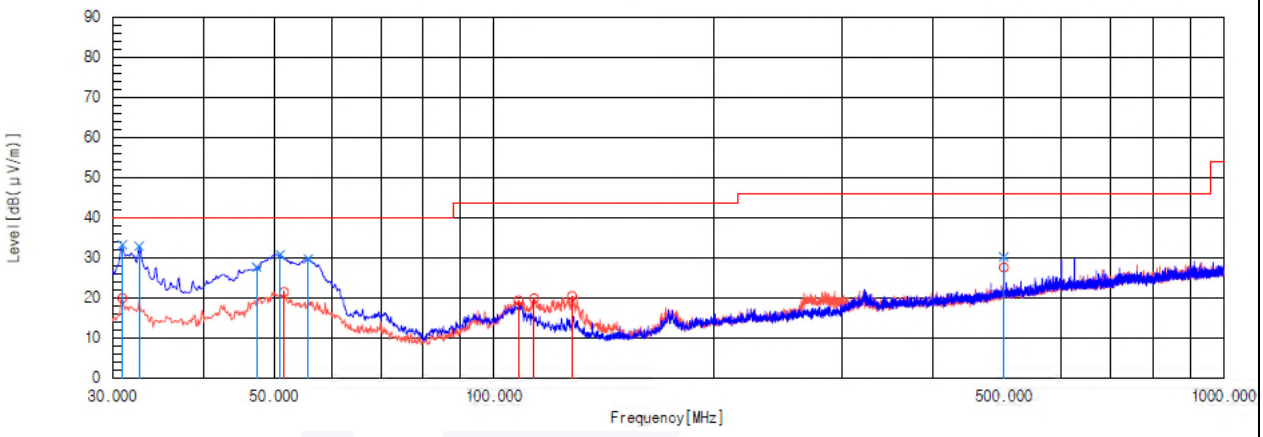
Test results (Below 1 000 ㎒) – Worst case

Mode:	BDR (Worst case)
Transfer rate:	1 Mbps
Distance of measurement:	3 meter
Channel:	78 (Worst case)

Horizontal // Vertical



Final Result

No.	Frequency [MHz]	Pol	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	30.970	H	36.0	-16.0	20.0	40.0	20.0	387.0	259.8	
2	30.970	V	49.2	-16.0	33.2	40.0	6.8	125.0	235.0	
3	32.667	V	48.5	-15.6	32.9	40.0	7.1	104.0	302.6	
4	47.339	V	40.4	-12.7	27.7	40.0	12.3	101.0	302.6	
5	50.976	V	43.2	-12.4	30.8	40.0	9.2	114.0	324.6	
6	51.583	H	34.0	-12.5	21.5	40.0	18.5	354.0	79.2	
7	55.705	V	42.7	-13.0	29.7	40.0	10.3	100.0	36.6	
8	108.085	H	34.0	-14.6	19.4	43.5	24.1	196.0	74.2	
9	113.541	H	34.8	-14.9	19.9	43.5	23.6	215.0	74.2	
10	127.970	H	36.3	-15.8	20.5	43.5	23.0	190.0	98.0	
11	499.965	H	33.1	-5.5	27.6	46.0	18.4	211.0	231.0	
12	499.965	V	35.7	-5.5	30.2	46.0	15.8	100.0	302.6	

Test results (Above 1 000 ㎒)

Mode:	BDR (1 Mbps)
Distance of measurement:	3 meter
Channel:	00

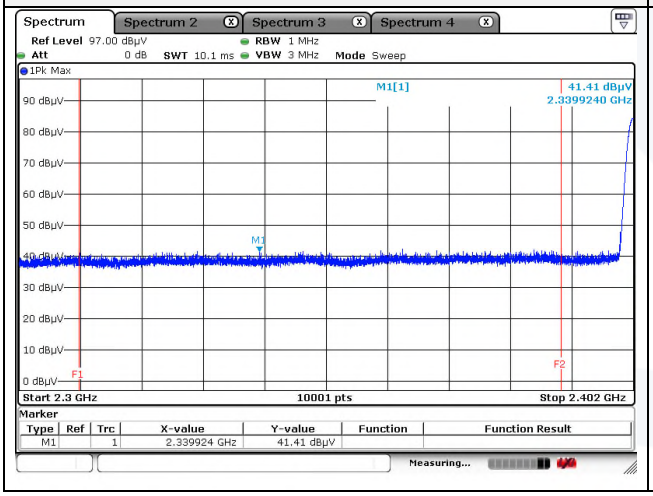
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 062.29	43.80	Peak	V	-6.56	-	37.24	74.00	36.76
1 412.86	44.10	Peak	H	-4.69	-	39.41	74.00	34.59

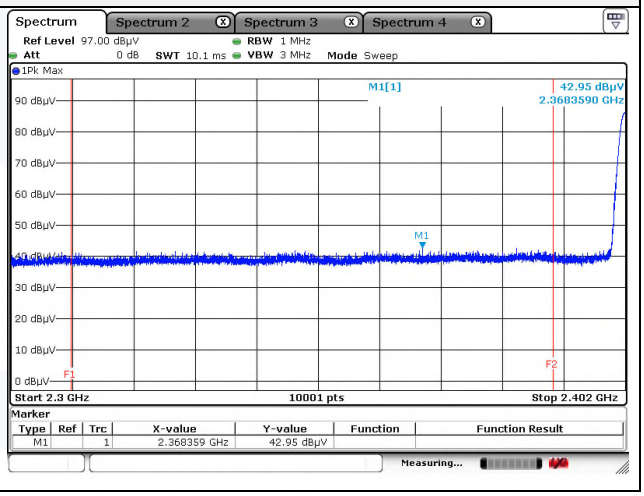
- **Band edge**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
2 339.92	41.41	Peak	H	-1.59	-	39.82	74.00	34.18
2 368.36	42.95	Peak	V	-1.48	-	41.47	74.00	32.53

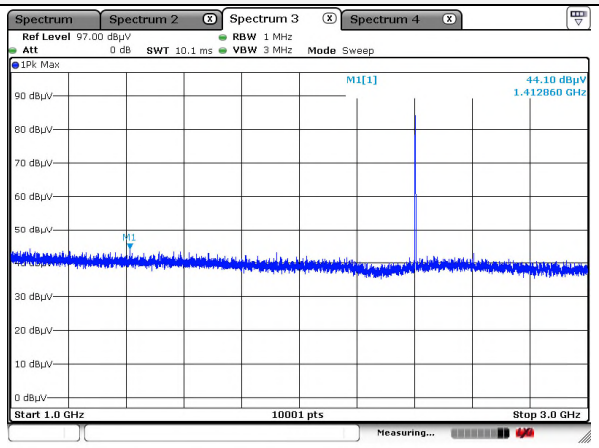
Restricted band // Horizontal // Peak



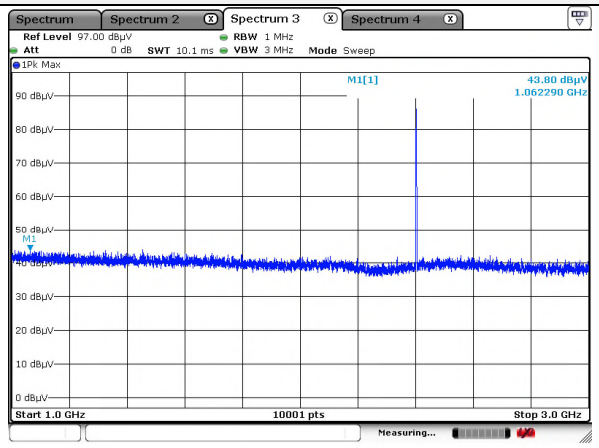
Restricted band // Vertical // Peak



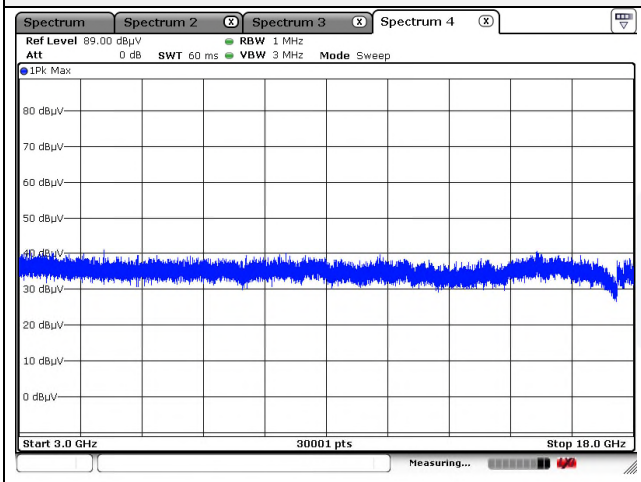
Horizontal // Peak for 1 ㎓ to 3 ㎓



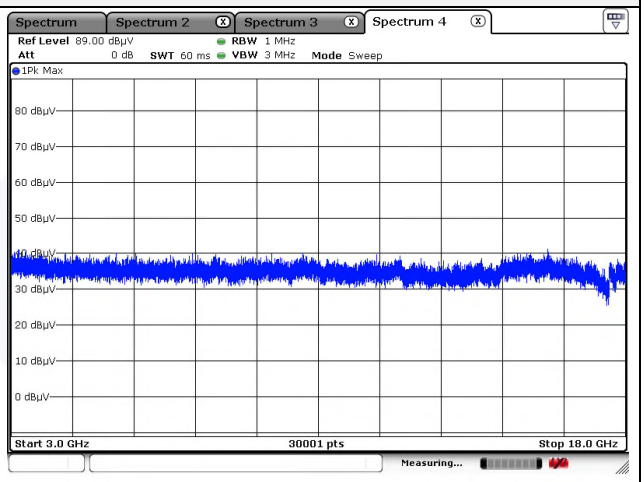
Vertical // Peak for 1 ㎓ to 3 ㎓



Horizontal // Peak for 3 ㎓ to 18 ㎓



Vertical // Peak for 3 ㎓ to 18 ㎓



Note.

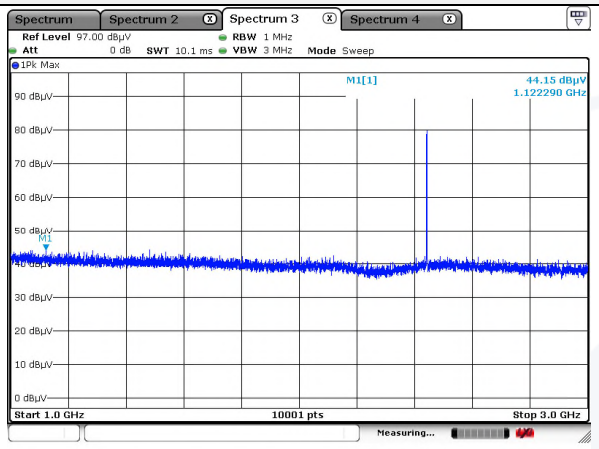
1. No spurious emission were detected above 3 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode:	BDR (1 Mbps)
Distance of measurement:	3 meter
Channel:	40

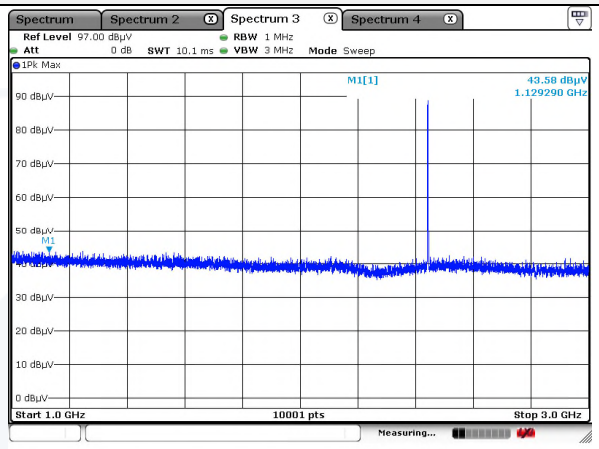
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 122.29	44.15	Peak	H	-6.26	-	37.89	74.00	36.11
1 129.29	43.58	Peak	V	-6.22	-	37.36	74.00	36.64

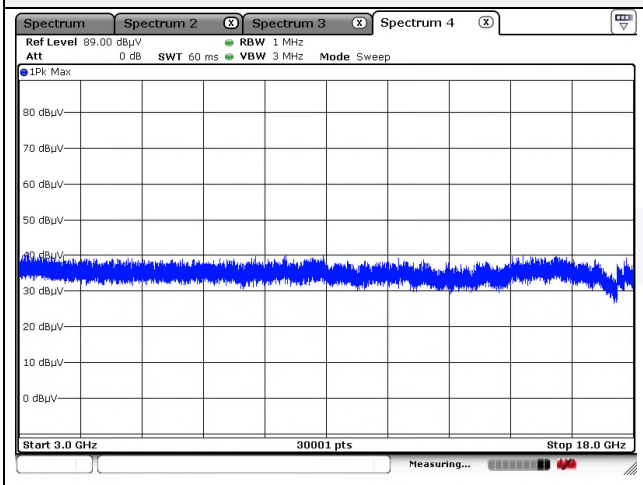
Horizontal // Peak for 1 ㎓ to 3 ㎓



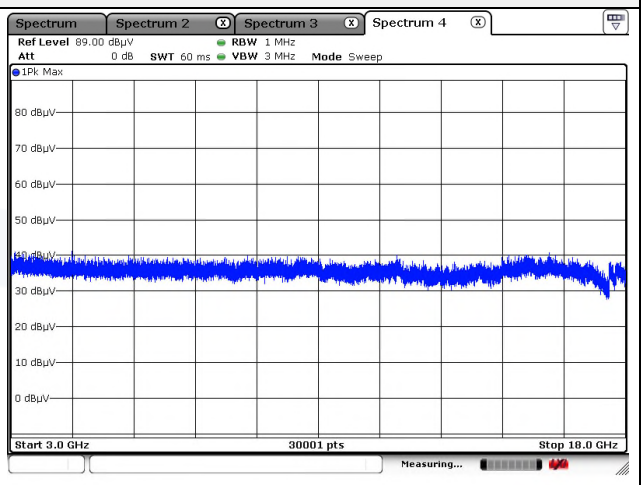
Vertical // Peak for 1 ㎓ to 3 ㎓



Horizontal // Peak for 3 ㎓ to 18 ㎓



Vertical // Peak for 3 ㎓ to 18 ㎓



Note.

1. No spurious emission were detected above 3 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode:	BDR (1 Mbps)
Distance of measurement:	3 meter
Channel:	78

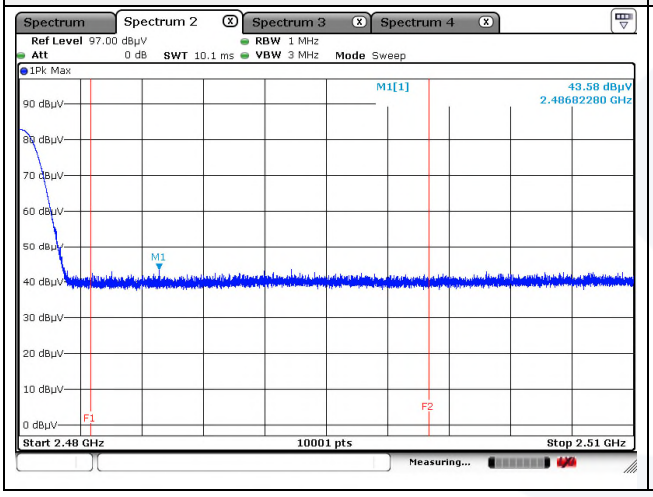
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 004.10	44.34	Peak	V	-6.86	-	37.48	74.00	36.52
1 070.89	43.91	Peak	H	-6.52	-	37.39	74.00	36.61

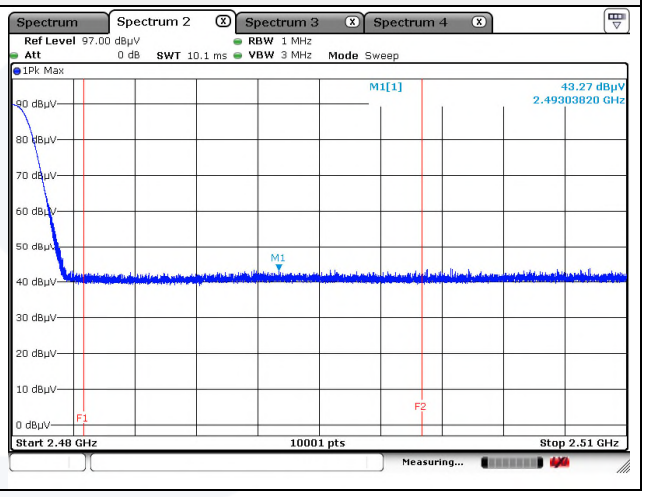
- **Band edge**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
2 486.82	43.58	Peak	H	-1.05	-	42.53	74.00	31.47
2 493.04	43.27	Peak	V	-1.03	-	42.24	74.00	31.76

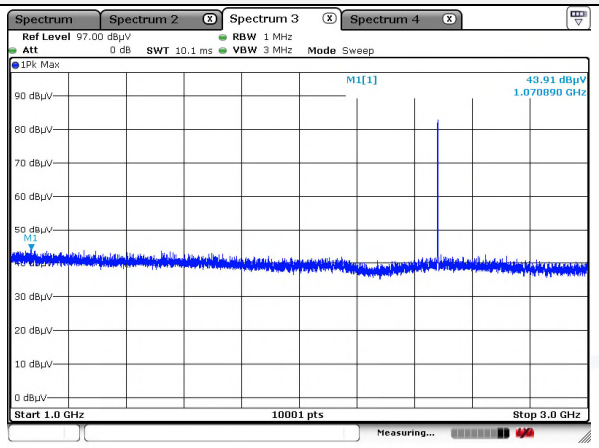
Restricted band // Horizontal // Peak



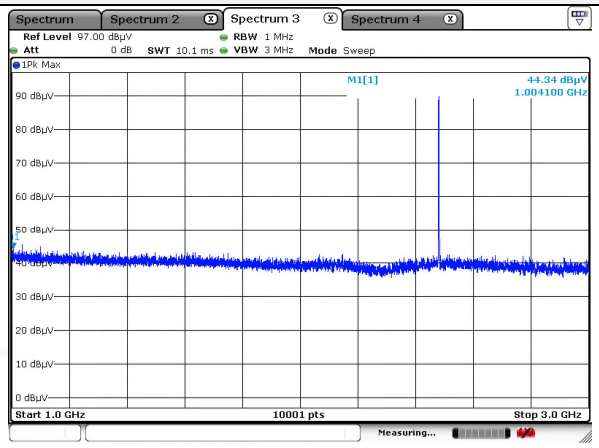
Restricted band // Vertical // Peak



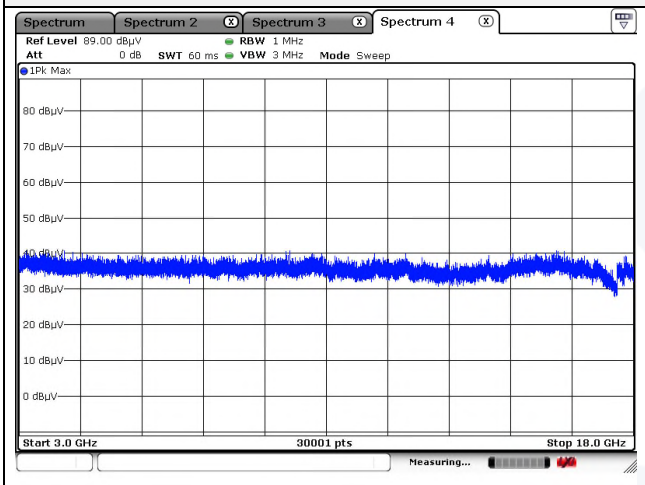
Horizontal // Peak for 1 ㎓ to 3 ㎓



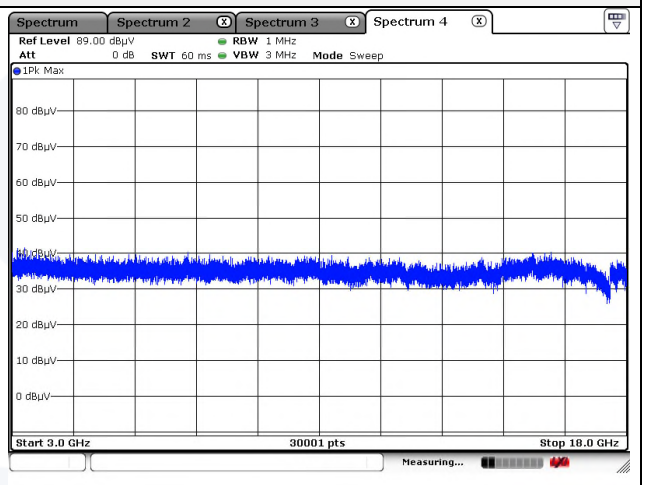
Vertical // Peak for 1 ㎓ to 3 ㎓



Horizontal // Peak for 3 ㎓ to 18 ㎓



Vertical // Peak for 3 ㎓ to 18 ㎓



Note.

1. No spurious emission were detected above 3 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode:	EDR (3 Mbps)
Distance of measurement:	3 meter
Channel:	00

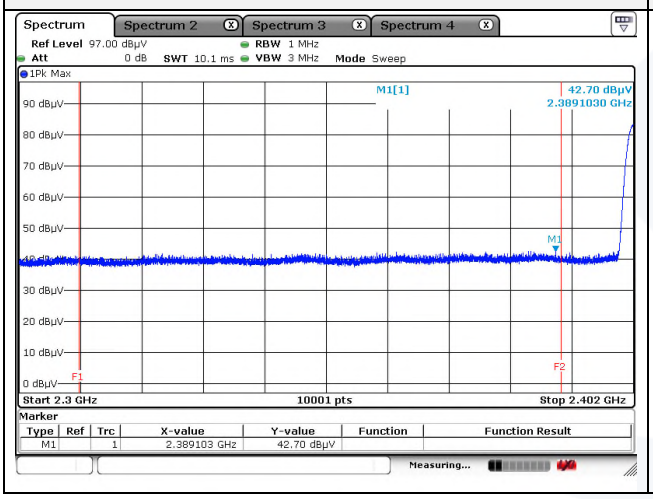
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 054.89	44.14	Peak	V	-6.60	-	37.54	74.00	36.46
1 063.29	44.55	Peak	H	-6.56	-	37.99	74.00	36.01

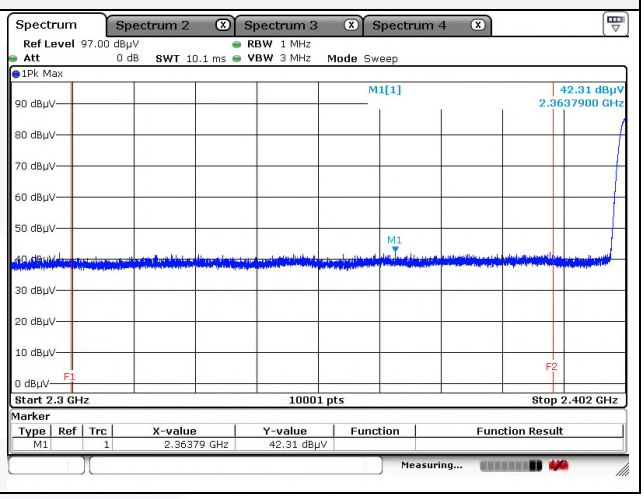
- **Band edge**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
2 363.79	42.31	Peak	V	-1.50	-	40.81	74.00	33.19
2 389.10	42.70	Peak	H	-1.40	-	41.30	74.00	32.70

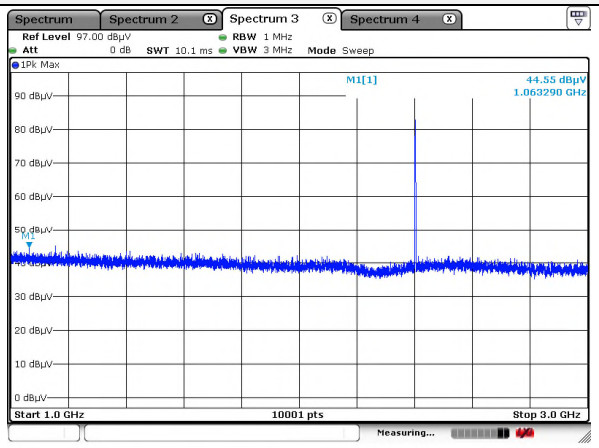
Restricted band // Horizontal // Peak



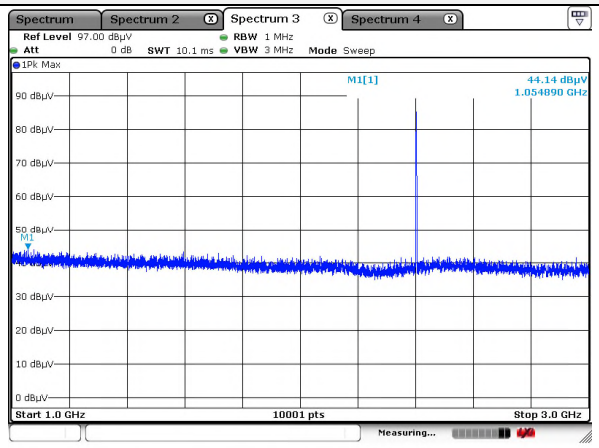
Restricted band // Vertical // Peak



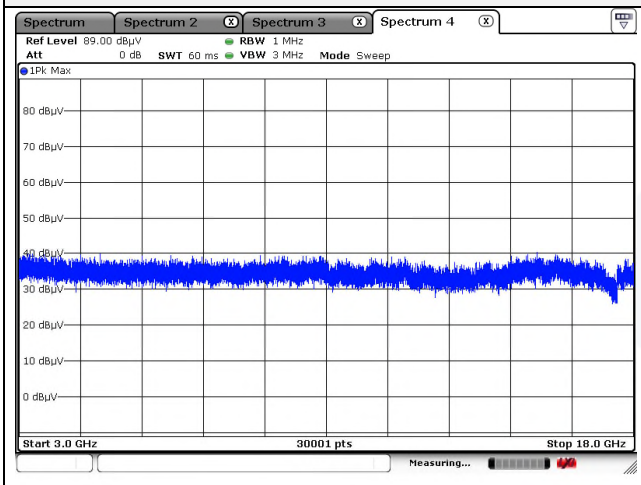
Horizontal // Peak for 1 ㎓ to 3 ㎓



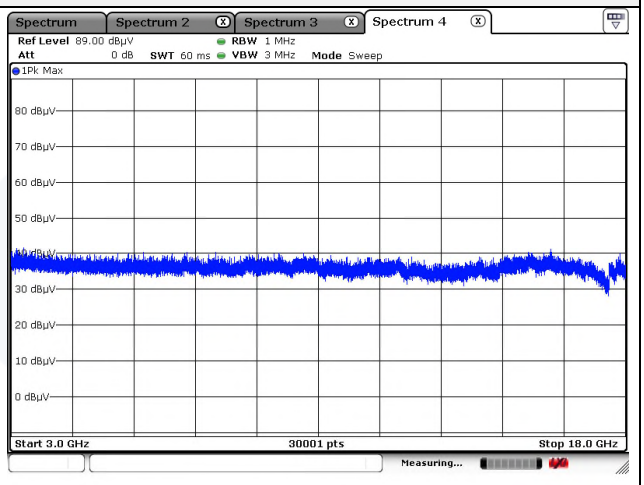
Vertical // Peak for 1 ㎓ to 3 ㎓



Horizontal // Peak for 3 ㎓ to 18 ㎓



Vertical // Peak for 3 ㎓ to 18 ㎓



Note.

1. No spurious emission were detected above 3 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode: EDR (3 Mbps)

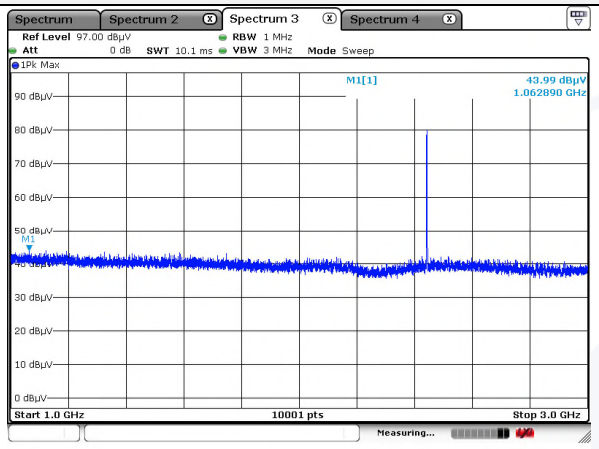
Distance of measurement: 3 meter

Channel: 40

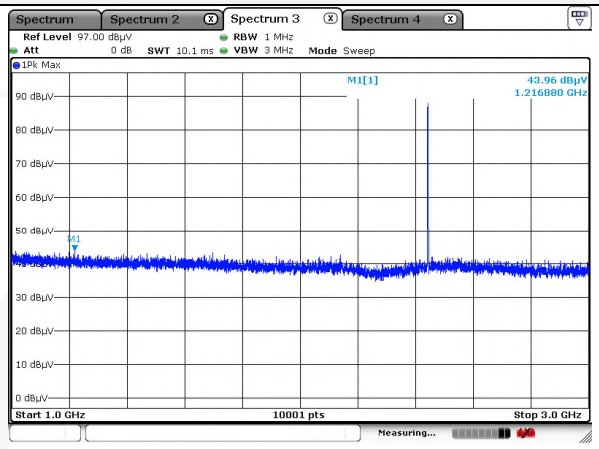
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 062.89	43.99	Peak	H	-6.56	-	37.43	74.00	36.57
1 216.88	43.96	Peak	V	-5.77	-	38.19	74.00	35.81

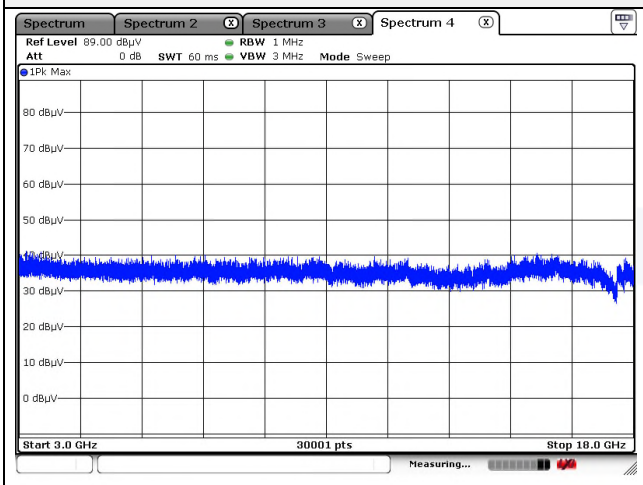
Horizontal // Peak for 1 ㎓ to 3 ㎓



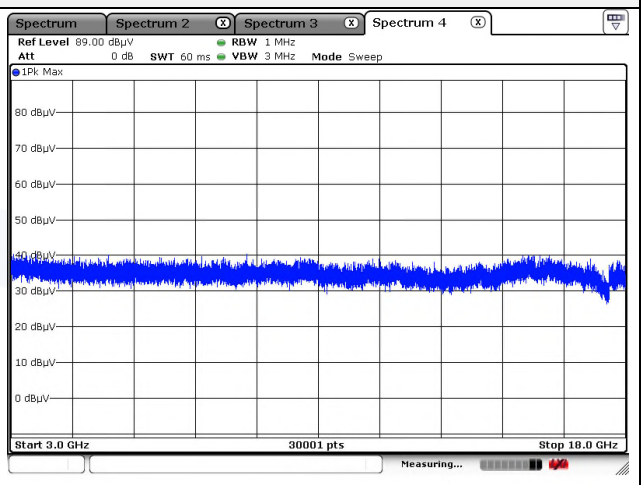
Vertical // Peak for 1 ㎓ to 3 ㎓



Horizontal // Peak for 3 ㎓ to 18 ㎓



Vertical // Peak for 3 ㎓ to 18 ㎓



Note.

1. No spurious emission were detected above 3 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Mode:	EDR (3 Mbps)
Distance of measurement:	3 meter
Channel:	78

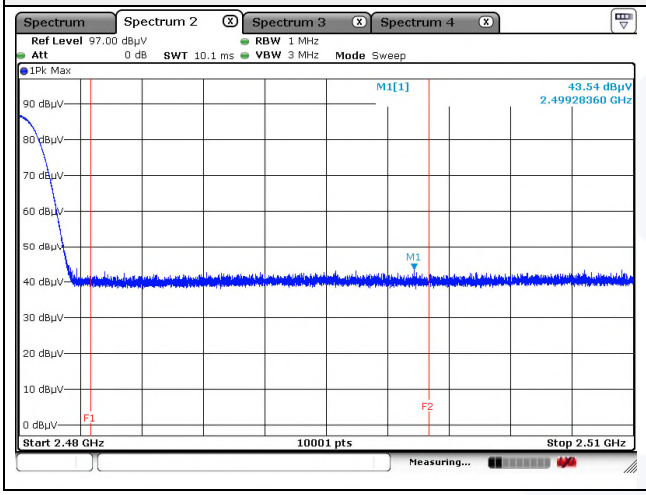
- **Spurious**

Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
1 028.41	44.40	Peak	V	-6.73	-	37.67	74.00	36.33
2 066.99	46.00	Peak	H	-2.68	-	43.32	74.00	30.68

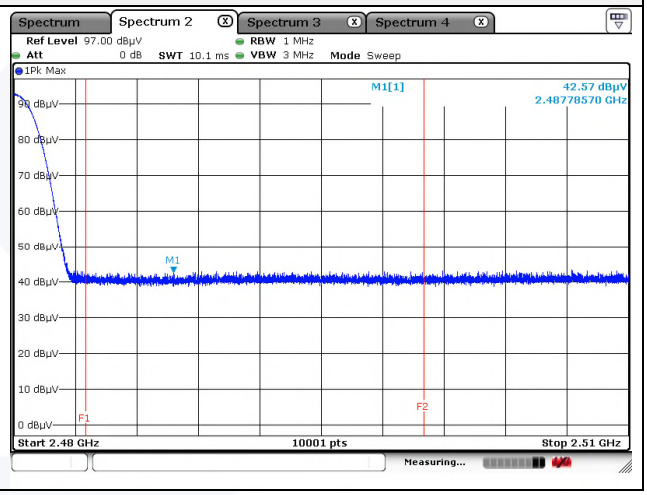
- **Band edge**

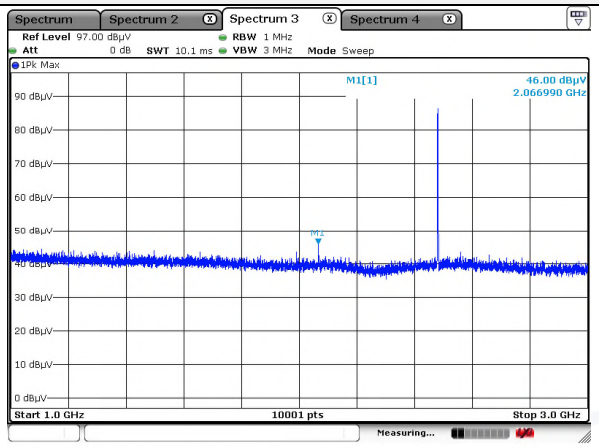
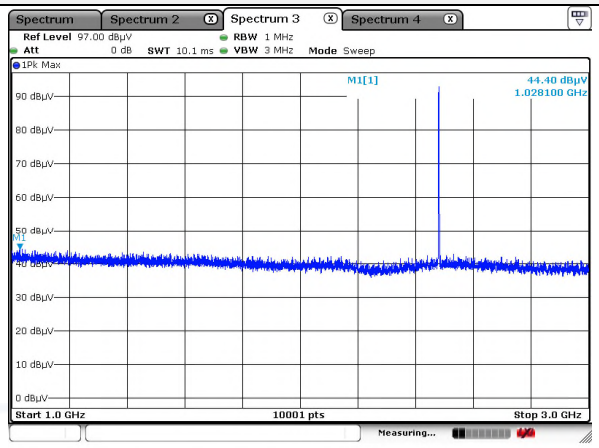
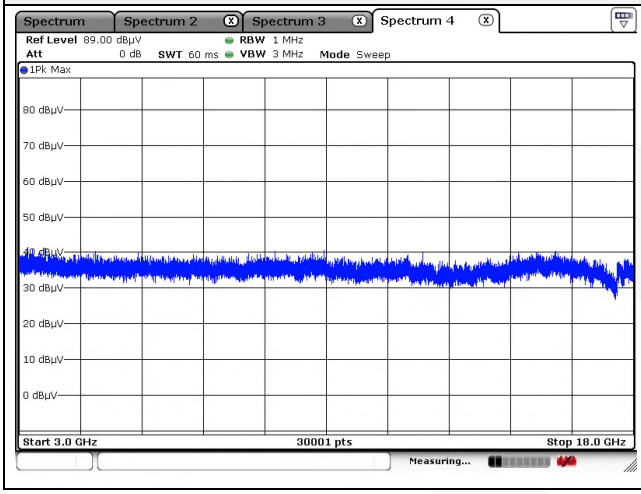
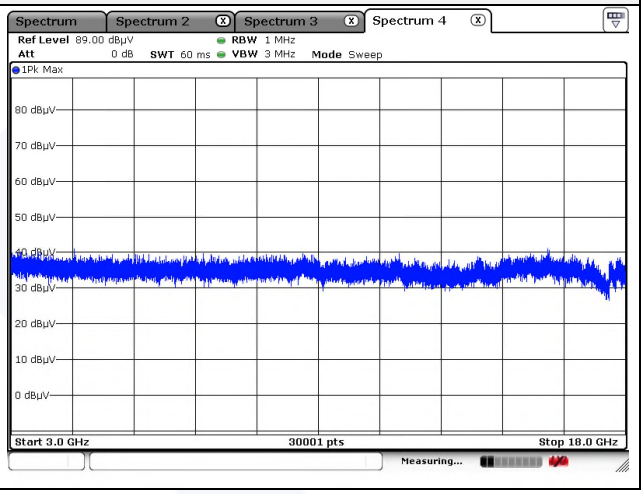
Frequency (㎒)	Level (dB㎶)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
2 487.79	42.57	Peak	V	-1.05	-	41.52	74.00	32.48
2 499.28	43.54	Peak	H	-1.01	-	42.53	74.00	31.47

Restricted band // Horizontal // Peak



Restricted band // Vertical // Peak



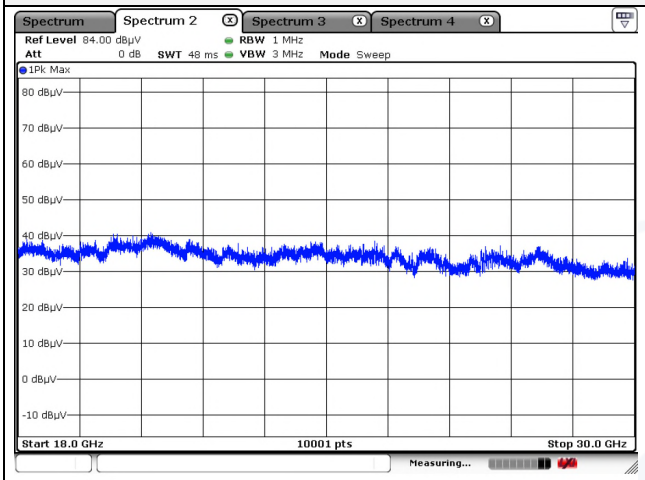
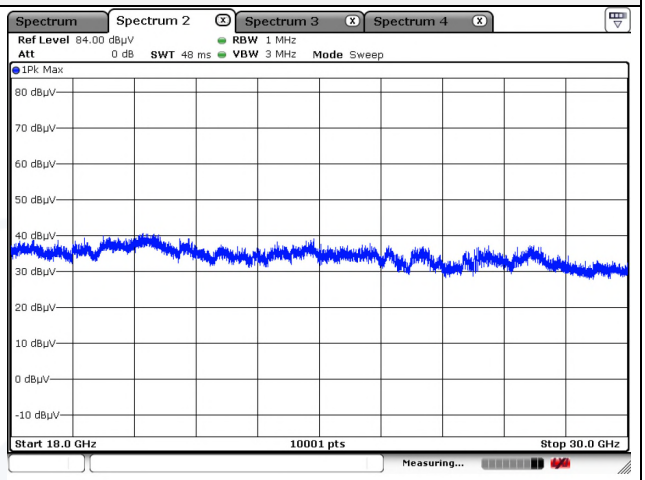
Horizontal // Peak for 1 ㎓ to 3 ㎓	Vertical // Peak for 1 ㎓ to 3 ㎓
	
Horizontal // Peak for 3 ㎓ to 18 ㎓	**Vertical // Peak for 3 ㎓ to 18 ㎓**
	

Note.

1. No spurious emission were detected above 3 ㎓.
2. Average test would be performed if the peak result were greater than the average limit.

Test results (18 ㎓ to 30 ㎓) – Worst case

Mode:	BDR (1 Mbps) (Worst case)
Distance of measurement:	3 meter
Channel:	7 (Worst case)

Horizontal	Vertical
	

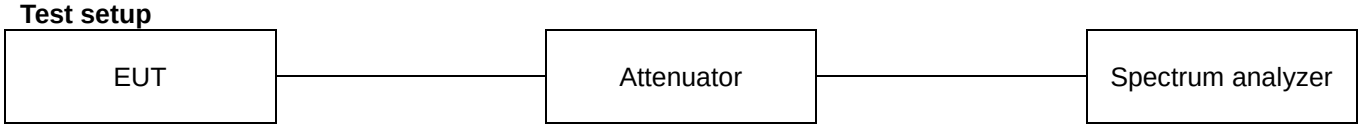
Note.
1. No spurious emission were detected above 18 ㎓.

3.8. Conducted band edge and out of band emissions

Test procedure

KDB 558074 v05r02 & ANSI 63.10-2013

Test setup



Test setting

1. Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.
2. RBW = 100 ㎑
3. VBW ≥ 300 ㎑
4. Detector = Peak
5. Number of sweep points ≥ 2 × Span/RBW
7. Trace mode = max hold
8. Sweep time = auto couple
9. The trace was allowed to stabilize

FCC Limit

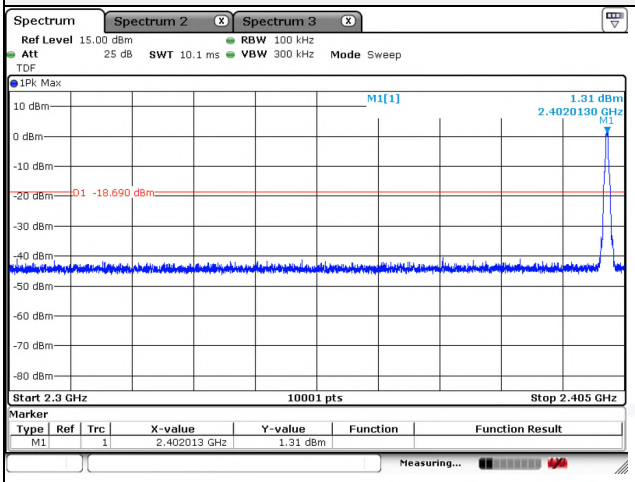
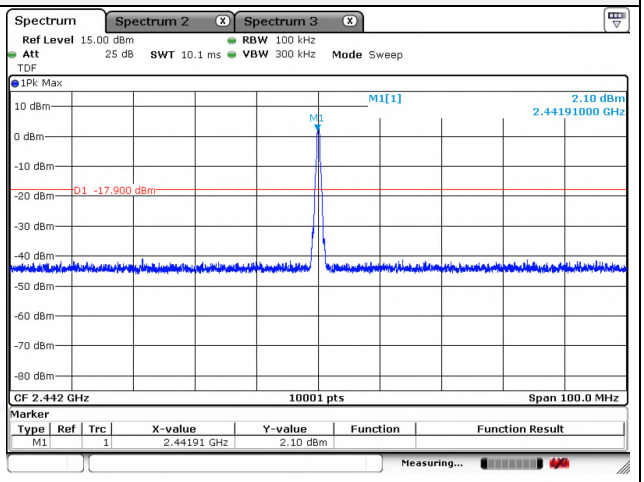
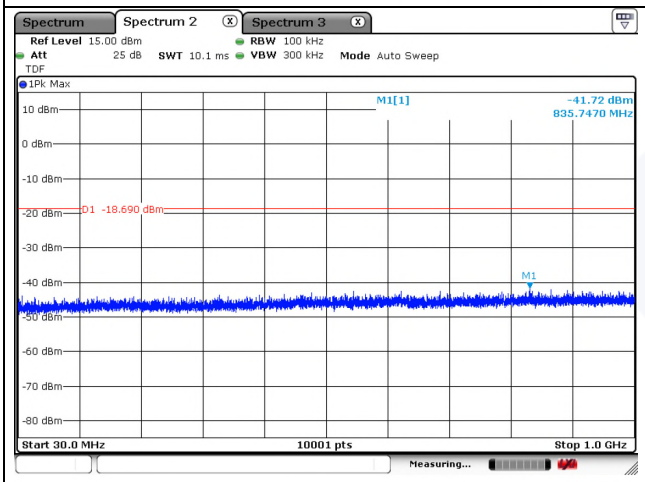
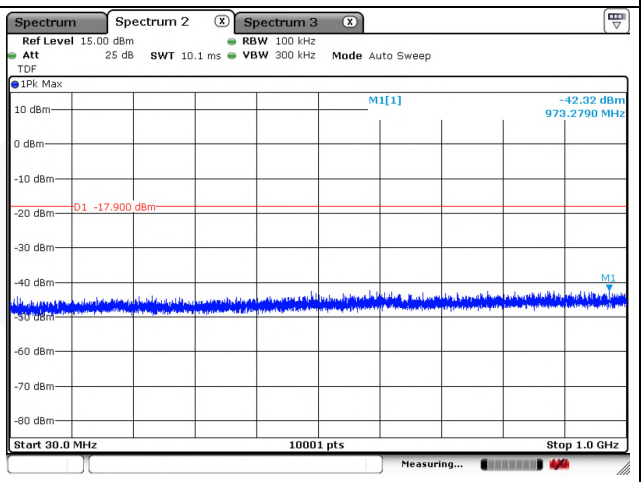
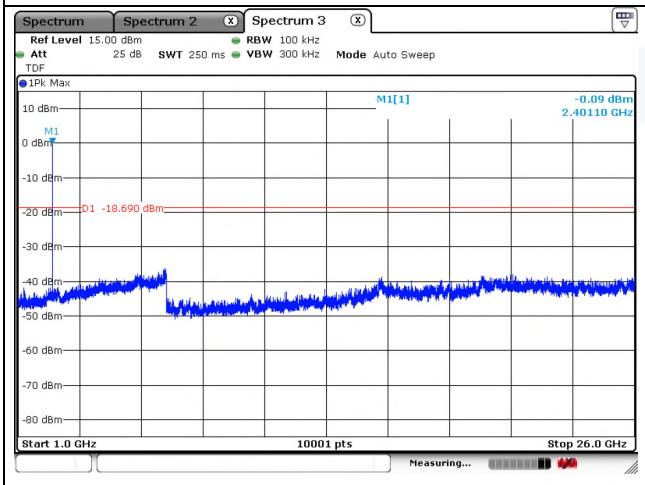
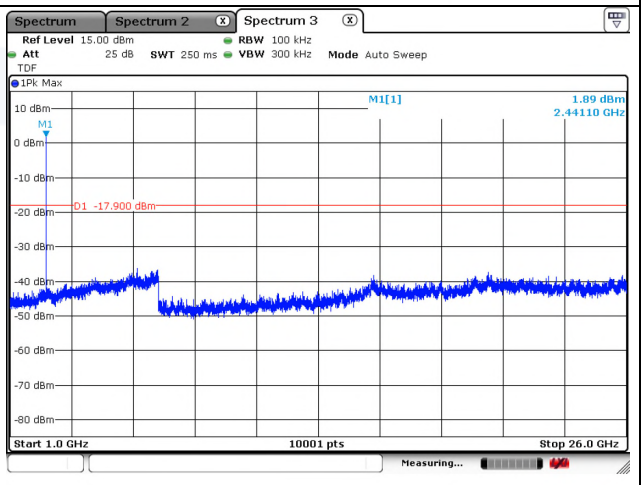
According to 15.247(d), in any 100 ㎑ bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 ㏈ below that in the 100 ㎑ bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval , as permitted under paragraph(b)(3) of this section , the attenuation required under this paragraph shall be 30 ㏈ instead of 20 ㏈. Attenuation below the general limits specified in section 15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section 15.205(a), must also comply the radiated emission limits specified in section 15.209(a) (see section 15.205(c))

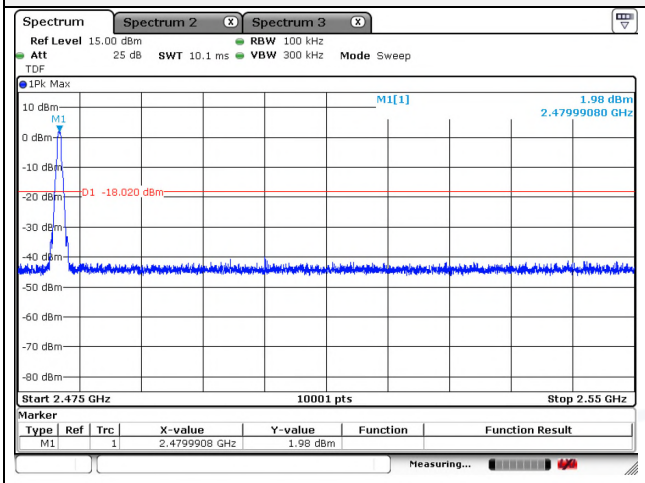
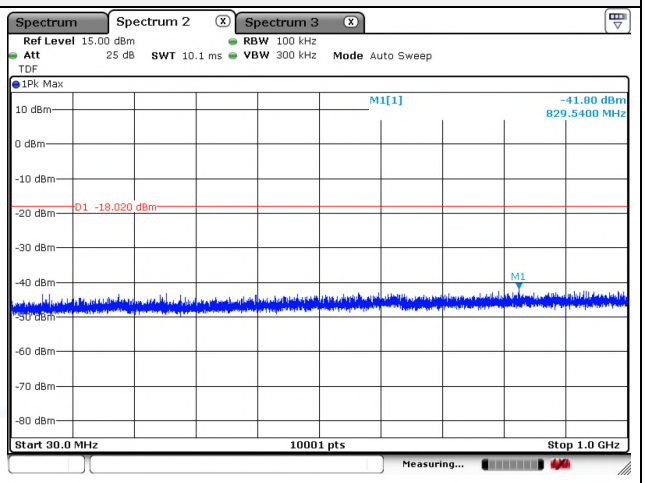
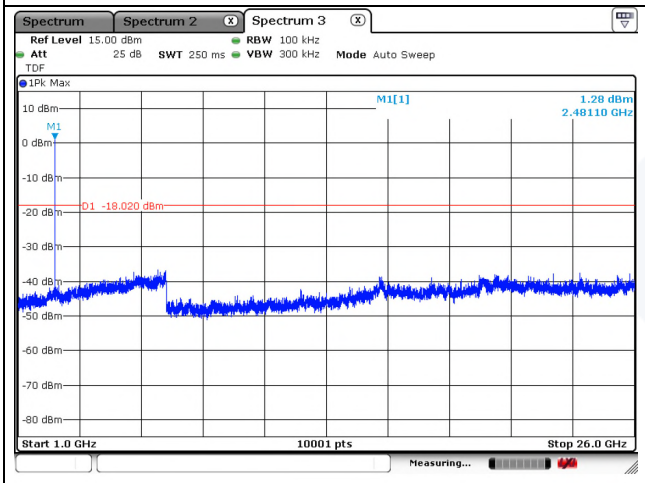
IC Limit

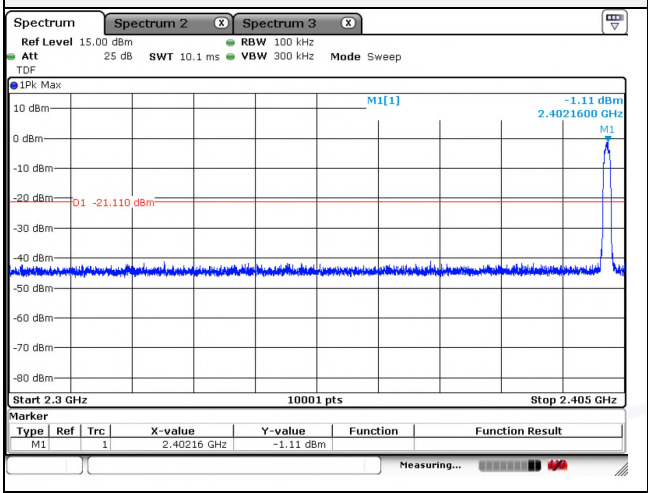
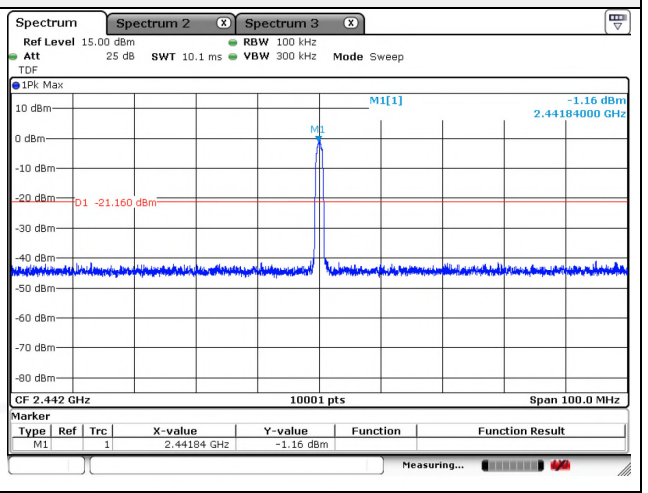
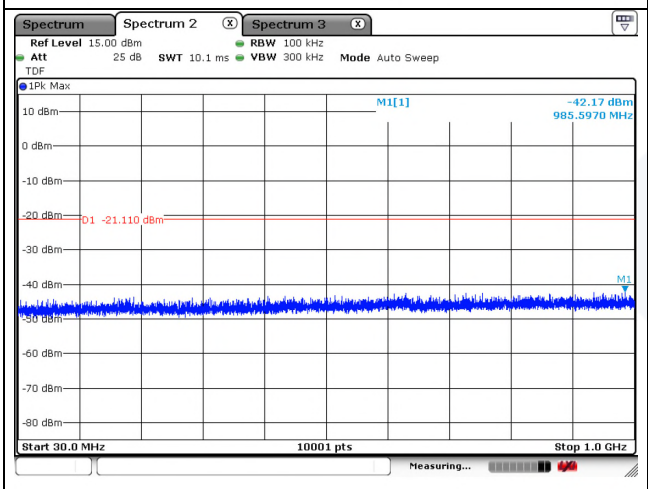
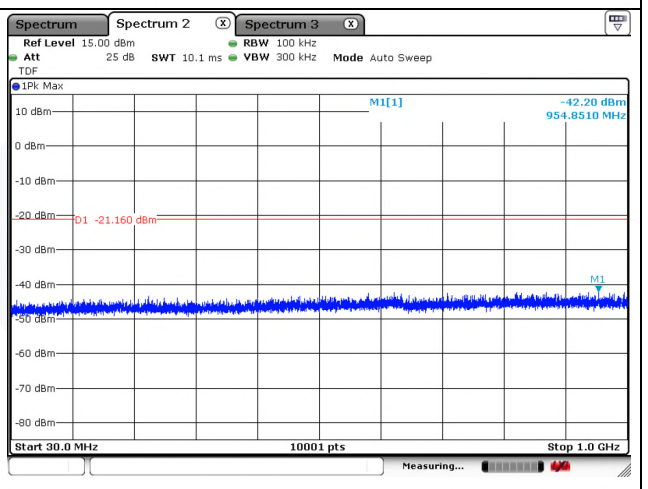
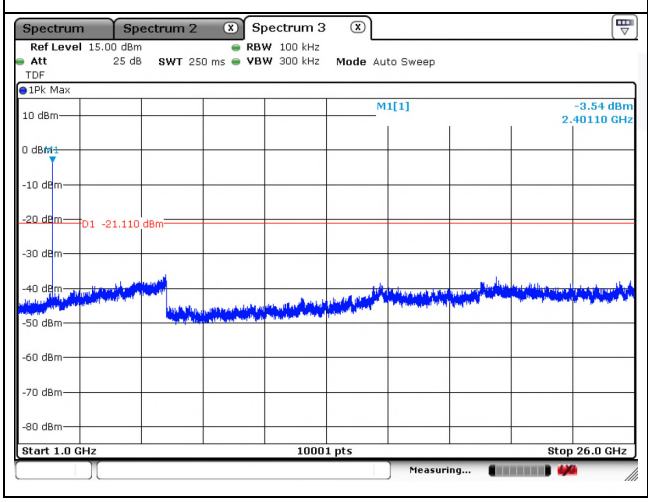
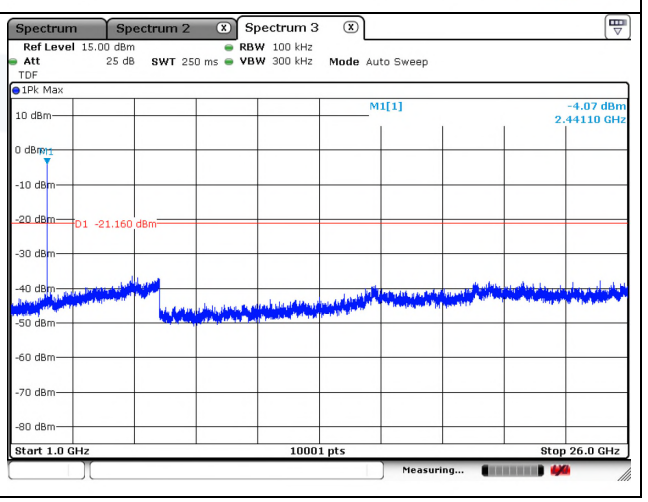
According to § RSS-247 6.6, In any 100 ㎑ bandwidth outside the frequency band in which the spread spectrum device, digitally modulated device, or hybrid system is operating, the RF power that is produced shall be at least 20 ㏈ below that in the 100 ㎑ bandwidth within the band that contains the highest level of the desired power – based on either an RF conducted or a radiated measurement – provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 6.3.2, the attenuation required shall be 30 ㏈ instead of 20 ㏈. Attenuation below the general field strength limits specified in RSS-Gen is not required.

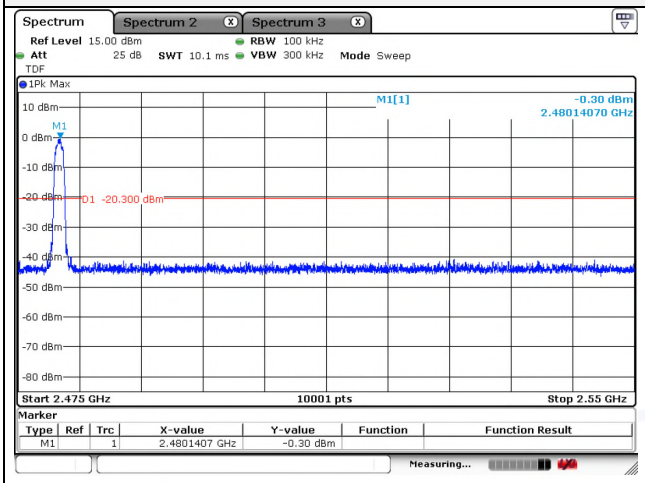
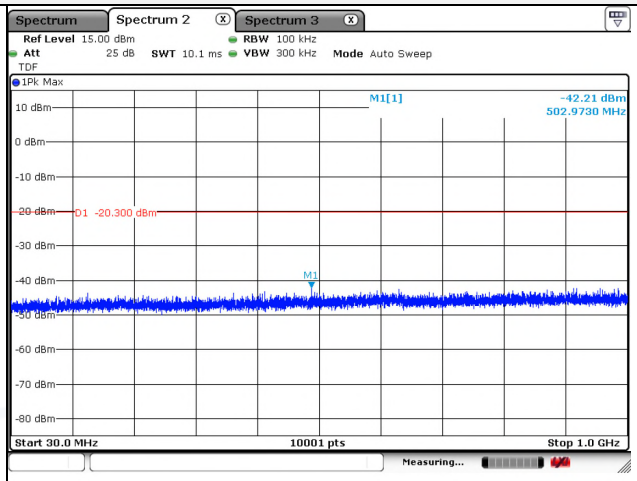
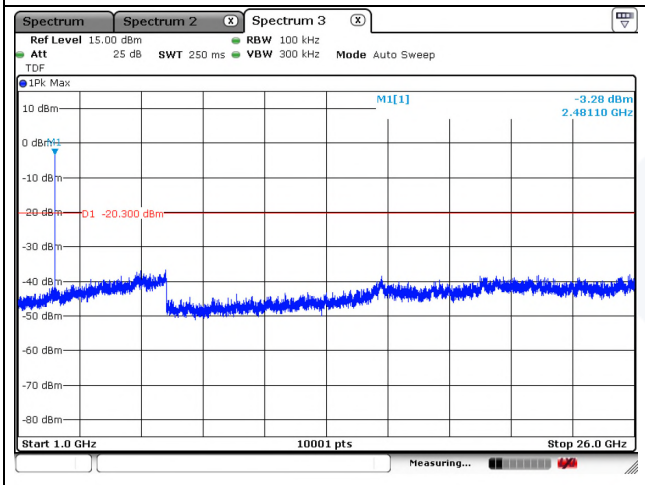
Test results

BDR(1 Mbps)

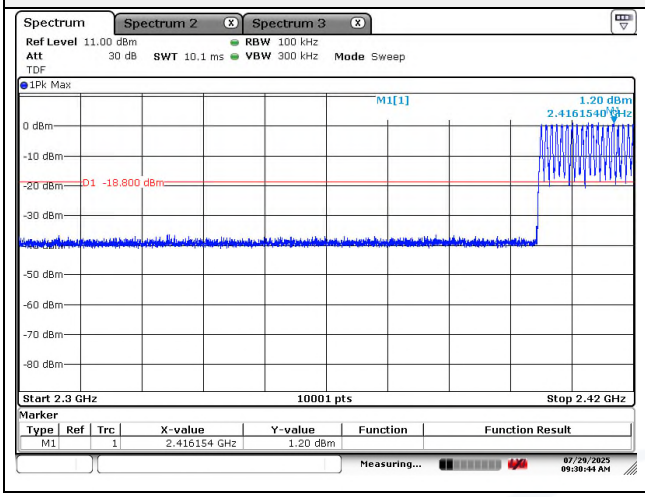
2 402 ㎒	2 442 ㎒
	
	
	

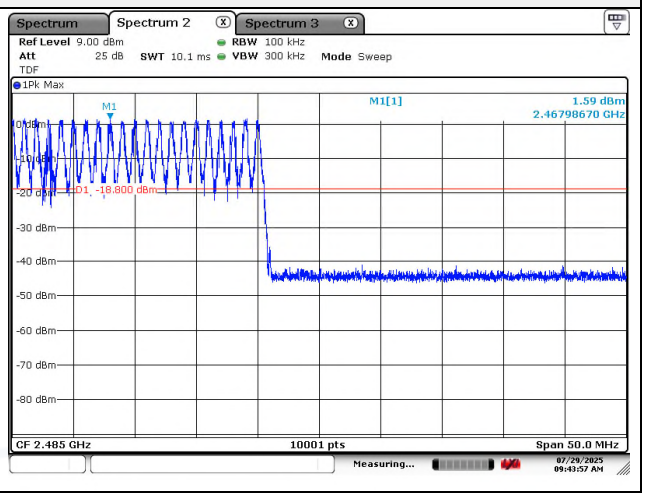
BDR(1 Mbps)	
2 480 ㎒	
	
	BLANK

EDR(3 Mbps)	
2 402 ㎒	**2 442 ㎒**
	
	
	

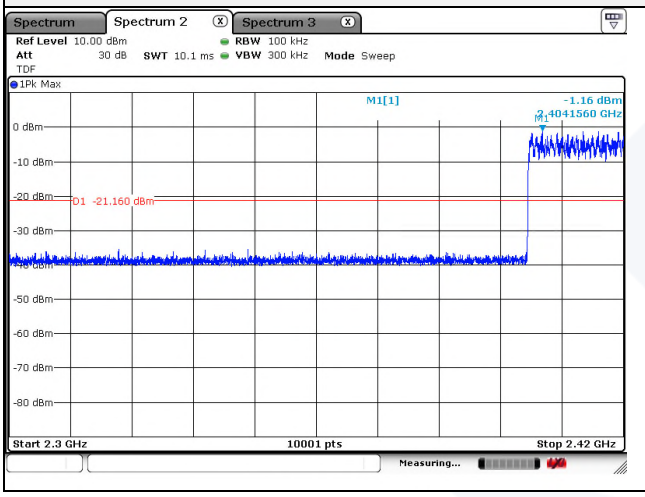
EDR(3 Mbps)	
2 480 ㎒	
	
	BLANK

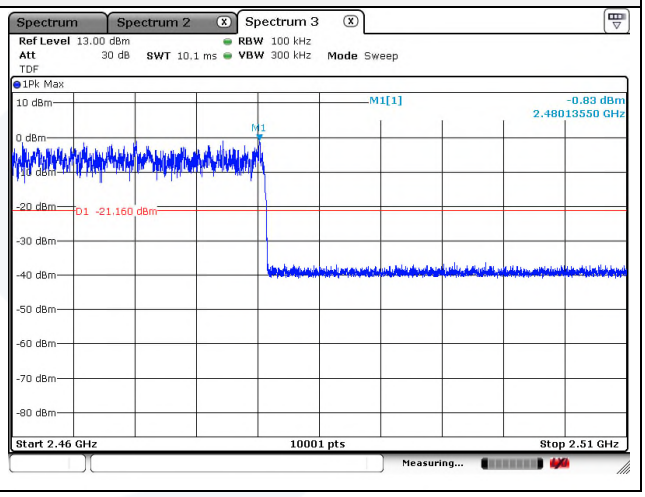
Hopping mode_BDR(1 Mbps)





Hopping mode_EDR(3 Mbps)





3.9. AC conducted emissions

FCC 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 (㏈㎶)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

IC Limit

According to RSS-Gen 8.8, Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 ㎑ to 30 ㎒ shall not exceed the limits in table 4, as measured using a 50 μH / 50 Ω line impedance stabilization network. This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

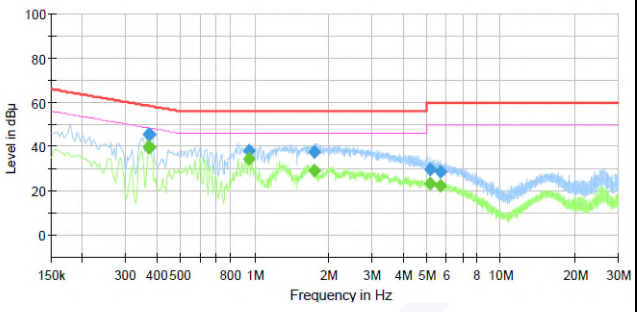
For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

Frequency of Emission (㎒)	Conducted limit (㏈㎶)	
	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:	BDR (Worst case)
Transfer rate:	1 Mbps
Channel:	78 (Worst case)

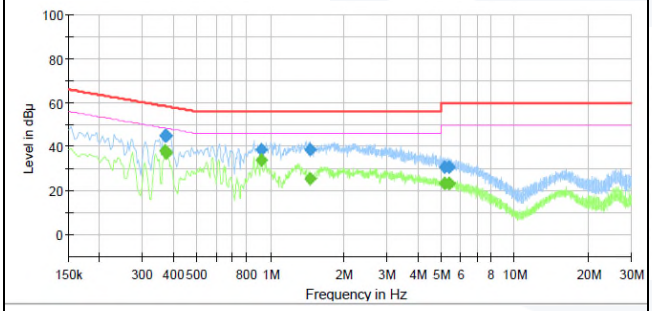
Hot Line



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.370000	----	39.52	48.50	8.98	1000.0	9.000	L1	19.7
0.370000	45.46	----	58.50	13.04	1000.0	9.000	L1	19.7
0.374000	----	39.57	48.41	8.84	1000.0	9.000	L1	19.7
0.374000	45.31	----	58.41	13.10	1000.0	9.000	L1	19.7
0.946000	----	34.19	46.00	11.81	1000.0	9.000	L1	19.7
0.946000	37.91	----	56.00	18.09	1000.0	9.000	L1	19.7
1.750000	----	29.03	46.00	16.97	1000.0	9.000	L1	19.8
1.750000	37.52	----	56.00	18.48	1000.0	9.000	L1	19.8
5.158000	----	23.31	50.00	26.69	1000.0	9.000	L1	20.1
5.158000	29.61	----	60.00	30.39	1000.0	9.000	L1	20.1
5.698000	----	22.30	50.00	27.70	1000.0	9.000	L1	20.2
5.698000	28.36	----	60.00	31.64	1000.0	9.000	L1	20.2

Neutral Line



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.370000	----	37.99	48.50	10.51	1000.0	9.000	N	19.6
0.370000	44.98	----	58.50	13.52	1000.0	9.000	N	19.6
0.374000	----	37.18	48.41	11.23	1000.0	9.000	N	19.6
0.374000	44.98	----	58.41	13.43	1000.0	9.000	N	19.6
0.922000	----	33.64	46.00	12.36	1000.0	9.000	N	19.6
0.922000	38.78	----	56.00	17.22	1000.0	9.000	N	19.6
1.450000	----	25.42	46.00	20.58	1000.0	9.000	N	19.7
1.450000	38.59	----	56.00	17.41	1000.0	9.000	N	19.7
5.178000	----	23.36	50.00	26.64	1000.0	9.000	N	20.1
5.178000	30.70	----	60.00	29.30	1000.0	9.000	N	20.1
5.422000	----	23.58	50.00	26.42	1000.0	9.000	N	20.1
5.422000	30.55	----	60.00	29.45	1000.0	9.000	N	20.1

3.10. 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	FSV40	101725	1 year	2026.06.10
Spectrum analyzer	R&S	FSV40-N	102194	1 year	2026.07.31
SIGNAL GENERATOR	KEYSIGHT	N5182B	MY59100115	1 year	2026.04.16
SIGNAL GENERATOR	Anritsu	68369B	002118	1 year	2026.04.21
Power Meter	Anritsu	ML2495A	2010001	1 year	2026.04.16
Pulse Power Sensor	Anritsu	MA2411B	1911111	1 year	2026.04.16
Attenuator	Mini-Circuits	BW-S20-2W263A+	Y1	1 year	2026.02.10
LOOP ANTENNA	TESEQ	HLA6121	66547	2 years	2026.01.22
TRILOG-BROADBAND ANTENNA	Schwarzbeck	VULB 9163	714	2 years	2026.04.19
Attenuator	HUBER+SHHNER	6806.17.A	NONE	1 year	2026.02.13
ATTENUATOR	HP	8491B	23094	1 year	2026.02.13
Horn Antenna	SCHWARZBECK	BBHA9120D	01802	1 year	2025.11.04
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA 9170550	1 year	2026.01.13
Amplifier	SONOMA INSTRUMENT	310N	401123	1 year	2026.02.13
PREAMPLIFIER	HP	8449B	3008A00899	1 year	2026.03.05
BROADBAND AMPLIFIER	SCHWARZBECK	BBV9721	PS9721-003	1 year	2026.01.09
DC POWER SUPPLY	AGILENT	6632B	MY43004090	1 year	2026.06.12
EMI TEST RECEIVER	R&S	ESR7	101190	1 year	2026.04.30
EMI Test Receiver	R&S	ESR3	101783	1 year	2025.11.06
PULSE LIMITER	R&S	ESH2-Z2	101915	1 year	2025.11.06
LISN	R&S	ENV216	101786	1 year	2026.01.09
Cable	-	-	#5	1 year	2025.11.01
Cable (SR #6)	RG 400	-	-	0.5 year	2026.01.25
Cable (SAC #5)	SUCOFLEX106	HUBER_SUHNER	-	0.5 year	2026.01.25
	SUCOFLEX106	HUBER_SUHNER	-		
	LH21D/2xSMA	OSI Cable	-		
Cable (SAC #6)	TCLH21D-SMSM-2.5M 0222	OSI Cable	-	0.5 year	2026.01.25
	TCLH21D-NMNM-10.0M 0222	OSI Cable	-		
	TCLH21D-SMSM-7.0M 0222	OSI Cable	-		

* Statement of Traceability: KES Co., Ltd. attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Peripheral devices

Device	Manufacturer	Model No.	Serial No.
Notebook computer	LG Electronics Inc.,	LGS53	306QCZP560949
Test Jig Board	N/A	N/A	N/A

The End.