TESCOM

Simple Inspection for Faulty TC-3000C

Application Note

v1.0

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1. Simple Inspection for Faulty TC-3000C

The performance test of TC-3000C is based on the performance test method of the instrument through the user's equipment diagnosis specified in the user manual.

The method presented in this document is an inspection method that can determine the status using the relative measurement values when two TC-3000C are prepared and the test environment configuration described in the manual will be difficult. (Signal Generator, Spectrum Analyzer, Power Meter, etc.)

> **⚠CAUTION**
>
> First, set the equipment as a reference that is considered to be in good condition and set the other TC-3000C as the DUT. In this case, be careful with the reference setting that can cause errors in determining the faulty unit.

1.1 Test Configuration

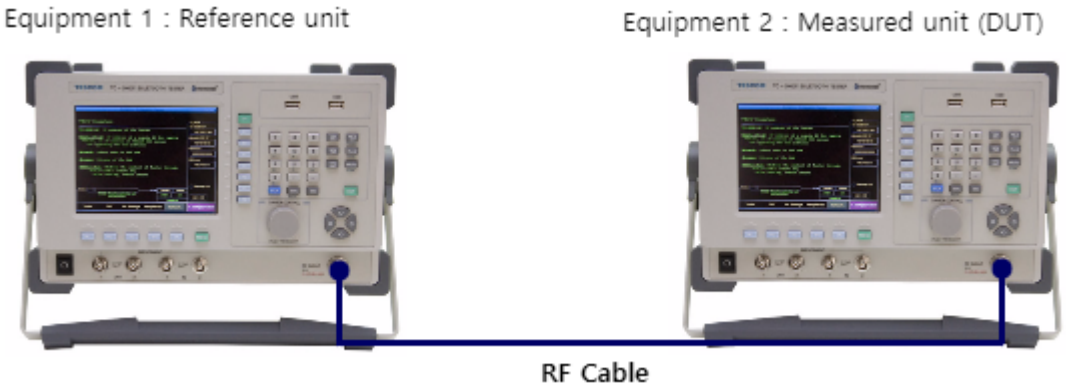

Figure 1-1 Environment Setting

1.2 Test Equipment and Accessories

No.	Items	Quantity
1	TC-3000C	more than 2
2	SS-402, N(m) to N(m) cable, 2 m	1

1.3 Test Conditions

① Instrument Initialization

Before testing, initialize the parameters by PRESET (FCN + INCR SET) for the Reference and the DUT respectively. (See A.1 How to initialize the instrument)

② Use recommended firmware

Use Firmware Version of v3.60 or later in System Information. (See A.2 How to check Firmware version)

1.4 Measurement Procedure

1.4.1 Receiver Performance Test

Use reference equipment as a transmitter to test if the DUT receives correctly.

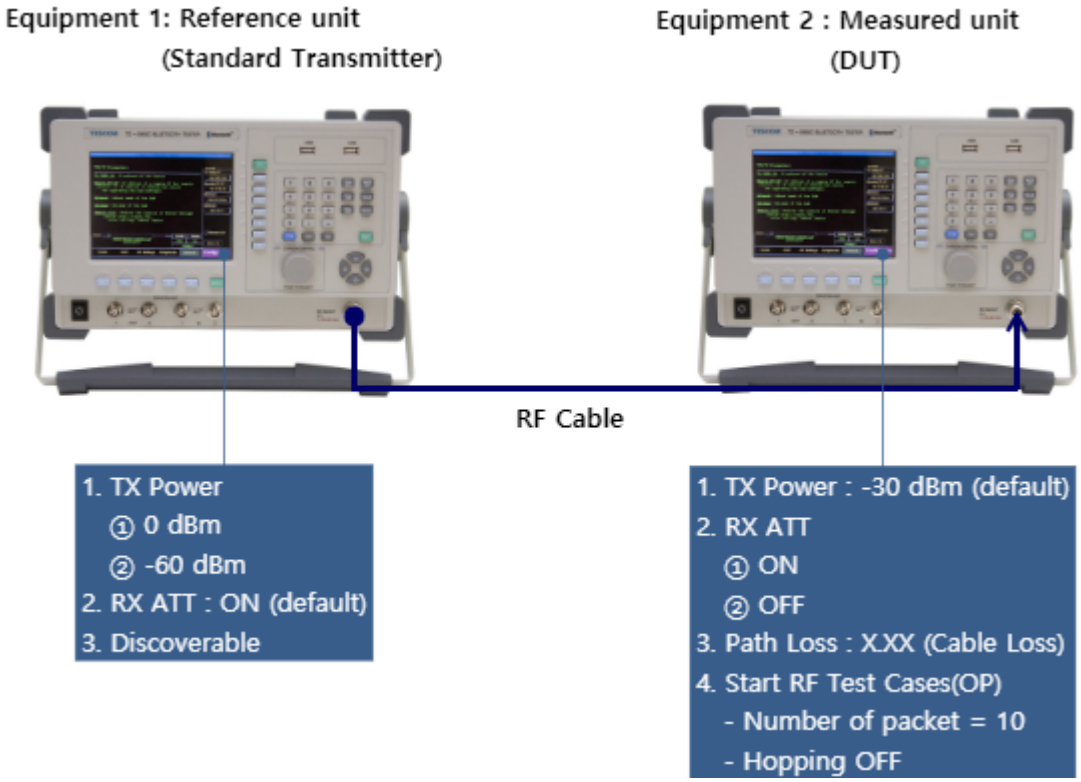

Figure 1-2 Setup for receiver performance test

1.4.1.1 Test Procedure

1. Initialize the reference and DUT units.
2. Set TX Power of the reference system to 0 dBm.
   - **Menu** → "Configuration" → **M3** (RF Settings) → **F2** (TX Power) → 0 dBm
3. Press Discoverable button in Reference.
   - **Menu** → *Link Analyzer* → `Discoverable` (F6)

④ In the DUT unit, set the cable loss value of 2.4 GHz indicated on the label of the connected RF cable as the compensation value. (See A.3 How to enter Path Loss)

- Cable loss is entered in **Menu** → "Configuration" → **M2** (DUT) → **F7** (Path Loss).

⑤ In DUT, check Output Power in **Menu** → **Test Cases** and set Number of Packet to 10 and Hopping to OFF. (See A.4 How to set Output Power Parameter)

⑥ In DUT, press **Start** button to calculate Pavg values for each channel.

⑦ Set Reference's TX Power to -60 dBm.

⑧ Set DUT's RX ATT to OFF.

- **Menu** → "Configuration" → **M3** (RF Settings) → **F3** RX ATT → OFF

⑨ In DUT, press **Start** button to calculate Pavg values for each channel.

1.4.1.2 Judgment

Take the average of the Pavg for each channel obtained in the above test and check that each DUT is within +/- 1.5dB of the average value. If it escapes, it may be suspicious of badness.

Reference's TX Power	Result (DUT's Pavg measurement)	Criteria
0 dBm		0 dBm ± 1.5 dB
-60 dBm		-60 dBm ± 1.5 dB

⚠CAUTION

Decide DUT's RX ATT according to the TX Power of Reference.

* Set the RX ATT of DUT to ON, in case TX power of reference is 0 dBm,
* Set the RX ATT of DUT is set to OFF, in case TX power of reference is -60 dBm

1.4.2 Transmission Performance Test

The reference unit becomes the receiver and test if DUT's transmission is normal.The test need to be repeated by placing the reference and DUT in reversed position during the reception performance test of the instrument

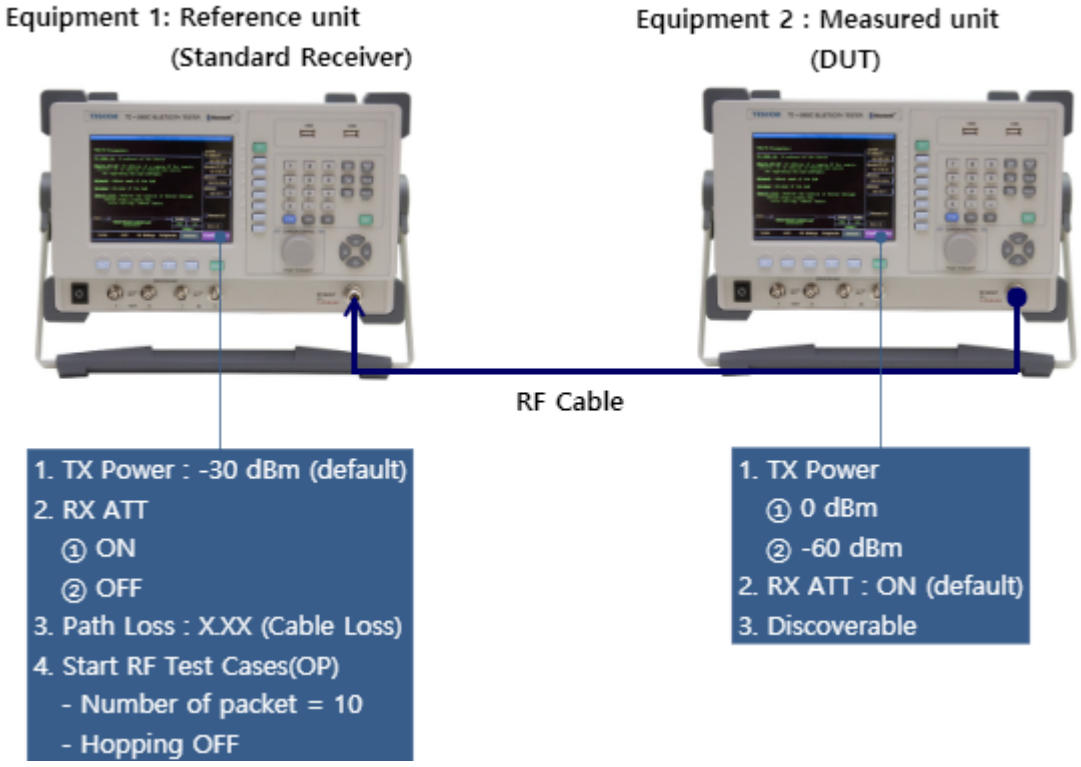

Figure 1-3 Setup for transmission performance test

1.4.2.1 Test Procedure

① Initialize the reference and DUT units.

② In the reference unit, set the cable loss value of 2.4 GHz indicated on the label of the connected RF cable as the compensation value. (See A.3 How to enter Path Loss)

- Enter cable loss in **Menu** → "Configuration" → **M2** (DUT) → **F7** (Path Loss).

③ Check Output Power in the **Menu** → **Test Cases** in Reference equipment, Set Number of Packet to 10 and Hopping to OFF. (See A.4 How to set Output Power Parameter)

4. Set DUT's TX Power to 0 dBm.
   - Menu → "" → M3 (RF Settings) → F2 (TX Power) → 0 dBm
5. Press Discoverable button in DUT.
   - Menu → Link Analyzer → Discoverable (F6)
6. In Reference, press Start button to calculate Pavg values for each Channel.
7. Set DUT's TX Power to -60 dBm.
8. Set Reference's RX ATT to OFF.
   - Menu → "Configuration" → M3 (RF Settings) → F3 RX ATT → OFF
9. In Reference, press Start button to calculate Pavg values for each Channel.

1.4.2.2 Judgment

Take the average of the Pavg for each channel obtained in the above test and check that each DUT is within +/- 1.5dB of the average value. If it escapes, it may be suspicious of badness.

DUT's TX Power	Result (Reference's Pavg measurement)	Criteria
0 dBm		0 dBm ± 1.5 dB
-60 dBm		-60 dBm ± 1.5 dB

Appendix A.

Appendix

A.1 How to initialize the instrument

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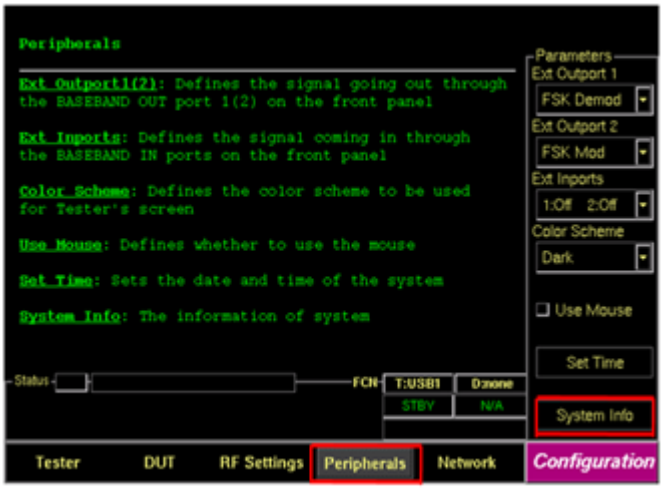
(FCN) + 

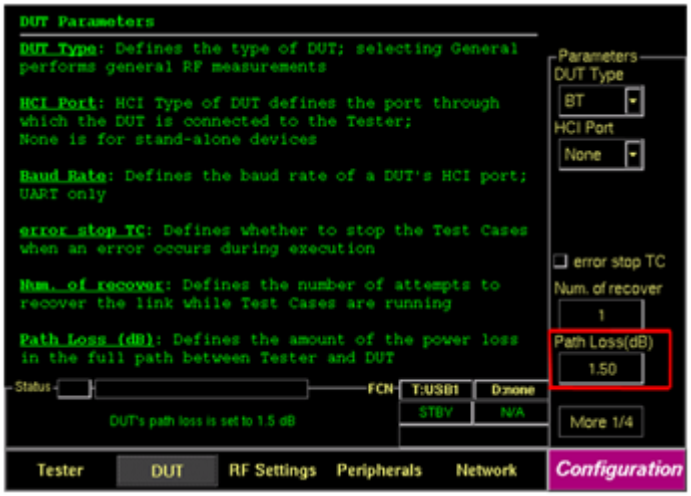
(INCR SET) = PRESET , all settings are initialized.

A.2 How to check Firmware version



- **Menu** → “” → M4 (Peripherals) → F8 (System Info)

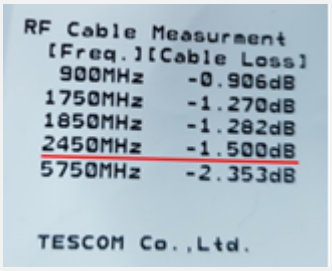
A.3 How to enter Path Loss



- Enter in **Menu** → “Configuration” → **M2** (DUT) → **F7** (Path Loss).

NOTICE

Enter the Cable Loss value at 2450 MHz of SS-402 N (m) to N (m) 2m cable provided at the factory.



A.4 How to set Output Power Parameter

- Set Number of packets to 10 and Hopping Mode to OFF in basic settings and press Start button.