, TX LOW	N/A	Active	3DB20464BA
	MPT-HC, 6935 - 7115 MHZ, TX HIGH	N/A	Active	3DB20465BA
UDS-119	**MPT-HC 11 GHz, 490/500 MHz separation with embedded diplexer**			
	MPT-HC, 10695 - 10955 MHZ, TX LOW	CRMYAB7JRA	Inactive	3DB20371BA
	MPT-HC, 10695 - 10955 MHZ, TX LOW	N/A	Active	3DB20371BB
	MPT-HC, 11205 - 11485 MHZ, TX HIGH	CRMYAB8JRA	Inactive	3DB20547BA
	MPT-HC, 11205 - 11485 MHZ, TX HIGH	N/A	Active	3DB20547BB
	MPT-HC, 10935 - 11205 MHZ, TX LOW	CRMYAB9JRA	Inactive	3DB20546BA
	MPT-HC, 10935 - 11205 MHZ, TX LOW	N/A	Active	3DB20546BB
	MPT-HC, 11445 - 11705 MHZ, TX HIGH	CRMYACAJRA	Inactive	3DB20548BA
	MPT-HC, 11445 - 11705 MHZ, TX HIGH	N/A	Active	3DB20548BB
UDS-119	**MPT-HC 15 GHz, 475 MHz separation with embedded diplexer**			
	MPT-HC, 14500 - 14724 MHZ, TX LOW	N/A	Active	3DB20373BA
	MPT-HC, 14920 - 15144 MHZ, TX HIGH	N/A	Active	3DB20423BA

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-119	**MPT-HC 18 GHz, 1560 MHz separation with embedded diplexer**			
	MPT-HC, 17700 - 18140 MHZ	CRMYAB1JRA	Active	3DB20432BA
	MPT-HC, 19260 - 19700 MHz	CRMYAB2JRA	Active	3DB20433BA
UDS-119	**MPT-HC 23 GHz, 1200/1232 MHz separation with embedded diplexer**			
	MPT-HC, 21198 - 21819 MHZ, TX LOW	CRMYAB3JRA	Active	3DB20473BA
	MPT-HC, 22400 - 23019 MHZ, TX HIGH	CRMYAB4JRA	Active	3DB20475BA
	MPT-HC, 21781 - 22400 MHZ, TX LOW	CRMYAB5JRA	Active	3DB20474BA
	MPT-HC, 22981 - 23600 MHZ, TX HIGH	CRMYAB6JRA	Active	3DB20476BA
UDS-119	**MPT-HC 38 GHz, 700 MHz separation with embedded diplexer**			
	MPT-HC, 38600 - 38950 MHZ, TX LOW	N/A	Active	3DB20379BA
	MPT-HC, 39300 - 39650 MHZ, TX HIGH	N/A	Active	3DB20563BA
	MPT-HC, 38950 - 39300 MHZ, TX LOW	N/A	Active	3DB20562BA
	MPT-HC, 39650 - 40000 MHZ, TX HIGH	N/A	Active	3DB20564BA
UDS-119	**9558HC 5.8 GHz Unlicensed, 64 MHz separation with external diplexer**			
	9558HC, 5725.5-5785.5 MHz, TX LOW	N/A	Active	3DB20913BA
	9558HC, 5789.5-5849.5 MHz, TX HIGH	N/A	Active	3DB20914BA
UDS-119	**MPT-HC L6 GHz, 252.04 MHz separation with external diplexer**			
	MPT-HC, 5929.96 - 6168 MHZ, TX LOW	N/A	Active	3DB20800BA
	MPT-HC, 6182 - 6420.04 MHZ, TX HIGH	N/A	Active	3DB20802BA
UDS-119	**MPT-HC U6 GHz, 160/340 MHz separation with external diplexer**			
	MPT-HC, 6420 - 6775 MHZ, TX LOW	N/A	Active	3DB20804BA
	MPT-HC, 6710 - 7115 MHZ, TX HIGH	N/A	Active	3DB20806BA
UDS-119	**MPT-HC 7/8 GHz, 175/300 MHz separation with external diplexer**			
	MPT-HC, 7107 - 8377 MHZ, TX LOW	N/A	Active	3DB20454BC
	MPT-HC, 7261 - 8496.114 MHZ, TX HIGH	N/A	Active	3DB20456BC
UDS-119	**MPT-XP L6 GHz, 252.04 MHz separation with external diplexer**			
	MPT-XP, 5929.96 - 6168 MHZ, TX LOW	N/A	Active	3DB20760BA
	MPT-XP, 6182 - 6420.04 MHZ, TX HIGH	N/A	Active	3DB20761BA
UDS-119	**MPT-XP U6 GHz, 160/340 MHz separation with external diplexer**			
	MPT-XP, 6420 - 6775 MHZ, TX LOW	N/A	Active	3DB20763BA
	MPT-XP, 6710 - 7115 MHZ, TX HIGH	N/A	Active	3DB20764BA
UDS-119	**MPT-XP 7 GHz, 175 MHz separation with external diplexer**			
	MPT-XP, 7107 - 7714.5 MHZ, TX LOW	N/A	Active	3DB20771BA
	MPT-XP, 7261 - 7911 MHZ, TX HIGH	N/A	Active	3DB20772BA

UDS NUMBER	DESCRIPTION	CLEI	STATUS	PART NUMBER
UDS-119	**MPT-XP 8 GHz, 300 MHz separation with external diplexer**			
	MPT-XP, 7725 - 8377 MHZ, TX LOW	N/A	Active	3DB20773BA
	MPT-XP, 8025 - 8496.114 MHZ, TX HIGH	N/A	Active	3DB20774BA
UDS-119	**MPT-HC/XP external protection module**			
	RPS Module	N/A	Active	3DB20117BA
	XPIC+RPS Module	N/A	Inactive	3DB20116BA
	XPIC+RPS Module	N/A	Active	3DB20116BB
UDS-120	AUX Auxiliary Card	N/A	Active	3DB18236AB
UDS-121	Power Injector Card	N/A	Active	3CC50128AA
	Power Injector Box	N/A	Active	3CC50129AA
UDS-122	+24/-48 Volt Converter (2 Converters W/Chassis)	N/A	Active	3DB18862AA
	+24/-48 Volt Converter (1 Converter W/Chassis)	N/A	Active	3DB18863AA
	+24/-48 Volt Converter (Spare)	N/A	Active	3DB18764AA
UDS-123	MPT Power Unit	N/A	Active	3CC50173AA
UDS-125	MPT Extended Power Unit			
UDS-125	SDHACC OC-3 SDH Card	N/A	Active	3DB18735AA

Unit Data Sheet Cross-Reference by Part Number

PART NUMBER	DESCRIPTION	CLEI	STATUS	UDS NUMBER
1AF15245AB	DS1 RJ-45 Patch Panel	N/A	Active	UDS-113
3CC50128AA	Power Injector Card	N/A	Active	UDS-121
3CC50129AA	Power Injector Box	N/A	Active	
3CC50173AA	MPT Power Unit	N/A	Active	UDS-123
3DB16102AA	DS1 D-Connector Patch Panel	N/A	Active	UDS-115
3DB18485AA	MSS-8 Microwave Service Switch Shelf	N/A	Inactive	UDS-101
3DB18485AB	MSS-8 Microwave Service Switch Shelf	CRMLB10HRA	Active	UDS-101
3DB18126AD	P32E1DS1 DS1 PDH Card	N/A	Inactive	UDS-105
3DB18126AE	P32E1DS1 DS1 PDH Card	CRG2ABUDAA	Active	UDS-105
3DB18134BA	Fan 2U Card	N/A	Active	UDS-110
3DB18134BB	Fan 2U Card	CRCCACPJAA	Active	UDS-110
3DB18136AC	MOD300 Radio Interface	N/A	Inactive	UDS-104
3DB18136AD	MOD300 Radio Interface	N/A	Inactive	UDS-104
3DB18136AE	MOD300 Radio Interface	CRG2ABVDAA	Active	UDS-104
3DB18194AB	P2E3DS3 DS3 PDH Card	N/A	Inactive	UDS-106
3DB18194AC	P2E3DS3 DS3 PDH Card	CRG2AA9DAA	Active	UDS-106
3DB18206AC	P8ETH Ethernet Access Switch Card	CRCCACGJAA	Active	UDS-107
3DB18209AB	CSM-B Control and Switching Module	N/A	Active	UDS-103
3DB18218AD	Fan 1U Card	N/A-4	Active-4	UDS-110
3DB18219AB	MSS-4 Microwave Service Switch Shelf	N/A	Active	UDS-117
3DB18236AB	AUX Auxiliary Card	N/A	Active	UDS-120
3DB18326AC	CSM-E Enhanced Control and Switching Module	CRCCAEVEAA	Active	UDS-103
3DB18538AC	MOD300EN Radio Interface	CRG2ABWDAA	Active	UDS-104
3DB18634AB	MPTACC MPT Access	N/A	Active	UDS-118
3DB18735AA	SDHACC OC-3 SDH Card	N/A	Active	UDS-125
3DB18862AA	+24/-48 Volt Converter (2 Converters W/Chassis)	N/A	Active	UDS-122
3DB18863AA	+24/-48 Volt Converter (1 Converter W/Chassis)	N/A	Active	
3DB18764AA	+24/-48 Volt Converter (Spare)	N/A	Active	
3DB20116BA	XPIC+RPS Module	N/A	Inactive	UDS-119
3DB20116BB	XPIC+RPS Module	N/A	Active	UDS-119
3DB20117BA	RPS Module	N/A	Active	UDS-119

PART NUMBER	DESCRIPTION	CLEI	STATUS	UDS NUMBER
3DB20367BA	MPT-HC, 6540 - 6610 MHZ, TX LOW	N/A	Active	UDS-119
3DB20371BA	MPT-HC, 10695 - 10955 MHZ, TX LOW	CRMYAB7JRA	Inactive	UDS-119
3DB20371BB	MPT-HC, 10695 - 10955 MHZ, TX LOW	N/A	Active	UDS-119
3DB20373BA	MPT-HC, 14500 - 14724 MHZ, TX LOW	N/A	Active	UDS-119
3DB20379BA	MPT-HC, 38600 - 38950 MHZ, TX LOW	N/A	Active	UDS-119
3DB20423BA	MPT-HC, 14920 - 15144 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20432BA	MPT-HC, 17700 - 18140 MHZ	CRMYAB1JRA	Active	UDS-119
3DB20433BA	MPT-HC, 19260 - 19700 MHz	CRMYAB2JRA	Active	UDS-119
3DB20434BA	MPT-HC, 6590 - 6660 MHZ, TX LOW	N/A	Active	UDS-119
3DB20435BA	MPT-HC, 6710 - 6780 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20436BA	MPT-HC, 6750 - 6820 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20437BA	MPT-HC, 6420 - 6600 MHZ, TX LOW	N/A	Active	UDS-119
3DB20438BA	MPT-HC, 6565 - 6720 MHZ, TX LOW	N/A	Active	UDS-119
3DB20439BA	MPT-HC, 6760 - 6940 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20440BA	MPT-HC, 6905 - 7060 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20441BA	MPT-HC, 5929 - 6050 MHZ, TX LOW	N/A	Active	UDS-119
3DB20442BA	MPT-HC, 6047.96 - 6168 MHZ, TX LOW	N/A	Active	UDS-119
3DB20443BA	MPT-HC, 6182 - 6302.04 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20444BA	MPT-HC, 6300 - 6420.04 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20454BC	MPT-HC, 7107 - 8377 MHZ, TX LOW	N/A	Active	UDS-119
3DB20456BC	MPT-HC, 7261 - 8496.114 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20462BA	MPT-HC, 6640 - 6710 MHZ, TX LOW	N/A	Active	UDS-119
3DB20563BA	MPT-HC, 6800 - 6870 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20464BA	MPT-HC, 6595 - 6775 MHZ, TX LOW	N/A	Active	UDS-119
3DB20465BA	MPT-HC, 6935 - 7115 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20473BA	MPT-HC, 21198 - 21819 MHZ, TX LOW	CRMYAB3JRA	Active	UDS-119
3DB20474BA	MPT-HC, 21781 - 22400 MHZ, TX LOW	CRMYAB5JRA	Active	UDS-119
3DB20475BA	MPT-HC, 22400 - 23019 MHZ, TX HIGH	CRMYAB4JRA	Active	UDS-119
3DB20476BA	MPT-HC, 22981 - 23600 MHZ, TX HIGH	CRMYAB6JRA	Active	UDS-119
3DB20546BA	MPT-HC, 10935 - 11205 MHZ, TX LOW	CRMYAB9JRA	Inactive	UDS-119
3DB20546BB	MPT-HC, 10935 - 11205 MHZ, TX LOW	N/A	Active	UDS-119
3DB20547BA	MPT-HC, 11205 - 11485 MHZ, TX HIGH	CRMYAB8JRA	Inactive	UDS-119
3DB20547BA	MPT-HC, 11205 - 11485 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20548BA	MPT-HC, 11445 - 11705 MHZ, TX HIGH	CRMYAB6JRA	Inactive	UDS-119
3DB20548BB	MPT-HC, 11445 - 11705 MHZ, TX HIGH	N/A	Active	UDS-119

PART NUMBER	DESCRIPTION	CLEI	STATUS	UDS NUMBER
3DB20563BA	MPT-HC, 39300 - 39650 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20562BA	MPT-HC, 38950 - 39300 MHZ, TX LOW	N/A	Active	UDS-119
3DB20564BA	MPT-HC, 39650 - 40000 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20760BA	MPT-XP, 5929.96 - 6168 MHZ, TX LOW	N/A	Active	UDS-119
3DB20761BA	MPT-XP, 6182 - 6420.04 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20763BA	MPT-XP, 6420 - 6775 MHZ, TX LOW	N/A	Active	UDS-119
3DB20764BA	MPT-XP, 6710 - 7115 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20771BA	MPT-XP, 7107 - 7714.5 MHZ, TX LOW	N/A	Active	UDS-119
3DB20772BA	MPT-XP, 7261 - 7911 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20773BA	MPT-XP, 7725 - 8377 MHZ, TX LOW	N/A	Active	UDS-119
3DB20774BA	MPT-XP, 8025 - 8496.114 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20800BA	MPT-HC, 5929.96 - 6168 MHZ, TX LOW	N/A	Active	UDS-119
3DB20802BA	MPT-HC, 6182 - 6420.04 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20804BA	MPT-HC, 6420 - 6775 MHZ, TX LOW	N/A	Active	UDS-119
3DB20806BA	MPT-HC, 6710 - 7115 MHZ, TX HIGH	N/A	Active	UDS-119
3DB20913BA	9558HC, 5725.5-5785.5 MHz, TX LOW	N/A	Active	UDS-119
3DB20914BA	9558HC, 5789.5-5849.5 MHz, TX HIGH	N/A	Active	UDS-119
ODU300 W/LIGHTNING SURGE SUPPRESSOR, 8 GHz, 300 MHz SEPARATION				UDS-108
3DB23033HA	ODU300, 7722.5 - 7859 MHz, HP, TX Low	N/A	Active	
3DB23033HC	ODU300, 8025 - 8171 MHz, HP, TX High	N/A	Active	
3DB23033HB	ODU300, 7844 - 7981 MHz, HP, TX Low	N/A	Active	
3DB23033HD	ODU300, 8145 - 8287 MHz, HP, TX High	N/A	Active	
ODU300 11 GHz, 590-490 MHz SEPARATION				UDS-108
3DB23035AA	ODU300, 10675 - 10835 MHZ, TX LOW	N/A	Inactive	
3DB23035AB	ODU300, 10795 - 10955 MHZ, TX LOW	N/A	Inactive	
3DB23035AC	ODU300, 10915 - 11075 MHZ, TX LOW	N/A	Inactive	
3DB23035AD	ODU300, 11035 - 11200 MHZ, TX LOW	N/A	Inactive	
3DB23035AE	ODU300, 11200 - 11345 MHZ, TX HIGH	N/A	Inactive	
3DB23035AF	ODU300, 11310 - 11465 MHZ, TX HIGH	N/A	Inactive	
3DB23035AG	ODU300, 11430 - 11585 MHZ, TX HIGH	N/A	Inactive	
3DB23035AH	ODU300, 11550 - 11705 MHZ, TX HIGH	N/A	Inactive	

PART NUMBER	DESCRIPTION	CLEI	STATUS	UDS NUMBER
ODU300 W/LIGHTNING SURGE SUPPRESSOR 11 GHz, 590-490 MHz SEPARATION				UDS-108
3DB23035HA	ODU300, 10675 - 10835 MHZ, TX LOW	CRMMC00ARB	Active	
3DB23035HB	ODU300, 10795 - 10955 MHZ, TX LOW	CRMME00ARB	Active	
3DB23035HC	ODU300, 10915 - 11075 MHZ, TX LOW	CRMMG00ARB	Active	
3DB23035HD	ODU300, 11035 - 11200 MHZ, TX LOW	CRMMJ00ARB	Active	
3DB23035HE	ODU300, 11200 - 11345 MHZ, TX HIGH	CRMMD00ARB	Active	
3DB23035HF	ODU300, 11310 - 11465 MHZ, TX HIGH	CRMMF00ARB	Active	
3DB23035HG	ODU300, 11430 - 11585 MHZ, TX HIGH	CRMMH00ARB	Active	
3DB23035HH	ODU300, 11550 - 11705 MHZ, TX HIGH	CRMMK00ARB	Active	
ODU300 15 GHz, 475/490 MHz SEPARATION				UDS-108
3DB23039AC	ODU300, 14500 - 14660 MHZ, TX LOW	N/A	Inactive	
3DB23039AD	ODU300, 14975 - 15135 MHZ, TX HIGH	N/A	Inactive	
ODU300 W/LIGHTNING SURGE SUPPRESSOR 15 GHz, 475/490 MHz SEPARATION				UDS-108
3DB23039HC	ODU300, 14500 - 14660 MHZ, TX LOW	N/A	Active	
3DB23039HD	ODU300, 14975 - 15135 MHZ, TX HIGH	N/A	Active	
ODU300 18 GHz, 340 MHz SEPARATION				UDS-108
3DB23041AA	ODU300, 18580 - 18660 MHZ, TX LOW	N/A	Inactive	
3DB23041AB	ODU300, 18660 - 18740 MHZ, TX LOW	N/A	Active	
3DB23041AC	ODU300, 18740 - 18820 MHZ, TX LOW	N/A	Inactive	
3DB23041AD	ODU300, 18920 - 19000 MHZ, TX HIGH	N/A	Active	
3DB23041AE	ODU300, 19000 - 19080 MHZ, TX HIGH	N/A	Inactive	
3DB23041AF	ODU300, 19080 - 19160 MHZ, TX HIGH	N/A	Active	
ODU300 18 GHz, 1008/1010/1092/1120 MHz SEPARATION				UDS-108
3DB23042AA	ODU300, 17700 - 18060 MHZ, TX LOW	N/A	Active	
3DB23042AB	ODU300, 17905 - 18275 MHZ, TX LOW	N/A	Active	
3DB23042AC	ODU300, 18110 - 18490 MHZ, TX LOW	N/A	Inactive	
3DB23042AD	ODU300, 18330 - 18690 MHZ, TX LOW	N/A	Inactive	
3DB23042AE	ODU300, 18710 - 19070 MHZ, TX HIGH	N/A	Active	
3DB23042AF	ODU300, 18920 - 19290 MHZ, TX HIGH	N/A	Inactive	
3DB23042AG	ODU300, 19130-19510 MHZ, TX HIGH	N/A	Active	
3DB23042AH	ODU300, 19340 - 19700 MHZ, TX HIGH	N/A	Inactive	

PART NUMBER	DESCRIPTION	CLEI	STATUS	UDS NUMBER
ODU300 23 GHz, 1200 MHz SEPARATION				UDS-108
3DB23045AA	ODU300, 21200 - 21570 MHZ, TX LOW	N/A	Inactive	
3DB23045AB	ODU300, 21475 - 21845 MHZ, TX LOW	N/A	Inactive	
3DB23045AC	ODU300, 21750 - 22120 MHZ, TX LOW	N/A	Inactive	
3DB23045AD	ODU300, 22030 - 22400 MHZ, TX LOW	N/A	Inactive	
3DB23045AE	ODU300, 22400 - 22770 MHZ, TX HIGH	N/A	Inactive	
3DB23045AF	ODU300, 22675 - 23045 MHZ, TX HIGH	N/A	Inactive	
3DB23045AG	ODU300, 22950 - 23320 MHZ, TX HIGH	N/A	Inactive	
3DB23045AH	ODU300, 23230 - 23600 MHZ, TX HIGH	N/A	Inactive	
ODU300 W/LIGHTNING SURGE SUPPRESSOR 23 GHz, 1200 MHz SEPARATION				UDS-108
3DB23045HA	ODU300, 21200 - 21570 MHZ, TX LOW	CRMMN00ARB	Active	
3DB23045HB	ODU300, 21475 - 21845 MHZ, TX LOW	CRMMR00ARB	Active	
3DB23045HC	ODU300, 21750 - 22120 MHZ, TX LOW	CRMMT00ARB	Active	
3DB23045HD	ODU300, 22030 - 22400 MHZ, TX LOW	CRMMV00ARB	Active	
3DB23045HE	ODU300, 22400 - 22770 MHZ, TX HIGH	CRMMP00ARB	Active	
3DB23045HF	ODU300, 22675 - 23045 MHZ, TX HIGH	CRMMS00ARB	Active	
3DB23045HG	ODU300, 22950 - 23320 MHZ, TX HIGH	CRMMU00ARB	Active	
3DB23045HH	ODU300, 23230 - 23600 MHZ, TX HIGH	CRMMW00ARB	Active	
ODU300 W/LIGHTNING SURGE SUPPRESSOR 23 GHz, 1200 MHz SEPARATION, HIGH POWER				UDS-108
3DB23045HI	ODU300, 21200 - 21570 MHZ, TX LOW, HP	N/A	Active	
3DB23045HJ	ODU300, 21475 - 21845 MHZ, TX LOW, HP	N/A	Active	
3DB23045HK	ODU300, 21750 - 22120 MHZ, TX LOW, HP	N/A	Active	
3DB23045HL	ODU300, 22030 - 22400 MHZ, TX LOW, HP	N/A	Active	
3DB23045HM	ODU300, 22400 - 22770 MHZ, TX HIGH, HP	N/A	Active	
3DB23045HN	ODU300, 22675 - 23045 MHZ, TX HIGH, HP	N/A	Active	
3DB23258HO	ODU300, 22950 - 23320 MHZ, TX HIGH, HP	N/A	Active	
3DB23045HP	ODU300, 23230 - 23600 MHZ, TX HIGH, HP	N/A	Active	
ODU300 18 GHz, 1560 MHz SEPARATION				UDS-108
3DB23062AC	ODU300, 17700 - 18060 MHZ, TX LOW	N/A	Inactive	
3DB23062AD	ODU300, 19260 - 19620 MHZ, TX HIGH	N/A	Inactive	
ODU300 W/LIGHTNING SURGE SUPPRESSOR 18 GHz, 1560 MHz SEPARATION				UDS-108
3DB23062HC	ODU300, 17700 - 18060 MHZ, TX LOW	CRMML00ARB	Active	
3DB23062HD	ODU300, 19260 - 19620 MHZ, TX HIGH	CRMMM00ARB	Active	
ODU300 W/LIGHTNING SURGE SUPPRESSOR 18 GHz, 1560 MHz SEPARATION, HIGH POWER				UDS-108

PART NUMBER	DESCRIPTION	CLEI	STATUS	UDS NUMBER
3DB23062HE	ODU300, 17700 - 18140 MHZ, TX LOW, HP	N/A	Active	
3DB23062HF	ODU300, 19260 - 19700 MHZ, TX HIGH, HP	N/A	Active	
ODU300, U6 GHz, 160 MHz SEPARATION				UDS-108
3DB23214AA	ODU300, 6540 - 6610 MHZ, HP, TX LOW	N/A	Inactive	
3DB23214AB	ODU300, 6710 - 6780 MHZ, HP, TX HIGH	N/A	Inactive	
3DB23214AC	ODU300, 6590 - 6660 MHZ, HP, TX LOW	N/A	Inactive	
3DB23214AD	ODU300, 6760 - 6830 MHZ, HP, TX HIGH	N/A	Inactive	
3DB23214AE	ODU300, 6640 - 6710 MHZ, HP, TX LOW	N/A	Inactive	
3DB23214AF	ODU300, 6800 - 6870 MHZ, HP, TX HIGH	N/A	Inactive	
ODU300 W/LIGHTNING SURGE SUPPRESSOR, U6 GHz, 160 MHz SEPARATION				UDS-108
3DB23214HA	ODU300, 6540 - 6610 MHZ, HP, TX LOW	CRMLZ10HRB	Active	
3DB23214HB	ODU300, 6710 - 6780 MHZ, HP, TX HIGH	CRML110HRB	Active	
3DB23214HC	ODU300, 6590 - 6660 MHZ, HP, TX LOW	CRML210HRB	Inactive	
3DB21214HD	ODU300, 6760 - 6830 MHZ, HP, TX HIGH	CRML310HRB	Inactive	
3DB23214HE	ODU300, 6640 - 6710 MHZ, HP, TX LOW	CRML410HRB	Inactive	
3DB23214HF	ODU300, 6800 - 6870 MHZ, HP, TX HIGH	CRML510HRB	Inactive	
ODU300 L6 GHz, 252.04 MHz SEPARATION				UDS-108
3DB23215AA	ODU300, 5930 - 6020 MHZ, HP, TX LOW	N/A	Inactive	
3DB23215AB	ODU300, 5989 - 6079 MHZ, HP, TX LOW	N/A	Inactive	
3DB23215AC	ODU300, 6078 - 6168 MHZ, HP, TX LOW	N/A	Inactive	
3DB23215AD	ODU300, 6182 - 6272 MHZ, HP, TX HIGH	N/A	Inactive	
3DB23215AE	ODU300, 6241 - 6331 MHZ, HP, TX HIGH	N/A	Inactive	
3DB23215AF	ODU300, 6330 - 6420 MHZ HP, TX HIGH	N/A	Inactive	
ODU300 W/LIGHTNING SURGE SUPPRESSOR L6 GHz, 252.04 MHz SEPARATION				UDS-108
3DB23215HA	ODU300, 5930 - 6020 MHZ, HP, TX LOW	CRMLT10HRB	Active	
3DB23215HB	ODU300, 5989 - 6079 MHZ, HP, TX LOW	CRMLV10HRB	Active	
3DB23215HC	ODU300, 6078 - 6168 MHZ, HP, TX LOW	CRMLX10HRB	Active	
3DB23215HD	ODU300, 6182 - 6272 MHZ, HP, TX HIGH	CRMLU10HRB	Active	
3DB23215HE	ODU300, 6241 - 6331 MHZ, HP, TX HIGH	CRMLW10HRB	Active	
3DB23215HF	ODU300, 6330 - 6420 MHZ HP, TX HIGH	CRMLY10HRB	Active	

PART NUMBER	DESCRIPTION	CLEI	STATUS	UDS NUMBER
ODU300, U6 GHz, 340 MHz SEPARATION				UDS-108
3DB23216AA	ODU300, 6430 - 6590 MHz, HP TX LOW	N/A	Inactive	
3DB23216AB	ODU300, 6770 - 6930 MHz, HP TX HIGH	N/A	Inactive	
3DB23216AC	ODU300, 6515 - 6675 MHz, HP TX LOW	N/A	Inactive	
3DB23216AD	ODU300, 6855 - 7015 MHz, HP TX HIGH	N/A	Inactive	
3DB23216AE	ODU300, 6600 - 6760 MHz, HP TX LOW	N/A	Inactive	
3DB23216AF	ODU300, 6940 - 7100 MHz, HP TX HIGH	N/A	Inactive	
ODU300 W/LIGHTNING SURGE SUPPRESSOR, U6 GHz, 340 MHz SEPARATION				UDS-108
3DB23216HA	ODU300, 6430 - 6590 MHz, HP TX LOW	CRML610HRB	Active	
3DB23216HB	ODU300, 6770 - 6930 MHz, HP TX HIGH	CRML710HRB	Active	
3DB23216HC	ODU300, 6515 - 6675 MHz, HP TX LOW	CRML810HRB	Active	
3DB23216HD	ODU300, 6855 - 7015 MHz, HP TX HIGH	CRML910HRB	Active	
3DB23216HE	ODU300, 6600 - 6760 MHz, HP TX LOW	CRMMA00ARB	Active	
3DB23216HF	ODU300, 6940 - 7100 MHz, HP TX HIGH	CRMMB00ARB	Active	
ODU300 W/LIGHTNING SURGE SUPPRESSOR, 7 GHz, 150 MHz SEPARATION				UDS-108
3DB23217HA	ODU300, 7424 - 7485 MHz, HP, TX Low	N/A	Active	
3DB23218HA	ODU300, 7574 - 7635 MHz, HP, TX High	N/A	Active	
3DB23219HA	ODU300, 7470 - 7530 MHz, HP, TX Low	N/A	Active	
3DB23220HA	ODU300, 7620 - 7680 MHz, HP, TX High	N/A	Active	
3DB23221HA	ODU300, 7515 - 7575 MHz, HP, TX Low	N/A	Active	
3DB23222HA	ODU300, 7665 - 7725 MHz, HP, TX High	N/A	Active	
ODU300 W/LIGHTNING SURGE SUPPRESSOR, 7 GHz, 175 MHz SEPARATION				UDS-108
3DB23223HA	ODU300, 7124 - 7185 MHz, HP, TX Low	N/A	Active	
3DB23224HA	ODU300, 7299 - 7360 MHz, HP, TX High	N/A	Active	
3DB23225HA	ODU300, 7157.5 - 7217.5 MHz, HP, TX Low	N/A	Active	
3DB23226HA	ODU300, 7332.5 - 7392.5 MHz, HP, TX High	N/A	Active	
3DB23227HA	ODU300, 7190 - 7250 MHz, HP, TX Low	N/A	Active	
3DB23228HA	ODU300, 7365 - 7425 MHz, HP, TX High	N/A	Active	

PART NUMBER	DESCRIPTION	CLEI	STATUS	UDS NUMBER
ODU300 W/LIGHTNING SURGE SUPPRESSOR 38 GHz, 700 MHz SEPARATION				UDS-108
3DB23258HO	ODU300, 38600 - 38800 MHZ, TX LOW	N/A	Active	
3DB23258HP	ODU300, 39300 - 39500 MHZ, TX HIGH	N/A	Active	
3DB23258HQ	ODU300, 38750 - 38950 MHZ, TX LOW	N/A	Active	
3DB23258HR	ODU300, 39450 - 39650 MHZ, TX HIGH	N/A	Active	
3DB23258HS	ODU300, 38950 - 39150 MHZ, TX LOW	N/A	Active	
3DB23258HT	ODU300, 39650 - 39850 MHZ, TX HIGH	N/A	Active	
3DB23258HU	ODU300, 39100 - 39300 MHZ, TX LOW	N/A	Active	
3DB23258HV	ODU300, 39800 - 40000 MHZ, TX HIGH	N/A	Active	
3EM13317AA	PDU Power Distribution Unit	N/A	Active	UDS-112
3EM20277AA	GigE SFP 1000Base-SX, 850 nm	DRR3AA3CAA	Active	UDS-111
3EM20277AB	GigE SFP 1000Base-LX, 1310 nm	DRR3AA4CAA	Active	UDS-111
3EM20277AC	GigE SFP 1000Base-EX, 1310 nm	DRR3AA5CAA	Active	UDS-111
3EM20277AD	GigE SFP 1000Base-ZX, 1550 nm	DRR3AA6CAA	Active	UDS-111
3EM22617AA	MPT-HL Transceiver L6, 5725-6425 MHz	CRTUAAXFAA	Active	UDS-109
3EM22617AB	MPT-HL Transceiver U6, 6425-6930 MHz	CRTUAAYFAA	Active	UDS-109
3EM22617AC	MPT-HL Transceiver L6, 5925-6425 MHz, HP	CRTUABLFAA	Active	UDS-109
3EM22617AD	MPT-HL Transceiver U6, 6425-6930 MHz, HP	CRTUABMFAA	Active	UDS-109
3EM22618AB	MPT-HL Microwave Packet transport-Long Haul Shelf	N/A	Active	UDS-102
3EM22900AA	DS3 Hybrid Splitter	N/A	Active	UDS-116
3EM23272AA	Type N Adapter Bracket	N/A	Active	UDS-114
3EM23888AA	MPT-HL Transceiver 10.5, 10400-10700 MHz	CRTUABPCAA	Active	UDS-109
3EM23888AB	MPT-HL Transceiver 11, 10700-11200 MHz	CRTUABRCAA	Active	UDS-109
3EM23888AC	MPT-HL Transceiver 11, 11200-11700 MHz	CRTUABSCAA	Active	UDS-109
3EM23911AA	Fan 2U Card W/Alarms	CRCCADYJAA	Active	UDS-110
3EM24462AA	DS3 Patch Panel	N/A	Active	UDS-116
3EM24627AA	MPT-HL Transceiver 7, 7125-7775 MHz	N/A	Active	UDS-109
3EM24627AB	MPT-HL Transceiver 8, 7725-8500 MHz	N/A	Active	UDS-109

UDS-101
MSS-8 microwave service switch shelf

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB18485AA	MSS-8 Microwave Service Switch Shelf	N/A	459923	213266	Inactive
3DB18485AB	MSS-8 Microwave Service Switch Shelf	CRMLB10HRA	459923	213266	Active

Features and application notes

- The Microwave Service Switch (MSS-8) shelf provides cross-connection, port aggregation, switching, and equipment management.
- 300 Mbps full-duplex Ethernet transport capacity
- Flexible aggregate capacity sharing DS1, DS3, OC-3, and Ethernet traffic
- Split mount configuration supports up to six unprotected RF channels, three 1+1 HSB, Space Diversity (SD) or Frequency Diversity (FD) protected RF channels in one MSS-8 shelf connected to up to six OutDoor Units (ODUs).
- Split mount configuration utilizing the MPTACC card supports up to twelve unprotected RF channels, up to six 1+1 HSB, Space Diversity (SD) or Frequency Diversity (FD) protected RF channels in one MSS-8 shelf connected to up to twelve MPT-HC/XP Transceivers.
- Split mount configuration utilizing the Core-E SFP ports support up to two unprotected RF channels in one MSS-8 shelf connected to up to two MPT-HC/XP and/or MPT-GC Transceivers.
- Split mount configuration utilizing the Core-E electrical Ethernet ports support up to four unprotected RF channels in one MSS-8 shelf connected to up to four MPT-HC/XP and/or MPT-GC Transceivers.
- Split mount configuration utilizing the P8ETH SFP ports support up to eighteen unprotected RF channels in one MSS-8 shelf connected to up to eighteen MPT-HC/XP Transceivers.
- All indoor mount supports up to eighteen unprotected RF channels, nine 1+1 HSB, Space Diversity (SD) or Frequency Diversity (FD) protected RF channels in one MSS-8 shelf using P8ETH cards connected to up to nine Microwave Packet Transport-Long Haul (MPT-HL) shelves.
- Stand-alone shelf configuration
- All cards are accessed from the front side of the shelf
- Mounts in a 19-inch aluminum rack or 19-inch seismic rack. Adapter flanges available to mount in a 23-inch aluminum rack

- Provides two mounting depth options: flush mount or 5 inch projection
- Provides nine card slots. Two are dedicated for Control and Switching Modules (Core-E). Six universal slots are available for transport cards: P32E1DS1 (DS1), P2E3DS3 (DS3), SDHACC (OC-3), MOD300 (RADIO) and/or P8ETH (Ethernet). Slot 8 also supports the AUX (Auxiliary) card. One slot is dedicated for fan card.

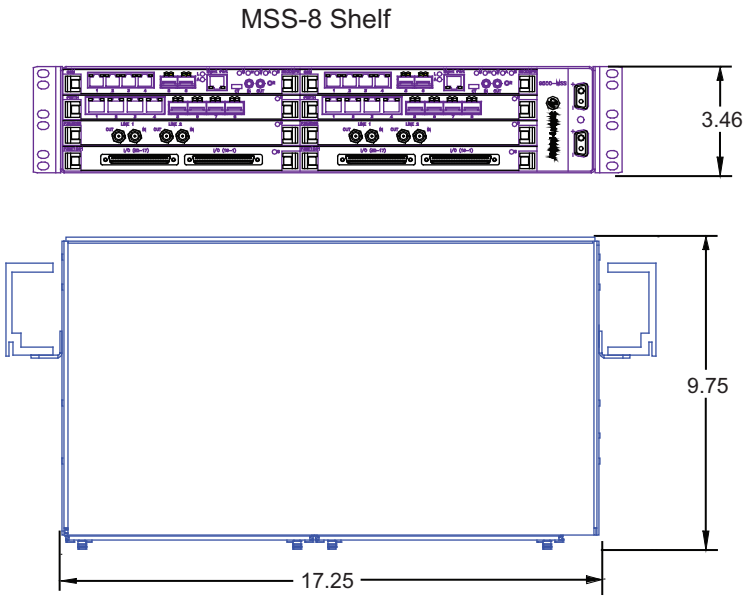
Description

The MSS-8 self consists of a module cage and backplane which provides nine slots. Two dedicated slots for Core-E cards. Six slots are available for transport cards: P32E1DS1 (DS1), P2E3DS3 (DS3), SDHACC (OC-3), MOD300 (Radio), and/or P8ETH (Ethernet). One slot is dedicated for a required fan card. See figure 101-1 for an example of the MSS-8 shelf.

The MSS-8 shelf is 19 inches wide (17.25 inches wide without mounting flanges), 3.46 inches high (2 EIA rack increments), and 9.75 inches deep. Adapter plates are available to mount the MSS-8 shelf in 23 inch aluminum racks. See figure 101-2 for outline and shelf dimensions of the MSS-8 shelf.

Figure 101-1. Microwave service switch (MSS-8) shelf

Figure 101-2. MSS-8 shelf dimensions



Equipment complement

MSS-8 shelf slots 1 and 2 are dedicated to the Core-E card. Slots 3 through 8 are available for transport cards P32E1DS1, P2E3DS3, MPTACC, MOD300, SDHACC, and/or P8ETH. Slot 9 is dedicated for required fan card. See figure 101-3 for MSS-8 shelf slot definitions. Refer to Table 101-A for details of card equipage options.

Figure 101-3. MSS-8 shelf slot definitions

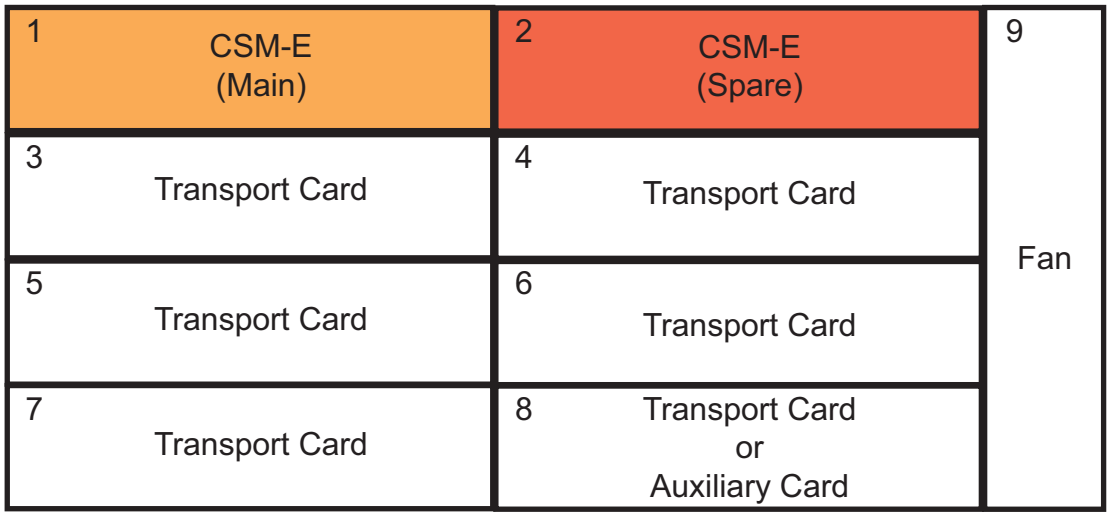


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Table 101-A. MSS-8 shelf card complement

CIRCUIT PACK/ UNIT DATA SHEET	PART NO.	CLEI	QTY	SLOT
CSM-E Enhanced Control and Switching Module UDS-103	3DB18326AC	CRCCAEVEAA	1	1
CSM-E Enhanced Control and Switching Module UDS-103	3DB18326AC	CRCCAEVEAA	Up to 1	2
MOD300 Radio Interface UDS-104	3DB18136AE	CRG2ABWDAA	Up to 6	3, 4, 5, 6, 7, 8
MOD300EN Radio Interface UDS-104	3DB18538AC	CRG2ABWDAA	Up to 2	3, 4, 5, 6, 7, 8
MPTACC MPT Access UDS-118	3DB18634AB	N/A	Up to 6	3, 4, 5, 6, 7, 8
P2E3DS3 DS3 PDH Card UDS-106	3DB18194AC	CRG2AA9DAA	Up to 6	3, 4, 5, 6, 7, 8
P8ETH Ethernet Access Switch Card UDS-107	3DB18206AC	CRCCACGJAA	Up to 2	3, 4, 5, 6, 7, 8
P32E1DS1 DS1 PDH Card UDS-105	3DB18126AE	CRG2ABUDAA	Up to 6	3, 4, 5, 6, 7, 8
SDHACC OC-3 SDH Card UDS-125	3DB18735AA	N/A	Up to 6	3, 4, 5, 6, 7, 8
AUX Auxiliary Card UDS-120	3DB18236AB	N/A	Up to 1	8
+24/-48 Volt Converter (2 Converters W/Chassis)[1] or +24/-48 Volt Converter (1 Converter W/Chassis)[1] UDS-122	3DB18862AA 3DB18863AA	N/A N/A	Up to 1	4, 6, 8
Fan 2U Card or Fan 2U Card W/Alarms UDS-110	3DB18134BB 3EM23911AA	CRCCACPJAA CRCCADYJAA	1	9

[1] For shelves equipped with the +24/-48 Volt Converter card, the FAN 2U Card W/Alarms is required.

MSS-8 shelf slot 1 is dedicated to the main Core-E card and is required in every application. See figure 101-4 to see an example of the MSS-8 shelf configured in the unprotected Core-E configuration. Slot 2 is dedicated for an optional spare Core-E card for protected Core-E configurations. See figure 101-5 to see an example of the MSS-8 shelf configured in the protected Core-E configuration.

Figure 101-4. MSS-8 shelf, unprotected Core-E configuration

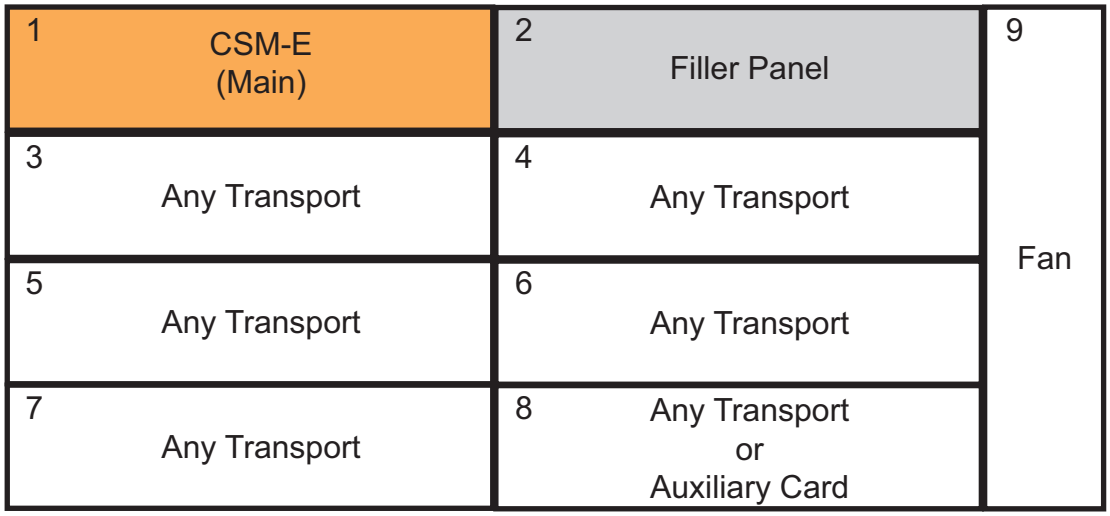

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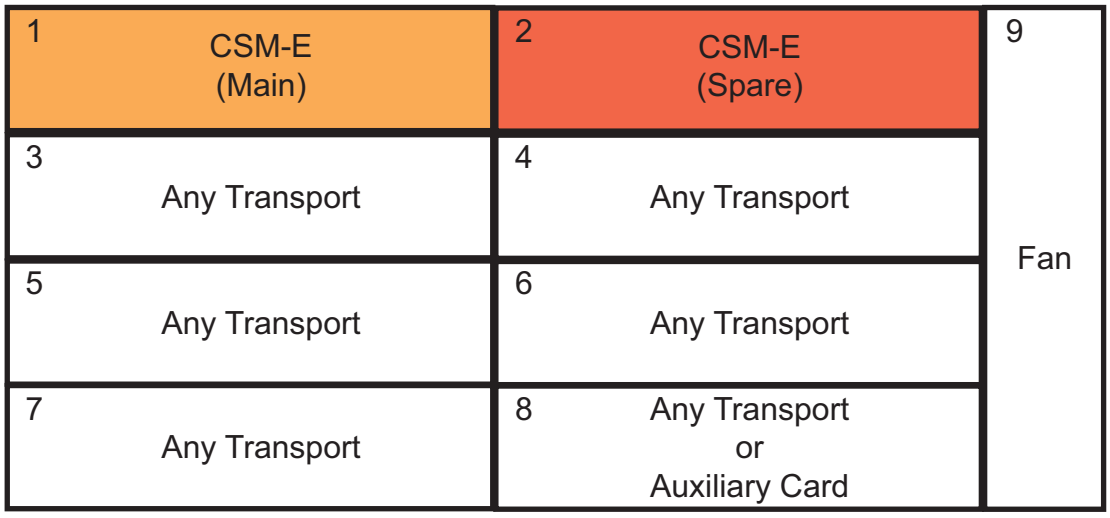
Figure 101-5. MSS-8 shelf, protected Core-E configuration



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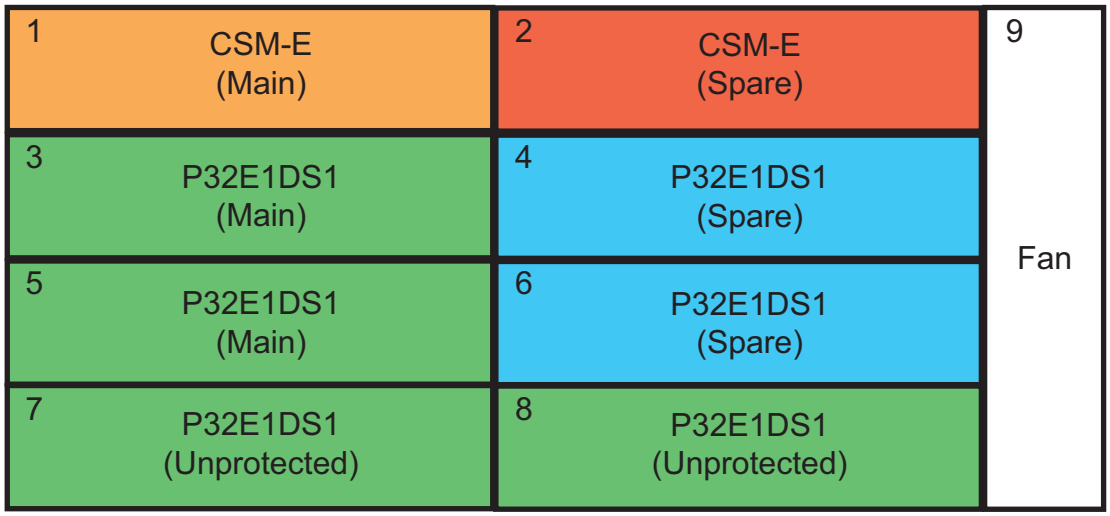
MSS-8 shelves supports up to six P32E1DS1 cards in unprotected DS1 aggregation configurations. Supports up to three pairs of P32E1DS1 cards in 1+1 EPS protected DS1 aggregation configurations. In 1+1 EPS protected configuration, the main P32E1DS1 cards are equipped in slots 3, 5, and/or 7, and the spare (protection) P32E1DS1 cards are equipped in slots 4, 6, and/or 8 respectively.

See figure 101-6 to see an example of a stand-alone MSS-8 shelf configured with two pairs of P32E1DS1s in slots 3 through 6 in the protected 1+1 EPS configuration and slots 7 and 8 configured in the unprotected configuration.

Figure 101-6. MSS-8 stand-alone shelf, equipped with P32E1DS1 (DS1 Card)



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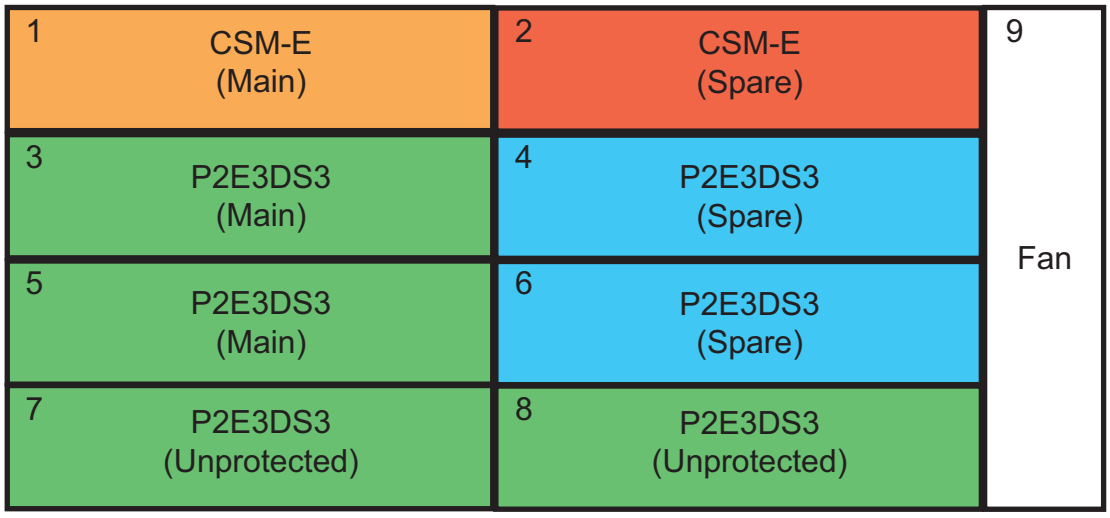
MSS-8 shelves supports up to six P2E3DS3 cards in unprotected configurations. Supports up to three pairs of P2E3DS3 cards in 1+1 EPS protected configurations. In 1+1 EPS protected configuration, the main P2E3DS3 cards are equipped in slots 3, 5, and/or 7, and the spare (protection) P2E3DS3 cards are equipped in slots 4, 6, and/or 8 respectively.

See figure 101-7 to see an example of a stand-alone MSS-8 shelf configured with two pairs of P2E3DS3s in slots 3 through 6 in the protected 1+1 EPS configuration and slots 7 and 8 configured in the unprotected configuration.

Figure 101-7. MSS-8 stand-alone shelf, equipped with P2E3DS3 (DS3 Card)



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MSS-8 shelves supports up to six SDHACC cards in unprotected configurations. Supports up to three pairs of SDHACC cards in 1+1 EPS protected configurations. In 1+1 EPS protected configuration, the main SDHACC cards are equipped in slots 3, 5, and/or 7, and the spare (protection) SDHACC cards are equipped in slots 4, 6, and/or 8 respectively.

MSS-8 shelves supports up to six MOD300 cards in unprotected RF radio configurations. Supports up to three pairs of MOD300 cards in protected RF radio in 1+1 HSB, SD or FD configurations. In 1+1 HSB, SD or FD configurations, the main MOD300 cards are equipped in slots 3, 5, and/or 7, and the spare (protection) MOD300 cards are equipped in slots 4, 6, and/or 8 respectively.

See figure 101-8 to see an example of the MSS-8 shelf configured as a split mount, 1+0 drop and insert repeater in slots 7 and 8, with a pair of P32E1DS1s in slots 3 and 4 in the protected 1+1 EPS configuration, and with a pair of P2E3DS3s in slots 5 and 6 in the protected 1+1 EPS configuration.

See figure 101-9 to see an example of the MSS-8 shelf configured as a split mount, 1+1 drop and insert repeater in slots 5 through 8, with a P32E1DS1s in slot 3 in the unprotected configuration, and with a P2E3DS3 in slot 4 in the unprotected configuration.

Figure 101-8. MSS-8 shelf, split mount, 1+0 drop and insert repeater configuration

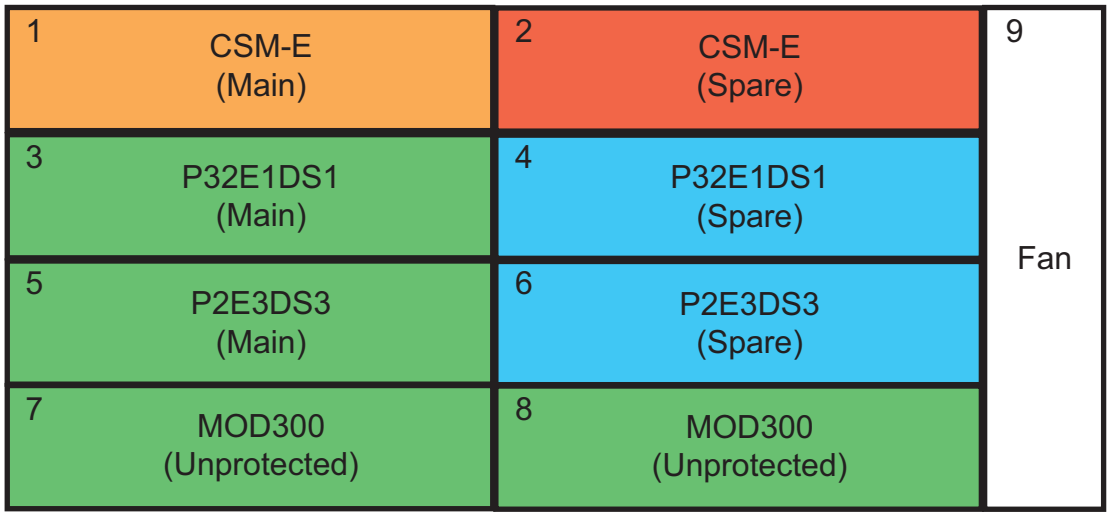

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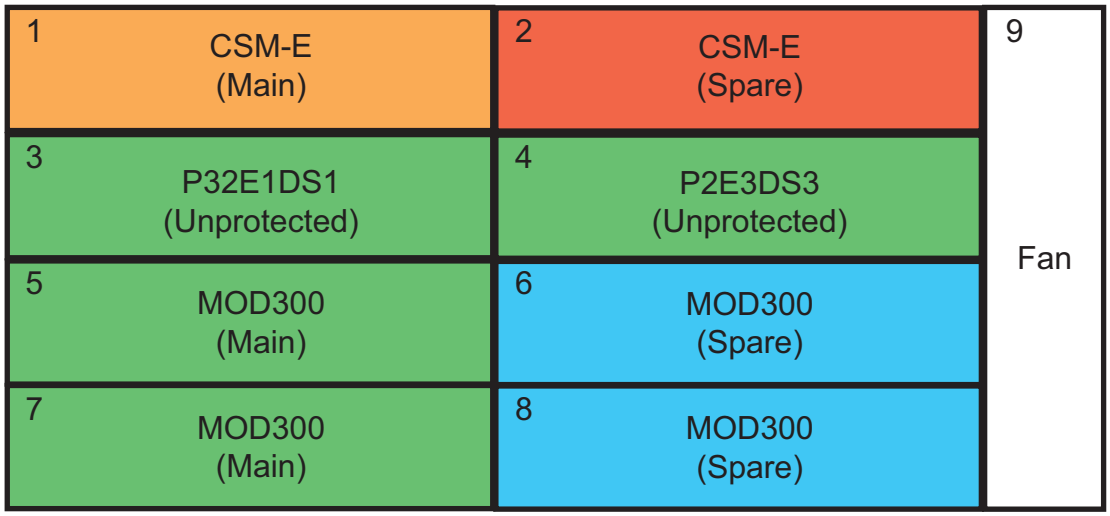
Figure 101-9. MSS-8 shelf, split mount, 1+1 drop and insert repeater configuration



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MSS-8 shelves supports up to six MPTACC cards in unprotected configuration, up to twelve RF radio channels. Supports three pairs of MPTACC cards in protected 1+1 HSB/FD configuration, up to six protected RF radio channels. In 1+1 HSB, SD or FD configuration, the main MPTACC card is equipped in slot 3, 5, and/or 7 and the spare (protection) MPTACC card is equipped in slot 4, 6, and/or 8 respectively.

See figure 101-10 to see an example of the MSS-8 shelf configured as a split mount, unprotected Core-E, 12-way nodal junction in slots 3 through 8.

See figure 101-11 to see an example of the MSS-8 shelf configured as a protected Core-E, 1+1 protected 4-way junction in slots 5 through 8, and slots 3 and 4 configured in the unprotected DS1 configuration.

Figure 101-10. MSS-8 shelf, split mount MPT-HC/XP, 1+0 12-way nodal junction configuration

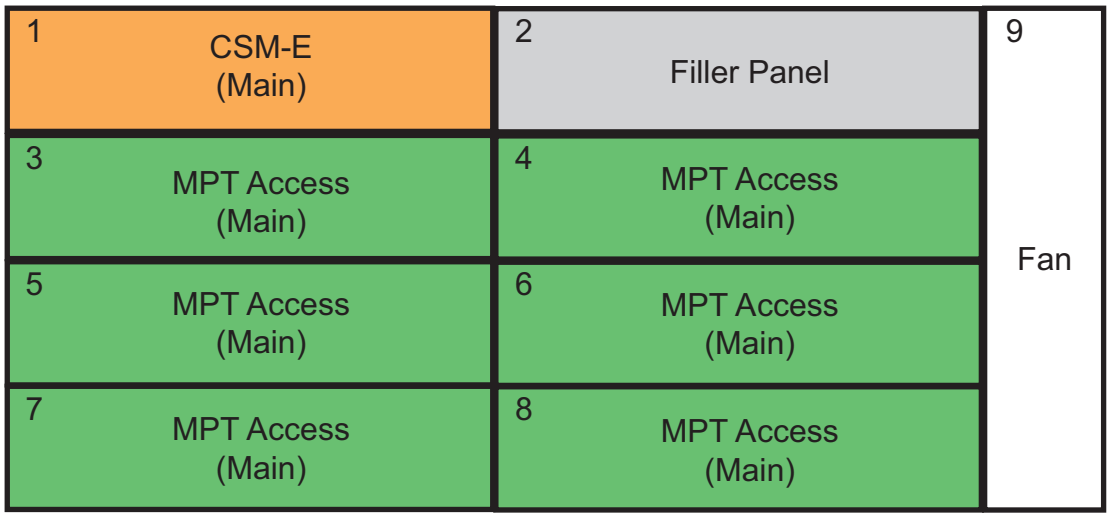

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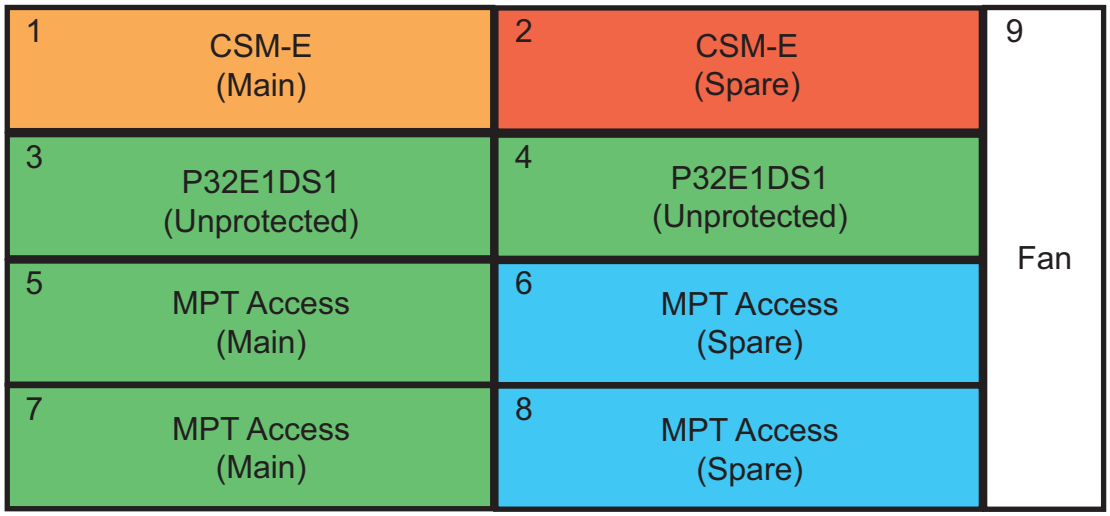
Figure 101-11. MSS-8 shelf, all indoor mount, 1+1 4-way junction configuration



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MSS-8 shelves equipped with P8ETH cards, the P8ETH is supported in slots 3 through 8. For stacked P8ETH applications, the main P8ETH card resides in slot 3, 5, and/or 7 and the spare P8ETH resides in slots 4, 6, and/or 8.

See figure 101-12 to see an example of the MSS-8 shelf configured as an all indoor mount, 1+0 4-way junction in slot 3, with a pair of P32E1DS1s in slots 5 and 6 in the protected 1+1 EPS configuration.

See figure 101-13 to see an example of the MSS-8 shelf configured as an all indoor mount, 1+1 4-way junction in slots 3 and 4, with three P32E1DS1s in slots 5 through 7 in the unprotected configuration.

Figure 101-12. MSS-8 shelf, all indoor mount, 1+0 4-way junction configuration

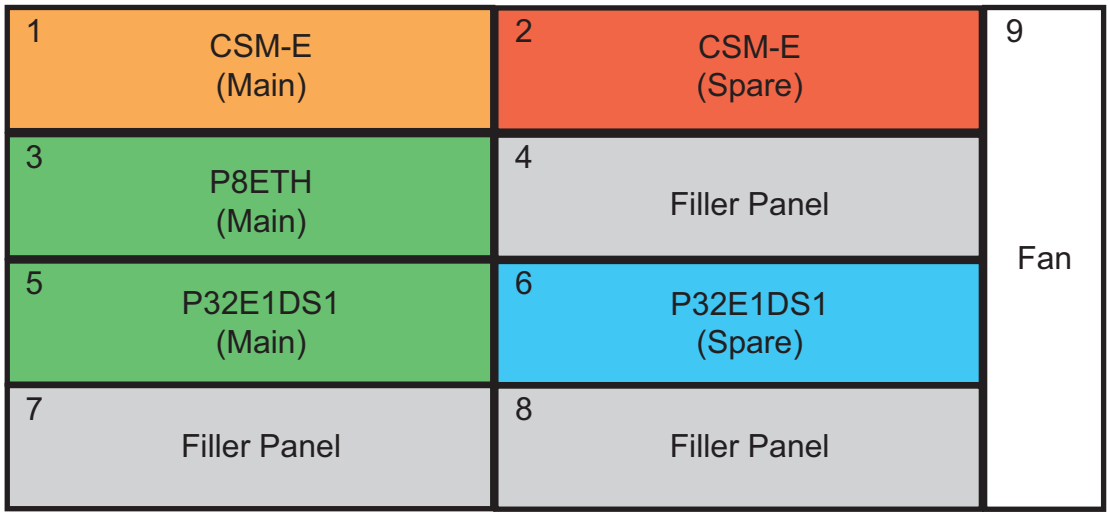

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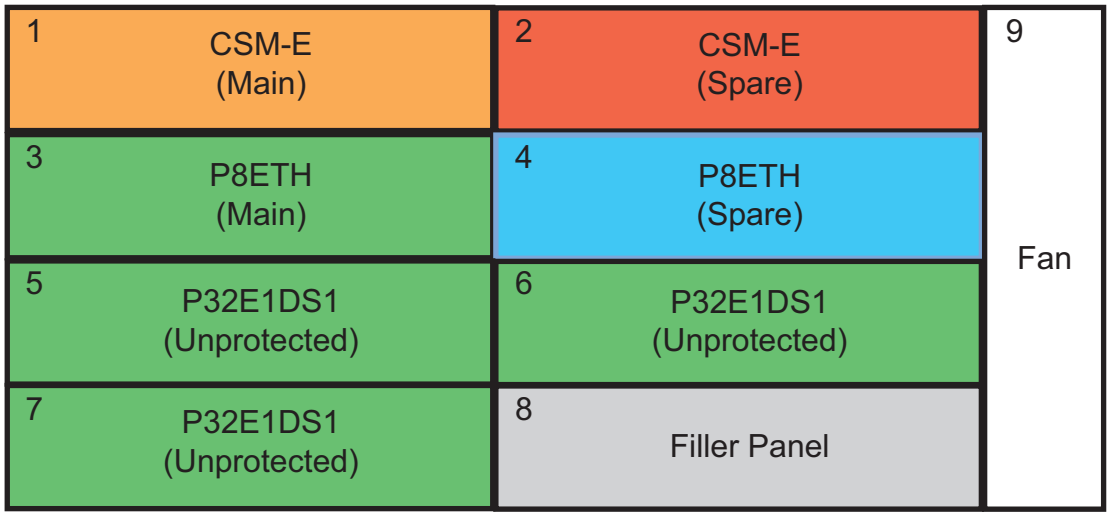
Figure 101-13. MSS-8 shelf, all indoor mount, 1+1 4-way junction configuration



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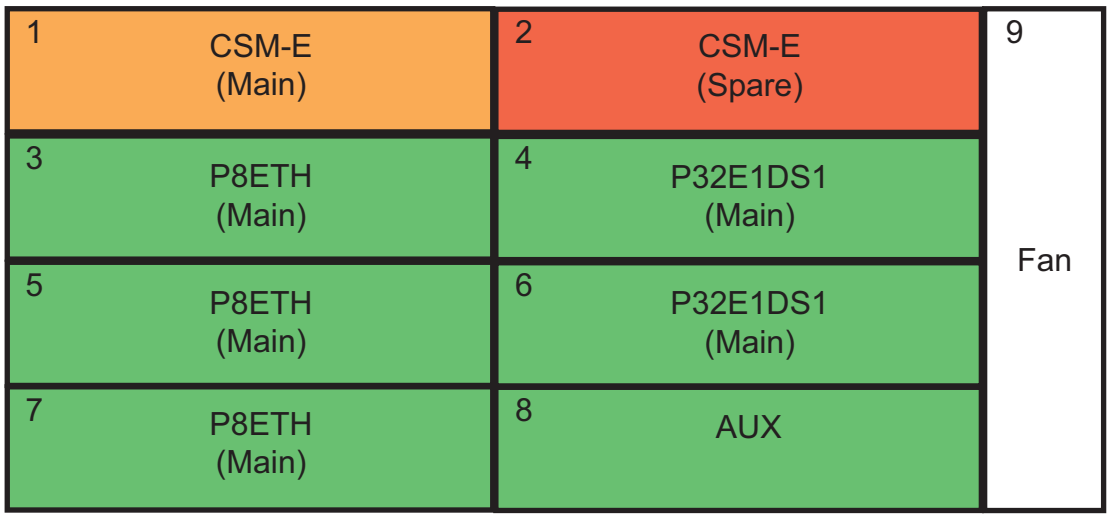
MSS-8 shelf equipped with two P8ETH cards and four MOD300 cards support up to a 12 spoke hub. In this configuration; main P8ETH cards are equipped in slots 3 and 4 and support up to eight 1+0 spokes, and up to four main MOD300 cards are equipped in slots 5 through 8 and support up to four 1+0 spokes.

See figure 101-14 to see an example of the MSS-8 shelf configured as a 12 spoke hub using all indoor mount (P8ETH/MPT-HL).

Figure 101-14. MSS-8 shelf, 1+0, 12 spoke hub configuration



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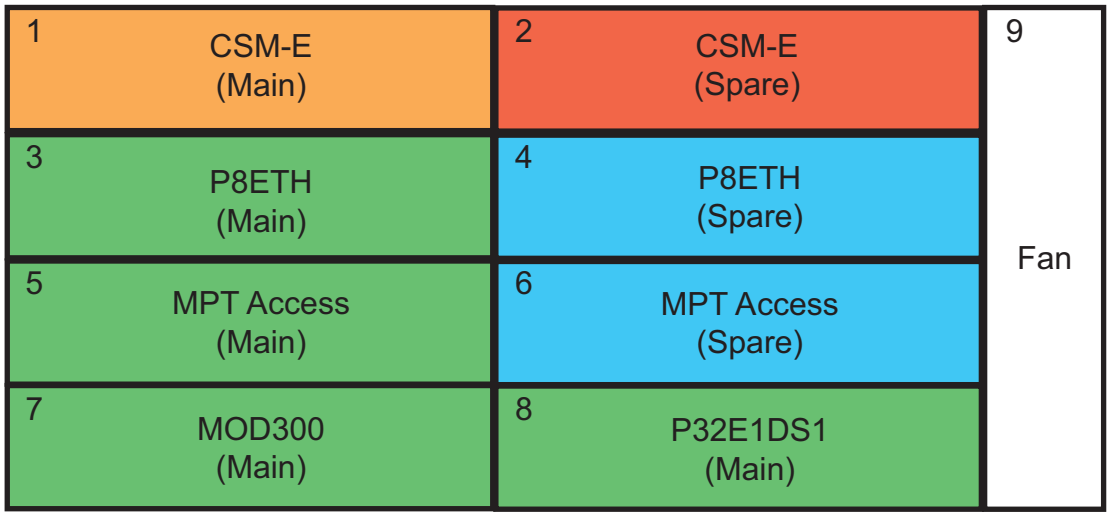
See figure 101-15 to see an example of the MSS-8 shelf configured mixing all three radio technologies. P8ETH cards equipped in slots 3 and 4 support up to eight MPT-HL 1+0 unprotected radio channels or as shown up to four MPT-HL 1+1 protected radio channels. MPT Access cards in slots 5 and 6 support up to 4 MPT-HC/XP 1+0 unprotected radio channels, or as shown two MPT-HC/XP 1+1 protected radio channels. The MOD300 card in slot 7 supports one ODU300 1+0 radio channel. Slot 8 is shown with one 1+0 P32E1DS1 DS1 Interface with support for up to 32 DS1 signals. The Core-E card in slot 1 could support up to six MPT-HC/XP 1+0 radio channels for a total support of twelve maximum radio channels per MSS-8 shelf.

Figure 101-15. MSS-8 shelf, 1+0, 12 spoke hub configuration



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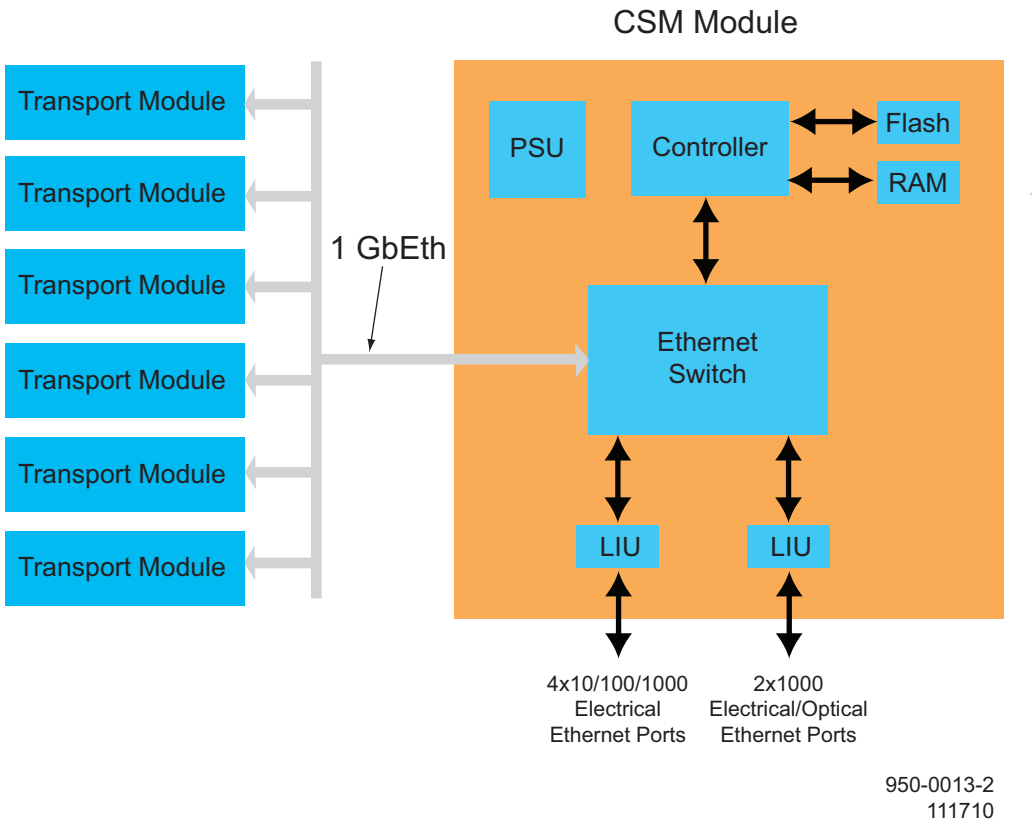
Functional overview

MSS-8 implements functionality of grooming, routing, switching and protection, exploiting a packet oriented technology in order to meet the overall architecture.

The MSS-8 Core-E platform, with multiplexing and symmetrical cross-connect functions, can manage different radio directions (up to fourteen), with the possibility to add-drop data flows of local DS1/DS3/OC-3/Ethernet traffic. Core-E platform is based on packet technology (Ethernet Switch) with a generic serial GigE interface between Core-E and transport cards. See figure 101-16 for a functional block diagram of the MSS-8 shelf.

Figure 101-16. MSS-8 shelf block diagram



The MSS-8 shelf houses the following cards:

- Core-E Control and Switching Module—houses one main and one optional spare control and switching module(s). Provides four 10/100/1000 Base-T Ethernet ports. Provides two GigE optical Ethernet port.
- MOD300 Radio card—houses up to six MOD300 cards. In the Tx direction, converts Ethernet packet data from the Core-E card(s) into a modulated IF output signal that is applied to the ODU300. In the Rx direction, demodulates the IF input signal from the ODU300, encapsulates the digital data into Ethernet packets, and sends the packets to the Core-E card(s).
- MPTACC MPT Access card—houses up to six MPTACC cards for MSS-8 to two MPT-HC/XP interfaces (Ethernet and power) for split mount configuration.
- P2E3DS3 DS3 PDH card—houses up to six P2E3DS3 cards for DS3 TDM traffic encapsulation/extraction into standard Ethernet packets
- P8ETH Ethernet Access Switch—houses up to six P8ETH cards for MSS-8-to-MPT-HL or MSS-8-to-MPT-HC/XP interfaces. The P8ETH card functions as a layer 2 switch, cross-connecting VLAN tagged Ethernet data to/from the addressed MPT unit.
  The P8ETH card provides traffic management for Core-Es for up to six directions using protected radios and up to twelve directions using unprotected radios.
  P8ETH cards also provide four 10/100/1000 Base-T Ethernet ports and up to four GigE optical Ethernet ports.
- P32E1DS1 DS1 PDH card—houses up to six P32E1DS1 cards for DS1 TDM traffic encapsulation/extraction into standard Ethernet packets
- SDHACC OC-3 SDH card—houses up to six SDHACC cards for OC-3 TDM traffic encapsulation/extraction into standard Ethernet packets
- The MSS-8 shelf houses one fan card resident in slot 9 on the right-hand side of the shelf and provides forced-air cooling for the shelf.
- The MSS-8 shelf houses up to one AUX card optional in slot 8 to provide up to nine station alarm inputs and eight station alarm control outputs.

UDS-102
MPT-HL microwave packet transport-long haul shelf

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3EM22618AB	MPT-HL Microwave Packet transport-Long Haul Shelf	N/A	N/A	N/A	Active

Features and application notes

- The Microwave Packet Transport-Long Haul (MPT-HL) shelf provides an all indoor solution when used in conjunction with the 9500 MPR-A MSS-8 shelf equipped with P8ETH Ethernet Access Switch.
- The MPT-HL shelf provides support for two high-capacity, long-haul RF transmission MPT Transceivers.
- All cards are accessed from the front side of the shelf
- Mounts in a 19-inch aluminum rack or 19-inch seismic rack. Adapter flanges available to mount in a 23-inch aluminum rack
- Provides two mounting depth options: flush mount or 5 inch projection
- Houses up to two MPT Transceivers.

Description

The MPT-HL self consists of a module cage and backplane which provides two slots dedicated for two MPT Transceiver cards. See figure 102-1 for an example of the MPT-HL shelf.

The MPT-HL shelf is 19 inches wide (17.25 inches wide without mounting flanges), 4.25 inches high (2.5 EIA rack increments), and 10.5 inches deep without diplexer and waveguide mounting brackets. Adapter plates are available to mount the MPT-HL shelf in 23 inch aluminum racks. See figure 102-2 through figure 102-5 for outline and shelf dimensions of the MPT-HL shelf in various configurations.

Figure 102-1. Microwave packet transport-long haul (MPT-HL) shelf

Figure 102-2. MPT-HL shelf dimensions

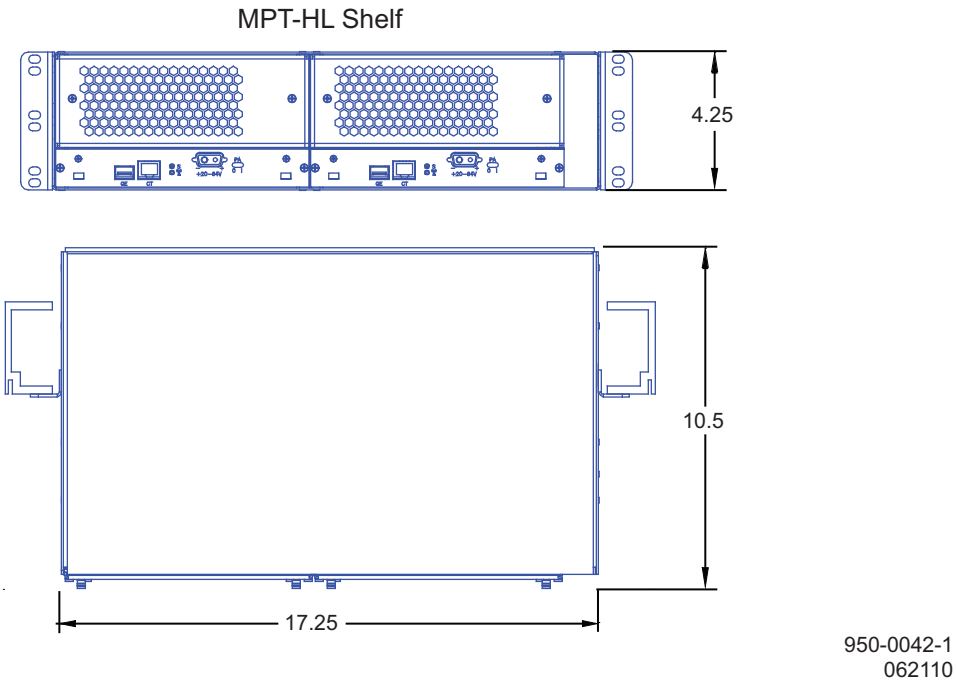


Figure 102-3. MPT-HL shelf w/diplexer dimensions - top view

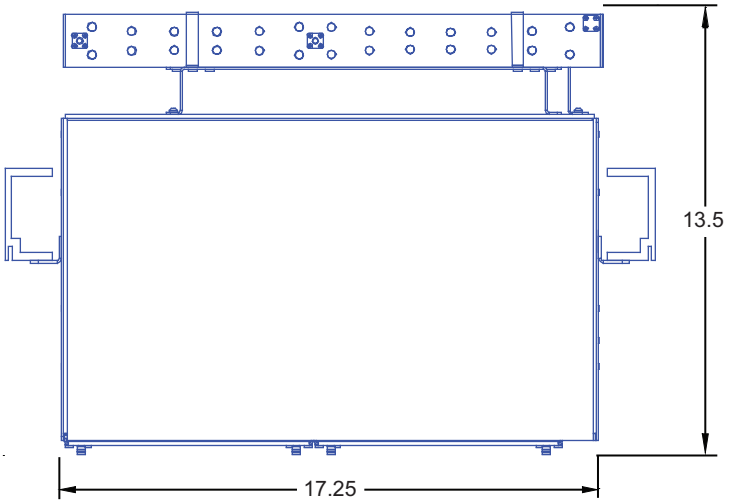


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Figure 102-4. MPT-HL shelf w/one waveguide bracket dimensions - top view

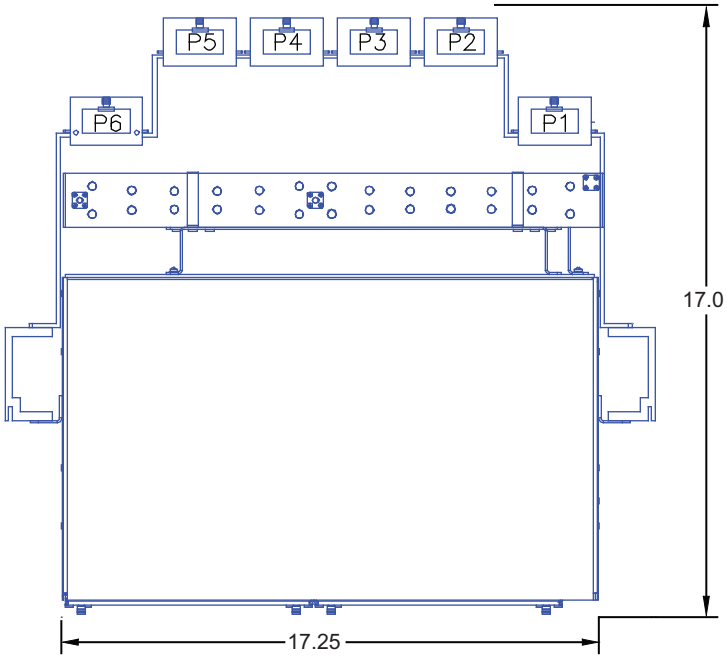

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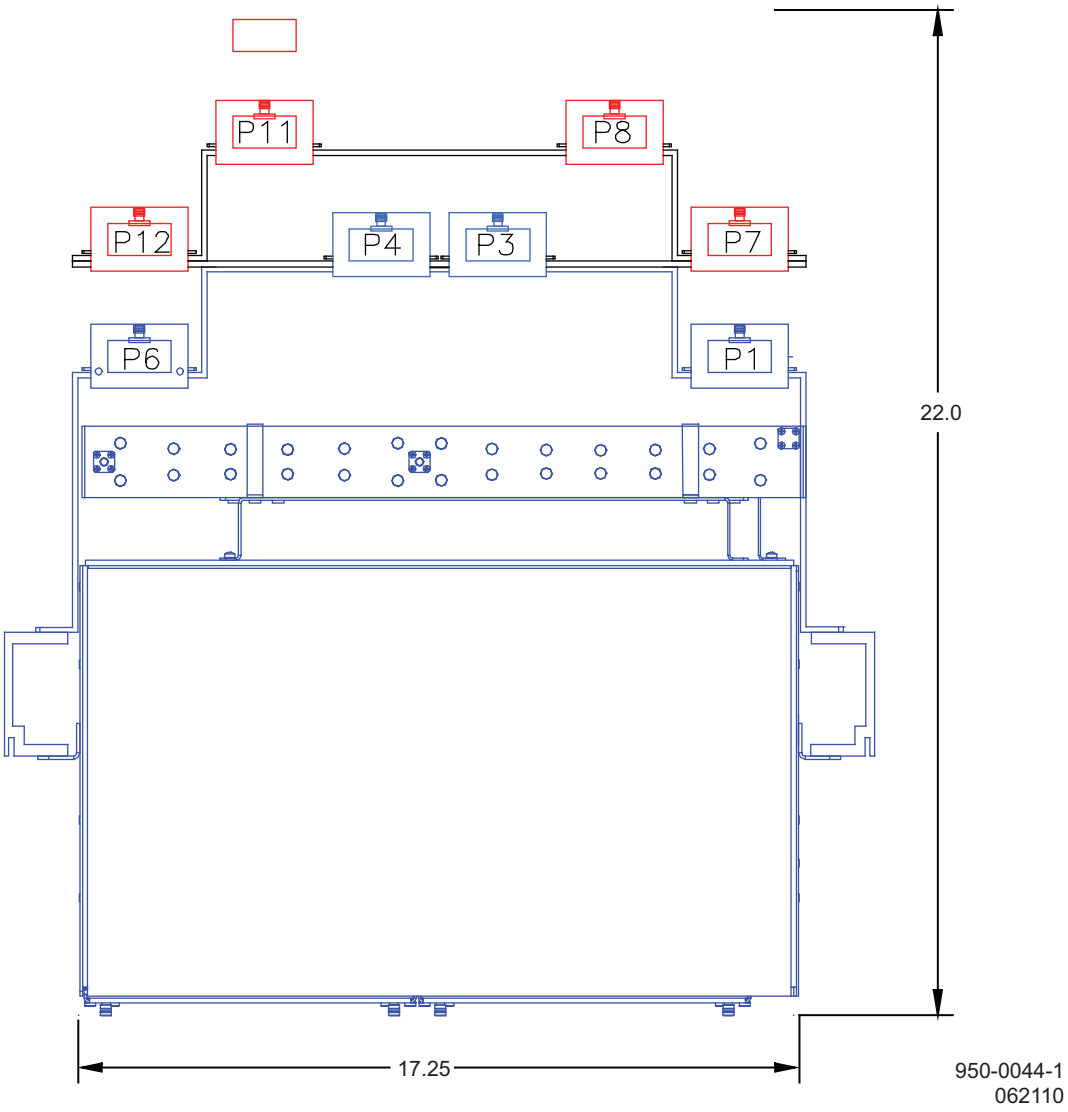
Figure 102-5. MPT-HL shelf w/two waveguide brackets dimensions - top view



Equipment complement

MPT-HL shelf houses one or two MPT Transceiver cards. The MPT Transceiver cards can be configured either in 1+1 protection, one 1+0 unprotected, or two 1+0 unprotected radio channels.

Table 102-A. MPT-HL shelf card complement

CIRCUIT PACK/ UNIT DATA SHEET	PART NO.	CLEI	QTY	SLOT
MPT-HL Transceiver L6, 5725-6425 MHz UDS-109	3EM22617AA	CRTUAAXFAA	1 or 2	1, 2
MPT-HL Transceiver U6, 6425-6930 MHz UDS-109	3EM22617AB	CRTUAAYFAA		
MPT-HL Transceiver L6, 5925-6425 MHz, HP UDS-109	3EM22617AC	CRTUABLFAA		
MPT-HL Transceiver U6, 6425-6930 MHz, HP UDS-109	3EM22617AD	CRTUABMFAA		
MPT-HL Transceiver 7, 7125-7775 MHz UDS-109	3EM24627AA	N/A		
MPT-HL Transceiver 8, 7725-8500 MHz UDS-109	3EM24627AB	N/A		
MPT-HL Transceiver 10.5, 10400-10700 MHz UDS-109	3EM23888AA	CRTUABPCAA		
MPT-HL Transceiver 11, 10700-11200 MHz UDS-109	3EM23888AB	CRTUABRCAA		
MPT-HL Transceiver 11, 11200-11700 MHz UDS-109	3EM23888AC	CRTUABSCAA		

UDS-103
Core-E control and switching module

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB18209AB	CSM-B Control and Switching Module	N/A	N/A	N/A	Active
3DB18326AC	CSM-E Enhanced Control and Switching Module	CRCCAEVEAA	175769	070VGE	Active

Features and application notes

The Core-E card provides the following functions:

- Four 10/100/1000 BaseT Ethernet ports
- Two GigE optical Ethernet port
- Network Management System (NMS) port
- TMN Ethernet Interface port
- MSS-8 shelf synchronization clock reference
- External clock reference input and output
- Supports unprotected and 1+1 Core-E Equipment Protection Switch (EPS) configurations
- The active Core-E card manages communications — between all of the peripheral cards (P32E1DS1, P2E3DS3, MOD300, ODU300, SDHACC, MPT-HL Transceiver, and P8ETH) to provide peripheral management, NMS, equipment configuration, event reporting and logging, equipment database management and software downloads.

- Layer 2 Ethernet Switch — performs the cross-connection between the peripheral cards and the Ethernet ports.
  - The Switch shall assure to the system a complete interconnection between all cards connected into the MSS-8 shelf.
  - The Switch shall perform address learning, standard 802.1Q management (VLAN), Layer 2 switching (MAC address, VLAN), and QOS per system (802.1P and DiffServ).
  - VLAN table and Address Tables shall be required to be maintained/updated by the system for Core-E and Peripheral Switches.
- Storage of Log Files for events and alarms. Storage capacity is the most recent 500 events and 700 alarms.

Description

Purpose and function

The Control and Switching Module (Core-E - Core) performs all supervisory functions for the 9500 MPR-A MSS and switches Ethernet packets from peripherals to radio cards. The Core-E consists of microprocessor and Ethernet switch circuits.

Microprocessor

The microprocessor consists of a 128 Mbyte system memory (SDRAM), 8 Mbyte boot memory (EEPROM), and 128 Mbyte flash memory.

Options/configurations

There are no card options. The Core-E card is required in slot 1. The Spare Core-E card resides in slot 2 when equipped.

Indicators, connectors, and control

The Control and Switch Module (Core-E) card has the following indicators, connectors, and controls.

See Figure 103-1 for Core-E card front panel indicator and connector locations.

Refer to Table 103-A for Core-E card indicators details.

Refer to Table 103-B for Core-E card connector details.

The Core-E card has a reset control for performing a manual hard reset of the Core-E card.

Figure 103-1. Core-E front panel details

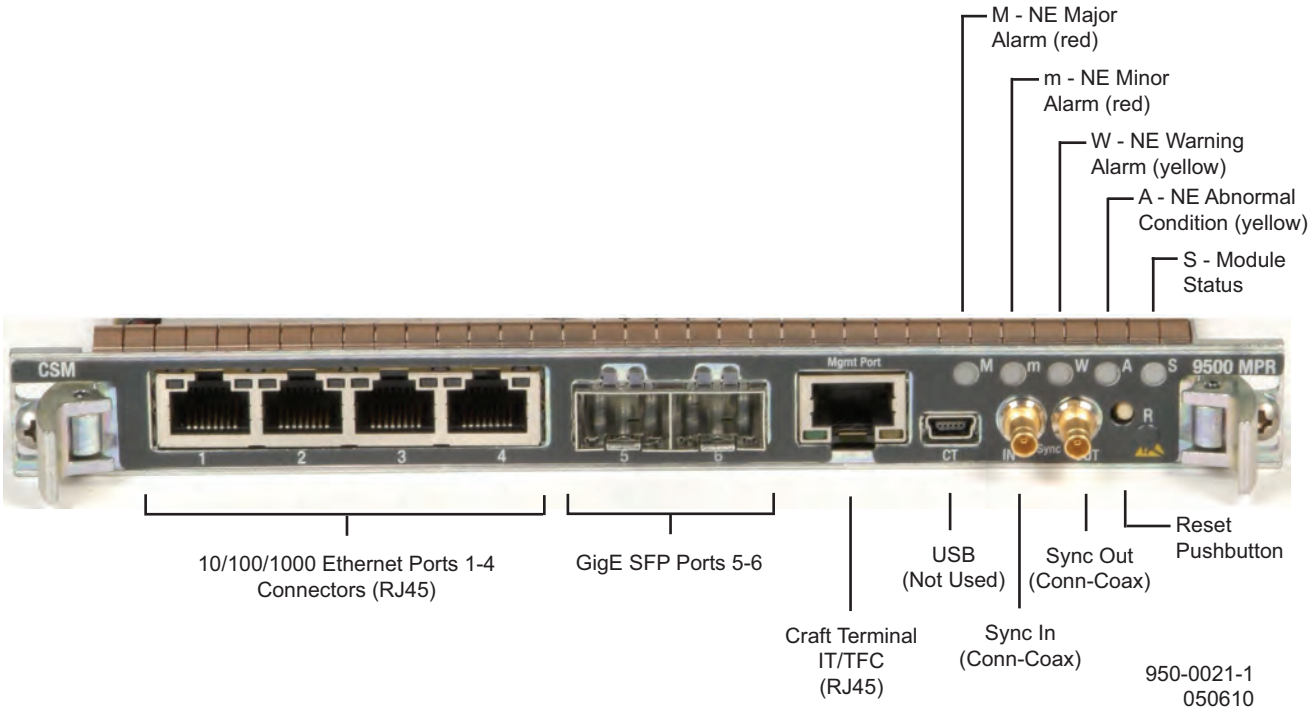


Table 103-A. Core-E front panel indicator details

INDICATOR	STATUS	DEFINITION
Link (L)	Off	Link Down
	On	Link Up
Activity (A)	Off	No Tx/Rx activity
	Blinking	Tx/Rx activity
Major Alarm (M)	On (Red)	At least one alarm is present on the NE with Major severity is present on the NE.
Minor Alarm (m)	On (Red)	At least one alarm is present on the NE with Minor severity is present on the NE.
Warning Alarm (W)	On (Yellow)	At least one alarm is present on the NE with Warning severity is present on the NE.
Abnormal Condition (A)	On (Yellow)	At least one Abnormal Condition is present on the NE.
Status (S)	Off	Card not equipped, not provisioned, or not powered
	Green Blinking	Download, Software Booting, or Flash Card Realignment in Progress
	Green	In Service, Normal Operation, and Properly Provisioned
	Yellow	In Protect, Properly Provisioned as EPS
	Red	Card Fail
	Red Blinking	Card Mismatch

Table 103-B. Core-E front panel connector details

CONNECTOR	TYPE	FUNCTION
Ethernet Ports 1-4	RJ45	10/100/1000BaseT Ethernet Port
Ethernet Port 4	RJ45	TMN network interface
SFP Port	SFP	GigE Ethernet Optical Port
Craft Terminal/IT/TFC	RJ45	Dedicated craft terminal port
USB	USB	Not used
Sync In	Slip Fit Coax 1.0/2.3, Female	System sync input
Sync Out	Slip Fit Coax 1.0/2.3, Female	System sync output

UDS-104
MOD300 radio interface

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB18136AC	MOD300 Radio Interface	N/A	N/A	N/A	Inactive
3DB18136AD	MOD300 Radio Interface	N/A	N/A	N/A	Inactive
3DB18136AE	MOD300 Radio Interface	CRG2ABVDAA	171346	070VHS	Active
3DB18538AC	MOD300EN Radio Interface	CRG2ABWDAA	171353	070VHS	Active

Features and application notes

- Supports both unprotected and 1+1 EPS protected configurations
- MOD300 supports static modulation applications
- MOD300EN supports static modulation applications and is required for all adaptive modulation applications

Description

There are no card options. There are radio equipping options for the MOD300 card radio peripheral. One MOD300 card is required in any slot 3 through 8 for not protected configurations. In protected radio configurations, two are required, the main MOD300 card resides in slot 3, 5, and/or 7. The protect MOD300 card resides in the slot directly across from the main, slot 4, 6, and/or 8. The protect MOD300 card protects the radio if the main MOD300 card fails.

Indicators, connectors, and control

See figure 104-1 for MOD300 card front panel indicator and connectors.

The MOD300 Radio Interface (MOD300) card has the following indicators, connectors, and controls.

Refer to Table 104-A for MOD300 card indicators details.

Refer to Table 104-B for MOD300 card connector details.

The MOD300 card has no controls located on the card.

Figure 104-1. MOD300 card (MSS/MD300)

Table 104-A. MOD300 front panel indicator details

INDICATOR	STATUS	DEFINITION
Power Emission Status (M)	Off	No Output Power (e.g.: Hot-Standby Transmitter, Software is Booting, or FPGA Downloading is In-Progress)
	Green	Normal Output Power
	Yellow	Forced Squelch Enabled on Craft Terminal
	Red	Abnormal Output Power
Status (S)	Off	Card not equipped, not provisioned, or not powered
	Green Blinking	Download, Software Booting, or Flash Card Realignment in Progress
	Green	In Service, Normal Operation, and Properly Provisioned
	Yellow	In Protect, Properly Provisioned as EPS
	Red	Card Fail
	Red Blinking	Card Mismatch

Table 104-B. MOD300 front panel connector details

CONNECTOR	TYPE	FUNCTION
IF	SMA	IF signal to/from the ODU300

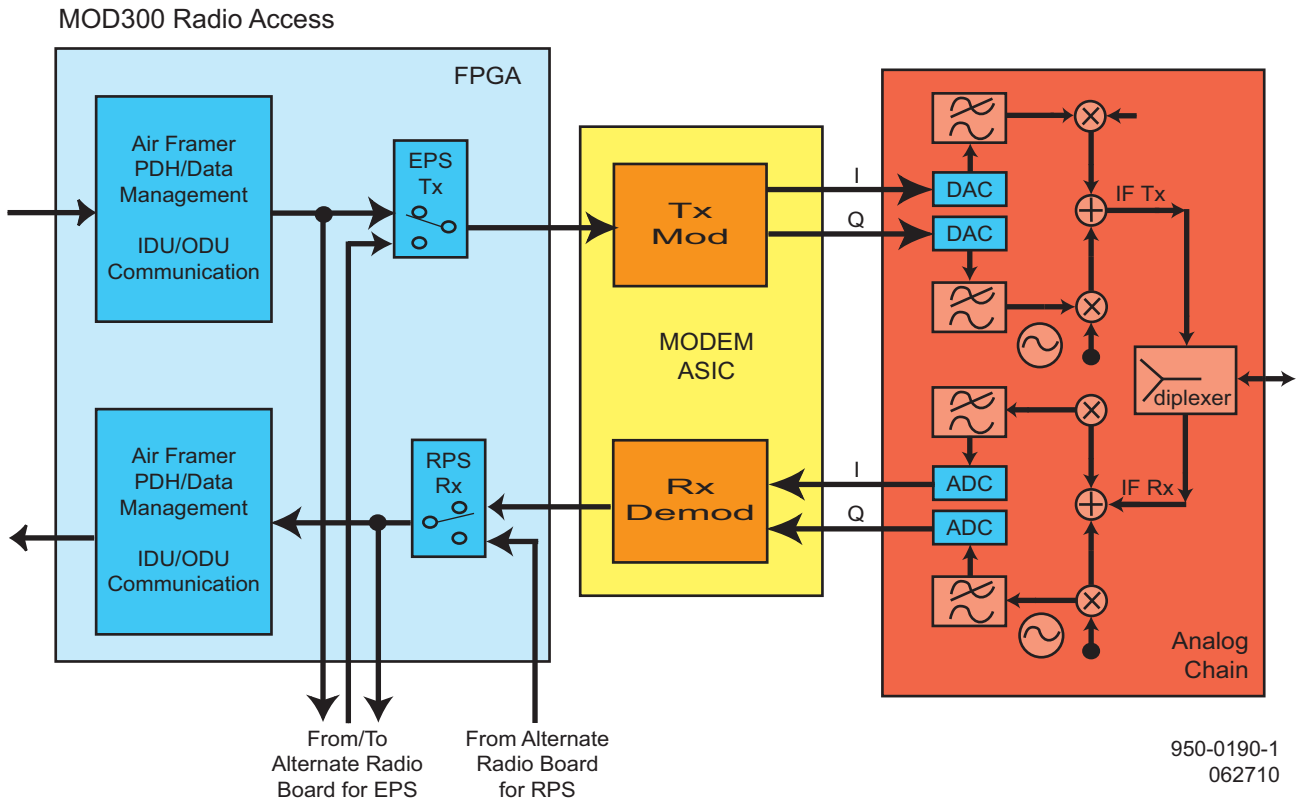
Functional overview

In the TX direction, the MOD300 card converts Ethernet packet data from the Core-E (Control and Switching Module - Core) card(s) into a modulated IF output signal that is applied to the ODU300.

In the RX direction, the MOD300 card demodulates the IF signal from the ODU300, converts the demodulated signal into a digital IF signal, encapsulates the digital data into Ethernet packets, and sends the packets to the Core-E card(s).

See figure 104-2 for a block diagram of the MOD300.

Figure 104-2. MOD300 card block diagram



UDS-105
P32E1DS1 DS1 PDH card

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB18126AD	P32E1DS1 DS1 PDH Card	N/A	N/A	N/A	Inactive
3DB18126AE	P32E1DS1 DS1 PDH Card	CRG2ABUDAA	070VGM	171272	Active

Features and application notes

- Terminates up to 32 DS1 signals
- Framed DS1 Bi-Directional alarm management
- Bi-Directional performance monitoring on framed DS1 signals
- Encapsulation of DS1 data flows into standard Ethernet packets Inter Working Function (IWF)
- Extraction of DS1 data flows from standard Ethernet packets IWF
- Supports both unprotected and 1+1 EPS protected configurations
- MSS-8 shelf supports up to six unprotected P32E1DS1 cards and up to three P32E1DS1 protected pairs

Description

The P32E1DS1 card provides 32 DS1 interfaces. The MSS-8 shelf supports up to six P32E1DS1 cards or 192 unprotected DS1 interfaces or 96 protected DS1 interfaces.

The P32E1DS1 are supported in MSS-8 slots 3 through 8 for unprotected radio configurations. In protected radio configurations, a pair of P32E1DS1s are required. The main P32E1DS1s are equipped in slots 3, 5, or 7 and the protect (spare) P32E1DS1s are equipped in the slots directly across from the main (slot 4, 6, or 8). The spare P32E1DS1 card protects the radio if the main P32E1DS1 fails.

Indicators, connectors, and control

The P32E1DS1 DS1 PDH card has the following indicator and connectors:

See Figure 105-1 for P32E1DS1 DS1 PDH card front panel indicator and connectors.

Refer to Table 105-A for P32E1DS1 DS1 PDH card indicators details.

Refer to Table 105-B for P32E1DS1 DS1 PDH card connector details.

The P32E1DS1 DS1 PDH card has no controls located on the card.

Figure 105-1. P32E1DS1 DS1 card (MSS/DS1) front panel view

Table 105-A. P32E1DS1 DS1 card front panel indicator details

INDICATOR	STATUS	DEFINITION
Status (S)	Off	Card not equipped, not provisioned, or not powered
	Green Blinking	Download, Software Booting, or Flash Card Realignment in Progress
	Green	In Service, Normal Operation, and Properly Provisioned
	Yellow	In Protect, Properly Provisioned as EPS
	Red	Card Fail
	Red Blinking	Card Mismatch

Table 105-B. P32E1DS1 DS1 card front panel connector details

CONNECTOR	TYPE	FUNCTION
I/O (16-1)	64 position SCSI connector	DS1, Tx and Rx (tip and ring), interconnect DS1s number 1 through 16
I/O (32-17)	64 position SCSI connector	DS1, Tx and Rx (tip and ring), interconnect DS1s number 17 through 32

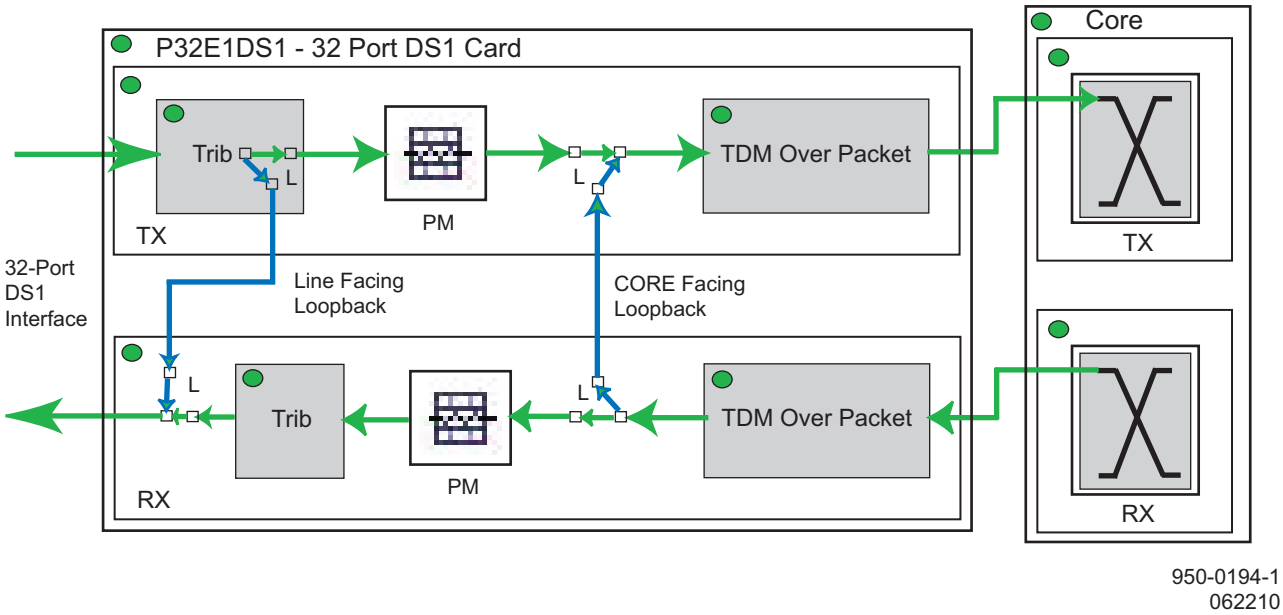
Functional overview

In the transmit direction, the P32E1DS1 receives up to thirty-two DS1 signals from the customer interfaces. Encapsulates the DS1 data flows into standard Ethernet packets, (IWF). The Ethernet packets are sent to the cross-connections matrix for connection to their provisioned destinations.

In the receive direction, the P32E1DS1 receives Ethernet packets from the cross-connections matrix from their provisioned sources. Extracts the DS1 data flows from standard Ethernet packets (IWF). The DS1 signals are sent to up to thirty-two customer interfaces.

See figure 105-2 for a block diagram of the P32E1DS1.

Figure 105-2. P32E1DS1 DS1 block diagram



UDS-106
P2E3DS3 DS3 PDH card

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB18194AB	P2E3DS3 DS3 PDH Card	N/A	N/A	N/A	Inactive
3DB18194AC	P2E3DS3 DS3 PDH Card	CRG2AA9DAA	167528	070SNE	Active

Features and application notes

- Terminates up to two DS3 signals.
- Framed DS3 Bi-Directional alarm management
- Bi-Directional performance monitoring on framed DS3 signals
- Encapsulation of DS3 data flows into standard Ethernet packets Inter Working Function (IWF)
- Extraction of DS3 data flows from standard Ethernet packets IWF
- Supports both unprotected and 1+1 EPS protected configurations
- MSS-8 shelf supports up to six unprotected P2E3DS3 cards and up to three P2E3DS3 protected pairs

Description

The P2E3DS3 card provides 2 DS3 interfaces. The MSS-8 shelf supports up to six P2E3DS3 cards or 12 unprotected DS3 interfaces or 6 protected DS3 interfaces.

The P2E3DS3 is supported in MSS-8 slots 3 through 8 for unprotected radio configurations. In protected radio configurations, a pair of P2E3DS3s are required. The main P2E3DS3s are equipped in slots 3, 5, and/or 7 and the protect (spare) P2E3DS3s are equipped in the slots directly across from the main (slots 4, 6, and/or 8). The protect (spare) P2E3DS3 card protects the radio if the main P3E3DS3 fails.

Indicators, connectors, and control

The P2E3DS3 DS3 PDH card has the following indicator and connectors.

See Figure 106-1 for P2E3DS3 DS3 PDH card front panel indicator and connectors.

Refer to Table 106-A for P2E3DS3 DS3 PDH card indicators details.

Refer to Table 106-B for P2E3DS3 DS3 PDH card connector details.

The P2E3DS3 DS3 PDH card has no controls located on the card.

Figure 106-1. P2E3DS3 DS3 card (MSS/DS3) front panel view

Table 106-A. P2E3DS3 DS3 card front panel indicator details

INDICATOR	STATUS	DEFINITION
Status (S)	Off	Card not equipped, not provisioned, or not powered
	Green Blinking	Download, Software Booting, or Flash Card Realignment in Progress
	Green	In Service, Normal Operation, and Properly Provisioned
	Yellow	In Protect, Properly Provisioned as EPS
	Red	Card Fail
	Red Blinking	Card Mismatch

Table 106-B. P2E3DS3 DS3 card front panel connector details

CONNECTOR	TYPE	FUNCTION
LINE 1	75 ohm male, mini-BNC - Qty 2	IN - DS3 Rx interconnect OUT - DS3 Tx interconnect
LINE 2	75 ohm male, mini-BNC - Qty 2	IN - DS3 Rx interconnect OUT - DS3 Tx interconnect

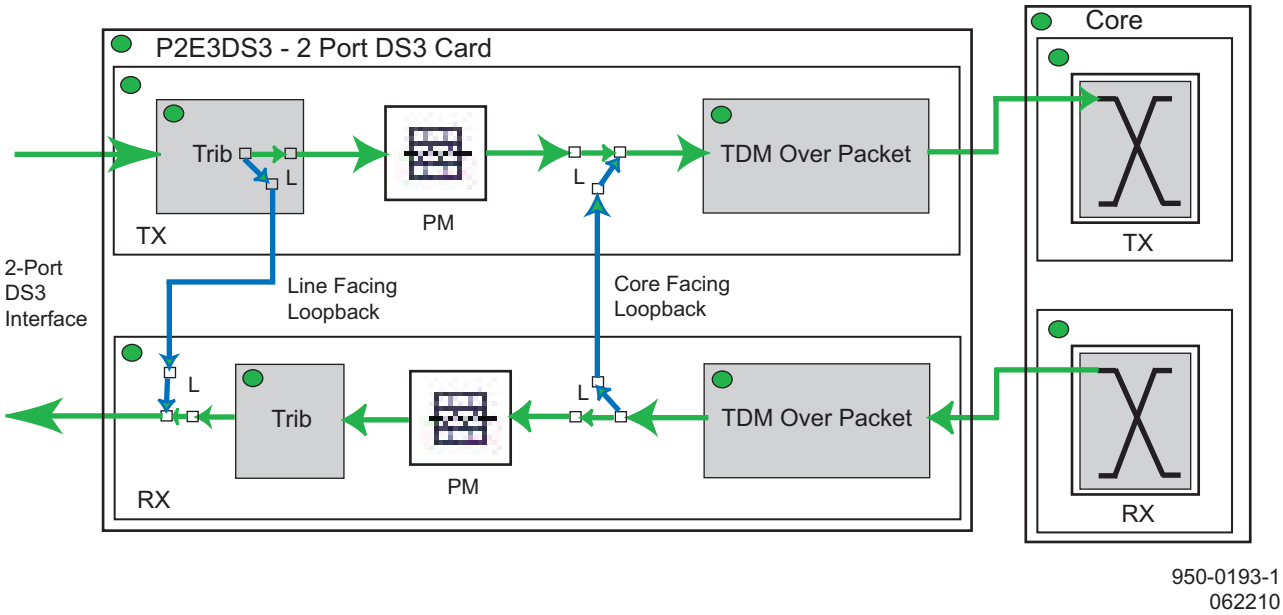
Functional overview

In the transmit direction, the P2E3DS3 receives DS3 signals from the customer interfaces. Encapsulates the DS3 data flows into standard Ethernet packets, (IWF). The Ethernet packets are sent to the cross-connections matrix for connection to their provisioned destinations.

In the receive direction, the P2E3DS3 receives Ethernet packets from the cross-connections matrix from their provisioned sources. Extracts the DS3 data flows from standard Ethernet packets (IWF). The DS3 signals are sent to the customer interfaces.

See figure 106-2 for a block diagram of the P2E3DS3.

Figure 106-2. P2E3DS3 DS3 block diagram



UDS-107
P8ETH ethernet access switch card

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB18206AC	P8ETH Ethernet Access Switch Card	CRCCACGJAA	169403	070UPD	Active

Features and application notes

- Terminates up to four GigE optical Ethernet SFP interfaces
- Terminates up to four 10/100/1000 10BaseT Ethernet interfaces
- Terminates up to four MPT-HL Transceiver cards
- Terminates up to four MPT-HC/XP units
- Supports both unprotected and 1+1 EPS protected configurations with MPT-HL
- Supports unprotected configurations with MPT-HC/XP

Description

The P8ETH card provides four 10/100/1000 10BaseT Ethernet interfaces and four GigE optical Ethernet SFP interfaces. The MSS-8 shelf supports one protected pair of P8ETH cards or one unprotected P8ETH card.

The P8ETH is supported in MSS-8 slots 3 through 8 for unprotected radio configurations. In protected radio configurations, a pair of P8ETHs are required. The main P8ETH is equipped in slots 3, 5, and/or 7 and the protect (spare) P8ETH is equipped in slots 4, 6, and/or 8 directly across from the main. The protect (spare) P8ETH card protects the radio if the main P8ETH fails.

Indicators, connectors, and control

The P8ETH card has the following indicators, connectors, and controls.

See Figure 107-1 for P8ETH card front panel indicator and connector locations.

Refer to Table 107-A for P8ETH card indicators details.

Refer to Table 107-B for P8ETH card connector details.

Figure 107-1. P8ETH card (MSS/P8ETH)

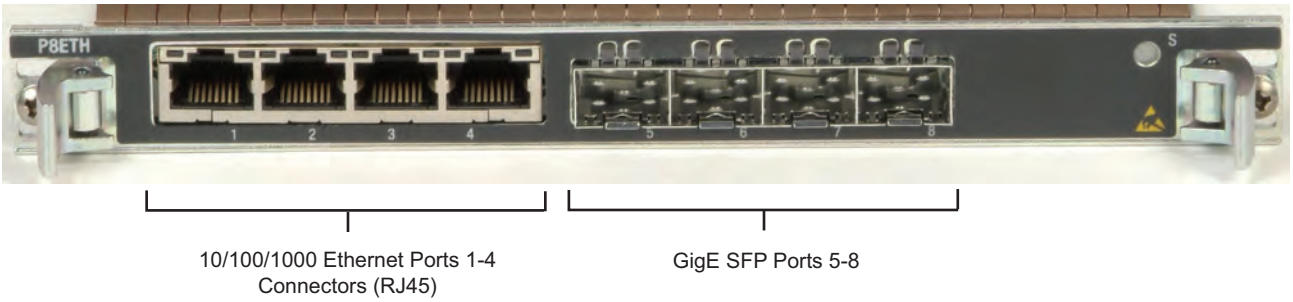


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Table 107-A. P8ETH front panel indicator details

INDICATOR	STATUS	DEFINITION
Status (S)	Off	Card not equipped, not provisioned, or not powered
	Green Blinking	Download, Software Booting, or Flash Card Realignment in Process
	Green	In-Service, Normal Operation, and Properly Provisioned
	Yellow	In Protect, Properly Provisioned as EPS
	Red	Card Fail
	Red Blinking	Card Mismatch
Link	Off	Link Down
	On	Link Up
Activity	Off	No Tx/Rx activity
	Blinking	Tx/Rx activity

Table 107-B. P8ETH front panel connector details

CONNECTOR	TYPE	FUNCTION
Ethernet Ports 1-4	RJ45	10/100/1000BaseT Ethernet Port
SFP Ports 5-8	SFP	GigE Ethernet Optical Port

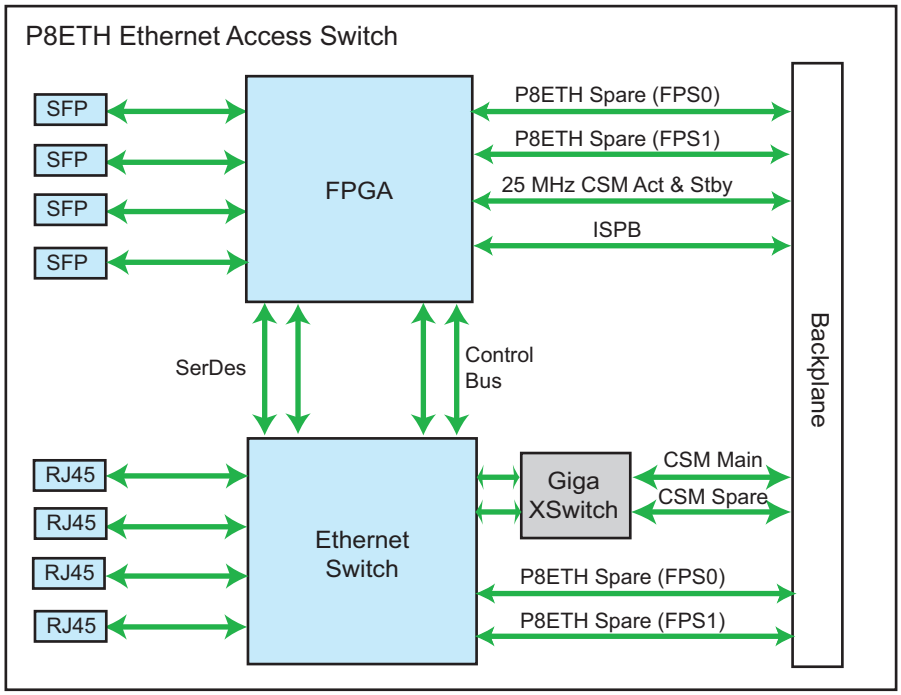
Functional overview

The main purpose of the Ethernet Access Switch (P8ETH) module is to provide the MSS-to-MPT interface for the 9500 MPR-A all indoor configuration. The P8ETH module functions as a layer 2 switch, cross-connecting VLAN tagged Ethernet data to/from the addressed MPT. The P8ETH module provides traffic management for Core-Es for up to four directions using protected radios and up to eight directions using not-protected radios.

A secondary purpose of the P8ETH module is to provide four RJ45 10/100/1000Base-T Ethernet ports, in addition to the four Core-E Ethernet ports, and four SFP optical Ethernet ports, in addition to the Core-E SFP optical Ethernet port.

See figure 107-2 for a block diagram of the P8ETH.

Figure 107-2. P8ETH block diagram



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UDS-108
ODU300 outdoor unit

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
ODU300, L6 GHz, 252.04 MHz SEPARATION					
3DB23215AA	ODU300, 5930 - 6020 MHZ, HP, TX LOW	N/A	N/A	N/A	Inactive
3DB23215AD	ODU300, 6182 - 6272 MHZ, HP, TX HIGH	N/A	N/A	N/A	Inactive
3DB23215AB	ODU300, 5989 - 6079 MHZ, HP, TX LOW	N/A	N/A	N/A	Inactive
3DB23215AE	ODU300, 6241 - 6331 MHZ, HP, TX HIGH	N/A	N/A	N/A	Inactive
3DB23215AC	ODU300, 6078 - 6168 MHZ, HP, TX LOW	N/A	N/A	N/A	Inactive
3DB23215AF	ODU300, 6330 - 6420 MHZ HP, TX HIGH	N/A	N/A	N/A	Inactive
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1], L6 GHz, 252.04 MHz SEPARATION					
3DB23215HA	ODU300, 5930 - 6020 MHZ, HP, TX LOW	CRMLT10HRB	461514	213567	Active
3DB23215HD	ODU300, 6182 - 6272 MHZ, HP, TX HIGH	CRMLU10HRB	461515	213568	Active
3DB23215HB	ODU300, 5989 - 6079 MHZ, HP, TX LOW	CRMLV10HRB	461516	213569	Active
3DB23215HE	ODU300, 6241 - 6331 MHZ, HP, TX HIGH	CRMLW10HRB	461517	213570	Active
3DB23215HC	ODU300, 6078 - 6168 MHZ, HP, TX LOW	CRMLX10HRB	461518	213571	Active
3DB23215HF	ODU300, 6330 - 6420 MHZ HP, TX HIGH	CRMLY10HRB	461519	213572	Active
ODU300, U6 GHz, 160 MHz SEPARATION					
3DB23214AA	ODU300, 6540 - 6610 MHZ, HP, TX LOW	N/A	N/A	N/A	Inactive
3DB23214AB	ODU300, 6710 - 6780 MHZ, HP, TX HIGH	N/A	N/A	N/A	Inactive
3DB23214AC	ODU300, 6590 - 6660 MHZ, HP, TX LOW	N/A	N/A	N/A	Inactive
3DB23214AD	ODU300, 6760 - 6830 MHZ, HP, TX HIGH	N/A	N/A	N/A	Inactive

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB23214AE	ODU300, 6640 - 6710 MHZ, HP, TX LOW	N/A	N/A	N/A	Inactive
3DB23214AF	ODU300, 6800 - 6870 MHZ, HP, TX HIGH	N/A	N/A	N/A	Inactive
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1], U6 GHz, 160 MHz SEPARATION					
3DB23214HA	ODU300, 6540 - 6610 MHZ, HP, TX LOW	CRMLZ10HRB	461520	213573	Active
3DB23214HB	ODU300, 6710 - 6780 MHZ, HP, TX HIGH	CRML110HRB	461521	213574	Active
3DB23214HC	ODU300, 6590 - 6660 MHZ, HP, TX LOW	CRML210HRB	461522	213575	Active
3DB21214HD	ODU300, 6760 - 6830 MHZ, HP, TX HIGH	CRML310HRB	461523	213576	Active
3DB23214HE	ODU300, 6640 - 6710 MHZ, HP, TX LOW	CRML410HRB	461524	213577	Active
3DB23214HF	ODU300, 6800 - 6870 MHZ, HP, TX HIGH	CRML510HRB	461525	213578	Active
ODU300, U6 GHz, 340 MHz SEPARATION					
3DB23216AA	ODU300, 6430 - 6590 MHz, HP TX LOW	N/A	N/A	N/A	Inactive
3DB23216AB	ODU300, 6770 - 6930 MHz, HP TX HIGH	N/A	N/A	N/A	Inactive
3DB23216AC	ODU300, 6515 - 6675 MHz, HP TX LOW	N/A	N/A	N/A	Inactive
3DB23216AD	ODU300, 6855 - 7015 MHz, HP TX HIGH	N/A	N/A	N/A	Inactive
3DB23216AE	ODU300, 6600 - 6760 MHz, HP TX LOW	N/A	N/A	N/A	Inactive
3DB23216AF	ODU300, 6940 - 7100 MHz, HP TX HIGH	N/A	N/A	N/A	Inactive
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1], U6 GHz, 340 MHz SEPARATION					
3DB23216HA	ODU300, 6430 - 6590 MHz, HP TX LOW	CRML610HRB	461526	213579	Active
3DB23216HB	ODU300, 6770 - 6930 MHz, HP TX HIGH	CRML710HRB	461527	213580	Active
3DB23216HC	ODU300, 6515 - 6675 MHz, HP TX LOW	CRML810HRB	461528	213581	Active
3DB23216HD	ODU300, 6855 - 7015 MHz, HP TX HIGH	CRML910HRB	461529	213582	Active

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB23216HE	ODU300, 6600 - 6760 MHz, HP TX LOW	CRMMA00ARB	461530	213583	Active
3DB23216HF	ODU300, 6940 - 7100 MHz, HP TX HIGH	CRMMB00ARB	461531	213605	Active
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1], 7 GHz, 175 MHz SEPARATION					
3DB23223HA	ODU300, 7124 - 7185 MHz, HP, TX Low	N/A	N/A	N/A	Active
3DB23224HA	ODU300, 7299 - 7360 MHz, HP, TX High	N/A	N/A	N/A	Active
3DB23225HA	ODU300, 7157.5 - 7217.5 MHz, HP, TX Low	N/A	N/A	N/A	Active
3DB23226HA	ODU300, 7332.5 - 7392.5 MHz, HP, TX High	N/A	N/A	N/A	Active
3DB23227HA	ODU300, 7190 - 7250 MHz, HP, TX Low	N/A	N/A	N/A	Active
3DB23228HA	ODU300, 7365 - 7425 MHz, HP, TX High	N/A	N/A	N/A	Active
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1], 7 GHz, 150 MHz SEPARATION					
3DB23217HA	ODU300, 7424 - 7485 MHz, HP, TX Low	N/A	N/A	N/A	Active
3DB23218HA	ODU300, 7574 - 7635 MHz, HP, TX High	N/A	N/A	N/A	Active
3DB23219HA	ODU300, 7470 - 7530 MHz, HP, TX Low	N/A	N/A	N/A	Active
3DB23220HA	ODU300, 7620 - 7680 MHz, HP, TX High	N/A	N/A	N/A	Active
3DB23221HA	ODU300, 7515 - 7575 MHz, HP, TX Low	N/A	N/A	N/A	Active
3DB23222HA	ODU300, 7665 - 7725 MHz, HP, TX High	N/A	N/A	N/A	Active
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1], 8 GHz, 300 MHz SEPARATION					
3DB23033HA	ODU300, 7722.5 - 7859 MHz, HP, TX Low	N/A	N/A	N/A	Active
3DB23033HC	ODU300, 8025 - 8171 MHz, HP, TX High	N/A	N/A	N/A	Active
3DB23033HB	ODU300, 7844 - 7981 MHz, HP, TX Low	N/A	N/A	N/A	Active
3DB23033HD	ODU300, 8145 - 8287 MHz, HP, TX High	N/A	N/A	N/A	Active

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
ODU300 11 GHz, 590-490 MHz SEPARATION					
3DB23035AA	ODU300, 10675 - 10835 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23035AE	ODU300, 11200 - 11345 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
3DB23035AB	ODU300, 10795 - 10955 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23035AF	ODU300, 11310 - 11465 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
3DB23035AC	ODU300, 10915 - 11075 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23035AG	ODU300, 11430 - 11585 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
3DB23035AD	ODU300, 11035 - 11200 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23035AH	ODU300, 11550 - 11705 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1] 11 GHz, 590-490 MHz SEPARATION					
3DB23035HA	ODU300, 10675 - 10835 MHZ, TX LOW	CRMMC00ARB	213584	461532	Active
3DB23035HE	ODU300, 11200 - 11345 MHZ, TX HIGH	CRMMD00ARB	213585	461533	Active
3DB23035HB	ODU300, 10795 - 10955 MHZ, TX LOW	CRMME00ARB	461534	213586	Active
3DB23035HF	ODU300, 11310 - 11465 MHZ, TX HIGH	CRMMF00ARB	461536	213587	Active
3DB23035HC	ODU300, 10915 - 11075 MHZ, TX LOW	CRMMG00ARB	461537	213588	Active
3DB23035HG	ODU300, 11430 - 11585 MHZ, TX HIGH	CRMMH00ARB	461539	213589	Active
3DB23035HD	ODU300, 11035 - 11200 MHZ, TX LOW	CRMMJ00ARB	461540	213590	Active
3DB23035HH	ODU300, 11550 - 11705 MHZ, TX HIGH	CRMMK00ARB	461541	213591	Active
ODU300 15 GHz, 475/490 MHz SEPARATION					
3DB23039AC	ODU300, 14500 - 14660 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23039AD	ODU300, 14975 - 15135 MHZ, TX HIGH	N/A	N/A	N/A	Inactive

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1] 15 GHz, 475/490 MHz SEPARATION					
3DB23039HC	ODU300, 14500 - 14660 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23039HD	ODU300, 14975 - 15135 MHZ, TX HIGH	N/A	N/A	N/A	Active
ODU300 18 GHz, 340 MHz SEPARATION					
3DB23041AA	ODU300, 18580 - 18660 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23041AB	ODU300, 18660 - 18740 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23041AC	ODU300, 18740 - 18820 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23041AD	ODU300, 18920 - 19000 MHZ, TX HIGH	N/A	N/A	N/A	Active
3DB23041AE	ODU300, 19000 - 19080 MHZ, TX HIGH	N/A	N/A	N/A	Active
3DB23041AF	ODU300, 19080 - 19160 MHZ, TX HIGH	N/A	N/A	N/A	Active
ODU300 18 GHz, 1008/1010/1092/1120 MHz SEPARATION					
3DB23042AA	ODU300, 17700 - 18060 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23042AB	ODU300, 17905 - 18275 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23042AC	ODU300, 18110 - 18490 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23042AD	ODU300, 18330 - 18690 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23042AE	ODU300, 18710 - 19070 MHZ, TX HIGH	N/A	N/A	N/A	Active
3DB23042AF	ODU300, 18920 - 19290 MHZ, TX HIGH	N/A	N/A	N/A	Active
3DB23042AG	ODU300, 19130-19510 MHZ, TX HIGH	N/A	N/A	N/A	Active
3DB23042AH	ODU300, 19340 - 19700 MHZ, TX HIGH	N/A	N/A	N/A	Active
ODU300 18 GHz, 1560 MHz SEPARATION					
3DB23062AC	ODU300, 17700 - 18060 MHZ, TX LOW	N/A	N/A	N/A	Inactive

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB23062AD	ODU300, 19260 - 19620 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1] 18 GHz, 1560 MHz SEPARATION					
3DB23062HC	ODU300, 17700 - 18060 MHZ, TX LOW	CRMML00ARB	461542	213592	Active
3DB23062HD	ODU300, 19260 - 19620 MHZ, TX HIGH	CRMMM00ARB	461543	213593	Active
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1] 18 GHz, 1560 MHz SEPARATION, HIGH POWER					
3DB23062HE	ODU300, 17700 - 18140 MHZ, TX LOW, HP	N/A	N/A	N/A	Active
3DB23062HF	ODU300, 19260 - 19700 MHZ, TX HIGH, HP	N/A	N/A	N/A	Active
ODU300 23 GHz, 1200 MHz SEPARATION					
3DB23045AA	ODU300, 21200 - 21570 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23045AE	ODU300, 22400 - 22770 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
3DB23045AB	ODU300, 21475 - 21845 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23045AF	ODU300, 22675 - 23045 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
3DB23045AC	ODU300, 21750 - 22120 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23045AG	ODU300, 22950 - 23320 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
3DB23045AD	ODU300, 22030 - 22400 MHZ, TX LOW	N/A	N/A	N/A	Inactive
3DB23045AH	ODU300, 23230 - 23600 MHZ, TX HIGH	N/A	N/A	N/A	Inactive
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1] 23 GHz, 1200 MHz SEPARATION					
3DB23045HA	ODU300, 21200 - 21570 MHZ, TX LOW	CRMMN00ARB	461544	213594	Active
3DB23045HE	ODU300, 22400 - 22770 MHZ, TX HIGH	CRMMP00ARB	461548	213595	Active
3DB23045HB	ODU300, 21475 - 21845 MHZ, TX LOW	CRMMR00ARB	461545	213596	Active
3DB23045HF	ODU300, 22675 - 23045 MHZ, TX HIGH	CRMMS00ARB	461549	213597	Active

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB23045HC	ODU300, 21750 - 22120 MHZ, TX LOW	CRMMT00ARB	461546	213598	Active
3DB23045HG	ODU300, 22950 - 23320 MHZ, TX HIGH	CRMMU00ARB	461550	213599	Active
3DB23045HD	ODU300, 22030 - 22400 MHZ, TX LOW	CRMMV00ARB	461547	213600	Active
3DB23045HH	ODU300, 23230 - 23600 MHZ, TX HIGH	CRMMW00ARB	461551	213601	Active
ODU300 W/LIGHTNING SURGE SUPPRESSOR[1] 23 GHz, 1200 MHz SEPARATION, HIGH POWER					
3DB23045HI	ODU300, 21200 - 21570 MHZ, TX LOW, HP	N/A	N/A	N/A	Active
3DB23045HM	ODU300, 22400 - 22770 MHZ, TX HIGH, HP	N/A	N/A	N/A	Active
3DB23045HJ	ODU300, 21475 - 21845 MHZ, TX LOW, HP	N/A	N/A	N/A	Active
3DB23045HN	ODU300, 22675 - 23045 MHZ, TX HIGH, HP	N/A	N/A	N/A	Active
3DB23045HK	ODU300, 21750 - 22120 MHZ, TX LOW, HP	N/A	N/A	N/A	Active
3DB23045HO	ODU300, 22950 - 23320 MHZ, TX HIGH, HP	N/A	N/A	N/A	Active
3DB23045HL	ODU300, 22030 - 22400 MHZ, TX LOW, HP	N/A	N/A	N/A	Active
3DB23045HP	ODU300, 23230 - 23600 MHZ, TX HIGH, HP	N/A	N/A	N/A	Active
ODU300 W/LIGHTNING SURGE SUPPRESSOR 38 GHz, 700 MHz SEPARATION					
3DB23258HO	ODU300, 38600 - 38800 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23258HP	ODU300, 39300 - 39500 MHZ, TX HIGH	N/A	N/A	N/A	Active
3DB23258HQ	ODU300, 38750 - 38950 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23258HR	ODU300, 39450 - 39650 MHZ, TX HIGH	N/A	N/A	N/A	Active
3DB23258HS	ODU300, 38950 - 39150 MHZ, TX LOW	N/A	N/A	N/A	Active

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB23258HT	ODU300, 39650 - 39850 MHZ, TX HIGH	N/A	N/A	N/A	Active
3DB23258HU	ODU300, 39100 - 39300 MHZ, TX LOW	N/A	N/A	N/A	Active
3DB23258HV	ODU300, 39800 - 40000 MHZ, TX HIGH	N/A	N/A	N/A	Active

[1] ODU300's with Lightning Surge Suppressor are supported starting with 9500 MPR-A R1.2.x and are not supported by R1.0.x and R1.1.x.

Features and application notes

- Optimal for urban links
- ODU300s are band specific
- Supports static and adaptive modulation
- Support for the following channel plans: Lower 6 GHz, Upper 6 GHz, 7 GHz, 8 GHz, 11 GHz, 15 GHz, 18 GHz, and 23 GHz.
- Channel frequency software selectable within tuning range of the ODU300
- Support for the following static radio profiles:
  - Supported static channel bandwidths: 10, 30, 40, and 50 MHz
  - Supported static modulations: 4 QAM, 16 QAM, 32 QAM, 64 QAM, 128 QAM, and 256 QAM
- Support for the following adaptive radio profiles:
  - Supported adaptive channel bandwidth: 30 MHz
  - Supported adaptive modulations: 4/16 QAM, 4/16/64 QAM, 4/16/64/128 QAM and 4/16/64/128/256 QAM
- Automatic Transmit Power Control (ATPC) support
- Integrated antenna mount
- Non-Integrated antenna mount optional
- Polarization is field configurable, Vertical (standard) or horizontal (optional)
- Coaxial connection to the MSS/MOD300 card
- ODU300s available with built-in lightning surge suppressor

Description

The ODU300 is a microprocessor controlled transceiver that interfaces the MSS-4/8 shelf MOD300 card with the antenna. Transmitter circuits in the ODU300 consists of cable interface, modulator, local oscillator, up converter/mixer, power amplifier, and diplexer. Receive circuits consist of

diplexer, low-noise amplifier, local oscillator, down converter/mixer, automatic gain control, and cable interface. The microprocessor manages ODU300 frequency, transmit power alarming, and performance monitoring. Power is provided by -48Vdc from the MSS to the ODU300 DC-DC converter. The ODU300 is frequency dependent.

Indicators, connectors, and control

See Figure 108-1 for ODU300 configured in integrated antenna mount configuration. See Figure 108-2 for ODU300s configured in HSB coupler mount configuration.

The ODU300 has no indicators and controls on the unit.

Refer to Table 108-A for ODU300 connector details.

The MOD300 card has no controls located on the card.

Figure 108-1. ODU300 and antenna, integrated mount configuration

Figure 108-2. ODU300 and antenna, integrated mount with HSB coupler

Table 108-A. Core-E front panel connector details

CONNECTOR	TYPE	FUNCTION
Antenna Port	Waveguide Interface	RF signal to antenna
IF Signal In	Type-N Female	IF signal from MOD300 card
RSSI	BNC Female	RSSI Monitor Port
Ground Stud		ODU300 Grounding

RSSI monitoring point

The ODU300 has a capped BNC female connector to access RSSI during antenna alignment.

There is a linear relationship of voltage to RSSI, as shown in the table below; an RSSI of 0.25 Vdc is equivalent to -10 dBm RSSI, and each additional 0.25 Vdc RSSI increase thereafter corresponds to a 10 dBm decrease in RSSI.

The lower the voltage the higher RSSI and better aligned the antenna is.

Table 108-C. RSSI table

UNITS	MEASUREMENT									
BNC (Vdc)	0.25	0.5	0.75	1.0	1.25	1.5	1.75	2.0	2.25	2.5
RSSI (dBm)	-10	-20	-30	-40	-50	-60	-70	-80	-90	-100

Waveguide flange data

Table 108-D lists the antenna port flange types used with the ODU300, plus their mating flange options and fastening hardware for remote mount installations.

UDR/PDR flanges are rectangular; UBR/PDR flanges are square.

On the ODU300, the two flange styles are:

- **UDR**. 6-hole or 8-hole (6/8 bolt holes depending on frequency range/waveguide type), flush-face flange with threaded, blind holes.
- **UBR**. 4-hole flush-face flange with threaded, blind holes.

The corresponding mating flange styles are:

- **PDR**. 6-hole or 8-hole flange with gasket groove and clear holes.
- **PBR**. 4-hole flange with a gasket groove and clear holes.

All fastening hardware is metric.

Table 108-D. ODU300 waveguide flange data

FREQ BAND	RADIO FLANGE	WAVE-GUIDE MATING FLANGE	WAVE-GUIDE TYPE	SPRING WASHERS REQD	BOLTS REQD	BOLT TYPE	THREAD SPEC	HOLE DEPTH mm	BOLT LENGTH REQUIRED
6 GHz	UDR70	PDR70	WR137	8 x M5	8	M5x0.8	6H	10	Flange thickness + Hole depth - 2mm
7/8 GHz	UDR84	PDR84	WR112	8 x M4	8	M4x0.7	6H	8	Flange thickness + Hole depth - 2mm
10/11 GHz	UDR100	PDR100	WR90	8 x M4	8	M4x0.7	6H	8	Flange thickness + Hole depth - 2mm
13 GHz	UBR120	PBR120	WR75	4 x M4	4	M4x0.7	6H	8	Flange thickness + Hole depth - 2mm
15 GHz	UBR140	PBR140	WR62	4 x M4	4	M4x0.7	6H	8	Flange thickness + Hole depth - 2mm
18/23/26 GHz	UBR220	PBR220	WR42	4 x M3	4	M3x0.5	6H	6	Flange thickness + Hole depth - 2mm
28/32/38 GHz	UBR320	PBR320	WR28	4 x M3	4	M3x0.5	6H	6	Flange thickness + Hole depth - 2mm

UDS-109
MPT-HL transceiver

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3EM22617AA	MPT-HL Transceiver L6, 5725-6425 MHz	CRTUAAXFAA	171610	070VLL	Active
3EM22617AB	MPT-HL Transceiver U6, 6425-6930 MHz	CRTUAAYFAA	171611	070VLM	Active
3EM22617AC	MPT-HL Transceiver L6, 5925-6425 MHz, HP	CRTUABLFAA	173789	070XRS	Active
3EM22617AD	MPT-HL Transceiver U6, 6425-6930 MHz, HP	CRTUABMFAA	173790	070XRS	Active
3EM24627AA	MPT-HL Transceiver 7, 7125-7775 MHz	N/A	N/A	N/A	Active
3EM24627AB	MPT-HL Transceiver 8, 7725-8500 MHz	N/A	N/A	N/A	Active
3EM23888AA	MPT-HL Transceiver 10.5, 10400-10700 MHz	CRTUABPCAA	174725	070YGX	Active
3EM23888AB	MPT-HL Transceiver 11, 10700-11200 MHz	CRTUABRCAA	174727	070YGY	Active
3EM23888AC	MPT-HL Transceiver 11, 11200-11700 MHz	CRTUABSCAA	174728	070YGZ	Active

Features and application notes

- High-capacity, long-haul RF transmission shelf
- Support for the following RF configurations: Non-Standby, Hot Standby, Space Diversity, and Frequency Diversity
- Support for the following channel plans: 5.8 GHz Unlicensed, Lower 6 GHz, Upper 6 GHz, 7 GHz, 8 Ghz, 10.5 GHz, and 11 GHz
- Support for the following static radio profiles:
  - Supported static channel bandwidths: 5, 10, 30, and 40 MHz
  - Supported static modulations: 32 QAM, 128 QAM, and 256 QAM
- Support for the following adaptive radio profiles:
  - Supported adaptive channel bandwidths: 30 MHz
  - Supported adaptive modulations: 4/16/64/128/256 QAM
- Automatic Transmit Power Control (ATPC) support
- Gigabit Ethernet connection to 9500 MPR-A MSS indoor unit using standard SFPs

Table 109-A. MPT-HL static modulation profiles (standard gain)

CHANNEL SIZE	5		10		30			40	
FIXED MODULATION	32	128	32	128	32	128	256	128	256
FREQUENCY									
UNLICENSED 5.8 GHZ	N	Y	Y	Y	Y	Y	Y	N	N
LOWER 6 GHZ	N	Y	N	Y	N	Y	Y	N	N
UPPER 6 GHZ	N	Y	N	Y	N	Y	Y	N	N
7/8 GHZ	Y	Y	Y	Y	Y	Y	Y	N	N
10.5 GHZ	N	Y	N	N	N	N	N	N	N
11 GHZ	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 109-B. MPT-HL static modulation profiles (maximum system gain)

CHANNEL SIZE	5		10		30			40	
FIXED MODULATION	32	128	32	128	32	128	256	128	256
FREQUENCY									
UNLICENSED 5.8 GHZ	N	N	N	N	N	N	N	N	N
LOWER 6 GHZ	N	N	N	N	N	Y	Y	N	N
UPPER 6 GHZ	N	N	N	N	N	Y	Y	N	N
7/8 GHZ	N	N	N	N	N	Y	Y	N	N
10.5 GHZ	N	N	N	N	N	N	N	N	N
11 GHZ	N	N	N	N	N	Y	Y	N	N

Table 109-C. MPT-HL adaptive modulation profiles

CHANNEL SIZE	30				
FIXED MODULATION	4	16	64	128	256
FREQUENCY					
UNLICENSED 5.8 GHZ	Y	Y	Y	Y	Y
LOWER 6 GHZ	Y	Y	Y	Y	Y
UPPER 6 GHZ	Y	Y	Y	Y	Y
7/8 GHZ	Y	Y	Y	Y	Y
10.5 GHZ	N	N	N	N	N
11 GHZ	Y	Y	Y	Y	Y

Description

The MPT-HL Transceiver card is a microprocessor controlled RF transceiver that interfaces the MSS-8 shelf P8ETH card MPT-HL port with the antenna. The MPT-HL Transceiver microprocessor manages transmit and receive frequencies, transmit power, alarming, and performance monitoring.

There are no MPT-HL Transceiver card options. The MPT-HL Transceiver resides in the MPT-HL shelf. Supported configurations are one or two Non-Standby (1+0) radios, Hot Standby (1+1) and Hot Standby space and frequency diversity.

Indicators, connectors, and control

The MPT-HL Transceiver card has the following indicators, connectors, and controls.

See Figure 109-1 for MPT-HL Transceiver card front panel indicator and connector locations.

Refer to Table 109-D for MPT-HL Transceiver card indicators details.

Refer to Table 109-E for MPT-HL Transceiver card connector details.

Refer to Table 109-F for MPT-HL Transceiver card control details.

Figure 109-1. MPT-HL transceiver

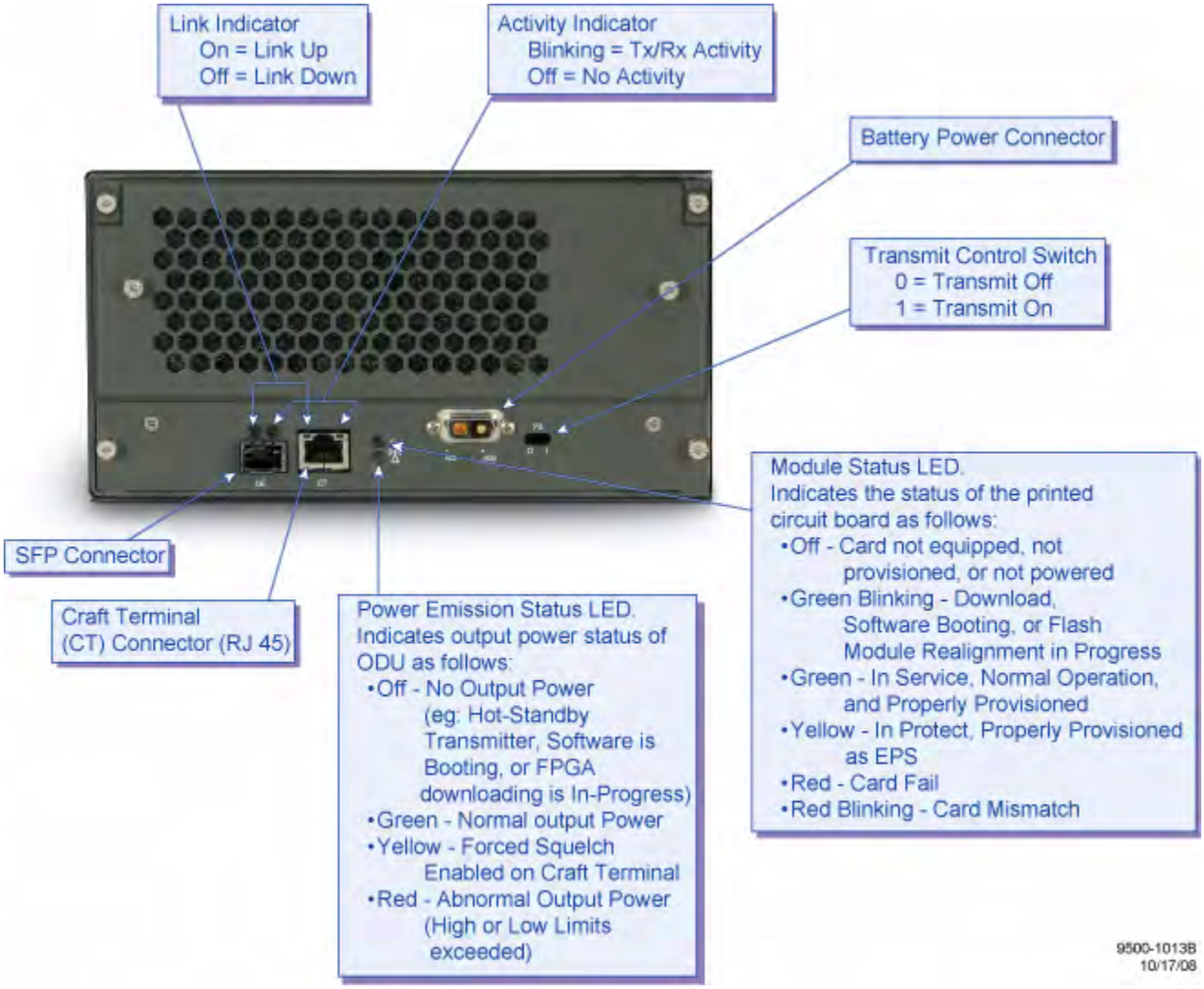


Table 109-D. MPT-HL transceiver front panel indicator details

INDICATOR	STATUS	DEFINITION
Status (S)	Off	Card not equipped, not provisioned, or not powered
	Green Blinking	Configuration Downloading, or SW Booting. (Different blink rates should be used to identify each step of the startup process.)
	Green	In Service, Normal Operation, and Properly Provisioned. EPS or RPS currently In-Service/Active.
	Yellow	In Protect, Properly Provisioned. EPS and RPS currently in Standby.
	Green/Red Blinking	Card Properly Equipped and Provisioned. Either TX or RX equipment or signal Fault. EPS or RPS currently In-Service/Active. Traffic is probable affected.
	Yellow/Red Blinking	Card Properly Equipped and Provisioned, TX or RX signal Fault, EPS and RPS currently in Standby. Traffic maybe affected.
	Red	Card Fail
	Red Blinking	MAP Communication Time-out: Communication between the MPT-HL Transceiver and the P8ETH cards is lost.
Power Emission	Off	MPT-HL Transceiver is not emitting power for reasons other than “forced squelch”. 1. Transmit Protection Switch (TPS) is currently in standby state. 2. Software booting or FPGA download in progress
	Green Blinking	MPT-HL Transceiver is not emitting power due to a forced squelch condition. 1. TX mute active 2. PA switch is positioned Off
	Green	MPT-HL Transceiver is emitting power as expected according to the known configuration.
Link (L)	Off	Link Down
	On	Link Up
Activity (A)	Off	No Tx/Rx activity
	Blinking	Tx/Rx activity

Table 109-E. MPT-HL transceiver front panel connector details

CONNECTOR	TYPE	FUNCTION
Battery Power	D-SUB	MPT-HL Transceiver Power Input
SFP Port	SFP	Communication link with the P8ETH card
Craft Terminal/CT	RJ45	Not supported in this release.

Table 109-F. MPT-HL transceiver front panel control details

CONTROL	POSITION	FUNCTION
PA	0	Transmit OFF (TxMute)
	1	Transmit ON

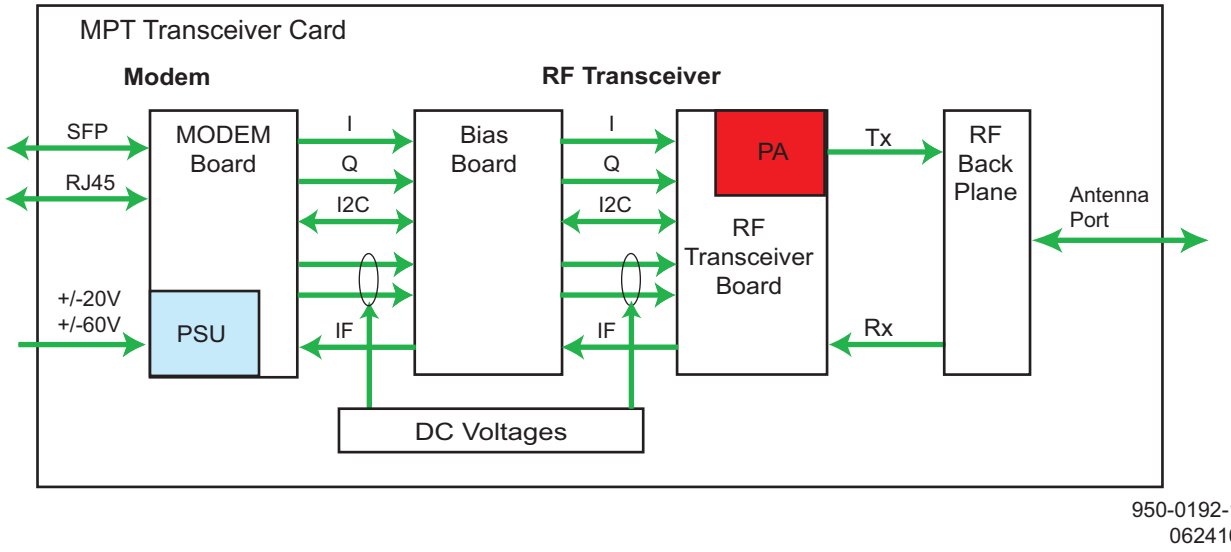
Functional overview

In the TX direction, the MPT-HL Transceiver converts Ethernet packet data from the P8ETH (Ethernet Access Switch - EAS) card MPT-HL port into a modulated IF output signal. The modulated IF signal is converted into a RF signal which is amplified by the Power Amplifier (PA) and routed through a band-pass filter to the antenna.

In the RX direction, the MPT-HL Transceiver card amplifies the incoming RF signal. Converts the RF signal into a first IF signal. The first IF signal is then converted to a second IF signal. The second IF signal is filtered, demodulated, and converted into Ethernet packet data. The Ethernet packet data is then sent to the P8ETH card MPT-HL port.

See figure 109-2 for a block diagram of the MPT-HL Transceiver.

Figure 109-2. MPT-HL transceiver block diagram



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UDS-110
Fan cards

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3DB18134BA	Fan 2U Card	N/A	N/A	N/A	Active
3DB18134BB	Fan 2U Card	CRCCACPJAA	171275	070VGP	Active
3EM23911AA	Fan 2U Card W/Alarms	CRCCADYJAA	172825	070XBK	Active
3DB18218AD	Fan 1U Card	N/A-4	N/A-4	N/A-4	Active-4

Features and application notes

- Provides forced air flow for MSS-8 or MSS-4 shelf cooling.
- Fan 2U card types are used in MSS-8 shelf application. Two fan types are available:
  - Fan 2U card (Basic fan card)
  - FAN 2U card W/Alarms (Enhanced) provides relay alarm support
- Enhanced FAN provides Summary, major, and Minor alarm front panel LEDs and alarm relay outputs
- Fan 1U card is used in MSS-4 shelf application.

Description

Both the basic and enhanced Fan 2U cards provide forced air cooling for the MSS-8 shelf.

Enhanced Fan 2U card provides up to four alarm input signals to the MSS-8 shelf and up to three alarm outputs.

Indicators, connectors, and control

The Fan 1U card has no indicators, connectors and controls.

The basic Fan 2U card has no indicators, connectors and controls.

See Figure 110-1 for enhanced Fan 2U card with alarms front panel indicator, controls, and connector locations.

Refer to Table 110-A for enhanced Fan 2U card indicators details.

Refer to Table 110-B for Fan 2U card connector details.

Refer to Table 110-C for Fan 2U card control details.

Alarm inputs 1, 2, 3, and 4, Alarm Cutoff, and Lamp Test are not supported with R4.1.0 software.

Figure 110-1. Fan 2U card w/alarms (front view)

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Table 110-A. FAN 2U w/alarms front panel indicator details

INDICATOR	STATUS	DEFINITION
Fan	Off	LED not supported in this release.
Batt A	Green	LED not supported in this release.
Batt B	Green	LED not supported in this release.
Summary	On	NE summary alarm indicates either a Major or Minor alarm.
Major	Red	NE summary, indicates a Major alarm is present.
Minor	Yellows	NE summary, indicates a Minor alarm is present.

Table 110-B. FAN 2U w/alarms front panel connector details

CONNECTOR	TYPE	FUNCTION
External Alarms	DSUB 15 Position	External Alarm Inputs and Outputs

Table 110-C. FAN 2U w/alarms front panel control details

CONNECTOR	TYPE	FUNCTION
ACO/LT[1]	push button	Alarm cutoff

[1] ACO/LT control is not supported in R4.1.0 software.

Table 110-D. Fan 2U card office alarm and control connector / cable detail

PIN DEFINITION	Function	CONTACT NUMBER	WIRE COLOR
Alarm Input 1[1]		01	White/Blue
Alarm Input 2[1]		02	Blue/White
Alarm Input 3[1]		11	White/Orange
Alarm Input 4[1]		12	Orange/White
Ground		07	White/Green
Alarm Output 1	Summary Alarm	14	White/Brown
Alarm Output 1		15	Brown/White
Alarm Output 2	Major Alarm	08	White/Slate
Alarm Output 2		10	Slate/White
Alarm Output 3	Minor Alarm	04	Red/Blue
Alarm Output 3		05	Blue/Red
Not Used		03	N/A
Not Used		06	N/A
Not Used		09	N/A
Not Used		13	N/A

[1] Alarm inputs 1, 2, 3, and 4 are not supported with R4.1.0 software.

Functional overview

Both the basic and enhanced Fan 2U cards provide forced air cooling for the MSS-8 shelf.

The Fan 1U card provide forced air cooling for the MSS-4 shelf.

The enhanced Fan 2U card alarm outputs are floating optical relays. Alarm output 1 is a normally closed relay rated for 350 V and 120 mA. Alarm outputs 2 and 3 are normally open relays rated for 350 V and 100 mA. Alarm outputs are used in pairs with an appropriate sized pull-up resistor on either pin (floating).

Alarm output 1 (Summary Alarm) is energized for the no-alarm state, so that it generates an alarm when shelf power is lost. As a result, all outputs are open during system operation with no alarms.

The enhanced Fan 2U card alarm inputs 1, 2, 3, and 4, Alarm Cutoff, and Lamp Test are not supported with R4.1.0 software.

UDS-111
GigE SFP

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3EM20277AA	GigE SFP 1000Base-SX, 850 nm	DRR3AA3CAA	147527	U73234	Active
3EM20277AB	GigE SFP 1000Base-LX, 1310 nm	DRR3AA4CAA	147539	U73235	Active
3EM20277AC	GigE SFP 1000Base-EX, 1310 nm	DRR3AA5CAA	147542	U73236	Active
3EM20277AD	GigE SFP 1000Base-ZX, 1550 nm	DRR3AA6CAA	147544	U73237	Active

Features and application notes

- Is an in-service pluggable optical card
- Provides a 1.25 Gb/s Gigabit Ethernet (GigE) interface for Control and Switching Module (Core-E) or Ethernet Access Switch Card (P8ETH).
- Available in four optical reaches
  - 1000Base-SX, 850 nm (up to 550 meter applications)
  - 1000Base-LX, 1310 nm (up to 10 kilometer applications)
  - 1000Base-EX, 1310 nm (up to 40 kilometer applications)
  - 1000Base-ZX, 1550 nm (up to 80 kilometer applications)
- Provides a duplex LC connector
- Is compliant with Small Form Factor Plug-in (SFP) Multi-Service Agreement (MSA)

Description

The GigE Small Form Factor Plug-in (SFP) is installed in one slot of a Core-E or P8ETH. Provides a 1.25 Gb/s; 1000Base-SX 850 nm, 1000Base-LX 1310 nm, 1000Base-EX 1310 nm, or 1000Base-ZX 1550 nm GigE interface and a duplex LC connector. See figure 111-1 for an illustration of the GigE SFPs.

Indicators, connectors, and control

The GigE SFPs have the following indicators and connector.

Refer to Table 111-A for GigE SFP indicators details.

Refer to Table 111-B for GigE SFP connector details.

The GigE SFP has no controls located on the assembly.

Table 111-A. SFP indicator details

INDICATOR	STATUS	DEFINITION
LINK	Off	Indicates GigE link is down
	Green	Indicates GigE link is up
ACTIVITY	Off	Indicates no activity on GigE link
	Amber Blinking	Indicates activity on GigE link

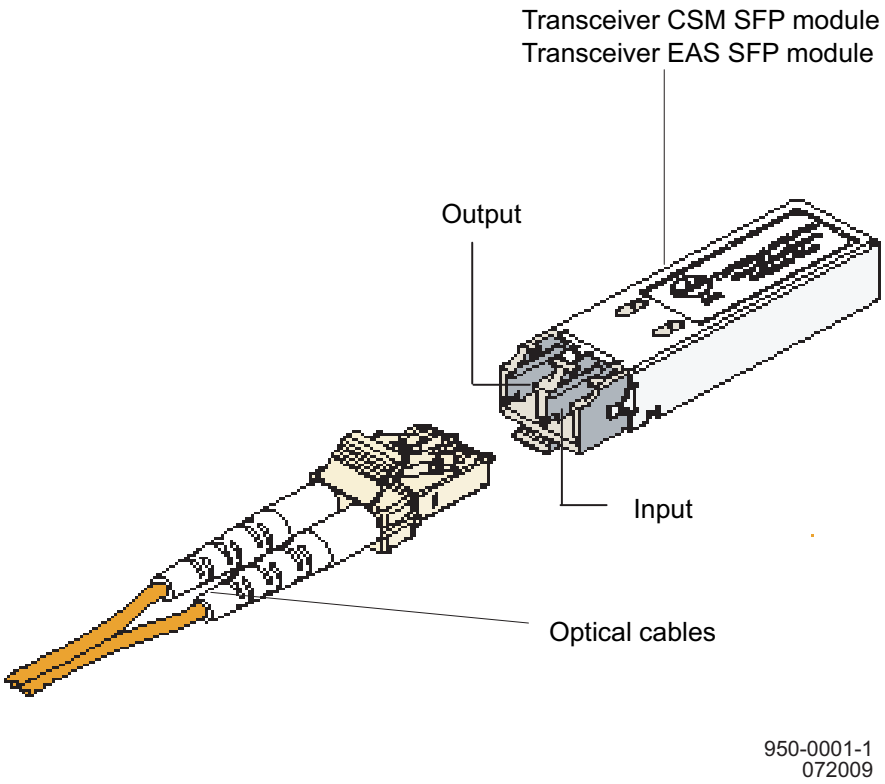
Table 111-B. SFP connector details

CONNECTOR	TYPE	FUNCTION
DUPLEX OPTICAL CONNECTOR	LC	Tx and Rx GigE ports

Functional overview

The GigE SFP interfaces with the Core-E or P8ETH through a 2.5 Gb/s data signal line. All timing, control, and power are provided by the Core-E or P8ETH in which it is housed (refer to UDS-103 or UDS-107, respectively, for information). See figure 111-2 for a block diagram of the GigE SFPs.

Figure 111-1. Optical SFP module

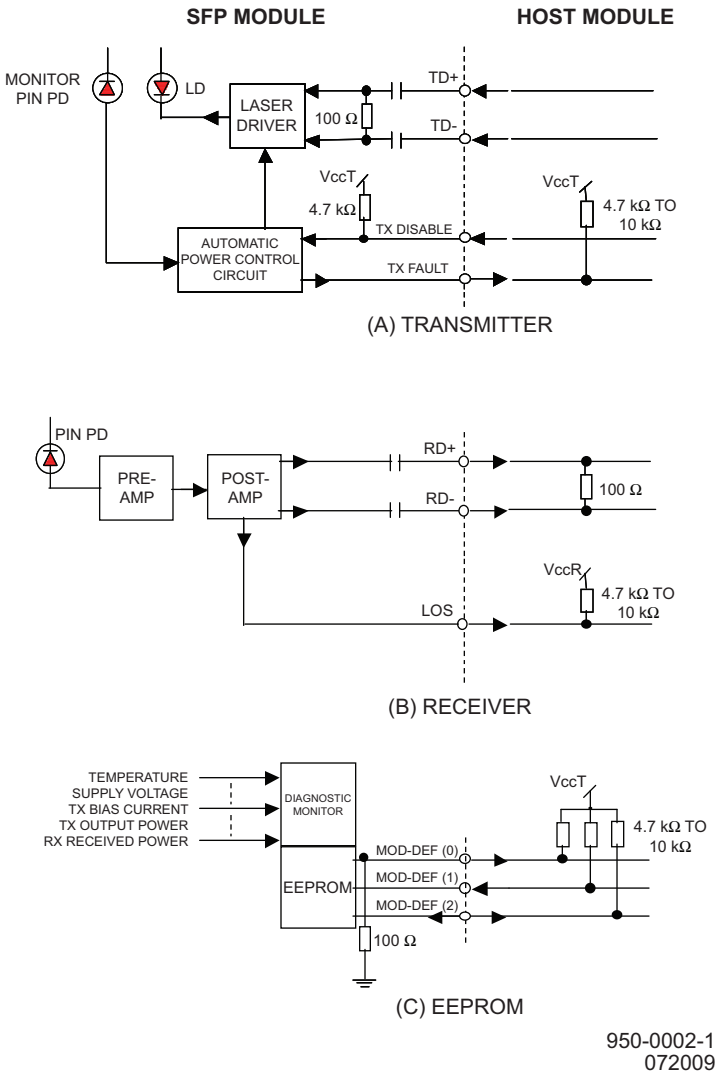


On the transmitter side, the GigE SFPs has an automatic optical output power control circuit, a laser driver and a laser diode module. The transmitter is based on a non-cooled DFB laser. The laser safety class for the complete integrated module is class 1 according to IEC 60825. It can manage commands for TX disable and provides a TX fault alarm.

TX fault indicates a laser fault. The transmitter is not disabled when the TX fault signal is active. TX disable is an input that is used to shut down the transmitter optical output.

On the receiver side, the GigE SFPs have a PIN photo detector for light-to-electrical current conversion and a limiting amplifier. The photo-detected current is amplified by an electrical circuit that delivers two complementary data signals.

Figure 111-2. Optical SFP module block diagram



The module provides LOS alarm (loss of input power signal alarm). This output signal indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use).

The transceiver has an EEPROM to provide Remote Inventory RI information. DDM supports analog parameter measurements such as temperature, laser bias, and laser power.

UDS-112
Power distribution unit (PDU)

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
3EM13317AA	PDU Power Distribution Unit	N/A	N/A	N/A	Active

Features and application notes

- Distributes A and B battery power that feeds MSS-8 and/or MPT-HL shelves and/or auxiliary equipment
- Provides fused protection for individual shelves and auxiliary equipment
- Floating Battery inputs to support both ±24 and ±48 VDC operation
- Optional relay card that provides eight Form-C outputs
- Mounts in a 19-inch aluminum rack or 19-inch seismic rack. Adapter flanges available to mount in a 23-inch aluminum rack
- Requires 5.25 inches (3 EIA rack increments) of open rack space

Description

The PDU provides redundant, fuse protected connections to up to six 9500 MPR-A shelves and/or auxiliary equipment. Two isolated battery input connections (A & B). Each battery input is distributed to six alarm indicating fused battery outputs (A+/A- & B+/B-) See Figure 112-1 for an isometric view of the PDU. See Figure 112-2 for a front panel view of the PDU.

Figure 112-1. Power distribution unit (PDU) isometric view

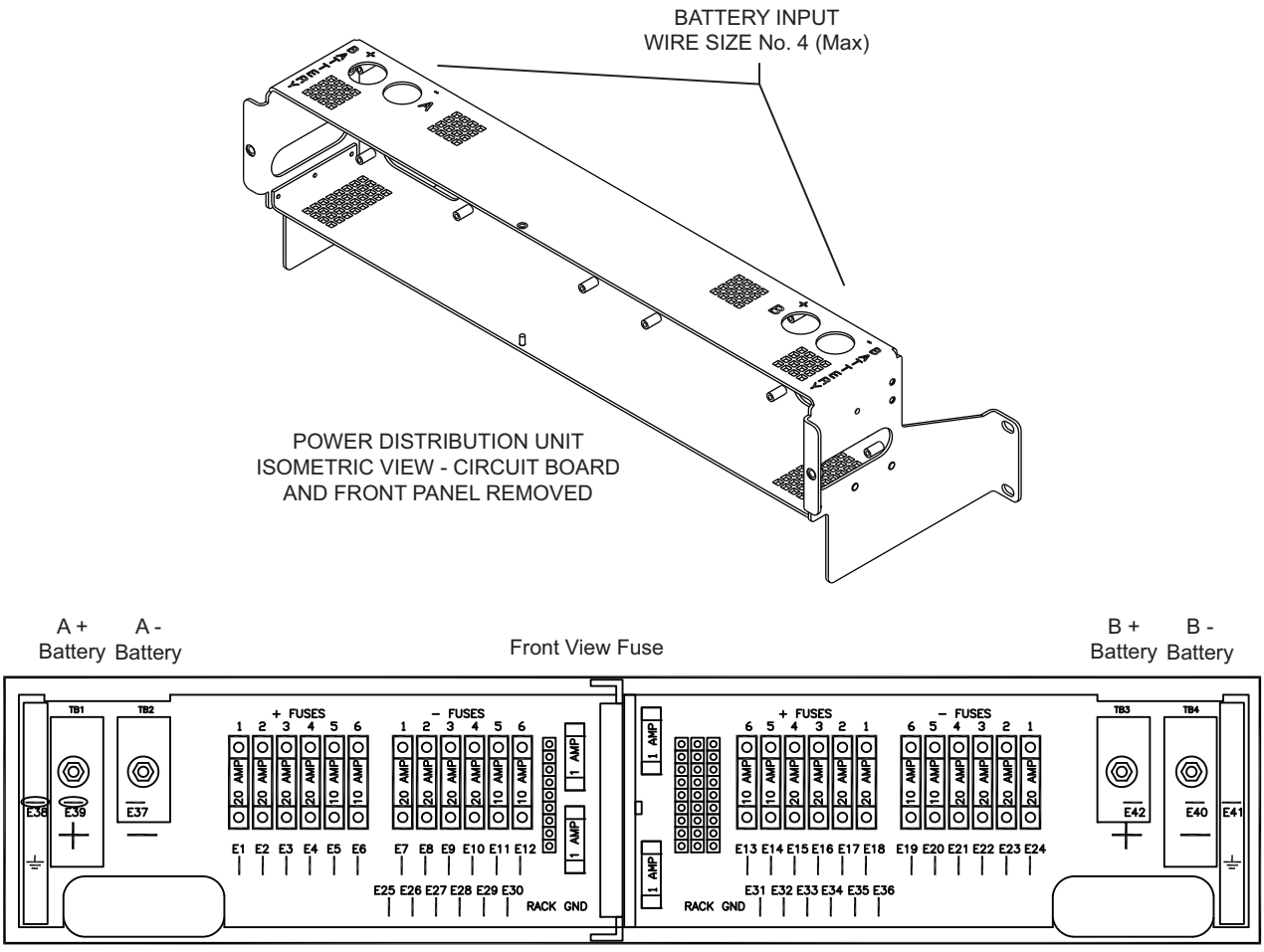


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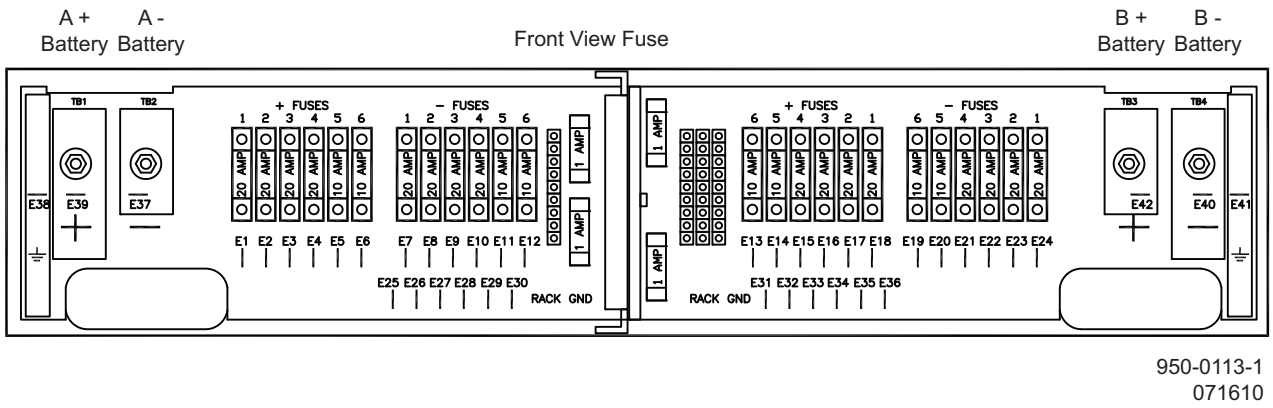
Figure 112-2. Power distribution unit (PDU) front panel view



Indicators, connectors, and control

The PDU card has the following indicators, connectors, and controls.

See Figure 112-3 for PDU card front panel indicator and connector locations.

The PDU has fuse summary alarm indicator.

Refer to Table 112-A for PDU connector details.

Figure 112-3. PDU indicator and connector locations

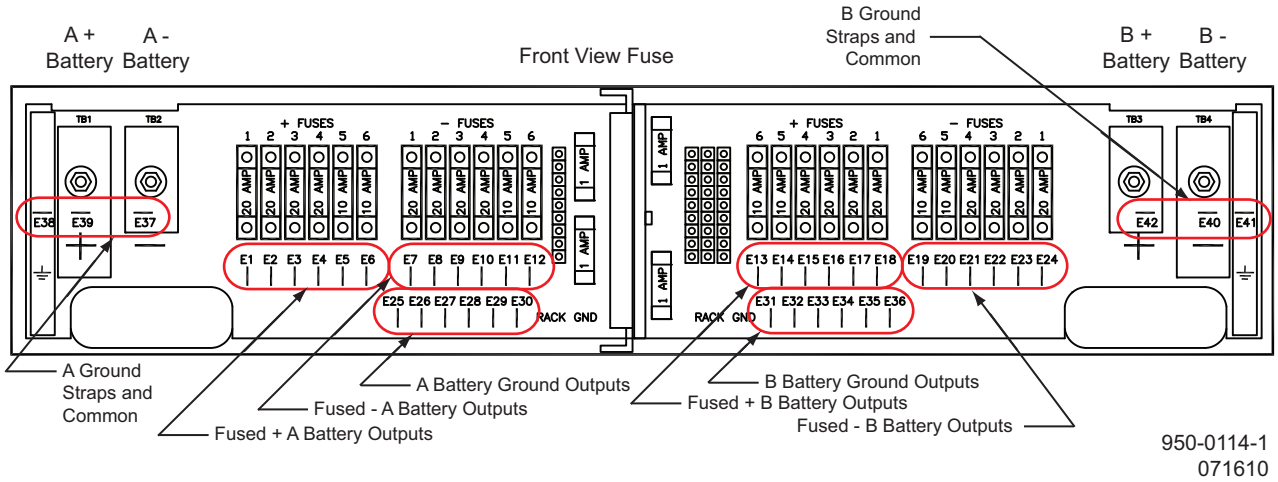


Table 112-A. PDU connector details

CONNECTOR	DESIGNATOR	TYPE	FUNCTION
A+	TB1	One-Hole, 0.250 inch, compression lug	A Battery positive battery input
A-	TB2		A Battery negative battery input
B+	TB3		B Battery positive battery input
B-	TB4		B Battery negative battery input
FA1+	E1		Fused A1 battery positive output
FA2+	E2		Fused A2 battery positive output
FA3+	E3		Fused A3 battery positive output
FA4+	E4		Fused A4 battery positive output
FA5+	E5		Fused A5 battery positive output
FA6+	E6		Fused A6 battery positive output
FA1-	E7		Fused A1 battery negative output
FA2-	E8		Fused A2 battery negative output
FA3-	E9		Fused A3 battery negative output
FA4-	E10		Fused A4 battery negative output
FA5-	E11		Fused A5 battery negative output
FA6-	E12		Fused A6 battery negative output
FB1+	E13		Fused B1 battery positive output
FB2+	E14		Fused B2 battery positive output
FB3+	E15		Fused B3 battery positive output
FB4+	E16		Fused B4 battery positive output
FB5+	E17		Fused B5 battery positive output
FB6+	E18		Fused B6 battery positive output
FB1-	E19		Fused B1 battery negative output
FB2-	E20		Fused B2 battery negative output
FB3-	E21		Fused B3 battery negative output
FB4-	E22		Fused B4 battery negative output

Table 112-A. PDU connector details

CONNECTOR	DESIGNATOR	TYPE	FUNCTION
FB5-	E23		Fused B5 battery negative output
FB6-	E24		Fused B6 battery negative output
GND A1	E25		Ground A1 output
GND A2	E26		Ground A2 output
GND A3	E27		Ground A3 output
GND A4	E28		Ground A4 output
GND A5	E29		Ground A5 output
GND A6	E30		Ground A6 output
GND B1	E36		Ground B1 output
GND B2	E35		Ground B2 output
GND B3	E34		Ground B3 output
GND B4	E33		Ground B4 output
GND B5	E32		Ground B5 output
GND B6	E31		Ground B6 output
A- STR	E37		A ground strap for positive voltage applications[1]
GND STR A	E38		A ground common[2]
A+ STR	E39		A ground strap for negative voltage applications[3]
B- STR	E40		B ground strap for positive voltage applications
GND STR B	E41		B ground common
B+ STR	E42		B ground strap for negative voltage applications

[1] Connector is used to configure PDU for floating rectifier positive battery voltage applications. Connect jumper between A/B- Str and GND STR A/B.
[2] A/B ground common strap, connects to the A/B GND connectors on the PDU.
[3] Connector is used to configure PDU for floating rectifier negative battery voltage applications. Connect jumper between A/B+ Str and GND STR A/B.

Functional overview

The PDU accepts two ±24 or ±48 V DC inputs and splits them into twelve separate, fuse protected outputs. The input power interface consists of two pairs of ±24 or ±48 V DC (A+/A- B+/-) connections. These connections are rated at 60 amps each. The PDU splits each BATT connection into six separate output connections. Both positive and negative outputs are protected by GMT fuses, 20 amps maximum each. All fuses are accessible and replaceable from the front panel. The electrical inputs are accessible from the top of the PDU. The electrical output connections are accessible from the side and rear panel.

UDS-113
DS1 RJ-45 Patch Panel

PART NUMBER/ MNEMONIC	NAME	CLEI	ECI/ BAR CODE	CPR	STATUS
1AF15245AB	DS1 RJ-45 Patch Panel	N/A	N/A	N/A	Active

Features and application notes

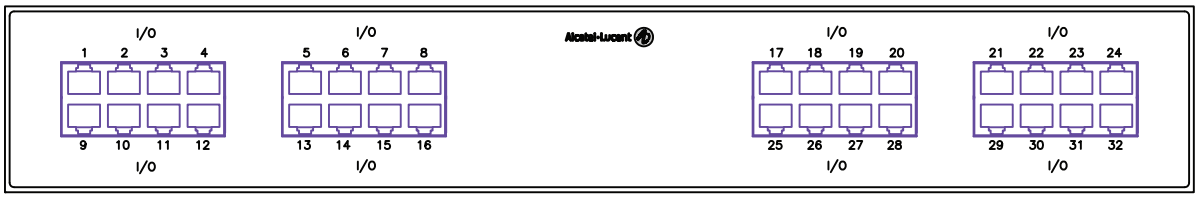
- Converts P32E1DS1 card SCSI connectors to thirty-two RJ-45 connectors.
- Supports both protected and non-protected P32E1DS1 applications.
- Requires two 68 pin SCSI cables in non-protected DS1 configuration. Requires four 68 pin SCSI cables in protected DS1 configuration.

Description

The DS1 RJ-45 Patch Panel mounts above and/or below the MSS-8 shelf. Requires 1.5 rack increments.

Customer interconnect are thirty-two RJ-45 connectors, I/O 1 through I/O 32. Each RJ-45 connector supports one DS1 signal, 1 through 32 respectively and provides both input and output signal connections. Four 68 pin SCSI connectors interconnects the main and spare P32E1DS1 card connectors. See Figure 113-1 for a front view of the DS1 RJ-45 Patch Panel. See Figure 113-2 for a rear view of the DS1 RJ-45 Patch Panel.

Figure 113-1. DS1 RJ-45 patch panel (front view)



RJ-45 DS1 Patch Panel
Front View

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