

Amplified Spontaneous Emission or Amplified Noise (ASE) Power Reading as Channels Power in CTC

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Introduction

This document describes the issue of unused waves that are monitored in optical side power monitoring in Cisco Transport Controller (CTC) when you use 80-Wavelength Cross-Connect (WXC) card in ONS15454 device.

Note: It is just a cosmetic issue and not traffic impacted. The TNC wrongly reports Amplified Spontaneous Emission or Amplified Noise (ASE) power reading as channels power.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Multi-Service Transport Platform (MSTP) system concepts and WXC hardware knowledge
- Basics of CTC
- Automatic Power Control (APC) mechanism, such as it uses Automatic Node Setup (ANS) parameters and the number of active channels used in order to control optical power levels

Components Used

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

- CTC launched with same as node version
- MSTP node with 80-WXC-C card
- ONS 15454 MSTP with software version: 09.604-013-F1813-SPA

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, ensure that you understand the potential impact of any command.

Background Information

Side Power Monitoring Feature

Dense Wavelength Division Multiplexing (DWDM) nodes allow you to view the side power levels on the **Maintenance > DWDM > Side Power Monitoring > Optical Side *n* tab**, where *n* is A, B, C, D. Each existing channel has an IN and OUT power on each node side in the case of bidirectional circuits.

OUT indicates the power on the output port with respect to the side to which it is referred to. It is the last port of the side before the first amplified port in the direction that goes from the node to the span or the output port of the side itself if there are no amplified ports.

IN indicates the power on the input port with respect to the side to which it is referred to. It is the first port of the side after the last amplified port in the direction that goes from the span to the node or the input port of the side itself if there are no amplified ports.

Issue was measured while doing side power monitoring in CTC for MSTP node.

Fake waves are observed (27, 30, 33, 35, 37, 40 and 41) in Side Power monitoring in CTC for a node, as shown in Fig-1. here.

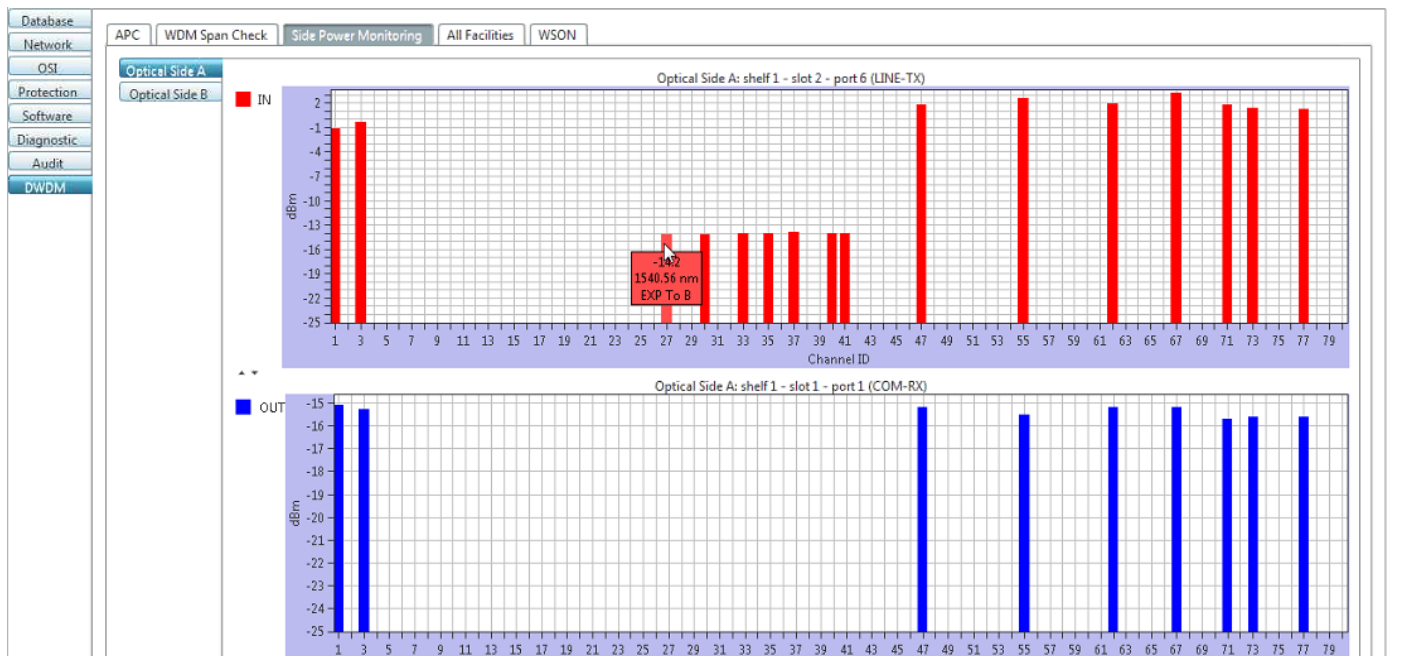


Fig-1

Note: Issue and observation shared in this document are related with specific version in the test lab.

Observations

You can find from the documents that 80-WXC has a reference point (for measuring the optical channel power) COM RX port and from there is an internal algorithm in the software that gives the per channel power regardless of the link state (IS or OOS).

The COM RX of 80-WXC reports only total power and not per channel power as per hardware architecture.

Ref Table1-A

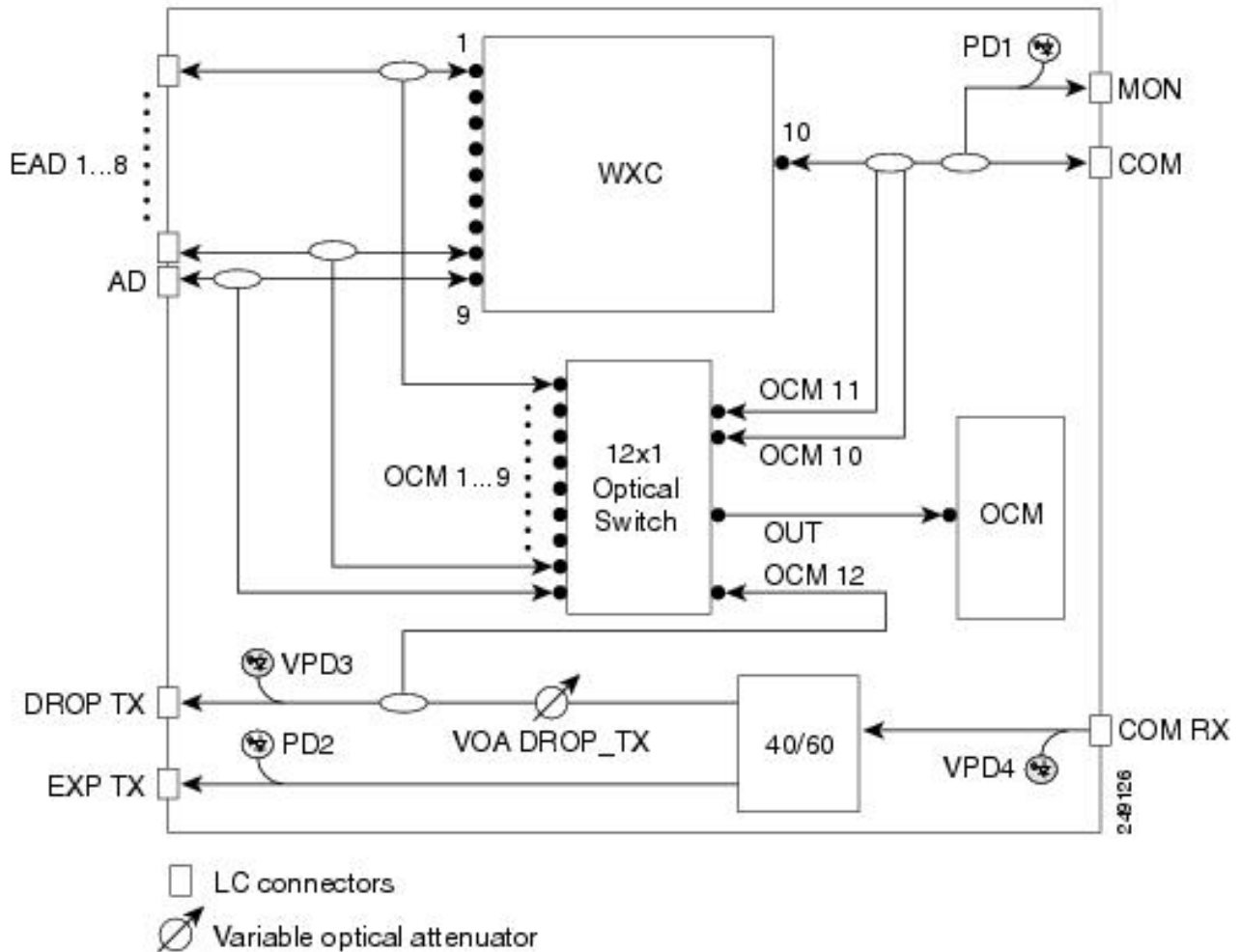


Fig-2

Table1-A

80-WXC-C Virtual Photodiode Port Calibration

Virtual Photodiode	CTC Type Name	Calibrated to Port(s)
VPD3	DROP-TX Total Power	DROP-TX
VPD4	COM-RX Total Power	COM-RX

Few named these ASE as **Ghost wavelengths** and confirmed the ghost wavelengths are channels in disabled state.

These unused waves can be seen for Exp channels also as the 80-WXC-C card provides these functionalities:

- When used in the multiplexer or bidirectional mode, the 80-WXC-C card allows selection of a single wavelength or any combination of wavelengths from any of the nine input ports to the common output port.
- When used in the bidirectional mode, the output wavelength from the COM-RX port is split to manage the express and drop wavelengths.
- When used in the demultiplexer mode, the 80-WXC-C card, allows selection of a single wavelength or a combination of wavelengths from the common input port to any of the nine output ports.
- There are many wavelengths shown in Fig-1 specifically 33, 35, 37 & 40.
- These are the wavelengths which exist but are not **in-service**, also do note here that 80-WXC is used in the setup in bidirectional mode and there is no optical power at ADD-RX for these ghost wavelengths.
- For these ghost channels (ASE), circuits are created, but no source is connected to MD40s.
- Also, when you delete these wavelengths from CTC, these ghost wavelengths disappear from side monitoring.
- When checked with OSA at COM-TX-MON port of 80-WXC and you don't see any extra wavelengths there.

Solution

Product developer identified it as a new defect-CSCur20915.

- Symptom: Side power monitoring panel in CTC is reporting power levels for channels in Disabled/locked state.
- Conditions: Node with 80-WXC; ghost power readings are reported in the **IN** red section in the earlier diagram.
- Workaround: None