

TEST REPORT

Applicant	Belkin International, Inc.
Address	12045 East Waterfront Drive, Playa Vista, CA 90094 USA

Manufacturer or Supplier	Belkin International, Inc.
Address	12045 East Waterfront Drive, Playa Vista, CA 90094 USA
Product	BOOST↑CHARGE™ Wireless Charging Pad 10W
Additional Product	Wireless Charging Pad 10W
Brand Name	belkin, playa
Model	WIA001V2
Additional Model & Model Difference	PW0003V2, see items 3.1
Date of tests	Feb. 09, 2021 ~ Mar. 16, 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: Mar. 26, 2021

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Test Report No.: RF2102WDG0029

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2102WDG0029	Original release	Mar. 26, 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	BOOST↑CHARGE™ Wireless Charging Pad 10W
ADDITIONAL PRODUCT	Wireless Charging Pad 10W
MODEL NO.	WIA001V2
ADDITIONAL MODEL	PW0003V2
SAMPLE STATUS	Engineering sample
FCC ID	K7SWIA001V2
POWER SUPPLY	Input: 5.0VDC 2.0A, Output:5.0VDC 5.0W; Input: 9.0VDC 2.0A, Output:9VDC 10.0W; Input: 12.0VDC 1.5A, Output:12VDC 10.0W
MODULATION TYPE	FSK
OPERATING FREQUENCY RANGE	111KHz ~ 145KHz
I/O PORTS	Coil Antenna
FIELD STRENGTH	71.18dBuV/m
MAXIMUM POWER OUTPUT FROM THE CHARGING COIL	Max Power is 10W
CABLE SUPPLIED	USB- A to Micro USB cable: Shielded, detachable 1.3m

NOTES:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- Please refer to the EUT photo document (Reference No.: 2102WDG0029-1) for detailed product photo.
- Additional model PW0003V2 is identical with test model WIA001V2 except the product name and model no. for trading purpose.
- The EUT was powered by the following adapter. (only worst case adapter 1 was shown in test report)

ADAPTER 1	
BRAND:	N/A
MODEL:	DSA-18QFB FUS A
INPUT:	AC 100-240V, 50/60HZ, 0.8A
OUTPUT:	DC 3.6-6V 2A, 6-9V 2A, 9-12V 1.5A
DC LINE:	N/A
ADAPTER 2	
BRAND:	belkin
MODEL:	A138A-120150U-US5
INPUT:	AC 100-240V, 50/60HZ, 0.5A
OUTPUT:	DC 5.0V 2.0A, 9V 2A, 12V 1.5A
DC LINE:	N/A

3.2 DESCRIPTION OF TEST MODES

The following test frequencies are provided to this EUT:

Operating Frequency Range(KHz)	Tested Frequency(KHz)	Mode
111-145	142.404	Standby
111-145	143.307	Receiver load operating

3.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE	APPLICABLE TO			DESCRIPTION
	RE<1G	PLC	20BW	
A	√	√	√	Standby
B	√	√	√	Receiver load operating

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

PLC: Power Line Conducted Emission

20BW: 20dB Bandwidth

Note:

1. The EUT is designed to be positioned on the **X-plane** only.

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	111-145	142.404	FSK
B	111-145	143.307	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	111-145	142.404	FSK
B	111-145	143.307	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	111-145	142.404	FSK
B	111-145	143.307	FSK

TEST CONDITION:

Applicable to	Environmental conditions	Input Power(Adapter)	Tested by
RE<1G	20 °C, 57% RH	120Vac, 60Hz	Ray
PLC	26 °C, 55% RH	120Vac, 60Hz	MingBai
20BW	24 °C, 64% RH	120Vac, 60Hz	Daniel

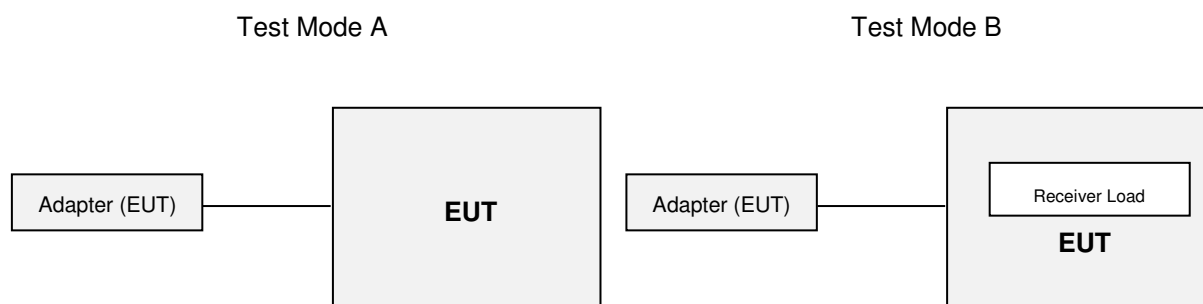
3.4 DESCRIPTION OF SUPPORT UNITS

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	Receiver load	N/A	N/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 (15.207/15.209)

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. 17,21
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Mar. 17,21
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Mar. 17,21
Voltage probe	SCHWARZBECK	TK 9421	TK 9421-176	Sep. 23,21
Test software	ADT	ADT_Cond_V 7.3.7	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

- 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.

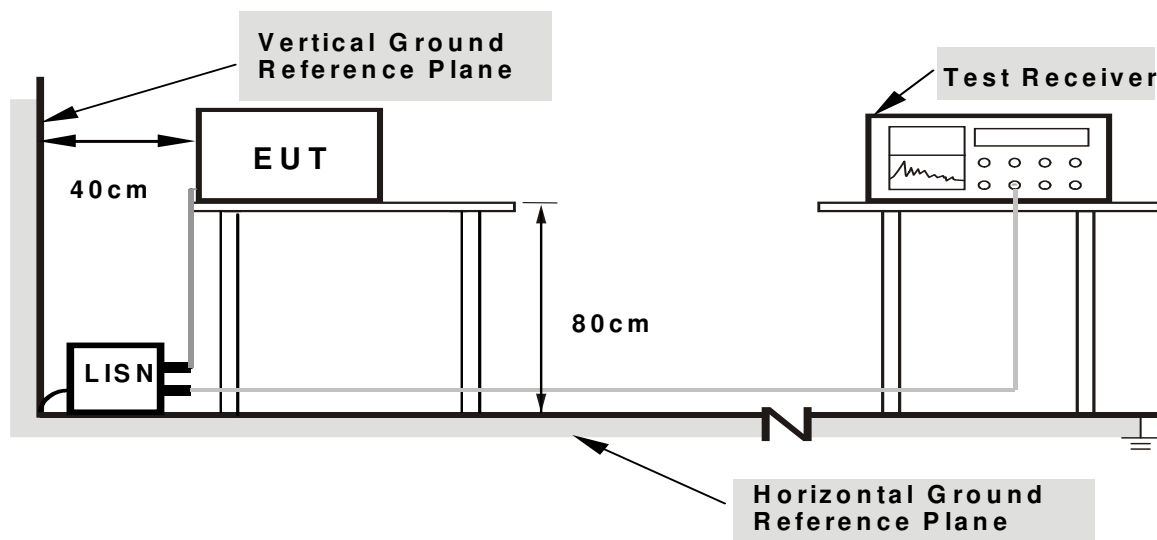
NOTES:

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

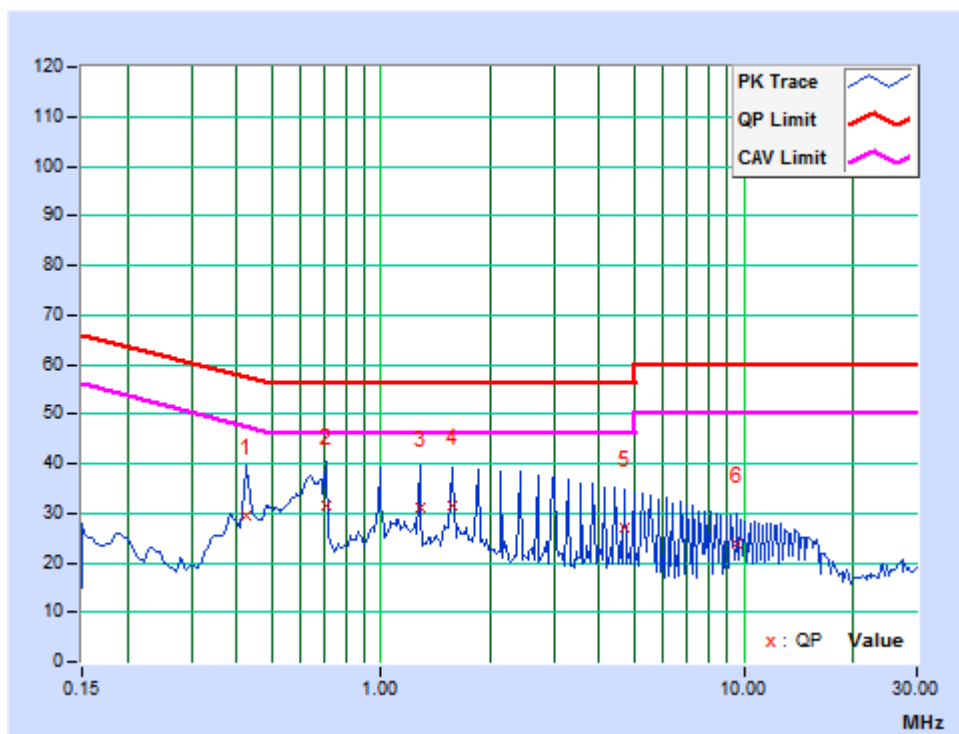
- a. Turn on the EUT.
- b. The EUT tested in charging mode and standby mode respectively.

4.1.7 TEST RESULTS

TEST MODE	A	PHASE	Line(L)
TEST VOLTAGE	AC 120V/60Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	26deg. C, 55% 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	0.42450	9.82	19.87	10.81	29.69	20.63	57.36	47.36	-27.66	-26.72
2	0.71025	9.78	21.67	10.91	31.45	20.69	56.00	46.00	-24.55	-25.31
3	1.27950	9.82	21.18	8.70	31.00	18.52	56.00	46.00	-25.00	-27.48
4	1.56525	9.83	21.58	11.26	31.41	21.09	56.00	46.00	-24.59	-24.91
5	4.69725	9.85	17.28	10.53	27.13	20.38	56.00	46.00	-28.87	-25.62
6	9.53925	9.99	13.96	10.50	23.95	20.49	60.00	50.00	-36.05	-29.51

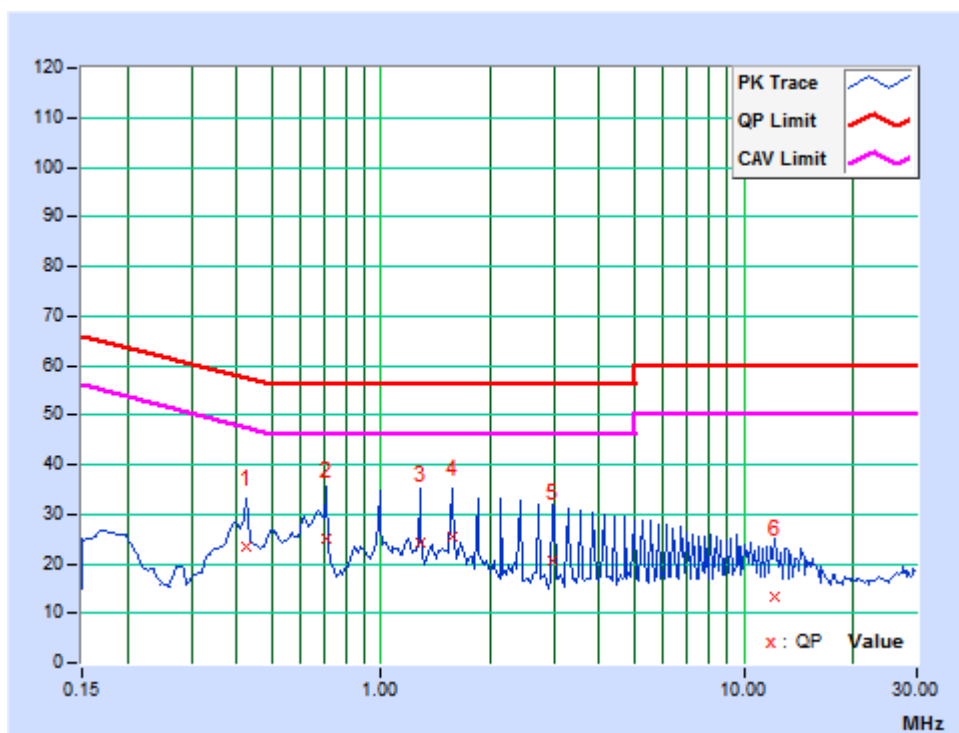
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	A	PHASE	Neutral (N)
TEST VOLTAGE	AC 120V/60Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	26deg. C, 55% 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	0.42450	9.83	13.49	-0.35	23.32	9.48	57.36	47.36	-34.04	-37.88
2	0.71025	9.82	15.28	0.77	25.10	10.59	56.00	46.00	-30.90	-35.41
3	1.27950	9.84	14.57	-0.32	24.41	9.52	56.00	46.00	-31.59	-36.48
4	1.56525	9.85	15.55	0.39	25.40	10.24	56.00	46.00	-30.60	-35.76
5	2.98725	9.87	10.54	-1.30	20.41	8.57	56.00	46.00	-35.59	-37.43
6	12.10200	10.06	3.11	-3.01	13.17	7.05	60.00	50.00	-46.83	-42.95

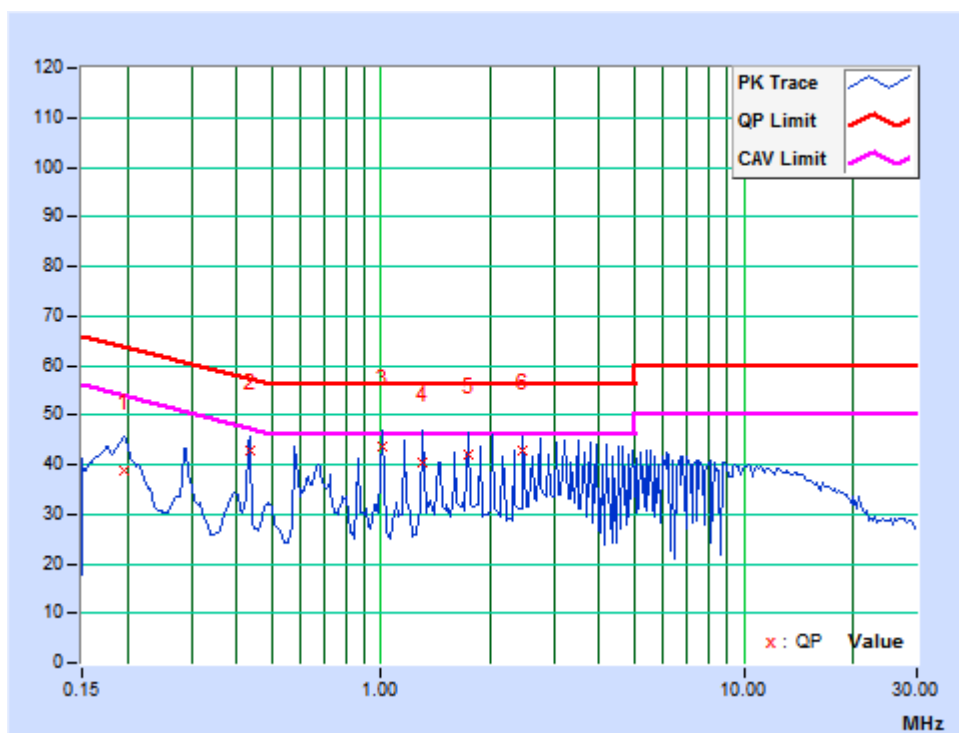
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	B	PHASE	Line(L)
TEST VOLTAGE	AC 120V/60Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	26deg. C, 55% 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	0.19500	9.70	28.91	11.09	38.61	20.79	63.82	53.82	-25.21	-33.03
2	0.43350	9.83	33.20	27.89	43.03	37.72	57.19	47.19	-14.16	-9.47
3	1.01400	9.81	33.99	28.61	43.80	38.42	56.00	46.00	-12.20	-7.58
4	1.30425	9.82	30.69	25.08	40.51	34.90	56.00	46.00	-15.49	-11.10
5	1.73850	9.84	32.15	27.05	41.99	36.89	56.00	46.00	-14.01	-9.11
6	2.46525	9.85	33.13	28.34	42.98	38.19	56.00	46.00	-13.02	-7.81

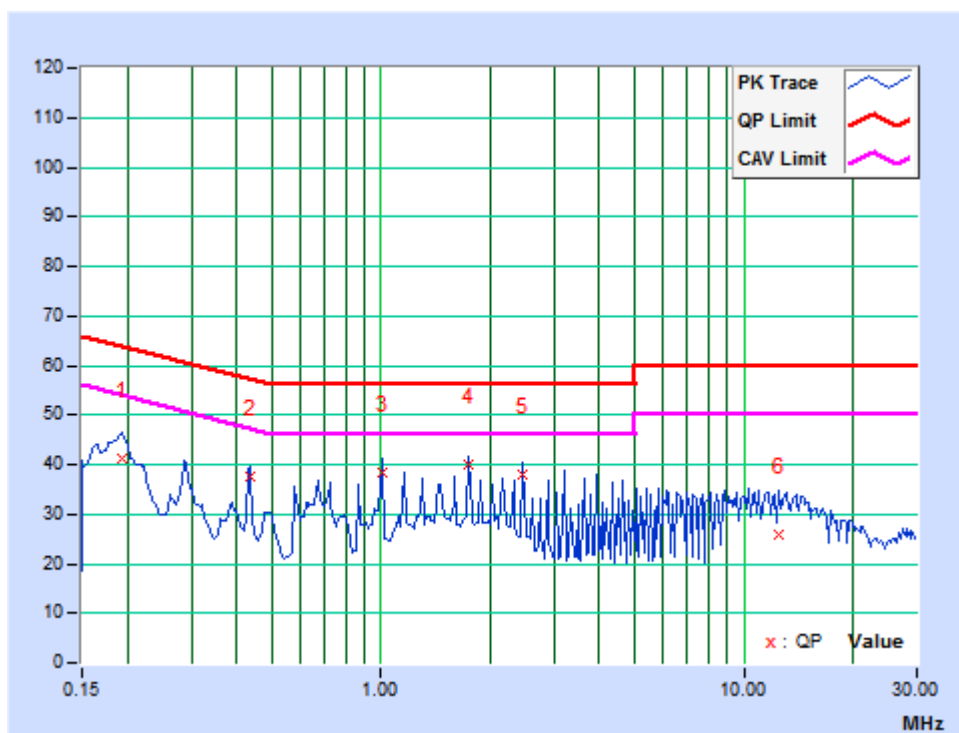
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	B	PHASE	Neutral (N)
TEST VOLTAGE	AC 120V/60Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	26deg. C, 55% 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	0.19300	9.71	31.58	11.16	41.29	20.87	63.91	53.91	-22.62	-33.04
2	0.43350	9.83	27.65	22.13	37.48	31.96	57.19	47.19	-19.71	-15.23
3	1.01400	9.83	28.62	23.20	38.45	33.03	56.00	46.00	-17.55	-12.97
4	1.74075	9.85	30.05	24.85	39.90	34.70	56.00	46.00	-16.10	-11.30
5	2.46525	9.86	27.97	23.32	37.83	33.18	56.00	46.00	-18.17	-12.82
6	12.48225	10.07	15.96	12.54	26.03	22.61	60.00	50.00	-33.97	-27.39

REMARKS: 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

NOTE:

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. 17,21
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	1519B-045	May 27,21
Amplifier	Burgeon	BPA-530	100210	Mar. 14,22
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. 17,21
Bilog Antenna	Teseq	CBL 6111D	30643	Jun. 22,21
Amplifier	Burgeon	BPA-530	100220	Mar. 14,22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Apr. 20,21
Test software	ADT	ADT_Radiated_V 7.6.15.9.2	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. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
5. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
6. Margin value = Emission level – Limit value.

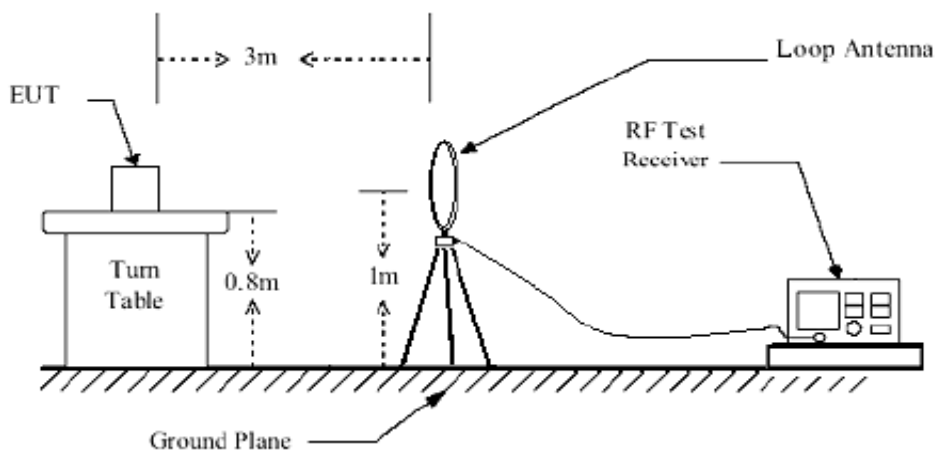


4.2.4 DEVIATION FROM TEST STANDARD

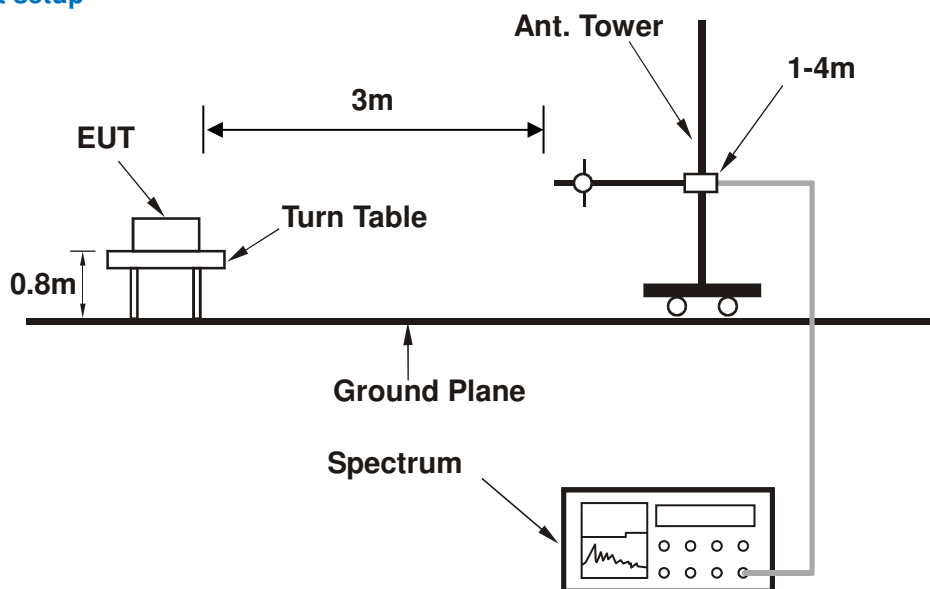
No deviation.

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

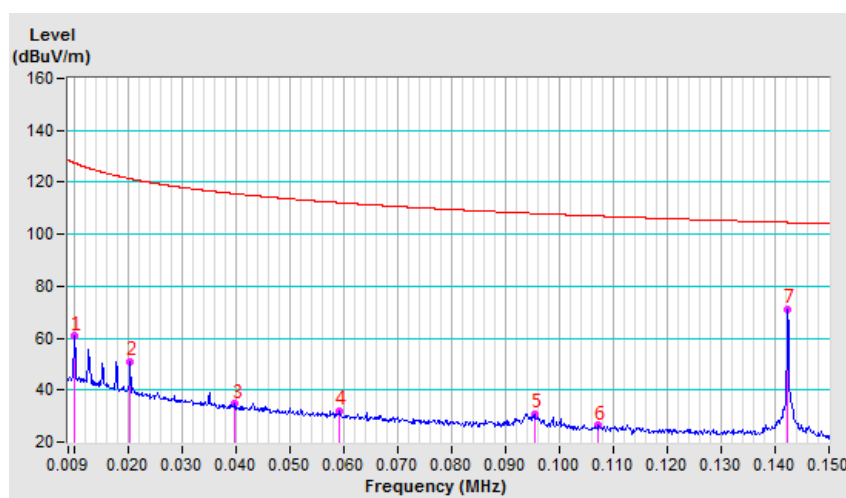
- Turn on the EUT.
- The EUT tested in charging mode and standby mode respectively.

4.2.7 TEST RESULTS

Standby Mode

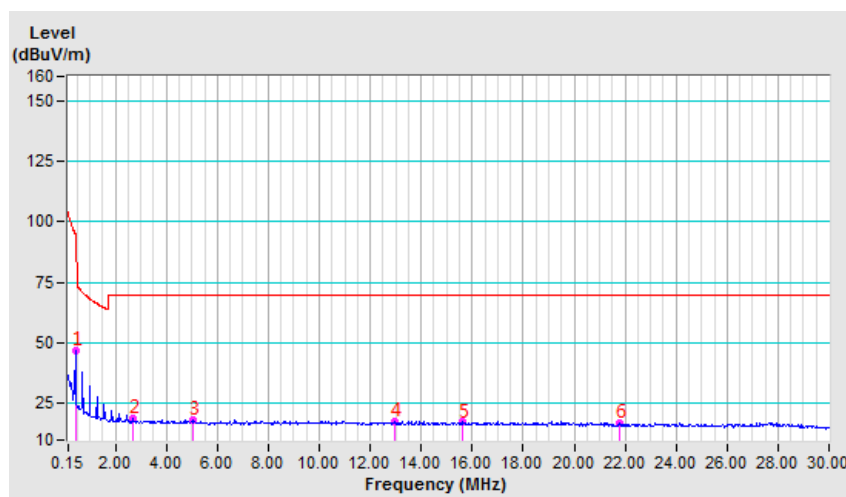
Test Mode	A	Frequency Range	9 kHz ~ 150 kHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA PARALLEL 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	0.01020 AV	-10.05	70.99	60.94	127.40	-66.46	100	105
2	0.02050 AV	-10.67	61.80	51.13	121.38	-70.25	100	281
3	0.04000 AV	-11.41	46.28	34.87	115.57	-80.70	100	165
4	0.05930 AV	-11.58	43.62	32.04	112.14	-80.10	100	50
5	0.09550 QP	-11.76	42.61	30.85	108.01	-77.16	100	217
6	0.10720 QP	-11.79	38.13	26.34	107.00	-80.66	100	170
7	*0.14240 AV	-11.86	82.94	71.08	104.53	-33.45	100	258



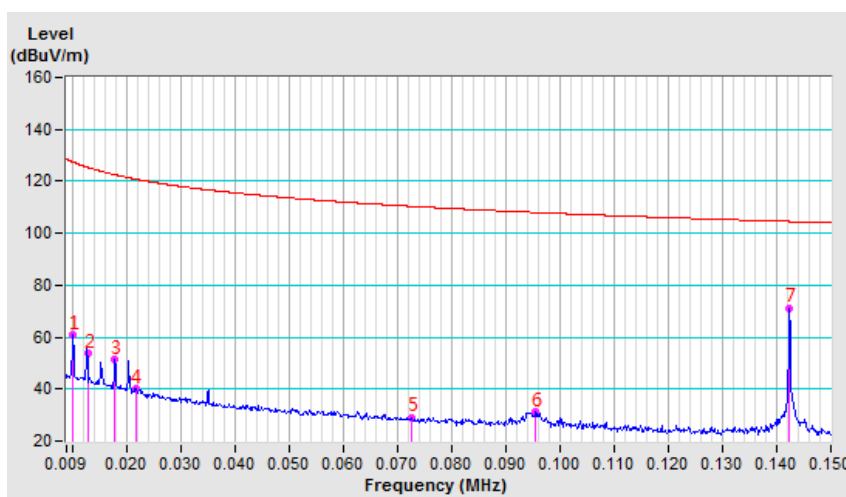
Test Mode	A	Frequency Range	150 kHz ~ 30 MHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA PARALLEL 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	0.42610 AV	-12.05	59.05	47.00	95.01	-48.01	100	271
2	2.70530 QP	-12.03	31.18	19.15	69.54	-50.39	100	285
3	5.02030 QP	-11.97	30.23	18.26	69.54	-51.28	100	240
4	12.94730 QP	-11.65	29.19	17.54	69.54	-52.00	100	328
5	15.58920 QP	-11.55	28.88	17.33	69.54	-52.21	100	177
6	21.79530 QP	-11.58	28.88	17.30	69.54	-52.24	100	5



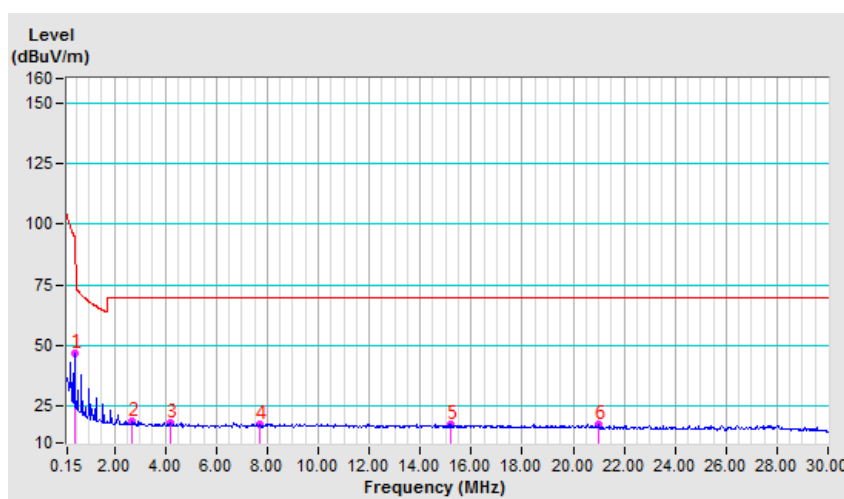
Test Mode	A	Frequency Range	9 kHz ~ 150 kHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA PERPENDICULAR 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	0.01020 AV	-10.05	70.88	60.83	127.40	-66.57	100	318
2	0.01290 AV	-10.21	63.74	53.53	125.40	-71.87	100	248
3	0.01790 AV	-10.51	61.77	51.26	122.54	-71.28	100	151
4	0.02170 AV	-10.74	50.86	40.12	120.87	-80.75	100	131
5	0.07270 AV	-11.64	40.71	29.07	110.38	-81.31	100	70
6	0.09560 QP	-11.76	42.80	31.04	108.00	-76.96	100	186
7	*0.14240 AV	-11.86	83.04	71.18	104.53	-33.35	100	254



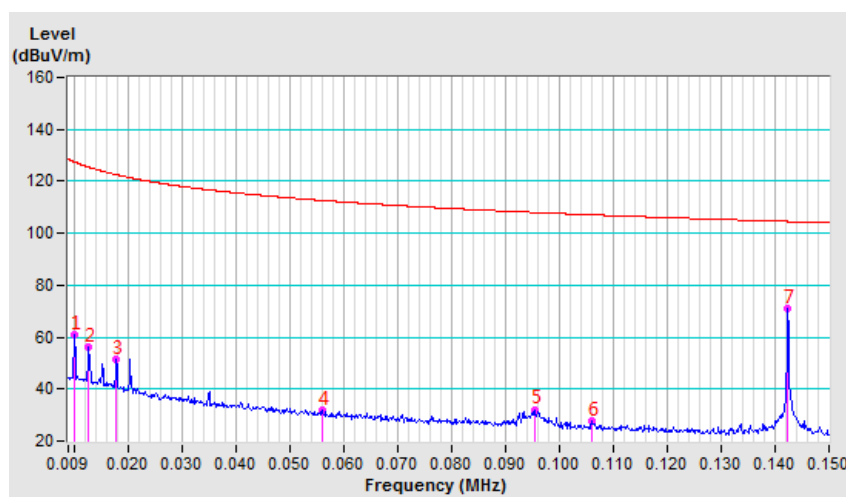
Test Mode	A	Frequency Range	150 kHz ~ 30 MHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA PERPENDICULAR 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	0.42610 AV	-12.05	58.97	46.92	95.01	-48.09	100	259
2	2.70380 QP	-12.03	31.05	19.02	69.54	-50.52	100	267
3	4.21730 QP	-11.95	30.40	18.45	69.54	-51.09	100	44
4	7.72630 QP	-11.89	29.72	17.83	69.54	-51.71	100	68
5	15.18920 QP	-11.54	29.35	17.81	69.54	-51.73	100	360
6	21.02070 QP	-11.48	29.36	17.88	69.54	-51.66	100	94



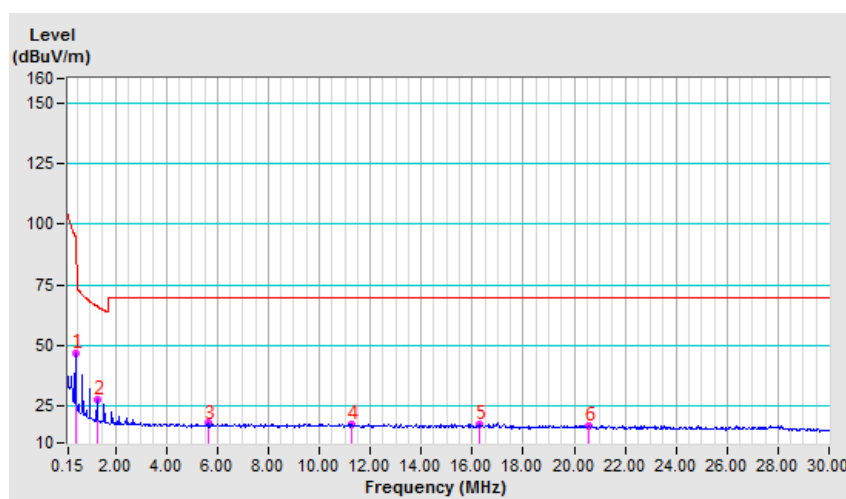
Test Mode	A	Frequency Range	9 kHz ~ 150 kHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA GROUND-PARALLEL 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	0.01020 AV	-10.05	70.72	60.67	127.40	-66.73	100	128
2	0.01280 AV	-10.21	66.13	55.92	125.46	-69.54	100	325
3	0.01790 AV	-10.51	61.79	51.28	122.54	-71.26	100	173
4	0.05620 AV	-11.57	43.19	31.62	112.61	-80.99	100	279
5	0.09540 QP	-11.76	43.82	32.06	108.01	-75.95	100	257
6	0.10610 QP	-11.79	39.47	27.68	107.09	-79.41	100	189
7	*0.14240 AV	-11.86	82.91	71.05	104.53	-33.48	100	257



Test Mode	A	Frequency Range	150 kHz ~ 30 MHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

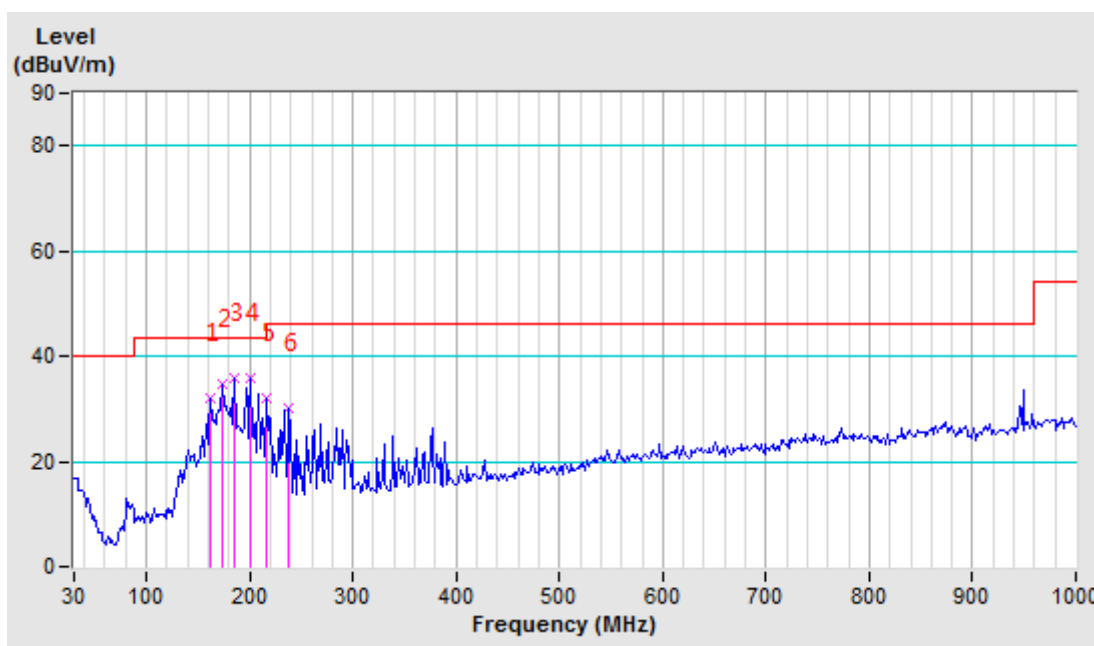
ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA GROUND-PARALLEL AT 3m								
No	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.42610 AV	-12.05	59.00	46.95	95.01	-48.06	100	258
2	1.28140 QP	-12.03	40.11	28.08	66.22	-38.14	100	271
3	5.63220 QP	-11.98	29.96	17.98	69.54	-51.56	100	123
4	11.27860 QP	-11.75	29.58	17.83	69.54	-51.71	100	337
5	16.28320 QP	-11.55	29.31	17.76	69.54	-51.78	100	360
6	20.56540 QP	-11.42	28.70	17.28	69.54	-52.26	100	222



Test Mode	A	Frequency Range	30MHz ~ 1000MHz
Test Voltage	AC 120V/60Hz	Detector Function	Quasi-Peak (QP)
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

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	162.13	-17.23	49.15	31.92	43.50	-11.58	100	309
2	173.01	-18.34	53.14	34.80	43.50	-8.70	100	208
3	185.45	-19.11	54.99	35.88	43.50	-7.62	100	176
4	200.99	-19.32	55.21	35.89	43.50	-7.61	100	192
5	216.54	-19.78	51.88	32.10	46.00	-13.90	100	249
6	238.30	-17.68	47.80	30.12	46.00	-15.88	100	233

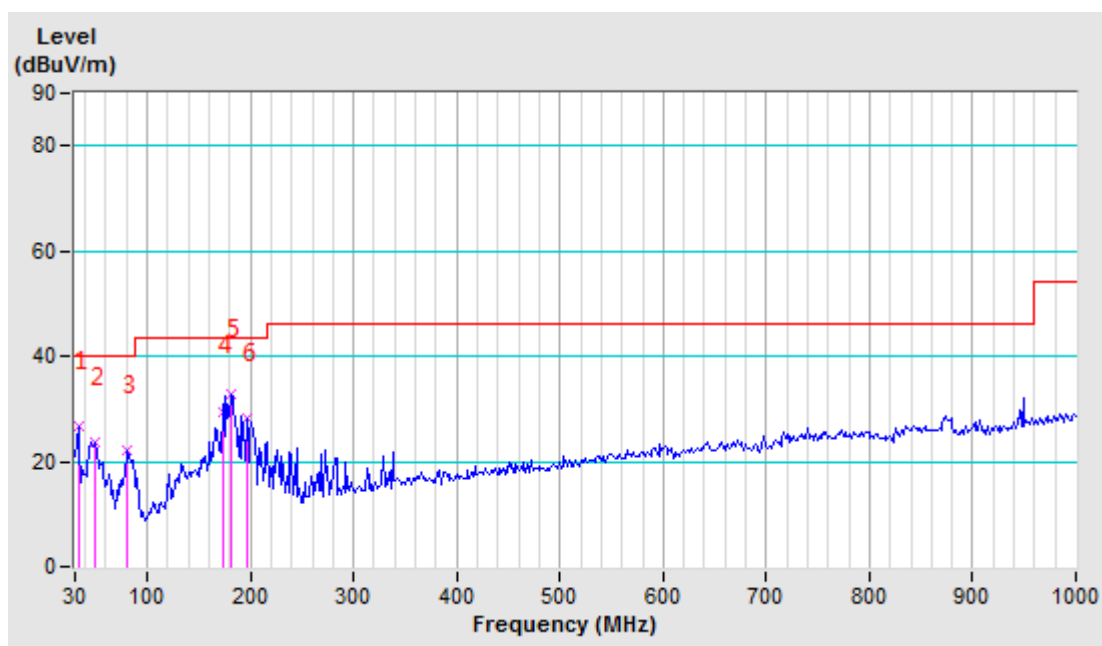
- REMARKS:** 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30-1000MHz.
4. Only emissions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



Test Mode	A	Frequency Range	30MHz ~ 1000MHz
Test Voltage	AC 120V/60Hz	Detector Function	Quasi-Peak (QP)
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

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	33.11	-13.33	39.87	26.54	40.00	-13.46	100	43
2	50.21	-21.14	44.75	23.61	40.00	-16.39	100	42
3	81.30	-21.98	44.15	22.17	40.00	-17.83	100	43
4	173.01	-18.34	47.88	29.54	43.50	-13.96	100	204
5	180.79	-19.06	51.71	32.65	43.50	-10.85	100	33
6	196.33	-19.25	47.43	28.18	43.50	-15.32	100	326

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: 30-1000MHz.
4. Only emissions significantly above equipment noise floor are reported.





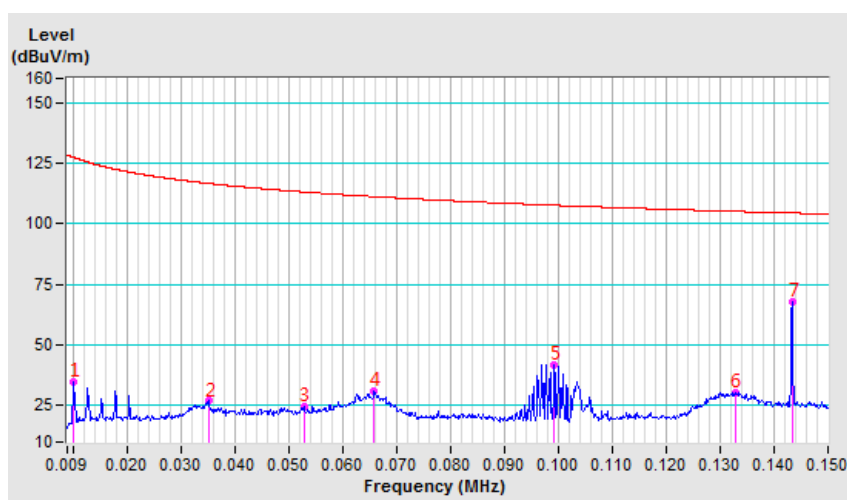
**BUREAU
VERITAS**

Test Report No.: RF2102WDG0029

Charging Mode

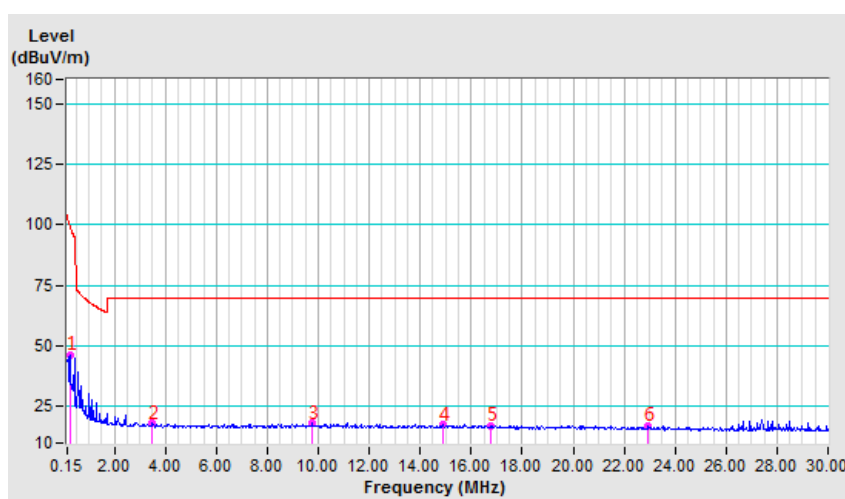
Test Mode	B	Frequency Range	9 kHz ~ 150 kHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA PARALLEL 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	0.01020 AV	-10.05	44.95	34.90	127.40	-92.50	100	228
2	0.03520 AV	-11.34	38.26	26.92	116.68	-89.76	100	172
3	0.05280 AV	-11.57	36.00	24.43	113.14	-88.71	100	170
4	0.06580 AV	-11.61	42.41	30.80	111.24	-80.44	100	186
5	0.09930 QP	-11.78	53.64	41.86	107.67	-65.81	100	190
6	0.13270 AV	-11.85	42.47	30.62	105.14	-74.52	100	179
7	*0.14330 AV	-11.86	79.64	67.78	104.48	-36.70	100	101



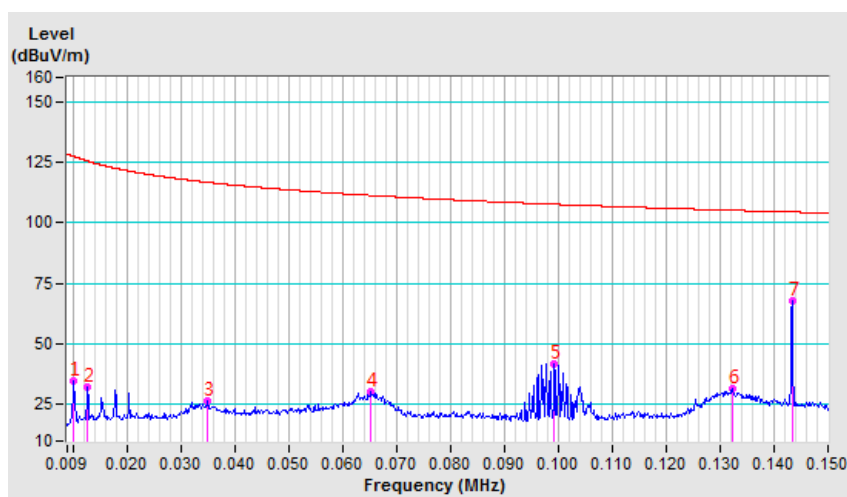
Test Mode	B	Frequency Range	150 kHz ~ 30 MHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA PARALLEL 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	0.28580 AV	-12.15	58.67	46.52	98.48	-51.96	100	93
2	3.49340 QP	-11.98	29.96	17.98	69.54	-51.56	100	159
3	9.78460 QP	-11.76	29.72	17.96	69.54	-51.58	100	204
4	14.89070 QP	-11.54	28.86	17.32	69.54	-52.22	100	289
5	16.79520 QP	-11.55	28.75	17.20	69.54	-52.34	100	287
6	22.93120 QP	-11.58	28.64	17.06	69.54	-52.48	100	96



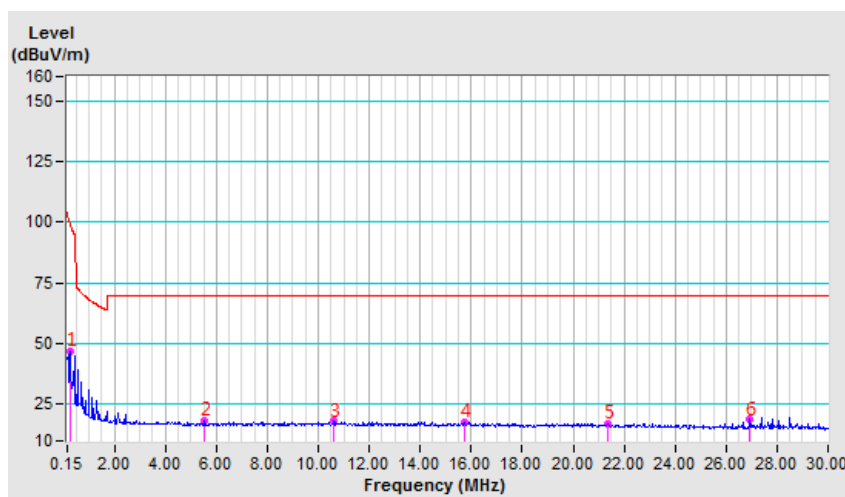
Test Mode	B	Frequency Range	9 kHz ~ 150 kHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA PERPENDICULAR 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	0.01020 AV	-10.05	45.01	34.96	127.40	-92.44	100	338
2	0.01280 AV	-10.21	42.48	32.27	125.46	-93.19	100	234
3	0.03510 AV	-11.34	37.77	26.43	116.70	-90.27	100	177
4	0.06530 AV	-11.61	41.86	30.25	111.31	-81.06	100	186
5	0.09930 QP	-11.78	53.58	41.80	107.66	-65.86	100	180
6	0.13230 AV	-11.85	43.26	31.41	105.17	-73.76	100	195
7	*0.14330 AV	-11.86	79.57	67.71	104.48	-36.77	100	102



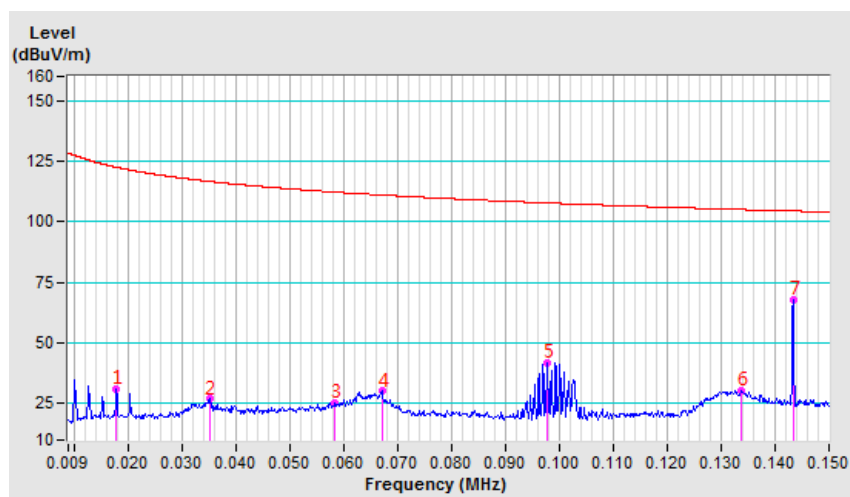
Test Mode	B	Frequency Range	150 kHz ~ 30 MHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA PERPENDICULAR 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	0.28580 AV	-12.15	59.08	46.93	98.48	-51.55	100	77
2	5.55760 QP	-11.97	30.01	18.04	69.54	-51.50	100	99
3	10.60700 QP	-11.75	29.74	17.99	69.54	-51.55	100	4
4	15.71900 QP	-11.54	28.99	17.45	69.54	-52.09	100	360
5	21.36550 QP	-11.53	28.61	17.08	69.54	-52.46	100	101
6	26.94320 QP	-11.79	30.41	18.62	69.54	-50.92	100	285



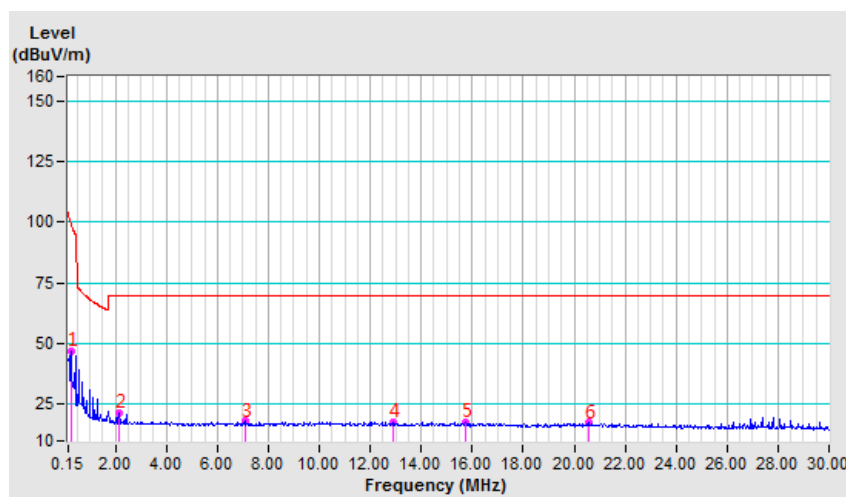
Test Mode	B	Frequency Range	9 kHz ~ 150 kHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA GROUND-PARALLEL 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	0.01790 AV	-10.51	41.34	30.83	122.54	-91.71	100	29
2	0.03510 AV	-11.34	38.24	26.90	116.69	-89.79	100	167
3	0.05840 AV	-11.58	36.81	25.23	112.27	-87.04	100	183
4	0.06710 AV	-11.62	41.66	30.04	111.06	-81.02	100	170
5	0.09780 QP	-11.77	53.55	41.78	107.80	-66.02	100	180
6	0.13380 AV	-11.85	42.28	30.43	105.07	-74.64	100	201
7	*0.14330 AV	-11.86	79.55	67.69	104.48	-36.79	100	101



Test Mode	B	Frequency Range	150 kHz ~ 30 MHz
Test Voltage	AC 120V/60Hz	Detector Function	QP&AV
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

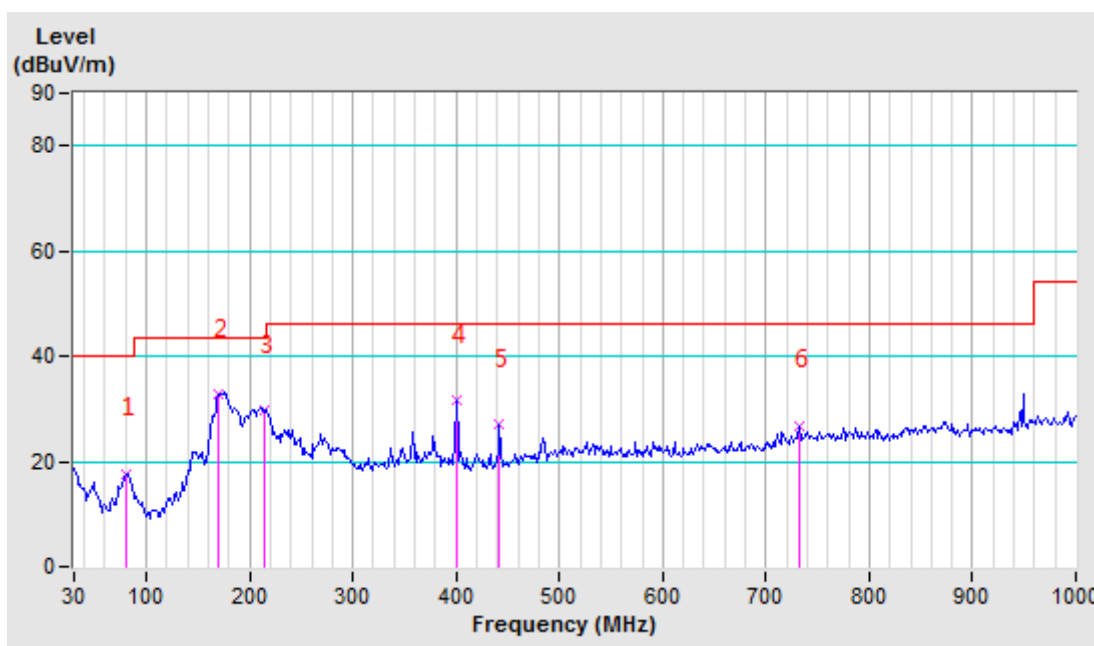
ANTENNA POLARITY & TEST DISTANCE: LOOP ANTENNA GROUND-PARALLEL AT 3m								
No	Freq. (MHz)	Correction Factor (dB/m)	Raw Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
1	0.28580 AV	-12.15	59.01	46.86	98.48	-51.62	100	79
2	2.14860 QP	-12.07	33.65	21.58	69.54	-47.96	100	120
3	7.09350 QP	-11.93	29.91	17.98	69.54	-51.56	100	63
4	12.91750 QP	-11.65	29.43	17.78	69.54	-51.76	100	150
5	15.74590 QP	-11.54	28.97	17.43	69.54	-52.11	100	24
6	20.55650 QP	-11.42	28.76	17.34	69.54	-52.20	100	85



Test Mode	B	Frequency Range	30MHz ~ 1000MHz
Test Voltage	AC 120V/60Hz	Detector Function	Quasi-Peak (QP)
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

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	79.74	-22.23	39.96	17.73	40.00	-22.27	100	40
2	169.90	-18.02	50.67	32.65	43.50	-10.85	100	101
3	214.98	-19.74	49.58	29.84	43.50	-13.66	100	58
4	399.97	-11.60	43.34	31.74	46.00	-14.26	100	82
5	441.94	-10.86	37.91	27.05	46.00	-18.95	100	16
6	732.63	-3.99	30.85	26.86	46.00	-19.14	100	0

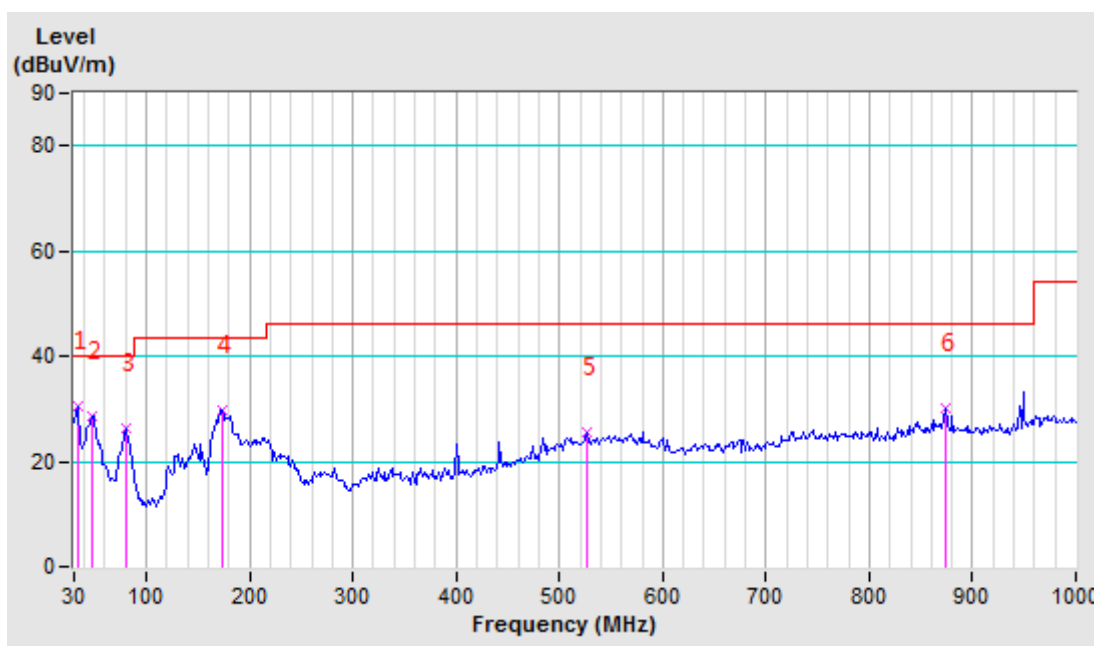
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30-1000MHz.
4. Only emissions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



Test Mode	B	Frequency Range	30MHz ~ 1000MHz
Test Voltage	AC 120V/60Hz	Detector Function	Quasi-Peak (QP)
Environmental Conditions	20deg. C, 57% RH	Tested By	Ray

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	33.11	-13.33	43.96	30.63	40.00	-9.37	100	43
2	47.10	-19.57	48.08	28.51	40.00	-11.49	100	42
3	79.74	-22.23	48.46	26.23	40.00	-13.77	100	43
4	173.01	-18.34	48.22	29.88	43.50	-13.62	100	204
5	525.88	-8.77	34.14	25.37	46.00	-20.63	100	33
6	874.09	-2.41	32.40	29.99	46.00	-16.01	100	326

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: 30-1000MHz.
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. 17,21
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	1519B-045	May 29,21
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A

NOTE: 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 RF Oven room.

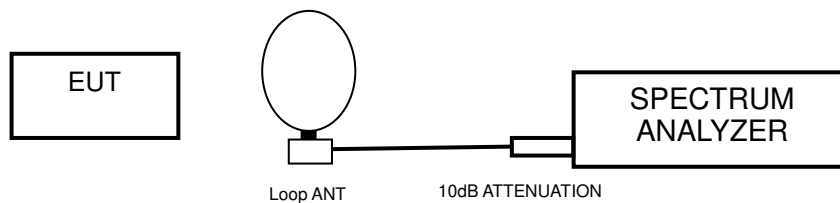
4.3.3 TEST PROCEDURE

- Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 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.
- Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- Repeat above procedures until all frequencies measured were complete.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



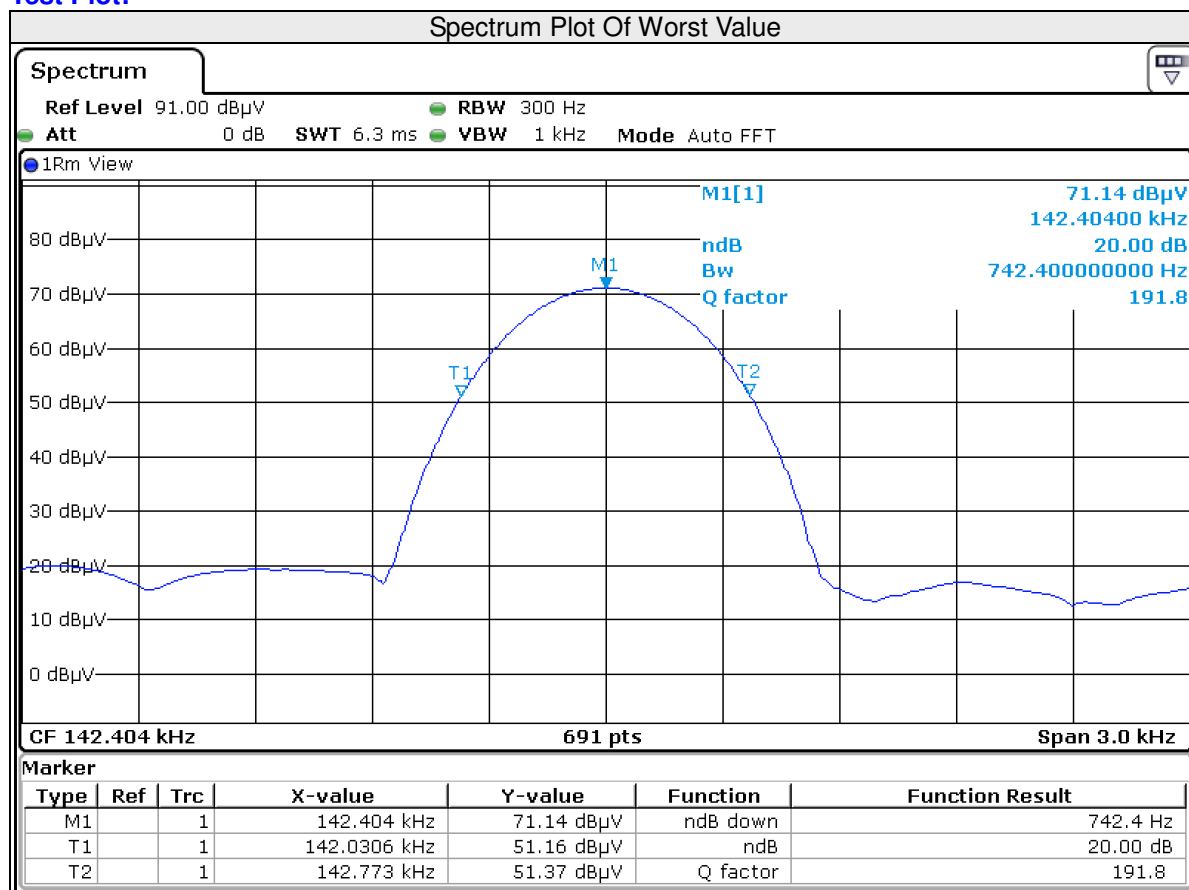
4.3.6 EUT OPERATING CONDITION

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

4.3.7 TEST RESULTS

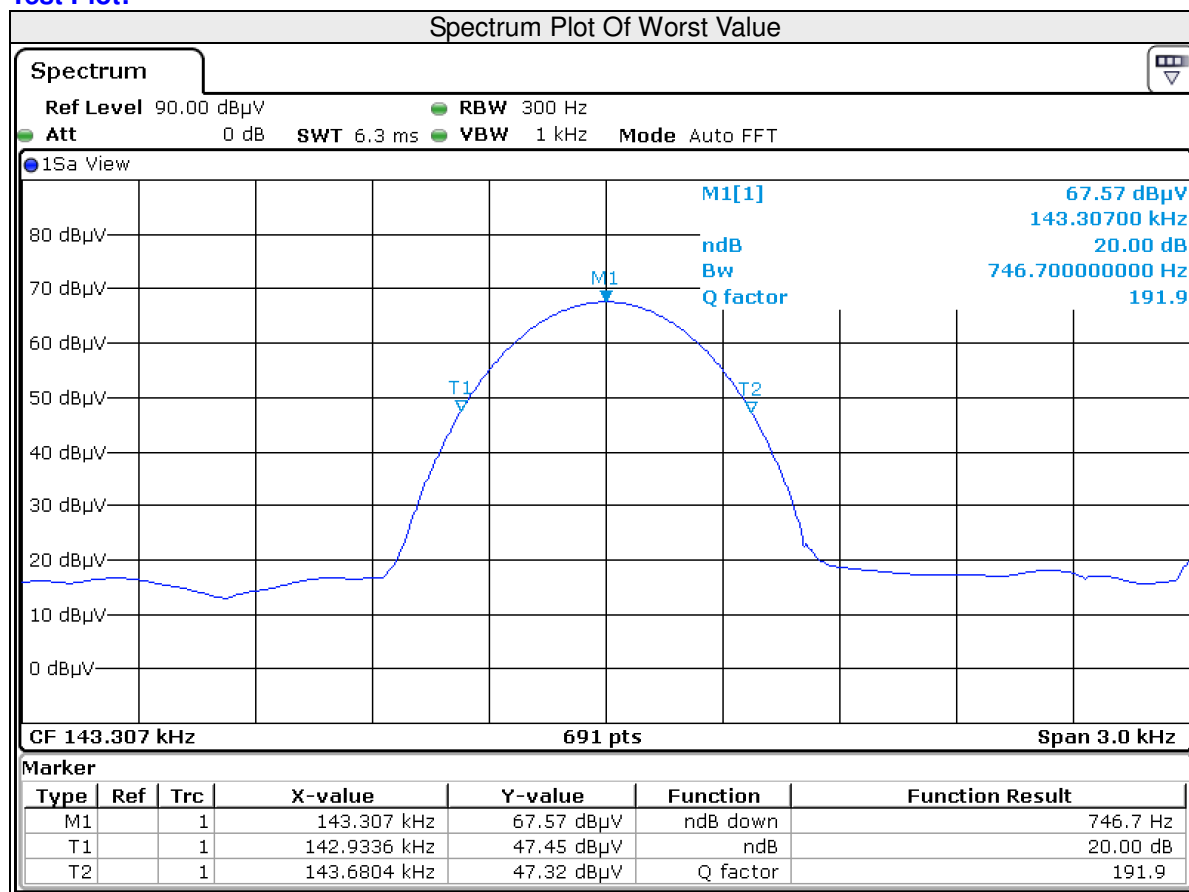
Test Mode	Frequency (kHz)	20dB Bandwidth (Hz)
A	142.404	742.4

Test Plot:



Test Mode	Frequency (kHz)	20dB Bandwidth (Hz)
B	143.307	746.7

Test Plot:





Test Report No.: RF2102WDG0029

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---