



(FCC) TEST REPORT

Report No. : BVT-RH-FCR-250004

Applicant

- Name : Geoplan Co., Ltd.
- Address : 622, Geumjeong SKV1, 142, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, South Korea

Test Item

- Product Name : UWB Tag
- Model Name : ID300

Manufacturer

- Name : Geoplan Co., Ltd.
- Address : 622, Geumjeong SKV1, 142, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, South Korea

Date of Test : 2025.10.01. ~ 2025.10.02

Test Method Used : FCC CFR 47, Part 15. Subpart C-15.247
558074 D01 15.247 Meas Guidance v05r02
ANSI C 63.10-2020

Test Result : ☒ Pass ☐ Fail

Note : None

This test report is not related to KOLAS accreditation

Affirmation

Tested by

Name : Kwak, Yun-Kyoung (Signature)

Technical Manager

Name : Lee, Ha-Rim (Signature)

2025 . 10 . 30 .

Bureau Veritas CPS Korea Tech Limited

Revision History of test report

Date	Report No.	Revision Histoty
2025.10.15	BVT-RH-FCR-250004	Initial issue

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1. Information of Testing Laboratory

Legal Name and address

Bureau Veritas CPS Korea Tech Limited

(Annyeong-dong) 26, 28, 30, Seja-ro 406beon-gil, Hwaseong-si, Gyeonggi-do, 18326, Republic of Korea

Website: <http://www.bvcpskoreatech.co.kr>

Registration information

- KOLAS No.: KT232
- RRA No.: KR0041
- A2LA No.: 4068.02, 4068.03
- FCC Designation No.: KR0041
- ISED Designation No.: KR0041
- VCCI Membership No.: 2005

Test location and address

☒ Hwaseong

(Annyeong-dong) 26, 28, 30, Seja-ro 406beon-gil, Hwaseong-si, Gyeonggi-do, 18326, Republic of Korea

Tel: 82-31-222-4251

☐ Anyang

Heungan-daero 49, Dongan-gu, Anyang-si, Gyeonggi-do, 14119, Republic of Korea

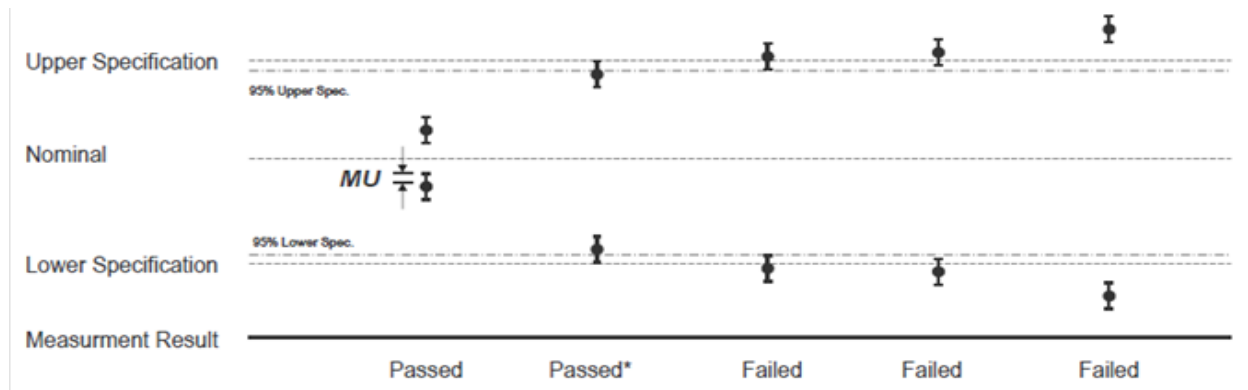
Tel: +82-31-689-4110, Fax: +82-31-689-4120

2 Summary of Test Results

The EUT has been tested according to the following specifications

Applied Standard : FCC Part 15, Subpart C 15.225					
FCC Part Section(s)	Test Description	Limit	Test Condition	Test Result	Reference
15.247(b)	Max. Conducted output power	<30 dBm	Conducted	PASS	Section 4.1
15.247(e)	Power spectral density	<8 dBm/3kHz	Conducted	PASS	Section 4.2
15.247(a)	6 dB spectrum Bandwidth	>0.5 MHz	Conducted	PASS	Section 4.3
15.247(d)	Band-edge Compliance of RF conducted emissions	FCC 15.247(d)	Conducted	PASS	Section 4.4
15.247(d)/ 15.209(a)	Spurious RF radiated emissions	FCC 15.247(d), 15.209(a)	Radiated	PASS	Section 4.5
15.203	Antenna requirement	FCC 15.203	-	PASS	Section 4.6
15.207	AC Conducted emission	< FCC 15.207 limits	AC Line Conducted	N/A	Section 4.7

2.1 Decision Rules for Statement of Conformity



QUA-52 Decision Rule(QA Document) was applied.

Step 1) : Reference Check, Daily Check, Peripheral device Check

Step 2) : Re-test Procedure (Repeat the test maximum 3 times, Different Test Engineer)

- 1) If the original test results are subject to retesting and the judgement is unclear, the retest is carried out.
- 2) If the result of the first retest is the same as the initial test, the judgement is made based on the value.
- 3) If the result of the first retest differ from the results of the initial test, the second re-test is carried out.
- 4) After completion of the second retest, the average of the three test results is determined as the final result. However, if the deviation of the three test values is more than 5 % of the reference value, the technical manager should review the reproducibility of the test from the beginning.

2.2 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2

Measurement Items	Expanded Uncertainty $U = kU_c (k = 2)$	
RF Output Power	1.18 dBm	
Bandwidth	0.50 kHz	
Radiated Emissions	1 GHz Below	5.06 dB
	1 GHz Above	5.00 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of $k = 2$.

3 General Information

3.1 General Description of EUT

Equipment Class	Digital Transmission System(DTS)
Product name	UWB Tag
FCC ID	2ASPN-ID300
Model	ID300
Additional model name	-
Power Supply	DC 3.0 V(CR2450 Coin Battery)
Modulation Type	FGSK
Transfer Rate	1 Mbps
Operating Frequency	2 402 MHz ~ 2 480 MHz
Output Power	-5.98 dBm
Antenna Type	Internal Chip antenna
Antenna Gain	0.5 dBi
H/W Version	V1.3
S/W Version	-
F/W Version	V1.0
Serial Number	8185

3.2 Tested sample and Tested companion device information

Type	Model	Note
Notebook	TP00106A	S/N: PC-1HBV52
Adapter	ADLX45YDC3D	S/N: 8SSA10R16864D1SG04E0PXX

3.3 Description of Test Mode

The EUT has been tested with all modes of operating conditions to determine the worst case emission characteristics.

Test Mode		Tested Frequency (MHz)		
TM 1	LE 1M(37 Byte)	2 402	2 440	2 480

3.4 INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

3.5 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.6 General Description of Applied Standards

Generally the tests were performed according to the specifications of the standard, it must comply with the requirements of the following standards.

FCC CFR 47, Part 15. Subpart C-15.247
558074 D01 15.247 Meas Guidance v05r02
ANSI C 63.10-2020

All test items in this test report have been performed and recorded as per the above standards.

3.7 Test Equipment

Test Equipment is traceable to the National Institute of Standards and Technology (NIST). Measurement antenna used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSW26	10998	2026.04.18
EMI Test Receiver	Rohde & Schwarz	ESI	837514/004	2026.08.06
Signal Generator	Rohde & Schwarz	SMB100A	179628	2026.01.09
Loop Antenna	Schwarzbeck	FMZB1513	#374	2027.02.11
BiconiLog Antenna(R)	ETS-LINDGREN	3142C	35880	2026.10.17
Horn Antenna	ETS-LINDGREN	3117	00135191	2026.03.24
Horn Antenna	SCHWARZBECK	BBHA 9170	9170-722	2026.01.13
AMPLIFIER(C_3)	TESTEK	TK-PA01S	200141-L	2026.08.12
AMPLIFIER	TESTEK	TK-PA18	150003	2026.01.07
AMPLIFIER	TESTEK	TK-PA1840H	160010-L	2026.01.06
DC Power supply	Agilent Technology	6632B	MY43004137	2026.01.06
Attenuator	WEINSCHTEL	54A-10	74564	2026.08.11
Attenuator	WEINSCHTEL	56-10	66920	2026.01.08

3.8 Test Software

- Test Software: RadioControlConsole_v4.0.0.0

```

Radio Control Console
Checking .NET framework version...
.NET Framework Version: 4.6.2 or later
== Quick Edit Mode enabled ==
Looking for TestComps DLL in C:\Program Files (x86)\Qorvo\RadioControlConsole\v4.0.0\Extensions
=> Using the following DLL to get target version
=> PTC_QPG6100_DK_10DBM_DCDC_v1.4.0.0.dll : (1.4.0.0, PTC_QPG6100_DK_10DBM_DCDC)
Found target version : 1.4.0.0 ; productname : PTC_QPG6100_DK_10DBM_DCDC
Looking for compatible DLL with productname PTC_QPG6100_DK_10DBM_DCDC and version 1.4.0.0...
=> Selected the following DLL :
=> PTC_QPG6100_DK_10DBM_DCDC_v1.4.0.0.dll : (1.4.0.0, PTC_QPG6100_DK_10DBM_DCDC)
Connected to UART COM12 baudrate : 57600
console>
  
```

Channel	TX Power Setting Value
Ch 0~39	10

4 Test Results

4.1 Max. Conducted output power

4.1.1 Standard Applicable

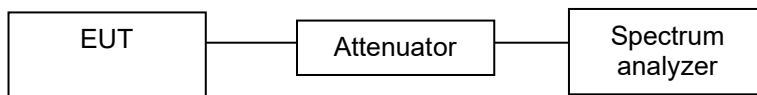
[FCC §15.247(b)(3)]

For systems using digital modulation in the 902 ~ 928 MHz, 2 400 ~ 2 483.5 MHz, and 5 725 ~ 5 850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.

4.1.2 Test Environment conditions

- Ambient temperature : (22 - 23) °C • Relative Humidity : (43 - 45) % R.H.

4.1.4 Test setup

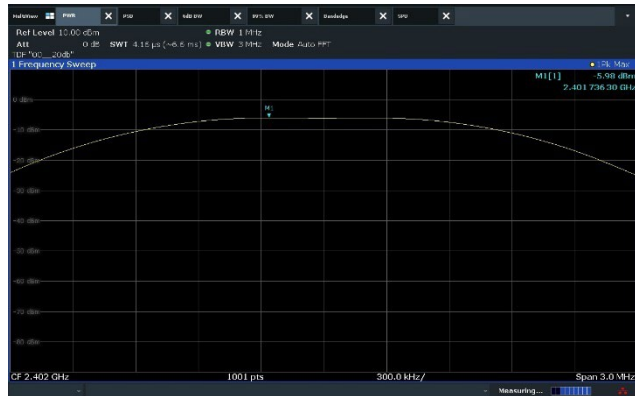


4.1.5 Measurement Result

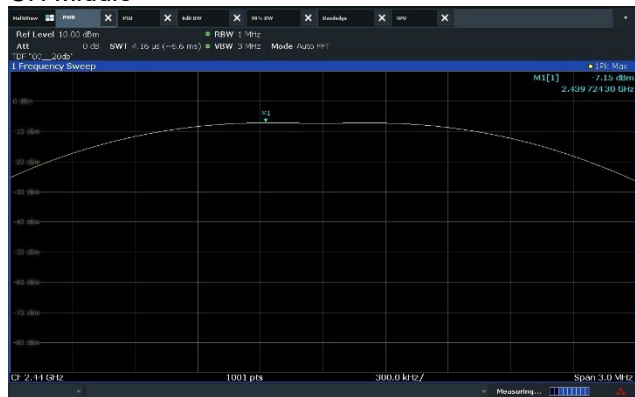
Channel	Frequency [MHz]	Conducted Power	Limit [dBm]	Test Results
		[dBm]		
0	2 402	-5.98	30	Compliance
19	2 440	-7.15	30	Compliance
39	2 480	-8.28	30	Compliance

4.1.6 Test Plot

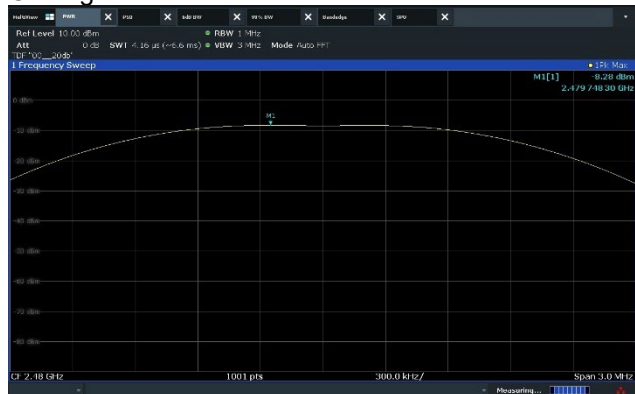
CH Low



CH Middle



CH High



4.2 Power spectral density

4.2.1 Standard Applicable

[FCC §15.247(e)]

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmit

4.2.2 Test Environment Conditions

- Ambient temperature : (22 - 23) °C • Relative Humidity : (43 - 45) % R.H.

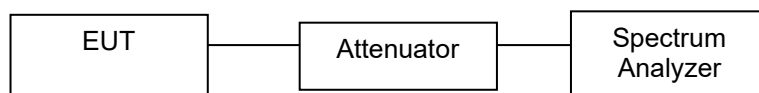
4.2.3 Measurement Procedure

The power spectral density conducted from the intentional radiator was measured with a spectrum analyzer connected to the antenna terminal, while EUT had the highest, middle and the lowest available channels. After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak power spectral density. Power spectral density test was performed using a test receiver in accordance with ANSI C63.10-2020 Section 11.10.2

The spectrum analyzer is set to the as follows :

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq 3 \times \text{RBW}$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat

4.2.4 Test setup

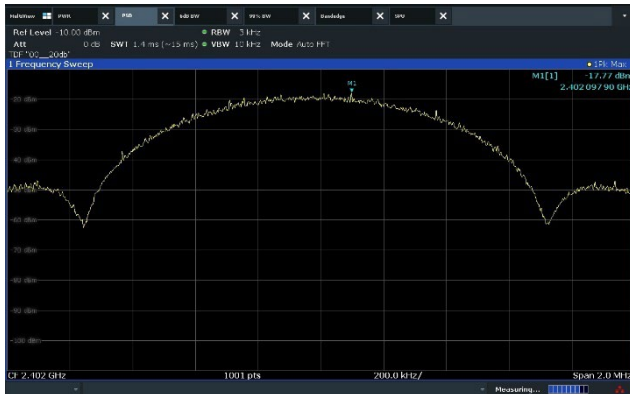


4.2.5 Measurement Result

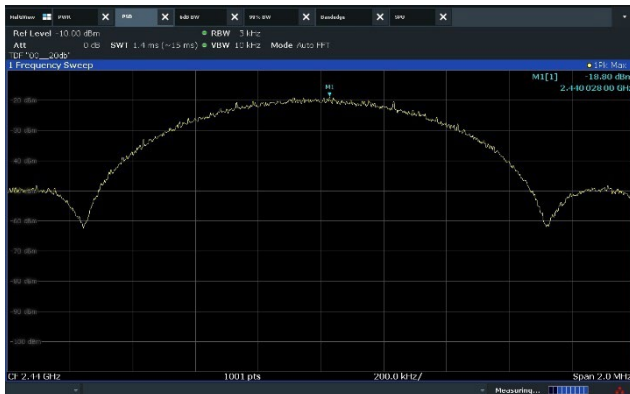
Channel	Frequency [MHz]	Result Value [dBm/3kHz]	Limit [dBm/3kHz]	Test Results
0	2 402	-17.77	8	Compliance
19	2 440	-18.80	8	Compliance
39	2 480	-20.56	8	Compliance

4.2.6 Test plot

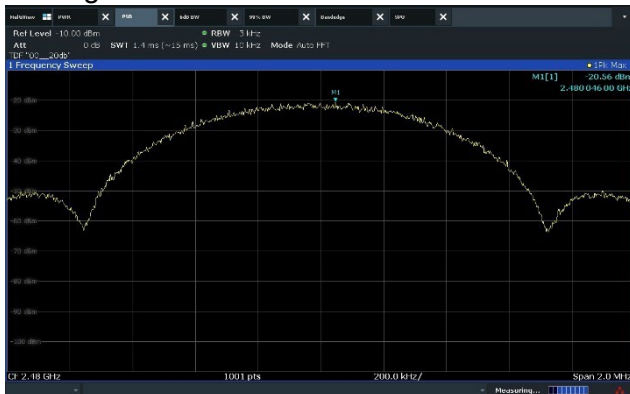
CH Low



CH Middle



CH High



4.3 6 dB spectrum Bandwidth

4.3.1 Standard Applicable

[FCC §15.247(a)(2)]

Systems using digital modulation techniques may operate in the 902 ~ 928 MHz, 2400 ~ 2483.5 MHz, and 5725 ~ 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

4.3.2 Test Environment conditions

- Ambient temperature : (22 - 23) °C • Relative Humidity : (43 - 45) % R.H.

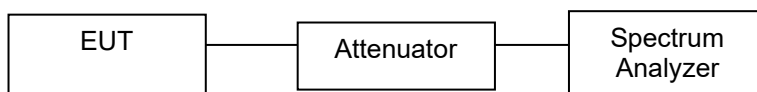
4.3.3 Measurement Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 100 kHz were used.
3. Measured the spectrum width with power higher than 6 dB below carrier. 6 dB spectrum Bandwidth test was performed using a test receiver in accordance with ANSI C63.10-2020 Section 11.8.1

The spectrum analyzer is set to the as follows :

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- 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.

4.3.4 Test setup



4.3.5 Measurement Result

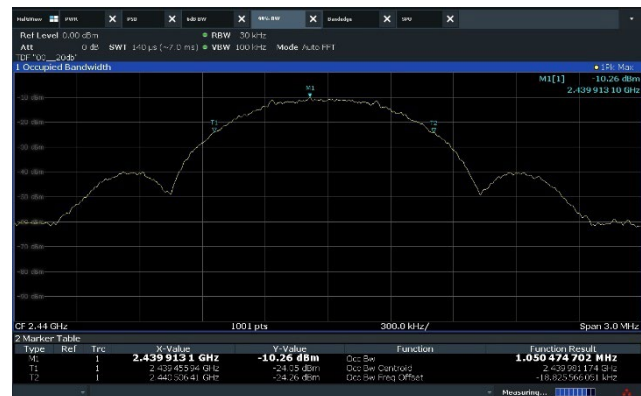
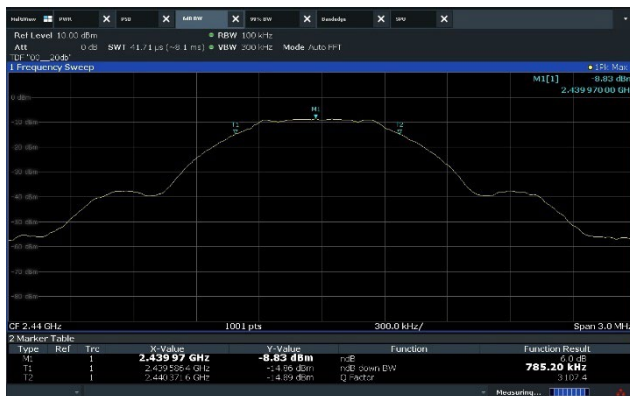
Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	99 % Bandwidth [MHz]	Limit [MHz]	Test Results
0	2 402	0.740	1.04	>0.5	Compliance
19	2 440	0.785	1.05	>0.5	Compliance
39	2 480	0.761	1.05	>0.5	Compliance

4.3.6 Test plot

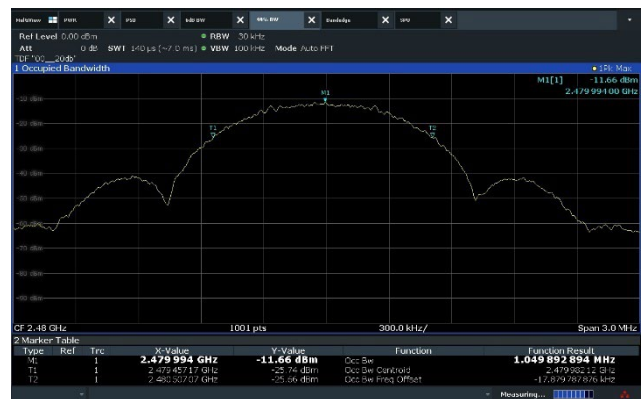
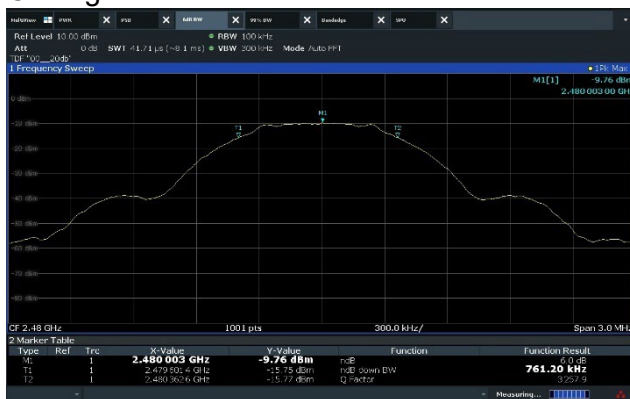
CH Low



CH Middle



CH High



4.4 Band-edge Compliance of RF Conducted emissions

4.4.1 Standard Applicable

[FCC §15.247(d)]

In any 100 kHz 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 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on RF conducted.

4.4.2 Test Environment conditions

- Ambient temperature : (22 - 23) °C • Relative Humidity : (43 - 45) % R.H.

4.4.3 Measurement Procedure

- (1) Pre-calibration for the spectrum analyzer has to be done first through a reference CW signal from signal generator.
- (2) Reference frequency generated from the signal generator is supply to spectrum analyzer input port via RF cable and attenuator, and then, it's applied to offset value on spectrum analyzer.
- (3) Remove the antenna from the EUT and then, connected to spectrum analyzer via a dc Block, suitable low loss RF cable and attenuator.
- (4) Place the EUT on the table and set on the emission at the band-edge,
- (5) After the trace being stable, Use the marker-to-peak function to move the marker to the peak of the in-band emission.
- (6) The marker-delta value now displayed must comply with the limit specified in above standard.

Band-edge test was performed using a test receiver in accordance with ANSI C63.10-2020 Section 11.13.2

The spectrum analyzer is set to the as follows :

- Span : Wide enough to capture the peak level of the emission operating on the channel closet to the Band-edge, as well as any modulation products which fall outside of the authorized band of operation
- RBW : 100 kHz (≥ 1 % of the span)
- VBW : $\geq$ RBW
- Sweep : auto
- Detector function : peak
- Trace : Max hold

4.4.4 Test setup

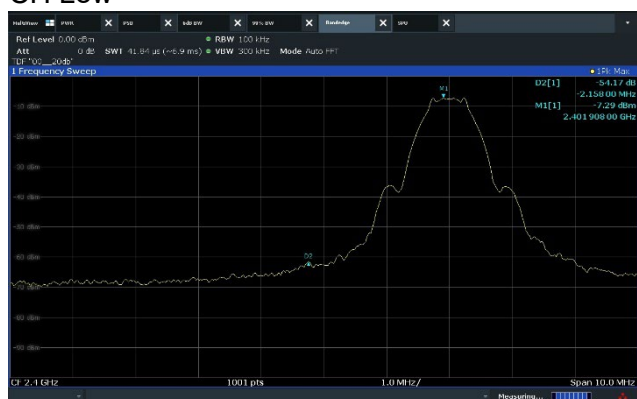
Please refer 4.3.4

4.4.5 Measurement Result

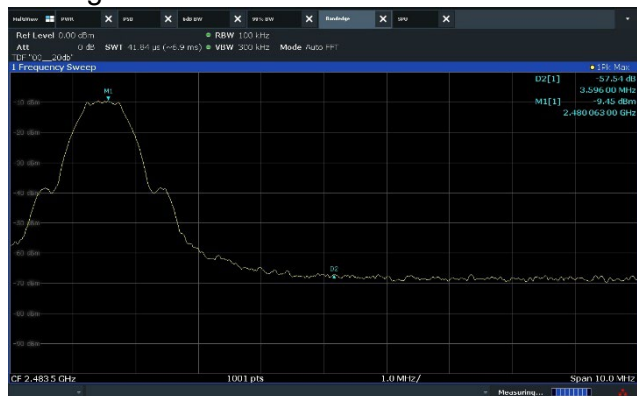
Setting Channel		Test Results		
		Measured value [dB]	Limit [dB]	Result
CH 0	~ 2 400 MHz	-54.17	≤ 20 than PSD level	Compliance
CH 39	2 483.5 MHz ~	-57.54		Compliance

4.4.6 Test plot (Band-edge)

CH Low

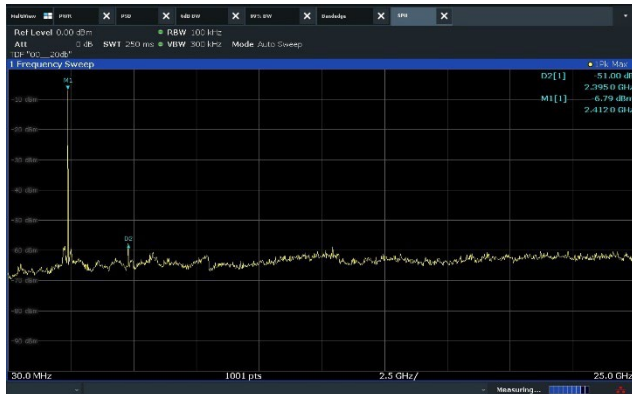


CH High

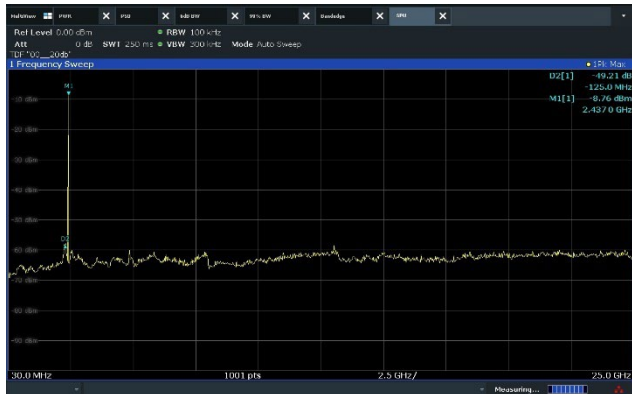


Test plot (Conducted spurious emissions)

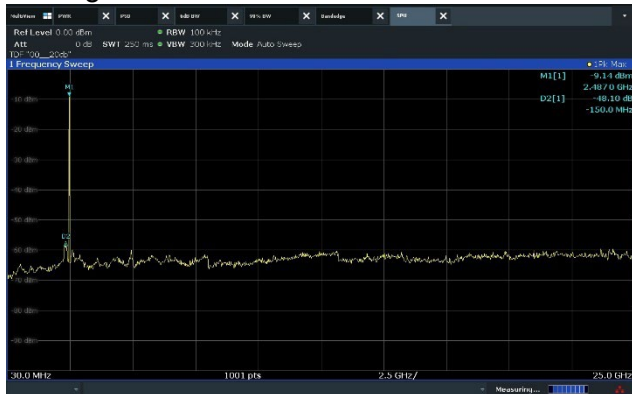
CH Low



CH Middle



CH High



Note: It is not recorded on the report that the reading of emissions are attenuated more than 20 dB below the permissible limits

4.5 Spurious RF Radiated emissions

4.5.1 Standard Applicable

[FCC §15.247(d)]

All other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10 GHz, the frequency Range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, Whichever is lower. In addition, radiated emissions which fall in the restricted bands, as defined in Sec.15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a)

§15.209 limits for radiated emissions measurements (distance at 3 m)

Frequency Band [MHz]	DISTANCE [Meters]	Limit [$\mu\text{V}/\text{m}$]	Limit [dB $\mu\text{V}/\text{m}$]	Detector
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)	Peak
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)	Peak
1.705 ~ 30.0	30	30	29.54	Peak
30 - 88	3	100 **	40.00	Quasi peak
88 - 216	3	150 **	43.52	Quasi peak
216 - 960	3	200 **	46.02	Quasi peak
Above 960	3	500	54.00	Average
Above 1000	3	74.0 dB $\mu\text{V}/\text{m}$ (Peak), 54.0 dB $\mu\text{V}/\text{m}$ (Average)		
** fundamental emissions from intentional radiators operation under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz, or 470-806 MHz. However, operation within these Frequency bands is permitted under other sections of this Part Section 15.231 and 15.241				

§15.205. Restrict Band of Operation for FCC

[MHz]	[MHz]	[MHz]	[GHz]
0.090 - 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.
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 - 8.38 6 75	156.7 - 156.9	2 690 – 2 900	22.01 - 23.12
8.414 25 - 8.414 75	162.012 5 - 167.17	3 260 – 3 267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3 332 – 3 339	31.2 - 31.8
12.519 75 - 12.520 25	240 - 285	3 345.8 – 3 358	36.43 - 36.5
12.576 75 - 12.577 25	322 - 335.4	3 600 – 4 400	Above 38.6
13.36 - 13.41			

** Until February 1, 1999, this restricted band shall be 0.490-0.510

4.5.2 Test Environment conditions

- Ambient temperature : (22 - 23) °C • Relative Humidity : (43 - 45) % R.H.

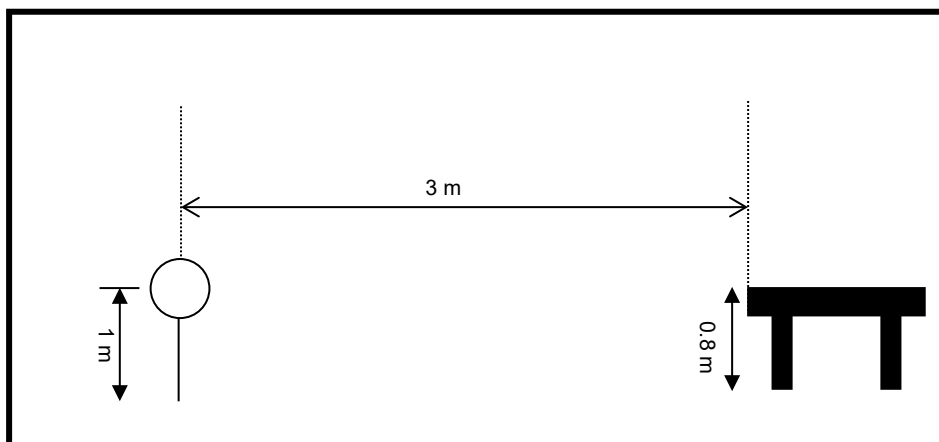
4.5.3 Measurement Procedure

The measurements procedure of the Spurious RF Radiated emissions is as following describe method.

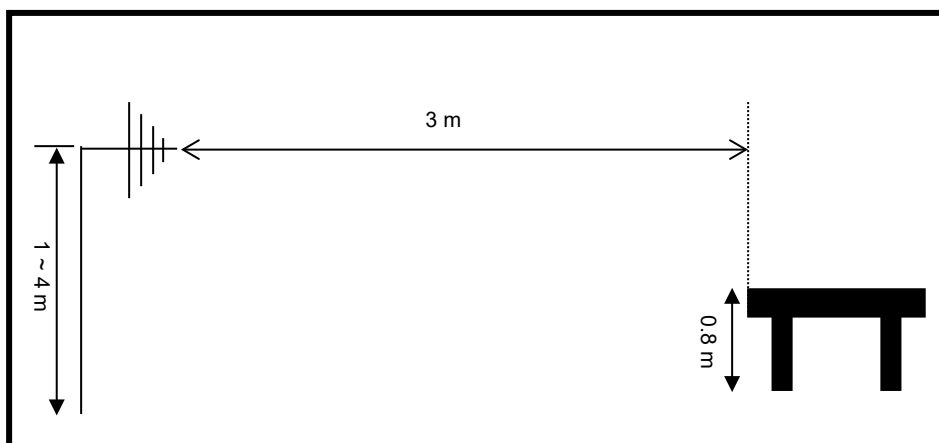
1. The EUT was placed on the top of a rotating table (0.8 meters for below 1 GHz and 1.5 meters for above 1 GHz) above the ground at a 3 meter camber. The table was rotated 360 degree to determine the position of the highest radiation.
 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna master.
 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both Horizontal and vertical polarizations of the antenna are set to make the measurement.
 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotating table was turned from 0 - 360 degrees to find the maximum reading.
 5. The measuring receiver was set to peak detector and specified bandwidth with max hold function.
 6. Low, Middle and high channels were measured, and radiation measurements are performed in X, Y, Z axis positioning. And found the worst axis position and only the test worst case mode is recorded in the report.
- The measurement results are obtained as described below:
$$\text{Result(dB}\mu\text{V/m)} = \text{Reading(dB}\mu\text{V)} + \text{Antenna factor(dB/m)} + \text{CL(dB)} + \text{other applicable factor (dB)}$$
 - The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for RMS Average (Duty cycle < 98 %) for Average detection (AV) at frequency above 1 GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
 - The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle $\geq 98 \%$) for Average detection (AV) at frequency above 1 GHz.
 - According to §15.33 (a)(1), Frequency range of radiated measurement is performed the tenth harmonic.
- Above test was performed in accordance with ANSI C63.10-2020 Section 6.10.5 & 6.4, 6.5, 6.6

4.5.4 Test Configuration

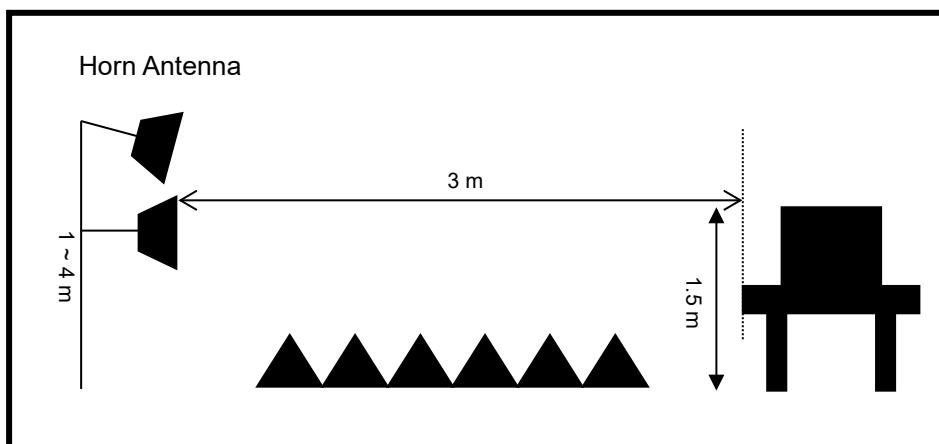
Radiated emission setup, below 30 MHz



Radiated emission setup, below 1 000 MHz



Radiated emission setup, above 1 GHz



4.5.5 Measurement Result

☐ Above 1 GHz

CH0 (2 402 MHz)

Freq. (GHz)	Reading (dB μ V/m)		Antenna			CL (dB)	AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV	Height (m)	Pol. (H/V)	Fctr. (dB/m)			PK	AV	PK	AV	PK	AV	
2.339*	39.24	29.83	1.5	H	27.56	6.69	45.68	39.24	29.83	74	54	39.24	24.17	Compliance
2.355*	39.27	30.68	1.5	V	27.62	6.74	45.68	39.27	30.68	74	54	39.27	23.32	Compliance

* Restrict band & Band-edge emissions.

CH19 (2 440 MHz)

Freq. (GHz)	Reading (dB μ V/m)		Antenna			CL (dB)	AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV	Height (m)	Pol. (H/V)	Fctr. (dB/m)			PK	AV	PK	AV	PK	AV	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	Compliance

CH39 (2 480 MHz)

Freq. (GHz)	Reading (dB μ V/m)		Antenna			CL (dB)	AMP (dB)	Meas Result (dB μ V/m)		Limit (dB μ V/m)		Mgn. (dB)		Result
	PK	AV	Height (m)	Pol. (H/V)	Fctr. (dB/m)			PK	AV	PK	AV	PK	AV	
2.490*	36.48	27.99	1.5	H	27.98	6.78	45.66	36.48	27.99	74	54	37.52	26.01	Compliance
2.489*	36.71	27.48	1.5	V	27.98	6.78	45.66	36.71	27.48	74	54	37.29	26.52	Compliance

* Restrict band & Band-edge emissions.

※Note

- Above 1 GHz is measured average and peak detector mode on Spectrum analyzer in accordance with FCC Rule15.35
- Limit: 54 dB μ V/m(Average), 74 dB μ V/m(Peak), Attenuated more than 20 dB below the permissible value.
- It is not recorded on the report that the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to measured.
- For the below 30 MHz and above 2.484 GHz, measured any other signal is not detected on test receiver
- The transmitter radiated spectrum was investigated from 9 kHz to 26.5 GHz.

☐ Below 1 GHz

Freq. (MHz)	Reading (dB μ V/m)	Antenna			CL (dB)	AMP (dB)	Meas Result (dB μ V/m)	Limit (dB μ V/m)	Mgn (dB)	Result
		Height (m)	Pol. (H/V)	Fctr. (dB/m)						
83.69	34.02	1.5	V	12.36	1.33	46.53	34.02	40.00	5.98	Compliance
95.65	34.80	1.0	V	13.39	1.41	46.53	34.80	43.50	8.70	Compliance
107.79	40.04	1.5	V	13.20	1.48	46.52	40.04	43.50	3.46	Compliance
193.14	23.73	1.0	H	15.49	2.01	46.48	23.73	43.50	19.77	Compliance

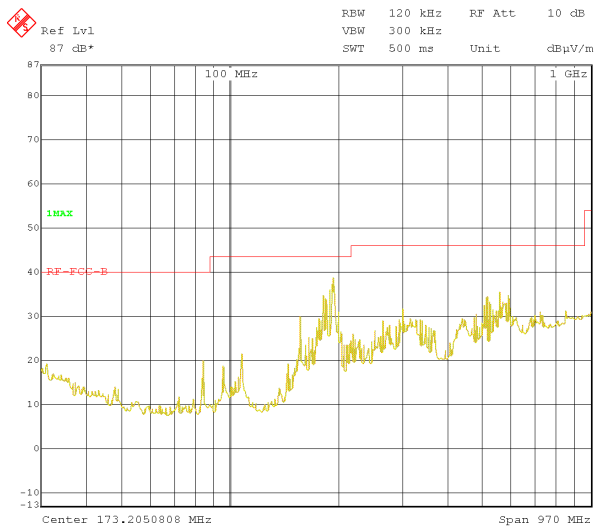
Freq.(MHz) : Measurement frequency, Reading(dB μ V/m) : includes values for Antenna factor, Cable loss, and Amp gain, Antenna (Height, Pol, Fctr) : Antenna Height, Polarization and Factor, Cbl(dB) : Cable loss, Pre AMP(dB) : Preamplifier gain(dB), Meas Result (dB μ V/m) : Reading(dB μ V/m)+ Antenna factor.(dB/m) + CL(dB) - Pre AMP(dB)
Limit(dB μ V/m): Limit value specified with FCC Rule, Mgn(dB) : FCC Limit (dB μ V/m) – Meas Result(dB μ V/m)

4.5.6 Plots

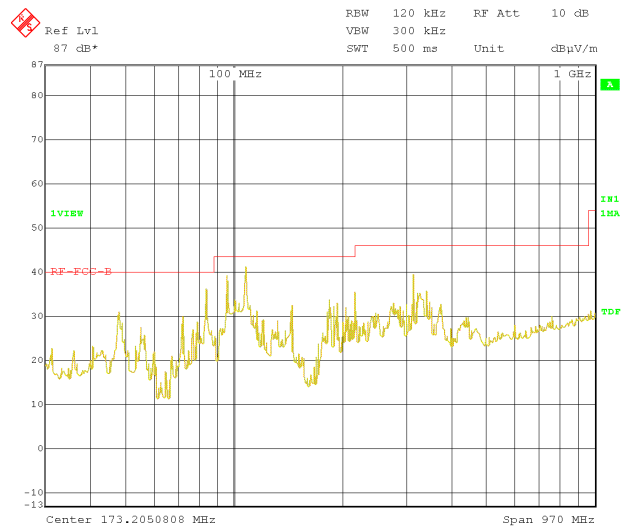
*The worst case only.

- Below 1 GHz

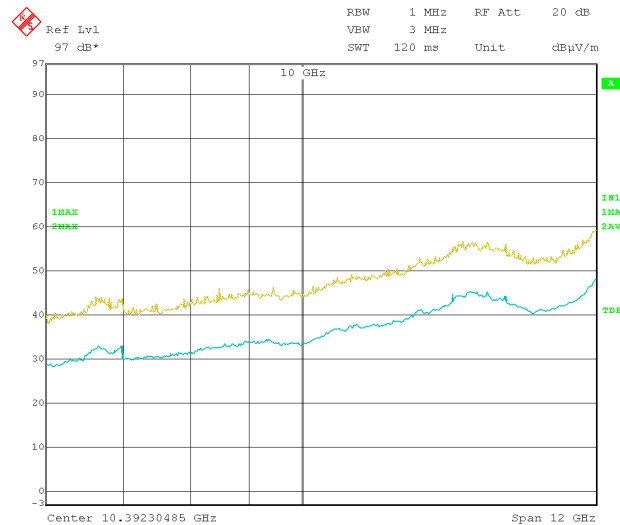
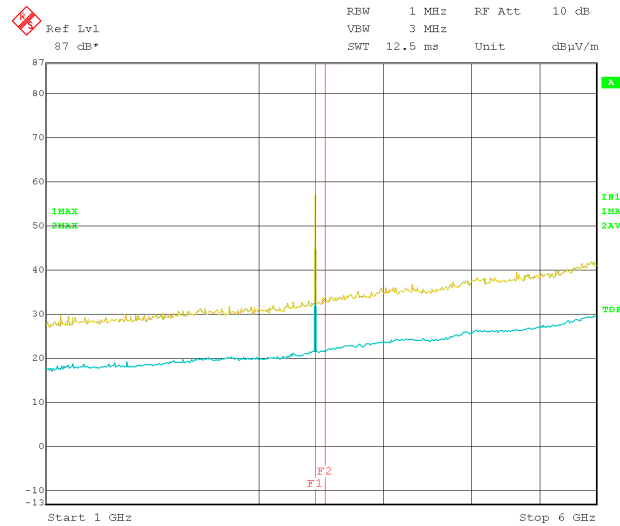
Horizontal

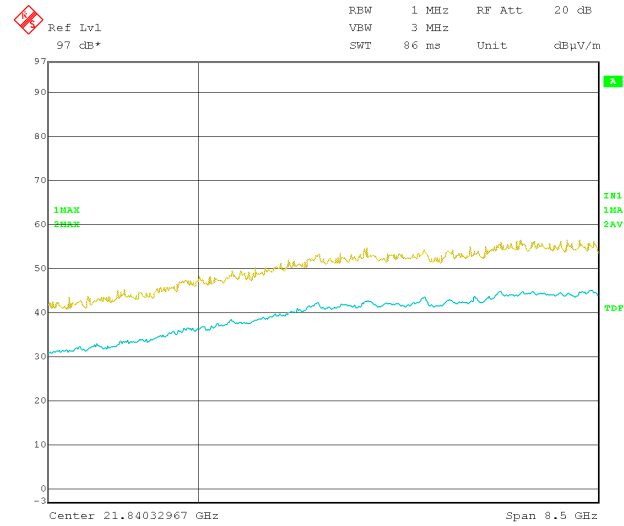


Vertical



- Above 1 GHz





4.6 Antenna requirement

4.6.1 Standard applicable [FCC §15.203]

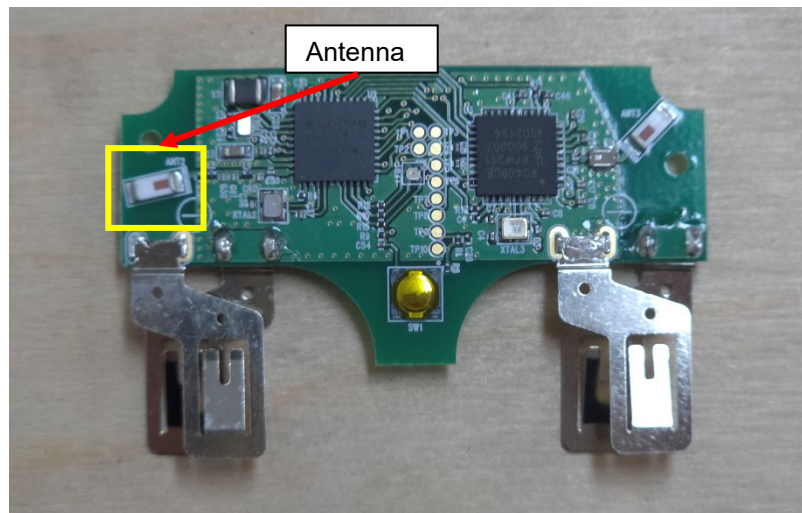
For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by responsible party shall be used with the device.

The use of a permanently attached antenna or of an antenna that user 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 broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

4.6.2 Antenna details

Frequency Band	Antenna Type	Gain [dBi]	Results
2.4 GHz	2.4GHz Mini Antenna, SMT	0.5 dBi	Compliance



4.7 AC Power Conducted emissions

4.7.1 Standard Applicable

[FCC §15.207(a)]

For 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 frequencies hopping mode within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line Impedance stabilization network(LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

§15.207 limits for AC line conducted emissions;

Frequency of Emission(MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

	Model No.	Serial No.	Manufacturer	Next cal date	Cal interval	Used
Test receiver	ESCS30	100111	Rohde & Schwarz	2026. 01. 06	1 year	☐
Pulse Limiter	ESH3-Z2	100097	Rohde & Schwarz	2026. 01. 06	1 year	☐
LISN	ESH2-Z5	100044	R&S	2026. 01. 06	1 year	☐
	ESH3-Z5	100147	R&S	2026. 01. 06	1 year	☐

*Test Program: " ESXS-K1 V2.2"

4.7.2 Measurement Result

- N/A: This EUT is powered by the battery only, this test item is not applicable.

Freq.	Factor [dB]		POL	QP			CISPR AV		
	LISN	CABLE +P/L		Limit	Reading	Result	Limit	Reading	Result
[MHz]				[dB μ V]	[dB μ V]	[dB μ V]	[dB μ V]	[dB μ V]	[dB μ V]
-	-	-	-	-	-	-	-	-	-

- * LISN: LISN insertion Loss, Cable: Cable Loss, P/L:pulse limiter factor
- * L: Line. Live, N: Line. Neutral
- * Reading: test receiver reading value (with cable loss & pulse limiter factor)
- * Result = LISN + Reading