

TEST REPORT

| | : V | ROBOTIC POOL CLEANER whale pro, Pleco pro 2BN5V-WHALE |
|-------------------------|-----|--|
| | | |
| Prepared for Address | | Nanjing Toua Robot Technology Co.,Ltd F11, Building 1, Chuangzhi Park, 99#Wan 'an North Road,Jiangning District, Nanjing,Jiangsu, China |
| Prepared by Address | | EMTEK (DONGGUAN) CO., LTD. 1&2/F.,Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China TEL: +86-0769-22807078 FAX: +86-0769-22807079 |
| | | |
| | | |

| Report Number | : | EDG2503030044E00403R |
|------------------------|---|------------------------------|
| Date of sample receipt | : | Mar 03, 2025 |
| Date(s) of Tests | : | Mar 03, 2025 to Mar 20, 2025 |
| Date of issue | : | Mar 21, 2025 |



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1 **TEST RESULT CERTIFICATION**

| Applicant | : | Nanjing Toua Robot Technology Co.,Ltd |
|--------------|---|---|
| Address | : | F11, Building 1, Chuangzhi Park, 99#Wan 'an North Road,Jiangning District, Nanjing,Jiangsu, China |
| Manufacturer | : | Nanjing Toua Robot Technology Co.,Ltd |
| Address | : | F11, Building 1, Chuangzhi Park, 99#Wan 'an North Road,Jiangning District, Nanjing,Jiangsu, China |
| Factory | : | Anhui Toua Robot Co.,Ltd. |
| Address | : | Building 4#, No.29, Runzhou Road, Danyang Town, Bowang District, Maanshan, Anhui Province, P.R.China |
| EUT | : | ROBOTIC POOL CLEANER |
| Model Name | : | whale pro, Pleco pro |
| Trademark | : | N/A |

Measurement Procedure Used:

| APPLICABLE STANDARDS | | | | |
|---|-------------|--|--|--|
| STANDARD | TEST RESULT | | | |
| FCC 47 CFR Part 2 , Subpart J FCC 47 CFR Part 15, Subpart C | PASS | | | |
| IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021) IC RSS-247 Issue 3(08-2023) | PASS | | | |

The above equipment was tested by EMTEK(DONGGUAN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2, Part 15.247, IC RSS-247 Issue 3 and IC RSS-GEN, Issue 5.

The test results of this report relate only to the tested sample identified in this report.

| Date of Test : | Mar 03, 2025 to Mar 20, 2025 | | | | |
|-------------------------------|------------------------------|--|--|--|--|
| Prepared by : | Galen Xia- | | | | |
| | Galen Xiao <u>/Editor</u> | | | | |
| Reviewer : | Warren Deng | | | | |
| | Warren Deng /Supervisor | | | | |
| | DONGGUAN GO.LTD. | | | | |
| Approve & Authorized Signer : | Sam Lv /Manager ESTING | | | | |



Modified History

| Version | Report No. Revision Date | | Summary | |
|---------|--------------------------|---|-----------------|--|
| V1.0 | EDG2503030044E00403R | / | Original Report | |
| | | | | |
| | | | | |



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EUT TECHNICAL DESCRIPTION 2

| Characteristics | Description | | | | |
|-------------------------------------|--|--|--|--|--|
| Product: | ROBOTIC POOL CLEANER | | | | |
| Model Number: | whale pro, Pleco pro (Note: These models are the same, except for the model numbers;whale pro was selected for full test.) | | | | |
| Sample Number: | 2# | | | | |
| IEEE 802.11 WLAN Mode Supported: | 02.11b 02.11g 02.11n(20MHz channel bandwidth) 02.11n(40MHz channel bandwidth) | | | | |
| Modulation: | DSSS with DBPSK/DQPSK/CCK for 802.11b; DFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n; | | | | |
| Operating Frequency Range: | 2412-2462MHz for 802.11b/g/n(HT20); 2422-2452MHz for 802.11n(HT40); | | | | |
| Number of Channels: | 11 channels for 802.11b/g/n(HT20); 7 Channels for 802.11n(HT40); | | | | |
| Transmit Power Max: | 18.60 dBm(0.072444 W) | | | | |
| Antenna Type: | FPC Antenna | | | | |
| Antenna Gain: | 2.33 dBi | | | | |
| Power Supply: | DC 25.2V from adapter Adapter:Model:MX65W1-2522500U INPUT:100-240V~50/60Hz 2A OUTPUT:25.2V= 2.5A DC 21.9V built-in battery | | | | |
| Temperature Range | 5°C ~ +35°C | | | | |

Note: for more details, please refer to the User's manual of the EUT.



| 3 SUMMARY OF TEST RESUL |
|-------------------------|
|-------------------------|

| FCC Part Clause | IC Part Clause | Test Parameter | Verdict | Remark |
|-------------------------------|---|--|---------|--------|
| 15.247(a)(2) | RSS-247 5.2(a) RSS-Gen 6.7 | Emission Bandwidth | PASS | |
| 15.247(b)(3) | RSS-247 5.4(d) RSS-Gen 6.12 | Maximum Peak Conducted Output Power | PASS | |
| 15.247(e) | RSS-247 5.2(b) RSS-Gen 6.12 | Maximum Power Spectral Density Level | PASS | |
| 15.247(d) | RSS-247 5.5 | Unwanted Emission Into Non-Restricted Frequency Bands | PASS | |
| 15.247(d) | RSS-247 5.5 | Unwanted Emission Into Restricted Frequency Bands (conducted) | PASS | |
| 15.247(d) 15.209 15.205 | RSS-Gen 8.9 RSS-Gen 8.10 RSS-Gen 6.13 RSS-247 3.3 RSS-247 5.5 | Radiated Spurious Emission | PASS | |
| 15.207 | RSS-Gen 8.8 | Conducted Emission Test | PASS | |
| 15.203 15.247(b) | RSS-Gen 6.8 RSS-247 5.4 | Antenna Application | PASS | |
| NOTE2: Acc | | KDB 558074, the report use radiated me | | |

restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.

RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for **FCC ID: 2BN5V-WHALE** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

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4 **TEST METHODOLOGY**

GENERAL DESCRIPTION OF APPLIED STANDARDS 4.1

According to its specifications, the EUT must comply with the requirements of the following standards: FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021) IC RSS-247 Issue 3(08-2023) FCC KDB 558074 D01 15.247 Meas Guidance v05r02

4.2 MEASUREMENT EQUIPMENT USED

Conducted Emission Test Equipment

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|----------------------------|-------------------------|--------------|------------|-----------|------------------|
| EMI Test Receiver | Rohde&Schwarz | ESCI | 100137 | 2024/4/29 | 1Year |
| AMN | Rohde&Schwarz | ENV216 | 101209 | 2024/4/28 | 1Year |
| AMN | Rohde&Schwarz | ENV216 | 100017 | 2024/4/28 | 1Year |
| RF Switching Unit | CDS | RSU-M2 | 38401 | 2024/4/28 | 1Year |
| AMN | Schwarzbeck | NNLK8121 | 8121-641 | 2024/4/28 | 1Year |
| AMN | Rohde&Schwarz | ESH3-Z6 | 101101 | 2024/4/28 | 1Year |
| AMN | Rohde&Schwarz | ESH3-Z6 | 101102 | 2024/4/28 | 1Year |
| Power Splitters & Dividers | Weinschel Associates | WA1506A | A1066 | 2024/4/28 | 1Year |
| Current Probe | FCC | F-52 | 8377 | 2024/4/28 | 1Year |
| Passive voltage probe | Rohde&Schwarz | ESH2-Z3 | 100122 | 2024/4/28 | 1Year |
| Cable | Rosenberger | RG 223/U | 525178 | 2024/4/28 | 2Year |
| Cable | Rosenberger | RG223/U | 525179 | 2024/4/28 | 2Year |
| Test Software | Farad | Ver.CON-03A1 | | N/A | N/A |

For Spurious Emissions Test

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|-----------------------|---------------|------------------|-------------|-----------|------------------|
| EMI Test Receiver | Rohde&Schwarz | ESCI | 101415 | 2024/4/28 | 1Year |
| Bi-log Hybrid Antenna | Schwarzbeck | VULB9163 | 141 | 2024/5/5 | 1Year |
| Pre-Amplifie | HP | 8447F | OPTH64 | 2024/4/28 | 1 Year |
| Signal Analyzer | R&S | FSV30 | 103039 | 2024/4/28 | 1 Year |
| Horn Antenna | Schwarzbeck | BBHA9120D | 1272 | 2024/5/5 | 1Year |
| Horn Antenna | Schwarzbeck | BBHA9170 | 9170-567 | 2024/5/5 | 1Year |
| Pre-Amplifie | LUNAR EM | PM1-18-40 | J1010000081 | 2024/4/28 | 1Year |
| Loop antenna | Schwarzbeck | FMZB1519 | 1519-012 | 2024/5/5 | 1Year |
| Cable | Rosenberger | CIL02 | A0783566 | 2024/4/28 | 2Year |
| Cable | HTS | CBL-26 | D1245 | 2024/4/28 | 2Year |
| Cable | HTS | CBL-26 | D8503 | 2024/4/28 | 2Year |
| Cable | HTS | CBL-26 | / | 2024/4/28 | 2Year |
| 6 db attenuator | AR-WORLDWIDE | 6dB/50FH-006-100 | 324011 | 2024/4/28 | 1Year |
| Test Software | Farad | Ver.RA-03A1 | | N/A | N/A |



For other test items:

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|--------------------------------------|--------------|-----------|------------|-----------|------------------|
| Wireless Connectivity Tester | R&S | CMW270 | 102543 | 2024/4/29 | 1Year |
| Automatic Control Unit | Tonscend | JS0806-2 | 2118060480 | 2024/4/29 | 1Year |
| Signal Analyzer | KEYSIGHT | N9010B | MY60242456 | 2024/4/29 | 1Year |
| Analog Signal Generator | KEYSIGHT | N5173B | MY61252625 | 2024/4/29 | 1Year |
| UP/DOWN-Converter | R&S | CMW-Z800A | 100274 | 2024/4/29 | 1Year |
| Vector Signal Generator | KEYSIGHT | N5182B | MY61252674 | 2024/4/29 | 1Year |
| Frequency Extender | KEYSIGHT | N5182BX07 | MY59362541 | 2024/4/29 | 1Year |
| Temperature&Humidity test chamber | ESPEC | EL-02KA | 12107166 | 2024/4/29 | 1 Year |
| Radio frequency test system | Tonscend | JS1120-3 | | N/A | N/A |

For measurement cables(It is from the antenna end of EUTto the test port of test equipment.)

| Equipment | Manufacturer | cable loss | Application frequency band | Measurement data of line loss comes from | Last Cal. | Cal. Interval |
|----------------------|---------------------------|------------|----------------------------|---|--------------|------------------|
| Measurement cable | Provided by the applicant | 0.5 dBm | 2412-2462MHz | Manufacturers claim themselves. | N/A | N/A |

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4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (802.11b: 1 Mbps; 802.11g: 6 Mbps; 802.11n (HT20): MCS0; 802.11n (HT40): MCS0;) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|--------------------|---------|--------------------|---------|--------------------|
| 1 | 2412 | 5 | 2432 | 9 | 2452 |
| 2 | 2417 | 6 | 2437 | 10 | 2457 |
| 3 | 2422 | 7 | 2442 | 11 | 2462 |
| 4 | 2427 | 8 | 2447 | | |

Frequency and Channel list for 802.11 b/g/n(HT20):

Frequency and Channel list for 802.11n(HT40):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|--------------------|---------|--------------------|---------|--------------------|
| 3 | 2422 | 6 | 2437 | 9 | 2452 |
| 4 | 2427 | 7 | 2442 | | |
| 5 | 2432 | 8 | 2447 | | |

Test Frequency and Channel for 802.11 b/g/n(HT20):

| Lowest F | Lowest Frequency | | Middle Frequency | | st Frequency |
|----------|--------------------|---------|--------------------|----------------------------|--------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel Frequency (MHz) | |
| 1 | 2412 | 6 | 2437 | 11 | 2462 |

Test Frequency and Channel for :802.11 n(HT40)

| Lowest F | Lowest Frequency | | Middle Frequency | | st Frequency |
|----------|--------------------|---------|--------------------|---------|--------------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 3 | 2422 | 6 | 2437 | 9 | 2452 |

Multi-antenna correlation:

| Transmit Signals are Correlated |
|---|
| Directional gain = 10 log[(10 ^{G1/20} + 10 ^{G2/20} + + 10 ^{GN/20})2 /N _{ANT}] dBi |
| All Transmit Signals are Completely Uncorrelated |
| Directional gain = 10 log[(10 ^{G1/10} + 10 ^{G2/10} + + 10 ^{GN/10)} /N _{ANT}] dBi |



5 FACILITIES AND ACCREDITATIONS

FACILITIES 5.1

All measurement facilities used to collect the measurement data are located at:

EMTEK (DONGGUAN) CO., LTD.

1&2/F.,Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

| Site Description | | |
|-------------------------------|---|---|
| EMC Lab. | : | Accredited by CNAS, 2024.07.06 The certificate is valid until 2030.07.05 The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2018 The Certificate Registration Number is L3150 Accredited by FCC Designation Number: CN1300 Test Firm Registration Number: 945551 Accredited by A2LA, April 05, 2021 The Certificate Registration Number is 4321.02 Accredited by Industry Canada The Certificate Registration Number is CN0113 |
| Name of Firm | | · |
| Site Location | | 1&2/F.,Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China |
| Name of Firm Site Location | | and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdo |



6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus: Table 1

| Test Parameter | Measurement Uncertainty |
|--------------------------------|-------------------------|
| Radio Frequency | ±1x10^-5 |
| Maximum Peak Output Power Test | ±1.0dB |
| Conducted Emissions Test | See below |
| Radiated Emission Test | ±2.0dB |
| Power Density | ±2.0dB |
| Occupied Bandwidth Test | ±1.0dB |
| Band Edge Test | ±3dB |
| All emission, radiated | See below |
| Antenna Port Emission | ±3dB |
| Temperature | ±0.5°C |
| Humidity | ±3% |

| Table 2 | Uncertainty |
|---|---|
| Test Item | : 2.08dB(9K-150KHz) |
| Conducted Emission Uncertainty | 2.42dB(150K-30MHz) |
| Radiated Emission Uncertainty (3m Chamber) | : 3.32dB (30M~1GHz Polarize: H) 3.34dB (30M~1GHz Polarize: V) 4.98dB (1~6GHz) 5.20dB (6~18GHz) |

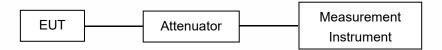
Measurement Uncertainty for a level of Confidence of 95%



7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP 1

The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360° , and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Below 30MHz:

The EUT is placed on a turntable 0.1 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

Above 30MHz:

The EUT is placed on a turntable 0.1 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360° , and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360° , and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Measurements shall be taken, using the following steps, at a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment (see RSS-Gen for applicable versions of ANSI and CISPR standards). (1) Line the ground plane with absorbers between the transmitter and the receive antenna to minimize reflections. The absorbers used should have a minimum-rated attenuation of 20 dB through the measurement frequency range of interest. The absorbers shall be positioned to replicate the layout used when compliance with the applicable acceptability criterion was achieved, as set forth in the aforementioned standards on site validation.

(2) Set the height of the receive antenna to 1.5 m. The receive antenna must be one that was designed and fabricated to operate over the entire frequency range of interest, for example, an appropriate standard gain horn.

(3) The distance between the receive antenna and the radiating source shall be sufficient in order to ensure far-field conditions.

(4) Mount the transmitter at a height of 1.5 m.

(5) Configure the device under test (DUT) to produce the maximum power spectral density as measured while assessing compliance with Section 6.2.2 (i.e. channel frequency, modulation type and data rate). If the DUT is equipped with a detachable antenna and the antenna is intended for remote installation (i.e.



tower-mounted), the DUT may be substituted with a suitable signal generator. The level and frequency settings on the generator shall be set so as to reproduce the maximum power spectral density, measured within a 1 MHz bandwidth, obtained while assessing compliance to Section 6.2.2.

(6) Position the transmitter or the radiating antenna so that elevation pattern measurements can be taken. (7) Find the 0° reference point in the horizontal plane.

(8) Care should be taken when positioning the receive antenna to avoid cross-polarization. Antennas of known mounting polarization should be assessed with the receive antenna oriented in the same polarity. If the polarization of the transmit antenna is unknown or the transmit antenna can be mounted in either polarization, e.i.r.p. measurements should be performed to find which

mounting polarity provides the highest e.i.r.p. value. Testing shall be carried out with the receive antenna and the DUT mounted in each polarity.

(9) The emission shall be centred on the display of the spectrum analyzer with the following settings: i. If the power spectral density of the DUT was assessed with a peak detector and the antenna cannot be detached from the DUT, the spectrum analyzer shall be set to a peak detector with a resolution bandwidth and video bandwidth of 1 MHz.

ii. If the power spectral density of the DUT was assessed using a sample detector with power averaging and the antenna cannot be detached from the DUT, the spectrum analyzer shall be set to a sample detector, configured to produce 100 power averages and set with a resolution bandwidth, as well as a video bandwidth of 1 MHz.

iii. If the antenna can be detached from the DUT, a continuous wave (CW) signal equal to that of the power spectral density measurement may be used, the spectrum analyzer shall be set to peak detector with a resolution bandwidth and video bandwidth of 1 MHz.

(10) Rotate the turntable 360° recording the field strength at each step. Throughout the main beam of the antenna, the step size shall be kept to a maximum of 1°.

Once outside the main beam of the antenna, the maximum step size shall be as follows, when compared to the requirements of Section 6.2.2:

i. Between 0° and 8°, maximum step size of 2°:

ii. Between 8° and 40°, maximum step size of 4°;

iii. Between 40° and 45°, maximum step size of 1°;

iv. Between 45° and 90°, maximum step size of 5°.

Once the mask reaches 90°, the mask will be inverted and the step size will follow in the same manner as above.

For the purpose of this procedure, the main beam of the antenna is defined as the 3 dB beamwidth. (11) Convert the measured field strength values in terms of e.i.r.p. density (dBW/1 MHz) using the following equation:

e.i.r.p density(dBW/MHz)=10log((E*r)²/30)

E = field strength in V/m

r = measurement distance in metres

(12) Plot the results against the emission mask with reference to the horizontal plane.

(13) Using the plot, the 0° can be rotated to determine the worst-case installation tilt angle.

(14) Testing shall be performed using the highest gain antenna for every antenna type, if applicable.

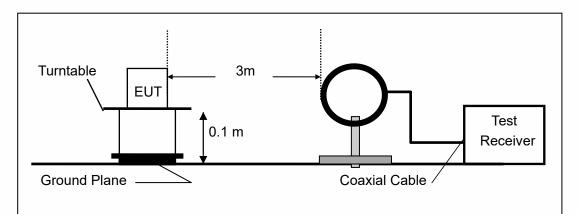
(15) Antenna type(s), antenna model number(s), and worst-case tilt angle(s) necessary to remain

compliant with the elevation mask requirement set forth in Section 6.2.2(3) of RSS-247 shall be clearly indicated in the user manual.

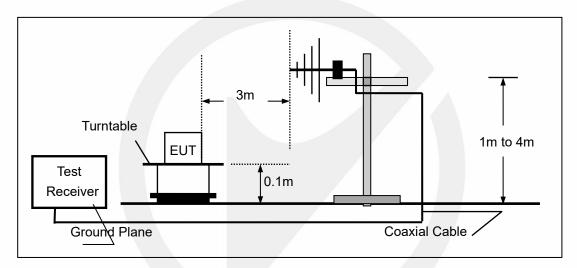
The following figure is an example of a polar elevation mask measured using the Method 1 reference to dBµV/m at 3 m.



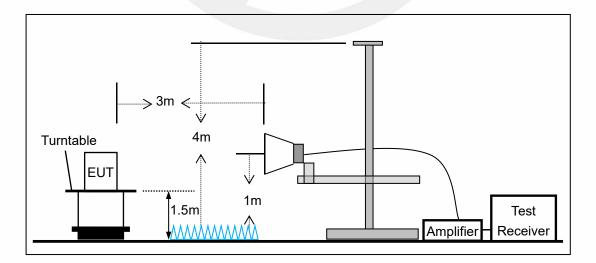
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz



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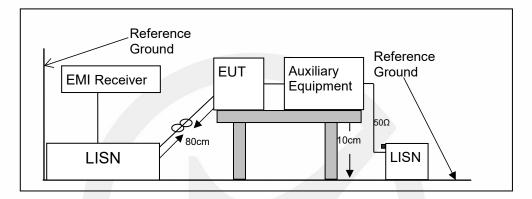


7.3 CONDUCTED EMISSION TEST SETUP

The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.1 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.1m from the LISN.

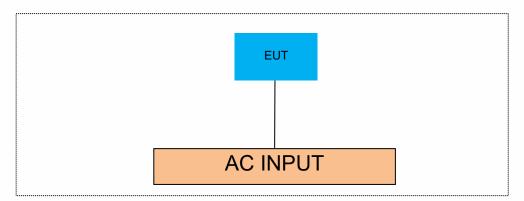
Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.





7.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



7.5 SUPPORT EQUIPMENT

| EUT Cable List and Details | | | | | | |
|--|---|---|---|--|--|--|
| Description Manufacturer Model Serial Number | | | | | | |
| 1 | 1 | 1 | / | | | |

| Auxiliary Cable List and Details | | | | | | |
|---|---|---|---|--|--|--|
| Cable Description Length (m) Shielded/Unshielded With / Without Ferrite | | | | | | |
| 1 | 1 | 1 | 1 | | | |

| Auxiliary Equipment List and | Details | | |
|------------------------------|--------------|-------|----------------------------|
| Description | Manufacturer | Model | Serial Number |
| Notebook | Lenovo | E46L | 11S168003748Z0LR0 6E0HG |
| | | | |

Notes:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



8 TEST REQUIREMENTS

8.1 DTS 6DB BANDWIDTH

8.1.1 Applicable Standard

According to FCC Part15.247 (a)(2) and KDB 558074 D01 15.247 Meas Guidance v05r02 According to RSS-247 5.2(a)

8.1.2 Conformance Limit

The minimum -6 dB bandwidth shall be at least 500 kHz.

8.1.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.1.4 Test Procedure

The EUT was operating in WIFI mode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 100 kHz.

Set the video bandwidth (VBW) =300 kHz.

Set Span=2 times OBW

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

Allow the trace to stabilize.

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Measure and record the results in the test report.

8.1.5 Test Results

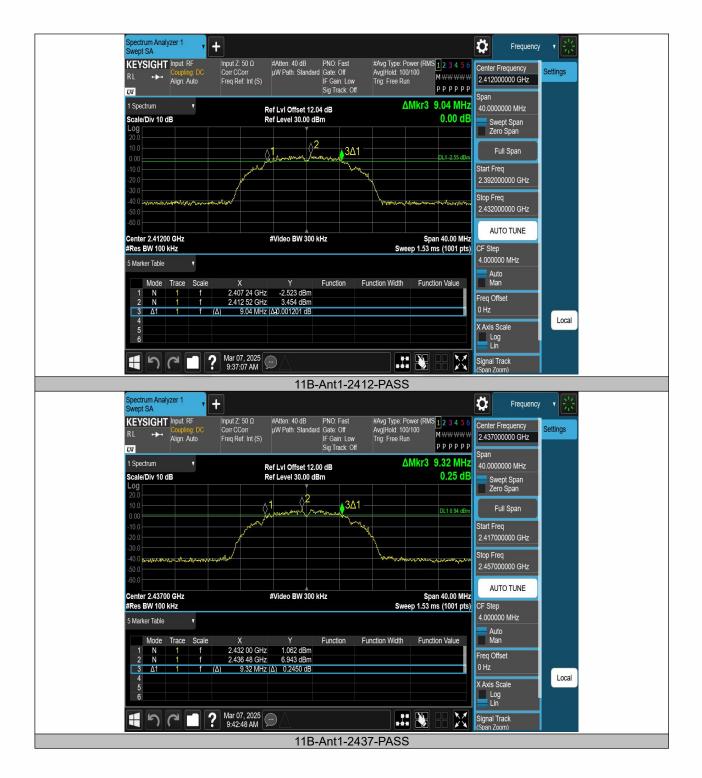
| Temperature: | 25°C |
|--------------------|-----------|
| Relative Humidity: | 45% |
| ATM Pressure: | 1011 mbar |

Note: N/A



| TestMode | Antenna | Frequency[MHz] | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|----------------|-----------------|----------|----------|------------|---------|
| 11B | Ant1 | 2412 | 9.040 | 2407.240 | 2416.280 | 0.5 | PASS |
| 11B | Ant1 | 2437 | 9.320 | 2432.000 | 2441.320 | 0.5 | PASS |
| 11B | Ant1 | 2462 | 9.520 | 2457.000 | 2466.520 | 0.5 | PASS |
| 11G | Ant1 | 2412 | 16.440 | 2403.760 | 2420.200 | 0.5 | PASS |
| 11G | Ant1 | 2437 | 16.440 | 2428.760 | 2445.200 | 0.5 | PASS |
| 11G | Ant1 | 2462 | 16.400 | 2453.800 | 2470.200 | 0.5 | PASS |
| 11N20SISO | Ant1 | 2412 | 17.040 | 2403.440 | 2420.480 | 0.5 | PASS |
| 11N20SISO | Ant1 | 2437 | 17.040 | 2428.480 | 2445.520 | 0.5 | PASS |
| 11N20SISO | Ant1 | 2462 | 17.080 | 2453.440 | 2470.520 | 0.5 | PASS |
| 11N40SISO | Ant1 | 2422 | 32.880 | 2405.360 | 2438.240 | 0.5 | PASS |
| 11N40SISO | Ant1 | 2437 | 33.520 | 2420.120 | 2453.640 | 0.5 | PASS |
| 11N40SISO | Ant1 | 2452 | 33.280 | 2435.360 | 2468.640 | 0.5 | PASS |





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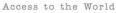
EMTEK (Dongguan) Co., Ltd.

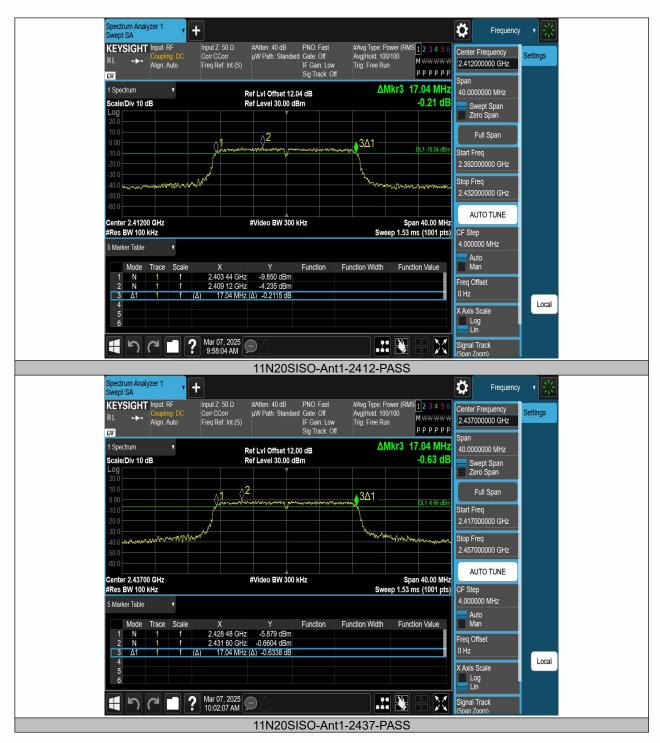




EMTEK (Dongguan) Co., Ltd.

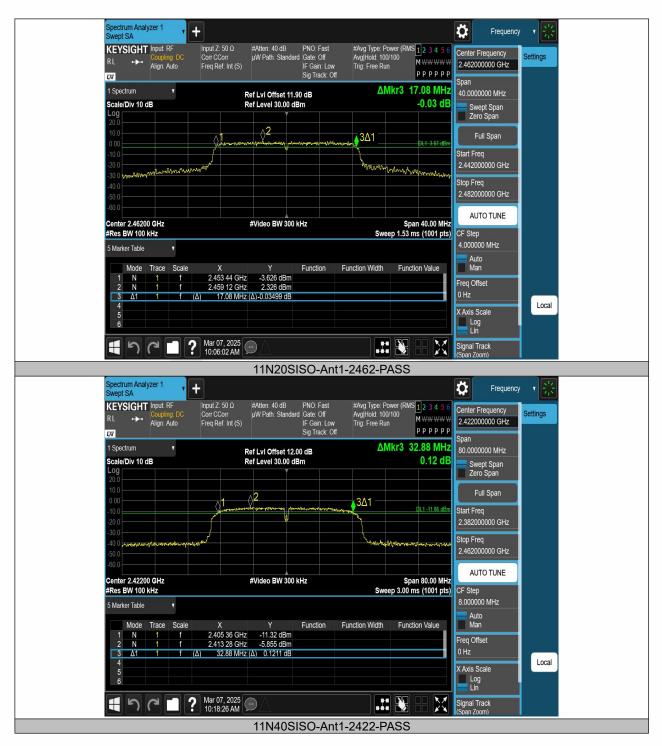






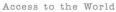
EMTEK (Dongguan) Co., Ltd.

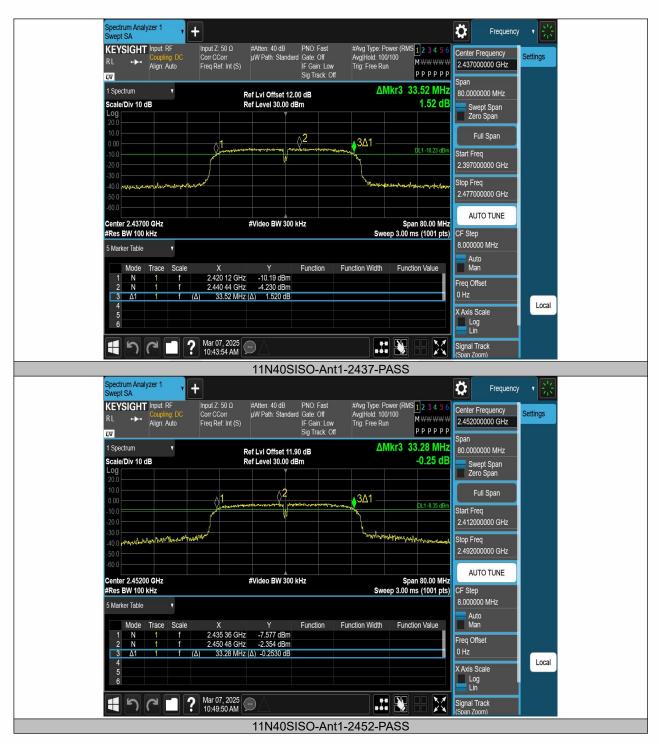




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8.2 DTS 99% BANDWIDTH

8.2.1 Applicable Standard

According to RSS-Gen 6.7 and KDB 558074 D01 DTS Meas Guidance v05r02

8.2.2 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

8.2.3 Test Procedure

The EUT was operating in Bluetooth mode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 1%-5% OBW.

Set the video bandwidth (VBW) \geq 3*RBW.

Set Span=approximately 2 to 3 times the 20 dB bandwidth.

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

Allow the trace to stabilize.

Use the 99 % power bandwidth function of the instrument

Measure the maximum width of the emission.

If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation.

Measure and record the results in the test report.

8.2.4 Test Results

| Temperature: | 25°C |
|--------------------|-----------|
| Relative Humidity: | 45% |
| ATM Pressure: | 1011 mbar |

Note: N/A



| TestMode | Antenna | Channel Frequency[MHz] | OCB [MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|-----------|---------|---------------------------|-----------|-----------|-----------|------------|---------|
| 11B | Ant1 | 2412 | 13.054 | 2405.3887 | 2418.4427 | | |
| 11B | Ant1 | 2437 | 13.105 | 2430.3825 | 2443.4875 | | |
| 11B | Ant1 | 2462 | 13.367 | 2455.2314 | 2468.5984 | | |
| 11G | Ant1 | 2412 | 16.562 | 2403.6648 | 2420.2268 | | |
| 11G | Ant1 | 2437 | 16.528 | 2428.7046 | 2445.2326 | | |
| 11G | Ant1 | 2462 | 16.861 | 2453.6037 | 2470.4647 | | |
| 11N20SISO | Ant1 | 2412 | 17.333 | 2403.2881 | 2420.6211 | | |
| 11N20SISO | Ant1 | 2437 | 17.339 | 2428.3055 | 2445.6445 | | |
| 11N20SISO | Ant1 | 2462 | 17.575 | 2453.2146 | 2470.7896 | | |
| 11N40SISO | Ant1 | 2422 | 34.723 | 2404.5802 | 2439.3032 | | |
| 11N40SISO | Ant1 | 2437 | 34.753 | 2419.6197 | 2454.3727 | | |
| 11N40SISO | Ant1 | 2452 | 34.756 | 2434.6421 | 2469.3981 | | |







Spectrum Analyzer 1 Occupied BW Ö + Frequency Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) Atten: 40 dB Trig: Free Run µW Path: Standard Gate: Off #IF Gain: Low Center Freq: 2.462000000 GHz KEYSIGHT Input: RF Center Frequency 2.462000000 GHz Avg|Hold: 100/100 Radio Std: None Settings Align: Auto L)(I Span Mkr1 2.460440000 GHz 1 Graph 40.000 MHz Ref LvI Offset 11.90 dB Ref Value 30.00 dBm 14.54 dBm Scale/Div 10.0 dB CF Step Log ▲1 4.000000 MHz Auto Man Freq Offset Span 40 MHz Sweep 1.00 ms (1001 pts) #Video BW 1.3000 MHz Center 2.46200 GHz #Res BW 430.00 kHz 2 Metrics Occupied Bandwidth 13.367 MHz 24.9 dBm Total Power Transmit Freq Error x dB Bandwidth -85.093 kHz % of OBW Power 99.00 % Local 16.39 MHz x dB -26.00 dB (1, 2025 Pission C) (1, 2025) X 11B-Ant1-2462 Spectrum Analyzer 1 Occupied BW Ö + Frequency Input Z: 50 Ω Atten: 40 dB Trig: Free Run μW Path: Standard Gate: Off #IF Gain: Low Center Freq: 2.412000000 GHz Avg|Hold: 100/100 Radio Std: None KEYSIGHT Input: RF Center Frequency Settings Corr CCorr Freq Ref: Int (S) Align: Auto 2.412000000 GHz L)(I Spar Mkr1 2.416040000 GHz 1 Graph Ref Lvi Offset 12.04 dB Ref Value 30.00 dBm 40.000 MHz 2.63 dBm Scale/Div 10.0 dB CF Step 4.000000 MHz 1 Auto Man Freq Offset Month and Martin Mand Marghton Manadle 0 Hz Center 2.41200 GHz #Res BW 430.00 kHz Span 40 MHz Sweep 1.00 ms (1001 pts) #Video BW 1.3000 MHz 2 Metrics Occupied Bandwidth 16.562 MHz Total Power 16.1 dBm -54.189 kHz 22.01 MHz 99.00 % -26.00 dB Transmit Freq Error % of OBW Power Local x dB Bandwidth x dB X 11G-Ant1-2412















Spectrum Analyzer 1 Occupied BW Ö + Frequency Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) Atten: 40 dB Trig: Free Run µW Path: Standard Gate: Off #IF Gain: Low Center Freq: 2.437000000 GHz KEYSIGHT Input: RF Center Frequency 2.437000000 GHz Avg|Hold: 100/100 Radio Std: None Settings Align: Auto L)(I Span Mkr1 2.447160000 GHz 1 Graph 80.000 MHz Ref LvI Offset 12.00 dB Ref Value 30.00 dBm 5.59 dBm Scale/Div 10.0 dB CF Step Log 8.000000 MHz ▲1 Auto Man Freq Offset Whyway A.L.N. 1 det Span 80 MHz Sweep 1.00 ms (1001 pts) Center 2.43700 GHz #Video BW 2.7000 MHz #Res BW 820.00 kHz 2 Metrics Occupied Bandwidth 34.753 MHz 19.8 dBm Total Power Transmit Freq Error x dB Bandwidth -3.818 kHz % of OBW Power 99.00 % Local 39.18 MHz x dB -26.00 dB H つ C I ? Mar 07, 2025 💬 X 11N40SISO-Ant1-2437 Spectrum Analyzer 1 Occupied BW Ö + Frequency Input Z: 50 Ω Atten: 40 dB Trig: Free Run μW Path: Standard Gate: Off #IF Gain: Low Center Freq: 2.452000000 GHz Avg|Hold: 100/100 Radio Std: None KEYSIGHT Input: RF Center Frequency Settings Corr CCorr Freq Ref: Int (S) Align: Auto 2.452000000 GHz L)(I Spar Mkr1 2.462400000 GHz 1 Graph Ref Lvi Offset 11.90 dB Ref Value 30.00 dBm 80.000 MHz 6.99 dBm Scale/Div 10.0 dB CF Step 8.000000 MHz 71 Auto Man Freq Offset also marker for the table with m Center 2.45200 GHz #Res BW 820.00 kHz Span 80 MHz Sweep 1.00 ms (1001 pts) #Video BW 2.7000 MHz 2 Metrics Occupied Bandwidth 34.756 MHz Total Power 21.5 dBm 20.101 kHz 47.94 MHz 99.00 % -26.00 dB Transmit Freq Error % of OBW Power Local x dB Bandwidth x dB X 11N40SISO-Ant1-2452



8.3 MAXIMUM PEAK CONDUCTED OUTPUT POWER

8.3.1 **Applicable Standard**

According to FCC Part15.247 (b)(3) and KDB 558074 D01 15.247 Meas Guidance v05r02 According to RSS-247 5.4(d) and RSS-Gen 6.12

8.3.2 **Conformance Limit**

The maximum conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm).

8.3.3 **Test Configuration**

Test according to clause 6.1 radio frequency test setup

8.3.4 **Test Procedure**

a) Set span to at least 1.5 times the OBW.

b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.

c) Set VBW \geq 3 x RBW.

d) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This gives bin-to-bin spacing $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)

e) Sweep time = auto.

f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.

q) If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle \geq 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".

h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

According to FCC Part 15.247(b)(4):

Conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note: If antenna Gain exceeds 6 dBi, then Output power Limit=30-(Gain- 6)

8.3.5 **Test Results**

| Temperature: | 25 °C |
|--------------------|-----------|
| Relative Humidity: | 45% |
| ATM Pressure: | 1011 mbar |

Note: N/A



| Test Mode | Anten na | Frequen cy[MHz] | Average power [dBm] | Duty Cycle [%] | DC Factor [dBm] | Result [dBm] | Limit [dBm] | Gain [dBi] | EIRP [dBm] | EIRP Limit [dBm] | Verdic t |
|---------------|-------------|--------------------|---------------------------|----------------------|-----------------------|-----------------|----------------|---------------|---------------|------------------------|-------------|
| 11B | Ant1 | 2412 | 12.76 | 100.00 | 0.00 | 12.76 | ≤30.00 | 2.33 | 15.09 | ≤36.00 | PASS |
| 11B | Ant1 | 2437 | 15.56 | 100.00 | 0.00 | 15.56 | ≤30.00 | 2.33 | 17.89 | ≤36.00 | PASS |
| 11B | Ant1 | 2462 | 18.60 | 100.00 | 0.00 | 18.60 | ≤30.00 | 2.33 | 20.93 | ≤36.00 | PASS |
| 11G | Ant1 | 2412 | 10.17 | 100.00 | 0.00 | 10.17 | ≤30.00 | 2.33 | 12.5 | ≤36.00 | PASS |
| 11G | Ant1 | 2437 | 13.62 | 100.00 | 0.00 | 13.62 | ≤30.00 | 2.33 | 15.95 | ≤36.00 | PASS |
| 11G | Ant1 | 2462 | 16.76 | 100.00 | 0.00 | 16.76 | ≤30.00 | 2.33 | 19.09 | ≤36.00 | PASS |
| 11N20 SISO | Ant1 | 2412 | 9.96 | 100.00 | 0.00 | 9.96 | ≤30.00 | 2.33 | 12.29 | ≤36.00 | PASS |
| 11N20 SISO | Ant1 | 2437 | 13.43 | 100.00 | 0.00 | 13.43 | ≤30.00 | 2.33 | 15.76 | ≤36.00 | PASS |
| 11N20 SISO | Ant1 | 2462 | 16.59 | 100.00 | 0.00 | 16.59 | ≤30.00 | 2.33 | 18.92 | ≤36.00 | PASS |
| 11N40 SISO | Ant1 | 2422 | 11.04 | 100.00 | 0.00 | 11.04 | ≤30.00 | 2.33 | 13.37 | ≤36.00 | PASS |
| 11N40 SISO | Ant1 | 2437 | 12.99 | 100.00 | 0.00 | 12.99 | ≤30.00 | 2.33 | 15.32 | ≤36.00 | PASS |
| 11N40 SISO | Ant1 | 2452 | 14.62 | 100.00 | 0.00 | 14.62 | ≤30.00 | 2.33 | 16.95 | ≤36.00 | PASS |

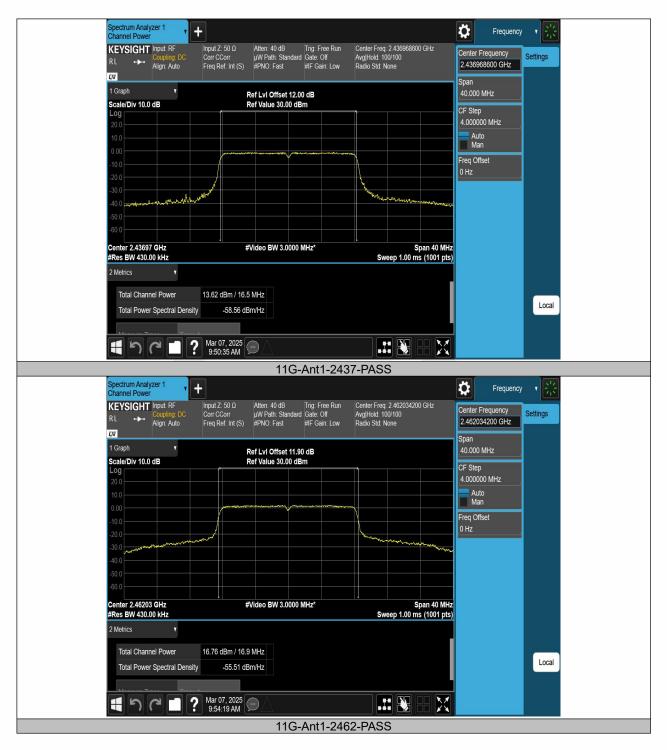














| Spectrum Analyzer 1 | | | | | | | |
|---|--|---|--|--|---------------------------------|---------------------------------|--|
| Channel Power | + | | | 4 | Frequency | ▼ 2 ¹ / ₂ | |
| KEYSIGHT Input: RF | Input Z: 50 Ω Atten: 40 dB Corr CCorr uW Path; Star | Trig: Free Run ndard Gate: Off | Center Freq: 2.411954600 GHz Avg Hold: 100/100 | Center Fr | | Settings | |
| RL +++ Align: Auto | Freq Ref: Int (S) #PNO: Fast | | Radio Std: None | 2.411954 | 600 GHz | | |
| 1 Graph v | Ref LvI Offset | 12.04 dB | | Span 40.000 M | Hz | | |
| Scale/Div 10.0 dB | Ref Value 30.0 | | - | CF Step | | | |
| 20.0 | | | | 4.000000 | MHz | | |
| 10.0 | | | | Auto Man | | | |
| -10.0 | | Jana Mariana Mari | N | Freq Offse | et | | |
| -20.0 | | | | 0 Hz | | | |
| -30.0 | | | | | | | |
| -50.0 | West" | | "man and the second | | | | |
| -60.0 | | | | | | | |
| Center 2.41195 GHz #Res BW 430.00 kHz | #Video BW 3.0 | 000 MHz* | Span 40 MH: Sweep 1.00 ms (1001 pts | | | | |
| 2 Metrics | | | | | | | |
| Total Channel Power | 9.96 dBm / 17.3 MHz | | | | | | |
| Total Power Spectral Dens | | | | | | Local | |
| | | | | | | | |
| 4501 | ? Mar 07, 2025 9:58:16 AM | | | | | | |
| | | | | | | | |
| | 1111/0 | | | | | | |
| Chaptering Analyzes 4 | | 5150-Anti-2 | 2412-PASS | | | | |
| Spectrum Analyzer 1 Channel Power | + | | | ₽ | Frequency | Y 21/2 715 | |
| Channel Power KEYSIGHT Input: RF | HINDUL Z: 50 Ω Atten: 40 dB Corr CCorr μW Path: Star | Trig: Free Run ndard Gate: Off | Center Freq: 2.436975000 GHz Avg Hold: 100/100 | Center Fr | equency | Settings | |
| Channel Power | Input Ζ: 50 Ω Atten: 40 dB | Trig: Free Run ndard Gate: Off | Center Freq: 2.436975000 GHz | Center Fr 2.436975 | equency | | |
| Channel Power Input: RF KEYSIGHT Input: RF RL Input: RF LW Align: Auto 1 Graph Y | + Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset | Trig: Free Run Gate: Off #IF Gain: Low 12.00 dB | Center Freq: 2.436975000 GHz Avg Hold: 100/100 | Center Fr | equency 000 GHz | | |
| Channel Power KEYSIGHT RL ↔ Chuping DC Align: Auto | H Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) HVNO: Fast | Trig: Free Run Gate: Off #IF Gain: Low 12.00 dB | Center Freq: 2.436975000 GHz Avg Hold: 100/100 | Center Fro 2.436975 Span 40.000 M CF Step | equency 000 GHz Hz | | |
| Channel Power Input RF KEYSIGHT Input RF RL →→ I Graph ▼ Scale/Div 10.0 dB Log 20.0 | + Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset | Trig: Free Run Gate: Off #IF Gain: Low 12.00 dB | Center Freq: 2.436975000 GHz Avg Hold: 100/100 | Center Fm 2.436975 Span 40.000 M CF Step 4.000000 | equency 000 GHz Hz | | |
| Channel Power Input RF KEYSIGHT Input RF RL → ZVT Align: Auto 1 Graph ¥ Scale/Div 10.0 dB | + Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset | Trig: Free Run Gate: Off #IF Gain: Low 12.00 dB | Center Freq: 2.436975000 GHz Avg Hold: 100/100 | Center Fro 2.436975 Span 40.000 M CF Step | equency 000 GHz Hz | | |
| Channel Power Input R KEYSIGHT Input R RL Input R Zvi Align: Auto 1 Graph V Scale/Div 10.0 dB Log 20 0 10 0 10 0 10 0 | + Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset | Trig: Free Run Gate: Off #IF Gain: Low 12.00 dB | Center Freq: 2.436975000 GHz Avg Hold: 100/100 | Center Fr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offse | equency 000 GHz Hz MHz | | |
| Channel Power Input R KEYSIGHT Input R RL Input R Log Align: Auto 200 B 100 B 100 Comparison 200 Comparison 100 Comparison 200 Comparison 200 Comparison 200 Comparison | + Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset | Trig: Free Run Gate: Off #IF Gain: Low 12.00 dB | Center Freq: 2.436975000 GHz Avg Hold: 100/100 | Center Fr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man | equency 000 GHz Hz MHz | | |
| Channel Power Input R KEYSIGHT Input R RL Input R Torph Align: Auto Scale/Div 10.0 dB Log 20 0 10 0 10 0 10 0 | + Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset | Trig: Free Run Gate: Off #IF Gain: Low 12.00 dB | Center Freq: 2.436975000 GHz Avg Hold: 100/100 | Center Fr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offse | equency 000 GHz Hz MHz | | |
| Channel Power Input: RF KEYSIGHT Input: RF RL + I Graph Scale/Div 10.0 dB Log 200 100 | + Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset | Trig: Free Run Gate: Off #IF Gain: Low 12.00 dB | Center Freq. 2.436975000 GHz AvglHold: 100/100 Radio Std: None | Center Fr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offse | equency 000 GHz Hz MHz | | |
| Channel Power Input RF KEYSIGHT Input RF RL Input RF 200 Input RF Scale/Div 10.0 dB Imput RF Log Imput RF 200 Imput RF 100 Imput RF -200 Imput RF -300 Imput RF -600 Imput RF | Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset Ref Value 30.0 Solution | Trig: Free Run dard Gate: Off #IF Gain: Low 12.00 dB 0 dBm | Center Freq. 2.436975000 GHz Avg[Hold: 100/100 Radio Std. None | Center Fm 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offst 0 Hz | equency 000 GHz Hz MHz | | |
| Channel Power Input: RF KEYSIGHT Input: RF RL + I Graph - Scale/Div 10.0 dB - Log - 200 - 100 - - -< | + Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref LvI Offset | Trig: Free Run dard Gate: Off #IF Gain: Low 12.00 dB 0 dBm | Center Freq: 2.436975000 GHz AvglHold: 100/100 Radio Std: None | Center Frr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offsd 0 Hz | equency 000 GHz Hz MHz | | |
| Channel Power Input: RF KEYSIGHT Input: RF RL → 1 Graph ▼ Scale/Div 10.0 dB ▼ Log − 200 − 100 − 000 − < | Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset Ref Value 30.0 Solution | Trig: Free Run dard Gate: Off #IF Gain: Low 12.00 dB 0 dBm | Center Freq. 2.436975000 GHz Avg[Hold: 100/100 Radio Std. None | Center Frr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offsd 0 Hz | equency 000 GHz Hz MHz | | |
| Channel Power KEYSIGHT Input: RF RL | Input Z: 50 Ω Atten: 40 dB Corr CCorr Freq Ref. Int (S) #PNO. Fast #PNO. Fast #PNO. Fast #Video BW 3.0 | Trig: Free Run dard Gate: Off #IF Gain: Low 12.00 dB 0 dBm | Center Freq: 2.436975000 GHz AvglHold: 100/100 Radio Std: None | Center Frr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offsd 0 Hz | equency 000 GHz Hz MHz | | |
| Channel Power KEYSIGHT Input RF RL Coupoing DC Airgn: Auto V Scale/Div 10.0 dB O O O O O O O O O O O O O O O O O O O | Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset Ref Value 30.0 Ref Value 30.0 #Video BW 3.0 #Video BW 3.0 | Trig: Free Run dard Gate: Off #IF Gain: Low 12.00 dB 0 dBm | Center Freq: 2.436975000 GHz AvglHold: 100/100 Radio Std: None | Center Frr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offsd 0 Hz | equency 000 GHz Hz MHz | | |
| Channel Power KEYSIGHT Input: RF RL KEYSIGHT Input: RF RL Scale/Div 10.0 dB Cog 20.0 1 Graph Scale/Div 10.0 dB Cog 20.0 1 Graph Conter 2.43698 GHz #Res BW 430.00 kHz 2 Metrics Total Channel Power | Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset Ref Value 30.0 Ref Value 30.0 #Video BW 3.0 #Video BW 3.0 | Trig: Free Run dard Gate: Off #IF Gain: Low 12.00 dB 0 dBm | Center Freq: 2.436975000 GHz AvglHold: 100/100 Radio Std: None | Center Frr 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offsd 0 Hz | equency 000 GHz Hz MHz | Settings | |
| Channel Power KEYSIGHT Input RF RL KEYSIGHT Input RF RL Scale/Div 10.0 dB Cog Conting 10 Conting | Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) Ref Lvl Offset Ref Value 30.0 Ref Value 30.0 #Video BW 3.0 #Video BW 3.0 | Trig: Free Run dard Gate: Off #IF Gain: Low 12.00 dB 0 dBm | Center Freq: 2.436975000 GHz AvglHold: 100/100 Radio Std: None | Center Frn 2.436975 Span 40.000 M CF Step 4.000000 Auto Man Freq Offst 0 Hz | equency 000 GHz Hz MHz | Settings | |



| Spectrum Analyzer 1 | | | | |
|---|--|--|---|----------|
| Channel Power | | | Frequer | cy 🔻 🚉 |
| KEYSIGHT Input: RF | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru | | Center Frequency | Settings |
| RL +++ Coupling: DC Align: Auto | Corr CCorr µW Path: Standard Gate: Off Freq Ref: Int (S) #PNO: Fast #IF Gain: Low | Avg Hold: 100/100 w Radio Std: None | 2.462002100 GHz | Settings |
| 1,11 | | | Span | |
| 1 Graph v | Ref LvI Offset 11.90 dB | | 40.000 MHz | |
| Scale/Div 10.0 dB | Ref Value 30.00 dBm | | CF Step | |
| 20.0 | | | 4.000000 MHz | _ |
| 10.0 | | | Auto Man | |
| -10.0 | | | Freq Offset | |
| -20.0 | | - Annow manufacture | 0 Hz | |
| -30.0 | | the second s | N | |
| -40.0 | | | | |
| -60.0 | | | | |
| Center 2.46200 GHz | #Video BW 3.0000 MHz* | Span 40 MH | 7 | |
| #Res BW 430.00 kHz | | Sweep 1.00 ms (1001 pts | | |
| 2 Metrics V | | | | |
| Total Channel Power | 16.59 dBm / 17.6 MHz | | | |
| Total Power Spectral Density | -55.86 dBm/Hz | | | Local |
| | | | | |
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| | 11N20SISO-An | | | |
| Spectrum Analyzer 1 | 11N20SISO-An | | Č Frequer | cy V 🔆 |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF | 11N20SISO-An Input Z 50 Ω Atten: 40 dB Trig: Free Ru | t1-2462-PASS | | للتقا |
| Spectrum Analyzer 1 | 11N20SISO-An | t1-2462-PASS | Center Frequency 2.421941700 GHz | ov v 🔆 |
| Spectrum Analyzer 1 Channel Power KEYSIGHT RL ↔ Coupling: DC Align: Auto | 11N20SISO-An 1 | t1-2462-PASS | Center Frequency | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF RL ++ Coupling: DC Align: Auto | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT RL ↔ Coupling: DC Align: Auto | Input Z. 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr μW Path: Standard Gate: Off Freq Ref. Int (S) #PNO: Fast #IF Gain: Loo | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF Cuuping: DC Align: Auto UN 1 Graph Scale/Div 10.0 dB Log 20.0 | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.000000 MHz | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF Cupling: DC Align: Auto UN 1 Graph Scale/Div 10.0 dB Log 20.0 10.0 | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF Cuuping: DC Align: Auto UN 1 Graph Scale/Div 10.0 dB Log 20.0 | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF Cupling: DC LV I Graph I Graph Scale/Div 10.0 dB Log 200 10.0 0.00 | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80 000 MHz CF Step 8.00000 MHz Auto Man | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF RL → Coupling: DC Align: Auto ZZ 1 Graph Scale/Div 10.0 dB Log 20.0 10.0 0.00 -0.0 | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF RL → Coupling: DC Aign: Auto 22 1 Graph Scale/Div 10.0 dB Log 20.0 10.0 0.00 -0.0 - | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF RL → Coupling: DC Align: Auto ZZ 1 Graph Scale/Div 10.0 dB Log 20.0 10.0 0.00 -0.0 | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset | للتقا |
| Spectrum Analyzer 1 + Channel Power Imput: RF RL → 1 Graph * Scale/Div 10.0 dB 20.0 - 100 - 20.0 - 100 - -100 - -200 - -300 - -600 - | 11N20SISO-An Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Freq Ref: Int (S) #PN0: Fast #IF Gain: Loo Ref Lvi Offset 12.00 dB Ref Lvi Offset 12.00 dB Ref Lvi Offset 12.00 dB Int (S) Atten: 40 dB Trig: Free Ru Ref Lvi Offset 12.00 dB Ref Value 30.00 dBm | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset 0 Hz | للتقا |
| Spectrum Analyzer 1 Channel Power KEYSIGHT Input: RF RL → Cruping: DC Aign: Auto 20 1 Graph Scale/Div 10.0 dB Log 20.0 10.0 0.00 -10.0 -20.0 -30.0 -30.0 -50.0 | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Gate: Off Freq Ref. Int (S) #PN0: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB B B | t1-2462-PASS | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset 0 Hz | للتقا |
| Spectrum Analyzer 1 + Channel Power • KEYSIGHT Input: RF Cupling: DC Align: Auto 1 Graph • Scate/Div 10.0 dB • Log • 20.0 • 10.0 • -000 • -000 • -000 • -000 • -000 • -000 • -000 • -000 • -000 • -000 • -000 • -000 • -000 • | 11N20SISO-An Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Freq Ref: Int (S) #PN0: Fast #IF Gain: Loo Ref Lvi Offset 12.00 dB Ref Lvi Offset 12.00 dB Ref Lvi Offset 12.00 dB Int (S) Atten: 40 dB Trig: Free Ru Ref Lvi Offset 12.00 dB Ref Value 30.00 dBm | t1-2462-PASS In Center Freq: 2.421941700 GHz AvgHold: 100/100 Radio Std: None | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset 0 Hz | للتقا |
| Spectrum Analyzer 1 Channel Power Coupling: DC RL → Coupling: DC Align: Auto I Graph Scale/Div 10.0 dB Coupling: DC Coupling: DC Coupling: DC Coupling: DC Coupling: DC Align: Auto 1 Graph Scale/Div 10.0 dB Coupling: DC Coupling: DC | Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr Freq Ref: Int (S) #PNO: Fast #IF Gain: Low Ref Lvl Offset 12.00 dB Ref Value 30.00 dBm #Video BW 3.0000 MHz* | t1-2462-PASS In Center Freq: 2.421941700 GHz AvgHold: 100/100 Radio Std: None | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset 0 Hz | للتقا |
| Spectrum Analyzer 1 Channel Power Coupling DC Align: Auto Total Channel Power I Graph Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto I Graph Scale/Div 10.0 dB Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto | 11N20SISO-An Input Z: 50 Ω Atten: 40 dB Trig: Free Ru Corr CCorr µW Path: Standard Gate: Off Freq Ref: Int (S) #PN0: Fast #IF Gain: Loo Ref Lvi Offset 12.00 dB Ref Lvi Offset 12.00 dB Ref Lvi Offset 12.00 dB Int (S) Atten: 40 dB Trig: Free Ru Ref Lvi Offset 12.00 dB Ref Value 30.00 dBm | t1-2462-PASS In Center Freq: 2.421941700 GHz AvgHold: 100/100 Radio Std: None | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset 0 Hz | لتنق |
| Spectrum Analyzer 1 Channel Power Coupling: DC RL → Coupling: DC Align: Auto I Graph Scale/Div 10.0 dB Coupling: DC Coupling: DC Coupling: DC Coupling: DC Coupling: DC Align: Auto 1 Graph Scale/Div 10.0 dB Coupling: DC Coupling: DC | Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) #PNO: Fast Ref Lvl Offset 12.00 dB Ref Value 30.00 dBm #Video BW 3.0000 MHz* 11.04 dBm / 34.7 MHz | t1-2462-PASS In Center Freq: 2.421941700 GHz AvgHold: 100/100 Radio Std: None | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset 0 Hz | Settings |
| Spectrum Analyzer 1 Channel Power Coupling DC Align: Auto Total Channel Power I Graph Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto I Graph Scale/Div 10.0 dB Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto Coupling DC Align: Auto | Input Z: 50 Ω Corr CCorr Freq Ref. Int (S) #PNO: Fast Ref Lvl Offset 12.00 dB Ref Value 30.00 dBm #Video BW 3.0000 MHz* 11.04 dBm / 34.7 MHz | t1-2462-PASS In Center Freq: 2.421941700 GHz AvgHold: 100/100 Radio Std: None | Center Frequency 2.421941700 GHz Span 80.000 MHz CF Step 8.00000 MHz Auto Man Freq Offset 0 Hz | Settings |



Spectrum Analyzer 1 Channel Power Ö + Frequency Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) Center Freq: 2.436996200 GHz Atten: 40 dB Trig: Free Run KEYSIGHT Input: RF Center Frequency 2.436996200 GHz μW Path: Standard Gate: Off #PNO: Fast #IF Gain: Low Avg|Hold: 100/100 Radio Std: None Settings Align: Auto L)(I Span 1 Graph 80.000 MHz Ref LvI Offset 12.00 dB Ref Value 30.00 dBm Scale/Div 10.0 dB CF Step Log 8.000000 MHz Auto Man Freq Offset Center 2.43700 GHz #Res BW 820.00 kHz Span 80 MHz Sweep 1.00 ms (1001 pts) #Video BW 3.0000 MHz* 2 Metrics Total Channel Power 12.99 dBm / 34.8 MHz Local Total Power Spectral Density -62.42 dBm/Hz X 11N40SISO-Ant1-2437-PASS Spectrum Analyzer 1 Channel Power Ö + Frequency Center Freq: 2.452020100 GHz Avg|Hold: 100/100 Radio Std: None Input Z: 50 Ω Corr CCorr Freq Ref: Int (S)
 Atten: 40 dB
 Trig: Free Run

 μW Path: Standard
 Gate: Off

 #PNO: Fast
 #IF Gain: Low
 KEYSIGHT Input: RF Center Frequency Settings Align: Auto 2.452020100 GHz L)(I Span 1 Graph Ref Lvi Offset 11.90 dB Ref Value 30.00 dBm 80.000 MHz Scale/Div 10.0 dB CF Step 8.000000 MHz .og Auto Man Freq Offset 0 Hz Center 2.45202 GHz #Res BW 820.00 kHz #Video BW 3.0000 MHz* Span 80 MHz Sweep 1.00 ms (1001 pts) 2 Metrics 14.62 dBm / 34.8 MHz Total Channel Power Local Total Power Spectral Density -60.79 dBm/Hz モッマ **ニ**? Mar 07, 2025 💬 X 11N40SISO-Ant1-2452-PASS