

INSTRUCTION MANUAL

Radiation immunity checking patch antenna

MODEL 01-T1880

NOISE LABORATORY CO., LTD.

NOTICE

- The contents of this instruction manual (the “Manual”) are subject to change without prior notice.
- No part of the Manual may be reproduced or distributed, in any form or by any means, without the authorization of Noise Laboratory Co., Ltd. (the “Company”).
- The contents of the Manual have been thoroughly examined. However, if you find any problems, misprints, or missing information, please feel free to contact our sales agent who you purchased our product from.
- The Company assumes no responsibility for any loss or damage resulting from improper usage, failure to follow the Manual, or any repair or modifications of this product undertaken by a third party other than the Company or the agent authorized by the Company.
- The Company assumes no responsibility for any loss or damage resulting from remodeling or conversion solely undertaken by the user.

Please note that the Company cannot be held responsible for any consequences arising from the use of this product.

1. IMPORTANT SAFETY PRECAUTIONS

The following instructions are very important for safe handling of the 01-T1880 (hereinafter “the Unit”). They must be kept strictly to prevent users of the Unit from receiving harm or damage through using the Unit. Read them carefully before use.

- 1. A person who has a pacemaker on should not operate the Unit and also should not enter the area where it is operating.**

It may result in a fatal or serious accident.

- 2. A number of safety recommendations are listed in the later chapter "BASIC SAFETY PRECAUTIONS". Be sure to read them before test environment settings, connecting relating equipment and testing.**

Memorandum

2. APPLICATION FORM FOR INSTRUCTION MANUAL

We place an order for an instruction manual.

Model: 01-T1880

Serial No.: _____

Applicant:

Company name: _____

Address: _____

Department: _____

Person in charge: _____

Tel No.: _____

Fax No. _____

Cut off this page “APPLICATION FORM FOR INSTRUCTION MANUAL” from this volume and keep it for future use with care.

When an INSTRUCTION MANUAL is required, fill in the above Application Form and mail or fax it to the following sales department of our company.

To: NOISE LABORATORY CO., LTD.

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252-0237 Japan

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Memorandum

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4. PREFACE

We thank you for your purchase of radiation immunity checking patch antenna (01-T1880). This manual contains how to use the 01-T1880 and other important information. In order to obtain the highest performance from your 01-T1880, thoroughly understand the contents of this manual and use as ready reference for operation.

- This Instruction Manual will help operators handle and utilize radiation immunity checking patch antenna 01-T1880 in safety.
- Keep this Instruction Manual in a place where it is readily available.

§ Features

1. This item is the test artifact to pre-check the output of equipment for radiation immunity test.
2. The patch antenna outputs detected electromagnetic field RF signal. Also diode detected DC signal can be outputted.
3. Electric field up to 200 V/m can be monitored by connecting attenuator in accessory.

5. BASIC SAFETY PRECAUTIONS

1. Safety Warning Signs and Their Meanings



Indicates **Warning**.

Failure to follow this safety information can lead to a **potentially hazardous situation** resulting in **death** or **serious injury**.



Indicates **Caution**.

Failure to follow this safety information can lead to a **potentially hazardous situation** resulting in a **minor injury** or **moderate damage**.

2. Basic Safety Precautions



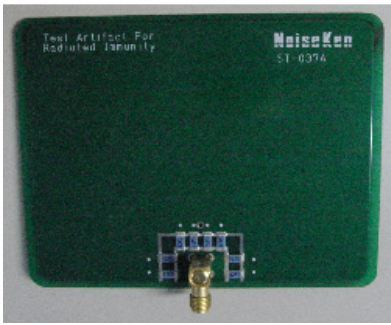
1. Do not allow people with pacemakers or other electronic medical devices to operate this unit and to enter the testing area while this unit is operating. Failure to observe this can result in malfunctions in the electronic medical device and endanger personal safety. (Precaution regarding personal safety and operation)
2. Noise Laboratory and our affiliated dealers are not liable for any injuries or equipment damage due to improper operation of this unit or for any resulting incidental damages. (Precaution regarding personal safety, operation, environment, and connection)



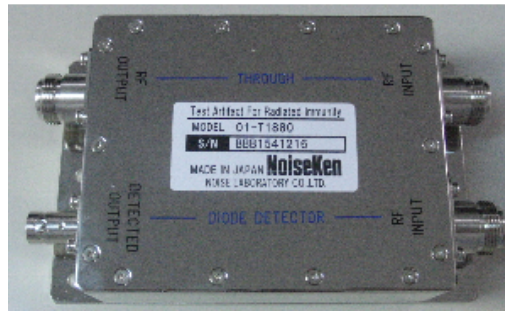
3. In the measurement environment, strong electromagnetic field will be generated, so do not touch the Unit. (Precaution regarding personal safety, operation, and environment)
4. Do not wipe the unit with thinner, or other solvents. If the unit is dirty, wipe with a cloth dipped in neutral detergent after it is fully wrung out. Wiping with a solvent can damage the unit surface. (Precaution regarding manipulation)
5. Do not give strong impact to the Unit. (Precaution regarding manipulation)
6. Please use the unit within the range of humidity 25% to 75%. In the event that condensation forms, be sure that the unit is fully dried before starting operation. Avoid using the unit in locations with high humidity or exposed to large amounts of dust. (Precaution regarding environment)

7. Do not use or store in environments with extremely hot or cold temperatures. If you cannot maintain a suitable operating environment (temperature: 15°C to 35°C, humidity: 25% to 75%) (Precaution regarding environment)
8. Any required repairs, maintenance, and internal adjustment for this unit must be performed only by service engineers authorized by Noise Laboratory.

6. MAIN UNIT AND ACCESSORIES



A



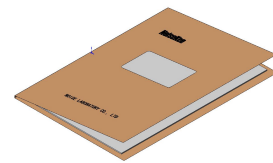
B



C



D,E



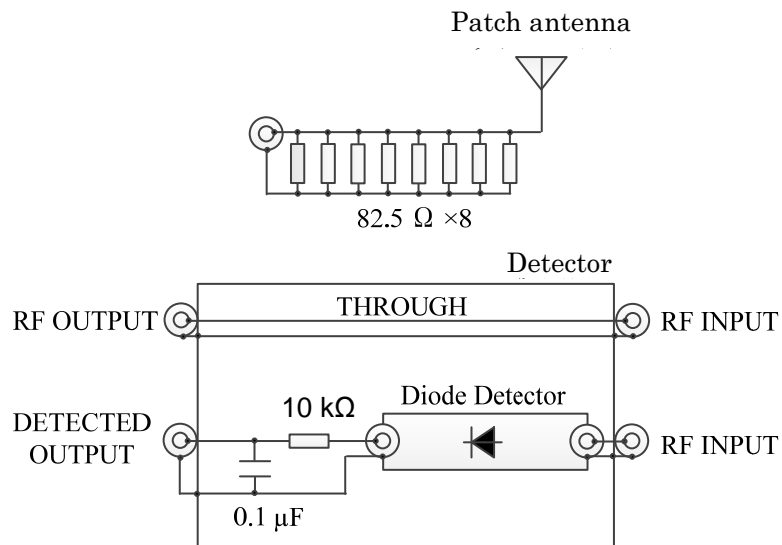
F

| Mark | Item | Quantity |
|------|------------------------------------|----------|
| A | Patch antenna | 1 |
| B | Detector | 1 |
| C | Coaxial cable SMA-N (L type) 2 m | 1 |
| D | Attenuator 3dB (N type connector) | 1 |
| E | Attenuator 20dB (N type connector) | 1 |
| F | Instruction manual | 1 |

7. SPECIFICATION

| Item | Specification / characteristics | Remark |
|---------------|--|--------|
| Patch antenna | Dimension 104 mm×80 mm Pattern dimension 100 mm×76 mm Termination resistor 10.3 Ω Output connector SMA | |
| Detector | Through part : Input N type connector Output N type connector Diode detector part : Input N type connector Output BNC connector (detecting output) Built-in Diode detector frequency characteristic 10 MHz~33 GHz Dimension 130 mm×80 mm×33 mm | |

Diagram

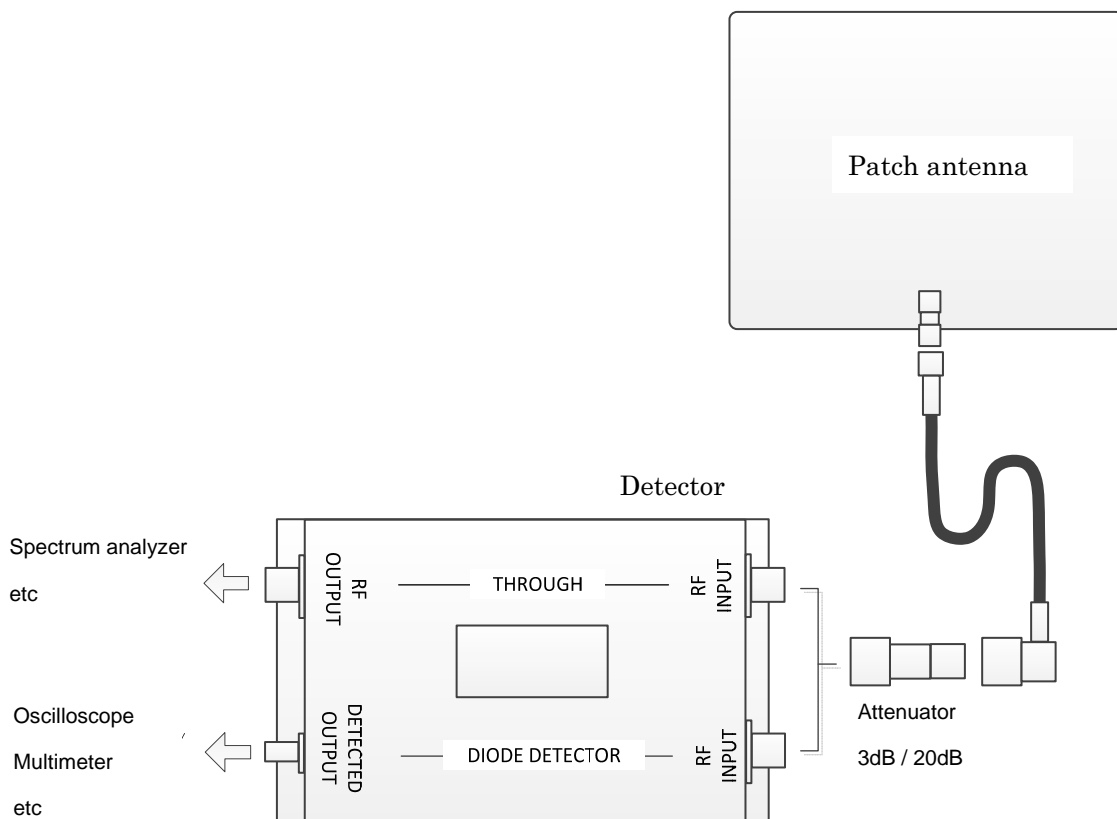


8. HOW TO CONNECT EQUIPMENT • OPERATION

Connect the patch antenna and detector by coaxial cable in accessory. Insert the attenuator according to measurement electric field strength. Insert 3dB attenuator when electric field strength up to 25 V/m. Insert 20dB attenuator when electric field strength up to 200 V/m.

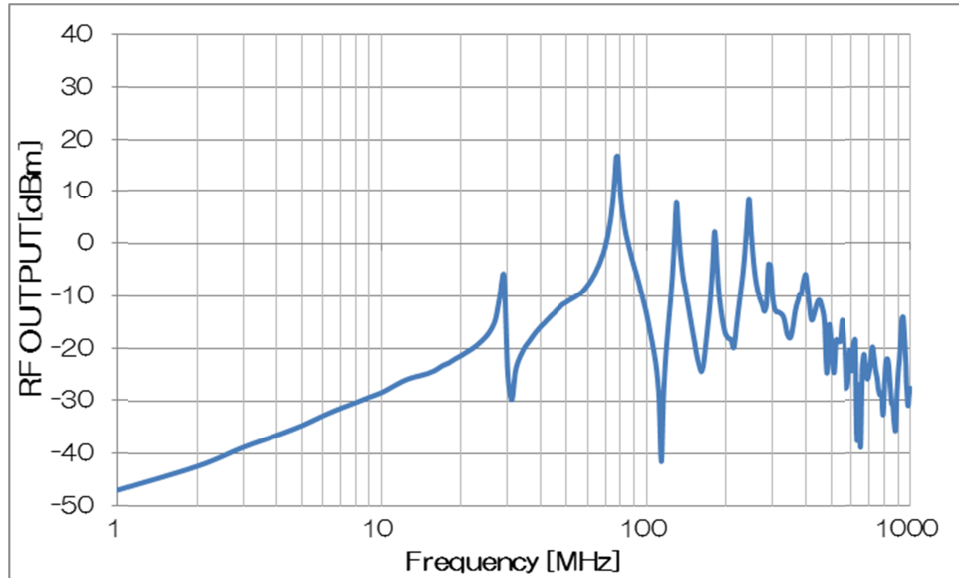
Select 'THROUGH' or 'DIODE DETECTOR' according to measurement purpose.

'THROUGH' is to output the high frequency signal (RF) received by patch antenna without any change, so it is observed by spectrum analyser, power meter, etc. 'DIODE DETECTOR' detects the RF signal internally, so it is output by direct current level signal according to electric field strength.

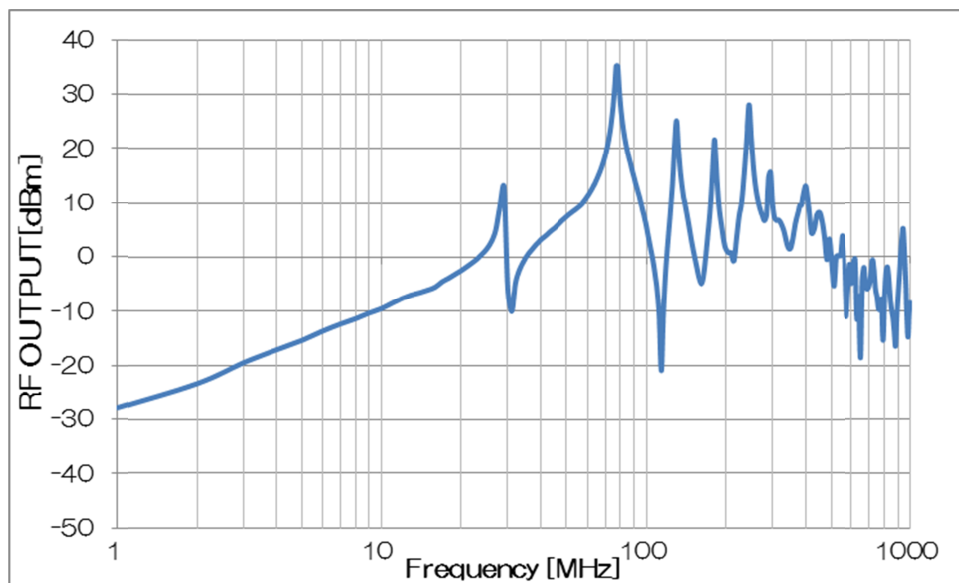


9. MEASUREMENT DATA

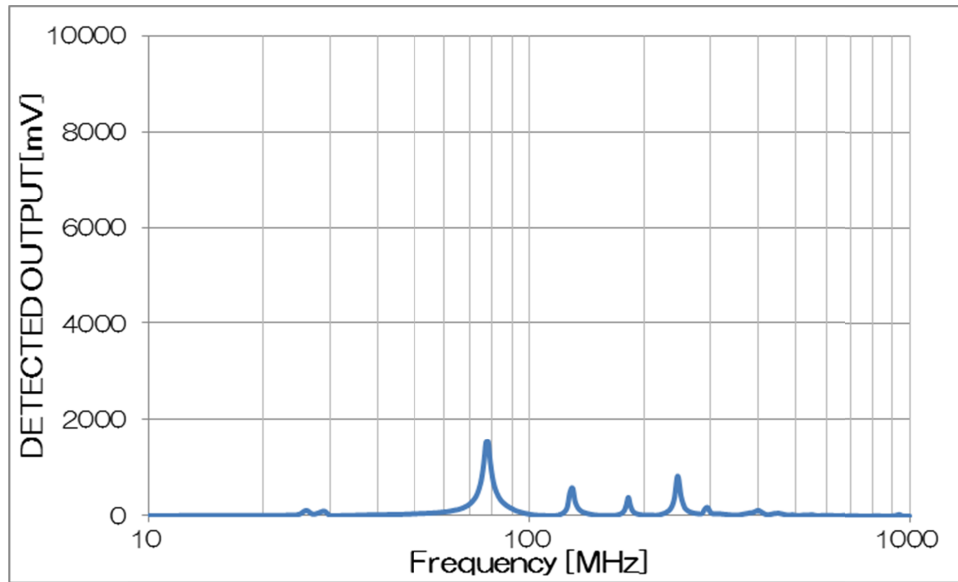
Set the patch antenna into G-TEM Cell. Generate the electric field (25 V/m and 200 V/m) from 1 MHz (10 MHz) to 1 GHz. These are monitored measurement example of each OUTPUT connector of detector. And the output value is the data revising 3dB attenuator and 20dB attenuator.



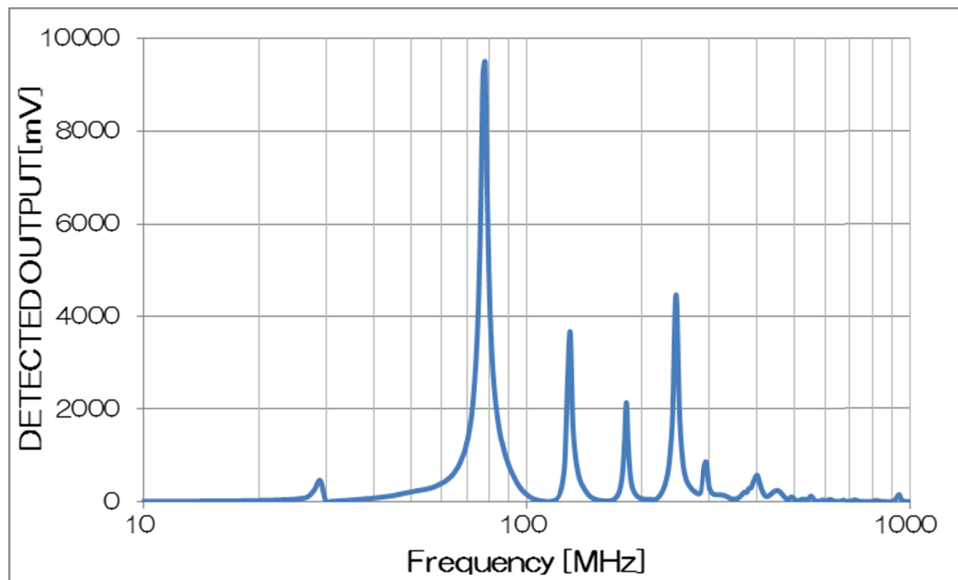
RF OUTPUT CONNECTOR (1MHz~1GHz 25V/m)



RF OUTPUT CONNECTOR (1MHz~1GHz 200V/m)



DETECTED OUTPUT CONNECTOR※ (10MHz~1GHz 25V/m)



DETECTED OUTPUT CONNECTOR※ (10MHz~1GHz 200V/m)

※Detected signal output is MINUS polarity.

10. WARRANTY

Servicing terms

The following terms are applicable to servicing by Noise Laboratory Co., Ltd., (hereafter referred to as the Company) provided to maintain the intended performance of its products.

1. Scope

The following terms shall apply only to products made by the Company.

2. Technical servicing fee

In the event of a failure of a product within the warranty period (see warranty section), the Company will repair a product without charge. After the warranty expires, repairs will be billed at a nominal cost.

3. Ownership of defective parts

Any defective part exchanged under the Company's servicing belongs to it.

4. Limited liability

In the event that damages resulting from servicing by the Company are intentional or caused by negligence, the Company will pay the cost but at the purchase value of the relevant product maximum. But, notwithstanding the foregoing, the Company shall not be responsible for any incidental or consequential damages of any nature, including without limitation thereof loss of would-be profit or compensation demanded from a third party

5. Refusal to offer servicing

The company may not accept a repair order in the following cases:

- More than 5 years have passed since the product discontinued
- More than 8 years have passed after delivery
- Required component for servicing already discontinued and no alternative is available.
- Product changed, repaired or remodeled without obtaining a prior permission from the Company.
- Product severely damaged to the extent it has lost its original form

Limited warranty

Noise Laboratory Co., Ltd. (hereafter referred to as the Company) warrants its products to be free from defects in materials and workmanship under normal use and service for a period of one year from date of delivery. In the event of failure of a product covered by this warranty, the Company will repair the product or may, at its option, replace it in lieu of repair without charge.

Notwithstanding the foregoing, the Company shall not be responsible for any incidental or consequential damages of any nature, including without limitation thereof loss of would-be profit or compensation demanded from a third party. This warranty is valid only in Japan.

1. Scope

This warranty shall only apply to products made by the Company.

2. Period

One year from date of delivery. The warranty may be valid in 6 months after servicing if the same failure on the same component has repeated.

3. Exclusions

The followings are exclusions from this warranty:

- Consumable parts (including HV relay)
- Failure caused by misuse, neglect, accident or abnormal conditions of operation
- Failure caused by remodeling on the user side without prior permission from the Company
- Failure caused by servicing by unauthorized personnel by the Company
- Failure due to force majeure including but not limited to, acts of God, fire, war, riot, rebellion and others
- Failure due to shock or drop in or after transit
- Failure due to operation in environment being out of ambient specifications.
- A unit shipped to overseas.

11. MAINTENANCE

1. When repair, maintenance or internal adjustment of the unit is required, a qualified service engineer takes charge of such work.
2. Maintenance on the user side is restricted to the outside cleaning and functional check of the unit.
3. When checking or replacing the fuse, turn off the switch of the unit and disconnect the plug socket beforehand.
4. When cleaning the unit, turn off the switch of this unit and the connected equipment and disconnect the plug socket beforehand.
5. Avoid using chemicals for cleaning. Otherwise, the coating of the unit may peel off or the sight glass may be broken.
6. Do not open the cover of this unit.

12. NOISE LABORATORY SUPPORT NETWORK

- If a symptom which seems a trouble is found, inform the model name and serial number of the product together with the symptom to Noise Laboratory or your nearest sales agent of Noise Laboratory.
- When the product is returned to Noise Laboratory, write the state of the trouble, contents of your request, model name and serial number in a repair order, and pack the product and repair order sheet in the former package of equivalent suitable for transit and send them back.

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