ADVANTEST®
ADVANTEST CORPORATION

INSTRUCTION
MANUAL
TR14101
900MHz REJECTION FILTER

MANUAL NUMBER   14101 OEA 809

TR14101
900MHz REJECTION FILTER
OPERATION MANUAL

TABLE OF CONTENTS

TR14101
900MHz REJECTION FILTER
OPERATION MANUAL

1.   OUTLINE

The TR14101 900MHz rejection filter measures the spurious signals of the
communication device in the frequency band ranging from 800MHz to 900MHz.
Four spectrum analyzers can be connected to this filter; TR4172, TR4110/M
+ 4111A, 4113A, and TR4133/B. A power of +5 V is supplied from the probe
power connector of the spectrum analyzer.

2.   STANDARD

Frequency band for the : 800 to 900MHz
communication device

Bypass filter   : Cut-off frequency   : 1200MHz
characteristics   Damping characteristics: greater than 35dB at
                                                   800MHz to 900MHz
                                                   greater than 30dB at
                                                   less than 800MHz
                          Pass band   : 1,500MHz to 3,000MHz
                          Insertion loss   : less than 2dB in the
                                                   pass band

Through characteristics : Pass band   : DC -1,000MHz
                          Insertion loss   : less than 1dB in the
                                                   pass band

Characteristic impedance: Nominal 50 ohms (N-connector)

External control   : Enabled with the CONT terminal
                          The CONT terminal is set to the FILTER by the
                          TTL level signal 'LO' (or GND), and is set to
                          the THROUGH by the 'HI' (or OPEN) signal.
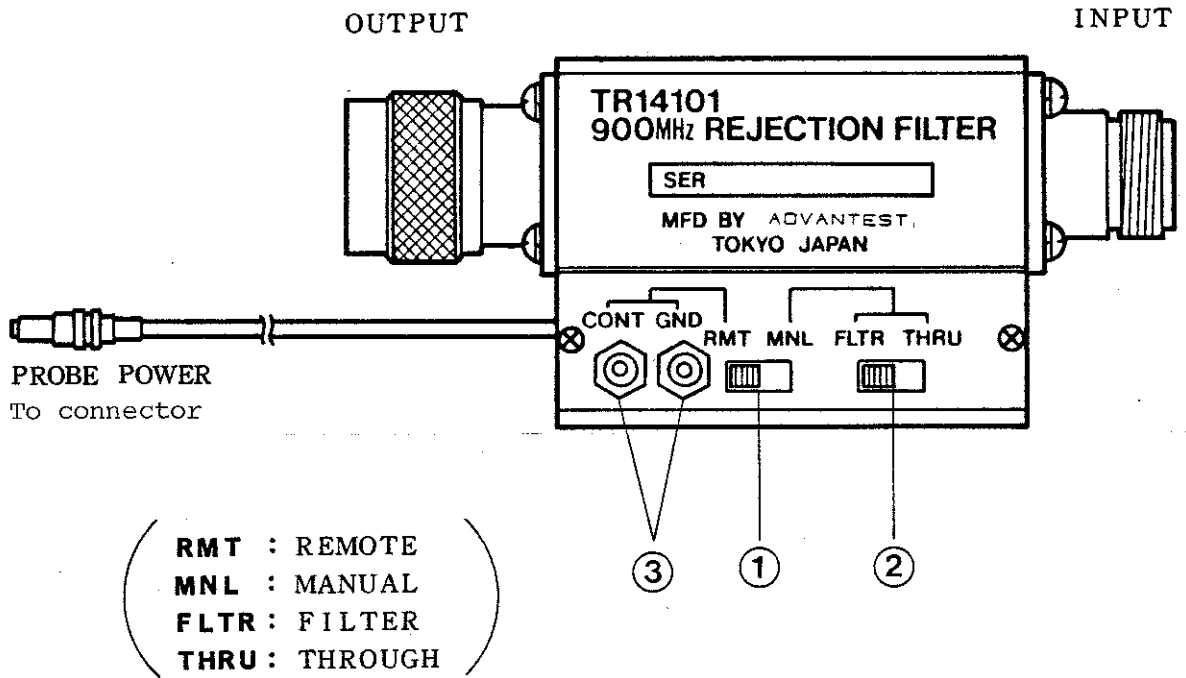
Power   : +15V (supplied by the spectrum analyzer)

Outside dimensions   : about 47 (width) x 50 (height) x 60 (length)

Weight   : about 300g

3. OPERATING METHOD

OUTPUT

INPUT

TR14101
900MHz REJECTION FILTER

SER

MFD BY ADVANTEST,
TOKYO JAPAN

CONT GND
RMT MNL   FLTR THRU

PROBE POWER
To connector

③   ①   ②

⎛ RMT : REMOTE ⎞
⎜ MNL : MANUAL ⎟
⎜ FLTR : FILTER ⎟
⎝ THRU : THROUGH ⎠

1   Remote/manual Switch

    Setting this switch to MNL turns the switch (2) to FILTER/THROUGH.
    When the switch is set to RMT, the TTL level signal is added to the
    control terminals, (3) when the switch is set to RMT. This enables
    the switch (2) to be turned to FILTER/THROUGH.

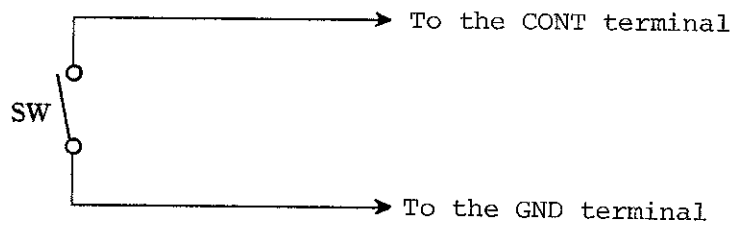2   Filter/through Switch

    This switch is used for manual operation.
    The bypass filter is inserted between the input and output when this
    switch is set to FLTR. However, the input is directly connected to
    the output when the switch is set to THRU.

3   External Control Terminal

This terminal is used to input the external control signal when the
switch (1) is being set to RMT.
The bypass filter is inserted between the input and output when the
TTL level signal 'LO' is applied to the CONT terminal.
The input is connected directly to the output when 'HI' is applied.
The bypass filter is inserted when the CONT terminal is connected to
the GND terminal through the switch below and the switch is turned
on. In this case, the input is connected directly to the output when
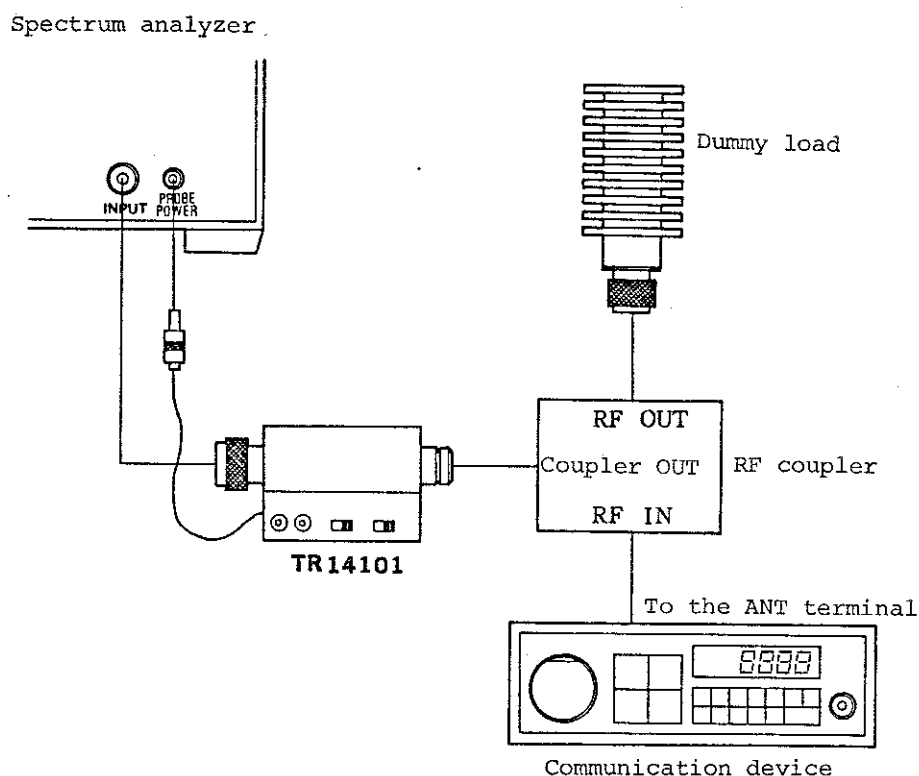the switch is off.

```
         ┌──────────────────────────────►  To the CONT terminal
         Ꝺ
  SW  \
         Ꝺ
         └──────────────────────────────►  To the GND terminal
```

4. MEASURING SPURIOUS SIGNALS

(1) Connect this filter to the spectrum analyzer, RF coupler, dummy load, and communication device as shown below. In this case, set the coupler value so that the input end level of the spectrum analyzer can be set to less than +20 dBm.

Spectrum analyzer

Dummy load

INPUT PROBE POWER

RF OUT

Coupler OUT   RF coupler

RF IN

TR14101

To the ANT terminal

Communication device

(2) Set this filter to THROUGH, and measure the signal level of the basic wave. In this case, the level is read with a(dBm).

(3) Set this filter to FILTER, and measure the spurious level. In this level, the level is read with b(dBm).

(4) The insertion loss of 1.0dB between the filter and through must be compensated for to determine both ratios in above measurements. Therefore, the ratio c(dB) can be determined by the following expression.

$$c(dB) = a(dBm) - b(dBm) - 1.0(dB)$$

IMPORTANT INFORMATION FOR ADVANTEST SOFTWARE

PLEASE READ CAREFULLY: This is an important notice for the software defined herein. Computer programs including any additions, modifications and updates thereof, operation manuals, and related materials provided by Advantest (hereafter referred to as "SOFTWARE"), included in or used with hardware produced by Advantest (hereafter referred to as "PRODUCTS").

SOFTWARE License

All rights in and to the SOFTWARE (including, but not limited to, copyright) shall be and remain vested in Advantest. Advantest hereby grants you a license to use the SOFTWARE only on or with Advantest PRODUCTS.

Restrictions

(1) You may not use the SOFTWARE for any purpose other than for the use of the PRODUCTS.
(2) You may not copy, modify, or change, all or any part of, the SOFTWARE without permission from Advantest.
(3) You may not reverse engineer, de-compile, or disassemble, all or any part of, the SOFTWARE.

Liability

Advantest shall have no liability (1) for any PRODUCT failures, which may arise out of any misuse (misuse is deemed to be use of the SOFTWARE for purposes other than it's intended use) of the SOFTWARE. (2) For any dispute between you and any third party for any reason whatsoever including, but not limited to, infringement of intellectual property rights.

LIMITED WARRANTY

1. Unless otherwise specifically agreed by Seller and Purchaser in writing, Advantest will warrant to the Purchaser that during the Warranty Period this Product (other than consumables included in the Product) will be free from defects in material and workmanship and shall conform to the specifications set forth in this Operation Manual.

2. The warranty period for the Product (the "Warranty Period") will be a period of one year commencing on the delivery date of the Product.

3. If the Product is found to be defective during the Warranty Period, Advantest will, at its option and in its sole and absolute discretion, either (a) repair the defective Product or part or component thereof or (b) replace the defective Product or part or component thereof, in either case at Advantest's sole cost and expense.

4. This limited warranty will not apply to defects or damage to the Product or any part or component thereof resulting from any of the following:

    (a) any modifications, maintenance or repairs other than modifications, maintenance or repairs (i) performed by Advantest or (ii) specifically recommended or authorized by Advantest and performed in accordance with Advantest 's instructions;

    (b) any improper or inadequate handling, carriage or storage of the Product by the Purchaser or any third party (other than Advantest or its agents);

    (c) use of the Product under operating conditions or environments different than those specified in the Operation Manual or recommended by Advantest, including, without limitation, (i) instances where the Product has been subjected to physical stress or electrical voltage exceeding the permissible range and (ii) instances where the corrosion of electrical circuits or other deterioration was accelerated by exposure to corrosive gases or dusty environments;

    (d) use of the Product in connection with software, interfaces, products or parts other than software, interfaces, products or parts supplied or recommended by Advantest;

    (e) incorporation in the Product of any parts or components (i) provided by Purchaser or (ii) provided by a third party at the request or direction of Purchaser or due to specifications or designs supplied by Purchaser (including, without limitation, any degradation in performance of such parts or components);

    (f) Advantest's incorporation or use of any specifications or designs supplied by Purchaser;

    (g) the occurrence of an event of force majeure, including, without limitation, fire, explosion, geological change, storm, flood, earthquake, tidal wave, lightning or act of war; or

    (h) any negligent act or omission of the Purchaser or any third party other than Advantest.

5. **EXCEPT TO THE EXTENT EXPRESSLY PROVIDED HEREIN, ADVANTEST HEREBY EXPRESSLY DISCLAIMS, AND THE PURCHASER HEREBY WAIVES, ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, (A) ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND (B) ANY WARRANTY OR REPRESENTATION AS TO THE VALIDITY, SCOPE, EFFECTIVENESS OR USEFULNESS OF ANY TECHNOLOGY OR ANY INVENTION.**

6. **THE REMEDY SET FORTH HEREIN SHALL BE THE SOLE AND EXCLUSIVE REMEDY OF THE PURCHASER FOR BREACH OF WARRANTY WITH RESPECT TO THE PRODUCT.**

7. **ADVANTEST WILL NOT HAVE ANY LIABILITY TO THE PURCHASER FOR ANY INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, INCLUDING, WITHOUT LIMITATION, LOSS OF ANTICIPATED PROFITS OR REVENUES, IN ANY AND ALL CIRCUMSTANCES, EVEN IF ADVANTEST HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES AND WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE), STRICT LIABILITY, INDEMNITY, CONTRIBUTION OR OTHERWISE. TORT (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE), STRICT LIABILITY, INDEMNITY, CONTRIBUTION OR OTHERWISE.**

8. **OTHER THAN THE REMEDY FOR THE BREACH OF WARRANTY SET FORTH HEREIN, ADVANTEST SHALL NOT BE LIABLE FOR, AND HEREBY DISCLAIMS TO THE FULLEST EXTENT PERMITTED BY LAW ANY LIABILITY FOR, DAMAGES FOR PRODUCT FAILURE OR DEFECT, WHETHER ARISING OUT OF BREACH OF CONTRACT, TORT (INCLUDING, WITHOUT LIMITATION, NEGLEGENCE), STRICT LIABILITY, INDEMNITY, CONTRIBUTION OR OTHERWISE.**

CUSTOMER SERVICE DESCRIPTION

In order to maintain safe and trouble-free operation of the Product and to prevent the incurrence of unnecessary costs and expenses, Advantest recommends a regular preventive maintenance program under its maintenance agreement.

Advantest's maintenance agreement provides the Purchaser on-site and off-site maintenance, parts, maintenance machinery, regular inspections, and telephone support and will last a maximum of ten years from the date the delivery of the Product. For specific details of the services provided under the maintenance agreement, please contact the nearest Advantest office listed at the end of this Operation Manual or Advantest 's sales representatives.

Some of the components and parts of this Product have a limited operating life (such as, electrical and mechanical parts, fan motors, unit power supply, etc.). Accordingly, these components and parts will have to be replaced on a periodic basis. If the operating life of a component or part has expired and such component or part has not been replaced, there is a possibility that the Product will not perform properly. Additionally, if the operating life of a component or part has expired and continued use of such component or part damages the Product, the Product may not be repairable. Please contact the nearest Advantest office listed at the end of this Operation Manual or Advantest's sales representatives to determine the operating life of a specific component or part, as the operating life may vary depending on various factors such as operating condition and usage environment.

SALES & SUPPORT OFFICES

Advantest Korea Co., Ltd.
22BF, Kyobo KangNam Tower,
1303-22, Seocho-Dong, Seocho-Ku, Seoul #137-070, Korea
Phone: +82-2-532-7071
Fax: +82-2-532-7132

Advantest (Suzhou) Co., Ltd.
Shanghai Branch Office:
Bldg. 6D, NO.1188 Gumei Road, Shanghai, China 201102 P.R.C.
Phone: +86-21-6485-2725
Fax: +86-21-6485-2726

Shanghai Branch Office:
406/F, Ying Building, Quantum Plaza, No. 23 Zhi Chun Road,
Hai Dian District, Beijing,
China 100083
Phone: +86-10-8235-3377
Fax: +86-10-8235-6717

Advantest (Singapore) Pte. Ltd.
438A Alexandra Road, #08-03/06
Alexandra Technopark Singapore 119967
Phone: +65-6274-3100
Fax: +65-6274-4055

Advantest America, Inc.
3201 Scott Boulevard, Suite, Santa Clara, CA 95054, U.S.A
Phone: +1-408-988-7700
Fax: +1-408-987-0691

ROHDE & SCHWARZ Europe GmbH
Mühldorfstraße 15 D-81671 München, Germany
(P.O.B. 80 14 60 D-81614 München, Germany)
Phone: +49-89-4129-13711
Fax: +49-89-4129-13723

ADVANTEST.