

Network Master™ Series

MT9090A

Mainframe

MU909011A3

Drop Cable Fault Locator Module

780 nm and 1550 nm OTDR for Single Mode Fiber



Anritsu

Fault Locate Step 18:12:20

| | |
|--------------------------------|---------|
| Analysis Summary | PASS |
| End/Fault Distance | 55 ft |
| Loss at OTDR Connection | 0.67 dB |
| Total Loss (incl Loss at OTDR) | 0.67 dB |

Total Loss Threshold 1.50 dB

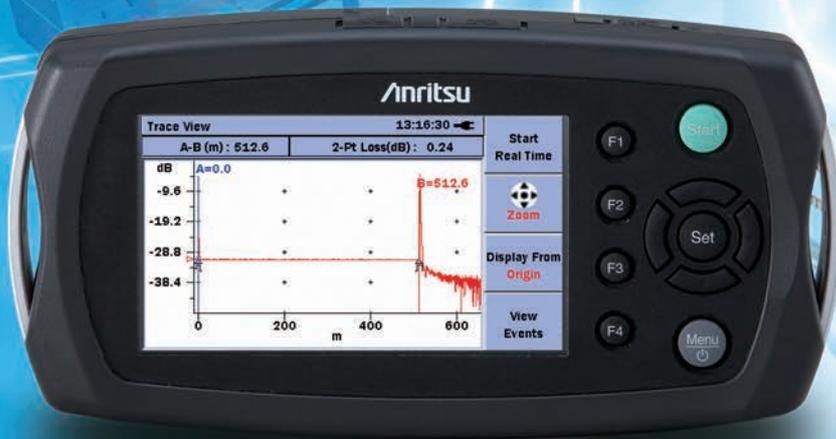
| No. | Distance (ft) | Type | Loss (dB) | Ref. (dB) |
|-----|---------------|------|-----------|-----------|
| 1.1 | 0 | ↗ | N/A | N/A |
| 1.2 | 5 | ⌋ | N/A | >58.6 |
| 2 | 55 | ⌋ | END | >70.0 |

Stop F1 Start

Total Loss Threshold F2

Power Meter F3 Set

View Trace F4 Menu



Last Mile Testing Redefined!

MT9090A/MU909011A3 Overview

Until now, the right tool just didn't exist for cost effectively testing short fibers. Handheld OTDRs and Fault Locators lacked the resolution and in such short spans while mini-OTDRs were too large, too expensive and too complicated.

The new MT9090A from Anritsu finally addresses this need by providing all of the features and performance required for installation and maintenance of short fibers in a compact, modular test set. The MT9090A represents an unmatched level of value and ease of use, while not compromising performance. Data sampling of five centimeters and deadzones of less than one meter, ensure accurate and complete fiber evaluation while a simple testing sequence requires only one key press to initiate – allowing anyone to make error-free measurements.

The MT9090A represents a new era in drop cable and premise testing. Its ease of use, low price, high-resolution and size make this the perfect product for "last mile" and intra-building testing.

Key Features

- Unique, purpose-built solution for short fiber applications such as FTTx drop, MDU riser and CO cables
- Exclusive, integrated launch fiber provides accurate initial connector measurement without external devices
- High resolution, widescreen color display that is easy to read indoors or out
- Fixed parameters simplify operation and ensure proper set-up – just press "START"
- High resolution and extremely short deadzones ensure thorough short fiber evaluation
- Rugged, sealed design provides years of service in the most challenging environments
- Modular platform ensures maximum return on investment
- Compact and lightweight design for maximum portability in the field
- Complete FTTx maintenance tool including optical power meter and visible source "red light"
- Unique 780 nm wavelength for in-service maintenance of PONs without filters
- High performance without a high price
- Basic multimode fiber testing with 1550 nm single mode module

Purpose-Built for Short Fiber Applications

Realizing that short fiber premise applications such as FTTH drop cables, intra-building riser cables and cell towers have different testing requirements, Anritsu designed the MT9090A from the ground up. It features 5 cm resolution for accurate mapping of events, deadzones of less than 1 meter (3 feet) and a built-in 10 m (30 ft) launch fiber to ensure everything is evaluated.

Quick Startup

The MT9090A is ready for measurement in about 15 seconds so productive work can start immediately.

Long Battery Life

Since AC power is not always available where you need it, especially at fiber pedestals, the MT9090A typically provides 3.5 hours of testing on a single charge. This coupled with an optional car cigarette lighter cord guarantees the MT9090A is ready when you are.

Portable

With its lightweight design and user friendly dimensions, the MT9090A is perfect for the outside plant environment and can easily be managed with one hand. The standard softcase with shoulder strap further increases portability when traveling from the truck to the testing site.

Rugged

With no fans or vents to allow dust and moisture to enter the unit, the MT9090A was designed for the challenging outside plant environment.

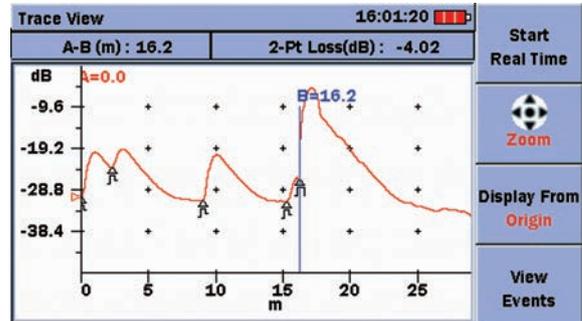
Video Inspection Probe Support

When equipped with the optional connector video inspection probe (VIP), the MU909011A3 becomes a powerful tool for evaluating connector cleanliness and quality. Connector end faces can be safely viewed and images stored to document all aspects of your network.



4.3-inch Wide Screen Display for Easy Viewing

The high resolution, full color, 4.3-inch wide screen display is the perfect format for viewing OTDR results. It also provides excellent readability both indoors and outdoors.



<1 m Dead Zone for Short Fiber Analysis

With less than 1 m dead zones, the MT9090A is perfect for evaluating central office, FTTH and intra building cables.

No Experience Required

With the MT9090A, the expertise is built in. With an automated testing sequence, fixed parameters and PASS/FAIL classification, anyone can certify and troubleshoot drop cables or premise networks.



- 1) 4.3" high resolution, indoor/outdoor color display
- 2) Dedicated function keys for performing tasks
- 3) START key for true one-button testing
- 4) Arrow keys for zooming, cursor movement and menu navigation
- 5) SET to select/accept

- 6) Menu key for easy access to set-ups and mass storage
- 7) Integrated power meter
- 8) Visible laser diode
- 9) Dual USB ports for quick and easy data transfer

Despite its size...it is not a toy!

When buying products, you tend to choose ones that are innovative and from established companies. When you need to install and maintain optical networks, this should also apply. With over 50 years of combined OTDR design, Anritsu, which now includes NetTest, delivers the features that matter.

Having been in the test and measurement business for a long time, we understand the importance of performance, portability, reliability, easy operation and of course price.

Real Time Sweeping

In the field, real-time sweeping is often very useful to confirm correct fiber splicing and placement.

Integrated Launch Fiber

To further simplify testing, the MU909011A3 has 10 m (30 ft) of fiber built-in so initial fiber connections can be verified without the need for additional patchcords or launch fibers.

Full Trace View

The user can also select to view the full trace for additional information or to initiate real time testing.

Event Table with User Defined Thresholds

PASS/FAIL thresholds for key acceptance criteria such as splice loss, reflectance and total span loss can be set in the MT9090A allowing technicians to easily assess a fiber's condition. Failing values are clearly highlighted in the event table alerting technicians of potential problems.

Visible Light Source

A visible laser diode "red light" to visually troubleshoot splices, connectors and the fiber management is also available.



Integrated Power Meter (through OTDR port)

The power meter allows users to verify the presence of signals and then fault locate with one instrument – and without having to disconnect and move the fiber to another port.

Screen Capture Function

Screen shots are sometimes useful for adding to reports so the MT9090A features the ability to save screen shots as Bitmap images.

Multimode Fiber Testing (Option)

Basic multimode fiber testing can be performed with the 1550 nm single mode module.



Simple Data Storage

With internal data storage plus support for external USB memory devices, the MT9090A is more than capable. Add to this auto file saving and naming for easy, error-free documenting of your network.

Common OTDR Data Format

The MT9090A supports the universal Telcordia SR-4731 format making it compatible with not only legacy Anritsu and NetTest products, but with many other vendors data.

Easy "drag and drop" File Transfers

When the MT9090A is connected to a PC via a USB cable, the internal memory can be directly accessed. Data can be selected, dragged and dropped into the PC memory, greatly simplifying file transfers. The MT9090A also supports the use of USB memory sticks.

Modular Design

The MT9090A features a modular design allowing modules to be easily changed in the field. Users can interchange different wavelength fault locator modules or perform other optical network testing such as optical channel analysis with the available CWDM channel analyzer module. Operation is quite similar between modules so the user is immediately familiar with operation.



Installation and Maintenance Simplified

Since the MT9090A is purpose built for testing short fiber spans, its hardware and user interface are optimized for simplicity. A customizable testing sequence automates testing and guides novice users.

Installation Simplified

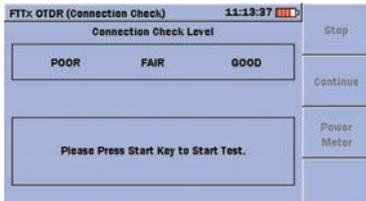
The MU909011A3 fault locator module provides easy and accurate verification of drop cable installation. The user simply connects the fiber and presses “START” for true one-button testing - all settings are fixed to ensure accurate and consistent results for any skill level. Upon completion, the length, total loss and PASS/FAIL status are displayed within seconds. A full event table of all characteristics is also shown providing additional information on the fiber under test.

Step 1 – Connect fiber and power on



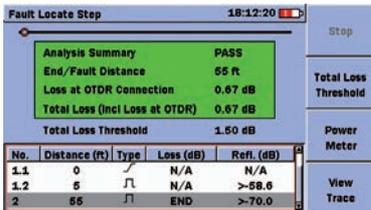
Step 2 – Press “START”

The connection check feature ensures that the fiber to be tested is properly cleaned and connected correctly.



Step 3 – Read Results

Test results including all splices and connectors, as well as total fiber length, loss and PASS/FAIL status are shown in an easy to read table.



A Unique Approach to In-Service Maintenance

Since multiple users share the common feed fiber, FTTx maintenance becomes difficult when only one or two users are down. Traditionally, 1625 nm or 1650 nm wavelengths were used to test active fibers however these wavelengths typically need costly WDM couplers and filters in the network. As a unique approach to this, Anritsu also offers a 780 nm Fault Locator module that can be used to troubleshoot in-service FTTx networks without costly filters and without disruption to other customers. This offers a clear advantage over PON specific power meters that only verify signal presence but still rely on an additional OTDR or fault locator to locate the cause. With the MT9090A, one box does it all !

Step 1 – Verify ONT Fault

Step 2 – Disconnect fiber from ONT and connect to MT9090A

Step 3 – Verify signal presence and level

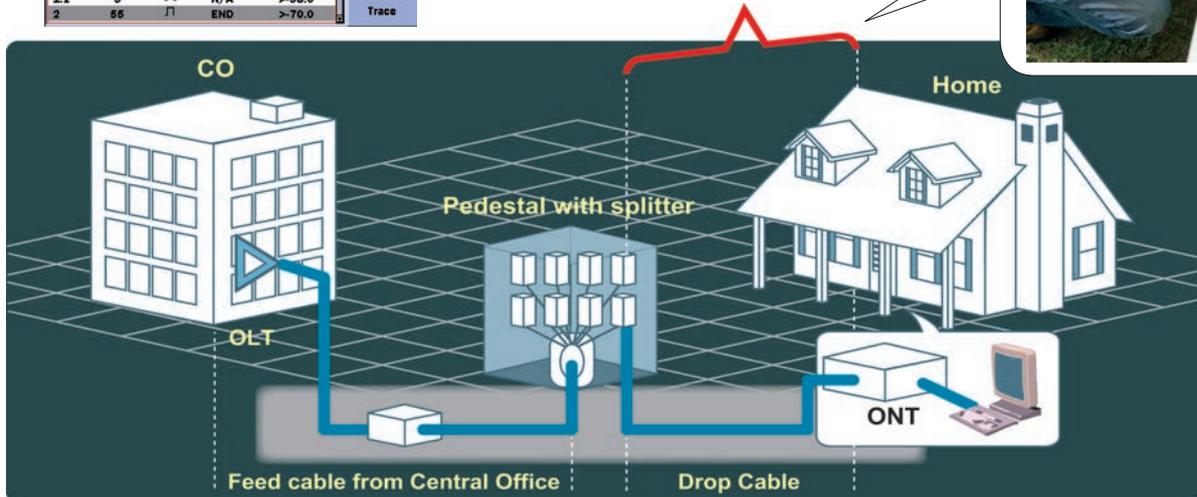
Good signal – replace ONT

No signal – press “continue” to launch fault locate test

Low signal – press “continue” to launch fault locate test

(780 nm will not interfere with 1490 nm or 1550 nm transmissions)*1, *2

Step 4 – Review Results



*1: At actual work, Only use the 780 nm OTDR after confirming that there is no effect on the customer's communications system. Anritsu cannot guarantee in advance that there will be no impact on communications.
*2: Fiber bending loss (attenuation) cannot be detected at the 780 nm wavelength.

Specifications

MT9090A Mainframe

| | |
|---------------------|--|
| Dimensions and Mass | 190 (W) × 96 (H) × 48 (D) mm (7.5" × 3.8" × 1.9") (Including mainframe and module) <800 g (<2 lbs.) (including mainframe, module and battery) |
| Display | 4.3-inch TFT-LCD (480 × 272, with backlight, transparent type) |
| Interface | USB 1.1, Type A × 1 (memory), Type B × 1 (USB mass storage) |

MU909011A3 Drop Cable Fault Locator Module

| Model | MU909011A3-052/062 | MU909011A3-050/060 | |
|--------------------------------|---|--|-------------------------|
| | | SingleMode Fiber Test | MultiMode Fiber Test*12 |
| Wavelength*1 | 780 nm ±20 nm | 1550 nm ±30 nm | Undefined |
| Fiber Type | 10 μm/125 μm SMF (ITU-T G.652) | | 62.5 μm/125 μm MMF |
| Distance Range | 1.0 km (3,000 ft) or 2.5 km (8,000 ft) set automatically | 1.0 km (3,000 ft), 2.5 km (8,000 ft) or 10 km (32,000 ft) set automatically | |
| Pulse width | <10 ns | | |
| Dynamic Range*2 | >7.0 dB | | Undefined |
| Deadzone | Fresnel: <1 m*3, Backscatter: <5 m*4 | | Undefined |
| Sampling Resolution | 5 cm (Distance range 1.0 km), 10 cm (Distance range 2.5 km) (IOR = 1.50000), 50 cm (Distance range 10 km) | | |
| Sampling Points | 20001 (Distance range 1.0 km), 25001 (Distance range 2.5 km), 20001 (Distance range 10 km) | | |
| Data Storage | Internal memory: 40 MB (up to 800 traces), External (USB): up to 20,000 traces with 1 GB | | |
| IOR Setting | 1.3000 to 1.7000 (0.0001 steps) | | |
| Units | ft, m | | |
| Fiber Event Analysis | Automatic, displayed in table format based on user defined PASS/FAIL thresholds | | Undefined |
| Loss Modes | 2 point loss, dB/km | | |
| OTDR Trace Format | Telcordia universal (.SOR), issue 2 (SR-4731) | | |
| Other Functions | Integrated launch fiber: 10 m (30 ft) | | |
| | Connector Inspection Microscope (Optional); verifies connector condition and cleanliness | | |
| | Connection check: Automatic check of OTDR to FUT connection quality | | |
| | Live Fiber detect: verifies presence of communication light in optical fiber | | |
| | Real time sweep: <1 sec (typical) | | |
| Languages | Spanish, French, German, Italian, Simplified Chinese, Traditional Chinese and English | | |
| Integrated Optical Power Meter | Wavelength 1550 nm, same port as OTDR | | |
| | Power range: -5 to -45 dBm, Accuracy: ±0.5 dB*5, Maximum input: +10 dBm | | |
| Visible Laser Diode | Connector: 2.5 mm universal, Wavelength: 650 ±15 nm, Output: 0 ±3 dBm Laser safety: IEC 60825-1: 2007 CLASS 3R: MU909011A3-050/060/052/062*9 (CW) 21CFR1040.10*11 | | |
| Power Supply | 9 VDC, 100 V(ac) to 240 V(ac), Allowable input voltage range: 90 V to 264 V, 50 Hz/60 Hz | | |
| Battery | NiMH, Operating Time: 3.5 hours (typical)*6, Recharge Time: <3 h*7 | | |
| Environmental Conditions | Temperature, Humidity*8: 0° to +50° C (Operation), -20° to +60° C (Storage), <80% (non-condensing) Vibration: MIL-T-28800E Class 3, Dust and Drip proof: IP 51 | | |
| EMC | EN61326-1, EN61000-3-2 | | |
| LVD | EN61010-1 | | |
| Laser safety | IEC 60825-1: 2007 CLASS 1: MU909011A3-050/060/052/062*10 21CFR1040.10*11 | | |

*1: @25°C

*2: Averaging: 10 seconds, SNR = 1, +25°C

*3: Return loss: 45 dB, +25°C (1.5 dB down from the peak of Fresnel)

*4: Return loss 45 dB, Deviation ±0.5 dB, +25°C

*5: CW input, -20 dBm @ 1550 nm, +25°C

*6: Back light low, Sweeping halted at +25°C

*7: +10° to +30°C, Power OFF

*8: +10° to +30°C (During Recharging battery, Power OFF)

*9: Safety measures for laser products

This product complies with optical safety standards in 21CFR1040.10 and IEC 60825-1; the following descriptive labels are affixed to the product.



THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50, DATED JUNE 24, 2007

*10: Safety measures for laser products

This product complies with optical safety standards in 21CFR1040.10 and IEC 60825-1; the following descriptive labels are affixed to the product.



THIS PRODUCT COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50, DATED JUNE 24, 2007

*11: Excludes deviations caused by conformance to Laser Notice No. 50 dated June 24, 2007.

*12: MU909011A3-002 Multimode Test Function installed and selected.

Ordering Information

Please specify the model/order number, name and quantity when ordering.
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

1) Select Mainframe

Includes battery pack, AC charger/adaptor, standard soft case, strap and protector

| Model/Order No. | Description |
|-----------------|----------------------------|
| MT9090A | Mainframe (with color LCD) |

2) Select Base Module

Includes printed operation manual

| Model/Order No. | Description |
|-----------------|--|
| MU909011A3 | Drop Cable Fault Locator Module (with visible laser diode and Power Meter) |

3) Select Module Option

| Model/Order No. | Description |
|-----------------|---|
| MU909011A3-050 | 1550 nm, single mode, UPC, visible laser diode, power meter |
| MU909011A3-060 | 1550 nm, single mode, APC, visible laser diode, power meter |
| MU909011A3-052 | 780 nm, single mode, UPC, visible laser diode, power meter |
| MU909011A3-062 | 780 nm, single mode, APC, visible laser diode, power meter |

4) Select Connector Adapter

One adapter included at no charge – must be added as a separate line item.

| Model/Order No. | Description |
|-----------------|--|
| MU909011A-037 | FC Connector (UPC: Models -050 and -052 only) |
| MU909011A-038 | ST Connector (UPC: Models -050 and -052 only) |
| MU909011A-039 | DIN 47256 Connector (UPC: Models -050 and -052 only) |
| MU909011A-040 | SC Connector (UPC: Models -050 and -052 only) |
| MU909011A-025 | FC-APC Connector key width 2.0 mm (APC: Models -060 and -062 only) |
| MU909011A-026 | SC-APC Connector (APC: Models -060 and -062 only) |

5) Select Software Option

Must be added as a separate line item.

Available for models -050, -060 only

| Model/Order No. | Description |
|-----------------|-------------------------|
| MU909011A3-002 | Multimode Test Function |



B0600B Hard Case

This accommodates two mainframes (with or without fitted protector), accessories (light source or power meter, backup battery, fiber cleaner, etc.).



Mainframe with Protector

B0663A Protector (Standard accessory)

6) Select Accessories

Must be added as separate line items.

| Model/Order No. | Description |
|------------------|---|
| G0203A | AC adapter (Replacement) |
| G0202A | NiMH Battery Pack (Replacement) |
| Z1580A*1 | Protector & Soft Case |
| B0663A*2 | Protector |
| B0600B | Hard Case |
| B0601B | Standard Soft Case |
| Z1023A | Strap |
| B0602A | Deluxe Soft Case (for MT9090A) |
| J1402A | Car plug cord |
| J1530A | SC Plug-in Converter (UPC(P)-APC(J)) |
| J1531A | SC Plug-in Converter (APC(P)-UPC(J)) |
| J1532A | FC Plug-in Converter (UPC(P)-APC(J)) |
| J1533A | FC Plug-in Converter (APC(P)-UPC(J)) |
| J1534A | LC-SC Plug-in Converter (for SM, SC(P)-LC(J)) |
| J1535A | LC-SC Plug-in Converter (for MM, SC(P)-LC(J)) |
| W2988AE | MU909011A Operation Manual (Hardcopy) |
| W2989AE | MU909011A Operation Manual (CD) |
| OPTION-545VIP | Connector Inspection Microscope (× 200, × 400) |
| MU909011A3-ES210 | 12 month extended warranty (total 2 years warranty) |
| MU909011A3-ES310 | 24 month extended warranty (total 3 years warranty) |

*1: The protector (B0663A) and standard soft case (B0601B) from a set.

The protector includes a shoulder strap.

*2: The shoulder strap can be used to hang the instrument around the neck while working.

7) Replacement Adaptors

Must be added as separate line items.

| Model/Order No. | Description |
|-----------------|--------------------------------------|
| J0617B | FC (UPC: Models -050 and -052 only) |
| J0618D | ST (UPC: Models -050 and -052 only) |
| J0618E | DIN (UPC: Models -050 and -052 only) |
| J0619B | SC (UPC or APC: all models) |
| J0739A | FC (APC: Models -060 and -062 only) |



B0601B Standard Soft Case

This standard accessory accommodates the mainframe with fitted protector.



B0602A Deluxe Soft Case

Full Network Master operation without removal from the case. Provides excellent protection for use in harsh conditions. This does not accommodate the mainframe if the protector is fitted.

MT9090 Series  Network Master
MU909020A OCA Module

Compact CWDM channel analyzer to verify power levels, drift and channel presence of CWDM networks.

MU909060A GigE Module

Dedicated field test solution for installation and troubleshooting Ethernet links in the access network.

MU909014/15 µOTDR

Compact OTDR for full automatic verification of optical networks, FTTH-PON, Metro and Core.



MU909060A



MU909020A



MU909014/15

CMA5000a Multi-Layer Network Test Platform

A wide selection of test modules including Gigabit Ethernet and 10 Gbps Ethernet.



CMA5 Series

For Optical Fiber Installation and Maintenance.



MT9083 Series ACCESS Master Mini-OTDR

All-in-one test tool for fiber construction and maintenance.



CMA 3000 All-in-one Field Tester

Test of many interfaces including Ethernet



Specifications are subject to change without notice.

● **United States**

Anritsu Company
 1155 East Collins Blvd., Suite 100, Richardson,
 TX 75081, U.S.A.
 Toll Free: 1-800-267-4878
 Phone: +1-972-644-1777
 Fax: +1-972-671-1877

● **Canada**

Anritsu Electronics Ltd.
 700 Silver Seven Road, Suite 120, Kanata,
 Ontario K2V 1C3, Canada
 Phone: +1-613-591-2003
 Fax: +1-613-591-1006

● **Brazil**

Anritsu Eletrônica Ltda.
 Praça Amadeu Amaral, 27 - 1 Andar
 01327-010 - Bela Vista - São Paulo - SP - Brazil
 Phone: +55-11-3283-2511
 Fax: +55-11-3288-6940

● **Mexico**

Anritsu Company, S.A. de C.V.
 Av. Ejército Nacional No. 579 Piso 9, Col. Granada
 11520 México, D.F., México
 Phone: +52-55-1101-2370
 Fax: +52-55-5254-3147

● **United Kingdom**

Anritsu EMEA Ltd.
 200 Capability Green, Luton, Bedfordshire, LU1 3LU, U.K.
 Phone: +44-1582-433200
 Fax: +44-1582-731303

● **France**

Anritsu S.A.
 12 avenue du Québec, Bâtiment Iris 1- Silic 612,
 91140 VILLEBON SUR YVETTE, France
 Phone: +33-1-60-92-15-50
 Fax: +33-1-64-46-10-65

● **Germany**

Anritsu GmbH
 Nemetschek Haus, Konrad-Zuse-Platz 1
 81829 München, Germany
 Phone: +49-89-442308-0
 Fax: +49-89-442308-55

● **Italy**

Anritsu S.r.l.
 Via Elio Vittorini 129, 00144 Roma, Italy
 Phone: +39-6-509-9711
 Fax: +39-6-502-2425

● **Sweden**

Anritsu AB
 Kistagången 20B, 164 40 KISTA, Sweden
 Phone: +46-8-534-707-00
 Fax: +46-8-534-707-30

● **Finland**

Anritsu AB
 Teknobulevardi 3-5, FI-01530 VANTAA, Finland
 Phone: +358-20-741-8100
 Fax: +358-20-741-8111

● **Denmark**

Anritsu A/S (Service Assurance)
Anritsu AB (Test & Measurement)
 Kay Fiskers Plads 9, 2300 Copenhagen S, Denmark
 Phone: +45-7211-2200
 Fax: +45-7211-2210

● **Russia**

Anritsu EMEA Ltd.
Representation Office in Russia
 Tverskaya str. 16/2, bld. 1, 7th floor.
 Russia, 125009, Moscow
 Phone: +7-495-363-1694
 Fax: +7-495-935-8962

● **United Arab Emirates**

Anritsu EMEA Ltd.
Dubai Liaison Office
 P O Box 500413 - Dubai Internet City
 Al Thuraya Building, Tower 1, Suit 701, 7th Floor
 Dubai, United Arab Emirates
 Phone: +971-4-3670352
 Fax: +971-4-3688460

● **India**

Anritsu India Private Limited
 2nd & 3rd Floor, #837/1, Binnamangla 1st Stage,
 Indiranagar, 100ft Road, Bangalore - 560038, India
 Phone: +91-80-4058-1300
 Fax: +91-80-4058-1301

● **Singapore**

Anritsu Pte. Ltd.
 11 Chang Charn Road, #04-01, Shriro House
 Singapore 159640
 Phone: +65-6282-2400
 Fax: +65-6282-2533

● **P.R. China (Shanghai)**

Anritsu (China) Co., Ltd.
 Room 2701-2705, Tower A,
 New Caohejing International Business Center
 No. 391 Gui Ping Road Shanghai, 200233, P.R. China
 Phone: +86-21-6237-0898
 Fax: +86-21-6237-0899

● **P.R. China (Hong Kong)**

Anritsu Company Ltd.
 Unit 1006-7, 10/F., Greenfield Tower, Concordia Plaza,
 No. 1 Science Museum Road, Tsim Sha Tsui East,
 Kowloon, Hong Kong, P.R. China
 Phone: +852-2301-4980
 Fax: +852-2301-3545

● **Japan**

Anritsu Corporation
 8-5, Tamura-cho, Atsugi-shi, Kanagawa, 243-0016 Japan
 Phone: +81-46-296-1221
 Fax: +81-46-296-1238

● **Korea**

Anritsu Corporation, Ltd.
 502, 5FL H-Square N B/D, 681
 Sampyeong-dong, Bundang-gu, Seongnam-si,
 Gyeonggi-do, 463-400 Korea
 Phone: +82-31-696-7750
 Fax: +82-31-696-7751

● **Australia**

Anritsu Pty. Ltd.
 Unit 21/270 Ferntree Gully Road, Notting Hill,
 Victoria 3168, Australia
 Phone: +61-3-9558-8177
 Fax: +61-3-9558-8255

● **Taiwan**

Anritsu Company Inc.
 7F, No. 316, Sec. 1, NeiHu Rd., Taipei 114, Taiwan
 Phone: +886-2-8751-1816
 Fax: +886-2-8751-1817