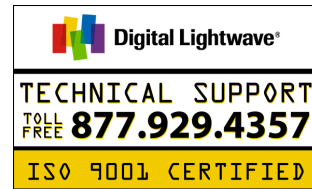


Application Note

Document Number APL-00029

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ASA-312 Running on "Protect"

The Problem

On a number of occasions, Digital Lightwave customers have experienced trouble when attempting to connect the ASA 312 to the protect line of a SONET linear network element. The unit will show a good section and line but they will not be able to get a valid path through the equipment. A similar problem may potentially occur in a ring configuration but has never been reported as such. It is also likely to occur when testing SDH equipment with the SDA 116.

This happens for the following reason: Normally a protect channel fiber is going to be connected to the protect channel of another network element. If the values of the K1 and K2 overhead bytes are not consistent with what a protect channel should look like the network element will not route the payload to the protect ports. The default values of K1/K2 in the ASA 312 are not consistent with what a protect channel is expected to be.

The Solution

Three possible routes to a solution are given. The first is very easy but has a somewhat low percentage of success. Try number one first, if it fails then use one of the other two.

1. Try what worked last time.

The last time the problem came up, this combination was used successfully:

K1: 00010001

K2: 00010101

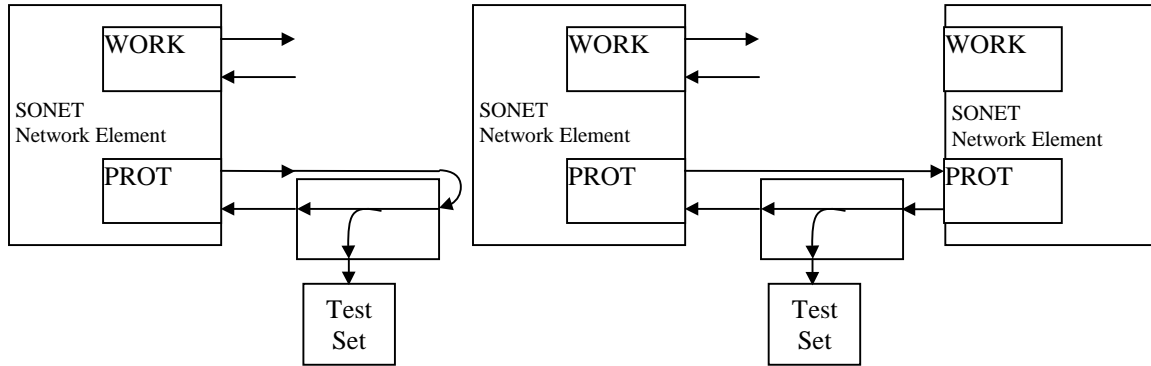
Try it, what do you have to lose?

Just go into the SONET/TRNSMT/APS CMDS screen and change K1 and K2 full bytes to these values.

The same may also be accomplished in SONET/TRNSMT/TRNSPRT OH.

2. Find out what the protection channel is sending.

This is a very good solution but requires that an optical splitter is available. If you can monitor the signal on the protect channel while traffic is switched to protect, you can ascertain what values of K1 and K2 are expected. It would be done in one of the following ways:



Connect the equipment as shown then perform a switch to protect. On the test set go to SONET / RECEIVE / TRNSPRT OH and observe the value reported in K1 and K2. To do the test then go SONET / TRNSMT / TRNSPRT OH and set the values of K1 and K2 to match what was observed.

3. Set all options to match the system under test.

For this one you must know or be able to find out some options in the SONET equipment.

- a.) Go to TRNSMT / APS CMNDS
- b.) Touch the APS mode menu button. Select linear or ring to match the equipment under test.
- c.) Touch the K1 Bits 1-4 menu button. Select one of the following options:
 - 1110 if a “forced” switch was used to initiate the switch to protect
 - 1000 if a “manual” switch was used to initiate the switch to protect
 - 1100 if a failure of the working line was used to initiate the switch to protect
 - 0001 usually will also work in any case
- d.) Touch the K1 Bits 5-8 menu button. Select per the following rules:
 - If there is only one working channel on the system select 0001. (most common)
 - If there are multiple working channels set the bits 5-8 to indicate the binary value of the working channel currently switched to protect. For example working channel #1 would be 0001, #2 would be 0010, #14 would be 1110. Possible values are 1-14.
- e.) Touch the K2 Bits 1-4 menu button. Select the same value as K1 Bits 5-8.
- f.) Touch the K2 Bit 5 menu button.
 - Select 0 if the provisioned protection switching architecture is 1+1 (most common)
 - Select 1 if the provisioned protection switching architecture is 1:n
- g.) Touch the K2 Bits 6-8 menu button.
 - Select 101 is the provisioned switching mode is Bi-directional (most common)
 - Select 100 if the provisioned switching mode is Uni-directional