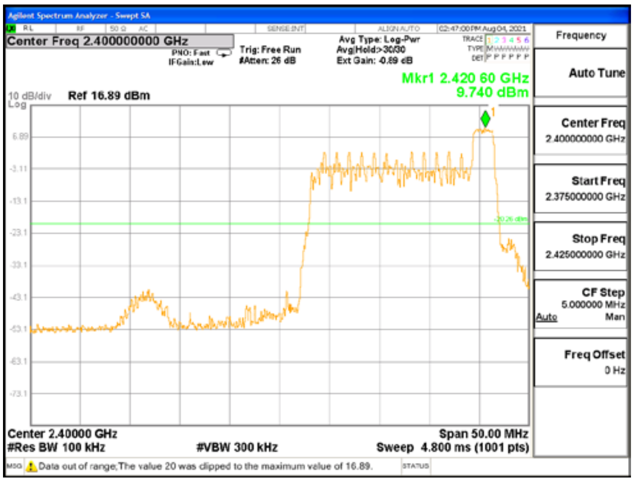
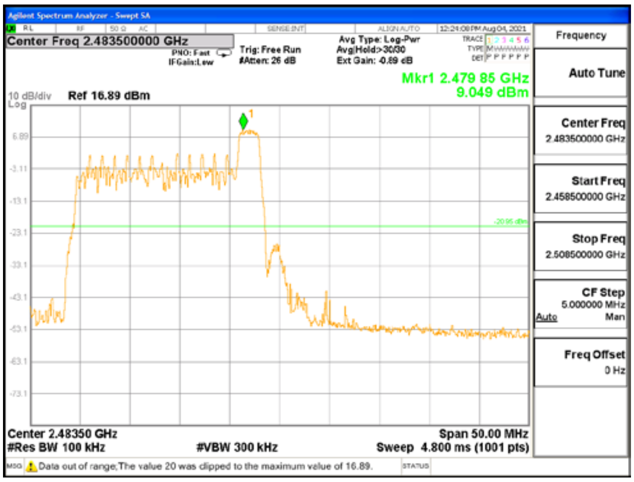
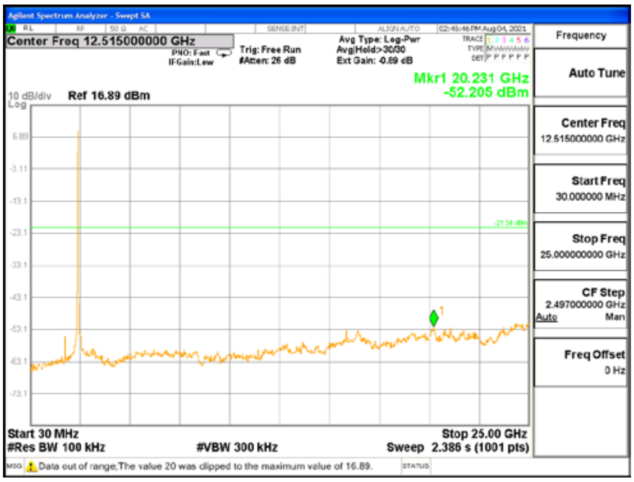
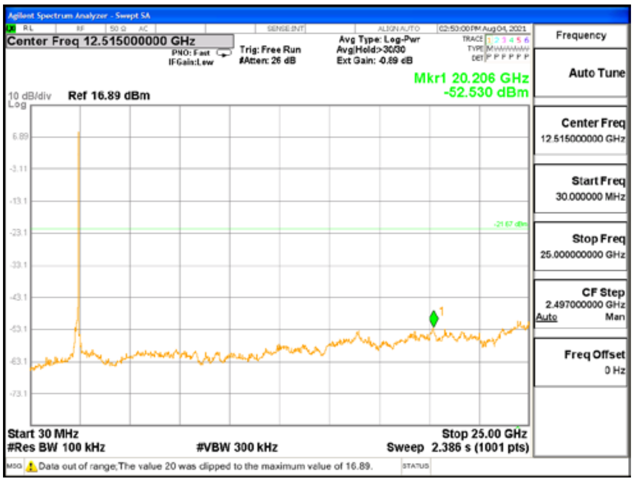
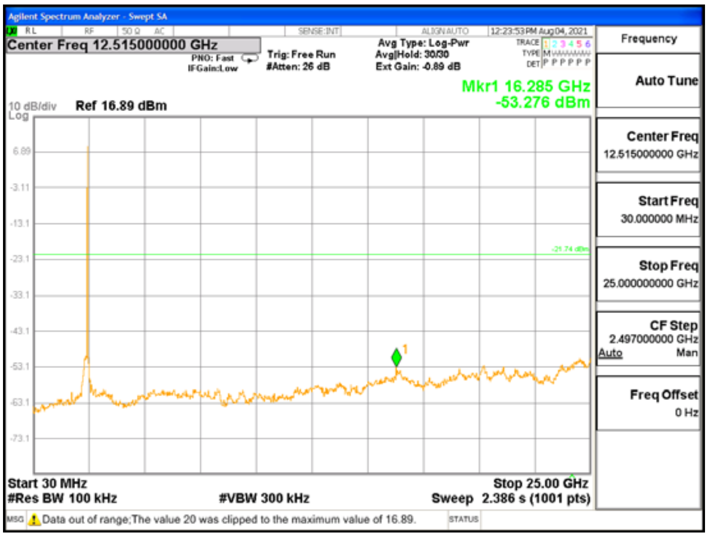


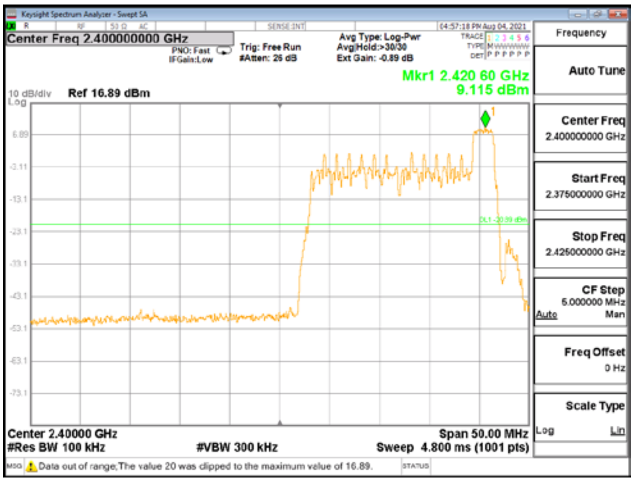


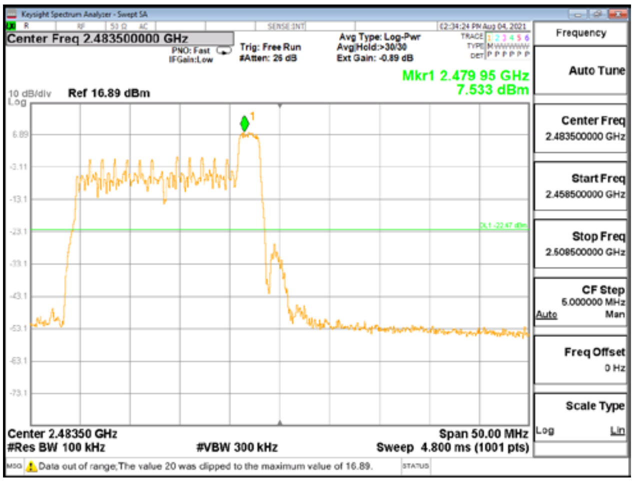


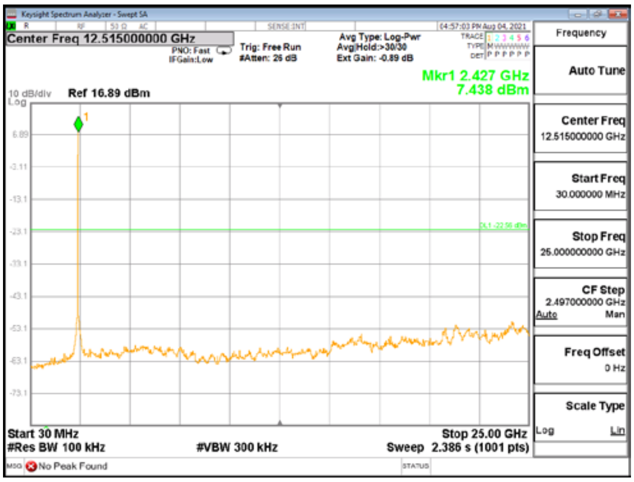


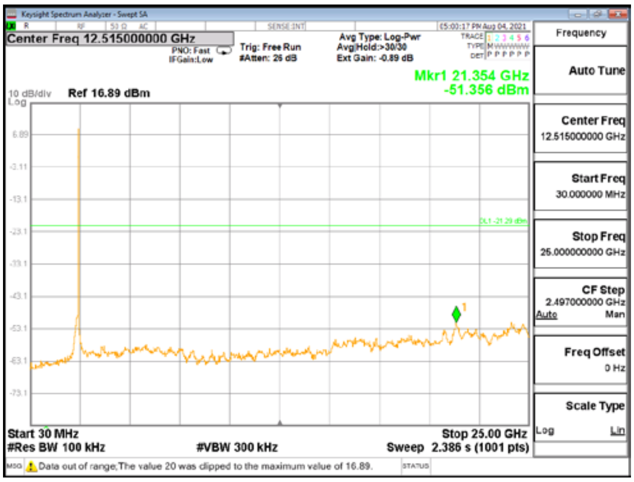


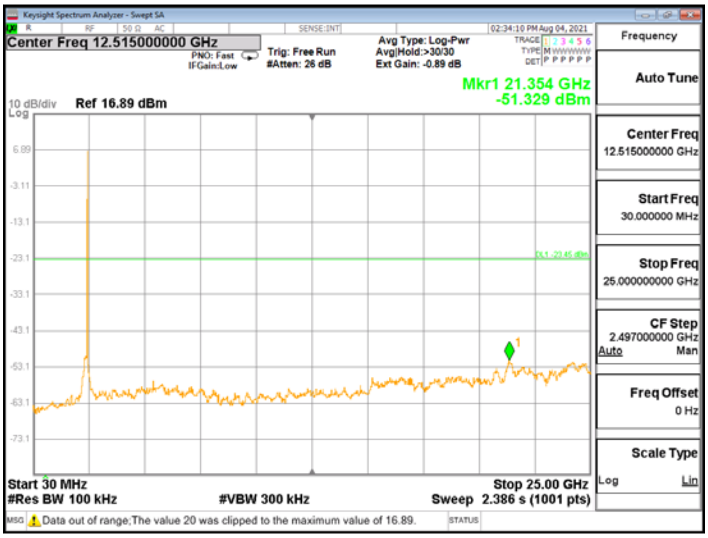
ANT1, 802.11ax_HE20_26T_High











ANT2, 802.11ax_HE20_26T_High

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 rage 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 ≥ 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 ≥ 3 x RBW

c) Detector = Peak

d) Sweep time = auto

e) Trace mode = max hold

- Average (duty cycle ≥ 98%)

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

a) RBW = 1 MHz

b) VBW ≥ 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)

- 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

c) Detector = RMS

d) Sweep time = auto

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

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

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_SU	0.31
802.11ax_HE20_26T	0.24

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 is 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)

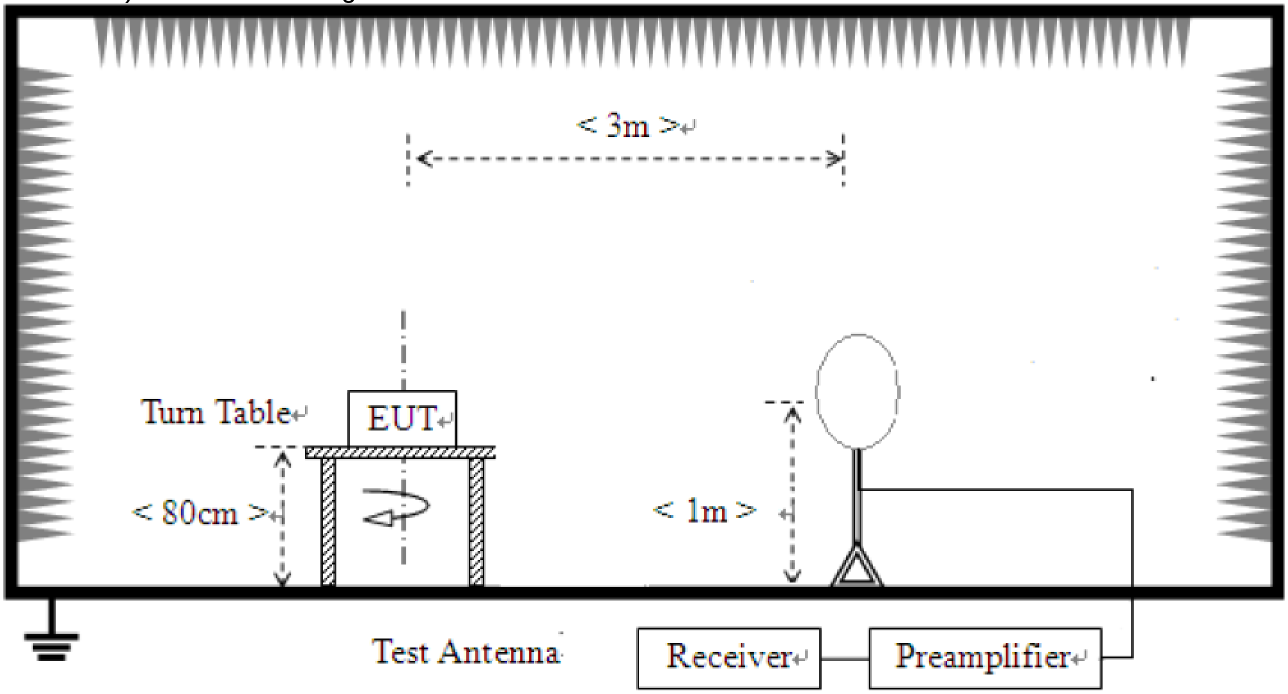
So the results are only attached worst cases.

802.11ax Test RU Index for Tones

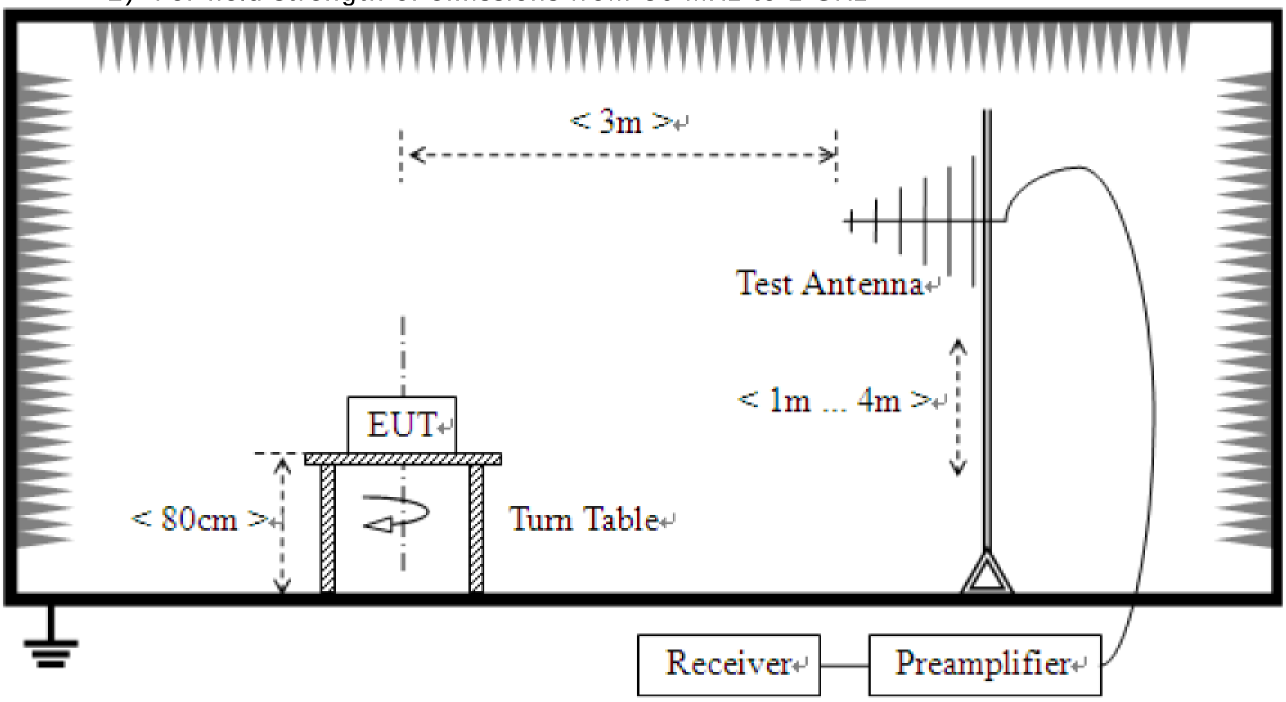
Mode	Bandwidth (MHz)	Frequency (MHz)	Tones	Test RU offset	
				Band Edge	Spurious Emission
802.11ax	20	2 412	26T	0	-
				-	4
				-	-
			SU	61	61
		2 442	26T	-	-
				-	4
				-	-
			SU	-	61
		2 472	26T	-	-
				-	4
				8	-
			SU	61	61

Test Setup:

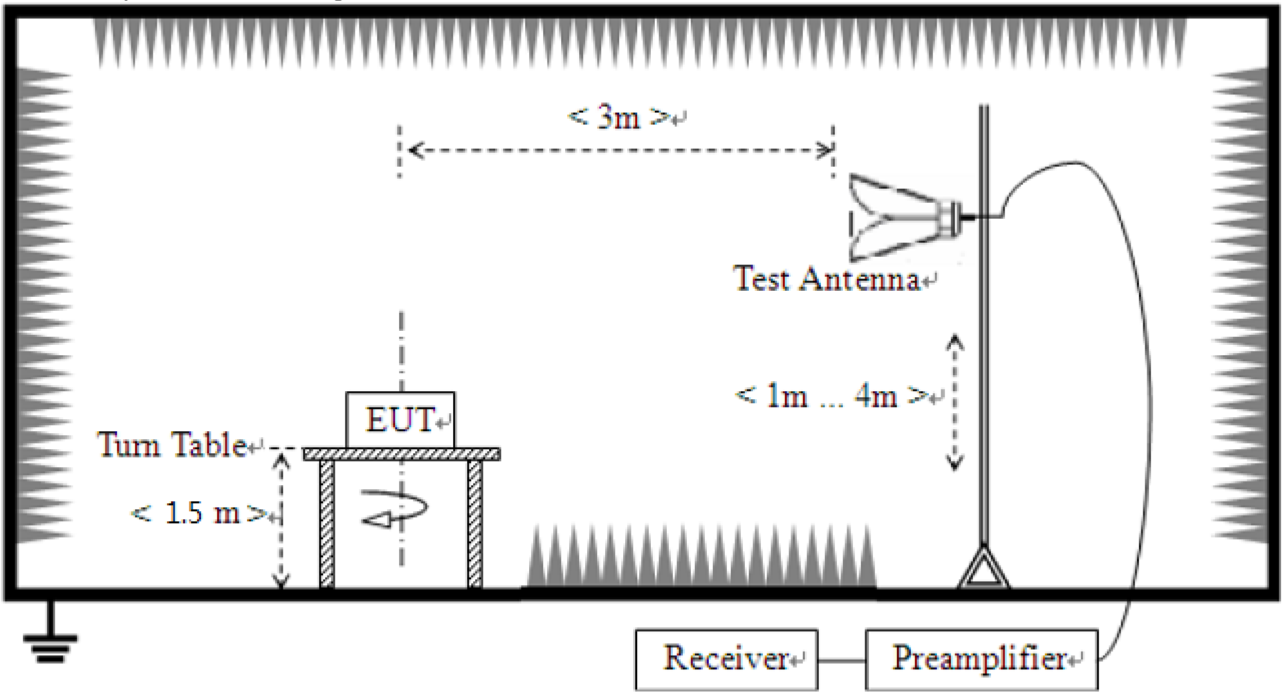
1) For field strength of emissions from 9 kHz to 30 MHz



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



3) For field strength of emissions above 1 GHz



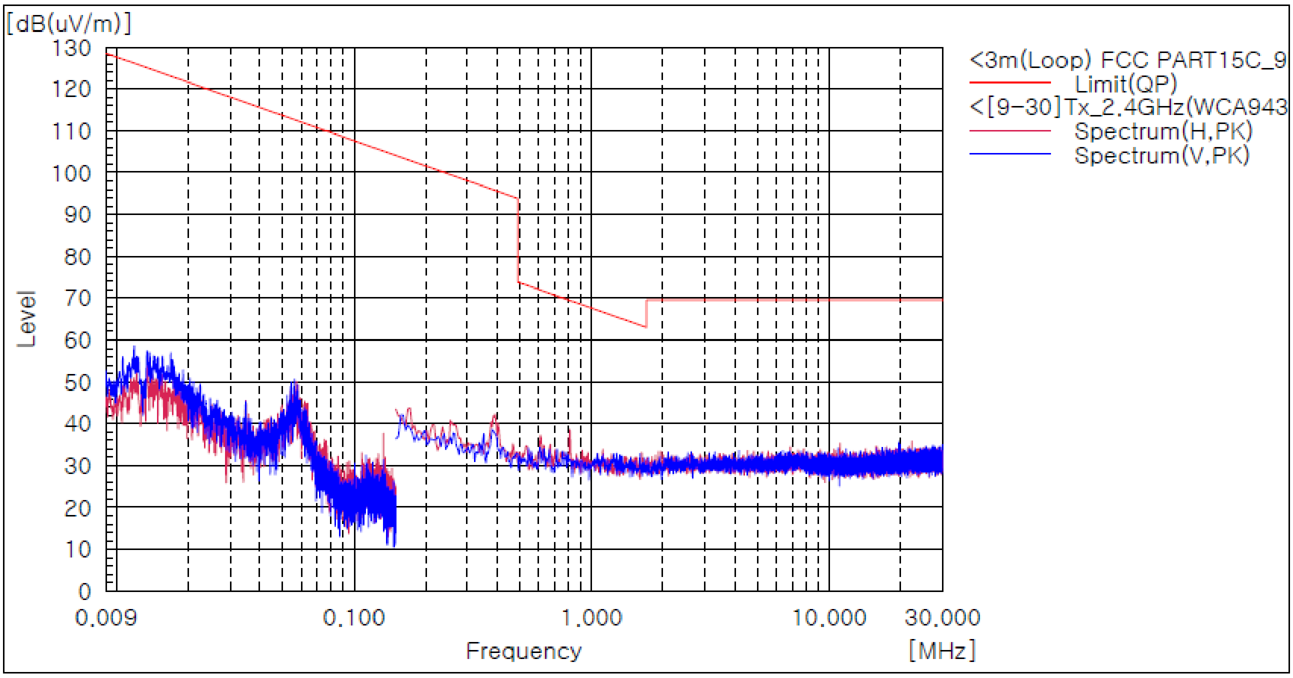
Test results

1) 9 kHz to 30 MHz

Test mode : Transmitter (Worst Case)

The requirements are:
☒ Complies

Test Data



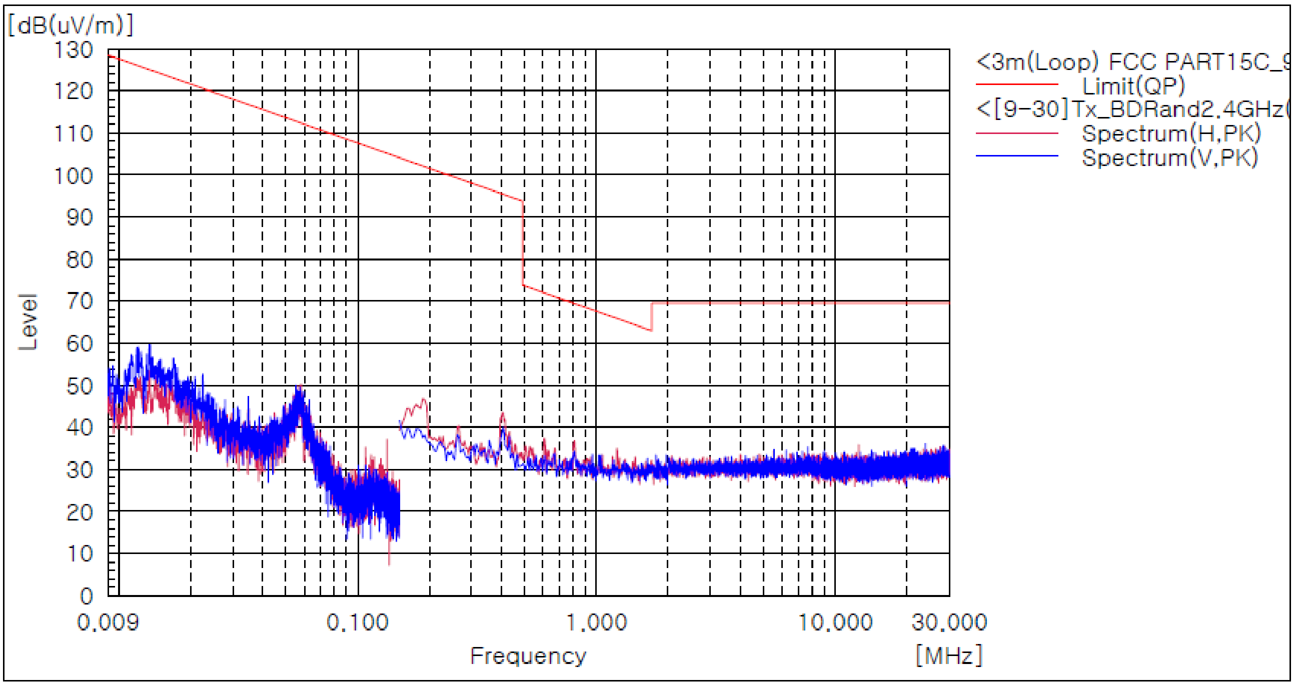
Frequency [MHz]	(P)	Reading [dBuV]	c.f [dB(1/m)]	Level [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]
The emissions 9 kHz to 30 MHz were 20 dB lower than the limit.						

Remark :
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down positon(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



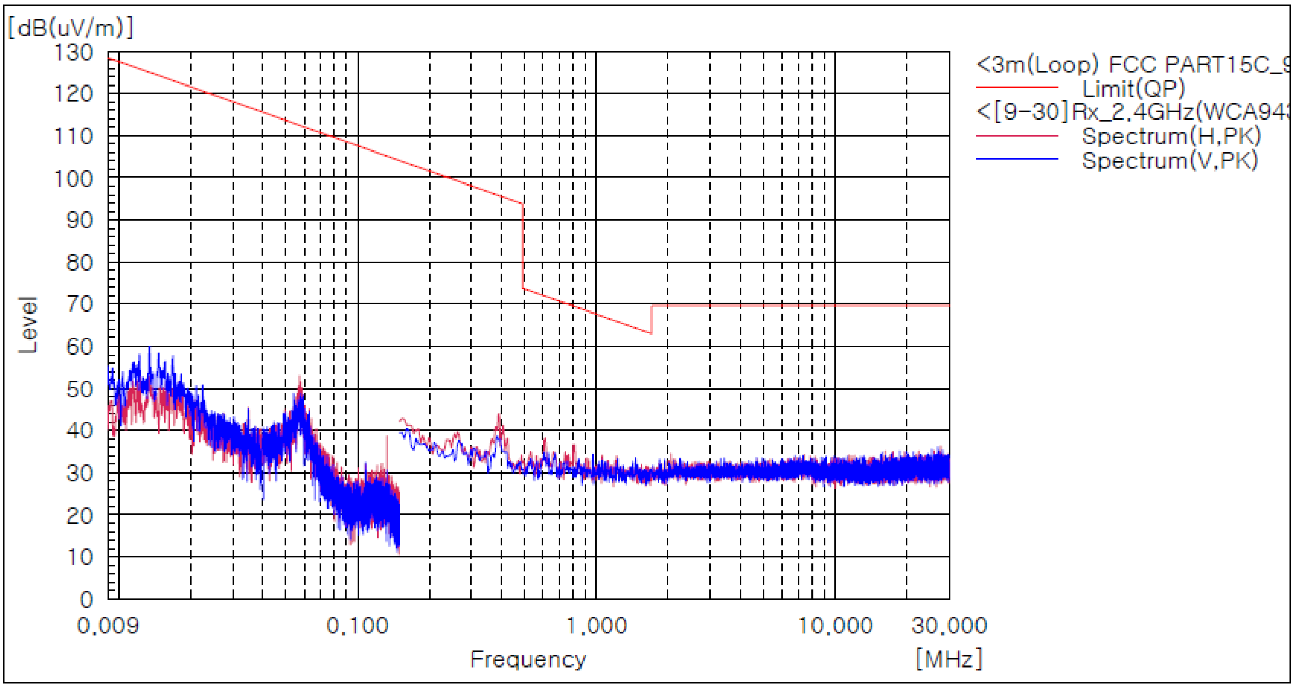
Frequency [MHz]	(P)	Reading [dBuV]	c.f [dB(1/m)]	Level [dB(uV/m)]	Limit [dB(uV/m)]	Margin [dB]
The emissions 9 kHz to 30 MHz were 20 dB lower than the limit.						

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.						

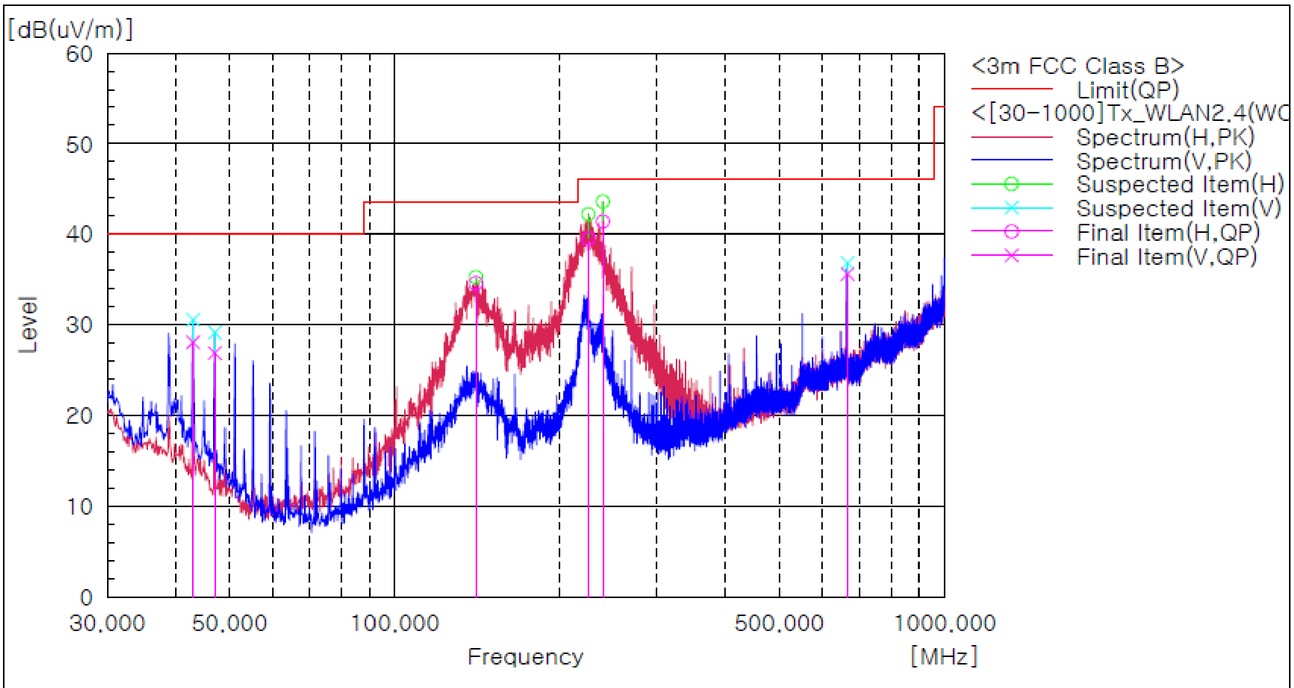
Remark :
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down positon(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor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

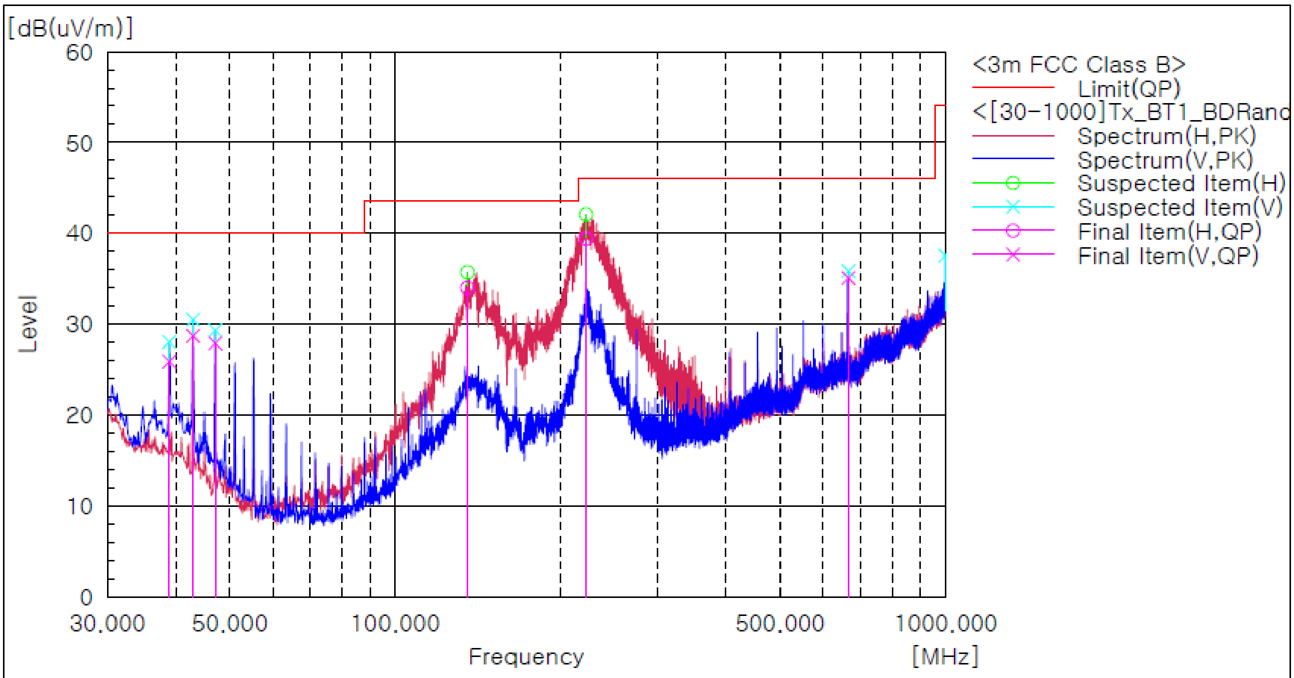
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	42.974	V	40.9	-12.8	28.1	40.0	11.9	100.0	165.0
2	47.096	V	42.0	-15.1	26.9	40.0	13.1	100.0	349.0
3	140.580	H	46.5	-11.9	34.6	43.5	8.9	208.0	205.0
4	225.091	H	52.4	-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 positon(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

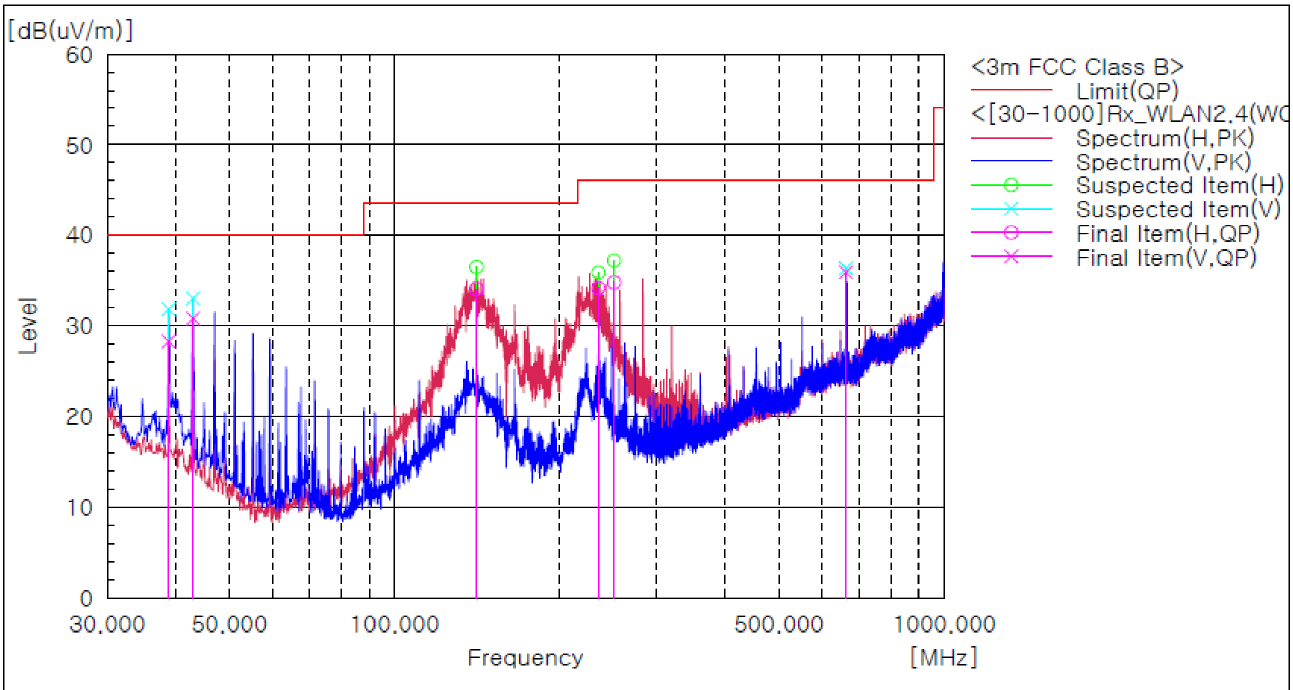
Remark :

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

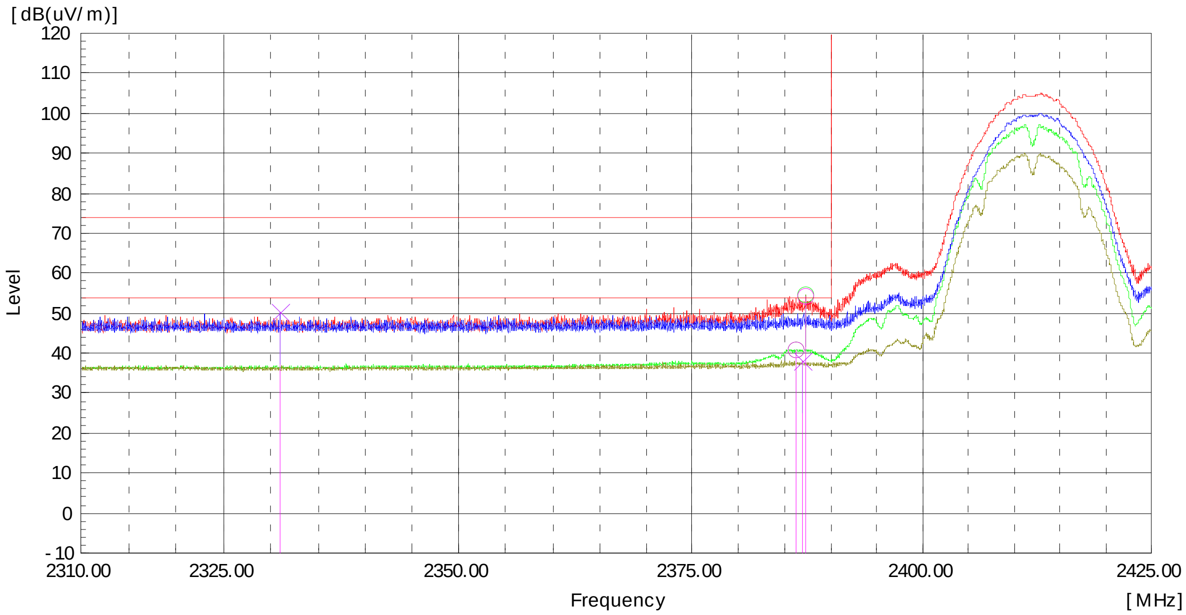
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	38.851	V	38.4	-10.1	28.3	40.0	11.7	101.0	288.0
2	42.974	V	43.6	-12.8	30.8	40.0	9.2	101.0	329.0
3	141.065	H	46.0	-11.9	34.1	43.5	9.4	209.0	218.0
4	235.155	H	45.9	-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

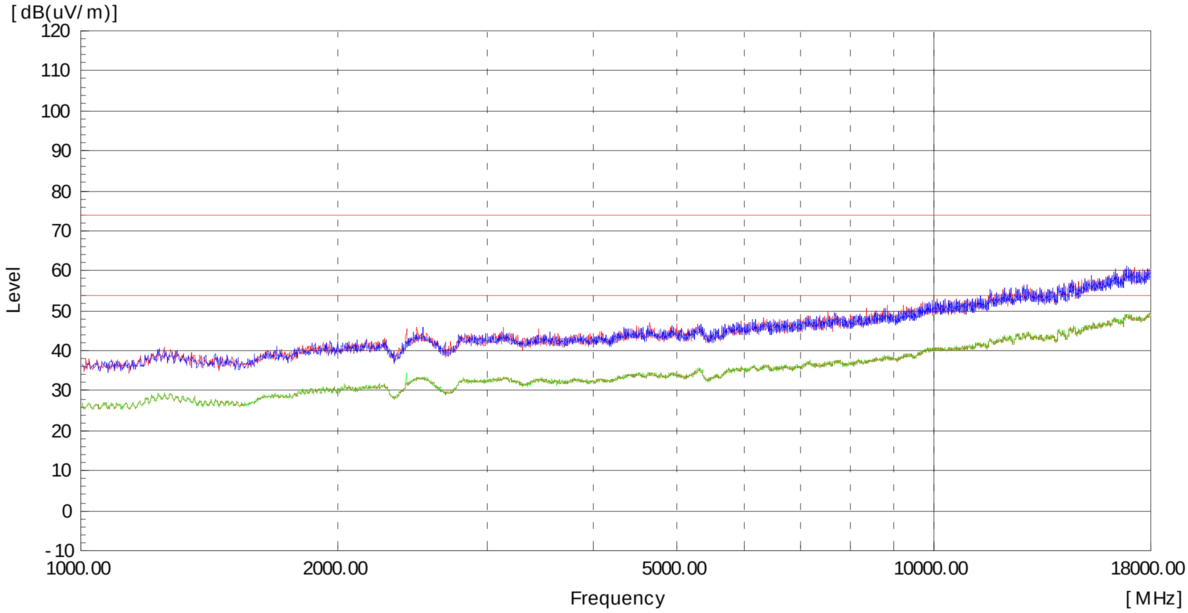
Remark :
1. The unwanted emission was measured in the following position: EUT stand-up position(Z axis), lie-down positon(X,Y axis). The worst emission was found in lie-down position(Y axis) and the worst case was recorded.
2. Result = Reading + c.f(Correction factor)
3. Correction factor = Antenna factor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

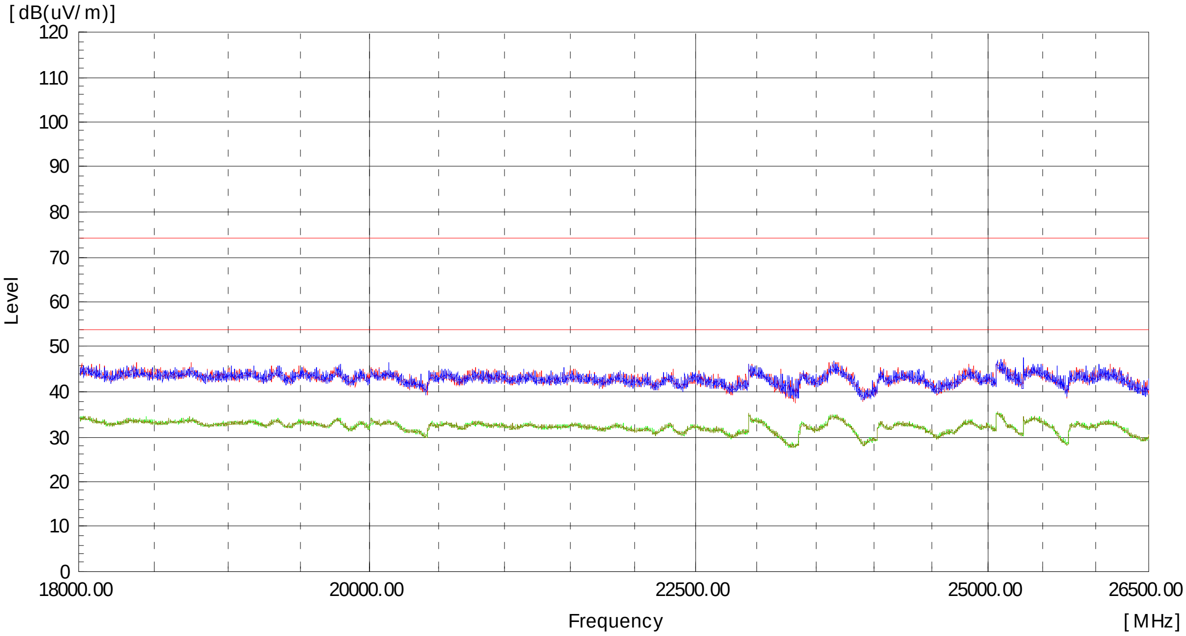
3) above 1 GHz

The requirements are:
☒ Complies

Test Data






[dB(uV/m)]
120
110
100
90
80
70
60
50
40
30
20
10
0
Level
18000.00
20000.00
22500.00
25000.00
26500.00
Frequency
[MHz]

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

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

(Ho-dong), 113, Yejik-ro, Cheoin-gu,
Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

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_SU)

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

Test mode : Transmitter (802.11ax_HE20_26T)

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]
2 369.79	H	66.7	-----	-3.1	63.6	-----	-----	74.0	-----	10.4	-----
2 387.37	H	-----	49.4	-3.0	-----	46.6	0.24	-----	54.0	-----	7.4
2 368.45	V	69.5	-----	-3.1	66.4	-----	-----	74.0	-----	7.6	-----
2 343.61	V	-----	49.7	-3.1	-----	46.8	0.24	-----	54.0	-----	7.2

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.											

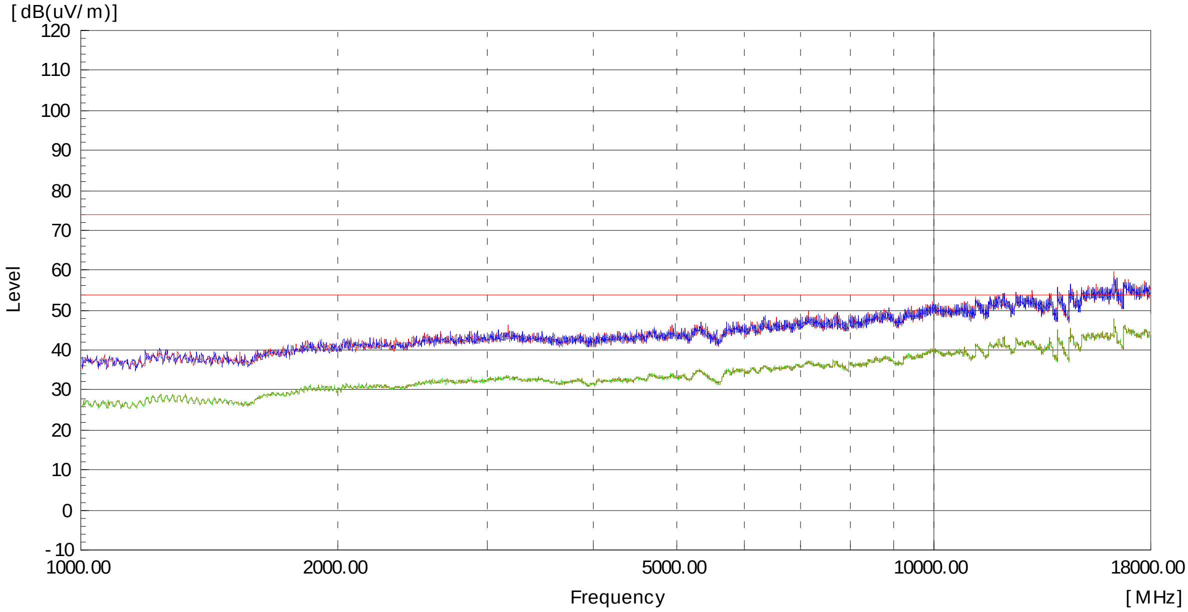
High (2 472 MHz)

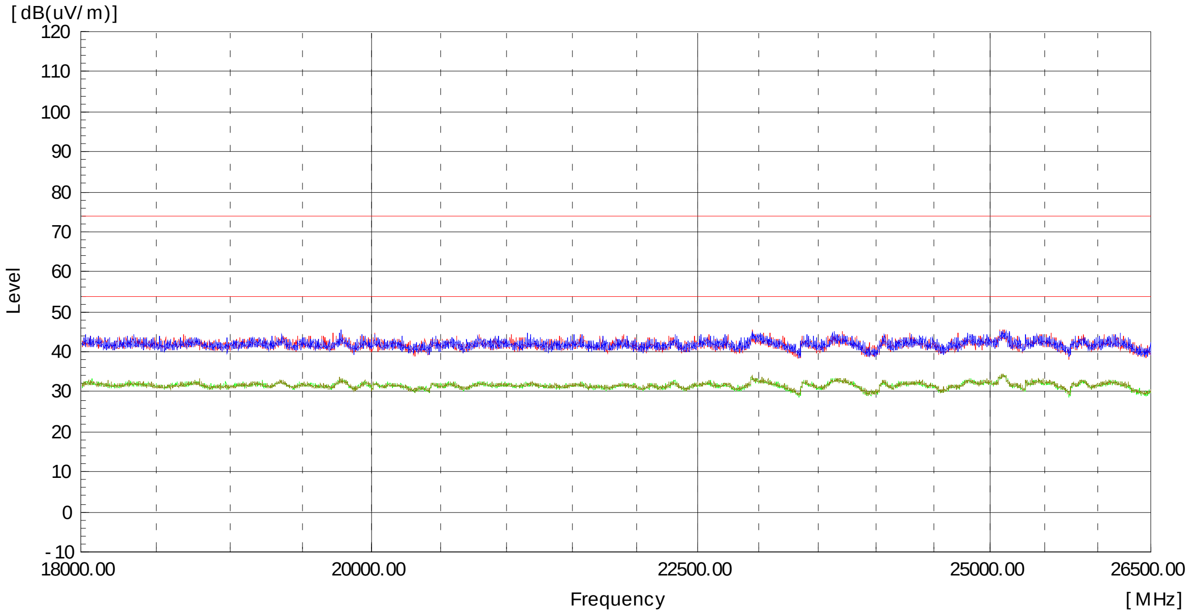
Frequency [MHz]	(P)	Reading PK [dBuV]	Reading AV [dBuV]	c.f [dB(1/m)]	Level PK [dB(uV/m)]	Level AV [dB(uV/m)]	Duty Cycle Factor [dB]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin AV [dB]
2 483.54	H	74.9	-----	-2.5	72.4	-----	-----	74.0	-----	1.6	-----
2 483.54	H	-----	49.7	-2.5	-----	47.4	0.24	-----	54.0	-----	6.6
2 483.51	V	71.9	-----	-2.5	69.4	-----	-----	74.0	-----	4.6	-----
2 483.54	V	-----	50.3	-2.5	-----	48.0	0.24	-----	54.0	-----	6.0

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 : Receiver (Worst Case)





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

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.

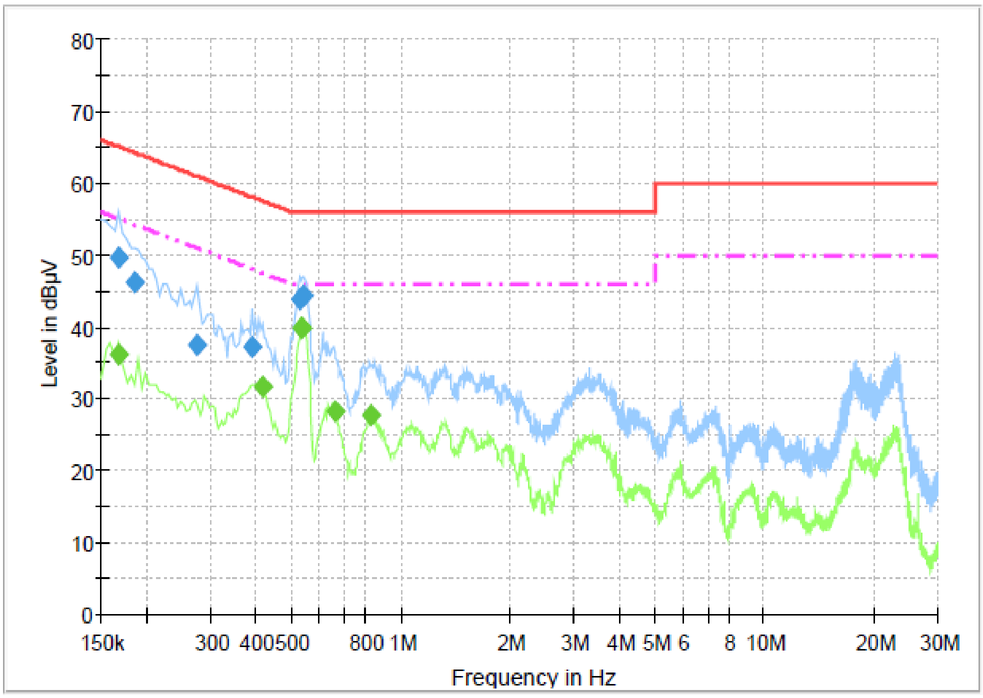
Test Results

The requirements are:
☒ Complies

Test Data

[LINE]

3CE_Class B_L1



Final Result 1

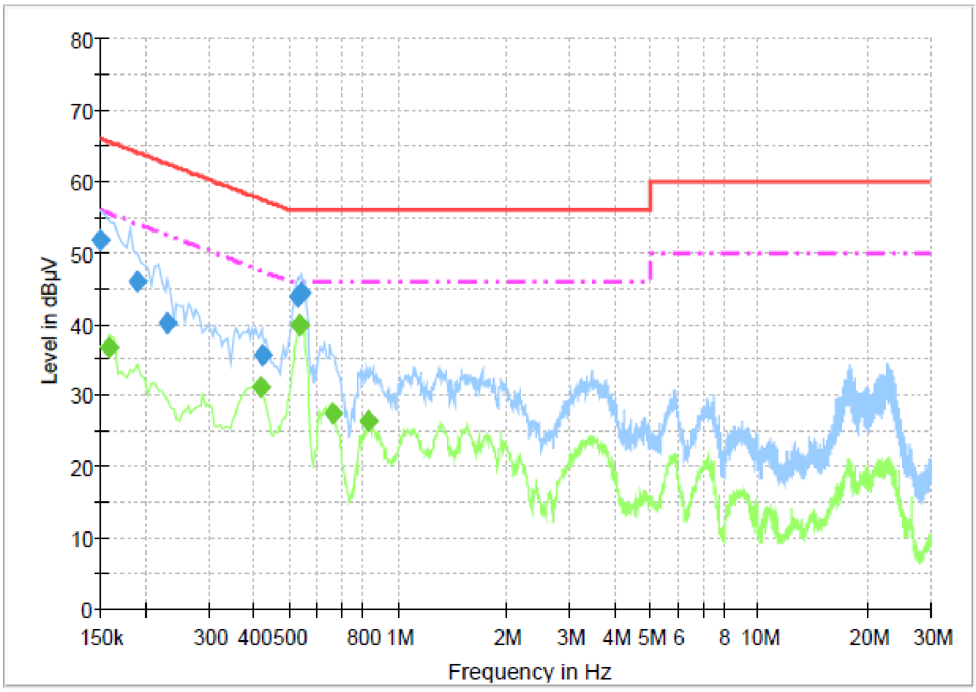
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.168000	49.7	1000.0	9.000	On	L1	9.8	15.3	65.1
0.186000	46.2	1000.0	9.000	On	L1	9.8	18.0	64.2
0.276000	37.6	1000.0	9.000	On	L1	9.8	23.4	60.9
0.388500	37.2	1000.0	9.000	On	L1	10.0	20.9	58.1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

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	MY50200096	2021-01-24	2022-01-24
2	Signal Analyzer	Agilent	N9020A	MY50510240	2021-07-19	2022-07-19
3	Signal Generator	Rohde & Schwarz	SMB100A	175528	2021-04-12	2022-04-12
4	EMI Test Receiver	Rohde & Schwarz	ESCI7	100814	2020-10-20	2021-10-20
5	Bilog Antenna	Schaffner	CBL6111C	2551	2020-05-26	2022-05-26
6	Active Loop Antenna	SCHWARZBECK	FMZB 1513	1513-126	2020-05-20	2022-05-20
7	6dB Attenuator	R&S	DNF	272.4110.50-2	2020-10-23	2021-10-23
8	6dB Attenuator	BIRD	5W 6dB	1744	2020-12-16	2021-12-16
9	AMPLIFIER	SONOMA	310	291721	2021-01-22	2022-01-22
10	EMI Test Receiver	Rohde & Schwarz	ESU40	100336	2021-01-12	2022-01-12
11	Preamplifier	Agilent	8449B	3008A01504	2020-12-17	2021-12-17
12	Horn Antenna	ETS-Lindgren	3117	00154525	2020-10-14	2021-10-14
13	Horn Antenna	SCHWARZBECK	BBHA9170	00967	2021-05-25	2022-05-25
14	Band Reject Filter	Micro Tronics	BRM50702	G233	2021-01-14	2022-01-14
15	Low Noise Amplifier	TESTEK	TK-PA1840H	200115-L	2021-05-21	2022-05-21
16	LISN	Rohde & Schwarz	ENV216	101235	2021-01-12	2022-01-12

	Cable	Manufacturer	Model No.	Serial No.	Check Date
1	RF Cable	Canare Corporation	L-5D2W	N/A	2021-01-21
2	RF Cable	Junkosha Inc.	MWX221	1512S127	2021-08-04
3	RF Cable	Junkosha Inc.	MWX221	2005S319	2021-08-04
4	RF Cable	HUBER+SUHNER	SUCOFLEX 102	MY073/2	2021-06-01
5	RF Cable	HUBER+SUHNER	SUCOFLEX 104	MY27558/4	2021-06-01
6	RF Cable	HUBER+SUHNER	SUCOFLEX 104	N/A	2021-06-01
7	RF Cable	HUBER+SUHNER	SUCOFLEX 104	MY27573/4	2021-06-01
8	RF Cable	HUBER+SUHNER	SUCOFLEX 106	N/A	2021-06-01
9	RF Cable	HUBER+SUHNER	SUCOFLEX 102	803010/2	2020-10-16
10	RF Cable	HUBER+SUHNER	SUCOFLEX 102	803742/2	2020-10-16
11	RF Cable	HUBER+SUHNER	SUCOFLEX 102	MY2374/2	2021-06-01
12	RF Cable	HUBER+SUHNER	SUCOFLEX 102	MY4728/2	2021-06-01