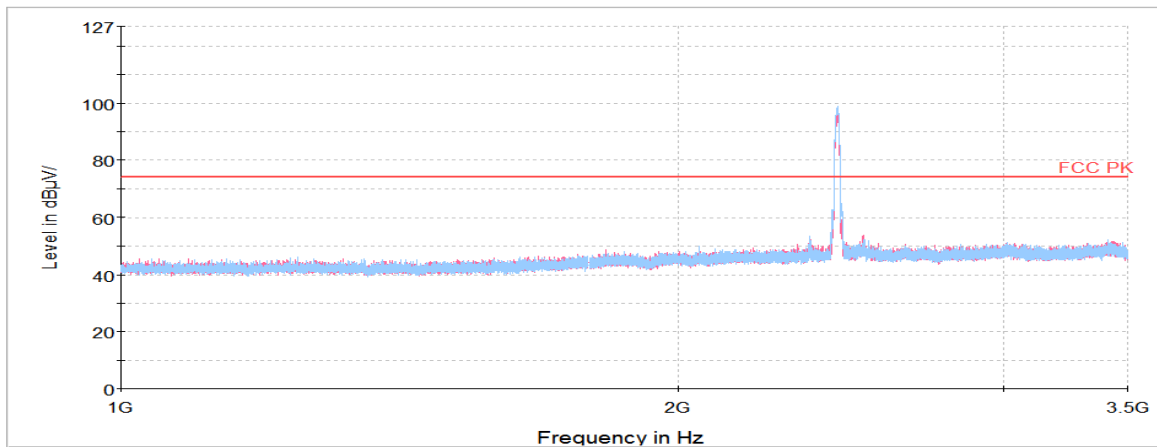
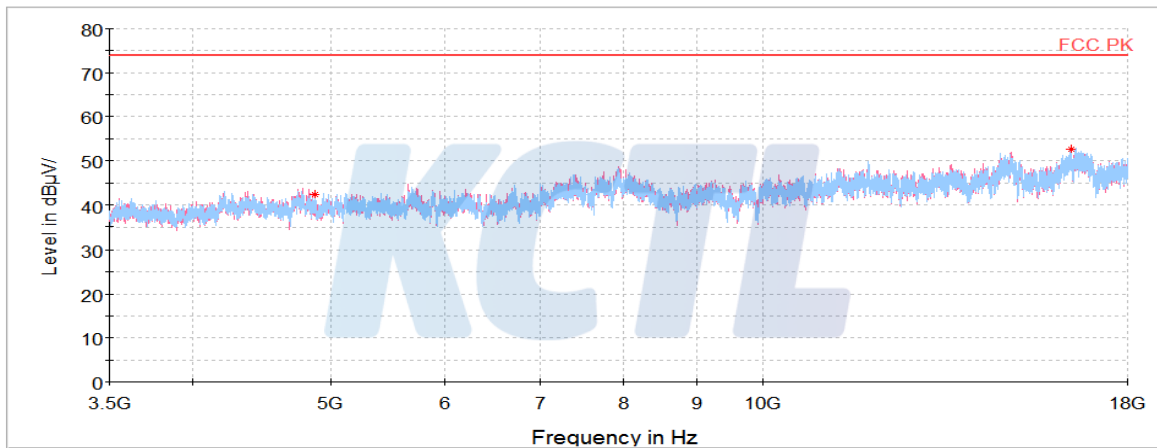
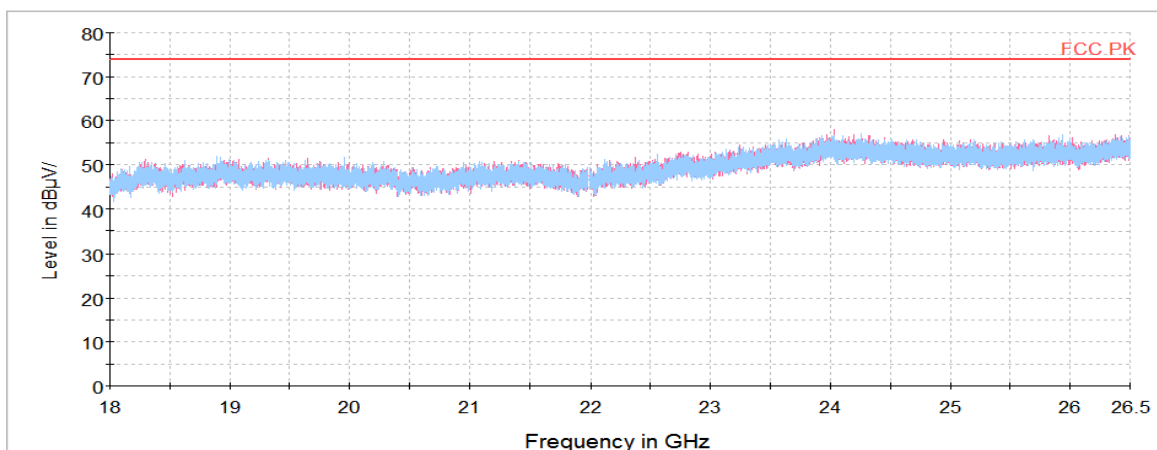


2 437 MHz

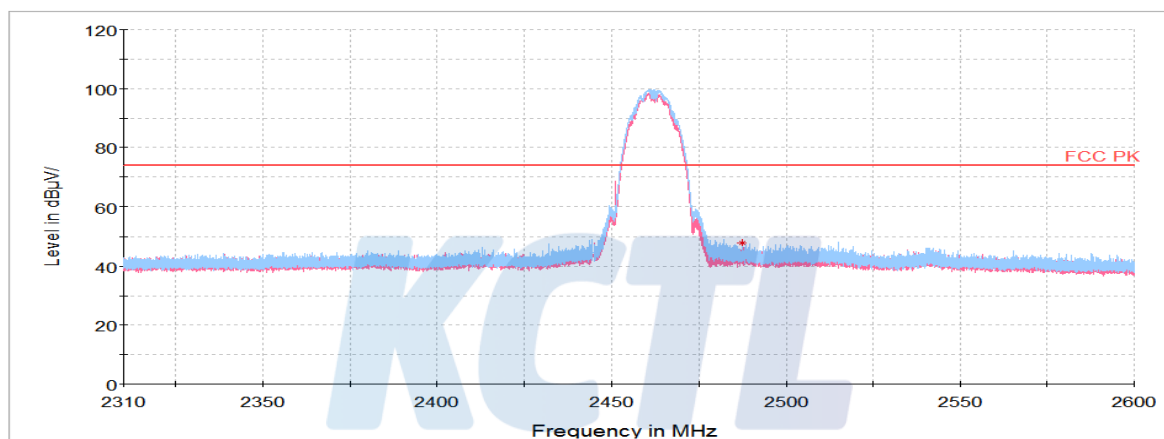
Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Peak data								
4 873.42 ¹⁾	H	63.38	33.95	-54.98	-	42.35	74.00	31.65
16 424.48	V	56.66	41.85	-45.96	-	52.55	74.00	21.45
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

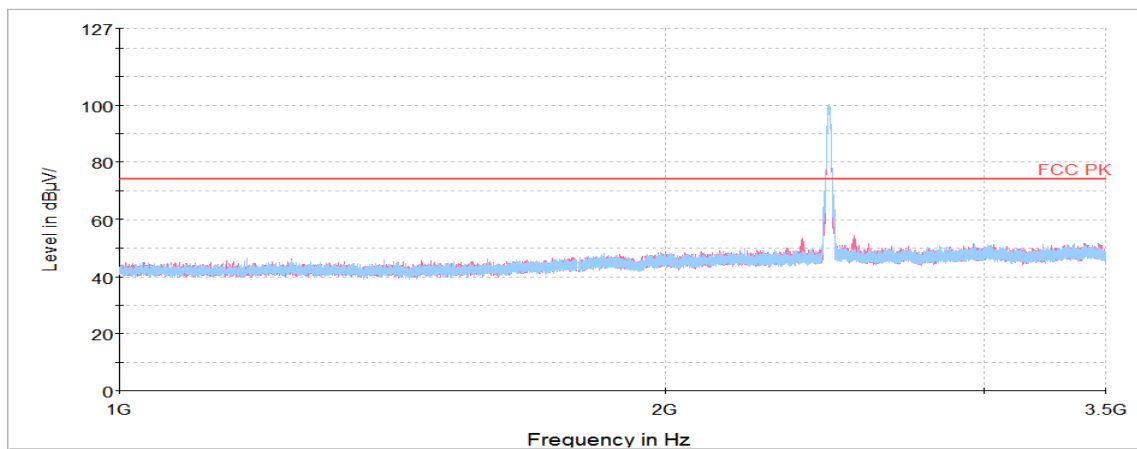
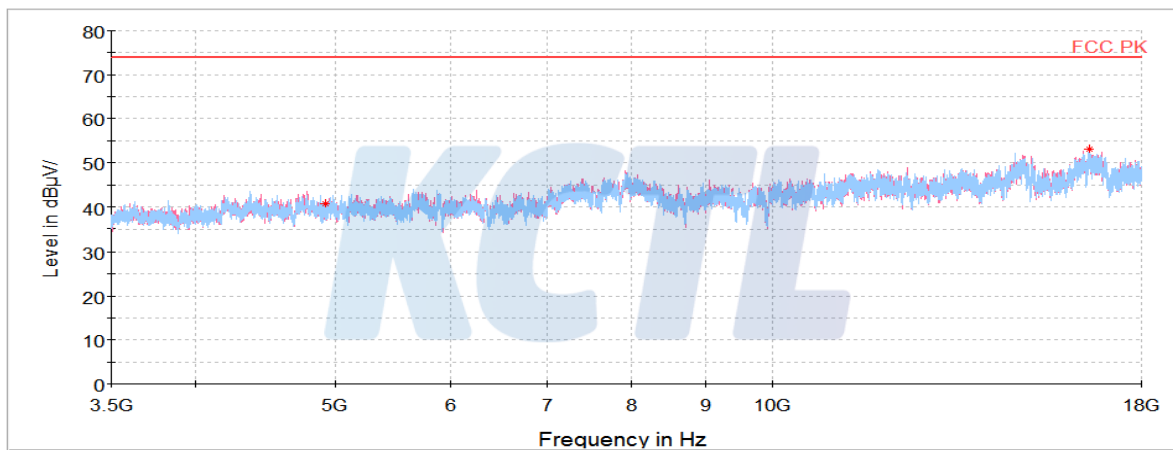
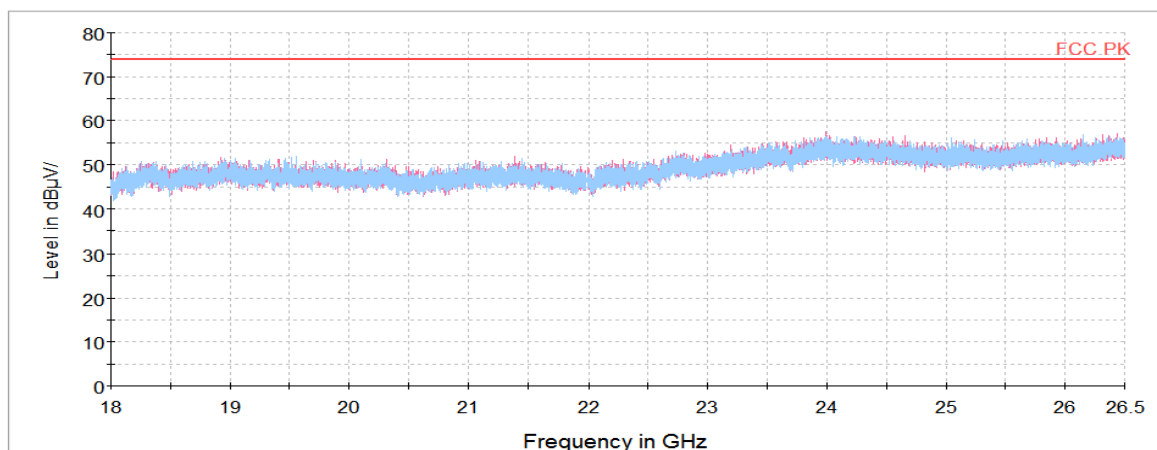


Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

2 462 MHz

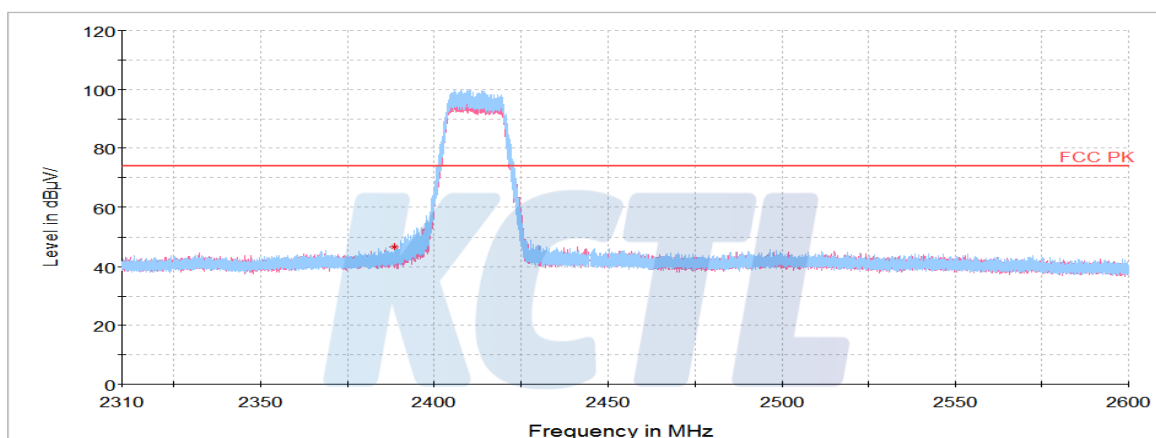
Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
2 487.23 ¹⁾	H	45.03	32.07	-29.22	-	47.88	74.00	26.12
4 923.72 ¹⁾	H	61.99	33.97	-55.31	-	40.65	74.00	33.35
16 570.84	V	57.27	41.57	-45.74	-	53.10	74.00	20.90
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

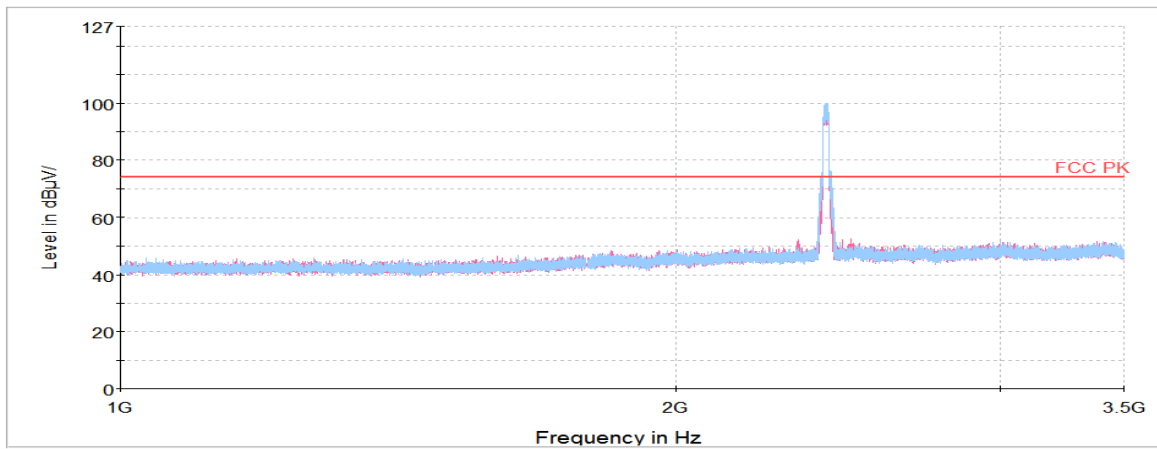
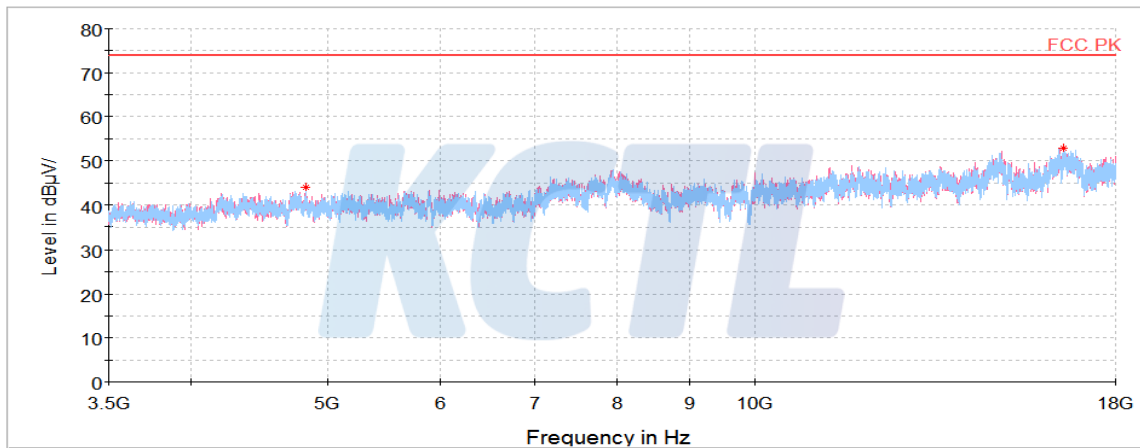
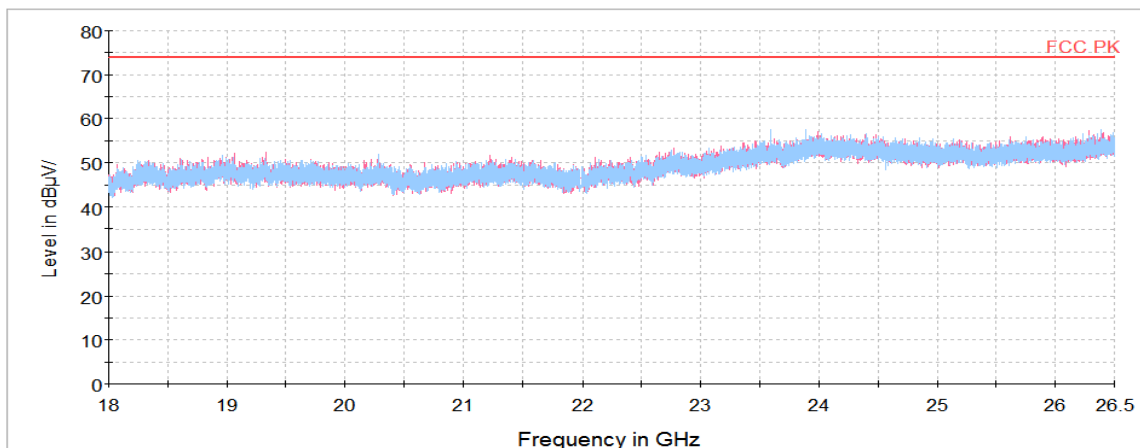
Horizontal/Vertical for Band-edge

Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

802.11g**2 412 MHz**

Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
2 388.74 ¹⁾	V	43.98	31.88	-29.05	-	46.81	74.00	27.19
4 824.03 ¹⁾	H	63.61	33.93	-53.58	-	43.96	74.00	30.04
16 543.20	V	57.07	41.54	-45.65	-	52.96	74.00	21.04
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

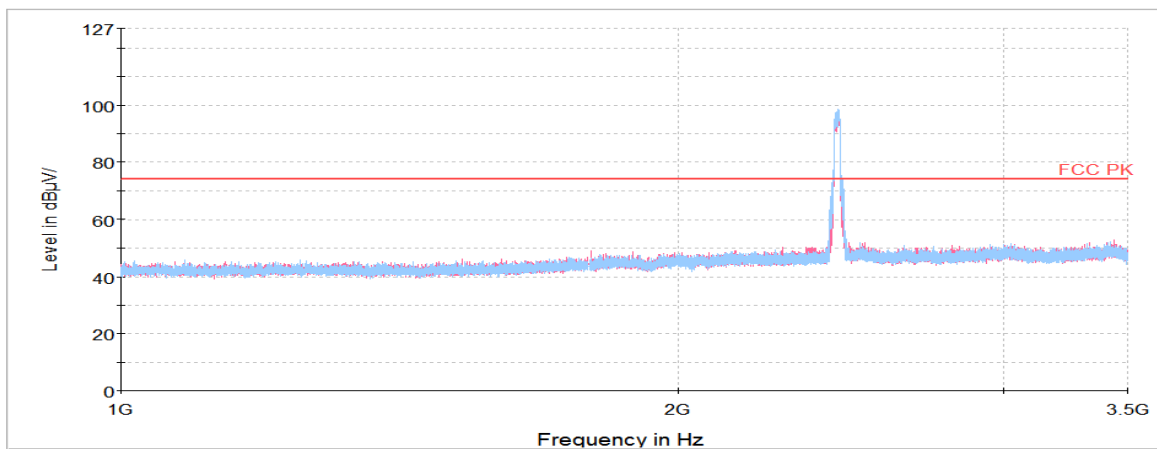
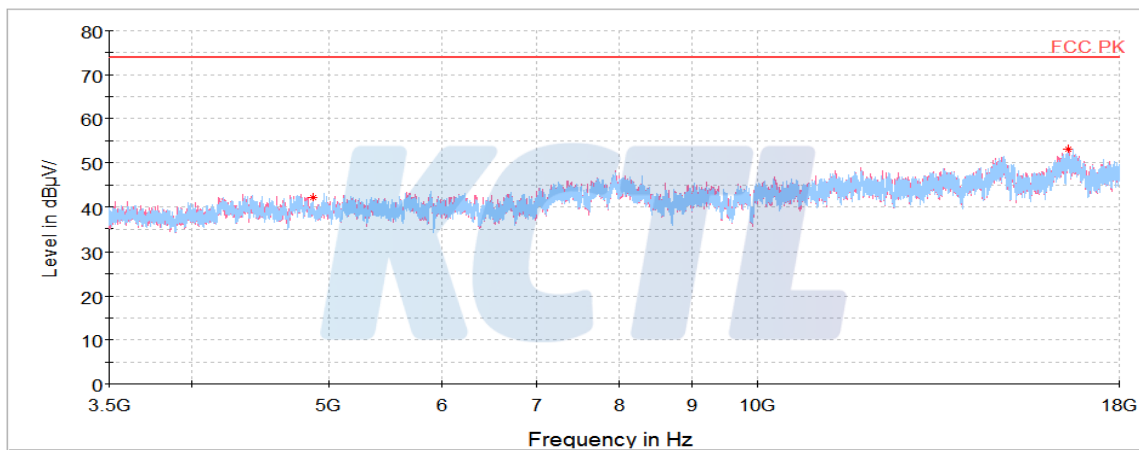
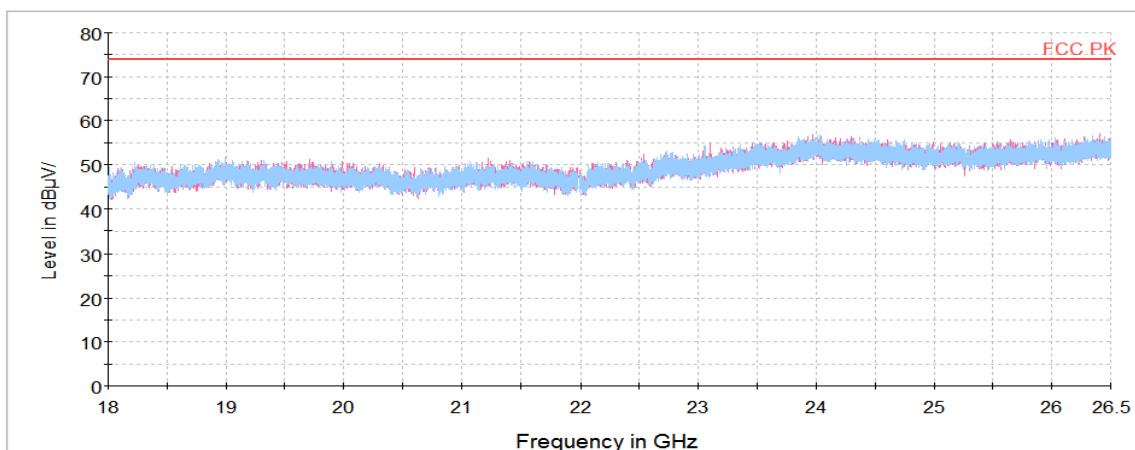
Horizontal/Vertical for Band-edge

Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

2 437 MHz

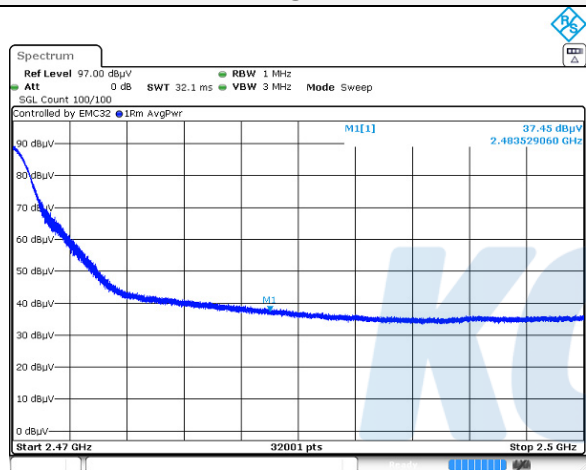
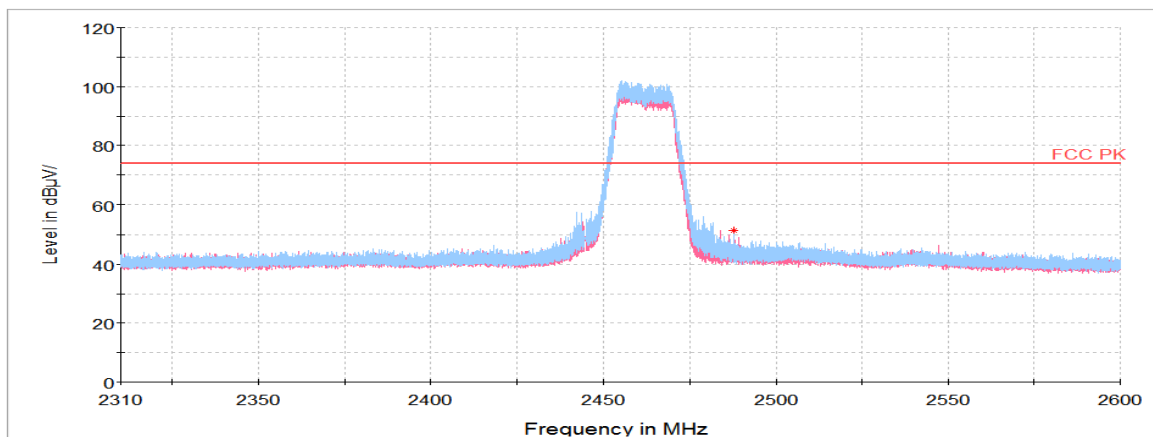
Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz) ¹⁾	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
4 873.88 ¹⁾	V	63.19	33.95	-54.99	-	42.15	74.00	31.85
16 557.25	V	57.32	41.56	-45.70	-	53.18	74.00	20.82
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

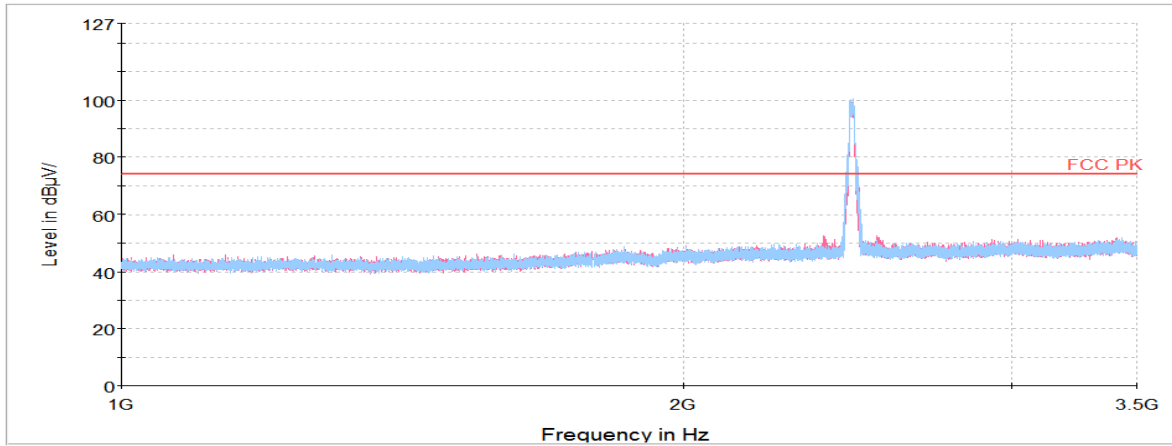
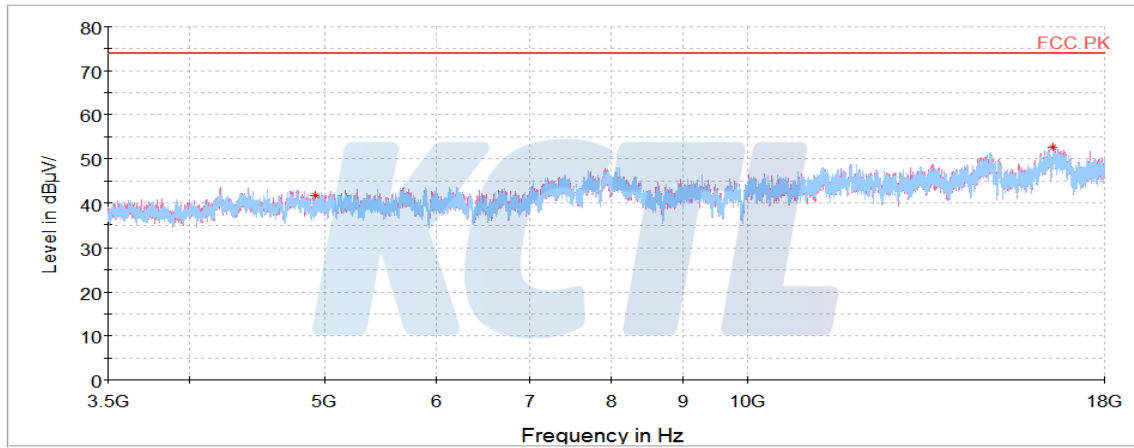
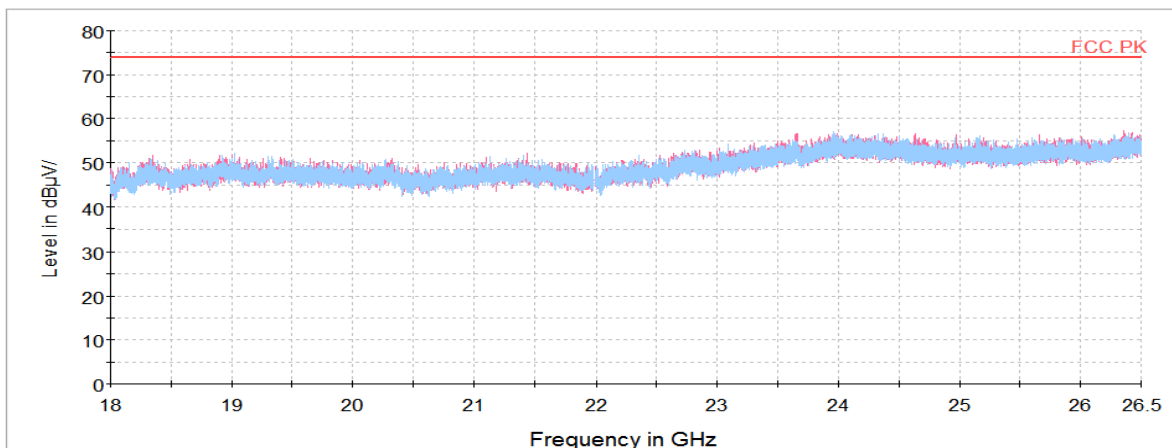


Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

2 462 MHz

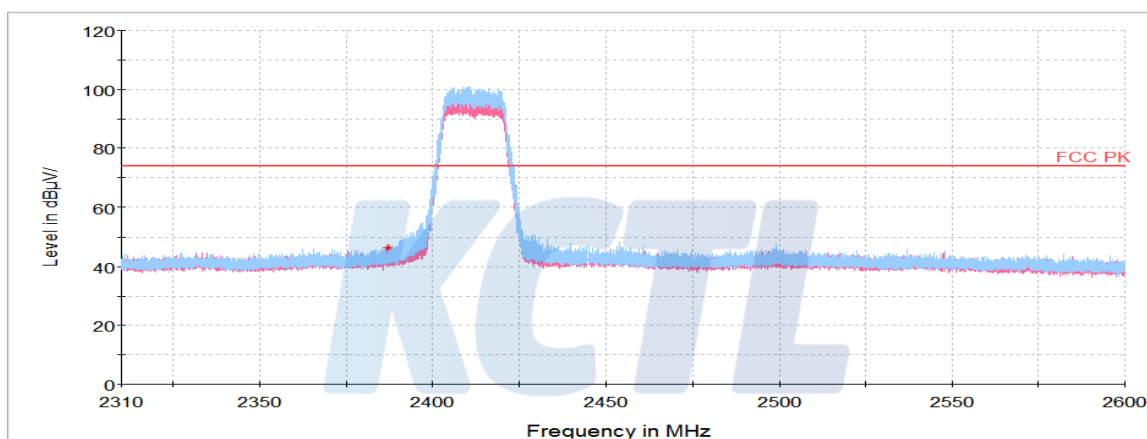
Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
2 483.51 ¹⁾	H	48.67	32.07	-29.21	-	51.53	74.00	22.47
4 922.36 ¹⁾	V	63.03	33.97	-55.34	-	41.66	74.00	32.34
16 545.47	V	56.81	41.55	-45.66	-	52.70	74.00	21.30
Average Data								
2 483.51 ¹⁾	H	37.45	32.07	-29.21	0.11	40.42	54.00	13.58

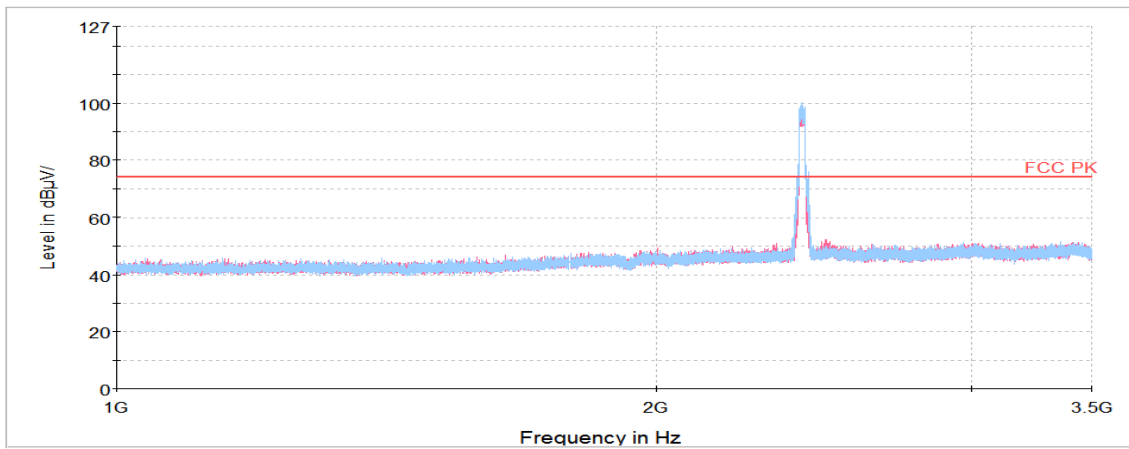
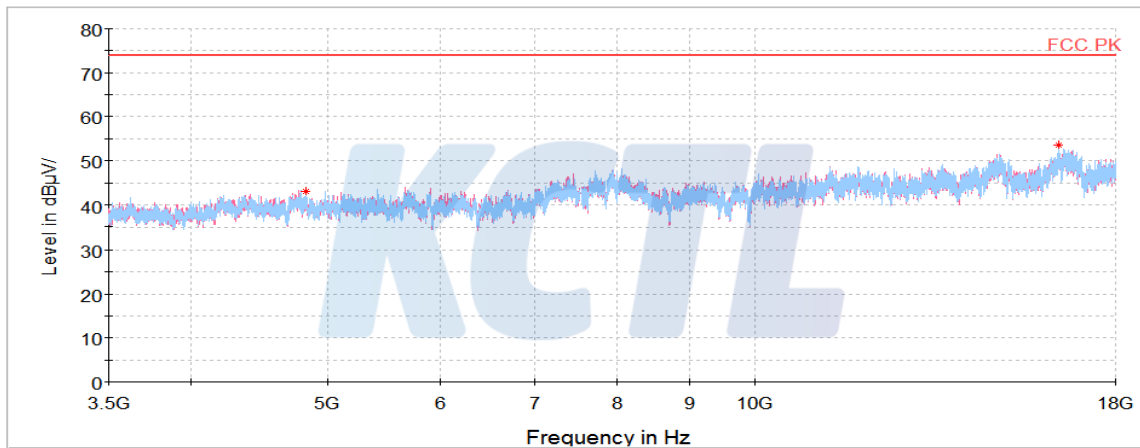
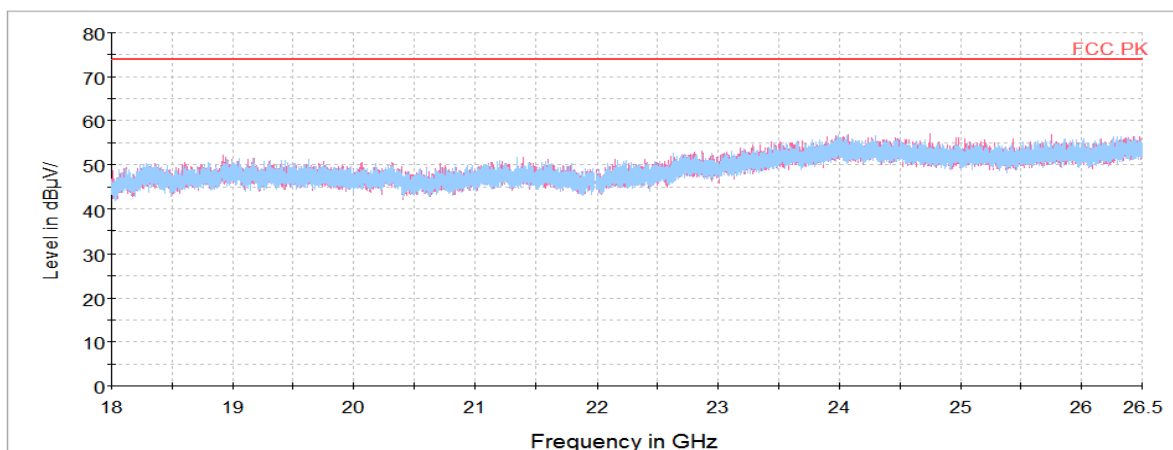
Average data**Average data****Horizontal/Vertical for Band-edge**

Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

802.11n HT20**2 412 MHz**

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Peak data								
2 387.04 ¹⁾	V	43.45	31.87	-29.05	-	46.27	74.00	27.73
4 824.03 ¹⁾	H	62.78	33.93	-53.58	-	43.13	74.00	30.87
16 416.78	H	57.76	41.83	-46.01	-	53.58	74.00	20.42
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

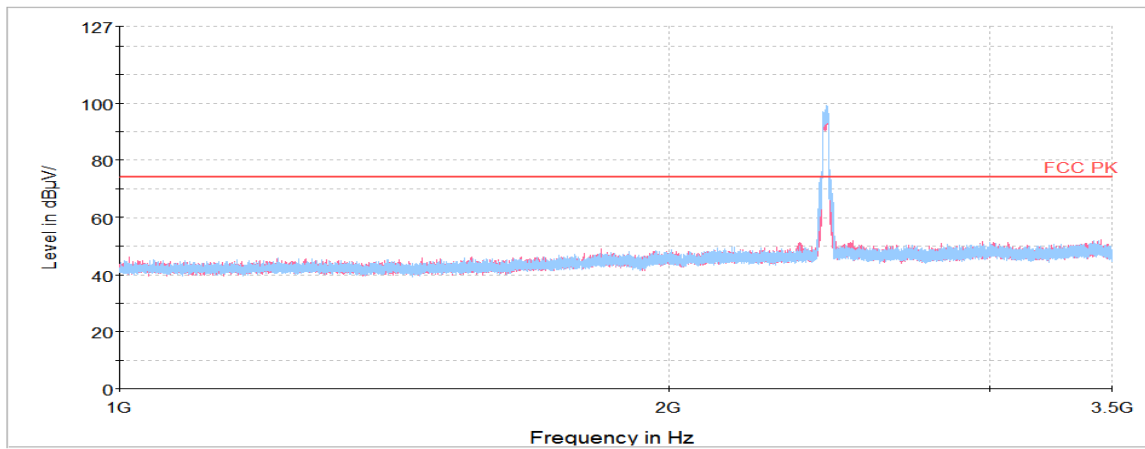
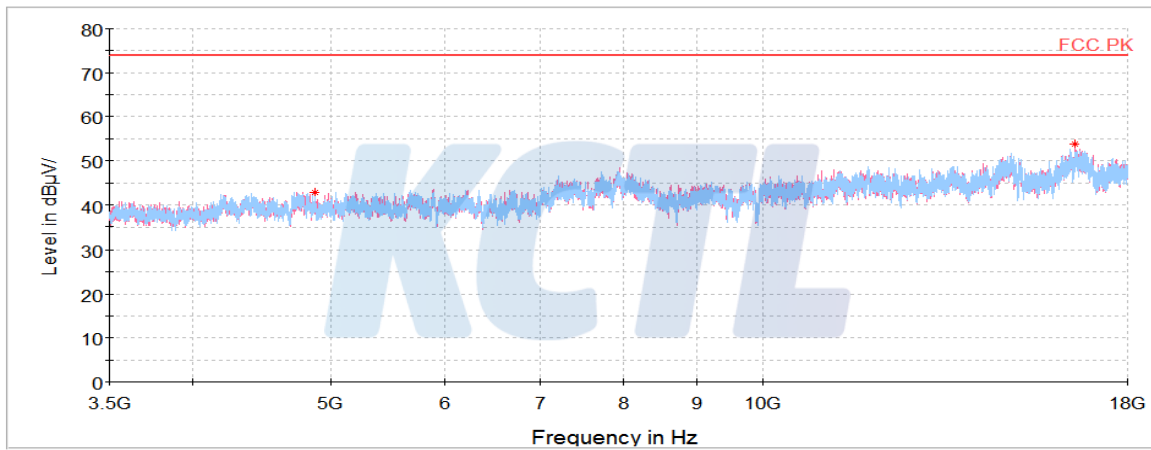
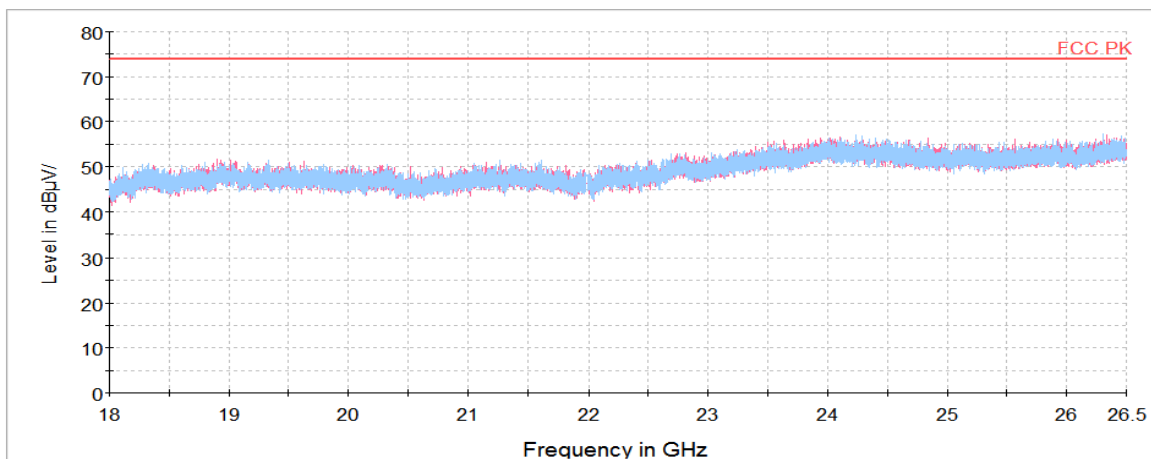
Horizontal/Vertical for Band-edge

Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

2 437 MHz

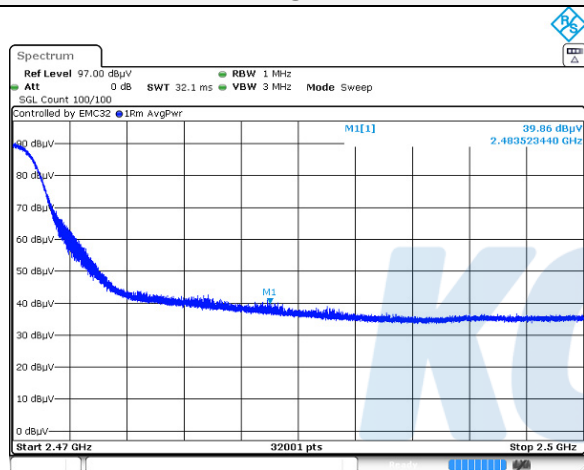
Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Peak data								
4 873.88 ¹⁾	V	63.94	33.95	-54.99	-	42.90	74.00	31.10
16 548.19	V	57.93	41.55	-45.66	-	53.82	74.00	20.18
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

KCTL

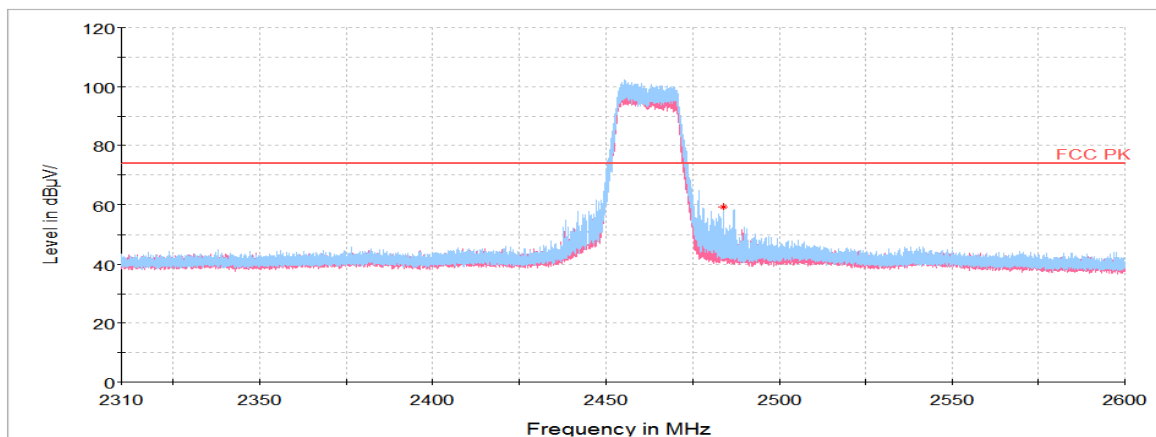
Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

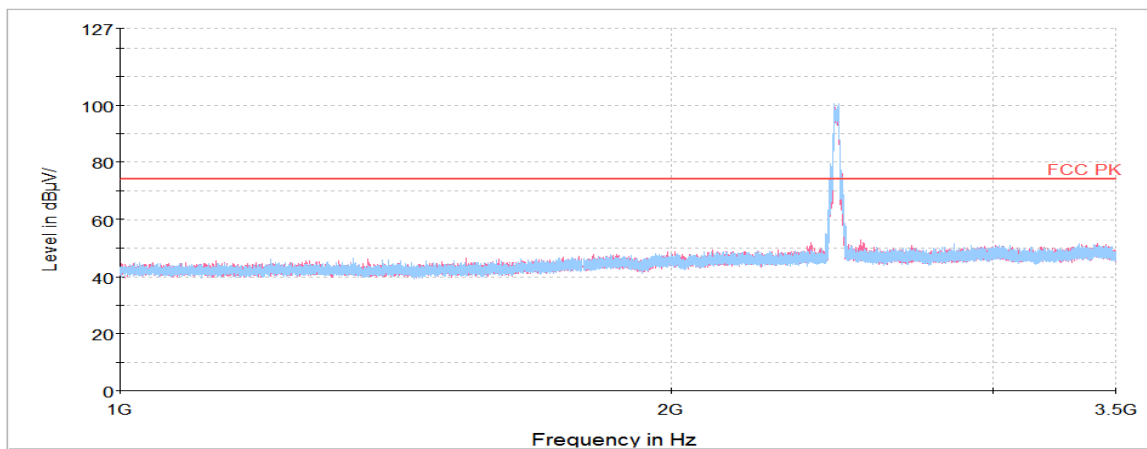
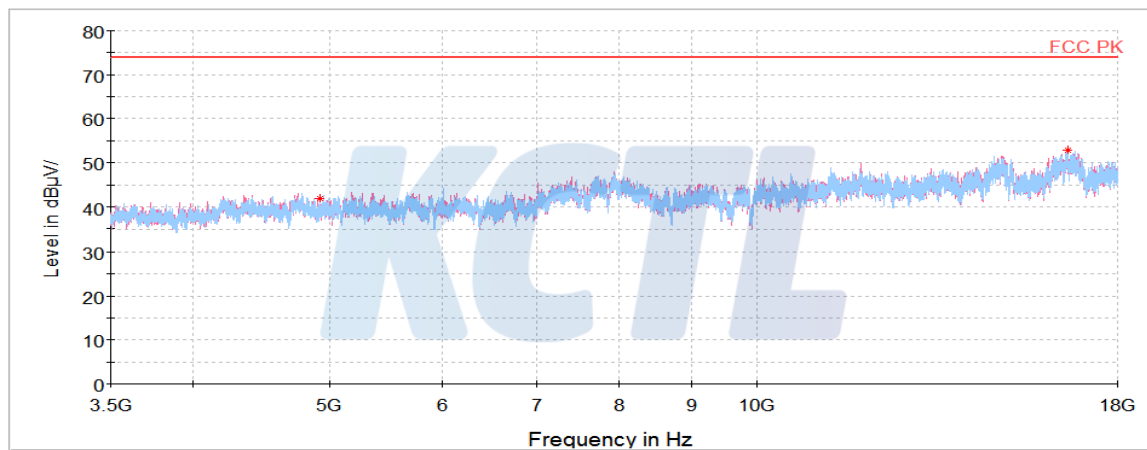
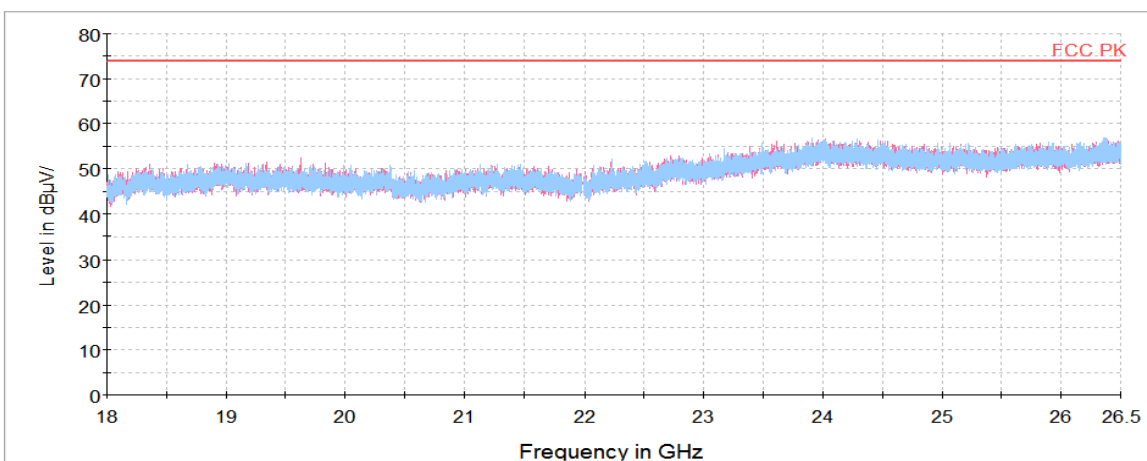
2 462 MHz

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
2 483.52 ¹⁾	H	56.35	32.07	-29.21	-	59.21	74.00	14.79
4 923.72 ¹⁾	V	63.29	33.97	-55.31	-	41.95	74.00	32.05
16 612.98	H	57.13	41.61	-45.89	-	52.85	74.00	21.15
Average Data								
2 483.52 ¹⁾	H	39.86	32.07	-29.21	0.26	42.98	54.00	11.02

Average data**Average data**

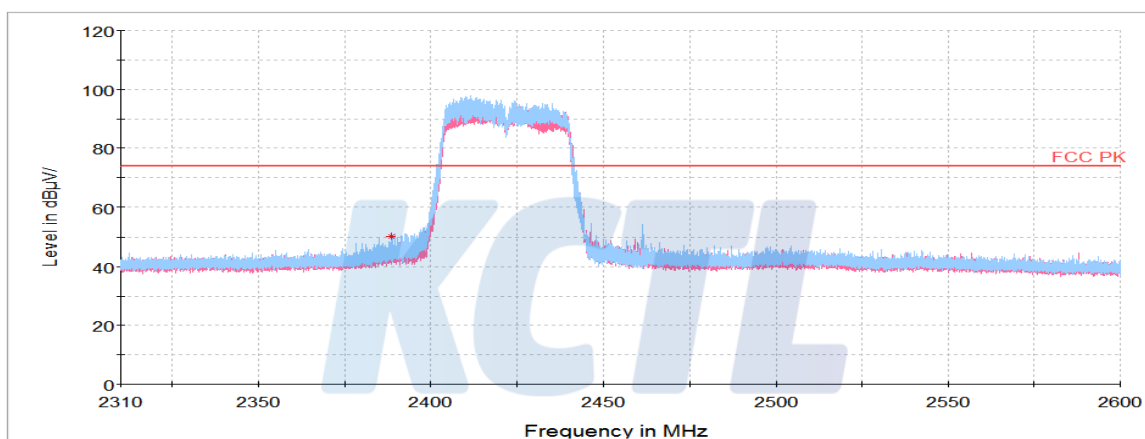
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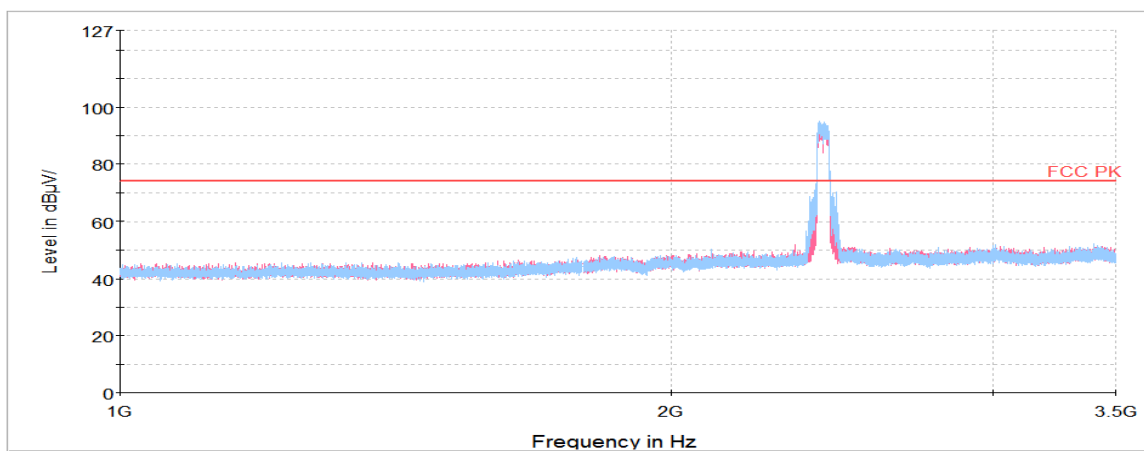
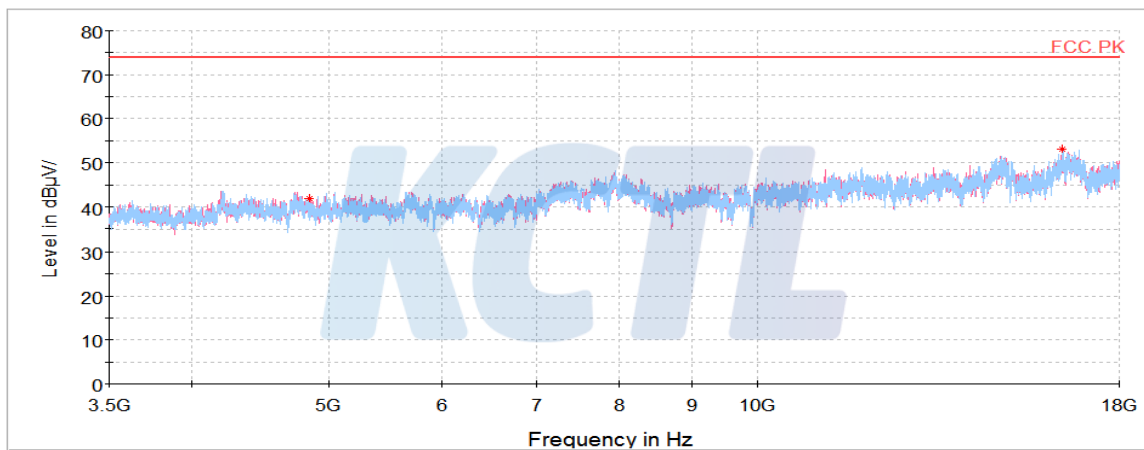
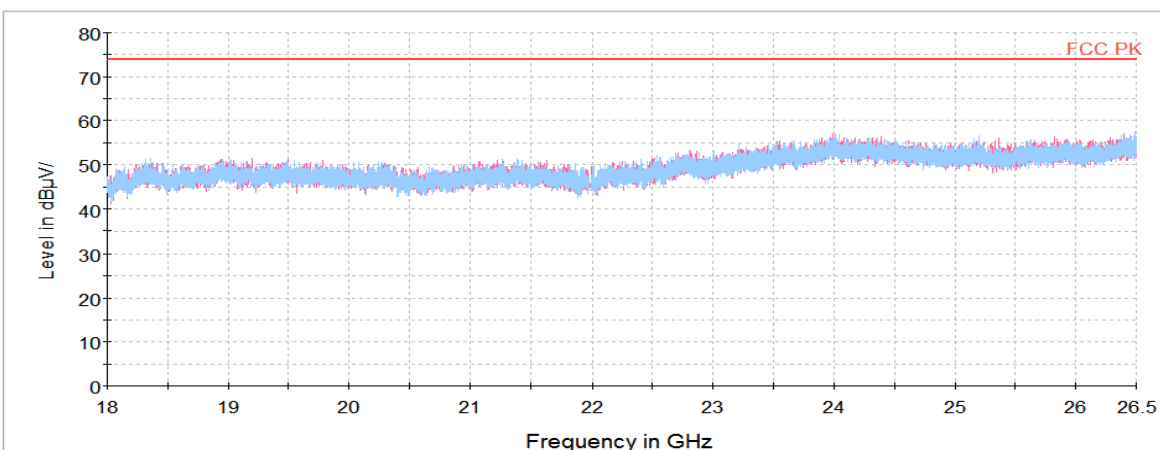
Horizontal/Vertical for Band-edge

Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

802.11n HT40**2 422 MHz**

Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
2 389.57 ¹⁾	H	47.50	31.88	-29.04	-	50.34	74.00	23.66
4 843.97 ¹⁾	H	61.98	33.94	-54.15	-	41.77	74.00	32.23
16 409.08	V	57.45	41.82	-46.06	-	53.21	74.00	20.79
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

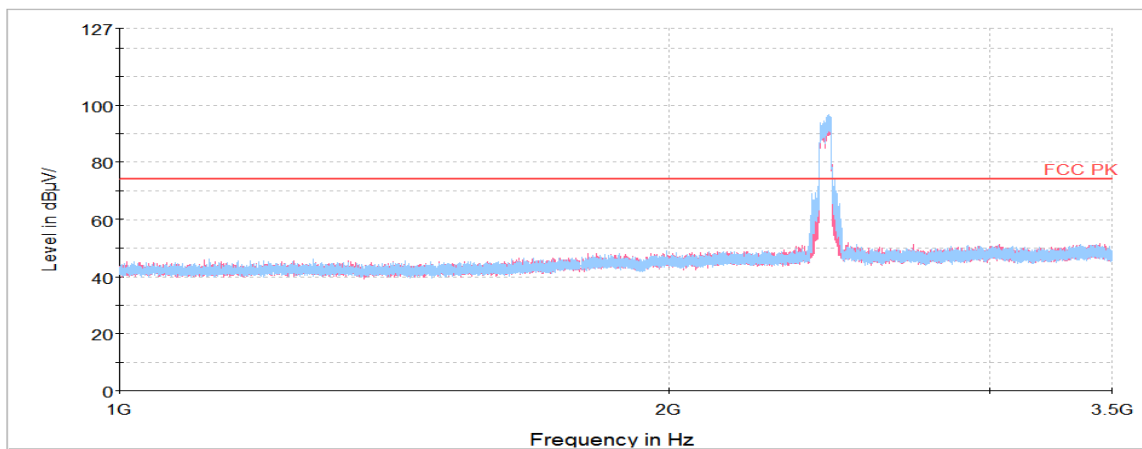
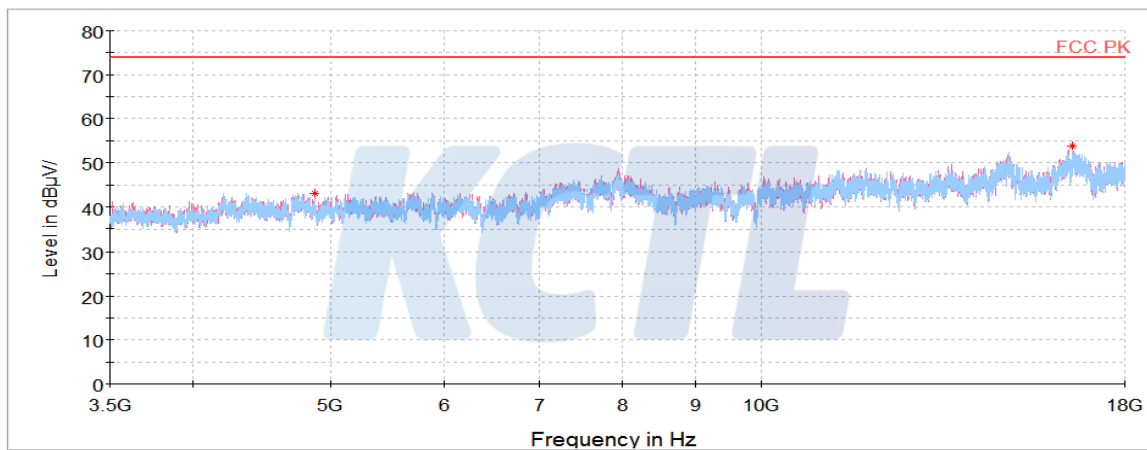
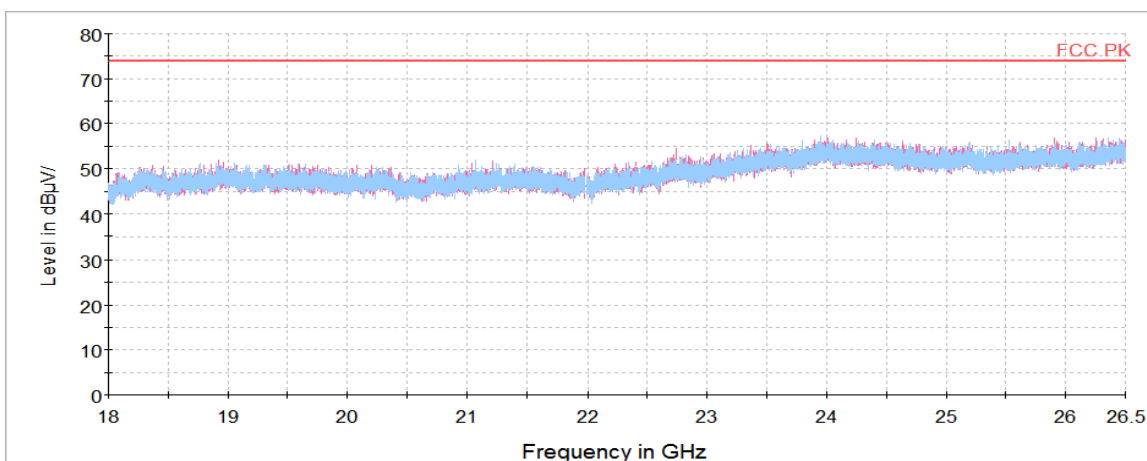
Horizontal/Vertical for Band-edge

Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

2 437 MHz

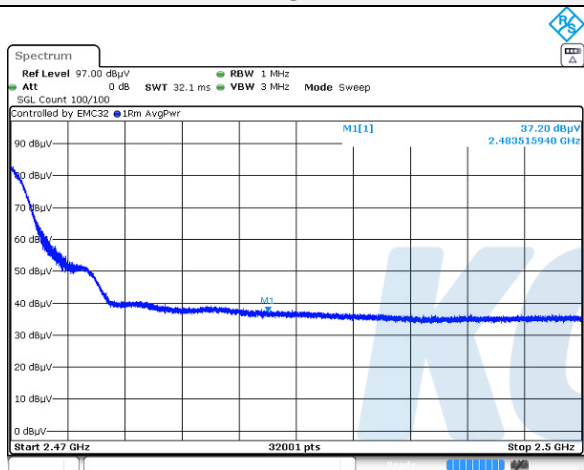
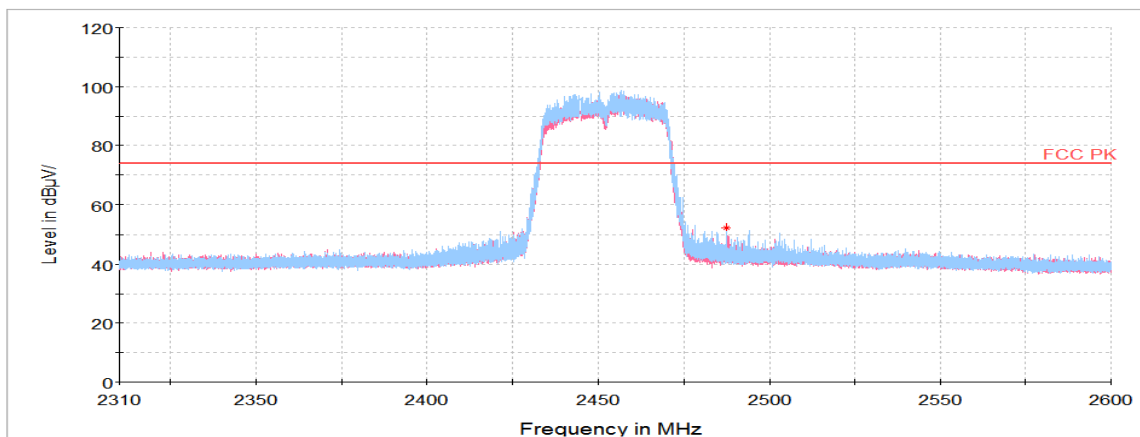
Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Peak data								
4 874.33 ¹⁾	V	64.05	33.95	-55.01	-	42.99	74.00	31.01
16 553.17	H	57.82	41.55	-45.68	-	53.69	74.00	20.31
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

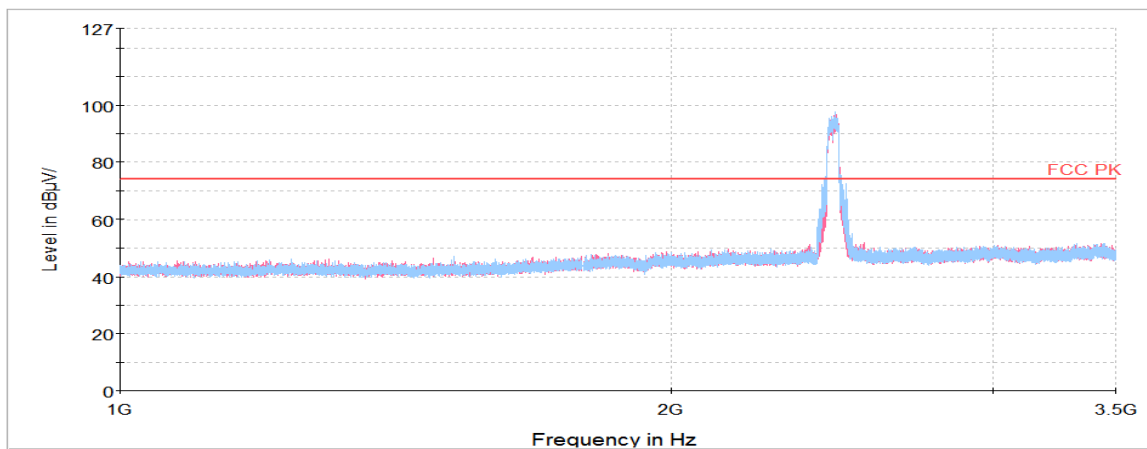
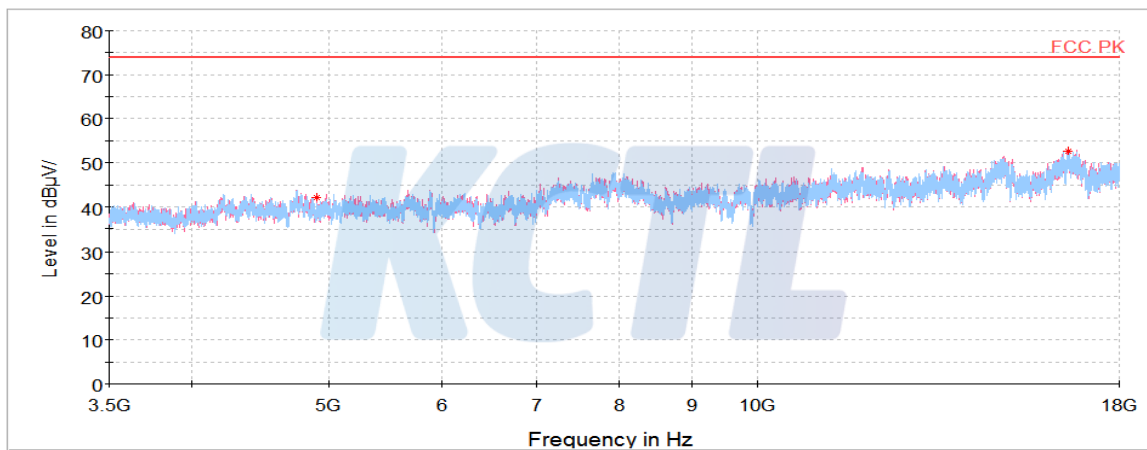
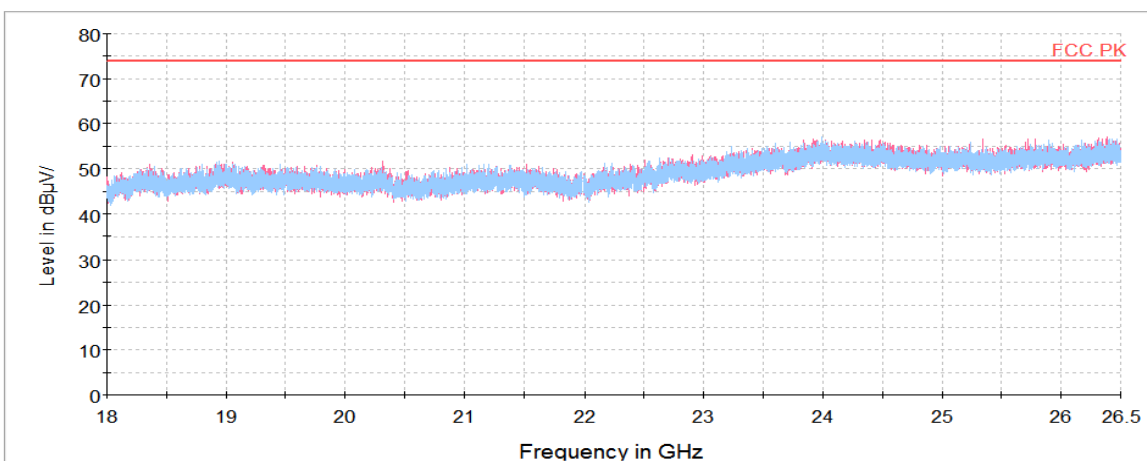


Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

2 452 MHz

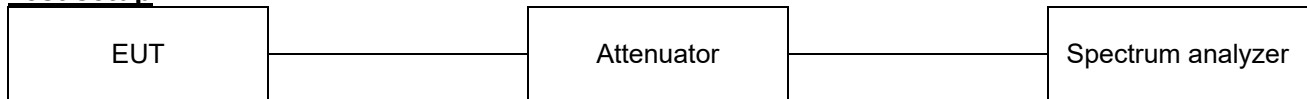
Frequency	Pol.	Reading	Ant. Factor	Amp. + Cable	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
2 483.52 ¹⁾	H	49.33	32.07	-29.21	-	52.19	74.00	21.81
4 903.78 ¹⁾	V	63.78	33.96	-55.67	-	42.07	74.00	31.93
16 568.13	V	56.87	41.57	-45.73	-	52.71	74.00	21.29
Average Data								
2 483.52 ¹⁾	H	37.20	32.07	-29.21	0.72	40.78	54.00	13.22

Average data**Average data****Horizontal/Vertical for Band-edge**

Horizontal/Vertical for 1 GHz ~ 3.5 GHz**Horizontal/Vertical for 3.5 GHz ~ 18 GHz****Horizontal/Vertical for 18 GHz ~ 26.5 GHz**

7.5. Conducted Spurious Emission

Test setup



Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operation, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation specified in §15.209(a) is not required. In addition, radiated emission limits specified in §15.209(a) (see §15.205(c)).

Limit : 20 dBc

Test procedure

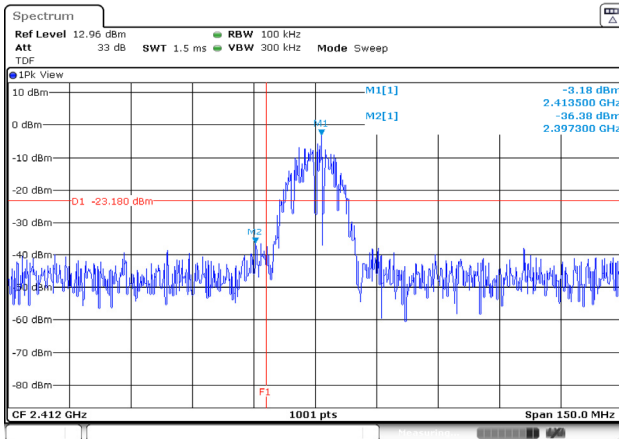
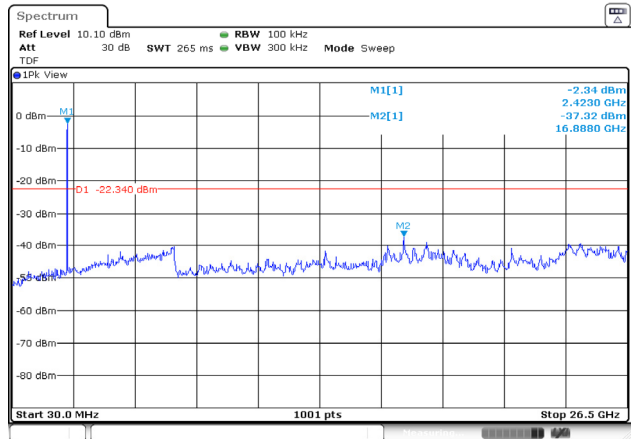
ANSI C63.10 - Section 11.11.3

558074 D01 v04 – Section 11.3

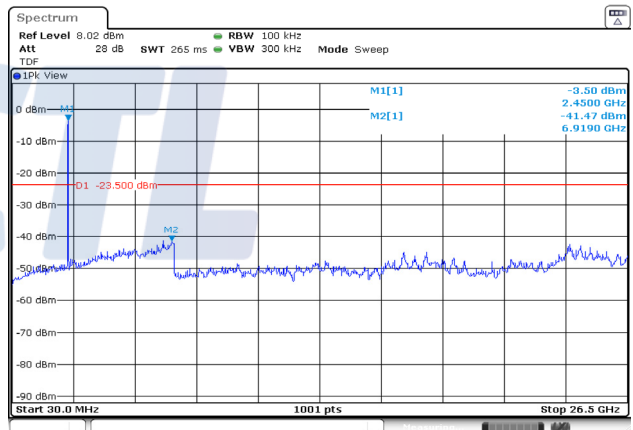
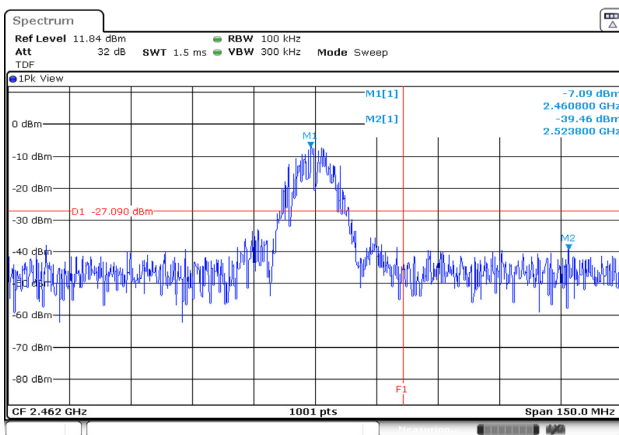
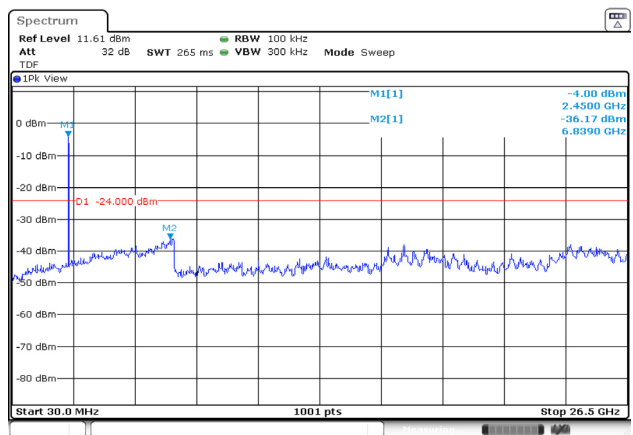
Test settings

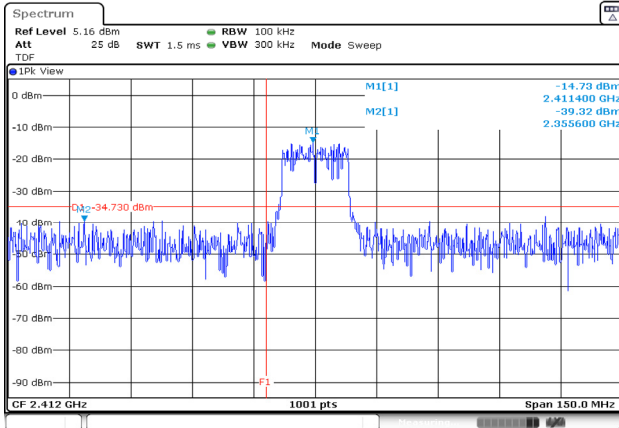
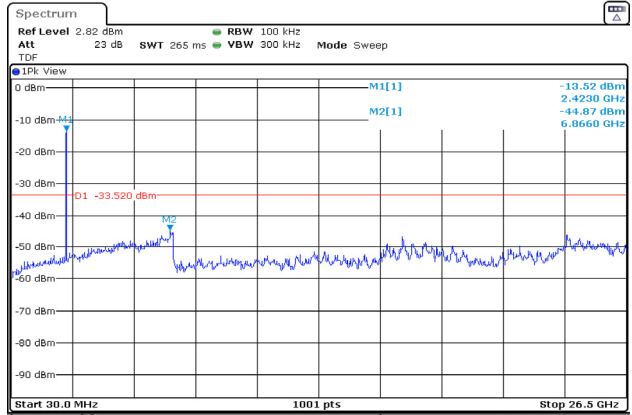
Set the spectrum analyzer as follows:

- 1) Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.
Typically, several plots are required to cover this entire span.
- 2) RBW = 100 kHz
- 3) VBW ≥ RBW
- 4) Sweep = auto
- 5) Detector function = peak
- 6) Trace = max hold
- 7) Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
- 8) Each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.

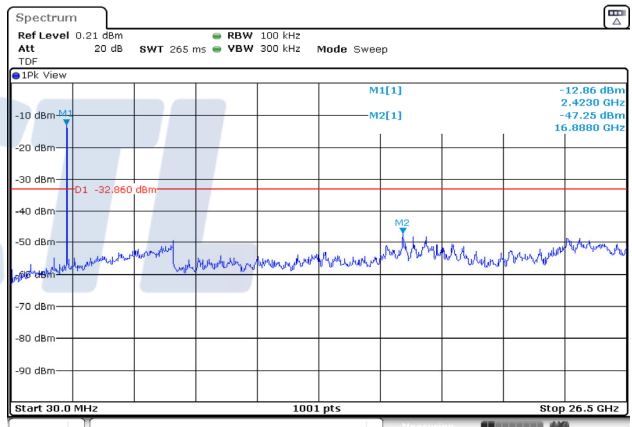
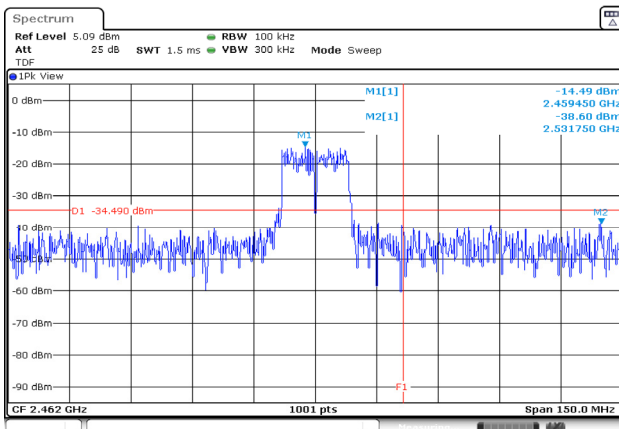
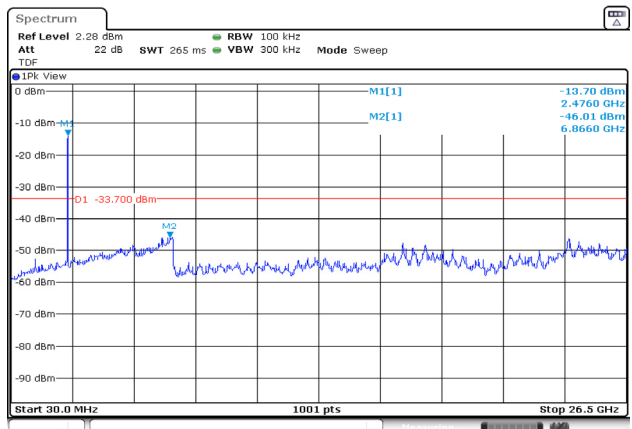
Test results**802.11b****Conducted band-edge / 2 412 MHz****Conducted spurious / 2 412 MHz****Conducted band-edge / 2 437 MHz**

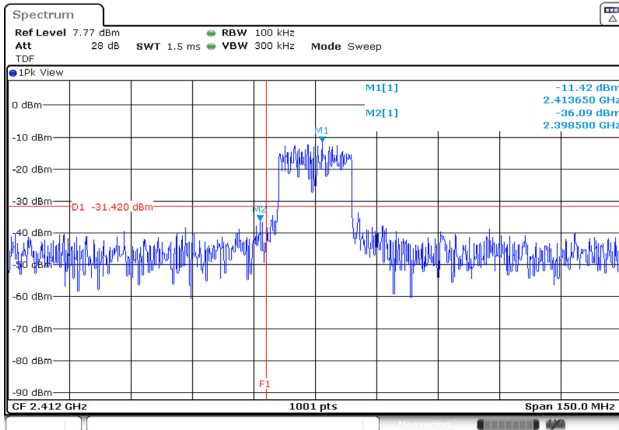
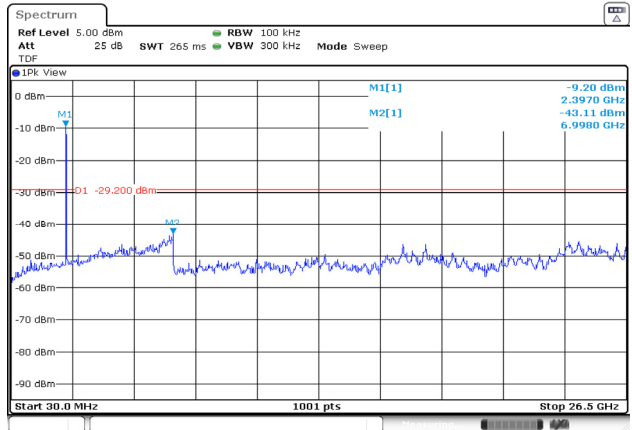
Blank

Conducted spurious / 2 437 MHz**Conducted band-edge / 2 462 MHz****Conducted spurious / 2 462 MHz**

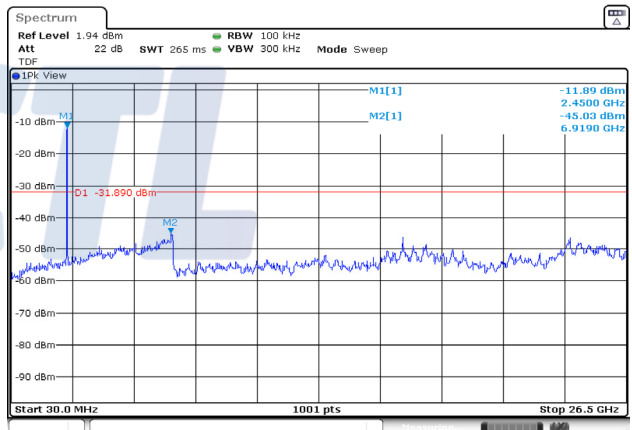
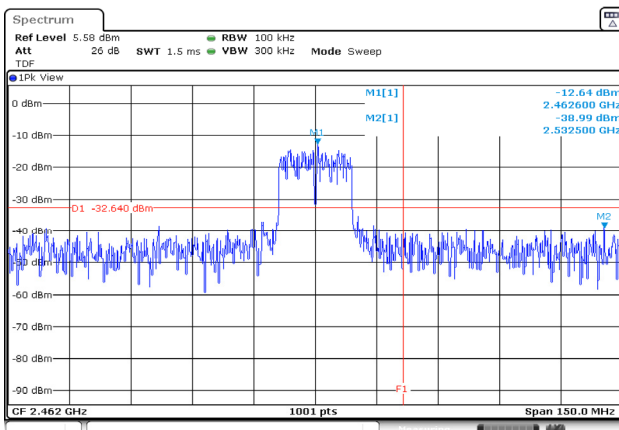
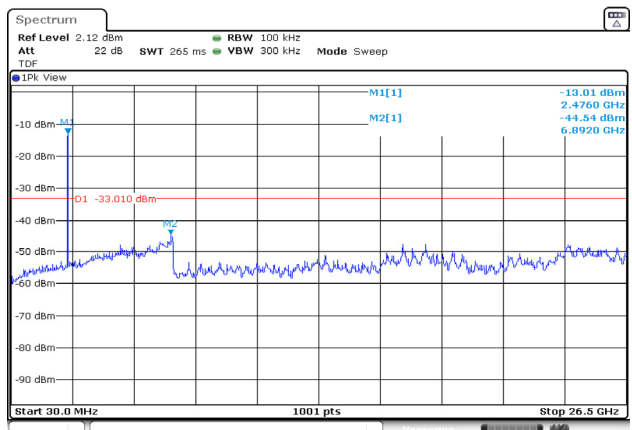
802.11g**Conducted band-edge / 2 412 MHz****Conducted spurious / 2 412 MHz****Conducted band-edge / 2 437 MHz**

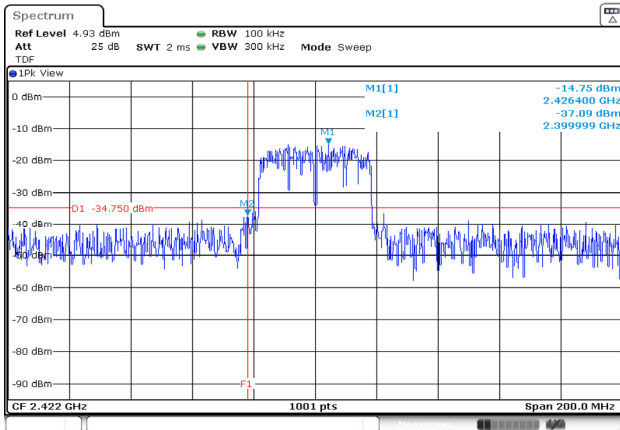
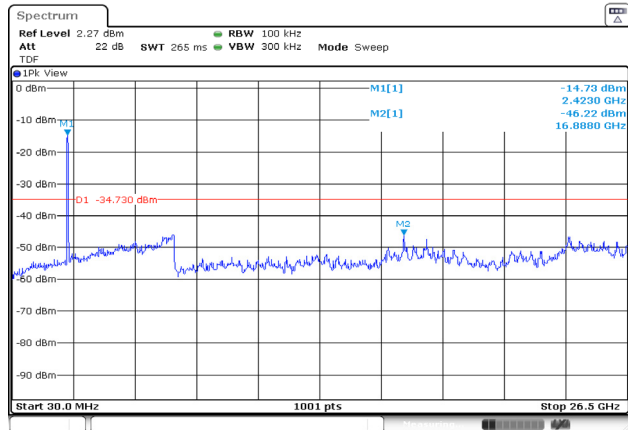
Blank

Conducted spurious / 2 437 MHz**Conducted band-edge / 2 462 MHz****Conducted spurious / 2 462 MHz**

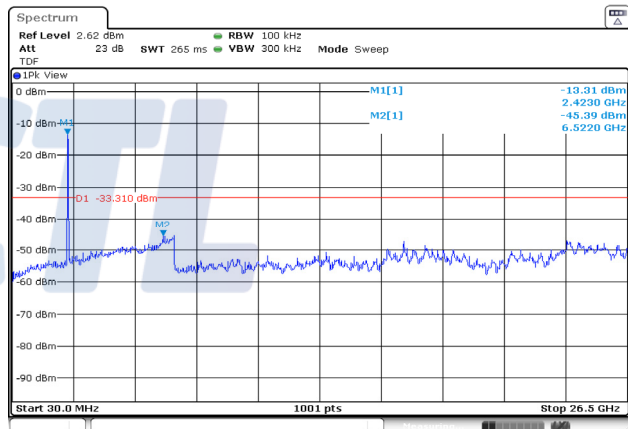
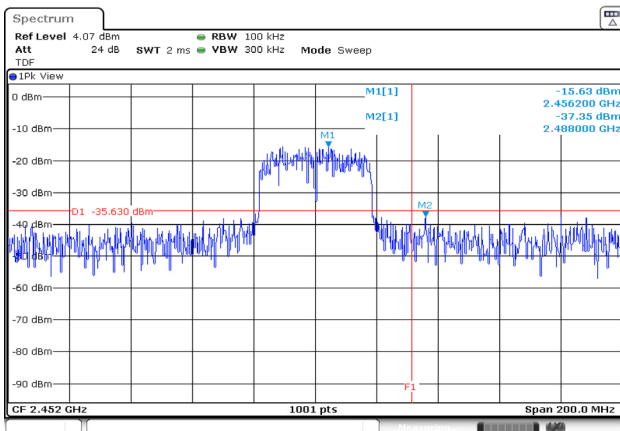
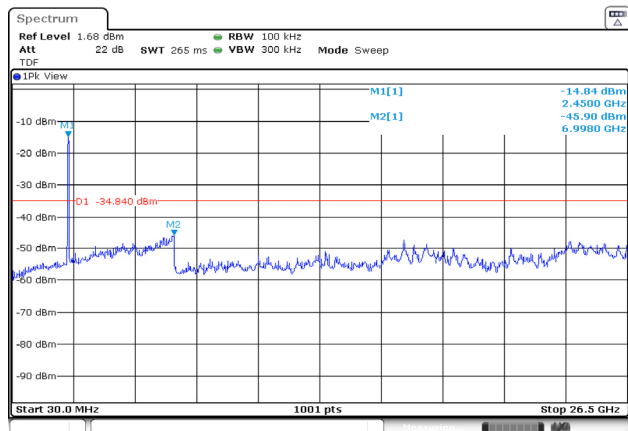
802.11n_HT20**Conducted band-edge / 2 412 MHz****Conducted spurious / 2 412 MHz****Conducted band-edge / 2 437 MHz**

Blank

Conducted spurious / 2 437 MHz**Conducted band-edge / 2 462 MHz****Conducted spurious / 2 462 MHz**

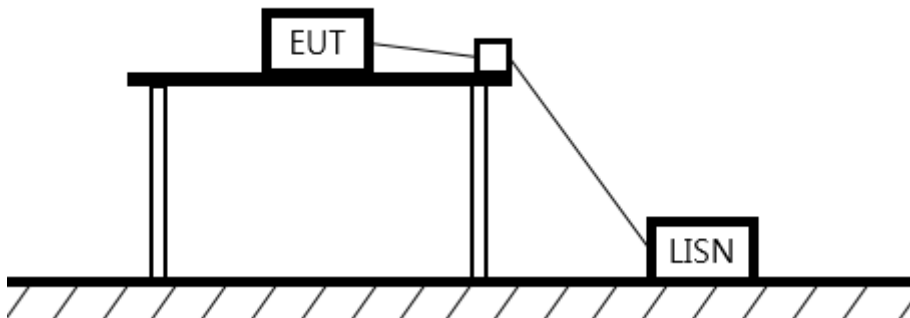
802.11n_HT40**Conducted band-edge / 2 422 MHz****Conducted spurious / 2 422 MHz****Conducted band-edge / 2 437 MHz**

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Conducted spurious / 2 437 MHz**Conducted band-edge / 2 452 MHz****Conducted spurious / 2 452 MHz**

7.6. AC Conducted emission

Test setup



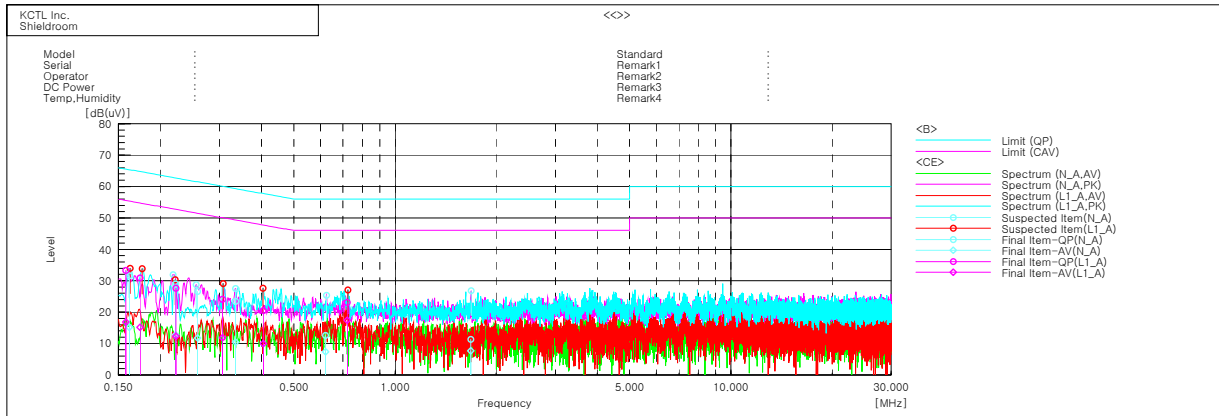
Limit

According to 15.207(a), 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 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted limit (dB μ V/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

Measurement procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50 Ω /50 μ H LISN, which is an input transducer to a spectrum analyzer or an EMI/Field Intensity — Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
5. The measurements were made with the detector set to peak amplitude within a bandwidth of 10 kHz or to quasi-peak and average within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

Test results**Worst case: 802.11b / 2 412 MHz****Final Result****--- N_A Phase ---**

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.16184	21.4	4.9	10.2	31.6	15.1	65.4	55.4	33.8	40.3
2	0.2221	19.0	2.8	10.0	29.0	12.8	62.7	52.7	33.7	39.9
3	0.25844	16.7	1.9	9.9	26.6	11.8	61.5	51.5	34.9	39.7
4	0.33498	13.3	0.4	10.1	23.4	10.5	59.3	49.3	35.9	38.8
5	0.62134	2.4	-2.8	10.1	12.5	7.3	56.0	46.0	43.5	38.7
6	1.68145	1.3	-2.3	10.0	11.3	7.7	56.0	46.0	44.7	38.3

--- L1_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.1579	23.3	6.8	10.0	33.3	16.8	65.6	55.6	32.3	38.8
2	0.17388	20.8	5.1	10.1	30.9	15.2	64.8	54.8	33.9	39.6
3	0.22255	17.8	2.5	9.8	27.6	12.3	62.7	52.7	35.1	40.4
4	0.30642	14.3	2.1	9.8	24.1	11.9	60.1	50.1	36.0	38.2
5	0.40569	10.6	0.1	9.9	20.5	10.0	57.7	47.7	37.2	37.7
6	0.72086	13.2	7.5	9.9	23.1	17.4	56.0	46.0	32.9	28.6

8. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Signal Generator	R&S	SMB100A	176206	21.01.21
Spectrum Analyzer	R&S	FSV30	100732	21.01.21
DC Power Supply	AGILENT	E3632A	MY40000265	21.05.11
Attenuator	Weinschel ENGINEERING	21-10	0007	21.01.21
Pulse Power Meter	ANRITSU	ML2495A	1608009	20.07.31
Pulse Power Sensor	ANRITSU	MA2411B	1726174	20.07.31
Attenuator	API Inmet	40AH2W-10	10	20.08.01
Spectrum Analyzer	R&S	FSV40	100989	21.01.03
EMI TEST RECEIVER	R&S	ESC17	100732	20.08.22
Bi-Log Antenna	TESEQ	CBL 6112D	37876	20.07.20
Amplifier	SONOMA INSTRUMENT	310N	284608	20.08.22
ATTENUATOR	Agilent	8491B	MY39270292	20.07.20
Horn antenna	ETS.lindgren	3117	155787	20.10.24
Horn antenna	ETS.lindgren	3116	86632	21.02.17
Attenuator	API Inmet	40AH2W-10	12	21.05.12
Broadband PreAmplifier	SCHWARZBECK	BBV9718	216	20.07.30
AMPLIFIER	L-3 Narda-MITEQ	AMF-7D-01001800 -22-10P	2031196	21.02.12
AMPLIFIER	L-3 Narda-MITEQ	JS44-18004000-33-8P	2000996	21.01.22
LOOP Antenna	R&S	HFH2-Z2	100355	20.08.24
Antenna Mast	Innco Systems	MA4640-XP-ET	-	-
Turn Table	Innco Systems	DT2000	79	-
Antenna Mast	Innco Systems	MA4000-EP	303	-
Turn Table	Innco Systems	DT2000	79	-
Highpass Filter	WT	WT-A1698-HS	WT160411001	21.05.11

End of test report