

TEST REPORT



CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu,
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Fax: +82-31-624-9501

Report No.:
CTK-2020-04553
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1. Client

- Name : Samsung Electronics Co Ltd
- Address : 19 Chapin Rd, Building D. Pine Brook, New Jersey, United States
- Date of Receipt : 2020-10-26

2. Manufacturer

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea

3. Use of Report : For FCC Conformance / ISED Conformance

4. Test Sample / Model: Wi-Fi/BT Transceiver / WCA943M



5. Date of Test : 2020-11-05 to 2020-11-20

6. Test Standard(method) used : FCC 47 CFR part 15 subpart C 15.247
RSS-247 & RSS-Gen

7. Testing Environment: Temp.: (23 ± 1) °C, Humidity: (49 ± 3) % R.H.

8. Test Results : Compliance

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

Affirmation	Tested by  Ji-Hye, Kim: (Signature)	Technical Manager  Won-Jae, Hwang: (Signature)
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2020-11-20

Republic of KOREA **CTK Co., Ltd.**



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(Ho-dong), 113, Yejik-ro, Cheoin-gu,
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REPORT REVISION HISTORY

Date	Revision	Page No
2020-11-20	Issued (CTK-2020-04553)	all

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1. General Product Description

1.1 Client Information

Company	Samsung Electronics Co., Ltd.
Contact Point	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Contact Person	Name : Youngjoong Noh E-mail : monk.noh@samsung.com Tel : +82-277-0598 Fax : -

1.2 Product Information

FCC ID	A3LWCA942M
ISED	649E-WCA942M
Product Description	Wi-Fi/BT Transceiver
Model name	WCA943M
Variant Model name	-
Operating Frequency	2 412 MHz - 2 472 MHz
RF Output Power	802.11b : 18.88 dBm (77.27 mW) 802.11g : 17.58 dBm (57.28 mW) 802.11n_HT20 : 16.88 dBm (48.75 mW) 802.11ax_HE20 : 17.47 dBm (55.85 mW)
Antenna Specification	Antenna type : Chip Antenna Peak Gain : 1.08 dBi (ANT1), -1.19 dBi (ANT2)
Number of channels	13 (802.11b/g/n_HT20/ax_HE20)
Type of Modulation	802.11b : DSSS 802.11g/n : OFDM 802.11ax : OFDMA
Data Rate	802.11b : 11 / 5.5 / 2 / 1 Mbps 802.11g : 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbps 802.11n : up to 144 Mbps 802.11ax : up to 286 Mbps
Power Source	DC 5 V
Hardware Rev	V4.0
Software Rev	FC2

1.3 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.
Note Computer	HP	15-bs563TU	CND7253QPR
AC/DC Adapter	HP	HSTNN-LA40	-

1.4 Model Differences

Not applicable



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2. Facility and Accreditations

2.1 Test Facility

The measurement facility is located at (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yong-in-si, Gyeonggi-do, Korea.

2.2 Laboratory Accreditations and Listings

Country	Agency	Registration Number
USA	FCC	805871
CANADA	ISED	8737A-2
KOREA	NRRA	KR0025

2.3 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.



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3. Test Specifications

3.1 Standards

FCC Part Section(s)	Requirement(s)	Status (Note 1)	Test Condition
15.247(a)	6 dB Bandwidth	C	Conducted
15.247(b)	Maximum Output Power	C	
15.247(d)	Conducted Spurious emission	C	
15.247(d)	Unwanted Emission(Conducted)	C	
15.247(e)	Transmitter Power Spectral Density	C	
15.209	Radiated Emissions	C	Radiated
15.207	AC Conducted Emissions	C	Line Conducted
<i>Note 1:</i> C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable			
<i>Note 2:</i> The data in this test report are traceable to the national or international standards.			
<i>Note 3:</i> The sample was tested according to the following specification: FCC Part 15.247			
<i>Note 4:</i> The tests were performed according to the method of measurements prescribed in KDB No.558074, ANSI C63.10-2013			

ISED Part Section(s)	Requirement(s)	Status (Note 1)	Test Condition
RSS-247 5.2(a)	6 dB Bandwidth	C	Conducted
RSS-247 5.4(d)	Maximum Output Power	C	
RSS-247 5.5	Conducted Spurious emission	C	
RSS-247 5.5	Unwanted Emission(Conducted)	C	
RSS-247 5.2(b)	Transmitter Power Spectral Density	C	
RSS-Gen 6.13	Radiated Emissions	C	Radiated
RSS-Gen 8.8	AC Conducted Emissions	C	Line Conducted
<i>Note 1:</i> C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable			
<i>Note 2:</i> The data in this test report are traceable to the national or international standards.			
<i>Note 3:</i> The sample was tested according to the following specification: RSS-247, RSS-GEN			
<i>Note 4:</i> The tests were performed according to the method of measurements prescribed in ANSI C63.10-2013			



3.2 Mode of operation during the test

The EUT is operated in a manner representative of the typical of the equipments.
During at testing, system components were manipulated within the confines of typical usage to maximize each emission. All modulation modes were tests.
The results are only attached worst cases.

Test Frequency

802.11b/g/n_HT20/ax_HE20

Low	Mid	High
2 412 MHz	2 442 MHz	2 472 MHz

Test mode

Test mode	Modulation	Data rate	Duty Cycle	Duty Cycle Factor
802.11b	DSSS	1 Mbps	99.7 %	-
802.11g	OFDM	6 Mbps	97.2 %	0.12 dB
802.11n_HT20	OFDM	MCS 0	97.0 %	0.13 dB
802.11ax_HE20	OFDMA	MCS 0	93.2 %	0.31 dB

3.3 Device Modifications

The following modifications were necessary for compliance:

Not applicable

3.4 Maximum Measurement Uncertainty

The value of the measurement uncertainty for the measurement of each parameter.
Coverage factor $k = 2$, Confidence levels of 95 %

Description	Uncertainty
Conducted RF Output Power	± 1.5 dB
Power Spectral Density	± 1.5 dB
Occupied Bandwidth	± 0.1 MHz
Unwanted Emission(conducted)	± 3.0 dB
Radiated Emissions (f ≤ 1 GHz)	± 4.0 dB
Radiated Emissions (f > 1 GHz)	± 5.0 dB

3.5 Test Software

Conducted Test	Ics Pro Ver. 6.0.3
Radiated Test	TOYO EMI software EP5RE Ver. 6.0.1.0
Line Conducted Test	ESCI7, ESCI3 : EMC32 Ver. 8.50.0 ESR7 : EMC32 Ver. 8.53.0



4. Technical Characteristic Test

4.1 6dB Bandwidth

Test Procedures

KDB 558074 - Section 8.2
ANSI C63.10-2013 - Section 11.8.2
RSS-Gen – Section 6.7

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

Test Procedures

ANSI C63.10-2013 - Section 6.9
RSS-Gen – Section 6.7

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.

Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

Test Settings :

Center frequency = the highest, middle and the lowest channels

- a) RBW = 100 kHz
- b) VBW $\geq 3 \times$ RBW
- c) Detector = peak
- d) Trace mode = Max hold
- e) Sweep = auto couple
- f) Allow trace to fully stabilize
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Minimum Standard :

6 dB Bandwidth > 500kHz



Test Data :

ANT1

Mode	6 dB Bandwidth and 99 % Bandwidth (MHz)							
	802.11b		802.11g		802.11n_HT20		802.11ax_HE20	
Frequency	6 dB	99 %	6 dB	99 %	6 dB	99 %	6 dB	99 %
2 412 MHz	8.10	12.80	15.16	16.33	15.73	17.52	17.80	18.76
2 442 MHz	8.10	12.64	16.29	16.51	17.18	17.77	17.72	18.94
2 472 MHz	8.09	12.61	15.16	16.32	15.72	17.52	17.77	18.77

ANT2

Mode	6 dB Bandwidth and 99 % Bandwidth (MHz)							
	802.11b		802.11g		802.11n_HT20		802.11ax_HE20	
Frequency	6 dB	99 %	6 dB	99 %	6 dB	99 %	6 dB	99 %
2 412 MHz	8.09	12.85	15.17	16.33	15.16	17.50	18.03	18.76
2 442 MHz	8.10	12.70	15.63	16.57	15.21	17.77	18.17	18.95
2 472 MHz	8.10	12.63	15.18	16.34	15.18	17.51	18.17	18.75

See next pages for actual measured spectrum plots.

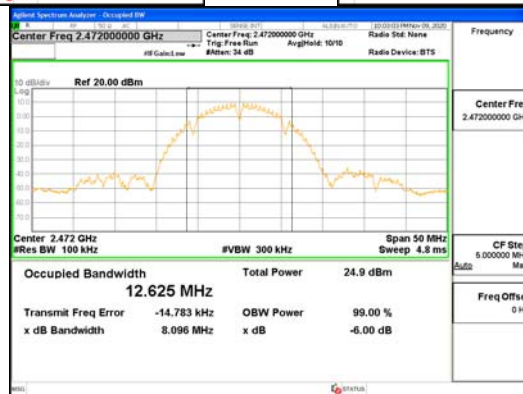
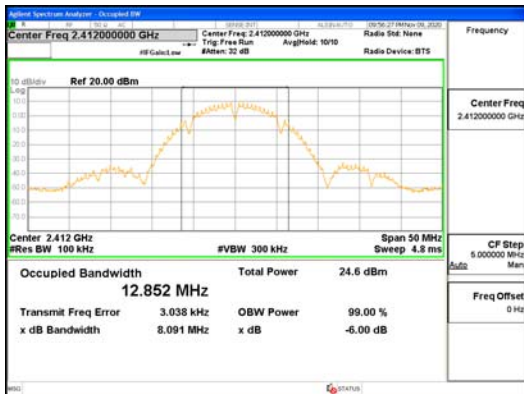


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ANT1, 802.11b

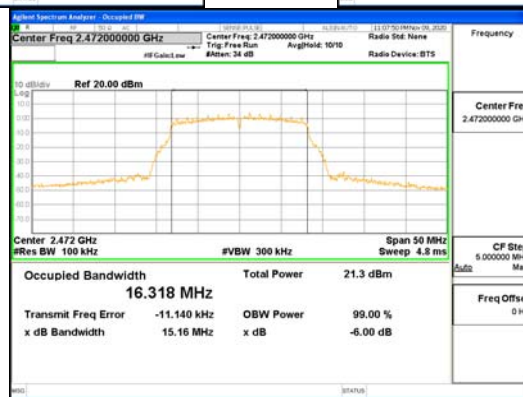


ANT2, 802.11b

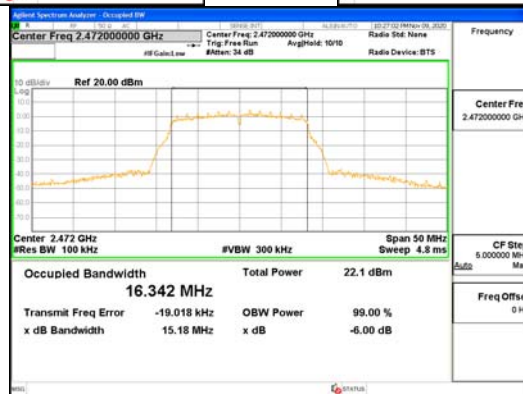
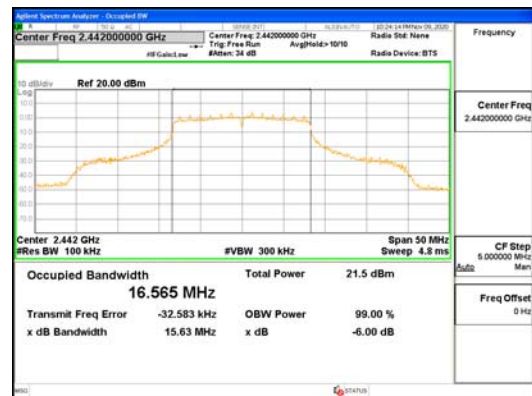
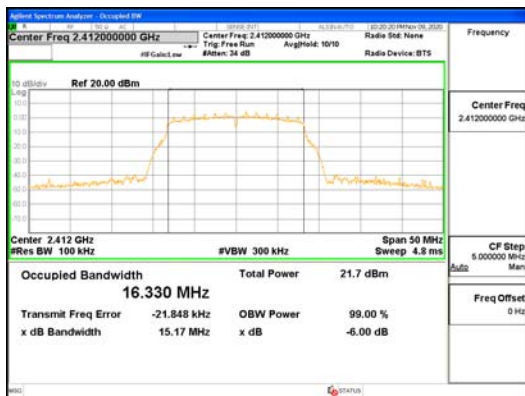


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ANT1, 802.11g

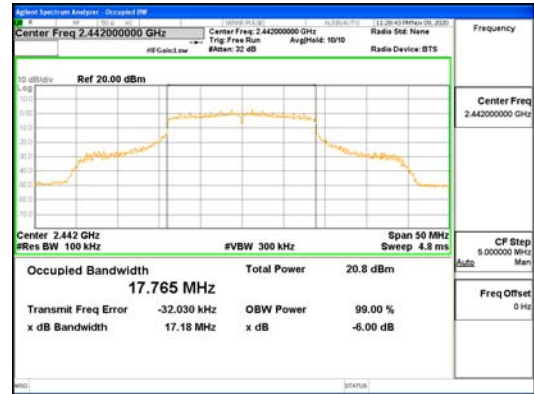
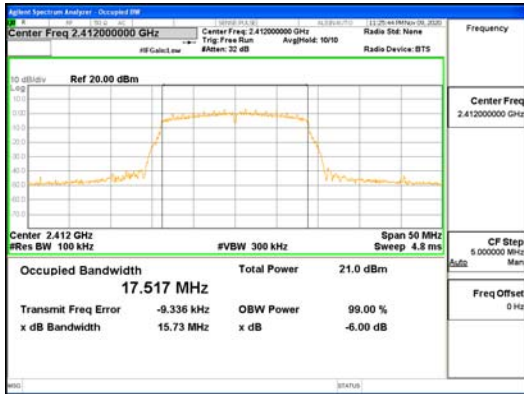


ANT2, 802.11g

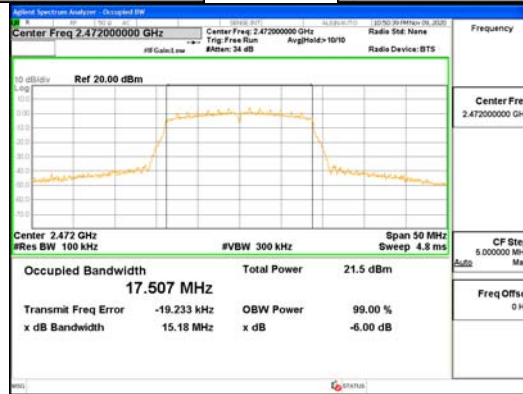
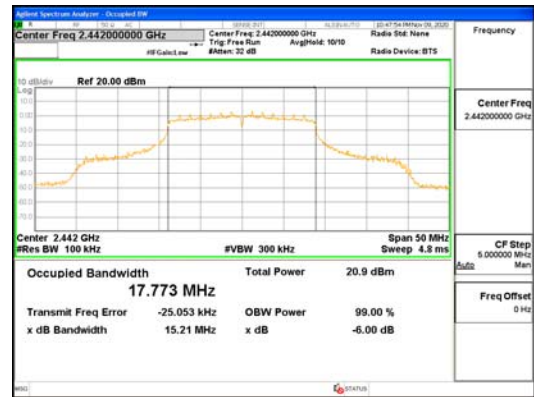
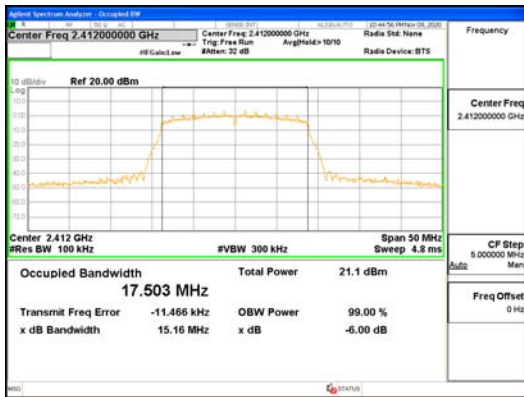


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ANT1, 802.11n_HT20

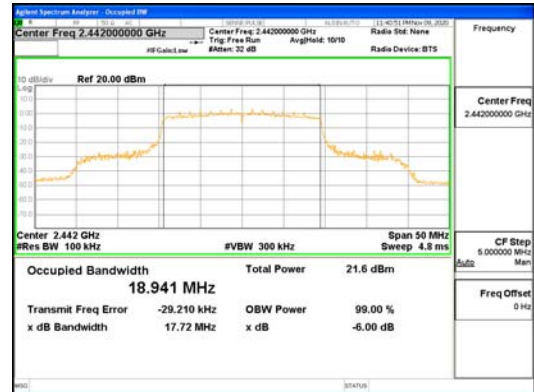


ANT2, 802.11n_HT20

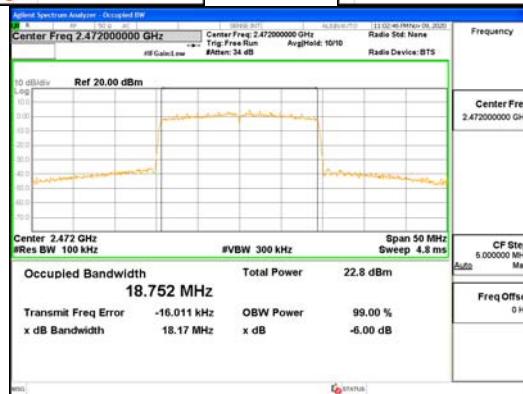
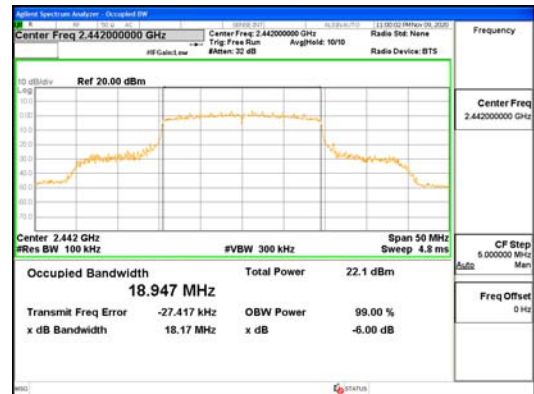


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ANT1, 802.11ax_HE20



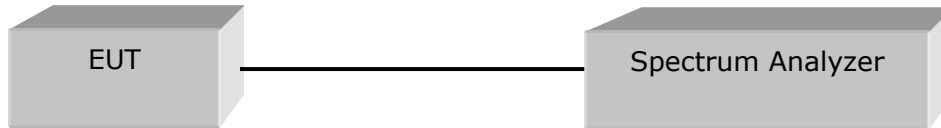
ANT2, 802.11ax_HE20

4.2 OUTPUT POWER

Test Procedures

KDB 558074 - Section 8.3.2.2 (Average Power)
ANSI C63.10-2013 - Section 11.9.2.2
KDB 662911 D01, D02 (Multiple Transmitter Output)

The transmitter output is connected to a spectrum analyzer and the analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99% bandwidth.



Test Settings:

Center frequency = the highest, middle and the lowest channels

- a) span $\geq 1.5 \times \text{OBW}$
- b) RBW = 1 MHz
- c) VBW $\geq 3 \times \text{RBW}$
- d) Sweep time = auto
- e) Detector = RMS
- f) average at least 100
- g) Duty cycle factor = $10\log(1/x)$

Test mode	Duty Cycle Factor (dB)
802.11b	0.00
802.11g	0.12
802.11n_HT20	0.13
802.11ax_HE20	0.31

Limit

Operating Mode	Mode	ANT Configuration	ANT Gain (dBi)	Limit (dBm)
SISO	802.11b/g/n/ax	ANT1	1.08	30.00
SISO	802.11b/g/n/ax	ANT2	-1.19	30.00
MIMO (2Tx)	802.11g/n/ax	ANT1 + ANT2	3.10	30.00

Test Data :

ANT1

Test Mode	Frequency (MHz)	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11b	2 412	18.85	0.00	18.85	30.00	11.15
	2 442	18.88	0.00	18.88	30.00	11.12
	2 472	18.64	0.00	18.64	30.00	11.36
802.11g	2 412	14.04	0.12	14.16	30.00	15.84
	2 442	13.69	0.12	13.81	30.00	16.19
	2 472	14.06	0.12	14.18	30.00	15.82
802.11n _HT20	2 412	13.33	0.13	13.46	30.00	16.54
	2 442	13.07	0.13	13.20	30.00	16.80
	2 472	13.32	0.13	13.45	30.00	16.55
802.11ax _HE20	2 412	13.77	0.31	14.08	30.00	15.92
	2 442	13.64	0.31	13.95	30.00	16.05
	2 472	13.63	0.31	13.94	30.00	16.06

ANT2

Test Mode	Frequency (MHz)	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11b	2 412	17.19	0.00	17.19	30.00	12.81
	2 442	17.34	0.00	17.34	30.00	12.66
	2 472	17.51	0.00	17.51	30.00	12.49
802.11g	2 412	14.35	0.12	14.47	30.00	15.53
	2 442	14.23	0.12	14.35	30.00	15.65
	2 472	14.81	0.12	14.93	30.00	15.07
802.11n _HT20	2 412	13.68	0.13	13.81	30.00	16.19
	2 442	13.51	0.13	13.64	30.00	16.36
	2 472	14.12	0.13	14.25	30.00	15.75
802.11ax _HE20	2 412	13.91	0.31	14.22	30.00	15.78
	2 442	13.99	0.31	14.3	30.00	15.70
	2 472	14.62	0.31	14.93	30.00	15.07



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ANT1 + ANT2 (MIMO)

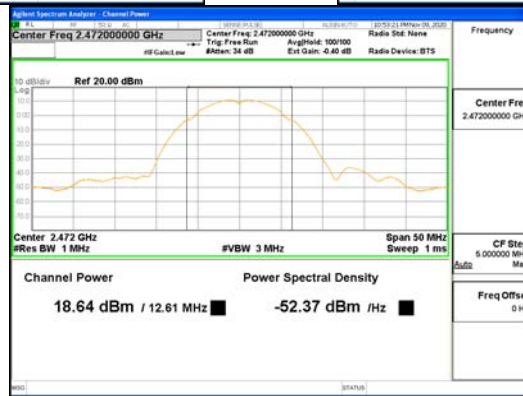
Test Mode	Frequency (MHz)	Measured Output Power (dBm)	Duty cycle Factor (dB)	Result Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11g	2 412	17.21	0.12	17.33	30.00	12.67
	2 442	16.98	0.12	17.10	30.00	12.90
	2 472	17.46	0.12	17.58	30.00	12.42
802.11n _HT20	2 412	16.52	0.13	16.65	30.00	13.35
	2 442	16.31	0.13	16.44	30.00	13.56
	2 472	16.75	0.13	16.88	30.00	13.12
802.11ax _HE20	2 412	16.85	0.31	17.16	30.00	12.84
	2 442	16.83	0.31	17.14	30.00	12.86
	2 472	17.16	0.31	17.47	30.00	12.53

See next pages for actual measured spectrum plots.

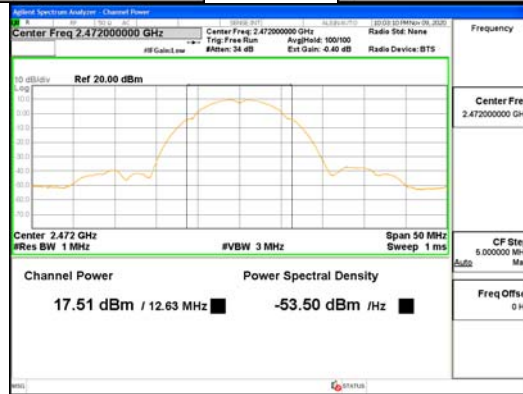
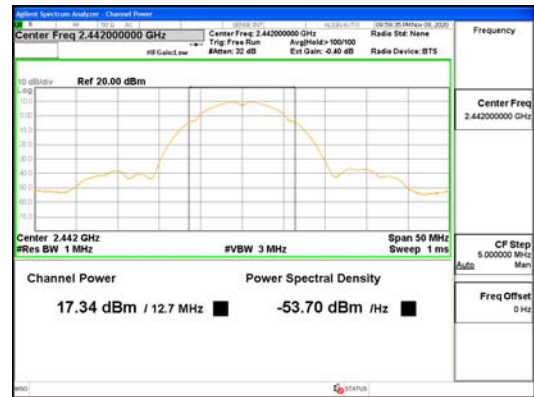


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ANT1, 802.11b

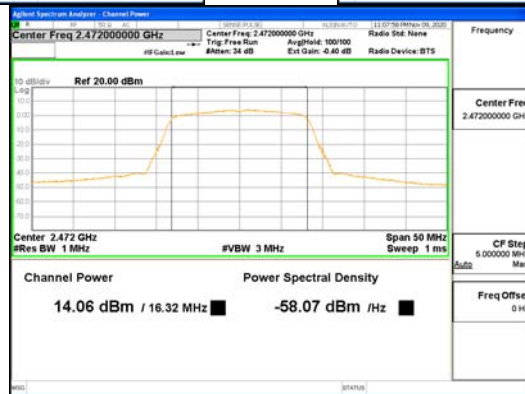


ANT2, 802.11b

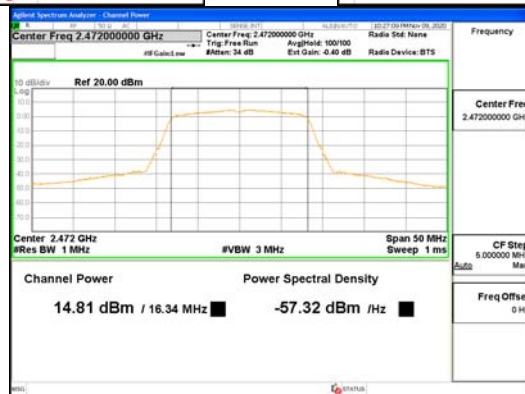
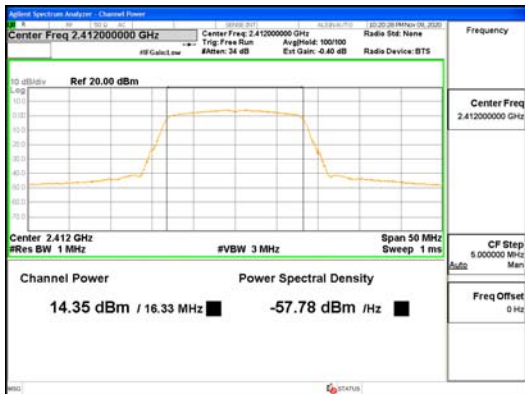


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ANT1, 802.11g

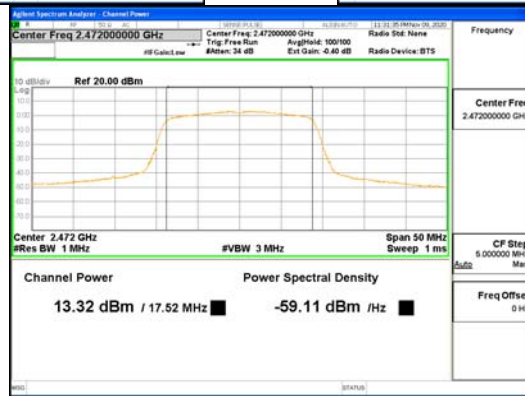


ANT2, 802.11g

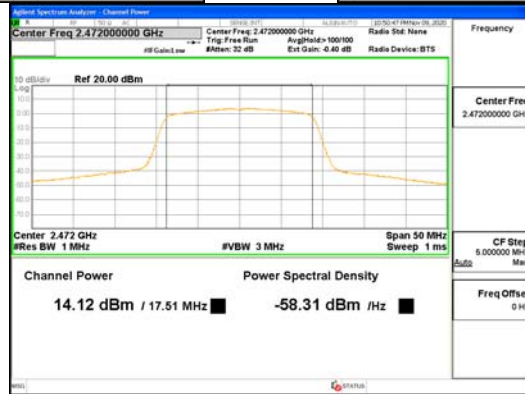
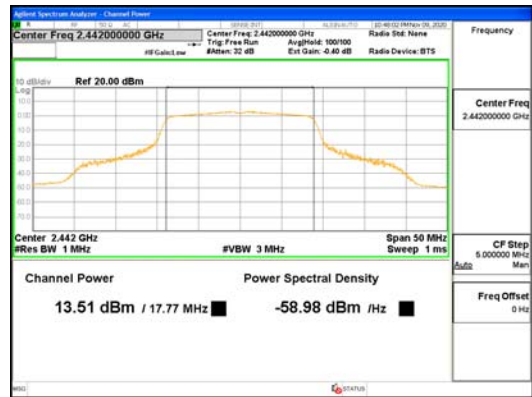
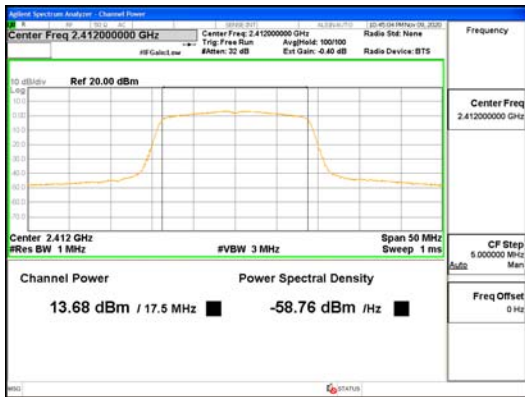


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ANT1, 802.11n_HT20

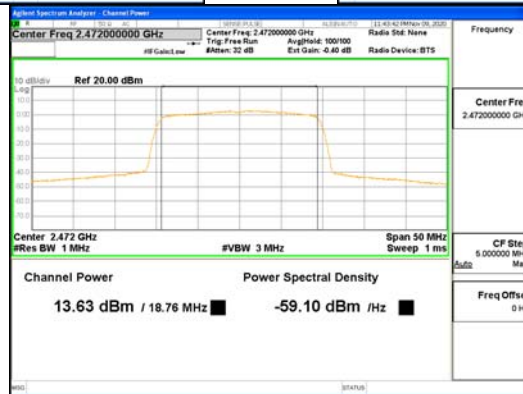
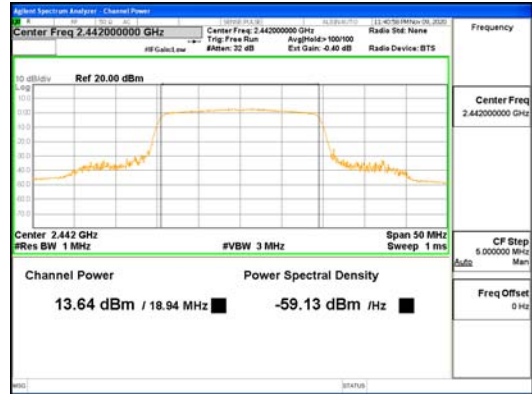


ANT2, 802.11n_HT20

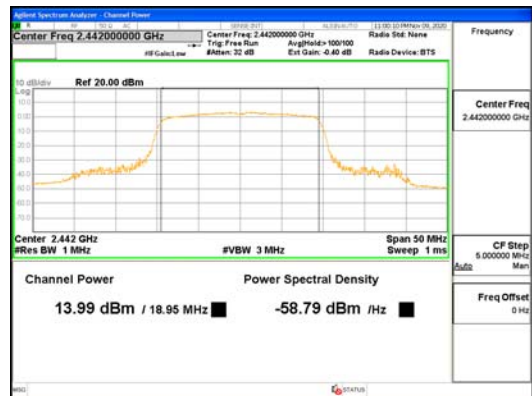


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ANT1, 802.11ax_HE20



ANT2, 802.11ax_HE20



4.3 Transmitter Power Spectral Density

Test Procedures

KDB 558074 - Section 8.4
ANSI C63.10-2013 - Section 11.10.2
KDB 662911 D01, D02 (Multiple Transmitter Output)

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance.

Test Settings:

Center frequency = the highest, middle and the lowest channels

- a) RBW : $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
- b) VBW $\geq 3 \times \text{RBW}$
- c) span $\geq 1.5 \times \text{DTS bandwidth}$
- d) Sweep time = auto couple
- e) Detector = peak
- f) Trace mode = max hold
- g) Allow trace to fully stabilize
- h) Use the peak marker function to determine the maximum amplitude level within the RBW.

Limit

Operating Mode	Mode	ANT Configuration	ANT Gain (dBi)	Limit (dBm)
SISO	802.11b/g/n/ax	ANT1	1.08	8.00
SISO	802.11b/g/n/ax	ANT2	-1.19	8.00
MIMO (2Tx)	802.11g/n/ax	ANT1 + ANT2	3.10	8.00

Test Data

ANT1

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Margin(dB)
802.11b	2 412	-3.85	8.00	11.85
	2 442	-4.18	8.00	12.18
	2 472	-3.56	8.00	11.56
802.11g	2 412	-9.68	8.00	17.68
	2 442	-9.85	8.00	17.85
	2 472	-10.28	8.00	18.28
802.11n_HT20	2 412	-11.62	8.00	19.62
	2 442	-11.10	8.00	19.10
	2 472	-10.58	8.00	18.58
802.11ax_HE20	2 412	-11.94	8.00	19.94
	2 442	-11.61	8.00	19.61
	2 472	-11.79	8.00	19.79

ANT2

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Margin(dB)
802.11b	2 412	-5.28	8.00	13.28
	2 442	-4.47	8.00	12.47
	2 472	-4.87	8.00	12.87
802.11g	2 412	-9.44	8.00	17.44
	2 442	-10.20	8.00	18.20
	2 472	-10.00	8.00	18.00
802.11n_HT20	2 412	-11.50	8.00	19.50
	2 442	-11.64	8.00	19.64
	2 472	-10.33	8.00	18.33
802.11ax_HE20	2 412	-11.38	8.00	19.38
	2 442	-11.73	8.00	19.73
	2 472	-11.77	8.00	19.77



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ANT1 + ANT2 (MIMO)

Test Mode	Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Margin(dB)
802.11g	2 412	-6.55	8.00	14.55
	2 442	-7.01	8.00	15.01
	2 472	-7.13	8.00	15.13
802.11n_HT20	2 412	-8.55	8.00	16.55
	2 442	-8.35	8.00	16.35
	2 472	-7.44	8.00	15.44
802.11ax_HE20	2 412	-8.64	8.00	16.64
	2 442	-8.66	8.00	16.66
	2 472	-8.77	8.00	16.77

See next pages for actual measured spectrum plots.



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ANT1, 802.11b

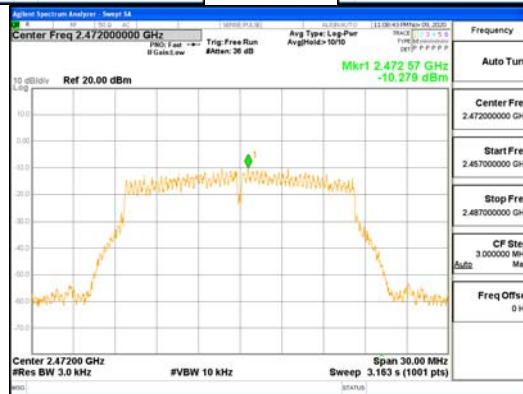
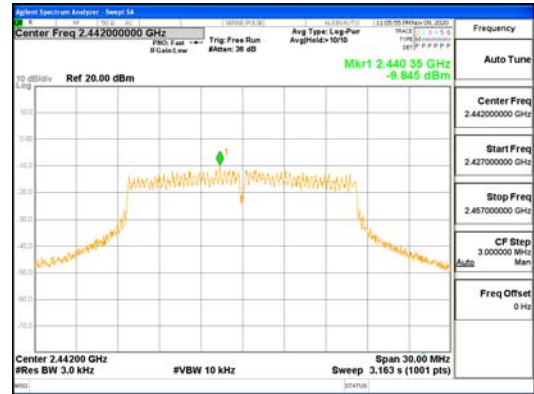
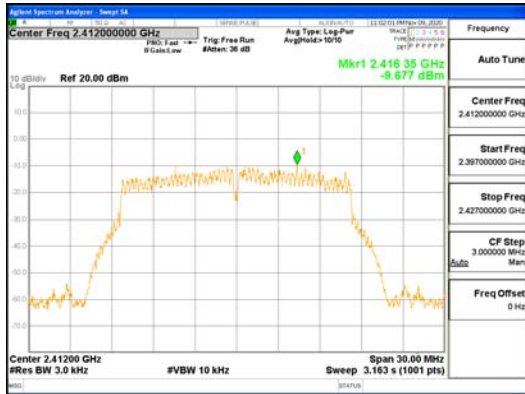


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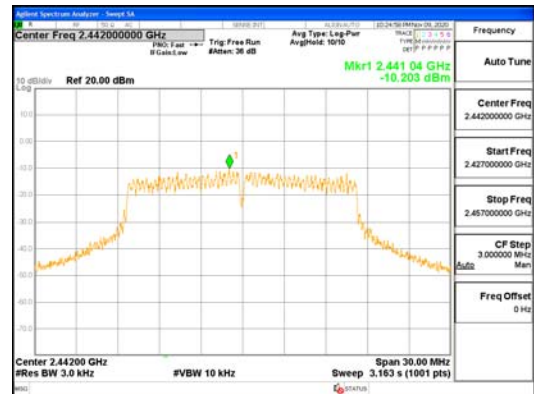


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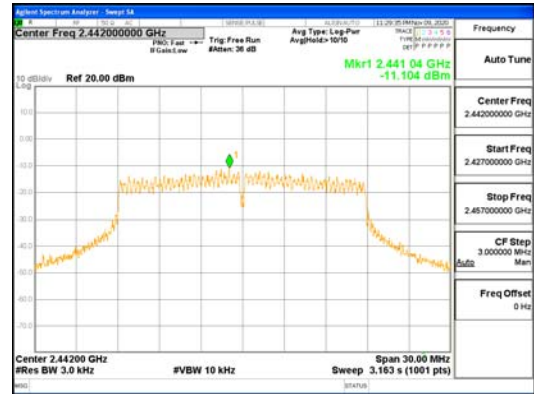
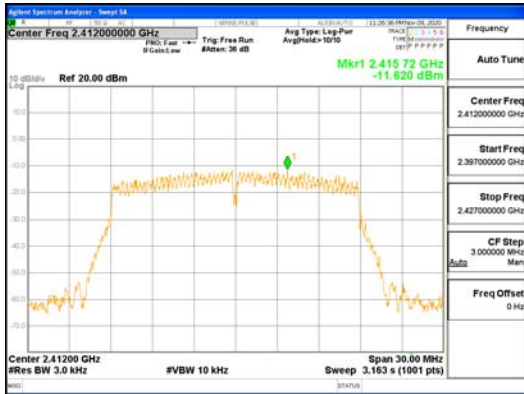
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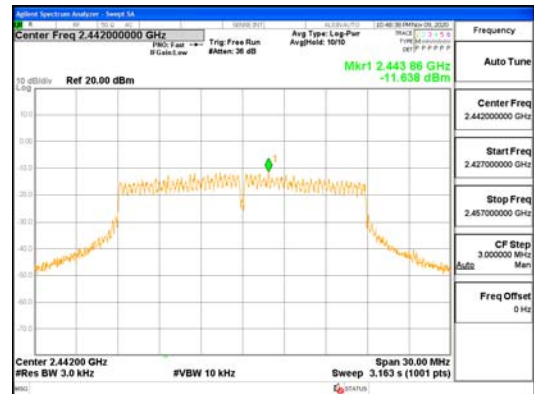
ANT1, 802.11g



ANT2, 802.11g



ANT1, 802.11n_HT20

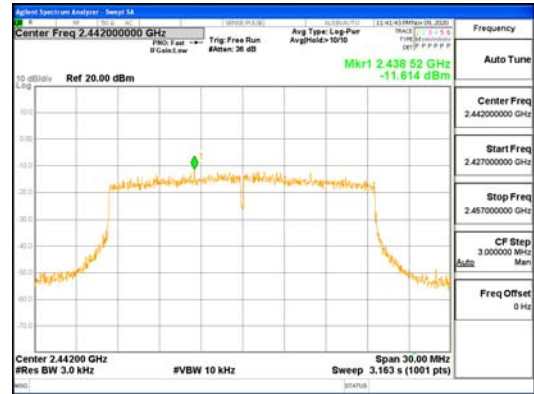


ANT2, 802.11n_HT20

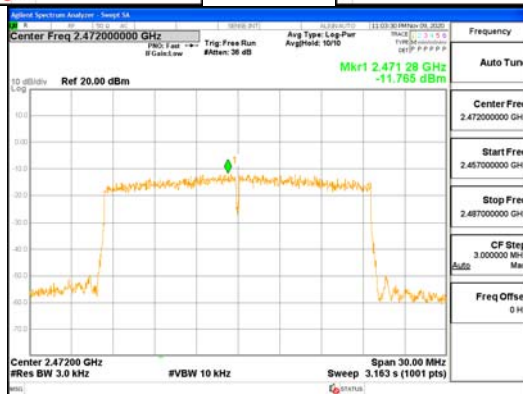
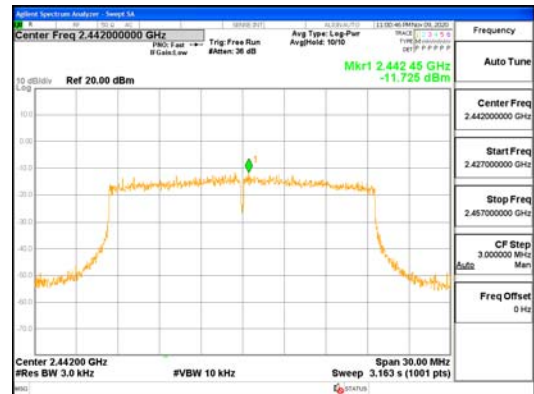


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ANT1, 802.11ax_HE20



ANT2, 802.11ax_HE20



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4.4 Conducted Spurious emission

Test Procedures

KDB 558074 - Section 8.5
ANSI C63.10-2013 - Section 11.11.3
RSS-Gen - Section 6.13

The bandwidth at 20dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.
After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

Test Settings:

Center frequency = the highest, middle and the lowest channels

- a) RBW = 100 kHz
- b) VBW $\geq 3 \times$ RBW
- c) Detector = peak
- d) Sweep time = auto couple
- e) Trace mode= max hold
- f) Allow trace to fully stabilize
- g) Use the peak marker function to determine the maximum amplitude level.

Limit :

Emission level < 30 dBc

Test Data: Complies

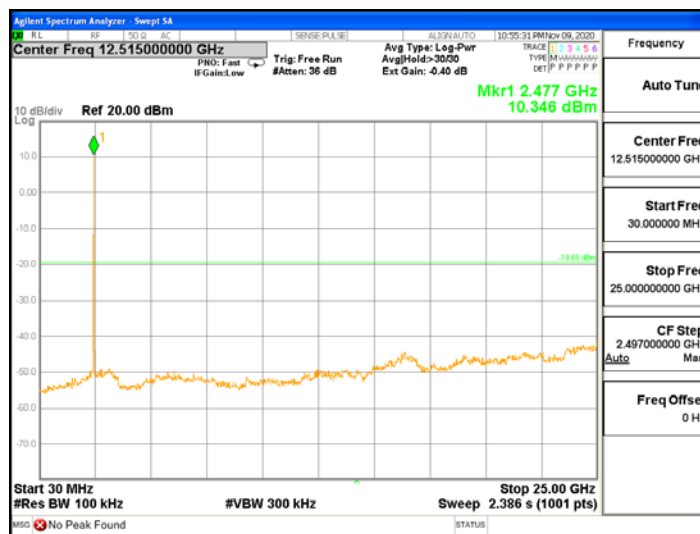
- All conducted emission in any 100 kHz bandwidth outside of the spread spectrum band was at least 30dB lower than the highest inband spectral density. Therefore the applying equipment meets the requirement.

See next pages for actual measured spectrum plots.



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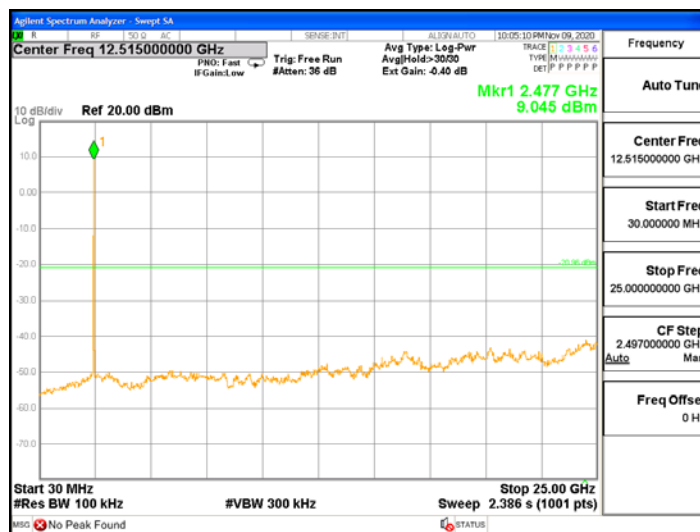
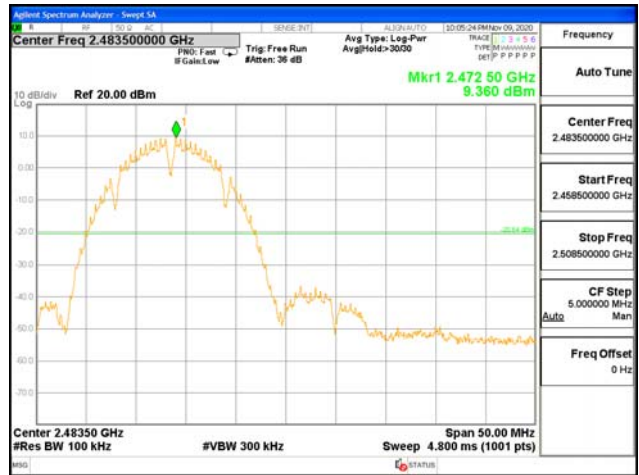


ANT1, 802.11b



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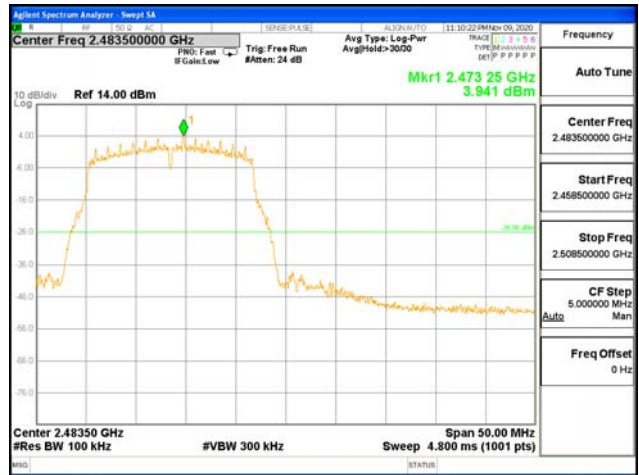


ANT2, 802.11b



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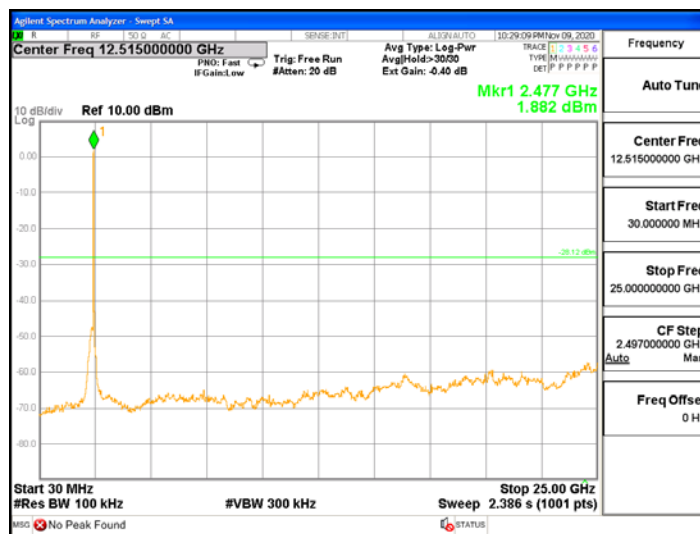
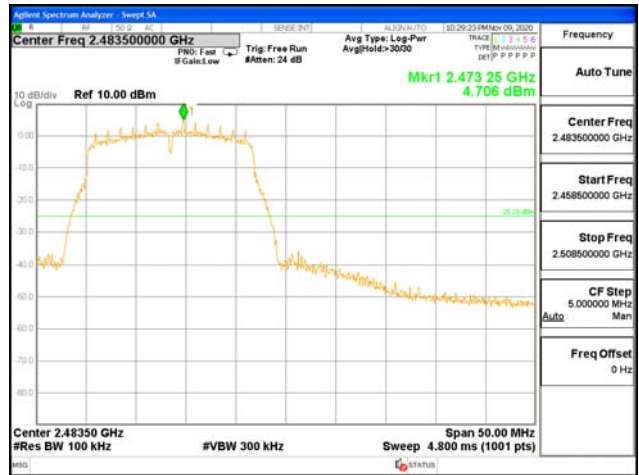
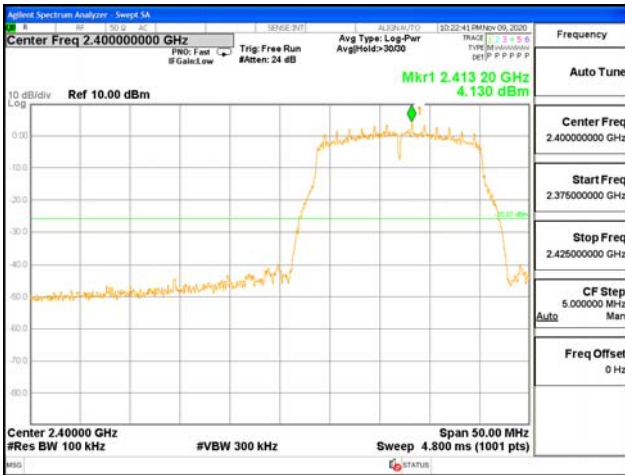


ANT1, 802.11g



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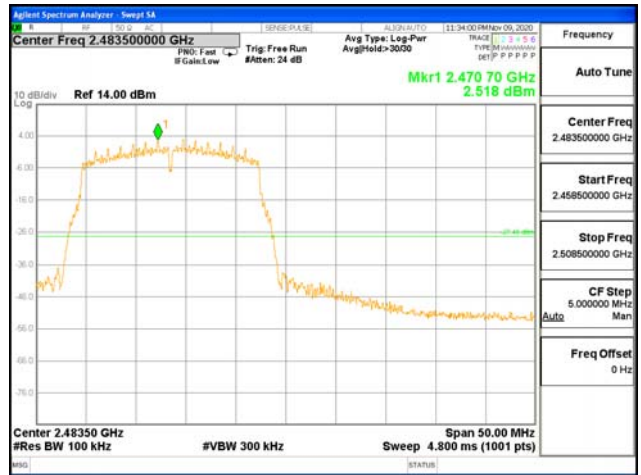
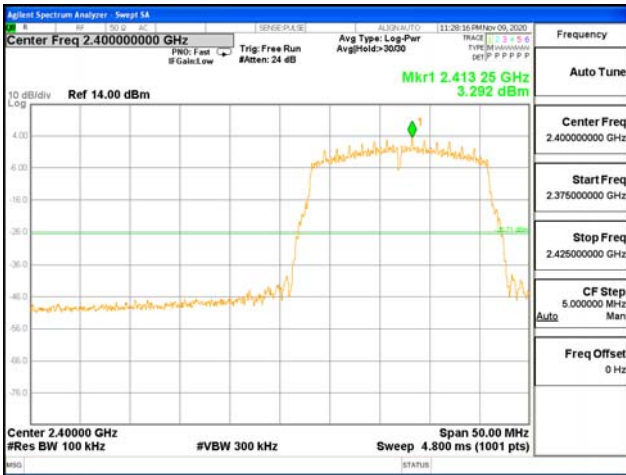


ANT2, 802.11g



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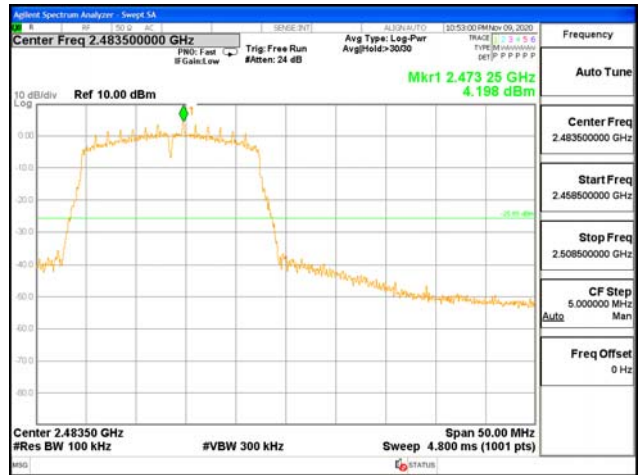
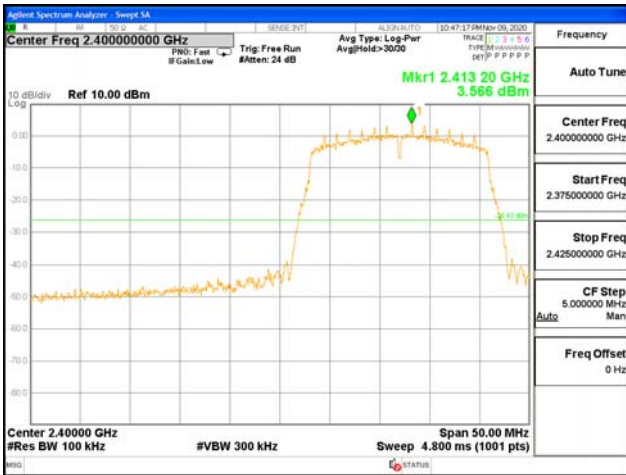


ANT1, 802.11n_HT20



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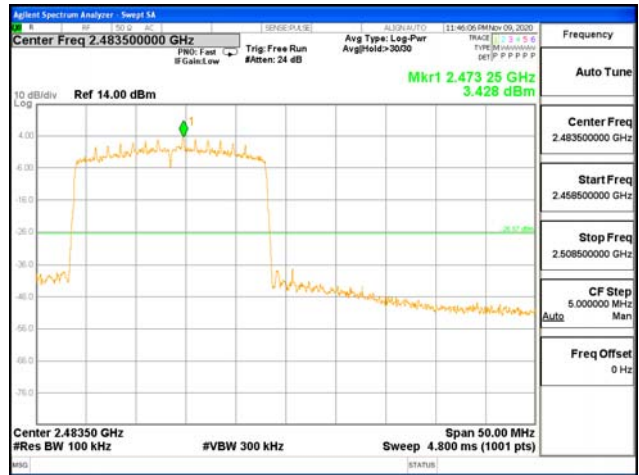
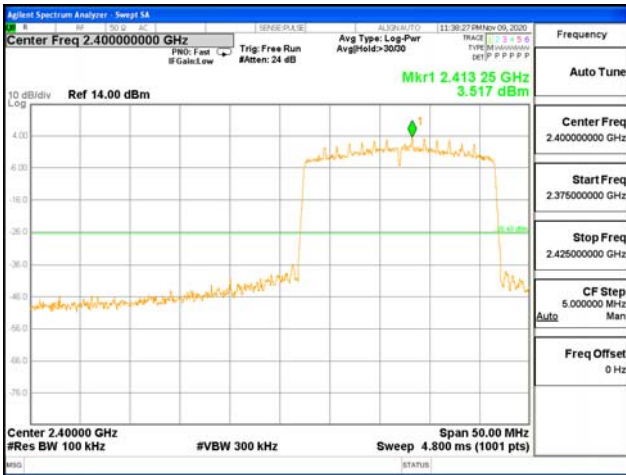


ANT2, 802.11n_HT20



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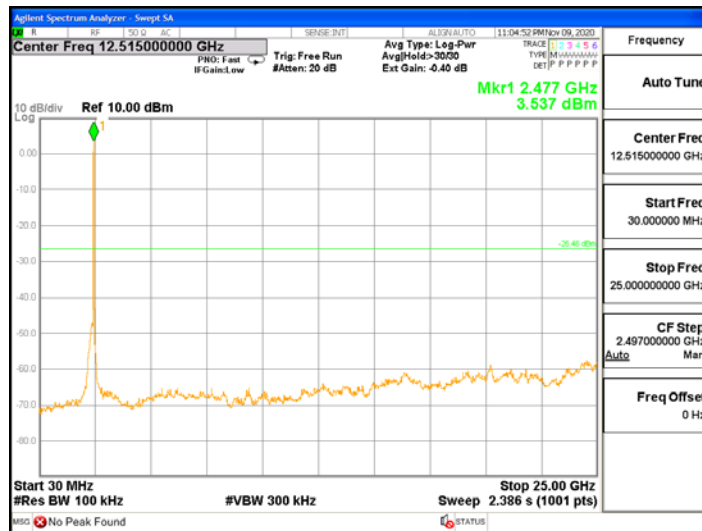
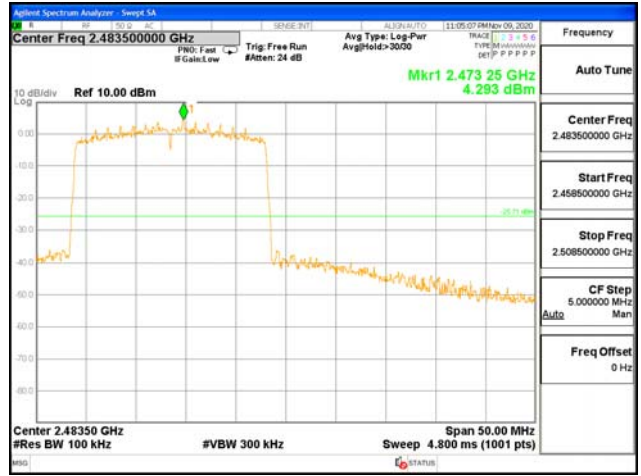
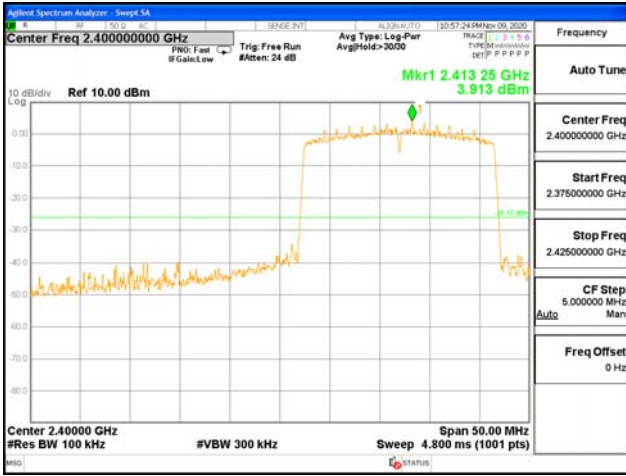


ANT1, 802.11ax_HE20



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ANT2, 802.11ax_HE20



4.5 Radiated Emission

Test Location

- 10 m SAC (test distance : 10 m, 3 m)
 3 m SAC (test distance : 3 m)

Test Procedures

KDB 558074 - Section 8.5, 8.6
ANSI C63.10-2013 - Section 11.11, 11.12
RSS-Gen - Section 6.13

- 1) In the frequency range of 9 kHz to 30 MHz, magnetic field is measured with Loop Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
- 2) In the frequency range above 30 MHz, Bi-Log Test Antenna(30 MHz to 1 GHz) and Horn Test Antenna(above 1 GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is carried from 1m to 4m above the ground to determine the maximum value of the field strength. The emissions levels at both horizontal and vertical polarizations should be tested.

Test Settings:

Frequency Range = 9 kHz ~ 1 GHz

- a) RBW = 100 kHz for $f < 1$ GHz, 9 kHz for $f < 30$ MHz
b) VBW \geq RBW
c) Detector = CISPR Quasi-peak
d) Sweep time = auto couple

- Peak

Frequency Range = 1 GHz ~ 25 GHz (2.4 GHz 10th harmonic)

- a) RBW = 1 MHz
b) VBW \geq 3 x RBW
c) Detector = Peak
d) Sweep time = auto
e) Trace mode = max hold

- Average (duty cycle \geq 98%)

Frequency Range = 1 GHz ~ 25 GHz (2.4 GHz 10th harmonic)

- a) RBW = 1 MHz
b) VBW \geq 3 x RBW
c) Detector = RMS
d) Sweep time = auto
e) Averaging type = power (i.e., RMS)
f) Trace mode = average (at least 100 traces)



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- Average (duty cycle < 98%, duty cycle variations are less than ±2%)

Frequency Range = 1 GHz ~ 25 GHz (2.4 GHz 10th harmonic)

a) RBW = 1 MHz

b) VBW ≥ 3 x RBW

d) Sweep time = auto

f) Trace mode = average (at least 100 traces)

c) Detector = RMS

e) Averaging type = power (i.e., RMS)

A 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.

If power averaging (RMS) mode, then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.

Test mode	Duty Cycle Factor (dB)
802.11b	0.00
802.11g	0.12
802.11n_HT20	0.13
802.11ax_HE20	0.31

Limit :

FCC Part 15 § 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	MHz	MHz	GHz
0.09-0.11	8.37626-8.38675	73-74.6	399.9-410	2690-2900	10.6-12.7
¹ 0.495-0.505	8.41425-8.41475	74.8-75.2	608-614	3260-3267	13.25-13.4
2.1735-2.1905	12.29-12.293	108-121.94	960-1240	3332-3339	14.47-14.5
4.125-4.128	12.51975-12.52025	123-138	1300-1427	3345.8-3358	15.35-16.2
4.17725-4.17775	12.57675-12.57725	149.9-150.05	1435-1626.5	3600-4400	17.7-21.4
4.20725-4.20775	13.36-13.41	156.52475-156.52525	1645.5-1646.5	4500-5150	22.01-23.12
6.215-6.218	16.42-16.423	156.7-156.9	1660-1710	5350-5460	23.6-24
6.26775-6.26825	16.69475-16.69525	162.0125-167.17	1718.8-1722.2	7250-7750	31.2-31.8
6.31175-6.31225	16.80425-16.80475	167.72-173.2	2200-2300	8025-8500	36.43-36.5
8.291-8.294	25.5-25.67	240-285	2310-2390	9000-9200	² Above 38.6
8.362-8.366	37.5-38.25	322-335.4	2483.5-2500	9300-9500	

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

§ 15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



FCC Part 15 § 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m	Deasurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705-30	30	-	30
30-88	100**	40	3
88-216	150**	43.5	3
216-960	200**	46	3
Above 960	500	54	3

** Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

Note :

- 1) For above 1 GHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
- 2) For above 1 GHz, limit field strength of harmonics : 54 dBuV/m@3m (AV) and 74 dBuV/m@3m (PK)

We have done all test mode.

The worst-case antenna configuration and Test mode are determined to be as follows.

802.11b mode : ANT1, ANT2

802.11g mode : ANT1 + ANT2 (MIMO)

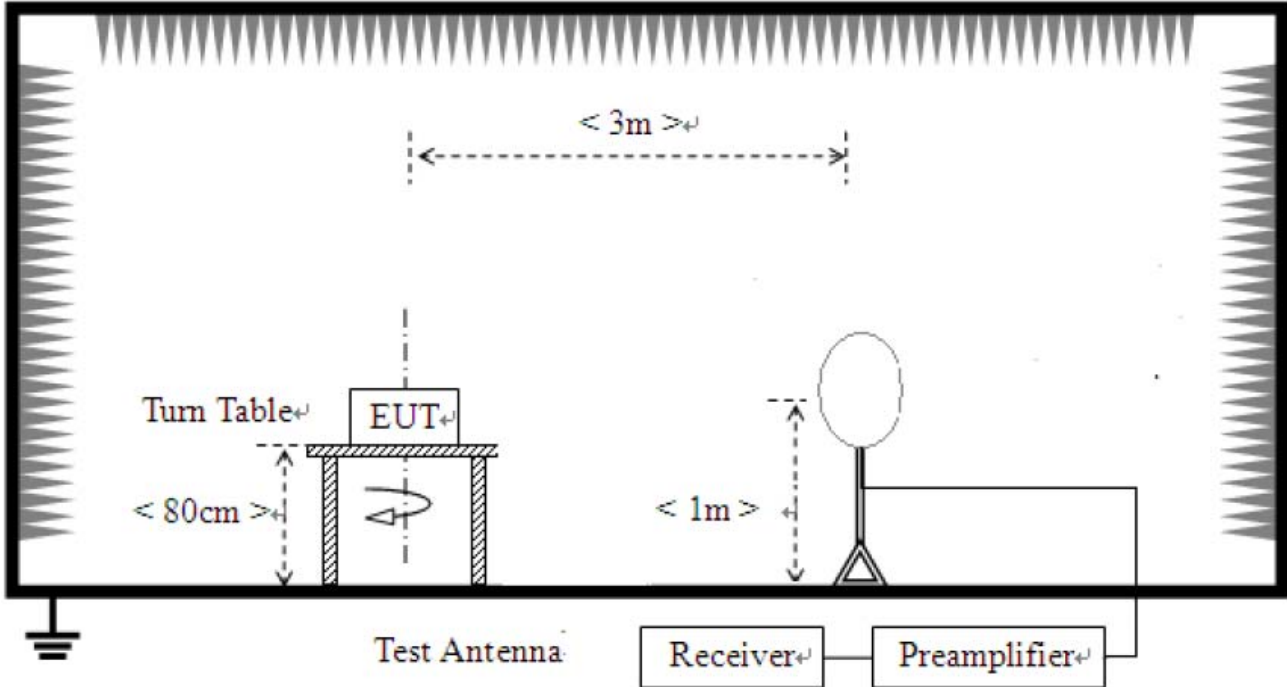
802.11n mode : ANT1 + ANT2 (MIMO)

802.11ax mode : ANT1 + ANT2 (MIMO)

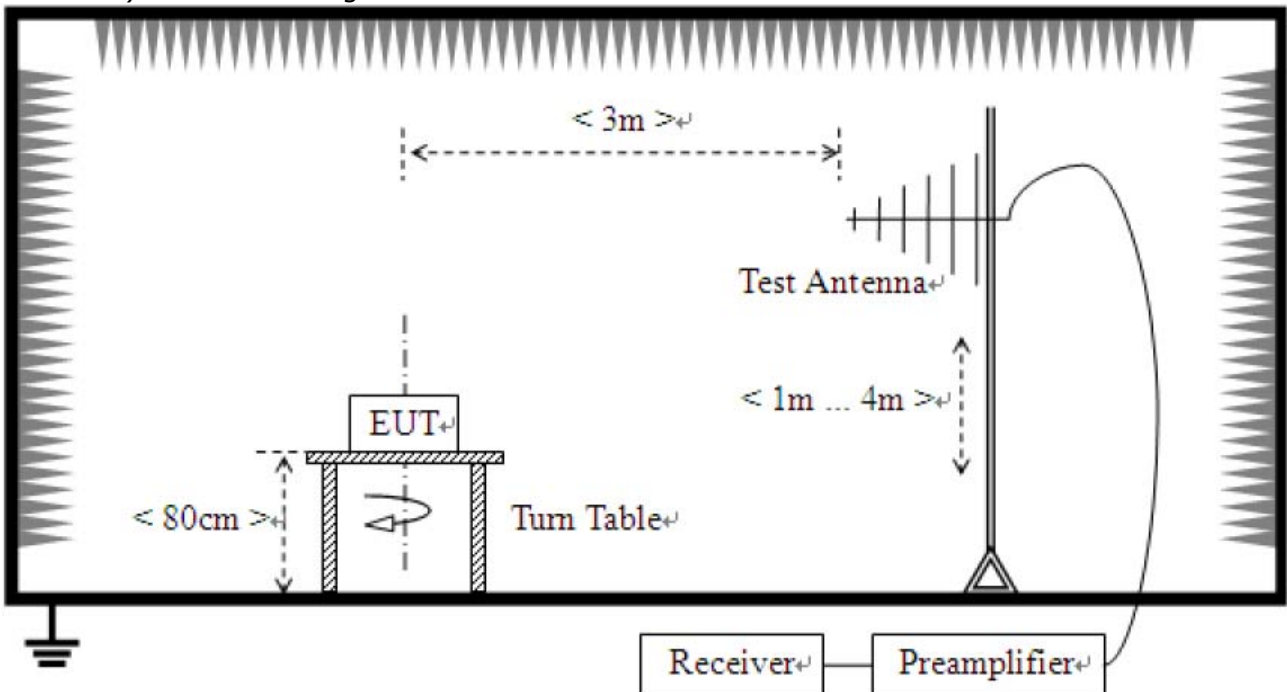
So the results are only attached worst cases.

Test Setup:

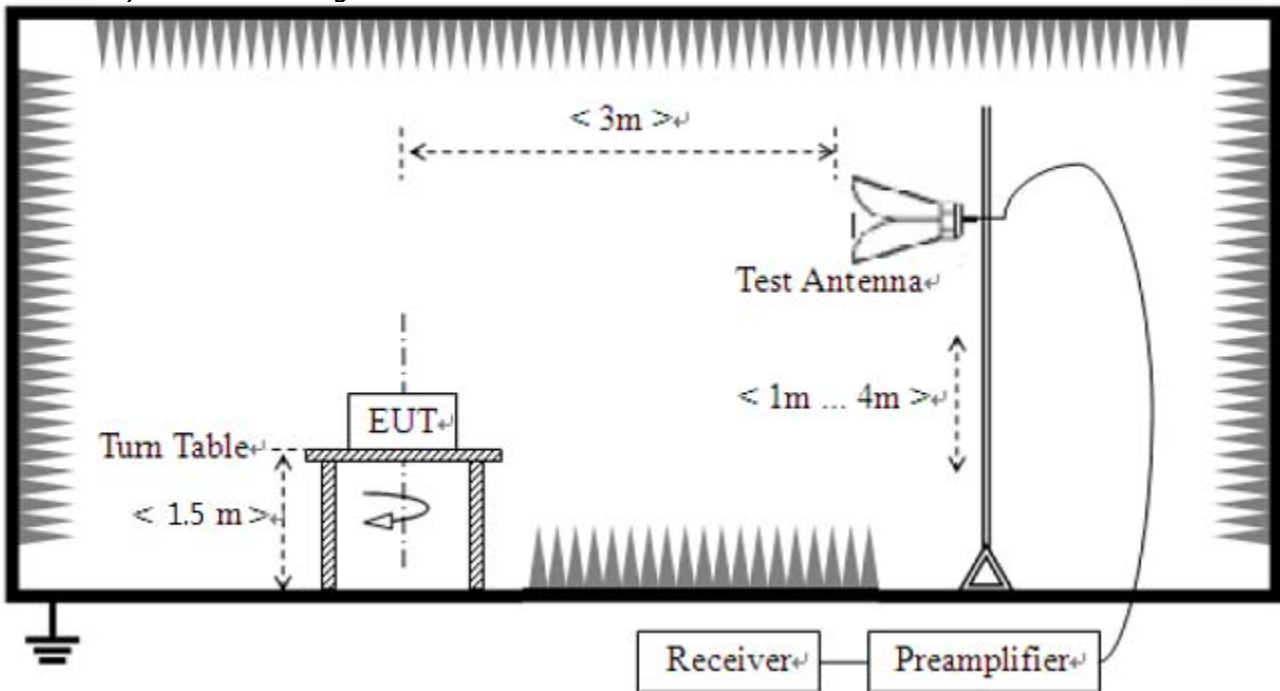
- 1) For field strength of emissions from 9 kHz to 30 MHz



- 2) For field strength of emissions from 30 MHz to 1 GHz



3) For field strength of emissions above 1 GHz



Test results

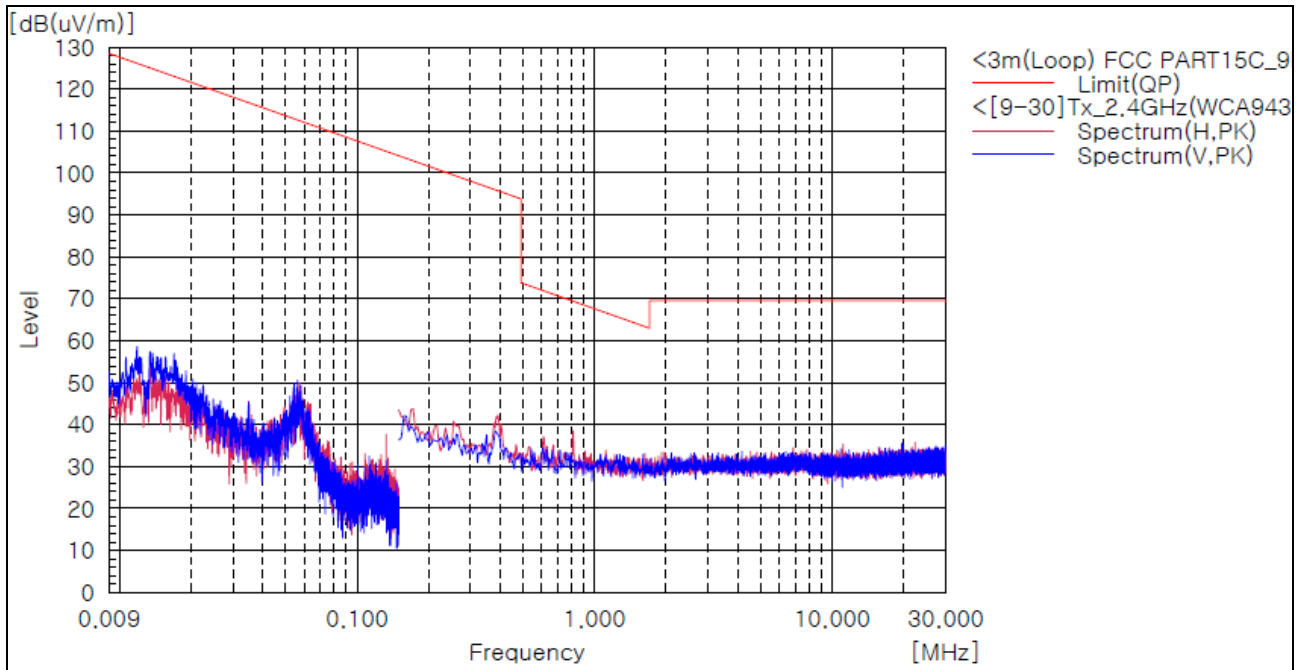
1) 9 kHz to 30 MHz

Test mode : Transmitter (Worst Case)

The requirements are:

Complies

Test Data



Frequency [MHz]	(P)	Reading [dBuV]	c.f [dB(1/m)]	Level [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]
-----------------	-----	----------------	---------------	------------------	------------------	-------------

The emissions 9 kHz to 30 MHz were 20 dB lower than the limit.

Remark :

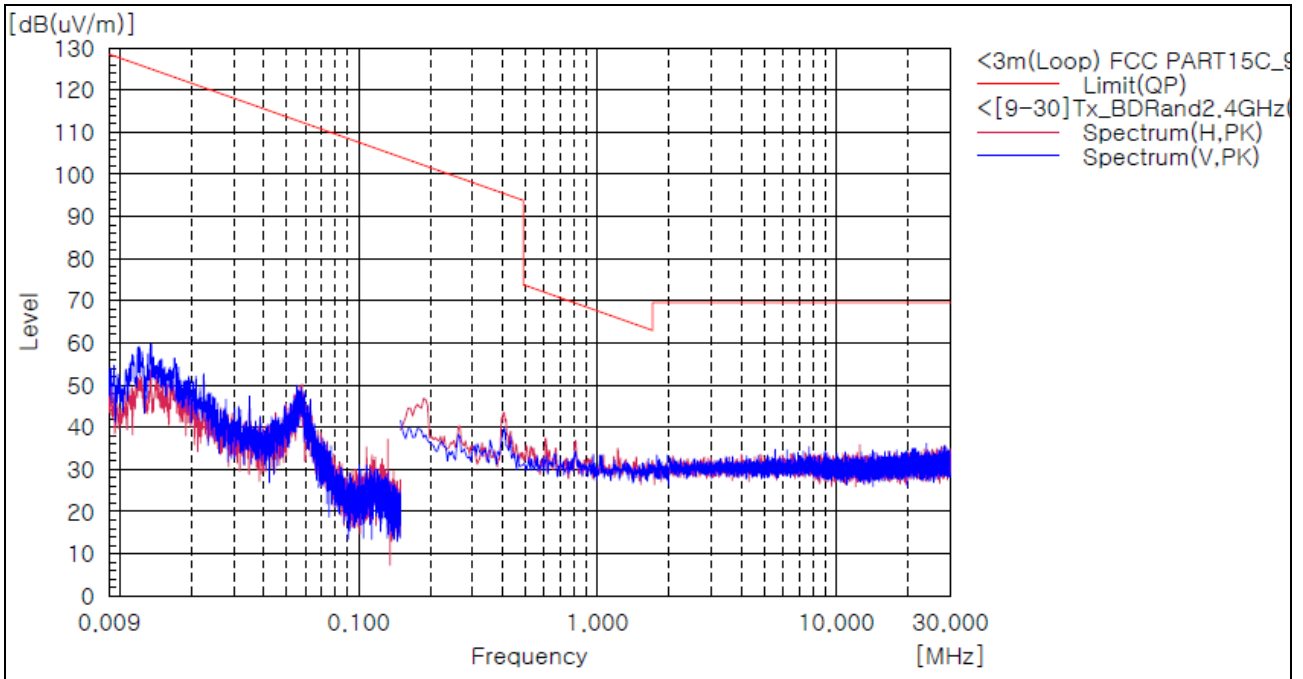
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain
4. This data is the Peak(PK) value.

Test mode : Transmitter (simultaneous transmissions BDR + DTS)

The requirements are:

Complies

Test Data



Frequency [MHz]	(P)	Reading [dBuV]	c.f [dB(1/m)]	Level [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]
-----------------	-----	----------------	---------------	------------------	------------------	-------------

The emissions 9 kHz to 30 MHz were 20 dB lower than the limit.

Remark :

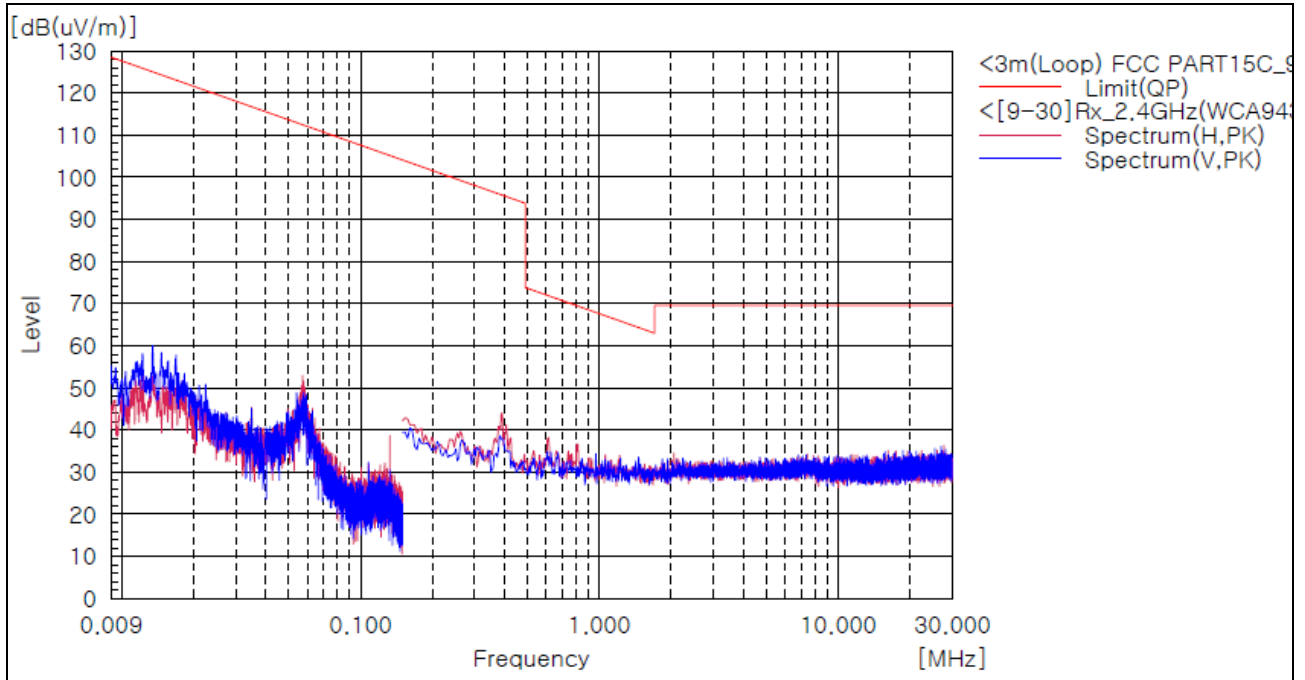
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain
4. This data is the Peak(PK) value.

Test mode : Receiver (Worst Case)

The requirements are:

Complies

Test Data



Frequency [MHz]	(P)	Reading [dBuV]	c.f [dB(1/m)]	Level [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]
-----------------	-----	----------------	---------------	------------------	------------------	-------------

The emissions 9 kHz to 30 MHz were 20 dB lower than the limit.

Remark :

1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain
4. This data is the Peak(PK) value.

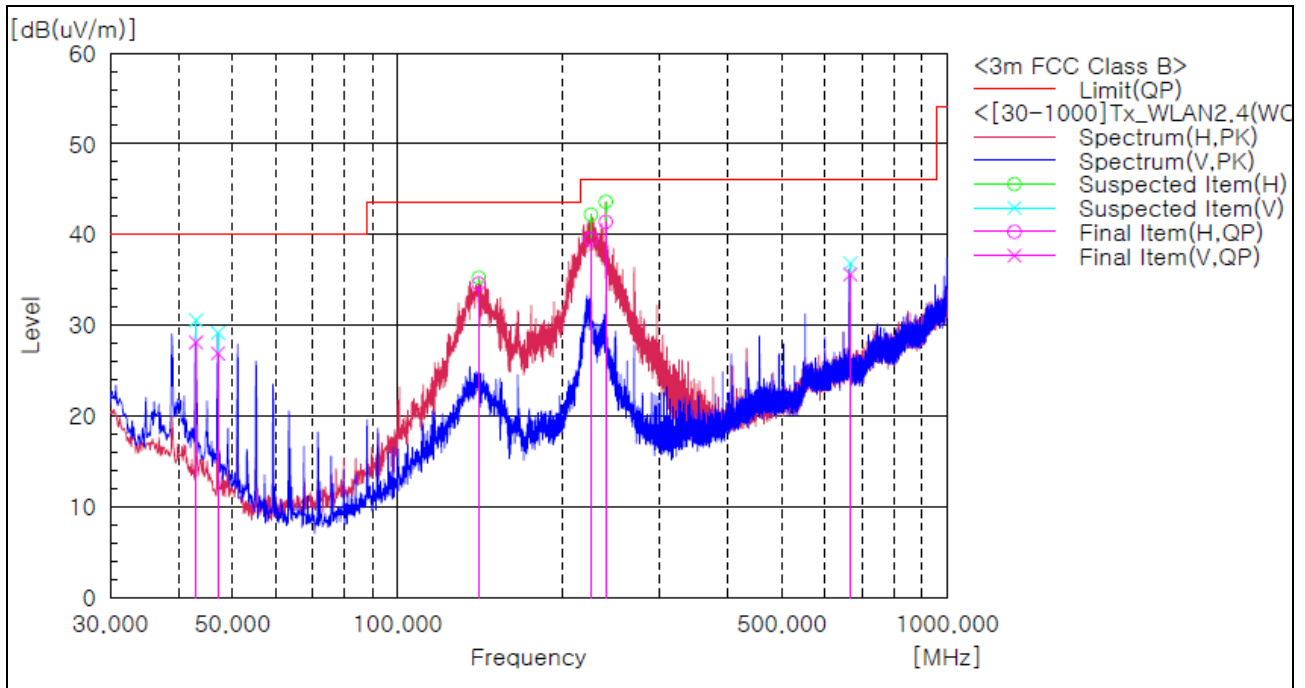
2) 30 MHz to 1 GHz

Test mode : Transmitter (Worst Case)

The requirements are:

Complies

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	42.974	V	40.9	-12.8	28.1	40.0	11.9	100.0	165.0
2	47.096	V	42.0	-15.1	26.9	40.0	13.1	100.0	349.0
3	140.580	H	46.5	-11.9	34.6	43.5	8.9	208.0	205.0
4	225.091	H	52.4	-12.9	39.5	46.0	6.5	208.0	37.0
5	239.278	H	52.4	-11.0	41.4	46.0	4.6	100.0	4.0
6	666.441	V	34.6	1.0	35.6	46.0	10.4	100.0	135.0

Remark :

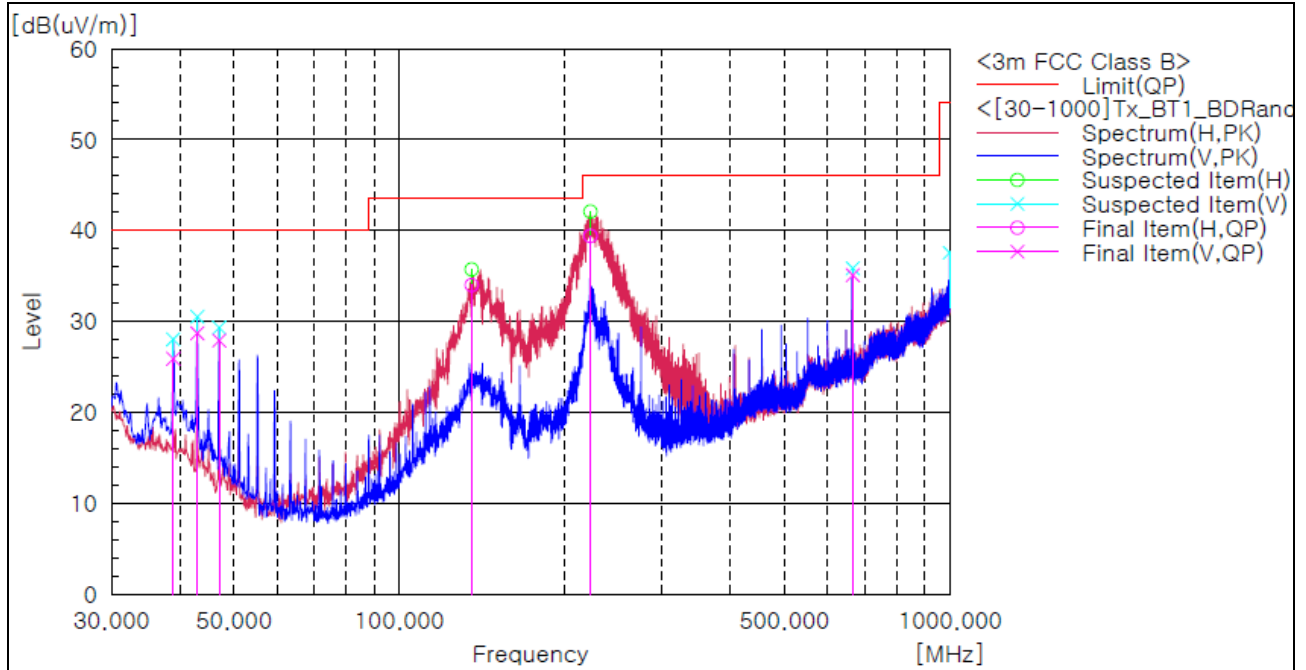
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain

Test mode : Transmitter (simultaneous transmissions BDR + DTS)

The requirements are:

Complies

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	38.851	V	36.0	-10.1	25.9	40.0	14.1	100.0	112.0
2	42.974	V	41.5	-12.8	28.7	40.0	11.3	100.0	289.0
3	47.096	V	43.0	-15.1	27.9	40.0	12.1	100.0	282.0
4	135.366	H	45.7	-11.7	34.0	43.5	9.5	209.0	214.0
5	222.424	H	52.4	-13.0	39.4	46.0	6.6	101.0	8.0
6	666.563	V	34.1	1.0	35.1	46.0	10.9	100.0	152.0

Remark :

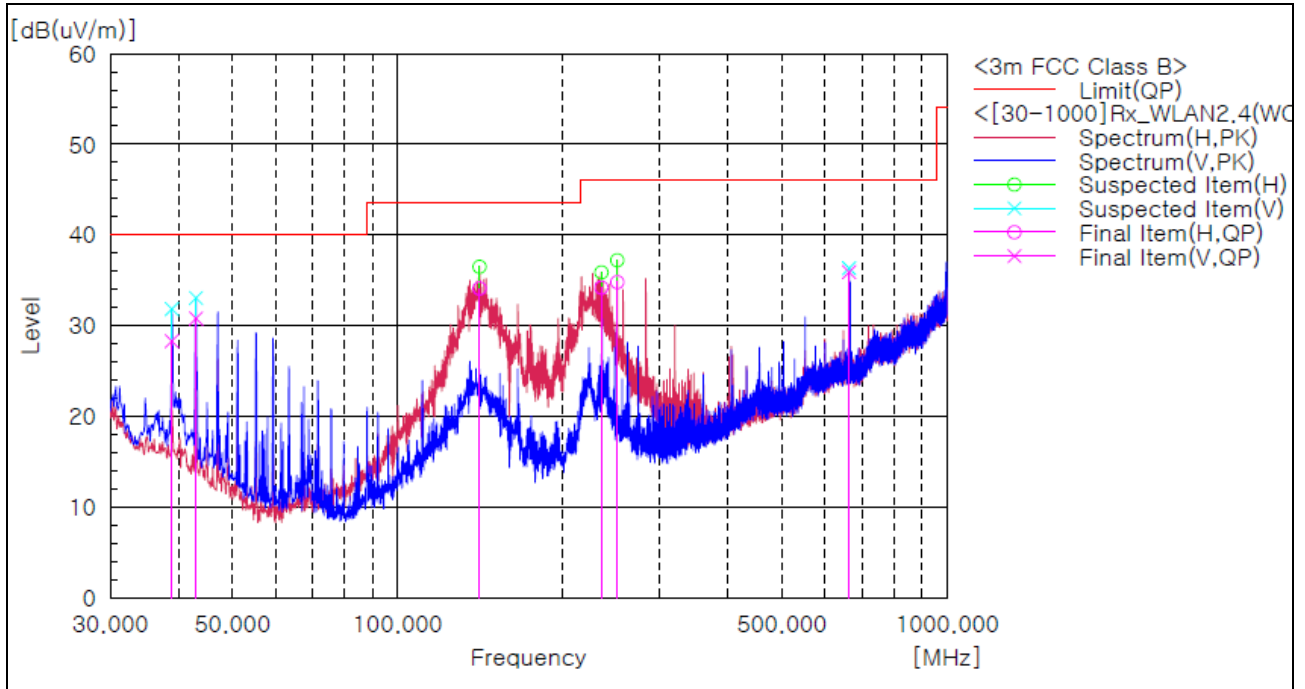
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain

Test mode : Receiver (Worst Case)

The requirements are:

Complies

Test Data



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	38.851	V	38.4	-10.1	28.3	40.0	11.7	101.0	288.0
2	42.974	V	43.6	-12.8	30.8	40.0	9.2	101.0	329.0
3	141.065	H	46.0	-11.9	34.1	43.5	9.4	209.0	218.0
4	235.155	H	45.9	-11.7	34.2	46.0	11.8	101.0	251.0
5	251.160	H	44.2	-9.4	34.8	46.0	11.2	101.0	8.0
6	663.774	V	34.9	1.0	35.9	46.0	10.1	101.0	218.0

Remark :

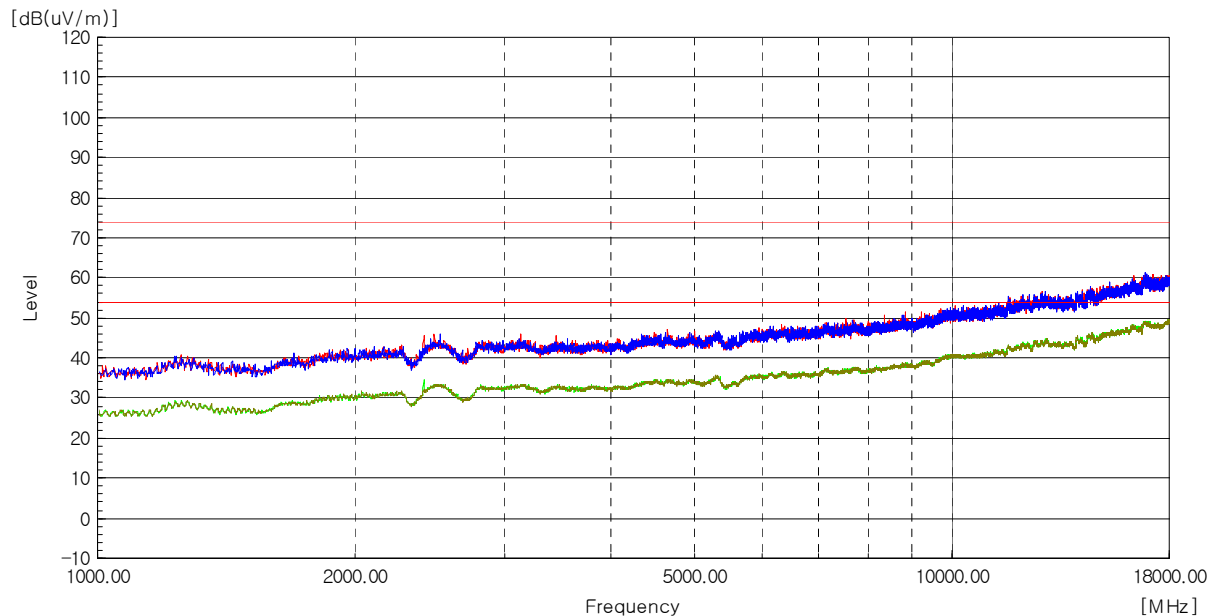
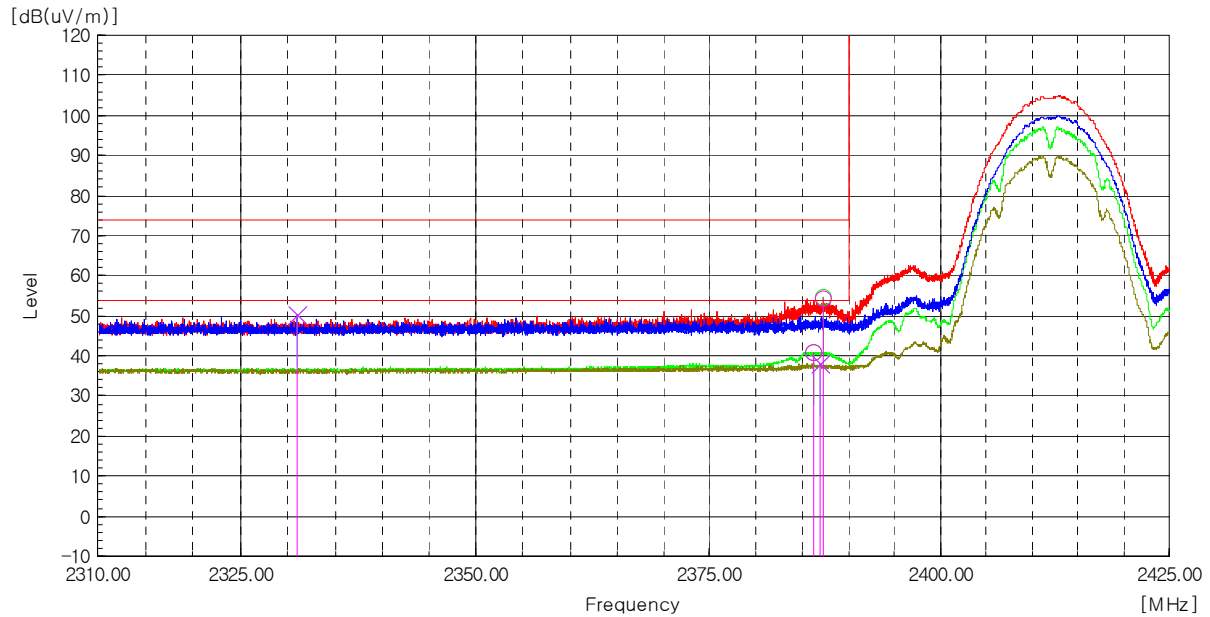
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor + Cable loss + 6 dB attenuator - Amp Gain

3) above 1 GHz

The requirements are:

Complies

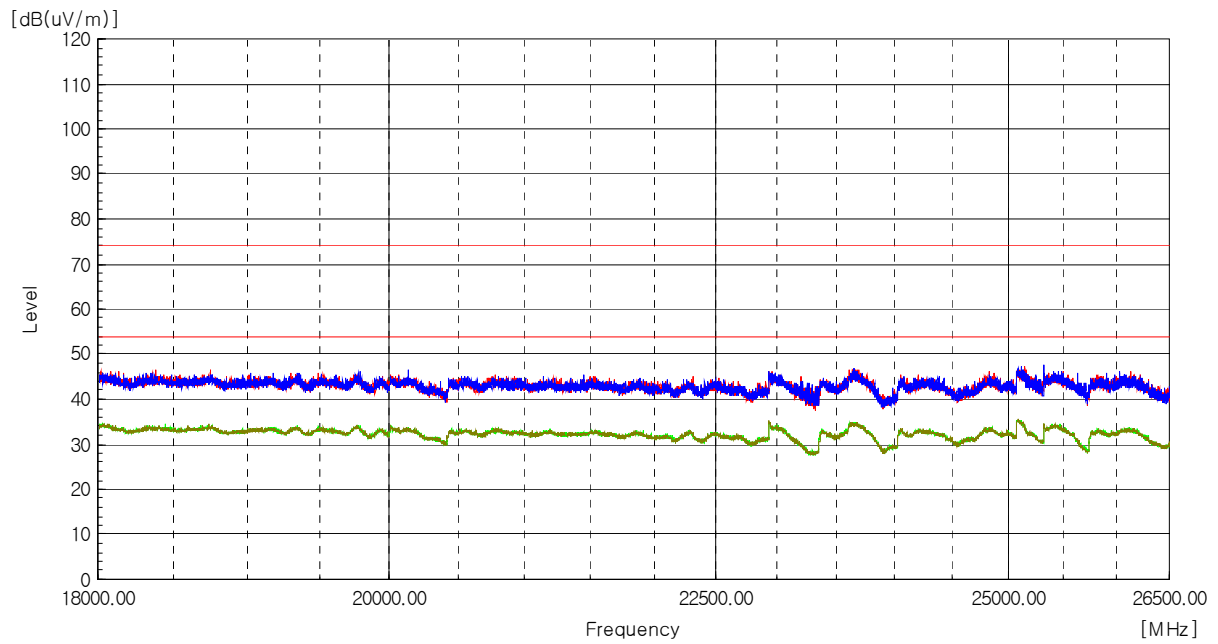
Test Data





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Test mode : Transmitter (802.11b, ANT1)

Low (2 412 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 389.74	H	54.0	-----	-3.1	50.9	-----	-----	74.0	-----	23.1	-----
2 389.38	H	-----	43.3	-3.1	-----	40.2	0.0	-----	54.0	-----	13.8
2 387.32	V	56.6	-----	-3.1	53.5	-----	-----	74.0	-----	20.5	-----
2 387.19	V	-----	45.4	-3.1	-----	42.3	0.0	-----	54.0	-----	11.7

Mid (2 442 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
The emissions above 1 GHz were 20 dB lower than the limit.											

High (2 472 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 485.81	H	60.0	-----	-2.5	57.5	-----	-----	74.0	-----	16.5	-----
2 485.32	H	-----	50.7	-2.5	-----	48.2	0.0	-----	54.0	-----	5.8
2 485.51	V	61.1	-----	-2.5	58.6	-----	-----	74.0	-----	15.4	-----
2 485.51	V	-----	53.3	-2.5	-----	50.8	0.0	-----	54.0	-----	3.2

Remarks

1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Peak Result = Reading + c.f(Correction factor)
 Average Result = Reading + c.f(Correction factor) + Duty Cycle Factor
3. Correction factor = Antenna factor + Cable loss - Amp Gain



Test mode : Transmitter (802.11b, ANT2)

Low (2 412 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 387.60	H	55.0	-----	-3.1	51.9	-----	-----	74.0	-----	22.1	-----
2 387.93	H	-----	44.3	-3.1	-----	41.2	0.0	-----	54.0	-----	12.8
2 388.39	V	55.5	-----	-3.1	52.4	-----	-----	74.0	-----	21.6	-----
2 385.33	V	-----	41.3	-3.1	-----	38.2	0.0	-----	54.0	-----	15.8

Mid (2 442 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
The emissions above 1 GHz were 20 dB lower than the limit.											

High (2 472 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 486.10	H	59.6	-----	-2.5	57.1	-----	-----	74.0	-----	16.9	-----
2 485.54	H	-----	52.3	-2.5	-----	49.8	0.0	-----	54.0	-----	4.2
2 485.21	V	58.5	-----	-2.5	56.0	-----	-----	74.0	-----	18.0	-----
2 485.59	V	-----	46.2	-2.5	-----	43.7	0.0	-----	54.0	-----	10.3

Remarks

1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Peak Result = Reading + c.f(Correction factor)
 Average Result = Reading + c.f(Correction factor) + Duty Cycle Factor
3. Correction factor = Antenna factor + Cable loss - Amp Gain



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Test mode : Transmitter (802.11g)

Low (2 412 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 386.22	H	67.8	-----	-3.1	64.7	-----	-----	74.0	-----	9.3	-----
2 390.00	H	-----	47.5	-3.1	-----	44.4	0.1	-----	54.0	-----	9.5
2 385.24	V	70.6	-----	-3.1	67.5	-----	-----	74.0	-----	6.5	-----
2 389.82	V	-----	47.7	-3.1	-----	44.6	0.1	-----	54.0	-----	9.3

Mid (2 442 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
The emissions above 1 GHz were 20 dB lower than the limit.											

High (2 472 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 483.82	H	70.2	-----	-2.5	67.7	-----	-----	74.0	-----	6.3	-----
2 486.78	H	-----	54.4	-2.5	-----	51.9	0.1	-----	54.0	-----	2.0
2 483.54	V	70.0	-----	-2.5	67.5	-----	-----	74.0	-----	6.5	-----
2 484.11	V	-----	54.4	-2.5	-----	51.9	0.1	-----	54.0	-----	2.0

Remarks

1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Peak Result = Reading + c.f(Correction factor)
 Average Result = Reading + c.f(Correction factor) + Duty Cycle Factor
3. Correction factor = Antenna factor + Cable loss - Amp Gain



Test mode : Transmitter (802.11n_HT20)

Low (2 412 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 383.44	H	67.0	-----	-3.1	63.9	-----	-----	74.0	-----	10.1	-----
2 389.84	H	-----	46.6	-3.1	-----	43.5	0.1	-----	54.0	-----	10.4
2 387.22	V	71.2	-----	-3.1	68.1	-----	-----	74.0	-----	5.9	-----
2 389.68	V	-----	45.8	-3.1	-----	42.7	0.1	-----	54.0	-----	11.2

Mid (2 442 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
The emissions above 1 GHz were 20 dB lower than the limit.											

High (2 472 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 484.72	H	68.4	-----	-2.5	65.9	-----	-----	74.0	-----	8.1	-----
2 484.73	H	-----	52.4	-2.5	-----	49.9	0.1	-----	54.0	-----	4.0
2 485.23	V	69.2	-----	-2.5	66.7	-----	-----	74.0	-----	7.3	-----
2 483.62	V	-----	53.7	-2.5	-----	51.2	0.1	-----	54.0	-----	2.7

Remarks

1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Peak Result = Reading + c.f(Correction factor)
 Average Result = Reading + c.f(Correction factor) + Duty Cycle Factor
3. Correction factor = Antenna factor + Cable loss - Amp Gain



Test mode : Transmitter (802.11ax_HE20)

Low (2 412 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 387.165	H	66	-----	-3.1	62.9	-----	-----	74	-----	11.1	-----
2 388.919	H	-----	48.7	-3.1	-----	45.6	0.3	-----	54	-----	8.1
2 388.473	V	70.5	-----	-3.1	67.4	-----	-----	74	-----	6.6	-----
2 388.315	V	-----	48	-3.1	-----	44.9	0.3	-----	54	-----	8.8

Mid (2 442 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
The emissions above 1 GHz were 20 dB lower than the limit.											

High (2 472 MHz)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 484.313	H	67.3	-----	-2.5	64.8	-----	-----	74	-----	9.2	-----
2 483.819	H	-----	52	-2.5	-----	49.5	0.3	-----	54	-----	4.2
2 483.769	V	70.1	-----	-2.5	67.6	-----	-----	74	-----	6.4	-----
2 483.506	V	-----	51.9	-2.5	-----	49.4	0.3	-----	54	-----	4.3

Remarks

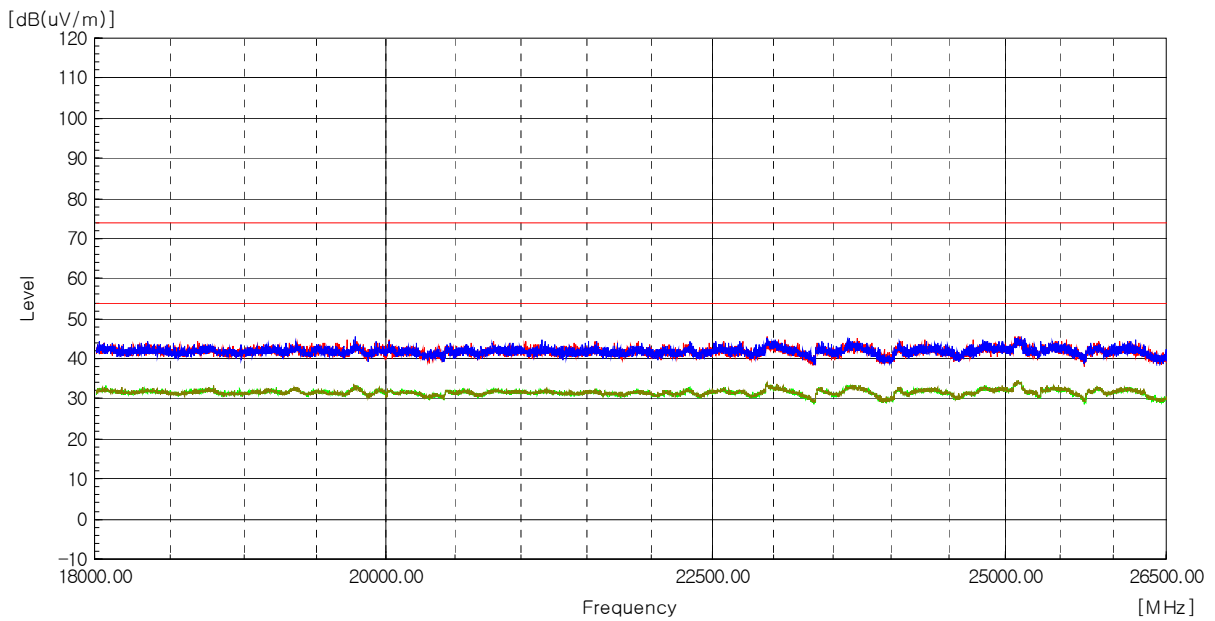
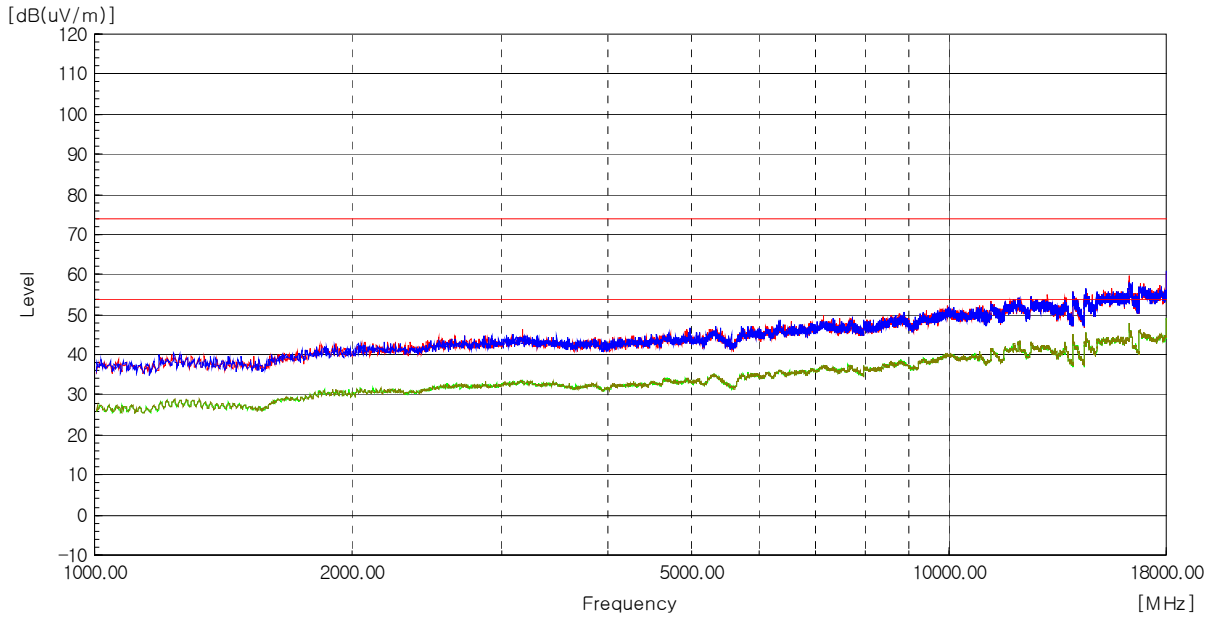
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Peak Result = Reading + c.f(Correction factor)
 Average Result = Reading + c.f(Correction factor) + Duty Cycle Factor
3. Correction factor = Antenna factor + Cable loss - Amp Gain



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Test mode : Receiver (Worst Case)





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Report No.:
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Test mode : Receiver (Worst Case)

Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
--------------------	-----	-------------------------	-------------------------	------------------	------------------------	------------------------	---------------------------------	------------------------	------------------------	----------------------	----------------------

The emissions above 1 GHz were 20 dB lower than the limit.

Remarks

1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Peak Result = Reading + c.f(Correction factor)
Average Result = Reading + c.f(Correction factor) + Duty Cycle Factor
3. Correction factor = Antenna factor + Cable loss - Amp Gain



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4.6 AC Conducted Emissions

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Procedures

RSS-Gen - Section 8.8

Module has been tested by mounting the End product(Printer).

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

Limit

- 15.207(a)

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average**
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50

* The level decreases linearly with the logarithm of the frequency.

** A linear average detector is required.

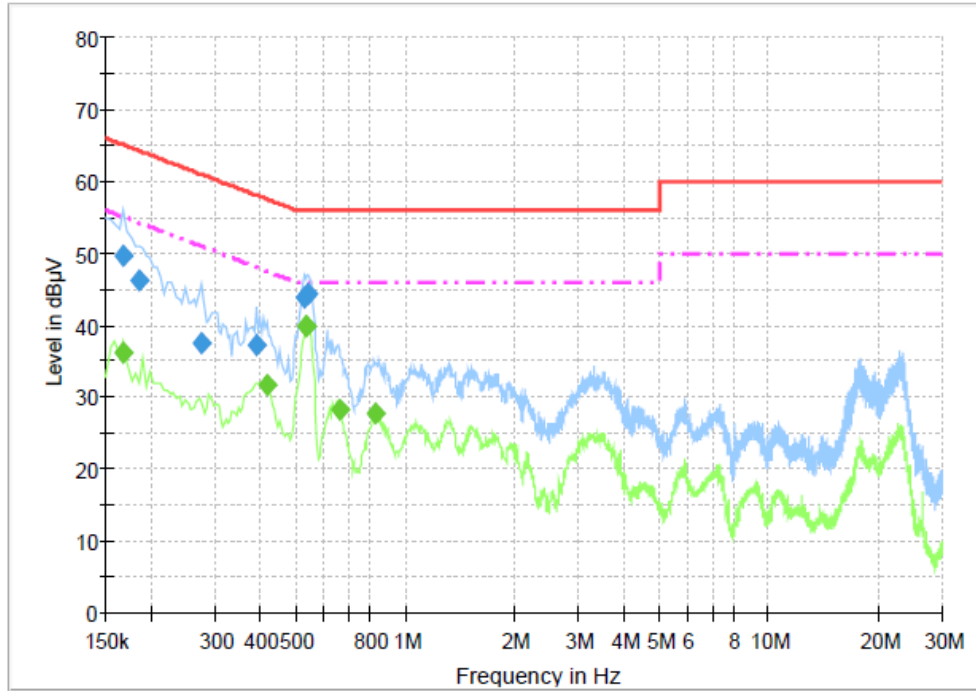
Test Results

The requirements are:

Complies

Test Data

[LINE] 3CE_Class B_L1



Final Result 1

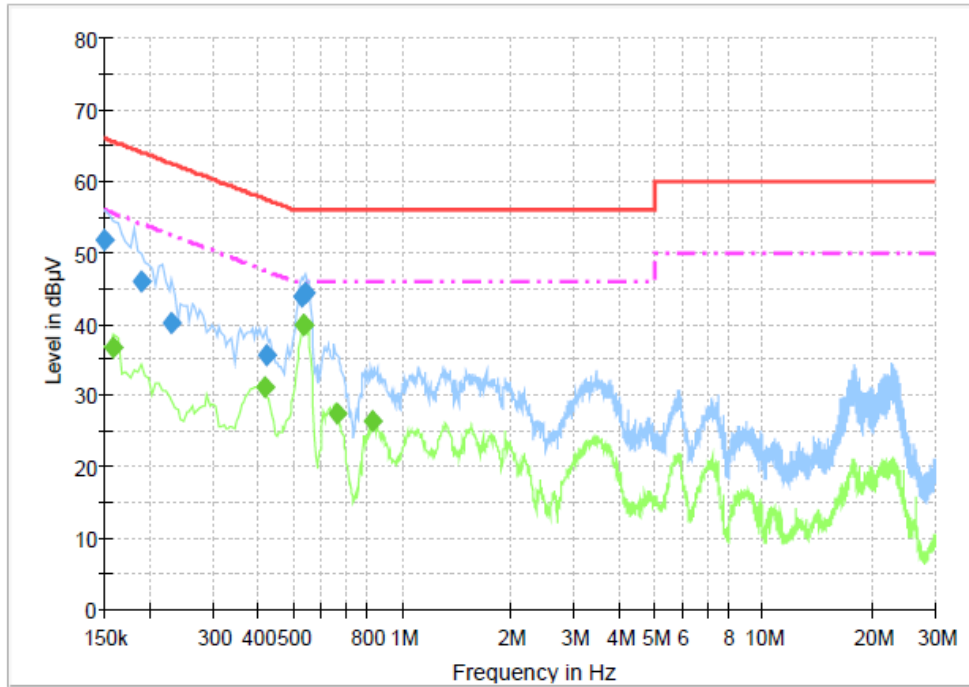
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.168000	49.7	1000.0	9.000	On	L1	9.8	15.3	65.1
0.186000	46.2	1000.0	9.000	On	L1	9.8	18.0	64.2
0.276000	37.6	1000.0	9.000	On	L1	9.8	23.4	60.9
0.388500	37.2	1000.0	9.000	On	L1	10.0	20.9	58.1
0.528000	43.9	1000.0	9.000	On	L1	10.0	12.1	56.0
0.541500	44.3	1000.0	9.000	On	L1	10.0	11.7	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.168000	36.1	1000.0	9.000	On	L1	9.8	18.9	55.1
0.415500	31.8	1000.0	9.000	On	L1	10.0	15.8	47.5
0.532500	39.9	1000.0	9.000	On	L1	10.0	6.1	46.0
0.537000	40.0	1000.0	9.000	On	L1	10.0	6.0	46.0
0.663000	28.4	1000.0	9.000	On	L1	9.9	17.6	46.0
0.829500	27.7	1000.0	9.000	On	L1	9.8	18.3	46.0

[NEUTRAL]

3CE_Class B_N



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	51.7	1000.0	9.000	On	N	9.8	14.3	66.0
0.190500	45.9	1000.0	9.000	On	N	9.8	18.2	64.0
0.231000	40.1	1000.0	9.000	On	N	9.8	22.3	62.4
0.420000	35.6	1000.0	9.000	On	N	10.0	21.9	57.4
0.528000	43.8	1000.0	9.000	On	N	10.0	12.2	56.0
0.541500	44.2	1000.0	9.000	On	N	10.0	11.8	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.159000	36.8	1000.0	9.000	On	N	9.8	18.7	55.5
0.415500	31.1	1000.0	9.000	On	N	10.0	16.5	47.5
0.532500	39.9	1000.0	9.000	On	N	10.0	6.1	46.0
0.537000	39.9	1000.0	9.000	On	N	10.0	6.1	46.0
0.663000	27.4	1000.0	9.000	On	N	9.9	18.6	46.0
0.829500	26.3	1000.0	9.000	On	N	9.8	19.7	46.0



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APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date
1	Signal Analyzer	Agilent	N9020A	MY50200512	2020-05-25	2021-05-25
2	Signal Generator	Rohde & Schwarz	SMB100A	175528	2020-04-28	2021-04-28
3	EMI Test Receiver	Rohde & Schwarz	ESCI7	100814	2020-10-20	2021-10-20
4	Bilog Antenna	Schaffner	CBL6111C	2551	2020-05-26	2022-05-26
5	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-126	2020-05-20	2022-05-20
6	6dB Attenuator	R&S	DNF	272.4110.50-2	2020-10-23	2021-10-23
7	6dB Attenuator	BIRD	5W 6dB	1744	2020-01-13	2021-01-03
8	AMPLIFIER	SONOMA	310	291721	2020-01-22	2021-01-22
9	EMI Test Receiver	Rohde & Schwarz	ESU40	100336	2020-01-17	2021-01-17
10	Preamplifier	Agilent	8449B	3008A01504	2019-12-17	2020-12-17
11	Horn Antenna	ETS-Lindgren	3117	00154525	2020-10-14	2021-10-14
12	Horn Antenna	SCHWARZBECK	BBHA9170	00967	2020-06-02	2021-06-02
13	Band Reject Filter	Micro Tronics	BRM50702	G233	2020-01-21	2021-01-21
14	Low Noise Amplifier	TESTEK	TK-PA1840H	200115-L	2020-05-29	2021-05-29
15	LISN	Rohde & Schwarz	ENV216	101235	2020-01-17	2021-01-17

	Cable	Manufacturer	Model No.	Serial No.	Check Date
1	RF Cable	Canare Corporation	L-5D2W	N/A	2020-01-19
2	RF Cable	Junkosha Inc.	MWX221	1512S127	2020-11-05
3	RF Cable	HUBER+SUHNER	SUCOFLEX 102	MY073/2	2020-05-19
4	RF Cable	HUBER+SUHNER	SUCOFLEX 104	MY27558/4	2020-05-29
5	RF Cable	HUBER+SUHNER	SUCOFLEX 104	N/A	2020-05-29
6	RF Cable	HUBER+SUHNER	SUCOFLEX 104	MY27573/4	2020-05-29
7	RF Cable	HUBER+SUHNER	SUCOFLEX 106	N/A	2020-05-29
8	RF Cable	HUBER+SUHNER	SUCOFLEX 102	803010/2	2020-10-27
9	RF Cable	HUBER+SUHNER	SUCOFLEX 102	803742/2	2020-10-27
10	RF Cable	HUBER+SUHNER	SUCOFLEX 102	MY2374/2	2020-05-07
11	RF Cable	HUBER+SUHNER	SUCOFLEX 102	MY4728/2	2020-05-07