



ONS15454 Power Specifications

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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](#):

$$(2 \times 9.82W) + (2 \times 34.40W) + (10 \times 65.00W) + (2 \times 32.20W) + 6.01W \\ = 806.85W + 55W \text{ (Fan tray)} = \mathbf{863.85W}$$

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](#):

$$(2 \times 26.00W) + (2 \times 78.60W) + (10 \times 65.00W) + (2 \times 72.20W) + 8.00W \\ = 1011.60W + 95W \text{ (FTA3)} = \mathbf{1106.60W}$$

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:

$$\text{Watts} = \text{BTUs/hr} \times 0.2930711 \text{ or } \text{BTUs/hr} = \text{Watts} / 0.2930711$$

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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- [ONS 15400 Series Support Page](#)
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Updated: Mar 08, 2006

Document ID: 11093
