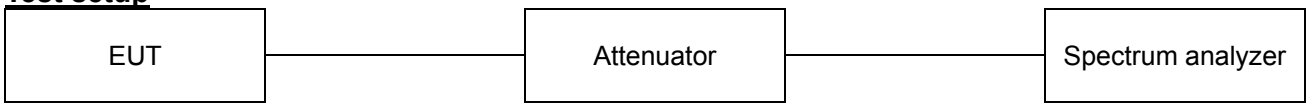
7.4. 6 dB Bandwidth

Test setup



Limit

According to §15.407(e), RSS-247(6.2.4)
Within the 5.725-5.85 ㎓ band, the minimum 6 dB bandwidth if U-NII devices shall be at least 500㎑

Test procedure

ANSI C63.10-2013 Section 6.9.2
KDB 789033 D02 v02r01 - Section C.2

Test settings

Minimum Emission Bandwidth for the band 5.725−5.85 ㎓

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 ㎑ for the band 5.725−5.85 ㎓. The following procedure shall be used for measuring this bandwidth:

1. Set RBW = 100 ㎑.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test results

Test mode	Band	Frequency (MHz)	Measured Bandwidth (MHz)	Minimum Bandwidth (MHz)
802.11a	UNII-3	5 745	16.32	0.50
		5 785	16.31	0.50
		5 825	16.33	0.50
802.11n HT20	UNII-3	5 745	17.55	0.50
		5 785	17.29	0.50
		5 825	17.27	0.50
802.11n HT40	UNII-3	5 755	35.13	0.50
		5 795	35.11	0.50
802.11ac VHT20	UNII-3	5 745	17.29	0.50
		5 785	17.52	0.50
		5 825	17.31	0.50
802.11ac VHT40	UNII-3	5 755	35.12	0.50
		5 795	35.11	0.50
802.11ac VHT80	UNII-3	5 775	75.21	0.50

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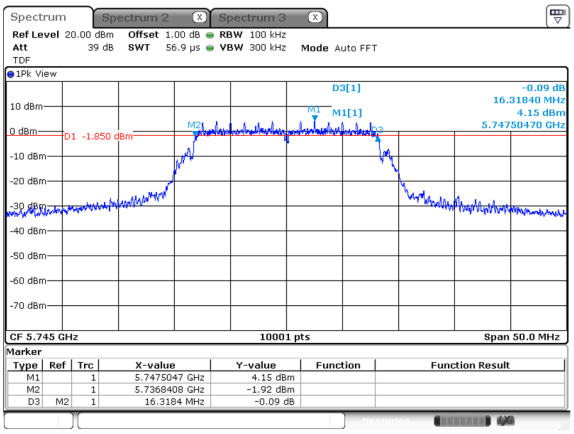
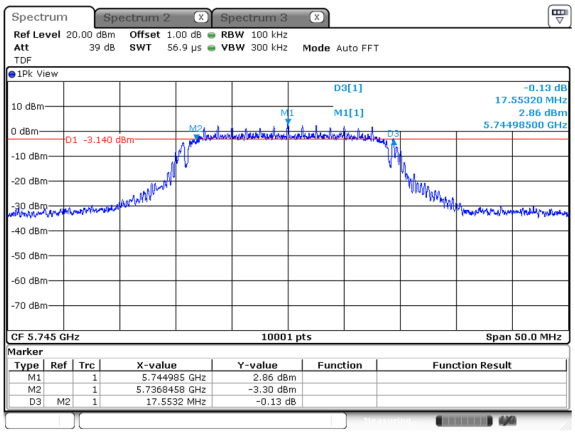
6 dB bandwidth

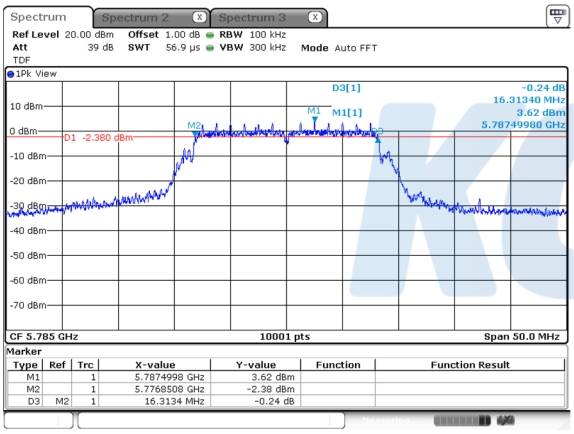
UNII-3 / 802.11a / Low ch.



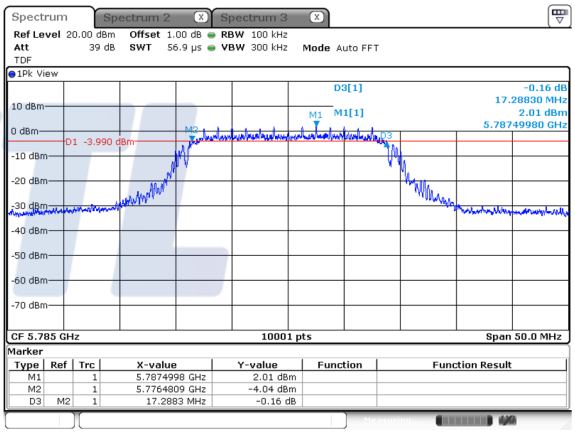
UNII-3 / 802.11n HT20 / Low ch.



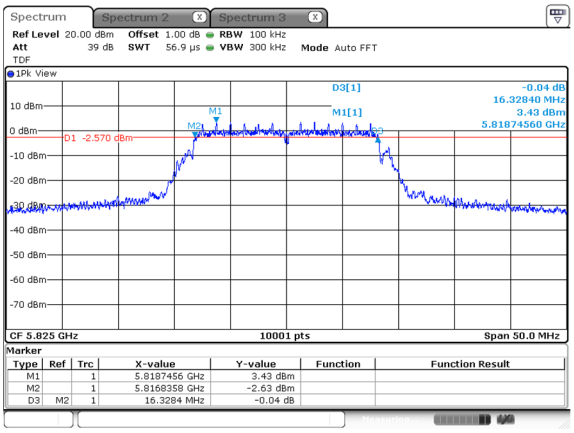
UNII-3 / 802.11a / Mid ch.



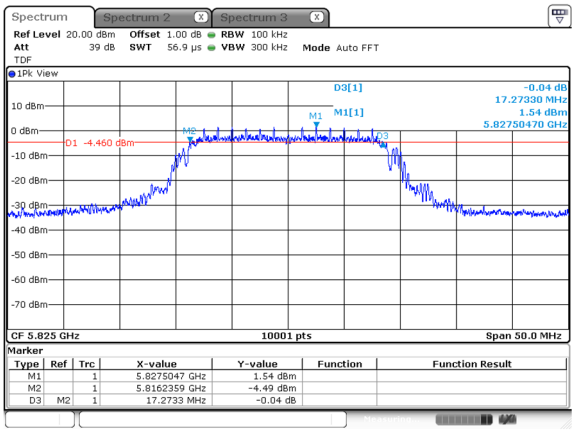
UNII-3 / 802.11n HT20 / Mid ch.



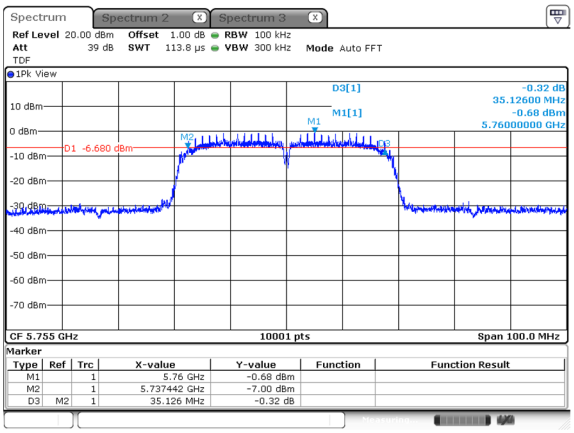
UNII-3 / 802.11a / High ch.



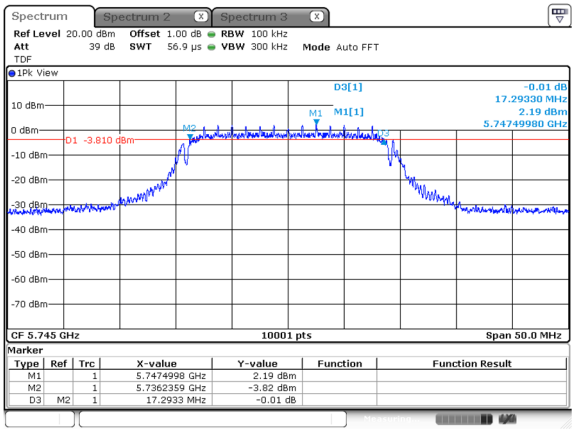
UNII-3 / 802.11n HT20 / High ch.



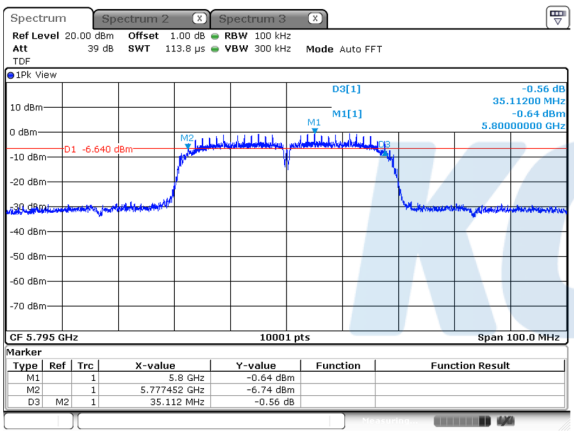
UNII-3 / 802.11n HT40 / Low ch.



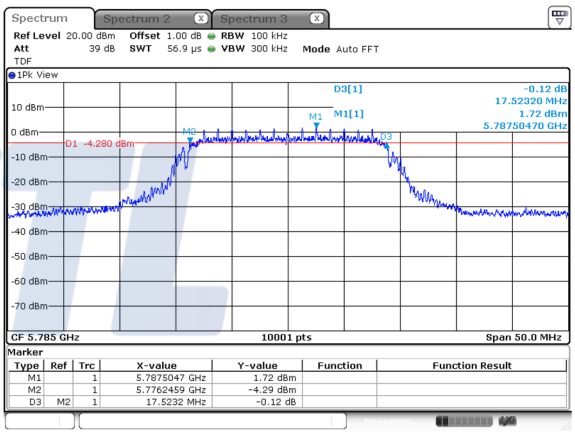
UNII-3 / 802.11ac VHT20 / Low ch.



UNII-3 / 802. 11n HT40 / High ch.

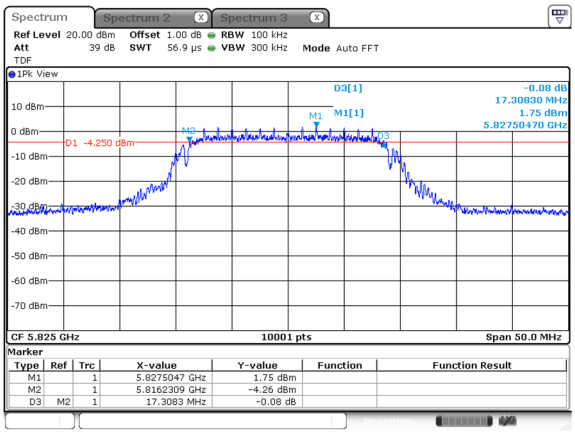


UNII-3 / 802.11ac VHT20 / Mid ch.

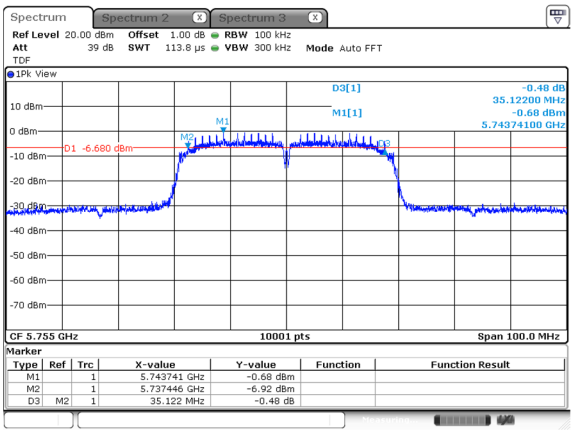


UNII-3 / 802.11ac VHT20 / High ch.

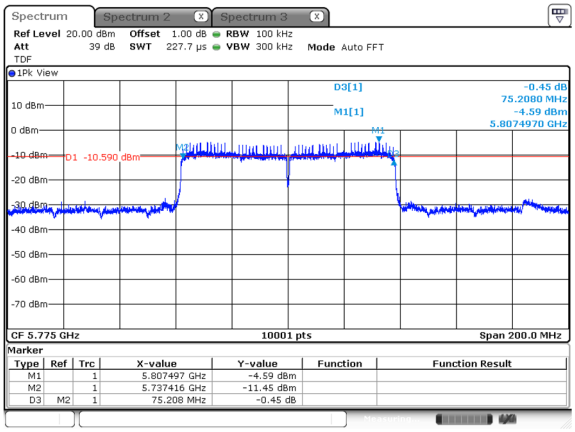
Blank



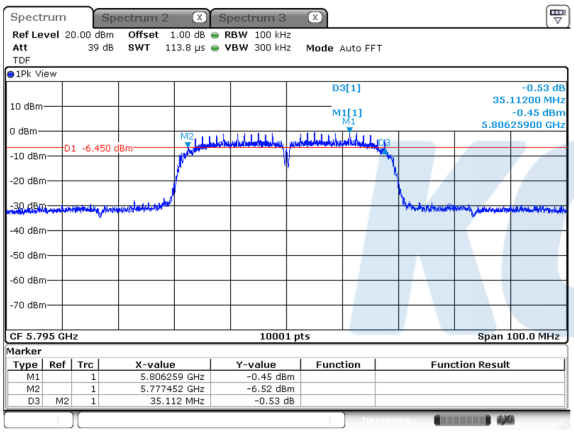
UNII-3 / 802.11ac VHT40 / Low ch.



UNII-3 / 802.11ac VHT80 / Low ch.



UNII-3 / 802. 11ac VHT40 / High ch.



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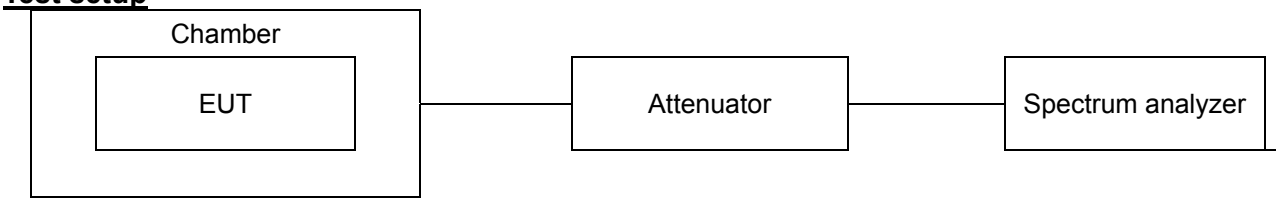
7.5. Frequency Stability

Test setup



Limit

N/A

Test procedure

ANSI C63.10-2013, clause 6.8.1

Test settings

The frequency stability of the carrier frequency of the intentional radiator shall be maintained all conditions of normal operation as specified in the user manual. The frequency stability shall be maintained over a temperature variation of specified in the user manual at normal supply voltage, and over a variation in the primary supply voltage of specified in the user manual of the rated supply voltage at a temperature of 20 °C. For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

1. The EUT was placed inside the environmental test chamber.
2. The temperature was incremented by 10 °C intervals from lowest temperature.
3. Each increase step of temperature measured the frequency.
4. The test temperature was set 20°C and the supply voltage was then adjusted on the EUT from 85 % to 115% and the frequency record.
5. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

Test results

Test mode : UNII-1

Frequency(Hz) : 5 180 000 000

Voltage [%]	Voltage [V]	TEMP [℃]	Maintaining time	Measure frequency [Hz]	Frequency deviation [Hz]	Deviation [%]
100	3.85	+22(Ref)	Startup	5 180 000 737	737	0.000 01
			2 minutes	5 180 000 736	736	0.000 01
			5 minutes	5 180 000 735	735	0.000 01
			10 minutes	5 180 000 736	736	0.000 01
		-30	Startup	5 180 002 021	2 021	0.000 04
			2 minutes	5 180 002 078	2 078	0.000 04
			5 minutes	5 180 002 082	2 082	0.000 04
			10 minutes	5 180 002 075	2 075	0.000 04
		-20	Startup	5 180 002 044	2 044	0.000 04
			2 minutes	5 180 002 045	2 045	0.000 04
			5 minutes	5 180 002 051	2 051	0.000 04
			10 minutes	5 180 002 053	2 053	0.000 04
		-10	Startup	5 180 001 489	1 489	0.000 03
			2 minutes	5 180 001 485	1 485	0.000 03
			5 minutes	5 180 001 481	1 481	0.000 03
			10 minutes	5 180 001 483	1 483	0.000 03
		0	Startup	5 180 001 147	1 147	0.000 02
			2 minutes	5 180 001 141	1 141	0.000 02
			5 minutes	5 180 001 138	1 138	0.000 02
			10 minutes	5 180 001 134	1 134	0.000 02
		10	Startup	5 180 000 782	782	0.000 02
			2 minutes	5 180 000 741	741	0.000 01
			5 minutes	5 180 000 717	717	0.000 01
			10 minutes	5 180 000 708	708	0.000 01
		20	Startup	5 180 000 353	353	0.000 01
			2 minutes	5 180 000 351	351	0.000 01
			5 minutes	5 180 000 345	345	0.000 01
			10 minutes	5 180 000 342	342	0.000 01
		30	Startup	5 180 000 300	300	0.000 01
			2 minutes	5 180 000 298	298	0.000 01
			5 minutes	5 180 000 296	296	0.000 01
			10 minutes	5 180 000 295	295	0.000 01
		40	Startup	5 180 000 263	263	0.000 01
			2 minutes	5 180 000 227	227	0.000 00
			5 minutes	5 180 000 208	208	0.000 00
			10 minutes	5 180 000 195	195	0.000 00
		50	Startup	5 179 999 678	- 322	-0.000 01
			2 minutes	5 179 999 655	- 345	-0.000 01
			5 minutes	5 179 999 644	- 356	-0.000 01
			10 minutes	5 179 999 637	- 363	-0.000 01
85	3.27	+22(Ref)	Startup	5 180 000 940	940	0.000 02
			2 minutes	5 180 000 879	879	0.000 02
			5 minutes	5 180 000 847	847	0.000 02
			10 minutes	5 180 000 820	820	0.000 02
115	4.43	+22(Ref)	Startup	5 180 000 818	818	0.000 02
			2 minutes	5 180 000 788	788	0.000 02
			5 minutes	5 180 000 784	784	0.000 02
			10 minutes	5 180 000 781	781	0.000 02

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Test mode : UNII-2A

Frequency(㎐) : 5 260 000 000

Voltage [%]	Voltage [V]	TEMP [℃]	Maintaining time	Measure frequency [㎐]	Frequency deviation [㎐]	Deviation [%]
100	3.85	+22(Ref)	Startup	5 260 000 890	890	0.000 02
			2 minutes	5 260 000 781	781	0.000 01
			5 minutes	5 260 000 778	778	0.000 01
			10 minutes	5 260 000 778	778	0.000 01
		-30	Startup	5 260 002 079	2 079	0.000 04
			2 minutes	5 260 002 082	2 082	0.000 04
			5 minutes	5 260 002 080	2 080	0.000 04
			10 minutes	5 260 002 077	2 077	0.000 04
		-20	Startup	5 260 002 079	2 079	0.000 04
			2 minutes	5 260 002 080	2 080	0.000 04
			5 minutes	5 260 002 078	2 078	0.000 04
			10 minutes	5 260 002 077	2 077	0.000 04
		-10	Startup	5 260 001 513	1 513	0.000 03
			2 minutes	5 260 001 494	1 494	0.000 03
			5 minutes	5 260 001 489	1 489	0.000 03
			10 minutes	5 260 001 489	1 489	0.000 03
		0	Startup	5 260 001 226	1 226	0.000 02
			2 minutes	5 260 001 193	1 193	0.000 02
			5 minutes	5 260 001 179	1 179	0.000 02
			10 minutes	5 260 001 169	1 169	0.000 02
		10	Startup	5 260 000 722	722	0.000 01
			2 minutes	5 260 000 671	671	0.000 01
			5 minutes	5 260 000 658	658	0.000 01
			10 minutes	5 260 000 648	648	0.000 01
		20	Startup	5 260 000 375	375	0.000 01
			2 minutes	5 260 000 357	357	0.000 01
			5 minutes	5 260 000 351	351	0.000 01
			10 minutes	5 260 000 345	345	0.000 01
		30	Startup	5 260 000 282	282	0.000 01
			2 minutes	5 260 000 253	253	0.000 00
			5 minutes	5 260 000 249	249	0.000 00
			10 minutes	5 260 000 251	251	0.000 00
		40	Startup	5 260 000 178	178	0.000 00
			2 minutes	5 260 000 153	153	0.000 00
			5 minutes	5 260 000 135	135	0.000 00
			10 minutes	5 260 000 126	126	0.000 00
		50	Startup	5 259 999 624	- 376	-0.000 01
			2 minutes	5 259 999 615	- 385	-0.000 01
			5 minutes	5 259 999 613	- 387	-0.000 01
			10 minutes	5 259 999 608	- 392	-0.000 01
85	3.27	+22(Ref)	Startup	5 260 000 781	781	0.000 01
			2 minutes	5 260 000 777	777	0.000 01
			5 minutes	5 260 000 776	776	0.000 01
			10 minutes	5 260 000 775	775	0.000 01
115	4.43	+22(Ref)	Startup	5 260 000 787	787	0.000 01
			2 minutes	5 260 000 775	775	0.000 01
			5 minutes	5 260 000 775	775	0.000 01
			10 minutes	5 260 000 773	773	0.000 01

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Test mode : UNII-2C

Frequency(㎐) : 5 500 000 000

Voltage [%]	Voltage [V]	TEMP [℃]	Maintaining time	Measure frequency [㎐]	Frequency deviation [㎐]	Deviation [%]
100	3.85	+22(Ref)	Startup	5 500 000 816	816	0.000 01
			2 minutes	5 500 000 812	812	0.000 01
			5 minutes	5 500 000 810	810	0.000 01
			10 minutes	5 500 000 808	808	0.000 01
		-30	Startup	5 500 001 830	1 830	0.000 03
			2 minutes	5 500 001 791	1 791	0.000 03
			5 minutes	5 500 001 800	1 800	0.000 03
			10 minutes	5 500 001 781	1 781	0.000 03
		-20	Startup	5 500 002 172	2 172	0.000 04
			2 minutes	5 500 002 179	2 179	0.000 04
			5 minutes	5 500 002 177	2 177	0.000 04
			10 minutes	5 500 002 182	2 182	0.000 04
		-10	Startup	5 500 001 702	1 702	0.000 03
			2 minutes	5 500 001 621	1 621	0.000 03
			5 minutes	5 500 001 601	1 601	0.000 03
			10 minutes	5 500 001 584	1 584	0.000 03
		0	Startup	5 500 001 210	1 210	0.000 02
			2 minutes	5 500 001 197	1 197	0.000 02
			5 minutes	5 500 001 194	1 194	0.000 02
			10 minutes	5 500 001 192	1 192	0.000 02
		10	Startup	5 500 000 697	697	0.000 01
			2 minutes	5 500 000 683	683	0.000 01
			5 minutes	5 500 000 675	675	0.000 01
			10 minutes	5 500 000 671	671	0.000 01
		20	Startup	5 500 000 432	432	0.000 01
			2 minutes	5 500 000 382	382	0.000 01
			5 minutes	5 500 000 373	373	0.000 01
			10 minutes	5 500 000 377	377	0.000 01
		30	Startup	5 500 000 291	291	0.000 01
			2 minutes	5 500 000 290	290	0.000 01
			5 minutes	5 500 000 287	287	0.000 01
			10 minutes	5 500 000 286	286	0.000 01
		40	Startup	5 500 000 145	145	0.000 00
			2 minutes	5 500 000 117	117	0.000 00
			5 minutes	5 500 000 099	99	0.000 00
			10 minutes	5 500 000 091	91	0.000 00
		50	Startup	5 499 999 603	- 397	-0.000 01
			2 minutes	5 499 999 599	- 401	-0.000 01
			5 minutes	5 499 999 596	- 404	-0.000 01
			10 minutes	5 499 999 590	- 410	-0.000 01
85	3.27	+22(Ref)	Startup	5 500 000 823	823	0.000 01
			2 minutes	5 500 000 813	813	0.000 01
			5 minutes	5 500 000 811	811	0.000 01
			10 minutes	5 500 000 809	809	0.000 01
115	4.43	+22(Ref)	Startup	5 500 000 832	832	0.000 02
			2 minutes	5 500 000 817	817	0.000 01
			5 minutes	5 500 000 812	812	0.000 01
			10 minutes	5 500 000 811	811	0.000 01

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Test mode : UNII-3

Frequency(Hz) : 5 745 000 000

Voltage [%]	Voltage [V]	TEMP [℃]	Maintaining time	Measure frequency [Hz]	Frequency deviation [Hz]	Deviation [%]
100	3.85	+22(Ref)	Startup	5 745 000 847	847	0.000 01
			2 minutes	5 745 000 843	843	0.000 01
			5 minutes	5 745 000 840	840	0.000 01
			10 minutes	5 745 000 839	839	0.000 01
		-30	Startup	5 745 002 172	2 172	0.000 04
			2 minutes	5 745 002 157	2 157	0.000 04
			5 minutes	5 745 002 140	2 140	0.000 04
			10 minutes	5 745 001 989	1 989	0.000 03
		-20	Startup	5 745 002 165	2 165	0.000 04
			2 minutes	5 745 002 231	2 231	0.000 04
			5 minutes	5 745 002 248	2 248	0.000 04
			10 minutes	5 745 002 257	2 257	0.000 04
		-10	Startup	5 745 001 666	1 666	0.000 03
			2 minutes	5 745 001 641	1 641	0.000 03
			5 minutes	5 745 001 630	1 630	0.000 03
			10 minutes	5 745 001 629	1 629	0.000 03
		0	Startup	5 745 001 245	1 245	0.000 02
			2 minutes	5 745 001 236	1 236	0.000 02
			5 minutes	5 745 001 229	1 229	0.000 02
			10 minutes	5 745 001 226	1 226	0.000 02
		10	Startup	5 745 001 057	1 057	0.000 02
			2 minutes	5 745 000 962	962	0.000 02
			5 minutes	5 745 000 904	904	0.000 02
			10 minutes	5 745 000 874	874	0.000 02
		20	Startup	5 745 000 397	397	0.000 01
			2 minutes	5 745 000 389	389	0.000 01
			5 minutes	5 745 000 386	386	0.000 01
			10 minutes	5 745 000 383	383	0.000 01
		30	Startup	5 745 000 316	316	0.000 01
			2 minutes	5 745 000 314	314	0.000 01
			5 minutes	5 745 000 315	315	0.000 01
			10 minutes	5 745 000 315	315	0.000 01
		40	Startup	5 745 000 128	128	0.000 00
			2 minutes	5 745 000 092	92	0.000 00
			5 minutes	5 745 000 072	72	0.000 00
			10 minutes	5 745 000 061	61	0.000 00
		50	Startup	5 744 999 806	- 194	0.000 00
			2 minutes	5 744 999 715	- 285	0.000 00
			5 minutes	5 744 999 681	- 319	-0.000 01
			10 minutes	5 744 999 657	- 343	-0.000 01
85	3.27	+22(Ref)	Startup	5 745 000 858	858	0.000 01
			2 minutes	5 745 000 846	846	0.000 01
			5 minutes	5 745 000 843	843	0.000 01
			10 minutes	5 745 000 841	841	0.000 01
115	4.43	+22(Ref)	Startup	5 745 000 855	855	0.000 01
			2 minutes	5 745 000 845	845	0.000 01
			5 minutes	5 745 000 842	842	0.000 01
			10 minutes	5 745 000 843	843	0.000 01

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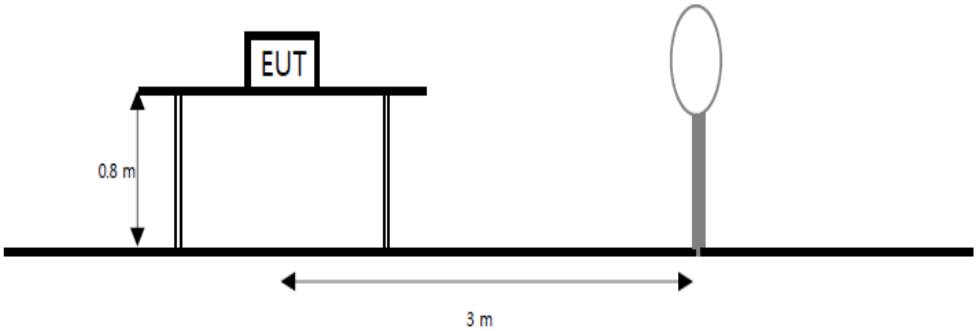
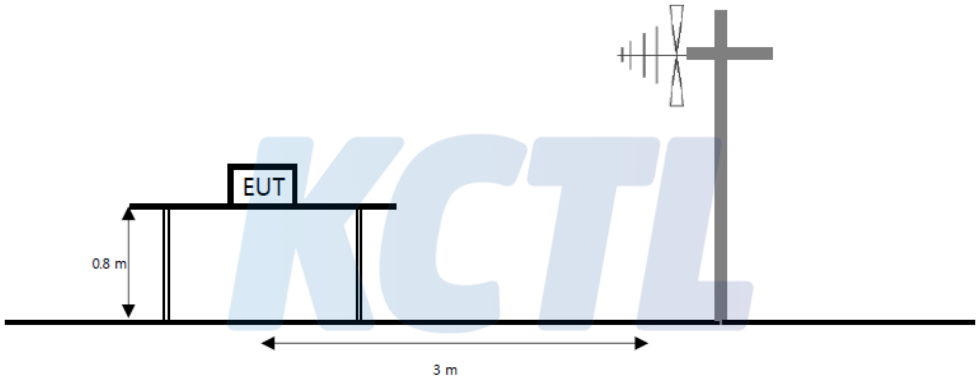
7.6. Spurious Emission, Band Edge and Restricted bands

Test setup

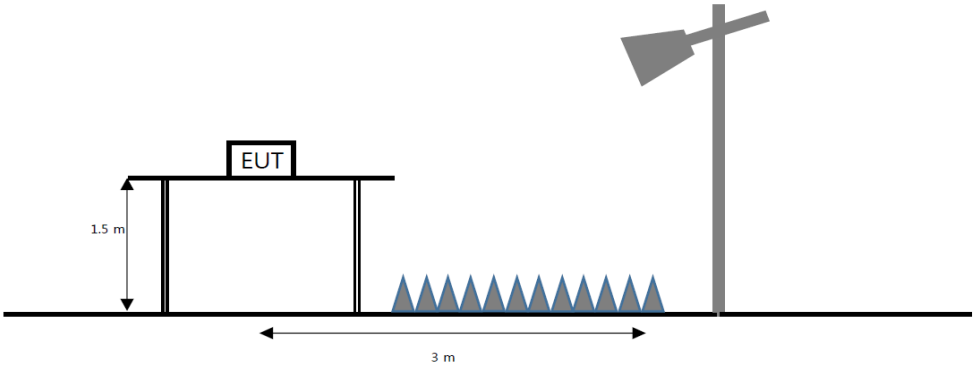
The diagram below shows the test setup that is utilized to make the measurements for emission from 9 ㎑ to 30 ㎒ Emissions



The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ to the tenth harmonic of the highest fundamental frequency or to 40 ㎓ emissions, whichever is lower.



Limit

According to section 15.209(a), RSS-Gen(8.9) 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 (㎒)	Field strength (㎛V/m)	Measurement distance (m)
0.009 - 0.490	2 400/F(㎑)	300
0.490 - 1.705	24 000/F(㎑)	30
1.705 - 30	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 ㎒, 76–88 ㎒, 174–216 ㎒ or 470–806 ㎒. However, operation within these frequency bands is permitted under other sections of this part, e.g., Section15.231 and 15.241.

According to section 15.205(a) and (b), RSS-Gen(8.10) only spurious emissions are permitted in any of the frequency bands listed below:

㎒	㎒	㎒	㎓
0.009 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.694 75 - 16.695 25	608 - 614	5.35 - 5.46
2.173 5 - 2.190 5	16.804 25 - 16.804 75	960 – 1 240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1 300 – 1 427	8.025 - 8.5
4.177 25 - 4.177 75	37.5 - 38.25	1 435 – 1 626.5	9.0 - 9.2
4.207 25 - 4.207 75	73 - 74.6	1 645.5 – 1 646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1 660 – 1 710	10.6 - 12.7
6.267 75 - 6.268 25	108 - 121.94	1 718.8 – 1 722.2	13.25 - 13.4
6.311 75 - 6.312 25	123 - 138	2 200 – 2 300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2 310 – 2 390	15.35 - 16.2
8.362 - 8.366	156.524 75 - 156.525 25	2 483.5 – 2 500	17.7 - 21.4
8.376 25 - 8.386 75		2 690 – 2 900	22.01 - 23.12
8.414 25 - 8.414 75	156.7 - 156.9	3 260 – 3 267	23.6 - 24.0
12.29 - 12.293	162.012 5 - 167.17	3 332 – 3 339	31.2 - 31.8
12.519 75 - 12.520 25	167.72 - 173.2	3 345.8 – 3 358	36.43 - 36.5
12.576 75 - 12.577 25	240 - 285	3 600 – 4 400	Above 38.6
13.36 - 13.41	322 - 335.4		

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in section 15.209. At frequencies equal to or less than 1 000 ㎒, compliance with the limits in section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 ㎒, 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.

According to section 15.407(b), undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

For transmitters operating in the 5.15-5.25 ㎓ band: All emissions outside of the 5.15-5.35 ㎓ band shall not exceed an e.i.r.p. of −27 ㏈m/㎒
For transmitters operating in the 5.25-5.35 ㎓ band: All emissions outside of the 5.15-5.35 ㎓ band shall not exceed an e.i.r.p. of −27 ㏈m/㎒.

For transmitters operating in the 5.725-5.85 ㎓ band: All emissions shall be limited to a level of -27 ㏈m/㎒ at 75 ㎒ or more above or below the band edge increasing linearly to 10 ㏈m/㎒ at 25 ㎒ above or below the band edge, and form 25 ㎒ above or below the band edge increasing linearly to a level of 15.6 ㏈m/㎒ at 5 ㎒ above or below the band edge, and from 5 ㎒ above or below the band edge increasing linearly to a level of 27 ㏈m/㎒ at the band edge.

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Test procedure

ANSI C63.10-2013 Section 12.7.7.2, 12.7.5, 12.7.6
KDB 789033 D02 v02r01 – Section G

Test settings

Peak field strength measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in table
3. VBW ≥ (3×RBW)
4. Detector = peak
5. Sweep time = auto
6. Trace mode = max hold
7. Allow sweeps to continue until the trace stabilizes

Table. RBW as a function of frequency

Frequency	RBW
9 ㎑ to 150 ㎑	200 ㎐ to 300 ㎐
0.15 ㎒ to 30 ㎒	9 ㎑ to 10 ㎑
30 ㎒ to 1 000 ㎒	100 ㎑ to 120 ㎑
> 1 000 ㎒	1 ㎒

Average field strength measurements

Trace averaging with continuous EUT transmission at full power

If the EUT can be configured or modified to transmit continuously (D ≥ 98%), then the average emission levels shall be measured using the following method (with EUT transmitting continuously):

1. RBW = 1 ㎒ (unless otherwise specified).
2. VBW ≥ (3×RBW).
3. Detector = RMS (power averaging), if [span / (# of points in sweep)] ≤ (RBW / 2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
4. Averaging type = power (i.e., rms):
   1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
   2) Some instruments require linear display mode to use linear voltage averaging. Log or ㏈ averaging shall not be used.
5. Sweep time = auto.
6. Perform a trace average of at least 100 traces.

Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (D ≥ 98%) cannot be achieved and the duty cycle is constant (duty cycle variations are less than ±2%), then the following procedure shall be used:

1. The EUT shall be configured to operate at the maximum achievable duty cycle.
2. Measure the duty cycle D of the transmitter output signal as described in 11.6.
3. RBW = 1 ㎒ (unless otherwise specified).
4. VBW ≥ [3 × RBW].
5. Detector = RMS (power averaging), if [span / (# of points in sweep)] ≤ (RBW / 2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this

condition cannot be satisfied, then the detector mode shall be set to peak.

6. Averaging type = power (i.e., rms):
   1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
   2) Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.
7. Sweep time = auto.
8. Perform a trace average of at least 100 traces.
9. A correction factor shall be added to the measurement results prior to comparing with the emission limit to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:
   1) If power averaging (rms) mode was used in step f), then the applicable correction factor is [10 log (1 / D)], where D is the duty cycle.
   2) If linear voltage averaging mode was used in step f), then the applicable correction factor is [20 log (1 / D)], where D is the duty cycle.
   3) If a specific emission is demonstrated to be continuous (D ≥ 98%) rather than turning ON and OFF with with the transmit cycle, then no duty cycle correction is required for that emission.

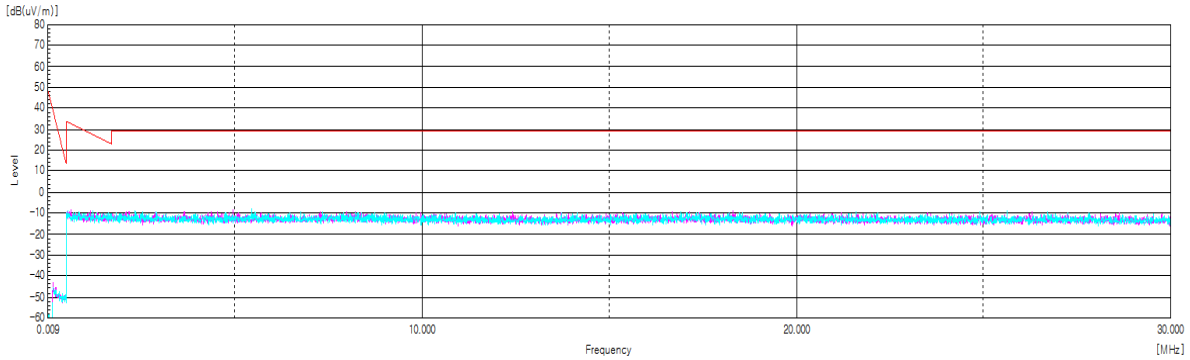
Notes:

2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1 GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz(≥1/T) for Average detection (AV) at frequency above 1 GHz. (where T = pulse width)
3. *f* <30 MHz, extrapolation factor of 40 dB/decade of distance. F_d = 40log(D_m/Ds)
   f ≥30 MHz, extrapolation factor of 20 dB/decade of distance. F_d = 20log(D_m/Ds)
   Where:
   F_d= Distance factor in dB
   D_m= Measurement distance in meters
   D_s= Specification distance in meters
4. Factors(dB) = Antenna factor(dB/m) + Cable loss(dB) + or Amp. gain(dB) + or F_d(dB)
5. The worst-case emissions are reported however emissions whose levels were not within 20 dB of respective limits were not reported.
6. Average test would be performed if the peak result were greater than the average limit.
7. 1) means restricted band.
8. According to part 15.31(f)(2), an extrapolation factor of 40 dB/decade is applied because measured distance of radiated emission is 3 m.
9. Below 30 MHz frequency range, In order to search for the worst result, all orientations about parallel, perpendicular, and ground-parallel were investigated then reported. when the emission level was higher than 20 dB of the limit, then the following statement shall be made: “No spurious emissions were detected within 20 dB of the limit.”

Test results (Below 30 ㎒) – Worst case: 802.11a / UNII-3 Mid frequency

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
No spurious emissions were detected within 20 �dB of the limit.								

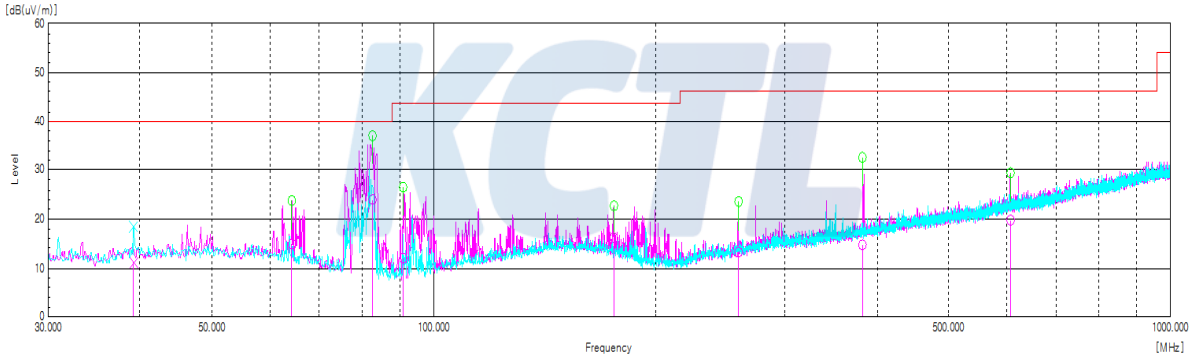
Horizontal/Vertical



Test results (Below 1 000 ㎒) – Worst case: 802.11a / UNII-3 Mid frequency

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Quasi peak data								
39.22	V	23.60	18.24	-30.83	-	11.01	40.00	28.99
64.31	H	28.10	17.21	-30.35	-	14.96	40.00	25.04
82.62	H	40.30	14.09	-30.14	-	24.25	40.00	15.75
90.87	H	28.50	13.80	-30.08	-	12.22	43.50	31.28
175.62	H	27.50	17.93	-29.15	-	16.28	43.50	27.22
259.16	H	23.80	17.97	-28.51	-	13.26	46.00	32.74
381.75	H	21.10	21.25	-27.65	-	14.70	46.00	31.30
606.18	H	20.30	25.89	-26.52	-	19.67	46.00	26.33

Horizontal/Vertical

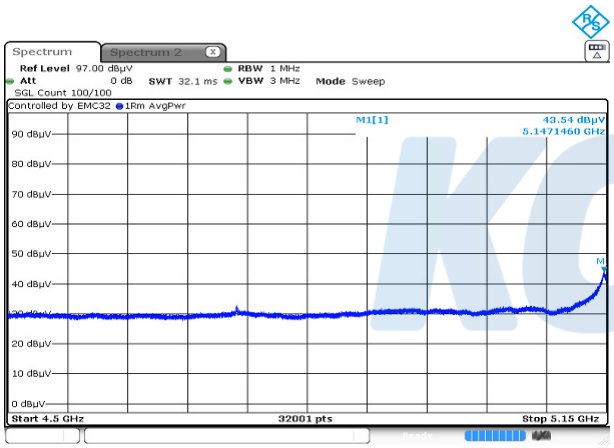


Test results (Above 1 000 ㎒)

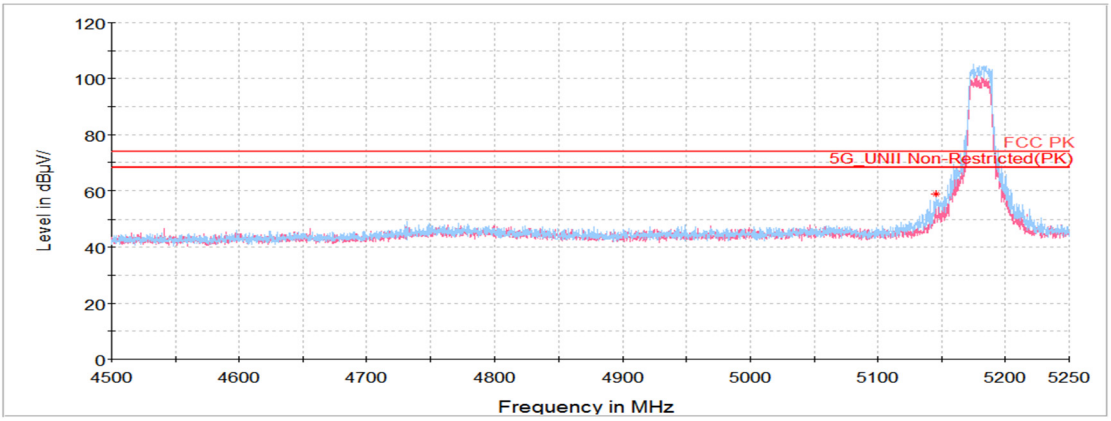
802.11a_UNII-1

Lowest Channel (5 180 ㎒)

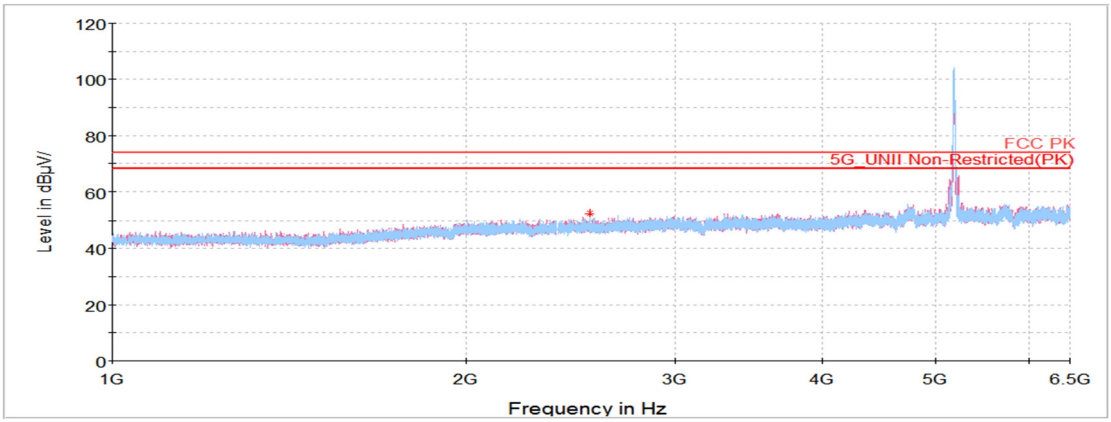
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 147.15[1)]	H	51.85	34.08	-27.10	-	58.83	74.00	15.17
10 358.61	V	57.71	37.32	-48.88	-	46.15	68.20	22.05
15 548.34[1)]	V	60.46	40.02	-48.03	-	52.45	74.00	21.55
Average Data								
5 147.15[1)]	H	43.54	34.08	-27.10	0.44	50.96	54.00	3.04

Average data	Average data
	Blank

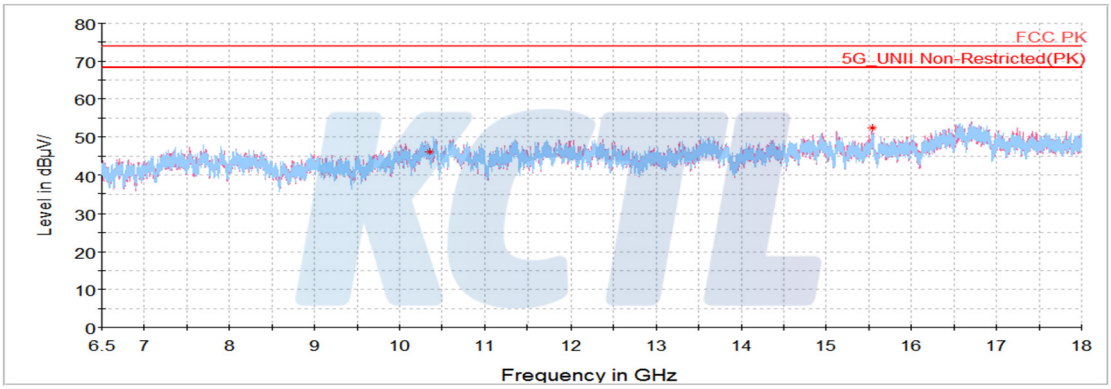
Horizontal/Vertical for Band-edge



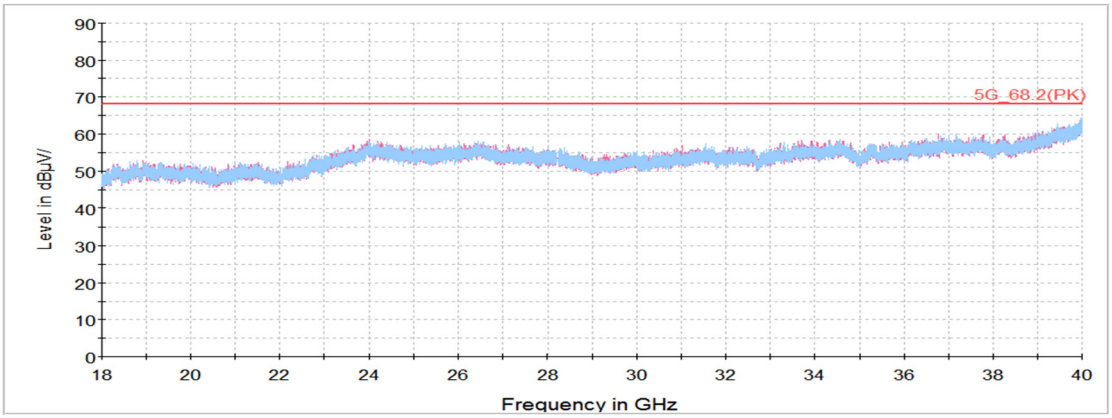
Horizontal/Vertical for 1 ㎓ ~ 6.5 ㎓



Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓



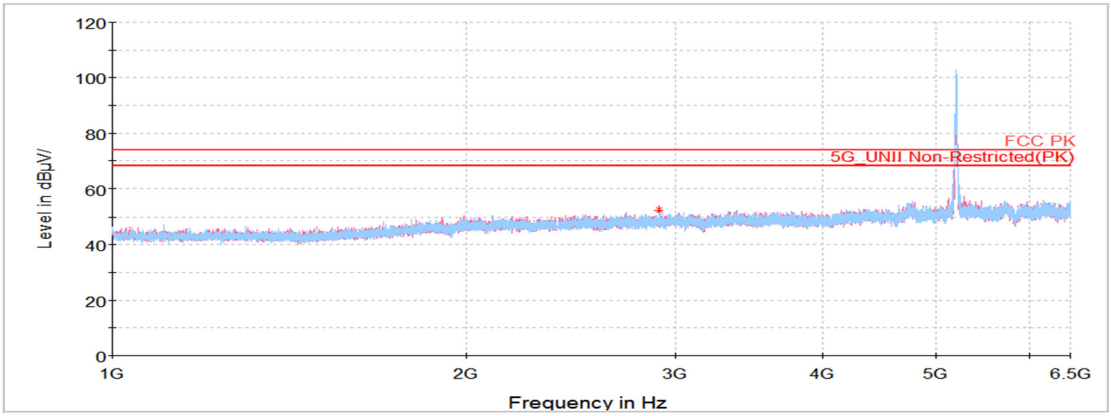
Horizontal/Vertical for 18 ㎓ ~ 40 ㎓



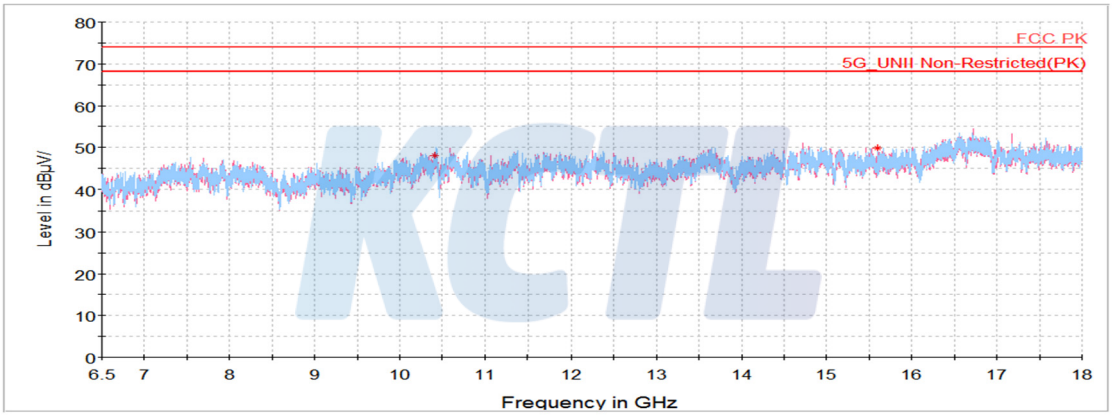
Middle Channel (5 200 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
10 408.92	H	59.38	37.35	-48.60	-	48.13	68.20	20.07
15 604.41[1)]	V	57.85	40.04	-48.03	-	49.86	74.00	24.14
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit								

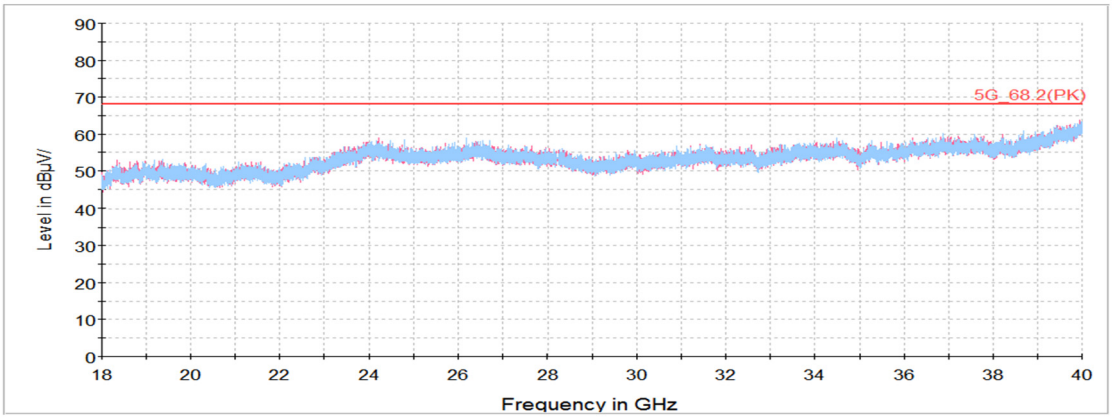
Horizontal/Vertical for 1 ㎓ ~ 6.5 ㎓



Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓



Horizontal/Vertical for 18 ㎓ ~ 40 ㎓

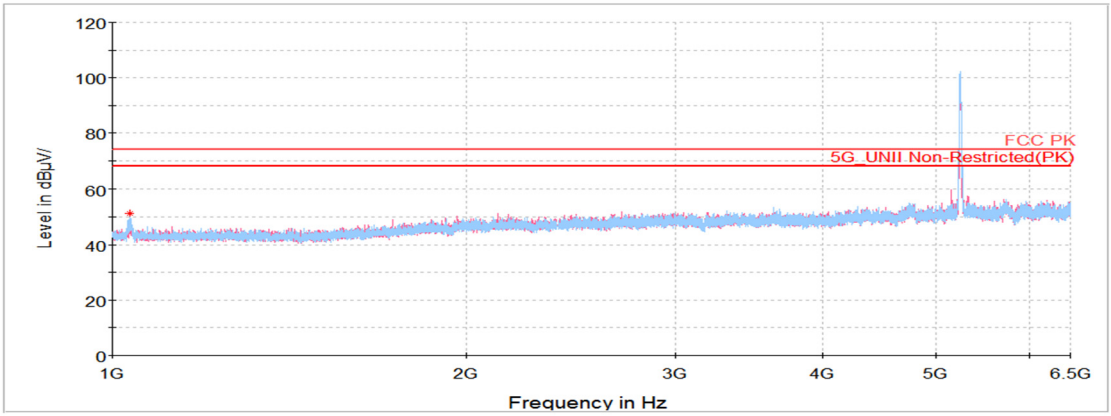


Highest Channel (5 240 ㎒)

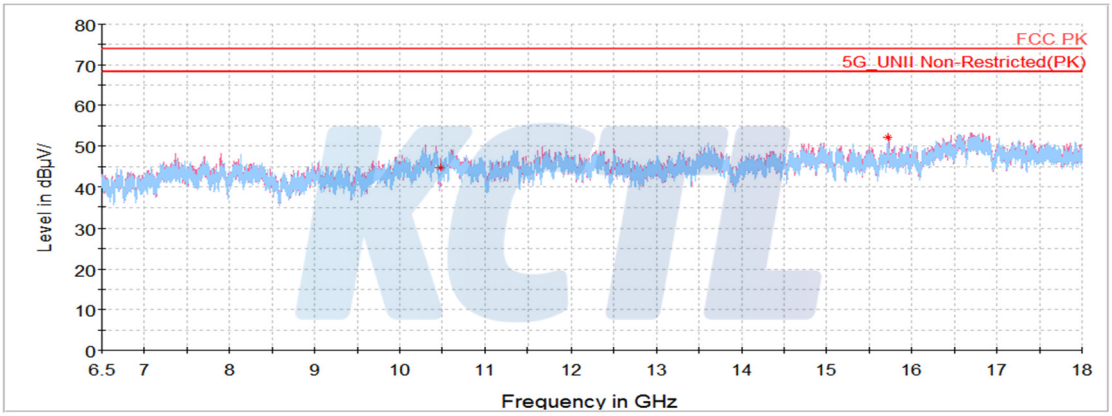
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
10 479.72	V	55.55	37.39	-48.19	-	44.75	68.20	23.45
15 718.66[1)]	V	60.13	40.09	-48.04	-	52.18	74.00	21.82
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit								

KCTL

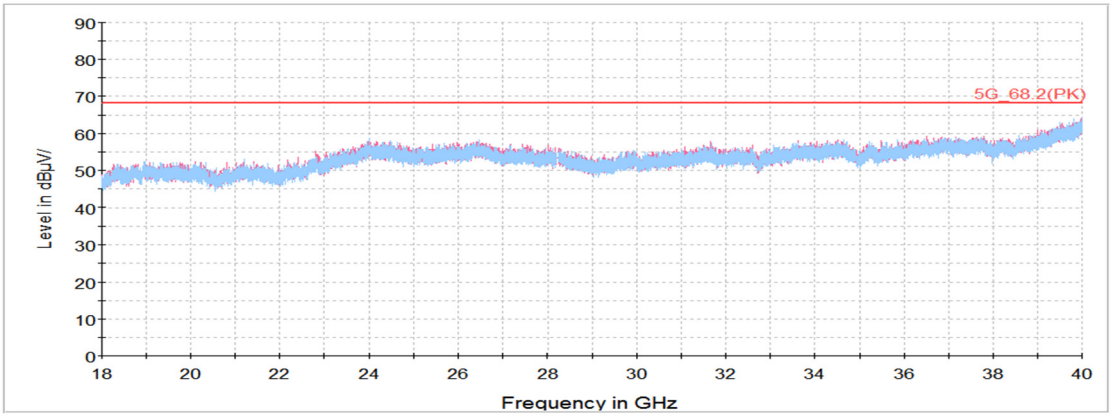
Horizontal/Vertical for 1 ㎓ ~ 6.5 ㎓



Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓



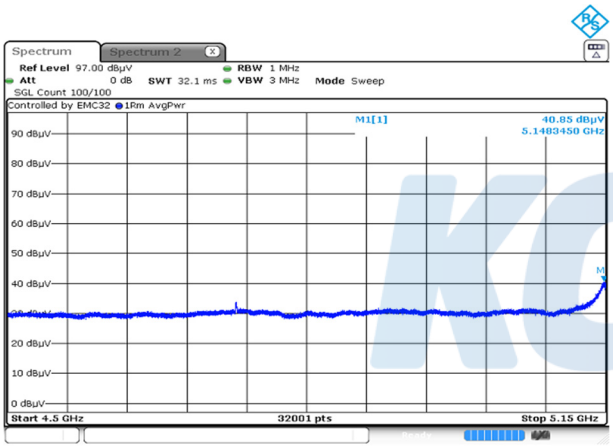
Horizontal/Vertical for 18 ㎓ ~ 40 ㎓



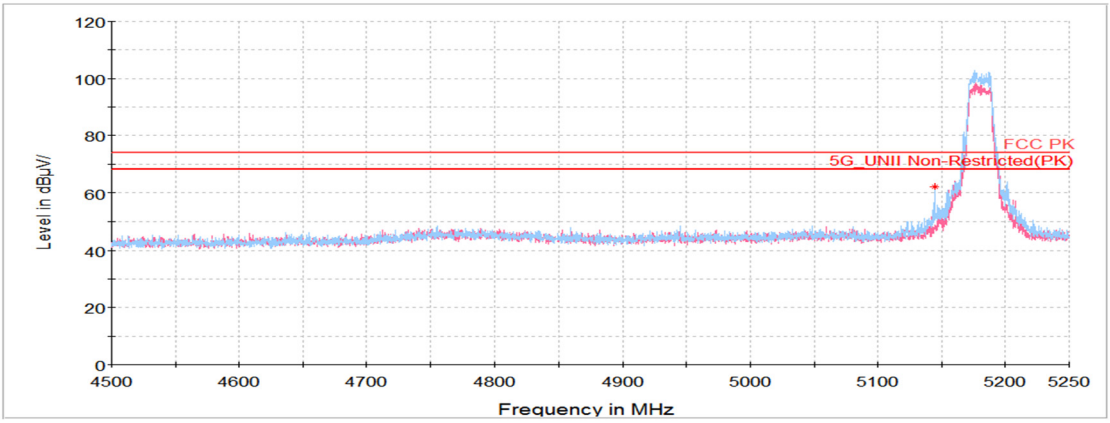
802.11n HT20 UNII-1

Lowest Channel (5 180 ㎒)

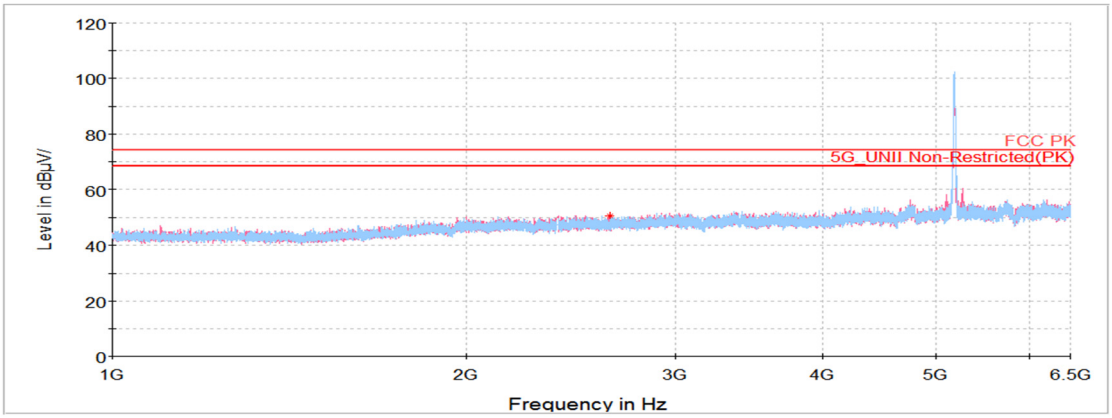
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
5 148.35[1)]	H	54.94	34.08	-27.11	-	61.91	74.00	12.09
10 360.41	H	57.44	37.32	-48.87	-	45.89	68.20	22.31
15 538.78[1)]	V	59.23	40.02	-48.02	-	51.23	74.00	22.77
Average Data								
5 148.35[1)]	H	40.85	34.08	-27.11	0.45	48.27	54.00	5.73

Average data	Average data
	Blank

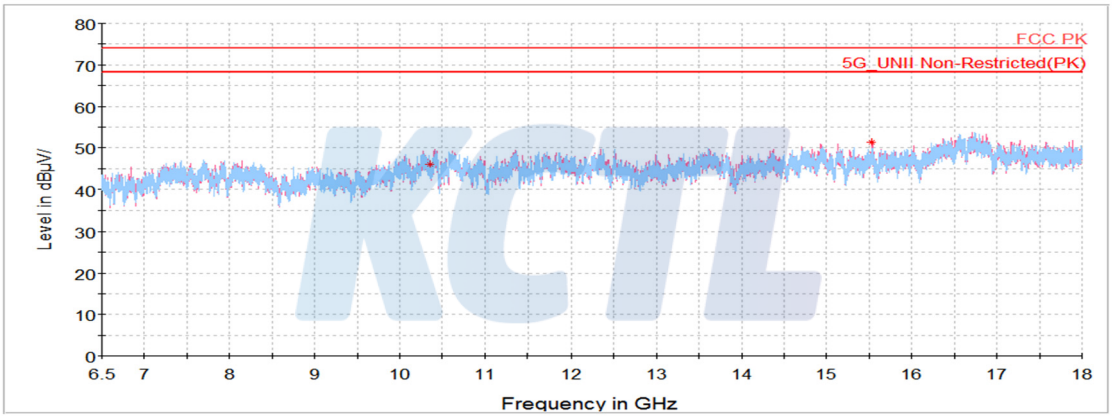
Horizontal/Vertical for Band-edge



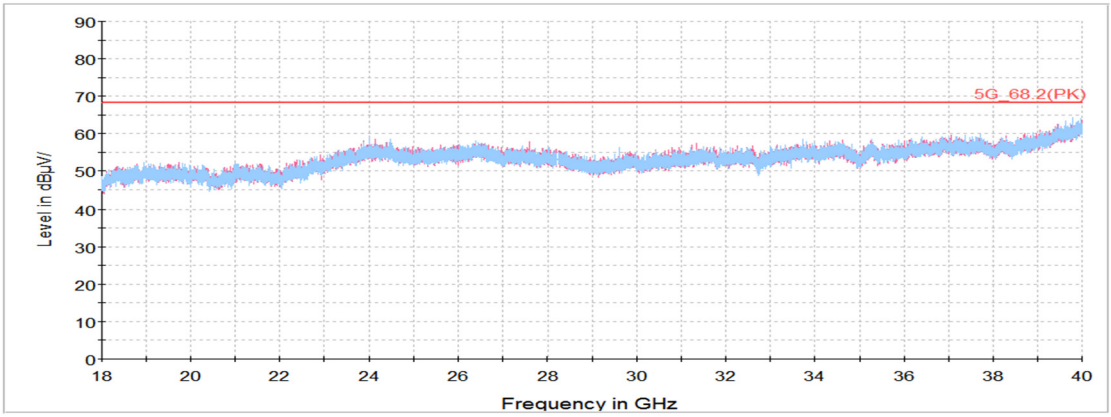
Horizontal/Vertical for 1 ㎓ ~ 6.5 ㎓



Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓



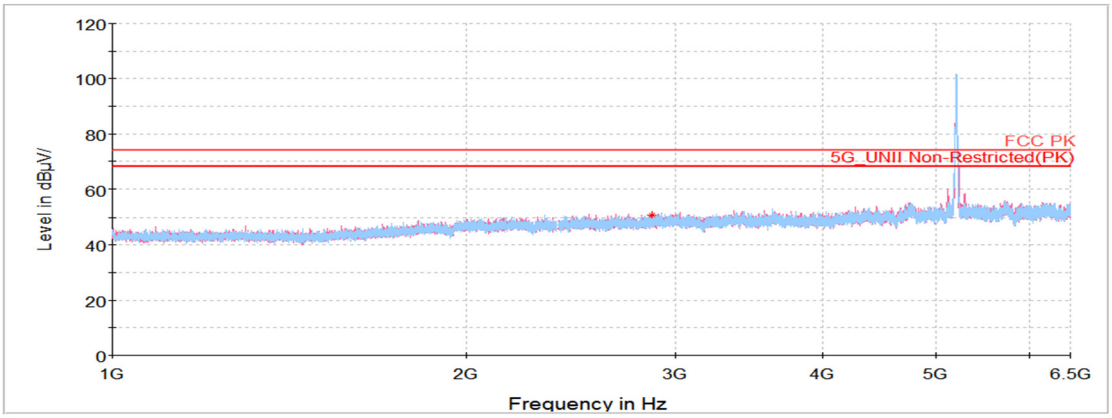
Horizontal/Vertical for 18 ㎓ ~ 40 ㎓



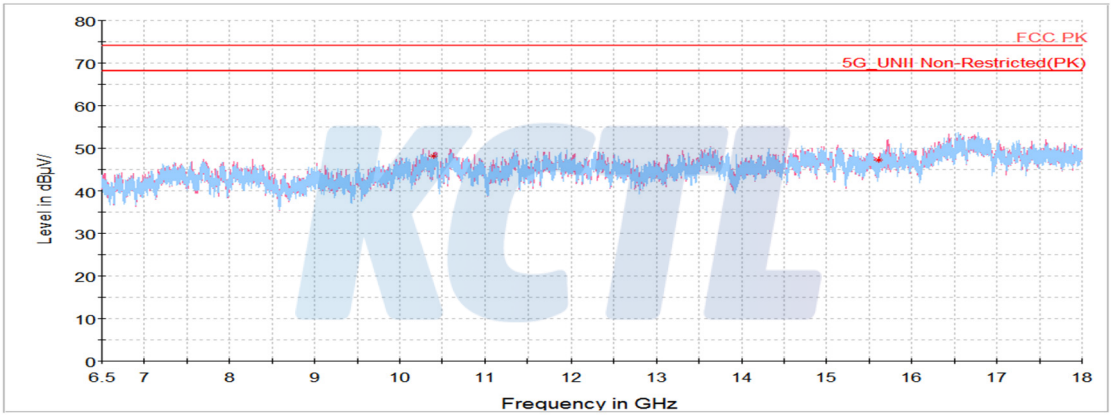
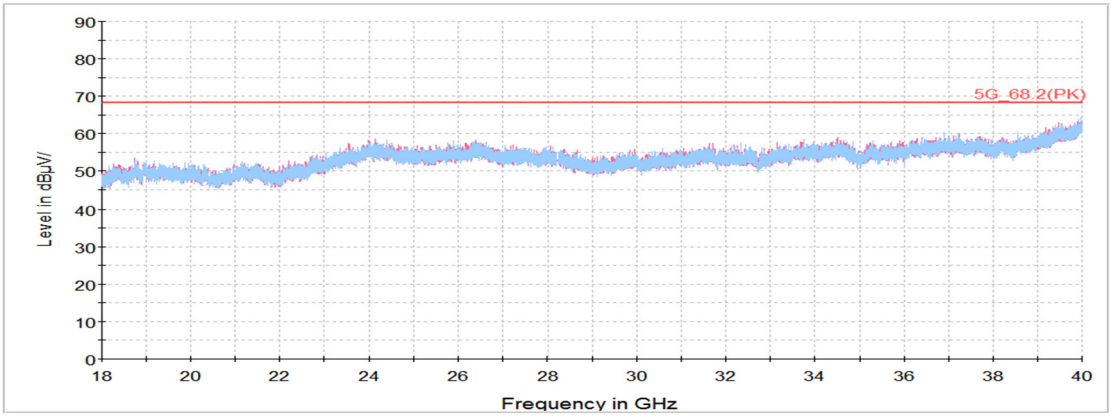
Middle Channel (5 200 ㎒)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCCF	Result	Limit	Margin
(㎒)	(V/H)	(dB(㎶))	(dB)	(dB)	(dB)	(dB(㎶/m))	(dB(㎶/m))	(dB)
Peak data								
10 401.02	H	59.31	37.34	-48.64	-	48.01	68.20	20.19
15 614.83[1)]	H	55.09	40.05	-48.03	-	47.11	74.00	26.89
Average Data								
No spurious emissions were detected within 20 ㏈ of the limit								

Horizontal/Vertical for 1 ㎓ ~ 6.5 ㎓



Horizontal/Vertical for 6.5 ㎓ ~ 18 ㎓



Horizontal/Vertical for 18 ㎓ ~ 40 ㎓