

TEST REPORT

FCC/ISED DTS Test for W0C-0430

FCC:Class II Permissive Change

ISED:Class IV Permissive Change

APPLICANT
JVCKENWOOD Corporation

REPORT NO.
HCT-RF-2510-FI003

DATE OF ISSUE
October 24, 2025

Tested by
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Applicant

JVCKENWOOD Corporation

3-12, Moriyacho, Kanagawa-ku, Yokohama-shi, Kanagawa, 221-0022, Japan

Product Name

Communication Module

Model Name

W0C-0430

FCC ID

K44515050

IC

282F-515050

Date of Test

August 18, 2025 ~ October 15, 2025

Modulation type

CCK/DSSS/OFDM

FCC Classification

Digital Transmission System(DTS)

Test Standard Used

FCC Rule Part(s): Part 15 subpart C

ISED Rule Part(s):

RSS-247 Issue 4

RSS-Gen Issue 5_Amendment 2

Test Results

PASS

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	October 24, 2025	Initial Release

Notice

Content

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC/ISED Rules under normal use and maintenance.

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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1. EUT DESCRIPTION

EUT Type	Communication Module		
Model Name	W0C-0430		
Power Supply Voltage	DC 13.8V $\pm$ 15%		
Modulation Type	DSSS/CCK : 802.11b OFDM : 802.11g, 802.11n		
Number of Channels	11 Channels		
Frequency Range (MHz)	2 412 MHz – 2 462 MHz		
Max. RF Output Power	<u>Average Power</u>	802.11b :	16.50 dBm
		802.11g :	16.02 dBm
		802.11n(HT20) :	15.73 dBm
	<u>Peak Power</u>	802.11b :	19.63 dBm
		802.11g :	23.76 dBm
		802.11n(HT20) :	23.67 dBm
Antenna Specification	Type: Chip antenna Peak Gain: 0.40 dBi		
Serial number	Conducted: Body A1A00033, Panel 096 Radiated : Body A1A00032, Panel 048		
PMN (Product Marketing Number)	W0C-0430		
HVIN (Hardware Version Identification Number)	W0C-0430		
FVIN (Firmware Version Identification Number)	N/A		
HMN (Host Marketing Name)	TM-D750A		
Test software(EUT for test)	Aoterm2_V3.03, teraterm-5.0		
Host EUT description	This transmitter module has tested in the specific host devices, TM-D750A as non-stand-alone configuration.		

ANTENNA CONFIGURATIONS

This device supports simultaneous transmission operation, which allows for two channels to operate independent of one another in the 2.4 GHz and 5 GHz bands simultaneously on each antenna.

Simultaneous transmission Scenario	2.4 GHz WLAN	5 GHz WLAN	BT	Test Case
Bluetooth + 2.4 GHz WLAN	on	-	on	Scenario1
Bluetooth + 5 GHz WLAN	-	on	on	Scenario2

2. TEST METHODOLOGY

Unlicensed wireless device were tested using the following measurement procedure.

[1] KDB 558074 D01 15.247 Meas Guidance v05r02

[2] ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024

Note : Hereinafter, ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 will be referred to as ANSI C63.10-2020

EUT CONFIGURATION

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

EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the RSS-Gen issue 5, RSS-247 issue 4.

GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10-2020. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

According to the requirements in Section 6.3 ~ Section 6.6 of ANSI C63.10-2020.

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1 GHz. Above 1 GHz with 1.5 m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes.

DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

3. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

4. FACILITIES AND ACCREDITATIONS

FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated March 11, 2024 (Registration Number: KR0032).

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea. The site is constructed in conformance with the requirements of ANSI C63.4-2014+C63.4a-2017 and ANSI C63.25.1-2018.

Detailed description of test facility was submitted to the Commission and accepted dated March 13, 2024 (CAB identifier: KR0032).

EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to ANSI/USEMCSC C63.2-2023, CISPR Publication 16-1, "American National Standard for Specifications of Electromagnetic Interference and Field Strength Measuring Instrumentation in the Frequency Range 9 kHz to 40 GHz", "Radio Interference Measuring Apparatus and Measurement Methods".

5. ANTENNA REQUIREMENTS

According to FCC 47 CFR § 15.203:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- (1) The antennas of this E.U.T are permanently attached.
- (2) The E.U.T Complies with the requirement of § 15.203

According to RSS-GEN(Issue 5) Section 6.8:

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2020.

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95 % level of confidence.

The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty ($\pm$ kHz)
X dB, 99% Bandwidth	95 (Confidence level about 95 %, $k=2$)
Frequency stability	28 (Confidence level about 95 %, $k=2$)

Parameter	Expanded Uncertainty ($\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.54 (Confidence level about 95 %, $k=2$)
Conducted Output Power(Power Meter)	0.54 (Confidence level about 95 %, $k=2$)
Conducted Output Power(Signal Analyzer)	0.68 (Confidence level about 95 %, $k=2$)
Power Spectral Density	1.03 (Confidence level about 95 %, $k=2$)
Band Edge (Out of Band Emissions)	0.70 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.68 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.75 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.82 (Confidence level about 95 %, $k=2$)

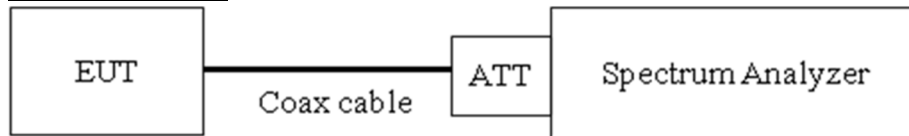
7. DESCRIPTION OF TESTS

Test Item	FCC Test Procedure
Duty Cycle	- ANSI C63.10-2020 – Section 11.6
6 dB Bandwidth	- ANSI C63.10-2020 – Section 11.8
Output Power	- ANSI C63.10-2020 – Section 11.9.1.2(Peak) & 11.9.2.3(Avg)
Power Spectral Density	- ANSI C63.10-2020 – Section 11.10
Conducted Band Edge(Out of Band Emissions) & Conducted Spurious Emissions	- ANSI C63.10-2020– Section 11.11
Radiated Test	- ANSI C63.10-2020 – Section 6.4 (Below 30 MHz) - ANSI C63.10-2020 – Section 6.5 (30 MHz to 1000 MHz) - ANSI C63.10-2020 – Section 6.6 (1 GHz to 40 GHz) - ANSI C63.10-2020 – Section 6.10 & 11.12 (Restricted frequency bands)
AC Power line Conducted Emissions	- ANSI C63.10-2020– Section 6.2

Test Item	ISED Test Procedure
Duty Cycle	- ANSI C63.10-2020 – Section 11.6
6 dB Bandwidth	- ANSI C63.10-2020 – Section 11.8 - RSS-GEN - Section 6.7
99% Bandwidth	- ANSI 63.10-2020 - Section 6.9.3 - RSS-GEN - Section 6.7
Conducted Maximum Peak Output Power And e.i.r.p.	- ANSI C63.10-2020 – Section 11.9.1.2(Peak) & 11.9.2.3(Avg)
Power Spectral Density	- ANSI C63.10-2020 – Section 11.10
Band Edge(Out of Band Emissions)	- ANSI C63.10-2020– Section 11.11
Radiated Test	- ANSI C63.10-2020 – Section 6.4 (Below 30 MHz) - ANSI C63.10-2020 – Section 6.5 (30 MHz to 1000 MHz) - ANSI C63.10-2020 – Section 6.6 (1 GHz to 40 GHz) - ANSI C63.10-2020 – Section 6.10 & 11.12 (Restricted frequency bands)
AC Power line Conducted Emissions	- ANSI C63.10-2020– Section 6.2

7.1. Duty Cycle

Test Configuration



Test Procedure

We tested according to the zero-span measurement method.

The largest available value of RBW is 8 MHz and VBW is 50 MHz.

The zero-span method of measuring duty cycle shall not be used if $T \leq 6.25$ microseconds. ($50/6.25 = 8$)

The zero-span method was used because all measured T data are > 6.25 microseconds and both RBW and VBW are $> 50/T$.

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to :

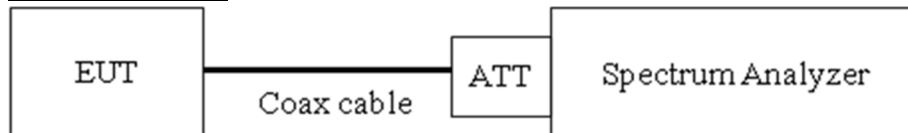
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz or 50 MHz ($\geq$ RBW)
3. SPAN = 0 Hz
4. Detector = Average
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on} / T_{total} and Duty Cycle Factor = $10\log(1/\text{Duty Cycle})$

7.2. 6 dB Bandwidth & 99 % Occupied Bandwidth(ISED)

Limit

The minimum permissible 6 dB bandwidth is 500 kHz.

Test Configuration



FCC Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to :

- 1) RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
- 2) $VBW \geq 3 \times RBW$
- 3) Detector = Peak
- 4) Trace mode = max hold
- 5) Sweep = No faster than coupled (auto) time.
- 6) Allow the trace to stabilize
- 7) We tested 6 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 6 dB.

ISED Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to :

- 1) RBW = shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth
- 2) $VBW \geq 3 \times RBW$
- 3) Detector = Peak
- 4) Trace mode = max hold
- 5) Sweep = No faster than coupled (auto) time.
- 6) Allow the trace to stabilize
- 7) We tested 6 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 6 dB.

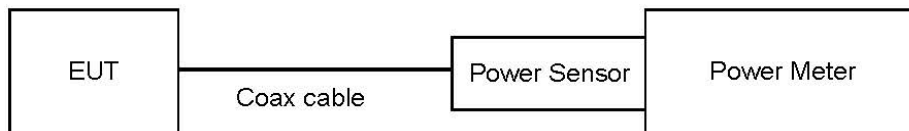
Note : We tested OBW using the automatic bandwidth measurement capability of a spectrum analyzer.

7.3. Output Power

Limit

The maximum permissible conducted output power is 1 Watt.

Test Configuration



Test Procedure

The transmitter output is connected to the Power Meter.

- Peak Power

: Measure the peak power of the transmitter.

- Average Power

- 1) Measure the duty cycle.
- 2) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- 3) Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Sample Calculation

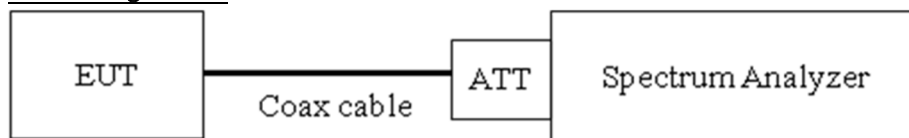
- Conducted Output Power(Peak) = Measured Value + ATT loss + Cable loss
- Conducted Output Power(Average) = Measured Value + ATT loss + Cable loss + Duty Cycle Factor

7.4. Power Spectral Density

Limit

The transmitter power density average over 1-second interval shall not be greater than 8 dBm in any 3 kHz BW.

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to :

- 1) Set analyzer center frequency to DTS channel center frequency.
- 2) Set span to at least 1.5 times the DTS bandwidth.
- 3) $RBW = 3 \text{ kHz} \leq RBW \leq 100 \text{ kHz}$.
- 4) $VBW \geq 3 \times RBW$.
- 5) Sweep = No faster than coupled (auto) time.
- 6) Detector = Peak.
- 7) Trace mode = max hold.
- 8) Allow trace to fully stabilize.
- 9) Use the peak marker function to determine the maximum amplitude level within the RBW.
- 10) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Sample Calculation

- Power Spectral Density = Measured Value + ATT loss + Cable loss

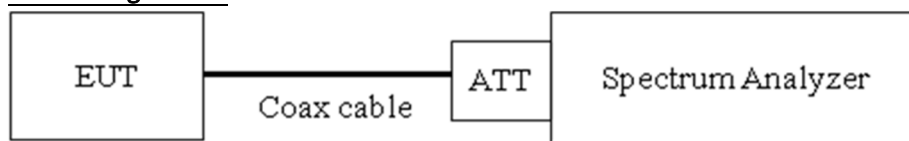
7.5. Conducted Band Edge(Out of Band Emissions) & Conducted Spurious Emissions

Limit

The maximum conducted (Peak) output power was used to demonstrate compliance, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.

[Conducted > 20 dBc]

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to :

- 1) RBW = 100 kHz
- 2) VBW $\geq 3 \times$ RBW
- 3) Set span to encompass the spectrum to be examined
- 4) Detector = Peak
- 5) Trace Mode = max hold
- 6) Sweep time = No faster than coupled (auto) time.
- 7) Ensure that the number of measurement points $\geq 2 \times$ Span/RBW
- 8) Allow trace to fully stabilize.
- 9) Use peak marker function to determine the maximum amplitude level.

Measurements are made over the 30 MHz to 25 GHz range with the transmitter set to the lowest, middle, and highest channels.

Factors for frequency

Freq(MHz)	Factor(dB)
30	20.19
100	20.18
200	20.14
300	20.27
400	20.48
500	20.31
600	20.32
700	20.40
800	20.40
900	20.38
1000	20.46
2000	20.77
2400	20.86
3000	20.91
4000	21.01
5000	21.05
5850	21.11
6000	21.74
7000	21.90
8000	21.55
9000	22.77
10000	21.71
11000	21.38
12000	21.79
13000	21.54
14000	21.98
15000	22.42
16000	22.18
17000	22.72
18000	22.48
19000	22.56
20000	22.62
21000	23.01
22000	22.88
23000	22.84
24000	22.99
25000	22.79

Note : 1. 2400 ~ 2500 MHz is fundamental frequency range.

2. Factor = Attenuator loss + Cable loss

3. EUT cable loss = 0.25 dB

4. Total Port offset = 21.11 dB

7.6. Radiated Test

FCC Limit

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 – 0.490	$2400/F(\text{kHz})$	300
0.490 – 1.705	$24000/F(\text{kHz})$	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

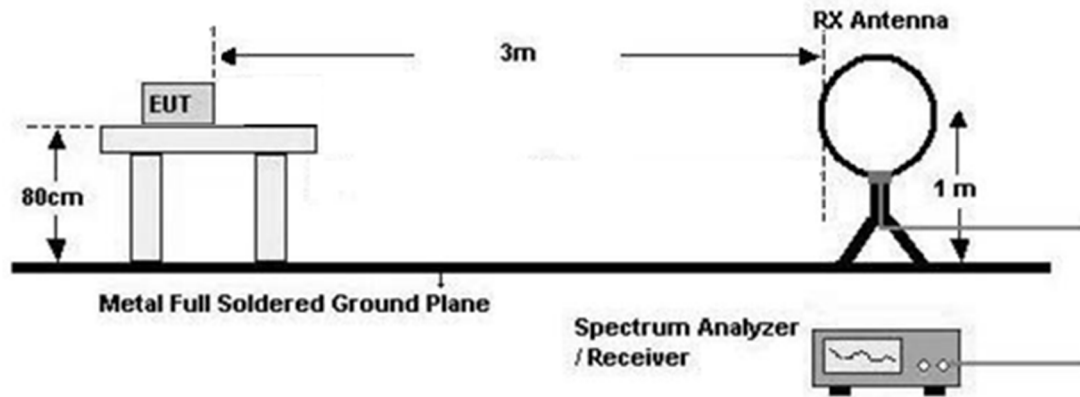
ISED Limit

Frequency (MHz)	Field Strength ($\mu\text{A/m}$)	Measurement Distance (m)
0.009 – 0.490	$6.37/F$ (F in kHz)	300
0.490 – 1.705	$63.7/F$ (F in kHz)	30
1.705 – 30	0.08	30

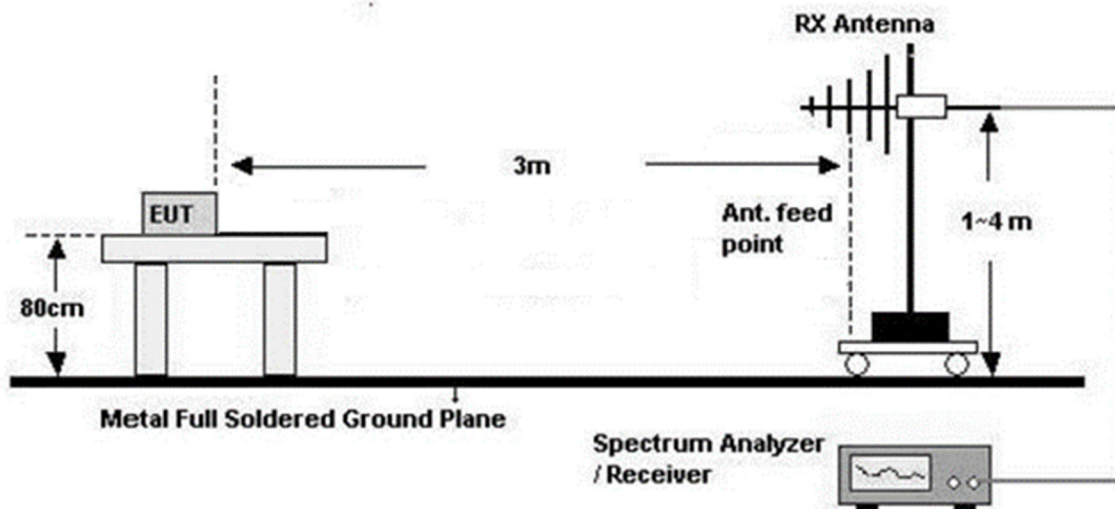
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

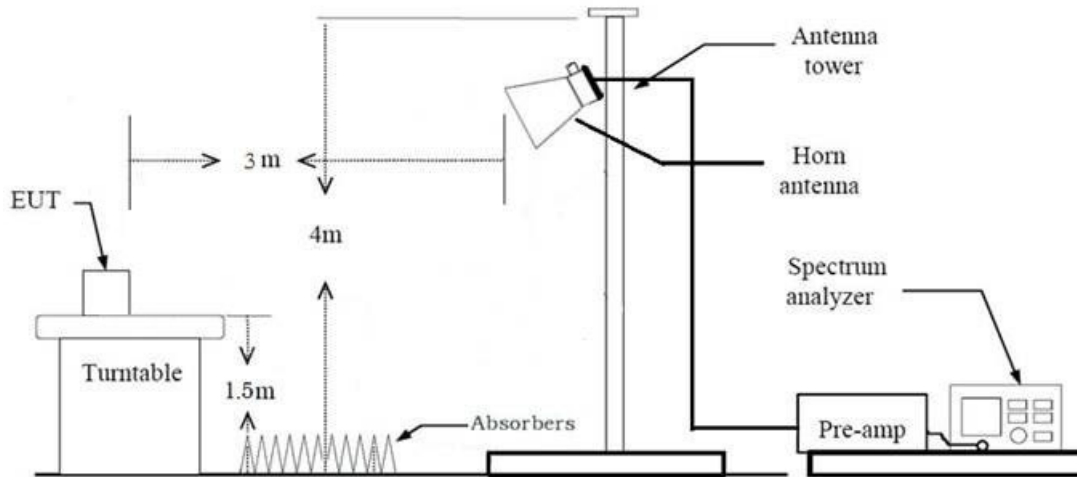
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions (Below 30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3 m from the EUT
3. The EUT is placed on a turntable, which is 0.8 m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) = $40\log(3\text{ m}/300\text{ m}) = -80\text{ dB}$
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) = $40\log(3\text{ m}/30\text{ m}) = -40\text{ dB}$
Measurement Distance : 3 m
8. Spectrum Setting
Measurement Type(Peak):
 - Frequency Range = 9 kHz ~ 30 MHz
 - Detector = Peak
 - Trace = Max hold
 - RBW = 9 kHz
 - VBW $\geq 3 \times$ RBW
9. Total = Measured value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered

that's already beyond the background noise floor.

KDB 414788 OFS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Test Procedure of Radiated spurious emissions (Below 1 GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
3. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

6. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Peak
- Trace = Max hold
- RBW = 100 kHz
- VBW $\geq 3 \times$ RBW

(2) Measurement Type(Quasi-peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Quasi-Peak
- RBW = 120 kHz

In general, (1) is used mainly

7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)
8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Test Procedure of Radiated spurious emissions (Above 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.

5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

7. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = Peak
- Trace = Maxhold
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW

(2) Measurement Type(Average): Duty cycle $\geq 98 \%$

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).

(3) Measurement Type(Average): Duty cycle $< 98 \%$, duty cycle variations are less than $\pm 2 \%$

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.
- Duty Cycle Factor (dB) : Please refer to Duty cycle test result.

8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered

that's already beyond the background noise floor.

9. Distance extrapolation factor = $20\log(\text{test distance} / \text{specific distance})$ (dB)

10. Total(Measurement Type : Peak)

= Measured value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)

Total(Measurement Type : Average, Duty cycle $\geq 98\%$)

= Measured value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)

Total(Measurement Type : Average, Duty cycle $< 98\%$)

= Measured value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)
+ Duty Cycle Factor

Test Procedure of Radiated Restricted Band Edge

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

7. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 2310 MHz ~ 2390 MHz / 2483.5 MHz ~ 2500 MHz
- Detector = Peak
- Trace = Maxhold
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW

(2) Measurement Type(Average): Duty cycle $\geq 98\%$,

- Measured Frequency Range : 2310 MHz ~ 2390 MHz / 2483.5 MHz ~ 2500 MHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).

(3) Measurement Type(Average): Duty cycle $< 98\%$, duty cycle variations are less than $\pm 2\%$

- Measured Frequency Range : 2310 MHz ~ 2390 MHz / 2483.5 MHz ~ 2500 MHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.
- Duty Cycle Factor (dB) : Please refer to Duty cycle test result.

(4) Measurement Type(Average , Integration Method) : Duty cycle $\geq 98 \%$

- Measured Frequency Range : 2310 MHz ~ 2390 MHz/ 2483.5 MHz ~ 2500 MHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 100 kHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Compute the power by integrating the spectrum over 1 MHz using the analyzer's band-power measurement function with band limits set equal to the emission frequency (f_{emission}) ± 0.5 MHz. If the instrument does not have a band-power function, then sum the amplitude levels (in power units) at 100 kHz intervals extending across the 1 MHz spectrum defined by $f_{\text{emission}} \pm 0.5$ MHz

(5) Measurement Type(Average , Integration Method) : Duty cycle $< 98 \%$, duty cycle variations are less than $\pm 2 \%$

- Measured Frequency Range : 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 100 kHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Compute the power by integrating the spectrum over 1 MHz using the analyzer's band-power measurement function with band limits set equal to the emission frequency (f_{emission}) ± 0.5 MHz. If the instrument does not have a band-power function, then sum the amplitude levels (in power units) at 100 kHz intervals extending across the 1 MHz spectrum defined by $f_{\text{emission}} \pm 0.5$ MHz

± 0.5 MHz.

- Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.
- Duty Cycle Factor (dB) : Please refer to Duty cycle test result.

8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

9. Distance extrapolation factor = $20\log$ (test distance / specific distance) (dB)

10. Total (Measurement Type : Peak)

= Peak Measured Value

Total(Measurement Type : Average, Duty cycle ≥ 98 %)

= Average Measured Value

Total(Measurement Type : Average, Duty cycle < 98 %)

= Average Measured Value + Duty Cycle Factor

- We apply to the offset in the range 1 GHz - 18 GHz.
- The offset = Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)

7.7. AC Power line Conducted Emissions

Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56 ^(a)	56 to 46 ^(a)
0.50 to 5	56	46
5 to 30	60	50

^(a)Decreases with the logarithm of the frequency.

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Annex A for the actual connections between EUT and support equipment.

Test Procedure

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors : Quasi Peak and Average Detector.

Sample Calculation

Quasi-peak(Final Result) = Measured Value + Correction Factor

7.8. Receiver Spurious Emissions

Limit

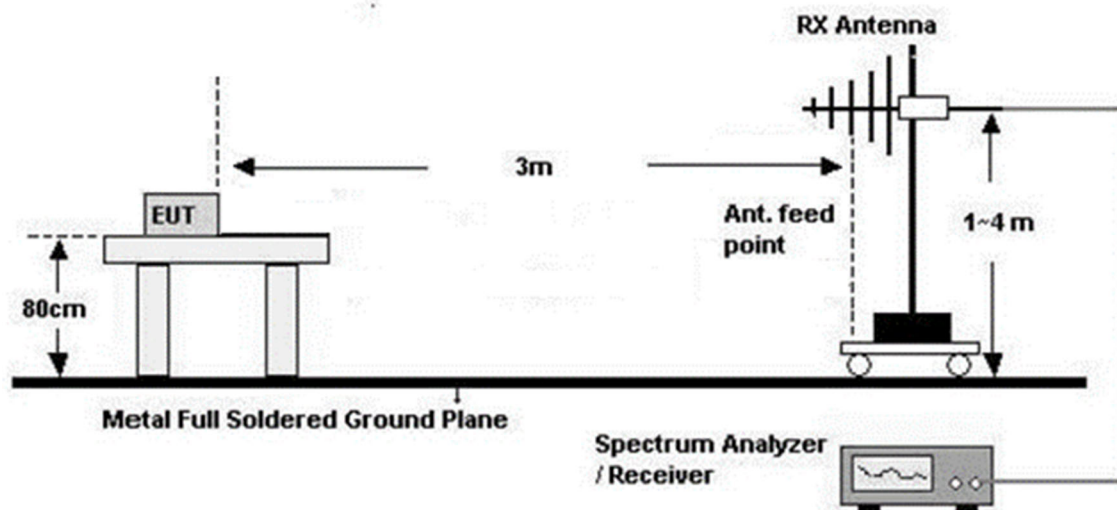
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

Measurements for compliance with the limits in table may be performed at distances other than 3 metres.

Test Configuration

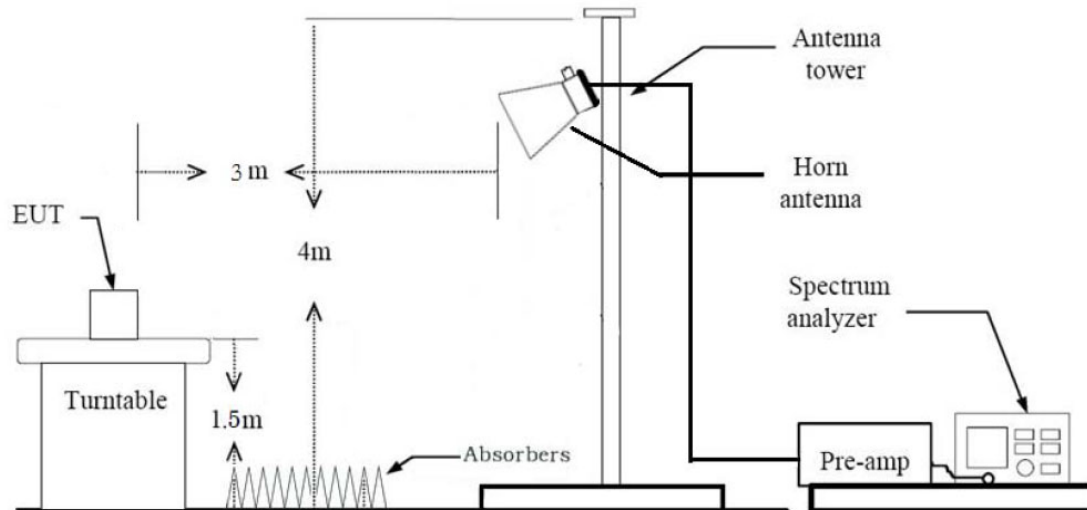
30 MHz - 1 GHz



Test Procedure of Receiver Spurious Emissions (Below 1GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3m from the EUT, which is varied from 1m to 4m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting
 - (1) Measurement Type(Peak):
 - Measured Frequency Range : 30 MHz – 1 GHz
 - Detector = Peak
 - Trace = Maxhold
 - RBW = 100 kHz
 - VBW $\geq$ 3 x RBW
 - (2) Measurement Type(Quasi-peak):
 - Measured Frequency Range : 30 MHz – 1 GHz
 - Detector = Quasi-Peak
 - RBW = 120 kHz
7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) – Amp Gain(A.G)

Above 1 GHz



Test Procedure of Radiated spurious emissions (Above 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting
 - (1) Measurement Type(Average):
 - RBW = 1 MHz
 - VBW = 3 MHz
 - Detector = Average(RMS)
 - Trace = Average
 - Trace was allowed to stabilize
9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

10. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)

7.9. Worst case configuration and mode

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
 - Mode : Stand alone, Stand alone + External accessories (Microphone, Speaker, etc)
 - Worstcase : Stand alone + External accessories (Microphone, Speaker, etc)
2. EUT Axis
 - Radiated Spurious Emissions : Y
 - Radiated Restricted Band Edge : Z
3. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
 - Position : Horizontal, Vertical, Parallel to the ground plane
4. All data rate of operation were investigated and the test results are worst case in lowest Data Rate of each mode.
 - 802.11b : 1 Mbps
 - 802.11g : 6 Mbps
 - 802.11n : MCS 0

Conducted test

1. The EUT was configured with data rate of highest power.
2. All data rate of operation were investigated and the test results are worst case in lowest Data Rate of each mode.
 - 802.11b : 1 Mbps
 - 802.11g : 6 Mbps
 - 802.11n : MCS 0

Radiated test(Simultaneous transmission Scenario)

1. All modes of operation were investigated and the worst case configuration results are reported.

- Mode : Stand alone, Stand alone + External accessories(Earphone., etc)
- Worstcase : Stand alone + External accessories(Earphone., etc)

2. EUT Axis

- Radiated Spurious Emissions : X

3. All of Simultaneous transmission Scenarios were investigated and the worst case configuration results are reported.

Simultaneous transmission Scenario	2.4 GHz WLAN	5 GHz WLAN	BT	Test Case
Bluetooth + 2.4 GHz WLAN	on	-	on	Scenario1
Bluetooth + 5 GHz WLAN	-	on	on	Scenario2

4. The Simultaneous transmission Scenario mode test investigated both intermodulation and radiated spurious emissions.

And the worst results were reported.

- Worst result: Radiated spurious emissions
- Intermodulation: No signals are generated.
- Radiated spurious emissions: cf. Section 9.2.

5. The simultaneous transmission scenario mode was tested under the following conditions.

- .- Bluetooth: The EUT is set to a normal “paired” mode with another Bluetooth device.
- .- Wireless LAN: The EUT was set to a connection with access point according to the normal intended use of the product, and to facilitate testing, it was configured to transmit at a high duty cycle through file transfer.

Test Case	Description	Bluetooth Emission	2.4 GHz Emission
Scenario1	Channel	-	1
	Data Rate	-	MCS 0
	Mode	Hopping	802.11n

Note : BT Simultaneous transmission Scenario Data refer to [BT] Test Report.

8. SUMMARY TEST OF RESULTS

FCC Part

Test Item	FCC Part Section(s)	Test Limit	Test Condition	Test Result	Status
6 dB Bandwidth	§ 15.247(a)(2)	> 500 kHz	Conducted	PASS	NT ^{Note2}
Conducted Maximum Output Power	§ 15.247(b)(3)	< 1 Watt		PASS	C ^{Note4}
Power Spectral Density	§ 15.247(e)	< 8 dBm / 3 kHz Band		PASS	NT ^{Note2}
Band Edge (Out of Band Emissions)	§ 15.247(d)	Conducted > 20 dBc		PASS	NT ^{Note2}
AC Power line Conducted Emissions	§ 15.207	cf. Section 7.7		PASS	NT ^{Note2}
Radiated Spurious Emissions	§ 15.247(d), § 15.205, § 15.209	cf. Section 7.6	Radiated	PASS	C ^{Note3}
Radiated Restricted Band Edge	§ 15.247(d), § 15.205, § 15.209	cf. Section 7.6		PASS	C ^{Note3}

Note:

1. C = Comply, NT = Not Tested, NA = Not Applicable, NC = Not Comply
2. C2PC model is electrically identical to the Original model.
3. The data from that application has been verified through fully tests to demonstrate compliance of this device, as shown in the test results in Section 9.
4. The output power was verified to be within the tuning tolerance and the original output power range, as shown in the test results in Section 9.

ISED Part

Test Item	ISED Part Section(s)	Test Limit	Test Condition	Test Result	Status
6 dB Bandwidth	RSS-247, 6.3.1.(a)	> 500 kHz	Conducted	PASS	NT ^{Note2}
99% Bandwidth	RSS-GEN, 6.7	NA		PASS	NT ^{Note2}
Conducted Maximum Peak Output Power And e.i.r.p.	RSS-247, 6.3.2	< 1 Watt <4 Watt(e.i.r.p.)		PASS	C ^{Note4}
Power Spectral Density	RSS-247, 6.3.1.(b)	< 8 dBm / 3 kHz Band		PASS	NT ^{Note2}
Band Edge(Out of Band Emissions)	RSS-247, 6.6	Conducted > 20 dBc		PASS	NT ^{Note2}
AC Power line Conducted Emissions	RSS-GEN, 8.8	cf. Section 7.7		PASS	NT ^{Note2}
Radiated Spurious Emissions	RSS-GEN, 8.9	cf. Section 7.6	Radiated	PASS	C ^{Note3}
Receiver Spurious Emissions	RSS-GEN, 5 RSS-GEN, 7.3	cf. Section 7.8		PASS	C ^{Note3}
Radiated Restricted Band Edge	RSS-GEN, 8.9 RSS-GEN, 8.10	cf. Section 7.6		PASS	C ^{Note3}

Note:

1. C = Comply, NT = Not Tested, NA = Not Applicable, NC = Not Comply
2. C4PC model is electrically identical to the Original model.
3. The data from that application has been verified through fully tests to demonstrate compliance of this device, as shown in the test results in Section 9.
4. The output power was verified to be within the tuning tolerance and the original output power range, as shown in the test results in Section 9.

9. TEST RESULT

9.1 CONDUCTED OUTPUT POWER

Peak Power

Mode	Frequency [MHz]	Channel No.	Data Rate [Mbps]	Peak Power [dBm]	Limit [dBm]
802.11b	2412	1	1M	19.46	30.00
	2437	6		18.98	
	2462	11		19.63	
802.11g	2412	1	6M	20.55	
	2437	6		23.76	
	2462	11		20.67	
802.11n	2412	1	MCS0	20.07	
	2437	6		23.67	
	2462	11		20.02	

Average Power

Mode	Freq. [MHz]	CH.	Data Rate [Mbps]	Measured Power [dBm]	D.C.F [dB]	Total Power [dBm]	Limit [dBm]
802.11b	2412	1	1M	16.36	0.09	16.45	30.00
	2437	6	1M	15.97	0.09	16.06	
	2462	11	1M	16.41	0.09	16.50	
802.11g	2412	1	6M	12.03	0.57	12.60	
	2437	6	6M	15.45	0.57	16.02	
	2462	11	6M	12.11	0.57	12.68	
802.11n	2412	1	MCS0	11.62	0.60	12.22	
	2437	6	MCS0	15.14	0.60	15.73	
	2462	11	MCS0	11.61	0.60	12.21	

9.2 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30 MHz

Frequency	Measured Value	A.F+C.L+D.F	ANT. POL	Total	Limit	Margin
[MHz]	[dBμV/m]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]

No Critical peaks found

Note:

1. The Measured of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = $40\log(\text{specific distance} / \text{test distance})$ (dB)
3. Limit line = specific Limits (dBμV) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	ANT. POL	Total	Limit	Margin
[MHz]	[dBμV/m]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]

No Critical peaks found

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.

Frequency Range : Above 1 GHz

Band : DTS			Operation Mode :		802.11b			
CH.1 2412 MHz			Transfer Rate :		1 Mbps			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	41.86	0.00	4.98	V	46.84	73.98	27.14	PK
4824	30.53	0.09	4.98	V	35.61	53.98	18.37	AV
7236	39.58	0.00	12.73	V	52.31	73.98	21.67	PK
7236	28.66	0.09	12.73	V	41.48	53.98	12.50	AV
4824	40.97	0.00	4.98	H	45.95	73.98	28.03	PK
4824	29.89	0.09	4.98	H	34.97	53.98	19.01	AV
7236	39.33	0.00	12.73	H	52.06	73.98	21.92	PK
7236	28.42	0.09	12.73	H	41.24	53.98	12.74	AV

Band : DTS			Operation Mode :		802.11b			
CH.6 2437 MHz			Transfer Rate :		1 Mbps			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	42.88	0.00	5.23	V	48.11	73.98	25.87	PK
4874	34.10	0.09	5.23	V	39.43	53.98	14.55	AV
7311	39.35	0.00	12.56	V	51.91	73.98	22.07	PK
7311	27.45	0.09	12.56	V	40.10	53.98	13.88	AV
4874	41.69	0.00	5.23	H	46.92	73.98	27.06	PK
4874	32.97	0.09	5.23	H	38.30	53.98	15.68	AV
7311	39.75	0.00	12.56	H	52.31	73.98	21.67	PK
7311	27.73	0.09	12.56	H	40.38	53.98	13.60	AV

Band : DTS			Operation Mode :		802.11b			
CH.11 2462 MHz			Transfer Rate :		1 Mbps			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	42.10	0.00	5.50	V	47.60	73.98	26.38	PK
4924	30.55	0.09	5.50	V	36.15	53.98	17.83	AV
7386	39.35	0.00	12.43	V	51.78	73.98	22.20	PK
7386	27.92	0.09	12.43	V	40.44	53.98	13.54	AV
4924	41.83	0.00	5.50	H	47.33	73.98	26.65	PK
4924	30.12	0.09	5.50	H	35.72	53.98	18.26	AV
7386	39.64	0.00	12.43	H	52.07	73.98	21.91	PK
7386	28.05	0.09	12.43	H	40.57	53.98	13.41	AV

Band : DTS			Operation Mode :		802.11g			
CH.1 2412 MHz			Transfer Rate :		6 Mbps			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	41.52	0.00	4.98	V	46.50	73.98	27.48	PK
4824	29.43	0.57	4.98	V	34.98	53.98	19.00	AV
7236	39.41	0.00	12.73	V	52.14	73.98	21.84	PK
7236	28.26	0.57	12.73	V	41.56	53.98	12.42	AV
4824	41.45	0.00	4.98	H	46.43	73.98	27.55	PK
4824	29.38	0.57	4.98	H	34.93	53.98	19.05	AV
7236	39.19	0.00	12.73	H	51.92	73.98	22.06	PK
7236	27.71	0.57	12.73	H	41.01	53.98	12.97	AV

Band : DTS			Operation Mode :		802.11g			
CH.6 2437 MHz			Transfer Rate :		6 Mbps			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	41.95	0.00	5.23	V	47.18	73.98	26.80	PK
4874	29.63	0.57	5.23	V	35.43	53.98	18.55	AV
7311	39.09	0.00	12.56	V	51.65	73.98	22.33	PK
7311	27.30	0.57	12.56	V	40.42	53.98	13.56	AV
4874	41.56	0.00	5.23	H	46.79	73.98	27.19	PK
4874	29.52	0.57	5.23	H	35.32	53.98	18.66	AV
7311	39.38	0.00	12.56	H	51.94	73.98	22.04	PK
7311	27.62	0.57	12.56	H	40.74	53.98	13.24	AV

Band : DTS			Operation Mode :		802.11g			
CH.11 2462 MHz			Transfer Rate :		6 Mbps			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	41.63	0.00	5.50	V	47.13	73.98	26.85	PK
4924	29.54	0.57	5.50	V	35.61	53.98	18.37	AV
7386	39.11	0.00	12.43	V	51.54	73.98	22.44	PK
7386	27.76	0.57	12.43	V	40.76	53.98	13.22	AV
4924	41.45	0.00	5.50	H	46.95	73.98	27.03	PK
4924	29.41	0.57	5.50	H	35.48	53.98	18.50	AV
7386	39.30	0.00	12.43	H	51.73	73.98	22.25	PK
7386	27.82	0.57	12.43	H	40.82	53.98	13.16	AV

Band : DTS			Operation Mode :		802.11n			
CH.1 2412 MHz			Transfer Rate :		MCS 0			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	41.62	0.00	4.98	V	46.60	73.98	27.38	PK
4824	29.41	0.60	4.98	V	34.99	53.98	18.99	AV
7236	39.68	0.00	12.73	V	52.41	73.98	21.57	PK
7236	28.33	0.60	12.73	V	41.66	53.98	12.32	AV
4824	41.42	0.00	4.98	H	46.40	73.98	27.58	PK
4824	29.36	0.60	4.98	H	34.94	53.98	19.04	AV
7236	39.51	0.00	12.73	H	52.24	73.98	21.74	PK
7236	28.07	0.60	12.73	H	41.40	53.98	12.58	AV

Band : DTS			Operation Mode :		802.11n			
CH.6 2437 MHz			Transfer Rate :		MCS 0			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4874	41.80	0.00	5.23	V	47.03	73.98	26.95	PK
4874	29.44	0.60	5.23	V	35.27	53.98	18.71	AV
7311	38.84	0.00	12.56	V	51.40	73.98	22.58	PK
7311	26.77	0.60	12.56	V	39.92	53.98	14.06	AV
4874	41.47	0.00	5.23	H	46.70	73.98	27.28	PK
4874	29.34	0.60	5.23	H	35.17	53.98	18.81	AV
7311	39.26	0.00	12.56	H	51.82	73.98	22.16	PK
7311	27.58	0.60	12.56	H	40.73	53.98	13.25	AV

Band : DTS			Operation Mode :		802.11n			
CH.11 2462 MHz			Transfer Rate :		MCS 0			
Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4924	42.10	0.00	5.50	V	47.60	73.98	26.38	PK
4924	29.54	0.60	5.50	V	35.64	53.98	18.34	AV
7386	39.25	0.00	12.43	V	51.68	73.98	22.30	PK
7386	27.67	0.60	12.43	V	40.70	53.98	13.28	AV
4924	41.78	0.00	5.50	H	47.28	73.98	26.70	PK
4924	29.44	0.60	5.50	H	35.54	53.98	18.44	AV
7386	39.43	0.00	12.43	H	51.86	73.98	22.12	PK
7386	27.81	0.60	12.43	H	40.84	53.98	13.14	AV

[Simultaneous transmission Scenario]

Scenario1

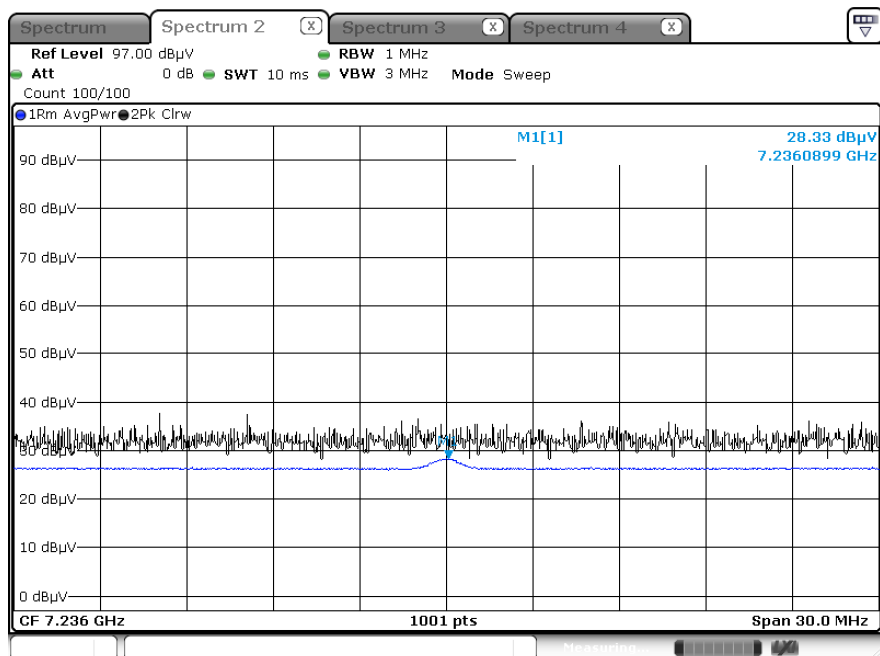
Bluetooth Hopping Mode + 2.4 GHz 802.11n_Ch.1

Frequency [MHz]	Measured value [dBμV]	D.C.F [dB]	C.L+A.F+D.F-A.G [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4824	41.61	0.00	4.98	V	46.59	73.98	27.39	PK
4824	29.42	0.60	4.98	V	35.00	53.98	18.98	AV
7236	39.50	0.00	12.73	V	52.23	73.98	21.75	PK
7236	27.32	0.60	12.73	V	40.65	53.98	13.33	AV
4824	41.43	0.00	4.98	H	46.41	73.98	27.57	PK
4824	29.32	0.60	4.98	H	34.90	53.98	19.08	AV
7236	39.32	0.00	12.73	H	52.05	73.98	21.93	PK
7236	27.26	0.60	12.73	H	40.59	53.98	13.39	AV

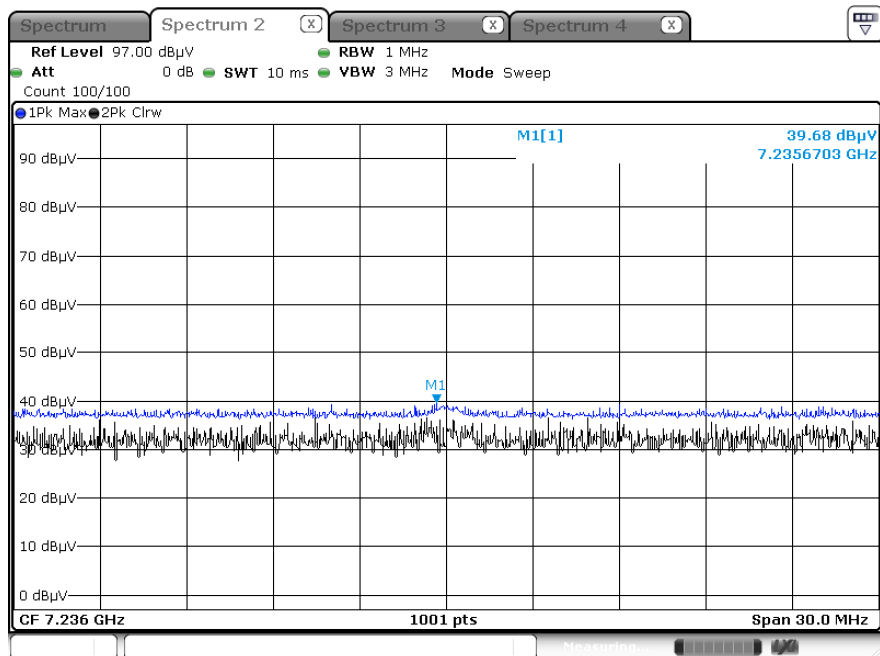
Test Plots

Note: In order to simplify the report, Plots of worst case are only reported.

Radiated Spurious Emissions plot – Average Result (802.11n_ MCS 0, Ch.1 3rd Harmonic, Y-V)



Radiated Spurious Emissions plot – Peak Result (802.11n_ MCS 0, Ch.1 3rd Harmonic, Y-V)

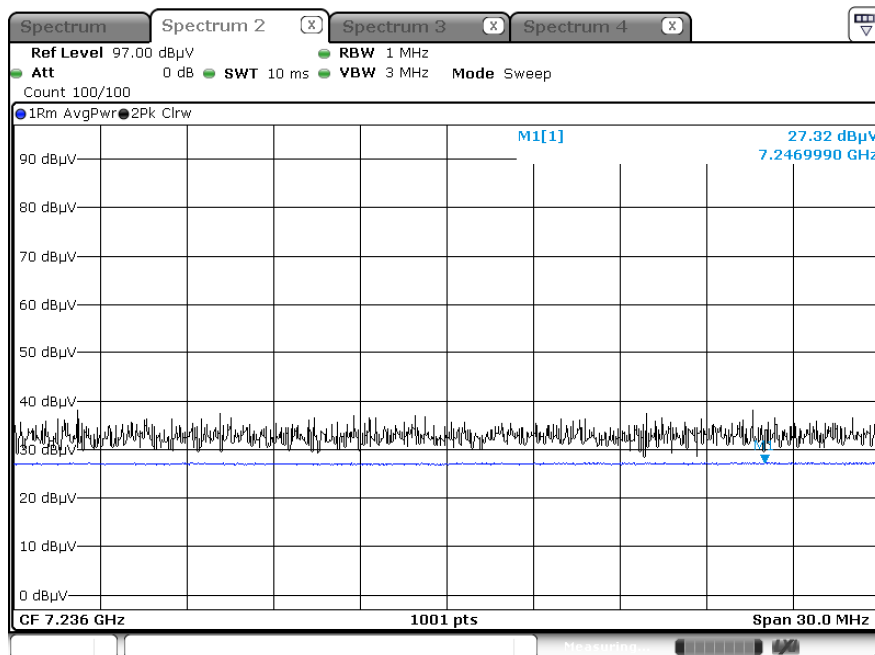


[Simultaneous transmission Scenario]

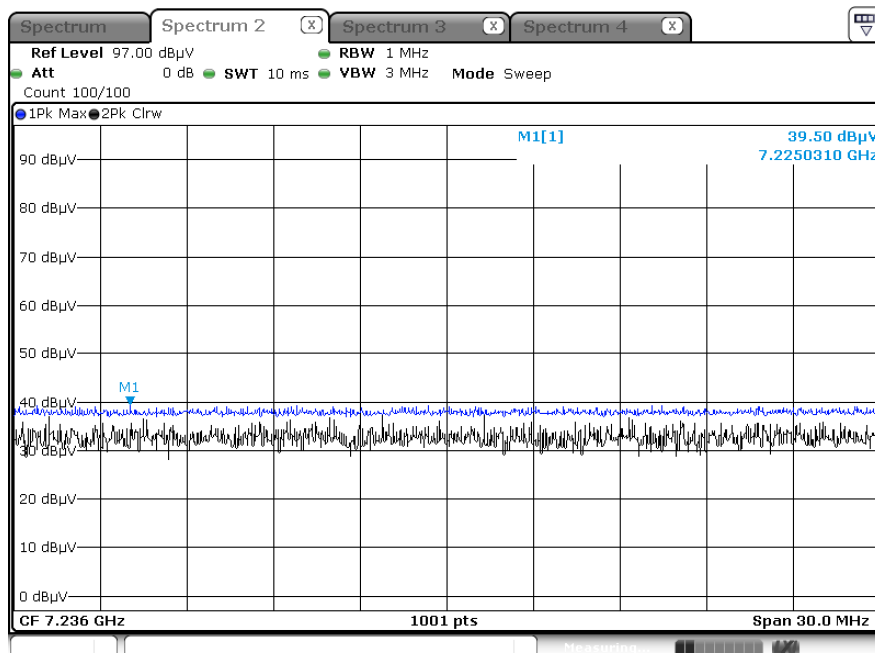
Scenario1

Bluetooth Hopping Mode + 2.4 GHz 802.11n_Ch.1

Radiated Spurious Emissions plot – Average Result (802.11n_ MCS 0, 3rd Harmonic, X-V)



Radiated Spurious Emissions plot – Peak Result (802.11n_ MCS 0, 3rd Harmonic, X-V)



9.3 RADIATED RESTRICTED BAND EDGES

802.11b	Channel	Ch.01	Freq	2412 MHz		Transfer Rate	1 Mbps
Frequency	Measured Value	A.F.+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2390.0	55.73	-	V	55.73	73.98	18.25	PK
2390.0	43.13	-	V	43.13	53.98	10.85	AV

802.11b	Channel	Ch.11	Freq	2462 MHz		Transfer Rate	1 Mbps
Frequency	Measured Value	A.F.+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
2483.5	55.89	-	V	55.89	73.98	18.09	PK
2483.5	44.82	-	V	44.82	53.98	9.16	AV

802.11g		Channel	Ch.01	Freq	2412 MHz		Transfer Rate	6 Mbps
Frequency	Measured Value	Duty Cycle Factor	A.F.+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBμV]	[dB]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	
2390.0	67.73	0.00	-	V	67.73	73.98	6.25	PK
2390.0	46.63	0.57	-	V	47.20	53.98	6.78	AV

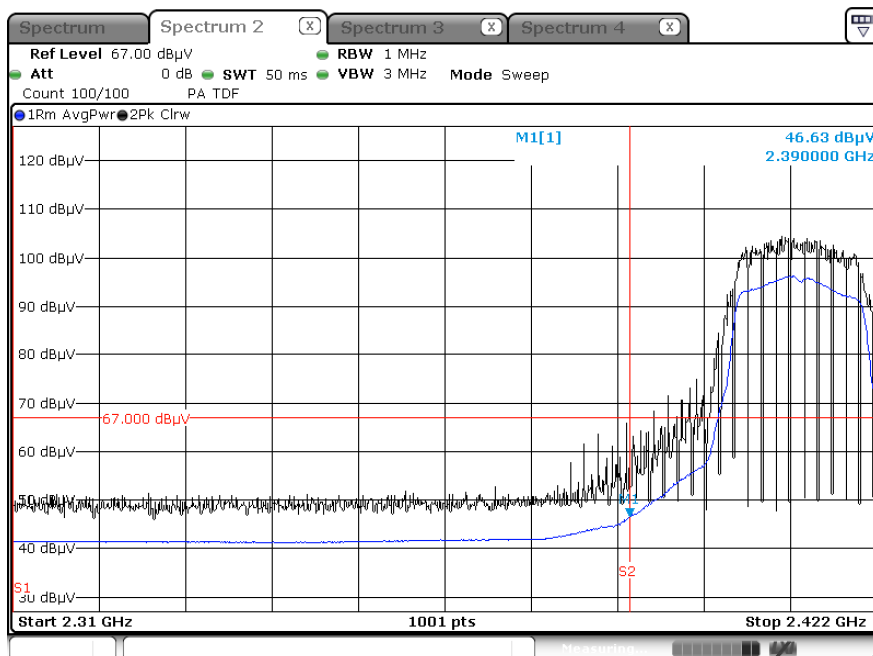
802.11g		Channel	Ch.11	Freq	2462 MHz		Transfer Rate	6 Mbps
Frequency	Measured Value	Duty Cycle Factor	A.F.+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBμV]	[dB]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	
2483.5	65.47	0.00	-	V	65.47	73.98	8.51	PK
2483.5	46.90	0.57	-	V	47.47	53.98	6.51	AV

802.11n (HT20)		Channel	Ch.01	Freq	2412 MHz		Transfer MCS Index	MCS0
Frequency	Measured Value	Duty Cycle Factor	A.F.+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBμV]	[dB]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	
2390.0	65.77	0.00	-	V	65.77	73.98	8.21	PK
2390.0	45.28	0.60	-	V	45.88	53.98	8.10	AV

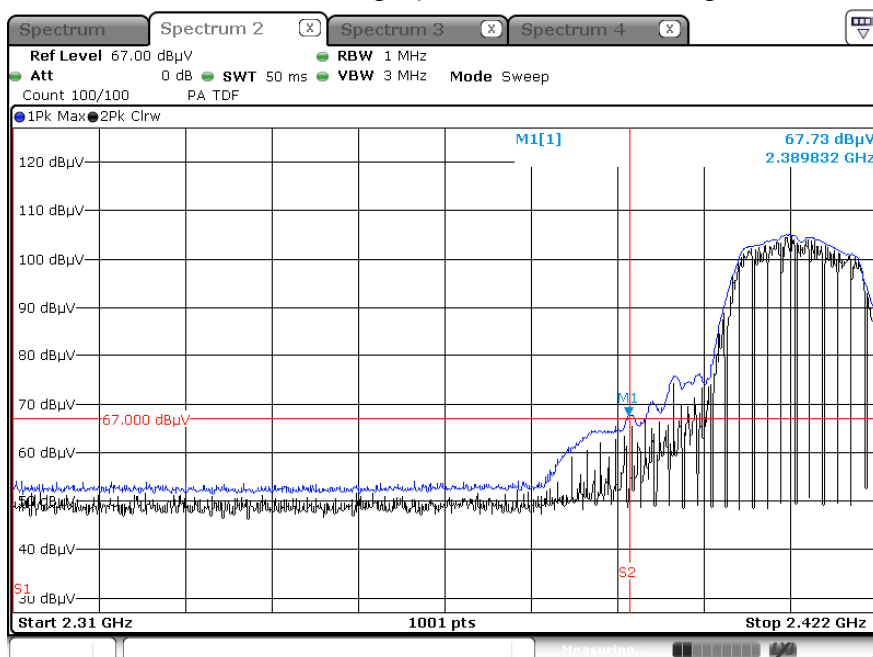
802.11n (HT20)		Channel	Ch.11	Freq	2462 MHz		Transfer MCS Index	MCS0
Frequency	Measured Value	Duty Cycle Factor	A.F.+C.L+D.F	ANT. POL	Total	Limit	Margin	Measurement Type
[MHz]	[dBμV]	[dB]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	
2483.5	64.17	0.00	-	V	64.17	73.98	9.81	PK
2483.5	45.28	0.60	-	V	45.88	53.98	8.10	AV

Test Plots

Radiated Restricted Band Edges plot – Average Result (802.11g, Ch.1, Z-V)



Radiated Restricted Band Edges plot –Peak Result (802.11g, Ch.1, Z-V)



Note:

Plots of worst case are only reported.

9.4 RECEIVER SPURIOUS EMISSIONS

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	ANT. POL	Total	Limit	Margin
[MHz]	[dB μ V]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]

No Critical peaks found

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.

Frequency Range : Above 1 GHz

Frequency	Measured Value	A.F+C.L-A.G+D.F	ANT. POL	Total	Limit	Margin
[MHz]	[dB μ V]	[dB/m]	[H/V]	[dB μ V/m]	[dB μ V/m]	[dB]

No Critical peaks found

10. LIST OF TEST EQUIPMENT

Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	07/15/2026	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	08/20/2026	Annual
Temperature Chamber	SU-642	ESPEC	0093008124	02/11/2026	Annual
Signal Analyzer	N9030A	Agilent	MY49432108	02/18/2026	Annual
Power Measurement Set	OSP 120	Rohde & Schwarz	100935	07/24/2026	Annual
Power Meter	N1911A	Agilent	MY45100523	02/21/2026	Annual
Power Sensor	N1921A	Agilent	MY57820067	02/04/2026	Annual
Directional Coupler	87300B	Agilent	3116A03621	10/14/2026	Annual
Power Splitter	11667B	Hewlett Packard	10545	01/23/2026	Annual
DC Power Supply	E3632A	Agilent	KR75303243	04/16/2026	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C	HP	07560	05/27/2026	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C	HP	08285	05/19/2026	Annual
Attenuator(20 dB)	18N-20dB	Rohde & Schwarz	8	02/18/2026	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
Bluetooth Tester	CBT	Rohde & Schwarz	100752	12/27/2025	Annual
Automation Software	FCC WLAN Conducted	HCT CO., LTD	N/A	N/A	N/A
Automation Software	FCC Bluetooth Conducted	HCT CO., LTD	N/A	N/A	N/A

Note:

- Equipment listed above that calibrated during the testing period was set for test after the calibration.
- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	S1AM	07/25/2026	Annual
Turn Table	DS2000-S-1t	Innco system	DS2000/572/54610422/P	N/A	N/A
Amp & Filter Bank Switch Controller	FBSM-01B	T&M system	TM19050002	N/A	N/A
Loop Antenna	1513	Schwarzbeck	1513-175	01/06/2027	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	08/28/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1300	01/03/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-2296	05/16/2026	Biennial
Horn Antenna(15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Spectrum Analyzer	FSV(10 Hz ~ 40 GHz)	Rohde & Schwarz	101055	05/07/2026	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	12/26/2025	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	05/27/2026	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	05/27/2026	Annual
High Pass Filter(7 GHz ~ 18 GHz)	WHKX10-7150-8000-18000-50SS	Wainwright Instruments	1	02/21/2026	Annual
Power Amplifier	CBL18265035	CERNEX	22966	10/21/2026	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/19/2026	Annual
Bluetooth Tester	TC-3000C	TESCOM	3000C000175	03/12/2026	Annual
RF Switching System	FMSR-05B (HPF(3~18GHz) + LNA1(1~18GHz))	T&M system	S1L1	12/23/2025	Annual
RF Switching System	FMSR -05B (ATT(10dB) + LNA1(1~18GHz))	T&M system	S1L2	12/23/2025	Annual
RF Switching System	FMSR -05B (ATT(3dB) + LNA1(1~18GHz))	T&M system	S1L3	12/23/2025	Annual
RF Switching System	FMSR -05B (LNA1(1~18GHz))	T&M system	S1L4	12/23/2025	Annual
RF Switching System	FMSR -05B (HPF(7~18GHz) + LNA2(6~18GHz))	T&M system	S1L5	12/23/2025	Annual
RF Switching System	FMSR -05B (Thru(30MHz ~ 18GHz))	T&M system	S1L6	12/23/2025	Annual
Automation Software	FCC WLAN Radiated	HCT CO., LTD	N/A	N/A	N/A
Attenuator(3 dB)	18B-03	Api tech.	1	04/21/2026	Annual

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).

11. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2510-FI003-P