

Test Report

Applicant : Klipsch Group, Inc.
Address : 3502Woodview Trace,Suite 200,Indianapolis,IN
46268,USA
Product Name : Multi-Source Tabletop Speaker
Brand Mark : Klipsch
Model : The One IV
Series model : N/A
Report Number : BLA-EMC-202604-A1503
FCC ID : STI-ONEPLUS2
Date of Receipt : Apr. 03,2026
Date of Test : Apr. 03,2026 to May 25,2026
Test Standard : 47 CFR Part 15, Subpart C 15.247
Test Result : Pass

Compiled by:

charlie

Review by:

Xavier

Approved by:

Blue Zheng

Issued Date:

May 25,2026



BlueAsia Technical Services (Shenzhen) Co., Ltd

Address: No.41, South of Beihuan Road, Shangwu Community, Shiyuan
Subdistrict,Bao'an District, Shenzhen, Guangdong, China



The test report is effective only with both signature and specialized stamp and The result(s) shown in this report refer only to the sample(s) tested. Without written approval of BlueAsia, this report can't be reproduced except in full. The results described in this report do not represent the quality or characteristics of the sampled batch, nor do they represent any similar or identical products that are not explicitly stated.

Table of Contents

1 General information	5
1.1 General information	5
1.2 General description of EUT	5
2 Test summary	6
3 Test Configuration	7
3.1 Test mode	7
3.2 Operation Frequency each of channel	8
3.3 Test channel	8
3.4 Configuration diagram of EUT	9
3.5 Auxiliary equipment	9
3.6 Test environment	9
4 Laboratory information	10
4.1 Laboratory and accreditations	10
4.2 Measurement uncertainty	11
5 Test equipment	12
6 Test result	14
6.1 Antenna requirement	14
6.2 Conducted emissions at AC power line (150 kHz-30 MHz)	15
6.3 Conducted peak output Power	19
6.4 Minimum 6dB bandwidth	21
6.5 Power spectrum density	23
6.6 Conducted Band Edges Measurement	25
6.7 Conducted spurious emissions	27
6.8 Radiated spurious emissions	29
6.9 Radiated emissions which fall in the restricted bands	42
7 Appendix A	49
7.1 Duty Cycle	49
7.2 Maximum PK Conducted Output Power	53
7.3 -6dB Bandwidth	57
7.4 Occupied Channel Bandwidth	61

7.5 Maximum Power Spectral Density Level	65
7.6 Band Edge	69
7.7 Conducted RF Spurious Emission	74
Appendix B: photographs of test setup	81
Appendix C: photographs of EUT	82

BlueAsia

Revise Record

Version No.	Date	Description
01	May 25,2026	Original

BlueAsia

1 General information

1.1 General information

Applicant	Klipsch Group, Inc.
Address	3502Woodview Trace,Suite 200,Indianapolis,IN 46268,USA
Manufacturer	Klipsch Group, Inc.
Address	3502Woodview Trace,Suite 200,Indianapolis,IN 46268,USA
Factory	Oxtop(Dongguan) Electronics Co., Ltd.
Address	No.1, Chashan Wei-Xing Road, Chashan Town,Dongguan City, Guangdong Province

1.2 General description of EUT

Product name	Multi-Source Tabletop Speaker
Model no.	The One IV
Series model	N/A
Differences of Series model	N/A
Operation Frequency	2402MHz-2480MHz
Modulation Type	GFSK
Rate data	1Mbps; 2Mbps
Channel Spacing	2MHz
Number of Channels	40
Antenna Type	FPC antenna
Antenna Gain	2.69dBi(Provided by customer)
Power supply or adapter information	Input: 100-240V~50/60Hz 60W
Hardware version	N/A
Software version	N/A
Engineer sample no.	BLA-EMC-202604-A15

Note: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

2 Test summary

No.	Test item	FCC Part Section(s)	Test Method(Clause)	Result
1	Antenna Requirement	§15.203	N/A	Pass
2	Conducted Emissions at AC Power Line (150kHz-30MHz)	§15.207	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.2	Pass
3	Conducted Peak Output Power	§15.247(b)(3)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 7.8.5	Pass
4	Minimum 6dB Bandwidth	§15.247a(2)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.8.1	Pass
5	Power Spectrum Density	§15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.10.2	Pass
6	Conducted Band Edges Measurement	§15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.13	Pass
7	Conducted Spurious Emissions	§15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.11	Pass
8	Radiated Spurious Emissions	§15.209 §15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.4,6.5,6.6	Pass
9	Radiated Emissions which fall in the restricted bands	§15.209 §15.247(d)	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.12	Pass

N/A: Not Applicable

3 Test Configuration

3.1 Test mode

Test Mode ^{Note 1}	Description
TX	Keep the EUT in continuously transmitting with modulation mode.
RX	Keep the EUT in receiving mode
TX Low channel	Keep the EUT in continuously transmitting mode in low channel
TX middle channel	Keep the EUT in continuously transmitting mode in middle channel
TX high channel	Keep the EUT in continuously transmitting mode in high channel

Note 1: The EUT was configured to measure its highest possible emission and/or immunity level. The test modes were adapted according to the operation manual for use; the EUT was operated in the engineering mode Note 2 to fix the TX or Rx frequency that was for the purpose of the measurements.

Note 2: Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

Power level setup in software			
Test Software Name	BT FCC Tool		
Mode	Channel	Frequency (MHz)	Soft Set
GFSK	CH0	2402	TX level : 68
	CH20	2442	
	CH39	2480	

3.2 Operation Frequency each of channel

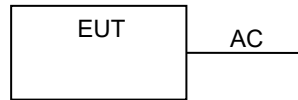
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
...	...	...	...	...	...	...	...
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

3.3 Test channel

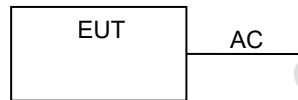
Channel	Frequency
The lowest channel	2402MHz
The middle channel	2442MHz
The Highest channel	2480MHz

3.4 Configuration diagram of EUT

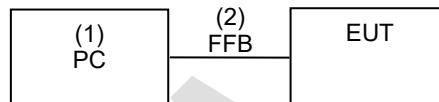
Radiated emission:



Conducted emissions:



RF Test:



Note: see test photographs attached in APPENDIX A for the actual connections between Product and support equipment.

Support equipment

Name	Device type	Brand	Mode	Series No	Remark
(1)	PC	lenovo	E460C	N/A	N/A
(2)	Fixed frequency board	N/A	N/A	N/A	Provided by the customer

3.5 Auxiliary equipment

Device Type	Manufacturer	Model Name	Serial No.	Remark
PC	lenovo	E460C	N/A	From lab (No.BLA-ZC-BS-2022005)

Note:“--” mean no any auxiliary device during testing.

3.6 Test environment

Environment	Temperature	Voltage
Normal	25°C	AC 120V

4 Laboratory information

4.1 Laboratory and accreditations

The test facility is recognized, certified, or accredited by the following organizations:

Company name:	BlueAsia Technical Services (Shenzhen) Co.,Ltd.
Address:	No.41, South of Beihuan Road, Shangwu Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
CNAS accredited No.:	L9788
A2LA Cert. No.:	5071.01
FCC Designation No.:	CN1252
Test Firm Registration Number:	923526
ISED CAB identifier No.:	CN0028
Company Number:	24243
Telephone:	+86-755-28682673
FAX:	+86-755-28682673

4.2 Measurement uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

Parameter	Expanded Uncertainty
Radiated Emission(9kHz-30MHz)	$\pm 4.34\text{dB}$
Radiated Emission(30Mz-1000MHz)	$\pm 4.24\text{dB}$
Radiated Emission(1GHz-18GHz)	$\pm 4.68\text{dB}$
Radiated Emission(18GHz-40GHz)	$\pm 4.78\text{dB}$
AC Power Line Conducted Emission(150kHz-30MHz)	$\pm 3.45\text{dB}$
Duty cycle	$\pm 1.5\text{ dB}$
Occupied Channel Bandwidth	$\pm 5\%$
RF output power, conducted	$\pm 1.5\text{ dB}$
Power Spectral Density, conducted	$\pm 3.0\text{ dB}$
Unwanted Emissions, conducted	$\pm 3.0\text{ dB}$
Temperature	$\pm 3\text{ }^{\circ}\text{C}$
Supply voltages	$\pm 3\%$
Time	$\pm 5\%$

5 Test equipment

Radiated Spurious Emissions (Below 1GHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-002-01	Anechoic chamber	9*6*6 chamber	SKET	N/A	2024/3/27	2027/3/26
BLA-EMC-002-02	Control room	966 control room	SKET	N/A	2024/3/27	2027/3/26
BLA-EMC-009	EMI receiver	ESR7	R&S	101199	2025/08/05	2026/08/04
BLA-EMC-043	Loop antenna	FMZB1519B	Schwarzbeck	00102	2024/06/29	2026/06/28
BLA-EMC-065	Broadband antenna	VULB9168	Schwarzbeck	01065P	2024/06/29	2026/06/27
BLA-XC-01	Coaxial Cable	N/A	BlueAsia	V01	N/A	N/A
BLA-XC-02	Coaxial Cable	N/A	BlueAsia	V02	N/A	N/A

Radiated Spurious Emissions (Above 1GHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-001-01	Anechoic chamber	9*6*6 chamber	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-001-02	Control Room	966 control room	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-008	Spectrum	FSP40	R&S	100817	2025/08/05	2026/08/04
BLA-EMC-013	Horn Antenna	BBHA9120D	Schwarzbeck	01892	2024/06/29	2026/06/28
BLA-EMC-014	Amplifier	PA_000318G-45	SKET	PA2018043003	2025/08/05	2026/08/04
BLA-EMC-046	Filter bank	2.4G/5G Filter bank	SKET	N/A	2025/06/09	2026/06/08
BLA-EMC-061	Receiver	ESPI7	R&S	101477	2025/06/09	2026/06/08
BLA-EMC-066	Amplifier	LNPA_30M01G-30	SKET	SK2021060801	2025/06/09	2026/06/08
BLA-EMC-086	Amplifier	LNPA_18G40G-50dB	SKET	SK2022071301	2025/06/09	2026/06/08
BLA-EMC-087	Horn Antenna	BBHA 9170	Schwarzbeck	1106	2024/06/29	2026/06/28
BLA-XC-03	Coaxial Cable	N/A	BlueAsia	V03	N/A	N/A
BLA-XC-04	Coaxial Cable	N/A	BlueAsia	V04	N/A	N/A

Conducted emissions at AC power line (150 kHz-30 MHz)

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-003-001	Shield room	8*3*3	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-009	EMI receiver	ESR7	R&S	101199	2025/08/05	2026/08/04
BLA-EMC-011	LISN	ENV216	R&S	101372	2025/08/05	2026/08/04
BLA-EMC-033	Impedance transformer	DC-2GHz	DFXP	N/A	2025/06/09	2026/06/08
BLA-EMC-041	LISN	AT166-2	ATTEN	AKK1806000003	2025/08/05	2026/08/04
BLA-EMC-045	Impedance stable network	ISNT8-cat 6	TESEQ	53580	2025/08/05	2026/08/04
BLA-EMC-095	Single-channel vehicle artificial power network	NNBM 8124	Schwarzbeck	01045	2025/06/09	2026/06/08
BLA-EMC-096	Single-channel vehicle artificial power network	NNBM 8124	Schwarzbeck	01075	2025/06/09	2026/06/08
BLA-XC-05	Coaxial Cable	N/A	BlueAsia	V05	N/A	N/A

RF conducted

Equipment	Name	Model	Manufacture	S/N	Cal. Date	Due. Date
BLA-EMC-003-003	Shield room	5*3*3	SKET	N/A	2023/11/16	2026/11/15
BLA-EMC-016	Signal Generator	N5182A	Agilent	MY52420567	2025/06/09	2026/06/08
BLA-EMC-038	Spectrum	N9020A	Agilent	MY49100060	2025/08/05	2026/08/04
BLA-EMC-042	Power sensor	RPR3006 W	DARE	14I00889SN042	2025/08/05	2026/08/04
BLA-EMC-044	Radio communication tester	CMW500	R&S	132429	2025/08/05	2026/08/04
BLA-EMC-064	Signal Generator	N5182B	KEYSIGHT	MY58108892	2025/06/09	2026/06/08
BLA-EMC-079	Spectrum	N9020A	Agilent	MY54420161	2025/08/05	2026/08/04
BLA-EMC-088	Audio Analyzer	ATS-1	Audio Precision	ATS141094	2025/06/09	2026/06/08
BLA-EMC-100	Digital Radio Tester	RWC2010	Redwoodcomm	RWC20102490304	2025/06/09	2026/06/08

Test Software Record

Software No.	Software Name	Manufacture	Software version	Test site
BLA-EMC-S001	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S002	EZ-EMC	EZ	EEMC-3A1+	RE
BLA-EMC-S003	EZ-EMC	EZ	EEMC-3A1+	CE
BLA-EMC-S010	MTS 8310	MW	2.0.0.0	RF

6 Test result

6.1 Antenna requirement

Test Standard	47 CFR Part 15, Subpart C 15.203
Test Method	N/A

6.1.1 Requirement

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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of a so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT antenna:

The antenna is FPC Antenna The best case gain of the antenna is 2.69dBi

6.2 Conducted emissions at AC power line (150 kHz-30 MHz)

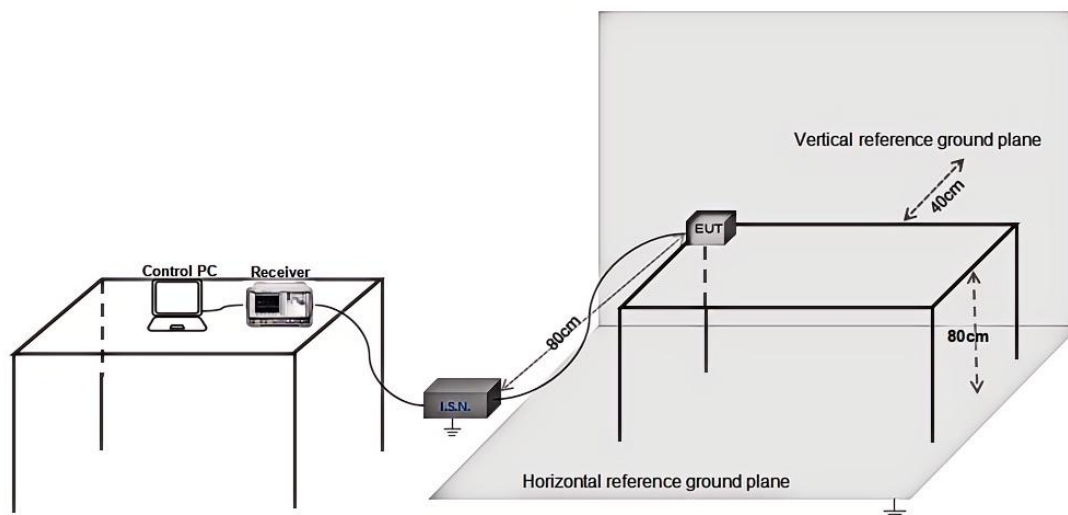
Test Standard	47 CFR Part 15, Subpart C 15.207
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.2.1 Limit

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.

6.2.2 Test setup



Description of test setup connection:

- Connect the control PC to the receiver through a USB to GPIB cable;
- The receiver is connected to the LISN through a coaxial line;
- Connect the power port of LISN to the EUT.

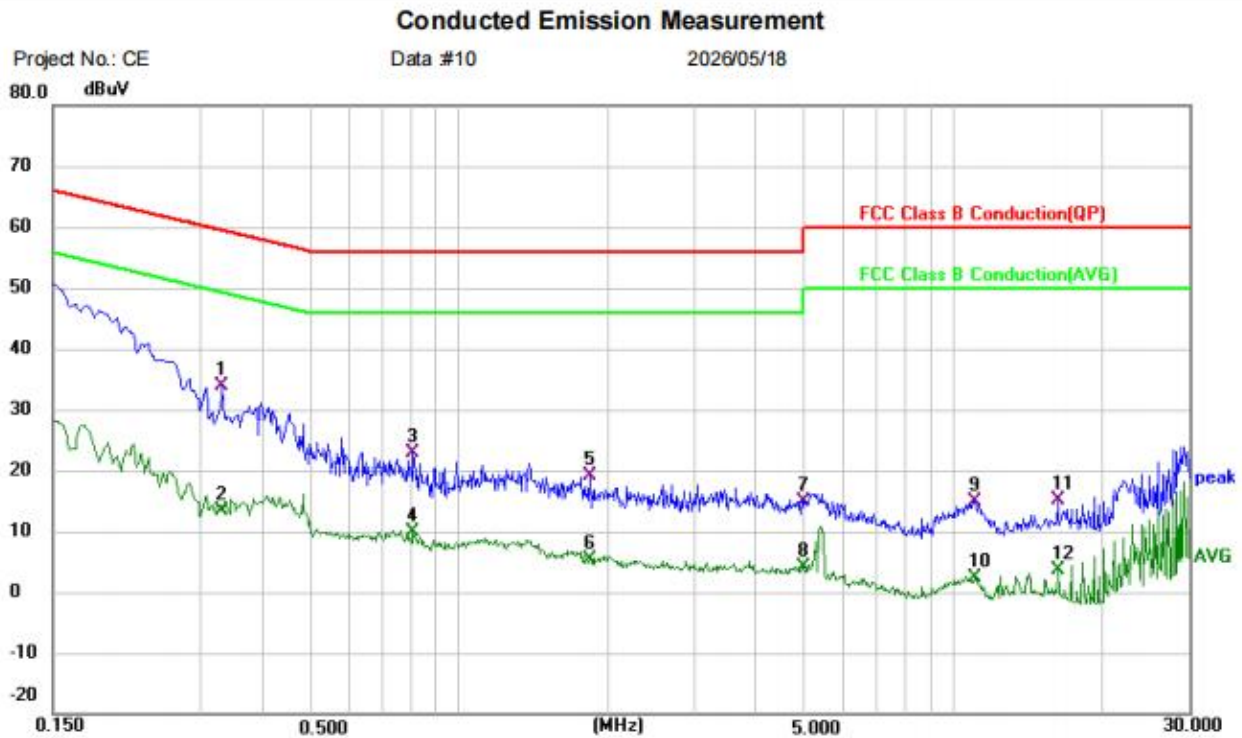
6.2.3 Procedure

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

LISN=Read Level+ Cable Loss+ LISN Factor

6.2.4 Test data

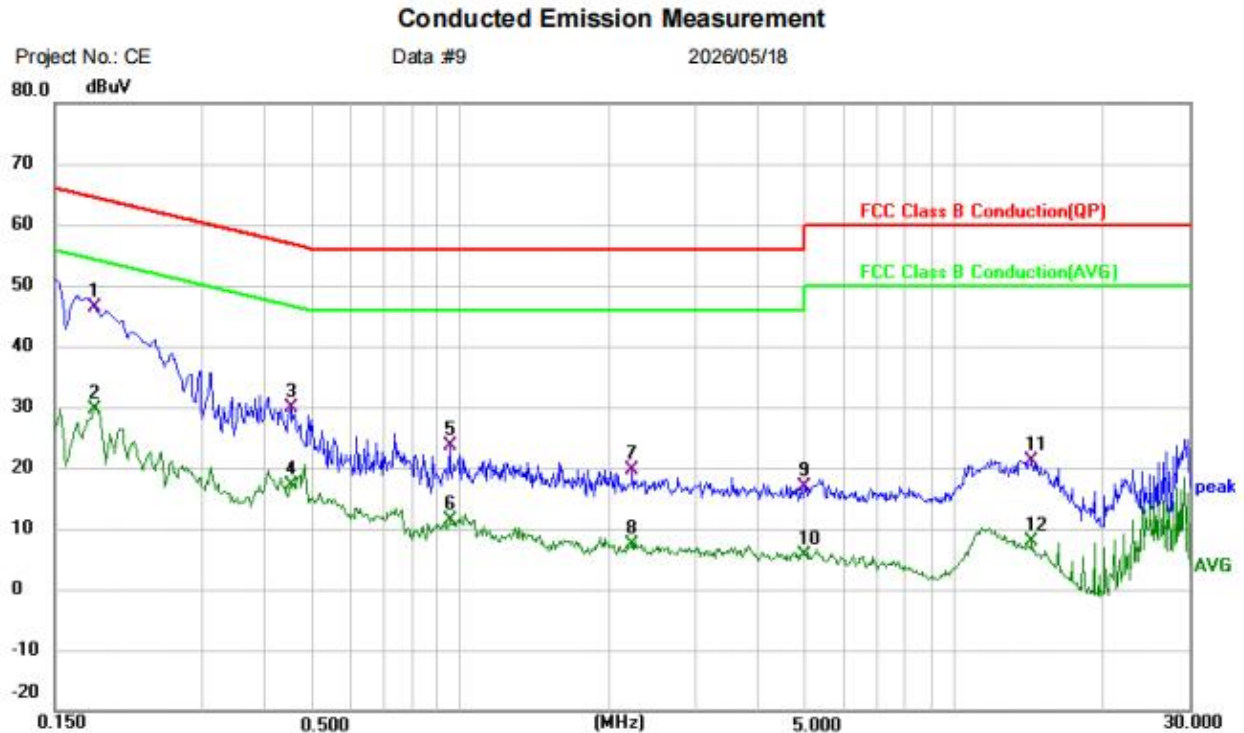
[Test mode: TX]; [Line: Line];[Power:AC120V/60Hz]



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	0.3300	24.28	9.60	33.88	59.45	-25.57	QP		
2		0.3300	3.67	9.60	13.27	49.45	-36.18	AVG		
3		0.8059	13.29	9.65	22.94	56.00	-33.06	QP		
4		0.8059	0.28	9.65	9.93	46.00	-36.07	AVG		
5		1.8300	9.37	9.68	19.05	56.00	-36.95	QP		
6		1.8300	-4.19	9.68	5.49	46.00	-40.51	AVG		
7		4.9580	5.10	9.77	14.87	56.00	-41.13	QP		
8		4.9580	-5.71	9.77	4.06	46.00	-41.94	AVG		
9		11.0579	5.08	9.91	14.99	60.00	-45.01	QP		
10		11.0579	-7.54	9.91	2.37	50.00	-47.63	AVG		
11		16.2620	5.17	9.93	15.10	60.00	-44.90	QP		
12		16.2620	-6.26	9.93	3.67	50.00	-46.33	AVG		

Test Result: Pass

[Test mode: TX]; [Line: Neutral];[Power:AC120V/60Hz]



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	Comment
1	*	0.1804	36.52	9.93	46.45	64.47	-18.02	QP		
2		0.1804	19.59	9.93	29.52	54.47	-24.95	AVG		
3		0.4500	20.20	9.62	29.82	56.88	-27.06	QP		
4		0.4500	7.40	9.62	17.02	46.88	-29.86	AVG		
5		0.9500	14.08	9.67	23.75	56.00	-32.25	QP		
6		0.9500	1.70	9.67	11.37	46.00	-34.63	AVG		
7		2.2300	9.85	9.68	19.53	56.00	-36.47	QP		
8		2.2300	-2.23	9.68	7.45	46.00	-38.55	AVG		
9		4.9618	7.11	9.77	16.88	56.00	-39.12	QP		
10		4.9618	-4.26	9.77	5.51	46.00	-40.49	AVG		
11		14.4260	11.15	9.94	21.09	60.00	-38.91	QP		
12		14.4260	-2.12	9.94	7.82	50.00	-42.18	AVG		

Test Result: Pass

tests have been conducted on BLE 1Mbps and 2Mbps modes, covering low, medium and high channels. Only the worst 1Mbps/low channels mode was reported.

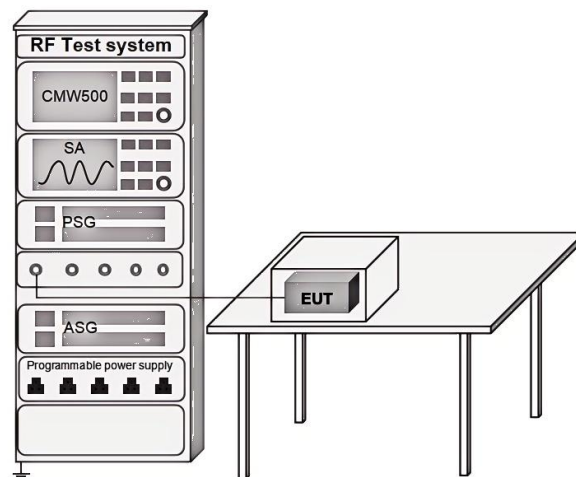
6.3 Conducted peak output Power

Test Standard	47 CFR Part 15, Subpart C 15.247(b)(3)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 7.8.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.3.1 Limit

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

6.3.2 Test setup



6.3.3 Test Procedure

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is

greater than the DTS bandwidth.

a) Set the RBW $\geq$ DTS bandwidth.

b) Set VBW $\geq$ 3 RBW.

c) Set span $\geq$ 3 x RBW.

d) Sweep time = auto couple.

e) Detector = peak.

f) Trace mode = max hold.

g) Allow trace to fully stabilize.

h) Use peak marker function to determine the peak amplitude level.

6.3.4 Test data

Note: PK power sensor is used to read PK Conducted power power directly

Pass: Please refer to appendix A for details

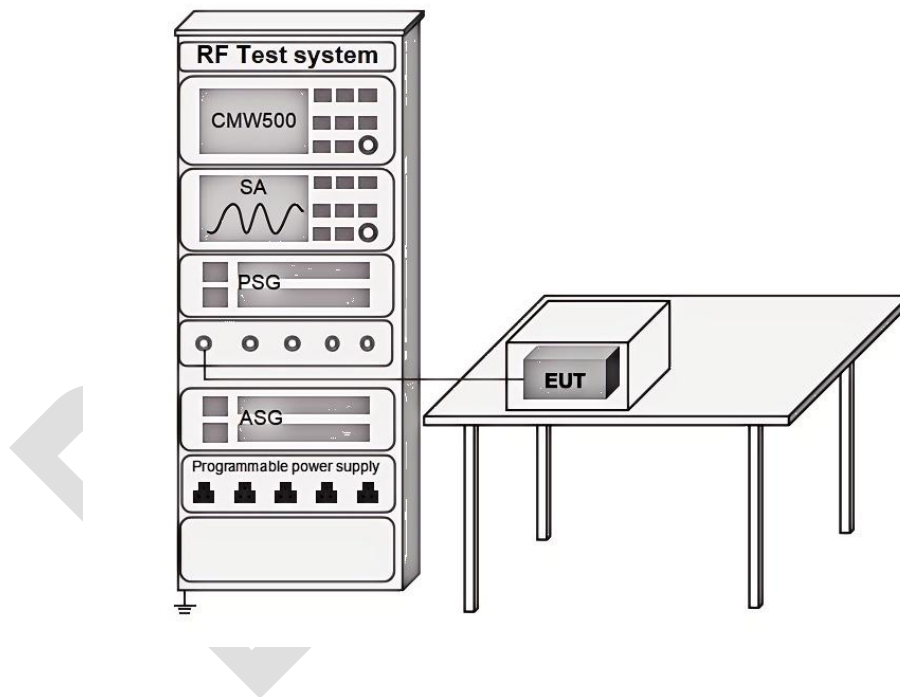
6.4 Minimum 6dB bandwidth

Test Standard	47 CFR Part 15, Subpart C 15.247a(2)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.8.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.4.1 Limit

≥500 kHz

6.4.2 Test setup



6.4.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

6.4.4 Test data

Pass: Please refer to appendix A for details

BlueAsia

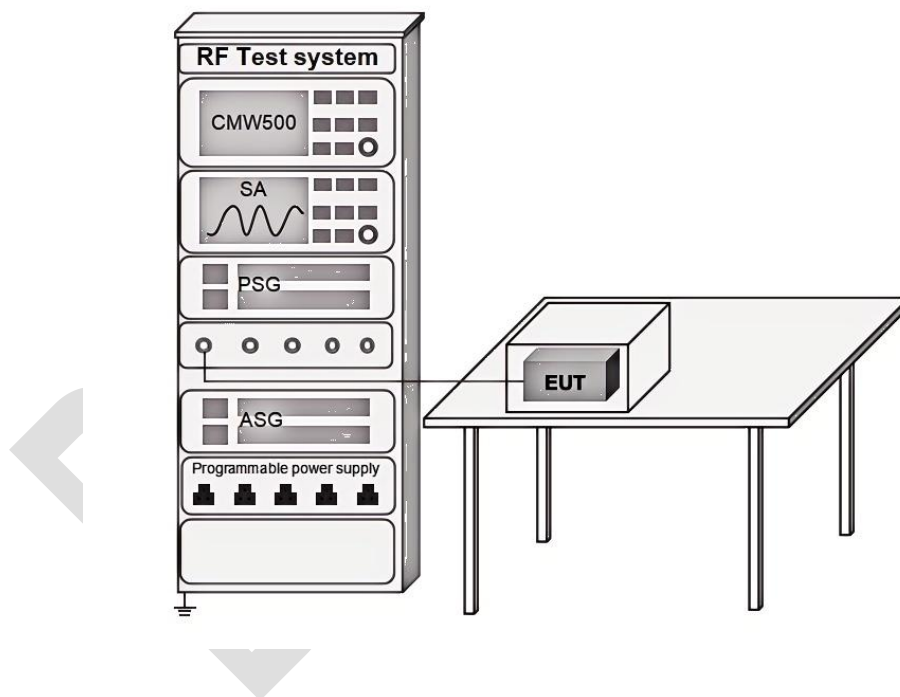
6.5 Power spectrum density

Test Standard	47 CFR Part 15, Subpart C 15.247(d)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.10.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.5.1 Limit

≤8dBm in any 3 kHz band during any time interval of continuous transmission

6.5.2 Test setup



6.5.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between

the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

6.5.4 Test data

Pass: Please refer to appendix A for details

BlueAsia

6.6 Conducted Band Edges Measurement

Test Standard	47 CFR Part 15, Subpart C 15.247(d)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.13
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.6.1 Limit

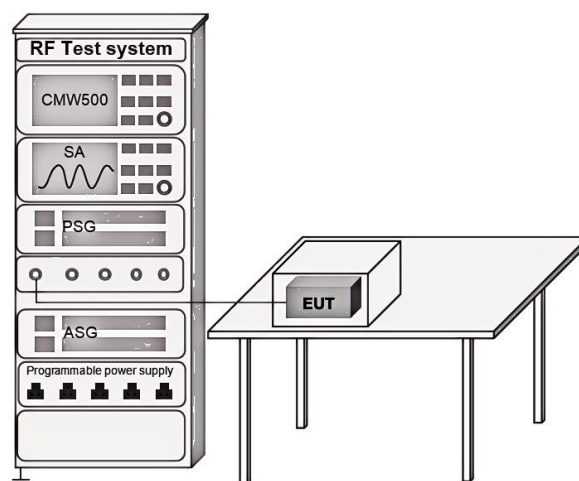
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on 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 dB instead of 20dB.

Attenuation below the general limits specified in §15.209(a) is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

6.6.2 Test setup



6.6.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

6.6.4 Test data

Pass: Please refer to appendix A for details

6.7 Conducted spurious emissions

Test Standard	47 CFR Part 15, Subpart C 15.247(d)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.11
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

6.7.1 Limit

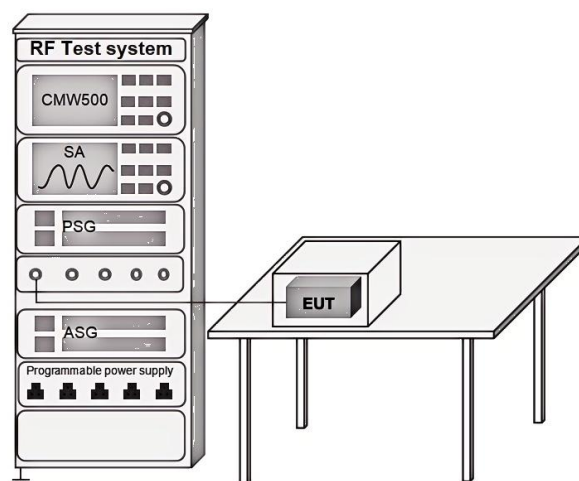
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on 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 dB instead of 20dB.

Attenuation below the general limits specified in §15.209(a) is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

6.7.2 Test setup



6.7.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
 2. Set the spectrum analyzer:
 - a) Set instrument center frequency to DTS channel center frequency.
 - b) Set the span to _ 1.5 times the DTS bandwidth.
 - c) Set the RBW = 100 kHz.
 - d) Set the VBW = [3×RBW].
 - e) Detector = peak.
 - f) Sweep time = auto couple.
 - g) Trace mode = max hold.
 - h) Allow trace to fully stabilize.
 - i) Use the peak marker function to determine the maximum PSD level.
- Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

6.7.4 Test data

Pass: Please refer to appendix A for details

6.8 Radiated spurious emissions

Test Standard	47 CFR Part 15, Subpart C 15.247(d)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 6.4,6.5,6.6
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

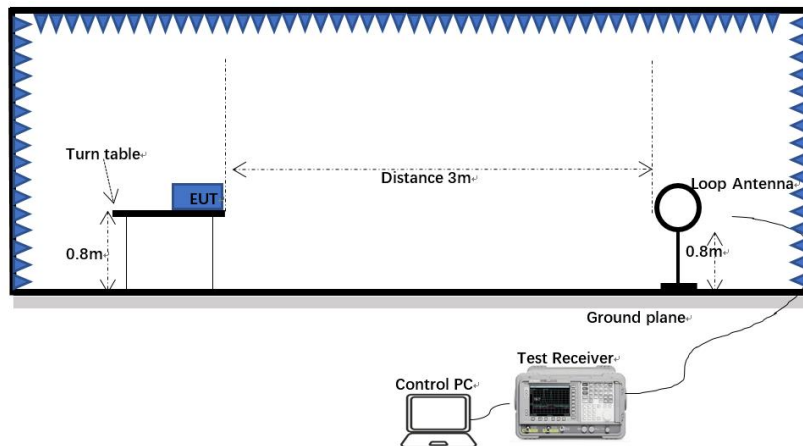
6.8.1 Limit

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

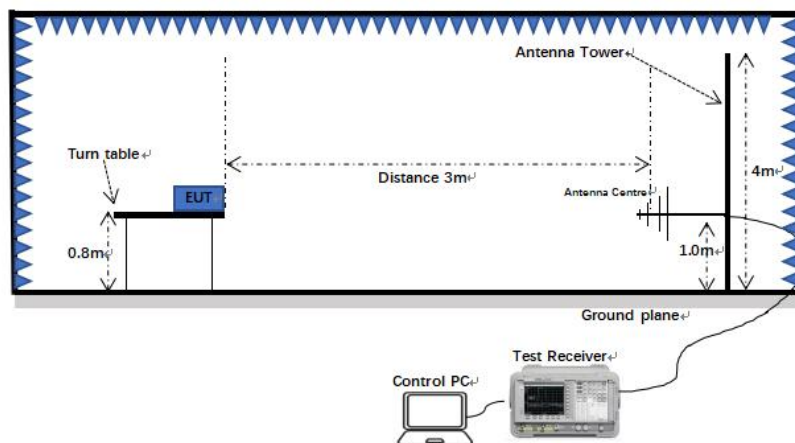
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

6.8.2 Test setup

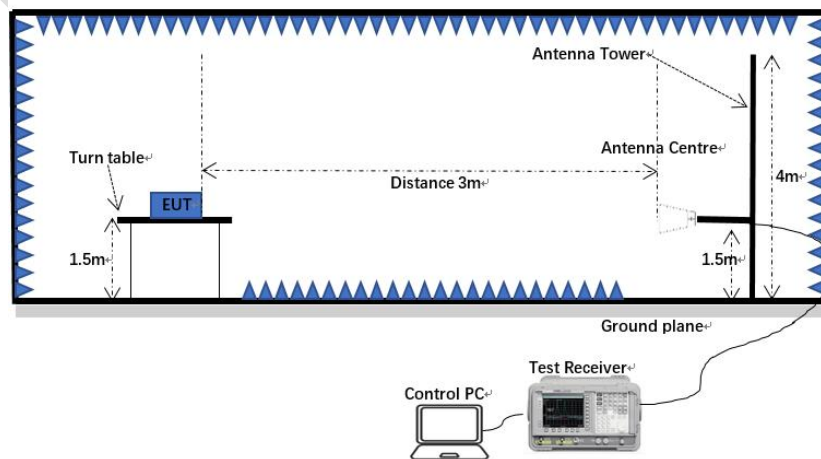
Below 1GHz:



30MHz-1GHz:



Above 1GHz:



6.8.3 Procedure

- a) For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b) For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c) The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d) 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.
- e) 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h) Test the EUT in the lowest channel, the middle channel, the highest channel.
- i) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j) Repeat above procedures until all frequencies measured was complete.

Note 1: Scan from 9 kHz to 25GHz, the disturbance above 12.75GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. Fundamental frequency is blocked by filter, and only spurious emission is shown.

Note 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

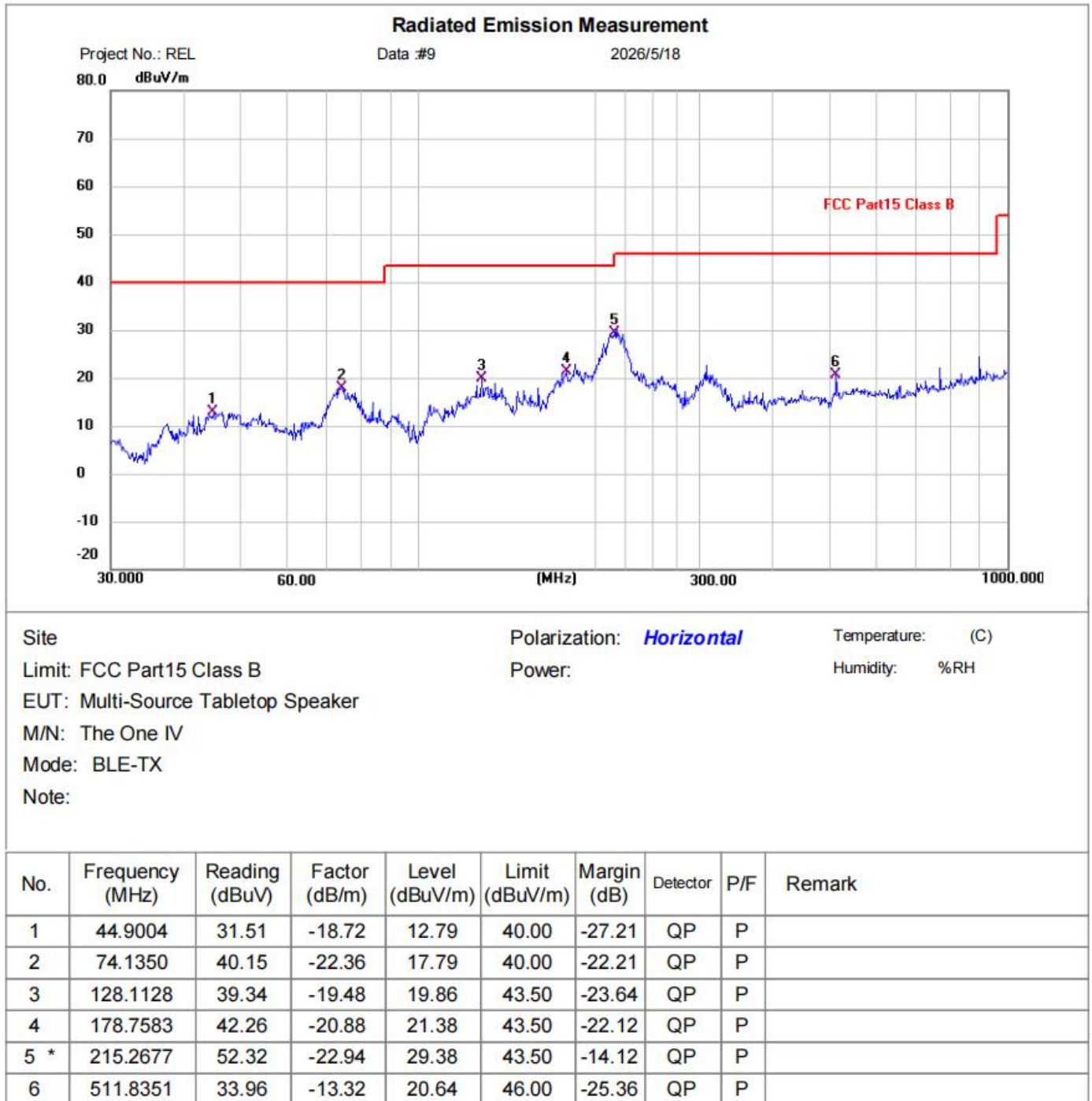
Note 3: The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

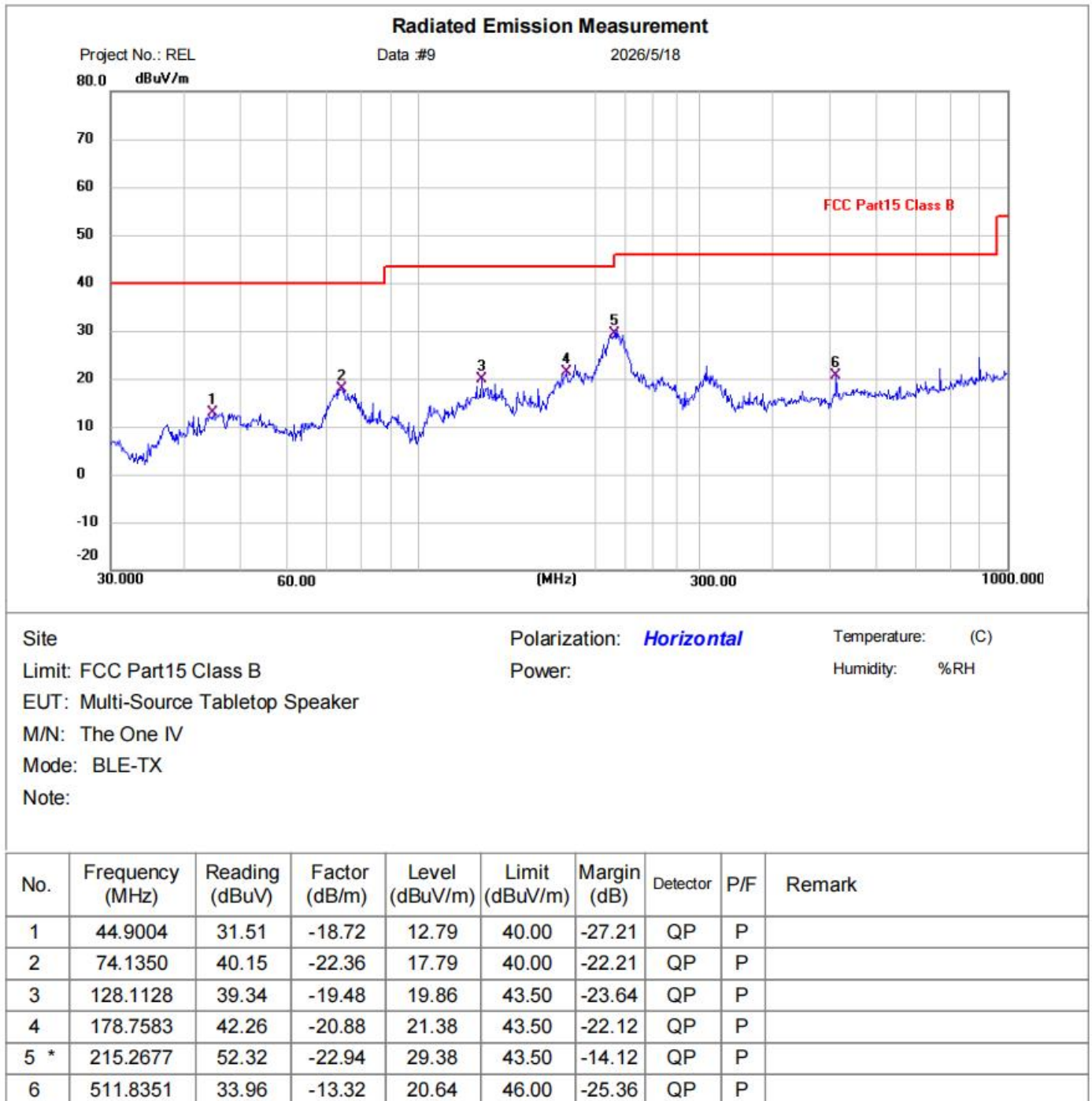
$$\text{Level (dBuV)} = \text{Reading (dBuV)} + \text{Factor (dB/m)}$$

6.8.4 Test data

Below 1GHz

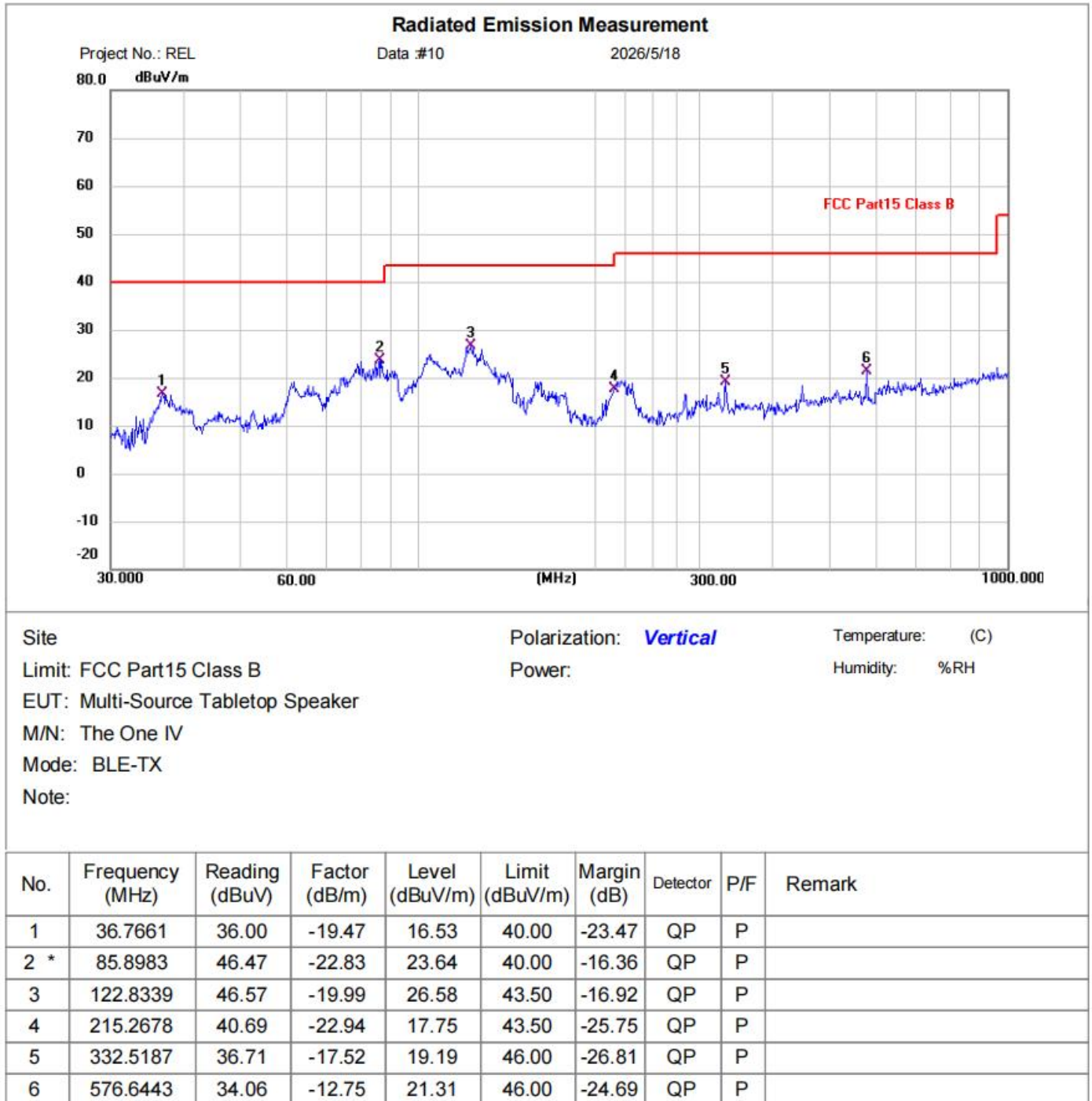
[Test mode: TX low channel]; [Polarity: Horizontal] ;[Power: AC120V/60Hz]

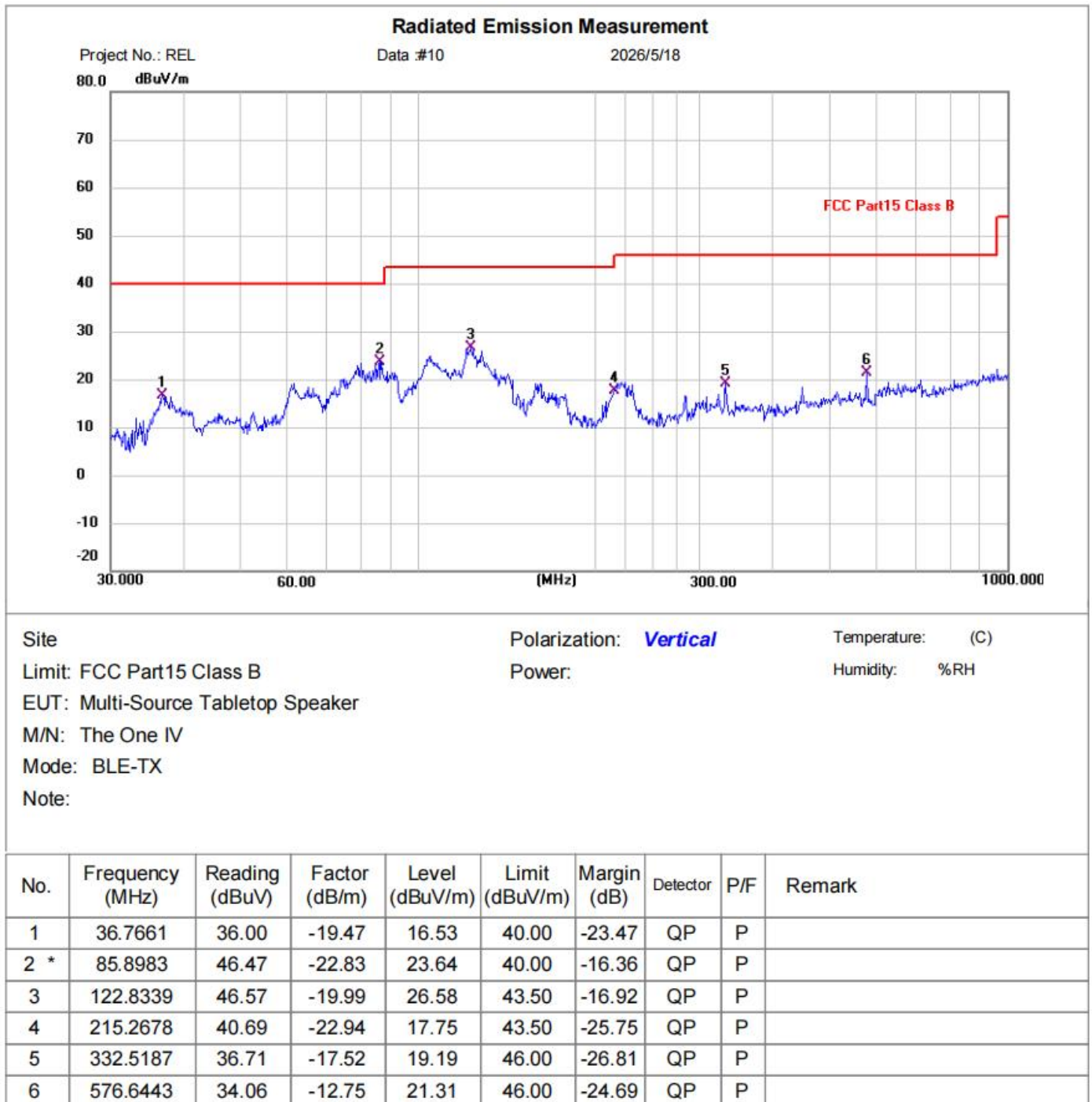




Test Result: Pass

[Test mode: TX low channel]; [Polarity: Vertical] ;[Power: AC120V/60Hz]



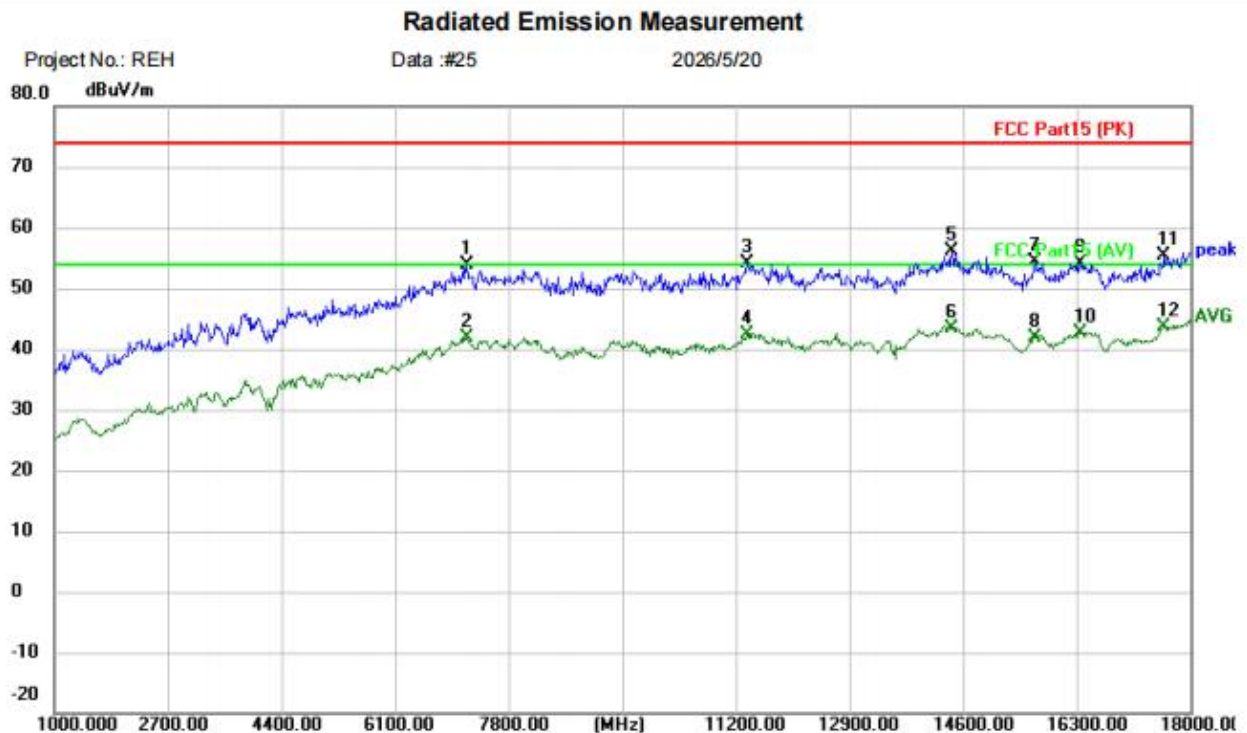


Test Result: Pass

For radiation transmission, tests have been conducted on BLE 1Mbps and 2Mbps modes, covering low, medium and high channels. Only the worst 1Mbps/low channels mode was reported.

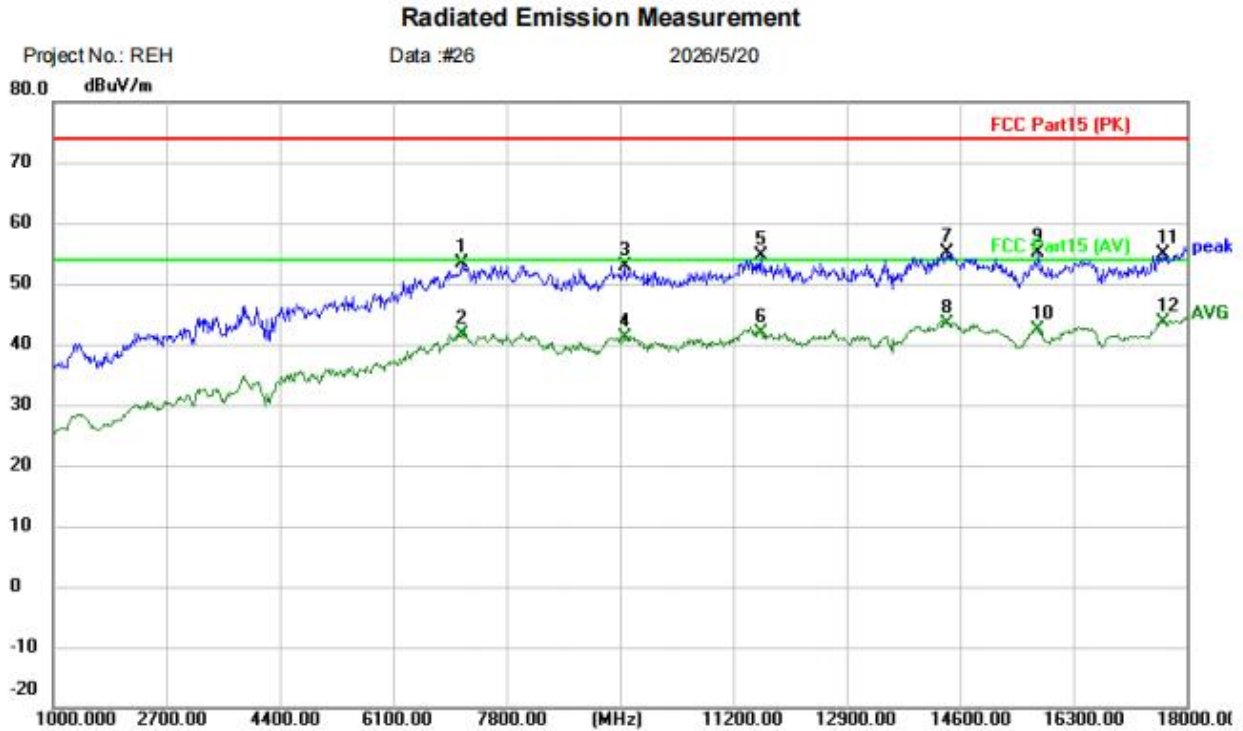
Above 1GHz:

[Test mode: TX low channel]; [Polarity: Horizontal] ;[Power: AC120V/60Hz]



Test Result: Pass

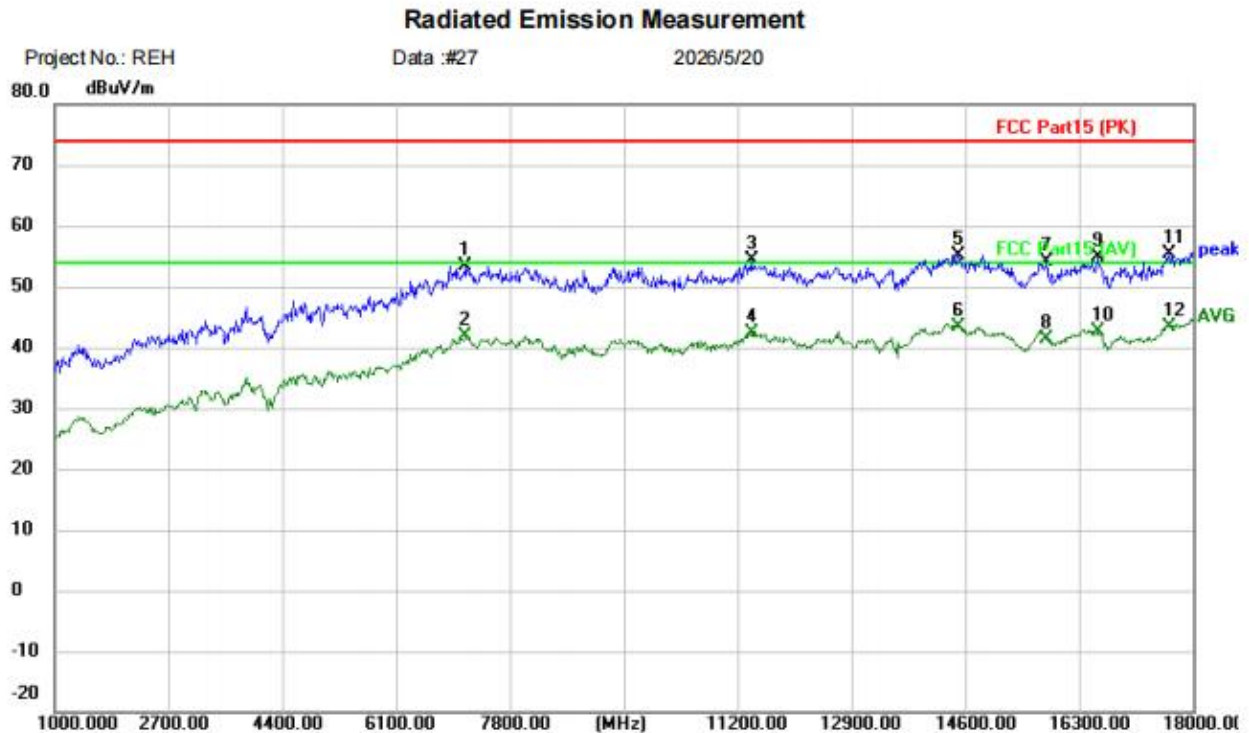
[Test mode: TX low channel]; [Polarity: Vertical] ;[Power: AC120V/60Hz]



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7137.000	46.32	7.14	53.46	74.00	-20.54	peak	
2		7137.000	34.55	7.14	41.69	54.00	-12.31	AVG	
3		9568.000	45.37	7.56	52.93	74.00	-21.07	peak	
4		9568.000	33.51	7.56	41.07	54.00	-12.93	AVG	
5		11608.00	44.73	9.86	54.59	74.00	-19.41	peak	
6		11608.00	32.08	9.86	41.94	54.00	-12.06	AVG	
7		14413.00	45.43	9.71	55.14	74.00	-18.86	peak	
8		14413.00	33.73	9.71	43.44	54.00	-10.56	AVG	
9		15773.00	47.19	7.86	55.05	74.00	-18.95	peak	
10		15773.00	34.49	7.86	42.35	54.00	-11.65	AVG	
11		17643.00	44.46	10.42	54.88	74.00	-19.12	peak	
12	*	17643.00	33.10	10.42	43.52	54.00	-10.48	AVG	

Test Result: Pass

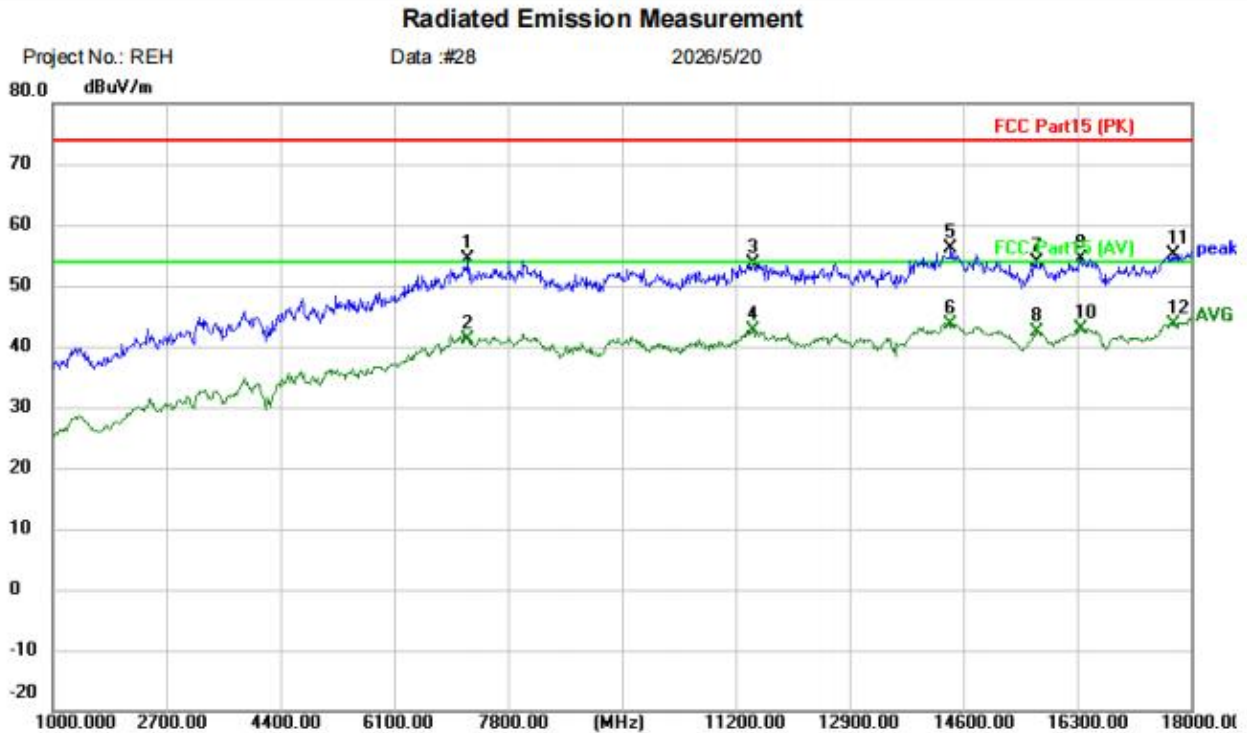
[Test mode: TX middle channel]; [Polarity: Horizontal] ;[Power: AC120V/60Hz]



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7137.000	46.32	7.14	53.46	74.00	-20.54	peak	
2		7137.000	34.80	7.14	41.94	54.00	-12.06	AVG	
3		11404.00	44.81	9.62	54.43	74.00	-19.57	peak	
4		11404.00	32.77	9.62	42.39	54.00	-11.61	AVG	
5		14498.00	45.67	9.54	55.21	74.00	-18.79	peak	
6	*	14498.00	33.89	9.54	43.43	54.00	-10.57	AVG	
7		15807.00	46.40	7.62	54.02	74.00	-19.98	peak	
8		15807.00	33.83	7.62	41.45	54.00	-12.55	AVG	
9		16572.00	45.28	9.56	54.84	74.00	-19.16	peak	
10		16572.00	33.11	9.56	42.67	54.00	-11.33	AVG	
11		17643.00	44.93	10.42	55.35	74.00	-18.65	peak	
12		17643.00	32.89	10.42	43.31	54.00	-10.69	AVG	

Test Result: Pass

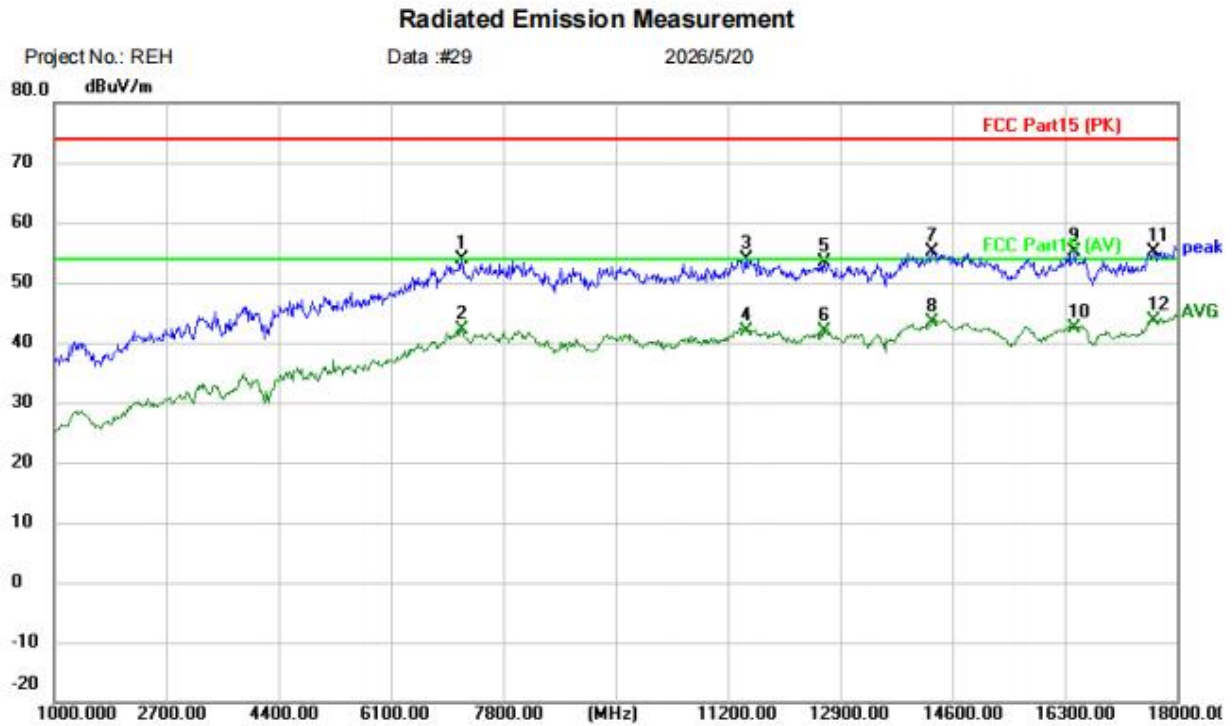
[Test mode: TX middle channel]; [Polarity: Vertical] ;[Power: AC120V/60Hz]



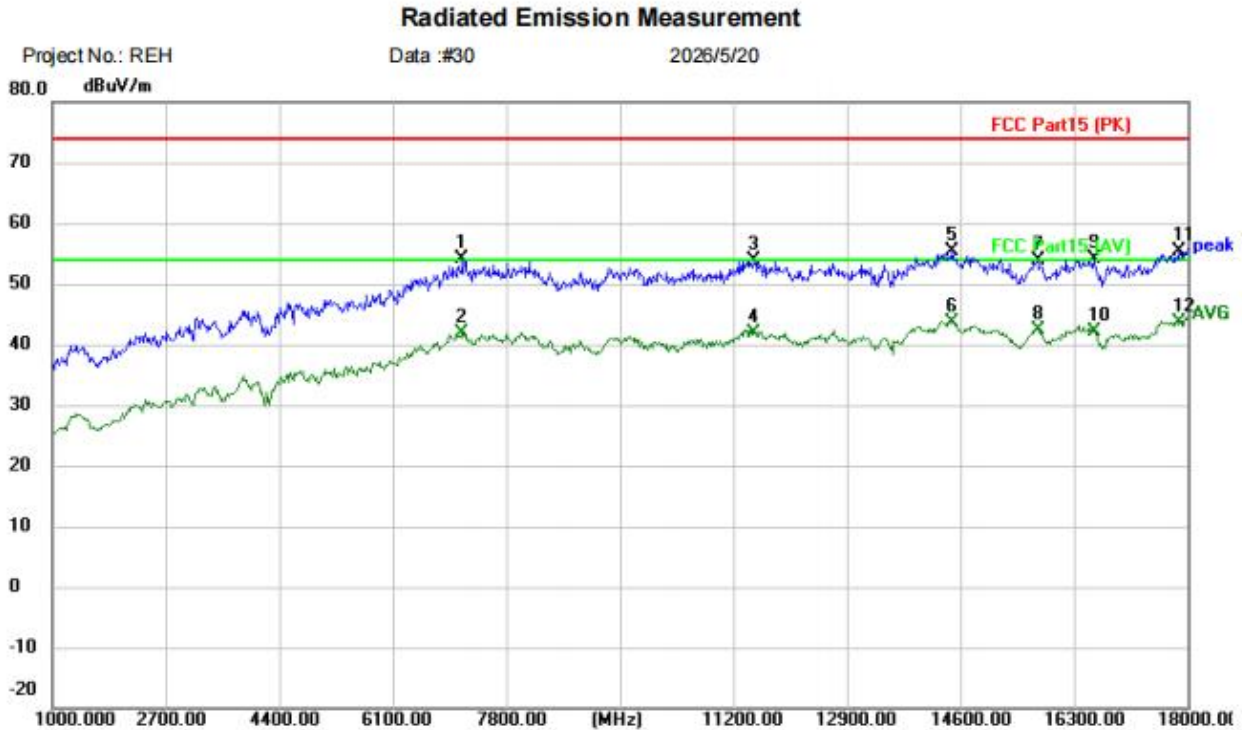
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7205.000	47.50	6.82	54.32	74.00	-19.68	peak	
2		7205.000	34.25	6.82	41.07	54.00	-12.93	AVG	
3		11455.00	43.77	9.89	53.66	74.00	-20.34	peak	
4		11455.00	32.73	9.89	42.62	54.00	-11.38	AVG	
5		14413.00	46.36	9.71	56.07	74.00	-17.93	peak	
6		14413.00	33.88	9.71	43.59	54.00	-10.41	AVG	
7		15688.00	45.48	8.35	53.83	74.00	-20.17	peak	
8		15688.00	34.10	8.35	42.45	54.00	-11.55	AVG	
9		16351.00	45.45	8.95	54.40	74.00	-19.60	peak	
10		16351.00	33.92	8.95	42.87	54.00	-11.13	AVG	
11		17745.00	44.29	10.82	55.11	74.00	-18.89	peak	
12	*	17745.00	32.93	10.82	43.75	54.00	-10.25	AVG	

Test Result: Pass

[Test mode: TX High channel]; [Polarity: Horizontal] ;[Power: AC120V/60Hz]


Test Result: Pass

[Test mode: TX High channel]; [Polarity: Vertical] ;[Power: AC120V/60Hz]



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		7137.000	46.98	7.14	54.12	74.00	-19.88	peak	
2		7137.000	34.81	7.14	41.95	54.00	-12.05	AVG	
3		11506.00	43.66	10.13	53.79	74.00	-20.21	peak	
4		11506.00	31.86	10.13	41.99	54.00	-12.01	AVG	
5		14481.00	45.77	9.57	55.34	74.00	-18.66	peak	
6	*	14481.00	34.16	9.57	43.73	54.00	-10.27	AVG	
7		15756.00	45.97	7.99	53.96	74.00	-20.04	peak	
8		15756.00	34.33	7.99	42.32	54.00	-11.68	AVG	
9		16606.00	44.65	9.44	54.09	74.00	-19.91	peak	
10		16606.00	32.59	9.44	42.03	54.00	-11.97	AVG	
11		17864.00	43.98	11.41	55.39	74.00	-18.61	peak	
12		17864.00	32.11	11.41	43.52	54.00	-10.48	AVG	

Test Result: Pass

Note:When scanning in the range of 1GHz~ 25GHz and the interference above 18GHz is very small, it is a low noise signal. The point shown in the figure above is the highest emission that can be found during the test, so only the above point is shown. The fundamental frequency is blocked by the filter. Only stray emission.

For Radiated emission,1Mbps and 2Mbps mode all have been tested,only worse case 1Mbps mode is reported.

6.9 Radiated emissions which fall in the restricted bands

Test Standard	47 CFR Part 15, Subpart C 15.247(d)
Test Method	ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Clause 11.12
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX

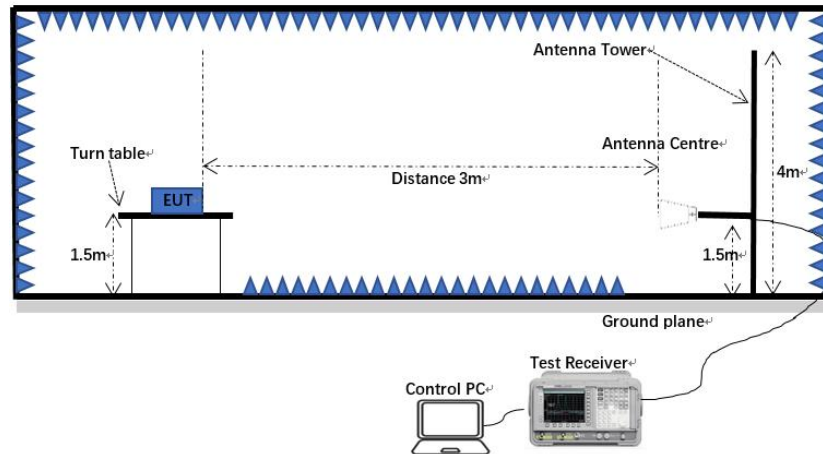
6.9.1 Limit

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

6.9.2 Test setup

Above 1GHz:



6.9.3 Procedure

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the highest channel.

- i) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j) Repeat above procedures until all frequencies measured was complete.

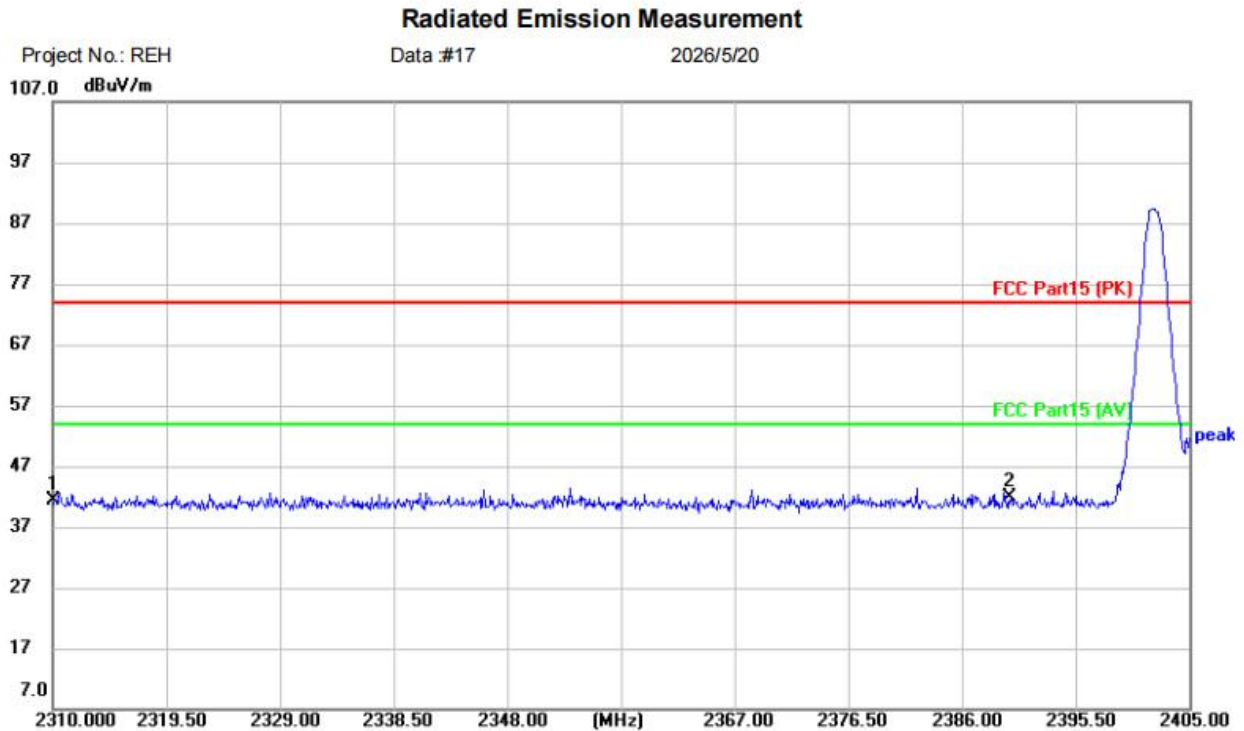
Note 1: Level (dBuV) = Reading (dBuV) + Factor (dB/m)

Note 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

BlueAsia

6.9.4 Test data

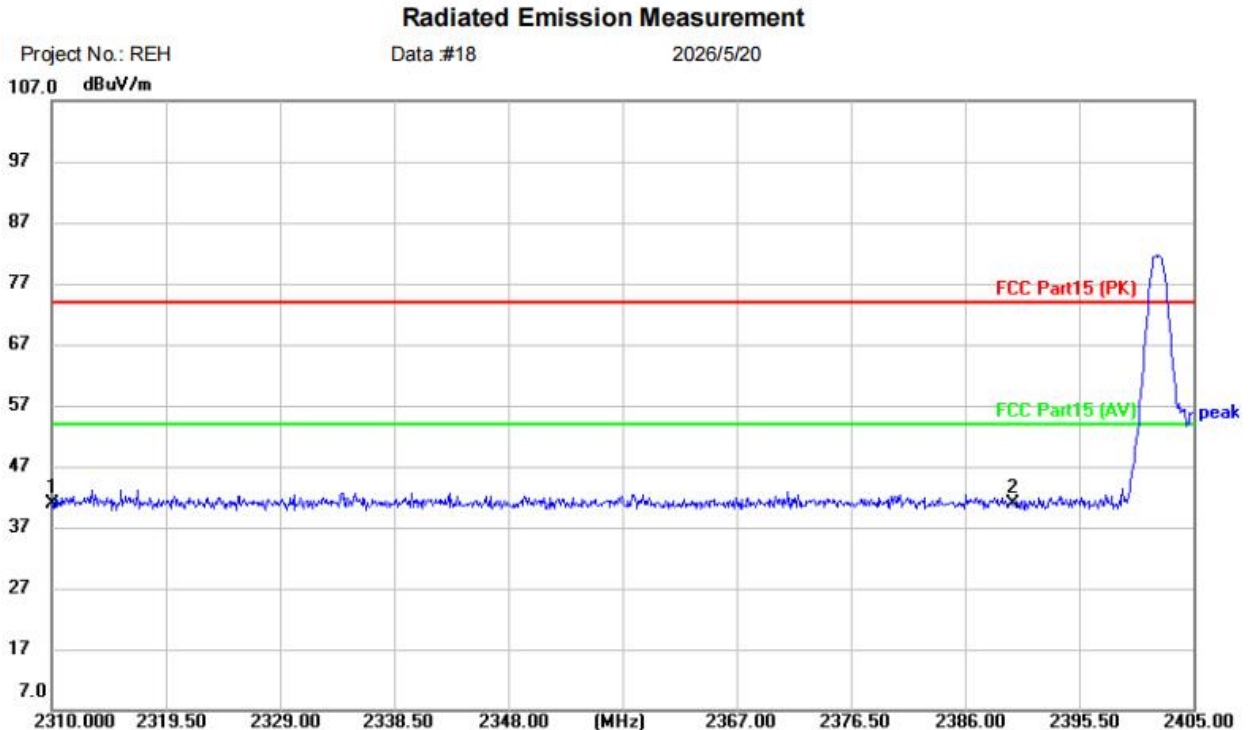
[Test mode: TX low channel]; [Polarity: Horizontal] ;[Power: AC120V/60Hz]



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2310.000	50.80	-9.51	41.29	74.00	-32.71	peak	
2	*	2390.000	51.16	-9.19	41.97	74.00	-32.03	peak	

Test Result: Pass

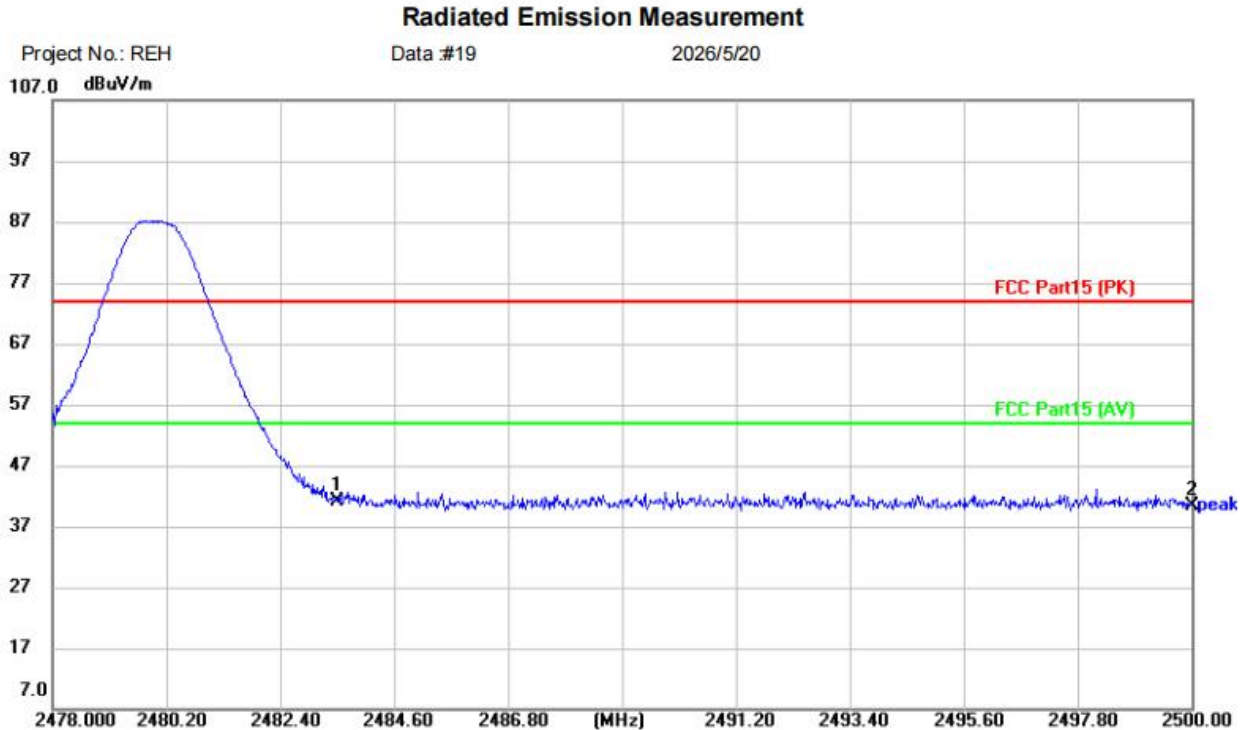
[Test mode:TX low channel]; [Polarity: Vertical] ;[Power: AC120V/60Hz]



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2310.000	50.39	-9.51	40.88	74.00	-33.12	peak	
2	*	2390.000	50.08	-9.19	40.89	74.00	-33.11	peak	

Test Result: Pass

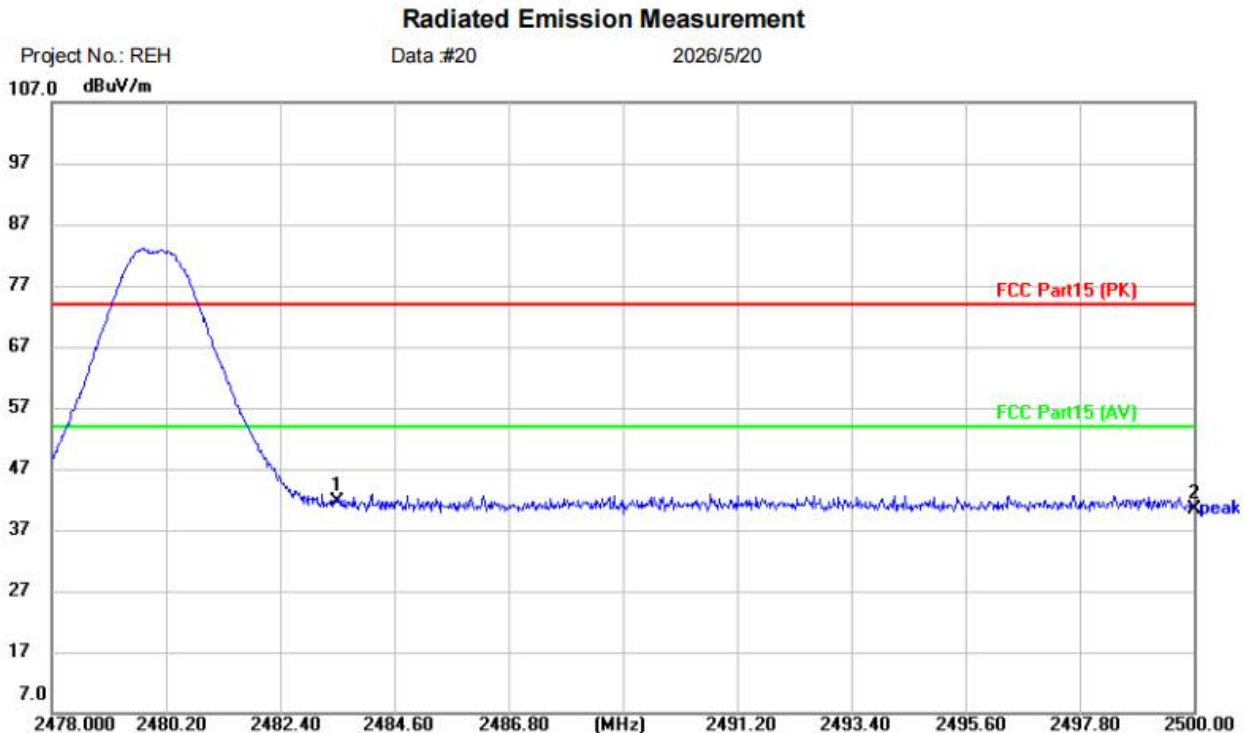
[Test mode: TX High channel]; [Polarity: Horizontal] ;[Power: AC120V/60Hz]



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2483.500	50.37	-9.14	41.23	74.00	-32.77	peak	
2		2500.000	49.58	-9.11	40.47	74.00	-33.53	peak	

Test Result: Pass

[Test mode:TX High channel]; [Polarity: Vertical] ;[Power: AC120V/60Hz]



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2483.500	50.76	-9.14	41.62	74.00	-32.38	peak	
2		2500.000	49.61	-9.11	40.50	74.00	-33.50	peak	

Test Result: Pass

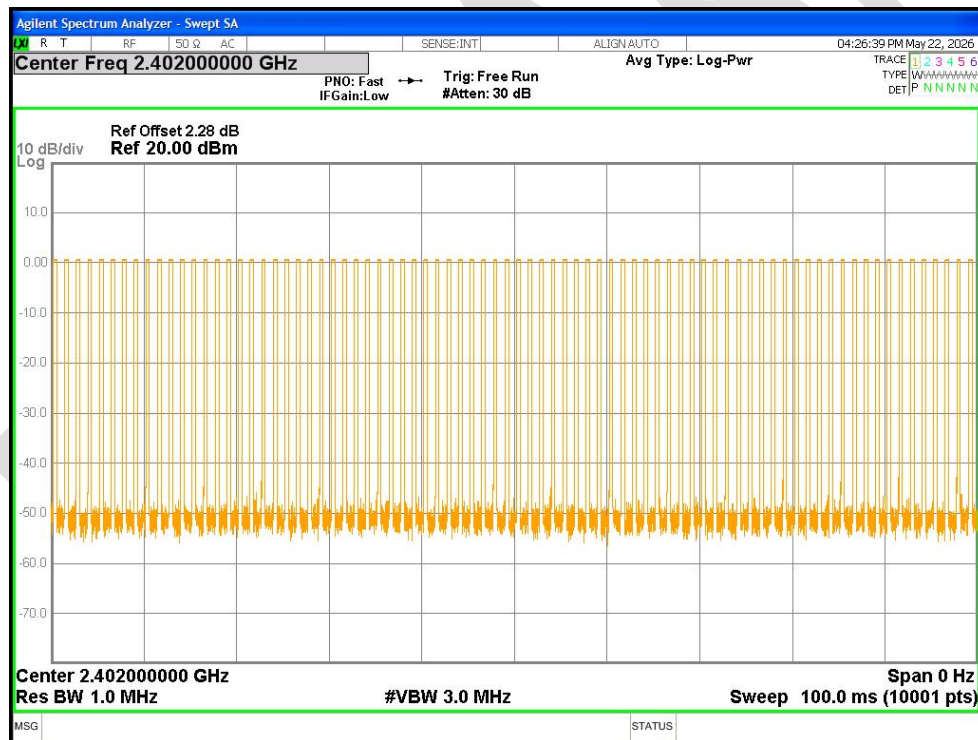
For Radiated emission,1Mbps and 2Mbps mode all have been tested,only worse case 1Mbps mode is reported.

7 Appendix A

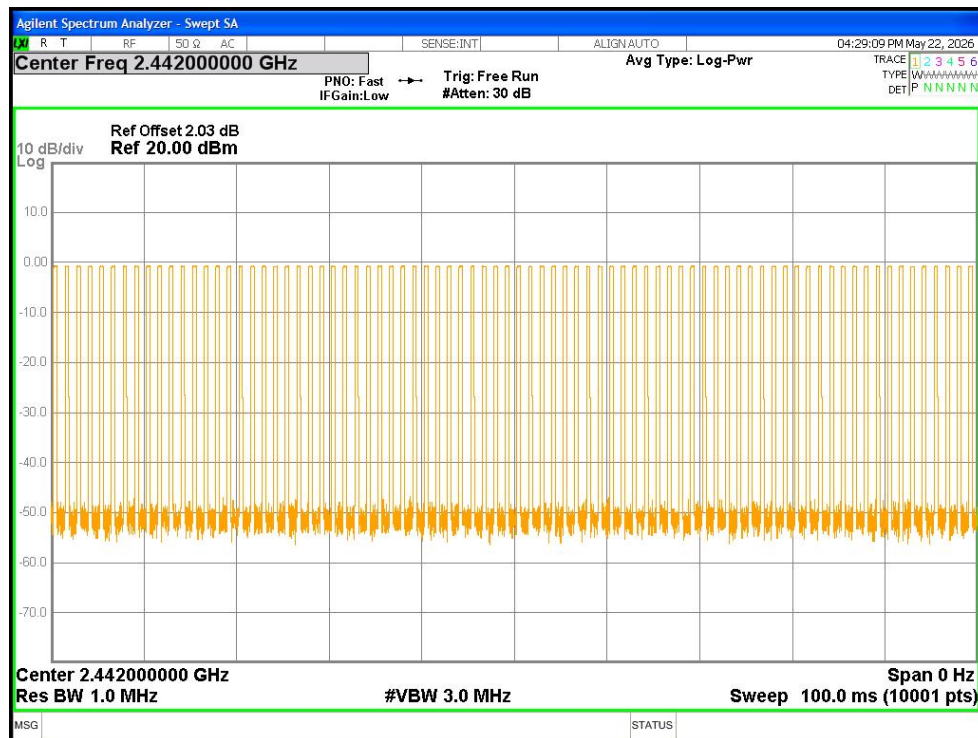
7.1 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
NVNT	BLE 1M	2402	Ant1	31.2	5.06
NVNT	BLE 1M	2442	Ant1	32	4.95
NVNT	BLE 1M	2480	Ant1	31.44	5.03
NVNT	BLE 2M	2402	Ant1	16.81	7.74
NVNT	BLE 2M	2442	Ant1	17.61	7.54
NVNT	BLE 2M	2480	Ant1	17.6	7.55

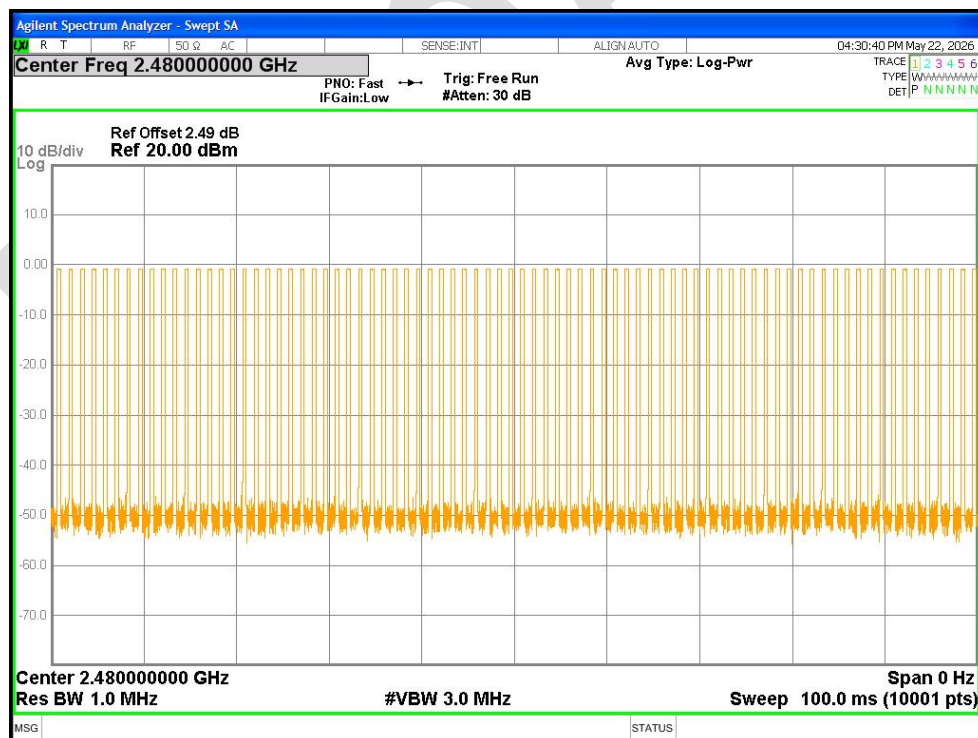
Duty Cycle NVNT BLE 1M 2402MHz Ant1



Duty Cycle NVNT BLE 1M 2442MHz Ant1



Duty Cycle NVNT BLE 1M 2480MHz Ant1



Duty Cycle NVNT BLE 2M 2402MHz Ant1