

TEST REPORT

Applicant	CE LINK LIMITED
Address	Building M, Li Cheng, Technology Industrial Zone, Gong He Village, Sha Jing Town, Shen Zhen, China

Manufacturer or Supplier	CE LINK LIMITED
Address	Building M, Li Cheng, Technology Industrial Zone, Gong He Village, Sha Jing Town, Shen Zhen, China
Product	Wireless Charging
Brand Name	NXT
Model	NX60454-CC
Additional Model & Model Difference	NX60454-US; See item 3.1
Date of tests	Sep. 23, 2021 ~ Oct. 27, 2021

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

☒ **FCC Part 15, Subpart C**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Lucas Chen Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	 Date: Dec. 07, 2021

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Test Report No.: RF2109WDG0095

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2109WDG0095	Original release	Dec. 07, 2021

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
§15.203	Antenna Requirement	PASS	No antenna connector is used.
§15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit.
§15.209	Radiated Emission	PASS	Meet the requirement of limit.
§15.215 (c)	20dB Bandwidth	PASS	Meet the requirement of limit.

2 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	3.05dB
Radiated emissions	9KHz ~ 30MHz	2.16dB
	30MHz ~ 1GMHz	3.82dB

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



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Charging
MODEL NO.	NX60454-CC
ADDITIONAL MODEL	NX60454-US
SAMPLE STATUS	Engineering sample
FCC ID	A4X-NX60454-US
POWER SUPPLY	Input: 5V/2A, 9V/2A, 12V/1.5A Output: 5W, 7.5W, 10W
MODULATION TYPE	FSK
OPERATING FREQUENCY	111KHz ~ 205KHz
ANTENNA TYPE	Coil Antenna
FIELD STRENGTH	77.60dBuV/m
CABLE SUPPLIED	USB-A to USB-C Cable:1.8m, Shielded, Detachable

NOTES:

1. For a 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 (Reference No.: 2109WDG0095-1) for detailed product photo.
4. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	N/A
MODEL:	W0920U-1U05F
INPUT:	100-240V _{AC} 50/60HZ 0.45A
OUTPUT:	3.6V~6.0V/3A, 6V~9V/2A, 9V~12V/1.5A

3.2 DESCRIPTION OF TEST MODES

The EUT was tested under the following modes.

TEST FREQUENCY	TEST MODE	TEST VOLTAGE
127.70KHz	Standby	DC 5V from Adapter Input AC 120V/60Hz
127.70KHz	Wireless Charging	

3.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, power supply voltage range and antenna ports. The worst case was found when positioned on X axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE	APPLICABLE TO			DESCRIPTION
	RE<1G	PLC	20BW	
A	√	√	√	Standby
B	√	√	√	Wireless Charging

Where **RE<1G**: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

20BW: 20dB Bandwidth

RADIATED EMISSION TEST (BELOW 1GHZ):

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

EUT configure mode	Operating Frequency Range(KHz)	Tested Frequency(KHz)	Modulation Type
A	111-205	127.7	FSK
B	111-205	127.7	FSK

POWER LINE CONDUCTED EMISSION TEST:

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

EUT configure mode	Operating Frequency Range(KHz)	Tested Frequency(KHz)	Modulation Type
A	111-205	127.7	FSK
B	111-205	127.7	FSK

20DB BANDWIDTH TEST:

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

EUT configure mode	Operating Frequency Range(KHz)	Tested Frequency(KHz)	Modulation Type
A	111-205	127.7	FSK
B	111-205	127.7	FSK

TEST CONDITION:

Applicable to	Environmental conditions	Input Power	Tested by
RE<1G	22deg. C, 52% RH/ 25deg. C, 55% RH	AC 120V/60Hz	Alex/Byant
PLC	25deg. C, 54% RH	AC 120V/60Hz	Ming Bai
20BW	25deg. C, 64% RH	AC 120V/60Hz	Jeffrey

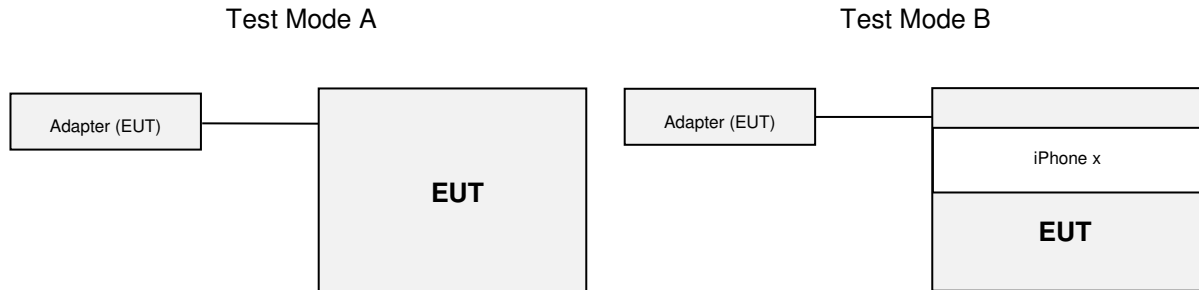
3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as a dependent 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	iPhone X	Apple	MQA52CH/A	N/A	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

3.5 CONFIGURATION OF SYSTEM UNDER TEST



3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C

ANSI C63.10-2013

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

4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

- NOTES:**
- (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 0.50 MHz.
 - (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Mar. 07,22
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Mar. 07,22
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Mar. 07,22
Voltage probe	SCHWARZBECK	TK 9421	TK 9421-176	Sep. 16,22
Test software	ADT	ADT_Conc_V7.3.7	N/A	N/A

- NOTES:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 2. The test was performed in shielding room 553.

4.1.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4:2014 amended as per ANSI C63.4a:2017.

- 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 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

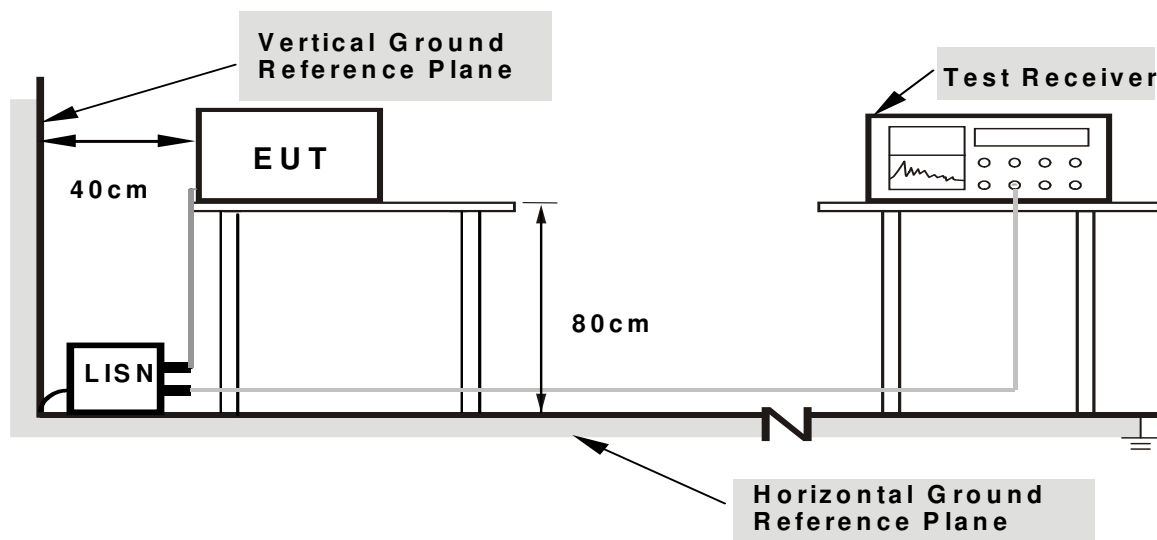
NOTES:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



- Note:** 1.Support units were connected to second LISN.
 2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.

4.1.6 EUT OPERATING CONDITIONS

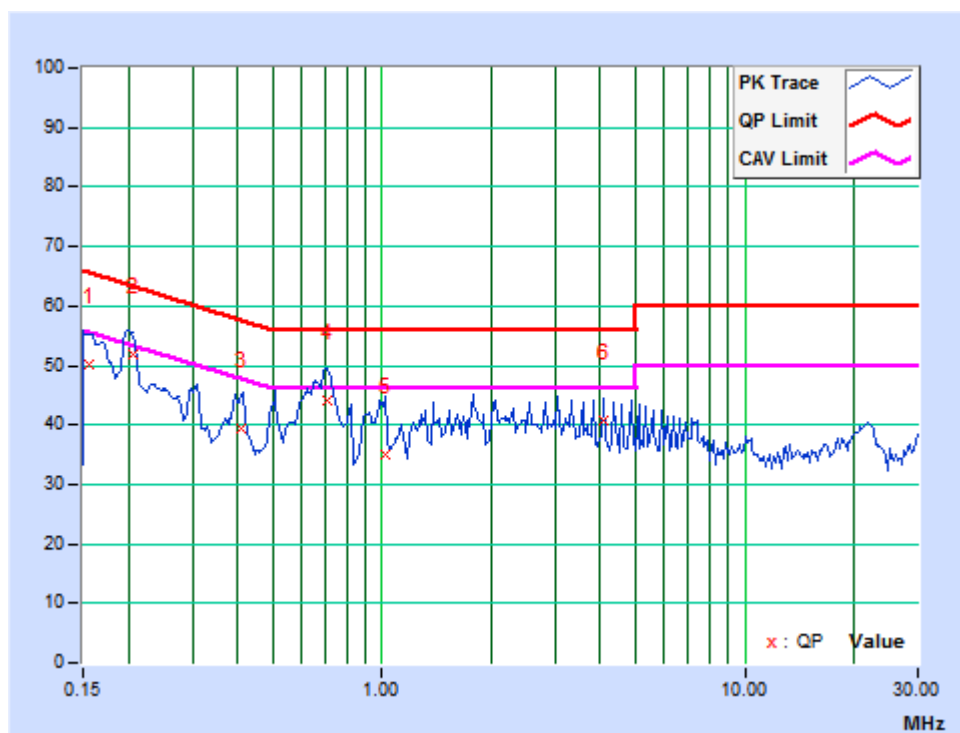
- Turned on the power of all equipment.
- EUT was operated according to the type description in manufacturer's specifications or the User's Manual.

4.1.7 TEST RESULTS

TEST MODE	Wireless Charging	6DB BANDWIDTH	9 kHz
TEST VOLTAGE	AC 120V 60Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 54% RH	TESTED BY	Ming Bai

No.	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15632	10.01	40.27	19.18	50.28	29.19	65.66	55.66	-15.38	-26.47
2	0.20614	10.00	41.72	21.89	51.72	31.89	63.36	53.36	-11.64	-21.47
3	0.41100	9.98	29.55	17.25	39.53	27.23	57.63	47.63	-18.10	-20.40
4	0.71025	9.99	34.10	20.26	44.09	30.25	56.00	46.00	-11.91	-15.75
5	1.01850	10.02	24.84	15.25	34.86	25.27	56.00	46.00	-21.14	-20.73
6	4.08525	10.05	30.67	24.38	40.72	34.43	56.00	46.00	-15.28	-11.57

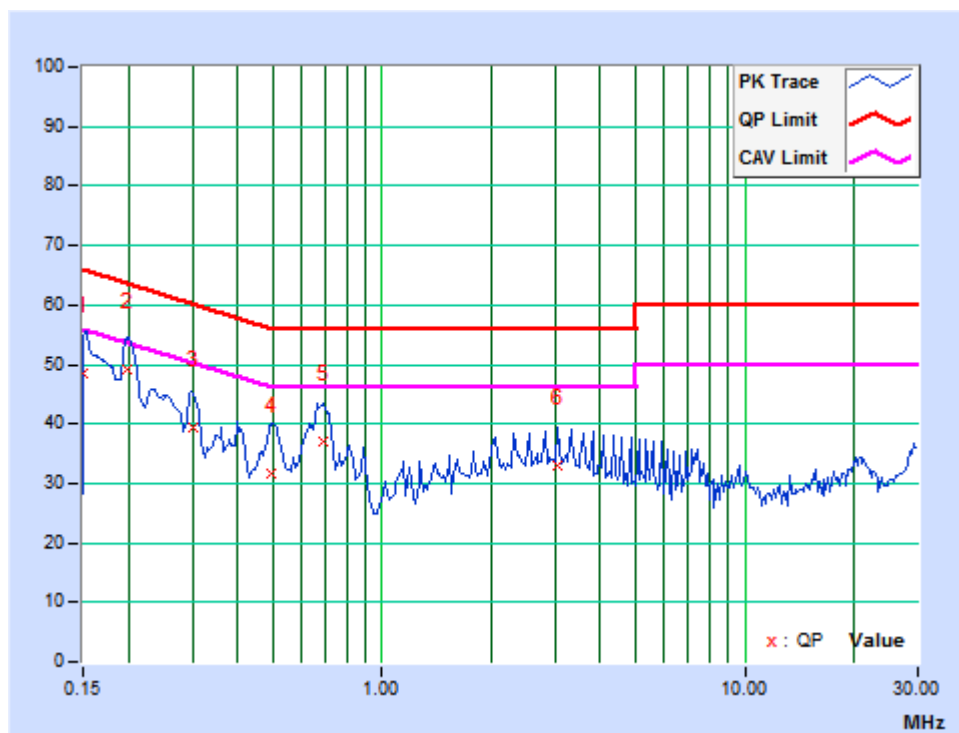
REMARK: The emission levels of other frequencies were very low against the limit.



TEST MODE	Wireless Charging	6DB BANDWIDTH	9 kHz
TEST VOLTAGE	AC 120V 60Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 54% RH	TESTED BY	Ming Bal

No.	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.94	38.58	17.95	48.52	27.89	66.00	56.00	-17.48	-28.11
2	0.19725	9.93	39.30	18.60	49.23	28.53	63.73	53.73	-14.49	-25.19
3	0.30300	9.92	29.44	13.41	39.36	23.33	60.16	50.16	-20.80	-26.83
4	0.49425	9.93	21.77	10.56	31.70	20.49	56.10	46.10	-24.40	-25.61
5	0.69000	9.93	27.14	17.46	37.07	27.39	56.00	46.00	-18.93	-18.61
6	3.06150	9.99	22.98	17.44	32.97	27.43	56.00	46.00	-23.03	-18.57

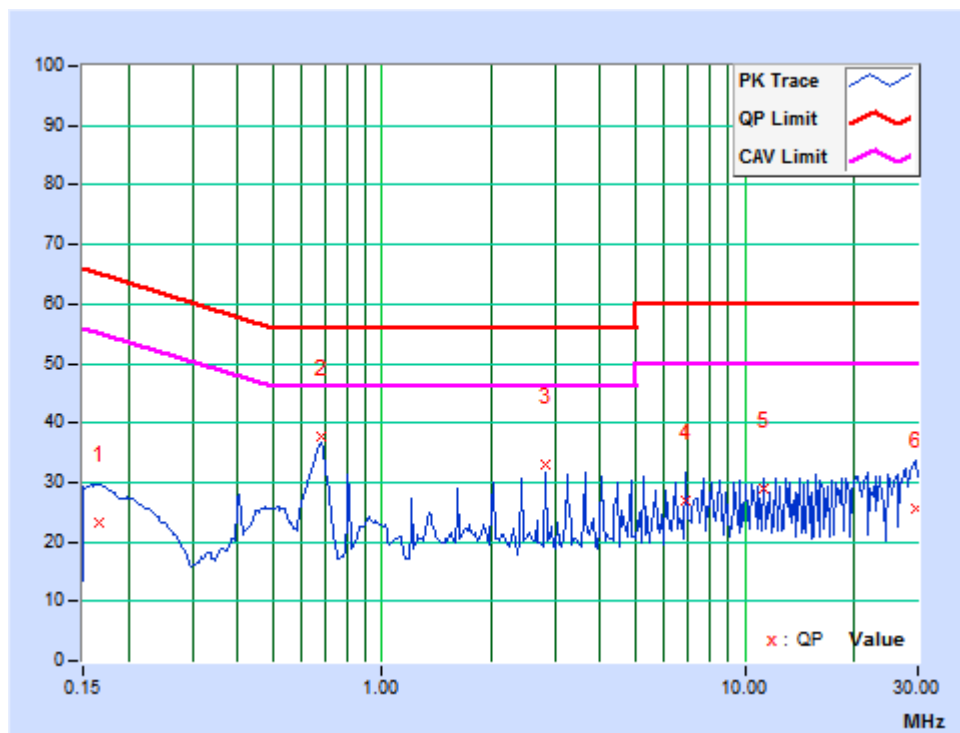
REMARK: The emission levels of other frequencies were very low against the limit.



TEST MODE	Standby	6DB BANDWIDTH	9 kHz
TEST VOLTAGE	AC 120V 60Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 54% RH	TESTED BY	Ming Bai

No.	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16696	10.00	13.31	0.24	23.31	10.24	65.11	55.11	-41.80	-44.87
2	0.68369	9.99	27.68	11.54	37.67	21.53	56.00	46.00	-18.33	-24.47
3	2.82750	10.04	23.07	16.58	33.11	26.62	56.00	46.00	-22.89	-19.38
4	6.86625	10.12	16.69	6.83	26.81	16.95	60.00	50.00	-33.19	-33.05
5	11.31225	10.17	18.83	11.10	29.00	21.27	60.00	50.00	-31.00	-28.73
6	29.49000	10.68	15.01	5.33	25.69	16.01	60.00	50.00	-34.31	-33.99

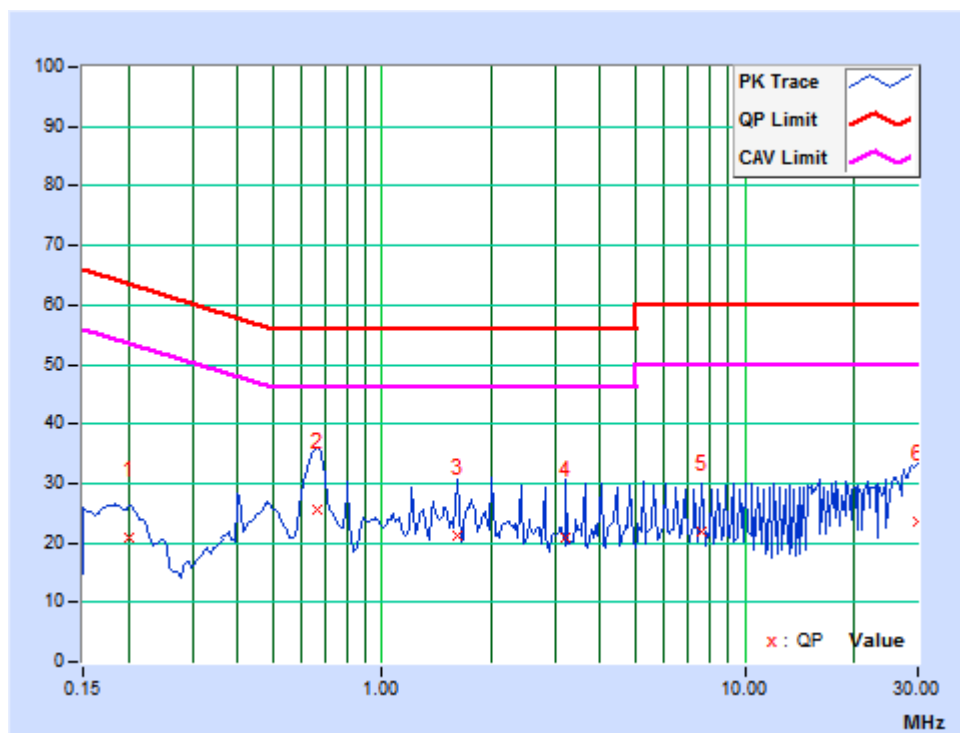
REMARK: The emission levels of other frequencies were very low against the limit.



TEST MODE	Standby	6DB BANDWIDTH	9 kHz
TEST VOLTAGE	AC 120V 60Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 54% RH	TESTED BY	Ming Bai

No.	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20078	9.93	11.02	9.35	20.95	19.28	63.58	53.58	-42.63	-34.30
2	0.66591	9.93	15.82	9.58	25.75	19.51	56.00	46.00	-30.25	-26.49
3	1.61025	9.99	11.39	8.41	21.38	18.40	56.00	46.00	-34.62	-27.60
4	3.22350	9.99	10.95	8.97	20.94	18.96	56.00	46.00	-35.06	-27.04
5	7.65375	10.07	11.95	9.97	22.02	20.04	60.00	50.00	-37.98	-29.96
6	29.83875	11.02	12.71	10.89	23.73	21.91	60.00	50.00	-36.27	-28.09

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart C, Section 15.209

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

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

NOTES:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
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.
4. The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance)

4.2.2 TEST INSTRUMENTS

FREQUENCY 9KHz-30MHz

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101564	Mar. 07,22
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	1519B-045	May 29,22
Amplifier	Burgeon	BPA-530	100210	Mar. 13,22
Test Software	ADT	ADT_Radiated_V8.7.07	N/A	N/A

- NOTES:** 1. The test was performed in 10m Chamber.
 2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 3. The FCC Site Registration No. is 749762.

FREQUENCY 30MHz-1GHz

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 07,22
Bilog Antenna	Teseq	CBL 6111D	30643	May 29,22
Amplifier	Burgeon	BPA-530	100220	Mar. 13,22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	May 22,22
Test software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A

- NOTES:** 1. The test was performed in 966 Chamber
 2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 3. The FCC Site Registration No. is 749762.

4.2.3 TEST PROCEDURE

< Below 30MHz >

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meters Semi-anechoic chamber room. 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. 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.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

<30MHz~1GHz >

- a. The EUT was placed on the top of a rotating table 0.8 meters 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. The antenna is a broadband 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.

NOTES:

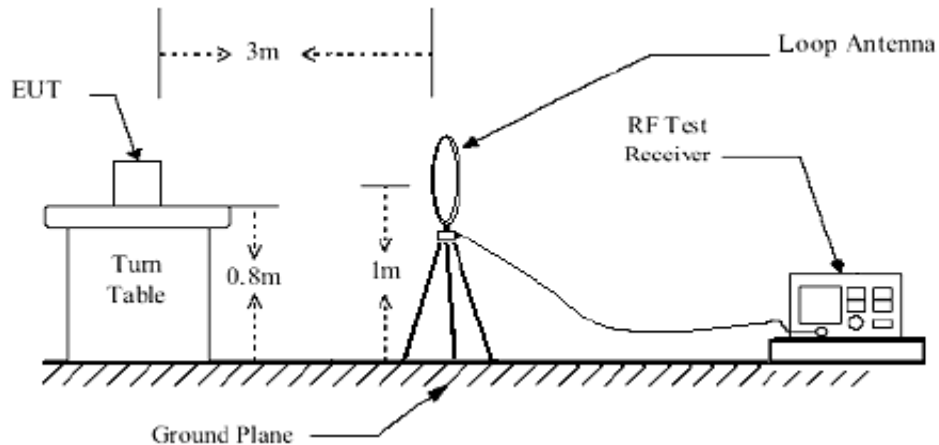
1. The resolution bandwidth of test receiver/spectrum analyzer is 200Hz for Quasi-peak detection (QP) at fundamental frequency 9K-150KHz;
2. The resolution bandwidth of test receiver/spectrum analyzer is 9KHz for Quasi-peak detection (QP) at fundamental frequency 150K-30MHz;
3. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at radiated spurious emission frequency 30MHz-1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

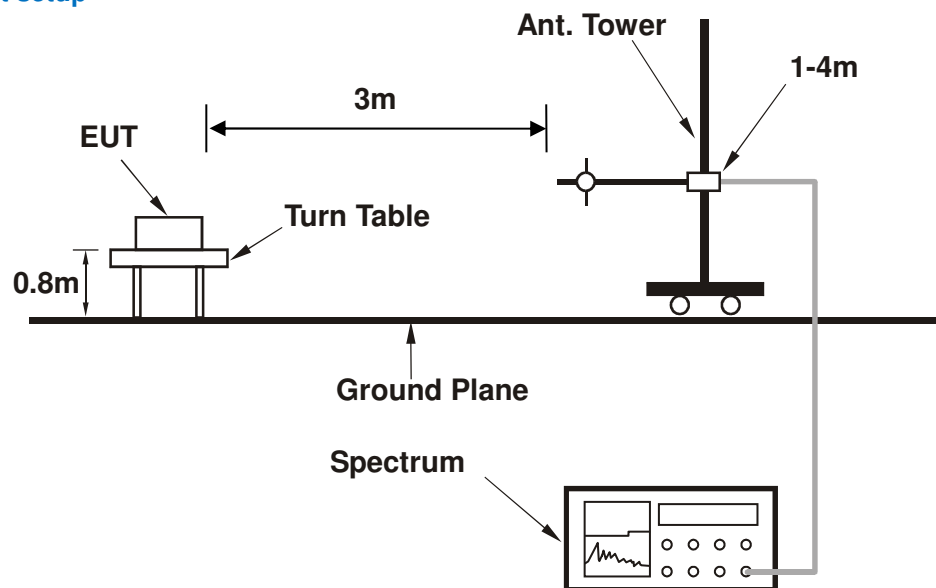
No deviation.

4.2.5 TEST SETUP

Below 30MHz test setup



Below 1GHz test setup



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

4.2.6 EUT OPERATING CONDITIONS

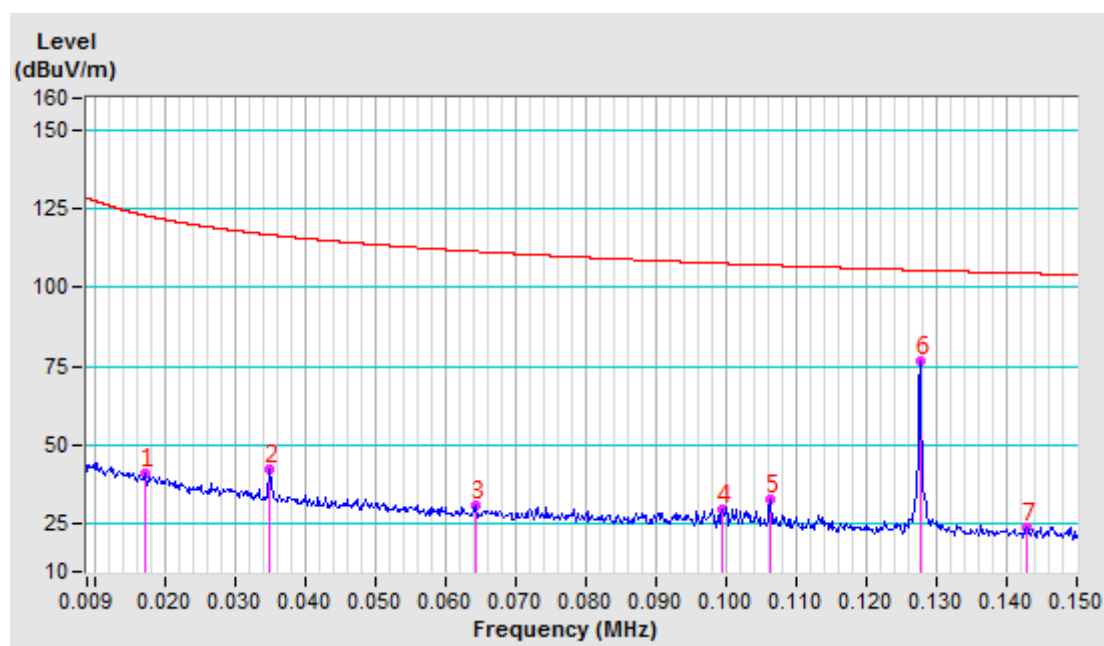
- Turn on the power supply of the EUT.
- EUT was operated according to the type description in manufacturer's specifications or the User's Manual.

4.2.7 TEST RESULTS

TEST MODE	Standby	FREQUENCY RANGE	9KHz-0.15MHz
TEST VOLTAGE	AC 120V 60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	QP&AV, 200Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 52% RH	TESTED BY:	Alex

ANTENNA POLARITY & TEST DISTANCE: PARALLEL AT 10M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.01730 AV	-10.22	51.47	41.25	122.84	-81.59	100	33
2	0.03510 AV	-10.83	53.35	42.52	116.70	-74.18	100	35
3	0.06430 AV	-10.88	41.88	31.00	111.44	-80.44	100	360
4	0.09950 QP	-10.81	40.57	29.76	107.65	-77.89	100	257
5	0.10620 AV	-10.81	43.53	32.72	107.08	-74.36	100	310
6	0.12770 AV	-10.85	87.86	77.01	105.48	-28.47	100	237
7	0.14280 AV	-10.87	35.07	24.20	104.51	-80.31	100	309

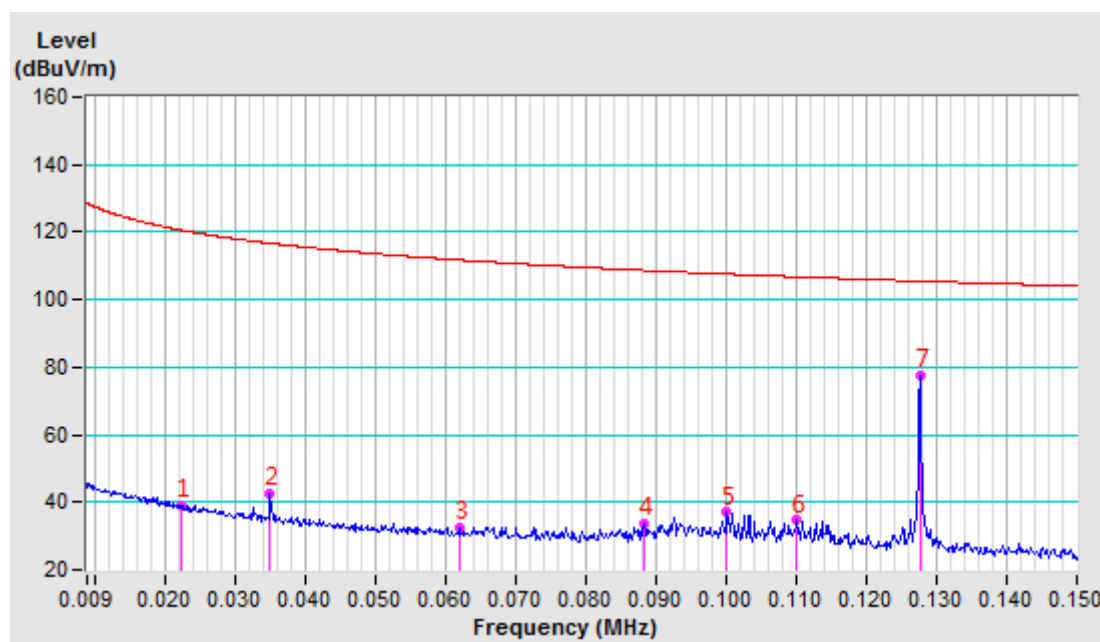
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 0.009-0.15MHz.
 4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Standby	FREQUENCY RANGE	9KHz-0.15MHz
TEST VOLTAGE	AC 120V 60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	QP&AV, 200Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 52% RH	TESTED BY: Alex	

ANTENNA POLARITY & TEST DISTANCE: PARALLEL AT 10M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.02250 AV	-10.46	49.69	39.23	120.56	-81.33	100	360
2	0.03510 AV	-10.83	53.52	42.69	116.70	-74.01	100	52
3	0.06200 AV	-10.89	43.62	32.73	111.75	-79.02	100	4
4	0.08840 AV	-10.82	44.72	33.90	108.67	-74.77	100	75
5	0.10010 QP	-10.81	47.78	36.97	107.59	-70.62	100	77
6	0.11010 AV	-10.83	45.57	34.74	106.77	-72.03	100	101
7	0.12770 AV	-10.85	88.45	77.60	105.48	-27.88	100	313

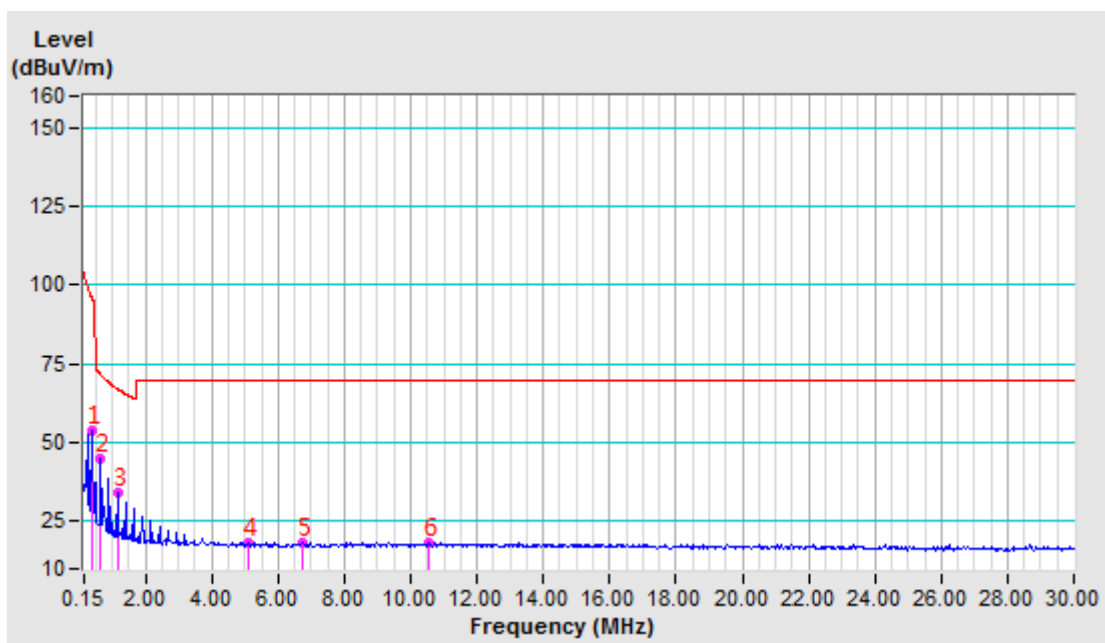
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 0.15-0.15MHz.
 4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Standby	FREQUENCY RANGE	150KHz-30MHz
TEST VOLTAGE	AC 120V 60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	QP&AV, 9KHz
ENVIRONMENTAL CONDITIONS	22deg. C, 52% RH	TESTED BY: Alex	

ANTENNA POLARITY & TEST DISTANCE: PERPENDICYLARL AT 10M								
No	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.38280 AV	-10.98	65.04	54.06	95.94	-41.88	100	102
2	0.63810 QP	-11.04	55.83	44.79	71.72	-26.93	100	102
3	1.14850 QP	-11.16	45.62	34.46	67.08	-32.62	100	102
4	5.08000 QP	-11.32	29.51	18.19	69.54	-51.35	100	207
5	6.74720 QP	-11.27	29.52	18.25	69.54	-51.29	100	248
6	10.5309 QP	-11.17	29.42	18.25	69.54	-51.29	100	186

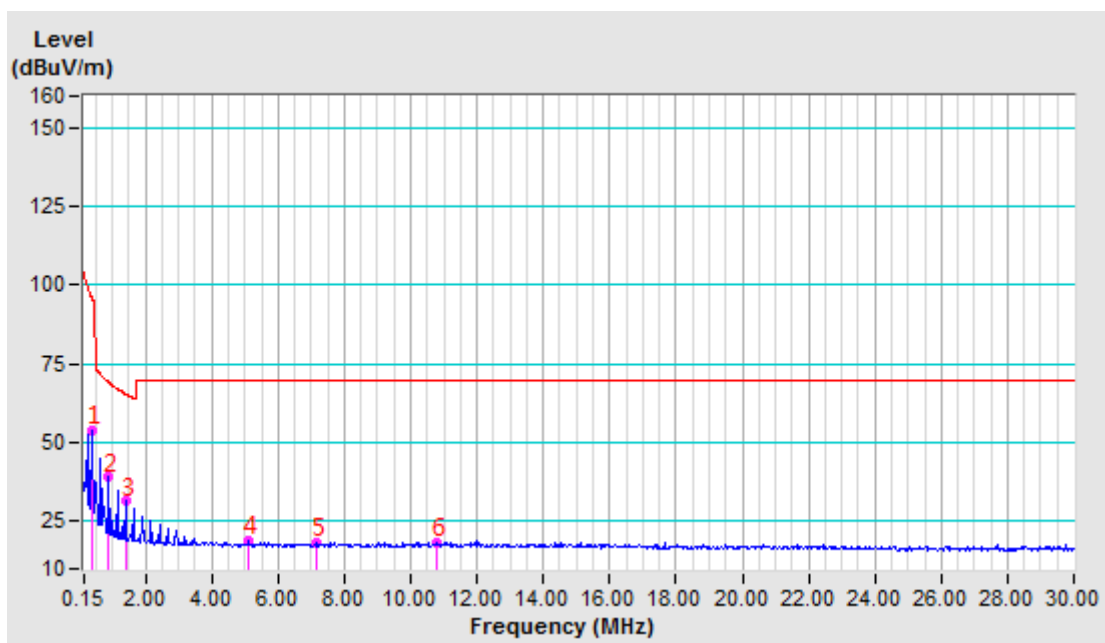
- REMARKS:** 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 0.15-30MHz.
4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Standby	FREQUENCY RANGE	150KHz-30MHz
TEST VOLTAGE	AC 120V 60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	QP&AV, 9KHz
ENVIRONMENTAL CONDITIONS	22deg. C, 52% RH	TESTED BY: Alex	

ANTENNA POLARITY & TEST DISTANCE: PERPENDICYLARL AT 10M								
No	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.38280 AV	-10.98	65.10	54.12	95.94	-41.82	100	80
2	0.89330 QP	-11.09	50.07	38.98	69.07	-30.09	100	107
3	1.40380 QP	-11.18	42.53	31.35	65.50	-34.15	100	93
4	5.10830 QP	-11.32	30.22	18.90	69.54	-50.64	100	360
5	7.15020 QP	-11.25	29.59	18.34	69.54	-51.20	100	332
6	10.81000 QP	-11.16	29.43	18.27	69.54	-51.27	100	360

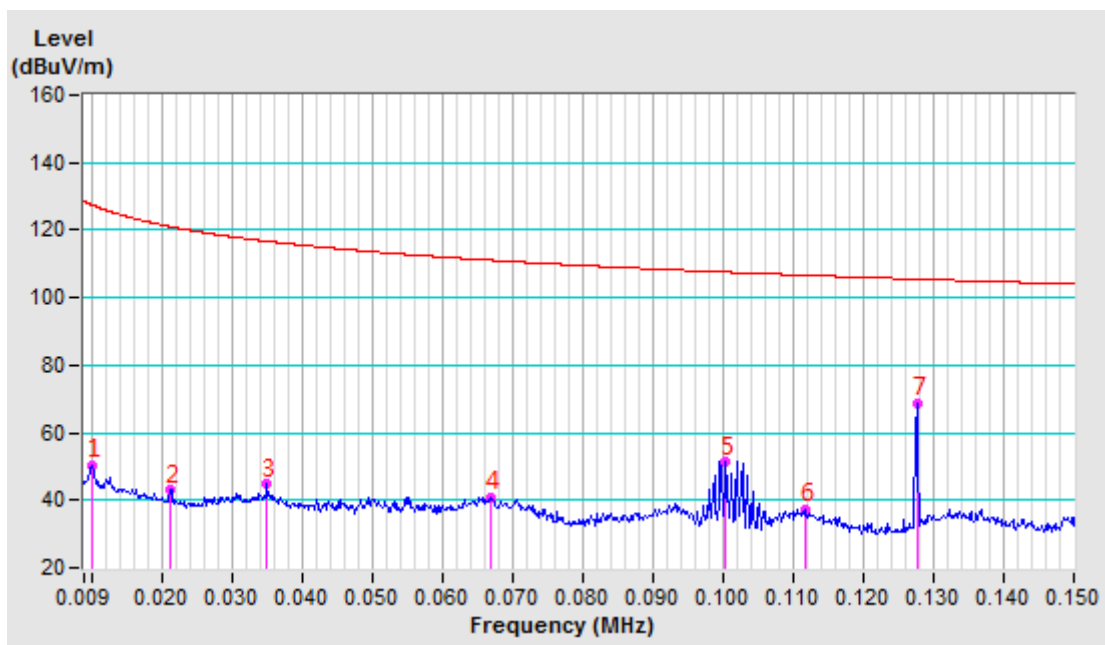
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 0.15-30MHz
4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Wireless Charging	FREQUENCY RANGE	9KHz-0.15MHz
TEST VOLTAGE	AC 120V 60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	QP&AV, 200Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 52% RH	TESTED BY: Alex	

ANTENNA POLARITY & TEST DISTANCE: PERPENDICYLARL AT 10M								
No	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.01020 AV	-9.89	60.27	50.38	127.43	-77.05	100	212
2	0.02140 AV	-10.41	53.50	43.09	121.00	-77.91	100	22
3	0.03510 AV	-10.83	55.57	44.74	116.70	-71.96	100	258
4	0.06690 AV	-10.88	51.75	40.87	111.09	-70.22	100	124
5	0.10040 QP	-10.81	62.09	51.28	107.57	-56.29	100	135
6	0.11170 AV	-10.83	48.26	37.43	106.64	-69.21	100	169
7	0.12770 AV	-10.85	79.58	68.73	105.48	-36.75	100	261

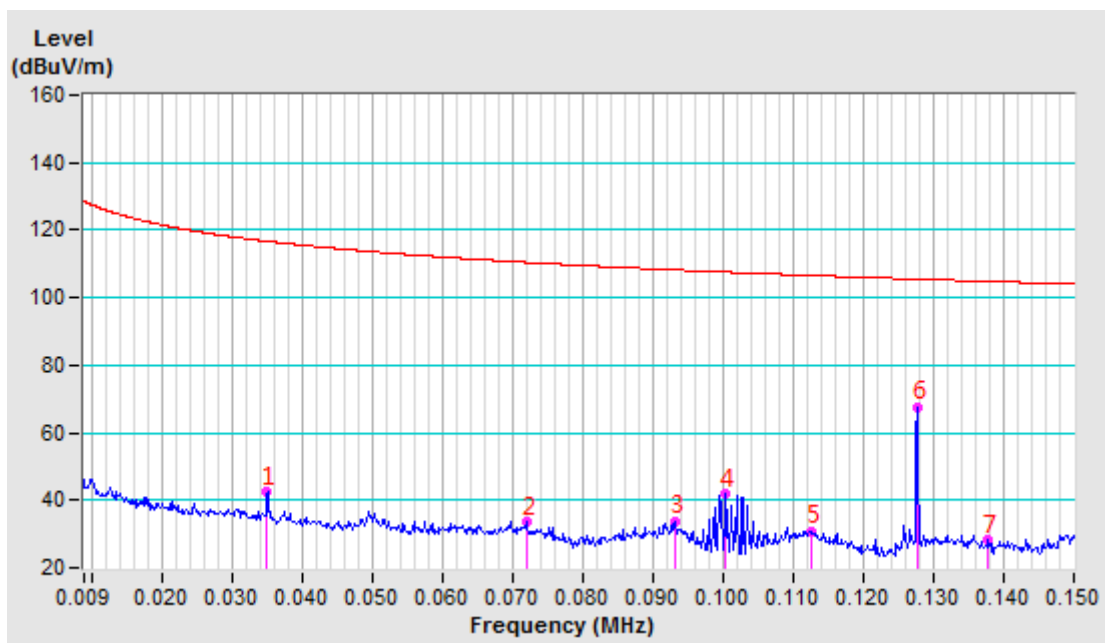
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 0.009-0.15MHz
 4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Wireless Charging	FREQUENCY RANGE	9KHz-0.15MHz
TEST VOLTAGE	AC 120V 60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	QP&AV, 200Hz
ENVIRONMENTAL CONDITIONS	22deg. C, 52% RH	TESTED BY: Alex	

ANTENNA POLARITY & TEST DISTANCE: PERPENDICYLARL AT 10M								
No	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.03510 AV	-10.83	53.27	42.44	116.70	-74.26	100	31
2	0.07200 AV	-10.86	44.30	33.44	110.46	-77.02	100	58
3	0.09310 QP	-10.82	44.51	33.69	108.22	-74.53	100	64
4	0.10040 QP	-10.81	52.77	41.96	107.57	-65.61	100	6
5	0.11260 AV	-10.83	41.74	30.91	106.57	-75.66	100	258
6	0.12770 AV	-10.85	78.41	67.56	105.48	-37.92	100	316
7	0.13760 AV	-10.87	39.09	28.22	104.83	-76.61	100	67

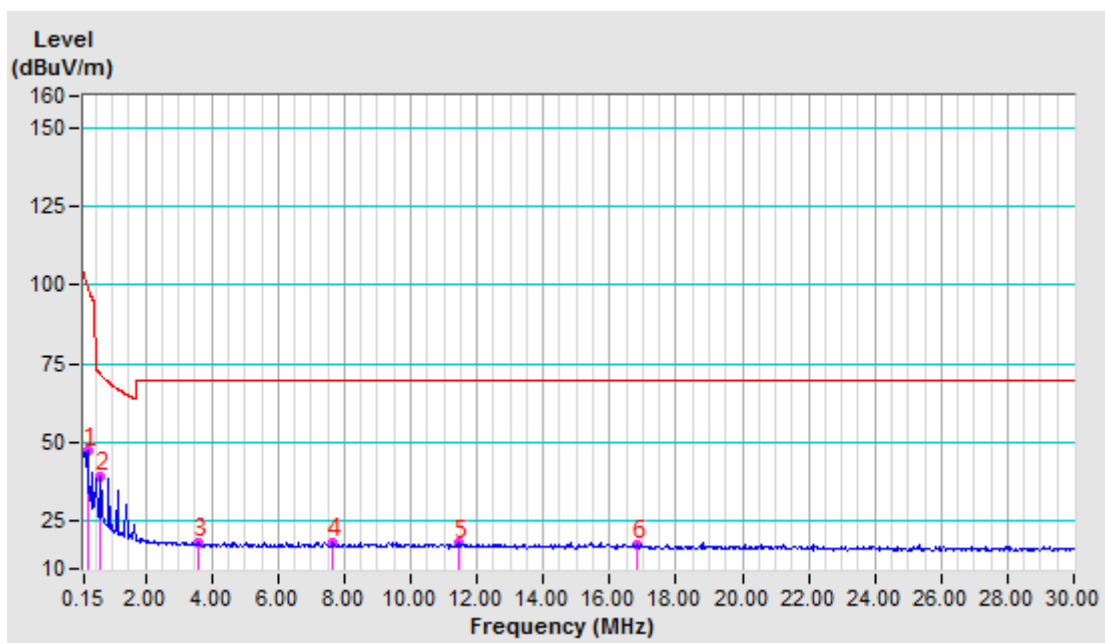
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 0.009-0.15MHz
 4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Wireless Charging	FREQUENCY RANGE	150KHz-30MHz
TEST VOLTAGE	AC 120V 60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	QP&AV, 9KHz
ENVIRONMENTAL CONDITIONS	22deg. C, 52% RH	TESTED BY: Alex	

ANTENNA POLARITY & TEST DISTANCE: PERPENDICYLARL AT 10M								
No	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.25450 AV	-10.92	58.10	47.18	99.49	-52.31	100	2
2	0.63810 QP	-11.04	50.17	39.13	71.72	-32.59	100	21
3	3.57400 QP	-11.23	29.79	18.56	69.54	-50.98	100	182
4	7.66060 QP	-11.22	29.48	18.26	69.54	-51.28	100	51
5	11.42340 QP	-11.13	29.13	18.00	69.54	-51.54	100	58
6	16.82360 QP	-11.10	28.98	17.88	69.54	-51.66	100	117

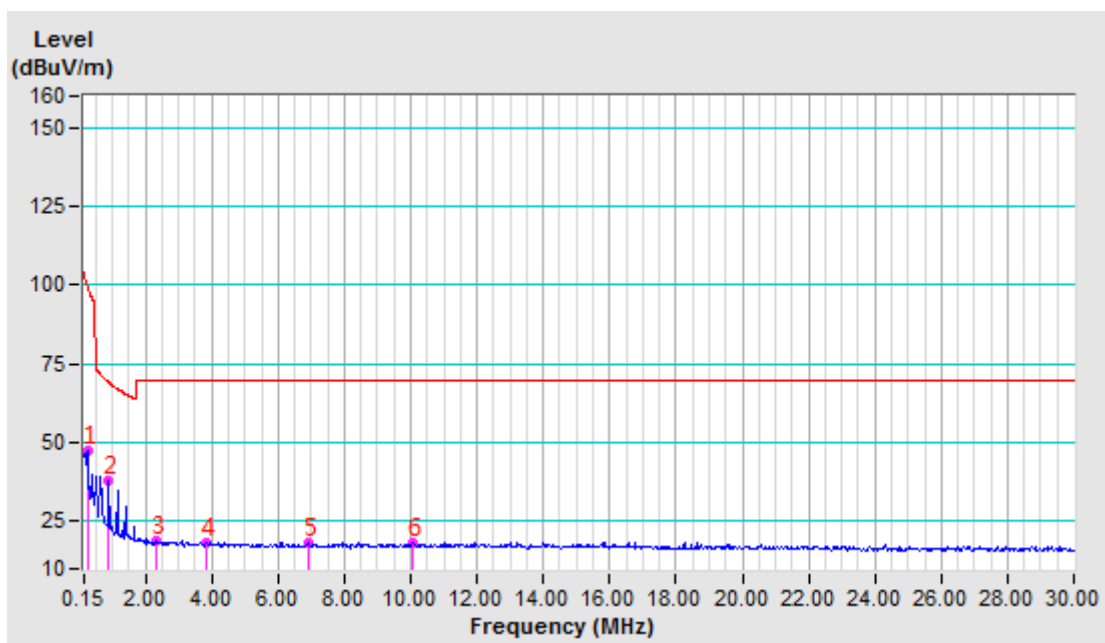
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 0.15-30MHz
4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Wireless Charging	FREQUENCY RANGE	150KHz-30MHz
TEST VOLTAGE	AC 120V 60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	QP&AV, 9KHz
ENVIRONMENTAL CONDITIONS	22deg. C, 52% RH	TESTED BY: Alex	

ANTENNA POLARITY & TEST DISTANCE: PERPENDICYLARL AT 10M								
No	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.25450 AV	-10.92	58.33	47.41	99.49	-52.08	100	0
2	0.89330 QP	-11.09	49.30	38.21	69.07	-30.86	100	24
3	2.32320 QP	-11.20	29.91	18.71	69.54	-50.83	100	116
4	3.83220 QP	-11.24	29.59	18.35	69.54	-51.19	100	7
5	6.89350 QP	-11.26	29.54	18.28	69.54	-51.26	100	20
6	10.05470 QP	-11.20	29.75	18.55	69.54	-50.99	100	135

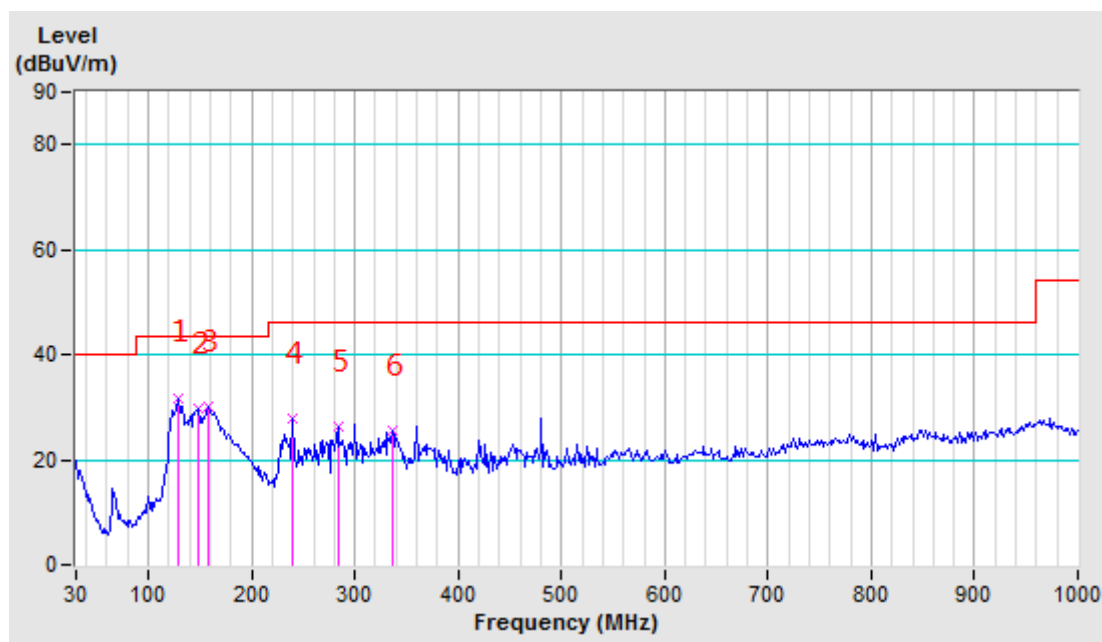
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 0.15-30MHz
4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Standby	FREQUENCY RANGE	30MHz -1GHz
TEST VOLTAGE	AC 120V/60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120KHz
ENVIRONMENTAL CONDITIONS	25deg. C, 55% RH	TESTED BY: BRYANT	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	129.49	-19.11	50.95	31.84	43.50	-11.66	100	142
2	148.14	-18.05	47.82	29.77	43.50	-13.73	100	42
3	157.47	-18.53	48.72	30.19	43.50	-13.31	100	252
4	239.86	-18.19	45.89	27.70	46.00	-18.30	100	11
5	283.38	-16.44	42.73	26.29	46.00	-19.71	100	323
6	336.23	-15.19	40.58	25.39	46.00	-20.61	100	89

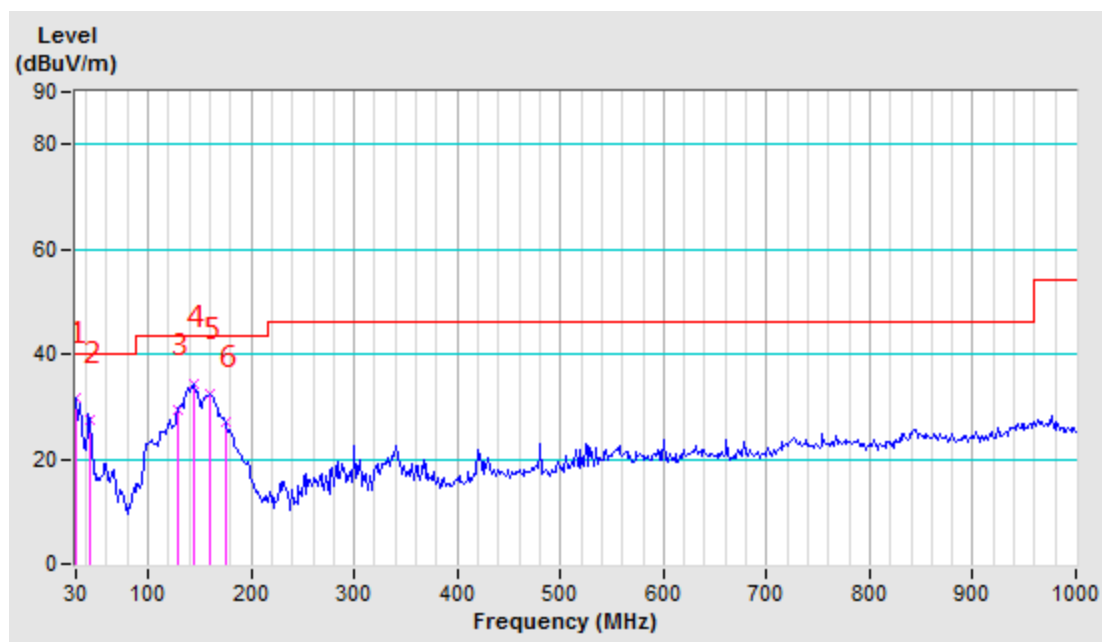
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Standby	FREQUENCY RANGE	30MHz -1GHz
TEST VOLTAGE	AC 120V/60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120KHz
ENVIRONMENTAL CONDITIONS	25deg. C, 55% RH	TESTED BY: BRYANT	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	30.00	-12.86	44.56	31.70	40.00	-8.30	100	54
2	43.99	-18.19	45.81	27.62	40.00	-12.38	100	168
3	129.49	-19.11	48.57	29.46	43.50	-14.04	100	142
4	145.03	-18.00	52.49	34.49	43.50	-9.01	100	24
5	159.02	-18.63	51.11	32.48	43.50	-11.02	100	37
6	174.57	-19.37	46.53	27.16	43.50	-16.34	100	0

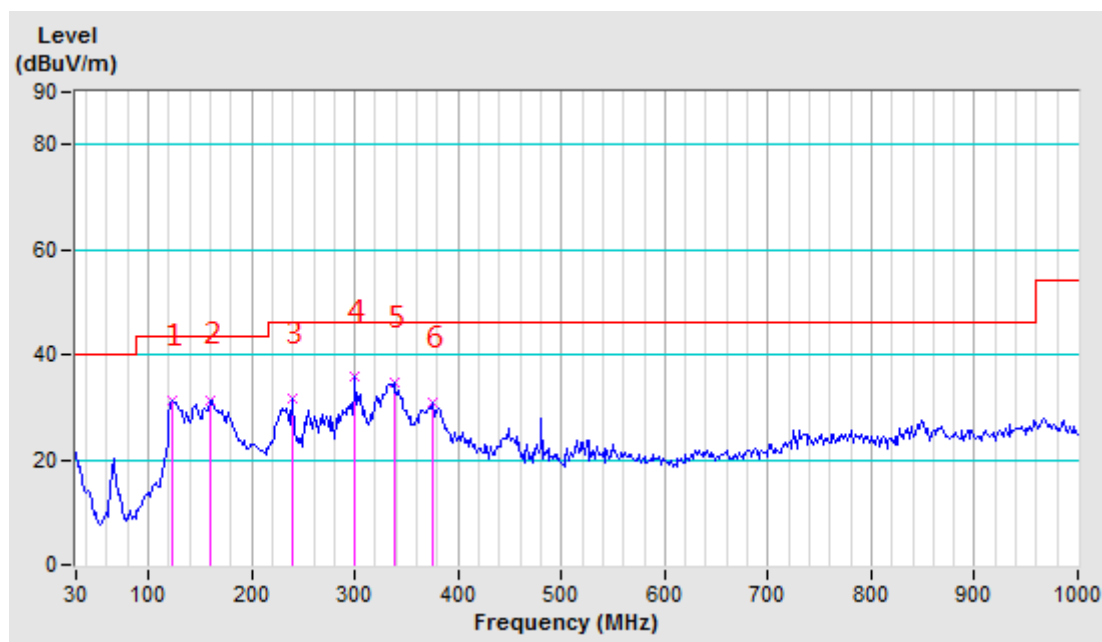
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Wireless Charging	FREQUENCY RANGE	30MHz -1GHz
TEST VOLTAGE	AC 120V/60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120KHz
ENVIRONMENTAL CONDITIONS	25deg. C, 55% RH	TESTED BY: BRYANT	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	123.27	-19.70	50.78	31.08	43.50	-12.42	100	85
2	160.58	-18.71	50.13	31.42	43.50	-12.08	100	196
3	239.86	-18.19	49.77	31.58	46.00	-14.42	100	287
4	300.48	-16.08	51.77	35.69	46.00	-10.31	100	337
5	337.79	-15.12	49.80	34.68	46.00	-11.32	100	12
6	375.10	-14.00	44.85	30.85	46.00	-15.15	100	25

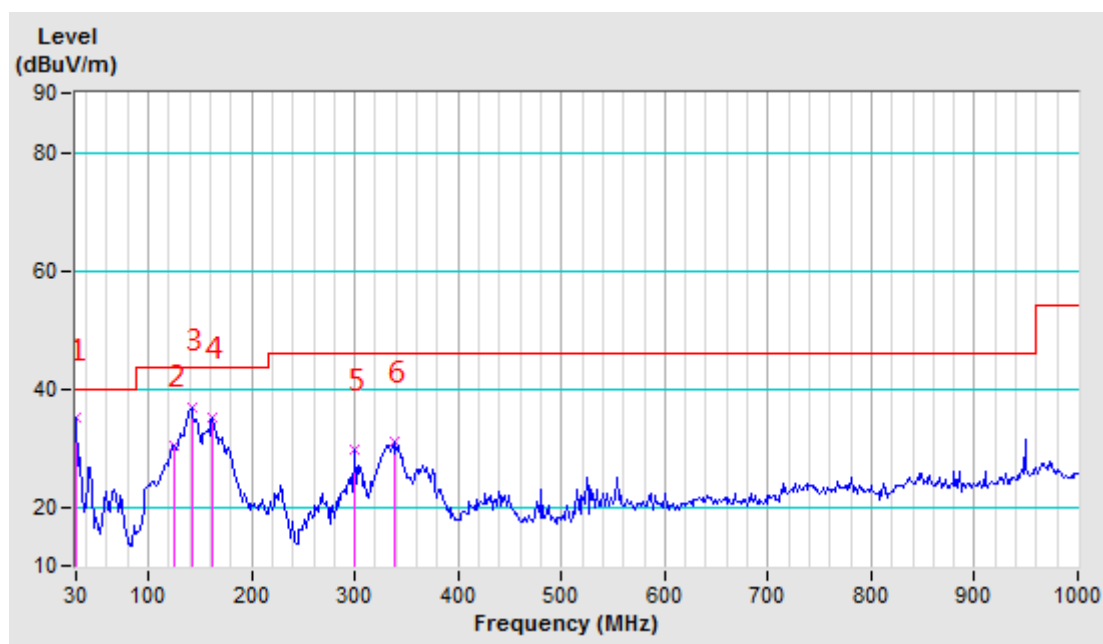
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.



TEST MODE	Wireless Charging	FREQUENCY RANGE	30MHz -1GHz
TEST VOLTAGE	AC 120V/60Hz	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120KHz
ENVIRONMENTAL CONDITIONS	25deg. C, 55% RH	TESTED BY: BRYANT	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
No.	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	30.00	-12.86	47.85	34.99	40.00	-5.01	100	54
2	124.82	-19.55	49.99	30.44	43.50	-13.06	100	142
3	141.92	-17.94	54.58	36.64	43.50	-6.86	100	52
4	162.13	-18.76	53.77	35.01	43.50	-8.49	100	37
5	300.48	-16.08	45.73	29.65	46.00	-16.35	100	212
6	337.79	-15.12	46.30	31.18	46.00	-14.82	100	228

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.



4.3. 20dB BANDWIDTH MEASUREMENT

4.3.1 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.

4.3.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Mar. 17,22
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	1519B-045	May 29,22
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A

NOTES:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

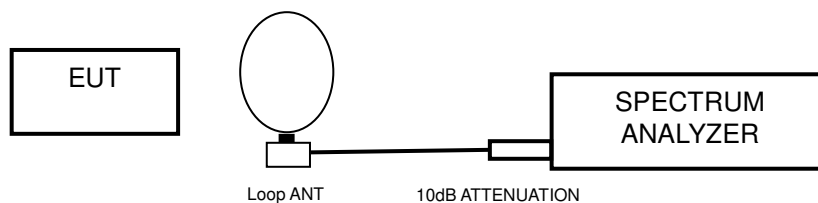
4.3.3 TEST PROCEDURE

- 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.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITION

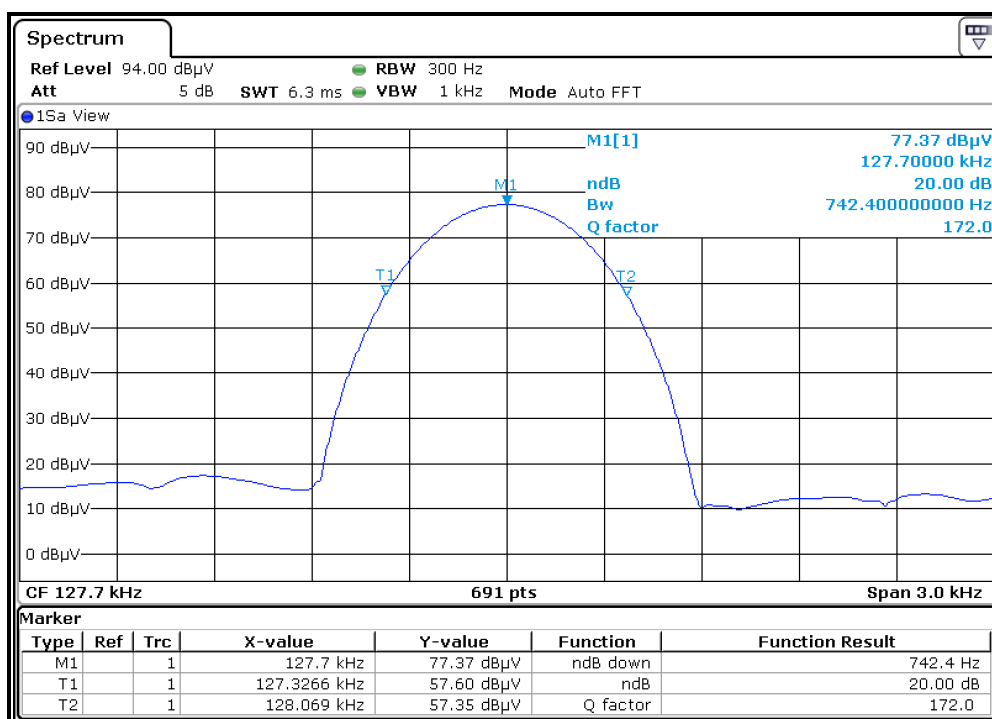
- a. Turn on the EUT.
- b. The EUT tested in charging mode and standby mode respectively.

4.3.7 TEST RESULTS

TEST MODE	CHANNEL FREQUENCY (KHz)	20dB BANDWIDTH (Hz)
Standby	127.7	742.4000

Lower & Upper Test Frequency Point (MHz)	Test Frequency (KHz)	P/F
Lower	127.3266	PASS
Upper	128.0690	PASS

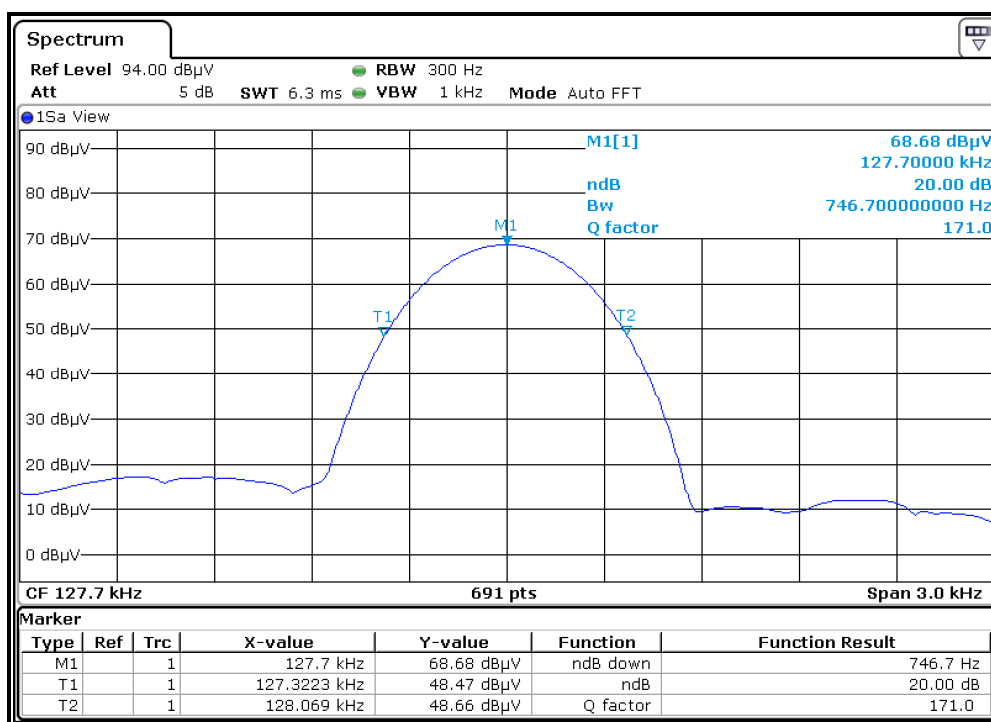
Test Data:



TEST MODE	CHANNEL FREQUENCY (KHz)	20dB BANDWIDTH (kHz)
Wireless charging	127.7	746.7000

Lower & Upper Test Frequency Point (MHz)	Test Frequency (KHz)	P/F
Lower	127.3223	PASS
Upper	128.0690	PASS

Test Data:





Test Report No.: RF2109WDG0095

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

---END---