

FCC Part 15, Subpart C Test Report

FCC ID: XN6-SV510M86

Applicant: Zylux Acoustic Corporation

Address: 7F, 70, Rui Guang Road, Neihu District, Taipei 114, Taiwan, Chinese Taipei

Manufacturer: VIZIO INC.

Address: 39 Tesla, Irvine, CA 92618, USA

Product: VIZIO 5.1 Soundbar

Brand: **VIZIO**

Test Model(s): SV510M-0806

Series Model(s): SV510X-0806

Test Date: Aug. 12, 2023 ~ Nov. 07, 2023

Issued Date: Nov. 08, 2023

Issued By: Hwa-Hsing (Dongguan) Testing Co., Ltd.

Address: No.101, Building N1, Yuyuan 2 Road, Yuyuan Industrial Park, HuangJiang Town, Dongguan City, People's Republic of China

Test Firm Registration
No.: 915896

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

The above equipment has been tested by **Hwa-Hsing (Dongguan) Testing Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

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Release

[Ver. 1.5](#)



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HWA-HSING

Test Report No.: 230505KH05-RF-US-02

Release Control Record

Issue No.	Description	Date Issued
230505KH05-RF-US-02	Original Release	Nov. 08, 2023

Lab: [Hwa-Hsing \(Dongguan\) Testing Co., Ltd.](#)
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1. Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247) KDB 558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10:2013			
Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit.
15.205 & 209	Radiated Emissions	Pass	Meet the requirement of limit.
15.247(d)	Band Edge Measurement	Pass	Meet the requirement of limit.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB Bandwidth	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Reference only
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used. The device is professionally installed

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

1.1 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:

The listed uncertainties are the worst cases uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9KHz ~ 30MHz	2.16 dB
	30MHz ~ 1000MHz	3.47 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	4.84 dB
	18GHz ~ 40GHz	4.67 dB

1.2 Modification Record

There were no modifications required for compliance.



2. General Information

2.1 General Description of EUT

Product	VIZIO 5.1 Soundbar
Test Model(s)	SV510M-0806
Sample No.	N/A
Series Model(s)	SV510X-0806
Status of EUT	Engineering Prototype
Power Supply Rating	100-240 V~ 50/60 Hz 75 W
Modulation Type	GFSK for DTS
Transfer Rate	1 Mbps, 2Mbps
Operating Frequency	2402 ~ 2480MHz
Number of Channel	40
Maximum Output Power	7.75dBm (Peak)
Antenna Type	Dipole Antenna
Antenna Gain	2.75dBi
Antenna Connector	N/A
Accessory Device	N/A

Note:

1. Please refer to the EUT photo document (Reference No.: 230505KH05-01&02) for detailed product photo.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.
3. Model difference: These models are the same except model name.
4. The EUT is tested on all items, and the report only shows the worst data.



2.2 Description of Test Channels

40 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

2.3 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable test items	X-Axis	Y-Axis	Z-Axis	Voltage Supply
Radiated	AC Power Conducted Emission	N/A	N/A	N/A	AC120V/60Hz
Radiated	Radiated Emissions	√	√	√	
Antenna Port Conducted Measurement	Band Edge Measurement	N/A	N/A	N/A	
	Antenna Port Emission	N/A	N/A	N/A	
	6dB Bandwidth	N/A	N/A	N/A	
	Occupied Bandwidth Measurement	N/A	N/A	N/A	
	Conducted power	N/A	N/A	N/A	
	Power Spectral Density	N/A	N/A	N/A	

- *: The EUT had been pre-tested on the positioned of each 3 Axis. The worst case was found when positioned on **Z-plane**.
- "N/A" means no effect.

Test Condition:

Applicable test items	Environmental Conditions	Test Date	Tested by
Radiated Emissions	26.8deg. C, 58%RH	2023-08-21	Hua
Antenna Port Conducted Measurement	26.2deg. C, 51%RH	2023-08-24	Hua

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.



Radiated Emission Test (Above 1GHz):

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
-	0 to 39	0, 19, 39	GFSK	2
-	0 to 39	0, 19, 39	GFSK	1

Radiated Emission Test (Below 1GHz):

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
-	0 to 39	19	GFSK	2
-	0 to 39	19	GFSK	1

Power Line Conducted Emission Test:

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
-	0 to 39	0	GFSK	2
-	0 to 39	0	GFSK	1

Antenna Port Conducted Measurement:

*This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Data Rate (Mbps)
-	0 to 39	0, 19, 39	GFSK	2
-	0 to 39	0, 19, 39	GFSK	1



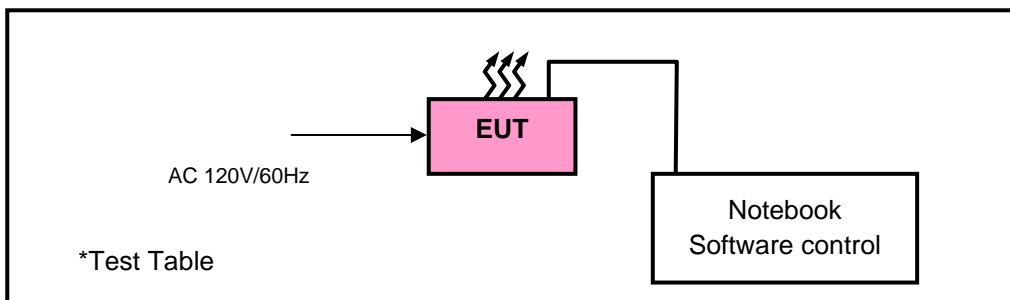
2.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	Notebook	HUAWEI	NbD-WFH9	EUPEM21725002655	N/A

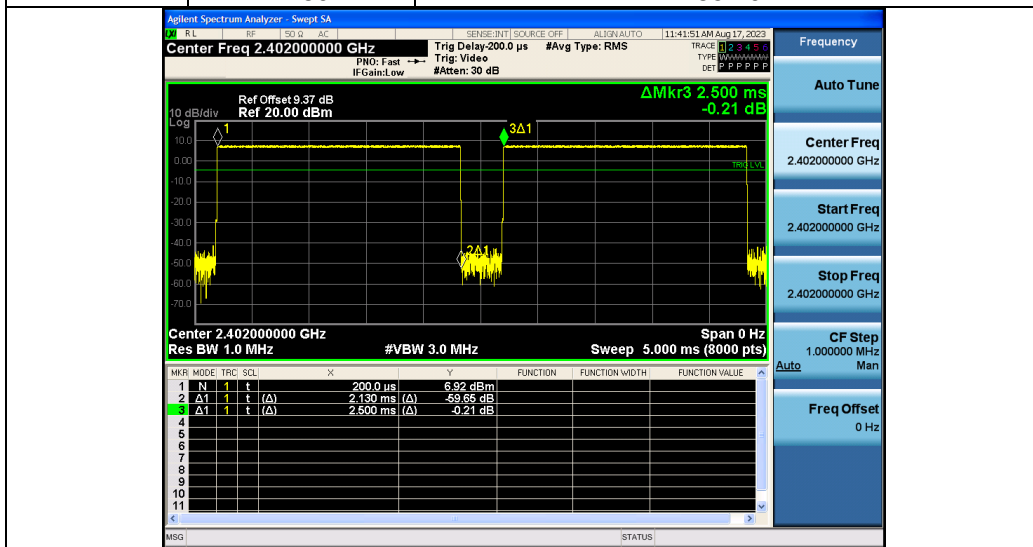
No.	Signal Cable Description of The Above Support Units
1.	USB extension cord: Unshielded, Detachable 1.2m;

2.5 Configuration of System under Test



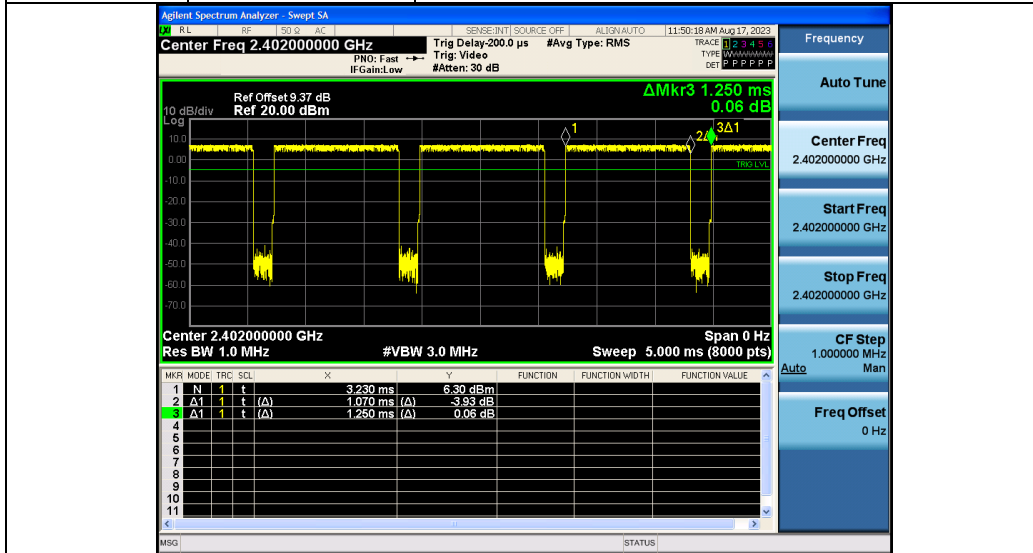
2.6 Duty Cycle of Test Signal

Test Mode	Channel	Duty Cycle [%]
GFSK-1MHz	2402	85.20
	2440	85.20
	2480	85.20





Test Mode	Channel	Duty Cycle [%]
GFSK-2MHz	2404	85.60
	2440	85.60
	2478	85.60





3. Test Types and Results

3.1 Radiated Emission and Band-edge Measurement

3.1.1 Limits of radiated emission and band-edge measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

Frequencies (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

* DTS emissions in non-restricted frequency bands Subclause 11.11 of ANSI C63.10 is applicable.
 * DTS emissions in restricted frequency bands Subclause 11.12 of ANSI C63.10 is applicable

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



3.1.2 Test Instruments

Radiated emission below 30MHz:

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	100962	2023-12-27
3m Semi-anechoic Chamber	MAORUI	9m*6m*6m	NSEMC003	2026-03-12**
Test software	FARAD	FARAD	EZ_EMCV1.1.4.2	N/A
Loop Antenna	EMCI	HLA 6121	56735	2024-05-04*
Antenna Tower	MF	MFA-440H	NA	NA
Turn Table	MF	MFT-201SS	NA	NA
Antenna Tower&Turn Table Controller	MF	MF-7802	NA	NA

Frequency Range below 1GHz:

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
3m Semi-anechoic Chamber	MAORUI	9m*6m*6m	NSEMC003	2026-03-12**
EMI Test Receiver	Rohde&Schwarz	ESPI 7	101978	2023-12-27
Broadband antenna	Schwarzbeck	VULB 9168	00937	2023-09-12*
Signal Amplifier	Com-power	PAM-103	18020051	2024-08-06
Attenuator	Rohde&Schwarz	TS2GA-6dB	18101101	N/A
Test software	FARAD	FARAD	EZ_EMCV1.1.4.2	N/A

Frequency Range above 1GHz:

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
3m Semi-anechoic Chamber	MAORUI	9m*6m*6m	NSEMC003	2026-03-12**
Horn Antenna	Schwarzbeck	BBHA 9120D	02202	2024-08-27*
Broadband Coaxial Pre-amplifier	Com-power	PAM-118A	1804003	2024-08-06
Spectrum	Keysight	N9020A	MY51240612	2024-08-06
Pre-Amplifier	EMCI	EMC 184045SE	9870709	2023-12-27
Antenna Tower	MF	MFA-440H	NA	NA
Turn Table	MF	MFT-201SS	NA	NA
Antenna Tower&Turn Table Controller	MF	MF-7802	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months or 24 months (*) or 36 months (**).
2. The test was performed in 966.



3.1.3 Test Procedures

a. **Peak emission levels are measured by setting the instrument as follow:**

1) RBW & VBW setting as a function of frequency:

Frequency	RBW	VBW
9kHz~150kHz	200Hz	600Hz
0.15MHz~30MHz	9kHz	30kHz
30MHz~1000MHz	120kHz	300kHz
>1000MHz	1MHz	3MHz

- 2) Detector = peak.
- 3) Sweep time = auto.
- 4) Trace mode = max hold.
- 5) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be lengthened for low-duty-cycle applications.)

Note: If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement

b. **Average emission levels are measured by setting the instrument as follow:**

● **Trace averaging with continuous EUT transmission at full power**

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

- 1) RBW=1 MHz (unless otherwise specified).
- 2) VBW $\geq 3 *RBW$.
- 3) Detector =RMS
- 4) Sweep time = auto.
- 5) Perform a trace average of at least 100 traces.

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

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

- 1) The EUT shall be configured to operate at the maximum achievable duty cycle.
- 2) Measure the duty cycle D of the transmitter output signal as described in 11.6.
- 3) RBW=1 MHz (unless otherwise specified).
- 4) VBW $\geq 3 *RBW$.
- 5) Detector =RMS
- 6) Sweep time = auto.
- 7) Perform a trace average of at least 100 traces.

A correction factor shall be added to the measurement results prior to comparing with the emission limit to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

- *If power averaging (rms) mode was used in step 5). then the applicable correction factor is $[10 \log (1/ D)]$, where D is the duty cycle.
- **If linear voltage averaging mode was used in step f). then the applicable correction factor is $[20 \log (1/D)]$, where D is the duty cycle.
- ***If a specific emission is demonstrated to be continuous ($D > 98\%$) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that



● **Reduced VBW Averaging across ON and OFF times of the EUT transmissions with max hold**

If continuous transmission of the EUT ($D > 98\%$) cannot be achieved and the duty cycle is not constant (duty cycle variations exceed $\pm 2\%$), then the following procedure shall be used:

- 1) RBW = 1 MHz.
 - 2) VBW $\geq 1/T$.
 - 3) Detector = peak
 - 4) Sweep time = auto.
 - 5) Trace mode = max hold.
 - 6) Allow max hold to run for at least $[50 \times (1/D)]$ traces
- c. The EUT was placed on the top of a rotating table 0.8 meters (below 1GHz) / 1.5 meters (Above 1GHz) above the reference ground. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The EUT was set 3 meters away from the interference-receiving antenna (Below 1GHz) & (Above 1GHz), which was mounted on the top of a variable-height antenna tower.
- e. The height of antenna 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.
- f. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- g. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- h. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth =3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth =1/T for Average (Duty cycle < 98 %) detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is =10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

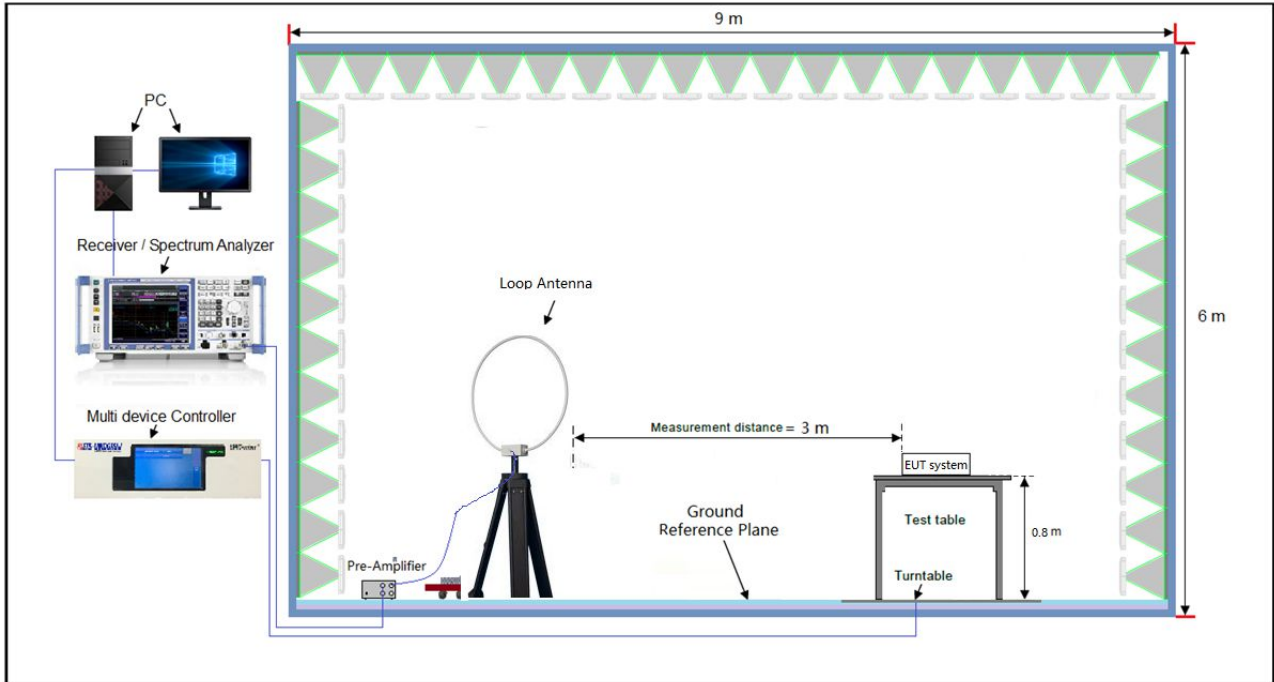
3.1.4 Deviation from Test Standard

No deviation.

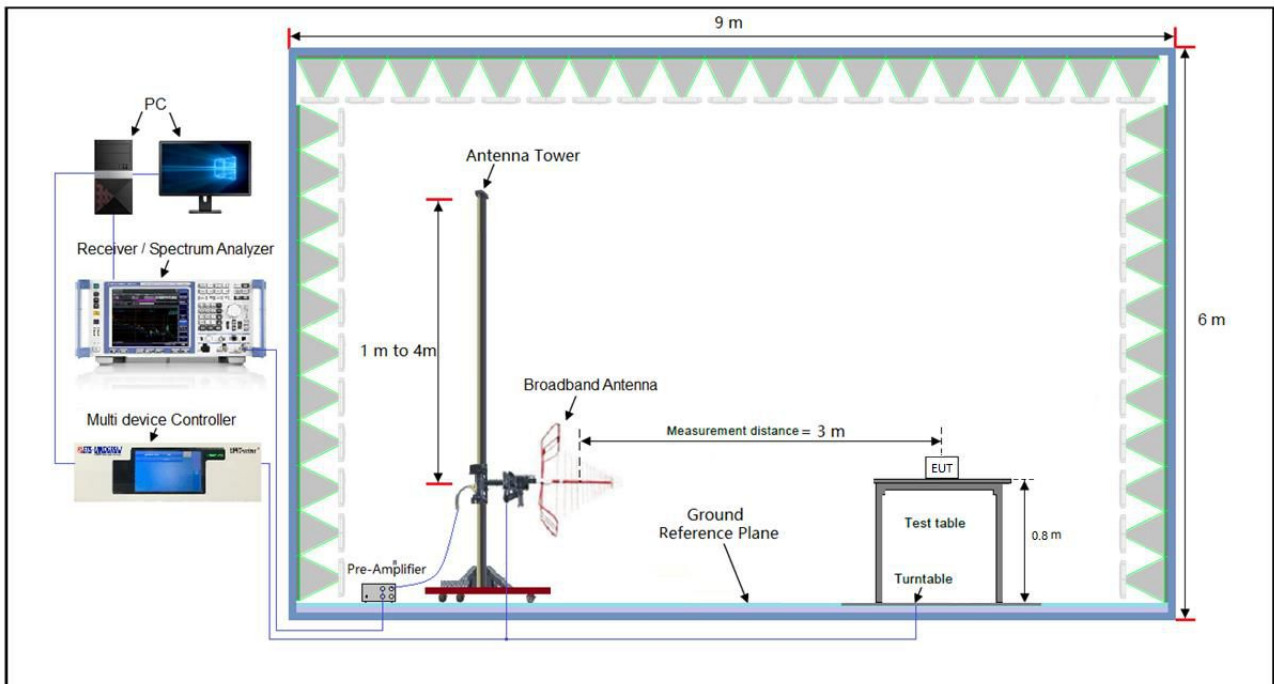


3.1.5 Test Setup

Radiated emission below 30MHz:

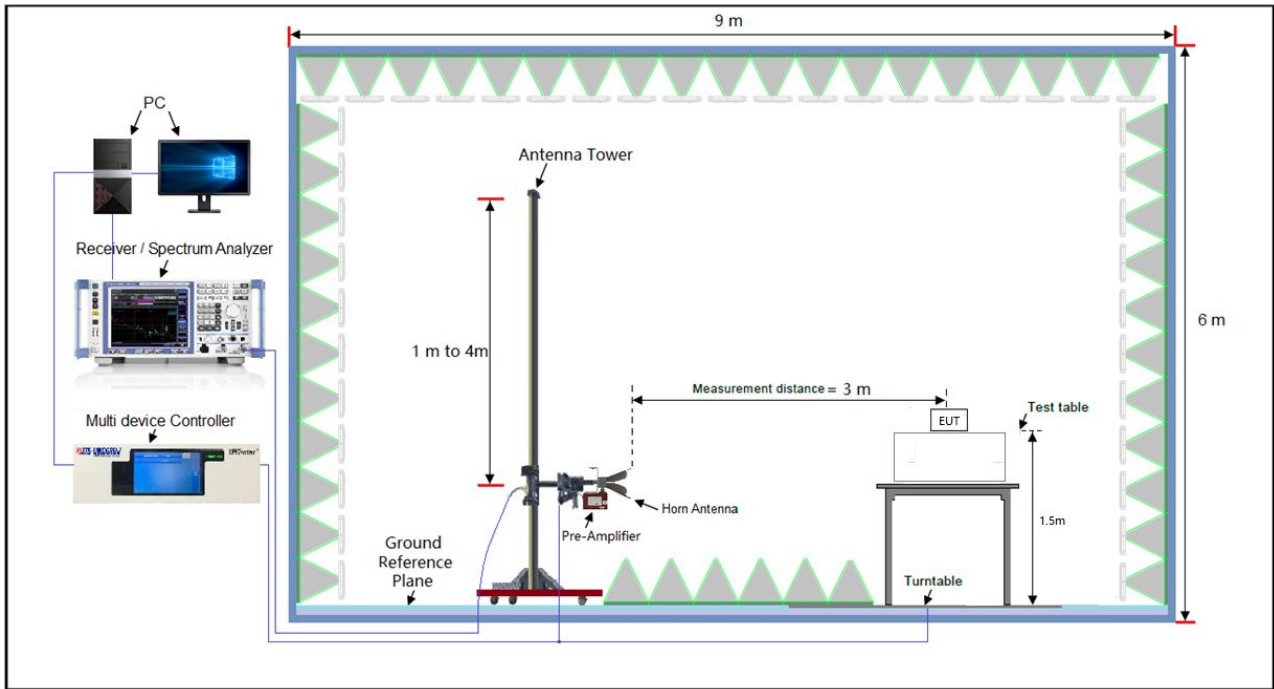


Frequency Range below 1GHz:





Frequency Range above 1GHz:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.



3.1.7 Test Results

9kHz ~ 30MHz Data:

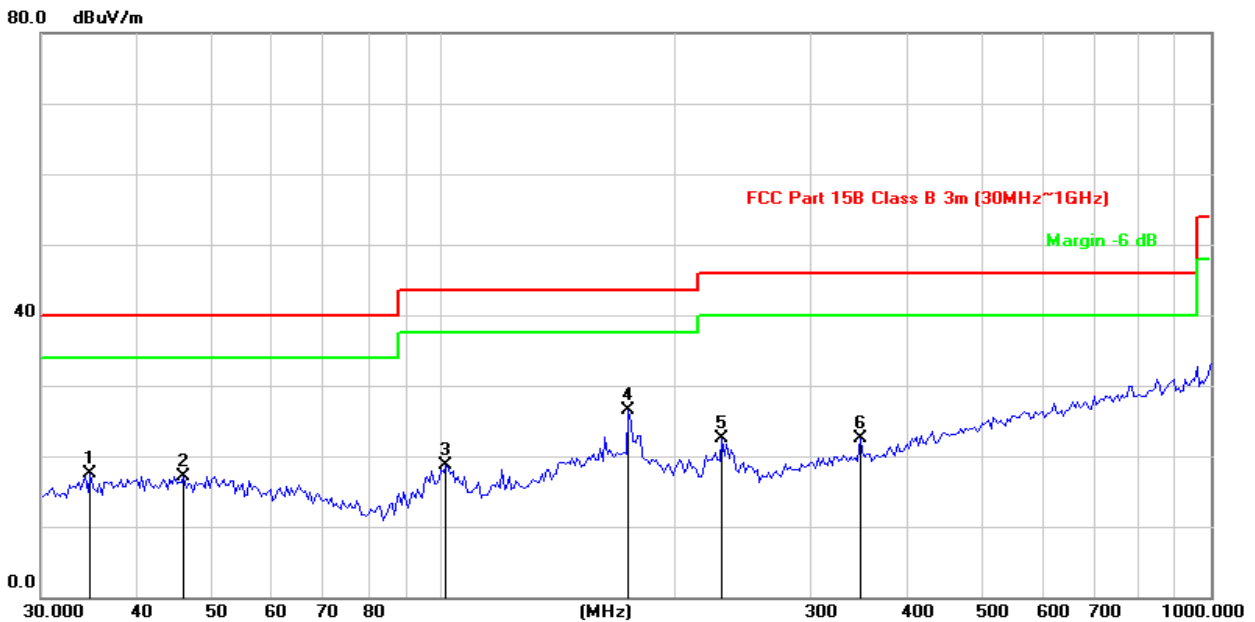
The amplitude of spurious emissions attenuated more than 20dB below the permissible value is not required to be report.

1Mbps

30MHz ~ 1GHz Worst-Case Data:

Test Channel	Channel 0	Frequency Range	30MHz ~ 1GHz
Detector Function	Peak (PK) Quasi-peak (QP)	Tested By	Hua

Antennal Polarity & Test Distance: Horizontal at 3m



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	34.7602	33.52	-16.04	17.48	40.00	-22.52	peak	185	215
2	46.0164	32.56	-15.45	17.11	40.00	-22.89	peak	215	163
3	100.9339	37.21	-18.49	18.72	43.50	-24.78	peak	163	199
4	174.4241	42.52	-16.03	26.49	43.50	-17.01	peak	144	152
5	230.9068	38.50	-16.01	22.49	46.00	-23.51	peak	125	251
6	349.2500	34.43	-11.99	22.44	46.00	-23.56	peak	200	236

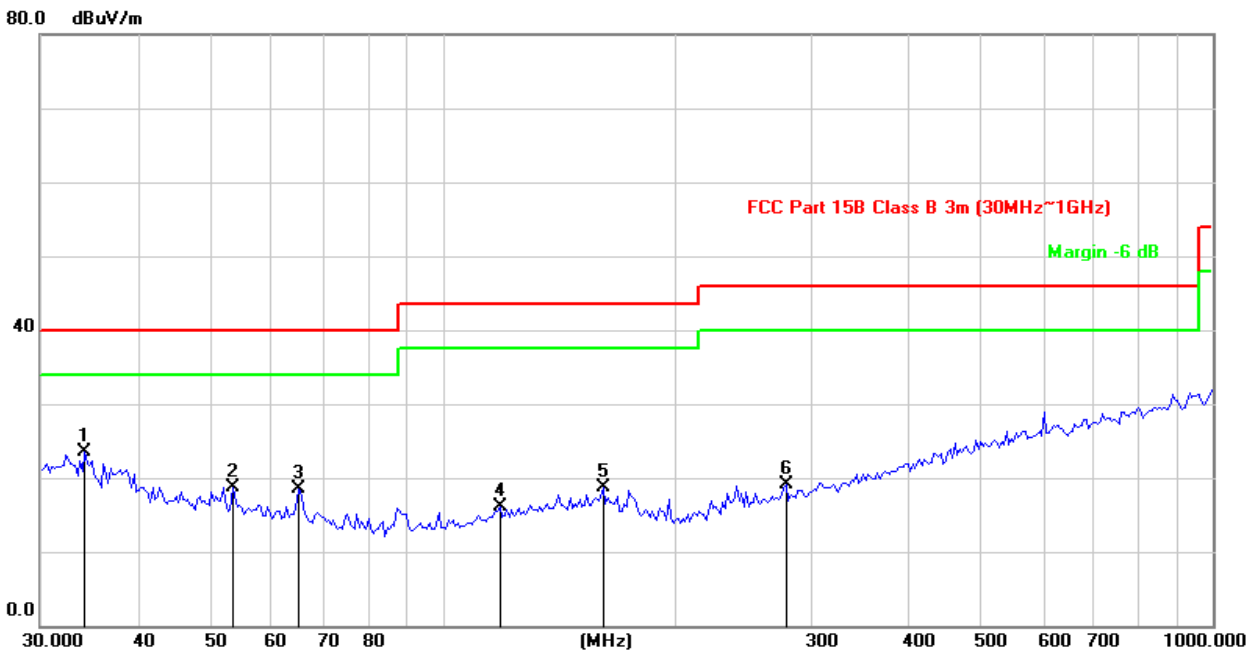
Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



Test Channel	Channel 0	Frequency Range	30MHz ~ 1GHz
Detector Function	Peak (PK) Quasi-peak (QP)	Tested By	Hua

Antennal Polarity& Test Distance: Vertical at 3m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	34.2760	39.54	-16.13	23.41	40.00	-16.59	peak	163	263
2	53.3179	34.59	-15.92	18.67	40.00	-21.33	peak	215	255
3	64.8865	35.88	-17.30	18.58	40.00	-21.42	peak	230	211
4	118.6014	32.87	-16.86	16.01	43.50	-27.49	peak	199	199
5	161.4742	33.56	-14.86	18.70	43.50	-24.80	peak	263	136
6	279.0436	33.31	-14.21	19.10	46.00	-26.90	peak	214	152

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value

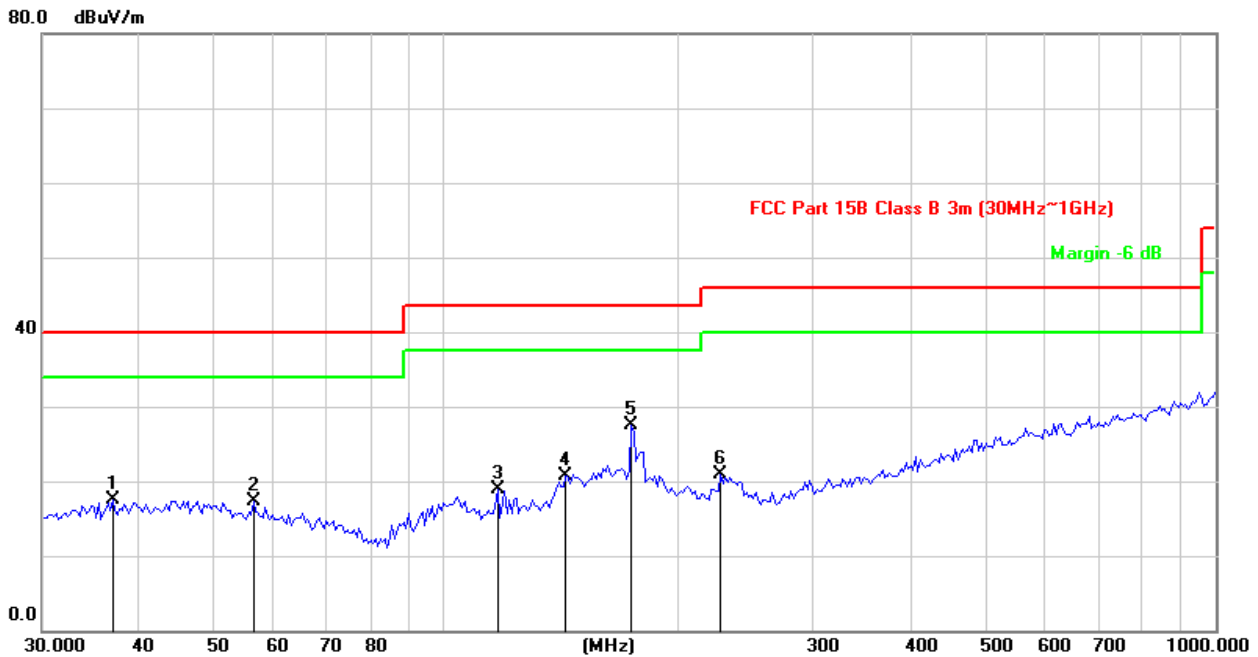


2Mbps

30MHz ~ 1GHz Worst-Case Data:

Test Channel	Channel 0	Frequency Range	30MHz ~ 1GHz
Detector Function	Peak (PK) Quasi-peak (QP)	Tested By	Hua

Antenna Polarity & Test Distance: Horizontal at 3m



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	37.0248	33.26	-15.73	17.53	40.00	-22.47	peak	165	26
2	56.3948	33.55	-16.28	17.27	40.00	-22.73	peak	199	196
3	116.9495	35.99	-17.01	18.98	43.50	-24.52	peak	256	185
4	143.3261	36.08	-15.42	20.66	43.50	-22.84	peak	215	263
5	174.4241	43.55	-16.03	27.52	43.50	-15.98	peak	236	245
6	227.6906	37.13	-16.24	20.89	46.00	-25.11	peak	185	165

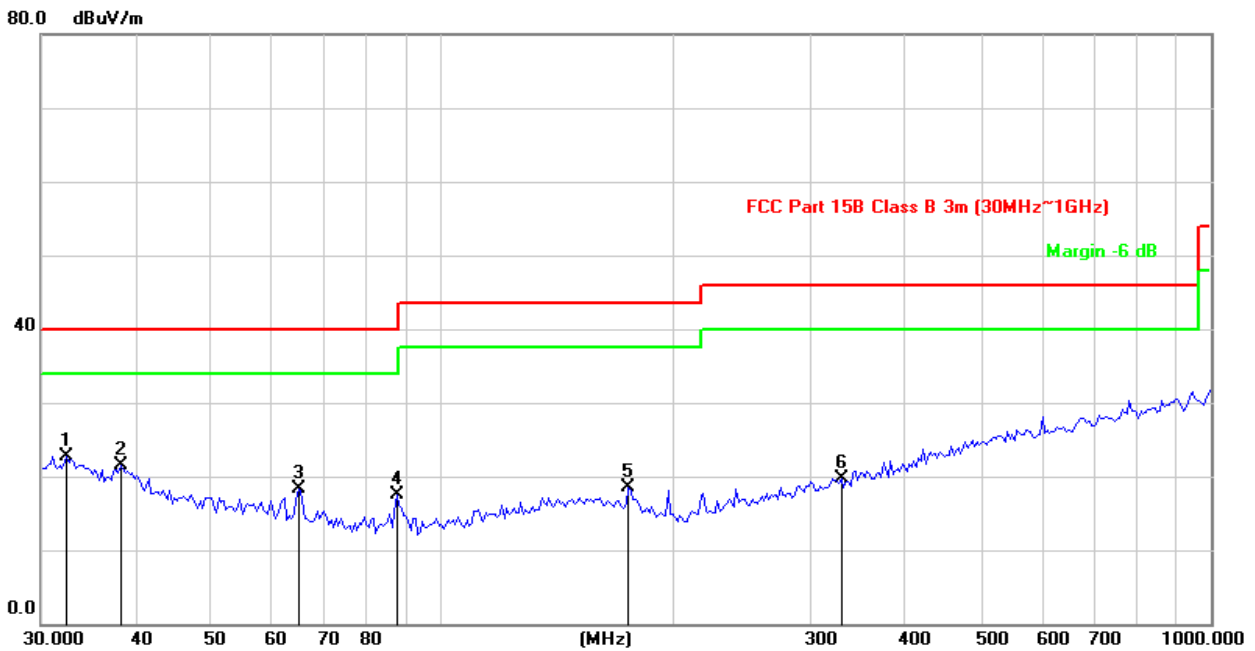
Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



Test Channel	Channel 0	Frequency Range	30MHz ~ 1GHz
Detector Function	Peak (PK) Quasi-peak (QP)	Tested By	Hua

Antennal Polarity& Test Distance: Vertical at 3m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	32.4059	39.22	-16.50	22.72	40.00	-17.28	peak	114	159
2	38.0783	37.14	-15.57	21.57	40.00	-18.43	peak	152	185
3	64.8865	35.64	-17.30	18.34	40.00	-21.66	peak	166	266
4	87.1117	37.48	-19.96	17.52	40.00	-22.48	peak	132	215
5	174.4241	34.52	-16.03	18.49	43.50	-25.01	peak	205	235
6	330.1949	32.29	-12.62	19.67	46.00	-26.33	peak	196	125

Remarks:

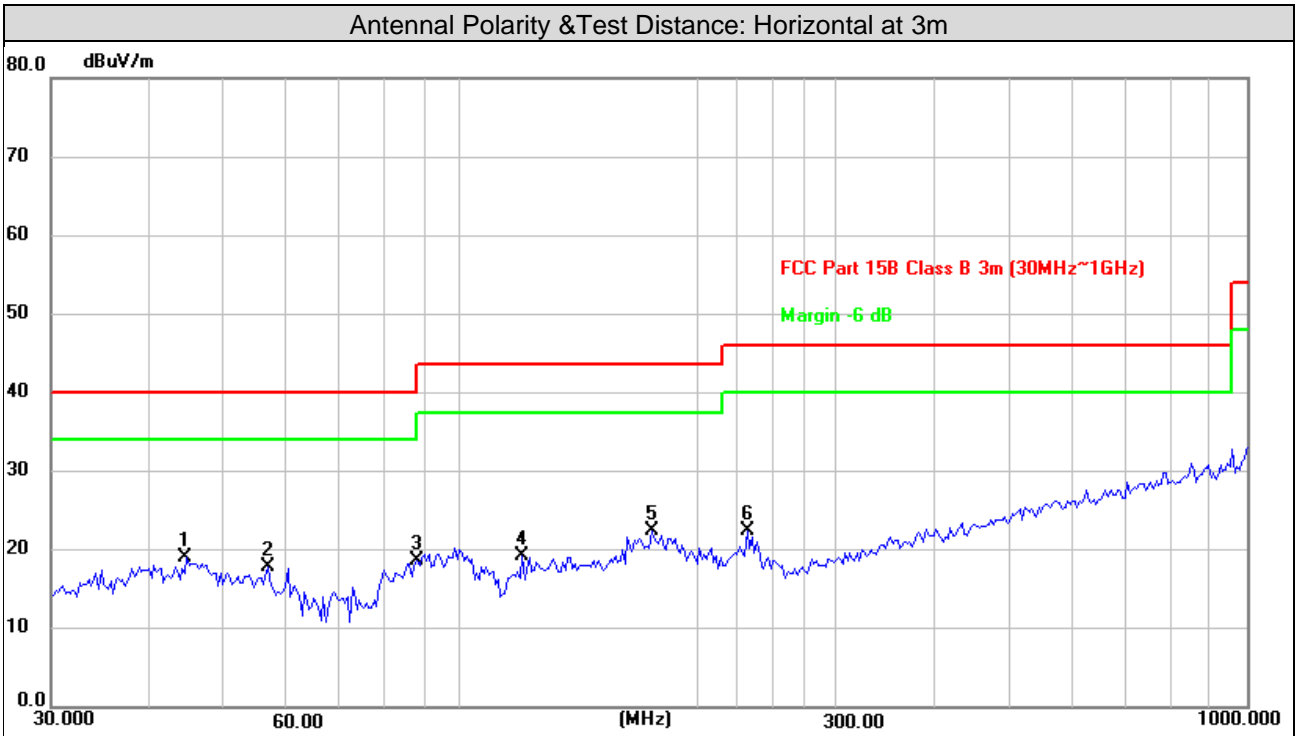
1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



1Mbps+SRD

30MHz ~ 1GHz Worst-Case Data:

Test Channel	2402MHz+5160MHz	Frequency Range	30MHz ~ 1GHz
Detector Function	Peak (PK) Quasi-peak (QP)	Tested By	Hua



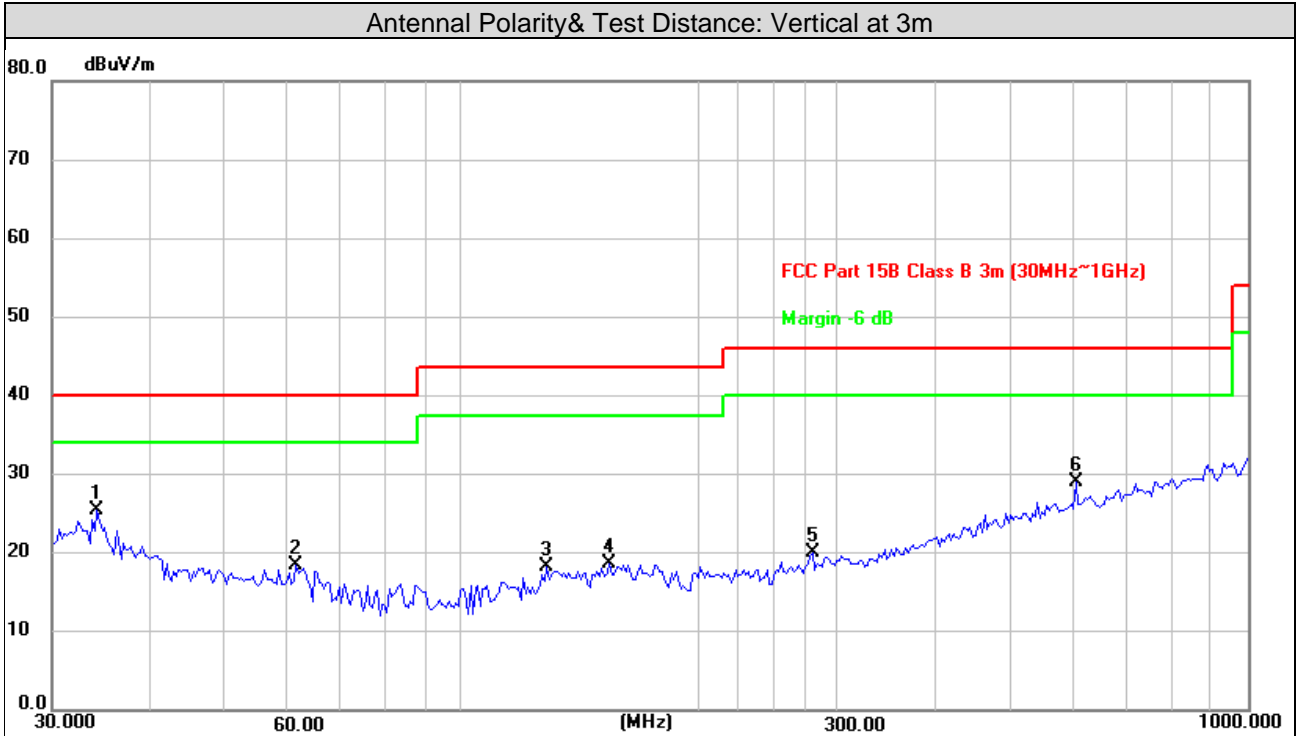
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	44.7433	34.47	-15.42	19.05	40.00	-20.95	peak	150	122
2	56.7916	34.12	-16.33	17.79	40.00	-22.21	peak	200	148
3	87.7248	38.62	-19.97	18.65	40.00	-21.35	peak	153	107
4	119.4360	35.95	-16.78	19.17	43.50	-24.33	peak	178	334
5	174.4241	38.52	-16.03	22.49	43.50	-21.01	peak	215	26
6	230.9068	38.50	-16.01	22.49	46.00	-23.51	peak	226	243

Remarks:

3. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
4. Margin value = Emission level – Limit value



Test Channel	2402MHz+5160MHz	Frequency Range	30MHz ~ 1GHz
Detector Function	Peak (PK) Quasi-peak (QP)	Tested By	Hua



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	34.2760	41.54	-16.13	25.41	40.00	-14.59	peak	100	336
2	61.3462	35.41	-16.88	18.53	40.00	-21.47	peak	108	274
3	128.1128	34.40	-16.24	18.16	43.50	-25.34	peak	128	279
4	153.7384	33.64	-14.99	18.65	43.50	-24.85	peak	137	208
5	279.0436	34.31	-14.21	20.10	46.00	-25.90	peak	115	226
6	603.5392	34.11	-5.16	28.95	46.00	-17.05	peak	120	315

Remarks:

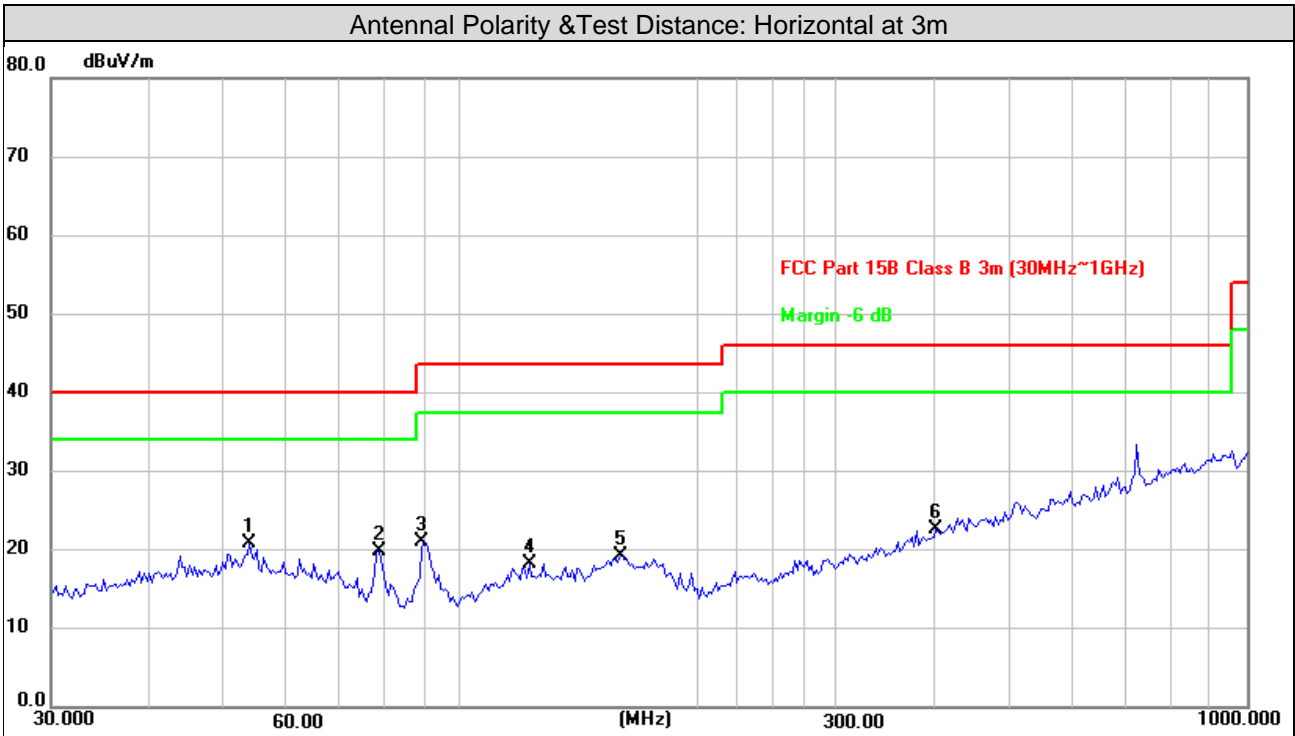
1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



2Mbps+SRD

30MHz ~ 1GHz Worst-Case Data:

Test Channel	2402MHz+5160MHz	Frequency Range	30MHz ~ 1GHz
Detector Function	Peak (PK) Quasi-peak (QP)	Tested By	Hua



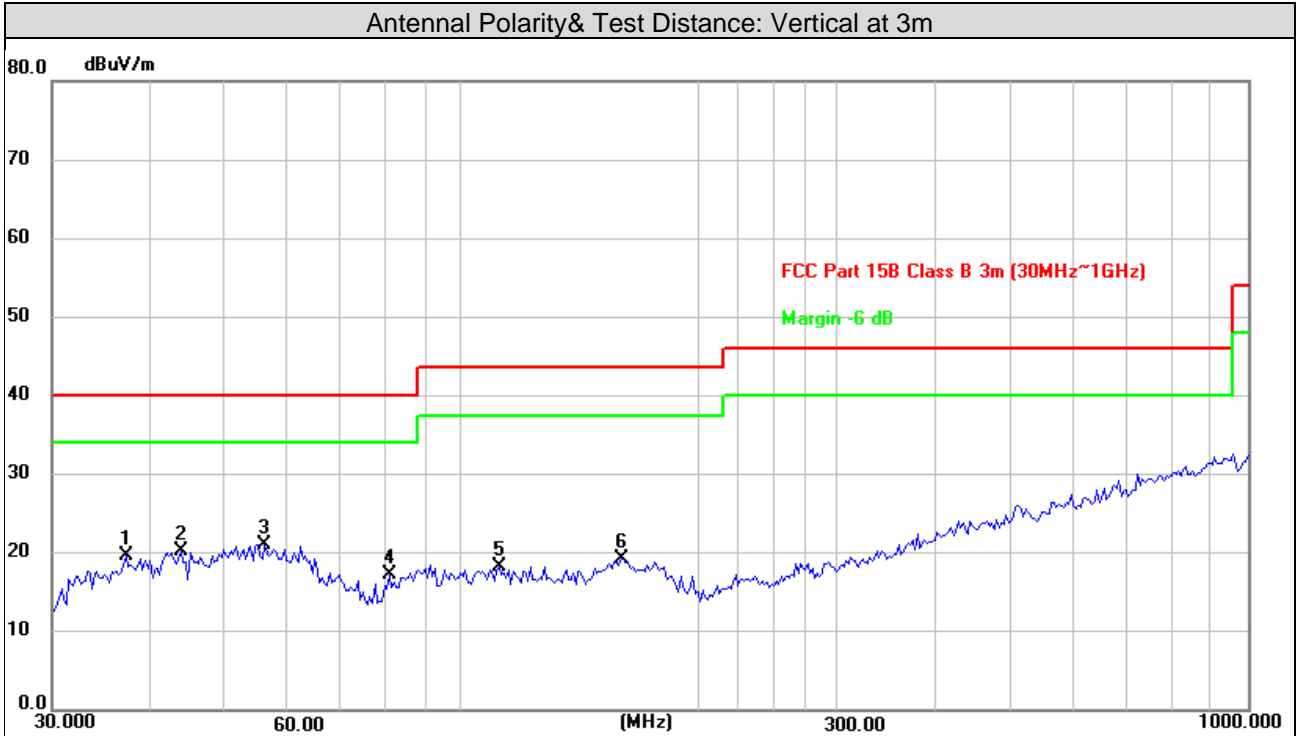
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	53.6932	35.12	-14.28	20.84	40.00	-19.16	peak	225	165
2	78.4133	37.38	-17.49	19.89	40.00	-20.11	peak	170	174
3	89.5899	40.95	-19.94	21.01	43.50	-22.49	peak	236	205
4	121.9755	33.15	-14.89	18.26	43.50	-25.24	peak	189	339
5	159.2251	31.97	-12.75	19.22	43.50	-24.28	peak	214	54
6	401.8385	32.24	-9.66	22.58	46.00	-23.42	peak	200	187

Remarks:

3. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
4. Margin value = Emission level – Limit value



Test Channel	2402MHz+5160MHz	Frequency Range	30MHz ~ 1GHz
Detector Function	Peak (PK) Quasi-peak (QP)	Tested By	Hua



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	37.2854	35.73	-16.03	19.70	40.00	-20.30	peak	127	176
2	43.8120	34.44	-14.28	20.16	40.00	-19.84	peak	112	189
3	56.0007	35.11	-14.00	21.11	40.00	-18.89	peak	104	310
4	80.6440	35.03	-17.83	17.20	40.00	-22.80	peak	136	203
5	111.3468	34.35	-16.11	18.24	43.50	-25.26	peak	120	186
6	159.2250	31.97	-12.75	19.22	43.50	-24.28	peak	115	225

Remarks:

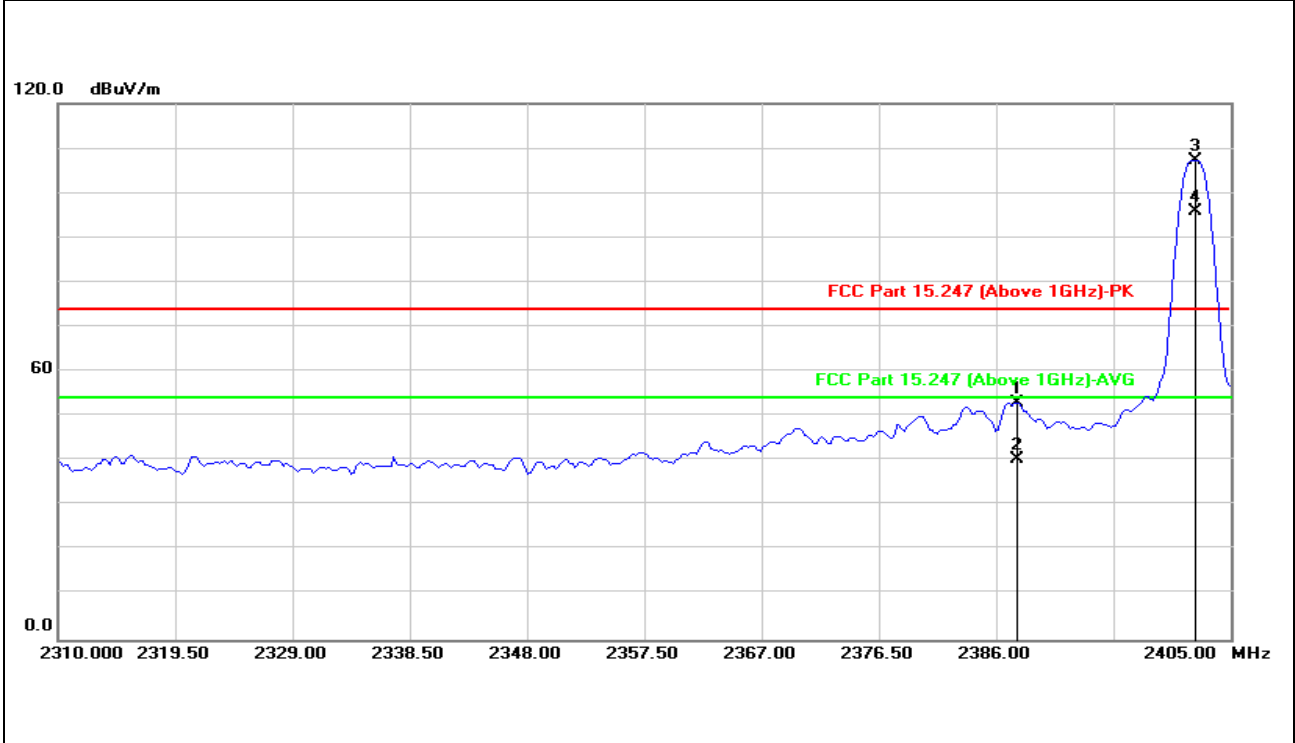
1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value



Above 1GHz Data:
BLE-1Mbps

Test channel	Channel 0	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua

Antennal Polarity& Test distance: Horizontal at 3 M



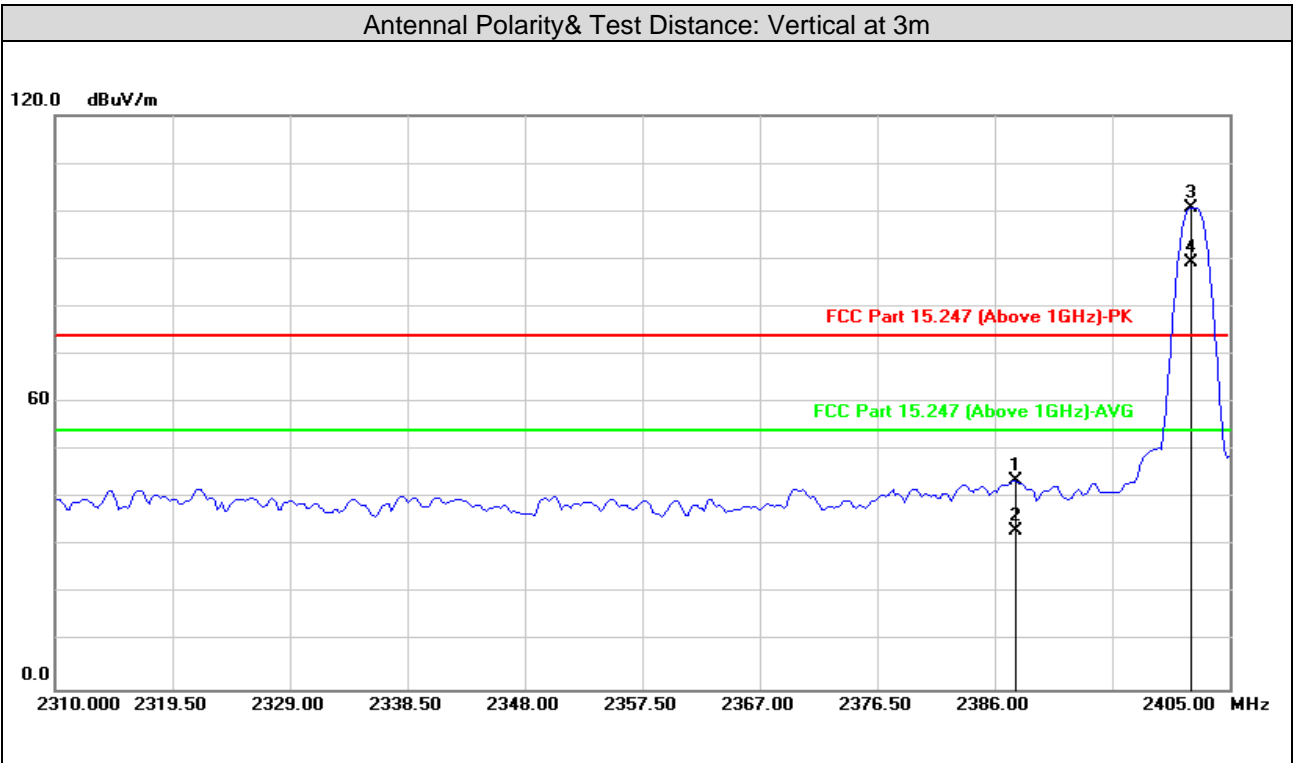
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2387.675	52.24	0.83	53.07	74.00	-20.93	peak	317	254
2	2387.675	39.50	0.83	40.33	54.00	-13.67	AVG	317	254
3 #	2402.144	106.45	0.83	107.28			peak	317	254
4 #	2402.144	94.92	0.83	95.75			AVG	317	254
5	4804.000	52.34	6.60	58.94	74.00	-15.06	peak	252	89
6	4804.000	43.77	6.60	50.37	54.00	-3.63	AVG	252	89
7	7206.000	41.74	10.08	51.82	74.00	-22.18	peak	216	335
8	7206.000	28.62	10.08	38.70	54.00	-15.30	AVG	216	335

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2402MHz: Fundamental frequency.



Test channel	Channel 0	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2387.675	42.95	0.83	43.78	74.00	-30.22	peak	382	149
2	2387.675	32.28	0.83	33.11	54.00	-20.89	AVG	382	149
3 #	2401.954	99.90	0.83	100.73			peak	382	149
4 #	2401.954	88.39	0.83	89.22			AVG	382	149
5	4804.000	48.81	6.60	55.41	74.00	-18.59	peak	108	34
6	4804.000	40.44	6.60	47.04	54.00	-6.96	AVG	108	34
7	7206.000	40.03	10.08	50.11	74.00	-23.89	peak	100	127
8	7206.000	29.33	10.08	39.41	54.00	-14.59	AVG	100	127

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2402MHz: Fundamental frequency.



Test channel	Channel 19	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua

Antennal Polarity& Test Distance: Horizontal at 3m									
No.	Frequency (MHz)	Reading (dBUV)	Correct Factor (dB)	Emission Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2440.000	105.43	0.84	106.27			peak	117	238
2#	2440.000	84.42	0.84	85.26			AVG	117	238
3	4880.000	51.18	6.77	57.95	74.00	-16.05	peak	108	91
4	4880.000	43.12	6.77	49.89	54.00	-4.11	AVG	108	91
5	7320.000	40.47	10.37	50.84	74.00	-23.16	peak	100	204
6	7320.000	28.58	10.37	38.95	54.00	-15.05	AVG	100	204

Antennal Polarity& Test Distance: Vertical at 3 M									
No.	Frequency (MHz)	Reading (dBUV)	Factor (dB)	Emission Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2440.000	102.10	0.84	102.94			peak	226	135
2#	2440.000	85.48	0.84	86.32			AVG	226	135
3	4880.000	47.50	6.77	54.27	74.00	-19.73	peak	400	172
4	4880.000	38.54	6.77	45.31	54.00	-8.69	AVG	400	172
5	7320.000	40.99	10.37	51.36	74.00	-22.64	peak	132	296
6	7320.000	28.75	10.37	39.12	54.00	-14.88	AVG	132	296

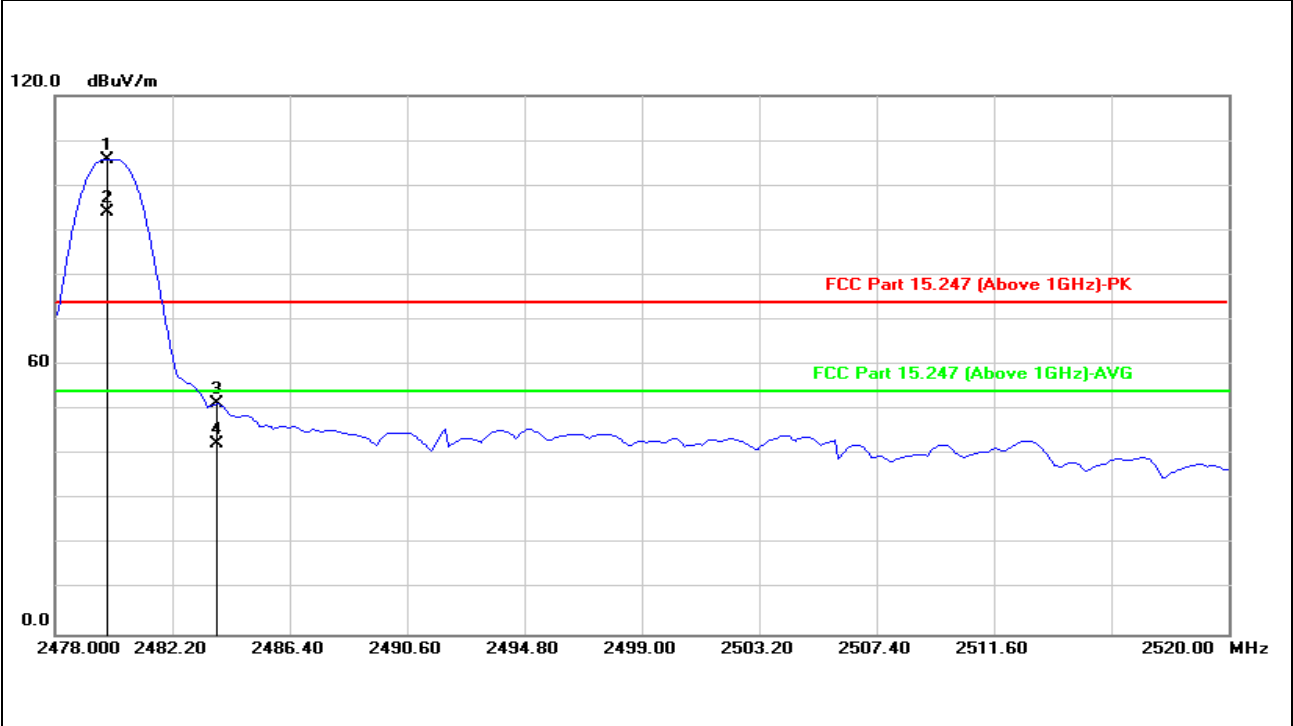
Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2440MHz: Fundamental frequency.



Test channel	Channel 39	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua

Antennal Polarity& Test Distance: Horizontal at 3 M



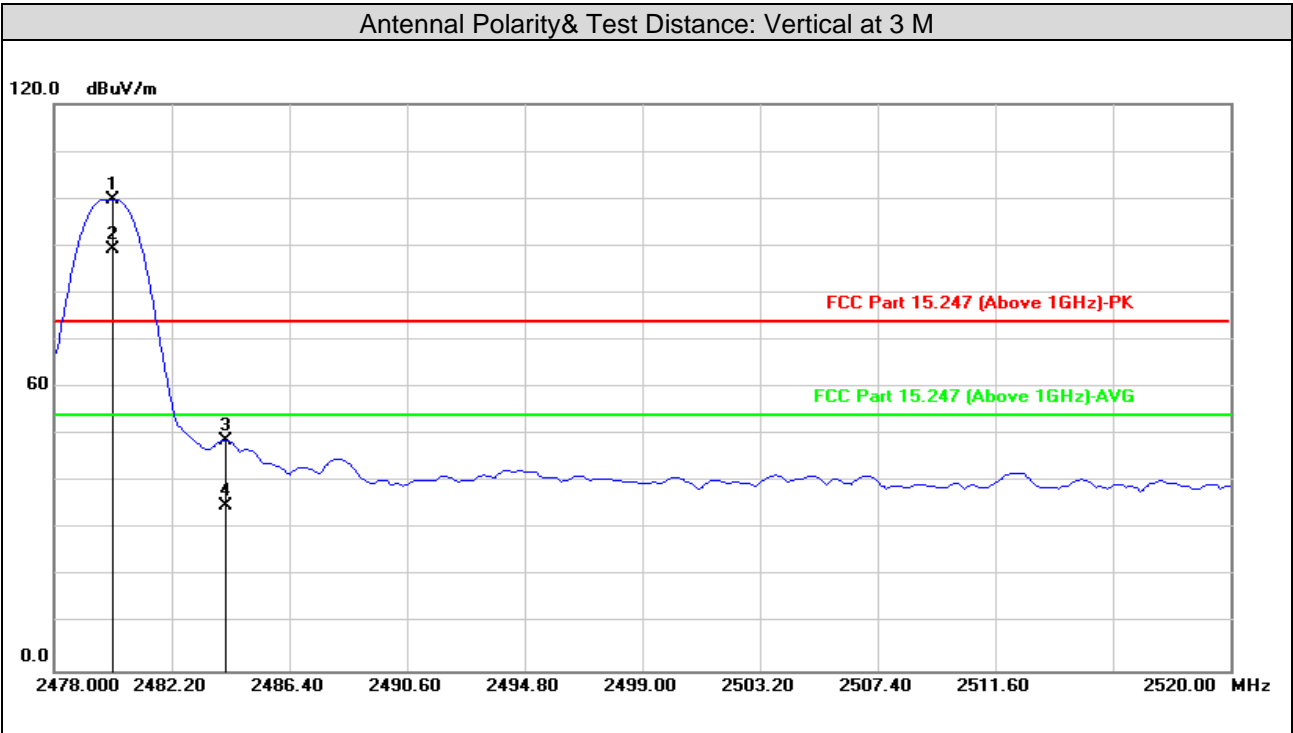
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2479.852	104.93	0.85	105.78			peak	369	249
2#	2479.852	93.14	0.85	93.99			AVG	369	249
3	2483.808	50.47	0.85	51.32	74.00	-22.68	peak	369	249
4	2483.808	41.54	0.85	42.39	54.00	-11.61	AVG	369	249
5	4960.000	50.91	6.93	57.84	74.00	-16.16	peak	100	91
6	4960.000	42.49	6.93	49.42	54.00	-4.58	AVG	100	91
7	7440.000	41.00	10.67	51.67	74.00	-22.33	peak	200	265
8	7440.000	28.24	10.67	38.91	54.00	-15.09	AVG	200	265

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2480MHz: Fundamental frequency.



Test channel	Channel 39	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2480.104	98.85	0.85	99.70			peak	126	151
2#	2480.104	88.41	0.85	89.26			AVG	126	151
3	2484.144	47.99	0.86	48.85	74.00	-25.15	peak	126	151
4	2484.144	33.99	0.86	34.85	54.00	-19.15	AVG	126	151
5	4960.000	47.58	6.93	54.51	74.00	-19.49	peak	100	244
6	4960.000	38.32	6.93	45.25	54.00	-8.75	AVG	100	244
7	7440.000	39.16	10.67	49.83	74.00	-24.17	peak	145	59
8	7440.000	28.15	10.67	38.82	54.00	-15.18	AVG	145	59

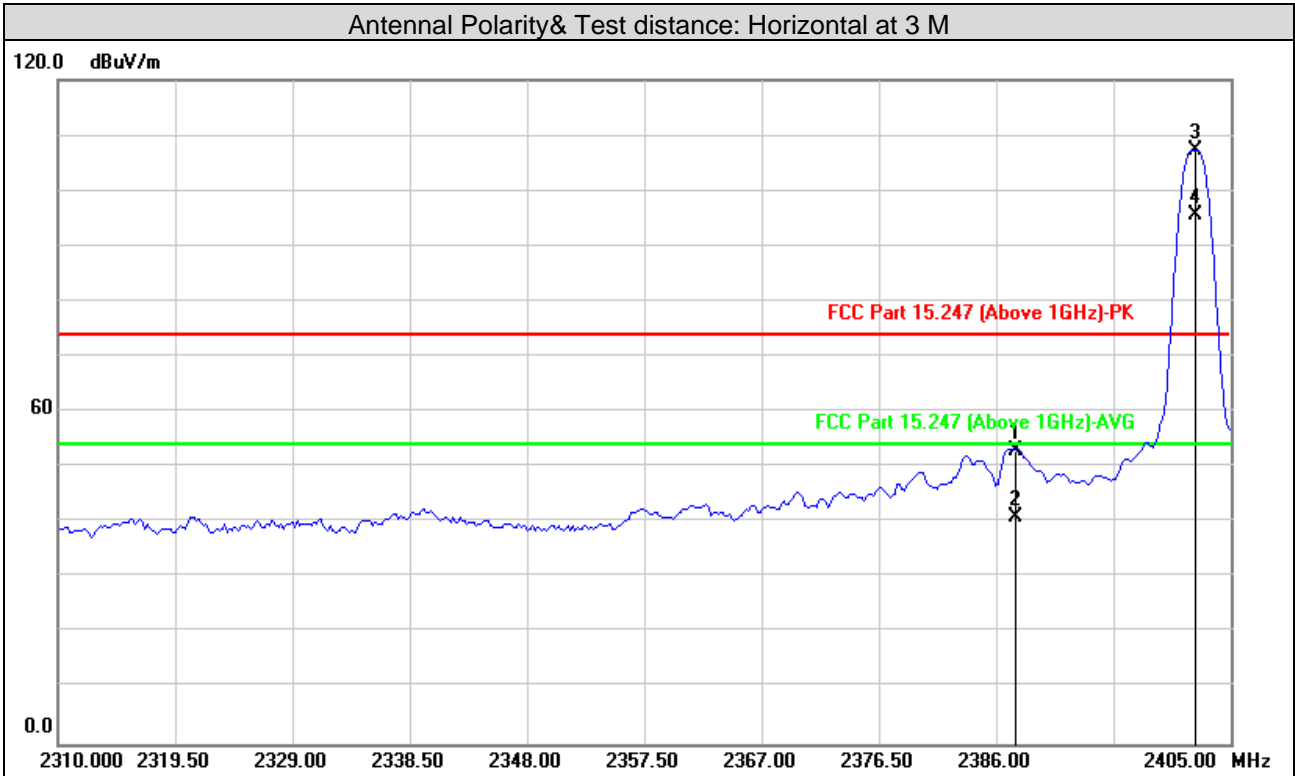
Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2480MHz: Fundamental frequency.



Above 1GHz Data:
BLE-2Mbps

Test channel	Channel 0	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2387.594	52.09	0.83	52.92	74.00	-21.08	peak	295	336
2	2387.594	40.22	0.83	41.05	54.00	-12.95	AVG	295	336
3 #	2402.126	106.54	0.83	107.37			peak	295	336
4 #	2402.126	94.83	0.83	95.66			AVG	295	336
5	4804.000	54.63	6.60	61.23	74.00	-12.77	peak	100	90
6	4804.000	43.06	6.60	49.66	54.00	-4.34	AVG	100	90
7	7206.000	42.26	10.08	52.34	74.00	-21.66	peak	127	256
8	7206.000	27.87	10.08	37.95	54.00	-16.05	AVG	127	256

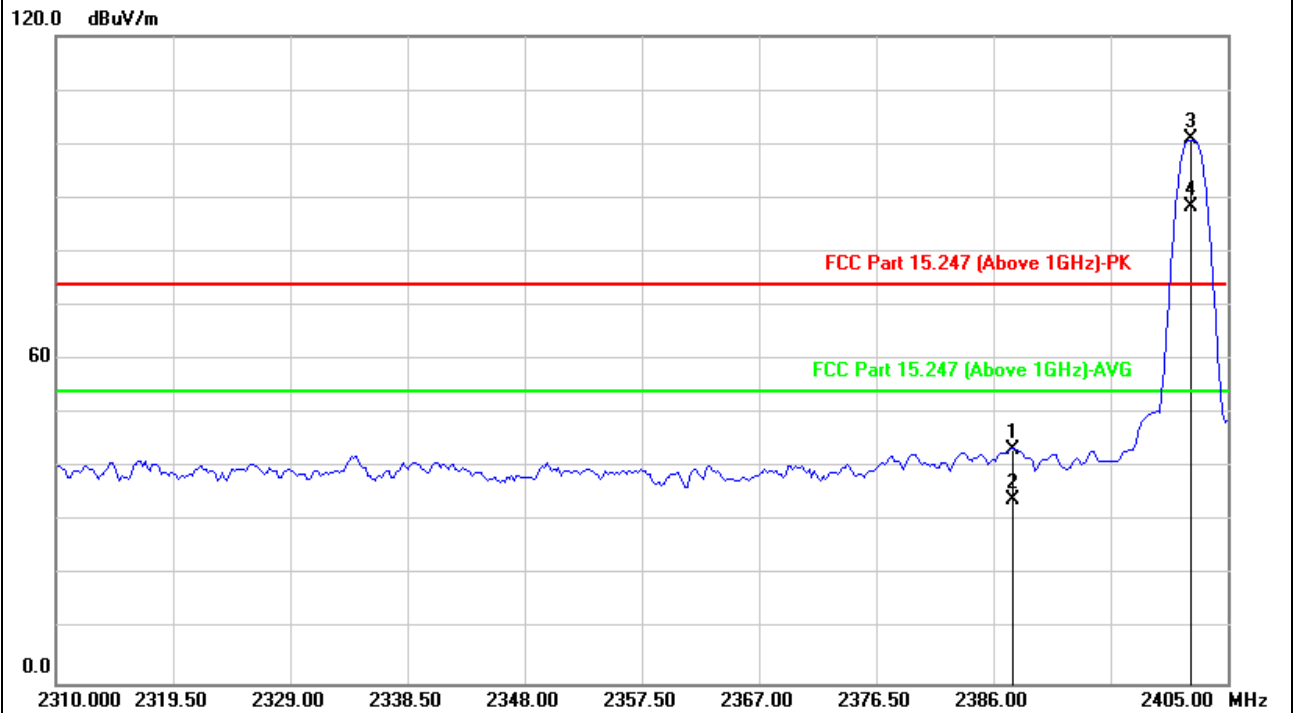
Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2402MHz: Fundamental frequency.



Test channel	Channel 0	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua

Antennal Polarity& Test Distance: Vertical at 3m



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1	2387.543	42.42	0.83	43.25	74.00	-30.75	peak	352	226
2	2387.543	33.12	0.83	33.95	54.00	-20.05	AVG	352	226
3 #	2402.056	100.24	0.83	101.07			peak	352	226
4 #	2402.056	87.43	0.83	88.26			AVG	352	226
5	4804.000	50.53	6.60	57.13	74.00	-16.87	peak	113	9
6	4804.000	39.47	6.60	46.07	54.00	-7.93	AVG	113	9
7	7206.000	41.28	10.08	51.36	74.00	-22.64	peak	124	356
8	7206.000	29.04	10.08	39.12	54.00	-14.88	AVG	124	356

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2402MHz: Fundamental frequency.



Test channel	Channel 19	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua

Antennal Polarity& Test Distance: Horizontal at 3m									
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2440.000	100.70	0.84	101.54			peak	207	336
2#	2440.000	81.50	0.84	82.34			AVG	207	336
3	4880.000	50.84	6.77	57.61	74.00	-16.39	peak	100	90
4	4880.000	39.90	6.77	46.67	54.00	-7.33	AVG	100	90
5	7320.000	40.92	10.37	51.29	74.00	-22.71	peak	207	125
6	7320.000	28.52	10.37	38.89	54.00	-15.11	AVG	207	125
Antennal Polarity& Test Distance: Vertical at 3 M									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2440.000	105.73	0.84	106.57			peak	129	267
2#	2440.000	87.78	0.84	88.62			AVG	129	267
3	4880.000	45.54	6.77	52.31	74.00	-21.69	peak	100	243
4	4880.000	35.27	6.77	42.04	54.00	-11.96	AVG	100	243
5	7320.000	41.67	10.37	52.04	74.00	-21.96	peak	139	46
6	7320.000	28.30	10.37	38.67	54.00	-15.33	AVG	139	46

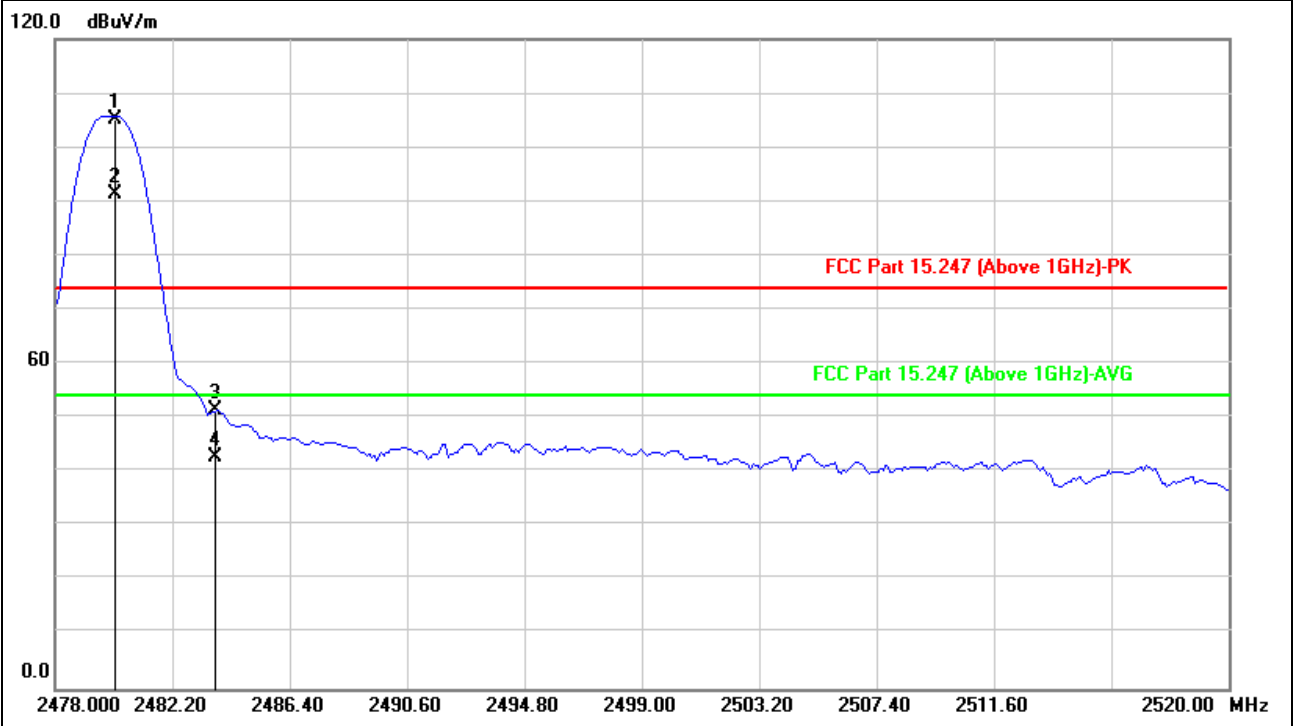
Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2440MHz: Fundamental frequency.



Test channel	Channel 39	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua

Antennal Polarity& Test Distance: Horizontal at 3 M



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2480.135	104.27	0.85	105.12			peak	369	255
2#	2480.135	90.38	0.85	91.23			AVG	369	255
3	2483.722	50.61	0.85	51.46	74.00	-22.54	peak	369	255
4	2483.722	41.84	0.85	42.69	54.00	-11.31	AVG	369	255
5	4960.000	48.79	6.93	55.72	74.00	-18.28	peak	120	107
6	4960.000	39.20	6.93	46.13	54.00	-7.87	AVG	120	107
7	7440.000	32.40	10.67	43.07	74.00	-30.93	peak	113	315
8	7440.000	27.95	10.67	38.62	54.00	-15.38	AVG	113	315

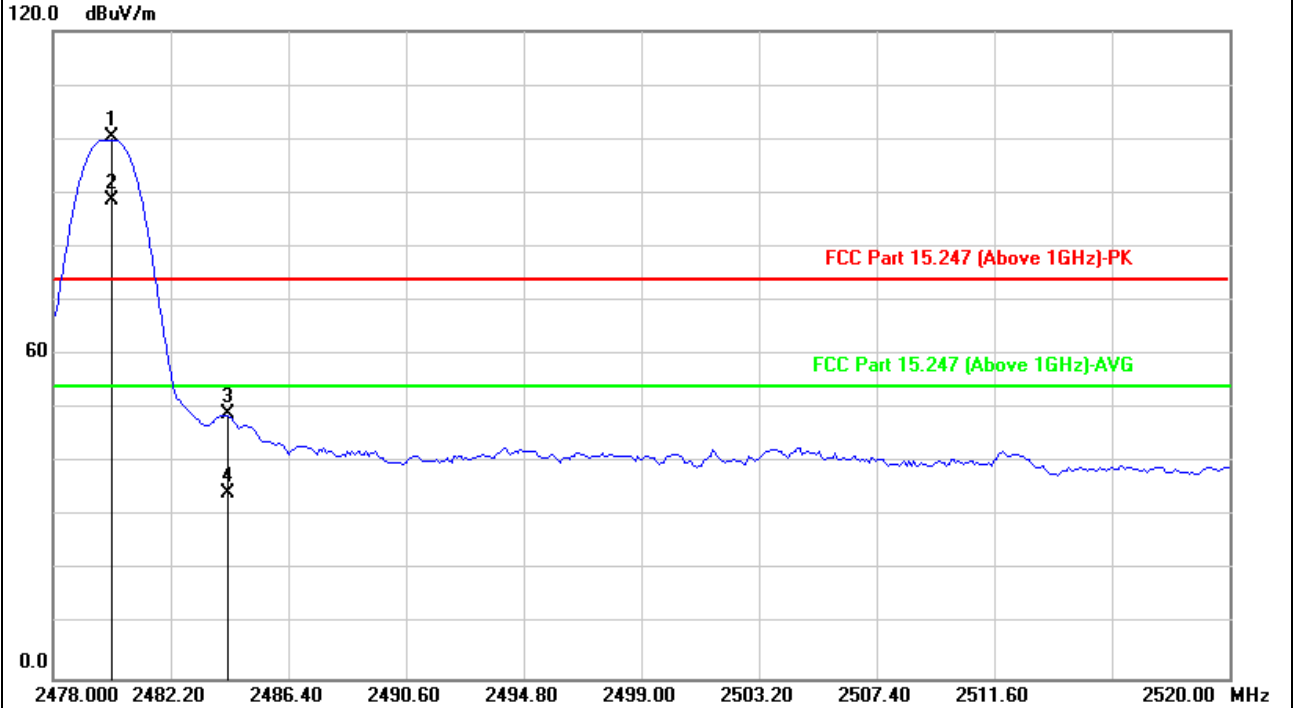
Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2480MHz: Fundamental frequency.



Test channel	Channel 39	Frequency Range	1GHz ~ 25GHz
Detector Function	Peak (PK) Average (AVG)	Tested By	Hua

Antennal Polarity& Test Distance: Vertical at 3 M



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2480.074	99.38	0.85	100.23			peak	353	148
2#	2480.074	87.80	0.85	88.65			AVG	353	148
3	2484.261	48.26	0.86	49.12	74.00	-24.88	peak	353	148
4	2484.261	33.47	0.86	34.33	54.00	-19.67	AVG	353	148
5	4960.000	45.71	6.93	52.64	74.00	-21.36	peak	108	119
6	4960.000	35.23	6.93	42.16	54.00	-11.84	AVG	108	119
7	7440.000	40.66	10.67	51.33	74.00	-22.67	peak	236	267
8	7440.000	27.59	10.67	38.26	54.00	-15.74	AVG	236	267

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
2. Margin value = Emission level – Limit value
3. #2480MHz: Fundamental frequency.



Above 1GHz Data:

1Mbps+SRD

Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AVG)
Test Channel	2402MHz+5160MHz		

Antenna Polarity & Test Distance: Horizontal at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2402.000	104.68	-0.39	104.29			peak	226	24
2#	2402.000	86.66	-0.39	86.27			AVG	226	24
3	4804.000	54.91	5.30	60.21	74.00	-13.79	peak	179	194
4	4804.000	45.36	5.30	50.66	54.00	-3.34	AVG	179	194
5#	5160.000	98.16	8.18	106.34			peak	204	127
6#	5160.000	77.05	8.18	85.23			AVG	204	127
7	7206.000	36.25	12.40	48.65	74.00	-25.35	peak	200	80
8	7206.000	26.59	12.40	38.99	54.00	-15.01	AVG	200	80
9	10320.000	36.44	17.77	54.21	74.00	-19.79	peak	198	25
10	10320.000	26.91	17.77	44.68	54.00	-9.32	AVG	198	25
11	15480.000	23.38	22.30	45.68	74.00	-28.32	peak	236	50
12	15480.000	16.45	22.30	38.75	54.00	-15.25	AVG	236	50

Antenna Polarity & Test Distance: Vertical at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2402.000	105.39	-0.39	105.00			peak	126	287
2#	2402.000	89.81	-0.39	89.42			AVG	126	287
3	4804.000	51.13	5.30	56.43	74.00	-17.57	peak	100	347
4	4804.000	41.43	5.30	46.73	54.00	-7.27	AVG	100	347
5#	5160.000	98.30	8.18	106.48			peak	103	145
6#	5160.000	79.87	8.18	88.05			AVG	103	145
7	7206.000	38.06	12.40	50.46	74.00	-23.54	peak	104	226
8	7206.000	26.25	12.40	38.65	54.00	-15.35	AVG	104	226
9	10320.000	39.74	17.77	57.51	74.00	-16.49	peak	108	168
10	10320.000	28.44	17.77	46.21	54.00	-7.79	AVG	108	168
11	15480.000	22.81	22.30	45.11	74.00	-28.89	peak	115	334
12	15480.000	17.59	22.30	39.89	54.00	-14.11	AVG	115	334

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
Margin value = Emission level – Limit value
2. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.
3. This data is tested under Bluetooth and Other 5G emission state.

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Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AVG)
Test Channel	2440MHz+5160MHz		

Antenna Polarity & Test Distance: Horizontal at 3 m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2440.000	104.63	-0.31	104.32			peak	216	150
2#	2440.000	84.57	-0.31	84.26			AVG	216	150
3	4880.000	53.62	6.25	59.87	74.00	-14.13	peak	185	243
4	4880.000	43.42	6.25	49.67	54.00	-4.33	AVG	185	243
5#	5160.000	95.18	8.18	103.36			peak	176	158
6#	5160.000	78.11	8.18	86.29			AVG	176	158
7	7320.000	33.90	12.65	46.55	74.00	-27.45	peak	200	152
8	7320.000	24.61	12.65	37.26	54.00	-16.74	AVG	200	152
9	10320.000	37.39	17.77	55.16	74.00	-18.84	peak	154	290
10	10320.000	27.24	17.77	45.01	54.00	-8.99	AVG	154	290
11	15480.000	21.97	22.30	44.27	74.00	-29.73	peak	233	204
12	15480.000	16.94	22.30	39.24	54.00	-14.76	AVG	233	204

Antenna Polarity & Test Distance: Vertical at 3 m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2440.000	105.69	-0.31	105.38			peak	114	64
2#	2440.000	88.85	-0.31	88.54			AVG	114	64
3	4880.000	49.09	6.25	55.34	74.00	-18.66	peak	127	264
4	4880.000	39.56	6.25	45.81	54.00	-8.19	AVG	127	264
5#	5160.000	97.71	8.18	105.89			peak	150	81
6#	5160.000	79.44	8.18	87.62			AVG	150	81
7	7320.000	37.13	12.65	49.78	74.00	-24.22	peak	143	261
8	7320.000	25.59	12.65	38.24	54.00	-15.76	AVG	143	261
9	10320.000	38.36	17.77	56.13	74.00	-17.87	peak	122	110
10	10320.000	27.95	17.77	45.72	54.00	-8.28	AVG	122	110
11	15480.000	24.08	22.30	46.38	74.00	-27.62	peak	108	198
12	15480.000	17.82	22.30	40.12	54.00	-13.88	AVG	108	198

Remarks:

- Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
Margin value = Emission level – Limit value
- The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.
- This data is tested under Bluetooth and Other 5G emission state.



Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AVG)
Test Channel	2480MHz+5160MHz		

Antenna Polarity & Test Distance: Horizontal at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2480.000	105.51	-0.21	105.30			peak	224	244
2#	2480.000	87.31	-0.21	87.10			AVG	224	244
3	4960.000	53.16	6.16	59.32	74.00	-14.68	peak	169	109
4	4960.000	43.87	6.16	50.03	54.00	-3.97	AVG	169	109
5#	5160.000	96.05	8.18	104.23			peak	247	262
6#	5160.000	75.95	8.18	84.13			AVG	247	262
7	7440.000	31.37	12.91	44.28	74.00	-29.72	peak	169	282
8	7440.000	22.25	12.91	35.16	54.00	-18.84	AVG	169	282
9	10320.000	37.52	17.77	55.29	74.00	-18.71	peak	203	5
10	10320.000	26.35	17.77	44.12	54.00	-9.88	AVG	203	5
11	15480.000	23.98	22.30	46.28	74.00	-27.72	peak	164	296
12	15480.000	20.71	22.30	43.01	54.00	-10.99	AVG	164	296

Antenna Polarity & Test Distance: Vertical at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2480.000	105.44	-0.21	105.23			peak	122	71
2#	2480.000	87.47	-0.21	87.26			AVG	122	71
3	4960.000	45.23	6.16	51.39	74.00	-22.61	peak	109	205
4	4960.000	39.06	6.16	45.22	54.00	-8.78	AVG	109	205
5#	5160.000	97.08	8.18	105.26			peak	136	281
6#	5160.000	76.14	8.18	84.32			AVG	136	281
7	7440.000	28.74	12.91	41.65	74.00	-32.35	peak	142	304
8	7440.000	21.37	12.91	34.28	54.00	-19.72	AVG	142	304
9	10320.000	37.49	17.77	55.26	74.00	-18.74	peak	126	275
10	10320.000	27.40	17.77	45.17	54.00	-8.83	AVG	126	275
11	15480.000	23.51	22.30	45.81	74.00	-28.19	peak	117	110
12	15480.000	16.32	22.30	38.62	54.00	-15.38	AVG	117	110

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
Margin value = Emission level – Limit value
2. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.
3. This data is tested under Bluetooth and Other 5G emission state.

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2Mbps+SRD

Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AVG)
Test Channel	2402MHz+5160MHz		

Antenna Polarity & Test Distance: Horizontal at 3 m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2402.000	106.02	-0.39	105.63			peak	215	303
2#	2402.000	85.70	-0.39	85.31			AVG	215	303
3	4804.000	53.96	5.30	59.26	74.00	-14.74	peak	166	234
4	4804.000	43.96	5.30	49.26	54.00	-4.74	AVG	166	234
5#	5160.000	99.05	8.18	107.23			peak	200	188
6#	5160.000	80.13	8.18	88.31			AVG	200	188
7	7206.000	34.81	12.40	47.21	74.00	-26.79	peak	173	21
8	7206.000	25.18	12.40	37.58	54.00	-16.42	AVG	173	21
9	10320.000	37.27	17.77	55.04	74.00	-18.96	peak	150	71
10	10320.000	25.49	17.77	43.26	54.00	-10.74	AVG	150	171
11	15480.000	23.82	22.30	46.12	74.00	-27.88	peak	235	333
12	15480.000	15.87	22.30	38.17	54.00	-15.83	AVG	235	333

Antenna Polarity & Test Distance: Vertical at 3 m

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2402.000	106.63	-0.39	106.24			peak	110	30
2#	2402.000	89.26	-0.39	88.87			AVG	110	30
3	4804.000	50.91	5.30	56.21	74.00	-17.79	peak	150	309
4	4804.000	41.32	5.30	46.62	54.00	-7.38	AVG	150	309
5#	5160.000	97.93	8.18	106.11			peak	125	16
6#	5160.000	80.06	8.18	88.24			AVG	125	16
7	7206.000	37.76	12.40	50.16	74.00	-23.84	peak	143	315
8	7206.000	24.86	12.40	37.26	54.00	-16.74	AVG	143	315
9	10320.000	39.21	17.77	56.98	74.00	-17.02	peak	126	2
10	10320.000	27.49	17.77	45.26	54.00	-8.74	AVG	126	2
11	15480.000	23.72	22.30	46.02	74.00	-27.98	peak	137	170
12	15480.000	17.81	22.30	40.11	54.00	-13.89	AVG	137	170

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)

Margin value = Emission level – Limit value

2. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

3. This data is tested under Bluetooth and Other 5G emission state.

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Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AVG)
Test Channel	2440MHz+5160MHz		

Antenna Polarity & Test Distance: Horizontal at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2440.000	105.57	-0.31	105.26			peak	220	114
2#	2440.000	88.77	-0.31	88.46			AVG	220	114
3	4880.000	53.98	6.25	60.23	74.00	-13.77	peak	178	68
4	4880.000	44.17	6.25	50.42	54.00	-3.58	AVG	178	68
5#	5160.000	97.46	8.18	105.64			peak	166	109
6#	5160.000	77.08	8.18	85.26			AVG	166	109
7	7320.000	33.07	12.65	45.72	74.00	-28.28	peak	235	66
8	7320.000	25.79	12.65	38.44	54.00	-15.56	AVG	235	66
9	10320.000	38.47	17.77	56.24	74.00	-17.76	peak	150	287
10	10320.000	27.78	17.77	45.55	54.00	-8.45	AVG	150	287
11	15480.000	23.01	22.30	45.31	74.00	-28.69	peak	186	345
12	15480.000	17.86	22.30	40.16	54.00	-13.84	AVG	186	345

Antenna Polarity & Test Distance: Vertical at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2440.000	105.52	-0.31	105.21			peak	100	340
2#	2440.000	84.93	-0.31	84.62			AVG	100	340
3	4880.000	48.87	6.25	55.12	74.00	-18.88	peak	127	315
4	4880.000	38.62	6.25	44.87	54.00	-9.13	AVG	127	315
5#	5160.000	94.19	8.18	102.37			peak	133	174
6#	5160.000	77.94	8.18	86.12			AVG	133	174
7	7320.000	34.67	12.65	47.32	74.00	-26.68	peak	126	53
8	7320.000	24.60	12.65	37.25	54.00	-16.75	AVG	126	53
9	10320.000	38.23	17.77	56.00	74.00	-18.00	peak	142	279
10	10320.000	26.42	17.77	44.19	54.00	-9.81	AVG	142	279
11	15480.000	23.42	22.30	45.72	74.00	-28.28	peak	108	271
12	15480.000	15.59	22.30	37.89	54.00	-16.11	AVG	108	271

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
Margin value = Emission level – Limit value
2. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.
3. This data is tested under Bluetooth and Other 5G emission state.



Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AVG)
Test Channel	2480MHz+5160MHz		

Antenna Polarity & Test Distance: Horizontal at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2480.000	106.52	-0.21	106.31			peak	206	226
2#	2480.000	84.53	-0.21	84.32			AVG	206	226
3	4960.000	51.96	6.16	58.12	74.00	-15.88	peak	179	254
4	4960.000	43.60	6.16	49.76	54.00	-4.24	AVG	179	254
5#	5160.000	97.05	8.18	105.23			peak	233	277
6#	5160.000	75.49	8.18	83.67			AVG	233	277
7	7440.000	32.28	12.91	45.19	74.00	-28.81	peak	200	250
8	7440.000	20.35	12.91	33.26	54.00	-20.74	AVG	200	250
9	10320.000	37.05	17.77	54.82	74.00	-19.18	peak	194	31
10	10320.000	28.04	17.77	45.81	54.00	-8.19	AVG	194	31
11	15480.000	23.01	22.30	45.31	74.00	-28.69	peak	273	82
12	15480.000	20.48	22.30	42.78	54.00	-11.22	AVG	273	82

Antenna Polarity & Test Distance: Vertical at 3 m									
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Height (cm)	Table Angle (Degree)
1#	2480.000	103.47	-0.21	103.26			peak	135	104
2#	2480.000	85.25	-0.21	85.04			AVG	135	104
3	4960.000	44.10	6.16	50.26	74.00	-23.74	peak	109	101
4	4960.000	40.13	6.16	46.29	54.00	-7.71	AVG	109	101
5#	5160.000	96.41	8.18	104.59			peak	126	322
6#	5160.000	77.05	8.18	85.23			AVG	126	322
7	7440.000	27.64	12.91	40.55	74.00	-33.45	peak	144	297
8	7440.000	22.71	12.91	35.62	54.00	-18.38	AVG	144	297
9	10320.000	36.95	17.77	54.72	74.00	-19.28	peak	108	1
10	10320.000	28.52	17.77	46.29	54.00	-7.71	AVG	108	1
11	15480.000	24.65	22.30	46.95	74.00	-27.05	peak	136	262
12	15480.000	13.91	22.30	36.21	54.00	-17.79	AVG	136	262

Remarks:

1. Emission Level = Read Level + Factor (Antenna Factor + Cable Loss - Preamp Factor)
Margin value = Emission level – Limit value
2. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.
3. This data is tested under Bluetooth and Other 5G emission state.

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3.2 Conducted Emission Measurement

3.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

- Note: 1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.2.2 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Due Date of Calibration
EMI Test Receiver	Rohde&Schwarz	ESR7	101961	2023-12-27
Artificial Mains Network	Rohde&Schwarz	ENV216	ssss3560.6550.15	2023-12-27
Test software	FARAD	EZ EMC V1.1.4.2	N/A	N/A

- Note: 1. The calibration interval of the above test instruments is 12 months.
 2. The test was performed in Shielded Room.

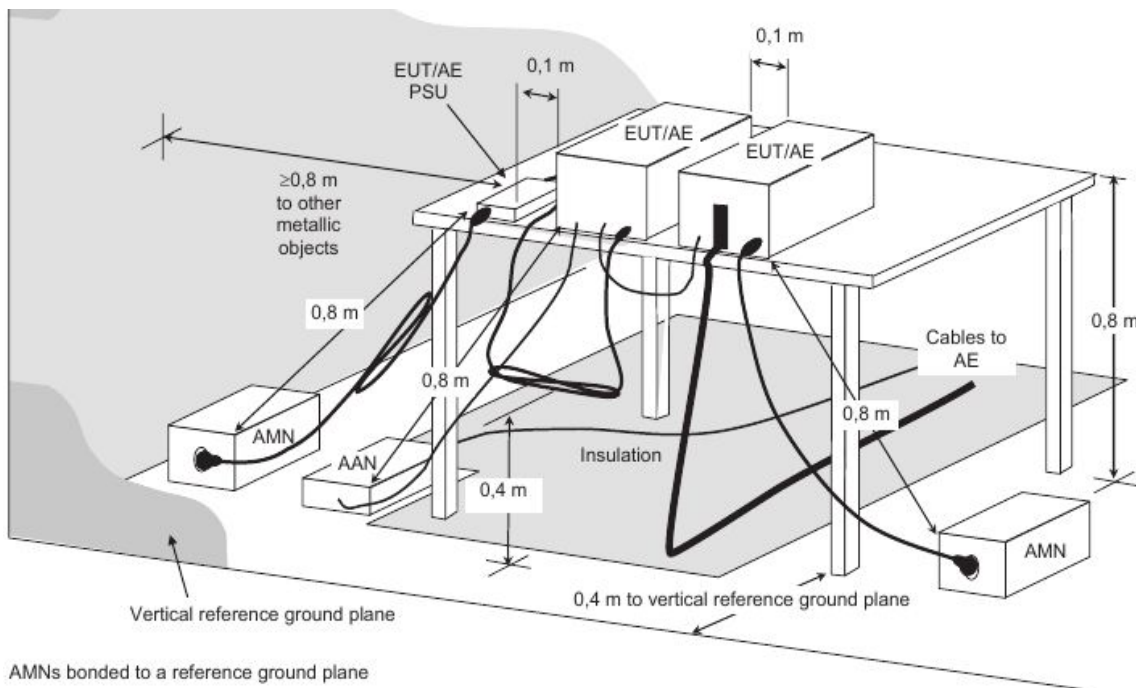


3.2.3 Test Procedures

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) was not recorded.

Note: All modes of operation were investigated and the worst-case emissions are reported.

3.2.4 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.2.5 EUT Operating Condition

Set the EUT under transmission condition continuously at specific channel frequency.

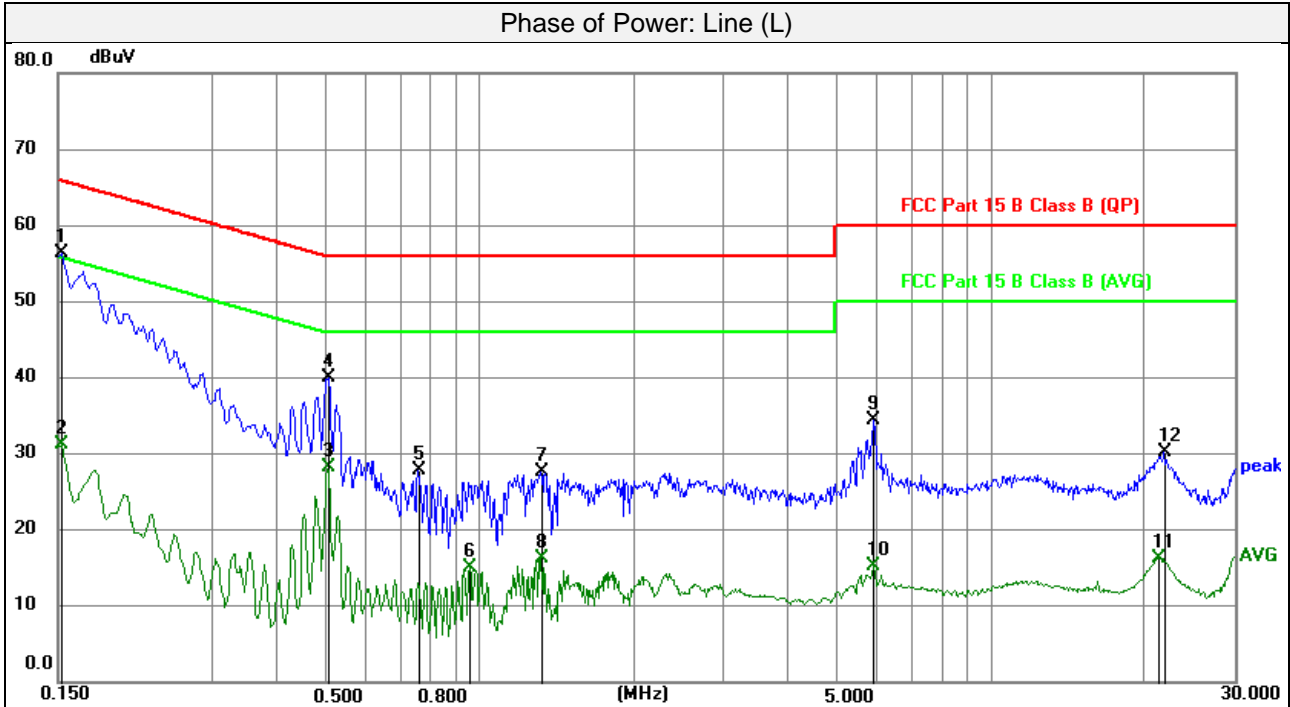
3.2.6 Deviation from Test Standard

No deviation.



3.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution andwidth	Quasi-Peak (QP) / Average (AV), 9kHz
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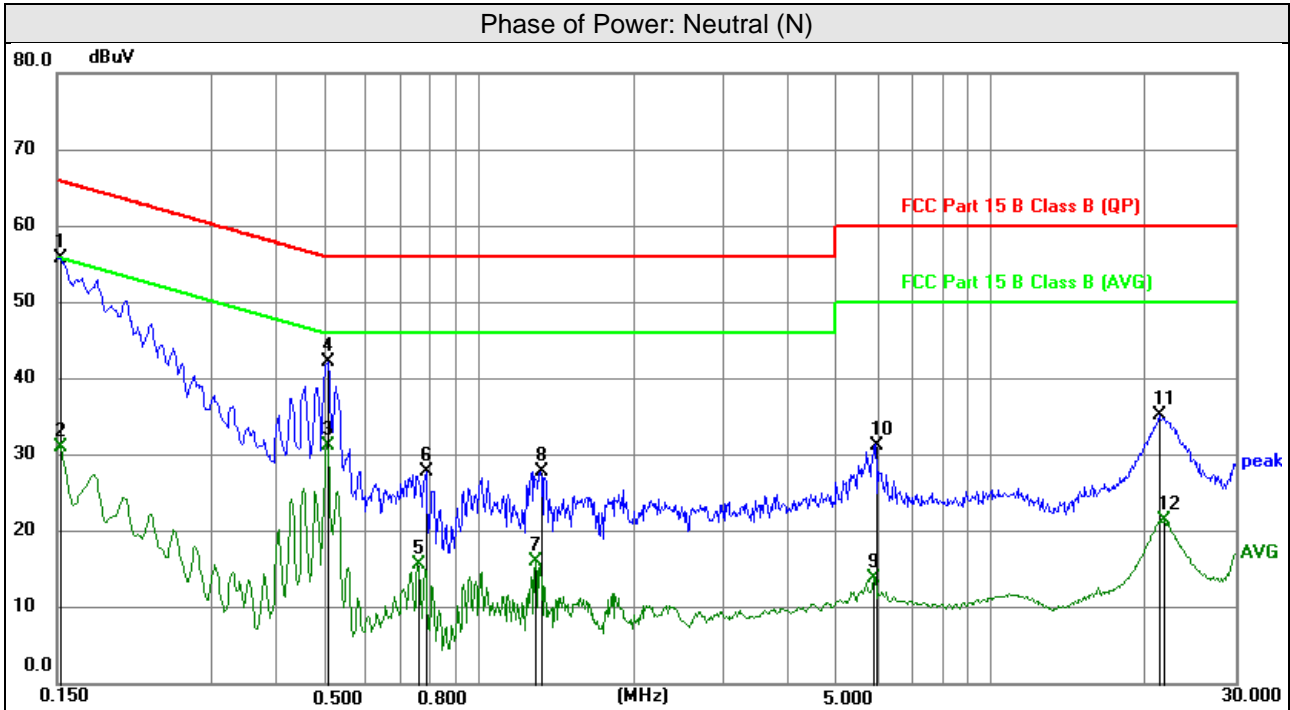
No.	Frequency (MHz)	Reading (dBuV)	Correction Factor (dB)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1522	46.13	10.18	56.31	65.88	-9.57	peak
2	0.1522	20.99	10.18	31.17	55.88	-24.71	AVG
3	0.5055	18.03	10.10	28.13	46.00	-17.87	AVG
4	0.5076	29.93	10.10	40.03	56.00	-15.97	peak
5	0.7620	17.64	10.10	27.74	56.00	-28.26	peak
6	0.9600	5.10	10.04	15.14	46.00	-30.86	AVG
7	1.3178	17.51	10.05	27.56	56.00	-28.44	peak
8	1.3178	6.15	10.05	16.20	46.00	-29.80	AVG
9	5.9100	24.33	10.00	34.33	60.00	-25.67	peak
10	5.9100	5.32	10.00	15.32	50.00	-34.68	AVG
11	21.3810	5.98	10.37	16.35	50.00	-33.65	AVG
12	21.8378	19.91	10.38	30.29	60.00	-29.71	peak

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution andwidth	Quasi-Peak (QP) / Average (AV), 9kHz
-----------------	----------------	---	--------------------------------------



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1522	45.53	10.18	55.71	65.88	-10.17	peak
2	0.1522	20.84	10.18	31.02	55.88	-24.86	AVG
3	0.5055	21.05	10.11	31.16	46.00	-14.84	AVG
4	0.5076	32.07	10.11	42.18	56.00	-13.82	peak
5	0.7620	5.63	10.09	15.72	46.00	-30.28	AVG
6	0.7890	17.72	10.08	27.80	56.00	-28.20	peak
7	1.2930	6.04	10.06	16.10	46.00	-29.90	AVG
8	1.3178	17.79	10.06	27.85	56.00	-28.15	peak
9	5.9279	3.96	9.99	13.95	50.00	-36.05	AVG
10	5.9303	21.33	9.99	31.32	60.00	-28.68	peak
11	21.3584	24.78	10.39	35.17	60.00	-24.83	peak
12	21.8130	11.01	10.40	21.41	50.00	-28.59	AVG

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



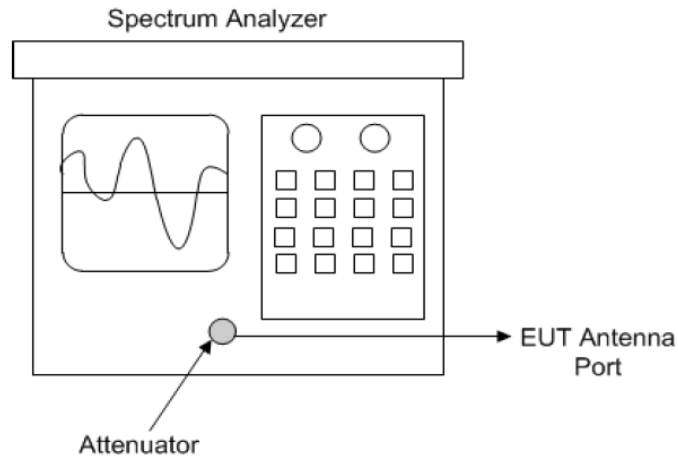
3.3 6dB Bandwidth Measurement

3.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

3.3.2 Test Setup

Subclause 11.8 of ANSI C63.10 is applicable.



Spectrum analyzer test configuration

3.3.3 Test Instruments

Refer to section 5 to get information of above instrument.



3.3.4 Test Procedure

Option 1:

- a. Set resolution bandwidth (RBW) = 30kHz
- b. Set the video bandwidth (VBW) $\geq 3 \times$ RBW
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Sweep = auto couple.
- f. Allow the trace to stabilize.
- g. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

Option 2:

The automatic bandwidth measurement capability of an instrument may be employed using the dB bandwidth mode with X set to 6 dB. if the functionality described in 11.8.1 (i.e. RBW= 100 kHz. VBW $\geq 3 \times$ RBW. and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability. care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB

3.3.5 Deviation from Test Standard

No deviation.

3.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



3.3.7 Test Result

BLE-1Mbps			
Operation Channel	Frequency	Occupied Bandwidth (MHz)	
		Result	Limit
0	2402MHz	0.688	>0.5
19	2440MHz	0.712	>0.5
39	2480MHz	0.720	>0.5

BLE-2Mbps			
Operation Channel	Frequency	Occupied Bandwidth (MHz)	
		Result	Limit
0	2402MHz	1.148	>0.5
19	2440MHz	1.244	>0.5
39	2480MHz	1.180	>0.5



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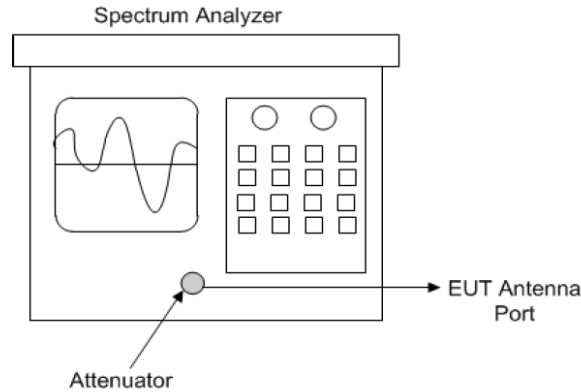
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3.4 Occupied Bandwidth Measurement

3.4.1 Test Setup



3.4.2 Test Instruments

Refer to section 5 to get information of above instrument.

3.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to peak. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.4.4 Deviation from Test Standard

No deviation.

3.4.5 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



3.4.6 Test Results

BLE-1Mbps			
Operation Channel	Frequency	Occupied Bandwidth (MHz)	
		Result	Limit
0	2402MHz	1.069	2400~2483.5
19	2440MHz	1.067	2400~2483.5
39	2480MHz	1.070	2400~2483.5

BLE-2Mbps			
Operation Channel	Frequency	Occupied Bandwidth (MHz)	
		Result	Limit
0	2402MHz	2.056	2400~2483.5
19	2440MHz	2.070	2400~2483.5
39	2480MHz	2.068	2400~2483.5



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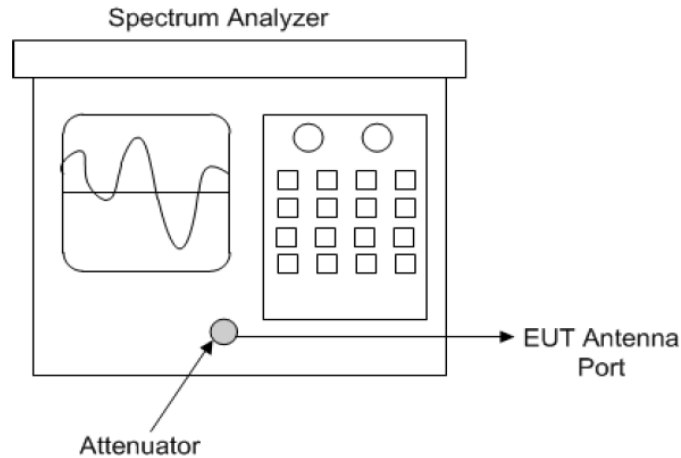
3.5 Conducted Output Power Measurement

3.5.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

3.5.2 Test Setup

- Measurement using a spectrum analyzer (SA) Subclause 11.9.2.2 of ANSI C63.10 is applicable



Spectrum analyzer output power test configuration

3.5.3 Test Instruments

Refer to section 5 to get information of above instrument.

3.5.4 Test Procedures

Measurement using a spectrum analyzer (SA), Selection of test method:

The proper test method is selected based on the following criteria:

- Method AVGSA-1 or method AVGSA-1A (alternative)** shall be applied if either of the following conditions can be satisfied:
 - 1) The EUT transmits continuously (or with a $D > 98\%$).
 - 2) Sweep triggering can be implemented in such a way that the device transmits at the maximum power control level throughout the duration of each of the instrument sweeps to be averaged. This condition can generally be achieved by triggering the instrument's sweep if the duration of the sweep (with the instrument configured as in method AVGSA-1) is equal to or shorter than the duration T of each transmission from the EUT, and if those transmissions exhibit full power throughout their durations.
- Method AVGSA-2 or method AVGSA-2A (alternative)** shall be applied if the conditions of the preceding item a) cannot be achieved and the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than $+2\%$.
- Method AVGSA-3 or method AVGSA-3A (alternative)** shall be applied if the conditions of the preceding item a) and item b) cannot be achieved.



- Measurement using a spectrum analyzer (SA), Selection of test method:
- Maximum peak conducted output power

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

- a) Set the RBW > DTS bandwidth.
- b) Set VBW > [3 x RBW]
- c) Set span > [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.



- Maximum conducted (average) output power (Method AVGSA-2):
- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
 - b) Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
 - c) SA Setting:
 - 1)* Set span to at least 1.5 times the OBW
 - 2)* Set sweep to "free run."
 - 3)* Set RBW= 1% to 5% of the OBW. not to exceed 1MHz.
 - 4)* Set VBW $\geq 3 \times$ RBW
 - 5)* Number of points in sweep $\geq 2 \times$ span /RBW. (This gives bin-to-bin spacing \leq RBW / 2. so that narrowband signals are not lost between frequency bins).
 - 6)* Sweep time =auto
 - 7)* Detector =RMS (power averaging).
 - 8)* Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
 - 9)* Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
 - 10)* Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function. then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW.
 - 11)* Add $[10 \log (1/ D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission).
 - d. Measure the captured power within the band and recording the plot.
 - e. Repeat above procedures until all frequencies required were complete.

3.5.5 Deviation from Test Standard

No deviation.

3.5.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



3.5.7 Test Results

BLE-1Mbps						
Peak Power						
Channel	Freq.	RF Output Power		Limit (mW)		Verdict
No.	(MHz)	(dBm)	(mW)	Rss-247	FCC	
0	2402	7.75	5.957	<125	<1000	Pass
19	2440	5.67	3.690	<125	<1000	Pass
39	2480	5.91	3.899	<125	<1000	Pass

BLE-1Mbps						
Average Power						
Channel	Freq.	RF Output Power		Limit (mW)		Verdict
No.	(MHz)	(dBm)	(mW)	Rss-247	FCC	
0	2402	6.65	4.619	<125	<1000	Pass
19	2440	4.58	2.868	<125	<1000	Pass
39	2480	4.77	2.996	<125	<1000	Pass

Note: The final results of average power should add the duty cycle factor [10 log (1/ D)].

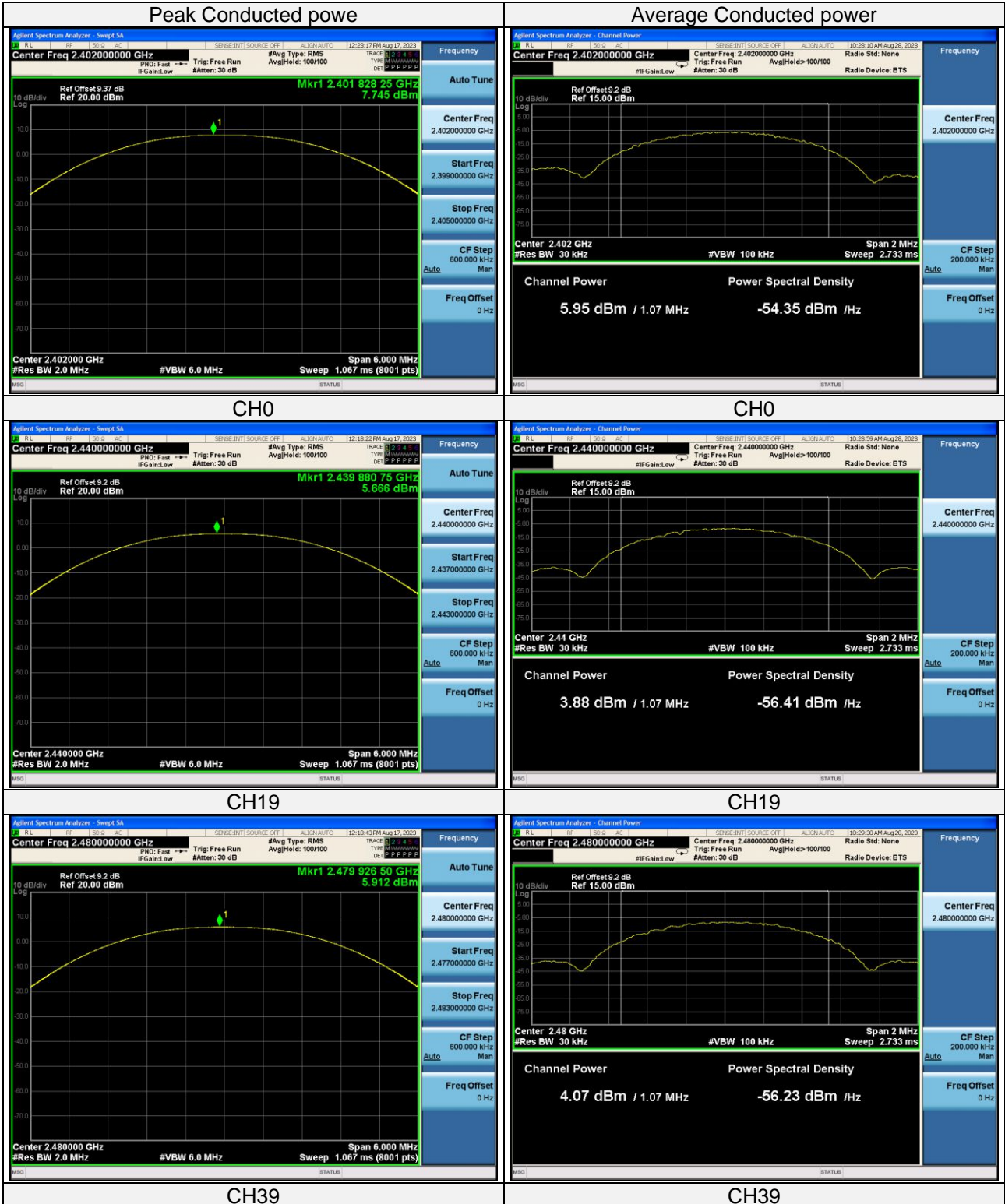
BLE-2Mbps						
Peak Power						
Channel	Freq.	RF Output Power		Limit (mW)		Verdict
No.	(MHz)	(dBm)	(mW)	Rss-247	FCC	
0	2402	7.58	5.728	<125	<1000	Pass
19	2440	5.45	3.508	<125	<1000	Pass
39	2480	5.68	3.698	<125	<1000	Pass

BLE-2Mbps						
Average Power						
Channel	Freq.	RF Output Power		Limit (mW)		Verdict
No.	(MHz)	(dBm)	(mW)	Rss-247	FCC	
0	2402	6.47	4.431	<125	<1000	Pass
19	2440	4.36	2.726	<125	<1000	Pass
39	2480	4.60	2.881	<125	<1000	Pass

Note: The final results of average power should add the duty cycle factor [10 log (1/ D)].



1Mbps



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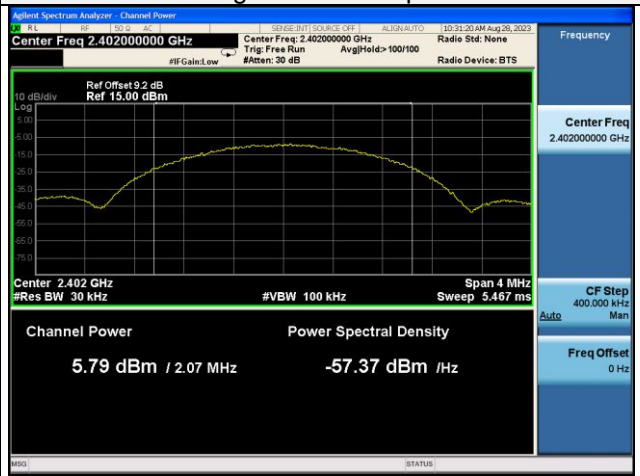
2Mbps

Peak Conducted power



CH0

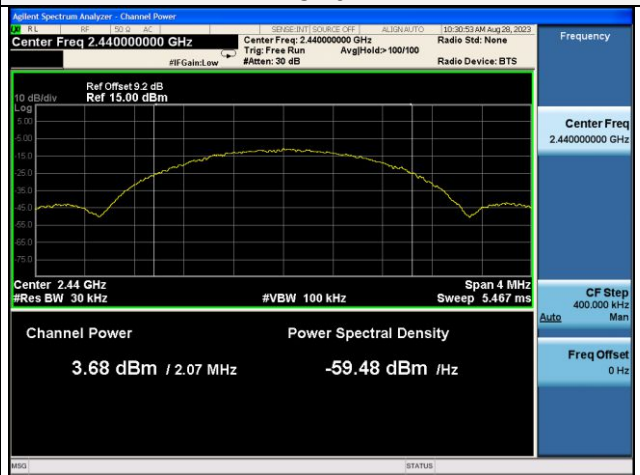
Average Conducted power



CH0



CH19



CH19



CH39



CH39

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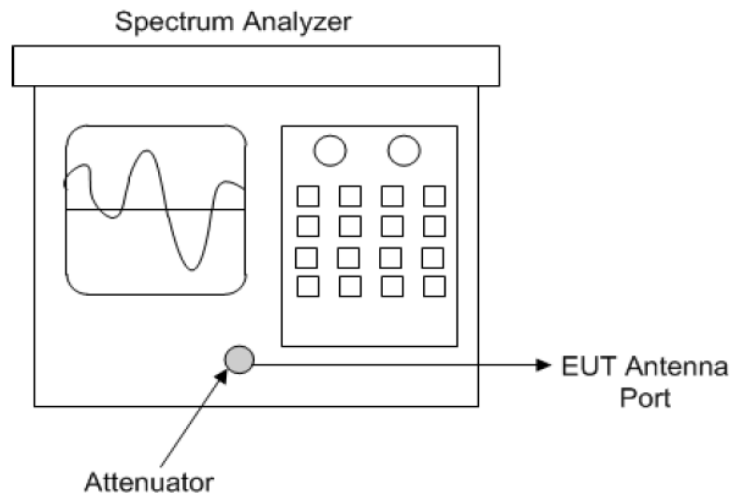
3.6 Power Spectral Density Measurement

3.6.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm/3kHz.

3.6.2 Test Setup

- DTS maximum power spectral density level in the fundamental emission Subclause 11.10 of ANSI C63.10 is applicable



Spectrum analyzer test configuration

3.6.3 Test Instruments

Refer to section 5 to get information of above instrument.



3.6.4 Test Procedure

- a. **Method AVGPSD-1 or method AVGPSD-1A (alternative)** shall be applied if either of the following conditions can be satisfied:
 - 1) The EUT transmits continuously (or with a $D \geq 98\%$).
 - 2) Sweep triggering can be implemented in such a way that the device transmits at the maximum power control level throughout the duration of each of the instrument sweeps to be averaged. This condition can generally be achieved by triggering the instrument's sweep if the duration of the sweep is equal to or shorter than the duration I of each transmission from the EUT, and if those transmissions exhibit full power throughout these durations.
- b. **Method AVGPSD-2 or method AVGPSD-2A (alternative)** shall be applied if the conditions of the preceding item a) cannot be achieved. and the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than $\pm 2\%$.
- c. **Method AVGPSD-3 or method AVGPSD-3A (alternative)** shall be applied if the conditions of the preceding paragraphs a) and b) cannot be achieved.

Method AVGPSD-3:

Method AVGPSD-3 uses mms detection across ON and OFE times of the EUT with max hold. The following procedure is applicable when the EUT cannot be configured to transmit continuously (i.e. $D < 98\%$), when sweep triggering/signal gating cannot be used to measure only when the EUT is transmitting at its maximum power control level. and when the transmission duty cycle is not constant (i.e., duty cycle variations exceed $\pm 2\%$),

SA Setting:

- a. Set the instrument span to a minimum of 1.5 times the OBW.
 - b. Set sweep trigger to "free run."
 - c. Set the RBW = 3 kHz, VBW = 10 kHz,
 - d. Detector = RMS (power averaging).
 - e. Sweep time = Auto couple,
 - f. Allow max hold to run for at least 60 s or longer as needed to allow the trace to stabilize.
 - g. Use the peak marker function to determine the maximum PSD level
- If the measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced).

3.6.5 Deviation from Test Standard

No deviation.

3.6.6 EUT Operating Condition

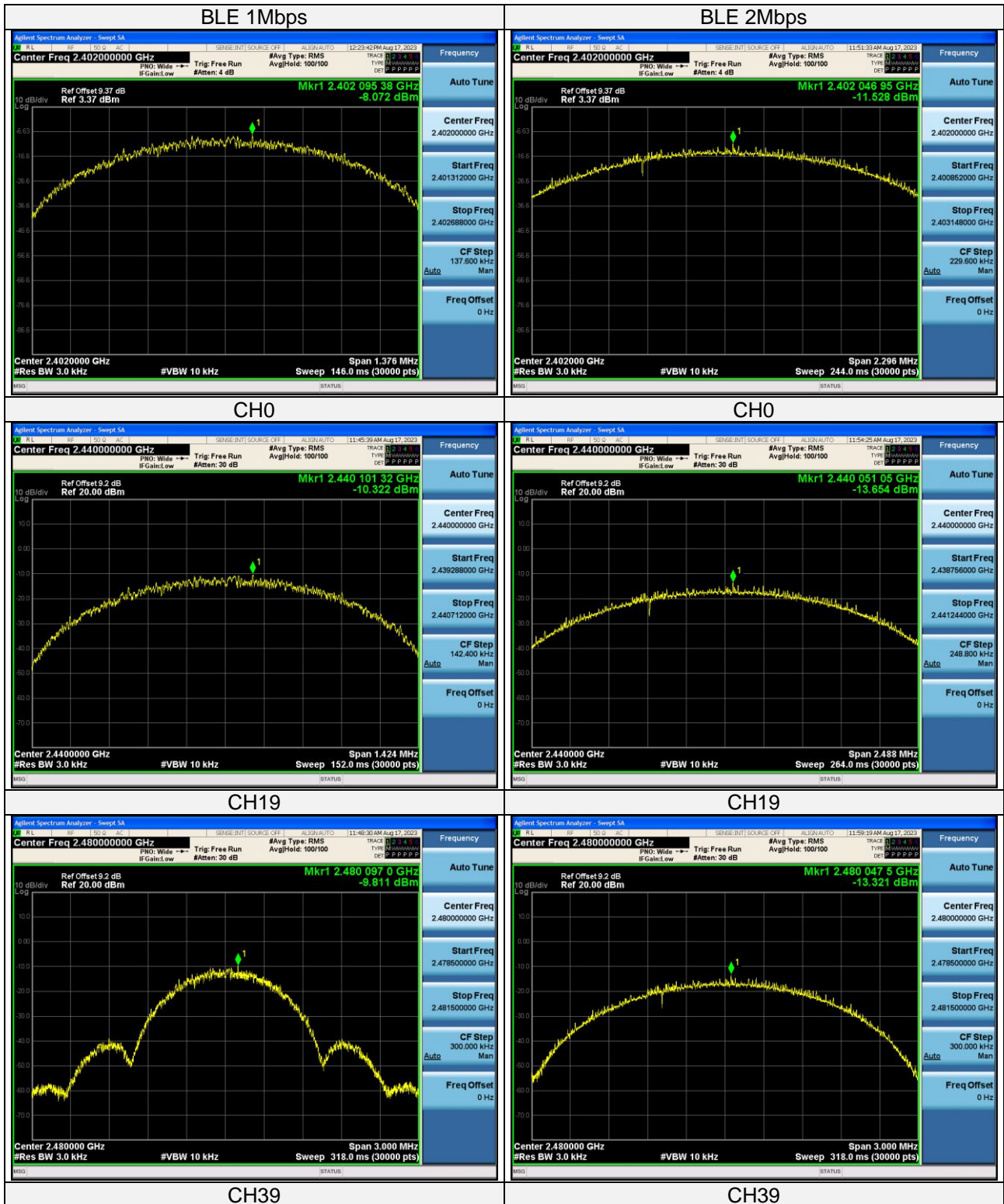
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3.6.7 Test Results

BLE-1Mbps		Power Density	
Test Channel	Channel Frequency	Test Result (dBm/3kHz)	Limit (dBm/3kHz)
0	2402MHz	-8.07	<8
19	2440MHz	-10.32	<8
39	2480MHz	-9.81	<8

BLE-2Mbps		Power Density	
Test Channel	Channel Frequency	Test Result (dBm/3kHz)	Limit (dBm/3kHz)
0	2402MHz	-11.53	<8
19	2440MHz	-13.65	<8
39	2480MHz	-13.32	<8



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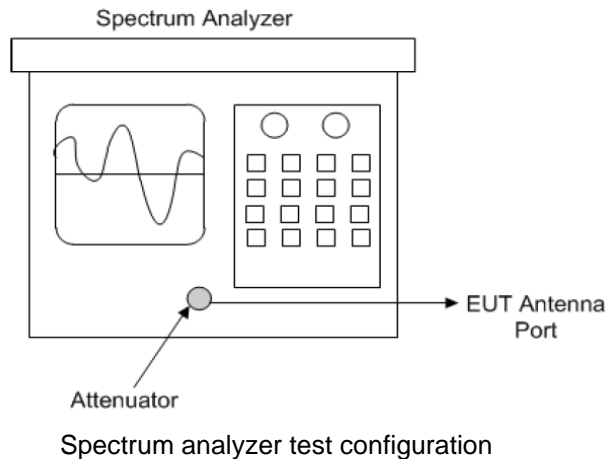
3.7 Conducted Out of Band Emission Measurement

3.7.1 Limits of Conducted Out of Band Emission Measurement

- a. **If the maximum peak conducted output power procedure was used to determine compliance as described in 11.9.1**, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).
- b. **If maximum conducted (average) output power was used to determine compliance as described in 11.9.2**, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

3.7.2 Test Setup

- DTS emissions in non-restricted frequency bands Subclause 11.11 of ANSI C63.10 is applicable.
- DTS emissions in restricted frequency bands Subclause 11.12 of ANSI C63.10 is applicable



3.7.3 Test Instruments

Refer to section 5 to get information of above instrument.



3.7.4 Test Procedure

a. Establish a reference level by using the following procedure:

- 1) Set instrument center frequency to DTS channel center frequency.
- 2) Set the span to 21.5 times the DTS bandwidth)
- 3) Set the RBW= 100 kHz)
- 4) Set the VBW $\geq 3 \times$ RBW
- 5) Detector = peak
- 6) Sweep time = auto coupling
- 7) Trace mode =max hold
- 8) Allow trace to fully stabilize
- 9) 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.

b. Establish an emission level by using the following procedure:

- 1) Set the center frequency and span to encompass frequency range to be measured.
- 2) Set the RBW = 100 kHz
- 3) Set the VBW ≥ 300 kHz.
- 4) Detector = peak.
- 5) Sweep time = auto couple.
- 6) Trace mode = max hold.
- 7) Allow trace to fully stabilize.
- 8) Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

3.7.5 Deviation from Test Standard

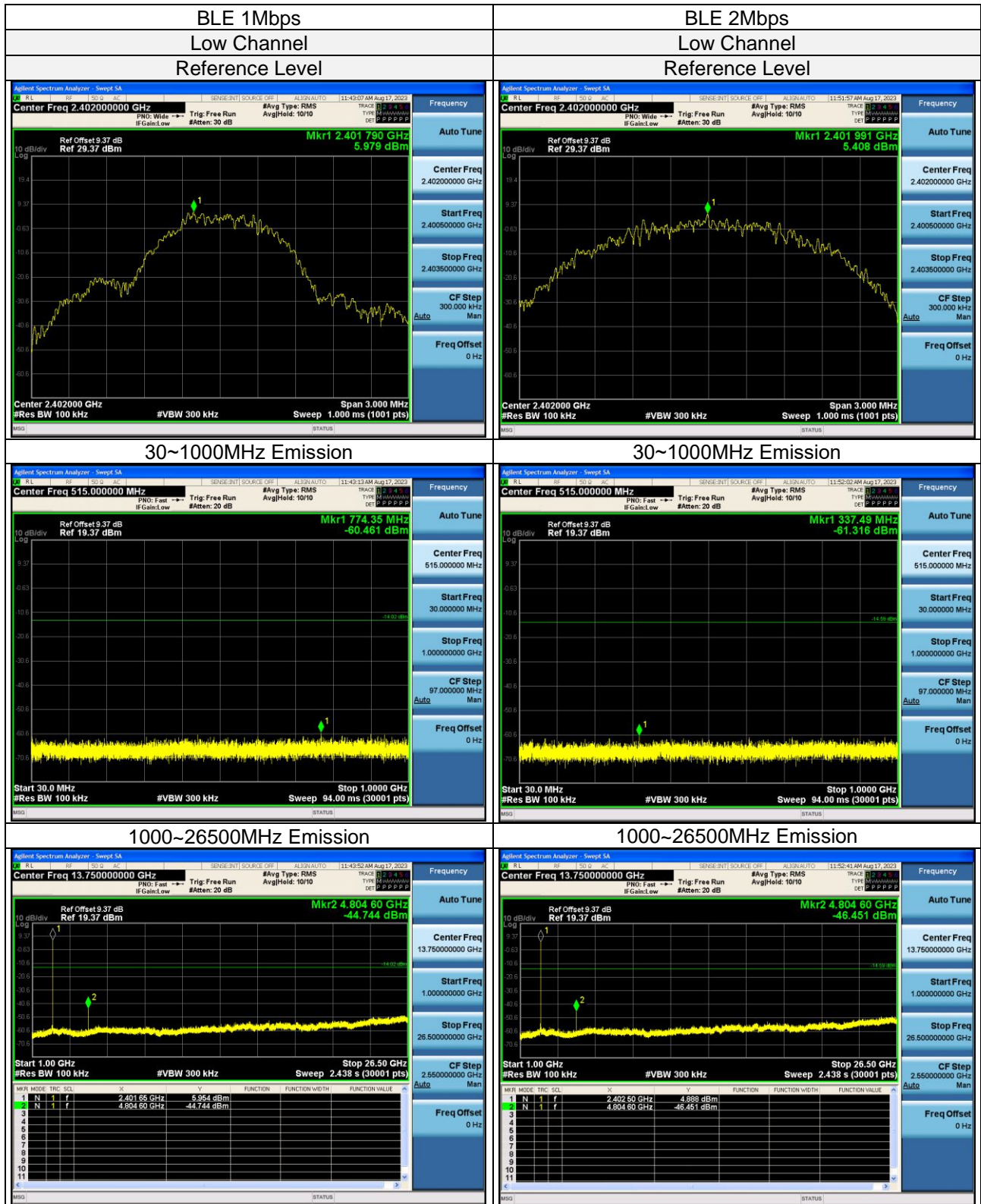
No deviation.

3.7.6 EUT Operating Condition

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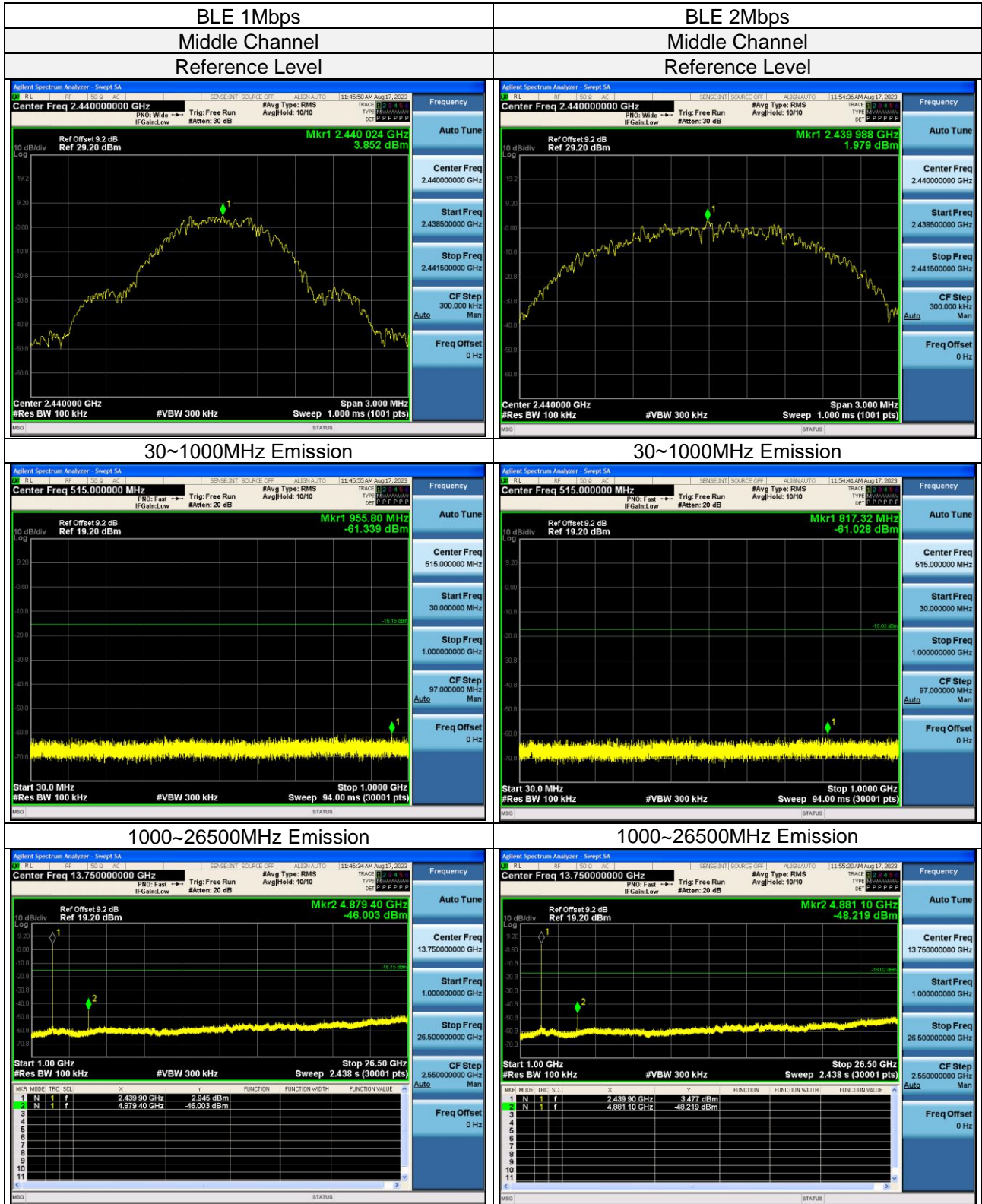
3.7.7 Test results



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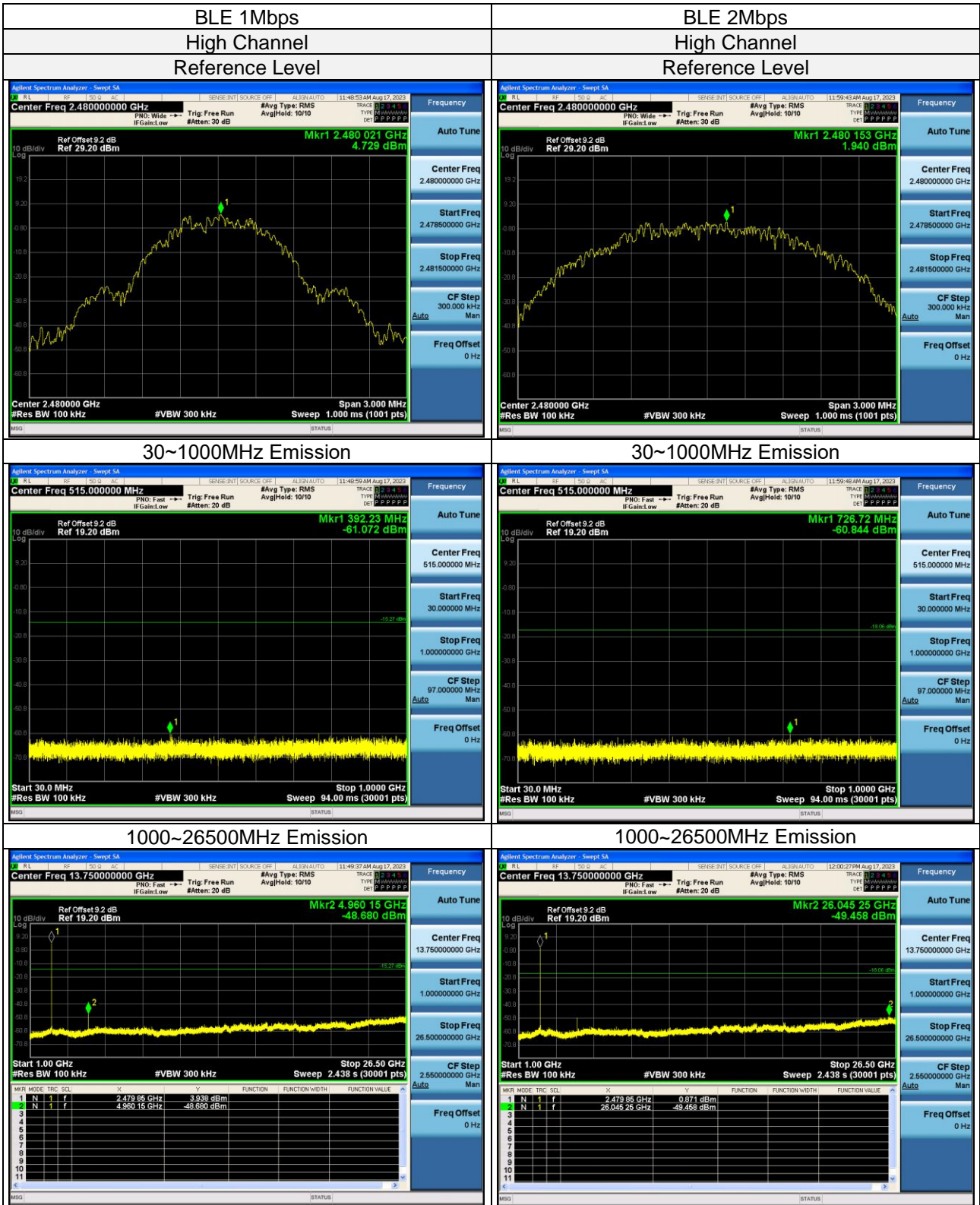
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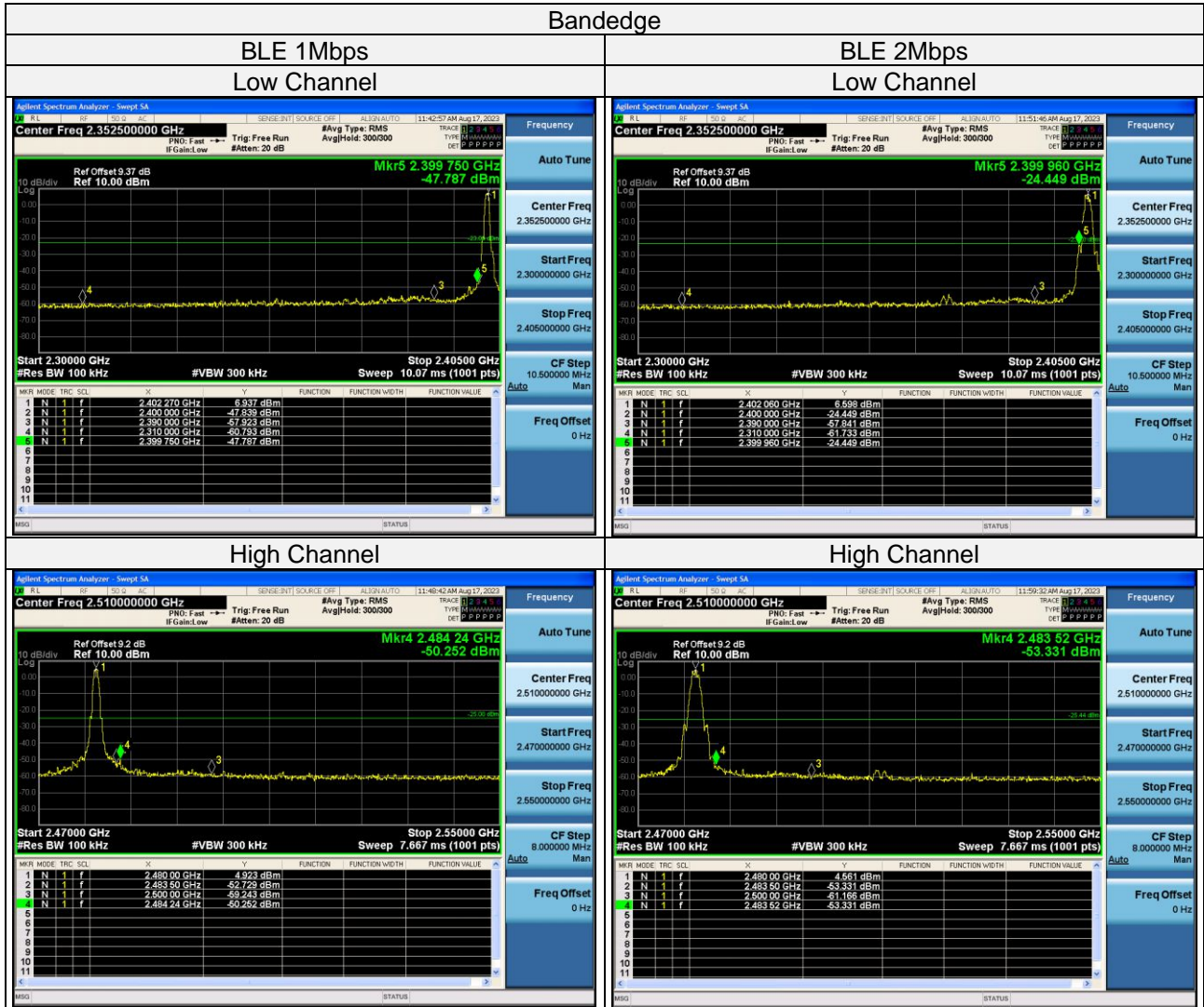
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4. Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).



5. Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.Date
Spectrum	Keysight	N9020A	MY51240612	2024-08-06
Spectrum Analyzer	Rohde&Schwarz	FSV-40N	101783	2023-12-27
Power Meter 10Hz~18GHz	Tonscend	JS0806-2	188060126	2024-08-06
Signal generator	Keysight	E4421B	GB40051020	2024-03-15
Universal Switch Control Unit	Rohde&Schwarz	CMW500	12010002k50	2023-12-27
Test Software	Tonscend	JS0806-2	NA	NA
Humidity tester	Jingchuang	GSP-8A	CMA22B000592	2024-01-15

- Note: 1. The calibration interval of the above test instruments is 12 months.
2. The test was performed in RF Chamber.



Appendix – Information on The Testing Laboratories

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If you have any comments, please feel free to contact us at the following:

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