Mode: 802.11n_HT40

Distance of measurement: 3 meter

Channel: 38

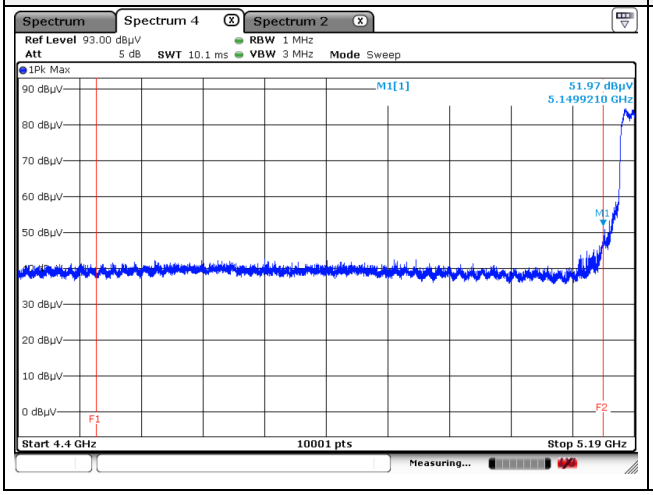
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 068.24	46.54	Peak	V	-9.52	-	37.02	74.00	36.98
1 179.23	49.19	Peak	H	-8.78	-	40.41	74.00	33.59
1 328.72	51.38	Peak	H	-7.57	-	43.81	74.00	30.19

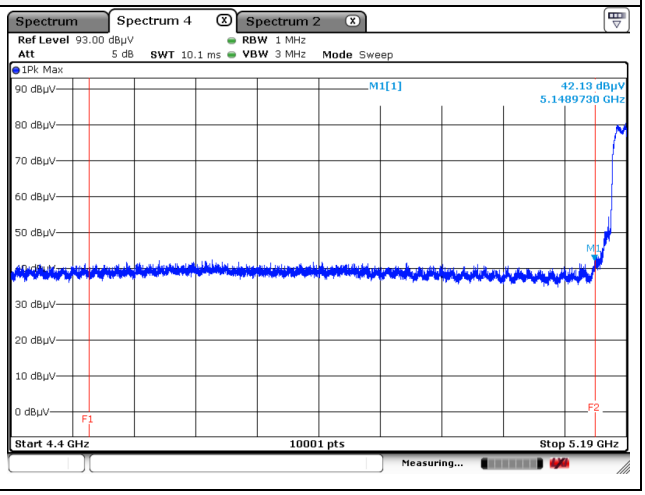
- **Band edge**

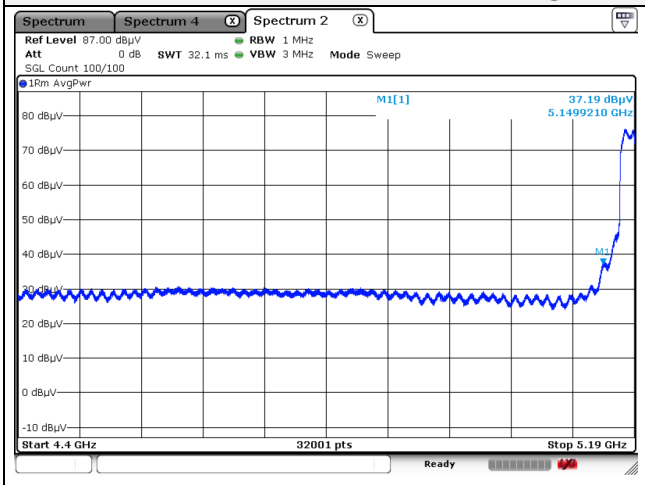
Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 148.97	42.13	Peak	V	6.45	-	48.58	74.00	25.42
5 149.92	51.97	Peak	H	6.45	-	58.42	74.00	15.58
5 149.92	37.19	Average	H	6.45	0.65	44.29	54.00	9.71

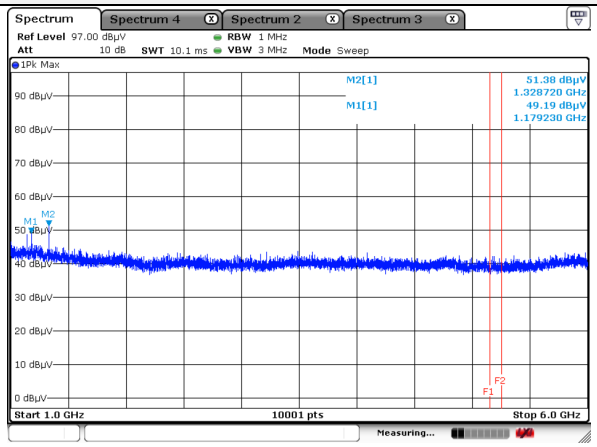
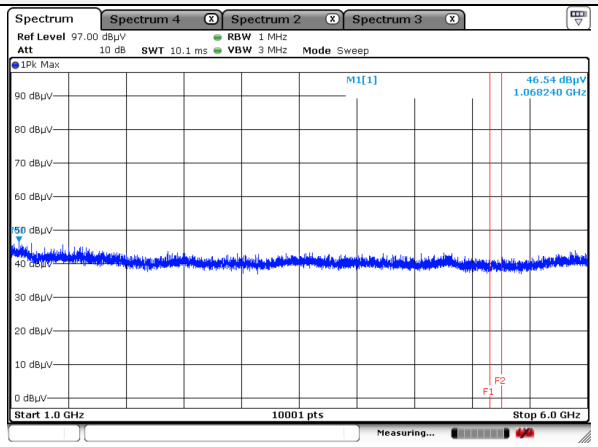
Restricted band // Horizontal // Peak

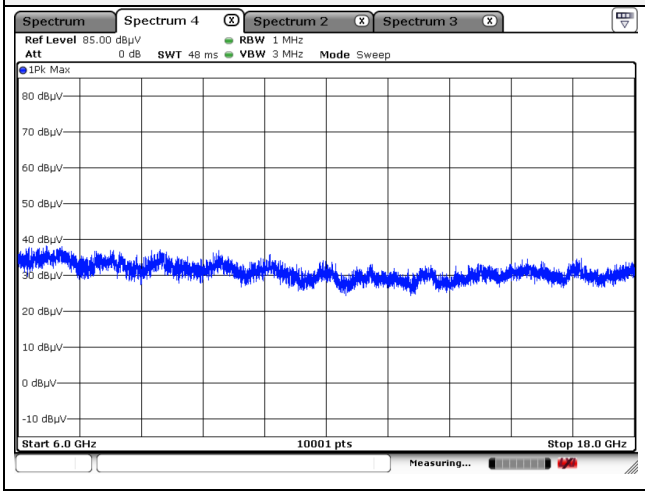
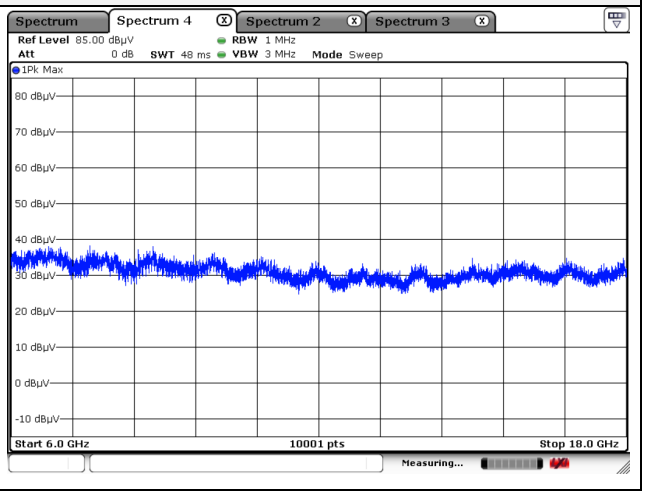


Restricted band // Vertical // Peak



Restricted band // Horizontal // Average	Restricted band // Vertical // Average
	N/A

Horizontal // Peak for 1 ㎓ to 6 ㎓	Vertical // Peak for 1 ㎓ to 6 ㎓
	

Horizontal // Peak for 6 ㎓ to 18 ㎓	Vertical // Peak for 6 ㎓ to 18 ㎓
	

Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode: 802.11n_HT40
Distance of measurement: 3 meter
Channel: 46

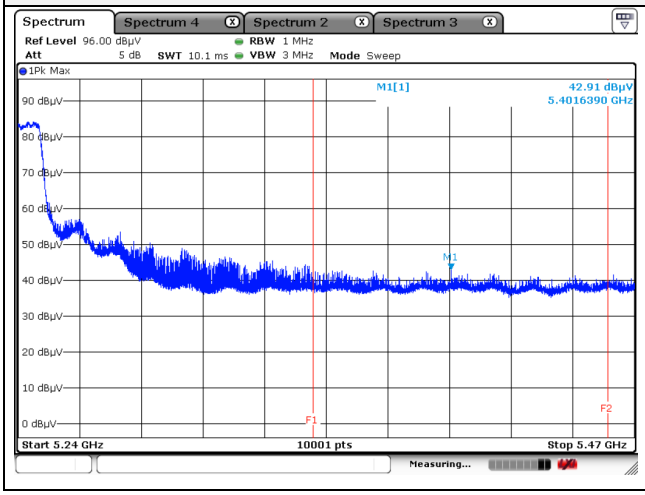
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 179.23	48.53	Peak	H	-8.78	-	39.75	74.00	34.25
1 331.22	52.05	Peak	H	-7.54	-	44.51	74.00	29.49
1 661.68	47.14	Peak	V	-5.26	-	41.88	74.00	32.12

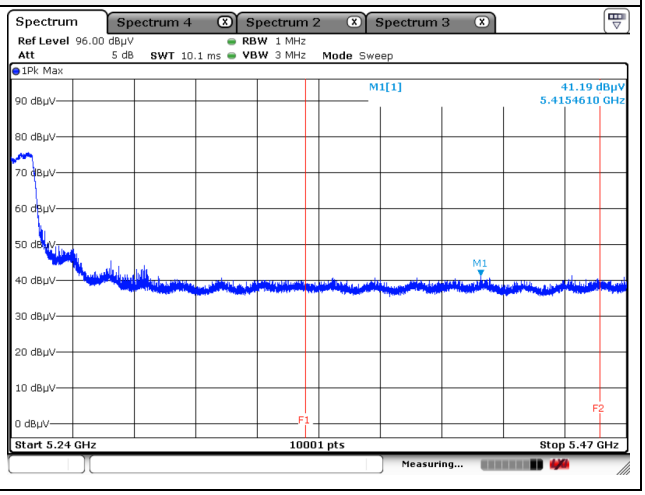
- **Band edge**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 401.64	42.91	Peak	H	7.19	-	50.10	74.00	23.90
5 415.46	41.19	Peak	V	7.15	-	48.34	74.00	25.66

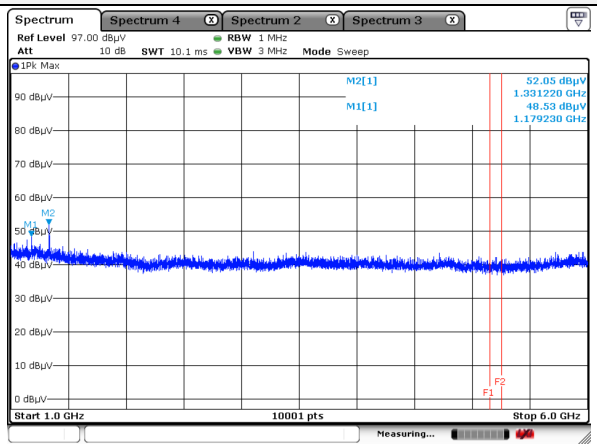
Restricted band // Horizontal // Peak



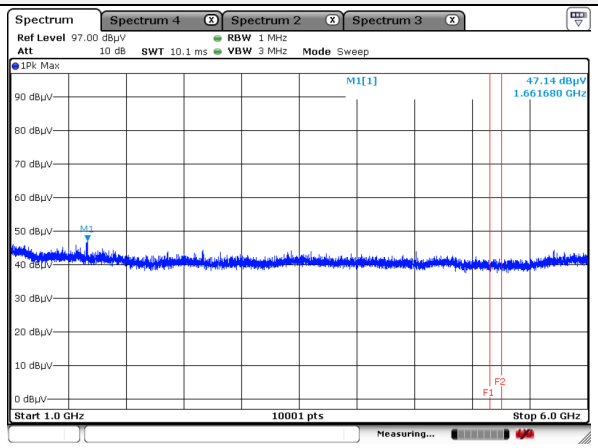
Restricted band // Vertical // Peak



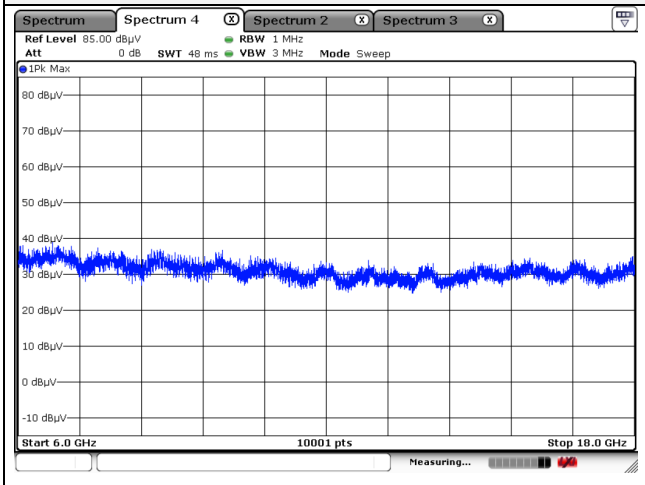
Horizontal // Peak for 1 ㎓ to 6 ㎓



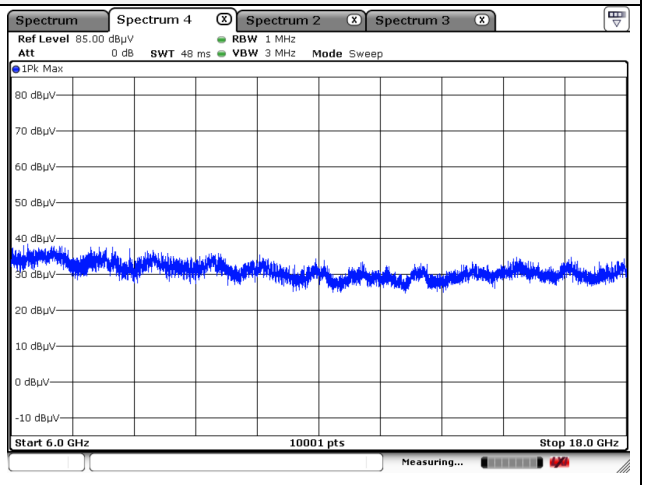
Vertical // Peak for 1 ㎓ to 6 ㎓



Horizontal // Peak for 6 ㎓ to 18 ㎓



Vertical // Peak for 6 ㎓ to 18 ㎓



Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode: 802.11ac_VHT20
Distance of measurement: 3 meter
Channel: 36

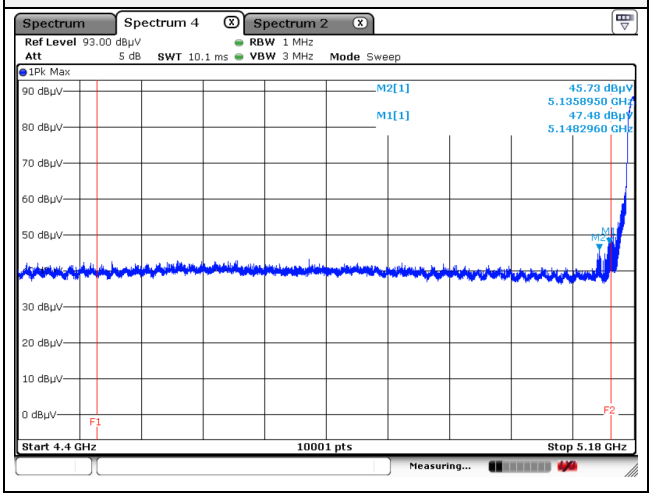
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 050.24	47.81	Peak	H	-9.64	-	38.17	74.00	35.83
1 179.23	46.68	Peak	V	-8.78	-	37.90	74.00	36.10

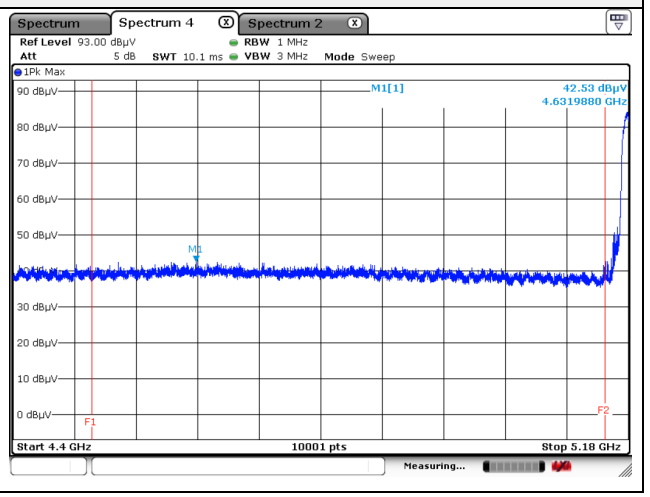
- **Band edge**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
4 631.99	42.53	Peak	V	4.36	-	46.89	74.00	27.11
5 135.90	45.73	Peak	H	6.45	-	52.18	74.00	21.82
5 148.30	47.48	Peak	H	6.45	-	53.93	74.00	20.07

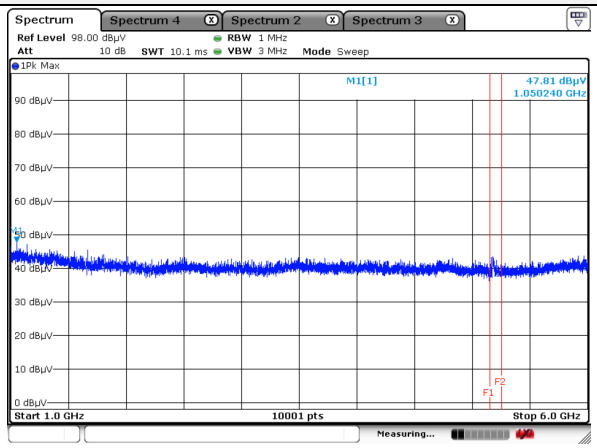
Restricted band // Horizontal // Peak



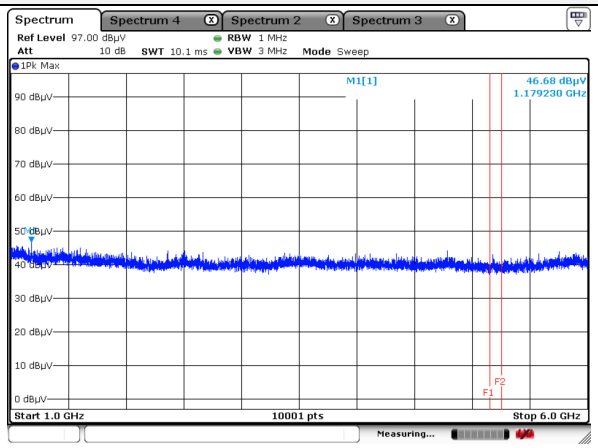
Restricted band // Vertical // Peak



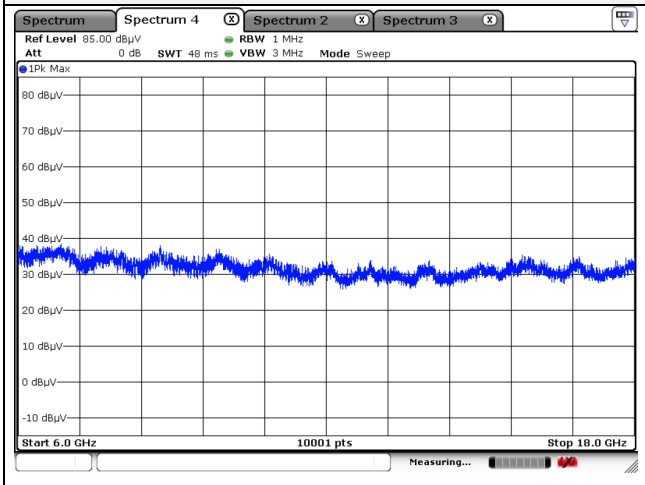
Horizontal // Peak for 1 ㎓ to 6 ㎓



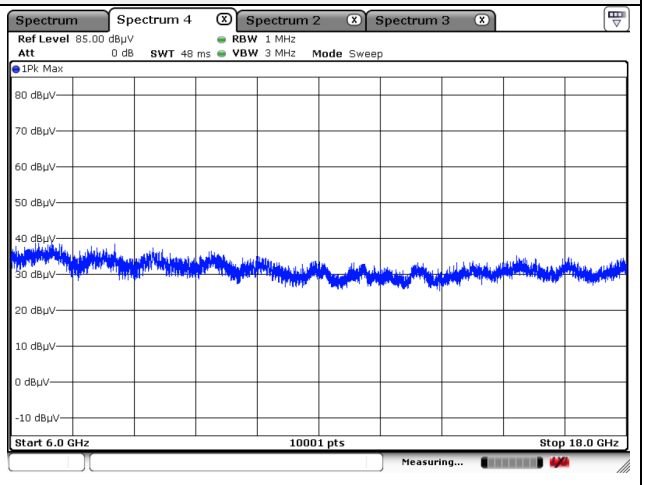
Vertical // Peak for 1 ㎓ to 6 ㎓



Horizontal // Peak for 6 ㎓ to 18 ㎓



Vertical // Peak for 6 ㎓ to 18 ㎓



Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode: 802.11ac_VHT20

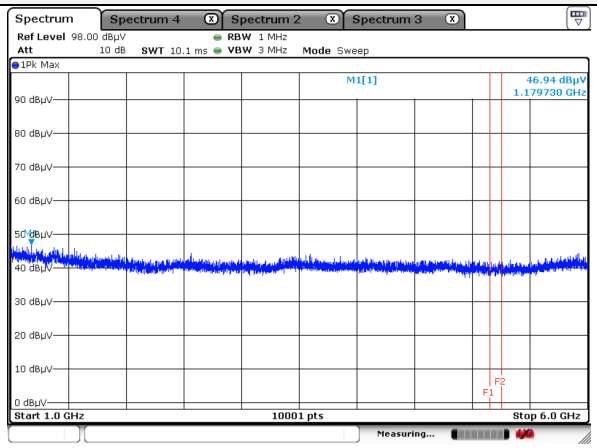
Distance of measurement: 3 meter

Channel: 44

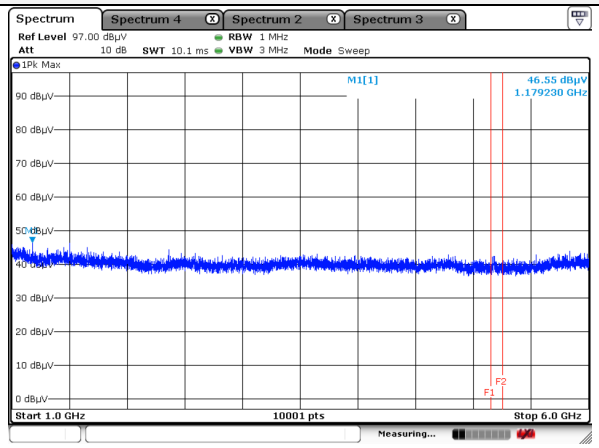
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 179.23	46.55	Peak	V	-8.78	-	37.77	74.00	36.23
1 179.73	46.94	Peak	H	-8.78	-	38.16	74.00	35.84

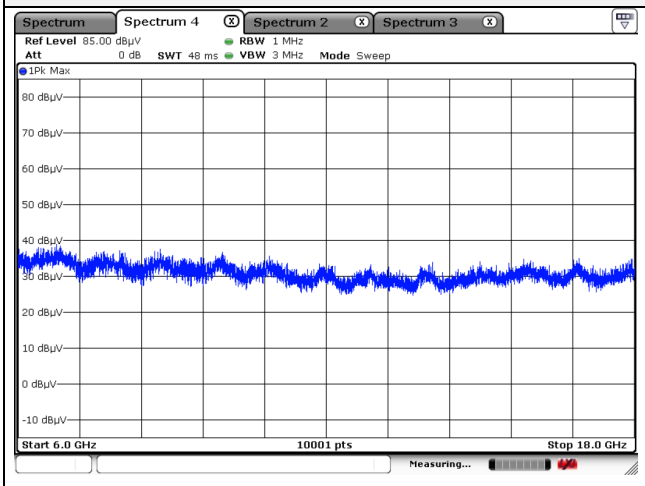
Horizontal // Peak for 1 ㎓ to 6 ㎓



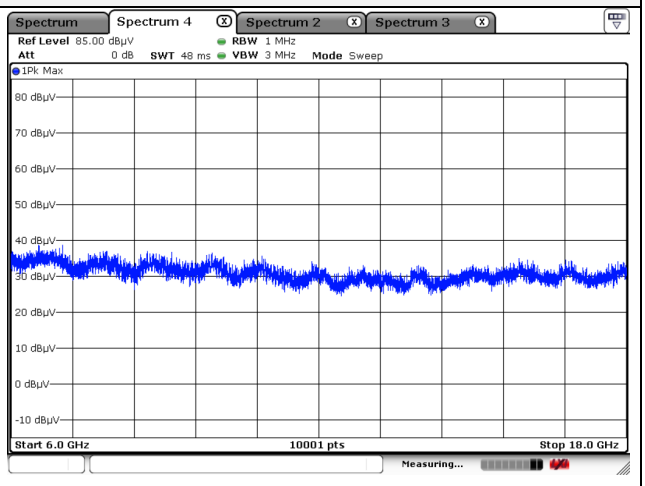
Vertical // Peak for 1 ㎓ to 6 ㎓



Horizontal // Peak for 6 ㎓ to 18 ㎓



Vertical // Peak for 6 ㎓ to 18 ㎓



Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode: 802.11ac_VHT20

Distance of measurement: 3 meter

Channel: 48

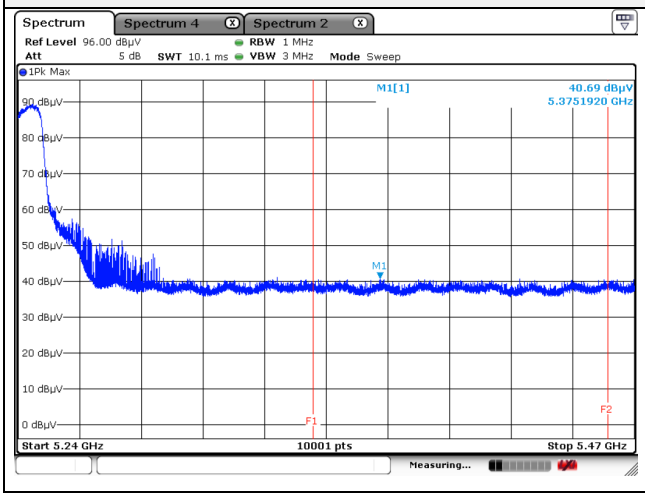
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 025.75	47.94	Peak	H	-9.80	-	38.14	74.00	35.86
1 179.23	46.20	Peak	V	-8.78	-	37.42	74.00	36.58

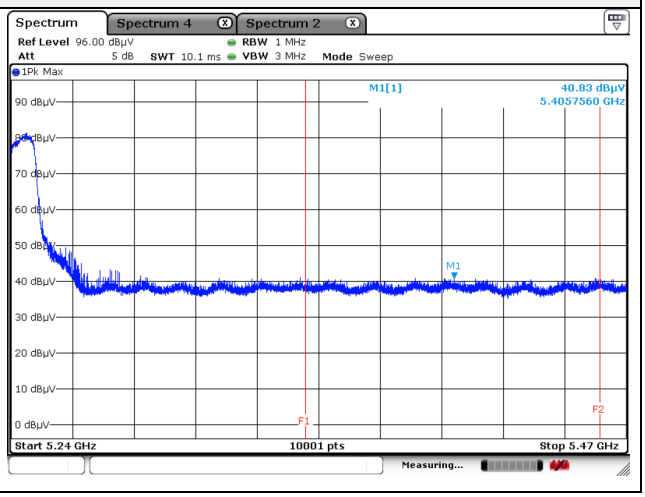
- **Band edge**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 375.19	40.69	Peak	H	7.10	-	47.79	74.00	26.21
5 405.76	40.83	Peak	V	7.18	-	48.68	74.00	25.32

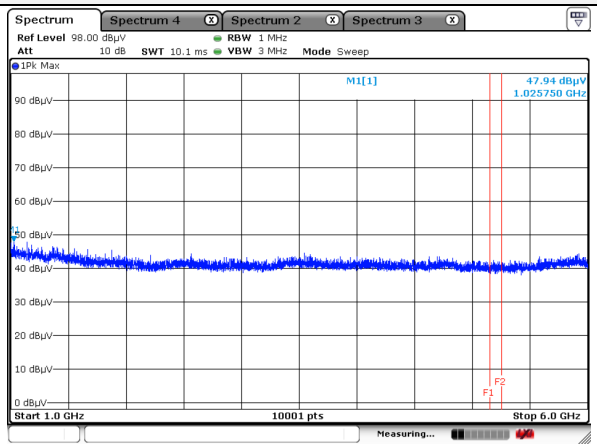
Restricted band // Horizontal // Peak



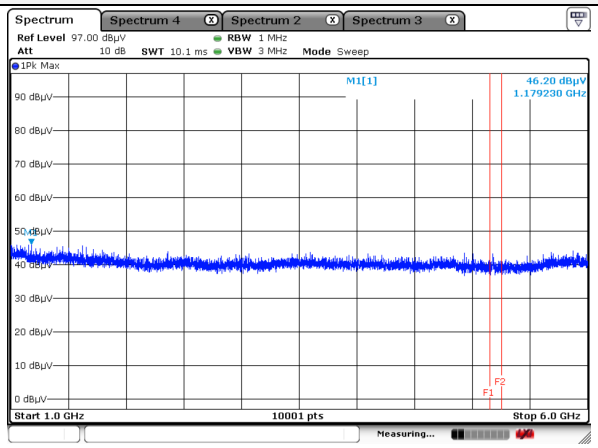
Restricted band // Vertical // Peak



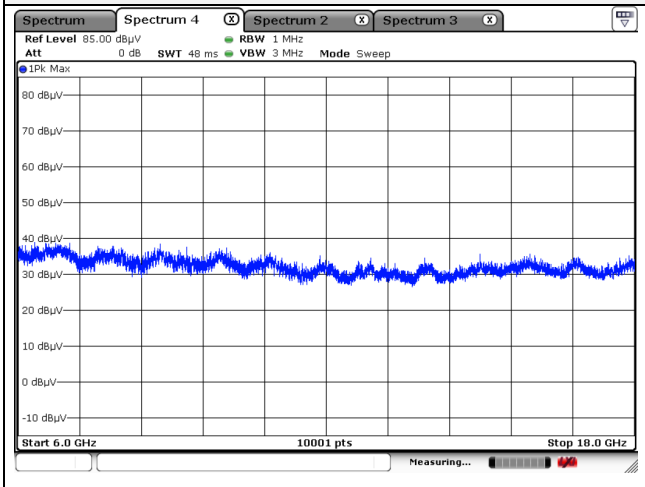
Horizontal // Peak for 1 ㎓ to 6 ㎓



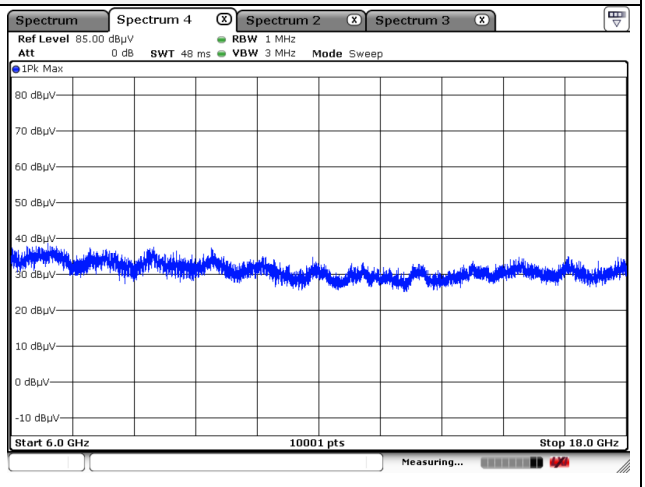
Vertical // Peak for 1 ㎓ to 6 ㎓



Horizontal // Peak for 6 ㎓ to 18 ㎓



Vertical // Peak for 6 ㎓ to 18 ㎓



Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode: 802.11ac_VHT40
Distance of measurement: 3 meter
Channel: 38

- **Spurious**

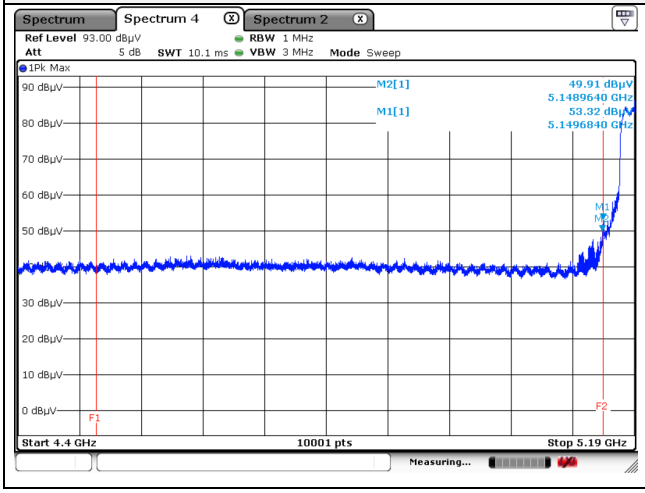
Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 179.23	50.57	Peak	H	-8.78	-	41.79	74.00	32.21
1 330.22	51.62	Peak	H	-7.55	-	44.07	74.00	29.93
*2 660.58	46.14	Peak	V	-0.78	-	45.36	68.23	22.87

* is not in the restricted band listed in 15.205.

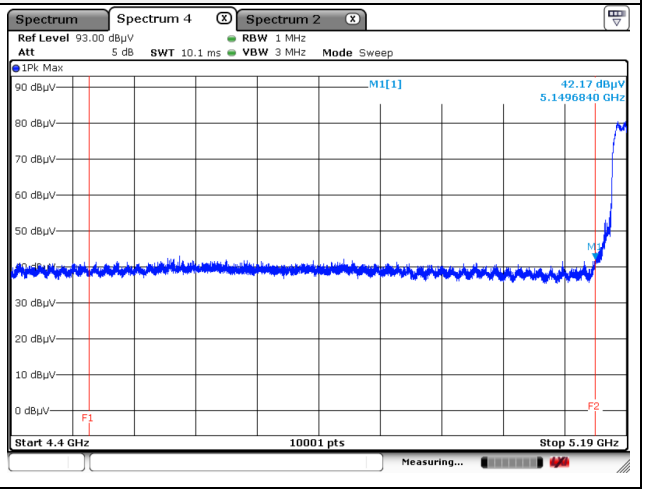
- **Band edge**

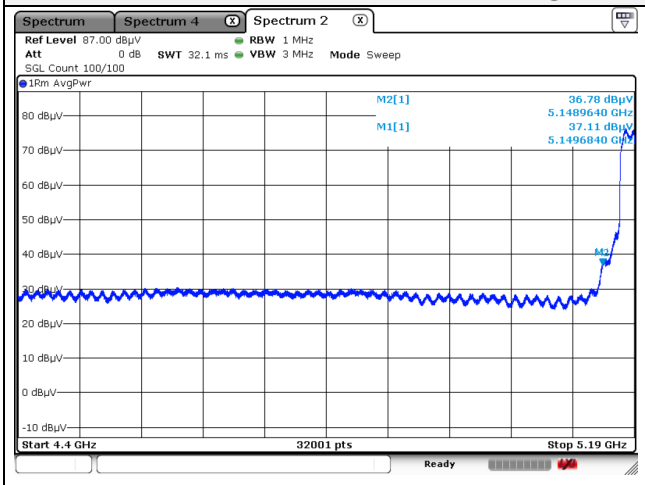
Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 148.96	49.91	Peak	V	6.45	-	56.36	74.00	17.64
5 148.96	36.78	Average	H	6.45	0.43	43.66	54.00	10.34
5 149.68	53.32	Peak	H	6.45	-	59.77	74.00	14.23
5 149.68	37.11	Average	H	6.45	0.43	43.99	54.00	10.01
5 149.68	42.17	Peak	V	6.45	-	48.62	74.00	25.38

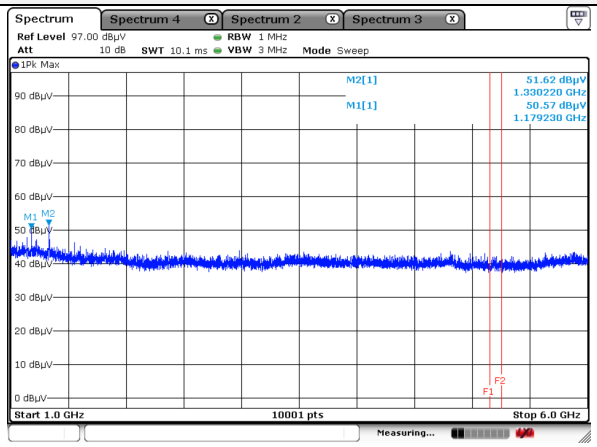
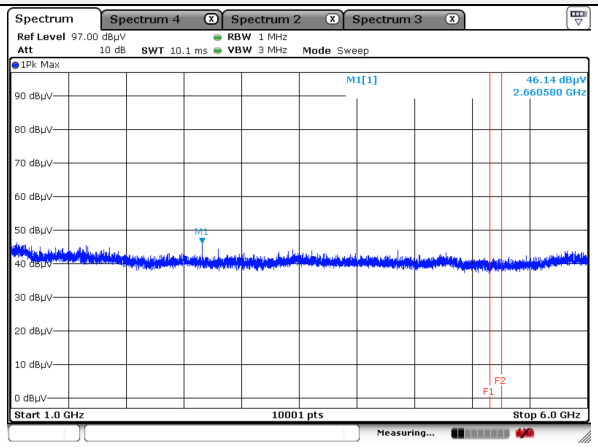
Restricted band // Horizontal // Peak

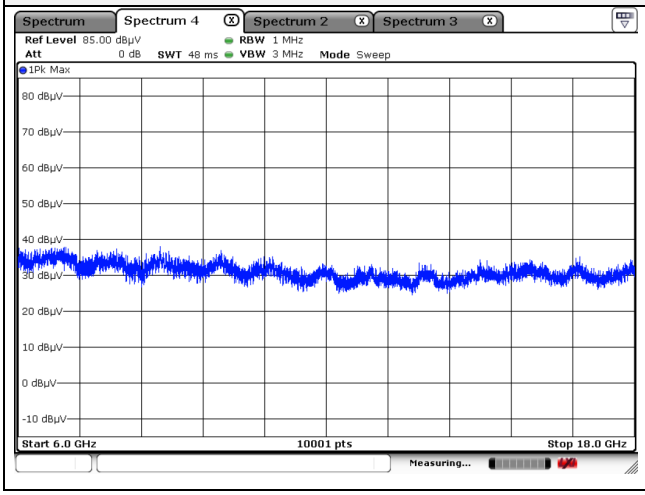
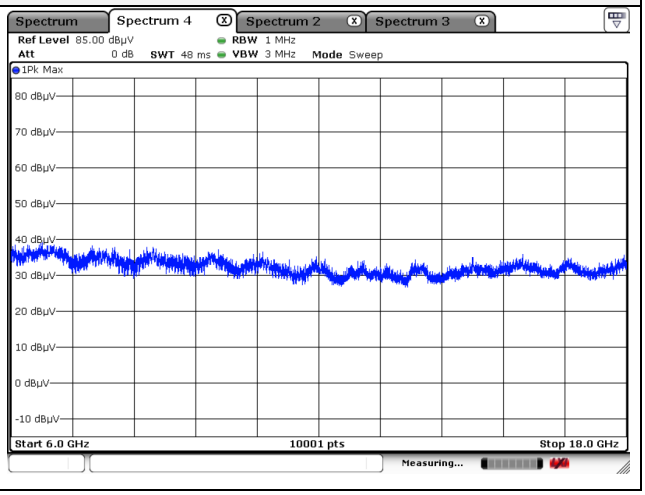


Restricted band // Vertical // Peak



Restricted band // Horizontal // Average	Restricted band // Vertical // Average
	N/A

Horizontal // Peak for 1 ㎓ to 6 ㎓	Vertical // Peak for 1 ㎓ to 6 ㎓
	

Horizontal // Peak for 6 ㎓ to 18 ㎓	Vertical // Peak for 6 ㎓ to 18 ㎓
	

Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode: 802.11ac_VHT40

Distance of measurement: 3 meter

Channel: 46

- **Spurious**

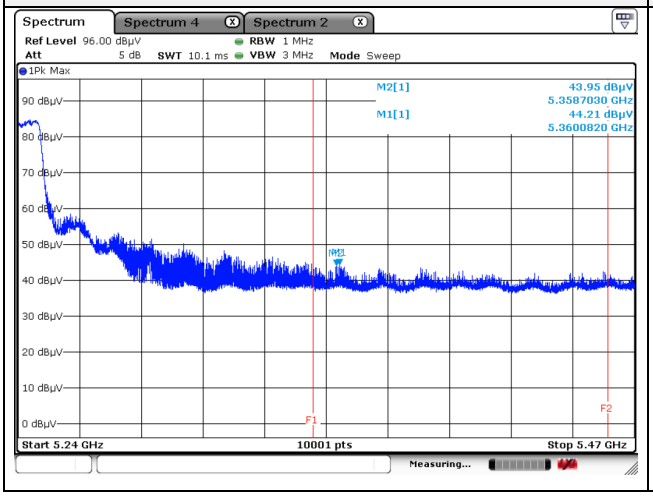
Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 083.24	46.48	Peak	V	-9.42	-	37.06	74.00	36.94
1 179.23	49.57	Peak	H	-8.78	-	40.79	74.00	33.21
1 328.72	50.07	Peak	H	-7.57	-	42.50	74.00	31.50
*2 657.58	45.19	Peak	V	-0.79	-	44.40	68.23	23.83

* is not in the restricted band listed in 15.205.

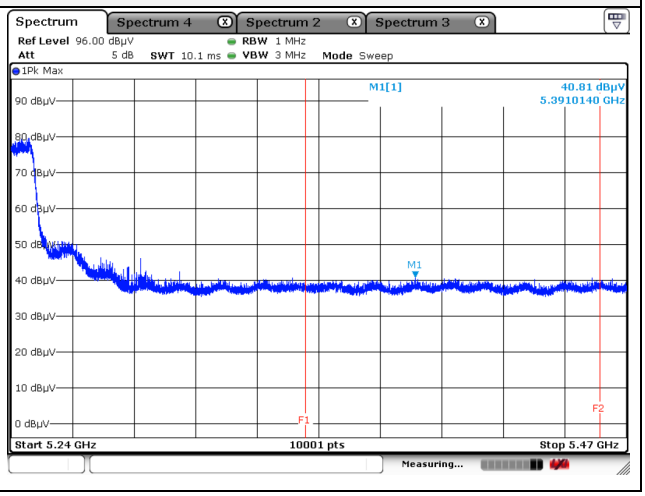
- **Band edge**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 358.70	43.95	Peak	H	7.04	-	50.99	74.00	23.01
5 360.08	44.21	Peak	H	7.04	-	51.25	74.00	22.75
5 391.01	40.81	Peak	V	7.16	-	47.97	74.00	26.03

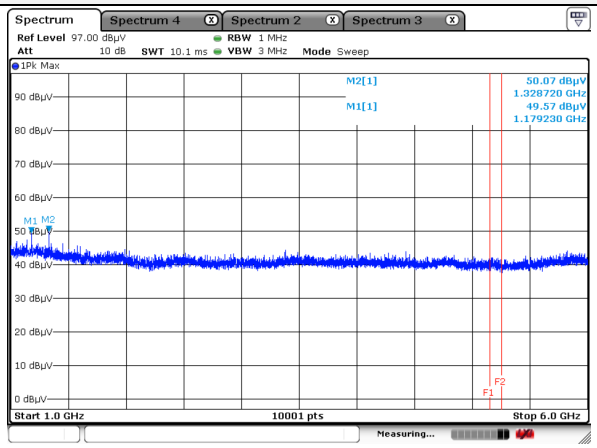
Restricted band // Horizontal // Peak



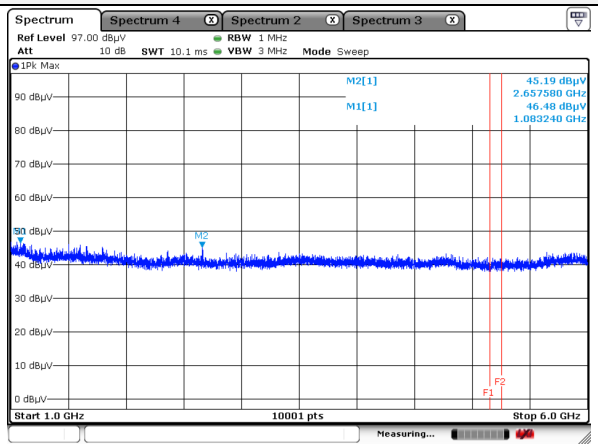
Restricted band // Vertical // Peak



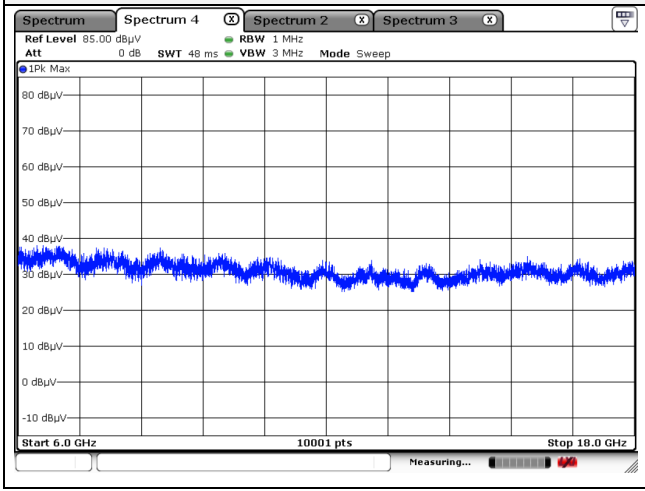
Horizontal // Peak for 1 ㎓ to 6 ㎓



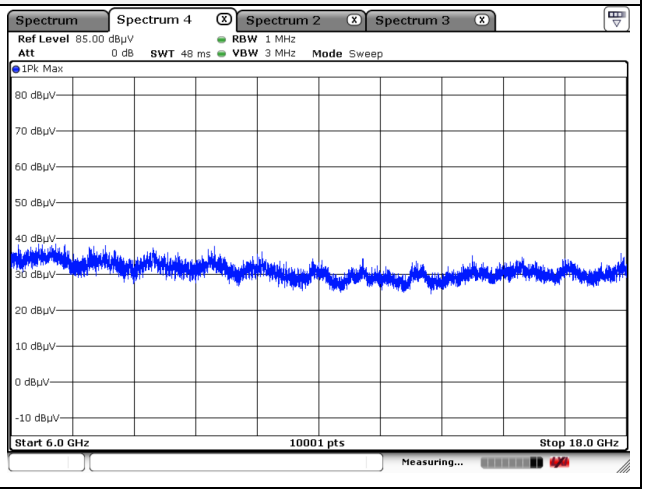
Vertical // Peak for 1 ㎓ to 6 ㎓



Horizontal // Peak for 6 ㎓ to 18 ㎓



Vertical // Peak for 6 ㎓ to 18 ㎓



Note.
1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode: 802.11ac_VHT80
Distance of measurement: 3 meter
Channel: 42

- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 050.24	46.48	Peak	V	-9.64	-	36.84	74.00	37.16
1 179.23	50.32	Peak	H	-8.78	-	41.54	74.00	32.46
1 330.72	52.20	Peak	H	-7.55	-	44.65	74.00	29.35
*2 656.58	45.86	Peak	V	-0.80	-	45.06	68.23	23.17

* is not in the restricted band listed in 15.205.

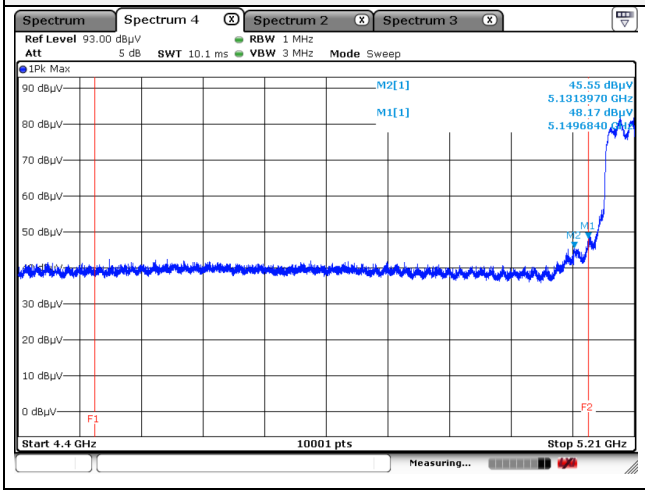
- **Band edge_lower**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 131.40	45.55	Peak	H	6.45	-	52.00	74.00	22.00
5 134.78	41.11	Peak	V	6.45	-	47.56	74.00	26.44
5 149.68	48.17	Peak	H	6.45	-	54.62	74.00	19.38
5 149.68	36.11	Average	H	6.45	0.99	43.55	54.00	10.45

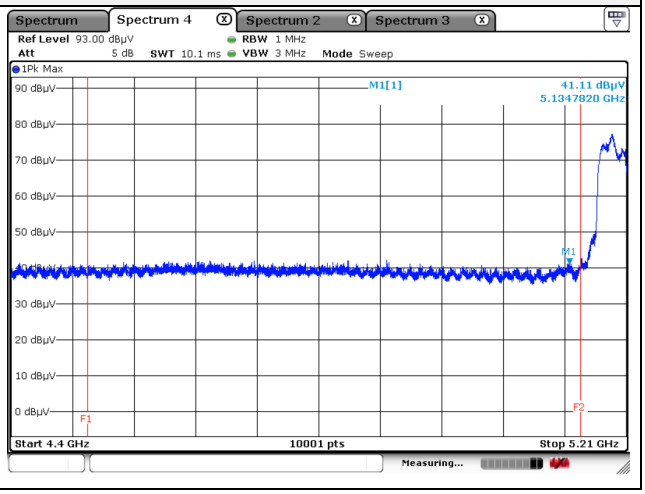
- **Band edge_upper**

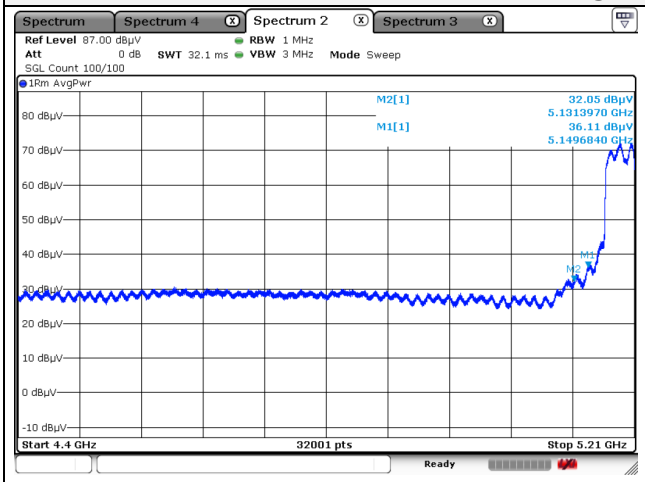
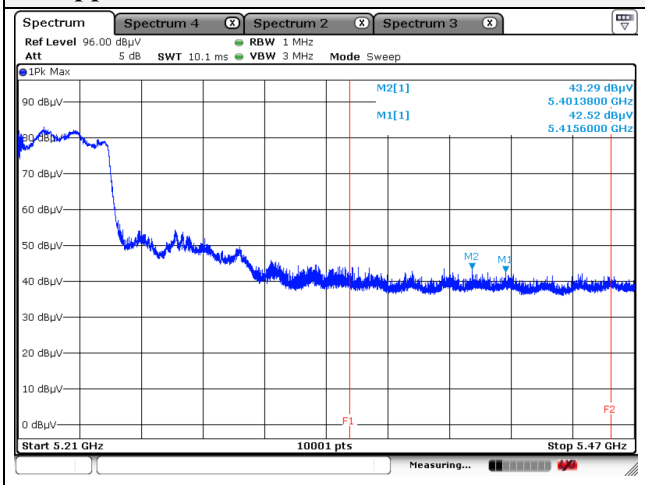
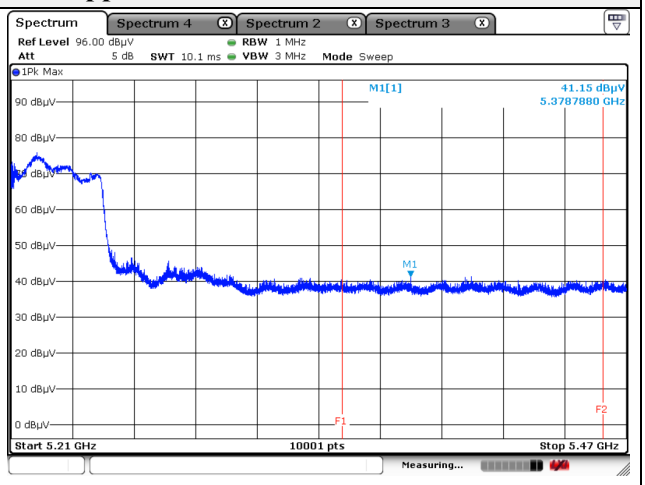
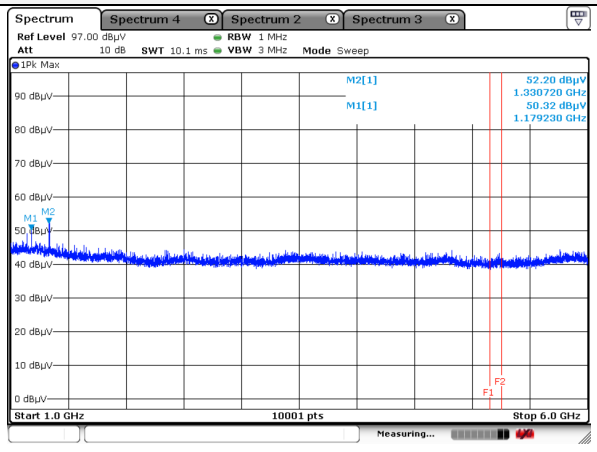
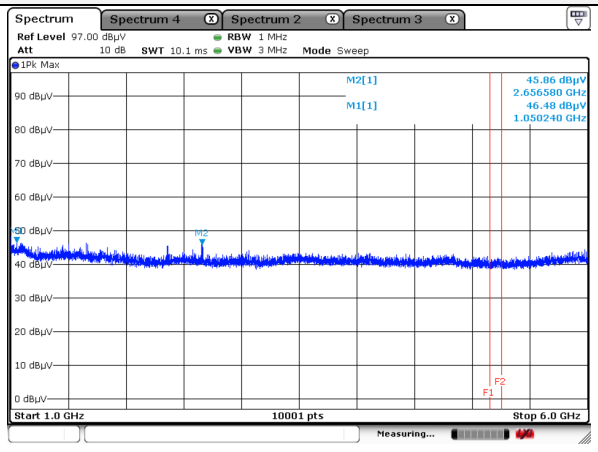
Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
5 378.79	41.15	Peak	V	7.11	-	48.26	74.00	25.74
5 401.38	43.29	Peak	H	7.19		50.48	74.00	23.52
5 415.60	42.52	Peak	H	7.15	-	49.67	74.00	24.33

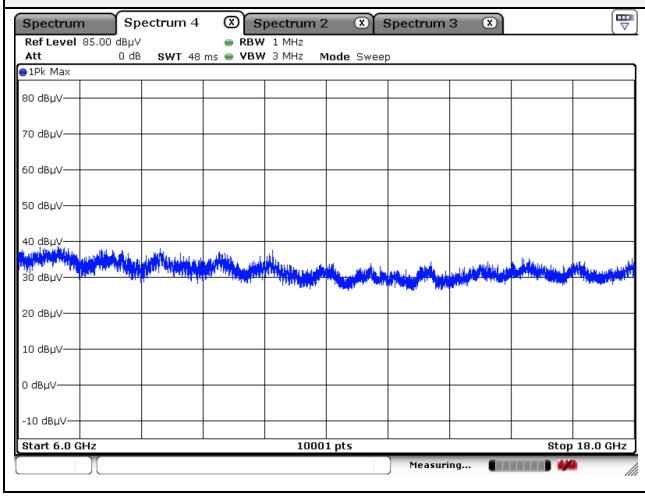
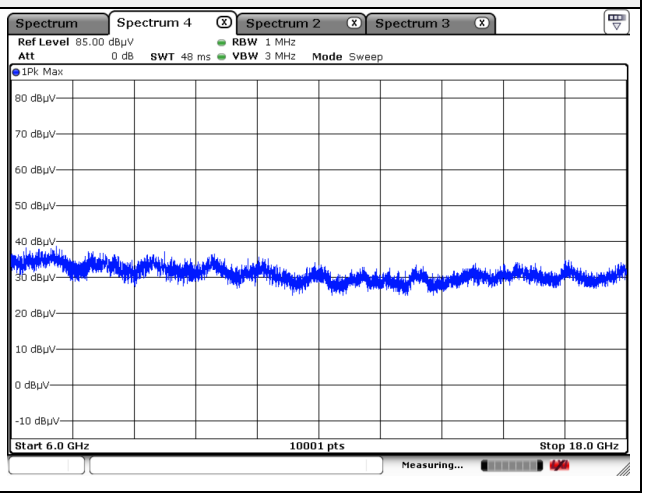
Lower Restricted band // Horizontal // Peak



Lower Restricted band // Vertical // Peak



Lower Restricted band // Horizontal // Average	Lower Restricted band // Vertical // Average
	N/A
Upper Restricted band // Horizontal // Peak	**Upper Restricted band // Vertical // Peak**
	
Horizontal // Peak for 1 ㎓ to 6 ㎓	**Vertical // Peak for 1 ㎓ to 6 ㎓**
	

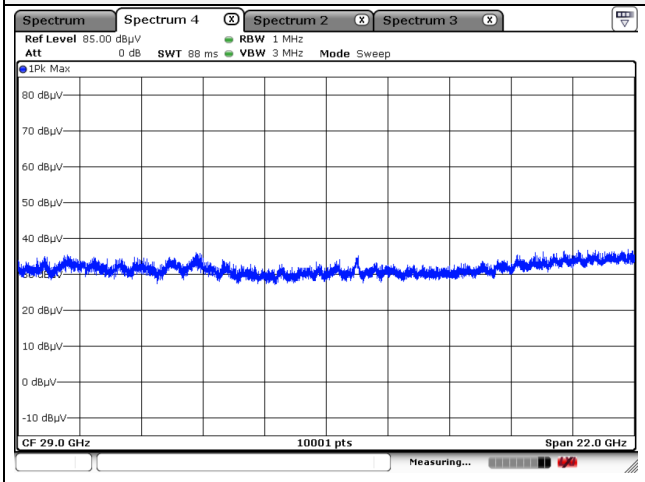
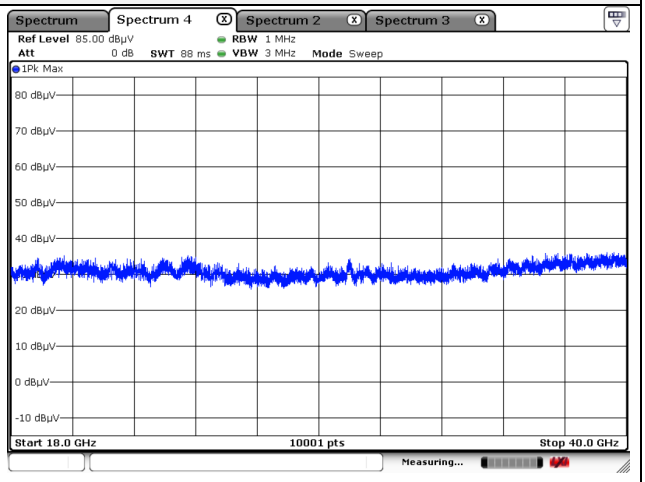
Horizontal // Peak for 6 ㎓ to 18 ㎓	Vertical // Peak for 6 ㎓ to 18 ㎓
	

Note.

1. No spurious emission were detected above 6 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Test results (18 ㎓ to 40 ㎓)

Mode:	802.11ac_VHT80
Channel:	42 (Worst Case)
Distance of measurement:	3 meter

Horizontal // 18 ㎓ ~ 40 ㎓	Vertical // 18 ㎓ ~ 40 ㎓
	

Note.

1. No spurious emission were detected above 18 ㎓.

3.3. AC conducted emissions

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.

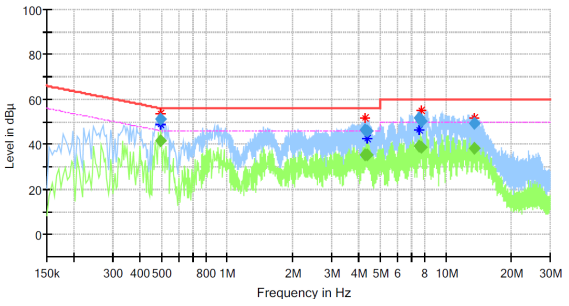
Frequency of Emission (㎒)	Conducted limit (dB㎶)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

Test results

Mode: 802.11ac_VHT80

Channel: 42 (Worst Case)

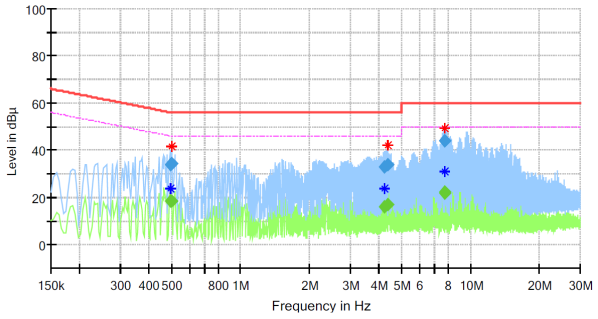
Hot Line



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.498000	51.45	---	56.03	4.58	1000.0	9.000	L1	19.8
0.498000	---	41.48	46.03	4.55	1000.0	9.000	L1	19.8
4.290000	46.38	---	56.00	9.62	1000.0	9.000	L1	20.1
4.290000	---	35.32	46.00	10.68	1000.0	9.000	L1	20.1
4.370000	46.17	---	56.00	9.83	1000.0	9.000	L1	20.0
4.370000	---	35.49	46.00	10.51	1000.0	9.000	L1	20.0
7.542000	51.68	---	60.00	8.32	1000.0	9.000	L1	19.9
7.542000	---	39.37	50.00	10.63	1000.0	9.000	L1	19.9
7.770000	50.22	---	60.00	9.78	1000.0	9.000	L1	19.9
7.770000	---	38.71	50.00	11.29	1000.0	9.000	L1	19.9
13.558000	---	38.22	50.00	11.78	1000.0	9.000	L1	20.5
13.558000	49.54	---	60.00	10.46	1000.0	9.000	L1	20.5

Neutral Line



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.494000	---	18.45	46.10	27.65	1000.0	9.000	N	19.8
0.494000	33.93	---	56.10	22.17	1000.0	9.000	N	19.8
0.502000	---	18.57	46.00	27.43	1000.0	9.000	N	19.8
0.502000	34.34	---	56.00	21.66	1000.0	9.000	N	19.8
4.218000	---	16.23	46.00	29.77	1000.0	9.000	N	20.1
4.218000	32.95	---	56.00	23.05	1000.0	9.000	N	20.1
4.354000	---	17.04	46.00	28.96	1000.0	9.000	N	20.0
4.354000	33.99	---	56.00	22.01	1000.0	9.000	N	20.0
7.706000	---	22.15	50.00	27.85	1000.0	9.000	N	19.9
7.706000	43.89	---	60.00	16.11	1000.0	9.000	N	19.9
7.734000	---	21.96	50.00	28.04	1000.0	9.000	N	19.9
7.734000	44.04	---	60.00	15.96	1000.0	9.000	N	19.9

3.4. Antenna Requirement

According to 15.207(a), An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

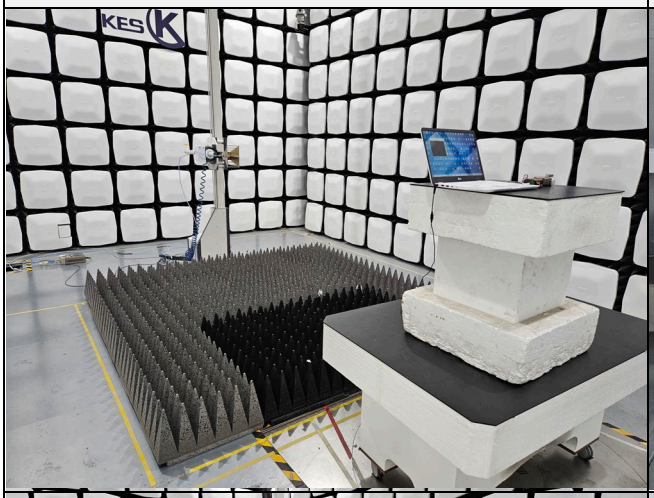
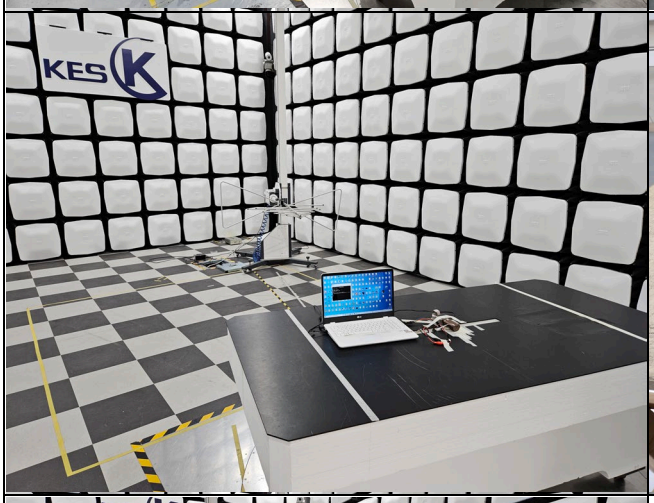
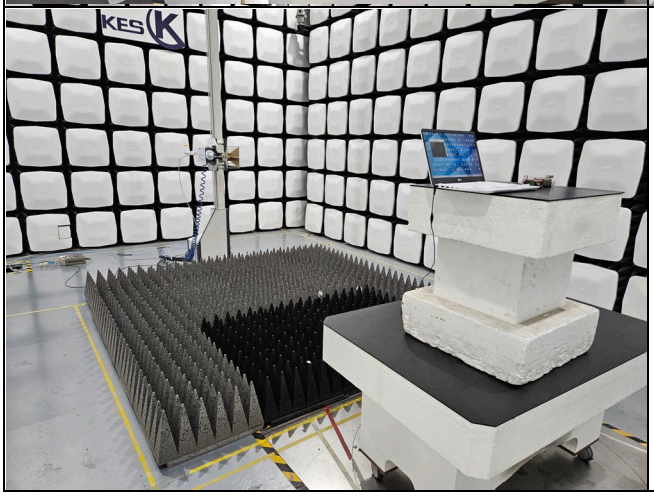
Appendix A. Measurement equipment

Equipment	Manufacturer	Model	Serial No.	Calibration interval	Calibration due.
Spectrum analyzer	R&S	FSV3044	101272	1 year	2024.03.16
Spectrum analyzer	R&S	FSV40	101725	1 year	2023.06.16
MXG Vector SIGNAL GENERATOR	Agilent	N5182A	MY50143829	1 year	2024.01.12
SIGNAL GENERATOR	Anritsu	68369B	002118	1 year	2023.05.13 2024.05.12
BAND REJECT FILTER	MICRO-TRONICS	BRM50702	G272	1 year	2024.01.12
BAND REJECT FILTER	MICRO-TRONICS	BRM50716	G199	1 year	2024.01.12
Attenuator	Mini-Circuits	BW-S10-2W263+	3	1 year	2024.01.13
Attenuator	HUBER+SUHNER	6806.17.A	-	1 year	2024.03.21
Power Meter	Anritsu	ML2495A	2010001	1 year	2023.04.27 2024.04.19
Pulse Power Sensor	Anritsu	MA2411B	1911111	1 year	2023.04.27 2024.04.18
Loop Antenna	Schwarzbeck	FMZB1513	1513-257	2 years	2025.01.16
BILOG ANTENNA	Schwarzbeck	VULB 9168	9168-461	2 years	2024.04.27
Horn Antenna	A.H	SAS-571	414	1 year	2024.01.16
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA 9170550	1 year	2024.01.16
Amplifier	SONOMA INSTRUMENT	310N	401123	1 year	2023.06.02
PREAMPLIFIER	HP	8449B	3008A00538	1 year	2023.06.02
BROADBAND AMPLIFIER	SCHWARZBECK	BBV9721	PS9721-003	1 year	2024.01.16
DC POWER SUPPLY	SORENSEN	DCS40-75E	1408A02745	1 year	2024.01.12
EMI Test Receiver	R&S	ESU26	100517	1 year	2023.08.01
EMI Test Receiver	R&S	ESR3	101783	1 year	2023.11.11
PULSE LIMITER	R&S	ESH2-Z2	101915	1 year	2023.11.10
LISN	R&S	ENV216	101787	1 year	2023.11.10

Peripheral devices

Device	Manufacturer	Model No.	Serial No.
Notebook computer	LG Electronics Inc.,	LGS53	306QCZP560949

Appendix B. Test setup photos

Radiated test	AC Conducted test
	
	
	N/A

The end of test report.