

ANRITSU CORPORATION

Test Solutions to Support the Acceleration of Data Centers

2024, October

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Director, Senior Vice President, Test & Measurement Company President



TSE code : 6754

<https://www.anritsu.com>

Agenda

1. Company Profile
2. Business Overview
3. Test Solutions to Support the Acceleration of Data Centers
4. Other Data Center-related Test Solutions

1. Company Profile



ANRITSU CORPORATION

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243-8555 Japan

Tel : (046) 223 -1111

<https://www.anritsu.com>

-
- First founded as Sekisan-sha in 1895.
 - Established as Anritsu Electric Corporation on March 17, 1931.
-

- Capital : 19,219 million yen (as of March 31, 2024)
- Revenue : 109,952 million yen (Year ended March 31, 2024: consolidated)
- Employees : 4,083 (as of March 31, 2024: consolidated)

2. Outline of our business segments

T&M

Evolution and advances of networked society

- ◆ Mobile : 5G, 5G Utilization
- ◆ Network Infrastructure : Data center, Optical NW, Wireless NW
- ◆ Electronics : Base station construction and maintenance, Electronics parts, Wireless Equipment



PQA

Safety & security of food & medicals/pharmaceuticals

- ◆ Food inspection market
- ◆ Medical/pharmaceutical inspection market



EM

Toward a decarbonized society

- ◆ Test market for EVs and batteries
- ◆ Installation support for Local 5G and Private 5G



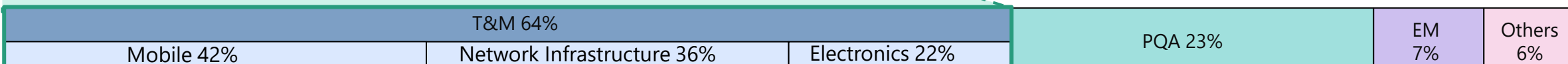
Others

- ◆ Sensing & devices
- ◆ Others

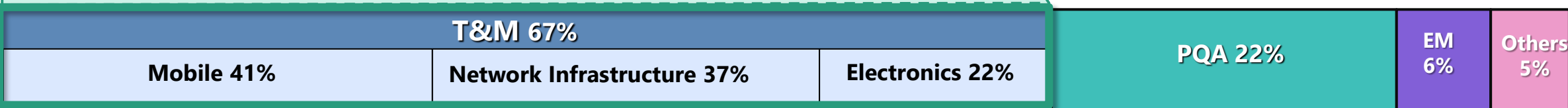


(Revenue by business segment)

110.0 billion Yen consolidated revenue in FY2023

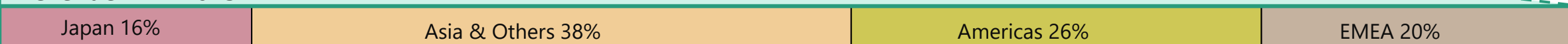


25.2 billion Yen consolidated revenue in FY2024 1Q



(Revenue of T&M business by region)

Revenue in FY2023



Revenue in FY2024 1Q

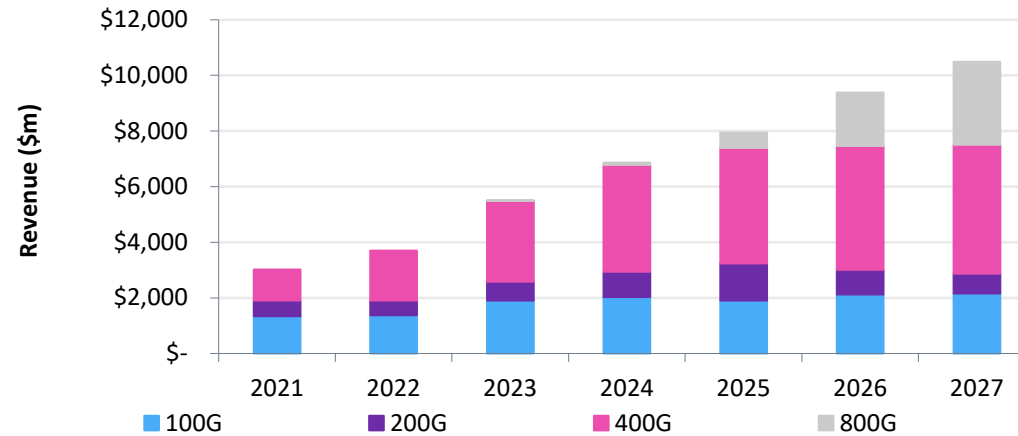




3. Test Solutions to Support the Acceleration of Data Centers

3-1. Test Solutions for support of Cloud Service expanding

High-speed (from 100G to 800G) optical modules by data rate

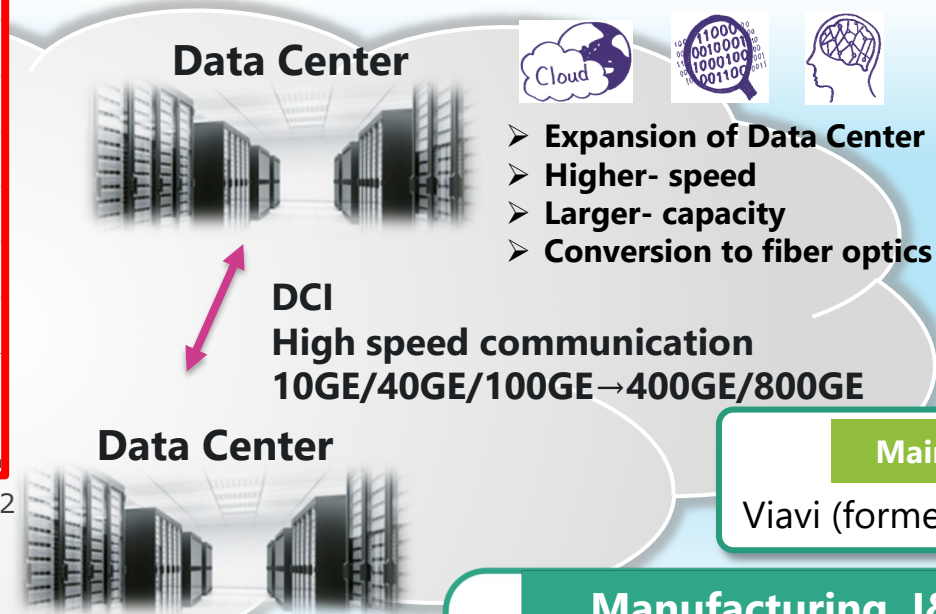


Source: Omdia

© 2022 Omdia

Source : Omdia; Datacom Transceiver and AOC Forecast: 2022-27 19 SEP 2022

Data traffic extending explosively



Main Competitors

Viavi (formerly known as JDSU)

Main Competitors

Keysight

R&D Solution

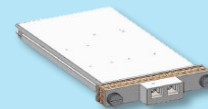


MP1900A
Signal Quality Analyzer

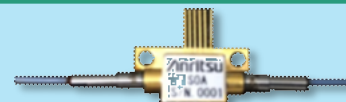
Equipment (Router, Switch)
in Data Center



Optical modules



Optical devices



Measurement objects: High speed optical devices & modules etc.

Manufacturing, I&M Solution



MP2110A BERTWave



MS9740B Optical
Spectrum Analyzer



MT1040A Network Master
Pro (400G Tester)

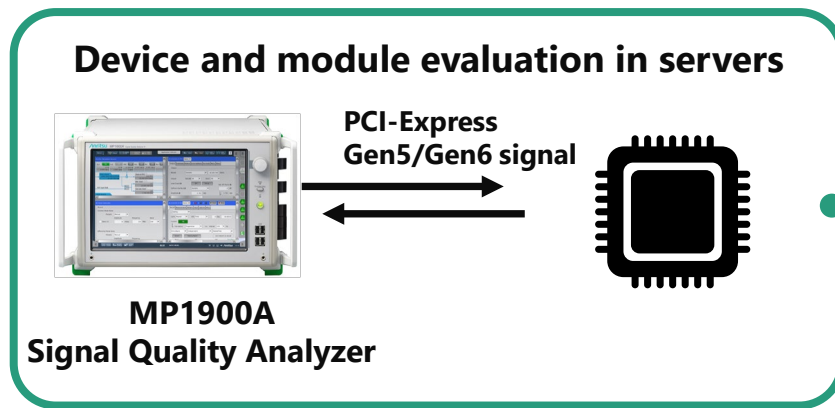


MT1000A
Network Master Pro
(Ethernet/CPRI/
OTDR Test Equipment)

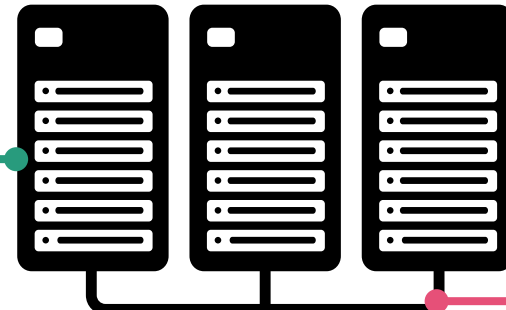
3-2. Test solutions for development aimed at speeding up data centers

Support for device/module evaluations for data centers with increasing capacity due to the spread of generative AI

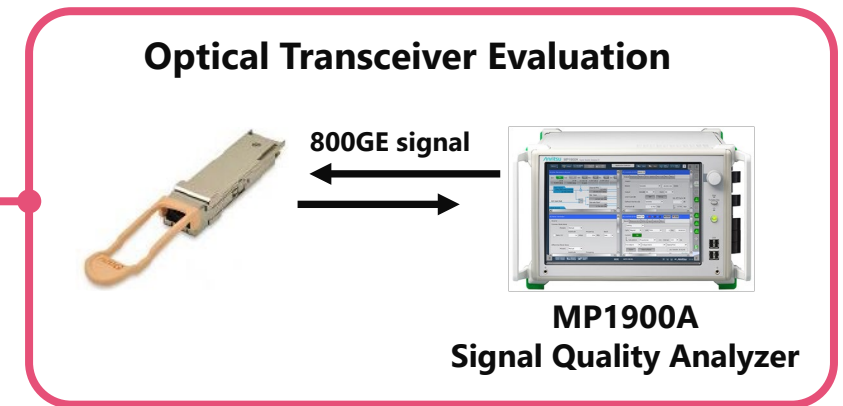
- PCI-Express Gen5→Gen6
Twice the transmission capacity



Data center



- 100GE→400GE→800GE
High-speed optical interface between servers



■ Features

- Supports 100GE/400GE/800GE, PCI-Express Gen5/6

■ Target markets

- Development market for GPU/CPU and high-speed optical communication devices/modules

■ Target customers

- Chip vendors, Optical transceiver vendors, Network equipment vendors, Hyperscalers

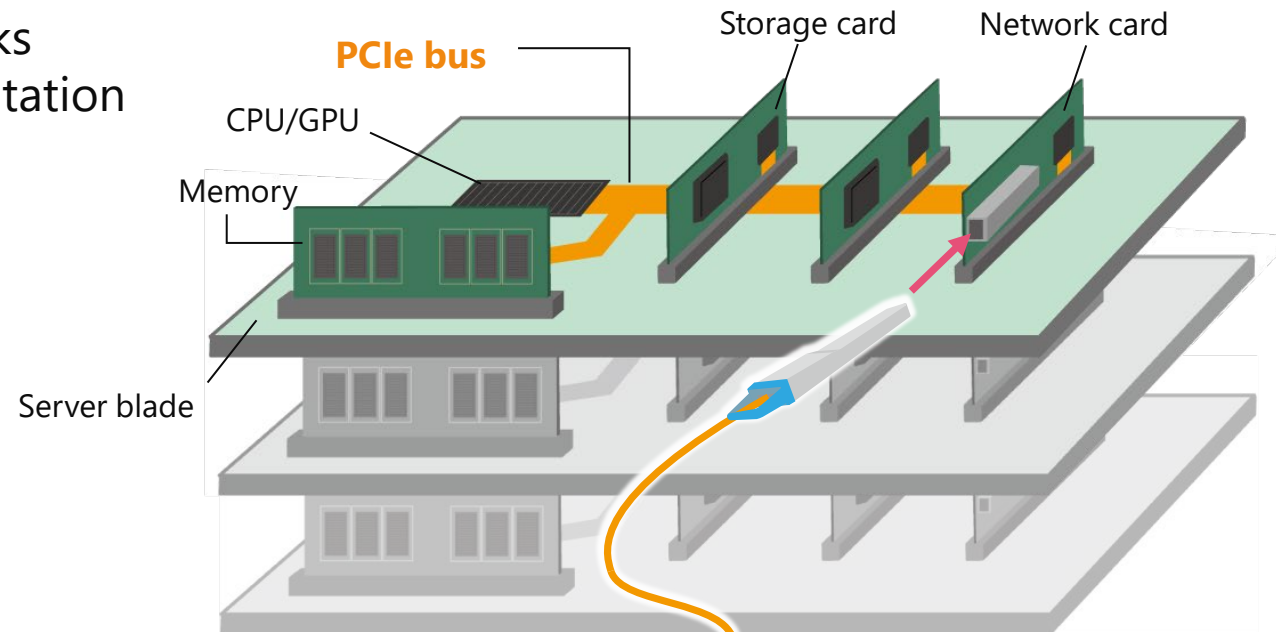
Support for PCIe Gen6 for high-speed intra-server communications

800GE is increasingly being used for optical networks between servers. In conjunction with this, implementation of PCIe Gen6 is progressing to support high-speed communication between CPUs/GPUs, memory, and modules on server blades.

Advantages of MP1900A:

- In-house developed devices generate high quality waveforms of output signals
- Support for Link Training (loopback testing) protocol required for Gen6 (industry first*) *: Based on a survey of Anritsu

Used for data error rate and waveform quality evaluation



800GE optical network

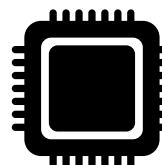


Signal Quality Analyzer
MP1900A

Distorted input PCIe signal for
reception performance testing



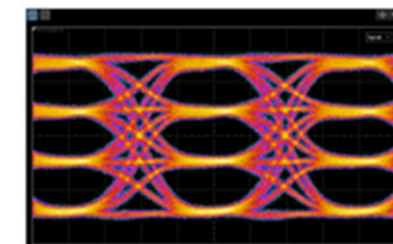
Measure output signal error rate



DUT



Measure waveform
of output signal



Waveform observed
on oscilloscope

3-4. Solutions for manufacturing optical transceivers for data centers

Supports evaluation of optical transceivers used to meet the growing data center capacity due to the spread of generative AI



BERTWave MP2110A

Advantages of MP2110A:

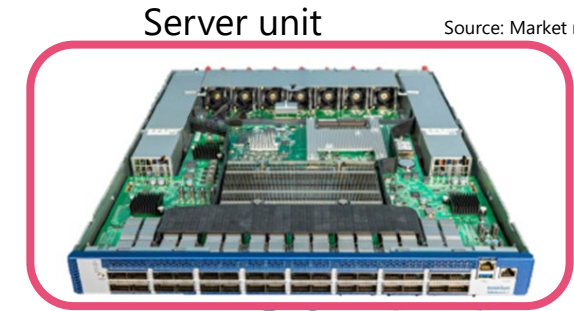
Optimal structure for manufacturing inspection

- Capable of simultaneous measurement on four channels
- One box supports both error rate measurement and waveform quality measurement

Rear sides of server racks

Large number of optical transceivers inserted into the server unit

Source: Explore our photo gallery - Google Data Centers
<https://www.google.com/about/datacenters/gallery/>



Source: Market research report by Yole

Courtesy of Innovium



Optical transceiver



Optical transceiver



3-5. Solutions for activation and maintenance of data centers, and verification of equipment in the data centers

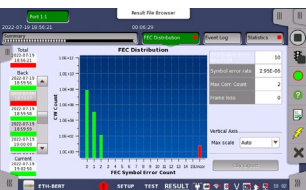
Supports network quality evaluation for 100G/200G/400G Ethernet

100G/200G/400G Ethernet evaluation

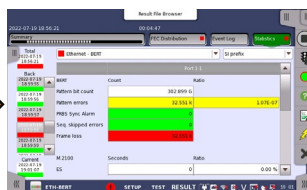
- Small, portable size that can be used for on-site activation and maintenance
- Compatible with various Ethernet optical modules used in data centers



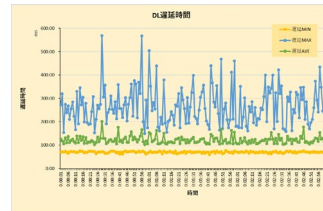
MT1040A
Network Master Pro



Error correction
capability evaluation of
Ethernet signal quality

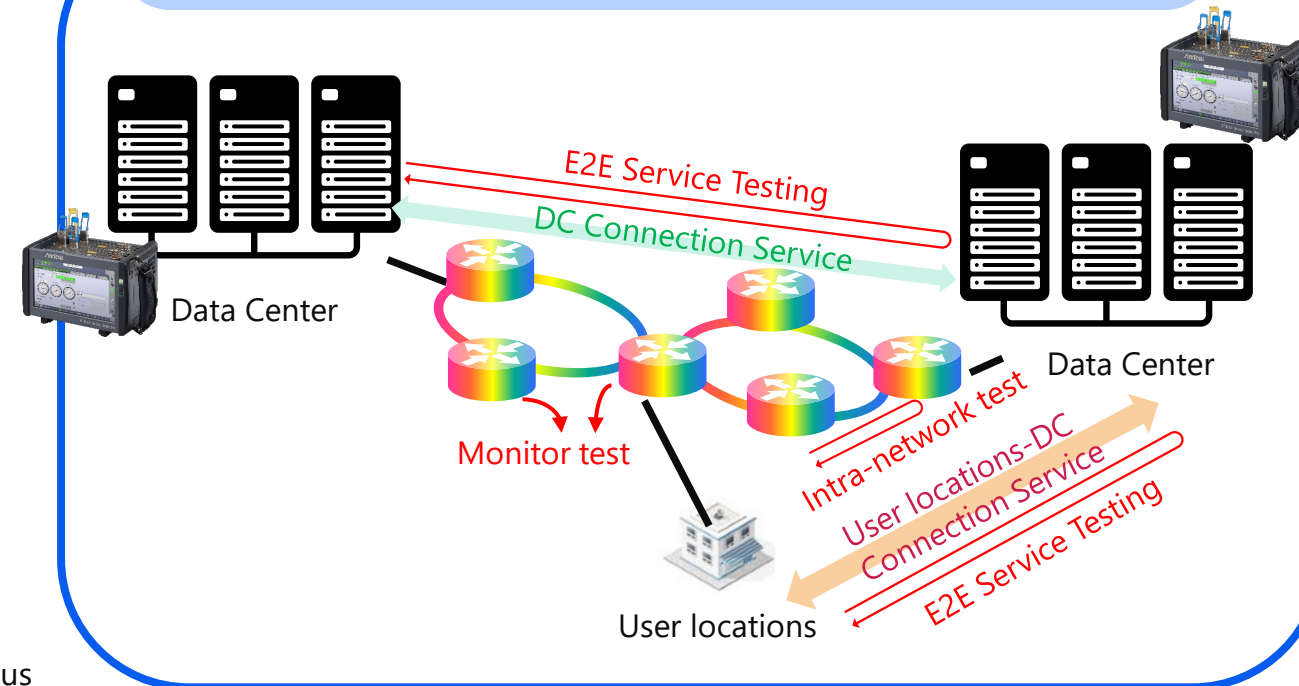


Ethernet frame error
and PCS layer alarm
evaluation



Monitor function for various
measurement results over a
period of about 3 hours

1. E2E service testing: measuring communication quality when the service is launched
2. Network testing: checking individual devices when there is a problem, isolating each section of the network
3. Monitoring testing: monitoring for long periods of time in cases where the frequency of error occurrence is low



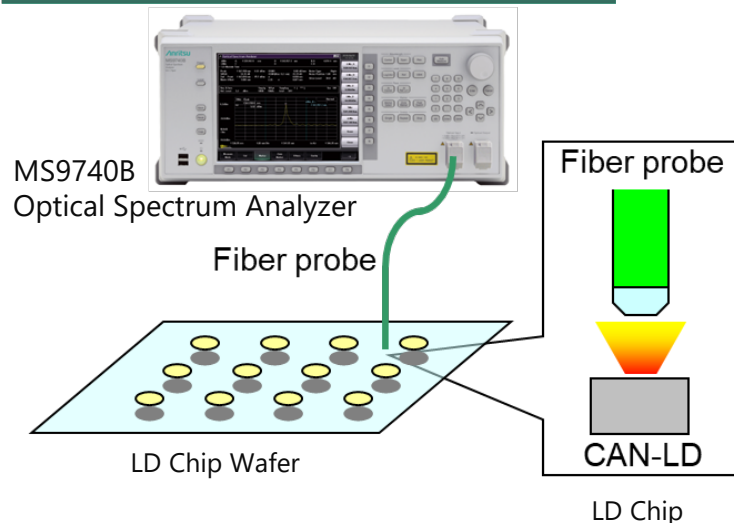


4. Other Data Center-related Test Solutions

4-1. Solutions for manufacturing laser diodes (LDs) for communication and non-communication applications

Support evaluation of LDs for data centers, as well as LDs for non-communications applications, the demand for which is expected to grow

Test example for LD Chip/CAN



MS9740B
Optical Spectrum Analyzer

Applications for data centers



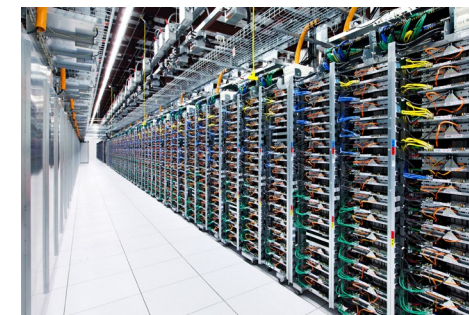
Applications for Data Centers

Equipped with LDs that support various communication methods and distances

Optical transceiver

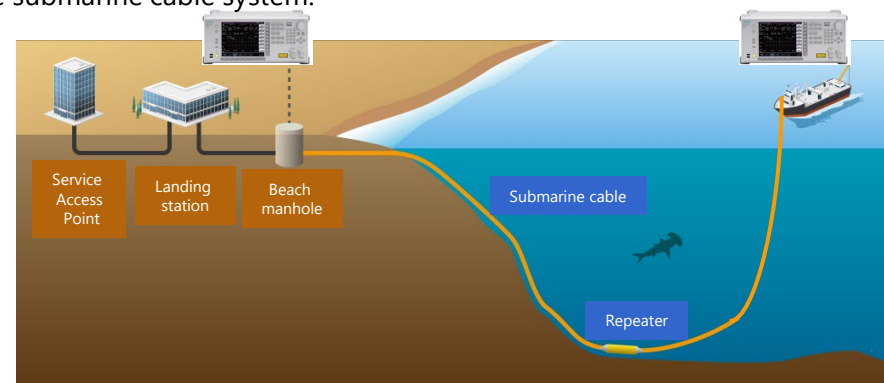


Data center equipment



Applications for optical submarine communications

During installation, the wavelength characteristics and quality of the repeaters are evaluated by both the landing station and the installation ship, ensuring long-term quality assurance for the submarine cable system.



Application to optical submarine communications

4-2. Solution for installation and maintenance of optical submarine cables

Support the installation of optical submarine cables and fault detection

- Detects faults in optical cables up to a maximum of 20,000 km (the trans-Pacific submarine cable between Japan and the United States is 10,000 to 12,000 km)
- Weighs less than 10 kg for portability

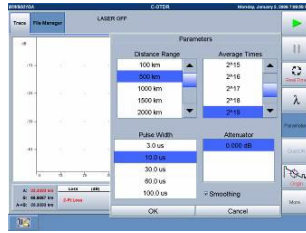
MW90010B
Coherent OTDR



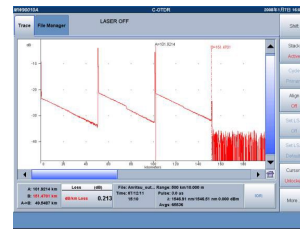
Simple 3-step operation



1) Wavelength setting

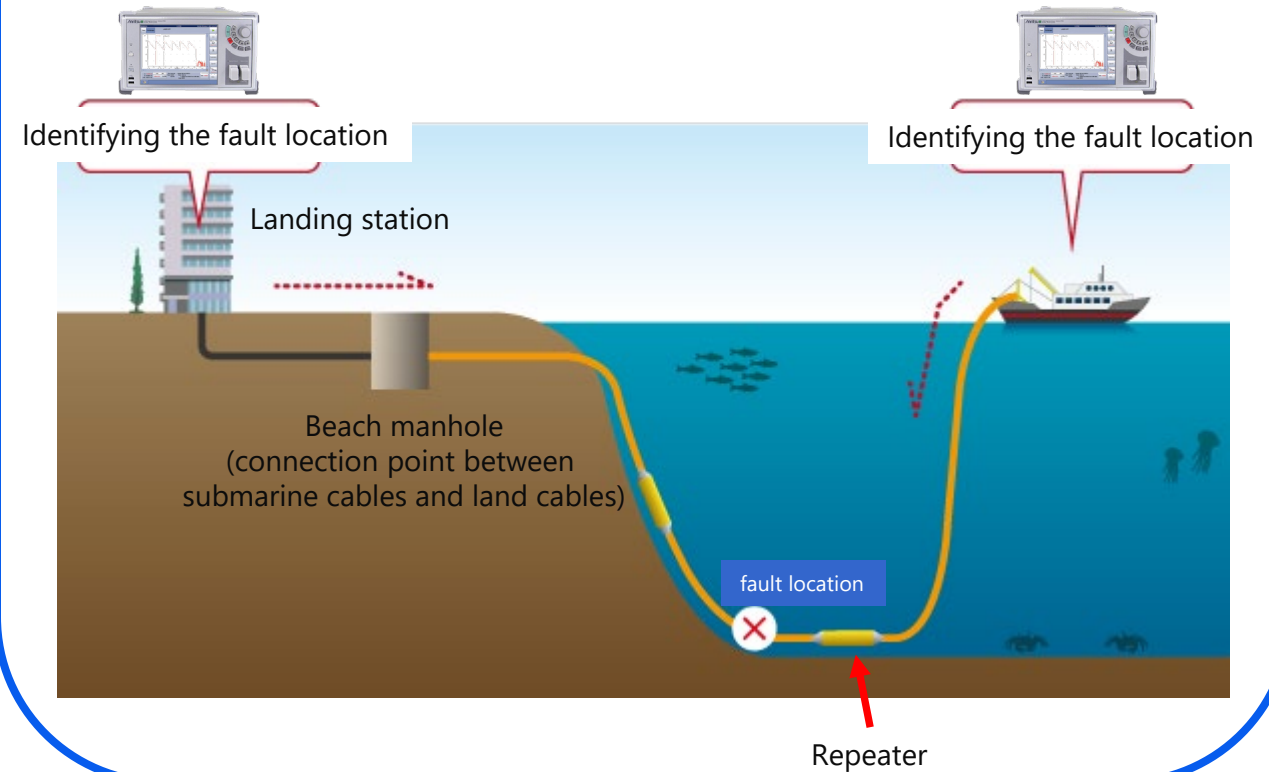


2) Test conditions setting



3) Starting test

When installing the cable, the transmission loss of the cable and the operation of the repeater are monitored from both the landing station and the installation ship. When maintaining the cable, the fault location is identified from the landing station side.



Repeater

