# RF Test Report

## For

| | |
|---|---|
| **Applicant name:** | **RATOC Systems, Inc.** |
| Address: | 8th floor Osaka Metro Minami-Horie Bldg.1-18-4, Minami-horie, Nishi-ku, Osaka, Japan 550-0015 |
| EUT name: | Wireless Display Splitter Adapter |
| Brand name: | N/A |
| Model number: | HB908 |
| Series model number: | Refer to section 2 |

## Issued By

| | |
|---|---|
| **Company name:** | **BTF Testing Lab (Shenzhen) Co., Ltd.** |
| Address: | Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China |
| Report number: | BTF260325R01301 |
| Test standards: | Article 2-1, Item 19-3 |
| Test conclusion: | Pass |
| Date of sample receipt: | 2026-03-25 |
| Test date: | 2026-03-26 to 2026-05-20 |
| Date of issue: | 2026-06-17 |

Prepared by: Chris Liu / Project engineer

Approved by: Ryan.CJ / EMC Manager

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| Revision History | | |
|---|---|---|
| Version | Issue Date | Revisions Content |
| R_V0 | 2026-06-17 | Original |
| | | |

*Note:*
*Once the revision has been made, then previous versions reports are invalid.*

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# 1 Introduction

## 1.1 Laboratory Location

| | |
|---|---|
| Test location: | BTF Testing Lab (Shenzhen) Co., Ltd. |
| Address: | Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China |
| Phone number: | +86-0755-23146130 |
| Fax number: | +86-0755-23146130 |

## 1.2 Identification of the Responsible Testing Location

| | |
|---|---|
| Test Location: | BTF Testing Lab (Shenzhen) Co., Ltd. |
| Address: | Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China |
| Description: | All measurement facilities used to collect the measurement data are located at F101,201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China |

## 1.3 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1409**
  BTF Testing Lab (Shenzhen) Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 695374.
- **CNAS - Registration No.: CNAS L17568**
  BTF Testing Lab (Shenzhen) Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L17568.
- **A2LA - Registration No.: 6660.01**
  BTF Testing Lab (Shenzhen) Co., Ltd. is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.
- **ISED – CAB identifier.: CN0135**
  The 3m Semi-anechoic chamber of BTF Testing Lab (Shenzhen) Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 27844.
- **VCCI - Registration No.: C-20122, G-20157, R-20166**
  EMC LAB: Certificated by VCCI, Japan
  Registration No.: C-20122, G-20157, R-20166
  Date of Registration: June 20, 2025
  This Certificate is valid until June 19, 2028

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## 1.4 Announcement

(1) The test report reference to the report template version v0.
(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
(3) The test report is invalid if there is any evidence and/or falsification.
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(7) All entrusted information in this report is provided by the client and has been confirmed through consultation with the client; The testing items for this report have been discussed and confirmed with the client, and our company is only responsible for the content reflected in the report.

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# 2 Product Information

## 2.1 Application Information

| | |
|---|---|
| Company name: | RATOC Systems, Inc. |
| Address: | 8th floor Osaka Metro Minami-Horie Bldg.1-18-4, Minami-horie, Nishi-ku, Osaka, Japan 550-0015 |

## 2.2 Manufacturer Information

| | |
|---|---|
| Company name: | RATOC Systems, Inc. |
| Address: | 8th floor Osaka Metro Minami-Horie Bldg.1-18-4, Minami-horie, Nishi-ku, Osaka, Japan 550-0015 |

## 2.3 Factory Information

| | |
|---|---|
| Company name: | Dongguan World Pass Industrial Co., LTD |
| Address: | 29, Lianhuan Road, Dalingshan Town, Dongguan City, Guangdong Province |

## 2.4 General Description of Equipment under Test (EUT)

| | |
|---|---|
| EUT name: | Wireless Display Splitter Adapter |
| Under test model name: | HB908 |
| Series model name: | RS-WLSP2-TX |
| Description of model name differentiation: | Only the model name is different, everything else is the same |
| Ratings: | Input: 5V⎓ 1A |

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## 2.5 Technical Information

| | |
|---|---|
| Operation Frequency: | **W52:**<br>802.11a/n(HT20): 5180MHz to 5240MHz; |
| Channel numbers: | **W52:**<br>802.11a/n(HT20): 4; |
| Channel separation: | 802.11a/n(HT20): 20MHz; |
| Modulation technology: | 802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM);<br>802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) |
| The Max RF conducted output power (mW/MHz) | 1.755mW/MHz |
| Antenna type: | Internal Antenna |
| Antenna gain: | 2.22dBi |

**Channel List:**

U-NII Band 1

| Bandwidth: | 20MHz | Bandwidth: | 40MHz | Bandwidth: | 80MHz |
|---|---|---|---|---|---|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 36 | 5180 | / | / | / | / |
| 40 | 5200 | / | / | / | / |
| 44 | 5220 | / | / | / | / |
| 48 | 5240 | / | / | / | / |

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# 3 Summary of Test Results

## 3.1 Test Standards

The tests were performed according to following standards:
**Article 2-1, Item 19-3 :** 5G WIFI

## 3.2 Uncertainty of Test

| Measurement | Value |
|---|---|
| Radio Frequency | ±1.2 *$10^{-9}$ |
| Occupied Channel Bandwidth | ±173.1Hz |
| RF output power, conducted | ±0.66 dB |
| Unwanted Emissions, conducted | ±2.32 dB |
| RF output power, conducted | ±0.66 dB |
| Time | ±5 % |
| The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. | |

## 3.3 Summary of Test Result

| Item | Standard | Requirement | Result |
|---|---|---|---|
| Tolerance of Frequency | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Occupied Bandwidth (99%) | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Antenna Power and Tolerance | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| E.I.R.P | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Out of Band Emission | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Adjacent Channel Emitted Power | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Spurious Emission Intensity | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Secondary Radiated Emissions | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Carrier Sensing 1 | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Interference Prevention Function | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| Transmission Burst Length | Article 2-1, Item 19-3<br>MIC Notice No.88Appendix No.45 | Article 2-1, Item 19-3 | Pass |
| ***Remark:***<br>*1. Pass: Meet the requirements.* | | | |

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2. *N/A: not applicable.*

## 3.4 Additions to, deviations, or exclusions from the method

None


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# 4 Test Configuration

## 4.1 Test Equipment List

| Occupied Bandwidth (99%)<br>Antenna Power and Tolerance<br>Out of Band Emission<br>Adjacent Channel Emitted Power<br>Spurious Emission Intensity<br>Carrier Sensing 1<br>Tolerance of Frequency<br>E.I.R.P<br>Secondary Radiated Emissions<br>Interference Prevention Function<br>Transmission Burst Length | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Test Equipment | Manufacturer | Model | Serial No. | Cal. Date | Cal. Due | Cal. By | Remark | Use |
| Test Software | TST Pass | / | Version: 2.0 | / | / | | | |
| Cell Site Test Set | HP | 8921A | US35010158 | 2025-10-17 | 2026-10-16 | Guangzhou LiSai Metrology &Test Co., Ltd. | 3 | ☒ |
| Spectrum Analyzer | Keysight | N9020A | MY50410020 | 2025-10-17 | 2026-10-16 | Guangzhou LiSai Metrology &Test Co., Ltd. | 3 | ☒ |
| ESG Vector Signal Generator | Agilent | E4438C | MY45094854 | 2025-10-17 | 2026-10-16 | Guangzhou LiSai Metrology &Test Co., Ltd. | 3 | ☒ |
| MXG Vector Signal Generator | Agilent | N5182A | MY46240163 | 2025-10-17 | 2026-10-16 | Guangzhou LiSai Metrology &Test Co., Ltd. | 3 | ☒ |
| Wideband Radio Communication Tester | Rohde&Schwarz | CMW500 | 161997 | 2025-10-17 | 2026-10-16 | Guangzhou LiSai Metrology &Test Co., Ltd. | 3 | ☒ |
| Programmable Constant Temperature And Humidity Test Chamber | ZZCKONG | ZZ-K02A | 20210928007 | 2025-10-17 | 2026-10-16 | Guangzhou LiSai Metrology &Test Co., Ltd. | 3 | ☒ |
| DC Power Supply | Tongmen | etm-6050c | 20211026123 | 2025-10-17 | 2026-10-16 | Guangzhou LiSai Metrology &Test Co., Ltd. | 3 | ☒ |
| RF Control Unit | Techy | TR1029-1 | / | 2025-10-17 | 2026-10-16 | | | |
| RF Sensor Unit | Techy | TR1029-2 | / | 2025-10-17 | 2026-10-16 | | | |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| RF shielding box | Yinuoxin Electronics | 50*50*50 cm | / | 2026-05-26 | 2027-05-25 | | | |

*Remark:*

1. *Calibration conducted by the National Institute of Information and Communications Technology (NICT) in japan (hereinafter referred to as *NICT*) or a designated calibration agency under Article 102-18 paragraph (1) in JRL.*
2. *Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No.51 of 1992)*
3. *Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).*
4. *Calibration, etc. conducted by using measuning instruments and other equipment listed in the right column of appended table No. 3, which shall have been given any type of calibration, etc. listed above from (2) to (4).*
   *From JRL Article 24-2, paragraph 4, Item 2*

*All calibration information is from Guangzhou LiSai Metrology &Test Co., Ltd.*

## 4.2 Test Auxiliary Equipment

The EUT has been tested as an independent unit.

## 4.3 Environment Condition

| ENV | Temperature (°C) | Voltage (VDC) |
|---|---|---|
| NTHV | 25 | 5.5 |
| NTLV | 25 | 4.5 |
| NTNV | 25 | 5.0 |

Voltage fluctuation test：

The RF unit is supplied DC 3.3 The fluctuation of input voltage to the circuit of RF unit of test equipment is under ±1%, when input voltage DC 5.0V fluctuated ±10%, so all measurement has been conducted by only rated voltage.

| DC Input | RF_IC Input | Rate of fluctuation(%) |
|---|---|---|
| 5.0V | 3.3V | 0.0 |
| 5.5V | 3.3V | 0.0 |
| 4.5V | 3.3V | 0.0 |

## 4.4 Test Modes

| No. | Test Modes |
|---|---|
| TM1 | 802.11a mode |
| TM2 | 802.11n(HT20) mode |
| TM3 | Receiving mode (20MHz) |
| TM4 | Normal mode |

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## 4.5 Test Channel of EUT

**Operation Band: 5150~5250MHz**

| Bandwidth (MHz) | Lowest Channel (LCH) (MHz) | Middle Channel (MCH) (MHz) | Highest Channel (HCH) (MHz) |
|---|---|---|---|
| 20 | 5180 | 5200 | 5240 |

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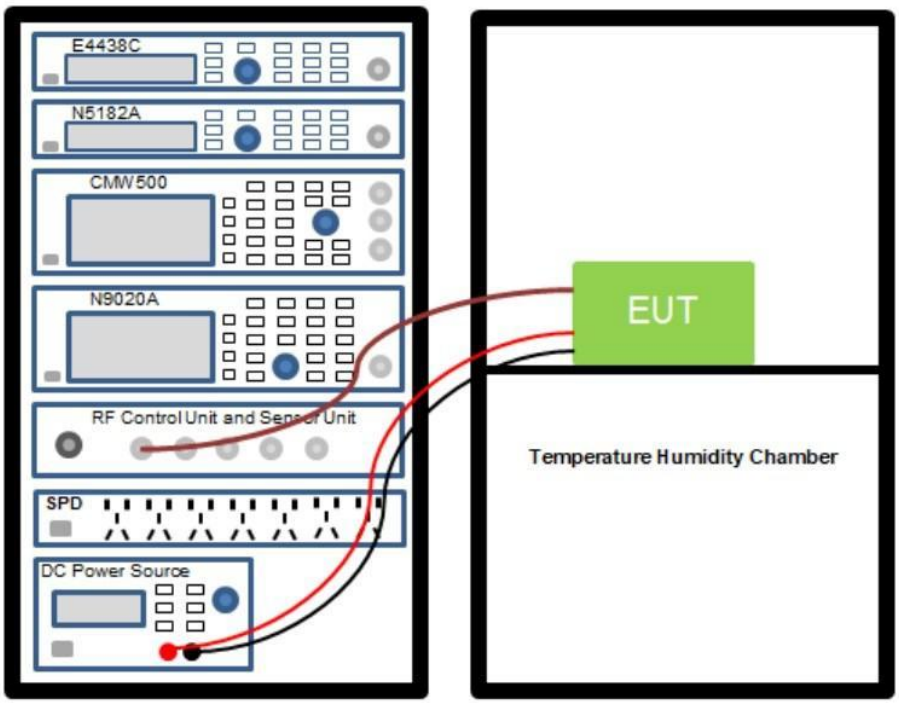
# 5 Radio Spectrum Matter Test Results (RF)

## 5.1 Tolerance of Frequency

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | Center frequency: Test frequency<br>Span: 1 MHz<br>RBW: 10 kHz<br>VBW: 10 kHz<br>Sweep data points: 1001 or greater<br>Sweep time: Auto<br>Detector mode: Positive peak<br>Indication mode: Max hold |
| Test Limit: | ± 20ppm |
| Procedure: | (1) Find the peak carrier signal and measure its frequency<br>(2) For multiple antenna systems each antenna shall be measured<br>(3) For an EUT with multiple antennas it is permissible to test a single antenna only, provided all the antenna measurement values are expected to be same for either of the following reasons:<br>a) The frequency of all antenna transmissions are phase-synchronized to a common (fundamental) oscillator<br>b) The antenna transmissions share a common clock signal |
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 22.6 °C |
| Humidity: | 45.2 % |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| | |
|---|---|
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.1.1 Test Data

Please Refer to Appendix-5G WIFI for Details.

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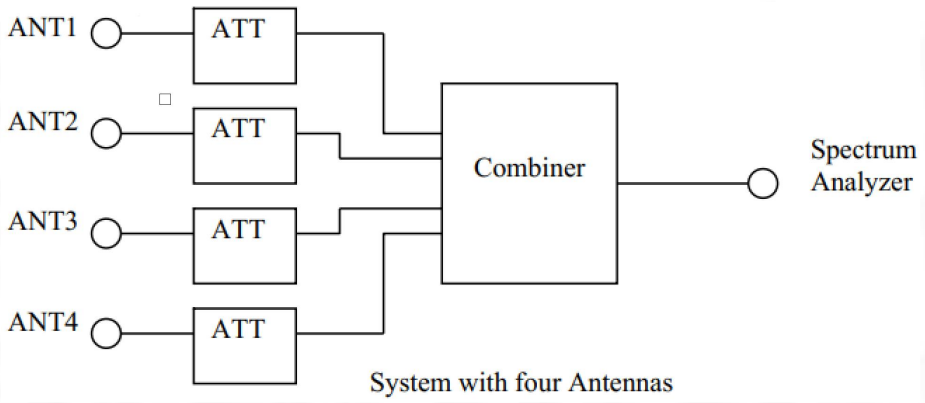
## 5.2 Occupied Bandwidth (99%)

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | [Occupied Bandwidth (99%)]<br>Center Frequency: Test frequency<br>Span: 2 – 3.5 times the technical standard<br>RBW: Within 3% of the technical standard<br>VBW: Same as RBW<br>Sweep time: Auto<br>Sweep data points: 1001 or greater<br>Detector mode: Positive peak<br>Indication mode: Max hold<br>BW setting: 99% |
| Test Limit: | DSSS: 18MHz<br>OFDM:20/40/80/160MHz |
| Procedure: | (1) Measure the signal bandwidth using a spectrum analyzer<br>(2) For multiple antenna systems:<br>a) Each antenna shall be individually measured<br>b) If the measured occupied bandwidth for any antenna exceeds [(Occupied Bandwidth Limit) – 100kHz] then, in addition, the occupied bandwidth shall be measured with all antennas combined – see diagram below:<br>  <br><br>System with four Antennas |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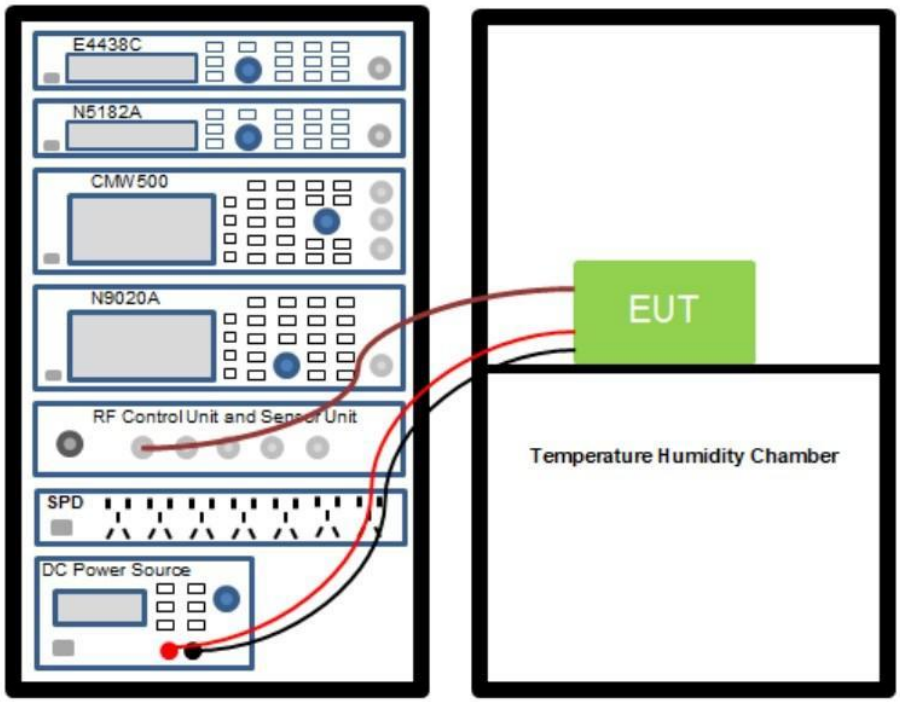
| | |
|---|---|
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 24.7 °C |
| Humidity: | 51.6 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.2.1 Test Data

Please Refer to Appendix-5G WIFI for Details.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## 5.3 Antenna Power and Tolerance

| | | |
|---|---|---|
| Test Requirement: | Article 2-1, Item 19-3 | |
| Test Method: | [Setting 1] – Search for peak power frequency | |
| | Center Frequency: | Test frequency |
| | Span: | Approximately twice the occupied bandwidth |
| | RBW: | 1MHz |
| | VBW: | Approximately three times the RBW |
| | Sweep time: | Auto |
| | Sweep data points: | 1001 or greater |
| | Detector mode: | Positive peak |
| | Indication mode: | Max hold |
| | [Setting 2] – Measurement of average antenna power for FHSS, DSSS, OFDM | |
| | Frequency: | Frequency of peak power found using [Setting 1] |
| | Span: | 0 Hz |
| | RBW: | 3 MHz (FHSS in 7.4.1.1)<br>1MHz (DSSS, OFDM, FHSS in 7.4.1.2) |
| | Detector mode: | Sample |
| | Sweep: | Minimum time required to make an accurate measurement. |
| | | For burst type (intermittent) transmission sweep time shall be greater than one burst interval |
| | Sweep data points: | 1001 or greater |
| | [Setting 3] – Measurement of average antenna power other than for FHSS, DSSS, OFDM | |
| | Frequency: | Frequency of peak power found using [Setting 1] |
| | Span: | 0 Hz |
| | RBW: | Bandwidth sufficient to cover that occupied by the carrier |
| | VBW: | Bandwidth sufficient to cover that occupied by the carrier |
| | Detector mode: | Sample |
| | Sweep: | Minimum time required to make an accurate measurement. |
| | | For burst type (intermittent) transmission sweep time shall be greater than one burst interval |
| | Sweep data points: | 1001 or greater |
| Test Limit: | 10 mW/MHz or less for DSSS and OFDM 20MHz Bandwidth;<br>5mW/MHz or less for OFDM 40MHz Bandwidth;<br>2.5mW/MHz or less for OFDM 80MHz Bandwidth;<br>1.25mW/MHz or less for OFDM 80+80MHz or 160MHz Bandwidth;<br>Antenna power tolerance: -80% ~ +20% for 5150~5250MHz and 5250~5350MHz; -50% ~ +50% for 5470~5725MHz; | |

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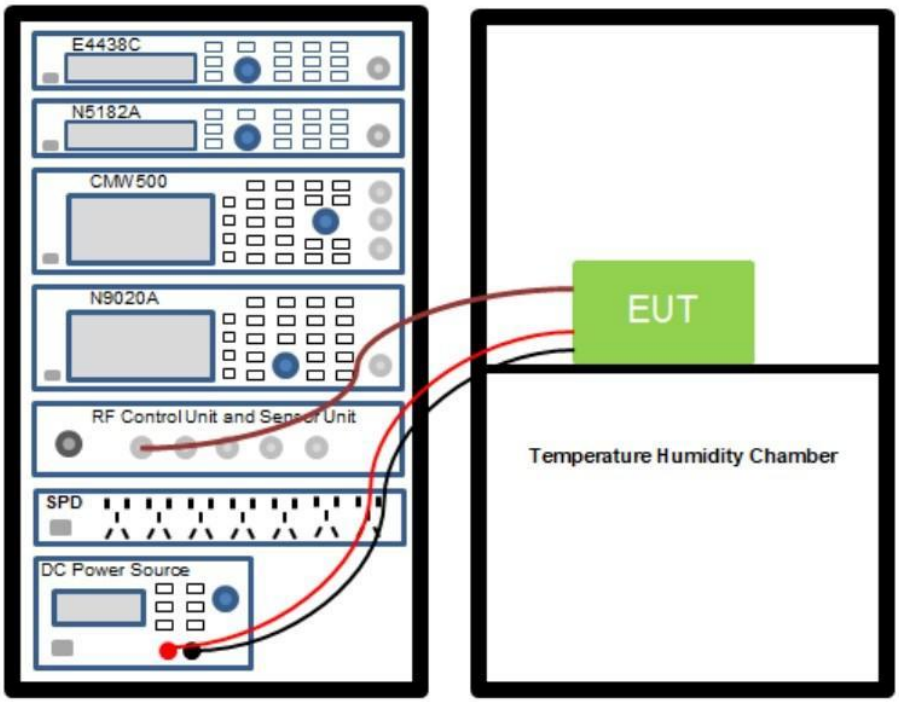
| | |
|---|---|
| Procedure: | (1) After configuring the spectrum analyzer to [Setting 1], find the frequency of maximum transmitted power<br>(2) After configuring the spectrum analyzer to [Setting 2], measure the Average Burst Power of the frequency found in (1)<br>Antenna Power (W/MHz) = Average Burst Power<br>(3) If the EUT has an 80+80MHz bandwidth system then antenna power shall be measured separately, on each channel, but with both 80MHz transmitters simultaneously enabled. |
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 24.2 °C |
| Humidity: | 51.5 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.3.1 Test Data

Please Refer to Appendix-5G WIFI for Details.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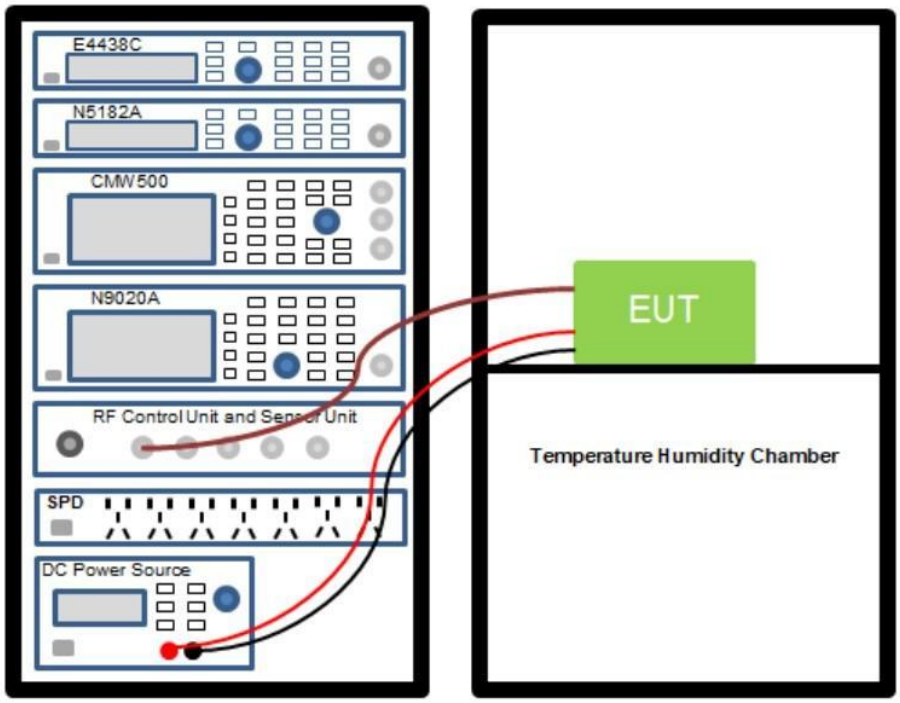
## 5.4 E.I.R.P

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | EIRP = RF conducted power +Antenna Gain |
| Test Limit: | 5150~5250MHz: 10mW/MHz for DSS and OFDM 20MHz; 5mW/MHz for OFDM 40MHz; 2.5mW/MHz for OFDM 80MHz; 1.25mW/MHz for OFDM 80+80MHz and 160MHz;<br>5250~5350MHz with TPC: 10mW/MHz for DSS and OFDM 20MHz; 5mW/MHz for OFDM 40MHz; 2.5mW/MHz for OFDM 80MHz; 1.25mW/MHz for OFDM 80+80MHz and 160MHz;<br>5250~5350MHz without TPC: 5mW/MHz for DSS and OFDM 20MHz; 2.5mW/MHz for OFDM 40MHz; 1.25mW/MHz for OFDM 80MHz; 0.625mW/MHz for OFDM 80+80MHz and 160MHz;<br>5470~5725MHz with TPC: 50mW/MHz for DSS and OFDM 20MHz; 25mW/MHz for OFDM 40MHz; 12.5mW/MHz for OFDM 80MHz; 1.25mW/MHz for OFDM 80+80MHz; 6.25mW/MHz for and 160MHz;<br><br>5250~5350MHz without TPC: 25mW/MHz for DSS and OFDM 20MHz; 12.5mW/MHz for OFDM 40MHz; 6.25mW/MHz for OFDM 80MHz; 0.625mW/MHz for OFDM 80+80MHz; 3.125mW/MHz for and 160MHz; |
| Procedure: | / |
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 23.4 °C |
| Humidity: | 52 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.4.1 Test Data

Please Refer to Appendix-5G WIFI for Details.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## 5.5 Out of Band Emission

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | |

| | |
|---|---|
| [Setting 1] | |
| Frequency range: | Test frequency rage as required |
| RBW: | 1 MHz |
| VBW: | 1 MHz |
| Sweep time: | Minimum time required to make an accurate measurement |
| Sweep Data Points: | 1001 or greater |
| Detector mode: | Positive peak |
| Indication mode: | Max hold (see Note 1) |
| Note 1: | Sweep shall be repeated until the max hold waveform is stable. |
| | |
| [Setting 2] | |
| Center frequency: | Frequency of spurious emission found using [Setting 1] |
| Span: | 0 Hz |
| RBW: | 1 MHz |
| VBW: | 1 MHz |
| Sweep time: | Minimum time required to make an accurate measurement.<br>For burst type (intermittent) spurious emissions, sweep time shall be greater than one burst interval |
| Sweep Data Points: | 1001 or greater |
| Detector mode: | Sample |

Test Limit:

| W52 | | | |
|---|---|---|---|
| 20MHz system | | 40MHz system | 80MHz system |
| OBW : 18MHz or less | OBW : 18 - 20 MHz | | |
| 5,142 MHz or less : 2.5 μW/MHz | 5,142 MHz or less : 2.5 μW/MHz | 5,141.6 MHz or less : 2.5 μW/MHz | 5,123.2 MHz or less : 2.5 μW/MHz |
| 5,142 - 5,150 MHz : 15 μW/MHz | 5,142 - 5,150 MHz : 15 μW/MHz | 5,141.6 - 5,150 MHz : 15 μW/MHz | 5,123.2 - 5,150 MHz : 15 μW/MHz |
| | 5,250 - 5,250.2 MHz : $10^{1-(8/3)(f-9.75)}$mW/MHz | | |
| 5,250 - 5,251 MHz : $10^{1-(f-9)}$mW/MHz | 5,250.2 - 5,251 MHz : $10^{1-(f-9)}$mW/MHz | 5,250 - 5,251 MHz : $10^{-(f-20)+\log(1/2)}$mW/MHz | 5,250 - 5,251 MHz : $10^{-(f-40)+\log(1/4)}$mW/MHz |
| 5,251 - 5,260 MHz : $10^{1-(8/90)(f-11)}$mW/MHz | 5,251 - 5,260 MHz : $10^{1-(8/90)(f-11)}$mW/MHz | 5,251 - 5,270 MHz : $10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz | 5,251 - 5,290 MHz : $10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz |
| 5,260 - 5,266.7 MHz : $10^{1.8-(6/50)(f-20)}$mW/MHz | 5,260 - 5,266.7 MHz : $10^{1.8-(6/50)(f-20)}$mW/MHz | 5,270 - 5,278.4 MHz : $10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz | 5,290 - 5,296.7 MHz : $10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz |
| 5,266.7 MHz or more : 2.5 μW/MHz | 5,266.7 MHz or more : 2.5 μW/MHz | 5,278.4 MHz or more : 2.5 μW/MHz | 5,296.7 MHz or more : 2.5 μW/MHz |
| f = MHz, Difference from 5240 (MHz) | f = MHz, Difference from 5240 (MHz) | f = MHz, Difference from 5230 (MHz) | f = MHz, Difference from 5210 (MHz) |

| W53 | | | |
|---|---|---|---|
| 20MHz system | | 40MHz system | 80MHz system |
| OBW : 18MHz or less | OBW : 18 - 20 MHz | | |
| 5,233.3 MHz or less : 2.5 μW/MHz | 5,233.3 MHz or less : 2.5 μW/MHz | 5,221.6 MHz or less : 2.5 μW/MHz | 5,203.3 MHz or less : 2.5 μW/MHz |
| 5,233.3 - 5,240 MHz : $10^{1.8-(6/50)(f-20)}$mW/MHz | 5,233.3 - 5,240 MHz : $10^{1.8-(6/50)(f-20)}$mW/MHz | 5,221.6 - 5,230 MHz : $10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz | 5,203.3 - 5,210 MHz : $10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz |
| 5,240 - 5,249 MHz : $10^{1-(8/90)(f-11)}$mW/MHz | 5,240 - 5,249 MHz : $10^{1-(8/90)(f-11)}$mW/MHz | 5,230 - 5,249 MHz : $10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz | 5,210 - 5,249 MHz : $10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz |
| 5,249 - 5,250 MHz : $10^{1-(f-9)}$mW/MHz | 5,249 - 5,249.8 MHz : $10^{1-(f-9)}$mW/MHz | 5,249 - 5,250 MHz : $10^{-(f-20)+\log(1/2)}$mW/MHz | 5,249 - 5,250 MHz : $10^{-(f-40)+\log(1/4)}$mW/MHz |
| 5,350 MHz or more : 2.5 μW/MHz | 5,249.8 - 5,250 MHz : $10^{1-(8/3)(f-9.75)}$mW/MHz | 5,350 - 5,358.4 MHz : 15 μW/MHz | 5,350 - 5,376.8 MHz : 15 μW/MHz |
| | 5,350 MHz or more : 2.5 μW/MHz | 5,358.4 MHz or more : 2.5 μW/MHz | 5,376.8 MHz or more : 2.5 μW/MHz |
| f = MHz, Difference from 5260 (MHz) | f = MHz, Difference from 5260 (MHz) | f = MHz, Difference from 5270 (MHz) | f = MHz, Difference from 5290 (MHz) |

| W56 | | | |
|---|---|---|---|
| 20MHz system | | 40MHz system | 80MHz system |
| DSSS, etc. | OFDM | | |
| 5,470 MHz or less : 12.5 uW/MHz | 5,460 MHz or less : 2.5 uW/MHz | 5,460 MHz or less : 12.5 uW/MHz | 5,460 MHz or less : 12.5 uW/MHz |
| | 5,460 - 5,470 MHz : 12.5 uW/MHz | 5,460 - 5,470 MHz : 50 uW/MHz | 5,460 - 5,469.5 MHz : 50 uW/MHz |
| 5,730 MHz or more : 12.5 uW/MHz | 5,745 - 5,765 MHz : 12.5 uW/MHz | 5,770 MHz or more : 12.5 uW/MHz | 5,469.5 - 5,470 MHz : 51.2 uW/MHz |
| | Over 5,765 MHz : 2.5 uW/MHz | | '5,770 MHz or more : 12.5 uW/MHz |

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| W52 + W53 | W56 |
|---|---|
| 160MHz system | |
| 5,099.6 MHz or less : 2.5 μW/MHz | 5,419.6 MHz or less : 12.5 uW/MHz |
| 5,099.6 - 5,150 MHz : 15 μW/MHz | 5,419.6 - 5,470 MHz : 50 uW/MHz |
| 5,350 - 5,400.4 MHz : 15 μW/MHz | 5,725 MHz or more : 12.5 uW/MHz |
| 5,400.4 MHz or more : 2.5 μW/MHz | |

* A rated value is defined by the E.I.R.P. .
* Measurement range: 30MHz to 26GHz

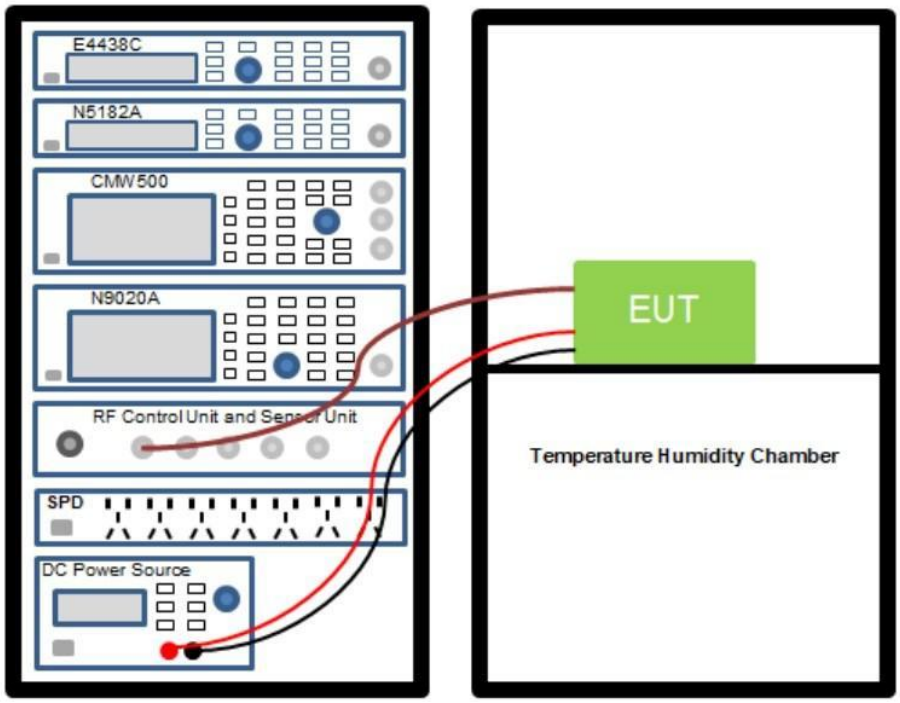
| 5.21GHz & (5.53GHz, 5.61GHz or 5.69GHz) | 5.29GHz & (5.53GHz, 5.61GHz or 5.69GHz) | 5.53GHz & 5.69GHz |
|---|---|---|
| 80MHz + 80MHz system (Not adjacent radio) | | |
| 5,134.8 MHz or less : 2.5 μW/MHz | 5,214.8 MHz or less : 2.5 μW/MHz | 5,419.6 MHz or less : 12.5 uW/MHz |
| 5,134.8 - 5,150 MHz : 162.5 μW/MHz | 5,214.8 - 5,249 MHz : $10^{-(8/390)(f-41)-1+\log(1/8)}$mW/MHz | 5,419.6 - 5,470 MHz : 50 uW/MHz |
| 5,250 - 5,251 MHz : $10^{-(f-40)+\log(1/8)}$mW/MHz | 5,249 - 5,250 MHz : $10^{-(f-40)+\log(1/8)}$mW/MHz | |
| 5,251 - 5,285.2 MHz : $10^{-(8/390)(f-41)-1+\log(1/8)}$mW/MHz | 5,350 - 5,365.2 MHz : 15 μW/MHz | *5,770 MHz or more : 15 uW/MHz |
| 5,285.2 - 5,370 MHz : 2.5 μW/MHz | 5,365.2 - 5,410 MHz : 2.5 μW/MHz | |
| : 2.5 μW/MHz (When used simultaneously with a 5.2GHz band high-power radio station : 12.5 μW/MHz) 5,370 - 5,454.8 MHz | 5,410 - 5,454.8 MHz : 2.5 μW/MHz | |
| : 15 μW/MHz (When used simultaneously with a 5.2GHz band high-power radio station : 50 μW/MHz) 5,454.8 - 5,470 MHz | 5,454.8 - 5,470 MHz : 15 μW/MHz | |
| 5,730 MHz or more : 15 μW/MHz | 5,730 MHz or more : 15 μW/MHz | |
| (*When used 5690MHz) | (*When used 5690MHz) | |
| 5,770 MHz or more : 15 μW/MHz | 5,770 MHz or more : 15 μW/MHz | |
| f = MHz, Difference from 5210 (MHz) | f = MHz, Difference from 5290 (MHz) | |

Procedure:

(1) After configuring the spectrum analyzer to [Setting 1], search for spurious emissions from 30 MHz to 12.5 GHz. If the sweep range does not cover the required measurement frequency range then the measurement range will need to be divided into sufficient sections of size [RBW x Sweep Data Points]. If spurious emissions greater than [Limit - 3dB] are found, then more detailed measurements are required, go to step (2)
(2) Configure the spectrum analyzer using [Setting 2] and measure the average signal amplitude.
If the spurious emission is burst type (intermittent), then the average value shall not include signal OFF time.
(3) Calculate the spurious emission value (Calculated Value) using following the formula below:
Calculated Value = (Measured Value using (3) + 15.2dB)
Note: 15.2dB adjustment is derived from the Conversion Factor of RBW
Conversion Factor of RBW = 10 x Log (Reference Bandwidth / RBW of measurement) = 15.2 [dB] Where: Reference Bandwidth = 1 MHz
RBW of measurement = 30 kHz
(4) If the calculated value using (4) is over the Limit (section 6.7), go to (6)
(6) Configure the spectrum analyzer to [Setting 3] then make the following changes:
Frequency: Frequency of spurious emission
Span: 1 MHz
(6) After sweep, send the span data set to the PC
(7) Convert measured data from dBm to Watts
(8) Sum all the data using the formula below. If the sum is within the limit, the test result is Pass, otherwise, Fail

$$P_s = (\sum_{i=1}^{n} E_i) \times \frac{S_w}{RBW \times k \times n}$$

Ps: Sum (Watts)
Ei: Measured value at each point in the Span (Watts) Sw: Span (1MHz)
n: Number of measurement points in the Span
k: Correction factor for Equivalent Noise Bandwidth, specific to each spectrum analyzer, check the instrument user guide
RBW: Resolution Bandwidth (MHz).
(9) If the EUT has multiple antennas, measure the spurious emission form each individual antenna using steps (1) through (9)
(10) Convert the individual antenna spurious level measurements (step (10)) from dB to absolute values
(11) Combine (sum) the absolute values of the spurious measurements at each frequency for each antenna (to create a single composite spectrum of spurious emissions)

| | |
|---|---|
| | (12) Ensure that the composite spectrum does not exceed the Limit defined in 6.7 (Technical Standard)<br>(13) Configuring the spectrum analyzer using [Setting 3] and measure the spurious emissions with all the antennas electrically combined |
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 23.8 °C |
| Humidity: | 52.2 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.5.1 Test Data

Please Refer to Appendix-5G WIFI for Details.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## 5.6 Adjacent Channel Emitted Power

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | Center Frequency: Test Frequency<br>Span: (see Note1)<br>RBW: 300kHz<br>VBW: 300kHz<br>Sweep time: Auto<br>Sweep data points: 1001 or greater<br>Detector mode: Sample (for Continuous Type) Positive peak (for Burst Type)<br>Indication mode: Single sweep (for Continuous Type)<br>Max hold (for Burst Type)<br><br>Note1:<br>5.2GHz and 5.3GHz Band:<br>Occupied bandwidth ≤ 20MHz: 20MHz<br>20 MHz < Occupied bandwidth ≤ 40 MHz: 40MHz<br>40 MHz < Occupied bandwidth ≤ 80 MHz: 80MHz<br>38MHz < OBW ≤ 78MHz: 78MHz<br>5.6GHz Band:<br>OFDM:<br>Occupied bandwidth ≤ 20 MHz: 20MHz<br>20 MHz < Occupied bandwidth ≤ 40 MHz: 40MHz<br>40 MHz < Occupied bandwidth ≤ 80 MHz: 80MHz<br><br>Non-OFDM modulation: 18MHz |
| Test Limit: | For Bandwidth equal to 20MHz and 40MHz:<br>Fc ± 20MHz : -25dBc<br>Fc ± 40MHz : -40dBc<br><br>For Bandwidth above 40MHz:<br>Fc ± 80MHz : -25dBc |
| Procedure: | (1) Configure the spectrum analyzer to [Setting 1] and set the EUT to transmit mode<br>(2) Measure the transmitter power (defined as $P_C$) using the procedure shown below:<br>(a) Set the center of the span to the transmit frequency<br>(b) After sweeping the entire span, send the span data set to the PC<br>(c) Convert measured data from dBm to Watts<br>(d) Sum all the data to derive the $P_C$<br>(3) Measure the Upper Adjacent Channel Leakage Power (defined as $P_U$) using the procedure shown below. For measurement frequency, see Note2.<br>(a) Set the center of the span to [Transmit Frequency + 20 MHz (or 40 MHz)]<br>(b) Sweep the entire span, send the span data set to the PC<br>(c) Convert measured data from dBm to Watts<br>(d) Sum all the data to derive the $P_U$<br>(e) After setting the center of the span to [Transmit Frequency + 40MHz (or 80 MHz)], repeat steps (b) through step (d)<br>(4) Measure the Lower Adjacent Channel Leakage Power (defined as $P_L$) using the procedure shown below. For measurement frequency, see Note2.<br>(a) Set the center of the span to [Transmit Frequency + 20 MHz (or 40 MHz)]<br>(b) Sweep the entire span, send the span data set to the PC<br>(c) Convert measured data from dBm to Watts<br>(d) Sum all the data to derive the PL<br>(e) After setting the center of the span to [Transmit Frequency + 40MHz (or 80 MHz)], repeat steps (b) through step (d)<br>(5) Derive all the Adjacent Channel Leakage Power Ratios using the formula shown |

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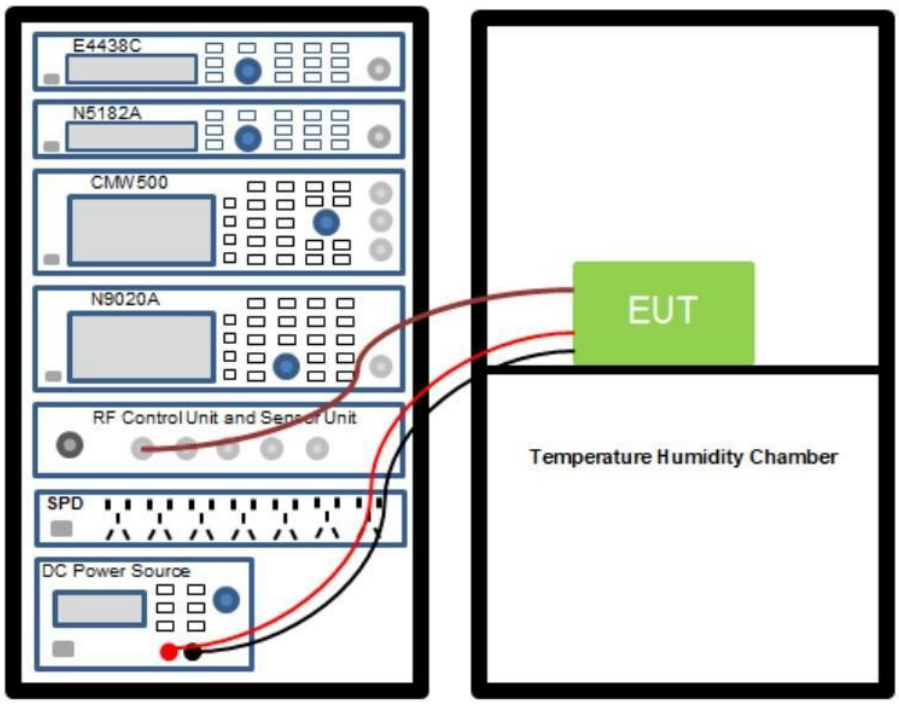
| | |
|---|---|
| | below:<br>- Upper Adjacent Channel Leakage Power Ratio = 10 log ($P_U$ / $P_C$ )<br>- Lower Adjacent Channel Leakage Power Ratio = 10 log ($P_L$ / $P_C$ )<br><br>(6) If the EUT has multiple antennas then the following steps shall be taken:<br>(a) Repeat steps (1) through step (5) for each individual antenna<br>(b) Repeat steps (1) through step (5) with all the antennas combined<br>(c) To derive the total $P_C$ , sum the individual antenna $P_C$ measurements from step (a)<br>(d) Derive the total $P_U$ and total $P_L$ using the same procedure as step (c)<br>(e) Calculate the Adjacent Channel Leakage Power Ratio using the total $P_C$ , total $P_U$ and total $P_L$ using the formula in step (5)<br>(f) Note 2:<br>5.2 GHz and 5.3 GHz band:<br>OBW ≤ 18 MHz: Transmit frequency ± 20 MHz, ± 40 MHz<br>18MHz < OBW ≤ 19MHz: Transmit frequency ± 20 MHz, ± 40 MHz<br>19MHz < OBW ≤ 38MHz: Transmit frequency ± 40 MHz, ± 80 MHz<br>38MHz < OBW ≤ 78MHz: Transmit frequency ± 80 MHz<br>5.6GHz Band:<br>OFDM:<br>OBW ≤ 19.7MHz: Transmit frequency ± 20 MHz, ± 40 MHz<br>19.7MHz < OBW ≤ 38MHz: Transmit frequency ± 40 MHz, ± 80 MHz<br>38MHz < OBW ≤ 78MHz: Transmit frequency ± 80 MHz<br><br>Other than OFDM: Transmit frequency ± 20 MHz, ± 40 MHz |
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 22.7 °C |
| Humidity: | 50.3 % |
| Atmospheric Pressure: | 1010 mbar |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| Test voltage: | DC 5V |
|---|---|

### 5.6.1 Test Data

Please Refer to Appendix-5G WIFI for Details.

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## 5.7 Spurious Emission Intensity

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | |

| | |
|---|---|
| [Setting 1] | |
| Frequency range: | Test frequency rage as required |
| RBW: | 1 MHz |
| VBW: | 1 MHz |
| Sweep time: | Minimum time required to make an accurate measurement |
| Sweep Data Points: | 1001 or greater |
| Detector mode: | Positive peak |
| Indication mode: | Max hold (see Note 1) |
| Note 1: | Sweep shall be repeated until the max hold waveform is stable. |
| | |
| [Setting 2] | |
| Center frequency: | Frequency of spurious emission found using [Setting 1] |
| Span: | 0 Hz |
| RBW: | 1 MHz |
| VBW: | 1 MHz |
| Sweep time: | Minimum time required to make an accurate measurement.<br>For burst type (intermittent) spurious emissions, sweep time shall be greater than one burst interval |
| Sweep Data Points: | 1001 or greater |
| Detector mode: | Sample |

Test Limit:

| W52 | | | |
|---|---|---|---|
| 20MHz system | | 40MHz system | 80MHz system |
| OBW : 18MHz or less | OBW : 18 - 20 MHz | | |
| 5,142 MHz or less : 2.5 μW/MHz | 5,142 MHz or less : 2.5 μW/MHz | 5,141.6 MHz or less : 2.5 μW/MHz | 5,123.2 MHz or less : 2.5 μW/MHz |
| 5,142 - 5,150 MHz : 15 μW/MHz | 5,142 - 5,150 MHz : 15 μW/MHz | 5,141.6 - 5,150 MHz : 15 μW/MHz | 5,123.2 - 5,150 MHz : 15 μW/MHz |
| | 5,250 - 5,250.2 MHz : $10^{1-(8/3)(f-9.75)}$mW/MHz | | |
| 5,250 - 5,251 MHz : $10^{1-(f-9)}$mW/MHz | 5,250.2 - 5,251 MHz : $10^{1-(f-9)}$mW/MHz | 5,250 - 5,251 MHz : $10^{-(f-20)+\log(1/2)}$mW/MHz | 5,250 - 5,251 MHz : $10^{-(f-40)+\log(1/4)}$mW/MHz |
| 5,251 - 5,260 MHz : $10^{1-(8/90)(f-11)}$mW/MHz | 5,251 - 5,260 MHz : $10^{1-(8/90)(f-11)}$mW/MHz | 5,251 - 5,270 MHz : $10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz | 5,251 - 5,290 MHz : $10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz |
| 5,260 - 5,266.7 MHz : $10^{1.8-(6/50)(f-20)}$mW/MHz | 5,260 - 5,266.7 MHz : $10^{1.8-(6/50)(f-20)}$mW/MHz | 5,270 - 5,278.4 MHz : $10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz | 5,290 - 5,296.7 MHz : $10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz |
| 5,266.7 MHz or more : 2.5 μW/MHz | 5,266.7 MHz or more : 2.5 μW/MHz | 5,278.4 MHz or more : 2.5 μW/MHz | 5,296.7 MHz or more : 2.5 μW/MHz |
| f = MHz, Difference from 5240 (MHz) | f = MHz, Difference from 5240 (MHz) | f = MHz, Difference from 5230 (MHz) | f = MHz, Difference from 5210 (MHz) |

| W53 | | | |
|---|---|---|---|
| 20MHz system | | 40MHz system | 80MHz system |
| OBW : 18MHz or less | OBW : 18 - 20 MHz | | |
| 5,233.3 MHz or less : 2.5 μW/MHz | 5,233.3 MHz or less : 2.5 μW/MHz | 5,221.6 MHz or less : 2.5 μW/MHz | 5,203.3 MHz or less : 2.5 μW/MHz |
| 5,233.3 - 5,240 MHz : $10^{1.8-(6/50)(f-20)}$mW/MHz | 5,233.3 - 5,240 MHz : $10^{1.8-(6/50)(f-20)}$mW/MHz | 5,221.6 - 5,230 MHz : $10^{-(3/50)(f-40)-1.8+\log(1/2)}$mW/MHz | 5,203.3 - 5,210 MHz : $10^{-(3/100)(f-80)-1.8+\log(1/4)}$mW/MHz |
| 5,240 - 5,249 MHz : $10^{1-(8/90)(f-11)}$mW/MHz | 5,240 - 5,249 MHz : $10^{1-(8/90)(f-11)}$mW/MHz | 5,230 - 5,249 MHz : $10^{-(8/190)(f-21)-1+\log(1/2)}$mW/MHz | 5,210 - 5,249 MHz : $10^{-(8/390)(f-41)-1+\log(1/4)}$mW/MHz |
| 5,249 - 5,250 MHz : $10^{1-(f-9)}$mW/MHz | 5,249 - 5,249.8 MHz : $10^{1-(f-9)}$mW/MHz | 5,249 - 5,250 MHz : $10^{-(f-20)+\log(1/2)}$mW/MHz | 5,249 - 5,250 MHz : $10^{-(f-40)+\log(1/4)}$mW/MHz |
| 5,350 MHz or more : 2.5 μW/MHz | 5,249.8 - 5,250 MHz : $10^{1-(8/3)(f-9.75)}$mW/MHz | 5,350 - 5,358.4 MHz : 15 μW/MHz | 5,350 - 5,376.8 MHz : 15 μW/MHz |
| | 5,350 MHz or more : 2.5 μW/MHz | 5,358.4 MHz or more : 2.5 μW/MHz | 5,376.8 MHz or more : 2.5 μW/MHz |
| f = MHz, Difference from 5260 (MHz) | f = MHz, Difference from 5260 (MHz) | f = MHz, Difference from 5270 (MHz) | f = MHz, Difference from 5290 (MHz) |

| W56 | | | |
|---|---|---|---|
| 20MHz system | | 40MHz system | 80MHz system |
| DSSS, etc. | OFDM | | |
| 5,470 MHz or less : 12.5 uW/MHz | 5,460 MHz or less : 2.5 uW/MHz | 5,460 MHz or less : 12.5 uW/MHz | 5,460 MHz or less : 12.5 uW/MHz |
| | 5,460 - 5,470 MHz : 12.5 uW/MHz | 5,460 - 5,470 MHz : 50 uW/MHz | 5,460 - 5,469.5 MHz : 50 uW/MHz |
| 5,730 MHz or more : 12.5 uW/MHz | 5,745 - 5,765 MHz : 12.5 uW/MHz | 5,770 MHz or more : 12.5 uW/MHz | 5,469.5 - 5,470 MHz : 51.2 uW/MHz |
| | Over 5,765 MHz : 2.5 uW/MHz | | '5,770 MHz or more : 12.5 uW/MHz |

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| W52 + W53 | W56 |
|---|---|
| 160MHz system | |
| 5,099.6 MHz or less : 2.5 μW/MHz | 5,419.6 MHz or less : 12.5 uW/MHz |
| 5,099.6 - 5,150 MHz : 15 μW/MHz | 5,419.6 - 5,470 MHz : 50 uW/MHz |
| 5,350 - 5,400.4 MHz : 15 μW/MHz | 5,725 MHz or more : 12.5 uW/MHz |
| 5,400.4 MHz or more : 2.5 μW/MHz | |

* A rated value is defined by the E.I.R.P. .
* Measurement range: 30MHz to 26GHz

| 5.21GHz & (5.53GHz, 5.61GHz or 5.69GHz) | 5.29GHz & (5.53GHz, 5.61GHz or 5.69GHz) | 5.53GHz & 5.69GHz |
|---|---|---|
| 80MHz + 80MHz system (Not adjacent radio) | | |
| 5,134.8 MHz or less : 2.5 μW/MHz | 5,214.8 MHz or less : 2.5 μW/MHz | 5,419.6 MHz or less : 12.5 uW/MHz |
| 5,134.8 - 5,150 MHz : 162.5 μW/MHz | 5,214.8 - 5,249 MHz : $10^{-(8/390)(f-41)-1+\log(1/8)}$mW/MHz | 5,419.6 - 5,470 MHz : 50 uW/MHz |
| 5,250 - 5,251 MHz : $10^{-(f-40)+\log(1/8)}$mW/MHz | 5,249 - 5,250 MHz : $10^{-(f-40)+\log(1/8)}$mW/MHz | |
| 5,251 - 5,285.2 MHz : $10^{-(8/390)(f-41)-1+\log(1/8)}$mW/MHz | 5,350 - 5,365.2 MHz : 15 μW/MHz | *5,770 MHz or more : 15 uW/MHz |
| 5,285.2 - 5,370 MHz : 2.5 μW/MHz | 5,365.2 - 5,410 MHz : 2.5 μW/MHz | |
| : 2.5 μW/MHz (When used simultaneously with a 5.2GHz band high-power radio station : 12.5 μW/MHz)<br>5,370 - 5,454.8 MHz | 5,410 - 5,454.8 MHz : 2.5 μW/MHz | |
| : 15 μW/MHz (When used simultaneously with a 5.2GHz band high-power radio station : 50 μW/MHz)<br>5,454.8 - 5,470 MHz | 5,454.8 - 5,470 MHz : 15 μW/MHz | |
| 5,730 MHz or more : 15 μW/MHz | 5,730 MHz or more : 15 μW/MHz | |
| (*When used 5690MHz) | (*When used 5690MHz) | |
| 5,770 MHz or more : 15 μW/MHz | 5,770 MHz or more : 15 μW/MHz | |
| f = MHz, Difference from 5210 (MHz) | f = MHz, Difference from 5290 (MHz) | |

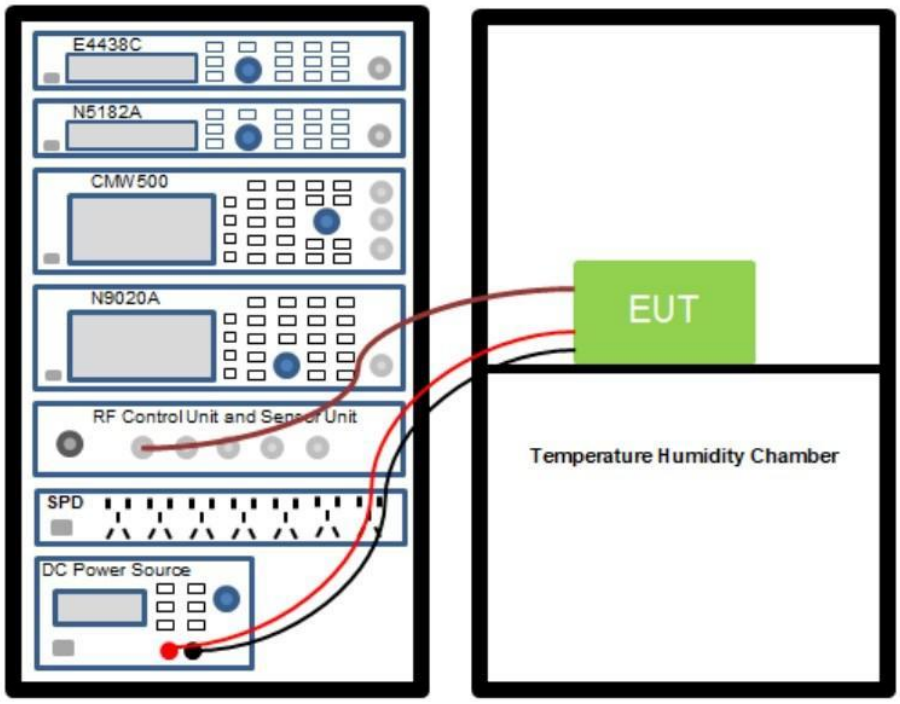
Procedure:

(1) After configuring the spectrum analyzer to [Setting 1], search for spurious emissions from 30 MHz to 12.5 GHz. If the sweep range does not cover the required measurement frequency range then the measurement range will need to be divided into sufficient sections of size [RBW x Sweep Data Points]. If spurious emissions greater than [Limit - 3dB] are found, then more detailed measurements are required, go to step (2)
(2) Configure the spectrum analyzer using [Setting 2] and measure the average signal amplitude.
If the spurious emission is burst type (intermittent), then the average value shall not include signal OFF time.
(3) Calculate the spurious emission value (Calculated Value) using following the formula below:

Calculated Value = (Measured Value using (3) + 15.2dB)
Note: 15.2dB adjustment is derived from the Conversion Factor of RBW
Conversion Factor of RBW = 10 x Log (Reference Bandwidth / RBW of measurement) = 15.2 [dB] Where: Reference Bandwidth = 1 MHz
RBW of measurement = 30 kHz
(4) If the calculated value using (4) is over the Limit (section 6.7), go to (6)
(6) Configure the spectrum analyzer to [Setting 3] then make the following changes:
Frequency: Frequency of spurious emission
Span: 1 MHz
(6) After sweep, send the span data set to the PC
(7) Convert measured data from dBm to Watts
(8) Sum all the data using the formula below. If the sum is within the limit, the test result is Pass, otherwise, Fail

$$P_s = (\sum_{i=1}^{n} E_i) \times \frac{S_w}{RBW \times k \times n}$$

Ps: Sum (Watts)
Ei: Measured value at each point in the Span (Watts) Sw: Span (1MHz)
n: Number of measurement points in the Span
k: Correction factor for Equivalent Noise Bandwidth, specific to each spectrum analyzer, check the instrument user guide
RBW: Resolution Bandwidth (MHz).
(9) If the EUT has multiple antennas, measure the spurious emission form each individual antenna using steps (1) through (9)
(10) Convert the individual antenna spurious level measurements (step (10)) from dB to absolute values
(11) Combine (sum) the absolute values of the spurious measurements at each

| | |
|---|---|
| | frequency for each antenna (to create a single composite spectrum of spurious emissions)<br>(12) Ensure that the composite spectrum does not exceed the Limit defined in 6.7 (Technical Standard)<br>(13) Configuring the spectrum analyzer using [Setting 3] and measure the spurious emissions with all the antennas electrically combined |
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 22.9 °C |
| Humidity: | 55 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.7.1 Test Data

Please Refer to Appendix-5G WIFI for Details.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## 5.8 Secondary Radiated Emissions

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | [Setting 1]<br>Frequency range: 30 MHz ~ 12.5 GHz<br>RBW: Below 1 GHz:100 kHz<br>Above 1 GHz:1 MHz<br>VBW: Below 1 GHz:100 kHz<br>Above 1 GHz:1 MHz<br>Sweep time: Auto<br>Sweep data points: 1001 or greater<br>Detector mode: Positive peak<br>Indication mode: Max hold<br><br>[Setting 2]<br>Center Frequency: Frequency of spurious emission found using [Setting 1]<br>Span: 0 Hz<br>RBW: Below 1 GHz:100 kHz<br>Above 1 GHz:1 MHz<br>VBW: Below 1 GHz:100 kHz<br>Above 1 GHz:1 MHz<br>Sweep time: Auto<br>Sweep data points: 1001 or greater<br>Detector mode: Sample |
| Test Limit: | (1) Below 1 GHz: 4 nW (-54dBm) or less<br><br>(2) Above 1 GHz: 20 nW (-47dBm) or less |
| Procedure: | (1) Configure the spectrum analyzer to [Setting 1] and then search for spurious emissions in the range 30 MHz to 12.5GHz. If the sweep range does not cover the required measurement frequency range then the measurement range will need to be divided into sufficient sections of size [RBW x Sweep Data Points].<br>(2) If spurious emissions are found with an amplitude greater than [Limit - 10dB] then perform further detailed measurements as described in (3)<br>(3) Configure the spectrum analyzer using [Setting 2] and measure the average signal amplitude.<br>If the spurious emission is burst type (intermittent), then the average value shall not include signal OFF time Multiple Antenna Systems<br>If the EUT has multiple antennas then emissions from each antenna shall be measured individually, as described below<br>(4) For each antenna repeat steps (1) through (3). Convert all spurious level measurements from dB to absolute value<br>(5) Combine (sum) the absolute values of the spurious measurements at each frequency for each antenna (to create a single composite spectrum of spurious emissions)<br>(6) Ensure that the composite spectrum does not exceed the Limit |

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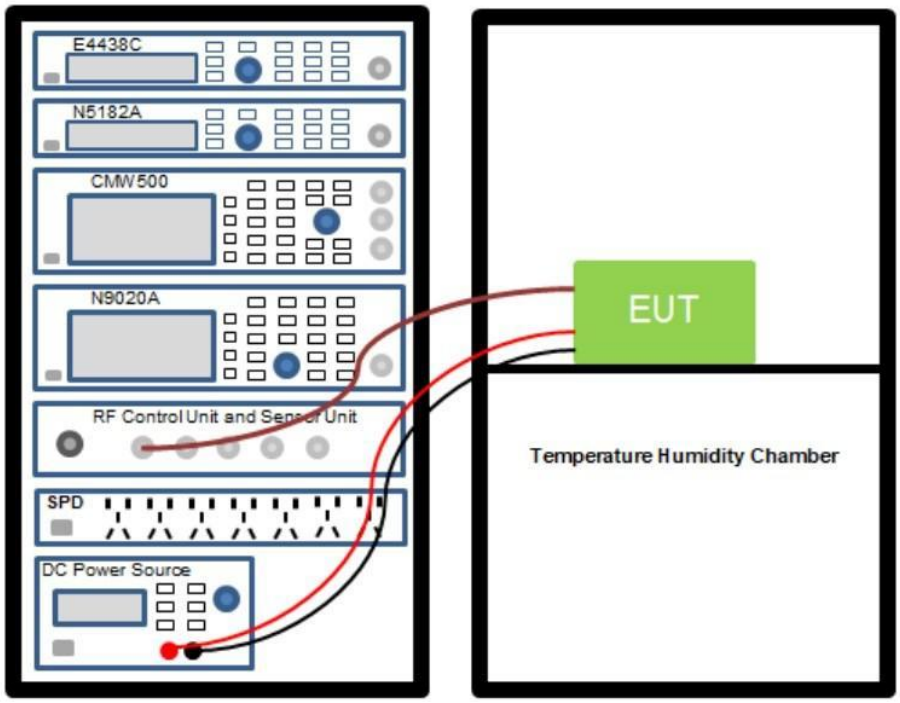
| | |
|---|---|
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 25.4 °C |
| Humidity: | 49.6 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.8.1 Test Data

Please Refer to Appendix-5G WIFI for Details.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## 5.9 Carrier Sensing 1

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | Signal Generator Settings<br>[Setting 1]<br>Output frequency: Center of test frequency<br>Modulation: Un-modulated, see note<br>Output level: The required level at the EUT antenna input, as defined by the applicant<br>Note:<br>If the EUT's carrier sensing cannot function with an un-modulated signal at the center of the test frequency, then the un-modulated signal can be moved away from the center.<br><br>Spectrum Analyzer Settings<br>[Setting 2]<br>Frequency: Center of test frequency<br>Span: 50 MHz<br>RBW: 1 MHz<br>VBW: 1 MHz<br>Trigger: Free running<br>Detector: Positive peak |
| Test Limit: | Field intensity in the direction of the maximum gain of a receiving antenna : 100mV/m<br>*Start transmission after performing a carrier sense. However, when transmission and reception are controlled from other radio equipment, and when the radio equipment which performed transmission resumes transmission within 8 millisecond after a career sense, it can omit performing a career sense. |
| Procedure: | Testing without a Link Partner<br>(1) Set the spectrum analyzer to [Setting 2]<br>(2) With the signal generator OFF, set the EUT to transmit mode<br>(3) Set the EUT to receive mode<br>(4) First, set the signal generator output ON, then set the EUT to transmit mode and confirm that the EUT does NOT transmit a signal<br><br>Testing with a Link Partner<br>(1) Set the spectrum analyzer to [Setting 2]<br>(2) Set the signal generator output to OFF<br>(3) After establishing a connection between the EUT and the Link Partner, set the EUT to transmit mode<br>(4) Set the EUT to receive mode<br>(5) Set the signal generator output ON, then set the EUT to transmit mode and confirm that the EUT does NOT transmit a signal |

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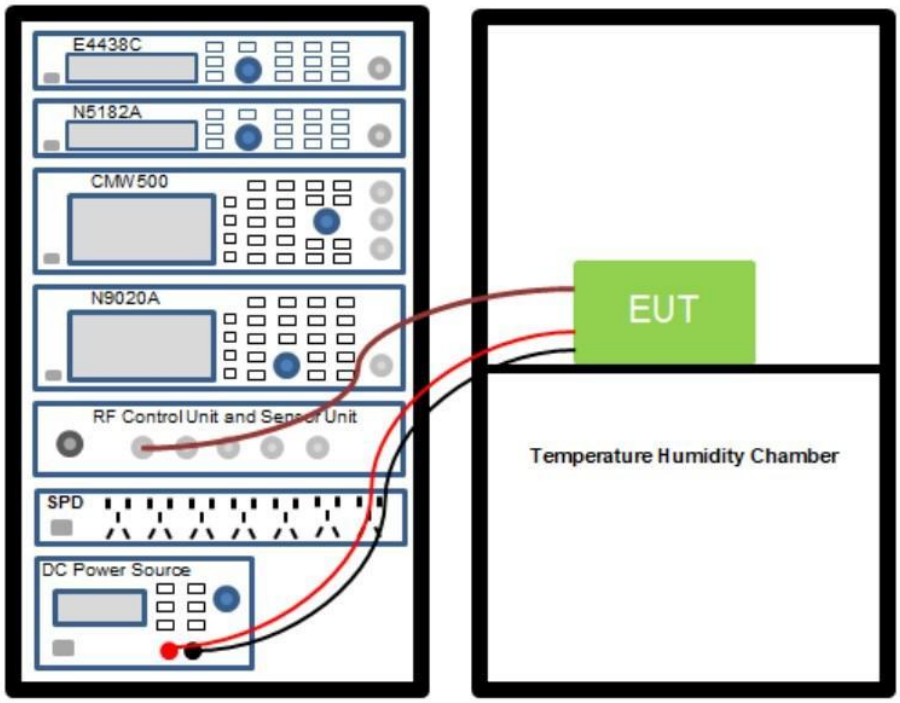
| | |
|---|---|
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 22.7 °C |
| Humidity: | 50.6 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.9.1 Test Data

Please Refer to Appendix-5G WIFI for Details.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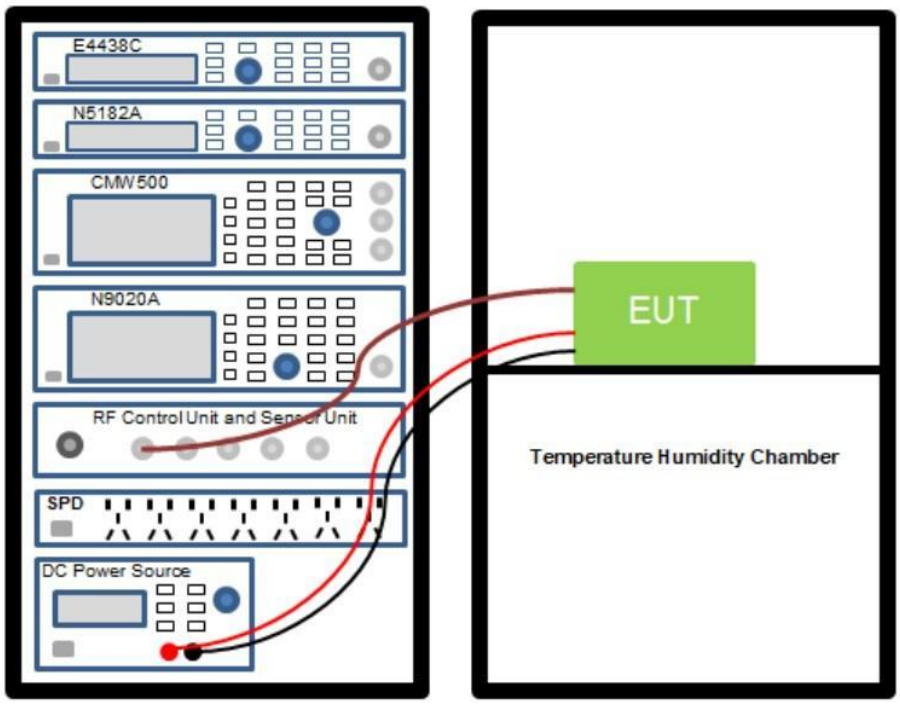
## 5.10 Interference Prevention Function

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | - Demodulator<br>A device capable of demodulating and displaying identification data transmitted by the EUT.<br>- Link Partner<br><br>A device capable of transmitting identification data suitable for reception by the EUT. |
| Test Limit: | The EUT shall support one of the following functions:<br>- Automatic identification transmission<br><br>- Automatic identification reception |
| Procedure: | (1) For EUTs capable of automatically transmitting identification data<br>a. Transmit identification data from EUT to Demodulator<br>b. Confirm identification data is correctly received by Demodulator<br>(2) For EUTs capable of automatically receiving identification data<br>a. Transmit identification data from Link Partner to EUT<br>b. Confirm communication link is established<br>c. Link Partner shall respond by transmitting different identification data back to the EUT<br>d. Confirm EUT stops transmitting, or confirm EUT recognizes that the two identification data are different |
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 25.4 °C |
| Humidity: | 46.5 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

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### 5.10.1 Test Data

The detected ID of the device is below:
46:1p:sd:14:rf:78

Test result: The device meet the requirements
PASS

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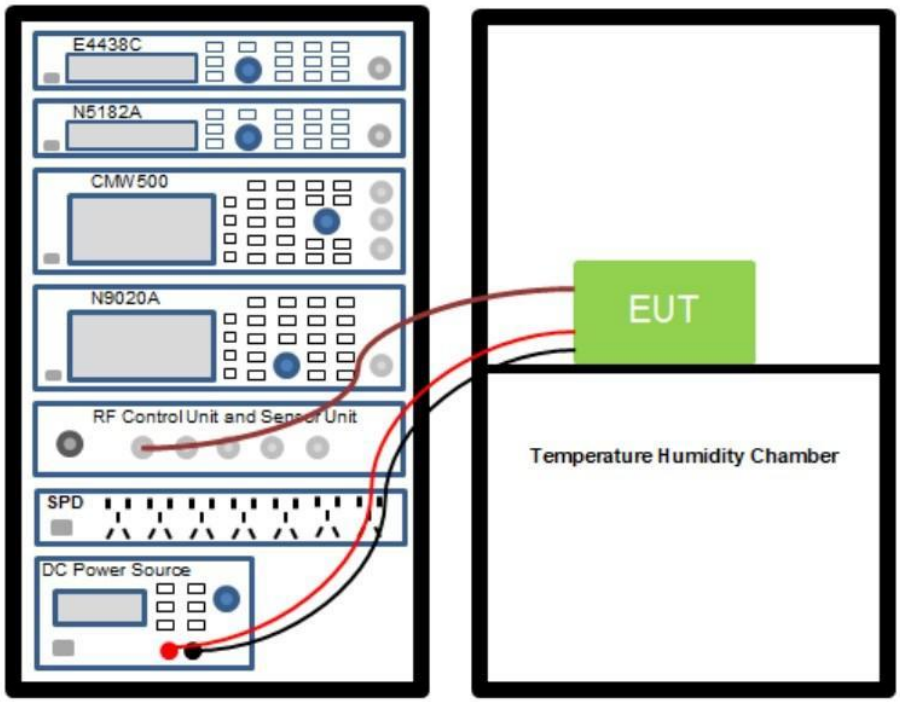
## 5.11 Transmission Burst Length

| | |
|---|---|
| Test Requirement: | Article 2-1, Item 19-3 |
| Test Method: | Frequency: Center of tested frequency<br>Span:0 Hz<br>RBW: 1 MHz<br>VBW: 1 MHz<br>Sweep time: Auto<br>Sweep data points: 1001 or greater<br>Detector mode: Sample |
| Test Limit: | 8ms or less |
| Procedure: | Configure the spectrum analyzer to [Setting 1] and then search the max pulse, and measure the transmission time. |
| Test Setup: |  |
| Operating Environment: | |
| Temperature: | 23.7 °C |
| Humidity: | 46.4 % |
| Atmospheric Pressure: | 1010 mbar |
| Test voltage: | DC 5V |

### 5.11.1 Test Data

Please Refer to Appendix for Details.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# 6 Test Setup Photos

Please refer to Appendix I Test Setup Photos.

# 7 EUT Constructional Details (EUT Photos)

Please refer to Appendix II External Photos and Appendix III Internal Photos.

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