CTC Laboratories, Inc.

1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China
Tel: +86-755-27521059 Fax: +86-755-27521011 http://www.sz-ctc.org.cn

TEST REPORT

Report No. ·····:	**CTC20231669E02**
FCC ID……..:	**2A6MS-K67**
Applicant·····:	**Shenzhen Zhichuang All Technology Co., LTD**
Address·····:	D401, Ganghong Complex Building, Building 2, No. 7, Xiangye Road, Xialilang Community, Nanwan Street, Longgang District, Shenzhen
Manufacturer·····:	Dongguan Chiyuan Jizhi Electronic Technology Co., LTD
Address·····:	Room 402, Building 18, No.3 Yongtai Road, Tangxia Town, Dongguan City, Guangdong Province
Product Name·····:	**Magnetic Wireless Charging Power Bank**
Trade Mark·····:	/
Model/Type reference·····:	K67Pro
Listed Model(s) ·····:	/
Standard·····:	**FCC CFR Title 47 Part 15 Subpart C**
Date of receipt of test sample…:	Aug. 3, 2023
Date of testing……..:	Aug. 3, 2023 to Sept. 15, 2023
Date of issue……....:	Sept. 18, 2023
Result……:	**PASS**

Compiled by: (Printed name+signature)	Jim Jiang	Jim Jiang
Supervised by: (Printed name+signature)	Eric Zhang	Eric Zhang
Approved by: (Printed name+signature)	Totti Zhao	Totti Zhao

Table of Contents Page

1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.209: Radiated emission limits; general requirements.
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report Version

Revised No.	Date of issue	Description
01	Sept. 18, 2023	Original

1.3. Test Description

FCC Part 15 Subpart C (15.209)			
Test Item	**Standard Section**	**Result**	**Test Engineer**
Antenna Requirement	15.203	Pass	Jim Jiang
AC Power Line Conducted Emissions	15.207	Pass	Jim Jiang
Spurious Emission	15.209	Pass	Jim Jiang
20dB Bandwidth	15.215	Pass	Jim Jiang

Note:
1. The measurement uncertainty is not included in the test result.
2. N/A: means this test item is not applicable for this device according to the technology characteristic of device.

1.4. Test Facility

CTC Laboratories, Inc.

Add: 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Laboratory accreditation

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

A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements fo r the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained inour files. Registration 951311, Aug 26, 2017.

1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.
Below is the best measurement capability for CTC Laboratories, Inc.

Test Items	Measurement Uncertainty	Notes
DTS Bandwidth	±0.0196%	(1)
Maximum Conducted Output Power	±0.686 dB	(1)
Maximum Power Spectral Density Level	±0.743 dB	(1)
Band-edge Compliance	±1.328 dB	(1)
Unwanted Emissions In Non-restricted Freq Bands	9kHz-1GHz: ±0.746dB 1GHz-26GHz: ±1.328dB	(1)
Conducted Emissions 9kHz~30MHz	±3.08 dB	(1)
Radiated Emissions 30~1000MHz	±4.51 dB	(1)
Radiated Emissions 1~18GHz	±5.84 dB	(1)
Radiated Emissions 18~40GHz	±6.12 dB	(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.6. Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15 °C to 35 °C
Relative Humidity:	20 % to 75 %
Air Pressure:	101 kPa

2. GENERAL INFORMATION

2.1. Client Information

Applicant:	Shenzhen Zhichuang All Technology Co., LTD
Address:	D401, Ganghong Complex Building, Building 2, No. 7, Xiangye Road, Xialilang Community, Nanwan Street, Longgang District, Shenzhen
Manufacturer:	Dongguan Chiyuan Jizhi Electronic Technology Co., LTD
Address:	Room 402, Building 18, No.3 Yongtai Road, Tangxia Town, Dongguan City, Guangdong Province
Factory:	Dongguan Chiyuan Jizhi Electronic Technology Co., LTD
Address:	Room 402, Building 18, No.3 Yongtai Road, Tangxia Town, Dongguan City, Guangdong Province

2.2. General Description of EUT

Product Name:	Magnetic Wireless Charging Power Bank
Trade Mark:	/
Model/Type reference:	K67Pro
Listed Model(s):	/
Model Difference:	/
Power Supply:	Built-in battery: 5000mAh, 3.85V, 19.25Wh Type-C Input: 5V⎓2.0A Type-C Output: 5V⎓2.0A Wireless charging Power: 5W Max
Hardware Version:	/
Software Version:	/
Wireless Charger	
Frequency Range:	112kHz ~ 205kHz
Modulation Type:	ASK
Antenna Type:	Induction Coil
Antenna Gain:	0dBi
Exposure category:	General population/uncontrolled environment
Device Type:	Portable Device

2.3. Accessory Equipment Information

Equipment Information			
Name	Model	S/N	Manufacturer
Intelligent wireless charging full function test module	/	/	/
Cable Information			
Name	Shielded Type	Ferrite Core	Length
/	/	/	/

2.4. Operation State

The EUT has been tested under test mode condition. The Applicant provides software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List:

Channel	Frequency (kHz)
1	**112**

Note: The display in grey were the channel selected for testing.

Test Mode:

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit. (duty cycle>98%).
For AC power line conducted emissions:
The EUT was set to connect with large package sizes transmission.
For Radiated spurious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

2.5. Measurement Instruments List

Tonscend RF Test System					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	MXA Signal Analyzer	Keysight	N9020A	MY46471737	Dec. 16, 2023
2	Spectrum Analyzer	R&S	FSU26	100105	Dec. 16, 2023
3	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 14, 2024
4	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 16, 2023
5	PSG Analog Signal Generator	Agilent	E8257D	MY46521908	Dec. 16, 2023
6	Power Sensor	Keysight	U2021XA	MY55130004	Mar. 14, 2024
7	Power Sensor	Keysight	U2021XA	MY55130006	Mar. 14, 2024
8	Wideband Radio Communication Tester	R&S	CMW500	102414	Dec. 16, 2023
9	High and low temperature box	ESPEC	MT3035	/	Mar. 24, 2024
10	JS1120 RF Test System	TONSCEND	v2.6	/	/

Radiated Emission (3m chamber 2)					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-1013	Dec. 07, 2024
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-648	Dec. 07, 2024
3	Loop Antenna	ETS	6507	1446	Dec. 13, 2023
4	Spectrum Analyzer	R&S	FSU26	100105	Dec. 16, 2023
5	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 14, 2024
6	Pre-Amplifier	SONOMA	310	186194	Dec. 16, 2023
7	Low Noise Pre-Amplifier	EMCI	EMC051835	980075	Dec. 16, 2023
8	Test Receiver	R&S	ESCI7	100967	Dec. 16, 2023
9	3m chamber 2	Frankonia	EE025	/	Oct. 23, 2024

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	LISN	R&S	ENV216	101112	Dec. 16, 2023
2	LISN	R&S	ENV216	101113	Dec. 16, 2023
3	EMI Test Receiver	R&S	ESCS30	100353	Dec. 16, 2023
4	ISN CAT6	Schwarzbeck	NTFM 8158	CAT6-8158-0046	Dec. 16, 2023
5	ISN CAT5	Schwarzbeck	NTFM 8158	CAT5-8158-0046	Dec. 16, 2023

Note: 1. The Cal. Interval was one year.

2. The Cal. Interval was three years of the antenna.

3. The cable loss has been calculated in test result which connection between each test instruments.

3. TEST ITEM AND RESULTS

3.1. Conducted Emission

Limit

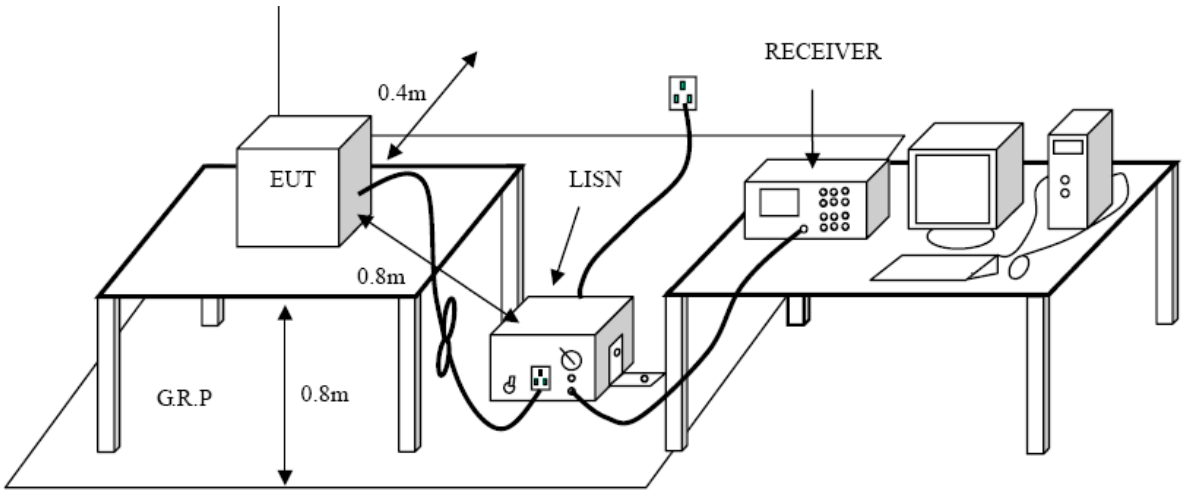
FCC CFR Title 47 Part 15 Subpart C Section 15.207/ RSS - Gen 8.8

Frequency range (MHz)	Limit (dBuV)	
	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.

Test Configuration

Test Procedure



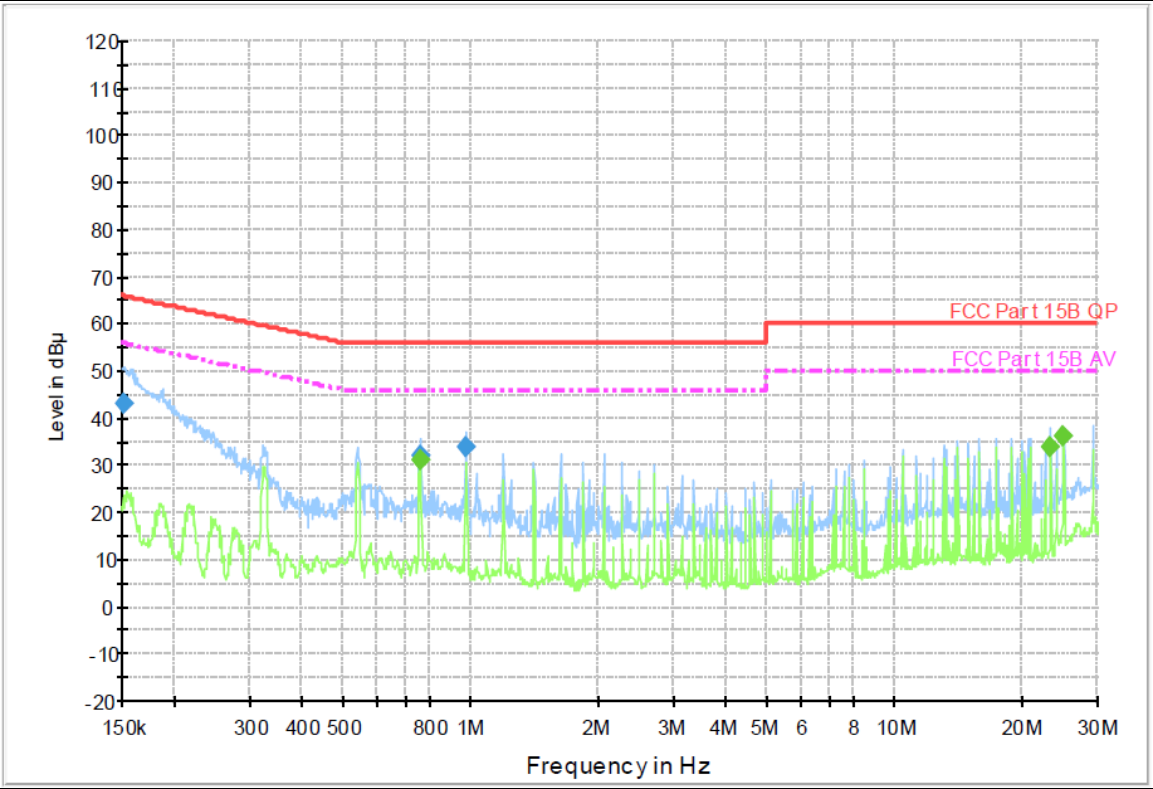
1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm / 50 μH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

Test Mode

Please refer to the clause 2.4.

Test Results

Test Voltage:	AC 120V/60Hz
Terminal:	Line
Remark:	Only worse case is reported



Final Measurement Detector 1

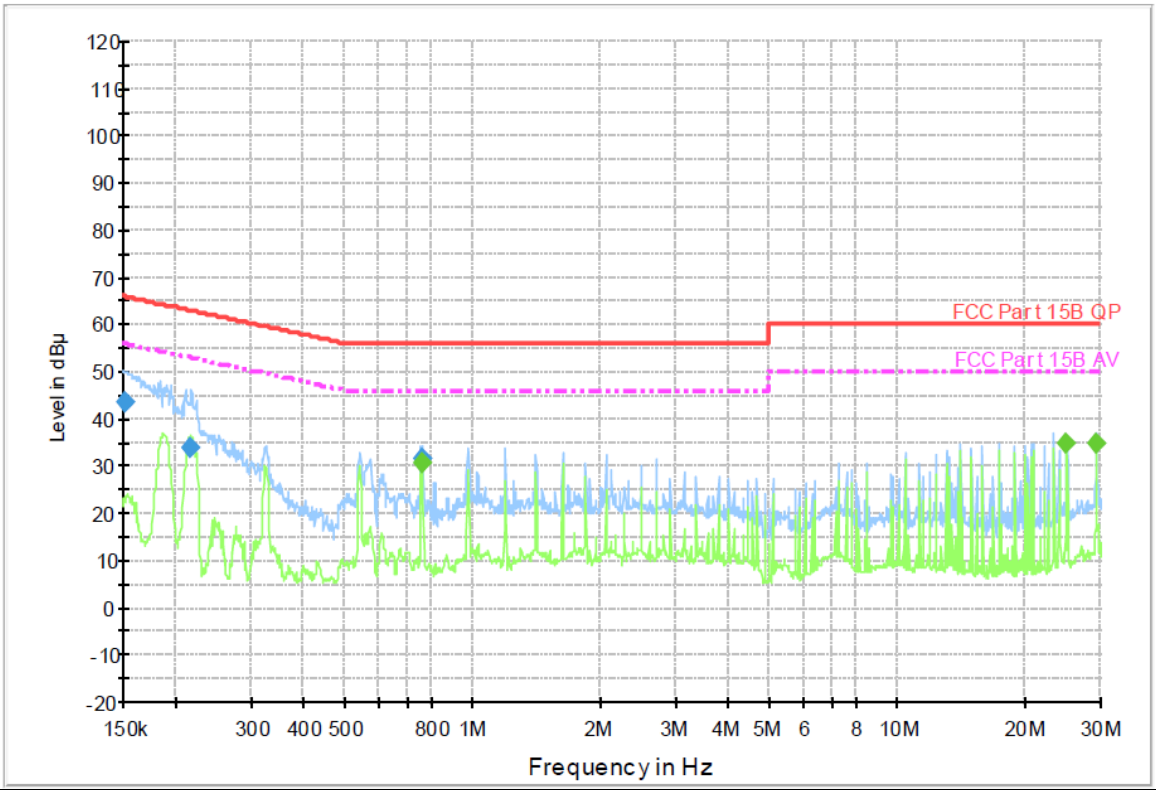
Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.151200	43.1	1000.00	9.000	On	L1	9.7	22.8	65.9	
0.758540	32.0	1000.00	9.000	On	L1	9.7	24.0	56.0	
0.971560	34.1	1000.00	9.000	On	L1	9.7	21.9	56.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.755520	31.2	1000.00	9.000	On	L1	9.7	14.8	46.0	
23.215110	34.0	1000.00	9.000	On	L1	10.1	16.0	50.0	
24.944660	36.1	1000.00	9.000	On	L1	10.1	13.9	50.0	

Emission Level = Read Level + Correct Factor

Test Voltage:	AC 120V/60Hz
Terminal:	Neutral
Remark:	Only worse case is reported



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.152410	43.4	1000.00	9.000	On	N	10.0	22.5	65.9	
0.216570	33.7	1000.00	9.000	On	N	10.0	29.2	62.9	
0.758540	31.6	1000.00	9.000	On	N	10.0	24.4	56.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.755520	30.7	1000.00	9.000	On	N	10.0	15.4	46.0	
24.944660	34.8	1000.00	9.000	On	N	10.0	15.2	50.0	
29.263490	34.7	1000.00	9.000	On	N	10.0	15.3	50.0	

Emission Level = Read Level + Correct Factor

3.2. Radiated Spurious Emission

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.209&15.249(a)/ RSS – 210 F.1.e

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
960~1000	500	3

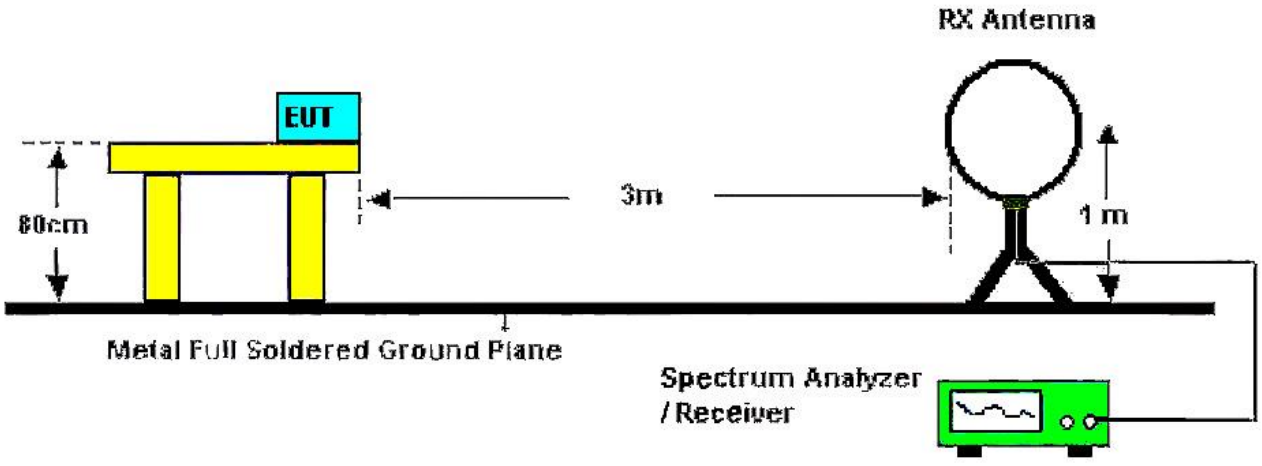
Frequency Range (MHz)	dBμV/m (at 3 meters)	
	Peak	Average
Above 1000	74	54

Note:

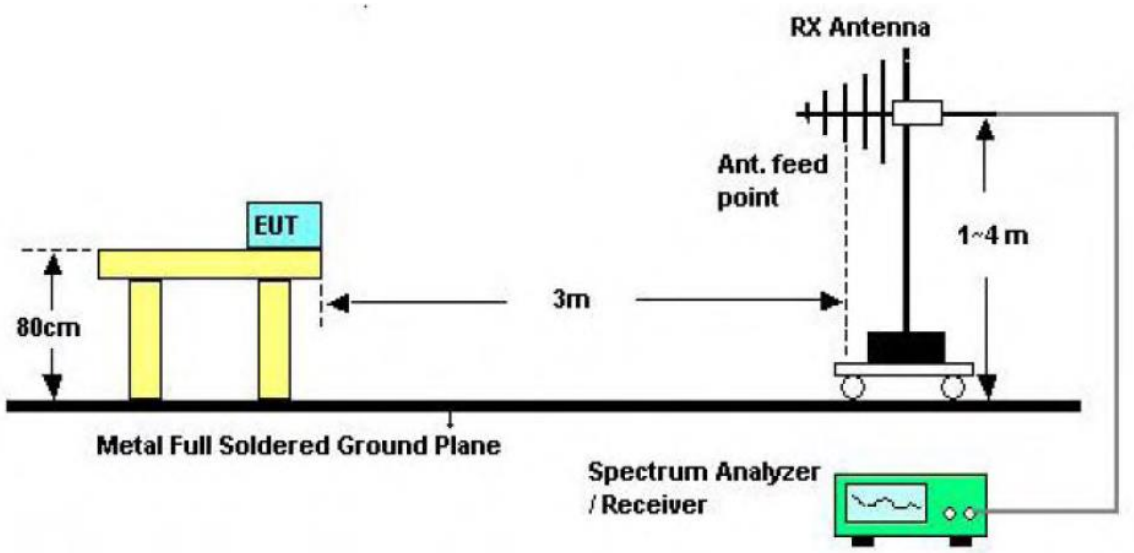
(1) The tighter limit applies at the band edges.

(2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

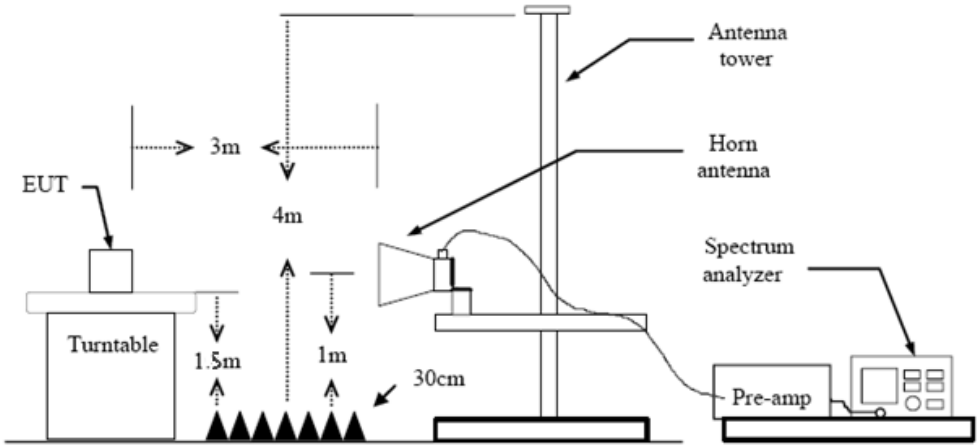
Test Configuration



Below 30MHz Test Setup



30-1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings

(1) Span shall wide enough to fully capture the emission being measured;
(2) 9k – 150kHz:
RBW=300 Hz, VBW=1 kHz, Sweep=auto, Detector function=peak, Trace=max hold
(3) 0.15M – 30MHz:
RBW=10 kHz, VBW=30 kHz, Sweep=auto, Detector function=peak, Trace=max hold
(4) 30M - 1 GHz:
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the

quasi-peak detector and reported.
(5) From 1 GHz to 10th harmonic:
RBW=1MHz, VBW=3MHz Peak detector for Peak value.
RBW=1MHz, VBW=10Hz with Peak Detector for Average Value.

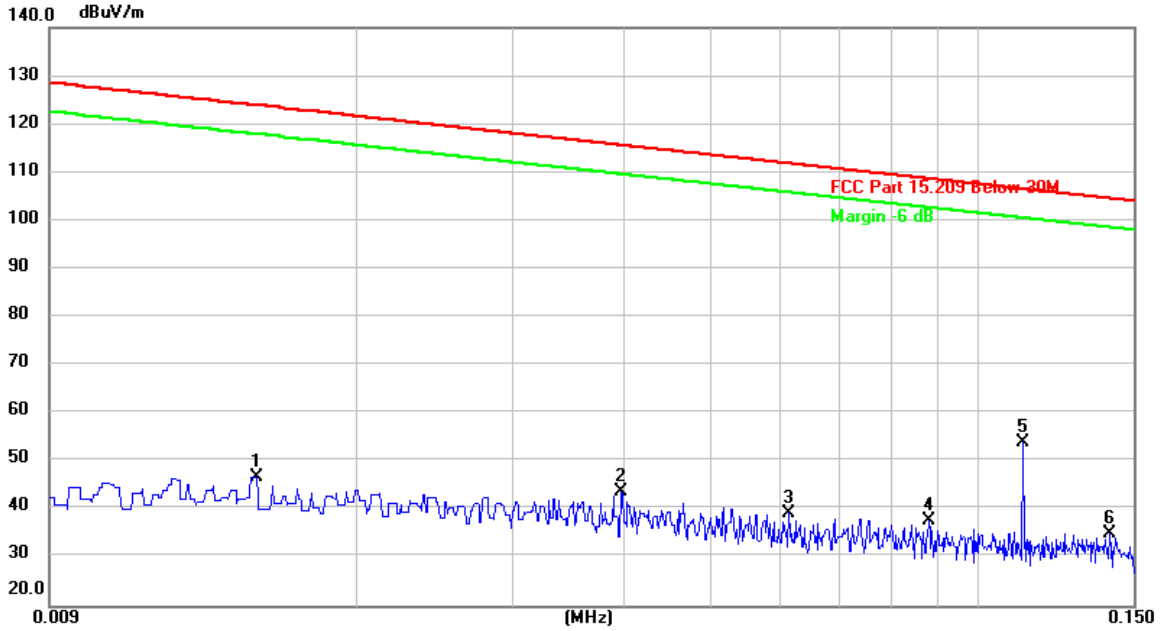
Test Mode

Please refer to the clause 2.4.

Test Result

9 kHz~150 kHz

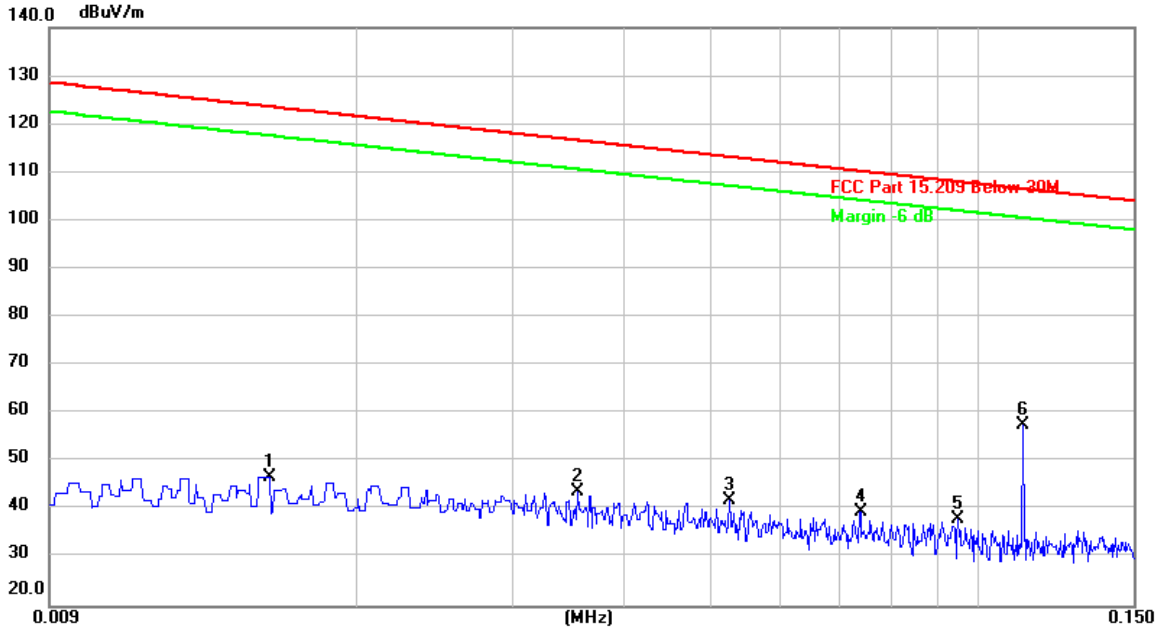
Ant. Pol.	Horizontal
Remark:	Only worse case is reported.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0154	54.41	-7.57	46.84	123.85	-77.01	peak
2	0.0396	55.51	-11.69	43.82	115.65	-71.83	peak
3	0.0613	51.73	-12.23	39.50	111.86	-72.36	peak
4	0.0879	52.31	-14.35	37.96	108.72	-70.76	peak
5 *	0.1121	68.40	-14.43	53.97	106.61	-52.64	peak
6	0.1408	49.54	-14.49	35.05	104.63	-69.58	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

Ant. Pol.	Vertical
Remark:	Only worse case is reported.

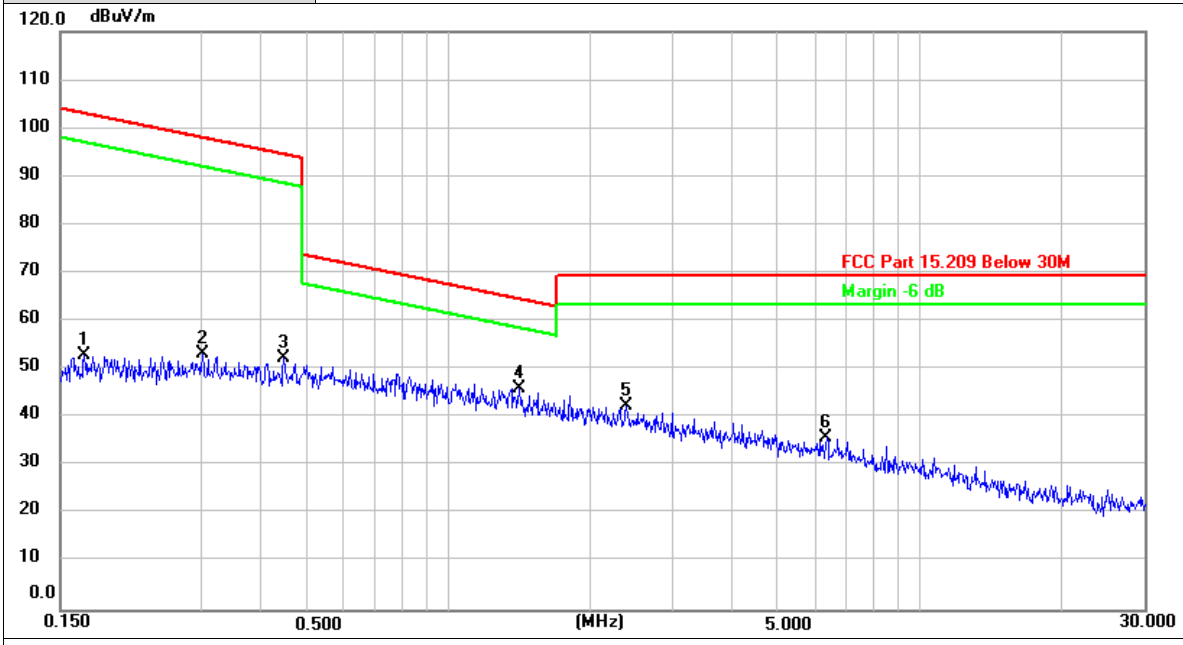


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0159	54.40	-7.70	46.70	123.58	-76.88	peak
2	0.0354	55.28	-11.50	43.78	116.62	-72.84	peak
3	0.0524	54.10	-12.15	41.95	113.22	-71.27	peak
4	0.0737	52.27	-12.72	39.55	110.26	-70.71	peak
5	0.0950	52.83	-14.54	38.29	108.05	-69.76	peak
6 *	0.1121	72.07	-14.43	57.64	106.61	-48.97	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

150 kHz~30 MHz

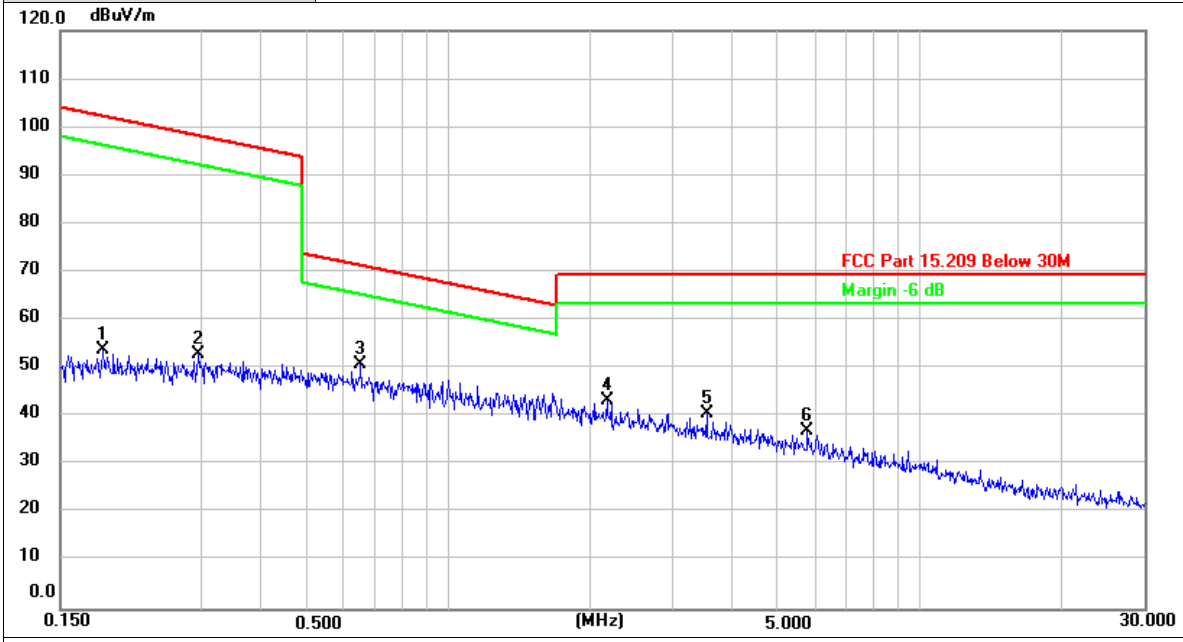
Ant. Pol.	Horizontal
Remark:	Only worse case is reported.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1685	67.60	-14.65	52.95	103.07	-50.12	peak
2	0.3002	68.27	-15.13	53.14	98.06	-44.92	peak
3	0.4465	67.59	-15.18	52.41	94.61	-42.20	peak
4 *	1.4106	61.17	-15.12	46.05	64.62	-18.57	peak
5	2.3835	57.68	-15.18	42.50	69.54	-27.04	peak
6	6.3520	50.89	-15.02	35.87	69.54	-33.67	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

Ant. Pol.	Vertical
Remark:	Only worse case is reported.

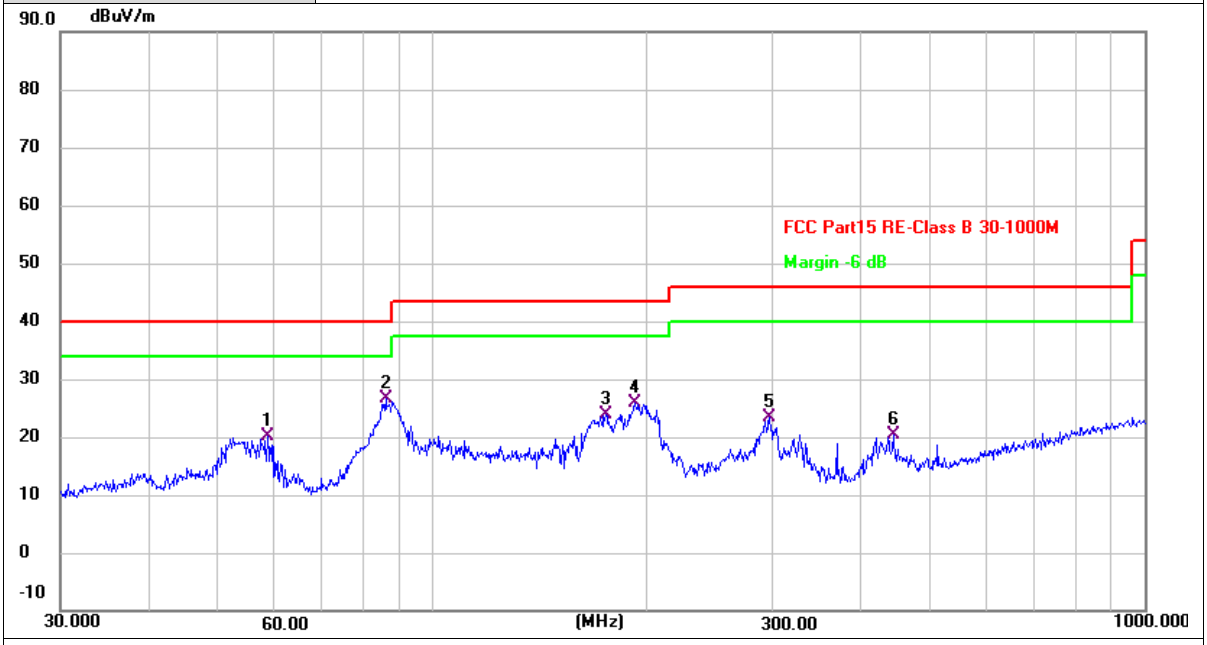


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1844	68.42	-14.70	53.72	102.29	-48.57	peak
2	0.2938	68.07	-15.11	52.96	98.24	-45.28	peak
3 *	0.6508	66.01	-15.17	50.84	71.34	-20.50	peak
4	2.1667	58.51	-15.17	43.34	69.54	-26.20	peak
5	3.5278	55.69	-15.13	40.56	69.54	-28.98	peak
6	5.7743	52.01	-14.97	37.04	69.54	-32.50	peak

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

30 MHz~1000 MHz

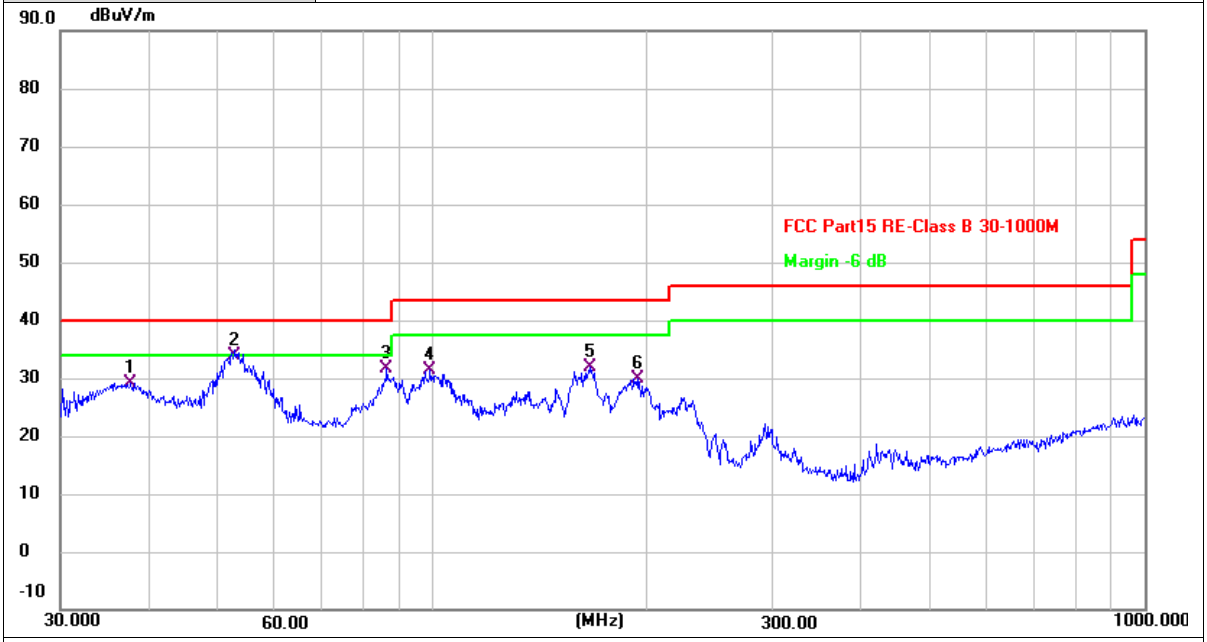
Ant. Pol.	Horizontal
Remark:	Only worse case is reported.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	58.6126	38.65	-18.48	20.17	40.00	-19.83	QP
2 *	85.8984	48.47	-21.87	26.60	40.00	-13.40	QP
3	175.0368	42.30	-18.35	23.95	43.50	-19.55	QP
4	192.4186	45.55	-19.79	25.76	43.50	-17.74	QP
5	297.2241	40.54	-17.25	23.29	46.00	-22.71	QP
6	443.2943	33.89	-13.59	20.30	46.00	-25.70	QP

Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

Ant. Pol.	Vertical
Remark:	Only worse case is reported.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	37.6798	46.84	-17.68	29.16	40.00	-10.84	QP
2 *	52.7600	51.83	-17.93	33.90	40.00	-6.10	QP
3	86.2001	53.38	-21.87	31.51	40.00	-8.49	QP
4	99.1797	52.26	-20.89	31.37	43.50	-12.13	QP
5	166.0680	49.38	-17.61	31.77	43.50	-11.73	QP
6	193.7728	49.80	-19.91	29.89	43.50	-13.61	QP

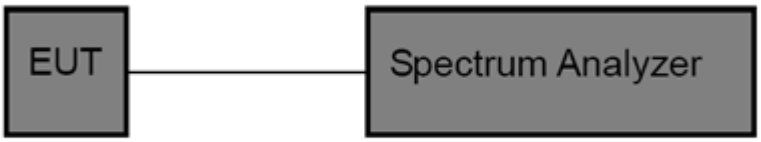
Remarks:
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2.Margin value = Level -Limit value

3.3. 20dB Bandwidth

Limit

/

Test Configuration



Test Procedure

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:
   Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a test channel
   RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ RBW
   Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

Test Mode

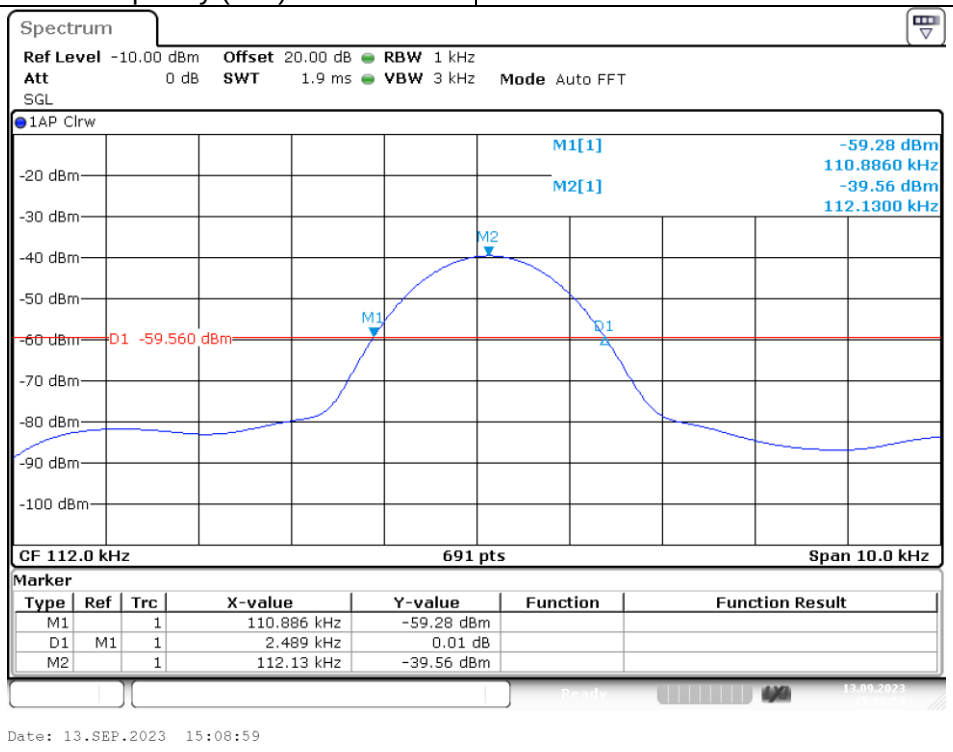
Please refer to the clause 2.4

Test Results

Frequency (kHz)	20dB Bandwidth (kHz)	Occupied Bandwidth (kHz)	Result
112	2.489	/	Pass

Test Graphs:

Frequency (kHz)	112



3.4. Antenna Requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):
(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

************************THE END*************************