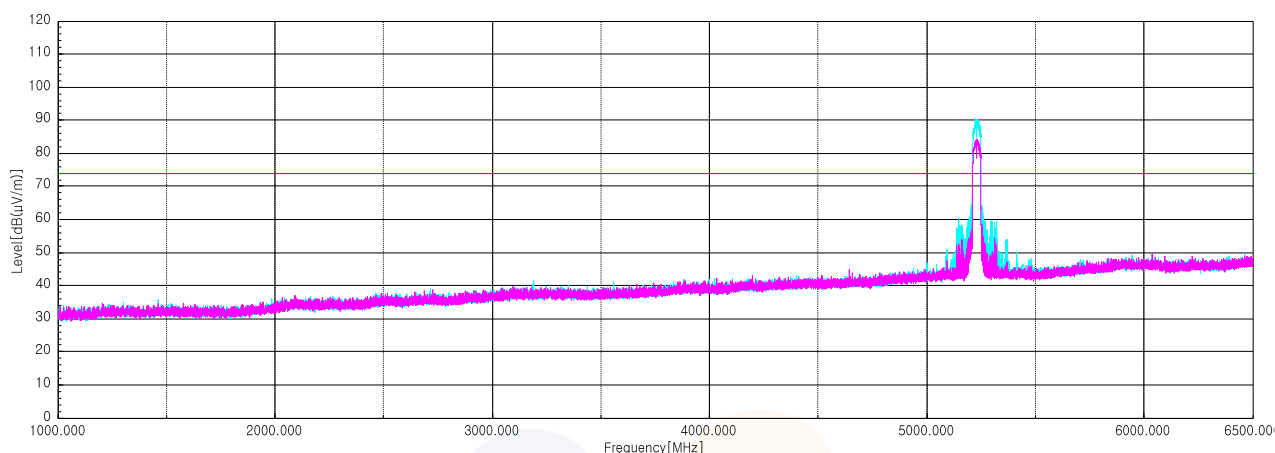
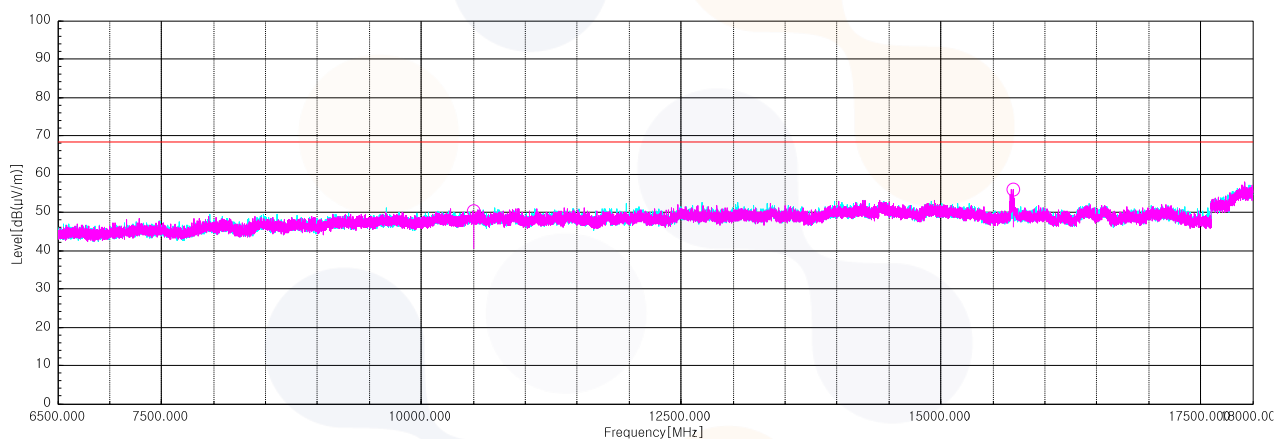


Horizontal/Vertical for 1 GHz ~ 6.5 GHz



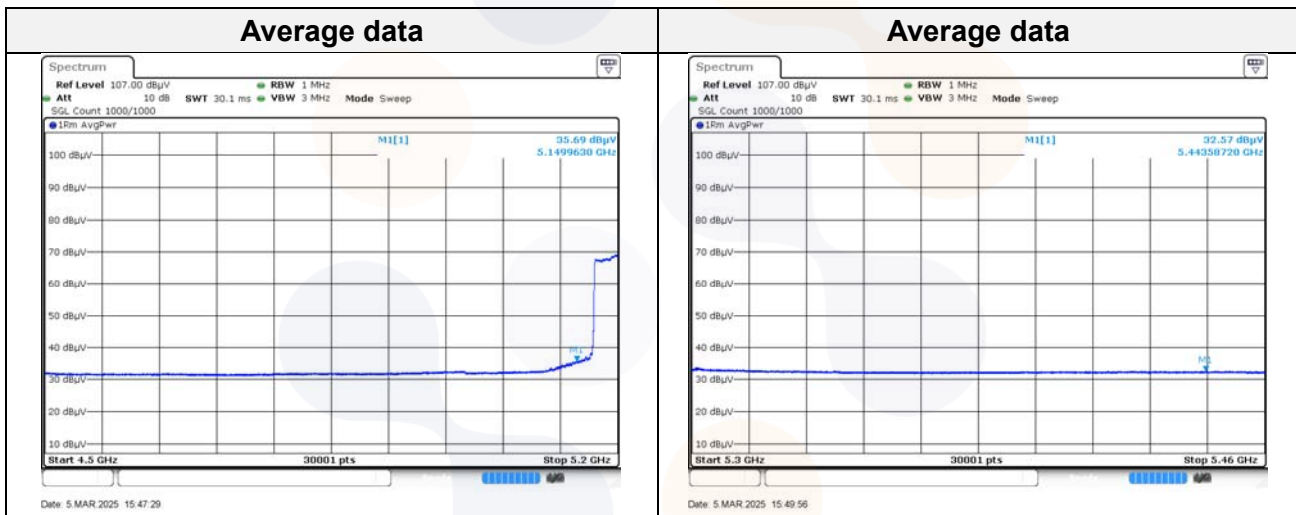
Horizontal/Vertical for 6.5 GHz ~ 18 GHz



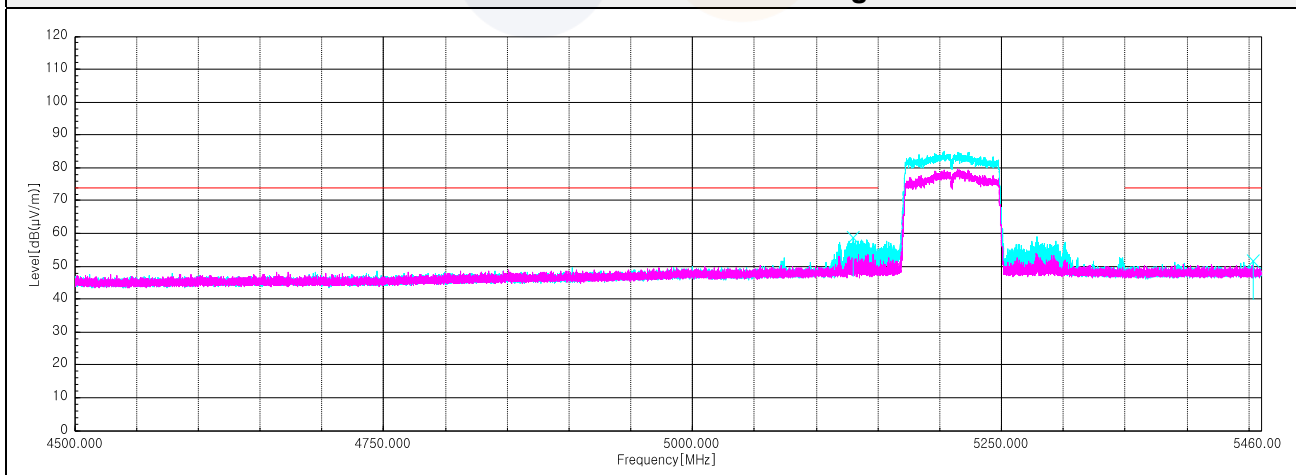
802.11ac VHT80 UNII 1

Lowest Channel (5 210 MHz)

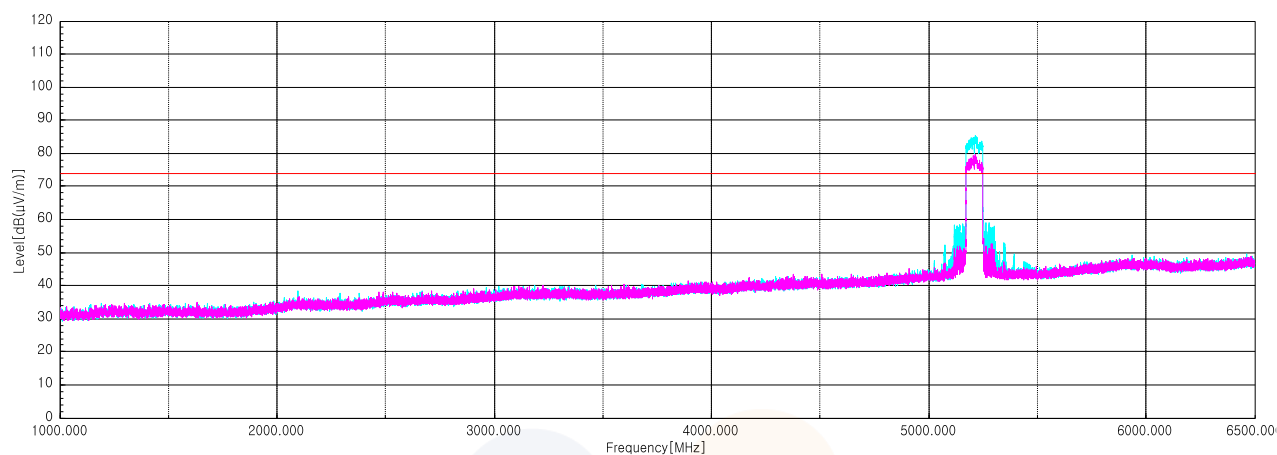
Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 149.96 ¹⁾	V	52.40	33.40	-27.13	-	58.67	74.00	15.33
5 443.59 ¹⁾	V	45.40	33.10	-26.97	-	51.53	74.00	22.47
10 381.63	V	53.80	38.54	-42.14	-	50.20	68.20	18.00
15 623.33 ¹⁾	V	52.60	38.05	-39.99	-	50.66	74.00	23.34
Average Data								
5 149.96 ¹⁾	V	35.69	33.40	-27.13	1.25	43.21	54.00	10.79
5 443.59 ¹⁾	V	32.57	33.10	-26.97	1.25	39.95	54.00	14.05



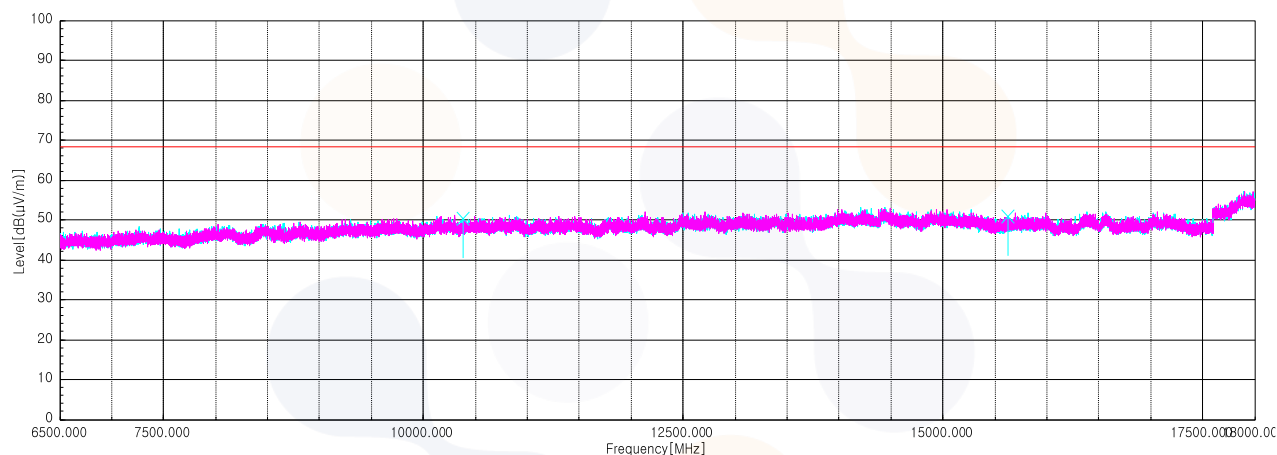
Horizontal/Vertical for Band-edge



Horizontal/Vertical for 1 GHz ~ 6.5 GHz

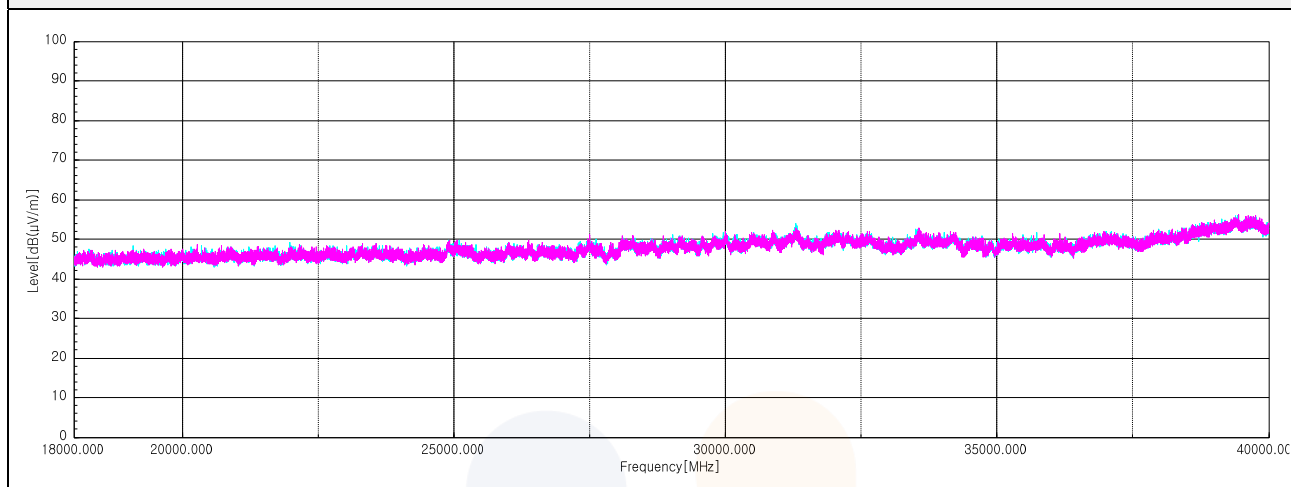


Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Test results (Above 18 GHz) – Worst case: 802.11n HT20_UNII 1_5 240 MHz

Horizontal/Vertical for 18 GHz ~ 40 GHz

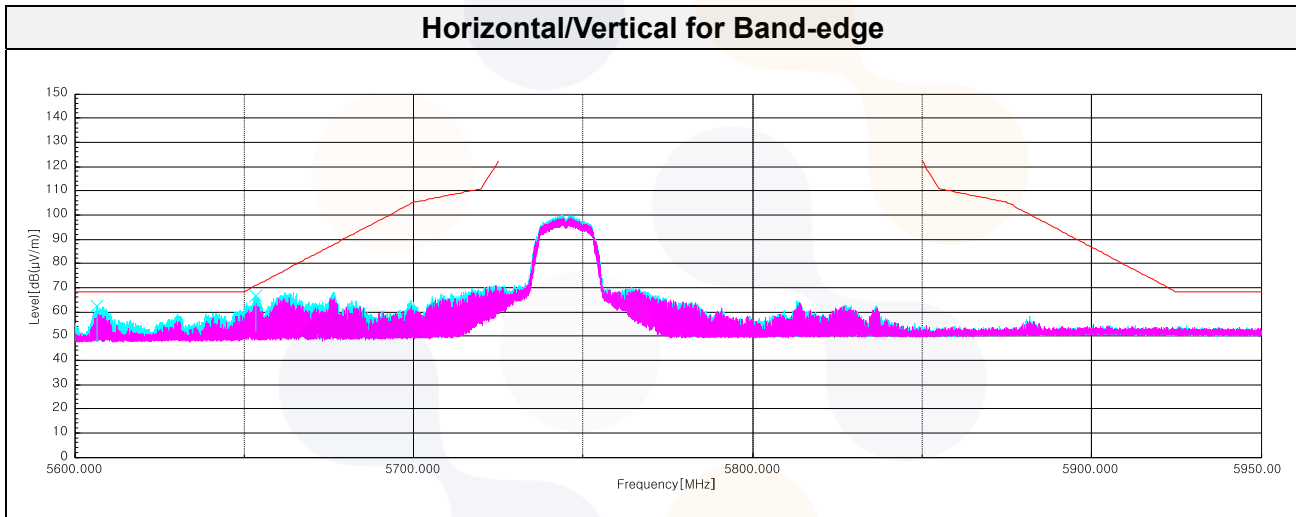


Note: The Worst case was based on the lowest margin condition considering Harmonic and Spurious Emission.

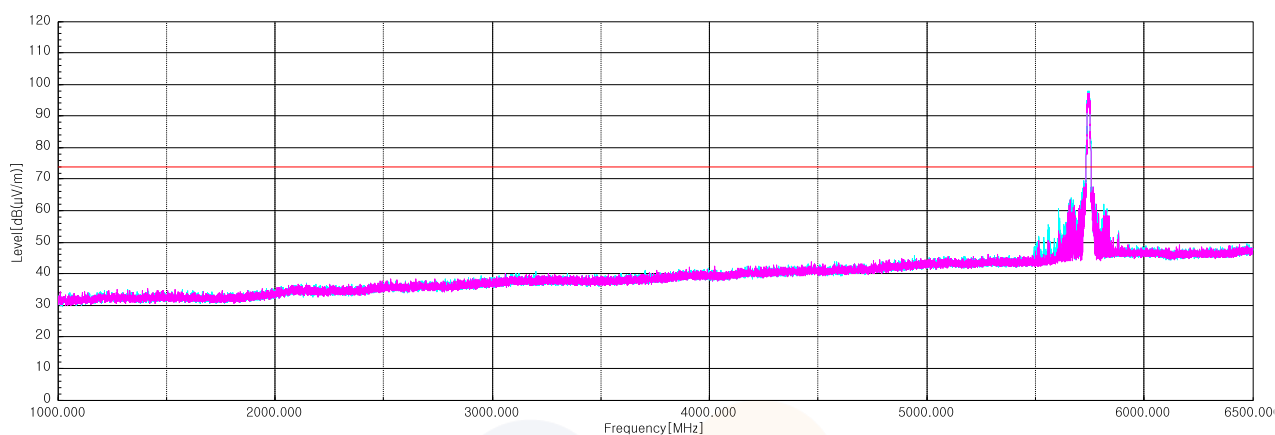
802.11a UNII 3

Lowest Channel (5 745 MHz)

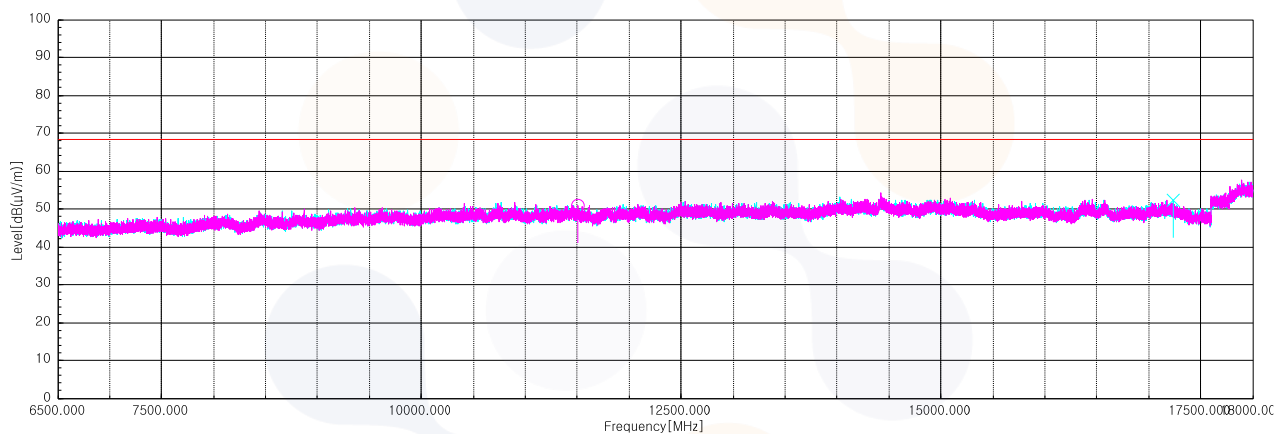
Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB($\mu V/m$))	(dB($\mu V/m$))	(dB)
Peak data								
5 606.74	V	55.80	33.21	-26.84	-	62.17	68.20	6.03
5 653.61	V	60.00	33.41	-26.80	-	66.61	70.90	4.29
11 507.10 ¹⁾	H	53.60	38.80	-41.48	-	50.92	74.00	23.08
17 237.93	V	50.70	38.28	-36.82	-	52.16	68.20	16.04
Average Data								
No spurious emissions were detected within 20 dB of the limit.								



Horizontal/Vertical for 1 GHz ~ 6.5 GHz



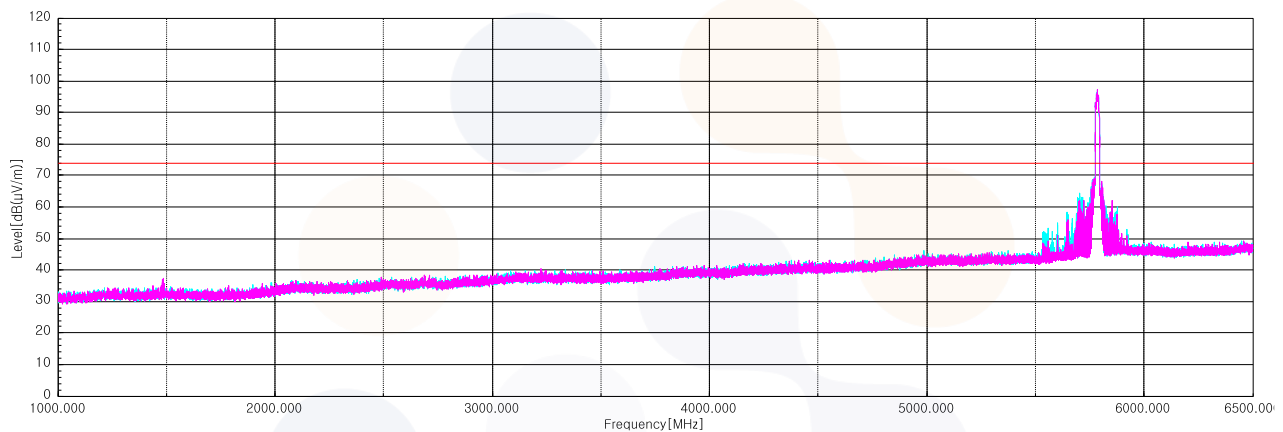
Horizontal/Vertical for 6.5 GHz ~ 18 GHz



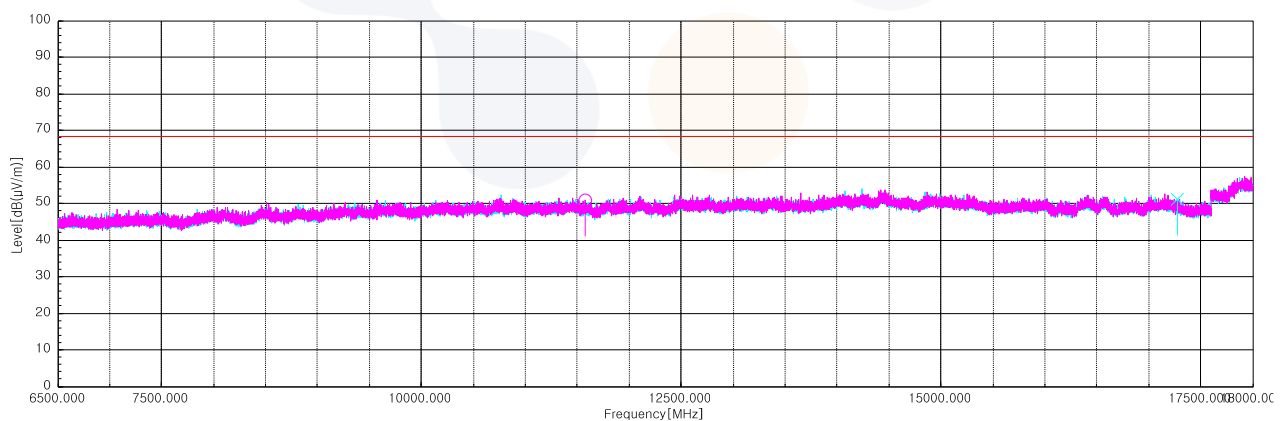
Middle Channel (5 785 MHz)

Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 573.03 ¹⁾	H	53.70	38.65	-41.68	-	50.67	74.00	23.33
17 272.43	V	49.50	38.49	-36.86	-	51.13	68.20	17.07
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Horizontal/Vertical for 1 GHz ~ 6.5 GHz

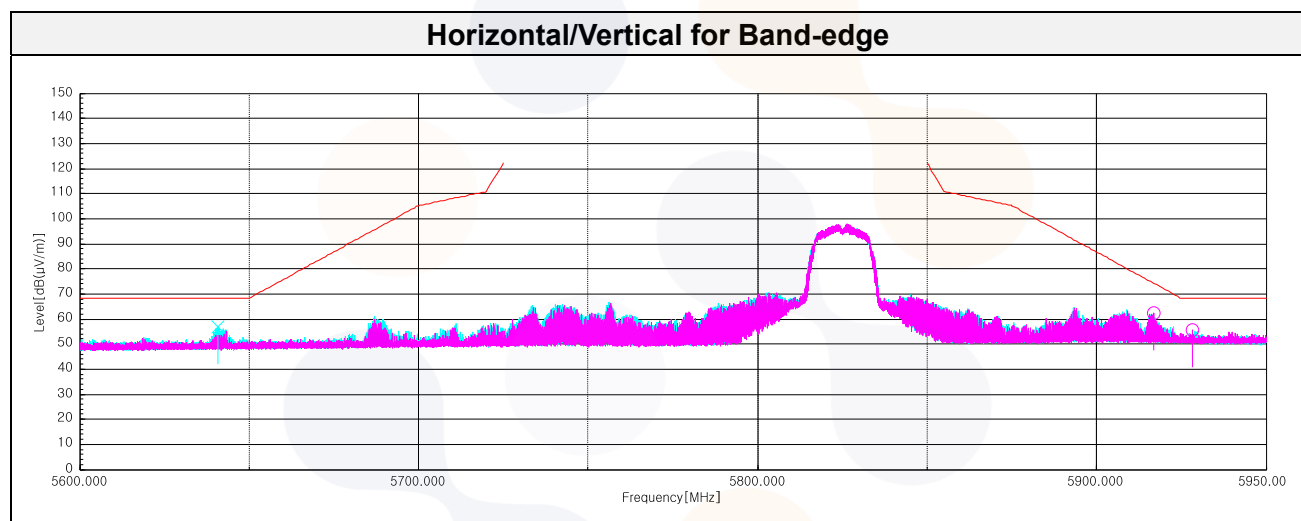


Horizontal/Vertical for 6.5 GHz ~ 18 GHz

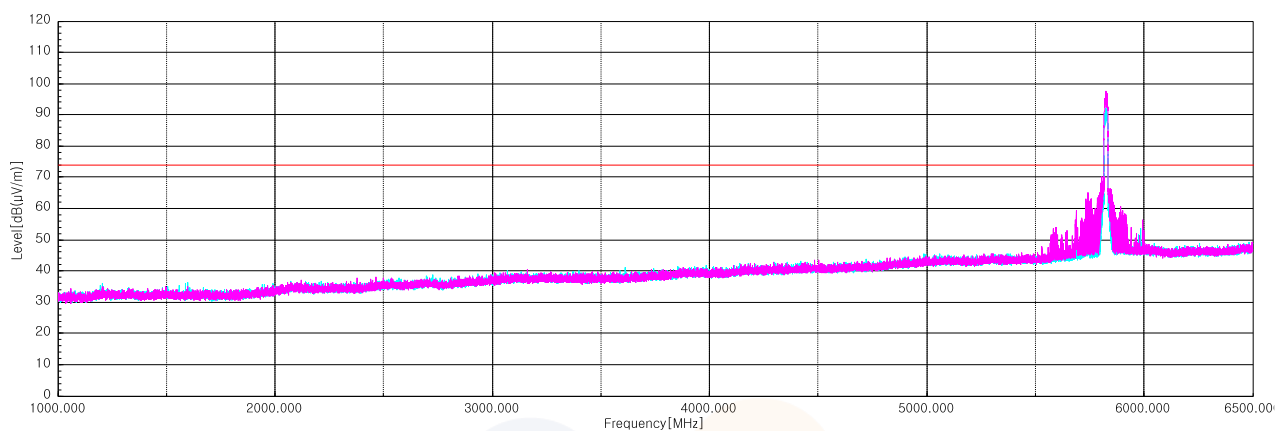


Highest Channel (5 825 MHz)

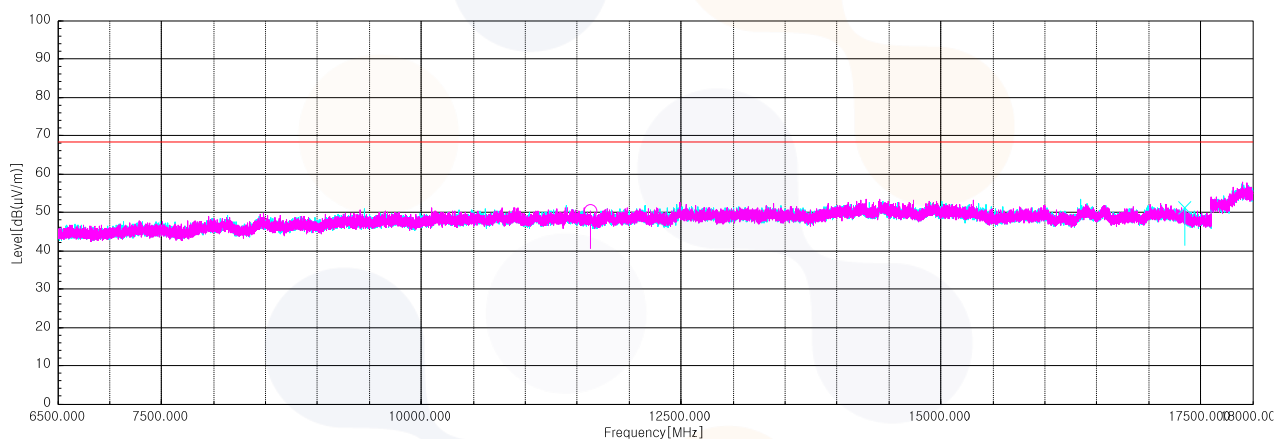
Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 640.93	V	50.30	33.28	-26.82	-	56.76	68.20	11.44
5 916.91	H	53.90	34.43	-26.15	-	62.18	74.20	12.02
5 928.31	H	47.40	34.46	-26.17	-	55.69	68.20	12.51
11 628.23 ¹⁾	H	53.40	38.54	-41.57	-	50.37	74.00	23.63
17 344.88	V	49.40	38.78	-37.18	-	51.00	68.20	17.20
Average Data								
No spurious emissions were detected within 20 dB of the limit.								



Horizontal/Vertical for 1 GHz ~ 6.5 GHz



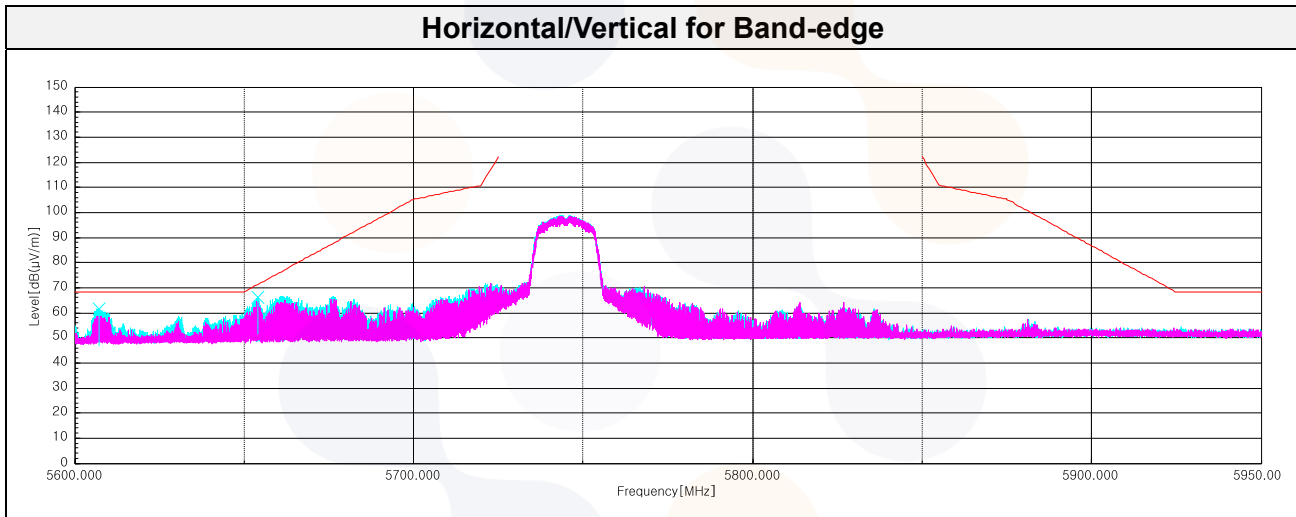
Horizontal/Vertical for 6.5 GHz ~ 18 GHz



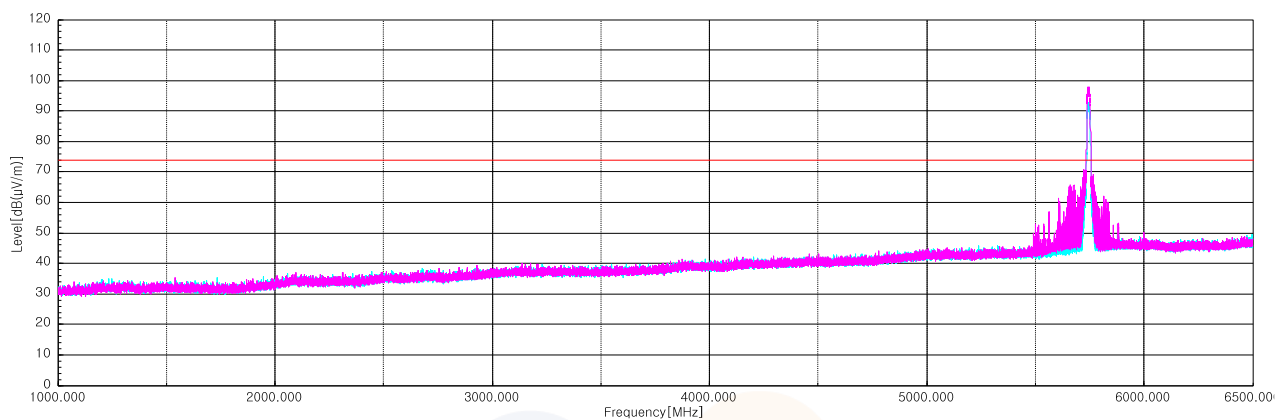
802.11n HT20 UNII 3

Lowest Channel (5 745 MHz)

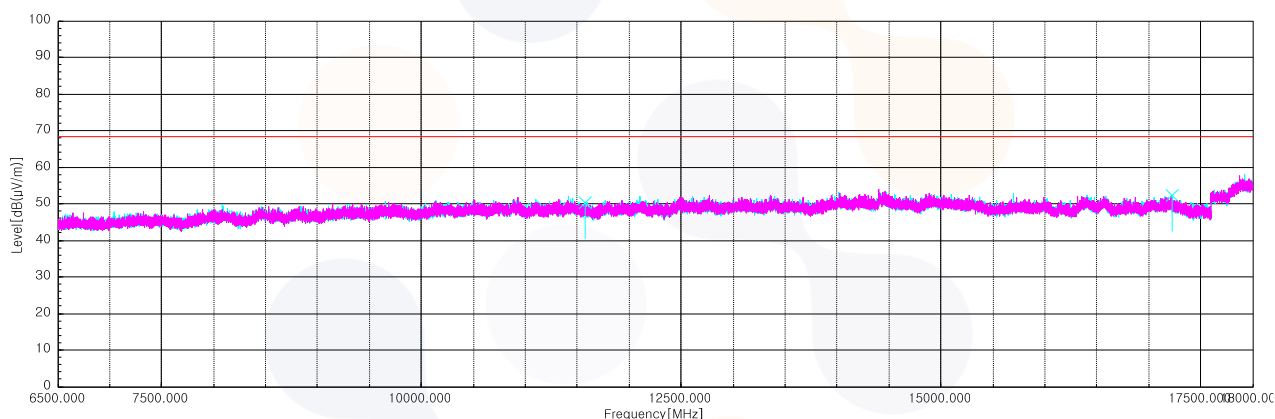
Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 607.30	V	55.20	33.21	-26.84	-	61.57	68.20	6.63
5 654.09	V	59.30	33.42	-26.80	-	65.92	71.20	5.28
11 574.57 ¹⁾	V	53.20	38.65	-41.67	-	50.18	74.00	23.82
17 220.68	V	50.70	38.24	-36.79	-	52.15	68.20	16.05
Average Data								
No spurious emissions were detected within 20 dB of the limit.								



Horizontal/Vertical for 1 GHz ~ 6.5 GHz



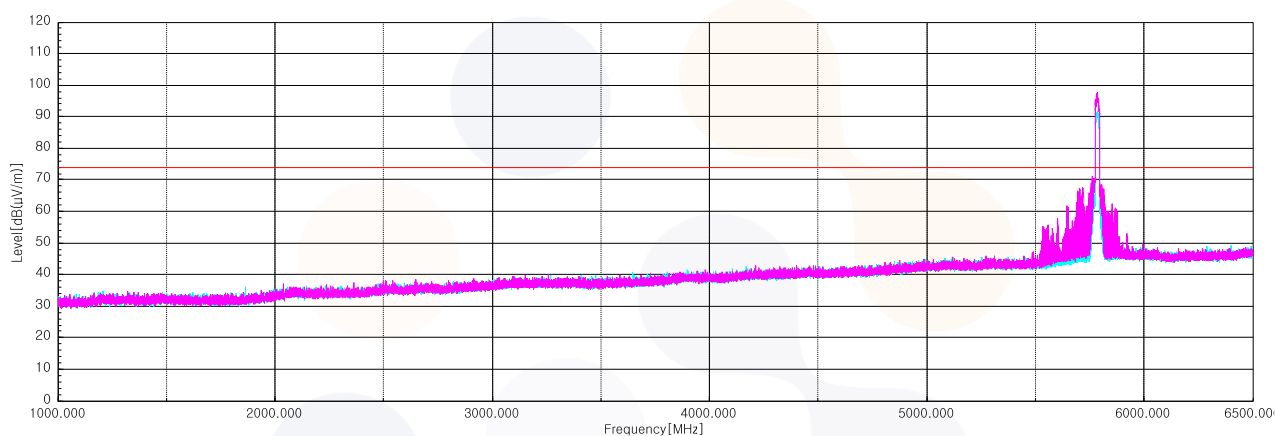
Horizontal/Vertical for 6.5 GHz ~ 18 GHz



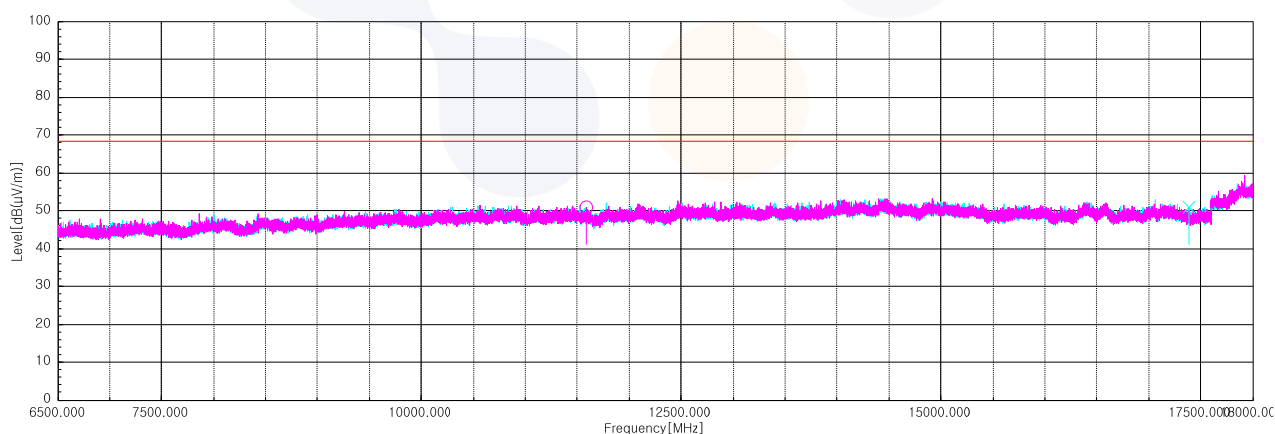
Middle Channel (5 785 MHz)

Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
11 586.07 ¹⁾	H	53.80	38.63	-41.61	-	50.82	74.00	23.18
17 389.73	V	48.70	38.96	-36.76	-	50.90	68.20	17.30
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

Horizontal/Vertical for 1 GHz ~ 6.5 GHz

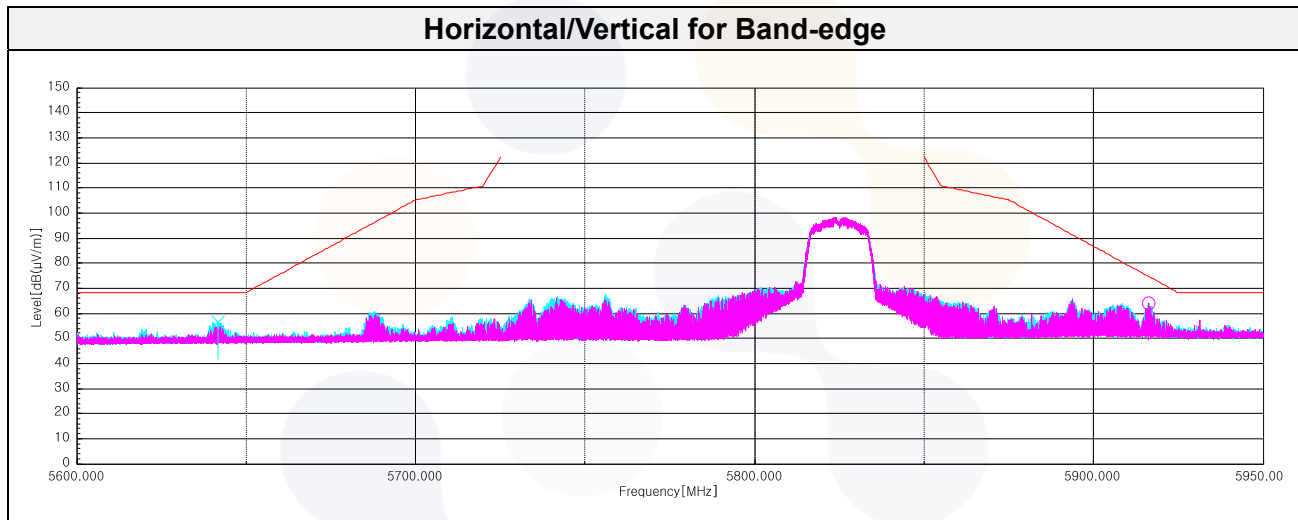


Horizontal/Vertical for 6.5 GHz ~ 18 GHz

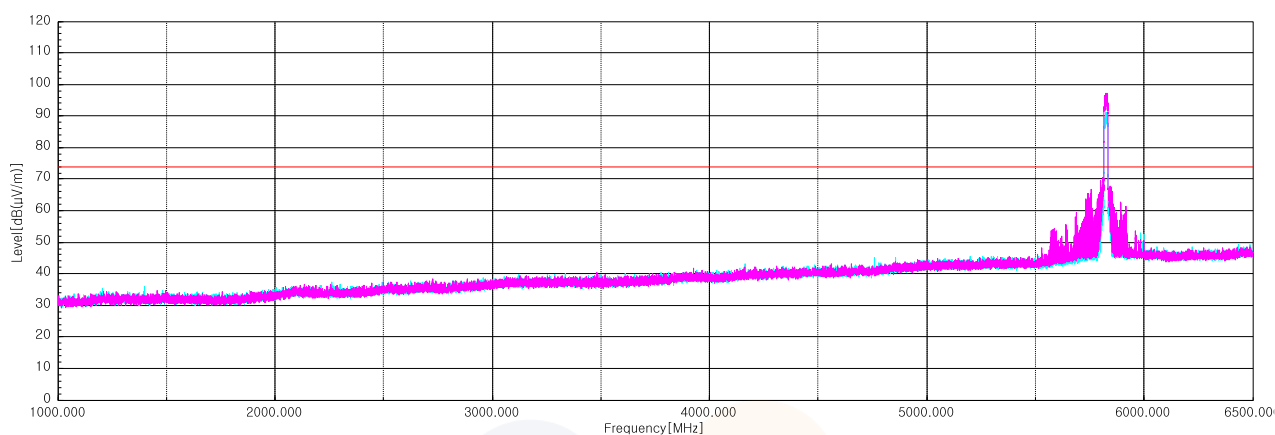


Highest Channel (5 825 MHz)

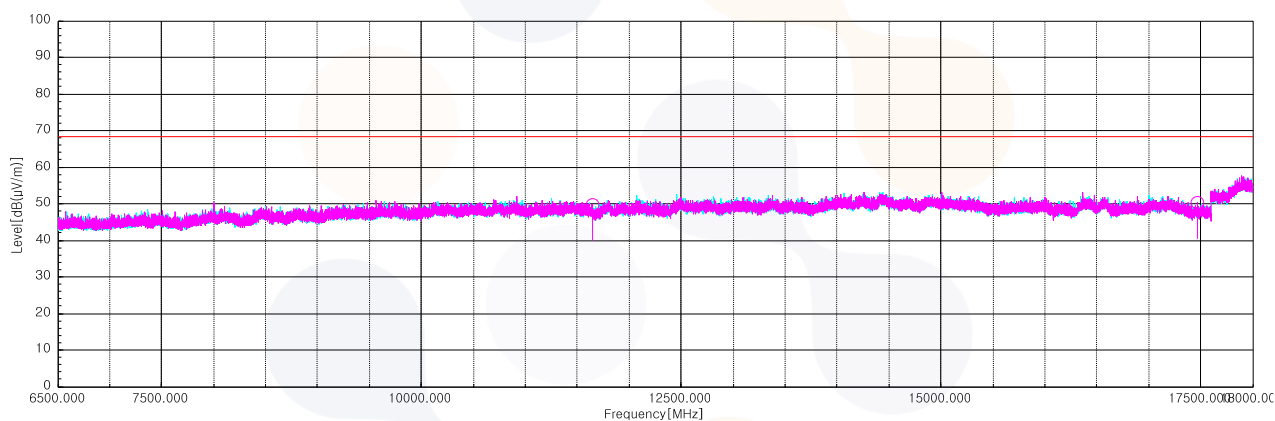
Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB($\mu V/m$))	(dB($\mu V/m$))	(dB)
Peak data								
5 641.67	V	49.90	33.28	-26.82	-	56.36	68.20	11.84
5 916.37	H	55.70	34.43	-26.15	-	63.98	74.60	10.62
11 643.18 ¹⁾	H	52.80	38.51	-41.59	-	49.72	74.00	24.28
17 469.85	H	47.20	39.32	-36.40	-	50.12	68.20	18.08
Average Data								
No spurious emissions were detected within 20 dB of the limit.								



Horizontal/Vertical for 1 GHz ~ 6.5 GHz



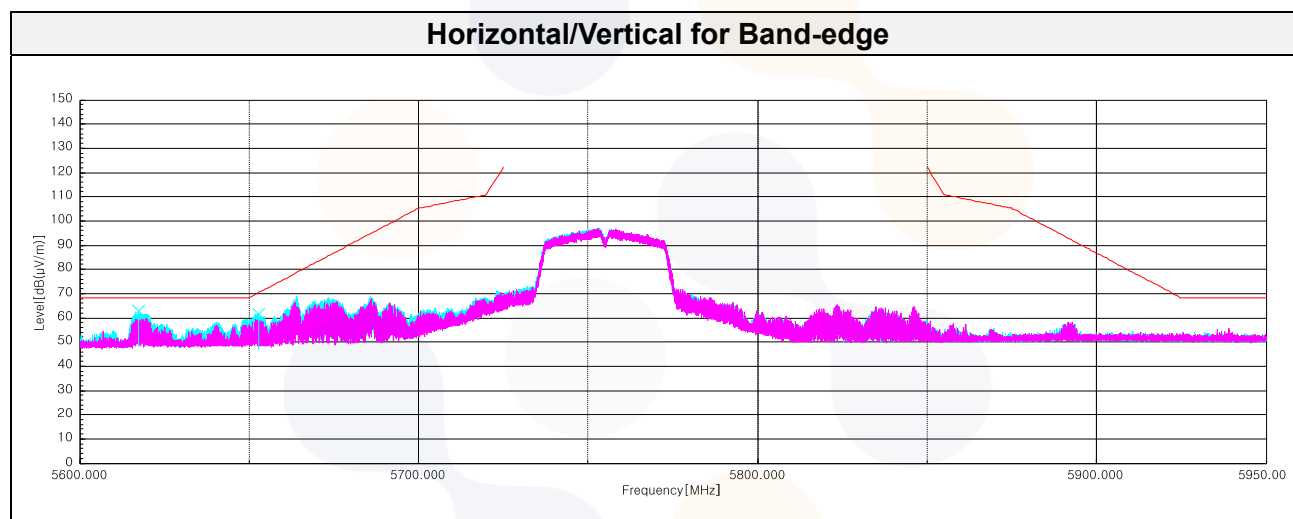
Horizontal/Vertical for 6.5 GHz ~ 18 GHz



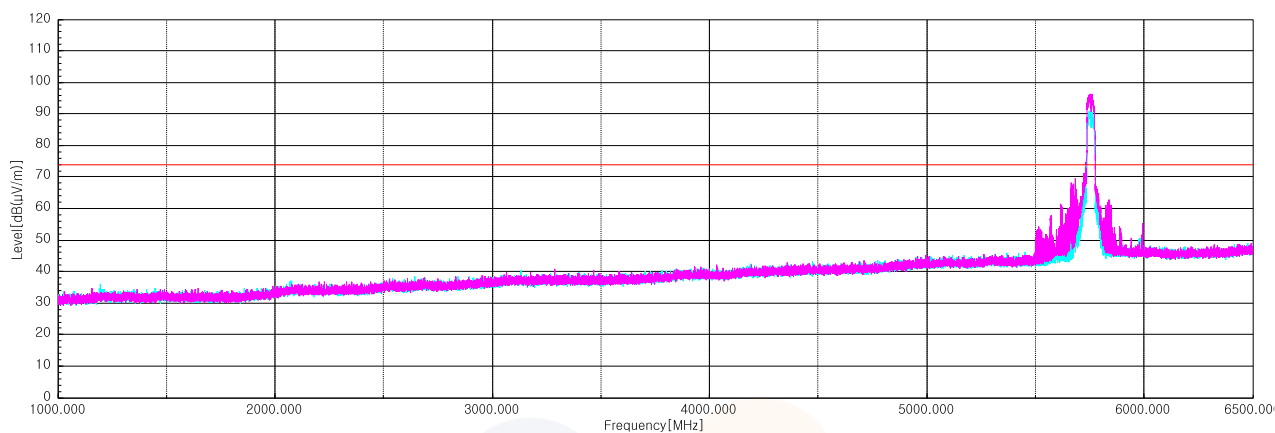
802.11n HT40 UNII 3

Lowest Channel (5 755 MHz)

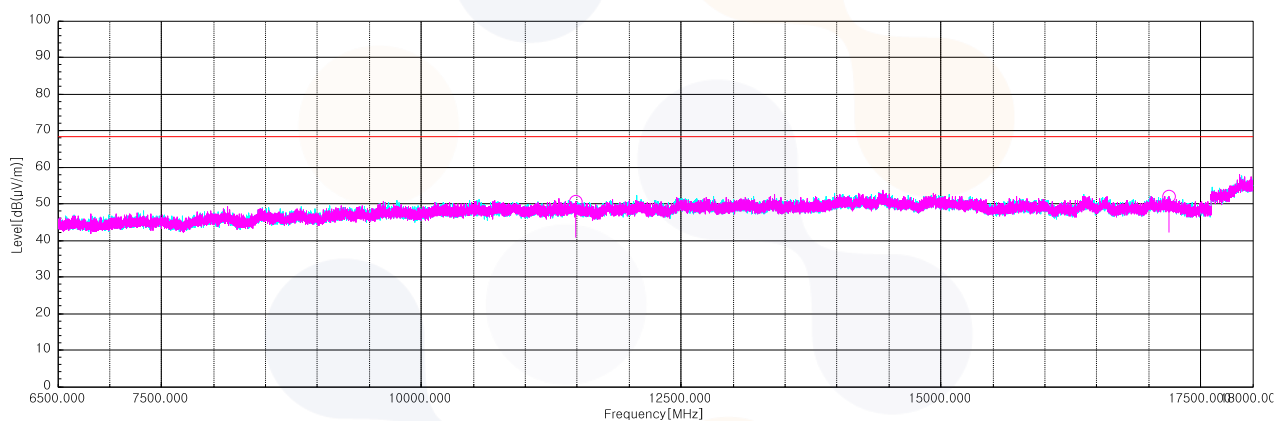
Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μ V))	(dB)	(dB)	(dB)	(dB(μ V/m))	(dB(μ V/m))	(dB)
Peak data								
5 617.27	V	56.30	33.23	-26.83	-	62.70	68.20	5.50
5 652.94	V	54.80	33.41	-26.81	-	61.40	70.40	9.00
11 488.32 ¹⁾	H	53.10	38.72	-41.46	-	50.36	74.00	23.64
17 195.38	H	50.50	38.19	-36.81	-	51.88	68.20	16.32
Average Data								
No spurious emissions were detected within 20 dB of the limit.								



Horizontal/Vertical for 1 GHz ~ 6.5 GHz



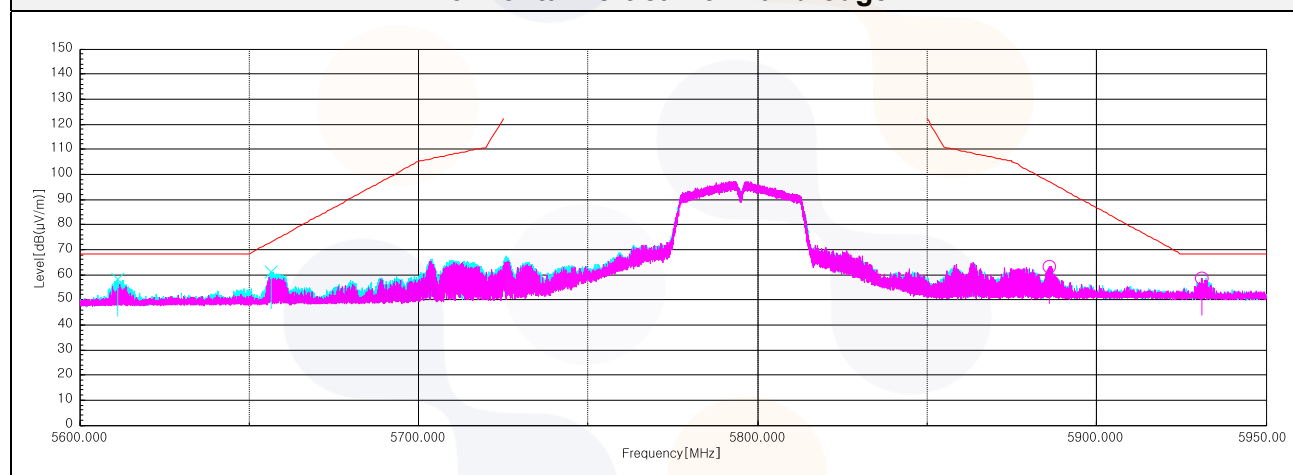
Horizontal/Vertical for 6.5 GHz ~ 18 GHz



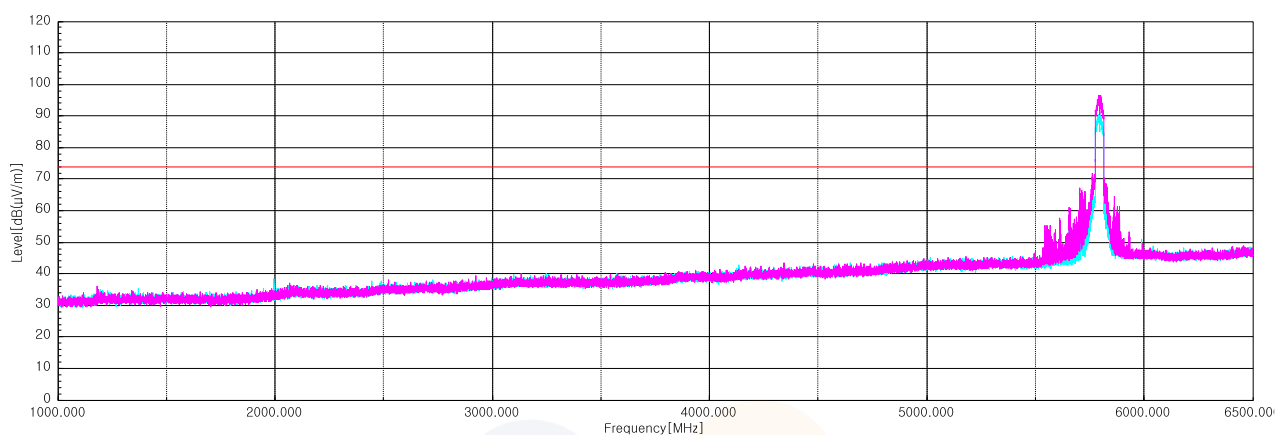
Highest Channel (5 795 MHz)

Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
Peak data								
5 611.15	V	51.60	33.22	-26.84	-	57.98	68.20	10.22
5 656.39	V	54.30	33.43	-26.79	-	60.94	72.90	11.96
5 885.97	H	55.20	34.44	-26.22	-	63.42	97.10	33.68
5 931.18	H	50.40	34.46	-26.17	-	58.69	68.20	9.51
11 599.87 ¹⁾	H	53.30	38.60	-41.53	-	50.37	74.00	23.63
17 355.23	V	49.40	38.82	-37.15	-	51.07	68.20	17.13
Average Data								
No spurious emissions were detected within 20 dB of the limit.								

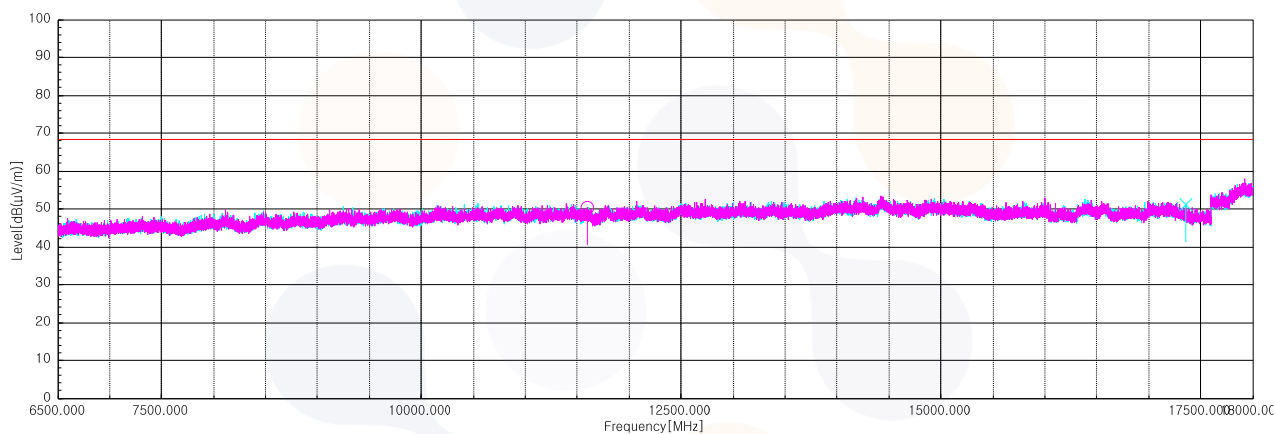
Horizontal/Vertical for Band-edge



Horizontal/Vertical for 1 GHz ~ 6.5 GHz



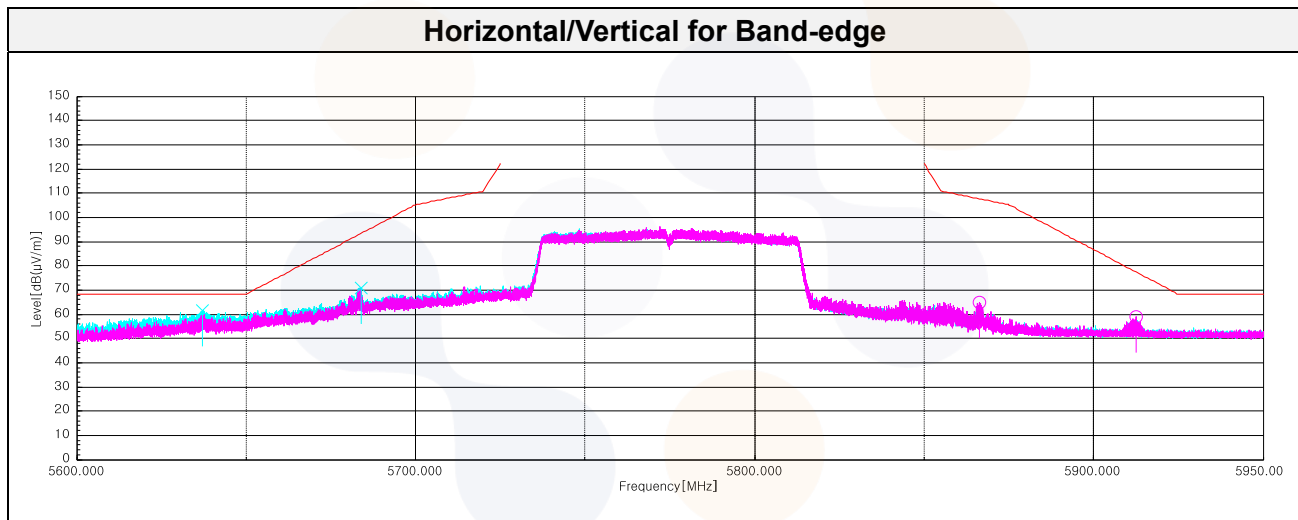
Horizontal/Vertical for 6.5 GHz ~ 18 GHz



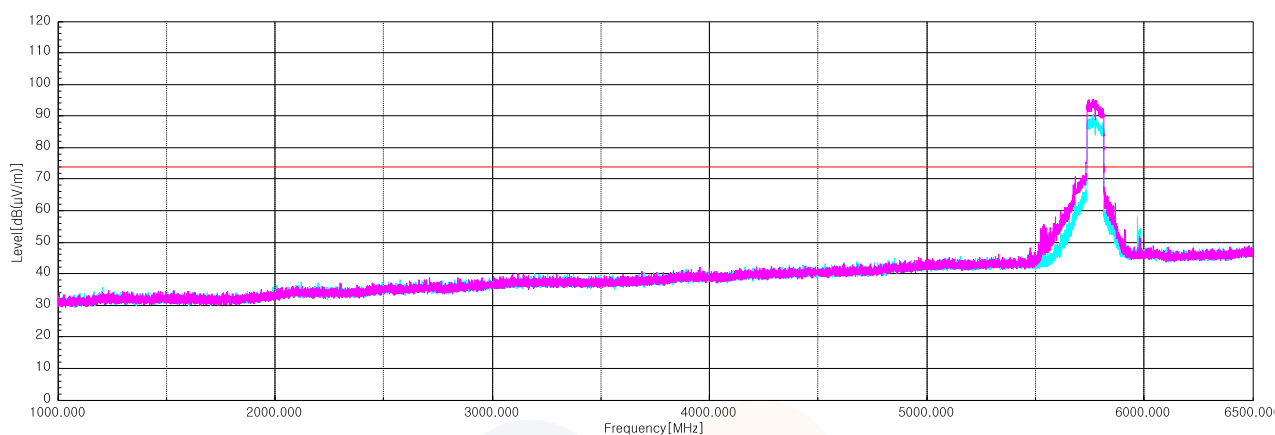
802.11ac VHT80 UNII 3

Lowest Channel (5 775 MHz)

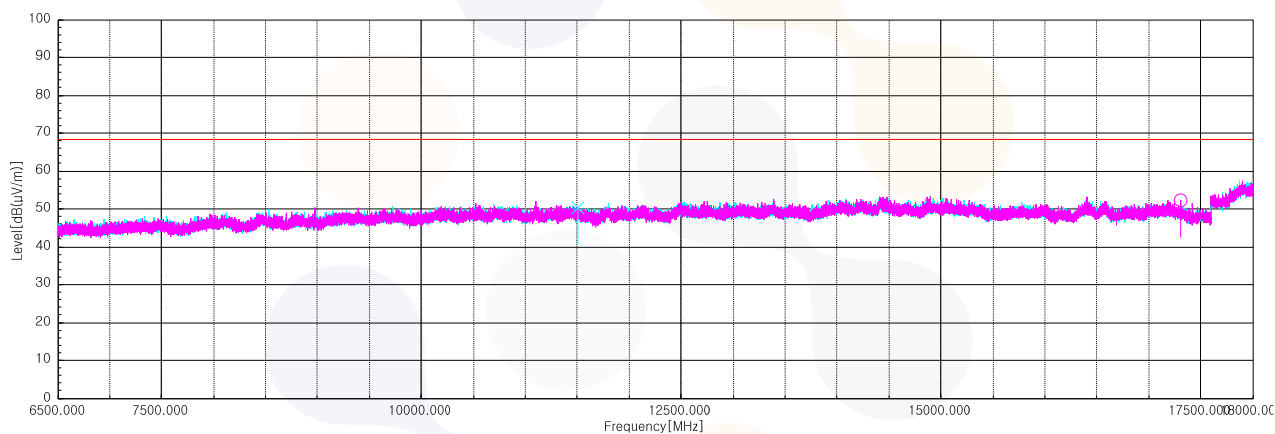
Frequency	Pol.	Reading	Antenna Factor	Amp. + Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB($\mu V/m$))	(dB($\mu V/m$))	(dB)
Peak data								
5 637.02	V	54.90	33.27	-26.83	-	61.34	68.20	6.86
5 683.83	V	64.10	33.54	-26.66	-	70.98	93.30	22.32
5 866.50	H	56.70	34.37	-26.37	-	64.70	107.60	42.90
5 912.59	H	50.60	34.43	-26.14	-	58.89	77.40	18.51
11 509.02 ¹⁾	V	52.90	38.80	-41.50	-	50.20	74.00	23.80
17 302.33	H	50.40	38.61	-36.90	-	52.11	68.20	16.09
Average Data								
No spurious emissions were detected within 20 dB of the limit.								



Horizontal/Vertical for 1 GHz ~ 6.5 GHz

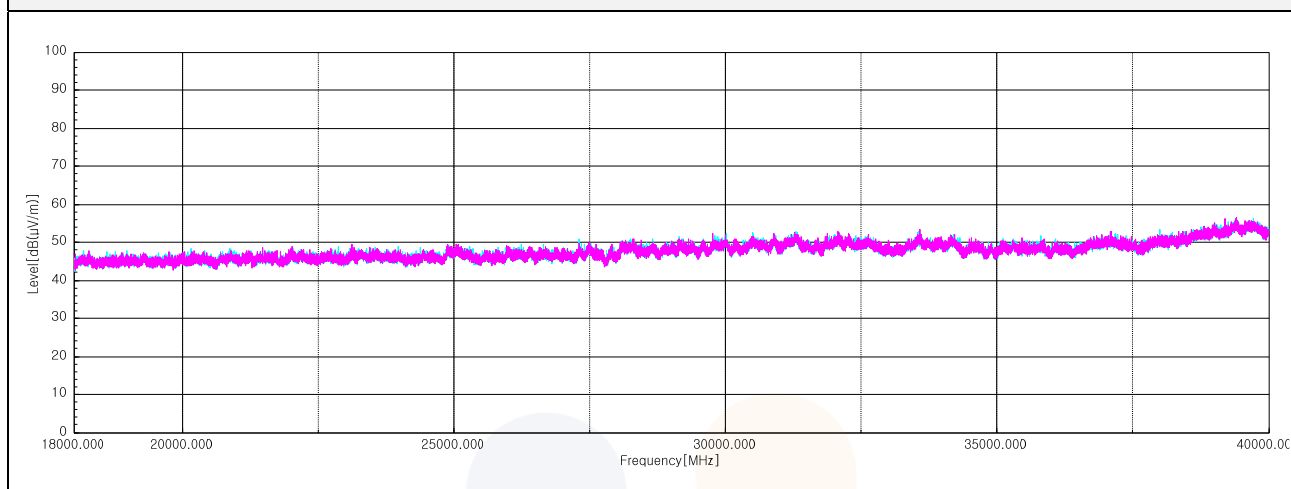


Horizontal/Vertical for 6.5 GHz ~ 18 GHz



Test results (Above 18 GHz) – Worst case: 802.11a_UNII 3_5 745 MHz

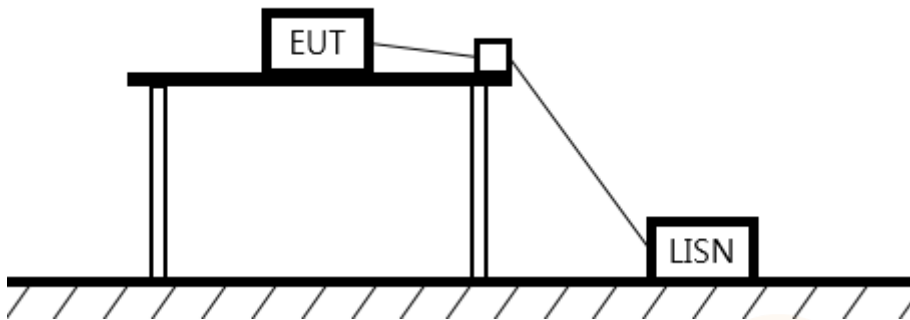
Horizontal/Vertical for 18 GHz ~ 40 GHz



Note: The Worst case was based on the lowest margin condition considering Harmonic and Spurious Emission.

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 50μH/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.

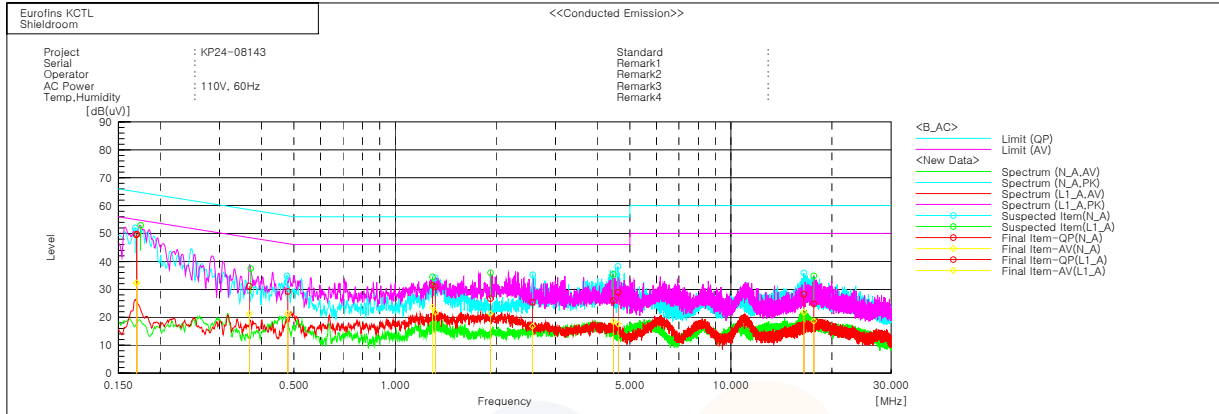
Frequency of Emission (MHz)	Conducted limit (dBμV/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

Measurement procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 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 50Ω/50μH 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: 802.11ac VHT80_UNII 3_5 775 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	0.1694	39.4	22.2	10.1	49.5	32.3	65.0	55.0	15.5	22.7
2	0.4793	19.1	11.2	10.1	29.2	21.3	56.4	46.4	27.2	25.1
3	1.31747	21.0	11.9	9.9	30.9	21.8	56.0	46.0	25.1	24.2
4	2.565	15.6	7.0	9.8	25.4	16.8	56.0	46.0	30.6	29.2
5	4.61135	19.0	7.6	9.9	28.9	17.5	56.0	46.0	27.1	28.5
6	16.49513	17.4	10.9	10.9	28.3	21.8	60.0	50.0	31.7	28.2

--- 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	0.17023	39.7	22.2	10.1	49.8	32.3	64.9	54.9	15.1	22.6
2	0.36807	21.2	11.2	10.0	31.2	21.2	58.5	48.5	27.3	27.3
3	1.29292	21.6	13.7	9.9	31.5	23.6	56.0	46.0	24.5	22.4
4	1.92115	16.8	11.3	9.9	26.7	21.2	56.0	46.0	29.3	24.8
5	4.46452	16.0	8.6	9.9	25.9	18.5	56.0	46.0	30.1	27.5
6	17.66962	13.9	7.7	10.9	24.8	18.6	60.0	50.0	35.2	31.4

Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR25-SRF0087-B Page (75) of (75)	
---	---	---

8. Measurement equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Spectrum Analyzer	R&S	FSV40	100988	25.05.27
Spectrum Analyzer	R&S	FSW26	101353	25.10.10
Broadband PreAmplifier	SCHWARZBECK	BBV9718D	53	26.01.16
Spectrum Analyzer	R&S	FSV30	100806	25.07.01
Power Sensor	R&S	NRP-Z81	1137.9009.02-106223-bB	25.04.24
Attenuator	API Inmet	40AH2W-10	13	25.04.30
Attenuator	HP	8491A	29738	25.10.10
Temp & Humid Chamber	ESPEC	SH-642	93016978	26.01.16
Broadband PreAmplifier	SCHWARZBECK	BBV9718D	53	26.01.16
Low Noise Amplifier	TESTEK	TK-PA18H	220123-L	25.10.11
Low Noise Amplifier	TESTEK	TK-PA1840H	220234-L	25.10.14
Horn Antenna	SCHWARZBECK	BBHA9120D	2764	25.10.24
Horn Antenna	SCHWARZBECK	BBHA9170	1266	25.10.15
High Pass Filter	Wainwright Instruments GmbH	WHKX8-5655-6500-18000-40SS	SN7	25.10.15
High Pass Filter	Qotana	DBHF058004000A	23041800061	25.06.24
Signal Generator	R&S	SMB100A	176206	26.01.17
Amplifier	SONOMA INSTRUMENT	310N	421910	25.10.11
Bilog Antenna	Teseq GmbH	CBL 6112D	61521	26.12.11
Loop Antenna	R&S	HFH2-Z2	100355	26.06.25
Vector Signal Generator	R&S	SMBV100A	257566	25.07.01
TWO-LINE V - NETWORK	R&S	ENV216	101358	25.10.13
EMI TEST RECEIVER	R&S	ESCI3	100001	25.08.12
Controller	INNCO SYSTEMS	CO3000	1441/54370322/P	-
Antenna Mast	INNCO SYSTEMS	MA4640-XP-ET	AM003	-
Turn Device	INNCO SYSTEMS	DS1200-S-1t	0003	-

End of test report