**Anritsu** envision : ensure

# Optical Transceiver Simple Check
# xCVR Quick Check SEEK Scenario

Network Master Pro MT1000A/MT1040A

This material is the User Guide for the optical transceiver simple check scenario (xCVRQuickCheck_xx.obcfg and xCVRQuickCheckMT1040A_xx.obcfg, where xx is the version number) created by the SEEK (Scenario Edit Environment Kit) for the Network Master Pro MT1000A/MT1040A. Refer to the Anritsu homepage for SEEK-related explanation.

MT1000A          MT1040A

### MT1000A/MT1040A SEEK

xCVR Quick Check Scenario (xCVR Quick Check hereafter) is a tool for executing standalone diagnostics of optical transceivers, such as the QSFP-DD, QSFP28, SFP28, etc., using the MT1000A/MT1040A. Executing this scenario fully automates all measurement, evaluation, and report output processes as one sequence. The key measurement items are bit error measurements using optical-fiber loopback, read-out and confirmation of the status of the optical transceiver internal registers, and measurement of the FEC correction margin (400G only). xCVR Quick Check helps minimize procedures by providing a function for confirming the optical transceiver functions and can play a role in confirming pre-deployment operation as well as in troubleshooting.

◆ **Applications**
  ➢ Confirmation of correct operation before installation of the optical transceiver
    Optical transceiver data and diagnostics results can be collected and saved automatically.
    Easy output of the result file and the integrated report as a pdf file.
  ➢ Easy first-stage diagnostics at network fault troubleshooting
    Isolating faults with an easy optical transceiver test facilitates quick countermeasures, such as swapping-out the optical transceiver or optical cable, changing the network equipment insertion slot, etc.
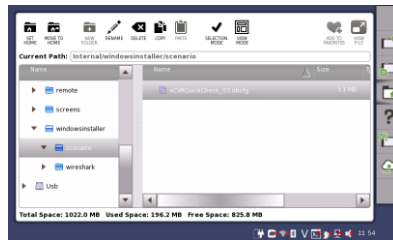◆ **Features**
  ➢ Minimizes workloads by fully automatic settings, data collection, measurement, evaluation, and report output.
  ➢ Supports QSFP-DD, OSFP, QSFP28, CFP4, QSFP+, SFP28, SFP+ diagnostics
  ➢ Supports Ethernet (400G, 100G, 40G, 25G, 10G), and OTN (OTU4, OTU3, OTU2) bit rates
  ➢ Runs on battery powered MT1000A/MT1040A GUI for optical transceiver troubleshooting at any site
  ➢ Saves diagnostics results file directly to external memory
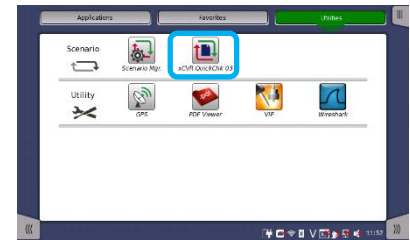
## ◆ Scenario Registration

After starting the MT1000A/MT1040, start Scenario.Mgr with the utility and select this scenario to register from the ⬆ symbol at the top right of the screen. After registration the icon appears in the utility. This scenario is saved to the ¥Internal¥windowsinstaller¥scenario path when installing the MT1000A/MT1040A software (version 9.05 or newer).
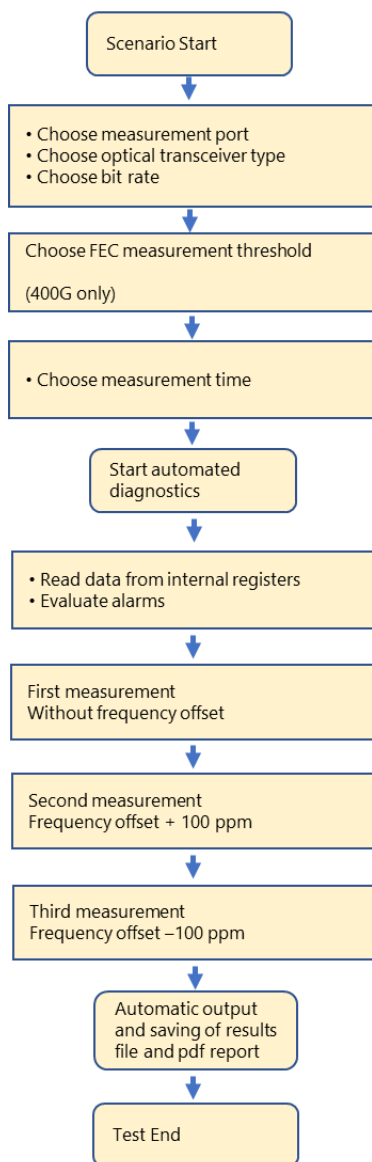


| Starting Scenario.Mgr | Selecting Scenario | Registering Scenario |

## ◆ Scenario Execution

The test screen is displayed by touching the scenario icon. Then, touching the start button ▶ at the screen top-right executes the scenario automatically according to the following sequence. The type of optical module to be measured, measurement port, and measurement conditions, etc., can be changed easily by following the dialog-type conversation. In addition connection mistakes are prevented by the explanation of measurement ports displayed in the on-screen measurement diagram.



```
Scenario Start
  ↓
• Choose measurement port
• Choose optical transceiver type
• Choose bit rate
  ↓
Choose FEC measurement threshold
(400G only)
  ↓
• Choose measurement time
  ↓
Start automated diagnostics
  ↓
• Read data from internal registers
• Evaluate alarms
  ↓
First measurement
Without frequency offset
  ↓
Second measurement
Frequency offset + 100 ppm
  ↓
Third measurement
Frequency offset −100 ppm
  ↓
Automatic output and saving of results file and pdf report
  ↓
Test End
```

Simple setting using dialog-type conversation

Automatic results and report output after measurement

Change save destination

Internal Memory    External Memory

Start Button

<Measurement Start Screen>

<Dialog Sequence Screens>

QSFP-DD
SFP+
SFP28
QSFP+
QSFP28
QSFP-DD

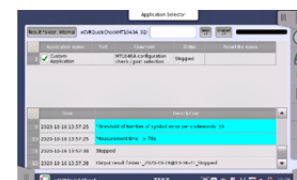<Results Output and Save Screens>

The MX100003A dedicated software can be used to open and edit this scenario description. This software can be downloaded from the Anritsu homepage.
[MX100003A download page](MX100003A download page)

## ◆ Pass/Fail Conditions

When the pass conditions are met fully, the optical module diagnostic result is evaluated as Pass.

| Test Contents | Pass/Fail Conditions |
|---|---|
| Internal Registers | ◆ The following registers must be read normally.<br>Wavelength, Bit rate, Compliance, Vendor name, Status, Part number, Revision, Serial number, Production date, Lot code, Tx Power, Rx Power, Temperature, Vcc<br>◆ The following registers must not have a Fault/Alarm/Warning status.<br>✧ QSFP-DD, OSFP<br>L-Vcc3.3v, L-Temp, L-Tx1~8 Power, L-Rx1~8 Power<br>✧ CFP4<br>Bias level, Tx optical power, Laser Temp alarm/warning, Rx optical power, TEC fault, Wavelength unlocked fault, APD power supply fault, TX_LOSF (Loss of Signal Func.), TX_LOL (Loss of Lock), RX_LOS (Loss of Signal), RX_LOL (Loss of Lock), RX_FIFO error<br>✧ QSFP28, QSFP+, SFP28, SFP+<br>Temp alarm/warning, Vcc alarm/warning, Rx optical power alarm/warning, Tx Bias level alarm/warning, Tx optical power alarm/warning |
| Global/Programmable Alarm (CFP4 only) | There must be no Alarm status. |
| Error Measurement<br><br>Freq. Offset 0 ppm<br>Freq. Offset +100 ppm<br>Freq. Offset –100 ppm | ➢ No bit errors during measurement period<br>➢ FEC measurement results must be less than the threshold values (400G only)<br><Threshold defaults><br>- Max. Symbol Error count per codeword: 10<br>- Symbol Error rate: 1.0E–04 |

## ◆ Measurement Time

The target times from the scenario start to finish are listed in the following table.

| Presumed Error Rate | QSFP-DD OSFP | QSFP28 /CFP4 | QSFP+ | SFP28 | SFP+ |
|---|---|---|---|---|---|
| 0.0e–12 | 3 minutes | 3 minutes | 3 minutes | 4 minutes | 7 minutes |
| 0.0e–13 | 5 minutes | 7 minutes | 17 minutes | 22 minutes | 52 minutes |
| 0.0e–14 | 15 minutes | 52 minutes | - | - | - |

## ◆ Output Files

Files are generated and saved automatically when measurement ends. Saving to either internal or external memory can be selected at the test start.

| Type | File Name |
|---|---|
| Measurement Results Reports | Summary_******.pdf |
| Measurement Results (can be viewed using MT1000A/MT1040A and dedicated software) | ******.res |
| Scenario debugging file (not used usually) | **.txt and **.obres |