

RADIO PERFORMANCE TEST REPORT

Test Report No. : OT-248-RWD-002
Reception No. : 2405001565
Applicant : OTOS Wing Co.,Ltd.
Address : 49, Dusan-ro 11-gil, Geumcheon-gu, Seoul, Korea
Manufacturer : OTOS Wing Co.,Ltd.
Address : 49, Dusan-ro 11-gil, Geumcheon-gu, Seoul, Korea
Type of Equipment : Welding Camera Helmet
FCC ID. : 2BHHTWG3PLUS
Model Name : WG3+
Multiple Model Name : N/A
Serial number : N/A
Total page of Report : 57 pages (including this page)
Date of Incoming : April 24, 2024
Date of issue : August 05, 2024

SUMMARY

The equipment complies with the regulation; *FCC PART 15 SUBPART C Section 15.247*

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

This report is not correlated with the "KS Q ISO/IEC 17025 and KOLAS accreditation" of Korean Laboratory Accreditation Scheme.



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※ Please refer to the Annex section for All test plots

Revision History

| Rev. No. | Issue Report No. | Issued Date | Revisions | Section Affected |
|----------|------------------|-----------------|-----------------|------------------|
| 0 | OT-248-RWD-002 | August 05, 2024 | Initial Release | All |
| | | | | |
| | | | | |

1. VERIFICATION OF COMPLIANCE

Applicant : OTOS Wing Co.,Ltd.
 Address : 49, Dusan-ro 11-gil, Geumcheon-gu, Seoul, Korea
 Contact Person : Kim, Byeong Ryeol / CTO
 Telephone No. : +82-2-700-8090
 FCC ID : 2BHHTWG3PLUS
 Model Name : WG3+
 Brand Name : -
 Serial Number : N/A
 Date : August 05, 2024

| | |
|--|--|
| EQUIPMENT CLASS | DTS – DIGITAL TRNSMISSION SYSTEM |
| E.U.T. DESCRIPTION | Welding Camera Helmet |
| THIS REPORT CONCERNS | Original Grant |
| MEASUREMENT PROCEDURES | ANSI C63.10: 2013 |
| TYPE OF EQUIPMENT TESTED | Pre-Production |
| KIND OF EQUIPMENT AUTHORIZATION REQUESTED | Certification |
| EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S) | FCC PART 15 SUBPART C Section 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02 |
| Modifications on the Equipment to Achieve Compliance | None |
| Final Test was Conducted On | 3 m, Semi Anechoic Chamber |

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. TEST SUMMARY

2.1 Test items and results

| SECTION | TEST ITEMS | RESULTS |
|----------------|---|------------------------|
| 15.247 (a) (2) | Minimum 6 dB Bandwidth | Met the Limit / PASS |
| 15.247 (b) (3) | Maximum Conducted(Average) Output Power | Met the Limit / PASS |
| 15.247 (d) | 100 kHz Bandwidth Outside the Frequency Band | Met the Limit / PASS |
| 15.247 (d) | Radiated Emission which fall in the Restricted Band | Met the Limit / PASS |
| 15.247 (e) | Average Power Spectral Density | Met the Limit / PASS |
| 15.209 | Radiated Emission Limits | Met the Limit / PASS |
| 15.207 | Conducted Limits | N/A (See Note) |
| 15.203 | Antenna Requirement | Met requirement / PASS |

Note: The EUT operates only with the battery, and the EUT cannot operate while the battery is charging.

So this test item is not requirement to be performed.

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 15 SUBPART C Section 15.247.

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-20122/ C-14617/ G-10666/ T-11842

-. Lab Accreditation:

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

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OTC-TRF-RF-001(0)

3. GENERAL INFORMATION

3.1 Product Description

The OTOS Wing Co.,Ltd., Model WG3+ (referred to as the EUT in this report) is a Welding Camera Helmet. The product specification described herein was obtained from product data sheet or user’s manual.

| | | |
|--|--|--|
| DEVICE TYPE | Welding Camera Helmet | |
| OPERATING FREQUENCY | 2 412 MHz ~ 2 462 MHz (802.11b/g/n(HT20)) 2 422 MHz ~ 2 452 MHz (802.11n(HT40)) | |
| MODULATION TYPE | 802.11b: DSSS Modulation (DBPSK/DQPSK/CCK) 802.11g/n(HT20)/n(HT40): OFDM Modulation (BPSK/QPSK/16QAM/64QAM) | |
| RF OUTPUT POWER | Antenna 0 | 15.64 dBm(802.11b) 16.39 dBm(802.11g) 14.07 dBm(802.11n_HT20) 13.20 dBm(802.11n_HT40) |
| | Antenna 1 | 15.32 dBm(802.11b) 15.68 dBm(802.11g) 14.09 dBm(802.11n_HT20) 14.00 dBm(802.11n_HT40) |
| | Multiple Antenna | 15.82 dBm(802.11n_HT20) 16.17 dBm(802.11n_HT40) |
| ANTENNA TYPE | Chip Antenna | |
| ANTENNA GAIN | Antenna 0 | 2.09 dBi |
| | Antenna 1 | 2.09 dBi |
| | Multiple Antenna | 5.10 dBi |
| List of each Osc. or crystal Freq.(Freq. >= 1 MHz) | 32.768 KHz, 19.200 MHz, 27.000 MHz | |

3.2 Alternative type(s)/model(s); also covered by this test report.

-. None

4. EUT MODIFICATIONS

-. None

5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

| DEVICE TYPE | MANUFACTURER | MODEL/PART NUMBER | FCC ID |
|-------------|--------------------|-------------------|--------|
| Main Board | OTOS Wing Co.,Ltd. | N/A | N/A |

5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

| Model | Manufacturer | Description | Connected to |
|------------|--------------------|-----------------------------|--------------|
| WG3+ | OTOS Wing Co.,Ltd. | Welding Camera Helmet (EUT) | - |
| Ideapad320 | LENOVO | Notebook PC | EUT |
| Battery | N/A | N/A | EUT |

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting mode is programmed.

-. Frequency / Channel Operations

| Channel | Frequency |
|---------|-----------|
| 1 | 2 412 |
| 2 | 2 417 |
| 3 | 2 422 |
| 4 | 2 427 |
| 5 | 2 432 |
| 6 | 2 437 |
| 7 | 2 442 |
| 8 | 2 447 |
| 9 | 2 452 |
| 10 | 2 457 |
| 11 | 2 462 |

-. Power Level Setting

| Operating Frequency / Modulation | | | Power Level Setting | | | |
|--|-------------------|-----------|---------------------|-------|-------|-------|
| | | | SISO | | MIMO | |
| | | | Ant 0 | Ant 1 | Ant 0 | Ant 1 |
| WLAN 2.4 GHz (2 412 MHz ~ 2 462 MHz) | 802.11 b | 2 412 MHz | 66 | 65 | - | - |
| | | 2 437 MHz | 63 | 61 | - | - |
| | | 2 462 MHz | 66 | 63 | - | - |
| | 802.11 g | 2 412 MHz | 70 | 73 | - | - |
| | | 2 437 MHz | 74 | 68 | - | - |
| | | 2 462 MHz | 70 | 67 | - | - |
| | 802.11 n(HT20) | 2 412 MHz | 64 | 64 | 58 | 58 |
| | | 2 437 MHz | 60 | 56 | 58 | 55 |
| | | 2 462 MHz | 58 | 55 | 58 | 52 |
| WLAN 2.4 GHz (2 422 MHz ~ 2 452 MHz) | 802.11 n(HT40) | 2 422 MHz | 57 | 63 | 45 | 45 |
| | | 2 437 MHz | 61 | 58 | 58 | 54 |
| | | 2 452 MHz | 57 | 58 | 59 | 56 |

-. Middle Channel

| Modulation | DATA RATE | OUTPUT POWER[dBm] | |
|----------------|------------|-------------------|-----------|
| | | Antenna 0 | Antenna 1 |
| 802.11 b | 1 Mbps | 14.80 | 14.37 |
| | 2 Mbps | 14.67 | 14.20 |
| | 5.5 Mbps | 14.32 | 13.86 |
| | 11 Mbps | 13.85 | 13.43 |
| 802.11 g | 6 Mbps | 15.90 | 15.24 |
| | 9 Mbps | 15.83 | 15.12 |
| | 12 Mbps | 15.70 | 15.04 |
| | 18 Mbps | 15.39 | 14.75 |
| | 24 Mbps | 15.12 | 14.51 |
| | 36 Mbps | 14.87 | 14.23 |
| | 48 Mbps | 14.27 | 13.81 |
| | 54 Mbps | 14.14 | 13.40 |
| 802.11 n(HT20) | 6.5 Mbps | 12.70 | 12.34 |
| | 13 Mbps | 12.46 | 12.13 |
| | 19.5 Mbps | 12.16 | 11.88 |
| | 26 Mbps | 12.03 | 11.53 |
| | 39 Mbps | 11.70 | 11.18 |
| | 52 Mbps | 11.43 | 10.93 |
| | 58.5 Mbps | 11.29 | 10.91 |
| | 65 Mbps | 11.20 | 10.43 |
| 802.11 n(HT40) | 13.5 Mbps | 12.52 | 12.31 |
| | 27 Mbps | 12.00 | 11.87 |
| | 40.5 Mbps | 11.59 | 11.52 |
| | 54 Mbps | 11.14 | 11.32 |
| | 81 Mbps | 10.61 | 10.31 |
| | 108 Mbps | 10.32 | 10.11 |
| | 121.5 Mbps | 10.06 | 9.70 |
| | 135 Mbps | 9.92 | 9.51 |

-. The worse case data rate for each modulation is determined 1 Mbps(Ant.0/Ant.1) for IEEE 802.11b, 6 Mbps(Ant.0/Ant.1) for IEEE 802.11g, 6.5 Mbps(Ant.0/Ant.1) for IEEE 802.11n(HT20), 13.5 Mbps(Ant.0/Ant.1) for IEEE 802.11n(HT40).

-. To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes and the worst case is “XY” axis.

-. Duty Cycle

| Mode | DATA RATE | Tx On Time [ms] | Tx Off Time [ms] | Duty Cycle [%] | Correction Factor [dB] |
|---------------------------|-----------|----------------------|-----------------------|---------------------|--------------------------------|
| 802.11 b_Antenna 0 | 1 Mbps | 12.450 | 12.850 | 96.89 | 0.14 |
| 802.11 g_Antenna 0 | 6 Mbps | 2.072 | 2.240 | 92.50 | 0.34 |
| 802.11 n(HT20)_Antenna 0 | 6.5 Mbps | 1.925 | 2.100 | 91.67 | 0.38 |
| 802.11 n(HT40)_ Antenna 0 | 13.5 Mbps | 0.945 | 1.141 | 82.82 | 0.82 |
| 802.11 b_Antenna 1 | 1 Mbps | 12.450 | 12.850 | 96.89 | 0.14 |
| 802.11 g_Antenna 1 | 6 Mbps | 2.072 | 2.240 | 92.50 | 0.34 |
| 802.11 n(HT20)_Antenna 1 | 6.5 Mbps | 1.925 | 2.100 | 91.67 | 0.38 |
| 802.11 n(HT40)_ Antenna 1 | 13.5 Mbps | 0.945 | 1.141 | 82.82 | 0.82 |

Note – Duty Cycle : (Tx On Time / (Tx On Time + Tx Off Time)) * 100

Correction Factor : 10 * Log(1 / (Duty Cycle / 100))

5.4 Configuration of Test System

Line Conducted Test: The EUT operates only with the battery, and the EUT cannot operate while the battery is charging. So this test item is not requirement to be performed.

Radiated Emission Test: Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter Semi Anechoic Chamber.

The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

5.5 Antenna Requirement

For intentional device, according to section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Construction:

The antenna of the EUT is Chip Antenna on the main board in the EUT, so no consideration of replacement by the user.

6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

| Parameter | Expanded Uncertainty (dB) |
|---|---------------------------|
| Conducted Output Power | 0.68 |
| Conducted Spurious Emission < 26.5 GHz | 1.60 |
| Power Spectral Density | 1.55 |
| Line Conducted Disturbance (150 kHz ~ 30 MHz) | 2.00 |
| Radiated Disturbance (9 kHz ~ 30 MHz) | 4.09 |
| Radiated Disturbance (30 MHz ~ 1 GHz) | 3.98 |
| Radiated Disturbance (1 GHz ~ 18 GHz) | 5.56 |
| Radiated Disturbance (18 GHz ~ 40 GHz) | 5.65 |

7. PRELIMINARY TEST

7.1 AC Power line Conducted Emissions Tests

During Preliminary Test, the following operating mode was investigated.

| Operation Mode | The Worse operating condition (Please check one only) |
|--|---|
| The EUT operates only with the battery, and the EUT cannot operate while the battery is charging. So this test item is not requirement to be performed. | |

7.2 General Radiated Emissions Tests

During Preliminary Test, the following operating mode was investigated.

| Operation Mode | The Worse operating condition (Please check one only) |
|-------------------|---|
| Transmitting Mode | X |

8. MIMIMUM 6 dB BANDWIDTH

8.1 Operating environment

Temperature : 23 °C
 Relative humidity : 45 % R.H.

8.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, and peak detection was used. The 6 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 6 dB.



8.3 Test Date

April 24, 2024 ~ May 28, 2024

8.4 Test data for 802.11b WLAN Mode

8.4.1 Test data for SISO Antenna 0

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 412.00 | 10.14 | 0.50 | 9.64 |
| Middle | 2 437.00 | 10.09 | 0.50 | 9.59 |
| High | 2 462.00 | 10.09 | 0.50 | 9.59 |

Remark. Margin = Measured Value - Limit

8.4.2 Test data for SISO Antenna 1

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 412.00 | 10.09 | 0.50 | 9.59 |
| Middle | 2 437.00 | 10.09 | 0.50 | 9.59 |
| High | 2 462.00 | 10.09 | 0.50 | 9.59 |

Remark. Margin = Measured Value - Limit

8.5 Test data for 802.11g WLAN Mode

8.5.1 Test data for SISO Antenna 0

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 412.00 | 15.13 | 0.50 | 14.63 |
| Middle | 2 437.00 | 15.18 | 0.50 | 14.68 |
| High | 2 462.00 | 15.13 | 0.50 | 14.63 |

Remark. Margin = Measured Value - Limit

8.5.2 Test data for SISO Antenna 1

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 412.00 | 15.13 | 0.50 | 14.63 |
| Middle | 2 437.00 | 15.13 | 0.50 | 14.63 |
| High | 2 462.00 | 15.13 | 0.50 | 14.63 |

Remark. Margin = Measured Value – Limit

8.6 Test data for 802.11n_HT20 WLAN Mode

8.6.1 Test data for SISO Antenna 0

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 412.00 | 15.18 | 0.50 | 14.68 |
| Middle | 2 437.00 | 15.18 | 0.50 | 14.68 |
| High | 2 462.00 | 15.18 | 0.50 | 14.68 |

Remark. Margin = Measured Value - Limit

8.6.2 Test data for SISO Antenna 1

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 412.00 | 15.13 | 0.50 | 14.63 |
| Middle | 2 437.00 | 15.18 | 0.50 | 14.68 |
| High | 2 462.00 | 15.18 | 0.50 | 14.68 |

Remark. Margin = Measured Value - Limit

8.6.3 Test data for MIMO Antenna 0

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 412.00 | 15.13 | 0.50 | 14.63 |
| Middle | 2 437.00 | 15.13 | 0.50 | 14.63 |
| High | 2 462.00 | 15.13 | 0.50 | 14.63 |

Remark. Margin = Measured Value - Limit

8.6.4 Test data for MIMO Antenna 1

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 412.00 | 15.48 | 0.50 | 14.98 |
| Middle | 2 437.00 | 15.18 | 0.50 | 14.68 |
| High | 2 462.00 | 15.18 | 0.50 | 14.68 |

Remark. Margin = Measured Value - Limit

8.7 Test data for 802.11n_HT40 WLAN Mode

8.7.1 Test data for SISO Antenna 0

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 422.00 | 35.16 | 0.50 | 34.66 |
| Middle | 2 437.00 | 35.16 | 0.50 | 34.66 |
| High | 2 452.00 | 35.16 | 0.50 | 34.66 |

Remark. Margin = Measured Value - Limit

8.7.2 Test data for SISO Antenna 1

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 422.00 | 35.16 | 0.50 | 34.66 |
| Middle | 2 437.00 | 35.16 | 0.50 | 34.66 |
| High | 2 452.00 | 35.16 | 0.50 | 34.66 |

Remark. Margin = Measured Value - Limit

8.7.3 Test data for MIMO Antenna 0

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 422.00 | 35.16 | 0.50 | 34.57 |
| Middle | 2 437.00 | 35.16 | 0.50 | 34.66 |
| High | 2 452.00 | 35.16 | 0.50 | 34.66 |

Remark. Margin = Measured Value - Limit

8.7.4 Test data for MIMO Antenna 1

-. Test Result : Pass

| CHANNEL | FREQUENCY (MHz) | 6 dB Bandwidth (MHz) | LIMIT (MHz) | Margin (MHz) |
|---------|--------------------|-------------------------|----------------|-----------------|
| Low | 2 422.00 | 35.16 | 0.50 | 34.66 |
| Middle | 2 437.00 | 35.16 | 0.50 | 34.66 |
| High | 2 452.00 | 35.16 | 0.50 | 34.66 |

Remark. Margin = Measured Value - Limit

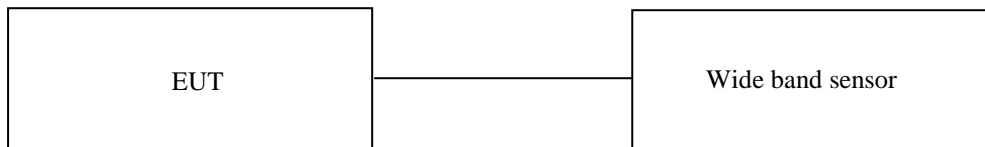
9. MAXIMUM CONDUCTED (AVERAGE) OUTPUT POWER

9.1 Operating environment

Temperature : 23 °C
 Relative humidity : 45 % R.H.

9.2 Test set-up

The maximum peak output power was measured with the wide band sensor connected to the antenna output of the EUT. The Wide Band Sensor is measured when the EUT is transmitting at the appropriate center frequency its maximum power control level as described in Section 8.3(558074 D01 15.247 Meas Guidance v05r02).



9.3 Test Date

April 24, 2024 ~ May 28, 2024

9.4 Test data for 802.11b WLAN Mode

9.4.1 Test data for SISO Antenna 0

-. Test Result : Pass
 -. Duty Cycle : 96.89 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 15.64 | 30.00 | 14.36 |
| MIDDLE | 2 437.00 | 15.07 | 30.00 | 14.93 |
| HIGH | 2 462.00 | 15.58 | 30.00 | 14.42 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.4.2 Test data for SISO Antenna 1

-. Test Result : Pass
 -. Duty Cycle : 96.89 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 15.32 | 30.00 | 14.68 |
| MIDDLE | 2 437.00 | 14.51 | 30.00 | 15.49 |
| HIGH | 2 462.00 | 14.79 | 30.00 | 15.21 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.5 Test data for 802.11g WLAN Mode

9.5.1 Test data for SISO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 92.50 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 15.01 | 30.00 | 14.99 |
| MIDDLE | 2 437.00 | 16.39 | 30.00 | 13.61 |
| HIGH | 2 462.00 | 15.68 | 30.00 | 14.32 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.5.2 Test data for SISO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 92.50 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 15.68 | 30.00 | 14.32 |
| MIDDLE | 2 437.00 | 14.96 | 30.00 | 15.04 |
| HIGH | 2 462.00 | 14.91 | 30.00 | 15.09 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.6 Test data for 802.11n_HT20 WLAN Mode

9.6.1 Test data for SISO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 14.07 | 30.00 | 15.93 |
| MIDDLE | 2 437.00 | 13.03 | 30.00 | 16.97 |
| HIGH | 2 462.00 | 12.91 | 30.00 | 17.09 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.6.2 Test data for SISO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 14.09 | 30.00 | 15.91 |
| MIDDLE | 2 437.00 | 12.78 | 30.00 | 17.22 |
| HIGH | 2 462.00 | 12.55 | 30.00 | 17.45 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.6.3 Test data for MIMO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 12.34 | 30.00 | 17.66 |
| MIDDLE | 2 437.00 | 12.82 | 30.00 | 17.18 |
| HIGH | 2 462.00 | 12.43 | 30.00 | 17.57 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.6.4 Test data for MIMO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 12.97 | 30.00 | 17.03 |
| MIDDLE | 2 437.00 | 12.79 | 30.00 | 17.21 |
| HIGH | 2 462.00 | 12.06 | 30.00 | 17.94 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.6.5 Test data for Multiple Transmit

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 412.00 | 15.68 | 30.00 | 14.32 |
| MIDDLE | 2 437.00 | 15.82 | 30.00 | 14.18 |
| HIGH | 2 462.00 | 15.26 | 30.00 | 14.74 |

Remark 1: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

Remark 2: Calculated Output Power= $10\log (10^{(\text{MIMO Antenna 0 Output Power}/10)}+10^{(\text{MIMO Antenna 1 Output Power}/10)})$

9.7 Test data for 802.11n_HT40 WLAN Mode

9.7.1 Test data for SISO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 422.00 | 12.60 | 30.00 | 17.40 |
| MIDDLE | 2 437.00 | 13.20 | 30.00 | 16.80 |
| HIGH | 2 452.00 | 12.38 | 30.00 | 17.62 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.7.2 Test data for SISO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 422.00 | 14.00 | 30.00 | 16.00 |
| MIDDLE | 2 437.00 | 12.93 | 30.00 | 17.07 |
| HIGH | 2 452.00 | 13.53 | 30.00 | 16.47 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.7.3 Test data for MIMO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 422.00 | 9.55 | 30.00 | 20.45 |
| MIDDLE | 2 437.00 | 12.55 | 30.00 | 17.45 |
| HIGH | 2 452.00 | 13.08 | 30.00 | 16.92 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.7.4 Test data for MIMO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 422.00 | 9.95 | 30.00 | 20.05 |
| MIDDLE | 2 437.00 | 12.50 | 30.00 | 17.50 |
| HIGH | 2 452.00 | 13.24 | 30.00 | 16.76 |

Remark: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

9.7.5 Test data for Multiple Transmit

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|--------------------|-------------------------|----------------|----------------|
| LOW | 2 422.00 | 12.76 | 30.00 | 17.24 |
| MIDDLE | 2 437.00 | 15.54 | 30.00 | 14.46 |
| HIGH | 2 452.00 | 16.17 | 30.00 | 13.83 |

Remark 1: Margin = Limit – Measured Value (=Power Sensor Reading + Cable Loss + Duty Cycle Correction Factor)

Remark 2: Calculated Output Power= $10\log (10^{(\text{MIMO Antenna 0 Output Power}/10)}+10^{(\text{MIMO Antenna 1 Output Power}/10)})$

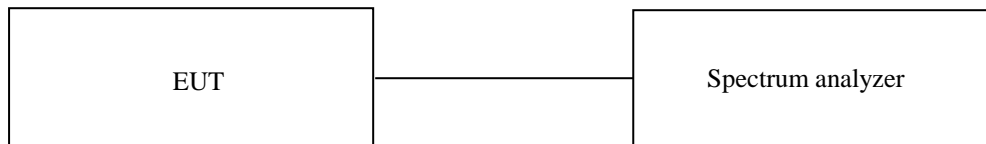
10. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

10.1 Operating environment

Temperature : 23 °C
 Relative humidity : 45 % R.H.

10.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution and video bandwidth is set to 100 kHz, and peak detection was used.



10.3 Test set-up for radiated measurement

The radiated emissions measurements were performed on the 3 m semi anechoic chamber. The EUT was placed on turntable approximately 1.5 m above the ground plane.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

10.4 Test Date

April 24, 2024 ~ May 28, 2024

10.5 Test data for conducted emission

For Test data for conducted emission, please refer to the Annex.

10.6 Test data for radiated emission

10.6.1 Radiated Emission which fall in the Restricted Band

10.6.1.1 Test data for 802.11b WLAN Mode

10.6.1.1.1 Test data for SISO Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 96.89 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 389.63 | 63.61 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 63.67 | 74.00 | 10.33 |
| 2 386.27 | 43.19 | Average | H | 27.53 | 4.65 | 42.55 | 10.43 | 0.14 | 43.39 | 54.00 | 10.61 |
| 2 386.37 | 63.16 | Peak | V | 27.53 | 4.65 | 42.55 | 10.43 | - | 63.22 | 74.00 | 10.78 |
| 2 386.37 | 43.29 | Average | V | 27.53 | 4.65 | 42.55 | 10.43 | 0.14 | 43.49 | 54.00 | 10.51 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 484.91 | 63.66 | Peak | H | 27.53 | 4.83 | 42.51 | 10.45 | - | 63.96 | 74.00 | 10.04 |
| 2 488.18 | 43.37 | Average | H | 27.52 | 4.88 | 42.50 | 10.44 | 0.14 | 43.85 | 54.00 | 10.15 |
| 2 484.61 | 63.47 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 63.77 | 74.00 | 10.23 |
| 2 487.23 | 43.04 | Average | V | 27.53 | 4.88 | 42.51 | 10.44 | 0.14 | 43.52 | 54.00 | 10.48 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.1.2 Test data for SISO Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 96.89 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 389.53 | 62.95 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 63.01 | 74.00 | 10.99 |
| 2 386.68 | 43.32 | Average | H | 27.53 | 4.65 | 42.55 | 10.43 | 0.14 | 43.52 | 54.00 | 10.48 |
| 2 389.74 | 63.29 | Peak | V | 27.52 | 4.65 | 42.54 | 10.43 | - | 63.35 | 74.00 | 10.65 |
| 2 389.94 | 42.98 | Average | V | 27.52 | 4.65 | 42.54 | 10.43 | 0.14 | 43.18 | 54.00 | 10.82 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 484.72 | 61.55 | Peak | H | 27.53 | 4.83 | 42.51 | 10.45 | - | 61.85 | 74.00 | 12.15 |
| 2 487.34 | 42.88 | Average | H | 27.53 | 4.88 | 42.51 | 10.44 | 0.14 | 43.36 | 54.00 | 10.64 |
| 2 484.72 | 63.37 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 63.67 | 74.00 | 10.33 |
| 2 487.42 | 43.05 | Average | V | 27.53 | 4.88 | 42.51 | 10.44 | 0.14 | 43.53 | 54.00 | 10.47 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.2 Test data for 802.11g WLAN Mode

10.6.1.2.1 Test data for SISO Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 92.50 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 389.84 | 62.44 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 62.50 | 74.00 | 11.50 |
| 2 390.04 | 50.92 | Average | H | 27.52 | 4.65 | 42.54 | 10.43 | 0.34 | 51.32 | 54.00 | 2.68 |
| 2 389.84 | 58.19 | Peak | V | 27.52 | 4.65 | 42.54 | 10.43 | - | 58.25 | 74.00 | 15.75 |
| 2 389.94 | 44.44 | Average | V | 27.52 | 4.65 | 42.54 | 10.43 | 0.34 | 44.84 | 54.00 | 9.16 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 483.73 | 62.54 | Peak | H | 27.53 | 4.83 | 42.51 | 10.45 | - | 62.84 | 74.00 | 11.16 |
| 2 483.58 | 50.17 | Average | H | 27.53 | 4.83 | 42.51 | 10.45 | 0.34 | 50.81 | 54.00 | 3.19 |
| 2 486.62 | 56.25 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 56.55 | 74.00 | 17.45 |
| 2 483.70 | 44.71 | Average | V | 27.53 | 4.83 | 42.51 | 10.45 | 0.34 | 45.35 | 54.00 | 8.65 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.2.2 Test data for SISO Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 92.50 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 389.74 | 65.11 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 65.17 | 74.00 | 8.83 |
| 2 390.04 | 49.21 | Average | H | 27.52 | 4.65 | 42.54 | 10.43 | 0.34 | 49.61 | 54.00 | 4.39 |
| 2 389.33 | 58.49 | Peak | V | 27.52 | 4.65 | 42.54 | 10.43 | - | 58.55 | 74.00 | 15.45 |
| 2 390.04 | 46.02 | Average | V | 27.52 | 4.65 | 42.54 | 10.43 | 0.34 | 46.42 | 54.00 | 7.58 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 484.64 | 55.05 | Peak | H | 27.53 | 4.83 | 42.51 | 10.45 | - | 55.35 | 74.00 | 18.65 |
| 2 483.92 | 43.81 | Average | H | 27.53 | 4.83 | 42.51 | 10.45 | 0.34 | 44.45 | 54.00 | 9.55 |
| 2 483.85 | 54.55 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 54.85 | 74.00 | 19.15 |
| 2 483.51 | 43.49 | Average | V | 27.53 | 4.83 | 42.51 | 10.45 | 0.34 | 44.13 | 54.00 | 9.87 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.3 Test data for 802.11n_HT20 WLAN Mode

10.6.1.3.1 Test data for SISO Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 91.67 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 387.80 | 61.39 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 61.45 | 74.00 | 12.55 |
| 2 390.04 | 49.06 | Average | H | 27.52 | 4.65 | 42.54 | 10.43 | 0.38 | 49.50 | 54.00 | 4.50 |
| 2 388.61 | 56.43 | Peak | V | 27.52 | 4.65 | 42.54 | 10.43 | - | 56.49 | 74.00 | 17.51 |
| 2 389.94 | 43.14 | Average | V | 27.52 | 4.65 | 42.54 | 10.43 | 0.38 | 43.58 | 54.00 | 10.42 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 486.58 | 55.67 | Peak | H | 27.53 | 4.83 | 42.51 | 10.45 | - | 55.97 | 74.00 | 18.03 |
| 2 483.54 | 43.94 | Average | H | 27.53 | 4.83 | 42.51 | 10.45 | 0.38 | 44.62 | 54.00 | 9.38 |
| 2 483.81 | 54.36 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 54.66 | 74.00 | 19.34 |
| 2 483.58 | 42.78 | Average | V | 27.53 | 4.83 | 42.51 | 10.45 | 0.38 | 43.46 | 54.00 | 10.54 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.3.2 Test data for SISO Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 91.67 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 388.82 | 58.91 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 58.97 | 74.00 | 15.03 |
| 2 390.04 | 45.39 | Average | H | 27.52 | 4.65 | 42.54 | 10.43 | 0.38 | 45.83 | 54.00 | 8.17 |
| 2 354.17 | 52.66 | Peak | V | 27.59 | 4.62 | 42.56 | 10.41 | - | 52.72 | 74.00 | 21.28 |
| 2 345.92 | 40.91 | Average | V | 27.62 | 4.58 | 42.56 | 10.41 | 0.38 | 41.34 | 54.00 | 12.66 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 486.85 | 54.21 | Peak | H | 27.53 | 4.88 | 42.51 | 10.44 | - | 54.55 | 74.00 | 19.45 |
| 2 483.89 | 42.73 | Average | H | 27.53 | 4.83 | 42.51 | 10.45 | 0.38 | 43.41 | 54.00 | 10.59 |
| 2 483.73 | 53.14 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 53.44 | 74.00 | 20.56 |
| 2 483.51 | 42.47 | Average | V | 27.53 | 4.83 | 42.51 | 10.45 | 0.38 | 43.15 | 54.00 | 10.85 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.3.3 Test data for Multiple Transmit

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 91.67 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 388.72 | 65.70 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 65.76 | 74.00 | 8.24 |
| 2 390.04 | 48.48 | Average | H | 27.52 | 4.65 | 42.54 | 10.43 | 0.38 | 48.92 | 54.00 | 5.08 |
| 2 389.23 | 64.58 | Peak | V | 27.52 | 4.65 | 42.54 | 10.43 | - | 64.64 | 74.00 | 9.36 |
| 2 389.84 | 47.44 | Average | V | 27.52 | 4.65 | 42.54 | 10.43 | 0.38 | 47.88 | 54.00 | 6.12 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 483.66 | 62.25 | Peak | H | 27.53 | 4.83 | 42.51 | 10.45 | - | 62.55 | 74.00 | 11.45 |
| 2 483.54 | 49.03 | Average | H | 27.53 | 4.83 | 42.51 | 10.45 | 0.38 | 49.71 | 54.00 | 4.29 |
| 2 484.99 | 59.77 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 60.07 | 74.00 | 13.93 |
| 2 483.62 | 44.39 | Average | V | 27.53 | 4.83 | 42.51 | 10.45 | 0.38 | 45.07 | 54.00 | 8.93 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.4 Test data for 802.11n_HT40 WLAN Mode

10.6.1.4.1 Test data for SISO Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 82.82 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 389.94 | 64.24 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 64.30 | 74.00 | 9.70 |
| 2 389.72 | 50.67 | Average | H | 27.52 | 4.65 | 42.54 | 10.43 | 0.82 | 51.55 | 54.00 | 2.45 |
| 2 389.16 | 60.59 | Peak | V | 27.52 | 4.65 | 42.54 | 10.43 | - | 60.65 | 74.00 | 13.35 |
| 2 389.72 | 46.97 | Average | V | 27.52 | 4.65 | 42.54 | 10.43 | 0.82 | 47.85 | 54.00 | 6.15 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 484.20 | 56.92 | Peak | H | 27.53 | 4.83 | 42.51 | 10.45 | - | 57.22 | 74.00 | 16.78 |
| 2 483.82 | 45.66 | Average | H | 27.53 | 4.83 | 42.51 | 10.45 | 0.82 | 46.78 | 54.00 | 7.22 |
| 2 485.02 | 55.57 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 55.87 | 74.00 | 18.13 |
| 2 483.72 | 44.00 | Average | V | 27.53 | 4.83 | 42.51 | 10.45 | 0.82 | 45.12 | 54.00 | 8.88 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.4.2 Test data for SISO Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 82.82 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 389.61 | 57.60 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 57.66 | 74.00 | 16.34 |
| 2 389.72 | 45.89 | Average | H | 27.52 | 4.65 | 42.54 | 10.43 | 0.82 | 46.77 | 54.00 | 7.23 |
| 2 389.61 | 58.52 | Peak | V | 27.52 | 4.65 | 42.54 | 10.43 | - | 58.58 | 74.00 | 15.42 |
| 2 389.38 | 46.27 | Average | V | 27.52 | 4.65 | 42.54 | 10.43 | 0.82 | 47.15 | 54.00 | 6.85 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 498.11 | 53.34 | Peak | H | 27.50 | 4.93 | 42.50 | 10.44 | - | 53.71 | 74.00 | 20.29 |
| 2 484.87 | 42.07 | Average | H | 27.53 | 4.83 | 42.51 | 10.45 | 0.82 | 43.19 | 54.00 | 10.81 |
| 2 483.91 | 53.29 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 53.59 | 74.00 | 20.41 |
| 2 495.56 | 41.57 | Average | V | 27.51 | 4.93 | 42.50 | 10.44 | 0.82 | 42.77 | 54.00 | 11.23 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.1.4.3 Test data for Multiple Transmit

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Measurement distance : 3 m
- Duty Cycle : 82.82 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | ATT (dB) | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-----------------------------------|----------------|---------------|-----------------|-------------|------------|----------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | | |
| 2 389.05 | 64.93 | Peak | H | 27.52 | 4.65 | 42.54 | 10.43 | - | 64.99 | 74.00 | 9.01 |
| 2 389.83 | 50.63 | Average | H | 27.52 | 4.65 | 42.54 | 10.43 | 0.82 | 51.51 | 54.00 | 2.49 |
| 2 389.83 | 63.08 | Peak | V | 27.52 | 4.65 | 42.54 | 10.43 | - | 63.14 | 74.00 | 10.86 |
| 2 390.06 | 48.12 | Average | V | 27.52 | 4.65 | 42.54 | 10.43 | 0.82 | 49.00 | 54.00 | 5.00 |
| Test Data for High Channel | | | | | | | | | | | |
| 2 483.77 | 64.92 | Peak | H | 27.53 | 4.83 | 42.51 | 10.45 | - | 65.22 | 74.00 | 8.78 |
| 2 483.72 | 50.62 | Average | H | 27.53 | 4.83 | 42.51 | 10.45 | 0.82 | 51.74 | 54.00 | 2.26 |
| 2 483.62 | 62.54 | Peak | V | 27.53 | 4.83 | 42.51 | 10.45 | - | 62.84 | 74.00 | 11.16 |
| 2 484.73 | 49.60 | Average | V | 27.53 | 4.83 | 42.51 | 10.45 | 0.82 | 50.72 | 54.00 | 3.28 |

Tabulated test data for Restricted Band

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{ATT} + \text{Duty Factor}$$

10.6.2 Spurious & Harmonic Radiated Emission

10.6.2.1 Test data for 802.11b WLAN Mode

10.6.2.1.1 Test data for SISO Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 96.89 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 801.22 | 50.28 | Peak | H | 31.20 | 6.60 | 41.84 | - | 46.24 | 74.00 | 27.76 |
| 4 799.77 | 37.59 | Average | H | 31.20 | 6.60 | 41.84 | 0.14 | 33.69 | 54.00 | 20.31 |
| 4 799.97 | 50.05 | Peak | V | 31.20 | 6.60 | 41.84 | - | 46.01 | 74.00 | 27.99 |
| 4 823.95 | 37.37 | Average | V | 31.25 | 6.60 | 41.84 | 0.14 | 33.52 | 54.00 | 20.48 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 869.21 | 49.50 | Peak | H | 31.30 | 6.69 | 41.83 | - | 45.66 | 74.00 | 28.34 |
| 4 888.79 | 37.28 | Average | H | 31.30 | 6.70 | 41.82 | 0.14 | 33.60 | 54.00 | 20.40 |
| 4 888.24 | 49.53 | Peak | V | 31.30 | 6.70 | 41.82 | - | 45.71 | 74.00 | 28.29 |
| 4 869.80 | 37.25 | Average | V | 31.30 | 6.69 | 41.83 | 0.14 | 33.55 | 54.00 | 20.45 |
| Test Data for High Channel | | | | | | | | | | |
| 4 939.58 | 49.50 | Peak | H | 31.22 | 6.70 | 41.81 | - | 45.61 | 74.00 | 28.39 |
| 4 941.93 | 37.30 | Average | H | 31.22 | 6.70 | 41.81 | 0.14 | 33.55 | 54.00 | 20.45 |
| 4 912.16 | 49.37 | Peak | V | 31.28 | 6.70 | 41.82 | - | 45.53 | 74.00 | 28.47 |
| 4 937.49 | 37.19 | Average | V | 31.23 | 6.70 | 41.81 | 0.14 | 33.45 | 54.00 | 20.55 |

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.1.2 Test data for SISO Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 96.89 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 802.92 | 49.29 | Peak | H | 31.21 | 6.60 | 41.84 | - | 45.26 | 74.00 | 28.74 |
| 4 813.26 | 37.25 | Average | H | 31.23 | 6.60 | 41.84 | 0.14 | 33.38 | 54.00 | 20.62 |
| 4 824.00 | 50.29 | Peak | V | 31.25 | 6.60 | 41.84 | - | 46.30 | 74.00 | 27.70 |
| 4 824.05 | 40.73 | Average | V | 31.25 | 6.60 | 41.84 | 0.14 | 36.88 | 54.00 | 17.12 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 876.55 | 49.57 | Peak | H | 31.30 | 6.70 | 41.82 | - | 45.75 | 74.00 | 28.25 |
| 4 866.66 | 37.13 | Average | H | 31.30 | 6.69 | 41.83 | 0.14 | 33.43 | 54.00 | 20.57 |
| 4 873.75 | 49.48 | Peak | V | 31.30 | 6.69 | 41.83 | - | 45.64 | 74.00 | 28.36 |
| 4 874.10 | 38.49 | Average | V | 31.30 | 6.69 | 41.83 | 0.14 | 34.79 | 54.00 | 19.21 |
| Test Data for High Channel | | | | | | | | | | |
| 4 940.88 | 49.22 | Peak | H | 31.22 | 6.70 | 41.81 | - | 45.33 | 74.00 | 28.67 |
| 4 940.63 | 37.15 | Average | H | 31.22 | 6.70 | 41.81 | 0.14 | 33.40 | 54.00 | 20.60 |
| 4 930.94 | 49.07 | Peak | V | 31.24 | 6.70 | 41.81 | - | 45.20 | 74.00 | 28.80 |
| 4 924.05 | 38.80 | Average | V | 31.25 | 6.70 | 41.82 | 0.14 | 35.07 | 54.00 | 18.93 |

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.2 Test data for 802.11g WLAN Mode

10.6.2.2.1 Test data for SISO Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 92.50 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 799.52 | 49.60 | Peak | H | 31.20 | 6.60 | 41.84 | - | 45.56 | 74.00 | 28.44 |
| 4 800.02 | 37.24 | Average | H | 31.20 | 6.60 | 41.84 | 0.34 | 33.54 | 54.00 | 20.46 |
| 4 847.98 | 49.37 | Peak | V | 31.30 | 6.59 | 41.83 | - | 45.43 | 74.00 | 28.57 |
| 4 800.22 | 37.35 | Average | V | 31.20 | 6.60 | 41.84 | 0.34 | 33.65 | 54.00 | 20.35 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 881.69 | 49.44 | Peak | H | 31.30 | 6.70 | 41.82 | - | 45.62 | 74.00 | 28.38 |
| 4 852.47 | 37.31 | Average | H | 31.30 | 6.69 | 41.83 | 0.34 | 33.81 | 54.00 | 20.19 |
| 4 887.54 | 49.38 | Peak | V | 31.30 | 6.70 | 41.82 | - | 45.56 | 74.00 | 28.44 |
| 4 873.50 | 37.43 | Average | V | 31.30 | 6.69 | 41.83 | 0.34 | 33.93 | 54.00 | 20.07 |
| Test Data for High Channel | | | | | | | | | | |
| 4 914.71 | 49.32 | Peak | H | 31.27 | 6.70 | 41.82 | - | 45.47 | 74.00 | 28.53 |
| 4 944.73 | 37.21 | Average | H | 31.21 | 6.70 | 41.81 | 0.34 | 33.65 | 54.00 | 20.35 |
| 4 930.19 | 49.04 | Peak | V | 31.24 | 6.70 | 41.81 | - | 45.17 | 74.00 | 28.83 |
| 4 940.63 | 37.23 | Average | V | 31.22 | 6.70 | 41.81 | 0.34 | 33.68 | 54.00 | 20.32 |

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.2.2 Test data for SISO Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 92.50 %
- Result : PASSED

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 802.87 | 50.37 | Peak | H | 31.21 | 6.60 | 41.84 | - | 46.34 | 74.00 | 27.66 |
| 4 801.17 | 38.23 | Average | H | 31.20 | 6.60 | 41.84 | 0.34 | 34.53 | 54.00 | 19.47 |
| 4 843.58 | 49.42 | Peak | V | 31.29 | 6.59 | 41.83 | - | 45.47 | 74.00 | 28.53 |
| 4 834.44 | 37.37 | Average | V | 31.27 | 6.59 | 41.83 | 0.34 | 33.74 | 54.00 | 20.26 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 895.98 | 49.88 | Peak | H | 31.30 | 6.70 | 41.82 | - | 46.06 | 74.00 | 27.94 |
| 4 850.57 | 37.91 | Average | H | 31.30 | 6.69 | 41.83 | 0.34 | 34.41 | 54.00 | 19.59 |
| 4 850.82 | 49.56 | Peak | V | 31.30 | 6.69 | 41.83 | - | 45.72 | 74.00 | 28.28 |
| 4 881.49 | 37.33 | Average | V | 31.30 | 6.70 | 41.82 | 0.34 | 33.85 | 54.00 | 20.15 |
| Test Data for High Channel | | | | | | | | | | |
| 4 921.40 | 49.61 | Peak | H | 31.26 | 6.70 | 41.82 | - | 45.75 | 74.00 | 28.25 |
| 4 940.13 | 37.79 | Average | H | 31.22 | 6.70 | 41.81 | 0.34 | 34.24 | 54.00 | 19.76 |
| 4 932.89 | 49.35 | Peak | V | 31.23 | 6.70 | 41.81 | - | 45.47 | 74.00 | 28.53 |
| 4 948.13 | 37.42 | Average | V | 31.20 | 6.70 | 41.81 | 0.34 | 33.85 | 54.00 | 20.15 |

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.3 Test data for 802.11n_HT20 WLAN Mode

10.6.2.3.1 Test data for SISO Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 91.67 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 809.61 | 49.13 | Peak | H | 31.22 | 6.60 | 41.84 | - | 45.11 | 74.00 | 28.89 |
| 4 799.38 | 37.22 | Average | H | 31.20 | 6.60 | 41.84 | 0.38 | 33.56 | 54.00 | 20.44 |
| 4 821.85 | 49.97 | Peak | V | 31.24 | 6.60 | 41.84 | - | 45.97 | 74.00 | 28.03 |
| 4 830.09 | 37.21 | Average | V | 31.26 | 6.59 | 41.83 | 0.38 | 33.61 | 54.00 | 20.39 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 855.47 | 49.61 | Peak | H | 31.30 | 6.69 | 41.83 | - | 45.77 | 74.00 | 28.23 |
| 4 864.66 | 37.02 | Average | H | 31.30 | 6.69 | 41.83 | 0.38 | 33.56 | 54.00 | 20.44 |
| 4 890.63 | 50.10 | Peak | V | 31.30 | 6.70 | 41.82 | - | 46.28 | 74.00 | 27.72 |
| 4 869.90 | 37.15 | Average | V | 31.30 | 6.69 | 41.83 | 0.38 | 33.69 | 54.00 | 20.31 |
| Test Data for High Channel | | | | | | | | | | |
| 4 941.53 | 49.30 | Peak | H | 31.22 | 6.70 | 41.81 | - | 45.41 | 74.00 | 28.59 |
| 4 947.33 | 37.14 | Average | H | 31.21 | 6.70 | 41.81 | 0.38 | 33.62 | 54.00 | 20.38 |
| 4 909.31 | 49.02 | Peak | V | 31.28 | 6.70 | 41.82 | - | 45.18 | 74.00 | 28.82 |
| 4 942.58 | 37.03 | Average | V | 31.21 | 6.70 | 41.81 | 0.38 | 33.51 | 54.00 | 20.49 |

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.3.2 Test data for SISO Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 91.67 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 818.01 | 49.33 | Peak | H | 31.24 | 6.60 | 41.84 | - | 45.33 | 74.00 | 28.67 |
| 4 799.23 | 37.35 | Average | H | 31.20 | 6.60 | 41.84 | 0.38 | 33.69 | 54.00 | 20.31 |
| 4 811.21 | 48.91 | Peak | V | 31.22 | 6.60 | 41.84 | - | 44.89 | 74.00 | 29.11 |
| 4 799.02 | 37.12 | Average | V | 31.20 | 6.60 | 41.84 | 0.38 | 33.46 | 54.00 | 20.54 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 852.92 | 49.09 | Peak | H | 31.30 | 6.69 | 41.83 | - | 45.25 | 74.00 | 28.75 |
| 4 879.69 | 37.12 | Average | H | 31.30 | 6.70 | 41.82 | 0.38 | 33.68 | 54.00 | 20.32 |
| 4 857.22 | 49.78 | Peak | V | 31.30 | 6.69 | 41.83 | - | 45.94 | 74.00 | 28.06 |
| 4 866.01 | 37.08 | Average | V | 31.30 | 6.69 | 41.83 | 0.38 | 33.62 | 54.00 | 20.38 |
| Test Data for High Channel | | | | | | | | | | |
| 4 942.13 | 49.13 | Peak | H | 31.22 | 6.70 | 41.81 | - | 45.24 | 74.00 | 28.76 |
| 4 943.13 | 37.09 | Average | H | 31.21 | 6.70 | 41.81 | 0.38 | 33.57 | 54.00 | 20.43 |
| 4 927.05 | 49.36 | Peak | V | 31.25 | 6.70 | 41.81 | - | 45.50 | 74.00 | 28.50 |
| 4 948.28 | 37.10 | Average | V | 31.20 | 6.70 | 41.81 | 0.38 | 33.57 | 54.00 | 20.43 |

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.3.3 Test data for Multiple Transmit

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 91.67 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 831.19 | 48.84 | Peak | H | 31.26 | 6.59 | 41.83 | - | 44.86 | 74.00 | 29.14 |
| 4 823.55 | 37.07 | Average | H | 31.25 | 6.60 | 41.84 | 0.38 | 33.46 | 54.00 | 20.54 |
| 4 800.72 | 49.70 | Peak | V | 31.20 | 6.60 | 41.84 | - | 45.66 | 74.00 | 28.34 |
| 4 802.12 | 37.06 | Average | V | 31.20 | 6.60 | 41.84 | 0.38 | 33.40 | 54.00 | 20.60 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 854.22 | 49.11 | Peak | H | 31.30 | 6.69 | 41.83 | - | 45.27 | 74.00 | 28.73 |
| 4 878.05 | 37.01 | Average | H | 31.30 | 6.70 | 41.82 | 0.38 | 33.57 | 54.00 | 20.43 |
| 4 891.53 | 48.92 | Peak | V | 31.30 | 6.70 | 41.82 | - | 45.10 | 74.00 | 28.90 |
| 4 860.36 | 36.85 | Average | V | 31.30 | 6.69 | 41.83 | 0.38 | 33.39 | 54.00 | 20.61 |
| Test Data for High Channel | | | | | | | | | | |
| 4 946.78 | 48.71 | Peak | H | 31.21 | 6.70 | 41.81 | - | 44.81 | 74.00 | 29.19 |
| 4 926.55 | 36.85 | Average | H | 31.25 | 6.70 | 41.81 | 0.38 | 33.37 | 54.00 | 20.63 |
| 4 941.88 | 49.05 | Peak | V | 31.22 | 6.70 | 41.81 | - | 45.16 | 74.00 | 28.84 |
| 4 939.09 | 36.90 | Average | V | 31.22 | 6.70 | 41.81 | 0.38 | 33.39 | 54.00 | 20.61 |

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.4 Test data for 802.11n_HT40 WLAN Mode

10.6.2.4.1 Test data for SISO Antenna 0

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 82.82 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 832.86 | 49.34 | Peak | H | 31.27 | 6.59 | 41.83 | - | 45.37 | 74.00 | 28.63 |
| 4 835.41 | 37.26 | Average | H | 31.27 | 6.59 | 41.83 | 0.82 | 34.11 | 54.00 | 19.89 |
| 4 840.65 | 49.46 | Peak | V | 31.28 | 6.59 | 41.83 | - | 45.50 | 74.00 | 28.50 |
| 4 857.99 | 37.12 | Average | V | 31.30 | 6.69 | 41.83 | 0.82 | 34.10 | 54.00 | 19.90 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 869.16 | 49.51 | Peak | H | 31.30 | 6.69 | 41.83 | - | 45.67 | 74.00 | 28.33 |
| 4 853.72 | 37.01 | Average | H | 31.30 | 6.69 | 41.83 | 0.82 | 33.99 | 54.00 | 20.01 |
| 4 882.54 | 49.52 | Peak | V | 31.30 | 6.70 | 41.82 | - | 45.70 | 74.00 | 28.30 |
| 4 886.79 | 37.14 | Average | V | 31.30 | 6.70 | 41.82 | 0.82 | 34.14 | 54.00 | 19.86 |
| Test Data for High Channel | | | | | | | | | | |
| 4 914.54 | 49.01 | Peak | H | 31.27 | 6.70 | 41.82 | - | 45.16 | 74.00 | 28.84 |
| 4 905.55 | 37.14 | Average | H | 31.29 | 6.70 | 41.82 | 0.82 | 34.13 | 54.00 | 19.87 |
| 4 917.39 | 49.08 | Peak | V | 31.27 | 6.70 | 41.82 | - | 45.23 | 74.00 | 28.77 |
| 4 888.42 | 37.06 | Average | V | 31.30 | 6.70 | 41.82 | 0.82 | 34.06 | 54.00 | 19.94 |

Remark: “H”: Horizontal, “V”: Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.4.2 Test data for SISO Antenna 1

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 82.82 %
- Result : PASSED

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 829.27 | 49.38 | Peak | H | 31.26 | 6.59 | 41.83 | - | 45.40 | 74.00 | 28.60 |
| 4 832.51 | 37.00 | Average | H | 31.27 | 6.59 | 41.83 | 0.82 | 33.85 | 54.00 | 20.15 |
| 4 820.22 | 48.99 | Peak | V | 31.24 | 6.60 | 41.84 | - | 44.99 | 74.00 | 29.01 |
| 4 866.43 | 36.92 | Average | V | 31.30 | 6.69 | 41.83 | 0.82 | 33.90 | 54.00 | 20.10 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 891.73 | 48.90 | Peak | H | 31.30 | 6.70 | 41.82 | - | 45.08 | 74.00 | 28.92 |
| 4 852.27 | 37.10 | Average | H | 31.30 | 6.69 | 41.83 | 0.82 | 34.08 | 54.00 | 19.92 |
| 4 877.70 | 49.07 | Peak | V | 31.30 | 6.70 | 41.82 | - | 45.25 | 74.00 | 28.75 |
| 4 882.99 | 36.96 | Average | V | 31.30 | 6.70 | 41.82 | 0.82 | 33.96 | 54.00 | 20.04 |
| Test Data for High Channel | | | | | | | | | | |
| 4 909.05 | 48.53 | Peak | H | 31.28 | 6.70 | 41.82 | - | 44.69 | 74.00 | 29.31 |
| 4 907.05 | 36.88 | Average | H | 31.29 | 6.70 | 41.82 | 0.82 | 33.87 | 54.00 | 20.13 |
| 4 886.52 | 48.62 | Peak | V | 31.30 | 6.70 | 41.82 | - | 44.80 | 74.00 | 29.20 |
| 4 900.55 | 37.01 | Average | V | 31.30 | 6.70 | 41.82 | 0.82 | 34.01 | 54.00 | 19.99 |

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dB}\mu\text{V/m)} - \text{Total Level (dB}\mu\text{V/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

10.6.2.4.3 Test data for Multiple Transmit

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Duty Cycle : 82.82 %
- Result : PASSED

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | AMP Gain | Duty Factor (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|-------------------------------------|----------------|---------------|-----------------|-------------|------------|----------|------------------|----------------|-----------------|-------------|
| Test Data for Low Channel | | | | | | | | | | |
| 4 865.23 | 49.10 | Peak | H | 31.30 | 6.69 | 41.83 | - | 45.26 | 74.00 | 28.74 |
| 4 866.38 | 37.12 | Average | H | 31.30 | 6.69 | 41.83 | 0.82 | 34.10 | 54.00 | 19.90 |
| 4 849.30 | 49.19 | Peak | V | 31.30 | 6.59 | 41.83 | - | 45.25 | 74.00 | 28.75 |
| 4 829.96 | 36.88 | Average | V | 31.26 | 6.59 | 41.83 | 0.82 | 33.72 | 54.00 | 20.28 |
| Test Data for Middle Channel | | | | | | | | | | |
| 4 898.58 | 49.33 | Peak | H | 31.30 | 6.70 | 41.82 | - | 45.51 | 74.00 | 28.49 |
| 4 867.11 | 36.92 | Average | H | 31.30 | 6.69 | 41.83 | 0.82 | 33.90 | 54.00 | 20.10 |
| 4 854.37 | 48.81 | Peak | V | 31.30 | 6.69 | 41.83 | - | 44.97 | 74.00 | 29.03 |
| 4 876.65 | 36.95 | Average | V | 31.30 | 6.70 | 41.82 | 0.82 | 33.95 | 54.00 | 20.05 |
| Test Data for High Channel | | | | | | | | | | |
| 4 901.00 | 48.90 | Peak | H | 31.30 | 6.70 | 41.82 | - | 45.08 | 74.00 | 28.92 |
| 4 886.77 | 36.80 | Average | H | 31.30 | 6.70 | 41.82 | 0.82 | 33.80 | 54.00 | 20.20 |
| 4 886.57 | 48.94 | Peak | V | 31.30 | 6.70 | 41.82 | - | 45.12 | 74.00 | 28.88 |
| 4 893.61 | 36.93 | Average | V | 31.30 | 6.70 | 41.82 | 0.82 | 33.93 | 54.00 | 20.07 |

Remark: "H": Horizontal, "V": Vertical

$$\text{Margin (dB)} = \text{Limits (dBµV/m)} - \text{Total Level (dBµV/m)}$$

$$\text{Total Level} = \text{Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{AMP Gain} + \text{Duty Factor}$$

11. AVERAGE POWER SPECTRUL DENSITY

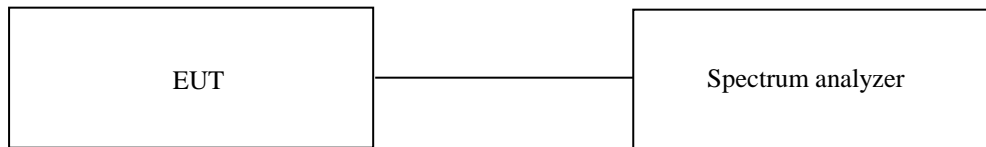
11.1 Operating environment

Temperature : 23 °C
 Relative humidity : 45 % R.H.

11.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$, the video bandwidth is set to 3 times the resolution bandwidth.



11.3 Test Date

April 24, 2024 ~ May 28, 2024

11.4 Test data for 802.11b WLAN Mode

11.4.1 Test data for SISO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 96.89 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -17.76 | 8.00 | 25.76 |
| Middle | 2 437.00 | -18.37 | 8.00 | 26.37 |
| High | 2 462.00 | -18.01 | 8.00 | 26.01 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.4.2 Test data for SISO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 96.89 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -18.12 | 8.00 | 26.12 |
| Middle | 2 437.00 | -18.93 | 8.00 | 26.93 |
| High | 2 462.00 | -18.53 | 8.00 | 26.53 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.5 Test data for 802.11g WLAN Mode

11.5.1 Test data for SISO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 92.50 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -18.10 | 8.00 | 26.10 |
| Middle | 2 437.00 | -16.77 | 8.00 | 24.77 |
| High | 2 462.00 | -17.48 | 8.00 | 25.48 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.5.2 Test data for SISO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 92.50 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -17.61 | 8.00 | 25.61 |
| Middle | 2 437.00 | -18.27 | 8.00 | 26.27 |
| High | 2 462.00 | -17.74 | 8.00 | 25.74 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.6 Test data for 802.11n_HT20 WLAN Mode

11.6.1 Test data for SISO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -19.15 | 8.00 | 27.15 |
| Middle | 2 437.00 | -19.97 | 8.00 | 27.97 |
| High | 2 462.00 | -19.58 | 8.00 | 27.58 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.6.2 Test data for SISO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -19.11 | 8.00 | 27.11 |
| Middle | 2 437.00 | -19.92 | 8.00 | 27.92 |
| High | 2 462.00 | -20.29 | 8.00 | 28.29 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.6.3 Test data for MIMO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -21.15 | 8.00 | 29.15 |
| Middle | 2 437.00 | -19.97 | 8.00 | 27.97 |
| High | 2 462.00 | -20.43 | 8.00 | 28.43 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.6.4 Test data for MIMO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -19.78 | 8.00 | 27.78 |
| Middle | 2 437.00 | -20.50 | 8.00 | 28.50 |
| High | 2 462.00 | -20.68 | 8.00 | 28.68 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.6.5 Test data for Multiple Transmit

-. Test Result : Pass

-. Duty Cycle : 91.67 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 412.00 | -17.40 | 8.00 | 25.40 |
| Middle | 2 437.00 | -17.22 | 8.00 | 25.22 |
| High | 2 462.00 | -17.54 | 8.00 | 25.54 |

Remark 1 : Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

Remark 2 : Calculated Power Density = $10\log(10^{(MIMO\ Antenna\ 0\ Power\ Density/10)} + 10^{(MIMO\ Antenna\ 1\ Power\ Density/10)})$

11.7 Test data for 802.11n_HT40 WLAN Mode

11.7.1 Test data for SISO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 422.00 | -23.25 | 8.00 | 31.25 |
| Middle | 2 437.00 | -23.06 | 8.00 | 31.06 |
| High | 2 452.00 | -23.74 | 8.00 | 31.74 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.7.2 Test data for SISO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 422.00 | -22.32 | 8.00 | 30.32 |
| Middle | 2 437.00 | -23.62 | 8.00 | 31.62 |
| High | 2 452.00 | -22.94 | 8.00 | 30.94 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.7.3 Test data for MIMO Antenna 0

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 422.00 | -26.63 | 8.00 | 34.63 |
| Middle | 2 437.00 | -24.02 | 8.00 | 32.02 |
| High | 2 452.00 | -23.45 | 8.00 | 31.45 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.7.4 Test data for MIMO Antenna 1

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 422.00 | -26.98 | 8.00 | 34.98 |
| Middle | 2 437.00 | -24.03 | 8.00 | 32.03 |
| High | 2 452.00 | -22.73 | 8.00 | 30.73 |

Remark. Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

11.7.5 Test data for Multiple Transmit

-. Test Result : Pass

-. Duty Cycle : 82.82 %

| CHANNEL | FREQUENCY(MHz) | MEASURED VLAUE (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---------|----------------|----------------------|-------------|-------------|
| Low | 2 422.00 | -23.79 | 8.00 | 31.79 |
| Middle | 2 437.00 | -21.01 | 8.00 | 29.01 |
| High | 2 452.00 | -20.06 | 8.00 | 28.06 |

Remark 1 : Margin = Limit – Measured value (=S/A Reading + Duty Cycle Correction Factor)

Remark 2 : Calculated Power Density = $10\log(10^{(MIMO\ Antenna\ 0\ Power\ Density/10)} + 10^{(MIMO\ Antenna\ 1\ Power\ Density/10)})$

12. RADIATED EMISSION TEST

12.1 Operating environment

Temperature : 23 °C
Relative humidity : 45 % R.H.

12.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

12.3 Test Date

April 24, 2024 ~ May 28, 2024

12.4 Test data for 30 MHz ~ 1 000 MHz

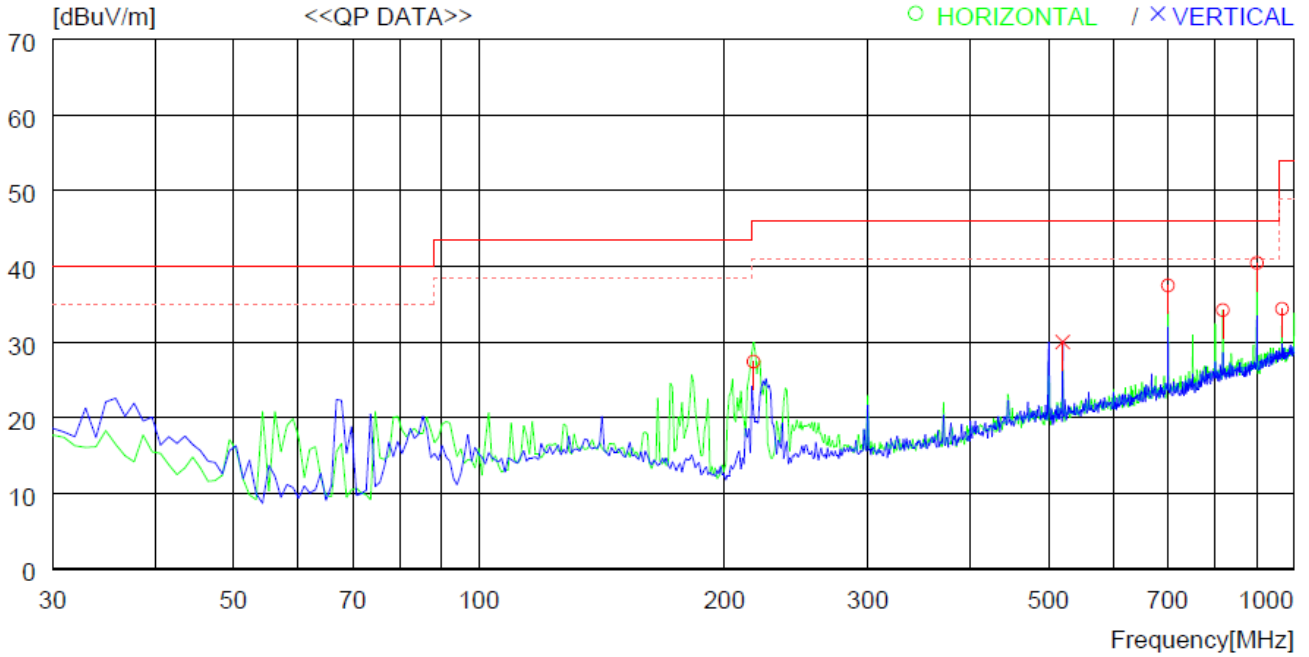
12.4.1 Test data for WLAN 2.4 GHz

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : Welding Camera Helmet

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)



| No. | FREQ [MHz] | READING QP [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|------------------------|---------------|-------------------------|-----------------------|--------------|--------------|--------------------|-------------------|----------------|-----------------|----------------|
| ----- Horizontal ----- | | | | | | | | | | |
| 1 | 217.210 | 42.3 | 16.2 | 1.9 | 33.0 | 27.4 | 46.0 | 18.6 | 400 | 295 |
| 2 | 700.265 | 41.8 | 25.6 | 3.4 | 33.3 | 37.5 | 46.0 | 8.5 | 300 | 0 |
| 3 | 817.631 | 36.6 | 26.9 | 3.7 | 33.0 | 34.2 | 46.0 | 11.8 | 200 | 359 |
| 4 | 900.079 | 41.5 | 27.5 | 3.9 | 32.4 | 40.5 | 46.0 | 5.5 | 100 | 311 |
| 5 | 966.037 | 33.7 | 28.3 | 4.1 | 31.7 | 34.4 | 54.0 | 19.6 | 100 | 0 |
| ----- Vertical ----- | | | | | | | | | | |
| 6 | 519.850 | 36.9 | 23.4 | 2.9 | 33.2 | 30.0 | 46.0 | 16.0 | 100 | 359 |

-. Antenna 1, Antenna 2 and Multiple transmit tested, but the worst data were recorded.

12.5 Test data for Below 30 MHz

- Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- Frequency range : 9 kHz ~ 30 MHz
- Measurement distance : 3 m
- Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dB μ V) | Ant. Pol. (H/V) | Ant. Height (m) | Angle (°) | Ant. Factor (dB/m) | Cable Loss | Emission Level(dB μ V/m) | Limits (dB μ V/m) | Margin (dB) |
|--|----------------------|-----------------|-----------------|-----------|--------------------|------------|------------------------------|-----------------------|-------------|
| Emission from the EUT more than 20 dB below the limit in each frequency range. | | | | | | | | | |

12.6 Test data for above 1 GHz

- Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode
- Video bandwidth : 3 MHz for Peak and Average Mode
- Frequency range : 1 GHz ~ 26.5 GHz
- Measurement distance : 3 m
- Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dB μ V) | Ant. Pol. (H/V) | Ant. Height (m) | Angle (°) | Ant. Factor (dB/m) | Cable Loss | Emission Level(dB μ V/m) | Limits (dB μ V/m) | Margin (dB) |
|--|----------------------|-----------------|-----------------|-----------|--------------------|------------|------------------------------|-----------------------|-------------|
| Emission from the EUT more than 20 dB below the limit in each frequency range. | | | | | | | | | |

13. LIST OF TEST EQUIPMENT

| Model Number | Manufacturer | Description | Serial Number | Last Cal.(Interval) |
|------------------|-------------------|-----------------------|-----------------------|---------------------|
| FSVA40 | Rohde & Schwarz | Signal Analyzer | 101598 | Jan. 15, 2024 (1Y) |
| ESR | Rohde & Schwarz | EMI Test Receiver | 101470 | Jun. 16, 2023 (1Y) |
| 310N | Sonoma Instrument | Pre-Amplifier | 312544 | Mar. 11, 2024 (1Y) |
| SCU18 | Rohde & Schwarz | Pre-Amplifier | 102266 | Jul. 11, 2023 (1Y) |
| SCU40A | Rohde & Schwarz | Pre-Amplifier | 100436 | Jan. 23, 2024 (1Y) |
| DT3000 | Innco System | Turn Table | DT3000/093 | N/A |
| MA4000-EP | Innco System | Antenna Master | MA4000/332/27030611/L | N/A |
| CO3000 | Innco System | Controller | CO3000/904/37211215/L | N/A |
| FMZB 1513 | Schwarzbeck | Loop Antenna | 1513-235 | Apr. 15, 2024 (2Y) |
| HLP-2008 | TDK | Hybrid Antenna | 131316 | Mar. 09, 2024 (2Y) |
| BBHA9120D | Schwarzbeck | Horn Antenna | 9120D-1349 | Jul. 04, 2023 (1Y) |
| BBHA9170 | Schwarzbeck | Horn Antenna | BBHA9170178 | Jan. 04, 2024 (1Y) |
| HPF 3GHz | Rohde & Schwarz | High Pass Filter | N/A | Jan. 15, 2024 (1Y) |
| 10 dB Attenuator | Rohde & Schwarz | 10 dB Attenuator | 14100882-4 | Jul. 11, 2023 (1Y) |
| NRP-Z81 | Rohde & Schwarz | Wideband Power Sensor | 104811 | Jan. 17, 2024 (1Y) |
| ESR 3 | Rohde & Schwarz | EMI TEST RECEIVER | 102602 | Mar. 11, 2024 (1Y) |
| NSLK8126 | Schwarzbeck | LISN | 8126404 | Mar. 12, 2024 (1Y) |
| 3825/2 | EMCO | AMN | 9109-1869 | Mar. 15, 2024 (1Y) |
| VTSD 9561-F | Schwarzbeck | PULSE LIMITER | 01337 | Nov. 23, 2023 (1Y) |