

Test Report No.:
FCC2022-0011-RF

RF Test Report

EUT : **Wireless Charging Battery**
MODEL : **A1610**
BRAND NAME : **anker**
APPLICANT : **Anker Innovations Limited**
Classification Of Test : **N/A**

CVC Testing Technology Co., Ltd.



Client	Name : Anker Innovations Limited		
	Address : Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong		
Manufacturer	Name : Shenzhen Joway Power Supply Co., Ltd. .		
	Address : 1-5/F of No.10 & No.11 Workshop of AnTuoShan High-Tech Industrial Park, Sha'Er Community, ShaJing Street, Bao'An District, Shenzhen, Guangdong, P. R. China.		
Equipment Under Test	Name : Wireless Charging Battery		
	Model/Type: A1610		
	Trade mark : anker		
	SerialNO.:N/A		
	Sampe NO.:2-1		
Date of Receipt.	2022.02.18	Date of Testing	2022.02.22-2022.03.08
Test Specification		Test Result	
FCC Part 15, Subpart C, Section 15.207, Section 15.209 Canada RSS-216 Issue 2+A1: 2020-09 Canada RSS-Gen Issue 5+A1+A2(2021-02)		PASS	
Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied.		
	Issue Date: 2022.03.11		
Tested by:	Reviewed by:	Approved by:	
			
Xu ZhenFei Name Signature	Liu YongHai Name Signature	Chen HuaWen Name Signature	
Other Aspects: NONE.			
Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested			

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2022-0011-RF	Original release	2022.03.11



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C Canada RSS-216 Issue 2: 2016-01 Canada RSS-Gen Issue 5+A1+A2(2021-02)			
FCC STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.203	Antenna Requirement	PASS	No antenna connector is used.
15.207 ,RSS-Gen 8.8	AC Power Conducted Emission	PASS	Power form adapter
15.209,15.205,RSS-216 Issue 2+A1(2020-09) 6.2.2.1	Radiated Emissions	PASS	Meet the requirement of limit.
15.215 (c)	20dB Bandwidth Measurement	PASS	Meet the requirement of limit.
RSS-Gen 6.7	Occupied Bandwidth Measurement	PASS	Meet the requirement of limit.



1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Refer to Appendix A.

1.2 MEASUREMENT UNCERTAINTY

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

No.	ITEM	FREQUENCY	UNCERTAINTY
1	Conducted Emissions	9kHz~30MHz	±2.66dB
2	Radiated Spurious Emissions	9KHz ~ 30MHz	±0.769dB
		30MHz ~ 1GMHz	±0.877dB
		1GHz ~ 18GHz	±0.777dB
		18GHz ~ 40GHz	±1.315dB

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

1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab. of CVC Testing Technology Co., Ltd.

Address: No.3,TiantaiyiRoad,KaitaiAvenue,ScienceCity,Guangzhou,China

Post Code: 510663 Tel: 020-32293888

FAX: 020-32293889 E-mail: office@cvc.org.cn

Test Firm Registration Number: 937273

CN Number: 26239 Wireless Test Site Registration Number: CN0103



2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT	Wireless Charging Battery
BRAND	anker
MODEL	A1610
HVIN	A1610A
ADDITIONAL MODEL	N/A
FCC ID	2AOKB-A1610A
IC ID	23451-A1610A
POWER SUPPLY	DC 5V From USB Host Unit
MODULATION TYPE	ASK
OPERATING FREQUENCY	110KHz ~ 148KHz
NUMBER OF CHANNEL	N/A
PEAK OUTPUT POWER	N/A
ANTENNA TYPE	Coil Antenna
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A
HARDWARE VERSION	V2.1
SOFTWARE VERSION	V2.1
Remark: 1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report. 3. Please refer to the EUT photo document for detailed EUT photo.	





2.2 DESCRIPTION OF TEST MODE

The Eut was tested under the following modes and the final worst mode was marked in boldface and record in this report.

TEST ITEM	TEST MODE TAG	TEST MODE
CONDUCTED EMISSION	A	wireless charging(7.5W) + charging from Adapter
	B	wireless charging(5W) + charging from Adapter

TEST ITEM	TEST MODE TAG	TEST MODE
RADIATED EMISSION(9KHz ~ 30MHz)	A	wireless charging(7.5W) + charging from Adapter
	B	wireless charging(5W) + charging from Adapter
	C	wireless charging(7.5W)
	D	wireless charging(5W)
	E	Standby

TEST ITEM	TEST MODE TAG	TEST MODE
RADIATED EMISSION(30MHz ~ 1GHz)	A	wireless charging(7.5W) + charging from Adapter
	B	wireless charging(5W) + charging from Adapter
	C	wireless charging(7.5W)
	D	wireless charging(5W)
	E	Standby



TEST ITEM	TEST MODE TAG	TEST MODE
20dB Bandwidth Measurement	A	wireless charging(7.5W) + charging from Adapter
	B	wireless charging(5W) + charging from Adapter
	C	wireless charging(7.5W)
	D	wireless charging(5W)
	E	Standby

TEST ITEM	TEST MODE TAG	TEST MODE
Occupied Bandwidth Measurement	A	wireless charging(7.5W) + charging from Adapter
	B	wireless charging(5W) + charging from Adapter
	C	wireless charging(7.5W)
	D	wireless charging(5W)
	E	Standby



2.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC PART 15, Subpart C. Section 15.209

ANSI C63.10-2020

Canada RSS-216 Issue 2+A1: 2020-09

Canada RSS-Gen Issue 5+A1+A2(2021-02)

All test items have been performed and recorded as per the above standards

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.

Support Equipment							
NO	Description	Brand	Model No.	Serial Number	Supplied by		
1	Wireless charging load	/	15W	/	Lab		
Support Cable							
NO	Description	Quantity (Number)	Length (m)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)	Supplied by
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 Limit

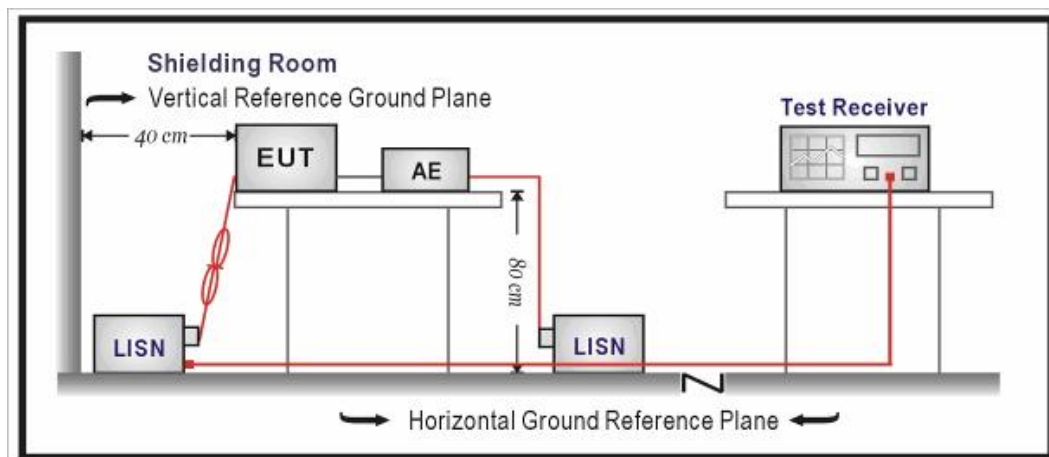
Frequency (MHz)	Conducted Limits(dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

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

3.1.2 Measurement procedure

- 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. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the Test photographs) 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. The equipment under test shall be placed on a support of non-metallic material, the height of which shall be 1.5m above the ground,
- 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.
- Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

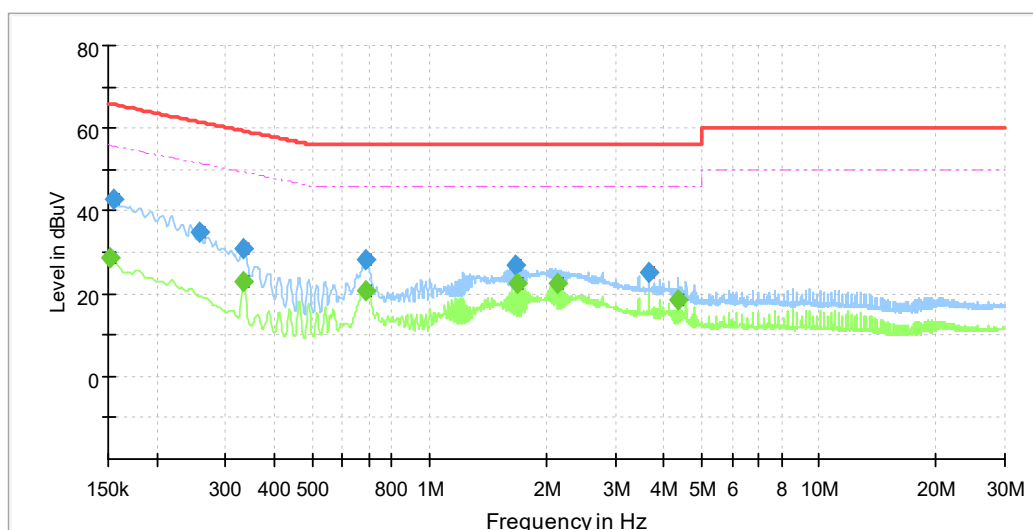
3.1.3 Test setup



3.1.4 Test results

CONDUCTED WORST-CASE DATA:

Test Mode	Wireless charging(7.5W)+charging from Adapter		
Frequency Range	150KHz ~ 30MHz	PHASE	Line (L)

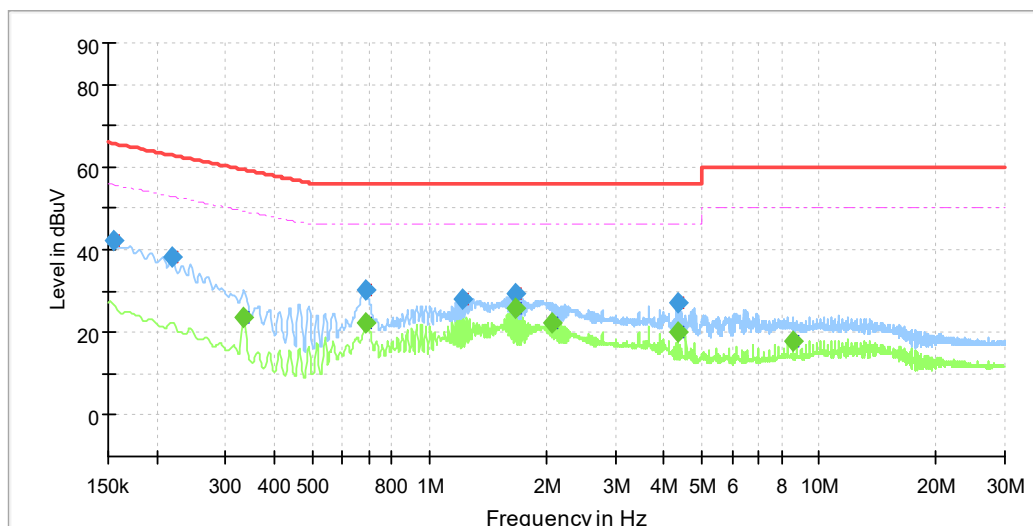


NO.	Frequency (MHz)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Corr. (dB)	Remark
1	0.152	28.5	55.9	27.4	19.5	AVG
2	0.155	42.9	65.8	22.8	19.5	QP
3	0.335	22.9	49.3	26.4	19.5	AVG
4	0.335	30.7	59.3	28.6	19.5	QP
5	1.662	27.0	56.0	29.0	19.6	QP
6	1.687	22.4	46.0	23.6	19.6	AVG

Remark: The emission levels of other frequencies were very low against the limit.



Test Mode	Wireless charging(7.5W)+charging from Adapter		
Frequency Range	150KHz ~ 30MHz	PHASE	Line (N)



NO.	Frequency (MHz)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Corr. (dB)	Remark
1	0.683	30.2	56.0	25.8	19.5	QP
2	0.683	22.1	46.0	23.9	19.5	AVG
3	1.662	25.8	46.0	20.2	19.6	AVG
4	1.662	29.3	56.0	26.7	19.6	QP
5	4.337	27.0	56.0	29.0	19.7	QP
6	4.340	20.1	46.0	25.9	19.7	AVG

Remark: The emission levels of other frequencies were very low against the limit.



3.2 RADIATED EMISSIONS

3.2.1 Limits

Test Standard: Part 15C

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). 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

NOTE: 1. The lower limit shall apply at the transition frequencies.

NOTE: 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

NOTE: 3. As shown in 15.35(b), 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.

Test Standard:RSS-216

Frequency Range (MHz)	Limits in dB(μA/m) at 3 m distance Quasi-peak
0.009 – 0.070	69
0.070 – 0.1485	69 Decreasing linearly with logarithm of frequency to 39
0.1485 – 4	39 Decreasing linearly with logarithm of frequency to 3
4 – 30	3

Note:

1. The preferred test method for WPT devices that may be used in residential environments and that have a maximum dimension of less than or equal to 1.6 m is the test method using the van Veen loop antenna system, as per the CISPR 11 standard referenced in ICES-001. However, it is acceptable to use the alternate 60 cm loop test method and corresponding limit for these small residential WPT devices (the same as for commercial / industrial and large residential devices).
2. Measurements are performed at 3 m distance with a 0,6 m loop antenna as described in 5.5.2.1 of CISPR 16-1.
3. The antenna shall be vertically installed, with the lower edge of the loop at 1 m height above the floor.



Frequency Range (MHz)	Electric field Measurement distance @ 10 m	
	Quasi-peak (dBuV/m)	Average (dBuV/m)
30 – 80.872	30	25
80.872 – 81.848	50	45
81.848 – 134.786	30	25
134.786 – 136.414	50	45
136.414 – 230	30	25
230 – 1000	37	32

Note:
The average limits apply to magnetron driven equipment only. If magnetron driven equipment exceeds the quasi-peak limit at certain frequencies, then the measurement shall be repeated at these frequencies with the average detector and the average limits specified in this table apply.

3.2.2 Measurement procedure

Test Standard: Part 15C

- The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.



NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

Test Standard:RSS-216

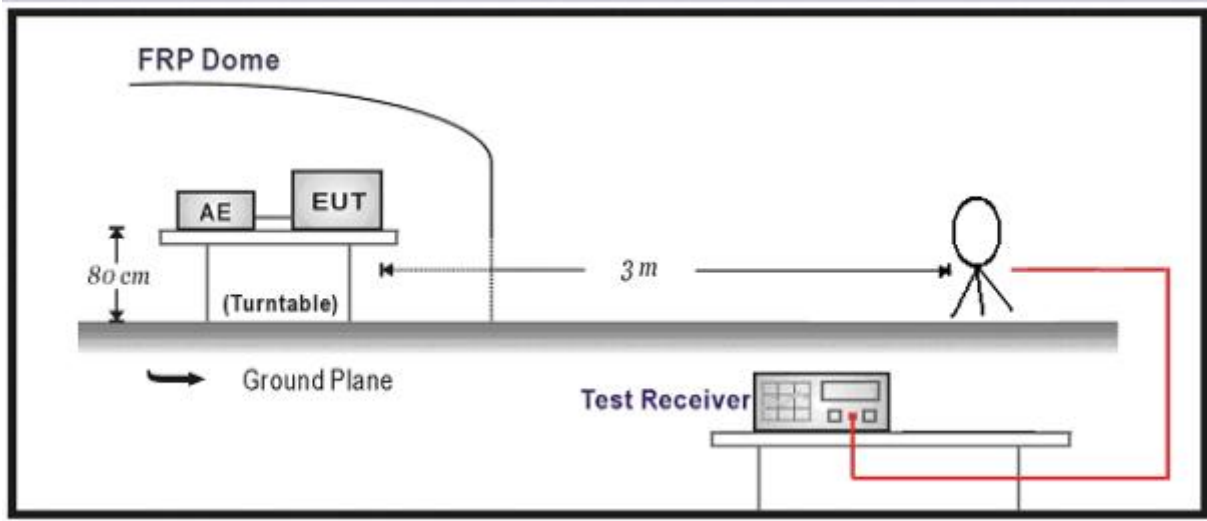
- a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. 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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- g. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

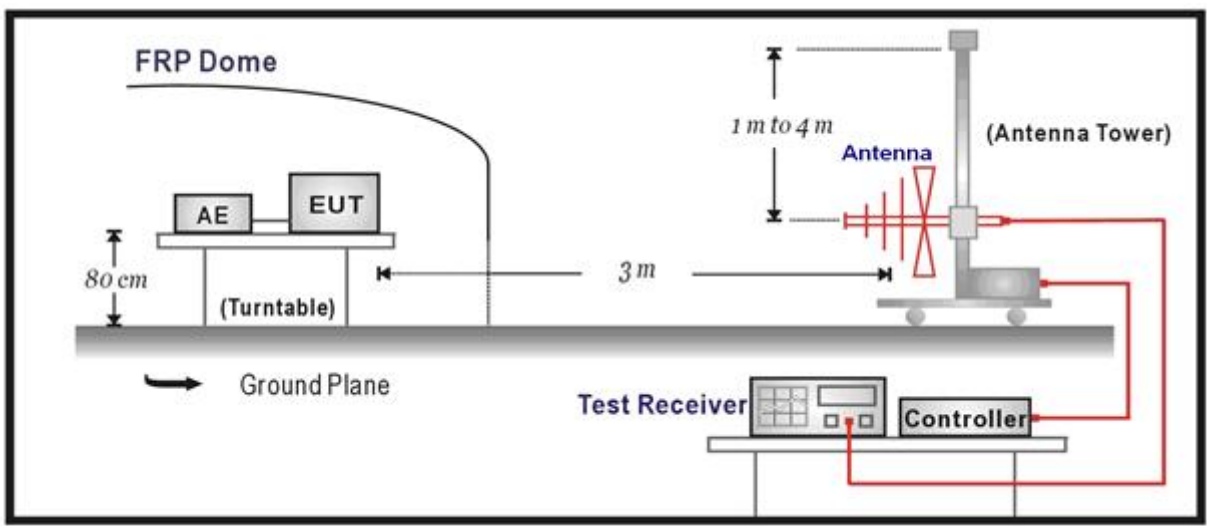
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

3.2.3 Test setup

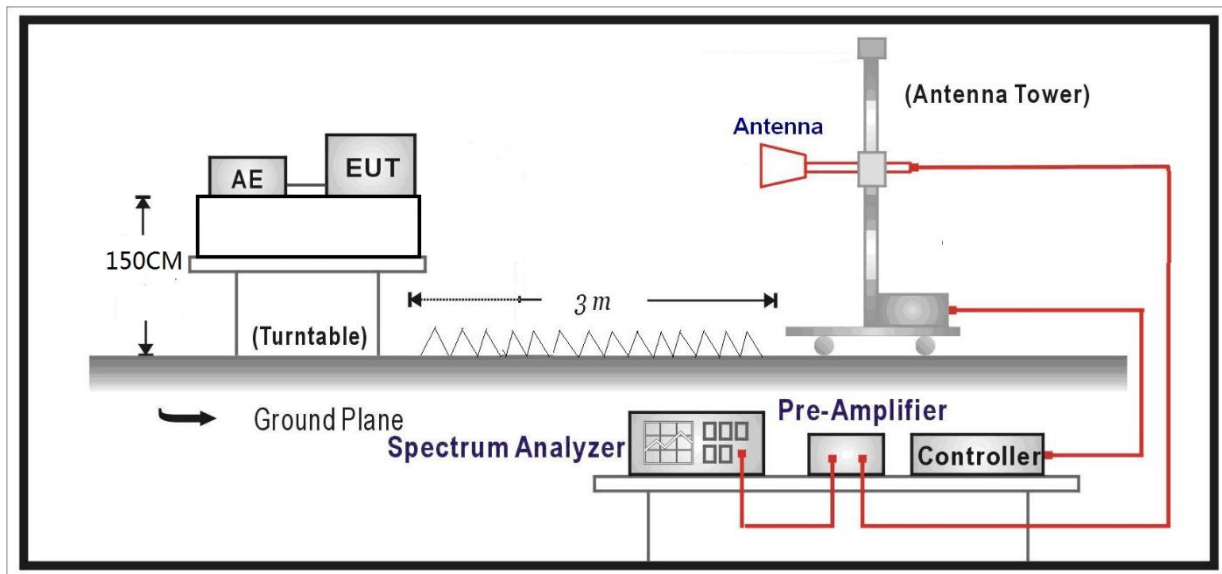
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:

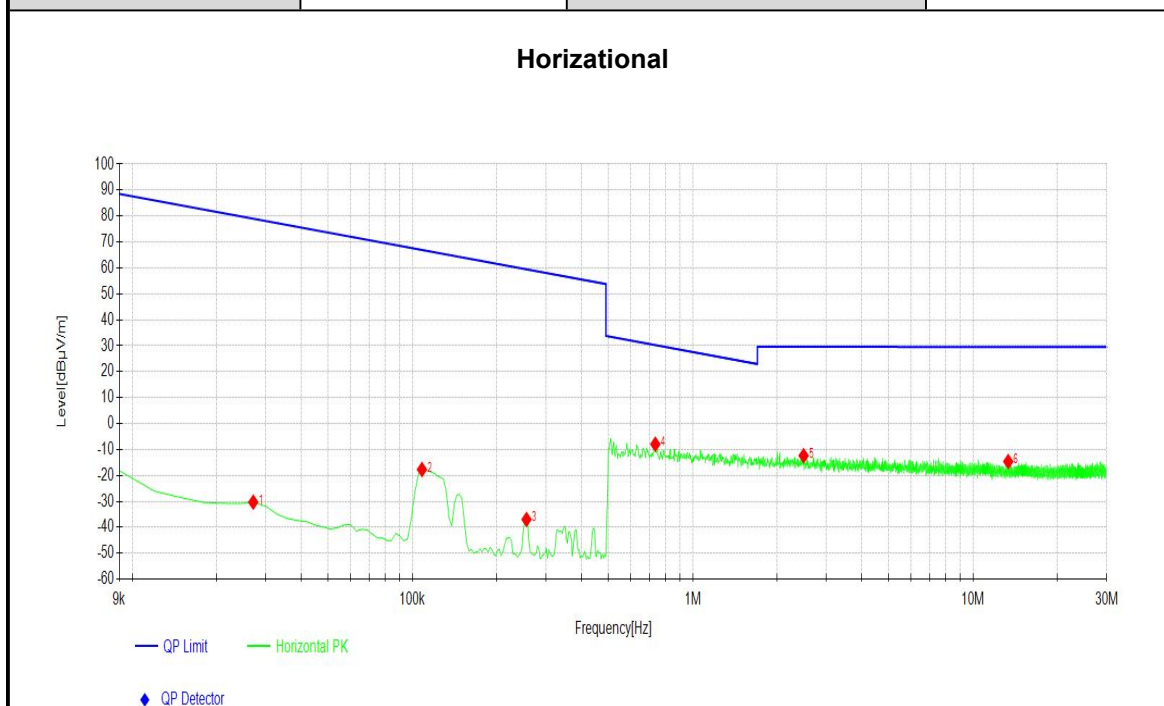


3.2.4 Test results

Results under test standard PART 15C:

9KHz ~ 30MHz WORST-CASE DATA:

Worst Test Mode	wireless charging(5W)	Channel	/
Frequency Range	9KHz ~ 30MHz	Detector Function	Quasi-Peak (QP)

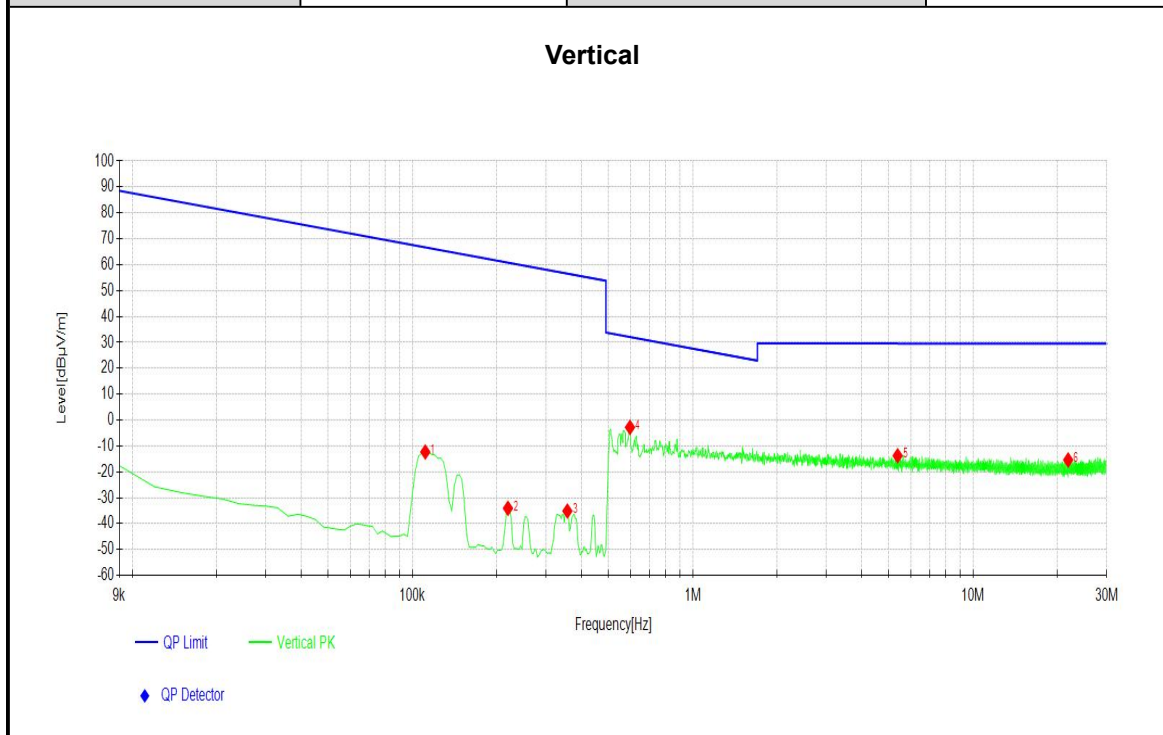


NO	Freq. [MHz]	Reading [dBuV/m]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]
1	0.027	28.94	-30.28	-59.22	78.98	109.26	100	320
2	0.108	41.51	-17.69	-59.20	66.94	84.63	100	360
3	0.255	22.40	-36.96	-59.36	59.47	96.43	100	2
4	0.7349	11.01	-7.94	-18.95	30.27	38.21	100	308
5	2.4865	6.67	-12.38	-19.05	29.57	41.95	100	111
6	13.3593	5.31	-14.62	-19.93	29.55	44.17	100	88

Remark: 1. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. Margin(dB) = Limit[dBuV/m] - Level [dBuV/m]



Worst Test Mode	wireless charging(5W)	Channel	/
Frequency Range	9KHz ~ 30MHz	Detector Function	Quasi-Peak (QP)

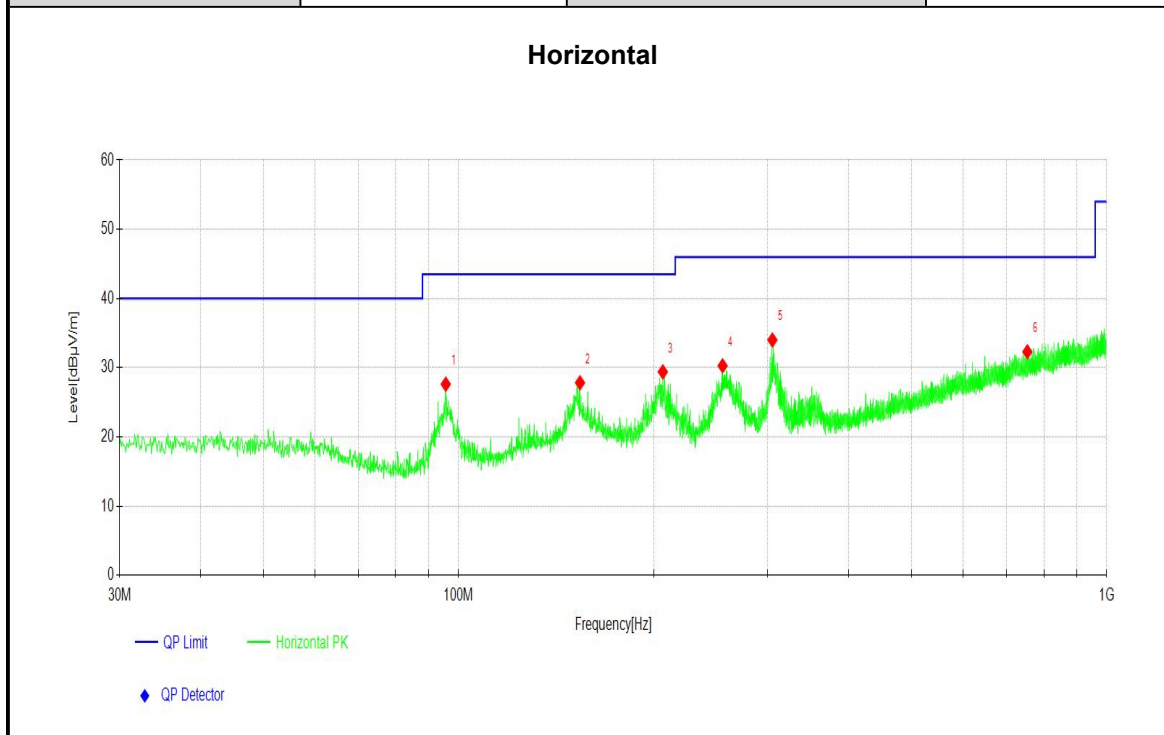


NO	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]
1	0.111	46.88	-12.31	-59.19	66.7	79.01	100	73
2	0.219	25.42	-34.04	-59.46	60.8	94.84	100	0
3	0.3569	23.99	-35.11	-59.1	56.55	91.66	100	90
4	0.5969	16.00	-2.81	-18.81	32.08	34.89	100	90
5	5.3839	5.49	-13.76	-19.25	29.56	43.32	100	107
6	21.8596	4.59	-15.39	-19.98	29.54	44.93	100	17

Remark: 1. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

30MHz ~ 1GHz WORST-CASE DATA:

Worst Test Mode	Wireless charging(5W)+charging from Adapter	Channel	/
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)



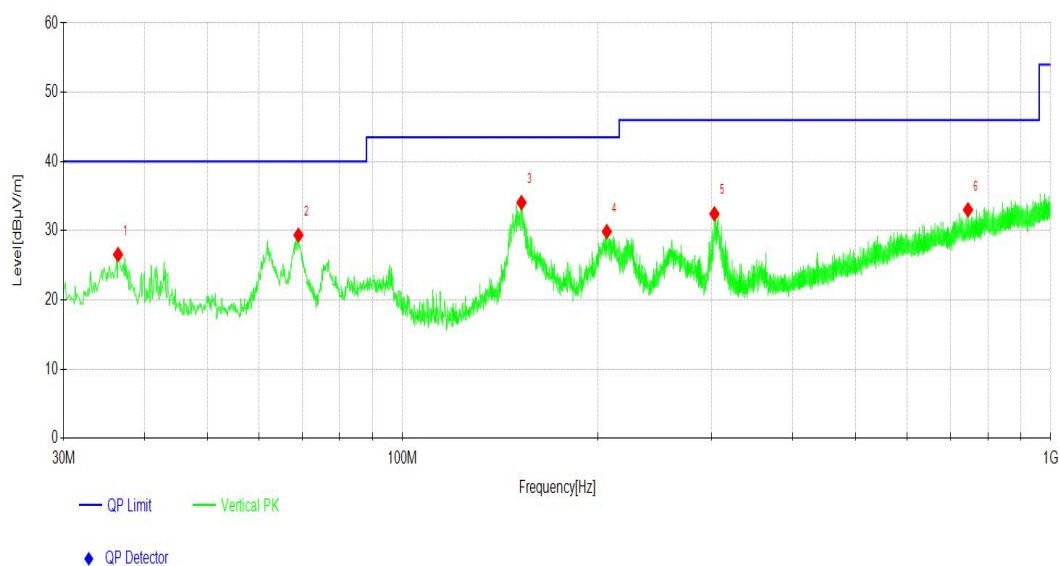
NO	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]
1	95.5786	11.65	27.62	15.97	43.5	15.88	200	180
2	153.9784	7.18	27.82	20.64	43.5	15.68	200	90
3	206.6547	12.48	29.4	16.92	43.5	14.10	100	107
4	255.5476	12.07	30.27	18.2	46	15.73	100	84
5	305.0225	13.93	34.01	20.08	46	11.99	100	289
6	754.4684	3.56	32.3	28.74	46	13.70	200	277

Remark: 1. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
 2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. Margin(dB) = Limit[dBuV/m] - Level [dBuV/m]



Worst Test Mode	Wireless charging(5W)+charging from Adapter	Channel	/
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Vertical



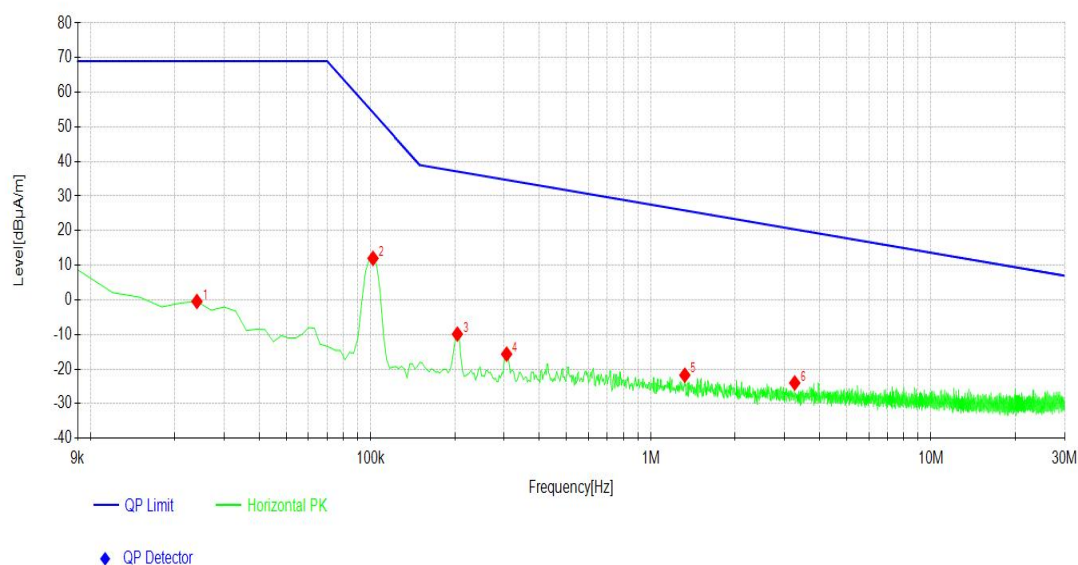
NO.	Freq. [MHz]	Reading [dBuV/m]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]
1	36.4026	7.44	26.55	19.11	40	13.45	100	232
2	69.0949	12.32	29.35	17.03	40	10.65	100	345
3	152.6203	13.48	34.06	20.58	43.5	9.44	100	124
4	206.6547	12.95	29.87	16.92	43.5	13.63	100	350
5	302.8883	12.37	32.44	20.07	46	13.56	200	360
6	745.5436	4.38	33.02	28.64	46	12.98	200	276

Remark: 1. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. Margin(dB) = Limit[dBuV/m] - Level [dBuV/m]

**Results under test standard RSS-216:**

9KHz ~ 30MHz WORST-CASE DATA:

Worst Test Mode	Wireless charging(5W)	Channel	/
Frequency Range	9KHz ~ 30MHz	Detector Function	Quasi-Peak (QP)

Horizontal

NO	Freq. [MHz]	Reading [dBuV/m]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]
1	0.0240	30.32	-0.45	-30.77	69.00	69.45	100	179
2	0.1020	42.80	12.01	-30.79	54.19	42.18	100	128
3	0.2040	21.12	-9.89	-31.01	37.14	47.03	100	94
4	0.3059	15.05	-15.68	-30.73	34.70	50.38	100	353
5	1.3227	8.91	-21.76	-30.67	25.85	47.61	100	179
6	3.2633	6.51	-24.01	-30.52	20.40	44.41	100	167

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).

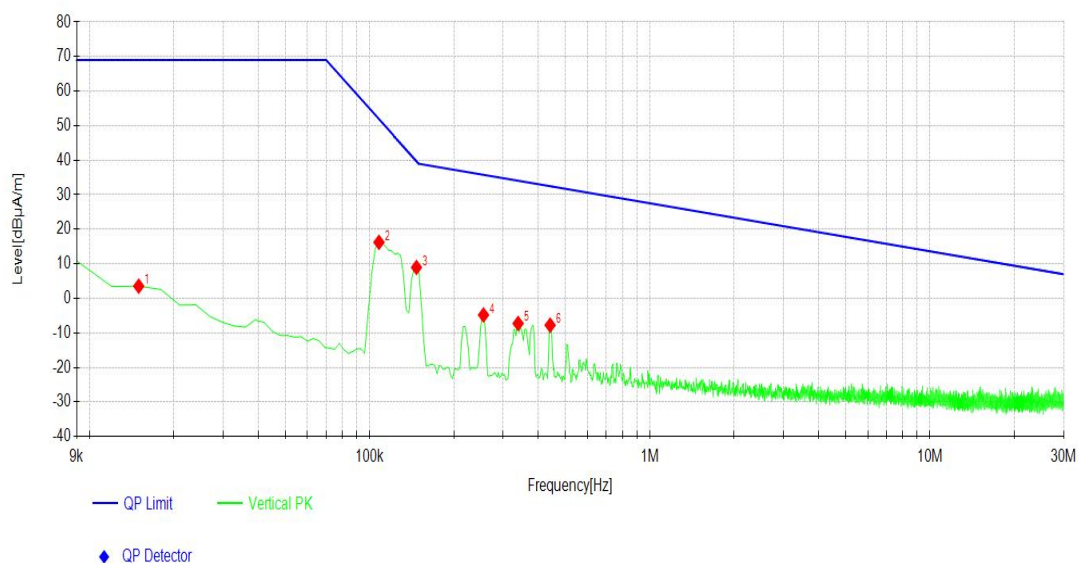
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBuV/m] - Level [dBuV/m]



Worst Test Mode	Wireless charging(5W)	Channel	/
Frequency Range	9KHz ~ 30MHz	Detector Function	Quasi-Peak (QP)

Vertical



NO.	Freq. [MHz]	Reading [dBμA/m]	Level [dBμA/m]	Factor [dB]	Limit [dBμA/m]	Margin [dB]	Height [cm]	Angle [°]
1	0.0150	34.43	3.54	-30.89	69.00	65.46	100	196
2	0.1080	46.94	16.24	-30.70	51.94	35.70	100	72
3	0.1470	40.11	8.96	-31.15	39.80	30.84	100	83
4	0.2550	26.05	-4.81	-30.86	35.80	40.61	100	269
5	0.3389	23.37	-7.27	-30.64	34.08	41.35	100	66
6	0.4409	22.62	-7.75	-30.37	32.49	40.24	100	94

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμA/m) = Reading (dBμA/m) + Factor (dB).

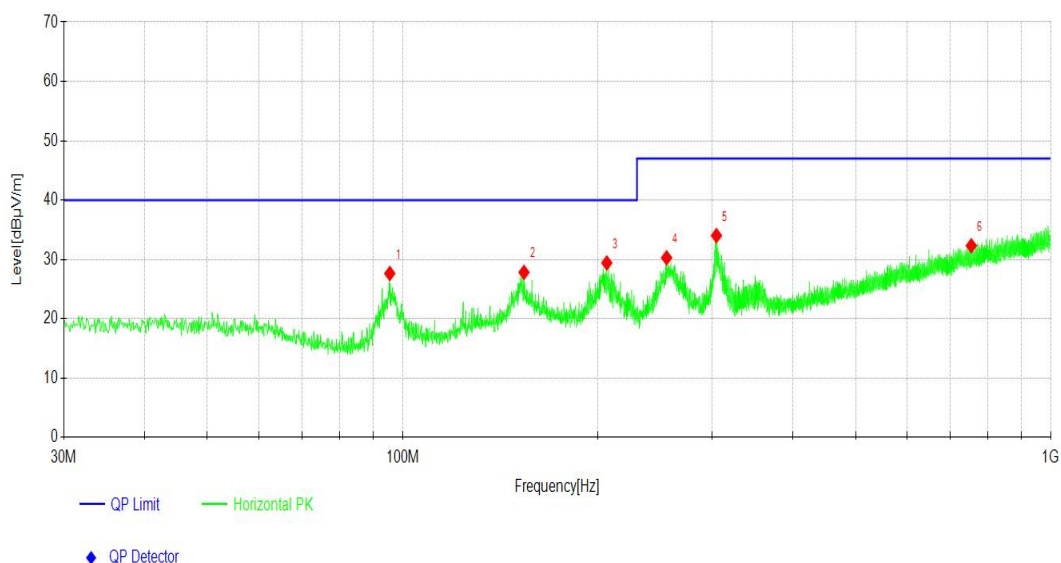
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBμA/m] - Level [dBμA/m]

30MHz ~ 1GHz WORST-CASE DATA:

Worst Test Mode	Wireless charging(5W)+charging from Adapter	Channel	/
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

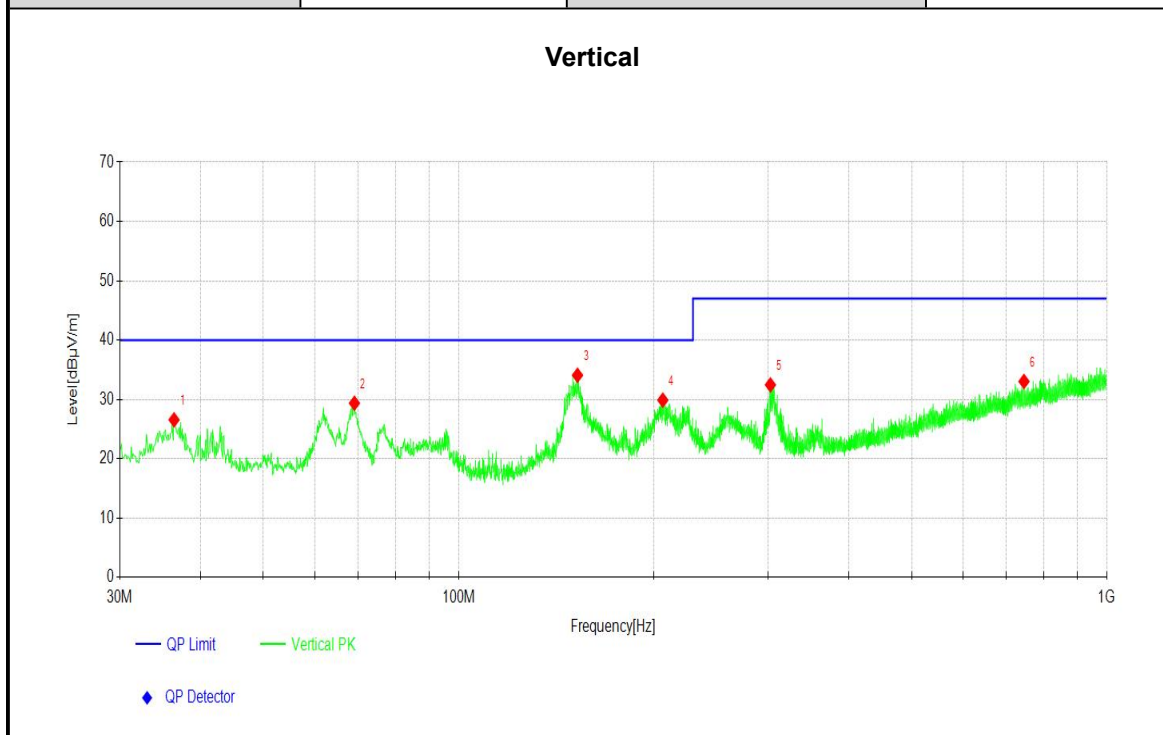
Horizontal



NO	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]
1	95.5786	11.65	27.62	15.97	40	12.38	200	180
2	153.9784	7.18	27.82	20.64	40	12.18	200	90
3	206.6547	12.48	29.4	16.92	40	10.60	100	107
4	255.5476	12.07	30.27	18.2	47	16.73	100	84
5	305.0225	13.93	34.01	20.08	47	12.99	100	289
6	754.4684	3.56	32.3	28.74	47	14.70	200	277

Remark: 1. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
 2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

Worst Test Mode	Wireless charging(5W)+charging from Adapter	Channel	/
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)



NO	Freq. [MHz]	Reading [dBuV/m]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [°]
1	36.4026	7.44	26.55	19.11	40	13.45	100	232
2	69.0949	12.32	29.35	17.03	40	10.65	100	345
3	152.6203	13.48	34.06	20.58	40	5.94	100	124
4	206.6547	12.95	29.87	16.92	40	10.13	100	350
5	302.8883	12.37	32.44	20.07	47	14.56	200	360
6	745.5436	4.38	33.02	28.64	47	13.98	200	276

Remark: 1. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. Margin(dB) = Limit[dBuV/m] - Level [dBuV/m]

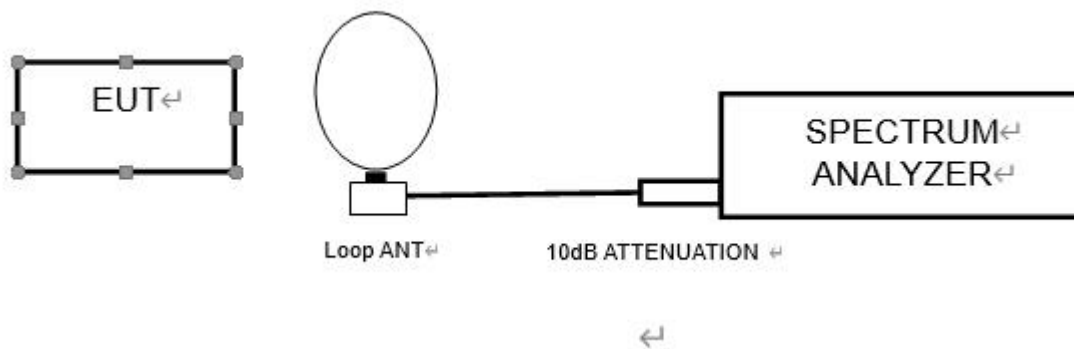
3.3 20dB Bandwidth Measurement

3.3.1 Limits of 20dB Bandwidth Measurement

The field strength of any emissions appearing between the band edges and out of band shall be attenuated at least 20 dB below the level of the unmodulated carrier or to the general limits in Section 15.209.

3.3.2 Measurement procedure

- 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, 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. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- d. Repeat above procedures until all frequencies measured were complete.

3.3.3 Test setup

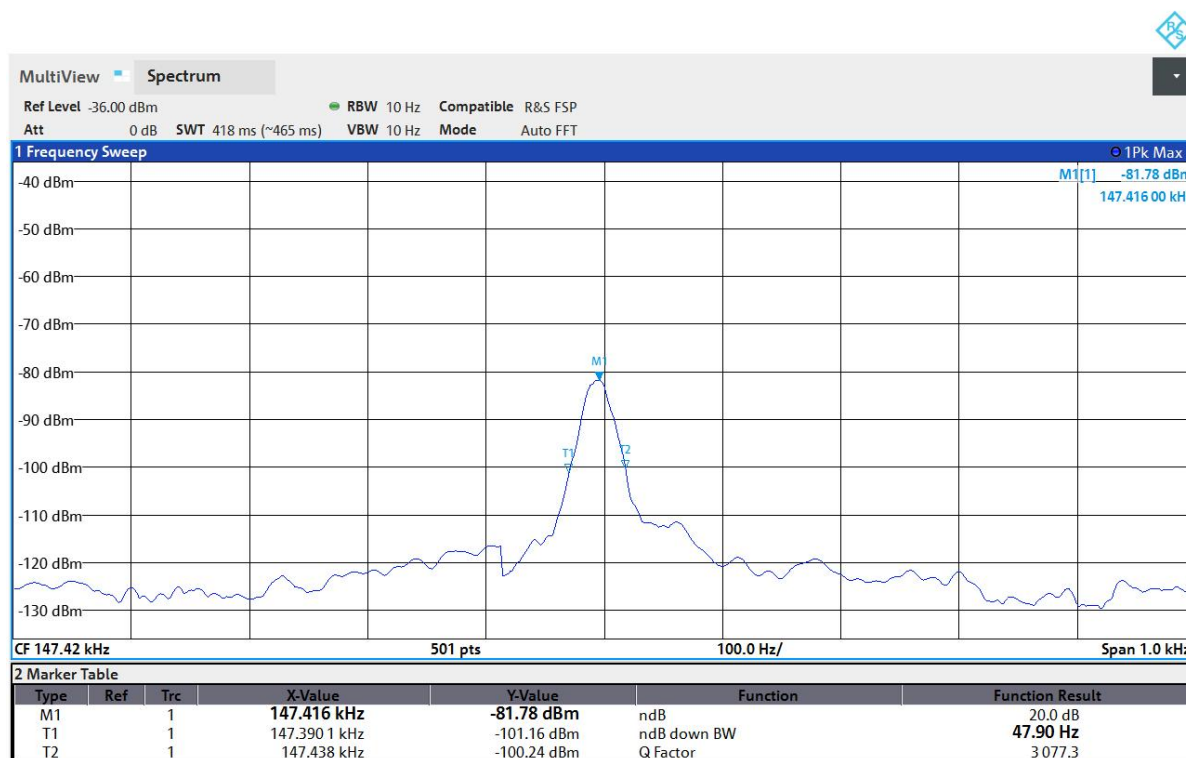


3.3.4 Test results

TEST MODE	CHANNEL FREQUENCY (KHz)	20dB BANDWIDTH (Hz)
Wireless Charging(7.5W) + Charging from Adapter	147.41	47.90

Lower & Upper Test Frequency Point (MHz)	Test Frequency (KHz)	P/F
Lower	147.390	PASS
Upper	147.438	PASS

Test Graph:



3.4 Occupied Bandwidth Measurement

3.4.1 Limits of Occupied Bandwidth Measurement

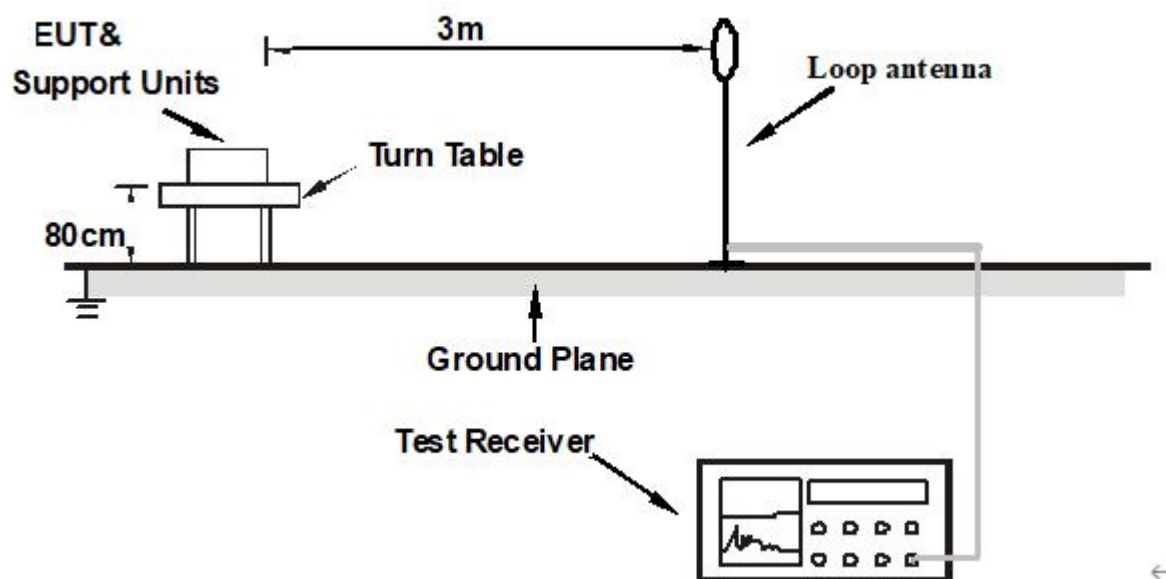
N/A

3.4.2 Measurement procedure

The resolution bandwidth shall be set to the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.

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.

3.4.3 Test setup



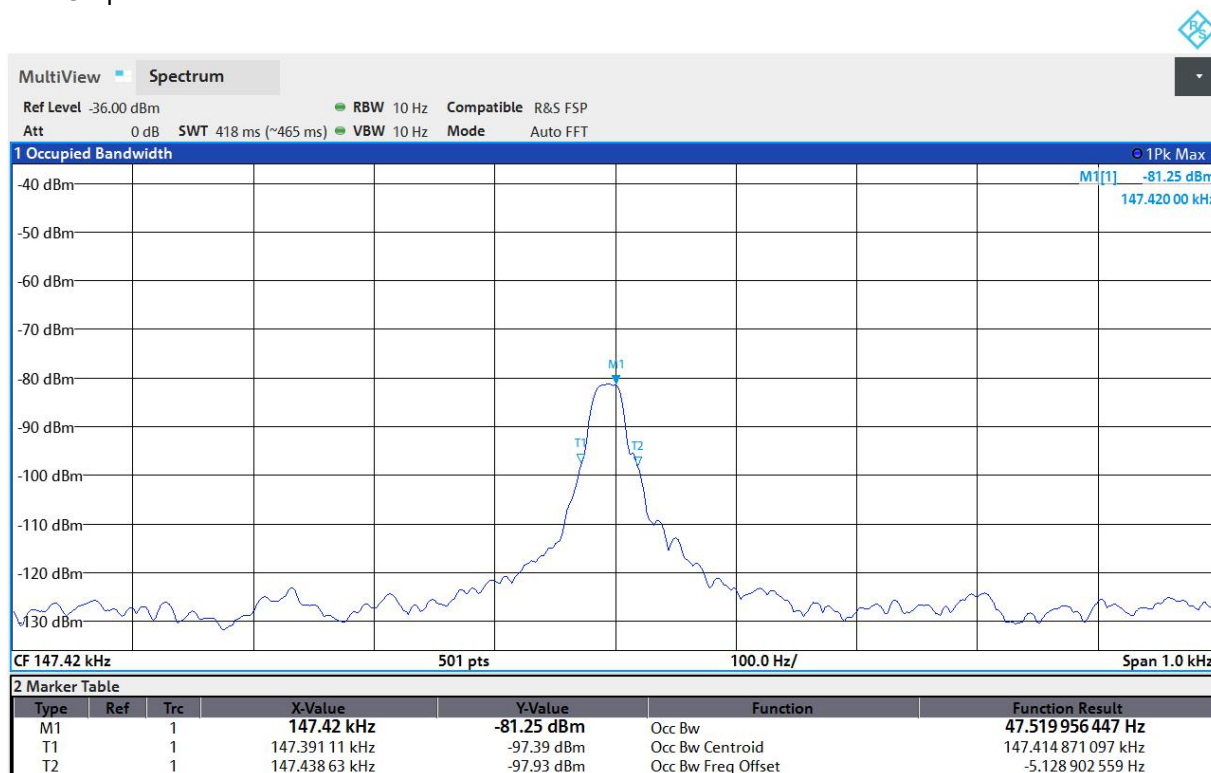


3.4.4 Test results

TEST MODE	CHANNEL FREQUENCY (KHz)	20dB BANDWIDTH (Hz)
Wireless Charging(7.5W) + Charging from Adapter	147.42	47.51

Lower & Upper Test Frequency Point (MHz)	Test Frequency (KHz)	P/F
Lower	147.391	PASS
Upper	147.438	PASS

Test Graph:





4 HOTOGRAPHS OF TEST SETUP

Please refer to the attached file (Test Photos).



5 PHOTOGRAPHS OF THE EUT

Please refer to the attached file (External Photos report and Internal Photos).

**Appendix A**

Antenna Port Conducted Test				
Equipment	Model No.	Serial Number	Manufacturer	Cal. Due
Communication Shielded Room 2	4m*3m*3m	CRTDSWKS44301	CRT	2023/04/25
Spectrum Analyzer	FSV40	101580	R&S	2022/06/30
Comprehensive Test Instrument	CMW270	100304	R&S	2022/12/09
Analog Signal Generator	SMB100A	181858	R&S	2022/06/30
Vector Signal Generator	SGT100A	111661	R&S	2022/06/30
RF Radio Frequency Switch	JS0806-2	19H9080187	Tonscend	2022/06/30
Programmable DC Power Supply	E3644A	MY58036222	KEYSIGHT	2022/04/22

Chamber Radiated Emission Test - 3M Chamber				
Equipment	Model No.	Serial Number	Manufacturer	Cal. Due
EMI Test Receiver	N9038A-508	MY532290079	Agilent	2023/3/3
EMI Test Receiver	ESR7	102235	R&S	2023/3/3
EMI Test Receiver	N9038A-508	MY53290078	Agilent	2023/3/3
Spectrum Analyzer	N9010B	MY57470323	KEYSIGHT	2023/3/3
Radio Communication Test	CMW500	156686	R&S	2022/12/8
Broadband Antenna(3m)	VULB 9163	9163-530	SCHWARZBECK	2022/6/26
Loop Antenna	HLA 6121	540046	TESEQ	2022/6/5
Loop Antenna	FMZB1513	1513-170	SCHWARZBECK	2023/3/4
Monopole antenna	HFH2-Z6E	101317	R&S	2023/3/4
Waveguide Horn Antenna	BBHA9120B	602	SCHWARZBECK	2023/2/20
Waveguide Horn Antenna	HF906	360306/008	R&S	2023/3/4
Semi-Anechoic Chamber(3m)	FACT-4	ST08035	ETS	2024/12/12

Important

- (1) The test report is valid with the official seal of the laboratory and the signatures of Test engineer, Author and Reviewer simultaneously.
- (2) The test report is invalid if altered.
- (3) Any photocopies or part photocopies in the test report are forbidden without the written permission from the laboratory.
- (4) Objections to the test report must be submitted to the laboratory within 15 days.
- (5) Generally, commission test is responsible for the tested samples only.

Address of the laboratory:

CVC Testing Technology Co., Ltd.

Address: No.3,TiantaiyiRoad,KaitaiAvenue,ScienceCity,Guangzhou,China

Post Code: 510663 Tel: 020-32293888

FAX: 020-32293889 E-mail: office@cvc.org.cn