Dual Port Solutions

SSMTT-28 and SSMTT-29 Modules

Application Note

SunSet MTT Family Ethernet Solutions: SSMTT-28 Ethernet Module and SSMTT-29 Gigabit Ethernet Module

Introduction

The SSMTT-28 and SSMTT-29 test modules, part of the SunSet Modular Test Toolkit (MTT) family of test sets, are rugged, battery-operated test solutions for the installation and maintenance of Metro Ethernet services. The robust set of testing capabilities in the SSMTT-28 and SSMTT-29 modules make them ideal for the field technician who needs to verify end-to-end transport of Ethernet/IP traffic, perform a BER test, determine throughput, link utilization, round trip delay, and frame loss ratios. IP features such as Ping, Trace Route, Web Download, FTP download/upload, along with easy-to-use automated Service Level Agreement (SLA) verification tests like RFC 2544, make the SSMTT-28 and SSMTT-29, the complete test solution for turning up and maintaining Metro Ethernet services.

The SSMTT-28 and SSMTT-29 include a Dual Port capability that adds value and flexibility, and allows for efficient use of a single test set. The Dual Port feature allows technicians to use the two ports of the modules simultaneously. Now with this new feature the SunSet MTT Metro Ethernet family can perform the following:

- Prequalify Layer 1 or Layer 2 network elements with a single test set
- Test Layer 1 or Layer 2 networks in a lab environment (bench testing)

Port Configurations

For the SSMTT-29, port #1 will always be the port generating and analyzing traffic in BERT mode and port #2 will always be in loopback mode.

For the SSMTT-28 without a 100FX port, the port assignments are the same as in the SSMTT-29.

```
11:50:45                    Laser
>P1: LINK-UP                     <
>P2: LINK-UP          ET:000:01:15
ST:10:48:55           RT:CONTINU
            STATUS              ▲

TEST: LAYER 2-64Bytes-CONST
PORT 1:

      NO  ERRORS

          TX            RX       ▼
LINE RATE:1000 Mbps    1000 Mbps
DATA RATE:761.92 Mbps  761.92 Mbps
     UTIL:100 %        100 %
 STOP    RESET    TX OFF   FL CTRL
```

For the SSMTT-28 with a 100FX port, the following port configurations are possible:
- 10/100 copper port #1 in BERT mode, 10/100 copper port #2 in loopback mode
- 10/100 copper port #1 in BERT mode, 100FX port in loopback mode
- 100FX port in BERT mode, 10/100 copper port #1 in loopback mode
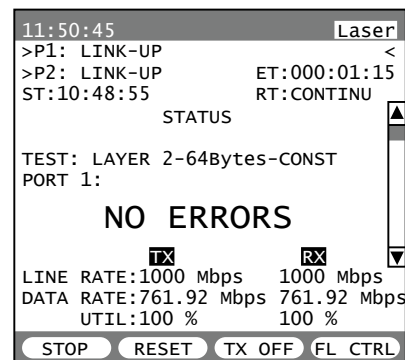
Network Element Prequalification Test

The Dual Port feature on the SSMTT-28 and SSMTT-29 allows technicians to prequalify a Layer 1 or Layer 2 Net‐work Element (NE) at full line rate traffic before deploy‐ing it and bringing it into service.

This test is carried out by connecting the SSMTT-28 or the SSMTT-29 to two separate ports on the network element: a client side port and a network access side port for example.
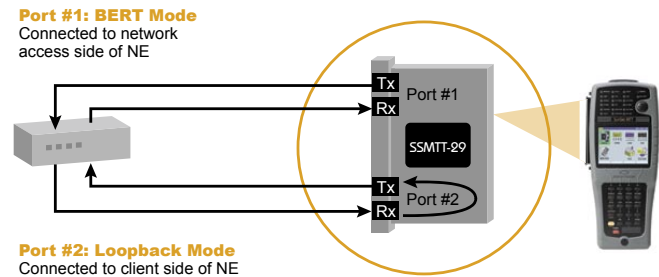
Port #1: BERT Mode
Connected to network access side of NE

Tx
Rx
Port #1
SSMTT-29
Tx
Rx
Port #2

Port #2: Loopback Mode
Connected to client side of NE

Figure 1: Prequalification testing of a network element

Figure 1 shows an example of the prequalification test using the SSMTT-29 test module. When the test is started, port #1 will generate and analyze the traffic, while port #2 simply loops back all incoming traffic from the network element.

If the NE is a Layer 1 device, like a media converter, the technician will perform a Layer 1 BER test. In the case of a Layer 1 test, the loopback port will loopback all of the incoming traffic from the NE.

If the NE is a Layer 2 device, like a switch, the technician will perform a Layer 2 BER test. In a Layer 2 test, the port in loopback mode will swap the source and destination MAC addresses of all incoming unicast frames; this allows the traf‐fic to be forwarded or switched back to the traffic-originating port of the MTT module. The loopback port will discard any incoming multicast and broadcast traffic, as well as any frames with incoming CRC errors.

Layer 1 and Layer 2 Circuit Bench Test

The Dual Port feature on the SSMTT-28 and SSMTT-29 also allows users to perform basic Layer 1 and Layer 2 circuit bench testing. The operation and function of the Layer 1 and Layer 2 test is exactly the same as in the network element prequalification test only now the application is to the entire circuit or network. Figure 2 shows an example of a Layer 2 Ethernet over SDH bench test.

Dual Port Feature Highlights

- Layer 1 and Layer 2 BERT
- Traffic generation at full line rate (10 Mbps, 100 Mbps, or 1000 Mbps)
- Configure up to 64 MAC addresses
- Configure up to 64 VLANs: ID and priority bit configuration
- Test pattern selection: PRBS, all ones, all zeros, and user defined

EoS
ADM A

EoS
ADM B

Layer 2
Network Under Test

Port #1: BERT Mode
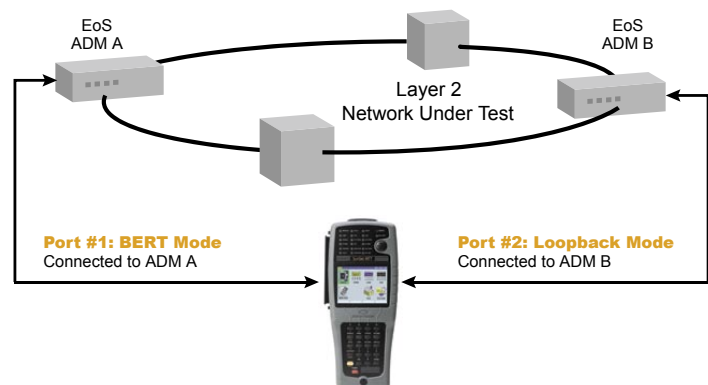Connected to ADM A

Port #2: Loopback Mode
Connected to ADM B

Figure 2: Dual Port, Layer 2 Ethernet over SDH bench test

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