

Understanding BITS Output on the Cisco ONS 15454

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Introduction

It is possible to use the building integrated timing supply (BITS) output reference to time a Cisco ONS 15454 node or another piece of equipment. However, when a BITS interface is enabled for this purpose, you receive a loss of signal (LOS) alarm on the BITS input.

This document explains how to resolve this issue so that you can use the BITS out interface and not incur a standing LOS alarm.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on a Cisco ONS 15454 chassis that runs any current software version.

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 the Cisco Technical Tips Conventions for more information on document conventions.

Background Information

Bit Output

It is possible to derive timing from your optical reference, but use the BITS output to time another piece of equipment external to the optical ring. This can either be an additional Cisco ONS 15454 network element or another vendor's equipment that requires T1 timing. This equipment may or may not be electrically connected. However, if this equipment is optically connected to the ring with the timing source, a better solution is to originate timing from the optical line and not the external BITS out. An optical source for timing is better than the BITS out because of the electrical connection.

Problem

The problem with the BITS output occurs when the BITS interface is enabled. This is because there is no input to pins A2 and B2, as well as A4 and B4 on the back plane, and a LOS alarm results. The input cannot be put into an out-of-service state independently of the output in order to clear this alarm, so the LOS alarm remains if you use this output.

Solution

A workaround for this is to wire-wrap the output signal back from an unused source such as the second BITS output to the input pins:

- A1 BITS OUT/Ring(-) to A4 BITS IN/Ring(-)
- B1 BITS OUT/Tip(+) to B4 IN/Tip(+)

Field	Pin	Function
BITS	A1	BITS Output 2 negative (-)
	B1	BITS Output 2 positive (+)
	A2	BITS Input 2 negative (-)
	B2	BITS Input 2 positive (+)
	A3	BITS Output 1 negative (-)
	B3	BITS Output 1 positive (+)
	A4	BITS Input 1 negative (-)
	B4	BITS Input 1 positive (+)

This clears the alarm. Since the timing input is not used, you can strap in or "daisy chain" the second BITS input A2 BITS in/Ring(-) and B2 BITS in/TIP(+). This leaves the first BITS output free for use.

Avoid double-terminating any timing source signal that is used as a timing source for a device, as this has negative effects on the signal quality. If both BITS out signals are required for an application, any source of a T-1 can be used. For example, the timing output from the device timed.

Note: It is critical that you prevent timing loops. Ensure that the BITS IN to the Cisco ONS 15454 is never used as a timing reference when configured in this manner, as some of the internal safeguards might be bypassed in the example.

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