Model GS7000 GainMaker Node Optical Interface Board DC Voltage Short Technical Bulletin

Overview

A small number of optical interface boards (OIB) in the Model GS7000 GainMaker® Scaleable 4-Port Nodes have experienced an electrical short. The 5 V DC and 24 V DC power planes have shorted to each other and sometimes to ground. These two voltages and the ground plane are on different layers of the six-layer OIB printed wiring board (PWB). The short could affect performance of the forward or reverse path, or both. It could even result in a node outage.

Purpose

The purpose of this technical bulletin is to provide customers using the Model GS7000 Node with information regarding:

- Identification of potentially affected nodes
- Condition symptoms and electrical verification for installed nodes
- Recommended customer action

Audience

This document is intended for authorized service personnel who have experience working with similar equipment. The service personnel should have appropriate background and knowledge to complete the procedures described in this document.

Qualified Personnel

Only appropriately qualified and skilled service personnel should attempt to install, operate, maintain, and service this product.



WARNING:

Allow only qualified and skilled personnel to install, operate, maintain, and service this product. Otherwise, personal injury or equipment damage may occur.

Identification of Affected Nodes

Affected Nodes

Model GS7000 Nodes with manufactured date codes before June 2007 could be affected by this issue.

Manufactured Date Code Location

The manufactured date code appears on one of the product labels affixed to the side of the node housing. The following illustration shows the location of the date code. The date code in this example is D2006.

Note: The letter in the date code indicates the month of manufacture, e.g., A = January, B = February, C = March, D = April, E = May.



Recommended Customer Action

We do not expect a significant OIB failure rate from the affected node date codes based on returns to date.

However, if you have a node outage or experience any of the ***Symptoms*** (on page 4) of an OIB voltage short, we recommend that you follow the procedures outlined below for installed nodes.

1. Check the node date code to determine if it is one of the units possibly affected by this issue.
2. If the date code is in the affected node range, perform the recommended electrical verification procedure. Refer to ***Condition Electrical Verification*** (on page 4).
3. If the electrical verification procedure indicates a bad OIB, replace the OIB. Refer to ***OIB Replacement Procedure*** (on page 6) for instructions.

Condition Symptoms and Electrical Verification for Installed Nodes

Symptoms

The following symptoms are possible indications of this voltage shorting condition:

- The primary indication is improper DC voltages present at the OIB test points.
- A charred PWB edge, most likely occurring directly above the XMTR 4 position on the OIB.
- The reverse path signal could be lost at any or all ports. This failure is caused by the presence of 24 V DC getting on the 5 V DC line that drives the logic chips on the reverse amp. Overdriving these logic chips prevents the activation of CMOS switches on the reverse amp.
- The power supply test points will likely indicate proper DC voltages while the OIB test point show improper DC voltages.
- A node outage.

Condition Electrical Verification

Perform the following verification procedures to determine whether your observed symptoms indicate an OIB shorting condition.

OIBs Installed in an Operating Node

Perform the following steps to verify an OIB voltage shorting condition.

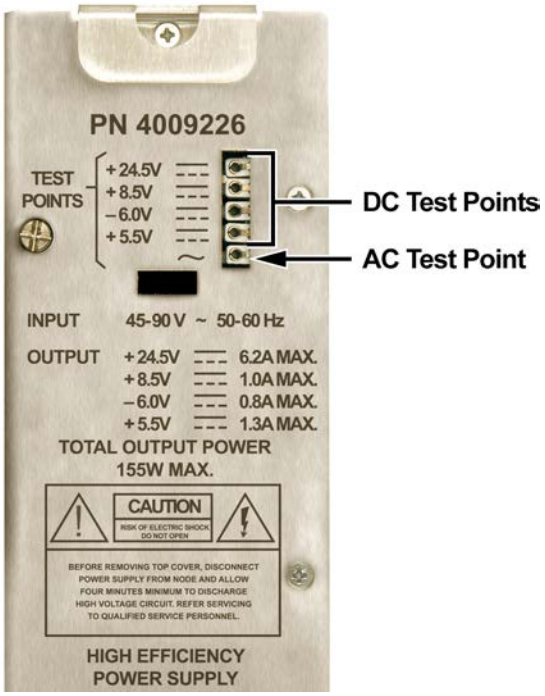
1 Measure voltages at the power supply test points and verify proper DC output.

Note: This step is necessary to ensure that the proper voltages are being supplied to the OIB by the power supply.

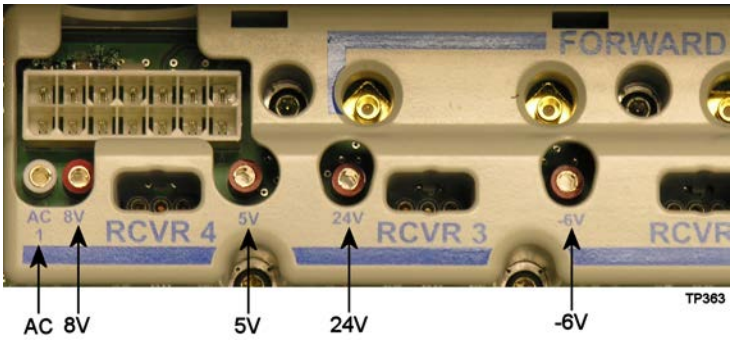
a If the power supply voltages are correct, continue with step 2.

b If the power supply voltages are NOT correct, troubleshoot and/or replace the power supply before continuing with the rest of this test procedure.

Note: Improper voltage readings from the power supply do not necessarily indicate a failed power supply. It could indicate an issue in another node component.



2 Measure voltages at the OIB test points.



Note: OIBs with the shorting condition will indicate improper voltages at the test points. Typically, only the 5 V DC is affected by the shorting condition.

3 If the OIB is bad, it should be replaced. Refer to ***OIB Replacement Procedure*** (on page 6).

OIB Replacement Procedure

OIB replacement can be effected as follows:

- Perform the OIB replacement yourself on site.
  Note: Refer to *Model GS7000 GainMaker Scaleable 4-Port Node Installation and Operation Guide*, part number 4013584, for instructions on removing/installing components inside the node housing.
- Return the node lid and OIB (with other components removed) to Cisco for replacement of the OIB.

RMA Required: In either case, contact the support center for your area for instructions on obtaining a return material authorization (RMA) for returning equipment for replacement. Refer to **For Information** for a list of support centers and contact numbers.

For Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.



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