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TEST REPORT

Report Number: 23051041HKG-002

Embodied, Inc.

Application for Original Grant of 47 CFR Part 15 Certification

Transceiver

FCC ID: 2AV9NEMBMOXIEVTWO

This report contains the data of 5GHz WLAN (Wi-Fi) portion only

Prepared and Checked by:	**Approved by:**
Signed On File Leung Chun Ning, Peter Assistant Engineer	Digitally signed by Herbert Wong Location: Intertek Testing Services Hong Kong Limited Wong Cheuk Ho, Herbert Assistant Supervisor Date: November 08, 2023

TEST REPORT

GENERAL INFORMATION

Applicant Name:	Embodied, Inc.
Applicant Address:	385 E Colorado Blvd Ste 110, Pasadena California 91101, United States.
FCC Specification Standard:	FCC Part 15, October 1, 2021 Edition
Brand Name:	Embodied Moxie V2
FCC ID:	2AV9NEMBMOXIEVTWO
FCC Model:	101600
Type of EUT:	Unlicensed National Information Infrastructure Transmitter
Description of EUT:	Embodied Moxie V2
Sample Receipt Date:	November 25, 2022
Date of Test:	February 06, 2023 to August 09, 2023
Report Date:	November 08, 2023
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%
Conclusion:	Test was conducted by client submitted sample. The submitted sample as received complied with the 47 CFR Part 15 Certification.
Remark:	This report contains the data of 5GHz Wi-Fi portion only.

TEST REPORT

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1.0 TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

1.1 Summary of Test Results

Test Items	FCC Part 15 Section	Results	Details See Section
Antenna Requirement	15.407(a)	Pass	2.1
Max. Conducted Output Power (Peak)	15.407(a)	Pass	4.1
Transmit Power Control (TPC)	15.407(h)	N/A	See Remark
Min. 6dB RF Bandwidth	15.407(e)	Pass	4.2
26 dB emission bandwidth	15.407(a)	Pass	4.3
Occupied Bandwidth	N/A	Pass	4.3
Max. Power Density (average)	15.407(a)	Pass	4.4
Radiated Emission in Restricted Bands and Spurious Emissions	15.407(b), 15.209 & 15.109	Pass	4.6
AC Power Line Conducted Emission	15.207 & 15.107	Pass	4.7
Dynamic Frequency Selection(DFS)	15.407	N/A	4.8

Remark: not applicable if the EUT is <500mW (27dBm)

Note: Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

1.2 Statement of Compliance

The equipment under test is found to be complying with the following standard:

FCC Part 15, October 1, 2021 Edition

2.0 GENERAL DESCRIPTION

2.1 Product Description

This device is a robot with Wi-Fi function. The Bluetooth function of this device had been disabled.

For 2.4 GHz ISM Band:

- For 802.11b mode, it operates at frequency range of 2.412 GHz to 2.462 GHz with 11 Channels. It transmits via DQPSK, DBPSK and CCK. Maximum bit rate can be up to 11Mbps.
- For 802.11g mode, it operates at frequency range of 2.412 GHz to 2.462 GHz with 11 Channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to 54Mbps.
- For 802.11n mode (With 20MHz Bandwidth), it operates at frequency range of 2.412 GHz to 2.462 GHz with 11 Channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS7 65Mbps.
- For 802.11n mode (With 40MHz Bandwidth), it operates at frequency range of 2.422 GHz to 2.452 GHz with 9 Channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS7 150Mbps.

For 5.15GHz to 5.24GHz Band:

- For 802.11a mode, it operates at frequency range of 5.18GHz to 5.24GHz with 4 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to 54Mbps.
- For 802.11n mode (20 MHz Bandwidth), it operates at frequency range of 5.18GHz to 5.24GHz with 4 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS7 65Mbps.
- For 802.11n mode (40 MHz Bandwidth), it operates at frequency range of 5.19GHz to 5.23GHz with 2 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS7 150Mbps.
- For 802.11ac mode (20 MHz Bandwidth), it operates at frequency range of 5.18GHz to 5.24GHz with 4 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS8 78Mbps.
- For 802.11ac mode (40 MHz Bandwidth), it operates at frequency range of 5.19GHz to 5.23GHz with 2 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS9 162Mbps.
- For 802.11ac mode (80 MHz Bandwidth), it operates at 5.21GHz with 1 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS9 390 Mbps.

For 5.725GHz to 5.85GHz Band:

- For 802.11a mode, it operates at frequency range of 5.745GHz to 5.825GHz with 5 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to 54Mbps.

- For 802.11n mode (20 MHz Bandwidth), it operates at frequency range of 5.745GHz to 5.825GHz with 5 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS7 65Mbps.
- For 802.11n mode (40 MHz Bandwidth), it operates at frequency range of 5.755GHz to 5.795GHz with 2 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS7 150Mbps.
- For 802.11ac mode (20 MHz Bandwidth), it operates at frequency range of 5.745GHz to 5.825GHz with 5 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS8 78Mbps.
- For 802.11ac mode (40 MHz Bandwidth), it operates at frequency range of 5.755GHz to 5.795GHz with 2 channels. It. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS9 162 Mbps.
- For 802.11ac mode (80 MHz Bandwidth), it operates at 5775MHz with 1 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK. Maximum bit rate can be up to MCS9 390 Mbps.

Antenna Information:

- PCB Antenna
- WLAN 802.11 a/b/g/n/ac
- For operating frequency of 2.4GHz , antenna has maximum gain of 2.55dBi
- For operating frequency of 5GHz , antenna has maximum gain of 2.82dBi

2.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Preliminary radiated scans and all radiated measurements were performed in radiated emission test sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. Antenna port conducted measurements were performed according to ANSI C63.10 (2013) and KDB Publication No.789033 D02 v01r04 (02-May-2017) All other measurements were made in accordance with the procedures in 47 CFR Part 2.

2.3 Test Facility

The radiated emission test site and antenna port conducted measurement facility used to collect the radiated data and conductive data are at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong SAR, China. This test facility and site measurement data have been fully placed on file with the FCC.

2.4 Related Submittal(s) Grants

This is a single application for certification of a transceiver (5GHz Wi-Fi portion only).

3.0 SYSTEM TEST CONFIGURATION

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to transmit / receive continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The EUT is power by a 10.8VDC Li-PO battery / 120VAC (Adaptor Model: AD0651-1404000D).

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. If the base unit attached to peripherals, they were connected and operational (as typical as possible).

The signal was maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization were varied during the search for maximum signal level. The antenna height was varied from 1 to 4 meters. Radiated emissions were taken at three meters unless the signal level was too low for measurement at that distance. If necessary, a pre-amplifier was used and/or the test was conducted at a closer distance.

For any intentional radiator powered by AC power line, measurements of the radiated signal level of the fundamental frequency component of the emission was performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Radiated emission measurement for transmitter were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion were measured, and the limit are according to FCC Part 15 Section 15.209. Digital circuitries used to control additional functions other than the operation of the transmitter are subject to FCC Part 15 Section 15.109.

3.1 Justification – Cont'd

Detector function for radiated emissions was in peak mode. Average readings, when required, were taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in section 4.8.3.

Determination of pulse desensitization was made according to *Hewlett Packard Application Note 150-2, Spectrum Analysis... Pulsed RF.* The effective period (Teff) was referred to Exhibit 4.8.3. With the resolution bandwidth 1MHz and spectrum analyzer IF bandwidth 3dB, the pulse desensitization factor was 0dB.

For AC line conducted emission test, the EUT along with its peripherals were placed on a 1.0m(W)x1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50ohm coupling impedance for measuring instrument. The LISN housing, measuring instrument case, reference ground plane, and vertical ground plane were bounded together. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

Different data rates have been tested. Worst case is reported only.

All relevant operation modes have been tested, and the worst case data is included in this report.

There are 2 different versions for this EUT, the Richtek Camera Module version and the Sincere Camera Module version. These 2 versions are different in camera module only as declared by client. Both versions are tested and only the worst-case data is shown in this report.

3.2 EUT Exercising Software

The EUT exercise program (Ampak RFTestTool) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

3.3 Details of EUT and Description of Accessories

Details of EUT:

(1) The EUT is powered by 10.8VDC and / or 120VAC

Description of Accessories:

An adaptor (provided with the unit) was used to power the device. Its description is listed below.

(1) An AC adaptor
(AC Input: 100-240V 50/60Hz 1.5A Max / Output: 14.0VDC 4.0A, Model: AD0651-1404000D)
(Provided by Client)

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test at a level of confidence of 95% has been considered. The values of the Measurement uncertainty:

No.	Item	Measurement Uncertainty
1	Conducted emission 9KHz-150KHz	±3.8 dB
2	Conducted emission 150KHz-30MHz	±3.4 dB
3	Radiated emission 9KHz-30MHz	±4.9 dB
4	Radiated emission 30MHz-1GHz	±4.7 dB
5	Radiated emission 1GHz-18GHz	±5.1 dB
6	Radiated emission 18GHz-26GHz	±5.2 dB
7	Radiated emission 26GHz-40GHz	±5.2 dB

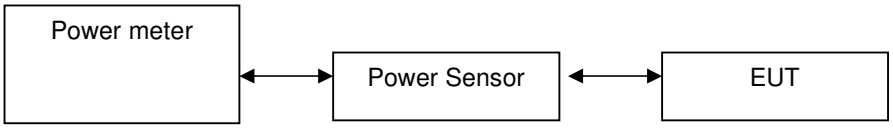
Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

4.0 TEST RESULTS

4.1 Maximum Conducted (Avg) Output Power at Antenna Terminals

RF Conduct Measurement Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



The antenna port of the EUT was connected to the input of a spectrum analyzer.

☒ The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to the obtain power at the EUT antenna terminals. The measurement procedure E.3.A (789033 D02 General UNII Test Procedures New Rules v02r01) was used.

☐ The EUT should be configured to transmit continuously (at a minimum duty cycle of 98%) at full power over the measurement duration. The measurement procedure AVG1 was used.

IEEE 802.11ac (20MHz) (MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	Conducted output power in mWatt
5180	3.807	2.403
5200	4.134	2.591
5240	4.271	2.674
5745	5.366	3.440
5785	2.677	1.852
5825	3.304	2.140

IEEE 802.11ac (40MHz) (MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	Conducted output power in mWatt
5190	2.083	1.615
5230	3.609	2.296
5755	3.648	2.316
5795	2.559	1.803

IEEE 802.11ac (80MHz) (MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	Conducted output power in mWatt
5210	3.120	2.051
5775	2.686	1.856

IEEE 802.11a (20MHz) (OFDM, 6 Mbps) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	Conducted output power in mWatt
5180	4.269	2.672
5200	4.493	2.814
5240	4.874	3.072
5745	5.627	3.653
5785	3.033	2.010
5825	4.244	2.657

IEEE 802.11n (20MHz) (OFDM, MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	Conducted output power in mWatt
5180	3.763	2.378
5200	4.187	2.622
5240	4.108	2.575
5745	5.367	3.441
5785	2.809	1.909
5825	3.495	2.236

IEEE 802.11n (40MHz) (OFDM, MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	Conducted output power in mWatt
5190	1.874	1.540
5230	3.972	2.496
5755	3.804	2.401
5795	2.521	1.787

For maximum e.i.r.p.

IEEE 802.11ac (20MHz) (MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	EIRP in dBm	EIRP in mWatt
5180	3.807	6.627	4.599
5220	4.134	6.954	4.959
5240	4.271	7.091	5.118
5745	5.366	8.136	6.586
5785	2.677	5.497	3.546
5825	3.304	6.124	4.096

IEEE 802.11ac (40MHz) (MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	EIRP in dBm	EIRP in mWatt
5190	2.083	4.903	3.092
5230	3.609	6.429	4.394
5755	3.648	6.468	4.434
5795	2.559	5.379	3.451

IEEE 802.11ac (80MHz) (MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	EIRP in dBm	EIRP in mWatt
5210	3.120	5.940	3.926
5775	2.686	5.506	3.553

IEEE 802.11a (20MHz) (OFDM, 6 Mbps) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	EIRP in dBm	EIRP in mWatt
5180	4.269	7.089	5.116
5220	4.493	7.313	5.386
5240	4.874	7.694	5.880
5745	5.627	8.447	6.994
5785	3.033	5.853	3.849
5825	4.244	7.064	5.086

IEEE 802.11n (20MHz) (OFDM, MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	EIRP in dBm	EIRP in mWatt
5180	3.763	6.583	4.553
5220	4.187	7.007	5.020
5240	4.108	6.928	4.929
5745	5.367	8.187	6.587
5785	2.809	5.629	3.655
5825	3.495	6.315	4.281

IEEE 802.11n (40MHz) (OFDM, MCS0) Antenna Gain = 2.82 dBi

Frequency (MHz)	Conducted output power in dBm	EIRP in dBm	EIRP in mWatt
5190	1.874	4.694	2.947
5230	3.972	6.792	4.777
5755	3.804	6.624	4.596
5795	2.521	5.341	3.421

Test Date: February 07, 2023 to March 01, 2023

Cable loss: 1.02 dB External Attenuation: 2 dB

Cable loss, external attenuation: ☒ included in OFFSET function
☐ added to SA raw reading

TEST REPORT

IEEE 802.11ac (20MHz) (OFDM, MCS0)
max. conducted output level = 5.366 dBm

IEEE 802.11ac (40MHz) (OFDM, MCS0)
max. conducted output level = 3.648 dBm

IEEE 802.11ac (80MHz) (OFDM, MCS0)
max. conducted output level = 3.120 dBm

IEEE 802.11a (20MHz) (OFDM, 6 Mbps)
max. conducted output level = 5.627 dBm

IEEE 802.11n (20MHz) (OFDM, MCS0)
max. conducted output level = 5.367 dBm

IEEE 802.11n (40MHz) (OFDM, MCS0)
max. conducted output level = 3.972 dBm

Remark:
1. Maximum e.i.r.p = Maximum conducted output power + Duty Cycle Factor + Antenna Gain
2. Maximum conducted output power = Conducted output power + Duty Cycle Factor
3. Duty Cycle = On Time/ Period;
   Duty Cycle factor = 10 * log(1/ Duty Cycle);
   Average factor = 20 log10 Duty Cycle.
4. Limit:

☒ FCC:

5150-5250MHz:
250mW (24dBm) for antennas with gains of 6dBi or less. (Client device)
5250-5350MHz:
250mW (24dBm)
5470-5725MHz:
250mW (24dBm)
5725-5850MHz:
1W (30dBm) for antennas with gains of 6dBi or less.

☐ RSS:

5150-5250MHz:
200mW (23dBm) for antennas with gains of 6dBi or less.
5250-5350MHz:
250mW (24dBm)
5470-5725MHz:
250mW (24dBm)
5725-5850MHz:
1W (30dBm) for antennas with gains of 6dBi or less.

4.2 Minimum 6dB RF Bandwidth

The antenna port of the EUT was connected to the input of a spectrum analyzer. The EBW measurement procedure was used. A PEAK output reading was taken, a DISPLAY line was drawn 6dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

IEEE 802.11ac (20MHz) (MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	17.5	18.0
5220	17.7	18.0
5240	17.5	18.0
5745	17.5	17.8
5785	17.5	18.0
5825	17.8	17.8

IEEE 802.11ac (40MHz) (MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5190	36.5	36.3
5230	35.9	36.3
5755	35.8	36.3
5795	35.9	36.6

IEEE 802.11ac (80MHz) (MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5210	75.3	76.0
5775	75.5	76.0

IEEE 802.11a (20MHz) (OFDM, 6Mbps)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	16.5	16.6
5220	16.5	16.8
5240	16.5	16.6
5745	16.5	16.8
5785	16.5	16.8
5825	16.5	16.6

IEEE 802.11n (20MHz) (OFDM, MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	17.4	17.8
5220	17.7	18.0
5240	17.5	17.8
5745	17.7	18.0
5785	17.5	18.0
5825	17.8	17.8

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IEEE 802.11n (40MHz) (OFDM, MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5190	36.5	36.3
5230	35.9	36.3
5755	36.0	36.3
5795	35.9	36.3

Test Date: February 07, 2023 to March 01, 2023

Limits:

For 5725-5850MHz:

6 db bandwidth shall be at least 500kHz

4.3 26 dB BANDWIDTH & OCCUPIED BANDWIDTH

The antenna port of the EUT was connected to the input of a spectrum analyzer. The EBW measurement procedure was used. A PEAK output reading was taken, a DISPLAY line was drawn 26dB lower than PEAK level. The 26dB bandwidth was determined from where the channel output spectrum intersected the display line.

IEEE 802.11ac (20MHz) (MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	22.2	18.0
5200	21.8	18.0
5240	22.2	18.0
5745	21.8	17.8
5785	22.0	18.0
5825	21.8	17.8

IEEE 802.11ac (40MHz) (MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5190	40.7	36.3
5230	40.1	36.3
5755	40.7	36.3
5795	40.1	36.6

IEEE 802.11ac (80MHz) (MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5210	87.0	76.0
5775	84.2	76.0

IEEE 802.11a (20MHz) (OFDM, 6Mbps)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	21.6	16.6
5200	21.6	16.8
5240	21.4	16.6
5745	21.6	16.8
5785	21.6	16.8
5825	21.6	16.6

IEEE 802.11n (20MHz) (OFDM, MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	22.0	17.8
5200	21.8	18.0
5240	21.8	17.8
5745	22.0	18.0
5785	22.0	18.0
5825	22.0	17.8

IEEE 802.11n (40MHz) (OFDM, MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5190	40.7	36.3
5230	40.1	36.3
5755	40.4	36.3
5795	40.4	36.3

Test Date: February 07, 2023 to March 01, 2023

Limits:

For 5725-5850MHz: 26 dB bandwidth shall be at least 500kHz

4.4 Maximum Power Spectral Density

The output from the transmitter was connected to an attenuator and then to the input of the RF Spectrum Analyzer.

Spectrum analyser according to the following Settings:

For U-NII-1, U-NII-2A, U-NII-2C band:
Using method SA-2
a) Set span to encompass the entire emission bandwidth (EBW) of the signal.
b) Set RBW = 1 MHz, Set VBW ≥ 3 RBW, Detector = RMS
c) Sweep time = auto, trigger set to “free run”.
d) Trace average at least 100 traces in power averaging mode.
e) Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:
a) Set span to encompass the entire emission bandwidth (EBW) of the signal.
b) Set RBW = 500 kHz, Set VBW ≥ 3 RBW, Detector = RMS
c) Use the peak marker function to determine the maximum power level in any 500 kHz band segment within the fundamental EBW.
d) Sweep time = auto, trigger set to “free run”.
e) Trace average at least 100 traces in power averaging mode.
f) Record the max value and add 10 log (1/duty cycle)

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

IEEE 802.11ac (20MHz) (MCS0)

Frequency (MHz)	Conducted PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)
5180	-7.600	-4.780
5200	-7.406	-4.586
5240	-7.148	-4.328
Frequency (MHz)	**Conducted PSD in 500kHz (dBm)**	**EIRP PSD in 500kHz (dBm)**
5745	-8.875	-6.055
5785	-11.189	-8.369
5825	-10.084	-7.264

IEEE 802.11ac (40MHz) (MCS0)

Frequency (MHz)	Conducted PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)
5190	-11.411	-8.591
5230	-10.220	-7.400
Frequency (MHz)	**Conducted PSD in 500kHz (dBm)**	**EIRP PSD in 500kHz (dBm)**
5755	-13.078	-10.258
5795	-14.610	-11.790

IEEE 802.11ac (80MHz) (MCS0)

Frequency (MHz)	Conducted PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)
5210	-13.142	-10.322
Frequency (MHz)	**Conducted PSD in 500kHz (dBm)**	**EIRP PSD in 500kHz (dBm)**
5775	-17.546	-14.726

IEEE 802.11a (20MHz) (OFDM, 6 Mbps)

Frequency (MHz)	Conducted PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)
5180	-6.763	-3.943
5200	-6.921	-4.101
5240	-6.132	-3.312
Frequency (MHz)	**Conducted PSD in 500kHz (dBm)**	**EIRP PSD in 500kHz (dBm)**
5745	-8.451	-5.631
5785	-10.644	-7.824
5825	-9.725	-6.905

IEEE 802.11n (20MHz) (OFDM, MCS0)

Frequency (MHz)	Conducted PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)
5180	-7.577	-4.757
5200	-7.354	-4.534
5240	-7.036	-4.216
Frequency (MHz)	**Conducted PSD in 500kHz (dBm)**	**EIRP PSD in 500kHz (dBm)**
5745	-8.906	-6.086
5785	-11.080	-8.260
5825	-10.283	-7.463

IEEE 802.11n (40MHz) (OFDM, MCS0)

Frequency (MHz)	Conducted PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)
5190	-11.273	-8.453
5230	-10.150	-7.330
Frequency (MHz)	**Conducted PSD in 500kHz (dBm)**	**EIRP PSD in 500kHz (dBm)**
5755	-13.163	-10.343
5795	-14.643	-11.823

Test Date: February 07, 2023 to March 01, 2023

Remark:
1. Cable Loss: 1.02 dB
2. e.i.r.p. spectral density = Power spectral density + Duty Cycle Factor + Antenna Gain
3. Power spectral density = Conducted power spectral density + Duty Cycle Factor
5. Duty Cycle = On Time/ Period;
   Duty Cycle factor = 10 * log(1/ Duty Cycle);
   Average factor = 20 log10 Duty Cycle.
6. Limit:

For U-NII-1:
☒ FCC:
11dBm/MHz for mobile/portable device.
☐ RSS:
10dBm/MHz E.I.R.P

For U-NII-2:
☒ FCC:
11dBm/MHz
☐ RSS:
11dBm/MHz

For U-NII-3:
☒ FCC:
30dBm/500kHz.

TEST REPORT

☐ RSS:
30dBm/500kHz.

4.5 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD + AV

Where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD + AV

Example
Assume a receiver reading of 62.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29.0 dB is subtracted. The pulse desensitization factor of the spectrum analyzer is 0.0 dB, and the resultant average factor is -10.0 dB. The net field strength for comparison to the appropriate emission limit is 32.0 dBµV/m. This value in dBµV/m is converted to its corresponding level in µV/m.

RA = 62.0 dBµV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0.0 dB
AV = -10 dB

FS = 62.0 + 7.4 + 1.6 – 29.0 + 0.0 + (-10.0) = 32.0 dBµV/m

Level in µV/m = Common Antilogarithm [(32.0 dBµV/m)/20] = 39.8 µV/m

4.6 Transmitter Radiated Emissions in Restricted Bands and Spurious Emissions

Data is included of the worst-case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

4.6.1 Radiated Emission Configuration Photograph

Worst Case Restricted Band Radiated Emission
at

17385.000 MHz

The worst-case radiated emission configuration photographs are saved with filename: Setup Photos.pdf

4.6.2 Radiated Emission Data

The data in below tables list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 0.5 dB margin

Test Date: June 10, 2023

TEST REPORT

RADIATED EMISSION DATA

IEEE 802.11ac (20MHz) (MCS0)

5180MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	38.7	33	27.2	32.9	0	32.9	54.0	-21.1
V	5150.000	50.0	33	35.7	52.7	0	52.7	54.0	-1.3
V	10360.000	29.5	33	40.5	37.0	0	37.0	54.0	-17.0
V	15540.000	44.9	33	37.7	49.6	0	49.6	54.0	-4.4
H	20720.000	43.8	33	37.7	48.5	0	48.5	54.0	-5.5
H	25900.000	41.2	33	39.3	47.5	0	47.5	54.0	-6.5
H	31080.000	35.3	33	42.1	44.4	0	44.4	54.0	-9.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	76.4	33	27.2	70.6	74.0	-3.4
V	5150.000	64.9	33	35.7	67.6	74.0	-6.4
V	10360.000	43.4	33	40.5	50.9	68.0	-17.1
V	15540.000	58.8	33	37.7	63.5	68.0	-4.5
H	20720.000	56.9	33	37.7	61.6	74.0	-12.4
H	25900.000	47.3	33	39.3	53.6	68.0	-14.4
H	31080.000	52.4	33	42.1	61.5	68.0	-6.5

5200MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	45.4	33	27.2	39.6	0	39.6	54.0	-14.4
V	10400.000	28.8	33	40.5	36.3	0	36.3	54.0	-17.7
H	15600.000	41.0	33	37.7	45.7	0	45.7	54.0	-8.3
H	20800.000	37.7	33	37.7	42.4	0	42.4	54.0	-11.6
H	26000.000	36.2	33	39.2	42.4	0	42.4	54.0	-11.6
V	31200.000	31.3	33	42.1	40.4	0	40.4	54.0	-13.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	77.3	33	27.2	71.5	74.0	-2.5
V	10400.000	42.4	33	40.5	49.9	68.0	-18.1
H	15600.000	55.2	33	37.7	59.9	74.0	-14.1
H	20800.000	45.8	33	37.7	50.5	74.0	-23.5
H	26000.000	52.4	33	39.2	58.6	68.0	-9.4
V	31200.000	44.5	33	42.1	53.6	74.0	-20.4

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11ac (20MHz) (MCS0)

5240MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	41.3	33	27.2	35.5	0	35.5	54.0	-18.5
H	10480.000	28.8	33	40.5	36.3	0	36.3	54.0	-17.7
H	15720.000	46.6	33	37.7	51.3	0	51.3	54.0	-2.7
V	20960.000	34.8	33	37.7	39.5	0	39.5	54.0	-14.5
H	26200.000	36.2	33	39.2	42.4	0	42.4	54.0	-11.6
H	31440.000	40.3	33	42.1	49.4	0	49.4	54.0	-4.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	75.2	33	27.2	69.4	74.0	-4.6
H	10480.000	42.8	33	40.5	50.3	68.0	-17.7
H	15720.000	60.6	33	37.7	65.3	74.0	-8.7
V	20960.000	58.9	33	37.7	63.6	74.0	-10.4
H	26200.000	49.4	33	39.2	55.6	68.0	-12.4
H	31440.000	54.5	33	42.1	63.6	74.0	-10.4

5745MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	36.3	33	27.2	30.5	0	30.5	54.0	-23.5
H	11490.000	29.9	33	40.8	37.7	0	37.7	54.0	-16.3
V	17235.000	48.2	33	37.6	52.8	0	52.8	54.0	-1.2
V	22980.000	36.1	33	38.3	41.4	0	41.4	54.0	-12.6
V	28725.000	43.3	33	40.1	50.4	0	50.4	54.0	-3.6
V	34470.000	39.4	33	41.1	47.5	0	47.5	54.0	-6.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	76.0	33	27.2	70.2	74.0	-3.8
H	11490.000	43.8	33	40.8	51.6	74.0	-22.4
V	17235.000	62.1	33	37.6	66.7	68.0	-1.3
V	22980.000	52.3	33	38.3	57.6	74.0	-16.4
V	28725.000	51.5	33	40.1	58.6	68.0	-9.4
V	34470.000	55.5	33	41.1	63.6	68.0	-4.4

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11ac (20MHz) (MCS0)

5785MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	45.4	33	27.2	39.6	0	39.6	54.0	-14.4
V	11570.000	33.5	33	40.5	41.0	0	41.0	54.0	-13.0
V	17355.000	48.3	33	37.6	52.9	0	52.9	54.0	-1.1
H	23140.000	45.8	33	38.6	51.4	0	51.4	54.0	-2.6
H	28925.000	43.4	33	40.1	50.5	0	50.5	54.0	-3.5
H	34710.000	34.2	33	41.3	42.5	0	42.5	54.0	-11.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	77.4	33	27.2	71.6	74.0	-2.4
V	11570.000	47.4	33	40.5	54.9	74.0	-19.1
V	17355.000	62.2	33	37.6	66.8	68.0	-1.2
H	23140.000	61.0	33	38.6	66.6	68.0	-1.4
H	28925.000	59.5	33	40.1	66.6	68.0	-1.4
H	34710.000	47.3	33	41.3	55.6	68.0	-12.4

5825MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	39.5	33	27.2	33.7	0	33.7	54.0	-20.3
H	11650.000	32.7	33	40.5	40.2	0	40.2	54.0	-13.8
V	17475.000	48.8	33	37.6	53.4	0	53.4	54.0	-0.6
V	23300.000	37.9	33	38.6	43.5	0	43.5	54.0	-10.5
H	29125.000	35.5	33	40.0	42.5	0	42.5	54.0	-11.5
V	34950.000	41.1	33	41.3	49.4	0	49.4	54.0	-4.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	74.7	33	27.2	68.9	74.0	-5.1
H	11650.000	46.6	33	40.5	54.1	74.0	-19.9
V	17475.000	62.7	33	37.6	67.3	68.0	-0.7
V	23300.000	57.0	33	38.6	62.6	68.0	-5.4
H	29125.000	58.7	33	40.0	65.7	68.0	-2.3
V	34950.000	58.3	33	41.3	66.6	68.0	-1.4

Notes:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
7. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
8. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
9. Average detector is used according to ANSI C63.10 for average measurement.

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11ac (40MHz) (MCS0)

5190MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	38.7	33	27.2	32.9	0	32.9	54.0	-21.1
V	5150.000	50.3	33	35.7	53.0	0	53.0	54.0	-1.0
V	10380.000	31.9	33	40.5	39.4	0	39.4	54.0	-14.6
H	15570.000	47.0	33	37.7	51.7	0	51.7	54.0	-2.3
H	20760.000	41.8	33	37.7	46.5	0	46.5	54.0	-7.5
V	25950.000	43.2	33	39.3	49.5	0	49.5	54.0	-4.5
H	31140.000	39.4	33	42.1	48.5	0	48.5	54.0	-5.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	76.3	33	27.2	70.5	74.0	-3.5
V	5150.000	65.3	33	35.7	68.0	74.0	-6.0
V	10380.000	45.4	33	40.5	52.9	68.0	-15.1
H	15570.000	60.5	33	37.7	65.2	74.0	-8.8
H	20760.000	48.8	33	37.7	53.5	74.0	-20.5
V	25950.000	52.3	33	39.3	58.6	68.0	-9.4
H	31140.000	55.5	33	42.1	64.6	68.0	-3.4

5230MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	45.0	33	27.2	39.2	0	39.2	54.0	-14.8
V	10460.000	28.0	33	40.5	35.5	0	35.5	54.0	-18.5
H	15690.000	40.8	33	37.7	45.5	0	45.5	54.0	-8.5
H	20920.000	37.7	33	37.7	42.4	0	42.4	54.0	-11.6
H	26150.000	30.2	33	39.2	36.4	0	36.4	54.0	-17.6
H	31380.000	31.3	33	42.1	40.4	0	40.4	54.0	-13.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	77.0	33	27.2	71.2	74.0	-2.8
V	10460.000	41.3	33	40.5	48.8	68.0	-19.2
H	15690.000	54.6	33	37.7	59.3	74.0	-14.7
H	20920.000	44.8	33	37.7	49.5	74.0	-24.5
H	26150.000	50.3	33	39.2	56.5	68.0	-11.5
H	31380.000	44.5	33	42.1	53.6	74.0	-20.4

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11ac (40MHz) (MCS0)

5755MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	40.4	33	27.2	34.6	0	34.6	54.0	-19.4
H	11510.000	32.2	33	40.5	39.7	0	39.7	54.0	-14.3
H	17265.000	48.3	33	37.6	52.9	0	52.9	54.0	-1.1
V	23020.000	42.8	33	38.6	48.4	0	48.4	54.0	-5.6
H	28775.000	41.4	33	40.1	48.5	0	48.5	54.0	-5.5
V	34530.000	38.1	33	41.3	46.4	0	46.4	54.0	-7.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	75.6	33	27.2	69.8	74.0	-4.2
H	11510.000	45.8	33	40.5	53.3	74.0	-20.7
H	17265.000	62.8	33	37.6	67.4	68.0	-0.6
V	23020.000	53.0	33	38.6	58.6	74.0	-15.4
H	28775.000	54.5	33	40.1	61.6	68.0	-6.4
V	34530.000	46.4	33	41.3	54.7	68.0	-13.3

5795MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	37.3	33	27.2	31.5	0	31.5	54.0	-22.5
H	11590.000	33.2	33	40.5	40.7	0	40.7	54.0	-13.3
V	17385.000	48.3	33	37.6	52.9	0	52.9	54.0	-1.1
H	23180.000	43.9	33	38.6	49.5	0	49.5	54.0	-4.5
H	28975.000	38.3	33	40.1	45.4	0	45.4	54.0	-8.6
V	34770.000	40.2	33	41.3	48.5	0	48.5	54.0	-5.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	76.0	33	27.2	70.2	74.0	-3.8
H	11590.000	46.7	33	40.5	54.2	74.0	-19.8
V	17385.000	62.8	33	37.6	67.4	68.0	-0.6
H	23180.000	59.0	33	38.6	64.6	68.0	-3.4
H	28975.000	48.6	33	40.1	55.7	68.0	-12.3
V	34770.000	47.3	33	41.3	55.6	68.0	-12.4

Notes:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
7. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
8. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
9. Average detector is used according to ANSI C63.10 for average measurement.

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11ac (80MHz) (MCS0)

5210MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	39.0	33	27.2	33.2	0	33.2	54.0	-20.8
V	5150.000	50.5	33	35.7	53.2	0	53.2	54.0	-0.8
V	10420.000	28.6	33	40.5	36.1	0	36.1	54.0	-17.9
V	15630.000	40.7	33	37.7	45.4	0	45.4	54.0	-8.6
H	20840.000	34.7	33	37.7	39.4	0	39.4	54.0	-14.6
V	26050.000	35.2	33	39.2	41.4	0	41.4	54.0	-12.6
V	31260.000	28.3	33	42.1	37.4	0	37.4	54.0	-16.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	76.2	33	27.2	70.4	74.0	-3.6
V	5150.000	64.7	33	35.7	67.4	74.0	-6.6
V	10420.000	42.0	33	40.5	49.5	68.0	-18.5
V	15630.000	54.6	33	37.7	59.3	74.0	-14.7
H	20840.000	46.8	33	37.7	51.5	74.0	-22.5
V	26050.000	44.3	33	39.2	50.5	68.0	-17.5
V	31260.000	43.5	33	42.1	52.6	74.0	-21.4

5775MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	43.5	33	27.2	37.7	0	37.7	54.0	-16.3
H	11550.000	32.3	33	40.5	39.8	0	39.8	54.0	-14.2
V	17325.000	48.9	33	37.6	53.5	0	53.5	54.0	-0.5
H	23100.000	34.8	33	38.6	40.4	0	40.4	54.0	-13.6
H	28875.000	34.3	33	40.1	41.4	0	41.4	54.0	-12.6
H	34650.000	36.2	33	41.3	44.5	0	44.5	54.0	-9.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	77.9	33	27.2	72.1	74.0	-1.9
H	11550.000	45.9	33	40.5	53.4	74.0	-20.6
V	17325.000	62.5	33	37.6	67.1	68.0	-0.9
H	23100.000	52.0	33	38.6	57.6	74.0	-16.4
H	28875.000	53.5	33	40.1	60.6	68.0	-7.4
H	34650.000	58.3	33	41.3	66.6	68.0	-1.4

Notes:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
7. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
8. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
9. Average detector is used according to ANSI C63.10 for average measurement.

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11a (20MHz) (OFDM,6MBs)

5180MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	38.2	33	27.2	32.4	0	32.4	54.0	-21.6
V	5150.000	50.0	33	35.7	52.7	0	52.7	54.0	-1.3
V	10360.000	28.7	33	40.5	36.2	0	36.2	54.0	-17.8
V	15540.000	46.3	33	37.7	51.0	0	51.0	54.0	-3.0
H	20720.000	44.8	33	37.7	49.5	0	49.5	54.0	-4.5
V	25900.000	40.1	33	39.3	46.4	0	46.4	54.0	-7.6
H	31080.000	41.4	33	42.1	50.5	0	50.5	54.0	-3.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	75.9	33	27.2	70.1	74.0	-3.9
V	5150.000	64.7	33	35.7	67.4	74.0	-6.6
V	10360.000	42.4	33	40.5	49.9	68.0	-18.1
V	15540.000	59.9	33	37.7	64.6	68.0	-3.4
H	20720.000	55.9	33	37.7	60.6	74.0	-13.4
V	25900.000	53.3	33	39.3	59.6	68.0	-8.4
H	31080.000	52.5	33	42.1	61.6	68.0	-6.4

5200MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	45.6	33	27.2	39.8	0	39.8	54.0	-14.2
V	10400.000	30.9	33	40.5	38.4	0	38.4	54.0	-15.6
H	15600.000	46.3	33	37.7	51.0	0	51.0	54.0	-3.0
V	20800.000	40.8	33	37.7	45.5	0	45.5	54.0	-8.5
V	26000.000	41.2	33	39.2	47.4	0	47.4	54.0	-6.6
H	31200.000	41.4	33	42.1	50.5	0	50.5	54.0	-3.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	78.4	33	27.2	72.6	74.0	-1.4
V	10400.000	44.6	33	40.5	52.1	68.0	-15.9
H	15600.000	60.0	33	37.7	64.7	74.0	-9.3
V	20800.000	48.9	33	37.7	53.6	74.0	-20.4
V	26000.000	55.4	33	39.2	61.6	68.0	-6.4
H	31200.000	50.5	33	42.1	59.6	74.0	-14.4

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11a (20MHz) (OFDM,6MBs)

5240MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	41.3	33	27.2	35.5	0	35.5	54.0	-18.5
H	10480.000	28.3	33	40.5	35.8	0	35.8	54.0	-18.2
H	15720.000	40.9	33	37.7	45.6	0	45.6	54.0	-8.4
V	20960.000	33.7	33	37.7	38.4	0	38.4	54.0	-15.6
H	26200.000	36.2	33	39.2	42.4	0	42.4	54.0	-11.6
H	31440.000	27.3	33	42.1	36.4	0	36.4	54.0	-17.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	76.5	33	27.2	70.7	74.0	-3.3
H	10480.000	42.3	33	40.5	49.8	68.0	-18.2
H	15720.000	54.2	33	37.7	58.9	74.0	-15.1
V	20960.000	52.9	33	37.7	57.6	74.0	-16.4
H	26200.000	51.3	33	39.2	57.5	68.0	-10.5
H	31440.000	42.5	33	42.1	51.6	74.0	-22.4

5745MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	36.9	33	27.2	31.1	0	31.1	54.0	-22.9
H	11490.000	31.1	33	40.8	38.9	0	38.9	54.0	-15.1
V	17235.000	48.0	33	37.6	52.6	0	52.6	54.0	-1.4
V	22980.000	40.1	33	38.3	45.4	0	45.4	54.0	-8.6
V	28725.000	43.4	33	40.1	50.5	0	50.5	54.0	-3.5
V	34470.000	43.4	33	41.1	51.5	0	51.5	54.0	-2.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	74.3	33	27.2	68.5	74.0	-5.5
H	11490.000	44.8	33	40.8	52.6	74.0	-21.4
V	17235.000	62.7	33	37.6	67.3	68.0	-0.7
V	22980.000	57.3	33	38.3	62.6	74.0	-11.4
V	28725.000	46.5	33	40.1	53.6	68.0	-14.4
V	34470.000	56.5	33	41.1	64.6	68.0	-3.4

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11a (20MHz) (OFDM,6MBs)

5785MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	43.0	33	27.2	37.2	0	37.2	54.0	-16.8
H	11570.000	34.4	33	40.5	41.9	0	41.9	54.0	-12.1
V	17355.000	48.5	33	37.6	53.1	0	53.1	54.0	-0.9
V	23140.000	45.9	33	38.6	51.5	0	51.5	54.0	-2.5
H	28925.000	45.3	33	40.1	52.4	0	52.4	54.0	-1.6
V	34710.000	37.1	33	41.3	45.4	0	45.4	54.0	-8.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	77.6	33	27.2	71.8	74.0	-2.2
H	11570.000	48.1	33	40.5	55.6	74.0	-18.4
V	17355.000	62.2	33	37.6	66.8	68.0	-1.2
V	23140.000	58.0	33	38.6	63.6	68.0	-4.4
H	28925.000	59.5	33	40.1	66.6	68.0	-1.4
V	34710.000	51.3	33	41.3	59.6	68.0	-8.4

5825MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	40.8	33	27.2	35.0	0	35.0	54.0	-19.0
V	11650.000	33.4	33	40.5	40.9	0	40.9	54.0	-13.1
V	17475.000	48.8	33	37.6	53.4	0	53.4	54.0	-0.6
H	23300.000	35.9	33	38.6	41.5	0	41.5	54.0	-12.5
H	29125.000	36.4	33	40.0	43.4	0	43.4	54.0	-10.6
V	34950.000	39.2	33	41.3	47.5	0	47.5	54.0	-6.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	75.7	33	27.2	69.9	74.0	-4.1
V	11650.000	47.1	33	40.5	54.6	74.0	-19.4
V	17475.000	62.5	33	37.6	67.1	68.0	-0.9
H	23300.000	53.1	33	38.6	58.7	68.0	-9.3
H	29125.000	52.6	33	40.0	59.6	68.0	-8.4
V	34950.000	53.3	33	41.3	61.6	68.0	-6.4

Notes:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
7. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
8. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
9. Average detector is used according to ANSI C63.10 for average measurement.

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11n (HT20MHz) (MCS0)

5180MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	40.7	33	27.2	34.9	0	34.9	54.0	-19.1
H	5150.000	50.1	33	35.7	52.8	0	52.8	54.0	-1.2
V	10360.000	30.3	33	40.5	37.8	0	37.8	54.0	-16.2
H	15540.000	44.9	33	37.7	49.6	0	49.6	54.0	-4.4
V	20720.000	44.8	33	37.7	49.5	0	49.5	54.0	-4.5
H	25900.000	41.2	33	39.3	47.5	0	47.5	54.0	-6.5
H	31080.000	40.3	33	42.1	49.4	0	49.4	54.0	-4.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	76.6	33	27.2	70.8	74.0	-3.2
H	5150.000	64.8	33	35.7	67.5	74.0	-6.5
V	10360.000	43.8	33	40.5	51.3	68.0	-16.7
H	15540.000	58.4	33	37.7	63.1	68.0	-4.9
V	20720.000	47.9	33	37.7	52.6	74.0	-21.4
H	25900.000	47.2	33	39.3	53.5	68.0	-14.5
H	31080.000	52.5	33	42.1	61.6	68.0	-6.4

5200MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	45.6	33	27.2	39.8	0	39.8	54.0	-14.2
V	10400.000	30.4	33	40.5	37.9	0	37.9	54.0	-16.1
H	15600.000	45.3	33	37.7	50.0	0	50.0	54.0	-4.0
H	20800.000	44.8	33	37.7	49.5	0	49.5	54.0	-4.5
V	26000.000	35.3	33	39.2	41.5	0	41.5	54.0	-12.5
H	31200.000	29.4	33	42.1	38.5	0	38.5	54.0	-15.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	78.1	33	27.2	72.3	74.0	-1.7
V	10400.000	43.9	33	40.5	51.4	68.0	-16.6
H	15600.000	58.8	33	37.7	63.5	74.0	-10.5
H	20800.000	57.8	33	37.7	62.5	74.0	-11.5
V	26000.000	55.4	33	39.2	61.6	68.0	-6.4
H	31200.000	54.5	33	42.1	63.6	74.0	-10.4

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11n (HT20MHz) (MCS0)

5240MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	40.2	33	27.2	34.4	0	34.4	54.0	-19.6
H	10480.000	28.2	33	40.5	35.7	0	35.7	54.0	-18.3
H	15720.000	40.9	33	37.7	45.6	0	45.6	54.0	-8.4
H	20960.000	36.7	33	37.7	41.4	0	41.4	54.0	-12.6
H	26200.000	30.2	33	39.2	36.4	0	36.4	54.0	-17.6
H	31440.000	28.3	33	42.1	37.4	0	37.4	54.0	-16.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	76.6	33	27.2	70.8	74.0	-3.2
H	10480.000	41.4	33	40.5	48.9	68.0	-19.1
H	15720.000	54.7	33	37.7	59.4	74.0	-14.6
H	20960.000	54.9	33	37.7	59.6	74.0	-14.4
H	26200.000	48.3	33	39.2	54.5	68.0	-13.5
H	31440.000	41.4	33	42.1	50.5	74.0	-23.5

5745MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	39.4	33	27.2	33.6	0	33.6	54.0	-20.4
V	11490.000	31.0	33	40.8	38.8	0	38.8	54.0	-15.2
V	17235.000	48.6	33	37.6	53.2	0	53.2	54.0	-0.8
H	22980.000	44.2	33	38.3	49.5	0	49.5	54.0	-4.5
V	28725.000	36.3	33	40.1	43.4	0	43.4	54.0	-10.6
V	34470.000	36.4	33	41.1	44.5	0	44.5	54.0	-9.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	75.6	33	27.2	69.8	74.0	-4.2
V	11490.000	44.5	33	40.8	52.3	74.0	-21.7
V	17235.000	62.1	33	37.6	66.7	68.0	-1.3
H	22980.000	58.4	33	38.3	63.7	74.0	-10.3
V	28725.000	52.4	33	40.1	59.5	68.0	-8.5
V	34470.000	45.4	33	41.1	53.5	68.0	-14.5

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11n (HT20MHz) (MCS0)

5785MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	44.3	33	27.2	38.5	0	38.5	54.0	-15.5
V	11570.000	32.0	33	40.5	39.5	0	39.5	54.0	-14.5
H	17355.000	48.2	33	37.6	52.8	0	52.8	54.0	-1.2
V	23140.000	43.8	33	38.6	49.4	0	49.4	54.0	-4.6
H	28925.000	43.4	33	40.1	50.5	0	50.5	54.0	-3.5
H	34710.000	36.2	33	41.3	44.5	0	44.5	54.0	-9.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	77.9	33	27.2	72.1	74.0	-1.9
V	11570.000	45.5	33	40.5	53.0	74.0	-21.0
H	17355.000	62.7	33	37.6	67.3	68.0	-0.7
V	23140.000	59.0	33	38.6	64.6	68.0	-3.4
H	28925.000	59.5	33	40.1	66.6	68.0	-1.4
H	34710.000	47.3	33	41.3	55.6	68.0	-12.4

5825MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	39.7	33	27.2	33.9	0	33.9	54.0	-20.1
V	11650.000	33.5	33	40.5	41.0	0	41.0	54.0	-13.0
H	17475.000	48.6	33	37.6	53.2	0	53.2	54.0	-0.8
V	23300.000	46.8	33	38.6	52.4	0	52.4	54.0	-1.6
V	29125.000	35.5	33	40.0	42.5	0	42.5	54.0	-11.5
H	34950.000	44.2	33	41.3	52.5	0	52.5	54.0	-1.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	75.2	33	27.2	69.4	74.0	-4.6
V	11650.000	47.0	33	40.5	54.5	74.0	-19.5
H	17475.000	62.1	33	37.6	66.7	68.0	-1.3
V	23300.000	50.0	33	38.6	55.6	68.0	-12.4
V	29125.000	59.6	33	40.0	66.6	68.0	-1.4
H	34950.000	49.3	33	41.3	57.6	68.0	-10.4

Notes:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
7. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
8. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
9. Average detector is used according to ANSI C63.10 for average measurement.

TEST REPORT

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11n (40MHz) (MCS0)

5190MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	38.6	33	27.2	32.8	0	32.8	54.0	-21.2
H	5150.000	50.2	33	35.7	52.9	0	52.9	54.0	-1.1
V	10380.000	28.8	33	40.5	36.3	0	36.3	54.0	-17.7
H	15570.000	45.4	33	37.7	50.1	0	50.1	54.0	-3.9
V	20760.000	44.7	33	37.7	49.4	0	49.4	54.0	-4.6
V	25950.000	32.1	33	39.3	38.4	0	38.4	54.0	-15.6
H	31140.000	31.3	33	42.1	40.4	0	40.4	54.0	-13.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	1593.000	75.9	33	27.2	70.1	74.0	-3.9
H	5150.000	64.3	33	35.7	67.0	74.0	-7.0
V	10380.000	42.5	33	40.5	50.0	68.0	-18.0
H	15570.000	59.1	33	37.7	63.8	74.0	-10.2
V	20760.000	51.9	33	37.7	56.6	74.0	-17.4
V	25950.000	45.3	33	39.3	51.6	68.0	-16.4
H	31140.000	45.5	33	42.1	54.6	68.0	-13.4

5230MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	43.3	33	27.2	37.5	0	37.5	54.0	-16.5
V	10460.000	28.1	33	40.5	35.6	0	35.6	54.0	-18.4
V	15690.000	40.9	33	37.7	45.6	0	45.6	54.0	-8.4
H	20920.000	36.7	33	37.7	41.4	0	41.4	54.0	-12.6
H	26150.000	35.2	33	39.2	41.4	0	41.4	54.0	-12.6
H	31380.000	34.3	33	42.1	43.4	0	43.4	54.0	-10.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	78.4	33	27.2	72.6	74.0	-1.4
V	10460.000	41.4	33	40.5	48.9	68.0	-19.1
V	15690.000	54.9	33	37.7	59.6	74.0	-14.4
H	20920.000	47.9	33	37.7	52.6	74.0	-21.4
H	26150.000	43.3	33	39.2	49.5	68.0	-18.5
H	31380.000	41.4	33	42.1	50.5	74.0	-23.5

RADIATED EMISSION DATA (CONT'D)

IEEE 802.11n (40MHz) (MCS0)

5755MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	41.2	33	27.2	35.4	0	35.4	54.0	-18.6
V	11510.000	33.3	33	40.5	40.8	0	40.8	54.0	-13.2
H	17265.000	48.1	33	37.6	52.7	0	52.7	54.0	-1.3
V	23020.000	35.9	33	38.6	41.5	0	41.5	54.0	-12.5
H	28775.000	36.4	33	40.1	43.5	0	43.5	54.0	-10.5
H	34530.000	38.1	33	41.3	46.4	0	46.4	54.0	-7.6

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	76.4	33	27.2	70.6	74.0	-3.4
V	11510.000	46.9	33	40.5	54.4	74.0	-19.6
H	17265.000	62.7	33	37.6	67.3	68.0	-0.7
V	23020.000	54.0	33	38.6	59.6	74.0	-14.4
H	28775.000	50.5	33	40.1	57.6	68.0	-10.4
H	34530.000	47.3	33	41.3	55.6	68.0	-12.4

5795MHz

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Averge (dBµV/m)	Average Factor (dB)	Calculated at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	35.8	33	27.2	30.0	0	30.0	54.0	-24.0
V	11590.000	33.2	33	40.5	40.7	0	40.7	54.0	-13.3
V	17385.000	48.9	33	37.6	53.5	0	53.5	54.0	-0.5
H	23180.000	36.9	33	38.6	42.5	0	42.5	54.0	-11.5
H	28975.000	37.4	33	40.1	44.5	0	44.5	54.0	-9.5
V	34770.000	38.2	33	41.3	46.5	0	46.5	54.0	-7.5

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	1593.000	75.7	33	27.2	69.9	74.0	-4.1
V	11590.000	46.9	33	40.5	54.4	74.0	-19.6
V	17385.000	62.5	33	37.6	67.1	68.0	-0.9
H	23180.000	60.0	33	38.6	65.6	68.0	-2.4
H	28975.000	54.5	33	40.1	61.6	68.0	-6.4
V	34770.000	47.3	33	41.3	55.6	68.0	-12.4

Notes:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
6. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
7. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
8. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
9. Average detector is used according to ANSI C63.10 for average measurement.

RADIATED EMISSION DATA (CONT'D)

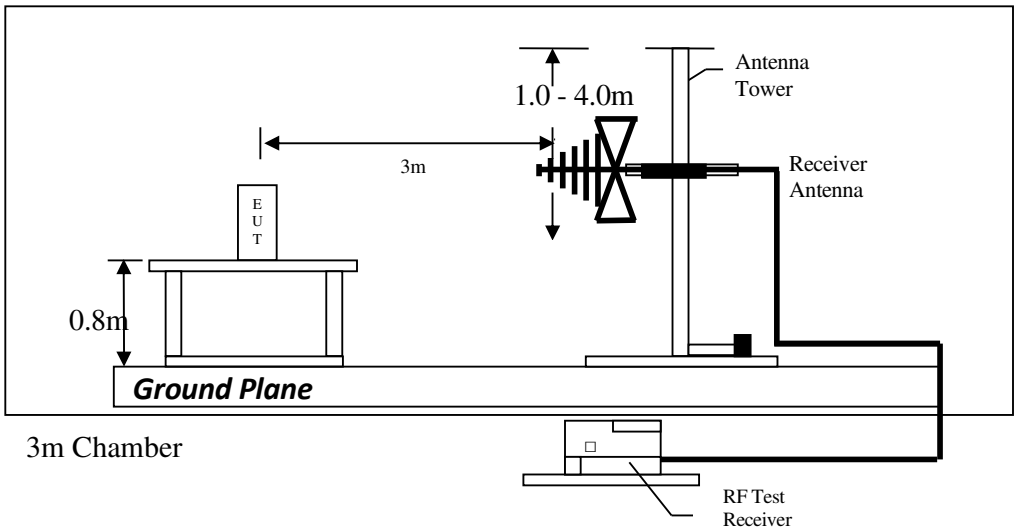
Mode: Wi-Fi Pairing and Charging

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	100.931	35.9	16	12.0	31.9	43.5	-11.6
H	242.673	36.7	16	19.0	39.7	46.0	-6.3
H	408.785	26.9	16	24.0	34.9	46.0	-11.1
H	647.997	31.5	16	29.0	44.5	46.0	-1.5
H	695.997	30.9	16	30.0	44.9	46.0	-1.1
V	743.996	27.6	16	30.0	41.6	46.0	-4.4

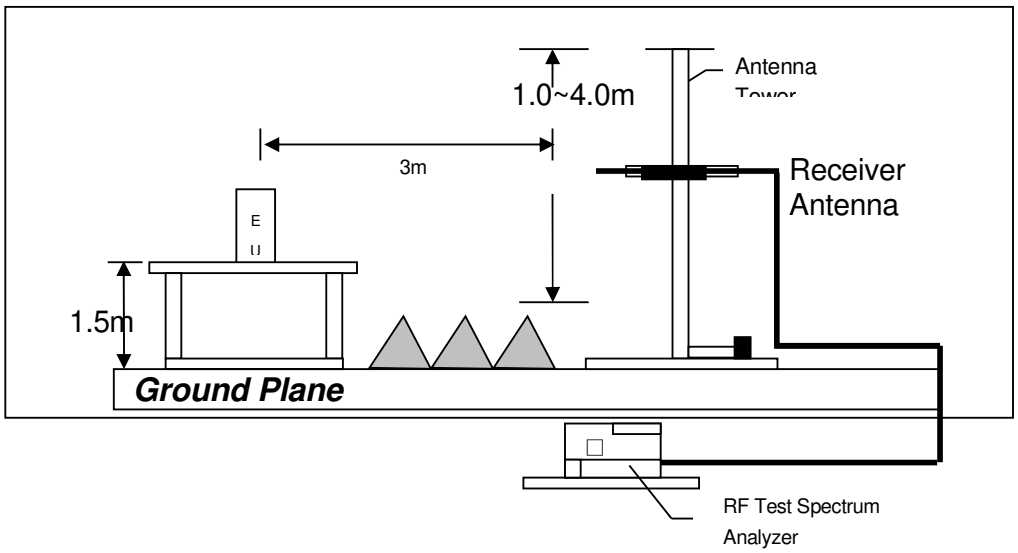
Notes:
1. Quasi-Peak detector is used unless otherwise stated.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Emissions within the restricted band meet the requirement of FCC Part 15 Section 15.205.
5. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

4.6.3 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



Test setup of radiated emissions up to 1GHz



Test setup of radiated emissions above 1GHz

TEST REPORT

4.7 AC Power Line Conducted Emission

☐ Not applicable – EUT is only powered by battery for operation.

☒ EUT connects to AC power line. Emission Data is listed in following pages.

☐ Base Unit connects to AC power line and has transmission. Handset connects to AC power line but has no transmission. Emission Data of Base Unit is listed in following pages.

4.7.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

15.360 MHz

The worst-case line conducted configuration photographs are attached in the Appendix and saved with filename: Setup Photos.pdf

4.7.2 AC Power Line Conducted Emission Data

The plot(s) and data in the following pages list the significant emission frequencies, the limit and the margin of compliance.

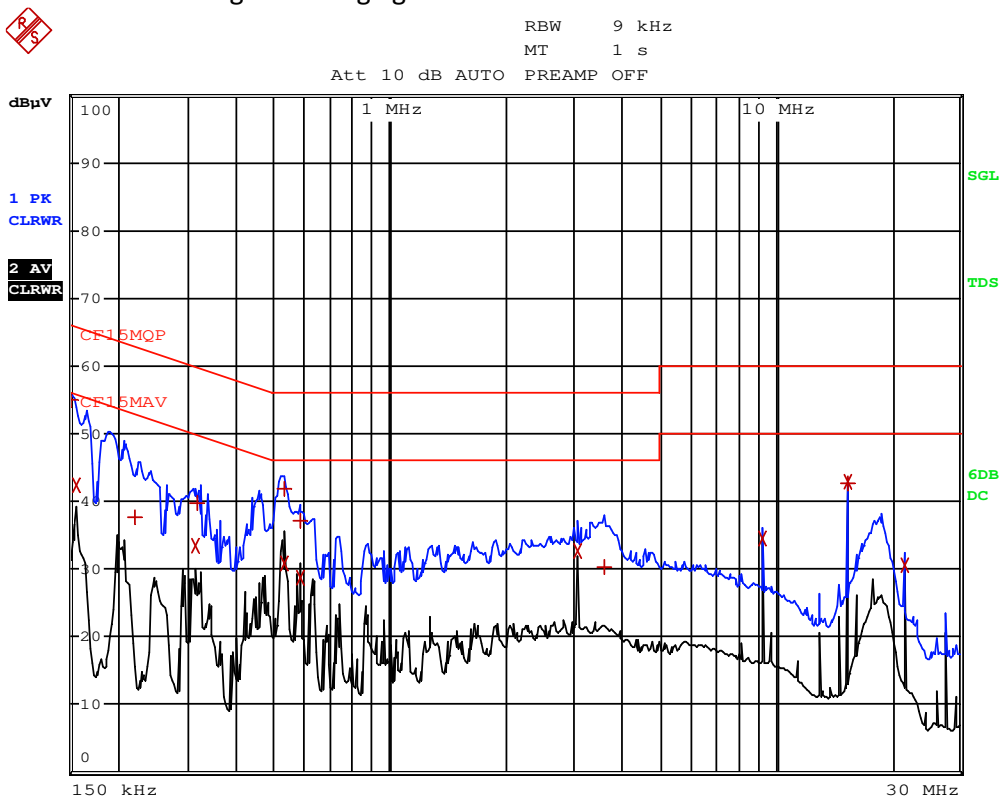
Passed by 7.0 dB margin

Test Date: June 18, 2023

TEST REPORT

AC POWER LINE CONDUCTED EMISSION

Worst Case: Wi-Fi Pairing and Charging



TEST REPORT

AC POWER LINE CONDUCTED EMISSION

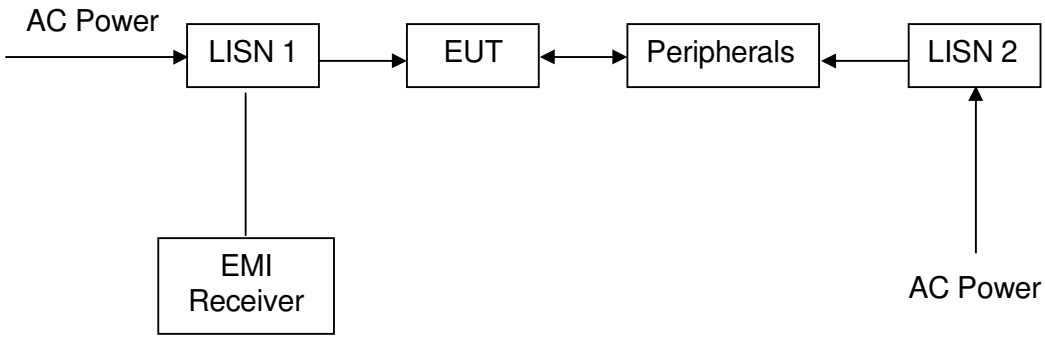
Worst Case: Wi-Fi Pairing and Charging

EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	150 kHz	55.06	L1	-10.93
2	CISPR Average	154.5 kHz	42.51	N	-13.23
1	Quasi Peak	222 kHz	37.56	L1	-25.17
2	CISPR Average	312 kHz	33.46	N	-16.45
1	Quasi Peak	321 kHz	39.80	N	-19.87
1	Quasi Peak	532.5 kHz	41.86	N	-14.13
2	CISPR Average	532.5 kHz	30.93	N	-15.06
2	CISPR Average	582 kHz	28.82	L1	-17.17
1	Quasi Peak	586.5 kHz	37.22	L1	-18.77
2	CISPR Average	3.0705 MHz	32.57	N	-13.42
1	Quasi Peak	3.5835 MHz	30.24	N	-25.75
2	CISPR Average	9.2175 MHz	34.53	N	-15.46
1	Quasi Peak	15.36 MHz	42.74	N	-17.25
2	CISPR Average	15.36 MHz	42.96	N	-7.03
2	CISPR Average	21.5025 MHz	30.70	L1	-19.29

4.7.3 Conducted Emission Test Setup



The EUT along with its peripherals were placed on a 1.0m(W)×1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were moved to find the maximum emission.

5.0 CONFIDENTIALITY REQUEST

For electronic filing, a preliminary copy of the confidentiality request is saved with filename: request.pdf.

6.0 EQUIPMENT LIST

1) Radiated Emissions Test

Equipment	Signal and Spectrum Analyzer (10Hz to 40GHz)	Biconical Antenna (30MHz to 300MHz)	EMI Test Receiver 7GHz
Registration No.	EW-3016	EW-3242	EW-3603
Manufacturer	ROHDESCHWARZ	EMCO	ROHDESCHWARZ
Model No.	FSV40	3110C	ESR7
Calibration Date	December 13, 2022	May 26, 2021	December 06, 2022
Calibration Due Date	December 13, 2023	August 26, 2023	December 06, 2023

Equipment	Log Periodic Antenna	Double Ridged Guide Antenna (1GHz - 18GHz)	Active Loop H-field (9kHz to 30MHz)
Registration No.	EW-3243	EW-0194	EW-3302
Manufacturer	EMCO	EMCO	EMCO
Model No.	3148B	3115	6502
Calibration Date	June 03, 2021	May 10, 2023	September 08, 2022
Calibration Due Date	September 30, 2023	November 10, 2024	September 08, 2023

Equipment	RF Preamplifier (9kHz to 6000MHz)	Pyramidal Horn Antenna	14m Double Shield RF Cable (9kHz - 6GHz)
Registration No.	EW-3006b	EW-0905	EW-2376
Manufacturer	SCHWARZBECK	EMCO	RADIALL
Model No.	BBV9718	3160-09	n m/br56/bnc m 14m
Calibration Date	February 15, 2022	July 20, 2021	January 26, 2022
Calibration Due Date	August 15, 2023	August 20, 2023	October 26, 2023

Equipment	RF Cable 14m (1GHz to 26.5GHz)	14m Double Shield RF Cable (20MHz to 6GHz)	Pyramidal Horn Antenna
Registration No.	EW-2781	EW-2074	EW-0905
Manufacturer	GREATBILLION	RADIALL	EMCO
Model No.	SMA m/SHF5MPU /SMA m ra14m,26G	N(m)-RG142-BNC(m) L=14M	3160-09
Calibration Date	December 12, 2022	December 10, 2021	July 20, 2021
Calibration Due Date	December 12, 2023	September 10, 2023	August 20, 2023

2) Conducted Emissions Test

Equipment	RF Cable 240cm (RG142) (9kHz to 30MHz)	Artificial Mains Network	EMI Test Receiver 7GHz
Registration No.	EW-2454	EW-2501	EW-3481
Manufacturer	RADIALL	ROHDESCHWARZ	ROHDESCHWARZ
Model No.	Bnc m st / 142 / bnc mra 240cm	ENV-216	ESR7
Calibration Date	June 13, 2022	September 11, 2021	December 21, 2021
Calibration Due Date	June 13, 2024	September 11, 2023	September 21, 2023

3) Conductive Measurement Test

Equipment	5m RF Cable (40GHz)	RF Power Meter with Power Sensor (N1921A)	Signal and Spectrum Analyzer (10Hz to 40GHz)
Registration No.	EW-2701	EW-3309	EW-3016
Manufacturer	RADIALL	ROHDESCHWARZ	ROHDESCHWARZ
Model No.	Sma m-m 5m 40G	NRP-Z81	FSV40
Calibration Date	November 24, 2020	February 14, 2022	December 13, 2022
Calibration Due Date	November 24, 2023	February 14, 2024	December 13, 2023

4) Control Software for Radiated Emission

Software Information	
Software Name	EMC32
Manufacturer	ROHDESCHWARZ
Software version	10.50.40