

Press Release

August 26, 2005

A single MP1590B unit can now fully assess EoS networks.

Anritsu Corporation has enhanced the EoS^{*A} measuring functions of its Network Performance Tester MP1590B by developing VCAT and LCAS options that enable measurement of each virtual concatenation^{*B} channel, and a VCDD option that can assess the ability of transmission equipment to perform properly when differential delay occurs. With these three options and the EoS Unit MU150101A installed, the MP1590B can effectively perform measurements covering the ITU-T^{*1} standards for assessing EoS networks, transmission equipment, and modules, supporting EoS services that have already commenced in various nations around the world.

New MP1590B systems equipped with these enhanced functions will be available beginning September 1, 2005.

***A EoS: Ethernet over SDH/SONET**

A next-generation network technology for storing Ethernet data in SDH/SONET^{*2} frames that are transmitted via SDH/SONET channels.

***B Virtual concatenation**

A technology to create a single SDH/SONET channel by virtually combining several smaller SDH/SONET channels.

Usually, EoS transmits Ethernet data through this kind of channel.

There are two types of virtual concatenation -- high-order virtual concatenation (high-speed channels) and low-order virtual concatenation (low-speed channels). Either of them can be utilized depending on the country and the applications employed.

[Development Background]

Use of EoS for transmitting Ethernet data via SDH/SONET is increasing as next-generation networks are deployed in various nations around the world. When transmitting Ethernet data via SDH/SONET, flexible selection of the SDH/SONET circuit bandwidth based on the application's data capacity can be achieved using virtual concatenation and LCAS^{*3} technology standardized by ITU-T. For this reason, when evaluating transmission equipment and modules conforming to these technologies, developers need to measure

their performance with various bandwidths. Because differential delay^{*4} seriously influences circuit quality when several SDH/SONET circuits are combined with virtual concatenation, ITU-T standards specify that the transmission equipment must absorb as much as 512ms of differential delay. Consequently, it is necessary to evaluate the performance of transmission equipment when differential delay is present.

To support such testing requirements, Anritsu enhanced the EoS measurement functions of its Network Performance Tester MP1590B by developing VCAT and LCAS options conforming to the ITU-T standards, enabling it to complete all the EoS channel measurements. Anritsu also developed the VCDD option for evaluating the ability of transmission equipment to absorb differential delay. A single MP1590B system incorporating these options allows efficient assessment of ITU-T standard EoS networks, transmission equipment, and modules.

[Product outline]

The MP1590B is a comprehensive measuring instrument for testing and analyzing jitter^{*5} of equipment and devices related to EoS, Ethernet/IP, OTN^{*6}, SDH /SONET, and DS_n/PDH^{*7}. With a plug-in design that can combine units needed for the various transmission systems, measurements meeting customer requirements can be performed by a single MP1590B unit. With its modularity, MP1590B also offers excellent future expandability for addressing next-generation network systems. Equipped with the newly developed VCAT, LCAS, and VCDD options, the MP1590B can assess EoS networks, transmission equipment, and modules in various bandwidth, as well as measuring performance when differential delay occurs.

• VCAT option

This option enables setting of both high-order virtual concatenation to accommodate a high-speed channel and low-order virtual concatenation to accommodate a low-speed channel. Since flexible measurement is possible depending on circuit bandwidth, a single MP1590B unit with this option can complete assessment of EoS networks, transmission equipment, and modules being operated in various nations.

• LCAS option

This option includes LCAS function emulation, monitoring of LCAS command sequence transmission/transmitter/receiver status, and an enhanced LCAS command capture function.

• VCDD option

By generating up to 512 ms of differential delay in each channel, this option enables the MP1590B to evaluate how transmission equipment performs while absorbing differential delay. Using MP1590B's through mode*⁸, it is also possible to verify differential delay during in-service operation.

[Market and usage]

For function verification and performance assessment of EoS transmission equipment, networks, and modules/devices.

[Terminology]

*1 **ITU-T**

International Telecommunication Union-Telecommunications sector. This study group develops recommendations (standardization) on technology and operation for various fields of international telecommunications.

*2 **SDH /SONET: Synchronous Digital Hierarchy / Synchronous Optical NETWORK**

International standards for hierarchy multiplex system of signals in digital transmission systems.

*3 **LCAS: Link Capacity Adjustment Scheme**

A technology to dynamically select communication bandwidths that are virtually grouped using virtual concatenation. Use of this technology allows changing the communication bandwidth without service interruption.

*4 **VCDD: Differential delay**

Timing delays that occur between transmission lines when several SDH/SONET transmission lines are virtually connected using virtual concatenation.

*5 **Jitter**

Phenomena in which transmission signal timing is disturbed by the influence of noise and transmission patterns on the transmission line in a digital network, resulting in the phase of each pulse waveform varying before/after its average position.

*6 **OTN: Optical Transport Network**

Optical transmission technology standardized by ITU-T G.709.

*7 **DSn/PDH: Digital Signal level n/Plesiochronous Digital Hierarchy**

Digital hierarchy that was adopted in Japan, North America, and Europe before the SDH recommendation was made.

*8 **Through mode**

Operation in which the input signal is output without change, allowing the test instrument to measure the performance of a network without influencing it.