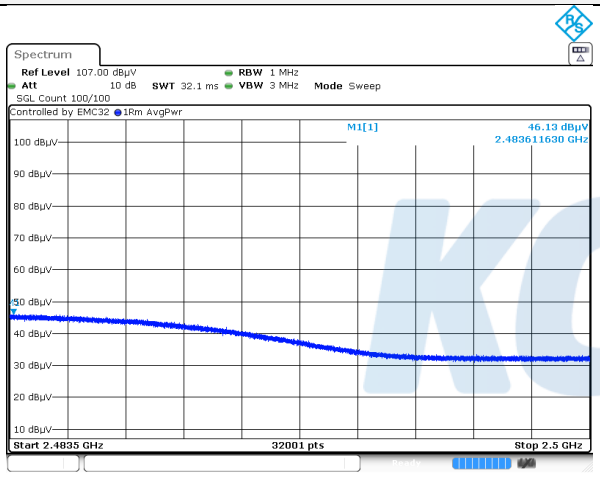
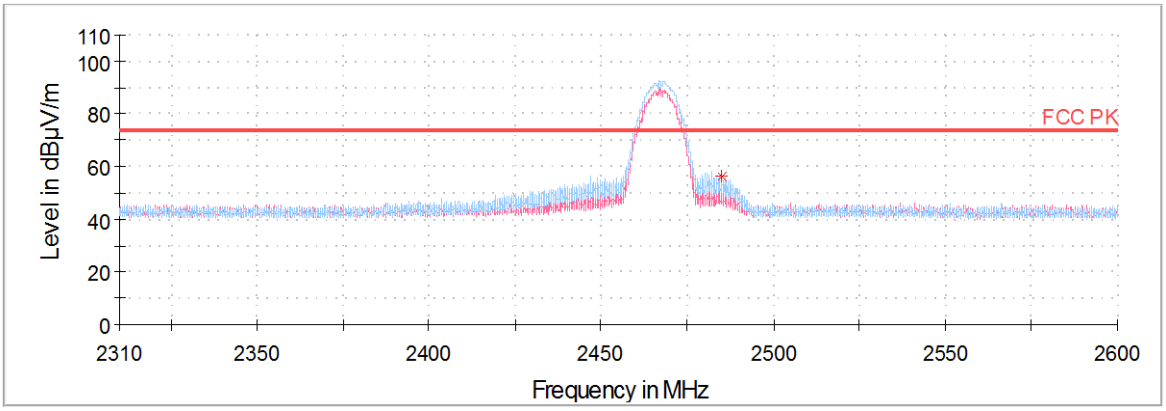
12 Channel

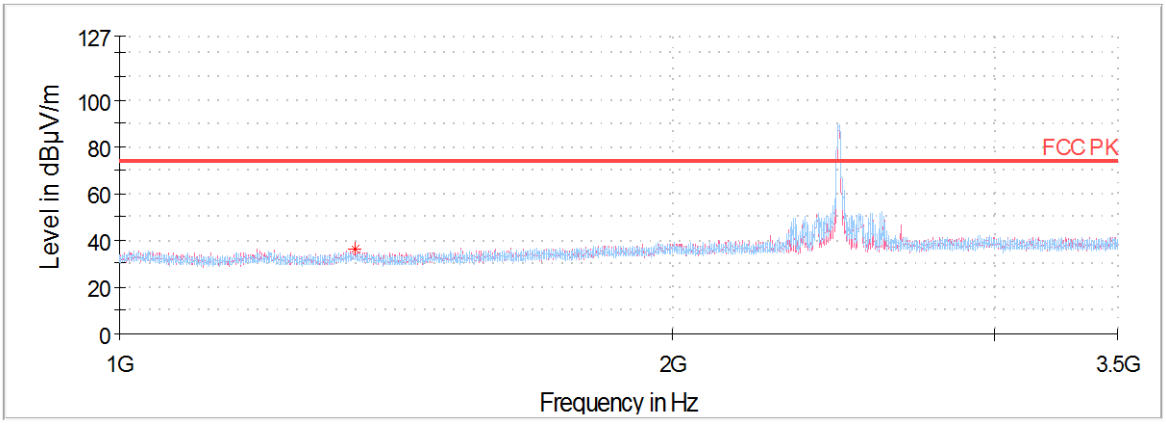
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.59[1)]	H	68.58	2.80	-60.17	25.17	-	36.38	74.00	37.62
2 483.61[1)]	H	54.27	3.77	-30.29	28.72	-	56.47	74.00	17.53
4 934.59[1)]	V	60.87	5.43	-60.89	32.87	-	38.28	74.00	35.72
7 401.86[1)]	V	60.90	6.79	-61.73	36.10	-	42.06	74.00	31.94
Average Data									
2 483.61[1)]	H	46.13	3.77	-30.29	28.72	-	48.33	54.00	5.67

Average data	Average data
	Blank

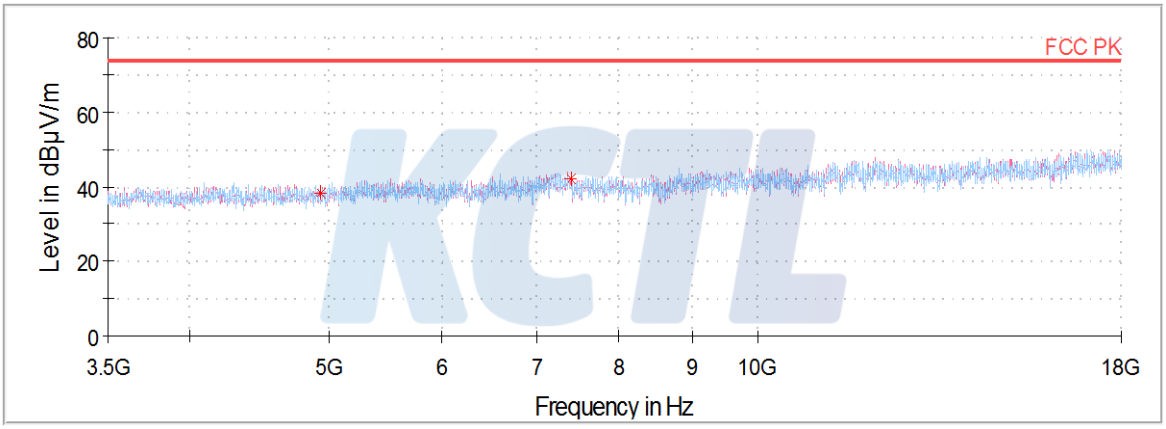
Horizontal/Vertical for Band-edge



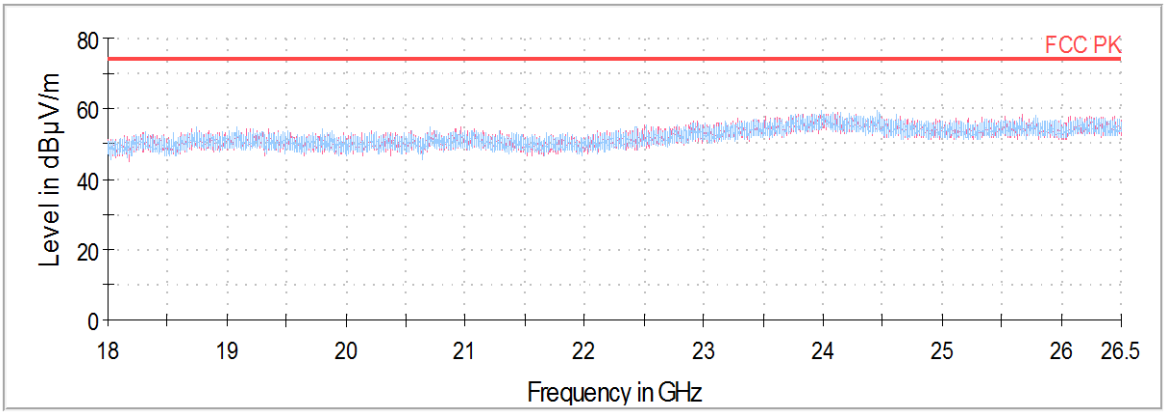
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

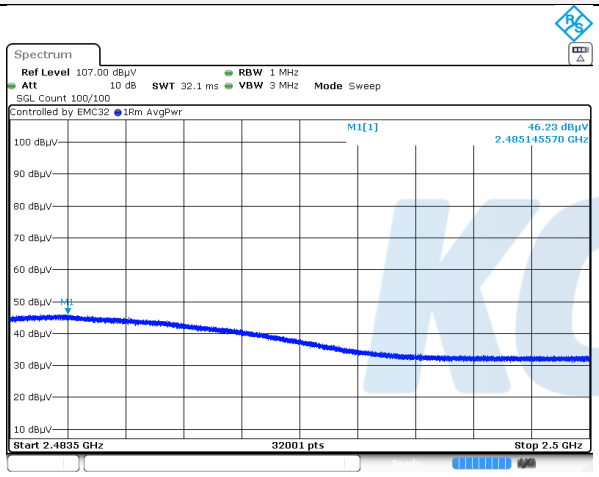


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

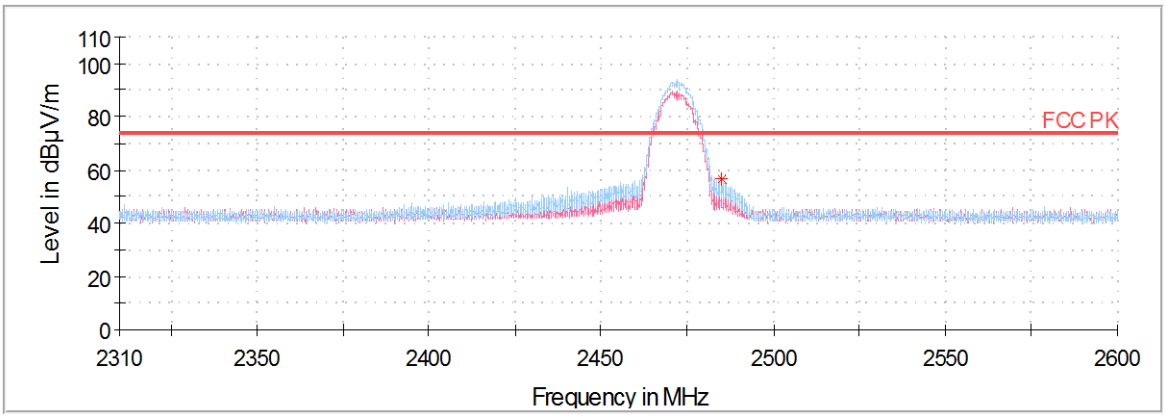


13 Channel

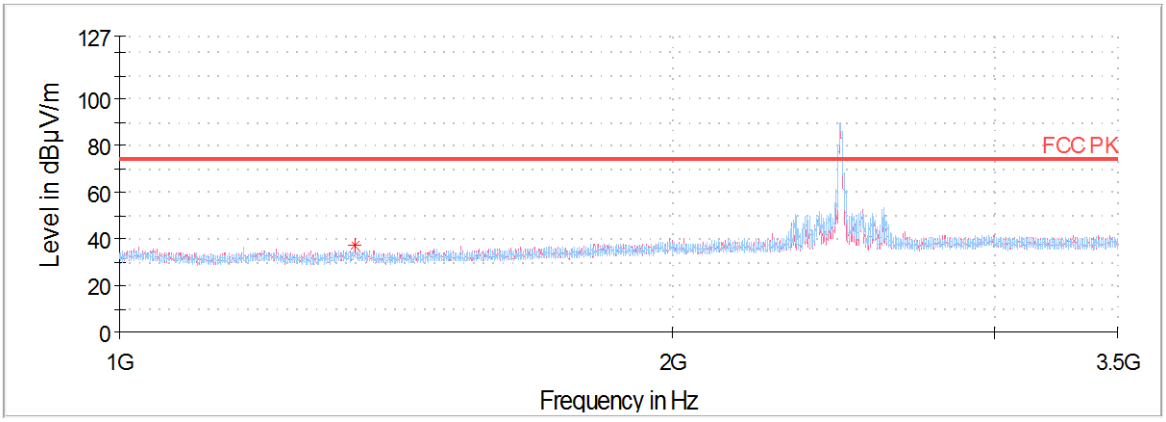
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.67[1)]	H	69.59	2.80	-60.17	25.17	-	37.39	74.00	36.61
2 485.15[1)]	H	54.59	3.77	-30.29	28.72	-	56.79	74.00	17.21
4 944.56[1)]	H	61.14	5.43	-60.82	32.87	-	38.62	74.00	35.38
7 416.81[1)]	V	58.91	6.80	-61.76	36.12	-	40.06	74.00	33.94
Average Data									
2 485.15[1)]	H	46.23	3.77	-30.29	28.72	-	48.43	54.00	5.57

Average data	Average data
	Blank

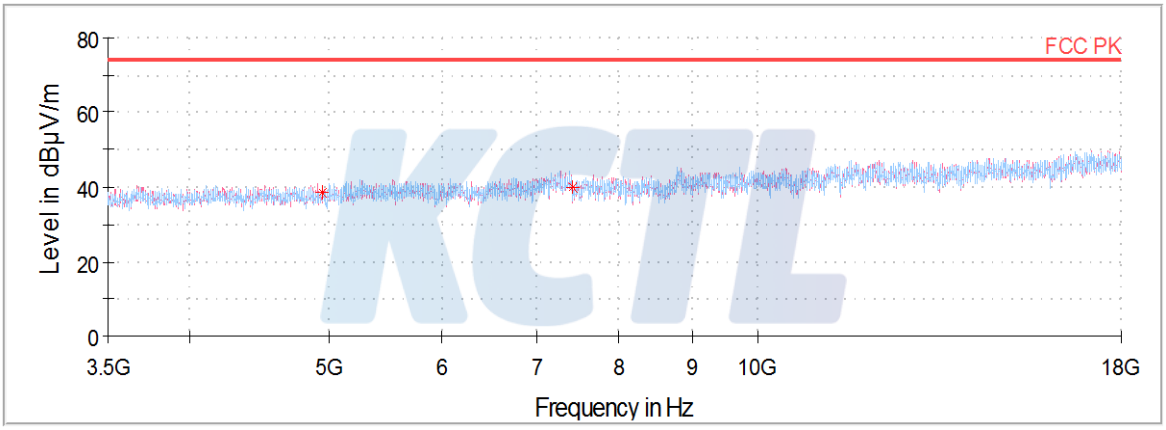
Horizontal/Vertical for Band-edge



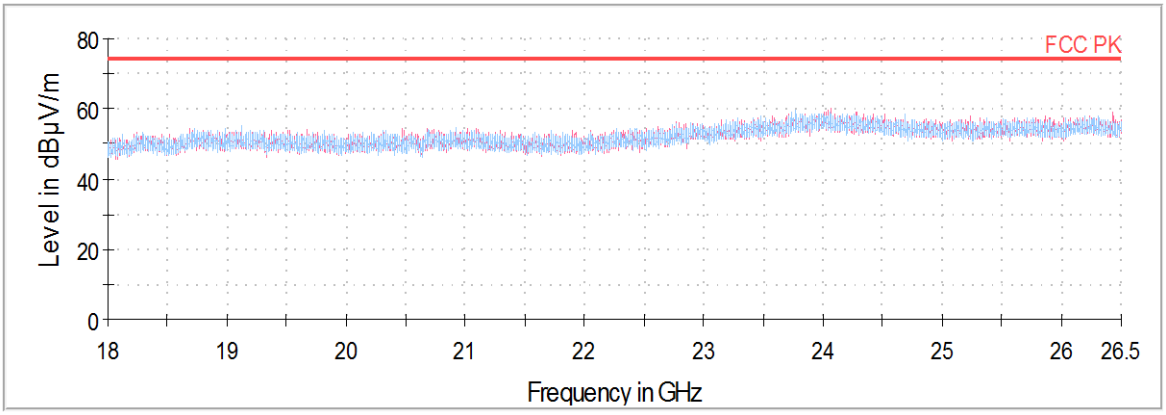
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓



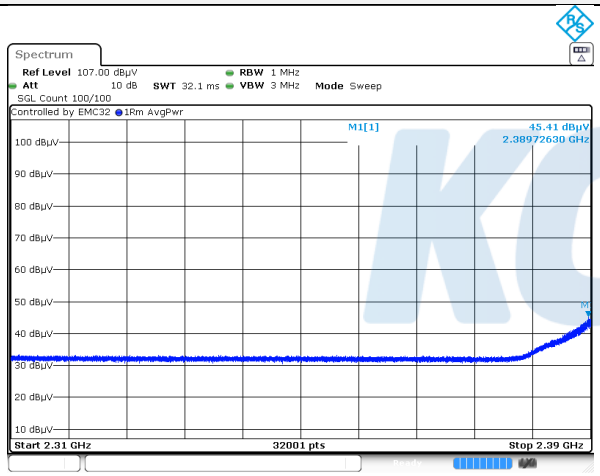
Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓



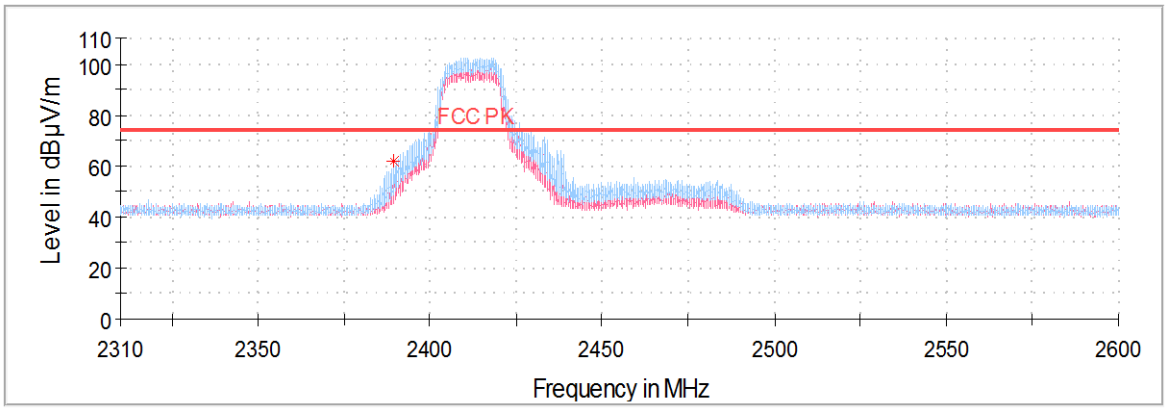
802.11g

1 Channel

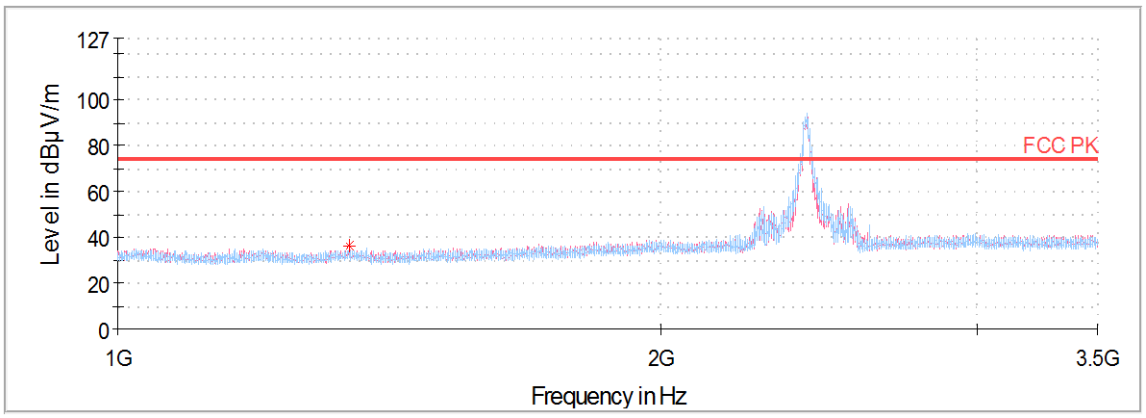
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.75[1)]	H	68.80	2.80	-60.18	25.18	-	36.60	74.00	37.40
2 389.73[1)]	H	59.36	3.70	-30.02	28.54	-	61.59	74.00	12.41
4 824.48[1)]	V	59.19	5.35	-60.89	32.81	-	36.46	74.00	37.54
7 236.92[1)]	H	61.69	6.72	-61.42	35.94	-	42.93	74.00	31.07
Average Data									
2 389.73[1)]	H	45.41	3.70	-30.02	28.54	0.24	47.88	54.00	6.12

Average data	Average data
	Blank

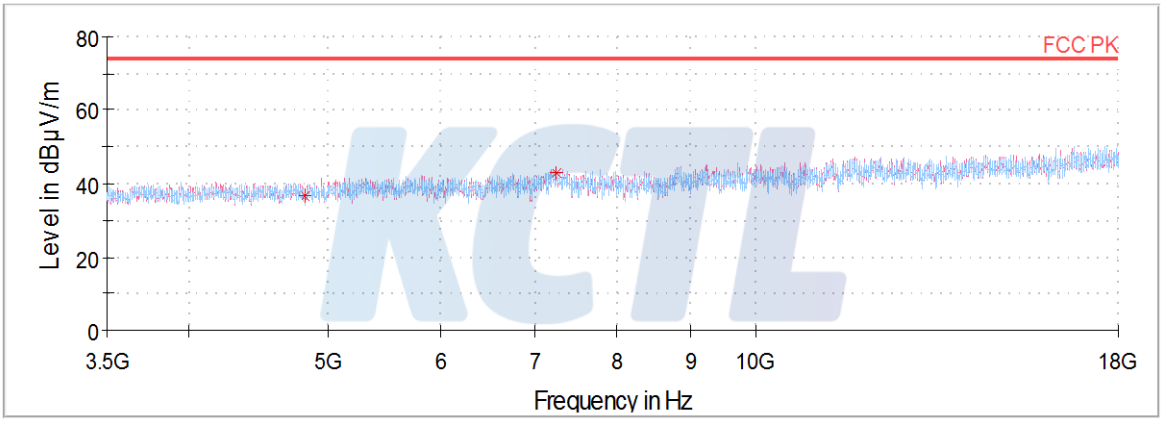
Horizontal/Vertical for Band-edge



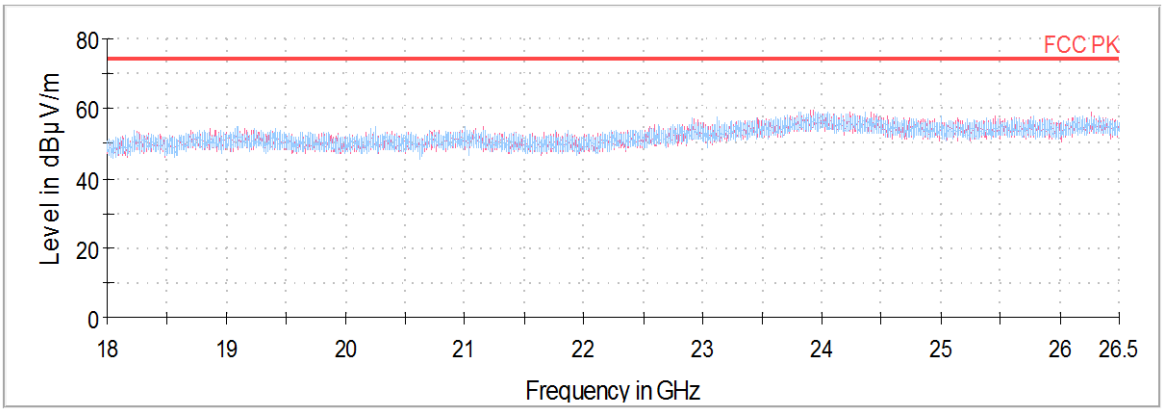
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓



Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓



6 Channel

Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 344.30[1)]	H	69.30	2.80	-60.18	25.18	-	37.10	74.00	36.90
4 874.33[1)]	V	62.66	5.39	-61.05	32.84	-	39.84	74.00	34.16
7 311.23[1)]	H	60.31	6.75	-61.56	36.01	-	41.51	74.00	32.49
Average Data									
No spurious emissions were detected within 20 dB of the limit.									

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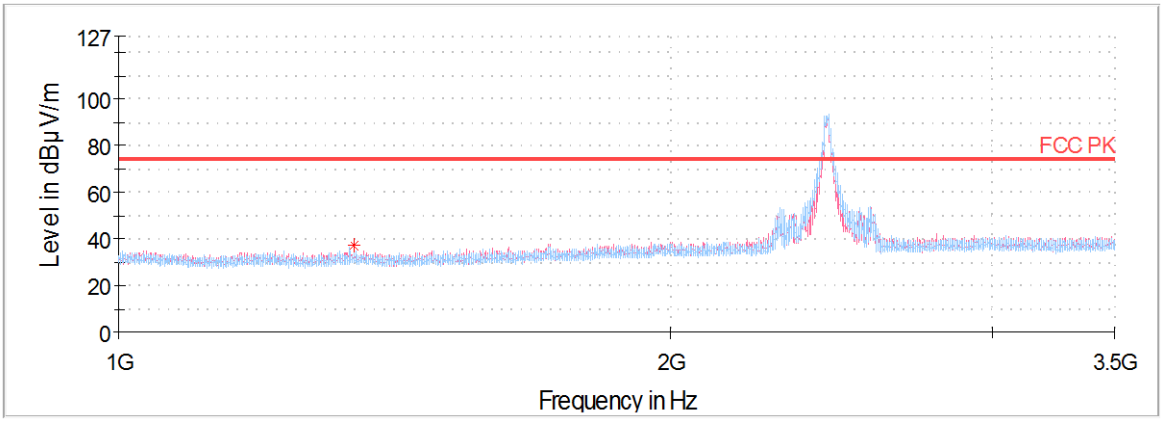
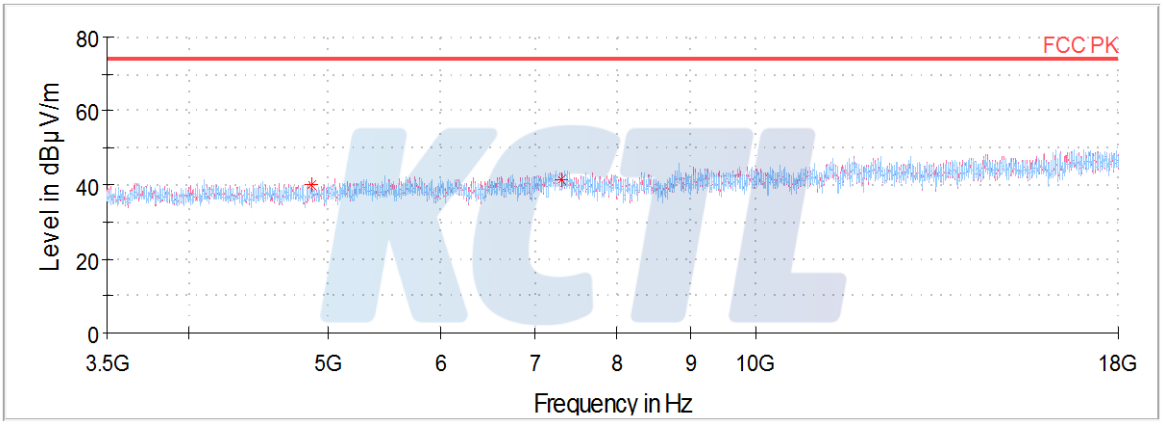
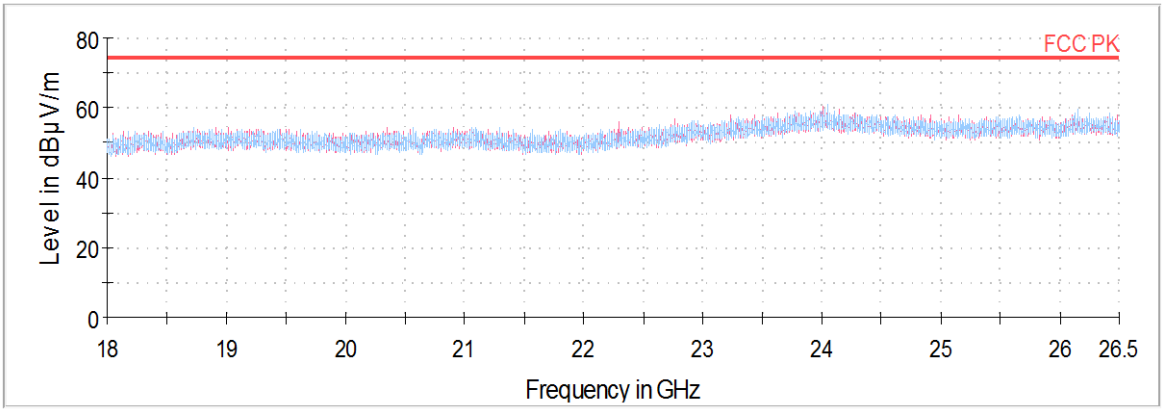
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

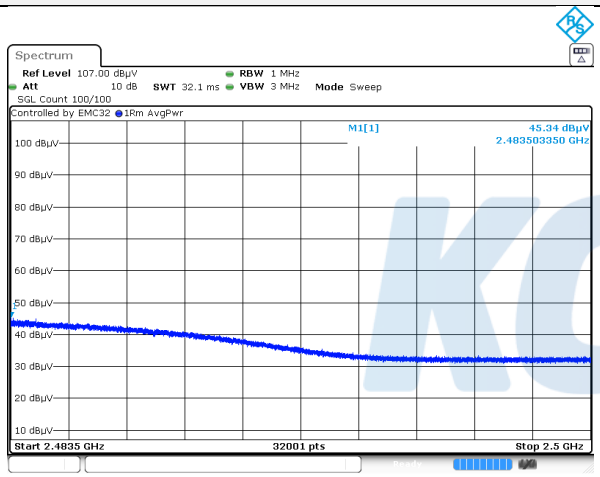


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

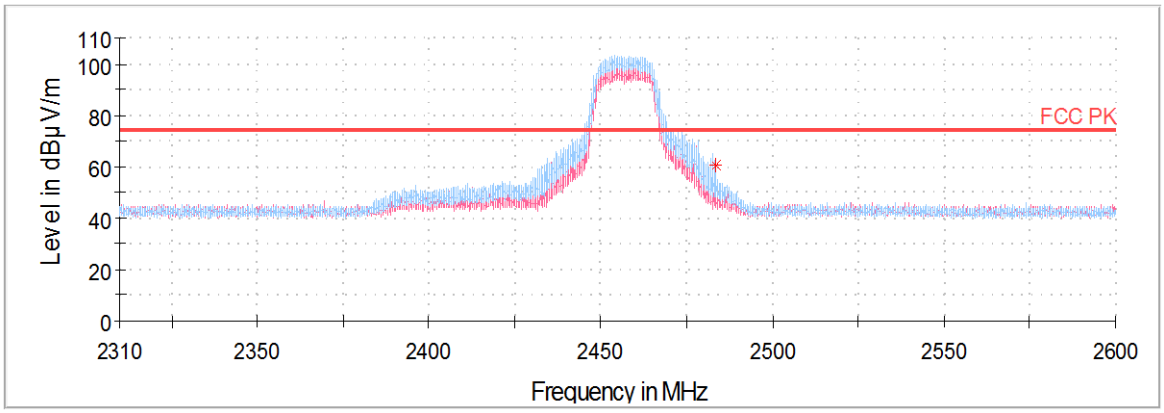


10 Channel

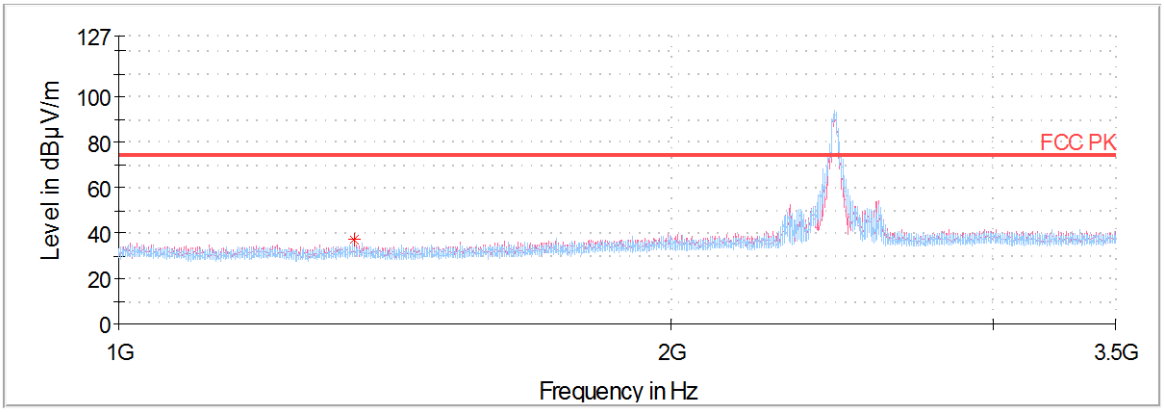
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.91[1)]	H	69.19	2.80	-60.18	25.18	-	36.99	74.00	37.01
2 483.50[1)]	H	58.09	3.77	-30.29	28.72	-	60.30	74.00	13.70
4 914.20[1)]	V	61.98	5.41	-61.03	32.86	-	39.22	74.00	34.78
7 371.50[1)]	H	60.80	6.78	-61.67	36.07	-	41.98	74.00	32.02
Average Data									
2 483.50[1)]	H	45.34	3.77	-30.29	28.72	0.24	47.79	54.00	6.21

Average data	Average data
	Blank

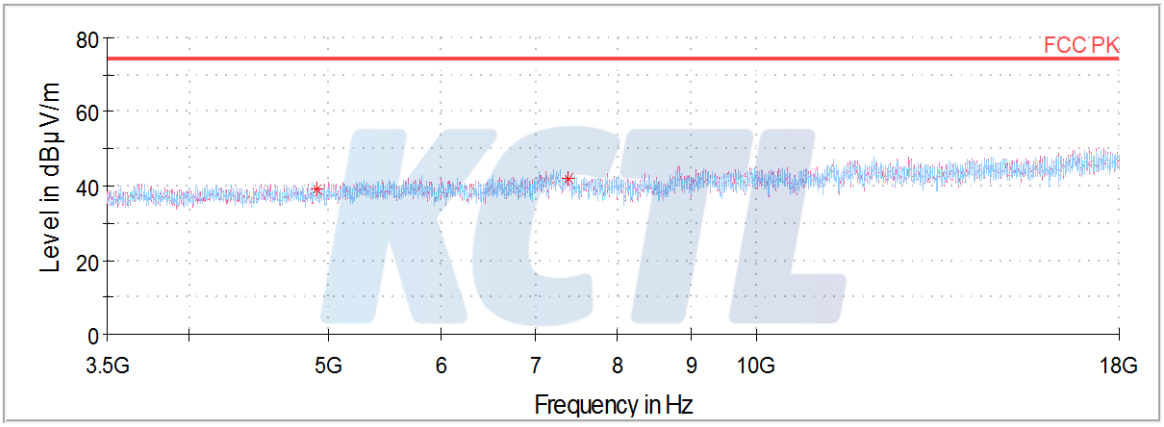
Horizontal/Vertical for Band-edge



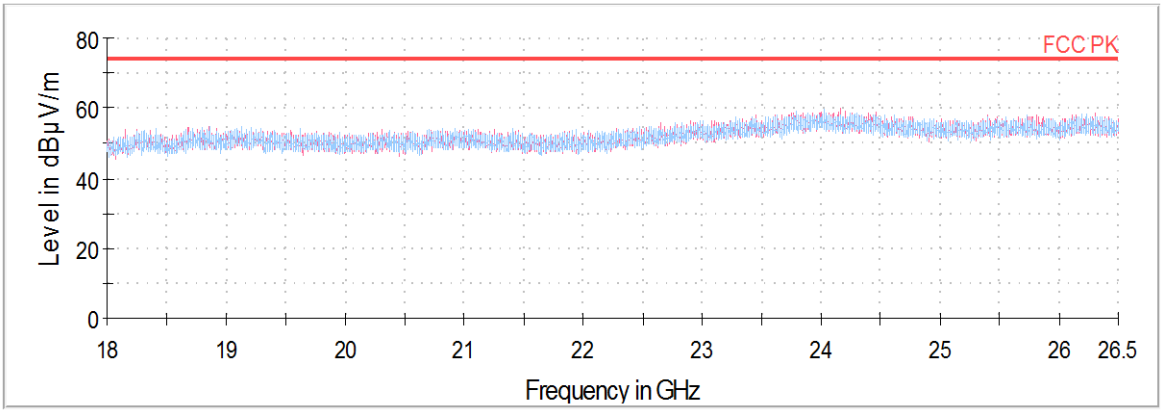
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

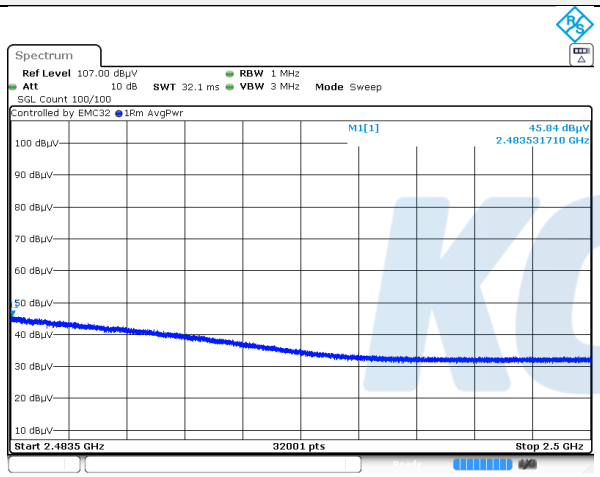


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

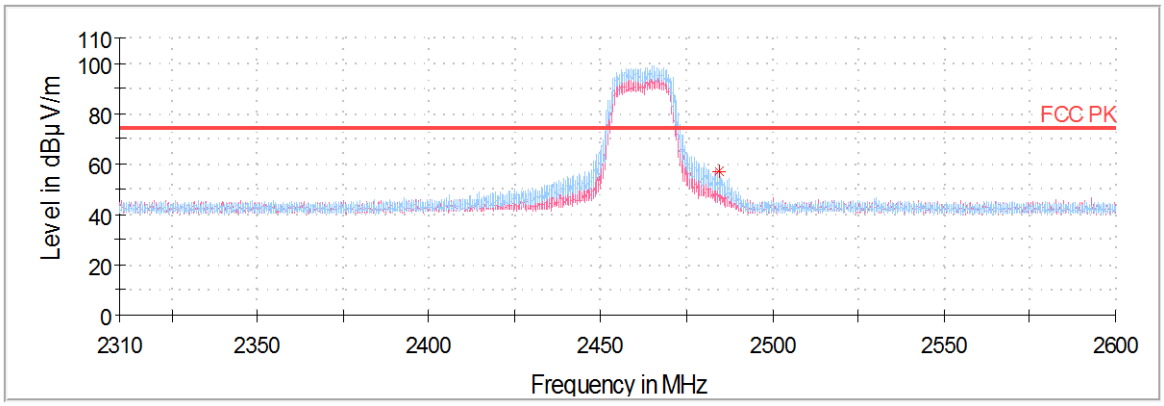


11 Channel

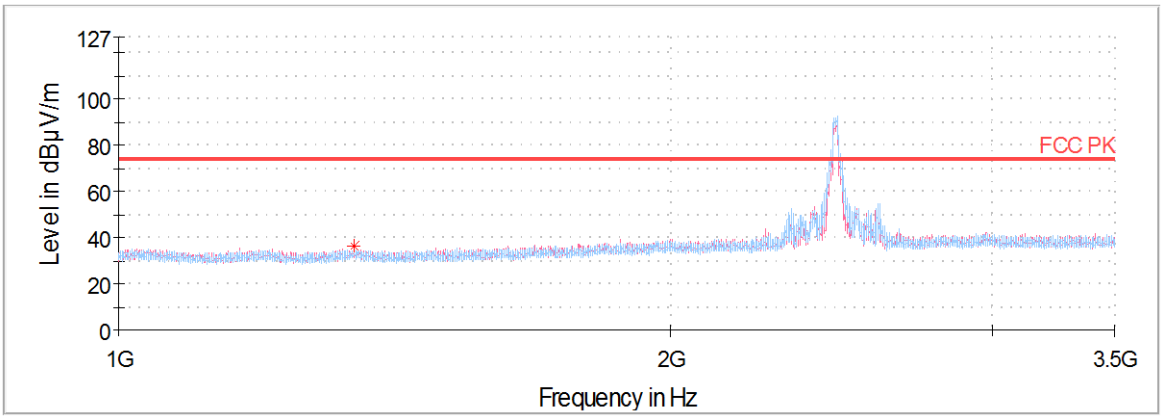
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 344.22[1)]	H	68.91	2.80	-60.18	25.18	-	36.71	74.00	37.29
2 483.53[1)]	H	54.95	3.77	-30.29	28.72	-	57.15	74.00	16.85
4 924.17[1)]	V	60.86	5.42	-60.96	32.86	-	38.18	74.00	35.82
7 368.33[1)]	V	61.51	6.78	-61.67	36.07	-	42.69	74.00	31.31
Average Data									
2 483.53[1)]	H	45.84	3.77	-30.29	28.72	0.24	48.29	54.00	5.71

Average data	Average data
	Blank

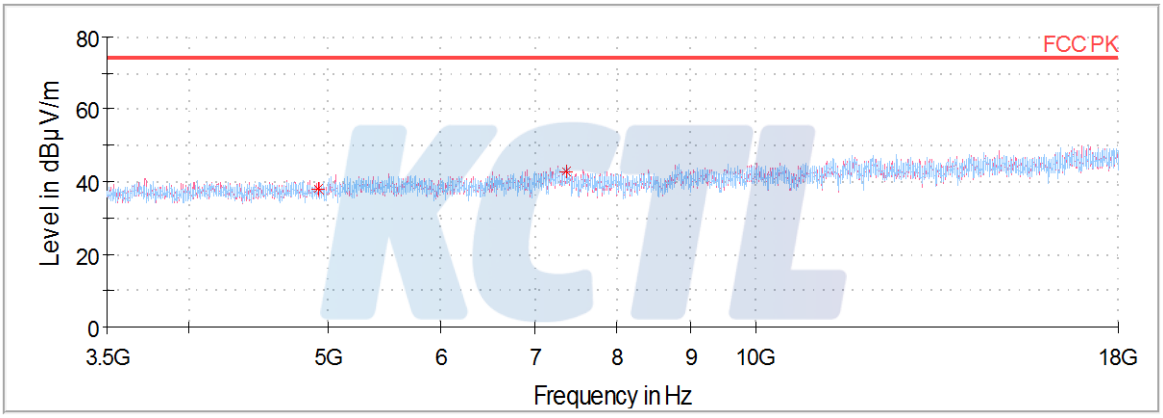
Horizontal/Vertical for Band-edge



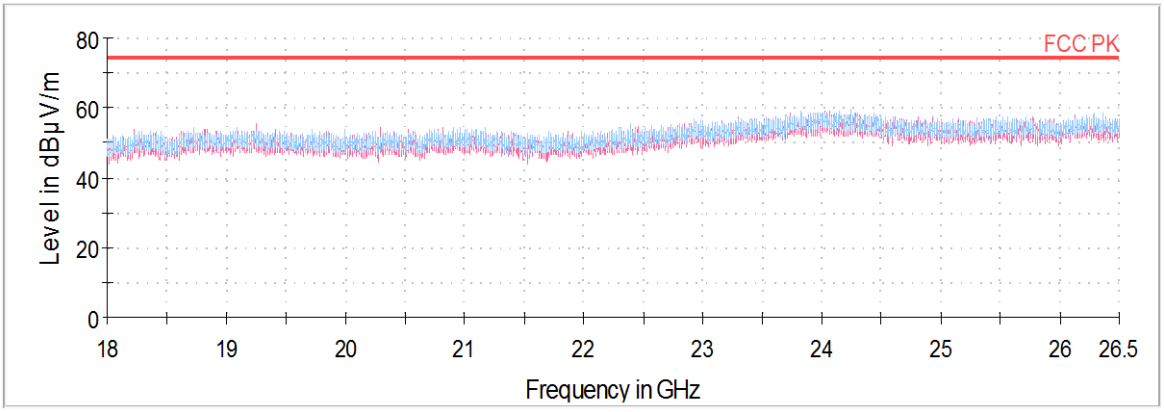
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

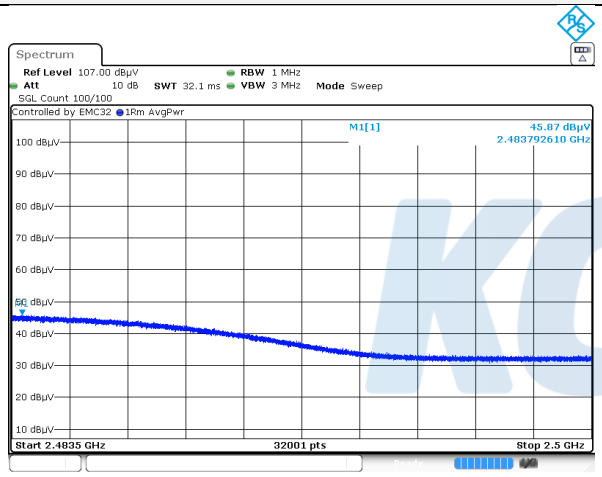


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

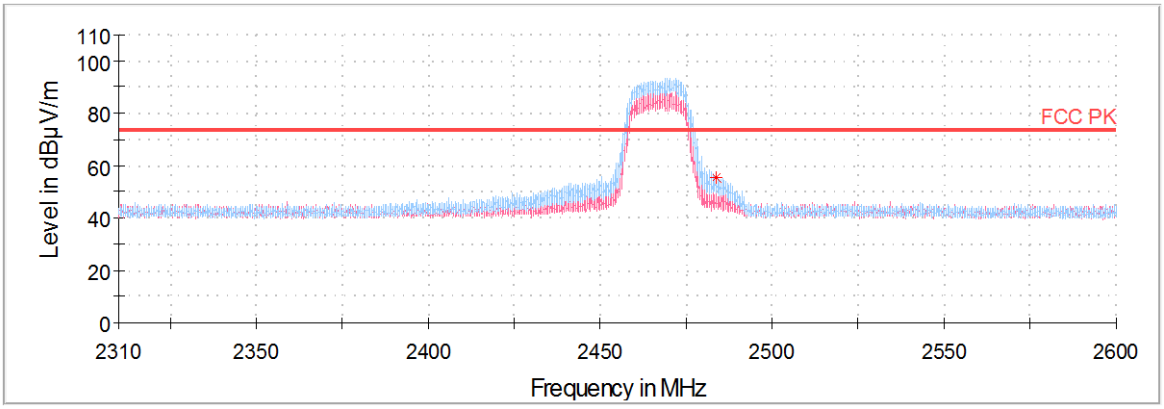


12 Channel

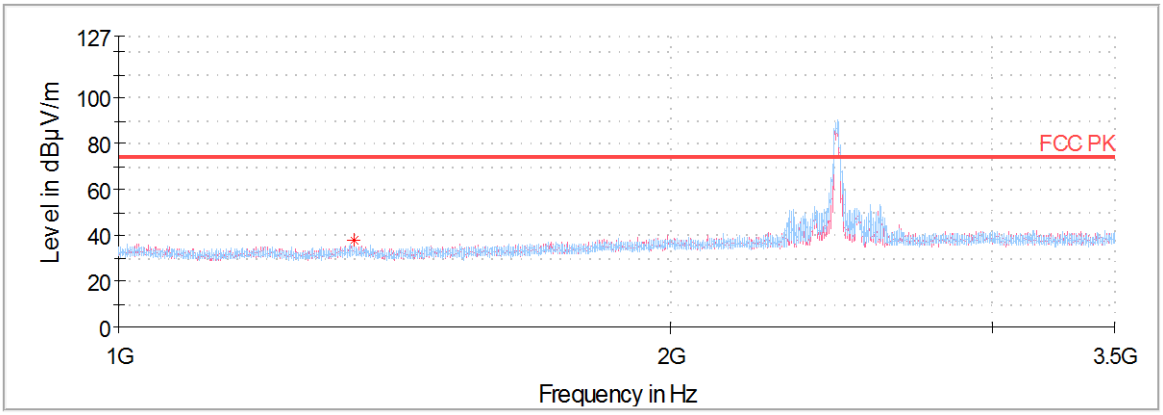
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.91[1)]	H	70.04	2.80	-60.18	25.18	-	37.84	74.00	36.16
2 483.79[1)]	H	53.09	3.77	-30.29	28.72	-	55.30	74.00	18.70
4 934.14[1)]	H	61.16	5.43	-60.90	32.87	-	38.56	74.00	35.44
7 401.86[1)]	V	60.62	6.79	-61.73	36.10	-	41.79	74.00	32.21
Average Data									
2 483.79[1)]	H	45.87	3.77	-30.29	28.72	0.24	48.32	54.00	5.68

Average data	Average data
	Blank

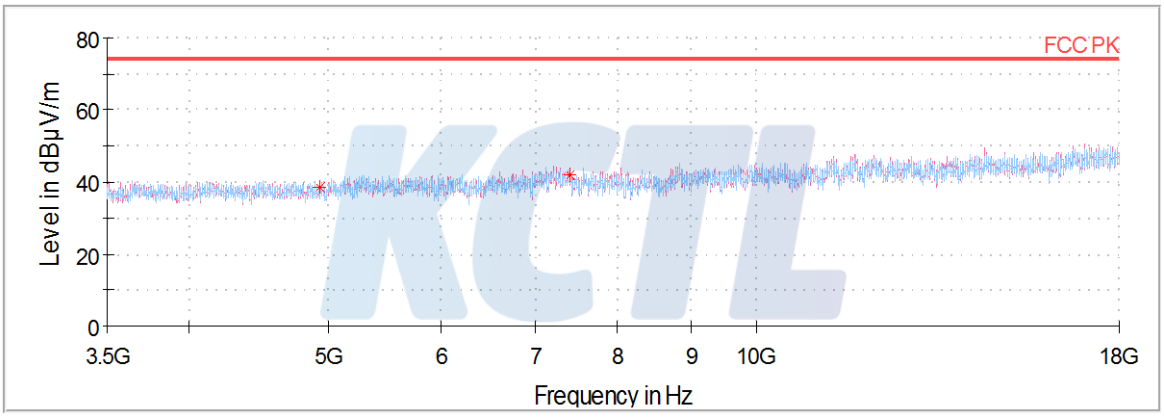
Horizontal/Vertical for Band-edge



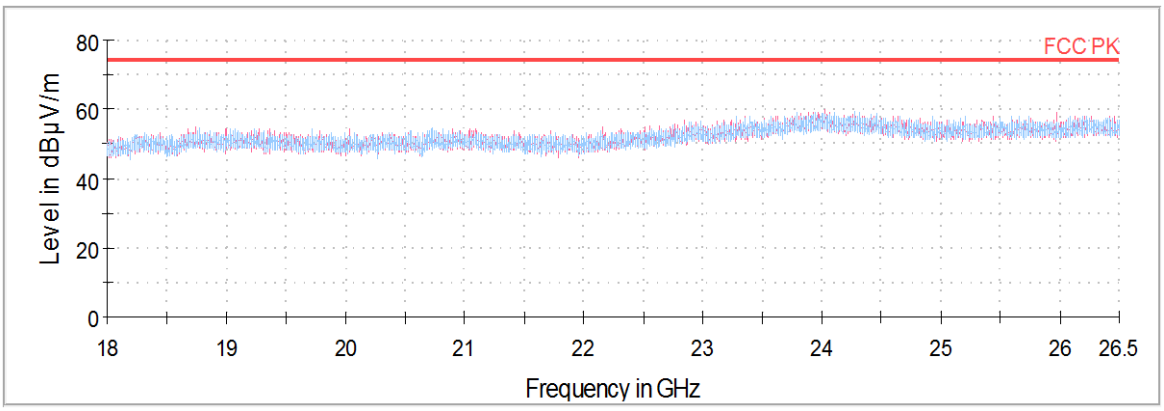
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

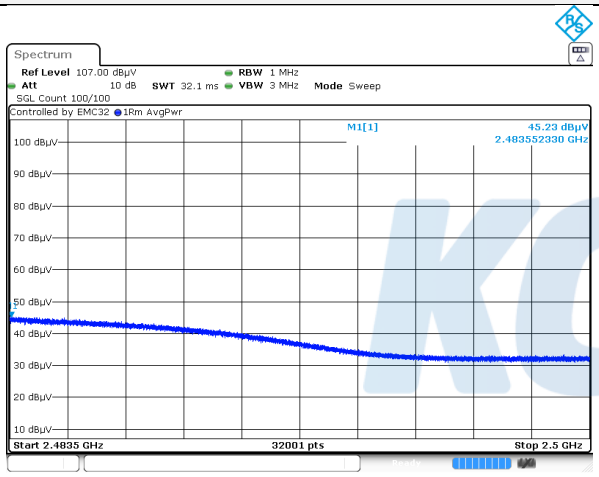


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

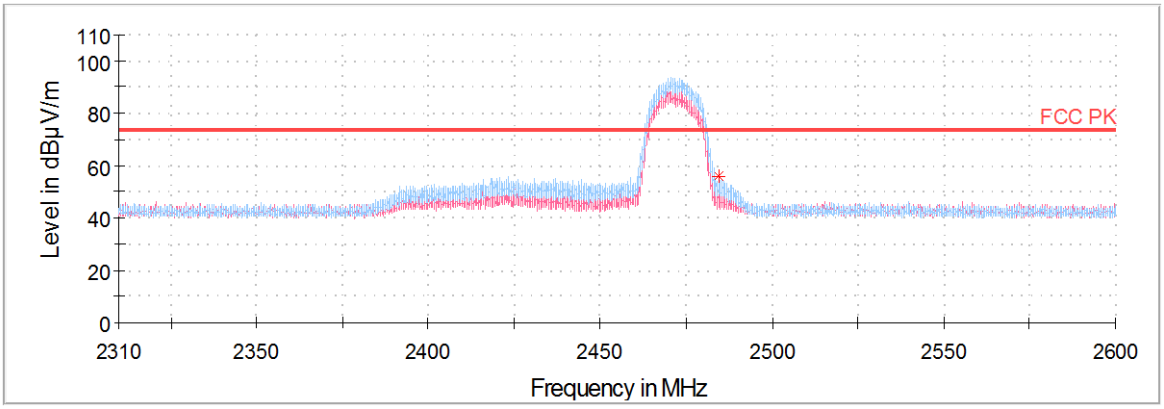


13 Channel

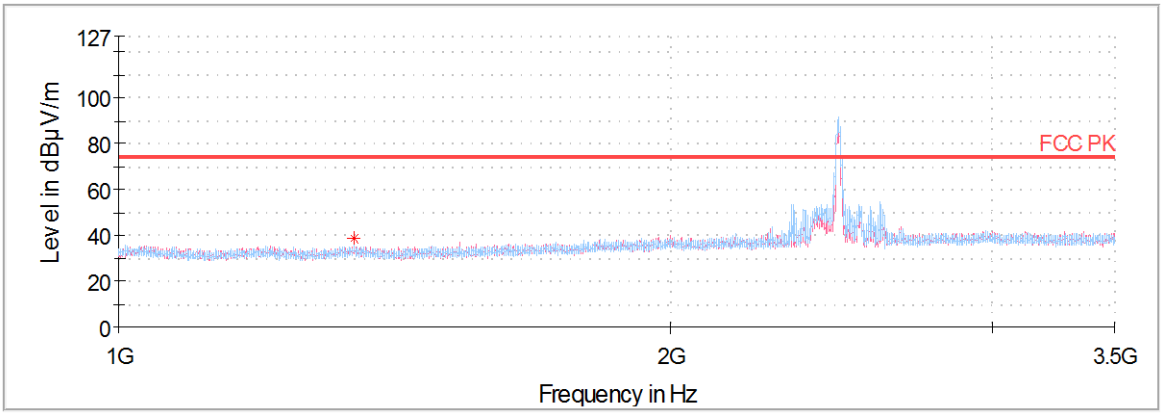
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 344.14[1)]	H	70.93	2.80	-60.18	25.18	-	38.73	74.00	35.27
2 483.55[1)]	H	54.34	3.77	-30.29	28.72	-	56.55	74.00	17.45
4 944.56[1)]	H	60.32	5.43	-60.82	32.87	-	37.81	74.00	36.19
7 416.36[1)]	V	58.12	6.80	-61.76	36.12	-	39.27	74.00	34.73
Average Data									
2 483.55[1)]	H	45.23	3.77	-30.29	28.72	0.24	47.68	54.00	6.32

Average data	Average data
	Blank

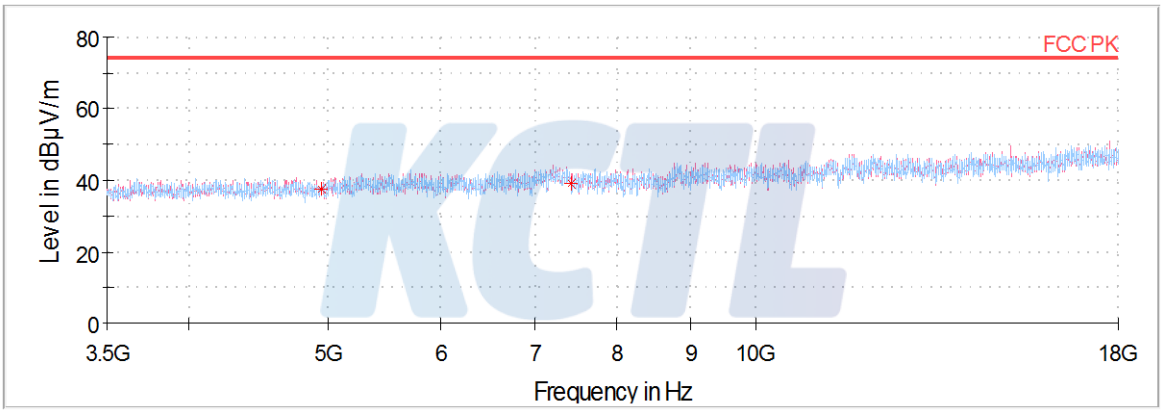
Horizontal/Vertical for Band-edge



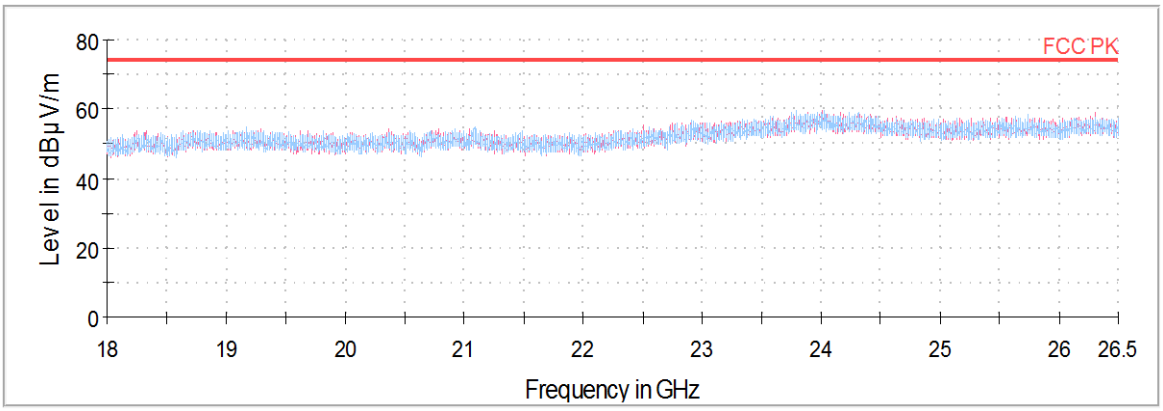
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓



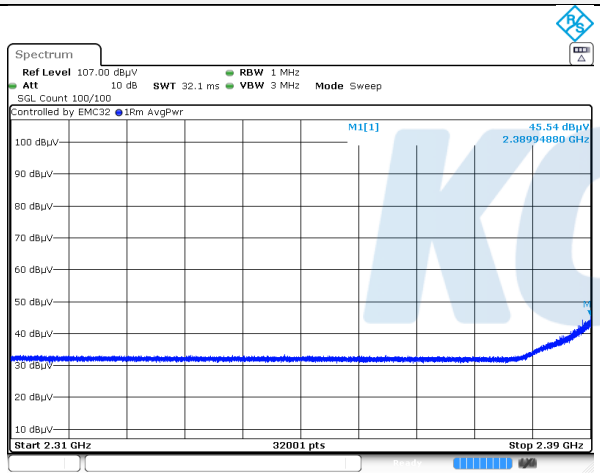
Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓



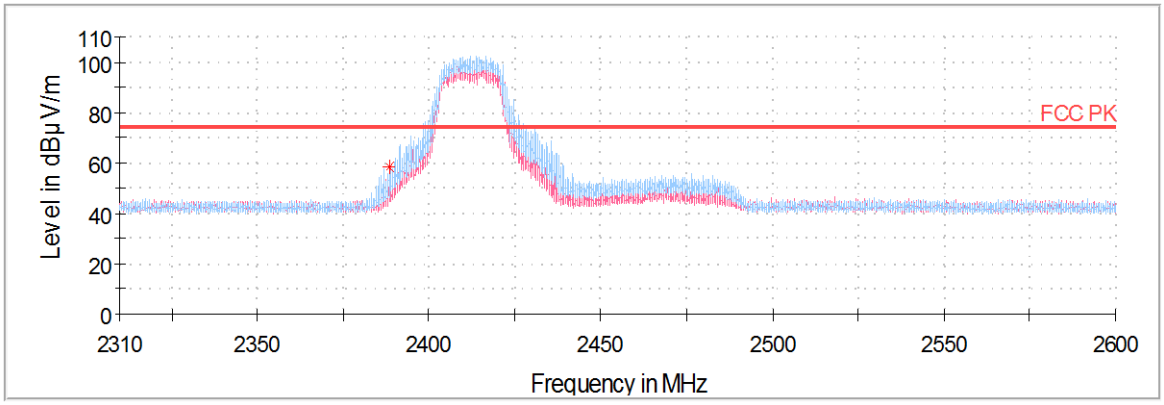
802.11n20

1 Channel

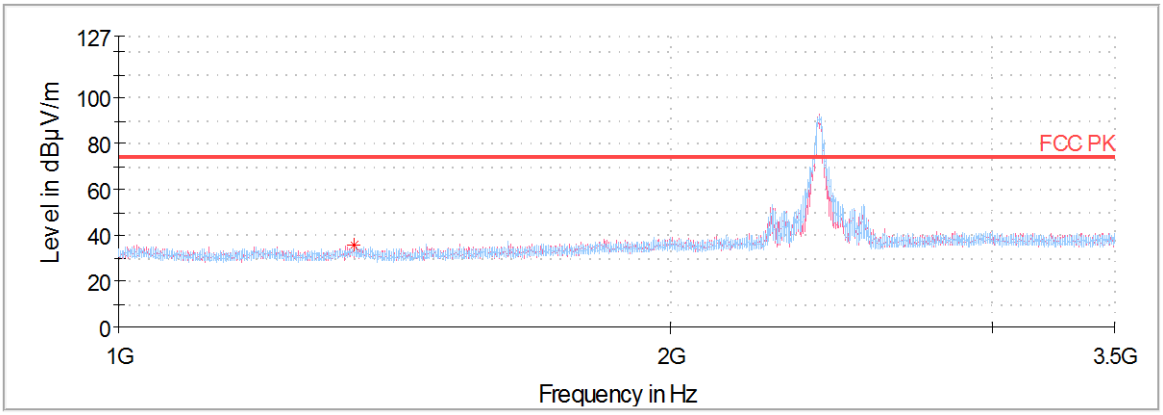
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.75[1)]	H	67.98	2.80	-60.18	25.18	-	35.78	74.00	38.22
2 389.95[1)]	H	56.19	3.70	-30.02	28.54	-	58.41	74.00	15.59
4 824.03[1)]	H	59.85	5.35	-60.89	32.81	-	37.12	74.00	36.88
7 236.47[1)]	V	60.22	6.72	-61.42	35.94	-	41.46	74.00	32.54
Average Data									
2 389.95[1)]	H	45.54	3.70	-30.02	28.54	0.27	48.03	54.00	5.97

Average data	Average data
	Blank

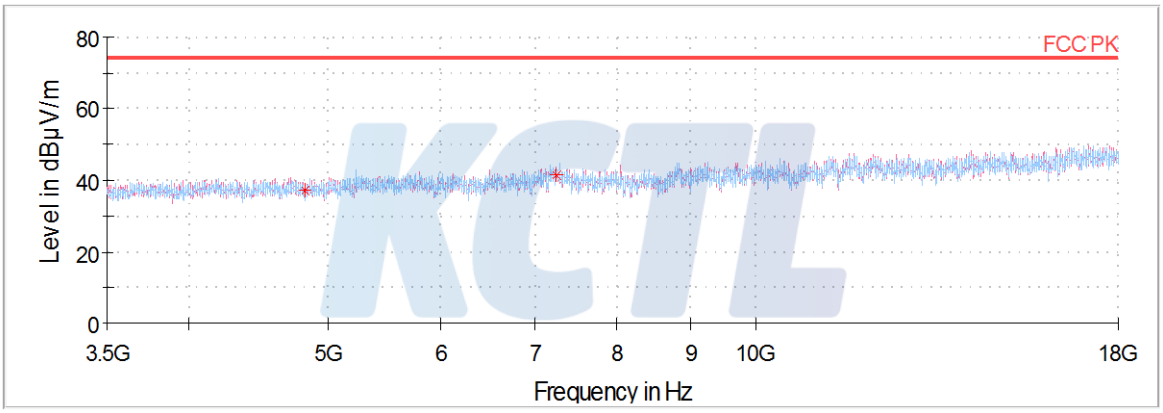
Horizontal/Vertical for Band-edge



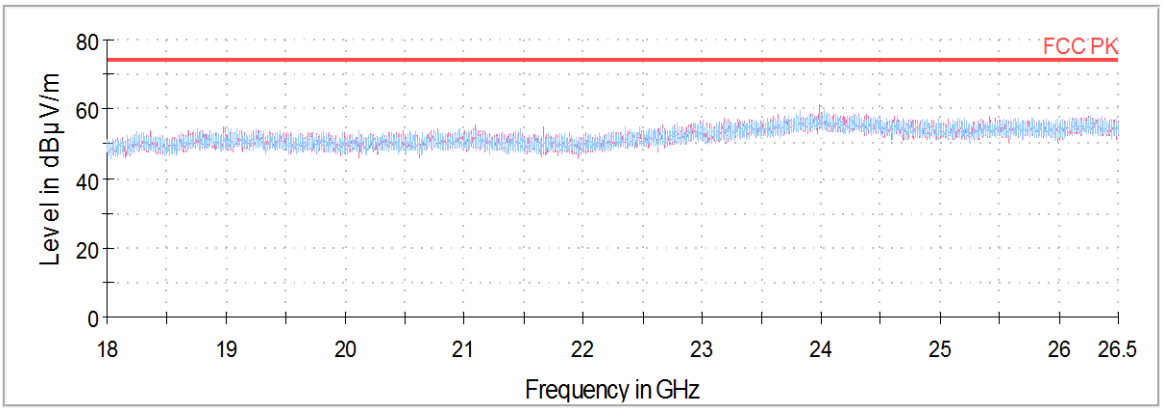
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓



Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓



6 Channel

Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.98[1)]	V	67.59	2.80	-60.18	25.18	-	35.39	74.00	38.61
4 874.33[1)]	V	61.83	5.39	-61.05	32.84	-	39.01	74.00	34.99
7 311.69[1)]	H	60.52	6.75	-61.56	36.01	-	41.72	74.00	32.28
Average Data									
No spurious emissions were detected within 20 dB of the limit.									

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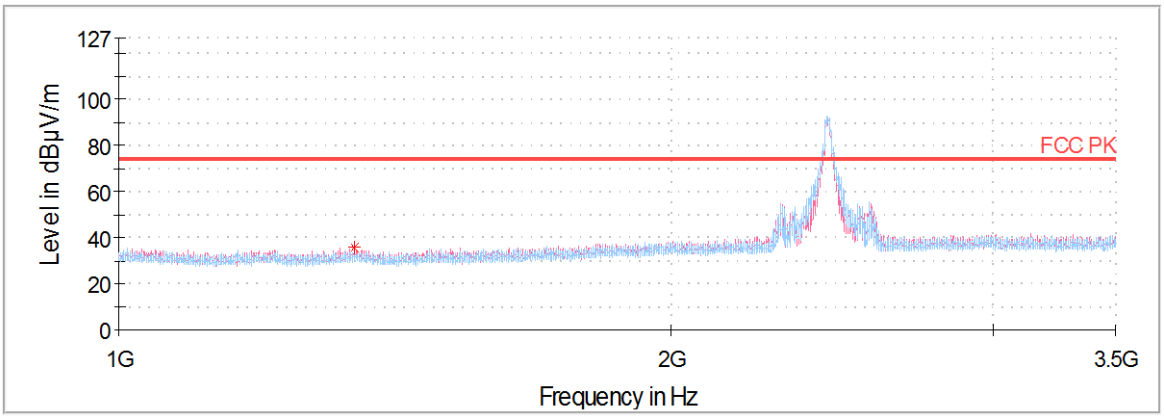
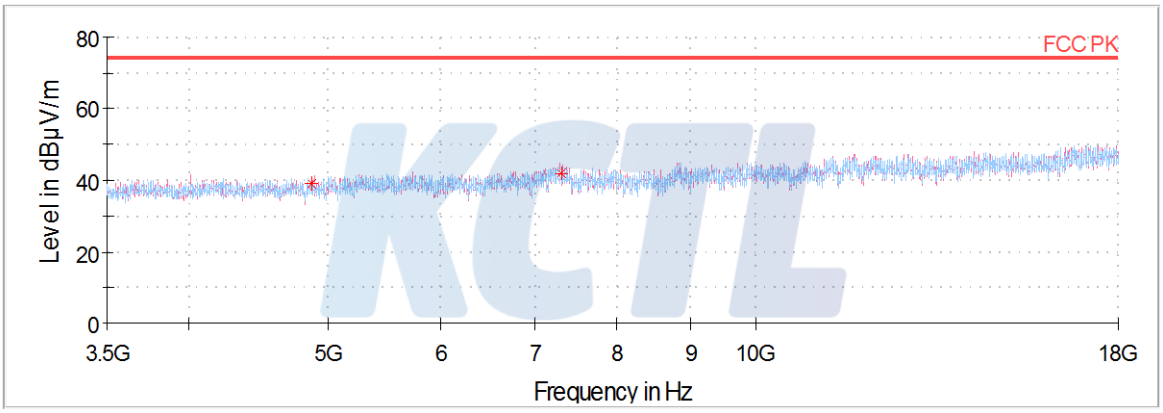
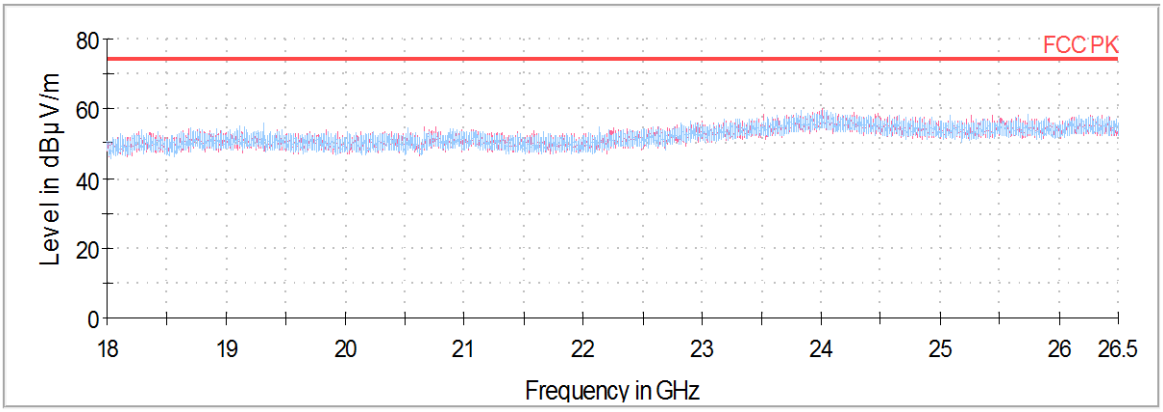
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

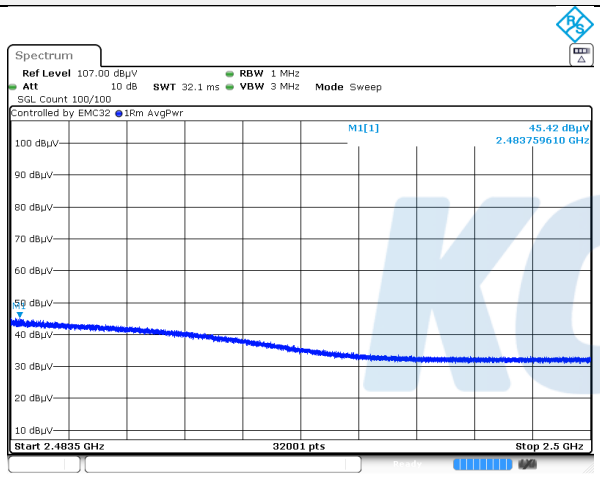


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

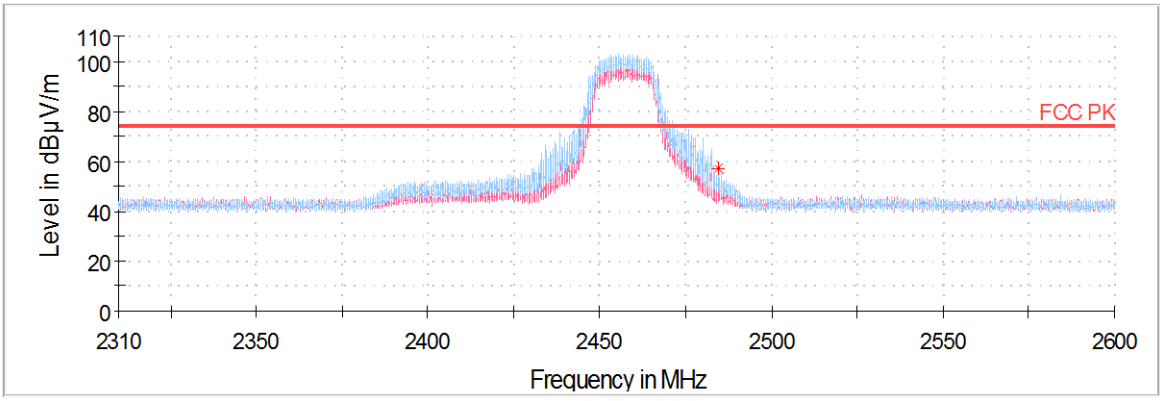


10 Channel

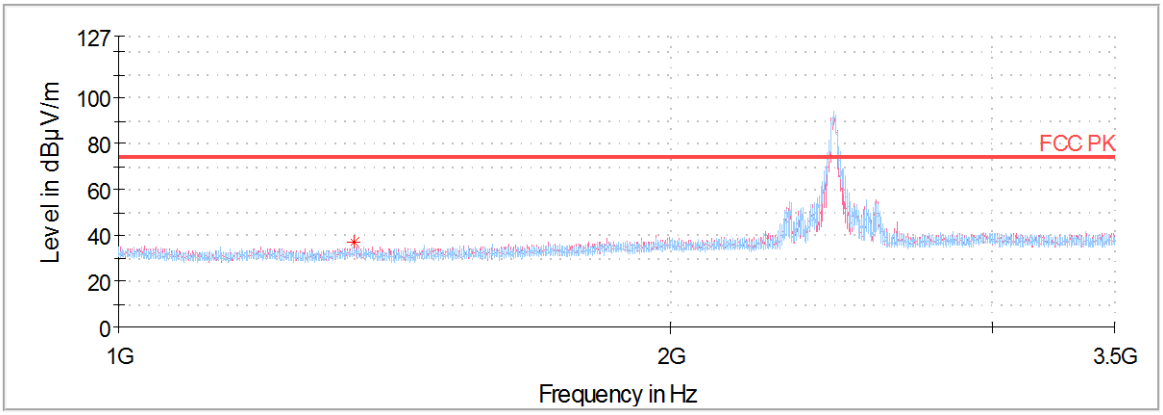
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 344.06[1)]	H	69.41	2.80	-60.18	25.18	-	37.21	74.00	36.79
2 483.76[1)]	H	55.12	3.77	-30.29	28.72	-	57.32	74.00	16.68
4 914.20[1)]	V	60.08	5.41	-61.03	32.86	-	37.33	74.00	36.67
7 371.95[1)]	V	60.45	6.78	-61.67	36.07	-	41.63	74.00	32.37
Average Data									
2 483.76[1)]	H	45.42	3.77	-30.29	28.72	0.27	47.90	54.00	0.27

Average data	Average data
	Blank

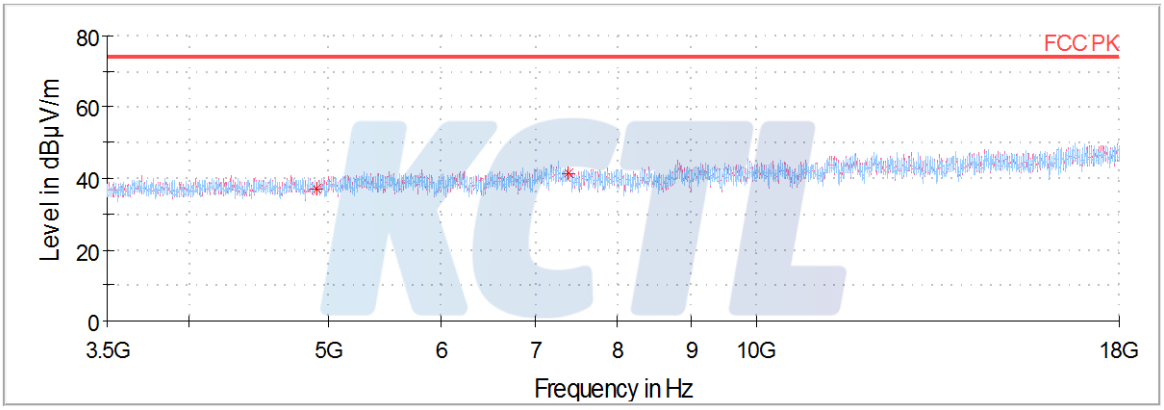
Horizontal/Vertical for Band-edge



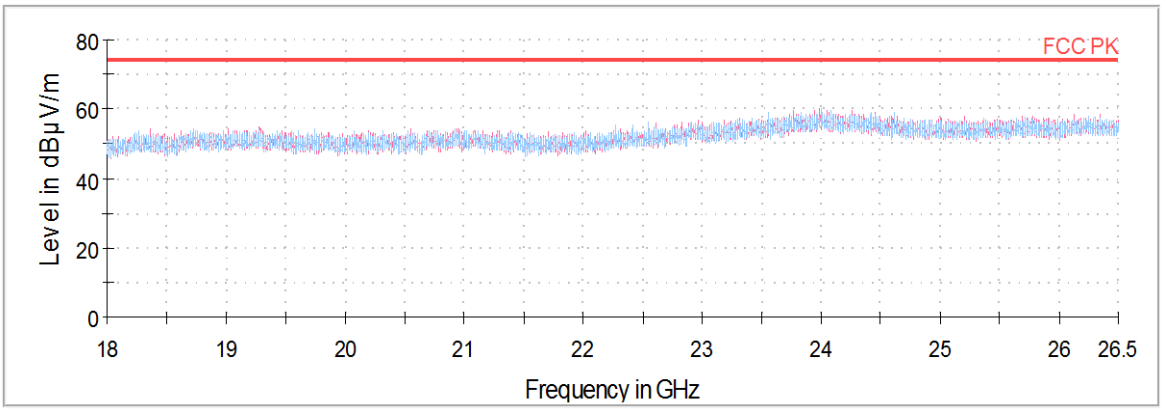
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

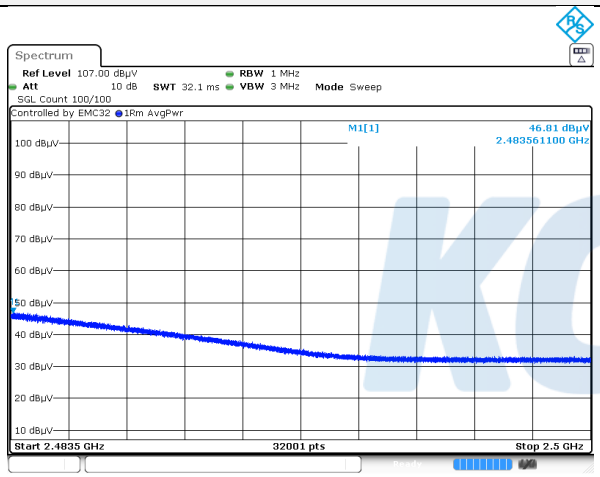


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

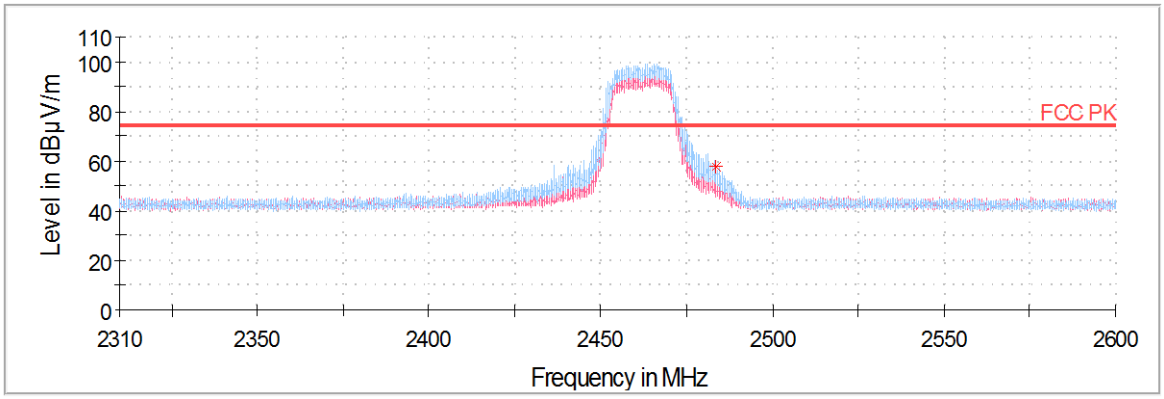


11 Channel

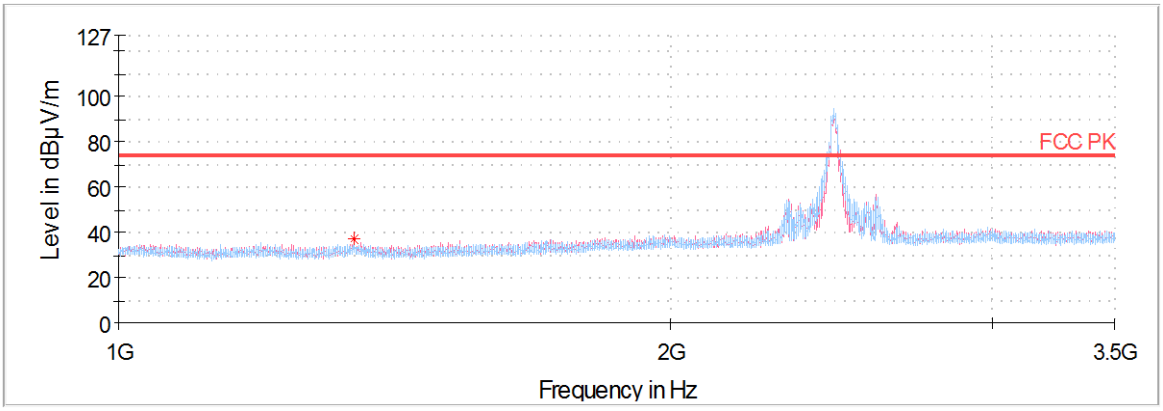
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.52[1)]	H	69.16	2.80	-60.17	25.17	-	36.96	74.00	37.04
2 483.56[1)]	H	55.88	3.77	-30.29	28.72	-	58.08	74.00	15.92
4 924.17[1)]	V	61.08	5.42	-60.96	32.86	-	38.40	74.00	35.60
7 386.91[1)]	V	61.36	6.79	-61.71	36.09	-	42.53	74.00	31.47
Average Data									
2 483.56[1)]	H	46.81	3.77	-30.29	28.72	0.27	49.29	54.00	4.71

Average data	Average data
	Blank

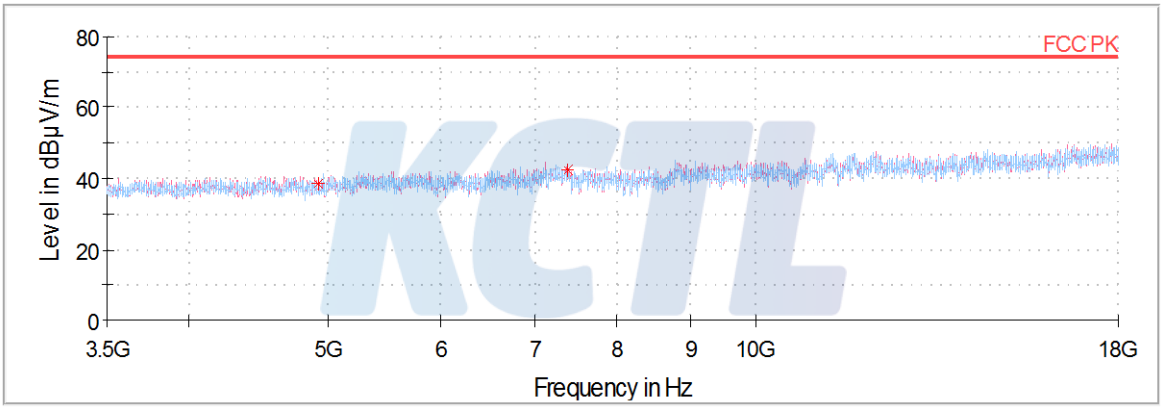
Horizontal/Vertical for Band-edge



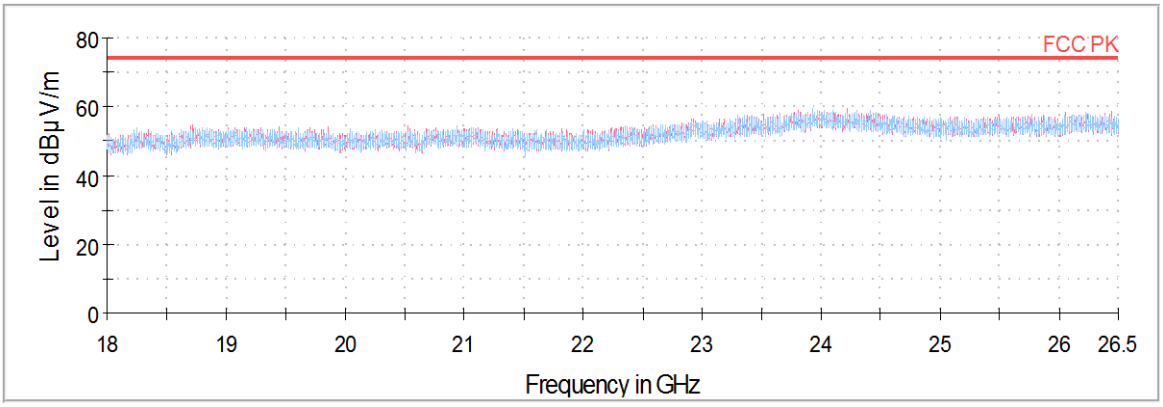
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

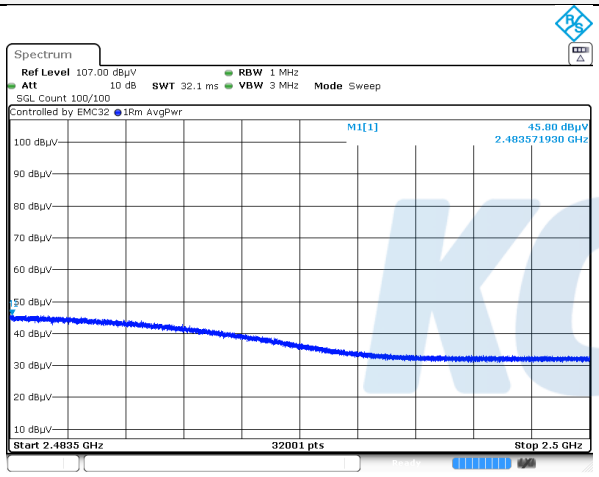


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

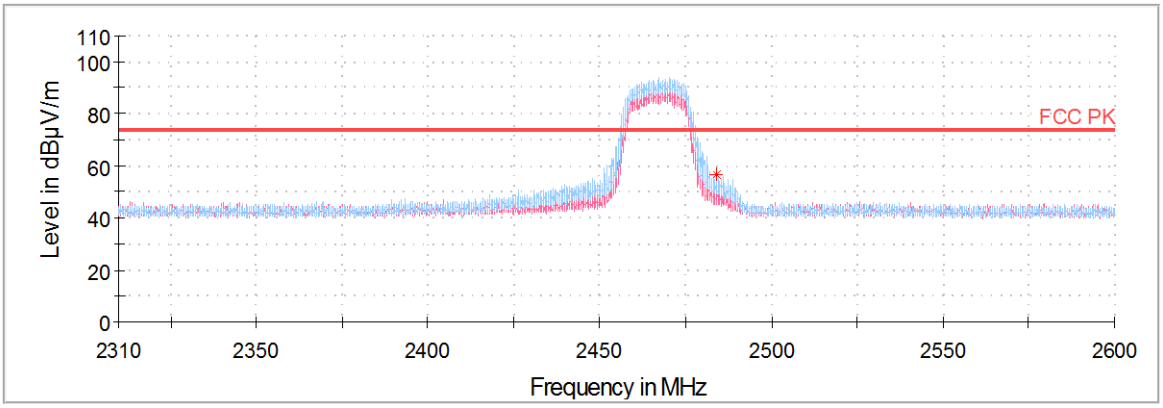


12 Channel

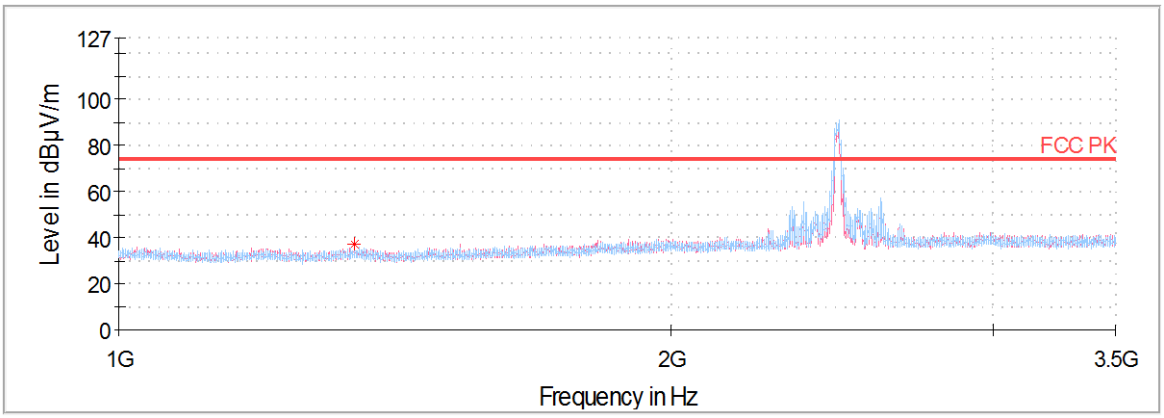
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 344.14[1)]	V	69.11	2.80	-60.18	25.18	-	36.91	74.00	37.09
2 483.57[1)]	H	54.12	3.77	-30.29	28.72	-	56.33	74.00	17.67
4 934.14[1)]	V	59.66	5.43	-60.90	32.87	-	37.06	74.00	36.94
7 401.86[1)]	H	60.47	6.79	-61.73	36.10	-	41.64	74.00	32.36
Average Data									
2 483.57[1)]	H	45.80	3.77	-30.29	28.72	0.27	48.28	54.00	5.72

Average data	Average data
	Blank

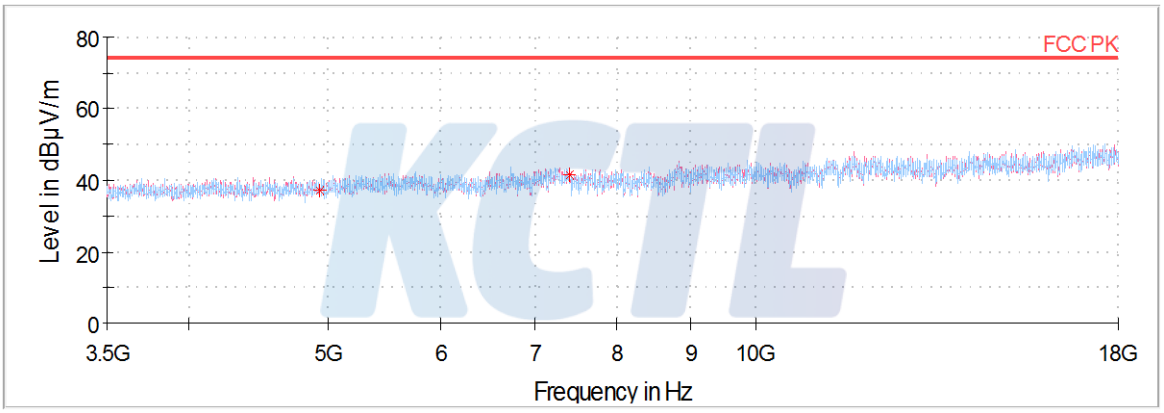
Horizontal/Vertical for Band-edge



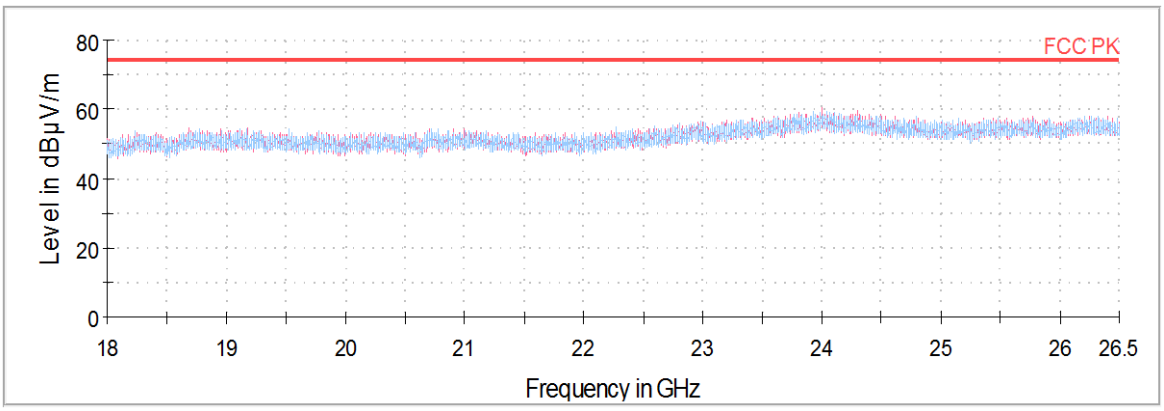
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓

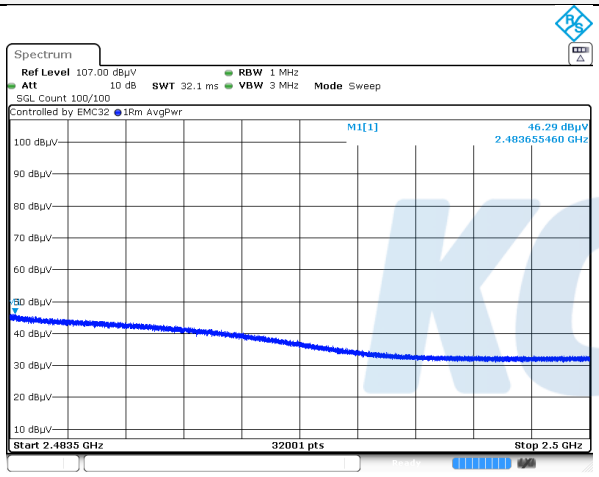


Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓

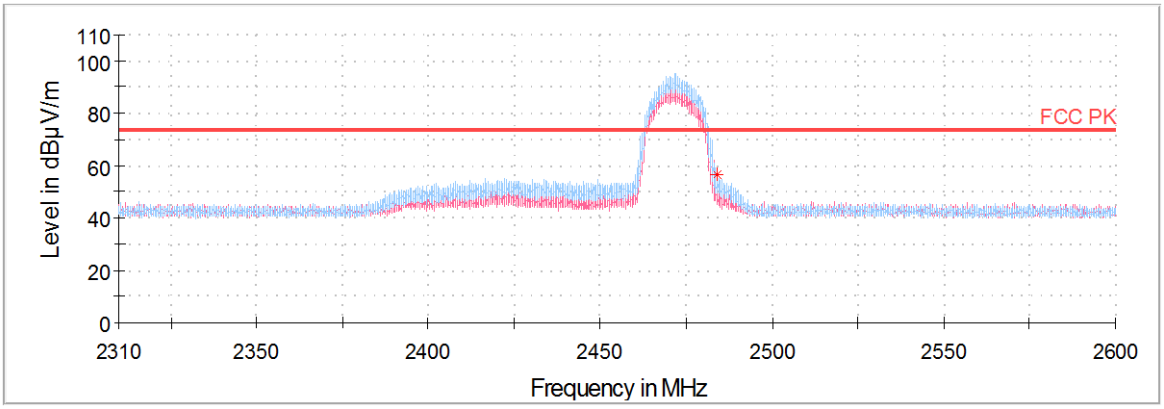


13 Channel

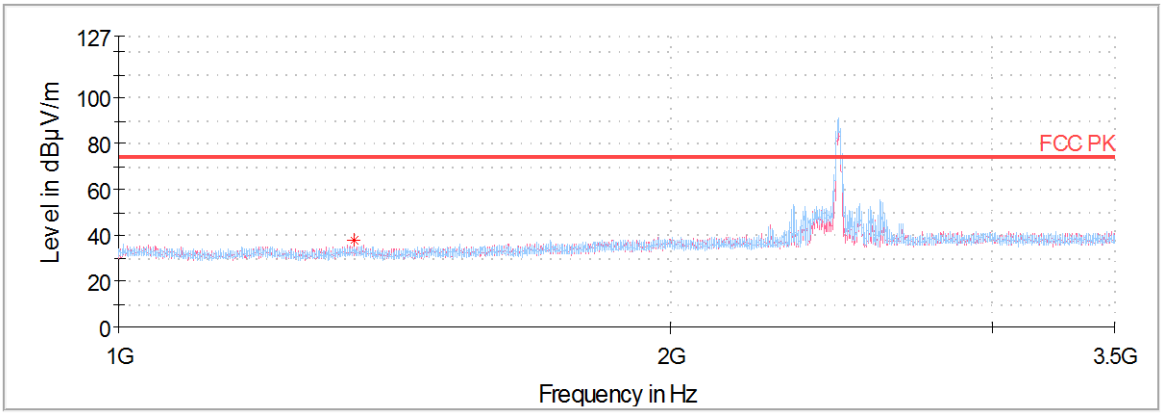
Frequency	Pol.	Reading	Cable Loss	Amp Gain	Antenna Factor	DCCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data									
1 343.91[1)]	H	70.11	2.80	-60.18	25.18	-	37.91	74.00	36.09
2 483.66[1)]	H	54.27	3.77	-30.29	28.72	-	56.48	74.00	17.52
4 944.56[1)]	H	62.90	5.43	-60.82	32.87	-	40.38	74.00	33.62
7 416.36[1)]	V	57.86	6.80	-61.76	36.12	-	39.02	74.00	34.98
Average Data									
2 483.66[1)]	H	46.29	3.77	-30.29	28.72	0.27	48.77	54.00	5.23

Average data	Average data
	Blank

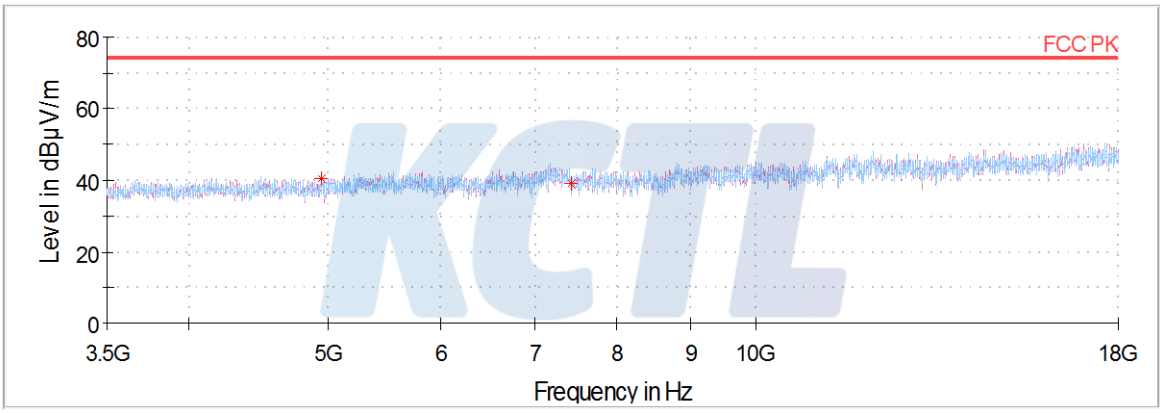
Horizontal/Vertical for Band-edge



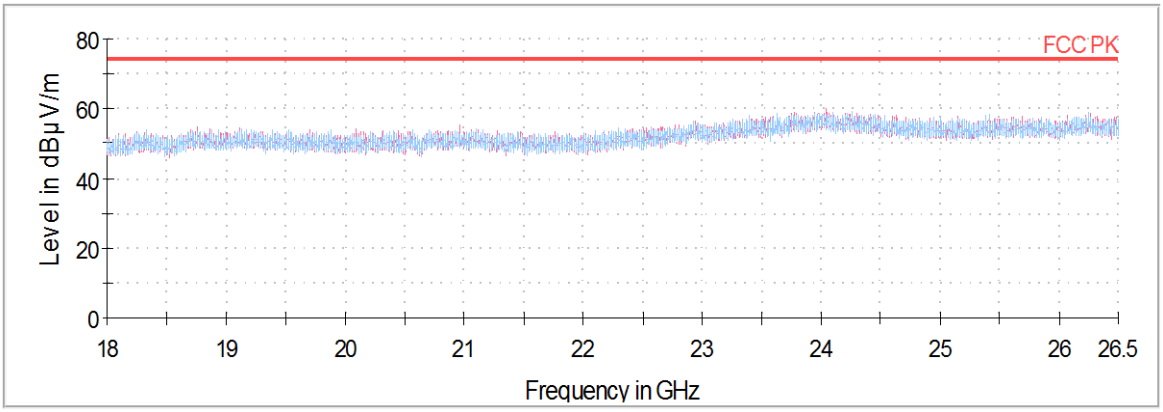
Horizontal/Vertical for 1 ㎓ ~ 3.5 ㎓



Horizontal/Vertical for 3.5 ㎓ ~ 18 ㎓



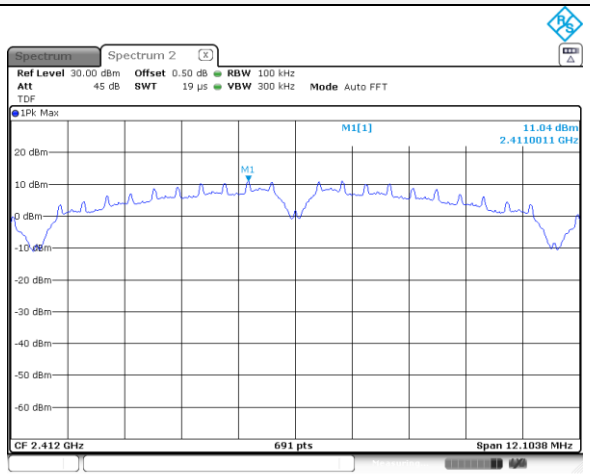
Horizontal/Vertical for 18 ㎓ ~ 26.5 ㎓



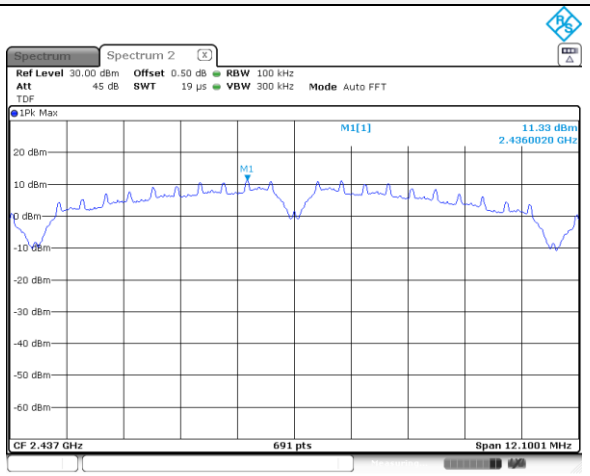
Test results

802.11b

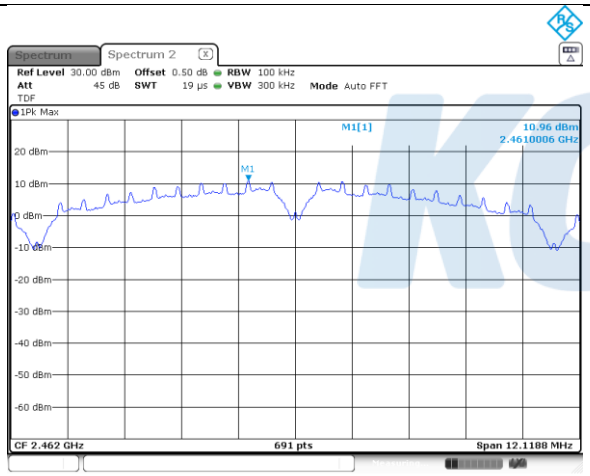
Reference



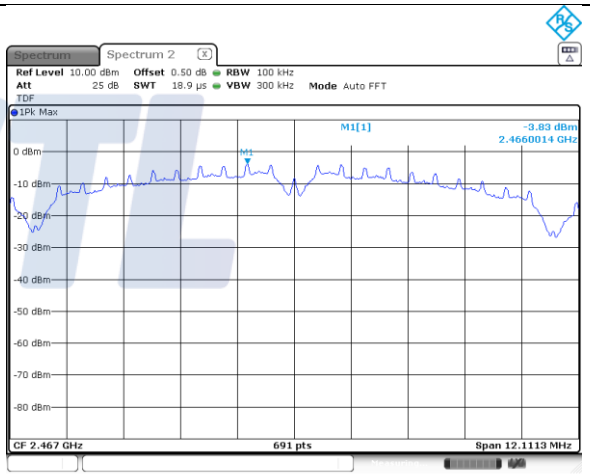
2 412 ㎒



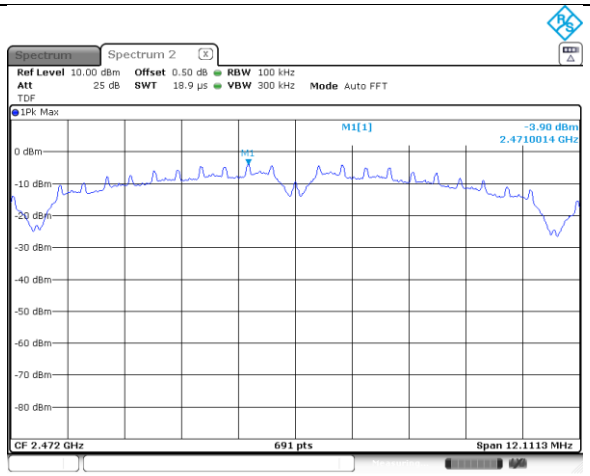
2 437 ㎒



2 462 ㎒



2 467 ㎒



2 472 ㎒

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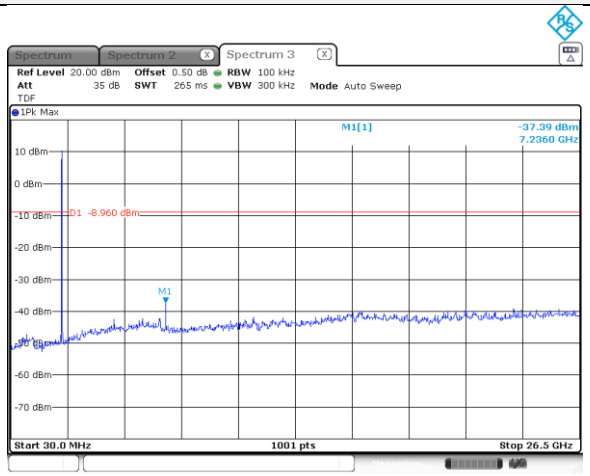
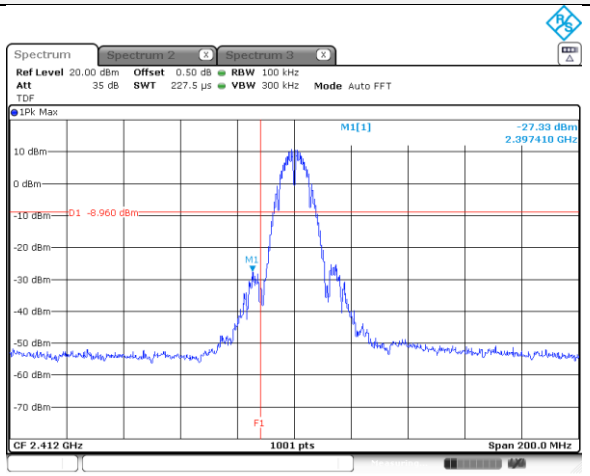
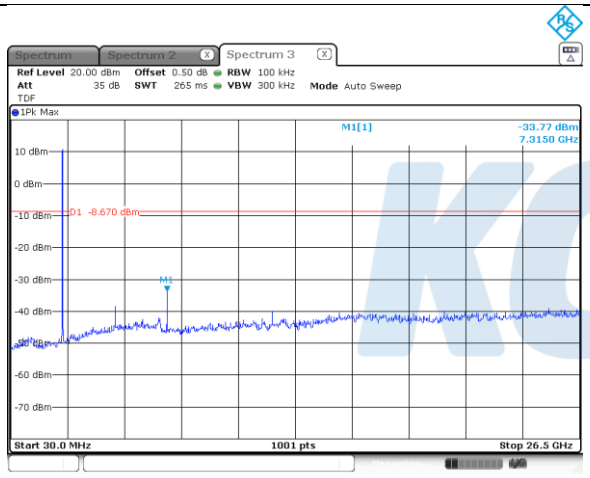
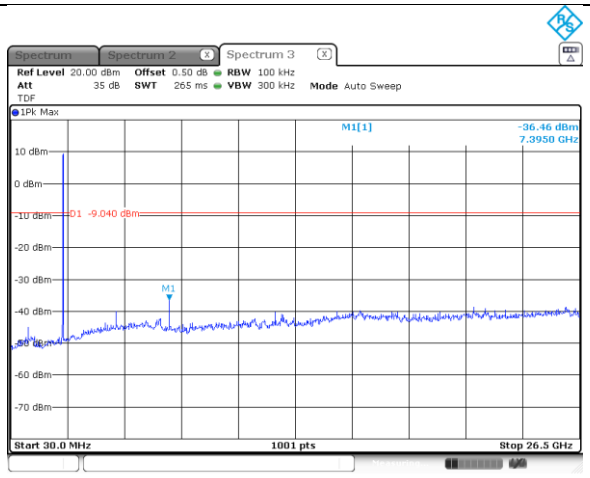
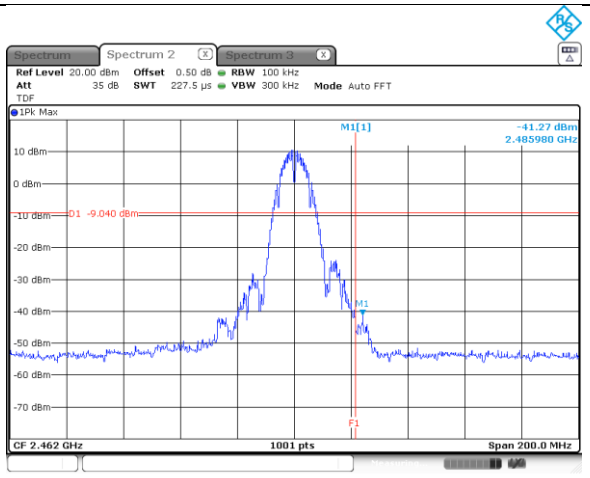
Conducted Emissions	Band edge
	
2 412 ㎒	2 412 ㎒
	Blank
2 437 ㎒	
	
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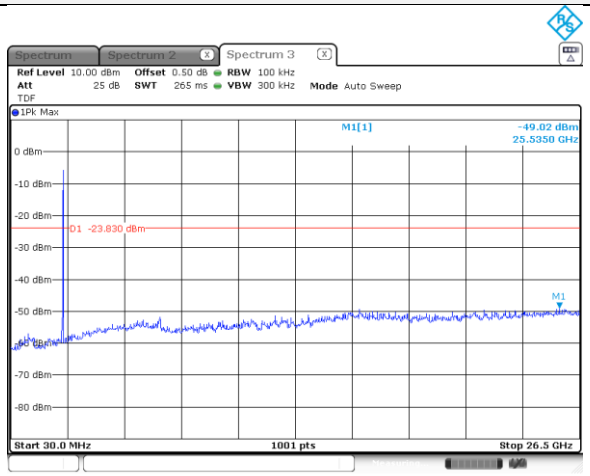
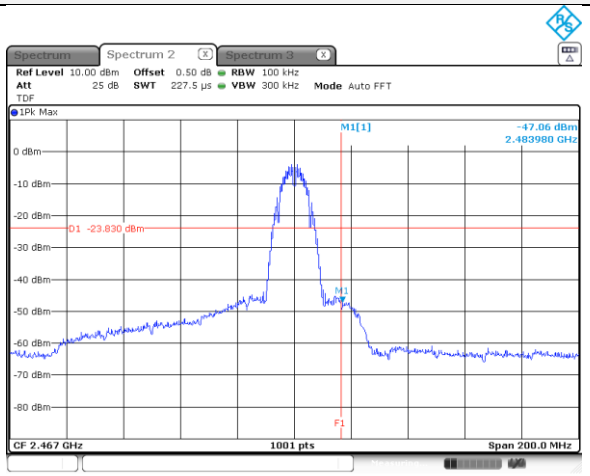
Conducted Emissions	Band edge
	
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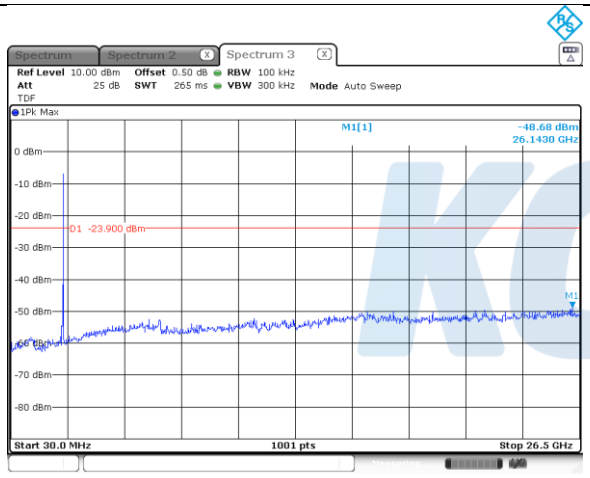	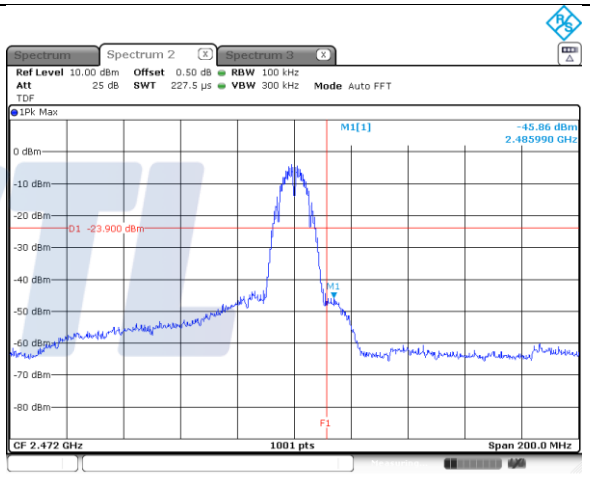
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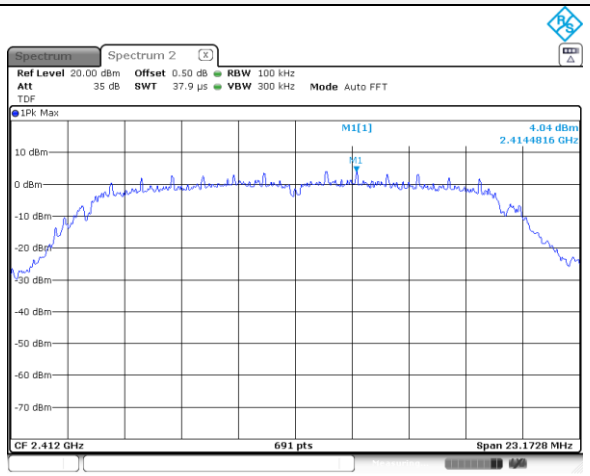
Test results
802.11g

Reference



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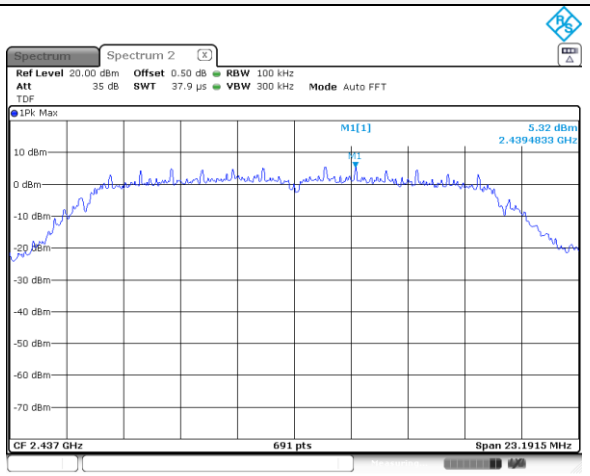

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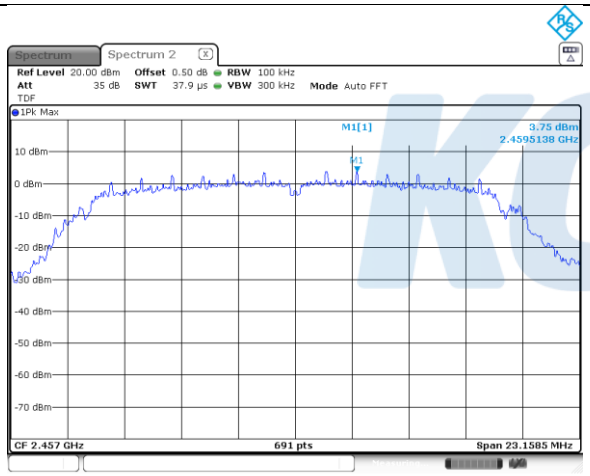

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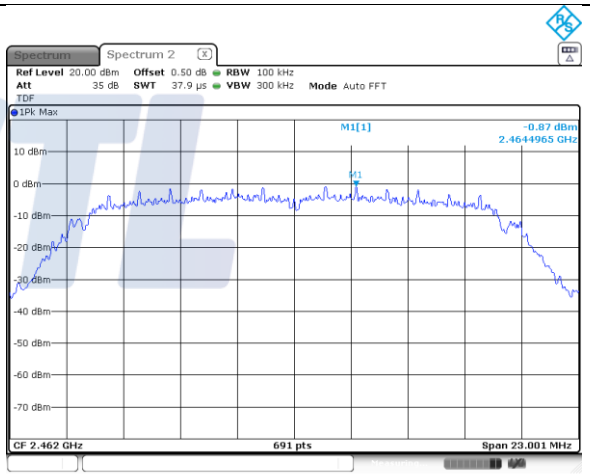

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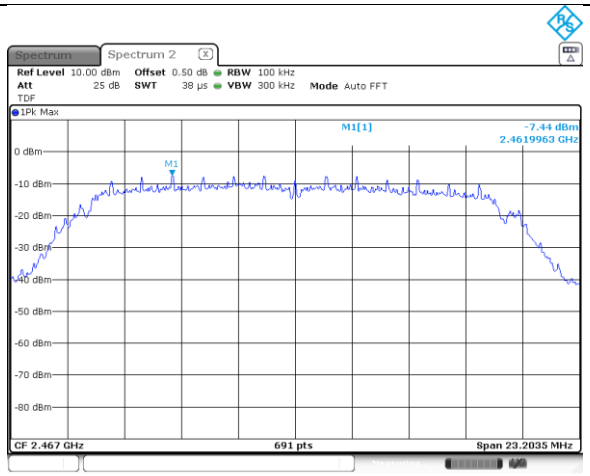

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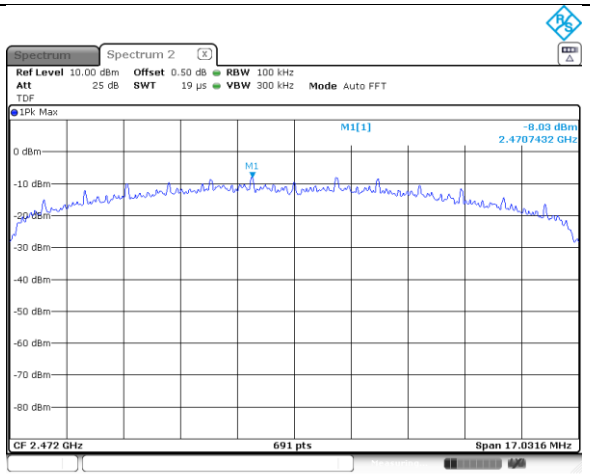

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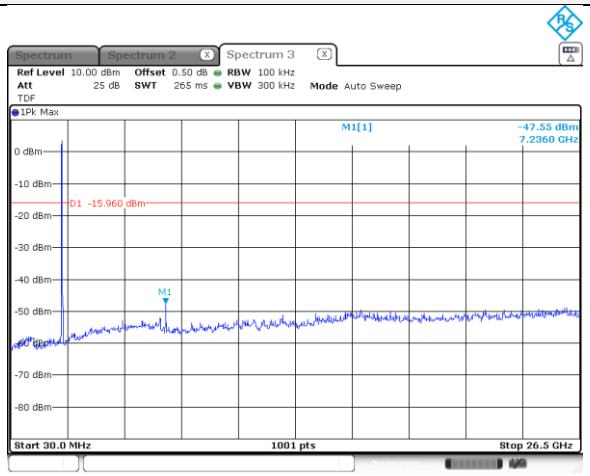
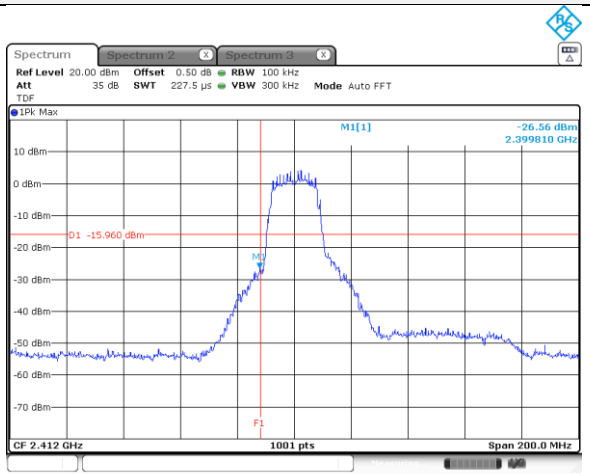
Conducted Emissions	Band edge
	
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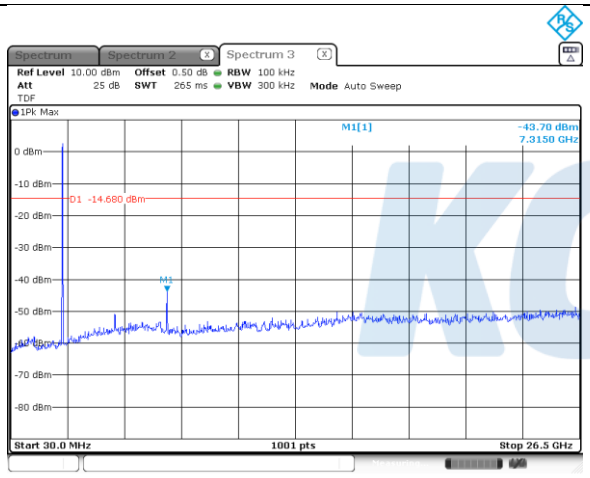	Blank
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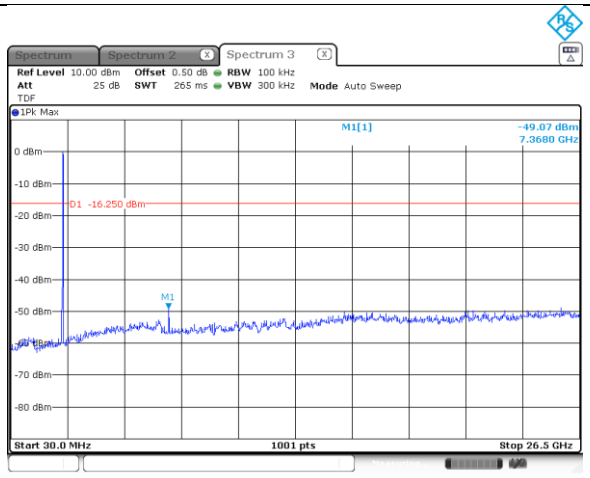
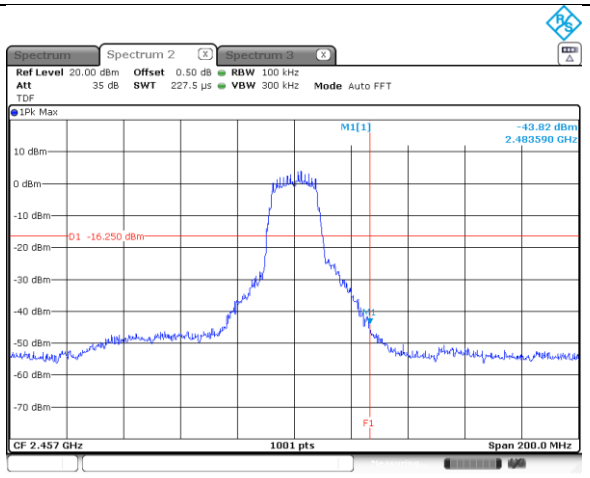
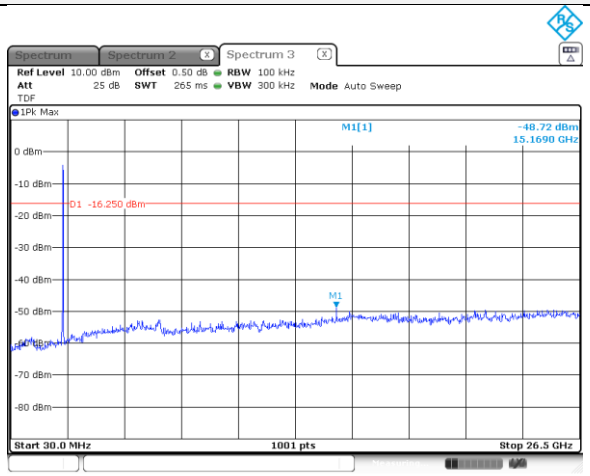
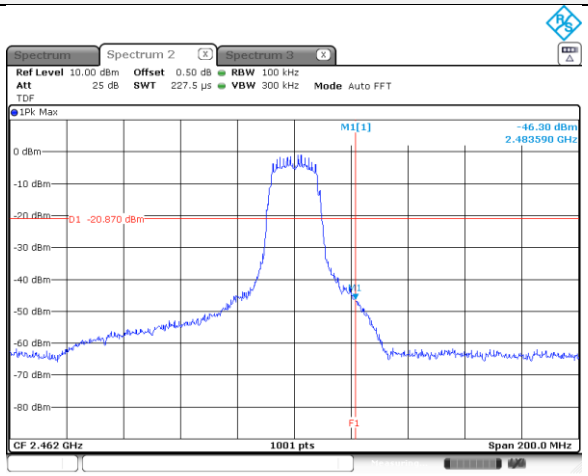
	
2 457 ㎒	2 457 ㎒

Conducted Emissions	Band edge
	
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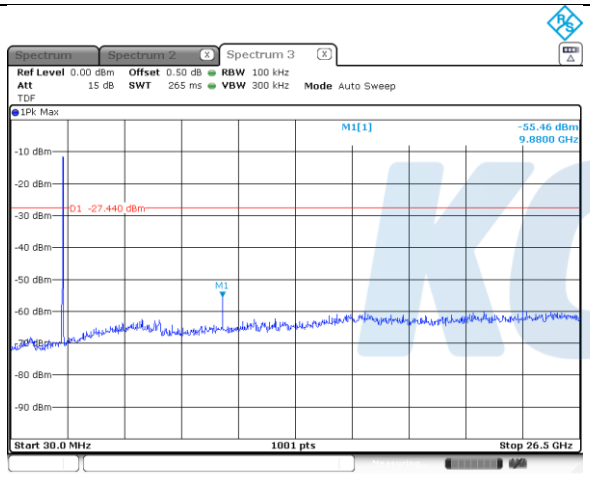	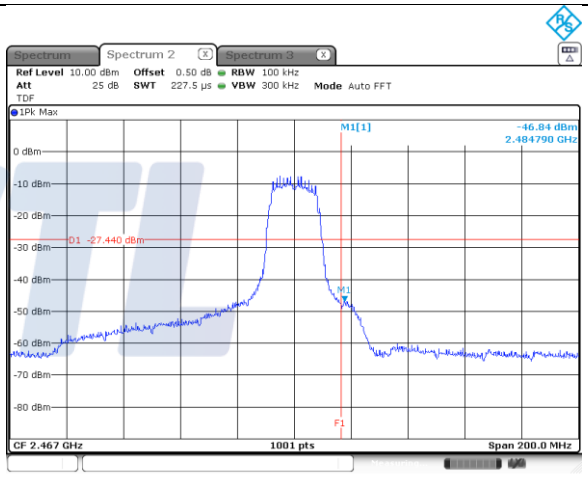
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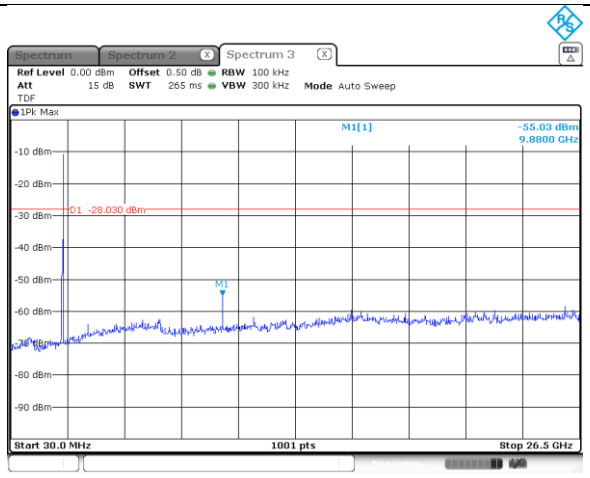
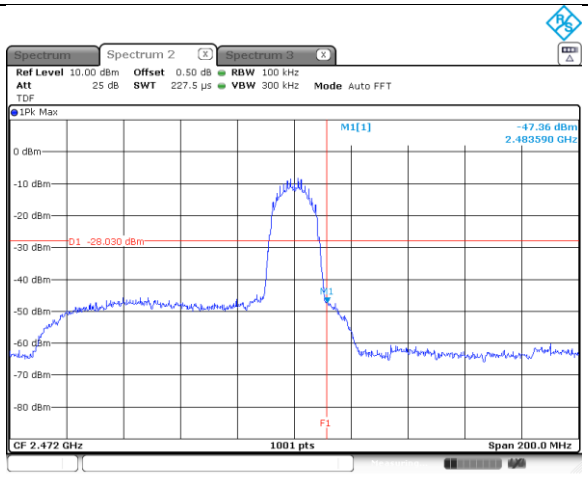
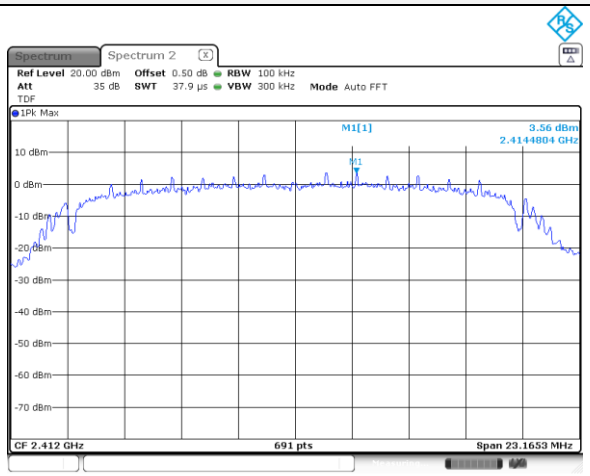
	
2 472 ㎒	2 472 ㎒

Test results
802.11n HT20

Reference



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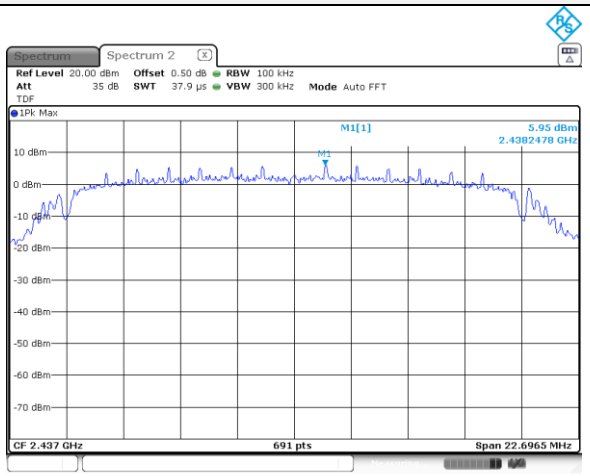

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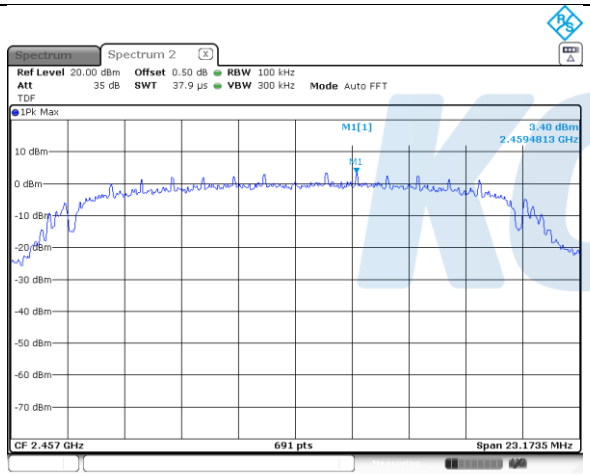

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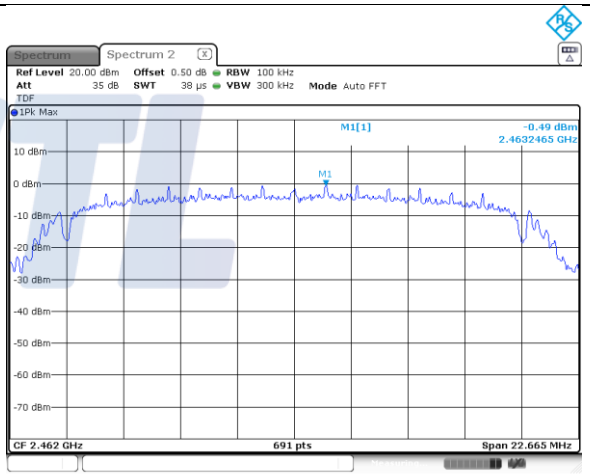

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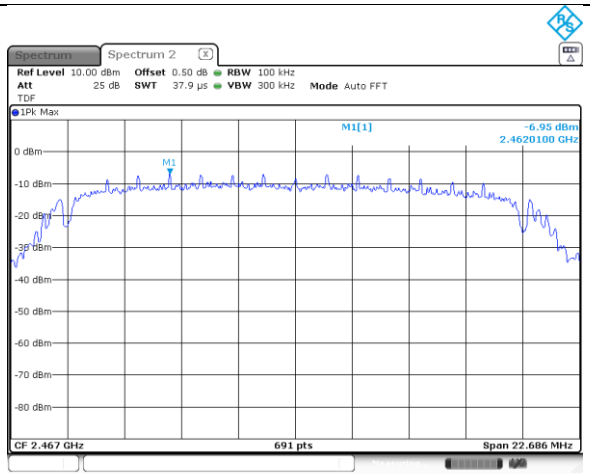

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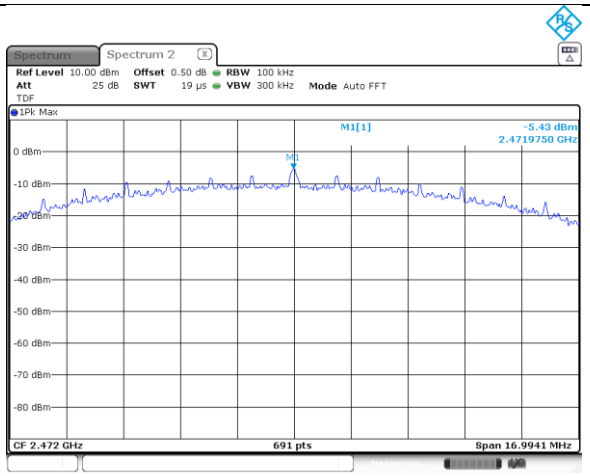
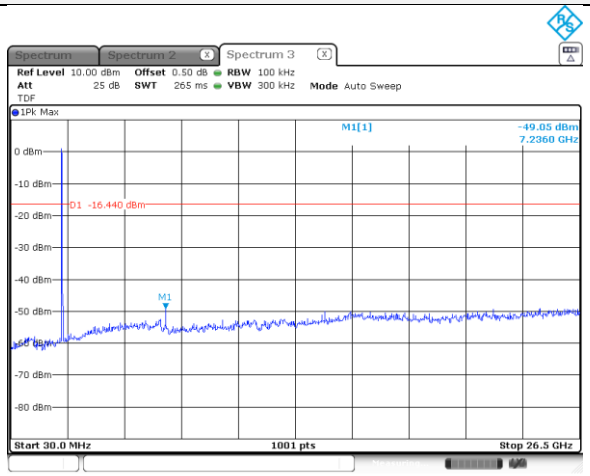
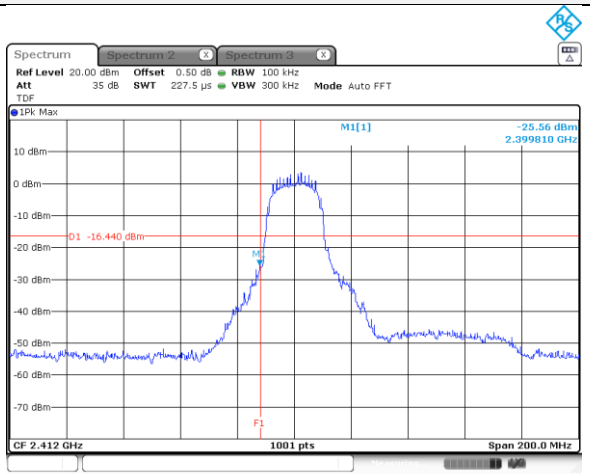
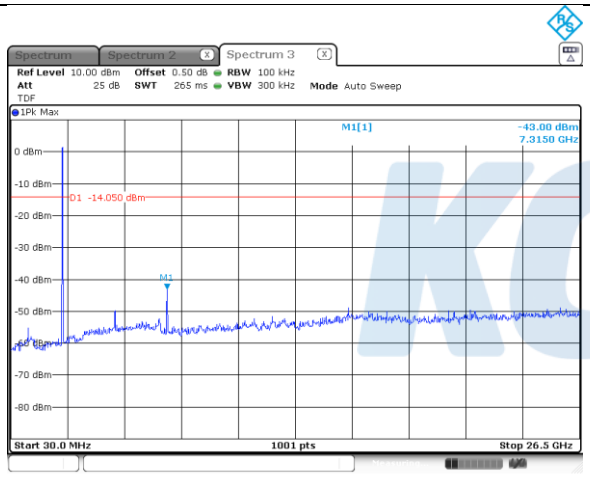


2 472 ㎒

Conducted Emissions	Band edge
	
2 412 ㎒	2 412 ㎒
	Blank
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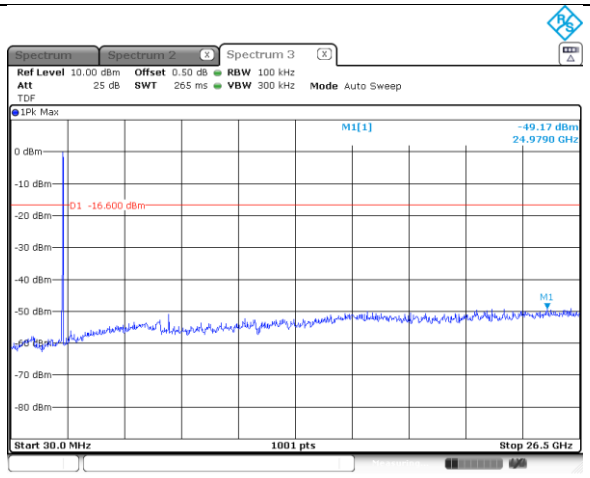	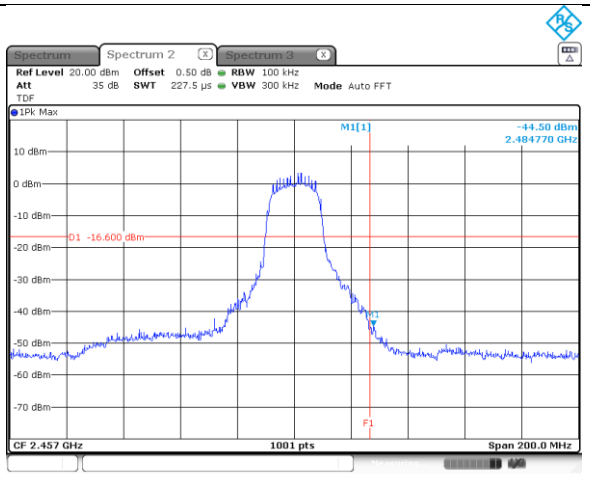
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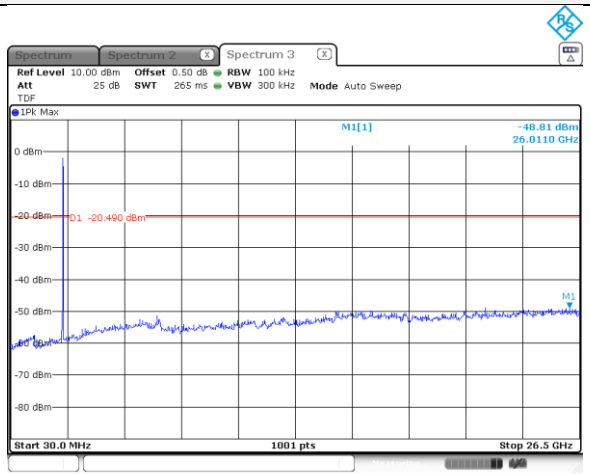
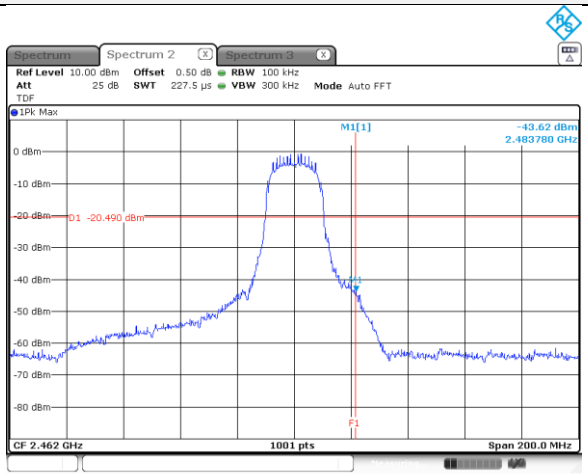
Conducted Emissions	Band edge
	
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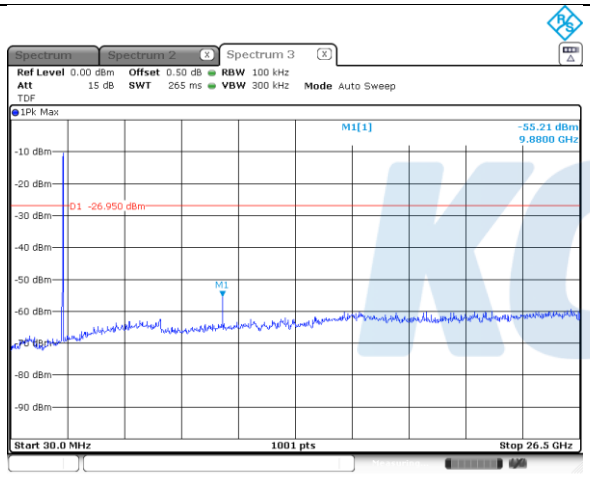	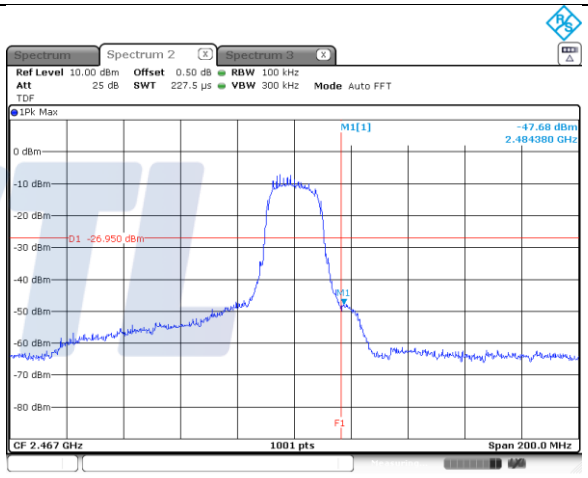
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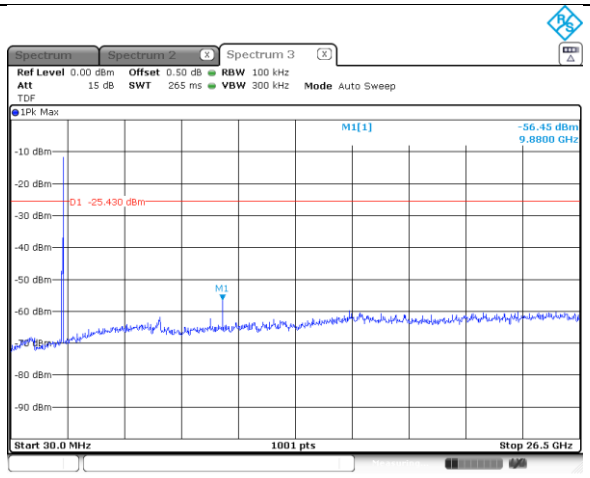
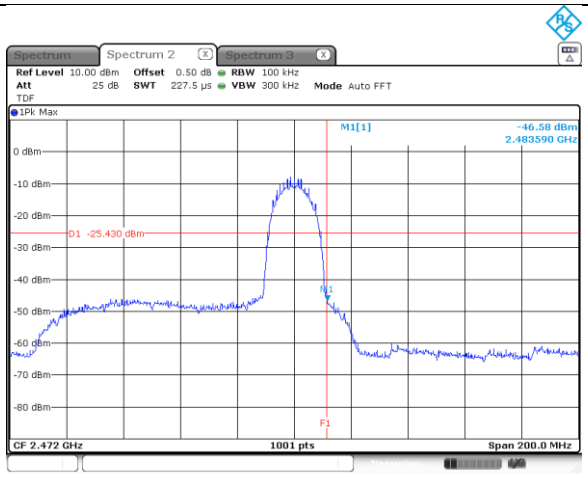
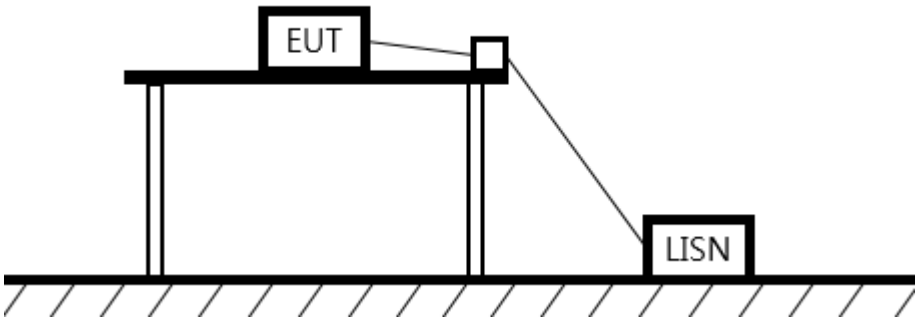
	
2 472 ㎒	2 472 ㎒

7.5. AC Conducted emission

Test setup



Limit

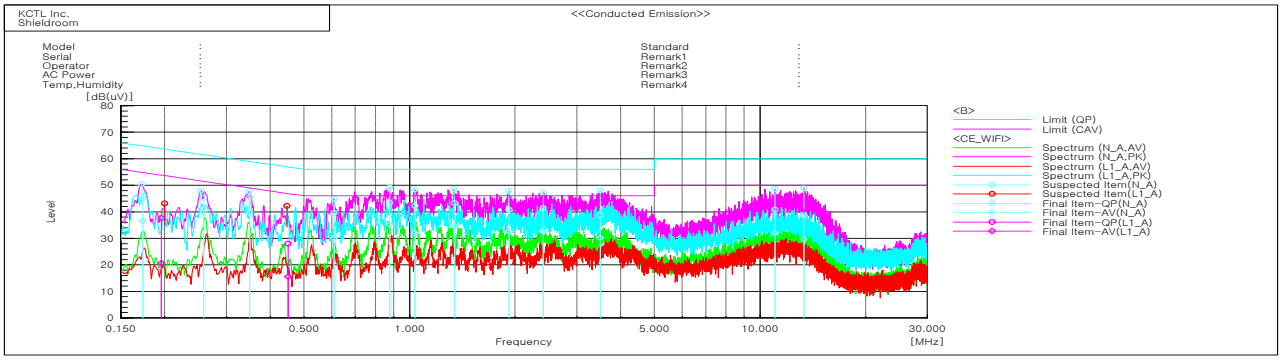
According to 15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 ㎑ to 30 ㎒, shall not exceed the limits in the following table, as measured using a 50uH/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 (㎒)	Conducted limit (dBμV/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 ㎝ in which is located 40 ㎝ 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 50Ω/50μH LISN, which is an input transducer to a spectrum analyzer or an EMI/Field Intensity ㅡ 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 ㎒ to 30 ㎒.
5. The measurements were made with the detector set to peak amplitude within a bandwidth of 10 ㎑ or to quasi-peak and average within a bandwidth of 9 ㎑. The EUT was in transmitting mode during the measurements.

Test results



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	0.17306	35.1	26.7	9.9	45.0	36.6	64.8	54.8	19.8	18.2
2	0.25795	35.6	30.1	9.6	45.2	39.7	61.5	51.5	16.3	11.8
3	0.34959	35.7	29.9	9.8	45.5	39.7	59.0	49.0	13.5	9.3
4	0.6092	29.6	20.2	9.9	39.5	30.1	56.0	46.0	16.5	15.9
5	0.87697	33.6	25.3	9.8	43.4	35.1	56.0	46.0	12.6	10.9
6	1.03469	32.4	22.3	9.8	42.2	32.1	56.0	46.0	13.8	13.9
7	1.34263	33.5	25.0	9.7	43.2	34.7	56.0	46.0	12.8	11.3
8	1.92104	31.1	22.8	9.7	40.8	32.5	56.0	46.0	15.2	13.5
9	2.40657	31.6	22.6	9.7	41.3	32.3	56.0	46.0	14.7	13.7
10	3.49744	28.9	20.3	9.8	38.7	30.1	56.0	46.0	17.3	15.9
11	11.02454	30.3	21.4	10.5	40.8	31.9	60.0	50.0	19.2	18.1
12	13.33007	28.1	19.0	10.6	38.7	29.6	60.0	50.0	21.3	20.4

--- 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	0.19569	27.8	10.8	9.8	37.6	20.6	63.8	53.8	26.2	33.2
2	0.44985	18.0	5.6	9.9	27.9	15.5	56.9	46.9	29.0	31.4

8. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Spectrum Analyzer	R & S	FSV30	101437	19.08.01
Wideband Power Sensor	R & S	NRP-Z81	102398	20.01.25
ATTENUATOR	R & S	DNF Dämpfungsglied 10 dB in N-50 Ohm	31212	19.05.14
EMI TEST RECEIVER	R & S	ESCI	100732	19.08.23
Bi-Log Antenna	SCHWARZBECK	VULB 9168	583	20.05.04
Amplifier	SONOMA INSTRUMENT	310N	284608	19.08.23
COAXIAL FIXED ATTENUATOR	Agilent	8491B-003	2708A18758	20.05.04
Horn antenna	ETS.lindgren	3116	00086635	19.05.10
Horn antenna	ETS.lindgren	3117	161225	19.05.18
AMPLIFIER	L-3 Narda-MITEQ	AMF-7D-01001800 -22-10P	2003683	19.05.15
AMPLIFIER	L-3 Narda-MITEQ	JS44-18004000-33 -8P	2000997	19.08.02
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	-
TWO-LINE V - NETWORK	R&S	ENV216	101584	19.04.05
EMI TEST RECEIVER	R & S	ESCI	101408	19.08.23
Highpass Filter	WT	WT-A1698-HS	WT160411001	19.05.14
Vector Signal Generator	R & S	SMBV100A	257566	20.01.04
Signal Generator	R & S	SMR40	100007	19.05.15
Cable Assembly	RadiAll	2301761768000PJ	1724.659	-
Cable Assembly	gigalane	RG-400	-	-
Cable Assembly	HUER+SUHNER	SUCOFLEX 104	MY4342/4	-

End of test report

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