2/F., Garment Centre,
576 Castle Peak Road, Kowloon,
Hong Kong SAR, China.

Telephone: (852) 2173 8888
Facsimile: (852) 2785 5487
www.intertek.com

TEST REPORT

Report Number: 23091090HKG-001

Warmup PLC

Application For Certification
(Original Grant)

FCC ID: 2AHBW6IENAS3

IC: 21121-6IENAS3

Transceiver

This report contains the data of 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 30, 2023

TEST REPORT

GENERAL INFORMATION

Applicant Name:	Warmup PLC
Applicant Address:	704 Tudor Estate, Abbey Road, London, NW10 7UW, United Kingdom
Manufacturer:	Warmup PLC
Manufacturer Address:	704 Tudor Estate, Abbey Road, London, NW10 7UW, United Kingdom
FCC Specification Standard:	FCC Part 15, October 1, 2021 Edition
FCC ID:	2AHBW6IENAS3
FCC Model(s):	6IE-04-XX-YY-ZZ, 0804-0404-XX-YY
IC Specification Standard:	RSS-247 Issue 3, August 2023 RSS-Gen Issue 5 Amendment 2, February 2021
IC:	21121-6IENAS3
PMN:	6iE-04-CW-LC, 0804-0404-TB, 0804-0404-TW
HVIN:	6iE-04-CW-LC(S), 0804-0404-TB(S), 0804-0404-TW(S)
Type of EUT:	Spread Spectrum Transmitter
Description of EUT:	Programmable WIFI Thermostat with GFCI
Serial Number:	SR0128121
Sample Receipt Date:	November 20, 2023
Date of Test:	November 20, 2023 to November 28, 2023
Report Date:	November 30, 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 / RSS-247 Issue 3 Certification. This report contains the data of Wi-Fi portion only

TEST REPORT

TABLE OF CONTENTS

TEST REPORT

1.0 TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

1.1 Summary of Test Results

Test Items	FCC Part 15 Section	RSS-247/ RSS-Gen# Section	Results	Details See Section
Antenna Requirement	15.203	7.1.2#	Pass	2.1
Max. Conducted Output Power (Peak)	15.247(b)(3)&(4)	5.4(4)	Pass	4.1
Min. 6dB RF Bandwidth	15.247(a)(2)	5.2(1)	Pass	4.2
Max. Power Density (average)	15.247(e)	5.2(2)	Pass	4.3
Out of Band Antenna Conducted Emission	15.247(d)	5.5	Pass	4.4
Radiated Emission in Restricted Bands and Spurious Emissions	15.247(d), 15.209 & 15.109	5.5	Pass	4.6
AC Power Line Conducted Emission	15.207 & 15.107	7.2.4#	Pass	4.7

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
RSS-247 Issue 3, August 2023
RSS-Gen Issue 5 Amendment 2, February 2021

TEST REPORT

2.0 GENERAL DESCRIPTION

2.1 Product Description

The Equipment Under Test (EUT) is a Wi-Fi and BLE enabled thermostat designed to provide timed regulation of electric underfloor heating systems. The EUT is powered by 110-240VAC.

For Wi-Fi portion, the Equipment Under Test (EUT) operates at frequency range of 2412MHz to 2462MHz with 11 channels and 2422MHz to 2452MHz with 9 channels. For BLE Portion, it operates at frequency range of 2402.000 MHz to 2480.000 MHz with 40 channels, the channels are separated with 2MHz spacing.

For 802.11b mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via Direct-sequence spread spectrum (DSSS) modulation. Maximum bit rate can be up to 11Mbps.
For 802.11g mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can be up to 54Mbps.
For 802.11n (with 20MHz bandwidth) mode, it operates at frequency range of 2412.000MHz to 2462.000MHz with 11 channels. It transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can support up to 65Mbps.
For 802.11n (with 40MHz bandwidth) mode, it operates at frequency range of 2422.000MHz to 2452.000MHz with 9 channels. It transmits via Orthogonal Frequency Division Multiplexing (OFDM) modulation. Maximum bit rate can support up to 150Mbps.

The antenna(s) used in the EUT is integral, and the test sample is a prototype.

For FCC, all the models in the series 6iE-04-XX-YY-ZZ and 0804-0404-XX-YY are declared to be identical in hardware aspect and RF circuitry parameter. The series 6iE-04-XX-YY-ZZ means: where -04 means GFCI, XX means Lens/Housing Color, YY means decorative band colour, and ZZ means packaging version. The difference in model number serves as marketing strategy as declared by client. The series 0804-0404-XX-YY means: where XX means Lens/Housing Color and YY means packaging version. The difference in model number serves as marketing strategy as declared by client.

For IC: the models 6iE-04-CW-LC(S), 0804-0404-TB(S) are the same as the model 0804-0404-TW(S) in hardware aspect. The difference in model number serves as marketing strategy as declared by client.

The representative model 0804-0404-TW(S) was selected to test.

The circuit description is saved with filename: descri.pdf.

TEST REPORT

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.558074 D01 v05r01 (11-February-2019) All other measurements were made in accordance with the procedures in 47 CFR Part 2 and RSS-Gen Issue 5 Amendment 2, February 2021.

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 and Industry Canada No.: 2042H, Conformity Assessment Body Identifier (CABID) of test facility: HKAP01.

2.4 Related Submittal(s) Grants

This is a single application for certification of a transceiver (Wi-Fi Portion).

TEST REPORT

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 was powered by 120VAC.

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 / RSS-247 2.5. Digital circuitries used to control additional functions other than the operation of the transmitter are subject to FCC Part 15 Section 15.109 / RSS-247 Section 5.5 Limits.

TEST REPORT

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.

For simultaneous transmission, both Wi-Fi and BLE portions are also switched on when taking radiated emission for determining worst-case spurious emission.

3.2 EUT Exercising Software

The EUT exercise program (EspRFTestTool v2.8) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

TEST REPORT

3.3 Details of EUT and Description of Accessories

Details of EUT:

The EUT is power by 120VAC

Description of Accessories:

N/A

There are no accessories for compliance of this product.

3.4 Measurement Uncertainty

Decision Rule for compliance: For FCC/IC standard, the measured value must be within the limits of applicable standard without accounting for the measurement uncertainty. For EN/IEC/HKTA/HKTC standard, conformity rules will be used as per standard directly excepted EN/IEC 61000-3-2, EN/IEC 61000-3-3, HKTA1004, HKCA1008, HKTA1019, HKTA1020, HKTA1041 and HKTA1044.

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.

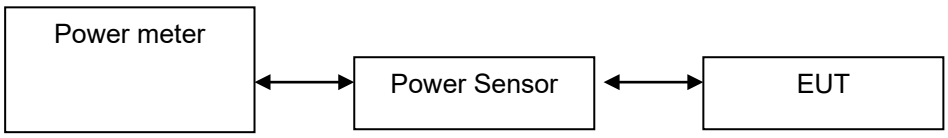
TEST REPORT

4.0 TEST RESULTS

4.1 Maximum Conducted (peak) 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 8.3.2.3 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 802.11b (DSSS, 1 Mbps) Antenna Gain = 3.37 dBi (Refer to Test Data1.pdf)

Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412 (P.9)	16.7	46.8
Middle Channel: 2437 (P.28)	17.6	57.5
High Channel: 2462 (P.45)	18.7	74.1

IEEE 802.11g (OFDM, 6 Mbps) Antenna Gain = 3.37 dBi (Refer to Test Data2.pdf)

Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412 (P.9)	16.1	40.7
Middle Channel: 2437 (P.28)	17.0	50.1
High Channel: 2462 (P.47)	17.7	58.9

TEST REPORT

4.1 Maximum Conducted Output Power at Antenna Terminals – Cont'd

IEEE 802.11n (20MHz) (OFDM, MCS0) Antenna Gain = 3.37 dBi (Refer to Test Data3.pdf)

Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412 (P.9)	14.6	28.8
Middle Channel: 2437 (P.28)	15.5	35.5
High Channel: 2462 (P.47)	16.5	44.7

IEEE 802.11n (40MHz) (OFDM, MCS0) Antenna Gain = 3.37 dBi (Refer to Test Data4.pdf)

Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2422 (P.9)	14.8	30.2
Middle Channel: 2437 (P.27)	14.8	30.2
High Channel: 2452 (P.40)	15.8	38.0

Cable loss : 0.5 dB External Attenuation : 0 dB

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

IEEE 802.11b (DSSS, 1 Mbps)
max. conducted (peak) output level = 18.7 dBm

IEEE 802.11g (OFDM, 9 Mbps)
max. conducted (peak) output level = 17.7 dBm

IEEE 802.11n (20MHz) (OFDM, MCS0)
max. conducted (peak) output level = 16.5 dBm

IEEE 802.11n (40MHz) (OFDM, MCS0)
max. conducted (peak) output level = 15.8 dBm

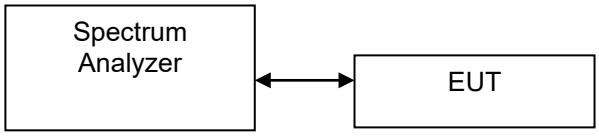
Limits:
☒ 1W (30dBm) for antennas with gains of 6dBi or less

☐ ___W (___dBm) for antennas with gains more than 6dBi

TEST REPORT

4.2 Minimum 6dB RF Bandwidth

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 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 802.11b (DSSS, 1 Mbps) (Refer to Test Data1.pdf)

Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2412 (P.4)	8.65
Middle Channel: 2437 (P.26)	8.90
High Channel: 2462 (P.43)	9.90

IEEE 802.11g (OFDM, 6 Mbps) (Refer to Test Data2.pdf)

Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2412 (P.4)	16.55
Middle Channel: 2437 (P.26)	16.45
High Channel: 2462 (P.45)	16.00

TEST REPORT

IEEE 802.11n (20MHz) (OFDM, MCS0) (Refer to Test Data3.pdf)

Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2412 (P.4)	17.30
Middle Channel: 2437 (P.26)	17.15
High Channel: 2462 (P.45)	17.20

IEEE 802.11n (40MHz) (OFDM, MCS0) (Refer to Test Data4.pdf)

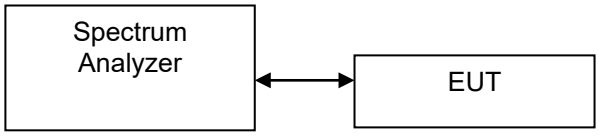
Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2422 (P.4)	35.50
Middle Channel: 2437 (P.25)	35.15
High Channel: 2452 (P.38)	31.80

Limits
6 dB bandwidth shall be at least 500kHz

TEST REPORT

4.3 Maximum Power Spectral Density

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



Antenna output of the EUT was coupled directly to spectrum analyzer. The measurement procedure 10.2 PKPSD was used. If an external attenuator and/or cable was used, these losses are compensated for using the OFFSET function of the analyser.

IEEE 802.11b (DSSS, 1 Mbps) (Refer to Test Data1.pdf)

Frequency (MHz)	PSD (dBm)
Low Channel: 2412 (P.10)	7.631 (RBW = 100kHz)
Middle Channel: 2437 (P.29)	7.996 (RBW = 100kHz)
High Channel: 2462 (P.46)	-3.729 (RBW = 3kHz)

IEEE 802.11g (OFDM, 6 Mbps) (Refer to Test Data2.pdf)

Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2412 (P.10)	4.561
Middle Channel: 2437 (P.29)	5.808
High Channel: 2462 (P.48)	5.063

IEEE 802.11n (20MHz) (OFDM, MCS0) (Refer to Test Data3.pdf)

Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2412 (P.10)	2.305
Middle Channel: 2437 (P.29)	-4.842
High Channel: 2462 (P.48)	-3.603

IEEE 802.11n (40MHz) (OFDM, MCS0) (Refer to Test Data4.pdf)

Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2422 (P.10)	1.382
Middle Channel: 2437 (P.28)	1.989
High Channel: 2452 (P.41)	2.129

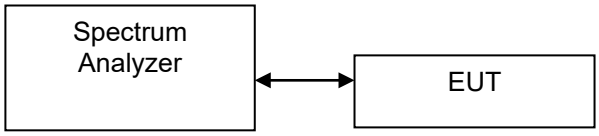
Cable Loss: 0.5 dB

Limit:
8dBm

TEST REPORT

4.4 Out of Band Conducted Emissions

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



For 802.11b/g/n20MHz/n40MHz, the maximum conducted (peak) output power was used to demonstrate compliance as described in 9.1. Then the display line (in red) shown in the following plots denotes the limit at least 20dB below maximum measured in-band peak PSD level in 100 KHz bandwidth for 802.11b/g/n20MHz/n40MHz.

The measurement procedures under sections 11 of No.558074 D01 v05r01 (11-February-2019) were used.

Furthermore, delta measurement technique for measuring bandedge emissions was incorporated in the test of the edge at 2483.5MHz.

Limits:
All spurious emission and up to the tenth harmonic was measured and they were found to be at least 20dB below the maximum measured in-band peak PSD level.

TEST REPORT

IEEE 802.11b (DSSS, 1 Mbps) (Refer to Test Data1.pdf)

Frequency (MHz)	Out of Band Conducted Emissions	Band Edge
Low Channel: 2412	P.17	P.12
Middle Channel: 2437	P.34	N/A
High Channel: 2462	P.56	P.51

IEEE 802.11g (OFDM, 6 Mbps) (Refer to Test Data2.pdf)

Frequency (MHz)	Out of Band Conducted Emissions	Band Edge
Low Channel: 2412	P.17	P.12
Middle Channel: 2437	P.34	N/A
High Channel: 2462	P.56	P.50

IEEE 802.11n (20MHz) (OFDM, MCS0) (Refer to Test Data3.pdf)

Frequency (MHz)	Out of Band Conducted Emissions	Band Edge
Low Channel: 2412	P.17	P.12
Middle Channel: 2437	P.34	N/A
High Channel: 2462	P.56	P.50

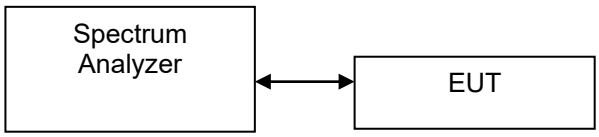
IEEE 802.11n (40MHz) (OFDM, MCS0) (Refer to Test Data4.pdf)

Frequency (MHz)	Out of Band Conducted Emissions	Band Edge
Low Channel: 2422	P.18	P.12
Middle Channel: 2437	P.31	N/A
High Channel: 2452	P.49	P.43

TEST REPORT

OCCUPIED BANDWIDTH

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



Occupied Bandwidth Results: (IEEE 802.11b) (Refer to Test Data1.pdf)

Frequency (MHz)	Occupied Bandwidth (MHz)
Low Channel: 2412 (P.7)	12.60
Middle Channel: 2437 (P.24)	12.60
High Channel: 2462 (P.41)	12.50

Occupied Bandwidth Results: (IEEE 802.11g) (Refer to Test Data2.pdf)

Frequency (MHz)	Occupied Bandwidth (MHz)
Low Channel: 2412 (P.7)	16.60
Middle Channel: 2437 (P.24)	16.40
High Channel: 2462 (P.43)	16.50

Occupied Bandwidth Results: (IEEE 802.11n (20MHz)) (Refer to Test Data3.pdf)

Frequency (MHz)	Occupied Bandwidth (MHz)
Low Channel: 2412 (P.7)	17.50
Middle Channel: 2437 (P.24)	17.30
High Channel: 2462 (P.43)	17.30

Occupied Bandwidth Results: (IEEE 802.11n (40MHz)) (Refer to Test Data4.pdf)

Frequency (MHz)	Occupied Bandwidth (MHz)
Low Channel: 2422 (P.7)	35.80
Middle Channel: 2437 (P.23)	35.60
High Channel: 2452 (P.36)	35.60

TEST REPORT

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

TEST REPORT

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

2390.000 and 2483.500 MHz

The worst-case radiated emission configuration photographs are saved with filename: setup photos.pdf

4.6.2 Radiated Emission Data

The data in tables 1-13 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 0.1 dB margin

TEST REPORT

RADIATED EMISSION DATA

Mode: TX-Channel 01

Table 1
IEEE 802.11b (DSSS, 1 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2390.000	52.0	33	29.4	48.4	54.0	-5.6
V	4824.000	43.9	33	34.9	45.8	54.0	-8.2
V	7236.000	32.9	33	37.9	37.8	54.0	-16.2
V	9648.000	40.9	33	40.4	48.3	54.0	-5.7
V	12060.000	30.4	33	40.5	37.9	54.0	-16.1
V	14472.000	34.8	33	40.0	41.8	54.0	-12.2

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	2390.000	63.0	33	29.4	59.4	74.0	-14.6
V	4824.000	50.2	33	34.9	52.1	74.0	-21.9
V	7236.000	45.7	33	37.9	50.6	74.0	-23.4
V	9648.000	47.6	33	40.4	55.0	74.0	-19.0
V	12060.000	44.1	33	40.5	51.6	74.0	-22.4
V	14472.000	48.4	33	40.0	55.4	74.0	-18.6

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 06

Table 2
IEEE 802.11b (DSSS, 1 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	4874.000	44.5	33	34.9	46.4	54.0	-7.6
V	7311.000	30.5	33	37.9	35.4	54.0	-18.6
H	9748.000	31.6	33	40.4	39.0	54.0	-15.0
V	12185.000	31.1	33	40.5	38.6	54.0	-15.4
H	14622.000	35.6	33	38.4	41.0	54.0	-13.0

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	4874.000	50.8	33	34.9	52.7	74.0	-21.3
V	7311.000	43.7	33	37.9	48.6	74.0	-25.4
H	9748.000	43.4	33	40.4	50.8	74.0	-23.2
V	12185.000	45.2	33	40.5	52.7	74.0	-21.3
H	14622.000	48.9	33	38.4	54.3	74.0	-19.7

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 11

Table 3
IEEE 802.11b (DSSS, 1 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	45.9	33	29.4	42.3	54.0	-11.7
V	4924.000	45.0	33	34.9	46.9	54.0	-7.1
V	7386.000	29.6	33	37.9	34.5	54.0	-19.5
V	9848.000	43.7	33	40.4	51.1	54.0	-2.9
H	12310.000	30.8	33	40.5	38.3	54.0	-15.7
H	14772.000	35.1	33	38.4	40.5	54.0	-13.5

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	2483.500	59.0	33	29.4	55.4	74.0	-18.6
V	4924.000	51.2	33	34.9	53.1	74.0	-20.9
V	7386.000	42.6	33	37.9	47.5	74.0	-26.5
V	9848.000	49.4	33	40.4	56.8	74.0	-17.2
H	12310.000	44.0	33	40.5	51.5	74.0	-22.5
H	14772.000	48.6	33	38.4	54.0	74.0	-20.0

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 01

Table 4
IEEE 802.11g (OFDM, 6 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	2390.000	57.5	33	29.4	53.9	54.0	-0.1
V	4824.000	32.8	33	34.9	34.7	54.0	-19.3
H	7236.000	29.1	33	37.9	34.0	54.0	-20.0
V	9648.000	28.5	33	40.4	35.9	54.0	-18.1
V	12060.000	30.3	33	40.5	37.8	54.0	-16.2
H	14472.000	34.6	33	40.0	41.6	54.0	-12.4

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	2390.000	77.4	33	29.4	73.8	74.0	-0.2
V	4824.000	46.0	33	34.9	47.9	74.0	-26.1
H	7236.000	42.7	33	37.9	47.6	74.0	-26.4
V	9648.000	41.5	33	40.4	48.9	74.0	-25.1
V	12060.000	43.9	33	40.5	51.4	74.0	-22.6
H	14472.000	48.7	33	40.0	55.7	74.0	-18.3

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 06

Table 5
IEEE 802.11g (OFDM, 6 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	4874.000	33.9	33	34.9	35.8	54.0	-18.2
V	7311.000	28.4	33	37.9	33.3	54.0	-20.7
H	9748.000	28.6	33	40.4	36.0	54.0	-18.0
V	12185.000	30.9	33	40.5	38.4	54.0	-15.6
V	14622.000	35.5	33	38.4	40.9	54.0	-13.1

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	4874.000	47.5	33	34.9	49.4	74.0	-24.6
V	7311.000	42.1	33	37.9	47.0	74.0	-27.0
H	9748.000	42.2	33	40.4	49.6	74.0	-24.4
V	12185.000	44.9	33	40.5	52.4	74.0	-21.6
V	14622.000	48.9	33	38.4	54.3	74.0	-19.7

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 11

Table 6
IEEE 802.11g (OFDM, 6 Mbps)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	57.4	33	29.4	53.8	54.0	-0.2
V	4924.000	35.8	33	34.9	37.7	54.0	-16.3
H	7386.000	28.8	33	37.9	33.7	54.0	-20.3
V	9848.000	29.1	33	40.4	36.5	54.0	-17.5
H	12310.000	30.8	33	40.5	38.3	54.0	-15.7
H	14772.000	35.0	33	38.4	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	2483.500	77.5	33	29.4	73.9	74.0	-0.1
V	4924.000	48.4	33	34.9	50.3	74.0	-23.7
H	7386.000	42.6	33	37.9	47.5	74.0	-26.5
V	9848.000	42.8	33	40.4	50.2	74.0	-23.8
H	12310.000	43.9	33	40.5	51.4	74.0	-22.6
H	14772.000	49.2	33	38.4	54.6	74.0	-19.4

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 01

Table 7
IEEE 802.11n (20MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2390.000	54.1	33	29.4	50.5	54.0	-3.5
V	4824.000	31.4	33	34.9	33.3	54.0	-20.7
H	7236.000	29.8	33	37.9	34.7	54.0	-19.3
V	9648.000	28.3	33	40.4	35.7	54.0	-18.3
V	12060.000	30.2	33	40.5	37.7	54.0	-16.3
V	14472.000	34.6	33	40.0	41.6	54.0	-12.4

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	2390.000	69.7	33	29.4	66.1	74.0	-7.9
V	4824.000	45.3	33	34.9	47.2	74.0	-26.8
H	7236.000	44.4	33	37.9	49.3	74.0	-24.7
V	9648.000	41.7	33	40.4	49.1	74.0	-24.9
V	12060.000	44.0	33	40.5	51.5	74.0	-22.5
V	14472.000	48.1	33	40.0	55.1	74.0	-18.9

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 06

Table 8
IEEE 802.11n (20MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	4874.000	32.9	33	34.9	34.8	54.0	-19.2
H	7311.000	29.9	33	37.9	34.8	54.0	-19.2
V	9748.000	31.1	33	40.4	38.5	54.0	-15.5
H	12185.000	30.8	33	40.5	38.3	54.0	-15.7
V	14622.000	35.5	33	38.4	40.9	54.0	-13.1

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	4874.000	46.0	33	34.9	47.9	74.0	-26.1
H	7311.000	43.4	33	37.9	48.3	74.0	-25.7
V	9748.000	43.5	33	40.4	50.9	74.0	-23.1
H	12185.000	45.4	33	40.5	52.9	74.0	-21.1
V	14622.000	49.1	33	38.4	54.5	74.0	-19.5

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 11

Table 9
IEEE 802.11n (20MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	53.8	33	29.4	50.2	54.0	-3.8
V	4924.000	34.2	33	34.9	36.1	54.0	-17.9
V	7386.000	28.6	33	37.9	33.5	54.0	-20.5
H	9848.000	28.7	33	40.4	36.1	54.0	-17.9
H	12310.000	31.3	33	40.5	38.8	54.0	-15.2
H	14772.000	35.0	33	38.4	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	2483.500	69.1	33	29.4	65.5	74.0	-8.5
V	4924.000	46.8	33	34.9	48.7	74.0	-25.3
V	7386.000	42.3	33	37.9	47.2	74.0	-26.8
H	9848.000	41.7	33	40.4	49.1	74.0	-24.9
H	12310.000	45.1	33	40.5	52.6	74.0	-21.4
H	14772.000	48.8	33	38.4	54.2	74.0	-19.8

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 03

Table 10
IEEE 802.11n (40MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	2390.000	57.1	33	29.4	53.5	54.0	-0.5
V	4844.000	29.1	33	34.9	31.0	54.0	-23.0
H	7266.000	27.8	33	37.9	32.7	54.0	-21.3
V	9688.000	28.5	33	40.4	35.9	54.0	-18.1
H	12110.000	30.3	33	40.5	37.8	54.0	-16.2
H	14532.000	35.7	33	38.4	41.1	54.0	-12.9

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	2390.000	72.2	33	29.4	68.6	74.0	-5.4
V	4844.000	42.7	33	34.9	44.6	74.0	-29.4
H	7266.000	41.3	33	37.9	46.2	74.0	-27.8
V	9688.000	41.8	33	40.4	49.2	74.0	-24.8
H	12110.000	43.9	33	40.5	51.4	74.0	-22.6
H	14532.000	49.2	33	38.4	54.6	74.0	-19.4

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 06

Table 11
IEEE 802.11n (40MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	4874.000	29.9	33	34.9	31.8	54.0	-22.2
V	7311.000	28.0	33	37.9	32.9	54.0	-21.1
V	9748.000	28.9	33	40.4	36.3	54.0	-17.7
V	12185.000	30.0	33	40.5	37.5	54.0	-16.5
H	14622.000	35.4	33	38.4	40.8	54.0	-13.2

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	4874.000	43.8	33	34.9	45.7	74.0	-28.3
V	7311.000	41.1	33	37.9	46.0	74.0	-28.0
V	9748.000	42.6	33	40.4	50.0	74.0	-24.0
V	12185.000	43.3	33	40.5	50.8	74.0	-23.2
H	14622.000	49.0	33	38.4	54.4	74.0	-19.6

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: TX-Channel 09

Table 12
IEEE 802.11n (40MHz) (OFDM, MCS0)

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (average) (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	2483.500	52.9	33	29.4	49.3	54.0	-4.7
V	4904.000	30.9	33	34.9	32.8	54.0	-21.2
V	7356.000	28.0	33	37.9	32.9	54.0	-21.1
H	9808.000	27.9	33	40.4	35.3	54.0	-18.7
H	12260.000	30.7	33	40.5	38.2	54.0	-15.8
V	14712.000	34.8	33	38.4	40.2	54.0	-13.8

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	2483.500	70.4	33	29.4	66.8	74.0	-7.2
V	4904.000	44.5	33	34.9	46.4	74.0	-27.6
V	7356.000	41.6	33	37.9	46.5	74.0	-27.5
H	9808.000	41.2	33	40.4	48.6	74.0	-25.4
H	12260.000	44.1	33	40.5	51.6	74.0	-22.4
V	14712.000	48.3	33	38.4	53.7	74.0	-20.3

Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.
8. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
9. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

TEST REPORT

Mode: Wi-Fi and BLE Transmitting

Table 13

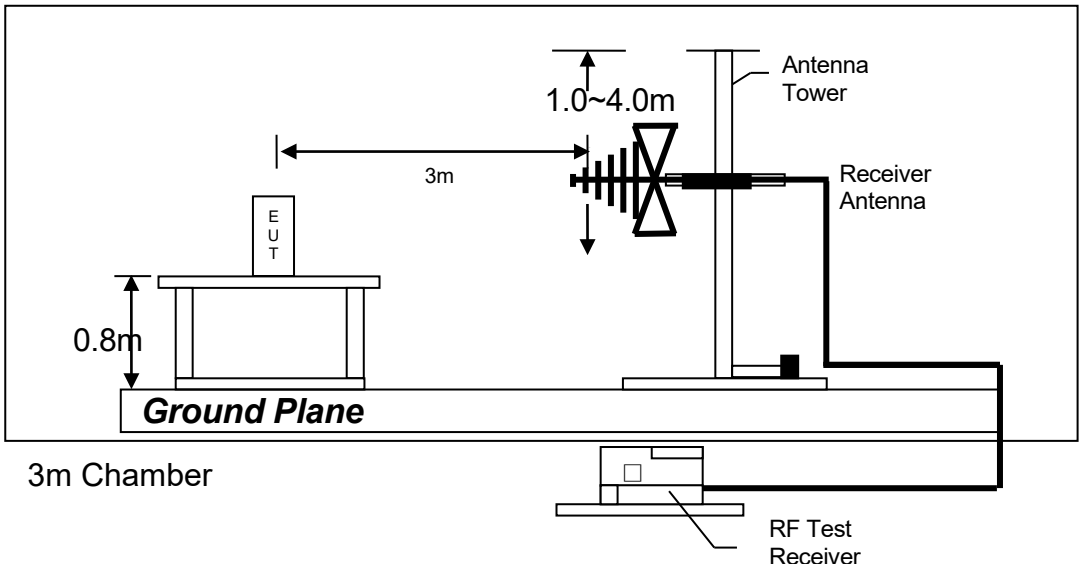
Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	48.188	28.9	16	11.0	23.9	40.0	-16.1
V	60.555	26.1	16	10.0	20.1	40.0	-19.9
V	100.810	24.5	16	12.0	20.5	43.5	-23.0
V	165.194	18.7	16	17.0	19.7	43.5	-23.8
V	562.530	23.7	16	28.0	35.7	46.0	-10.3
H	885.661	18.4	16	32.0	34.4	46.0	-11.6

Notes:
1. Quasi-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. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
5. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

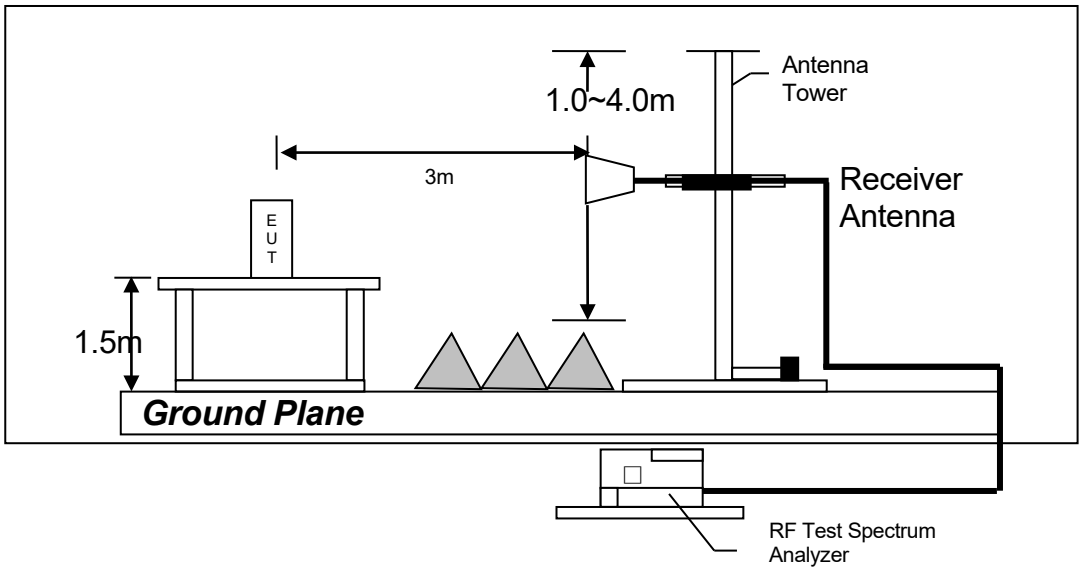
TEST REPORT

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

4.6.4 Transmitter Duty Cycle Calculation

Not applicable – No average factor is required.

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

0.564 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

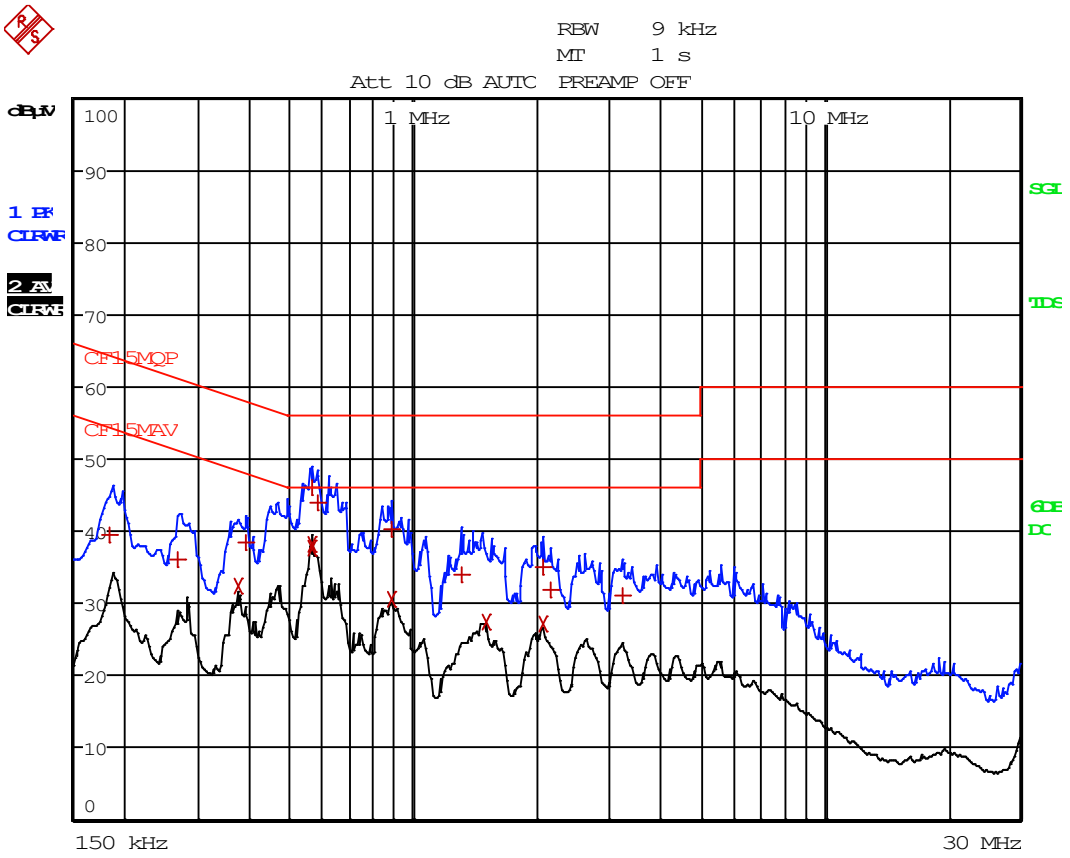
The plot(s) and data in the following pages list the significant emission frequencies, the limit and the margin of compliance.

Passed by 7.7 dB margin

TEST REPORT

AC POWER LINE CONDUCTED EMISSION

Worst Case: Wi-Fi and BLE Operating



TEST REPORT

Worst Case: Wi-Fi and BLE Operating

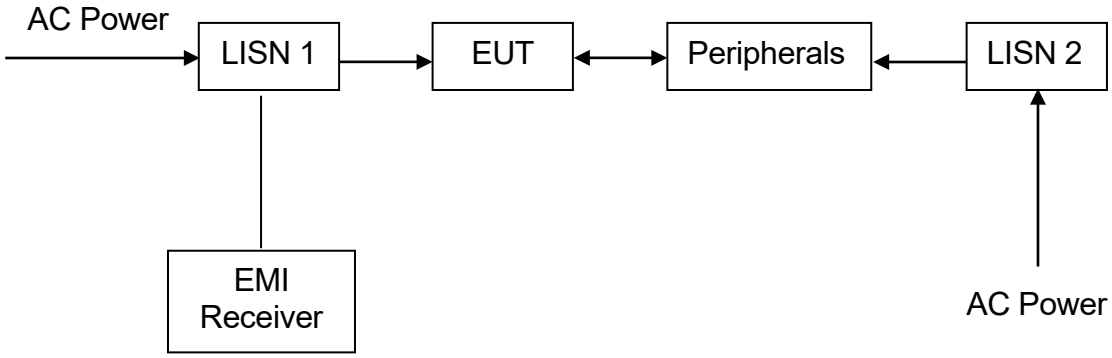
EDIT PEAK LIST (Final Measurement Results)

Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	186 kHz	39.51	L1	-24.69
1	Quasi Peak	271.5 kHz	35.96	N	-25.10
2	CISPR Average	375 kHz	32.31	L1	-16.07
1	Quasi Peak	388.5 kHz	38.36	N	-19.73
1	Quasi Peak	564 kHz	46.06	N	-9.93
2	CISPR Average	564 kHz	38.28	L1	-7.71
2	CISPR Average	568.5 kHz	37.73	L1	-8.26
1	Quasi Peak	582 kHz	44.01	N	-11.98
1	Quasi Peak	883.5 kHz	40.29	N	-15.70
2	CISPR Average	883.5 kHz	30.44	L1	-15.55
1	Quasi Peak	1.3155 MHz	34.07	N	-21.92
2	CISPR Average	1.5045 MHz	27.46	N	-18.53
1	Quasi Peak	2.0625 MHz	35.08	N	-20.91
2	CISPR Average	2.0625 MHz	27.18	N	-18.81
1	Quasi Peak	2.1525 MHz	31.76	N	-24.23
1	Quasi Peak	3.2415 MHz	31.08	N	-24.91

TEST REPORT

4.7.3 Conducted Emission Test Setup



TEST REPORT

5.0 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	February 26, 2024	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	December 30, 2023	November 10, 2024	December 08, 2023

Equipment	RF Preamplifier (9kHz to 6000MHz)	2.4GHz Notch Filter	14m Double Shield RF Cable (9kHz - 6GHz)
Registration No.	EW-3006b	EW-3435	EW-2376
Manufacturer	SCHWARZBECK	MICROWAVE	RADIALL
Model No.	BBV9718	N0324413	n m/br56/bnc m 14m
Calibration Date	February 15, 2022	June 16, 2022	January 26, 2022
Calibration Due Date	February 15, 2024	December 16, 2023	January 26, 2024

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	December 10, 2023	February 20, 2024

TEST REPORT

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, 2023	September 11, 2021	December 21, 2021
Calibration Due Date	June 13, 2024	December 11, 2023	December 21, 2023

3) Conductive Measurement Test

Equipment	5m RF Cable (40GHz)	RF Power Meter with Power Sensor (N1921A)	EMI Test Receiver 7GHz
Registration No.	EW-2701	EW-3309	EW-3481
Manufacturer	RADIALL	ROHDESCHWARZ	ROHDESCHWARZ
Model No.	Sma m-m 5m 40G	NRP-Z81	ESR7
Calibration Date	November 24, 2020	February 14, 2023	December 21, 2021
Calibration Due Date	February 24, 2024	February 14, 2024	December 21, 2023

4) Bandedge & Bandwidth Measurement

Equipment	EMI Test Receiver 7GHz	5m RF Cable (40GHz)
Registration No.	EW-3481	EW-2701
Manufacturer	ROHDESCHWARZ	RADIALL
Model No.	ESR7	Sma m-m 5m 40G
Calibration Date	December 21, 2021	November 24, 2020
Calibration Due Date	December 21, 2023	February 24, 2024

5) Control Software for Radiated Emission

Software Information	
Software Name	EMC32
Manufacturer	ROHDESCHWARZ
Software version	10.50.40

END OF TEST REPORT