ONS15454 Power Specifications

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Contents

Introduction

This document describes the total power consumption and the maximum thermal load of the ONS 15454 SONET Multiservice Provisioning Platform (MSPP). This document also explains the power consumption levels of the equipment and provides information to plan for possible power outages.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on these software and hardware versions:

- Cisco ONS15454 MSPP w/ NEBS3/NEBS3E chassis
- Cisco ONS15454 MSPP w/ ANSI chassis
- Cisco ONS15454 MSTP

The information in this document is based on the Cisco ONS 15454 Reference Manual, Release 4.6 and Cisco ONS 15454 Reference Manual, Release 6.0.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Maximum Power Consumption of the ONS 15454 MSPP

Here is the maximum power consumption for the NEBS3/NEBS3E chassis:

```
863.85 Watts w/ 2 TCC, 2 XCVT, 1 AIC, 2 OC48 IR 1310 HS, 10 E100T-12
```

Here is the maximum power consumption for the ANSI chassis:

```
1106.60 Watts w/ 2 TCC2, 2 XC10G, 1 AIC-I, 2 OC192 LR/STM64 LH 1550, 10 E100T-G
```

Table 1 – Card Power Consumption

Approximate Power Consumption				Fiber Light Levels	
********CARD*********	AMPS	Watts	BTU/Hour	Rx Level	Tx Level
ANSI: Max. Draw w/ Cards	23.05	1106.60	3775.87		
NEBS3/NEBS3E: Max. Draw w/ Cards	18.00	863.85	2947.58		
FAN TRAY: FTA	1.14	55.00	187.67		
FAN TRAY: FTA2	1.21	58.00	198.00		
FAN TRAY: FTA3-T	1.98	95.00	324.00		
XC	0.60	29.00	99.00		
XCVT	0.72	34.40	117.46		
XC10G	1.64	78.60	268.40		
XC-VXC-10G	1.4	67.00	288.62		
TCC	0.20	9.82	33.53		
TCC+	0.20	9.82	33.53		
TCC2	0.54	26.00	88.80		
TCC2P	0.56	27.00	92.2		
AIC	0.12	6.01	20.52		
AIC-I (Incl. AEP)	0.17	8.00	27.30		
DS1-14 and DS1N-14	0.26	12.60	43.02		
DS1/E1-56	0.76	36.00	124.97		
DS3-12 and DS3N-12	0.79	38.20	130.43		
DS3/EC1-48	0.58	30.00	95.6		
DS3-12E and DS3N-12E	0.56	26.80	91.51		
DS3i-N-12	0.63	30.00	102.4		
DS3XM-12 Transmux	0.71	34.00	116.1		
DS3XM-6	0.42	20.00	68.00		
EC1-12	0.76	36.60	124.97		
FC_MR-4	1.25	60.00	212.00		

E100T-12 and E100T-G	1.35	65.00	221.93		
E1000-2 and E1000-2-G (incl. GBICs)	1.11	53.50	182.67		
G1000-4 and G1K4 (incl. GBICs)	1.31	63.00	215.11		
CE-100T-8	1.10	53.14	181.3		
ML100X-8	1.35	65.00	221.93		
ML100T-12	1.10	53.00	181.00		
ML1000-2	1.02	49.00	167.30	MAX - MIN	MAX - MIN
OC3 IR 4/STM1 SH 1310	0.40	19.20	65.56	-8 to -28	-8 to -15
OC3 IR/STM1SH 1310-8	0.48	23.00	78.50	-8 to -28	-8 to -15
OC12 IR/STM4 SH 1310	0.23	10.90	37.22	-8 to -28	-8 to -15
OC12 LR/STM4 LH 1310	0.25	9.28	41.00	-8 to -28	+2 to -3
OC12 LR/STM4 LH 1550	0.19	9.28	31.68	-8 to -28	+2 to -3
OC12 IR/STM4 SH 1310-4	0.58	28.00	100.00	-8 to -30	-8 to -15
OC48IR-1310 High Speed	0.67	32.20	109.94	0 to -18	0 to -5
OC48LR-1550 High Speed	0.56	26.80	91.50	-8 to -28	+3 to -2
OC48 IR/STM16 SH AS 1310	0.77	37.20	127.01	0 to -18	0 to -5
OC48 LR/STM16 LH AS 1550	0.77	37.20	127.01	-8 to -28	+3 to -2
OC48ELR-ITU 100GHz	0.65	31.20	106.53	-9 to -27	0 to -2
OC48ELR-ITU 200GHz	0.65	31.20	106.53	-8 to -28	0 to -2
OC192 SR/STM64 IO 1310	0.98	47.00	160.50	-1 to -11	-1 to -6
OC192 IR/STM64 SH 1550	1.04	50.00	170.70	-1 to -14	+2 to -1
OC192 LR/STM64 LH 1550	1.50	72.20	246.52	-10 to -19	+10 to +7
OC192 LR/STM64 LH ITU 15xx.xx	1.08	52.00	177.60	-9 to -22	+6 to +3
OC192SR1/STM64IO Short Reach and OC-192/STM64 Any Reach [1]	0.83	40.00	136.49	SFP, XFP, and GBIC Specifications	
15454_MRC-12	0.79	38.00	129.66	SFP, XFP, and GBIC	

					Specifications
TXP_MR_10G		0.73	35.00	119.50	See Documentation
TXP_MR_10E		Nominal 1.11 Maximum 1.04	Nominal 40 Maximum 50	Nominal 136.6 Maximum 170.7	See Documentation
MXP_2.5G_10G		1.04	50.00	170.70	See Documentation
MXP_2.5G_10E		Nominal 1.11 Maximum 1.04	Nominal 40 Maximum 50	Nominal 136.6 Maximum 170.7	See Documentation
MXP_MR_2.5G and MXPP_MR_2.5G		Nominal 1.04 Maximum 1.25	Nominal 50 Maximum 60	Nominal 170.7 Maximum 204	See Documentation
TXP_MR_2.5G and TXPP_MR_2.5G		0.73	35.00	119.50	See Documentation
OSCM	Nominal	0.48	23.00	78.48	See Documentation
	Maximum	0.54	26.00	88.71	
OSC-CSM	Nominal	0.50	24.00	81.89	See Documentation
	Maximum	0.56	27.00	92.12	
OPT-PRE	Nominal	0.56	30.00	102.36	See Documentation
	Maximum	0.81	39.00	133.07	
OPT-BST	Nominal	0.63	30.00	102.36	See Documentation
	Maximum	0.81	39.00	133.07	
32 MUX-O	Nominal	0.33	16.00	54.59	See Documentation
	Maximum	0.52	25.00	85.30	
32 DMX-O	Nominal	0.33	16.00	54.59	See Documentation
	Maximum	0.52	25.00	85.30	
32DMX		Nominal 0.31 Maximum 0.52	Nominal 15 Maximum 25	Nominal 51.21 Maximum 85	
4MD-xx.x	Nominal	0.35	17.00	58.00	See Documentation
	Maximum	0.52	25.00	85.30	
AD-1C-xx.x	Nominal	0.35	17.00	58.00	See Documentation
	Maximum	0.52	25.00	85.30	
AD-2C-xx.x	Nominal	0.35	17.00	58.00	See Documentation
	Maximum	0.52	25.00	85.30	
AD-4C-xx.x	Nominal	0.35	17.00	58.00	See Documentation
	Maximum	0.52	25.00	85.30	
AD-1B-xx.x	Nominal	0.35	17.00	58.00	See Documentation
	Maximum	0.52	25.00	85.30	

AD-4B-xx.x	Nominal	0.35	17.00	58.00	See Documentation
	Maximum	0.52	25.00	85.30	
32WSS		Nominal 1.04 Maximum 1.35	Nominal 50 Maximum 65	Nominal 170 Maximum 221	

NEBS3/NEBS3E

For example, consider an ONS 15454 equipped with NEBS3/NEBS3E chassis and this configuration:

- Two Timing Communication and Control+ (TCC+) cards
- Two Cross Connect-Virtual Tributary (XC-VT) cards
- Ten E100T-12 cards
- Two OC48 IR 1310
- One AIC

Such an ONS 15454 has this power consumption, according to normal consumption from Table 1:

```
(2 X 9.82W) + (2 X 34.40W) + (10 X 65.00W) + (2 X 32.20W) + 6.01W
= 806.85W + 55W (Fan tray) = 863.85W
```

ANSI

For example, consider an ONS 15454 equipped with ANSI chassis and this configuration :

- Two Timing Communication and Control 2 (TCC2) cards
- Two Cross Connect-10G (XC10G) cards
- Ten E100T-G cards
- Two OC192 LR/STM64 LH 1550
- One AIC-I

Such an ONS 15454 has this power consumption, according to normal consumption from Table 1:

```
(2 X 26.00W) + (2 X 78.60W) + (10 X 65.00W) + (2 X 72.20W) + 8.00W
= 1011.60W + 95W (FTA3) = 1106.60W
```

Maximum Thermal Load

Given that input power eventually ends up as heat, use this formula to determine the maximum thermal load of the ONS 15454 shelf:

```
Watts = BTUs/hr x 0.2930711 or BTUs/hr = Watts / 0.2930711
```

The thermal load on a fully loaded shelf varies based on the cards in the shelf and their power requirements.

NEBS3/NEBS3E

According to the specifications in the NEBS3/NEBS3E section, the single ONS 15454 NEBS3 chassis can require

up to a maximum of 863.85 watts of power. Based on the given formula, the maximum thermal load of a single ONS 15454 NEBS3 chassis is 2947.58 Basic Transmission Units (BTUs) per hour (rounded down to the second place).

ANSI

According to the specifications in the ANSI section, the single ONS 15454 ANSI chassis can require up to a maximum of 1106.60 watts of power. Based on the given formula, the maximum thermal load of a single ONS 15454 ANSI chassis is 3775.87 BTUs per hour (rounded down to the second place).

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Related Information

- **ONS 15400 Series Support Page**
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