

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	Wireless Charging Dual Pads 10W
Brand Name	belkin, playa
Model	WIZ002
Additional Model & Model Difference	PW0001, See items 3.1
Date of tests	Jan. 03, 2020 ~ Mar. 11, 2020

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 Andy Zhu Project Engineer / EMC Department	Approved by Glyn He Assistant Manager/ EMC Department
	 Date: Apr. 21, 2020

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Test Report No.: RF200103N012

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF200103N012	Original release	Apr. 21, 2020

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	2.70dB
Radiated emissions	9KHz ~ 30MHz	2.16dB
	30MHz ~ 1GMHz	3.76dB

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 Dual Pads 10W
MODEL NO.	WIZ002
ADDITIONAL MODE	PW0001
FCC ID	K7SWIZ002
POWER SUPPLY	Input: DC 12V from adapter Output: 10W*2
MODULATION TYPE	FSK
OPERATING FREQUENCY RANGE	110KHz ~ 205KHz
I/O PORTS	Coil Antenna
FIELD STRENGTH	88.64dBuV/m
MAXIMUM POWER OUTPUT FROM THE CHARGING COIL	Max Power Should be 10W
CABLE SUPPLIED	Refer to user's manual

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.: 200103N012) for detailed product photo.
- Additional model PW0001 is identical with test model except the model no. and trade name for trading purpose.
- The EUT were powered by the following adapter:

ADAPTER	
BRAND:	CWT
MODEL:	2ABL030F US
INPUT:	AC 100-240V, 50/60Hz 1.0A
OUTPUT:	DC 12V, 2.5A
DC LINE:	Unshielded, Non-Detachable, 1.2m.

3.2 DESCRIPTION OF TEST MODES

The following test frequencies are provided to this EUT:

Operating Frequency Range(KHz)	Tested Frequency(KHz)	Mode
110-205	127.695	EUT wireless charging to iPhone X(Left)
110-205	127.695	EUT wireless charging to iPhone X(Right)
110-205	127.695	EUT wireless charging to iPhone X(Left) and iPhone X(Right)
110-205	127.695	EUT wireless charging to Receiver load(Left) and Receiver load((Right)
110-205	127.695	Standby

3.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE	APPLICABLE TO			DESCRIPTION
	RE<1G	PLC	20BW	
A	√	√	√	EUT wireless charging to iPhone X(Left)
B	√	√	√	EUT wireless charging to iPhone X(Right)
C	√	√	√	EUT wireless charging to iPhone X(Left) and iPhone X(Right)
D	√	√	√	EUT wireless charging to Receiver load(Left) and Receiver load((Right)
E	√	√	√	Standby

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	110-205	127.695	FSK
B	110-205	127.695	FSK
C	110-205	127.695	FSK
D	110-205	127.695	FSK
E	110-205	127.695	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	110-205	127.695	FSK
B	110-205	127.695	FSK
C	110-205	127.695	FSK
D	110-205	127.695	FSK
E	110-205	127.695	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	110-205	127.695	FSK
B	110-205	127.695	FSK
C	110-205	127.695	FSK
D	110-205	127.695	FSK
E	110-205	127.695	FSK

TEST CONDITION:

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

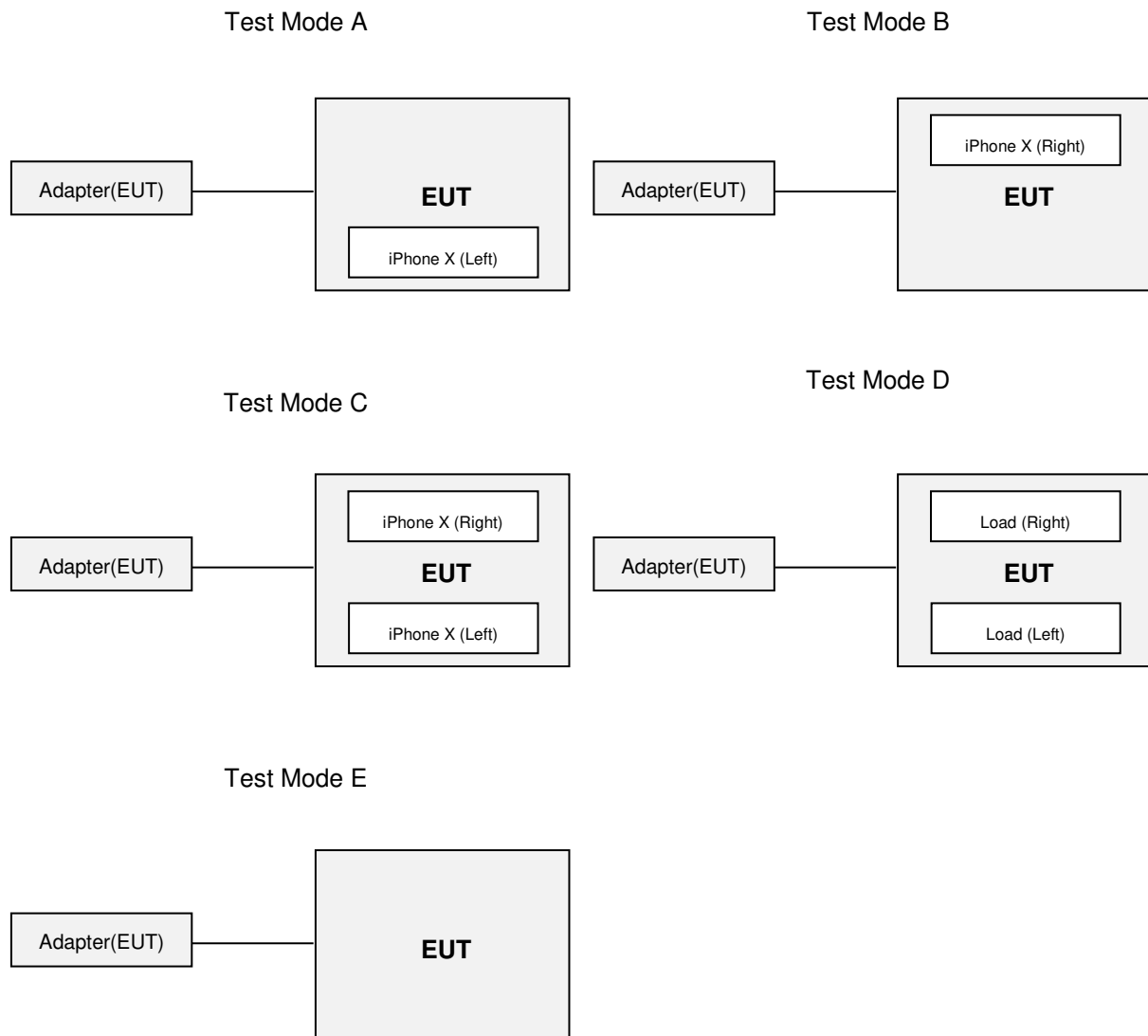
3.4 DESCRIPTION OF SUPPORT UNITS

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	iPhone X	Apple	MQA52CH/A	N/A	N/A
2	iPhone 11 Pro	Apple	MWDD2CH/A	N/A	N/A
3	Receiver load	N/A	N/A	N/A	N/A
4	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.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Mar. 12,19	Mar. 11,20
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Mar. 12,19	Mar. 11,20
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Mar. 13,19	Mar. 12,20
Voltage probe	SCHWARZBECK	TK 9421	TK 9421-176	Sep. 24,19	Sep. 23,20
Test software	ADT	ADT_Con v7.3.7	N/A	N/A	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 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.

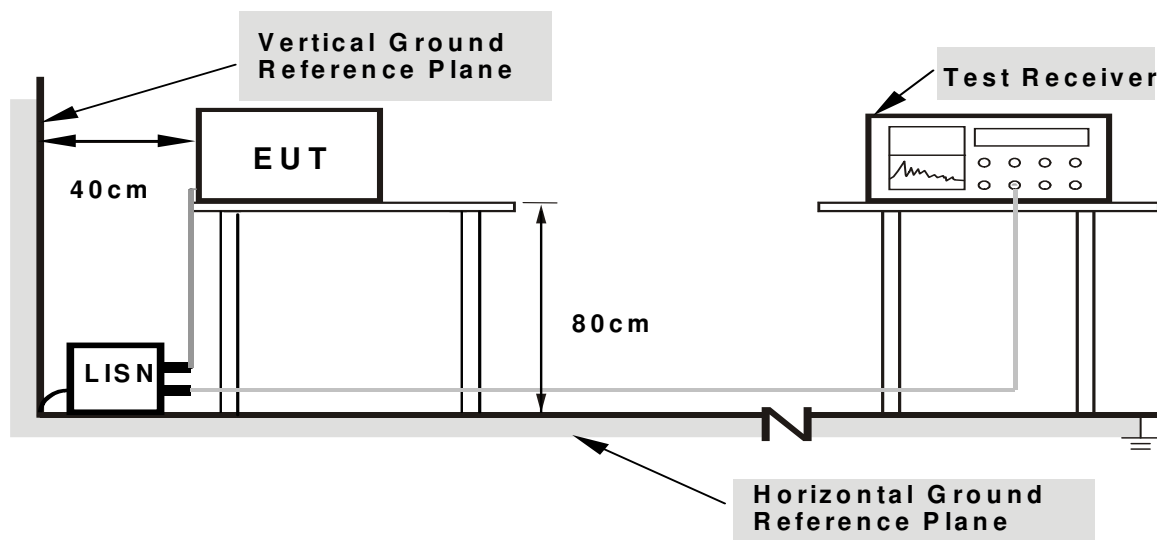
NOTES:

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

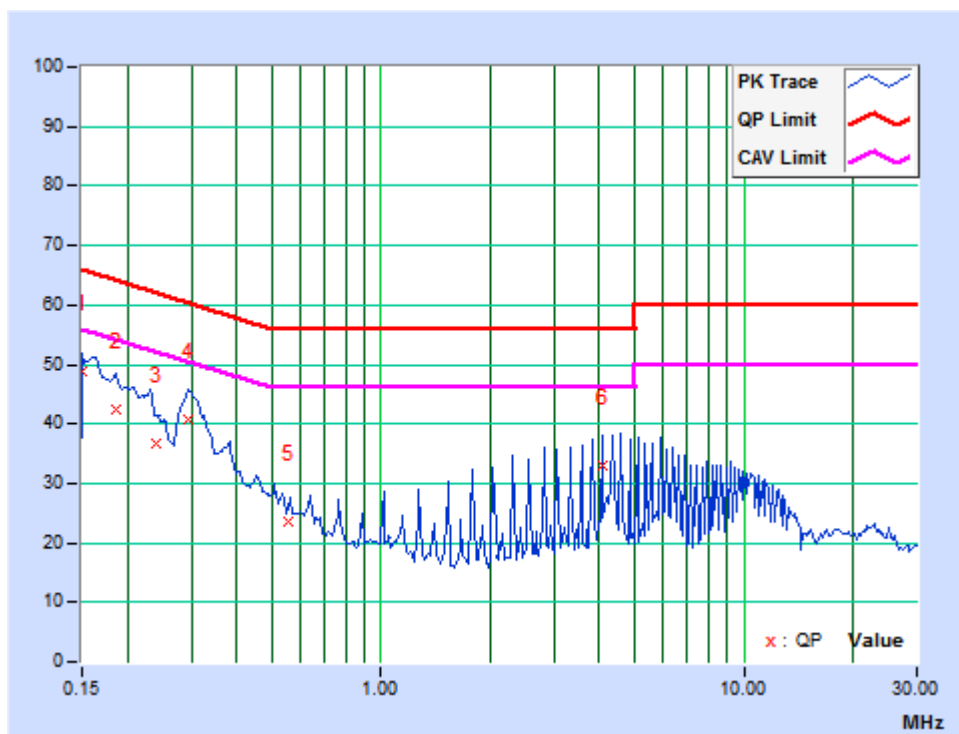
- a. Turn on the EUT.
- b. The EUT tested in charging mode and standby mode respectively.

4.1.7 TEST RESULTS

TEST MODE	A	PHASE	Line(L)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15000	10.21	38.73	21.96	48.94	32.17	66.00	56.00	-17.06	-23.83
2	0.18552	10.21	32.30	17.04	42.51	27.25	64.23	54.23	-21.72	-26.98
3	0.23980	10.21	26.64	19.76	36.85	29.97	62.10	52.10	-25.25	-22.13
4	0.29421	10.21	30.62	21.72	40.83	31.93	60.40	50.40	-19.57	-18.47
5	0.55235	10.22	13.45	15.93	23.67	26.15	56.00	46.00	-32.33	-19.85
6	4.08300	10.23	22.61	21.73	32.84	31.96	56.00	46.00	-23.16	-14.04

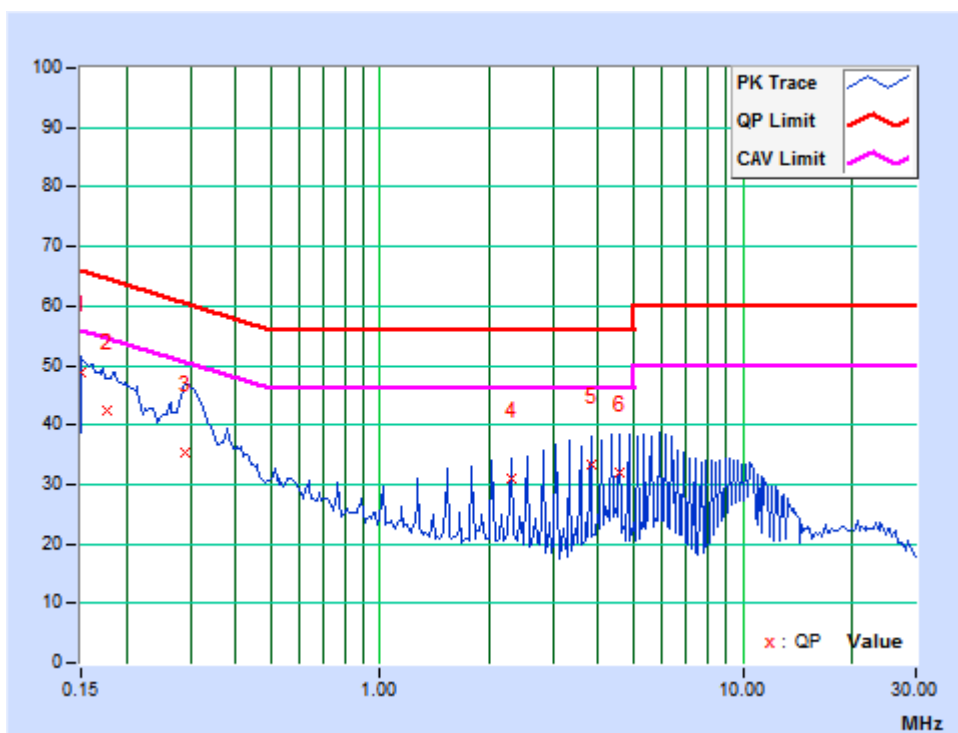
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	A	PHASE	Neutral (N)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15000	10.01	38.85	21.13	48.86	31.14	66.00	56.00	-17.14	-24.86
2	0.17680	10.00	32.43	22.32	42.43	32.32	64.63	54.63	-22.20	-22.31
3	0.28950	10.00	25.26	23.63	35.26	33.63	60.54	50.54	-25.28	-16.91
4	2.29650	10.02	20.83	20.09	30.85	30.11	56.00	46.00	-25.15	-15.89
5	3.82875	10.03	23.33	22.77	33.36	32.80	56.00	46.00	-22.64	-13.20
6	4.59375	10.03	21.79	21.53	31.82	31.56	56.00	46.00	-24.18	-14.44

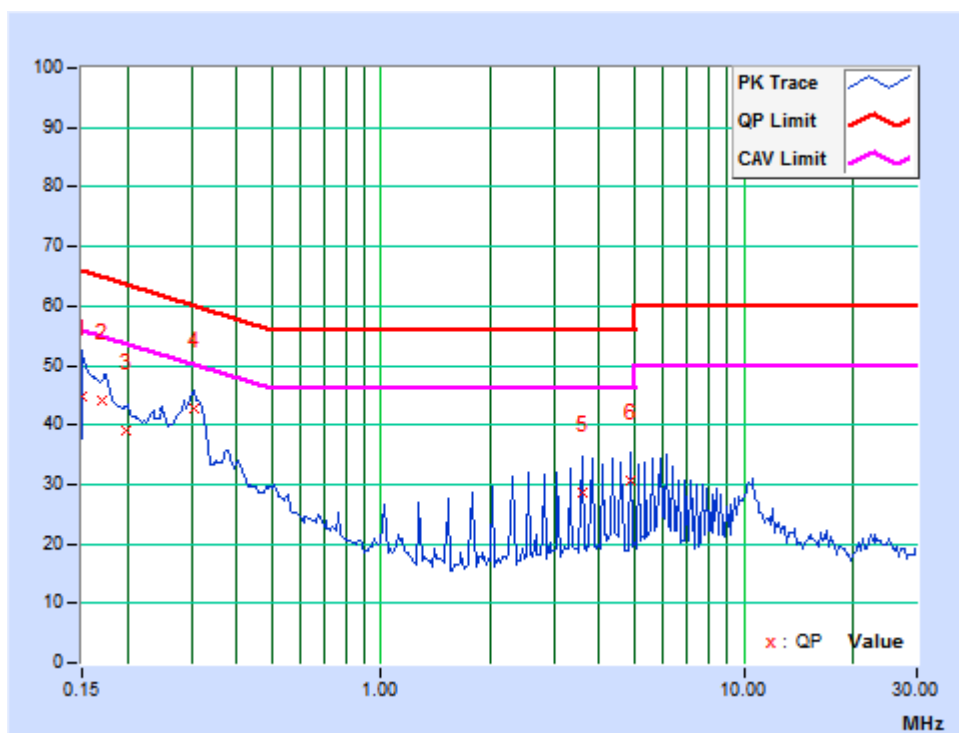
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	B	PHASE	Line(L)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15048	10.21	34.53	27.49	44.74	37.70	65.97	55.97	-21.23	-18.27
2	0.17049	10.21	34.04	25.67	44.25	35.88	64.94	54.94	-20.69	-19.06
3	0.19850	10.21	28.79	18.10	39.00	28.31	63.67	53.67	-24.67	-25.36
4	0.30525	10.21	32.51	26.00	42.72	36.21	60.10	50.10	-17.38	-13.89
5	3.57225	10.23	18.27	17.02	28.50	27.25	56.00	46.00	-27.50	-18.75
6	4.85025	10.23	20.35	20.66	30.58	30.89	56.00	46.00	-25.42	-15.11

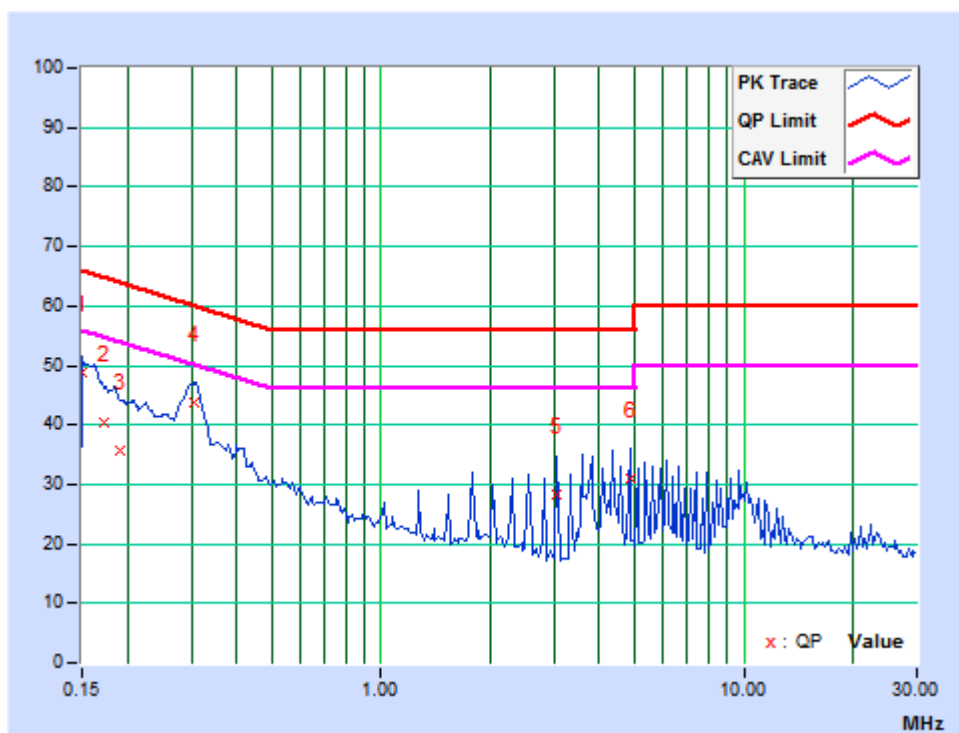
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	B	PHASE	Neutral (N)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15000	10.01	38.97	21.36	48.98	31.37	66.00	56.00	-17.02	-24.63
2	0.17162	10.00	30.32	18.04	40.32	28.04	64.88	54.88	-24.56	-26.84
3	0.19079	10.00	25.79	17.83	35.79	27.83	64.00	54.00	-28.21	-26.17
4	0.30750	10.00	33.63	27.82	43.63	37.82	60.04	50.04	-16.40	-12.21
5	3.06150	10.03	18.18	17.85	28.21	27.88	56.00	46.00	-27.79	-18.12
6	4.85025	10.03	20.89	19.11	30.92	29.14	56.00	46.00	-25.08	-16.86

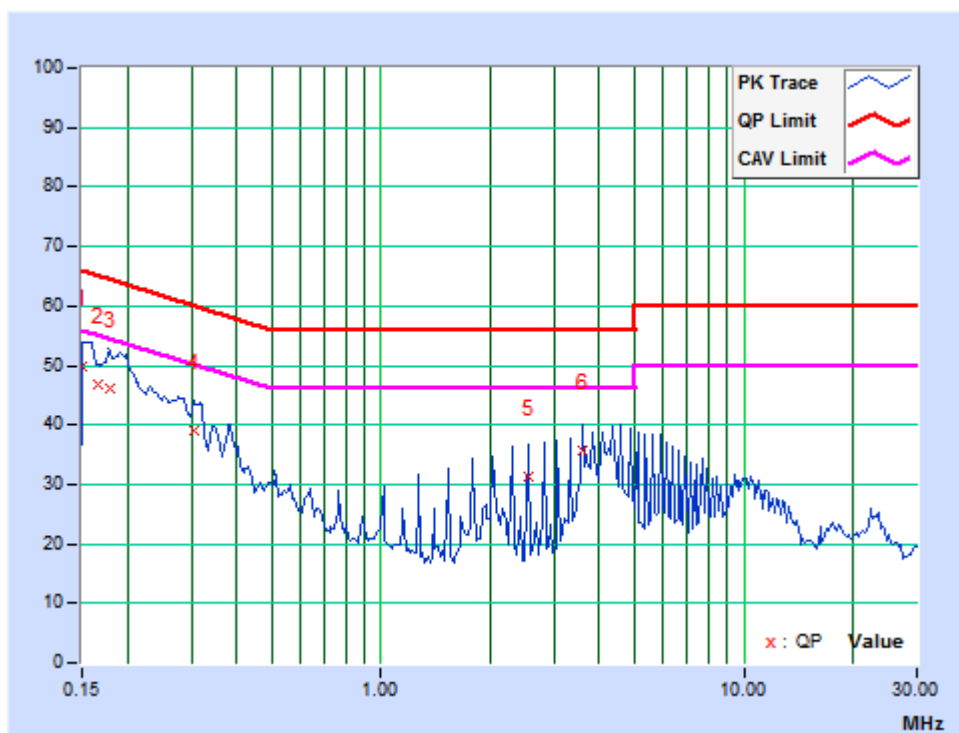
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	C	PHASE	Line(L)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15000	10.21	39.57	26.29	49.78	36.50	66.00	56.00	-16.22	-19.50
2	0.16535	10.21	36.45	21.44	46.66	31.65	65.19	55.19	-18.53	-23.54
3	0.17833	10.21	36.01	22.01	46.22	32.22	64.56	54.56	-18.34	-22.34
4	0.30750	10.21	28.90	19.79	39.11	30.00	60.04	50.04	-20.93	-20.04
5	2.55075	10.22	20.98	19.86	31.20	30.08	56.00	46.00	-24.80	-15.92
6	3.57450	10.23	25.55	24.22	35.78	34.45	56.00	46.00	-20.22	-11.55

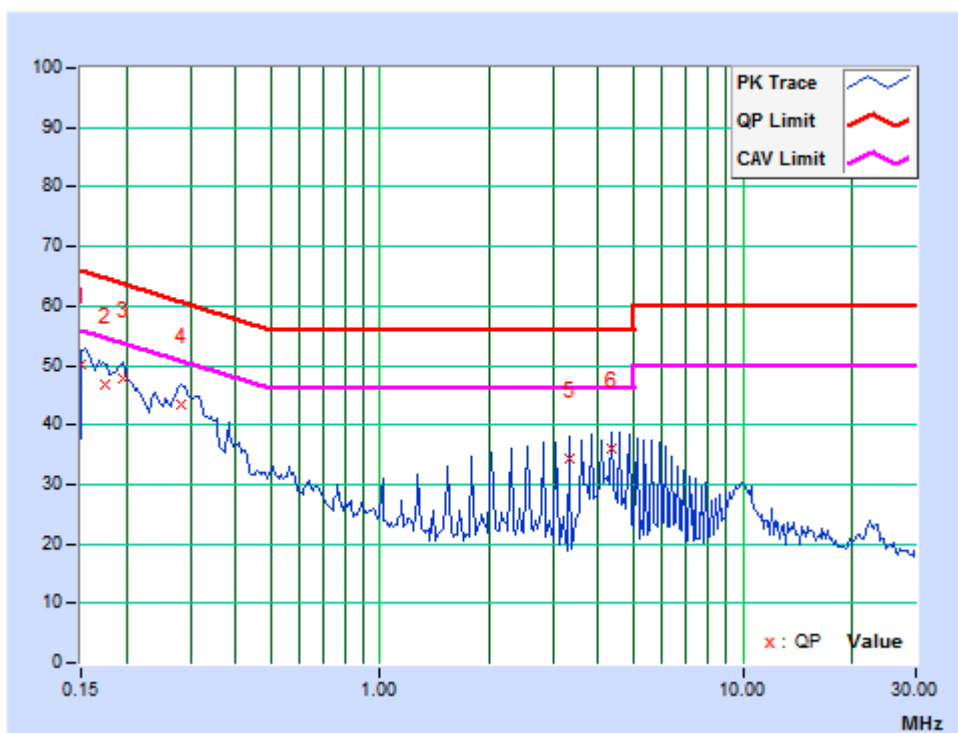
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	C	PHASE	Neutral (N)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15000	10.01	40.26	26.06	50.27	36.07	66.00	56.00	-15.73	-19.93
2	0.17415	10.00	36.71	23.96	46.71	33.96	64.76	54.76	-18.05	-20.80
3	0.19500	10.00	37.83	25.91	47.83	35.91	63.82	53.82	-15.99	-17.91
4	0.28281	10.00	33.47	24.22	43.47	34.22	60.73	50.73	-17.26	-16.51
5	3.31800	10.03	24.15	23.10	34.18	33.13	56.00	46.00	-21.82	-12.87
6	4.33950	10.03	25.89	23.62	35.92	33.65	56.00	46.00	-20.08	-12.35

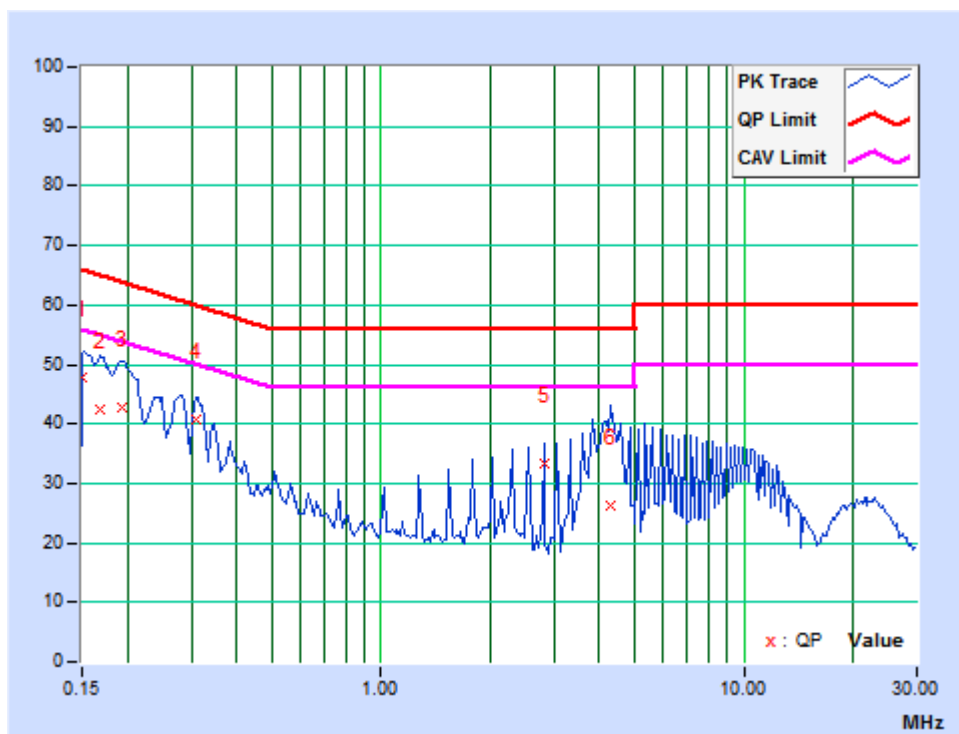
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	D	PHASE	Line(L)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15000	10.21	37.45	23.45	47.66	33.66	66.00	56.00	-18.34	-22.34
2	0.16883	10.21	32.06	22.83	42.27	33.04	65.02	55.02	-22.75	-21.98
3	0.19275	10.21	32.53	20.07	42.74	30.28	63.92	53.92	-21.18	-23.64
4	0.31013	10.21	30.68	21.92	40.89	32.13	59.97	49.97	-19.07	-17.83
5	2.80725	10.22	22.97	22.54	33.19	32.76	56.00	46.00	-22.81	-13.24
6	4.29675	10.23	16.10	4.28	26.33	14.51	56.00	46.00	-29.67	-31.49

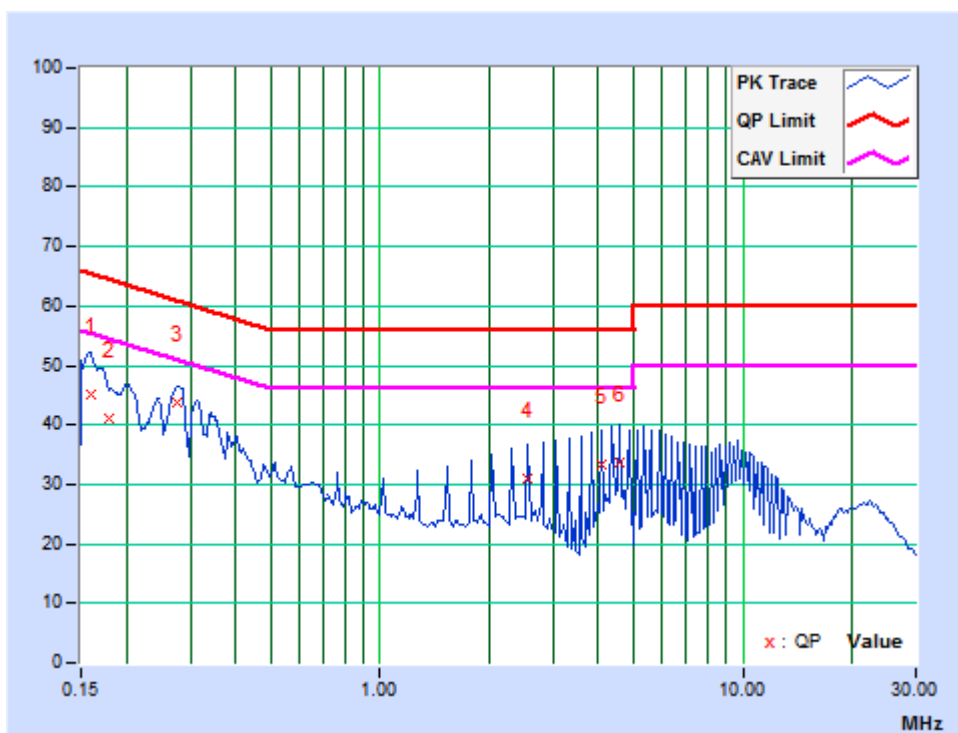
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	D	PHASE	Neutral (N)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15900	10.01	35.21	19.57	45.22	29.58	65.52	55.52	-20.30	-25.94
2	0.17873	10.00	30.96	23.30	40.96	33.30	64.54	54.54	-23.58	-21.24
3	0.27545	10.00	33.80	28.87	43.80	38.87	60.95	50.95	-17.15	-12.08
4	2.55075	10.03	21.05	19.68	31.08	29.71	56.00	46.00	-24.92	-16.29
5	4.08300	10.03	23.40	21.53	33.43	31.56	56.00	46.00	-22.57	-14.44
6	4.59375	10.03	23.77	21.65	33.80	31.68	56.00	46.00	-22.20	-14.32

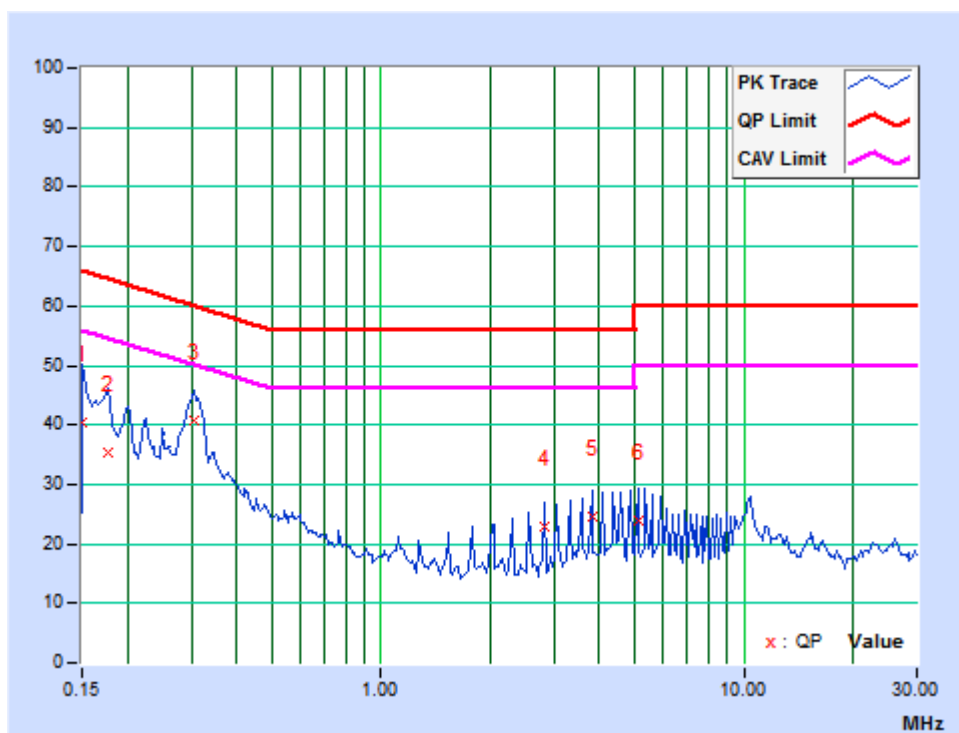
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	E	PHASE	Line(L)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15000	10.21	30.28	14.04	40.49	24.25	66.00	56.00	-25.51	-31.75
2	0.17700	10.21	25.27	12.02	35.48	22.23	64.63	54.63	-29.15	-32.40
3	0.30607	10.21	30.67	17.76	40.88	27.97	60.08	50.08	-19.20	-22.11
4	2.80725	10.22	12.55	10.22	22.77	20.44	56.00	46.00	-33.23	-25.56
5	3.82875	10.23	14.19	11.25	24.42	21.48	56.00	46.00	-31.58	-24.52
6	5.10450	10.23	13.73	11.32	23.96	21.55	60.00	50.00	-36.04	-28.45

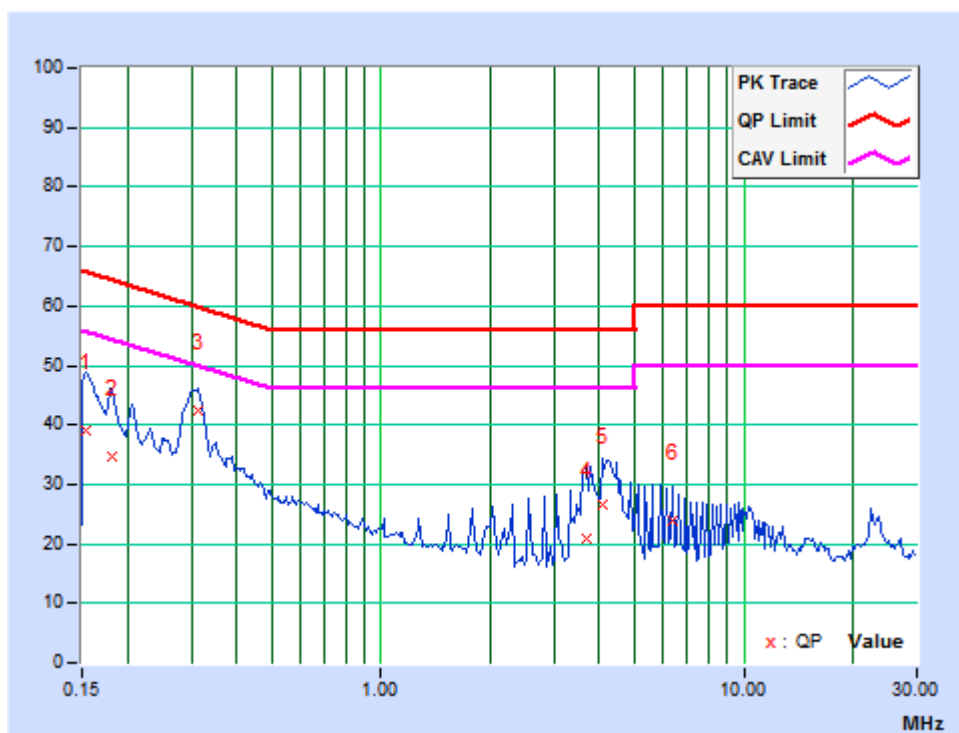
REMARKS: The emission levels of other frequencies were very low against the limit.



TEST MODE	E	PHASE	Neutral (N)
TEST VOLTAGE	DC 12V From adapter	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	22deg. 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	0.15427	10.01	29.08	12.93	39.09	22.94	65.77	55.77	-26.68	-32.83
2	0.18150	10.00	24.54	11.56	34.54	21.56	64.42	54.42	-29.88	-32.86
3	0.31424	10.01	32.42	19.51	42.43	29.52	59.86	49.86	-17.43	-20.34
4	3.67350	10.03	11.00	9.30	21.03	19.33	56.00	46.00	-34.97	-26.67
5	4.08525	10.03	16.55	12.10	26.58	22.13	56.00	46.00	-29.42	-23.87
6	6.38250	10.04	13.88	11.39	23.92	21.43	60.00	50.00	-36.08	-28.57

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.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 12,19	Mar. 11,20
Bilog Antenna	Teseq	CBL 6111D	30643	Jun. 23,19	Jun. 22,20
Amplifier	Burgeon	BPA-530	100220	Apr. 21,19	Apr. 20,20
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Apr. 21,19	Apr. 20,20
Test software	ADT	ADT_Radiated V7.6.15.9.2	N/A	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.	Last Cal.	Next Cal.
Horn Antenna	ETS-Lindgren	3117	00062558	Jun. 23,19	Jun. 22,20
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170147	Jun. 23,19	Jun. 22,20
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 12,19	Mar. 11,20
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Mar. 13,19	Mar. 12,20
Broadband Preamplifier	SCHWARZBECK	BBV9718	305	Apr. 21,19	Apr. 20,20
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 09,19	Nov. 08,20
Test Software	ADT	ADT_Radiated V7.6.15.9.2	N/A	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:

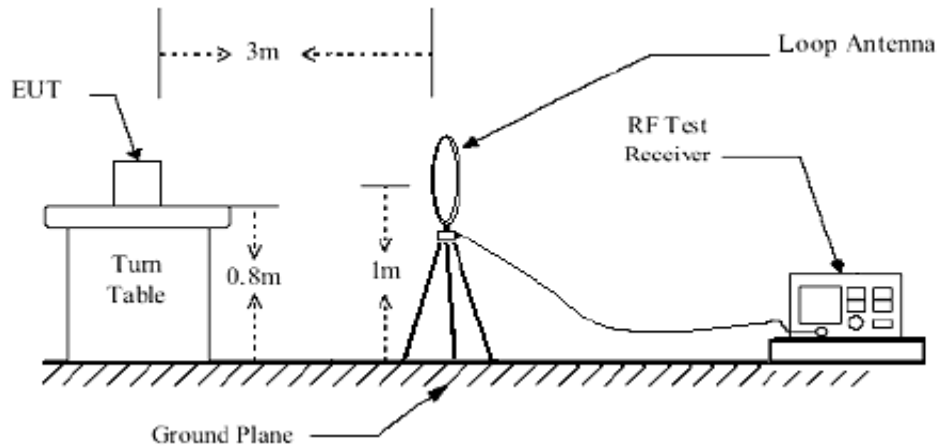
1. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz for peak detection (PK) at fundamental frequency below 30MHz; The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at radiated spurious emission frequency below 1GHz.
2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
4. Margin value = Emission level – Limit value.

4.2.4 DEVIATION FROM TEST STANDARD

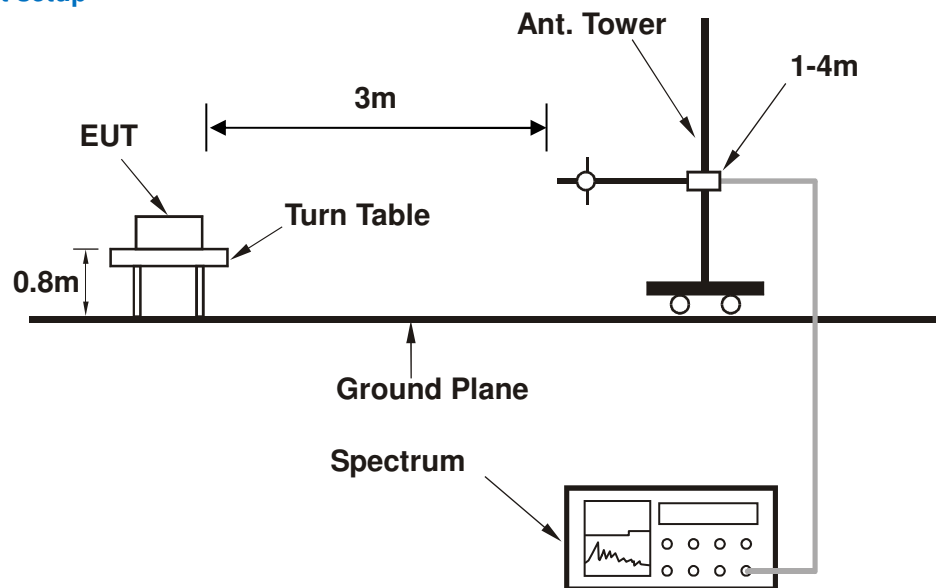
No deviation.

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

Charging Mode

Test Mode	A	Frequency Range	9 kHz ~ 30 MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	0.02370	-11.83	65.92	54.09	120.12	-66.03	100	179
2	0.04730	-11.94	62.54	50.60	114.10	-63.50	100	179
3	0.07100	-11.74	55.68	43.94	110.58	-66.64	100	179
4	0.09520	-11.86	47.54	35.68	108.03	-72.35	100	173
5	0.11830	-11.65	43.47	31.82	106.14	-74.32	100	179
6	*0.12770	-11.53	86.98	75.45	105.48	-30.03	100	272
7	0.38280	-11.34	67.03	55.69	95.94	-40.25	100	269
8	0.89330	-10.99	53.93	42.94	69.07	-26.13	100	290
9	1.40380	-11.03	48.98	37.95	65.50	-27.55	100	287
10	4.11430	-10.63	29.45	18.82	69.54	-50.72	100	162
11	8.03080	-10.62	29.06	18.44	69.54	-51.10	100	21
12	12.41600	-10.16	28.97	18.81	69.54	-50.73	100	183

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	0.02360	-11.83	63.62	51.79	120.15	-68.36	100	117
2	0.04730	-11.94	59.24	47.30	114.11	-66.81	100	111
3	0.07130	-11.74	52.30	40.56	110.54	-69.98	100	129
4	0.09500	-11.86	44.69	32.83	108.05	-75.22	100	126
5	0.12170	-11.62	42.35	30.73	105.90	-75.17	100	14
6	*0.12770	-11.53	87.32	75.79	105.48	-29.69	100	11
7	0.38280	-11.34	63.99	52.65	95.94	-43.29	100	2
8	0.63810	-11.21	54.95	43.74	71.72	-27.98	100	0
9	0.89330	-10.99	49.83	38.84	69.07	-30.23	100	0
10	1.40380	-11.03	41.46	30.43	65.50	-35.07	100	0
11	3.31870	-10.85	33.39	22.54	69.54	-47.00	100	164
12	13.54140	-10.08	28.62	18.54	69.54	-51.00	100	82

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	-11.31	66.64	55.33	127.45	-72.12	100	92
2	0.02360	-11.83	52.45	40.62	120.14	-79.52	100	154
3	0.05160	-11.91	48.04	36.13	113.35	-77.22	100	170
4	0.07500	-11.72	42.07	30.35	110.10	-79.75	100	41
5	0.10320	-11.85	45.52	33.67	107.33	-73.66	100	170
6	*0.12770	-11.53	93.73	82.20	105.48	-23.28	100	254
7	0.38280	-11.34	68.92	57.58	95.94	-38.36	100	360
8	0.63810	-11.21	60.33	49.12	71.72	-22.60	100	60



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9	1.65900	-11.09	44.70	33.61	64.19	-30.58	100	234
10	2.93660	-10.98	33.95	22.97	69.54	-46.57	100	276
11	9.76220	-10.37	28.86	18.49	69.54	-51.05	100	142
12	14.25630	-10.01	28.50	18.49	69.54	-51.05	100	190

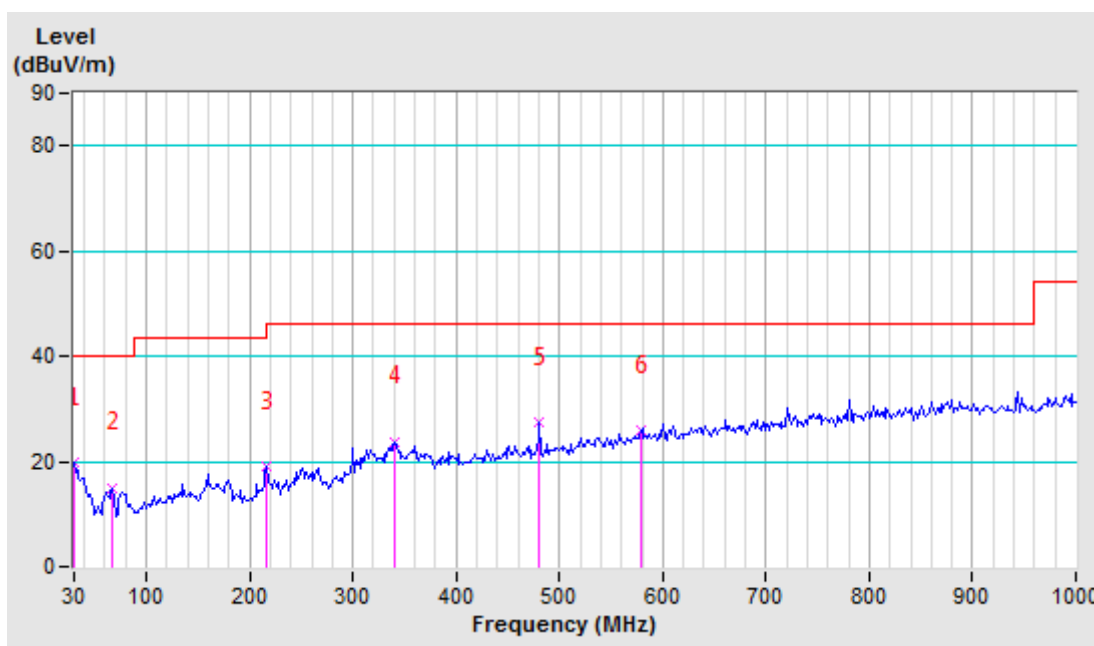
Remarks:

1. Emission Level(dBuA/m) = Raw Value(dBuA) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * ”: Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.

Test Mode	A	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	30.00	-11.09	30.78	19.69	40.00	-20.31	100	43
2	67.31	-23.08	38.12	15.04	40.00	-24.96	100	42
3	216.54	-17.21	36.20	18.99	46.00	-27.01	100	43
4	340.90	-10.77	34.57	23.80	46.00	-22.20	100	204
5	480.80	-7.74	35.19	27.45	46.00	-18.55	100	33
6	578.73	-4.50	30.30	25.80	46.00	-20.20	100	326

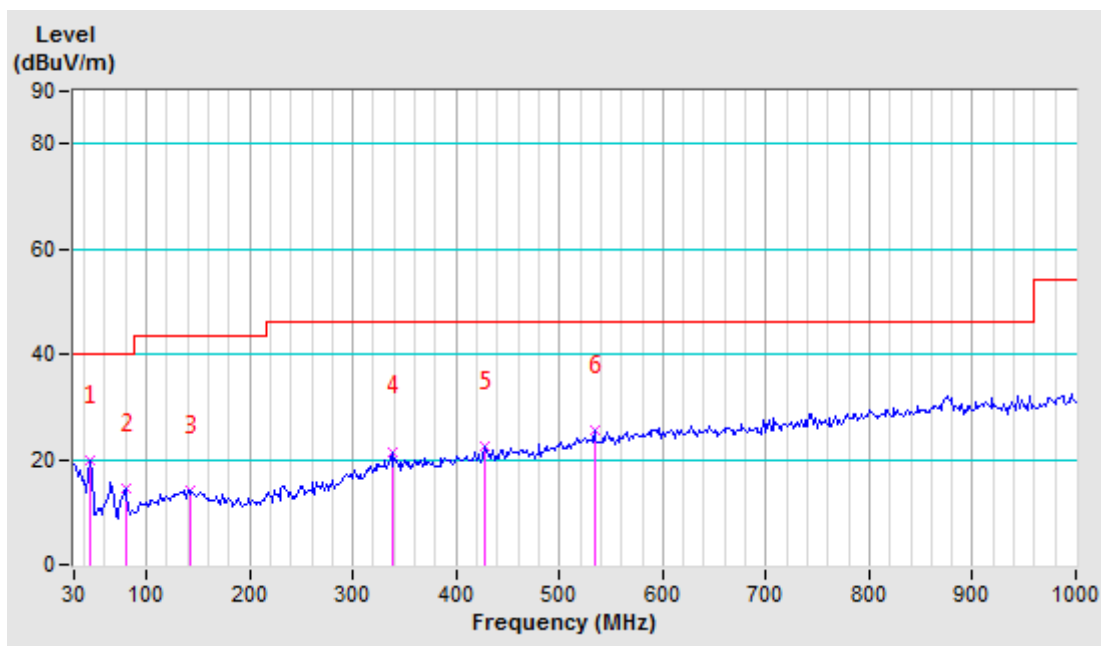
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30-1000MHz.
4. Only emissions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



Test Mode	A	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	45.54	-17.72	37.55	19.83	40.00	-20.17	100	43
2	79.74	-21.33	35.79	14.46	40.00	-25.54	100	42
3	141.92	-16.05	30.16	14.11	43.50	-29.39	100	43
4	337.79	-10.88	32.39	21.51	46.00	-24.49	100	204
5	427.95	-8.43	30.90	22.47	46.00	-23.53	100	33
6	533.65	-5.42	30.91	25.49	46.00	-20.51	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.



Test Mode	B	Frequency Range	9 kHz ~ 30 MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	0.02370	-11.83	67.08	55.25	120.12	-64.87	100	181
2	0.04700	-11.94	61.67	49.73	114.16	-64.43	100	195
3	0.05190	-11.90	61.18	49.28	113.30	-64.02	100	177
4	0.07790	-11.74	52.55	40.81	109.78	-68.97	100	177
5	0.10380	-11.85	46.07	34.22	107.28	-73.06	100	177
6	*0.12770	-11.53	95.36	83.83	105.48	-21.65	100	91
7	0.38280	-11.34	70.65	59.31	95.94	-36.63	100	75
8	0.63810	-11.21	60.98	49.77	71.72	-21.95	100	79
9	1.14850	-10.97	50.39	39.42	67.08	-27.66	100	76
10	1.65900	-11.09	41.09	30.00	64.19	-34.19	100	47
11	10.72490	-10.29	29.25	18.96	69.54	-50.58	100	59
12	14.02650	-10.03	29.03	19.00	69.54	-50.54	100	111

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	0.02380	-11.83	62.02	50.19	120.07	-69.88	100	125
2	0.04760	-11.94	58.05	46.11	114.05	-67.94	100	125
3	0.05180	-11.91	56.16	44.25	113.31	-69.06	100	121
4	0.07080	-11.74	52.29	40.55	110.61	-70.06	100	114
5	0.09440	-11.86	45.00	33.14	108.11	-74.97	100	114
6	*0.12770	-11.53	88.73	77.20	105.48	-28.28	100	357
7	0.38280	-11.34	65.27	53.93	95.94	-42.01	100	349
8	0.89330	-10.99	49.73	38.74	69.07	-30.33	100	13
9	1.40380	-11.03	41.49	30.46	65.50	-35.04	100	178
10	4.34110	-10.72	33.95	23.23	69.54	-46.31	100	198
11	6.12930	-10.84	33.69	22.85	69.54	-46.69	100	178
12	9.70550	-10.38	31.88	21.50	69.54	-48.04	100	168

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	0.00980	-11.19	64.24	53.05	127.81	-74.76	100	59
2	0.03520	-12.02	49.33	37.31	116.68	-79.37	100	110
3	0.05140	-11.91	47.27	35.36	113.38	-78.02	100	156
4	0.08900	-11.82	47.79	35.97	108.61	-72.64	100	266
5	0.10120	-11.88	43.13	31.25	107.49	-76.24	100	3
6	*0.12770	-11.53	93.42	81.89	105.48	-23.59	100	111
7	0.38280	-11.34	68.95	57.61	95.94	-38.33	100	360
8	0.89330	-10.99	54.67	43.68	69.07	-25.39	100	0
9	1.40380	-11.03	46.70	35.67	65.50	-29.83	100	4
10	2.93660	-10.98	33.70	22.72	69.54	-46.82	100	107
11	12.14580	-10.18	29.04	18.86	69.54	-50.68	100	0



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12	19.25200	-10.19	28.42	18.23	69.54	-51.31	100	115
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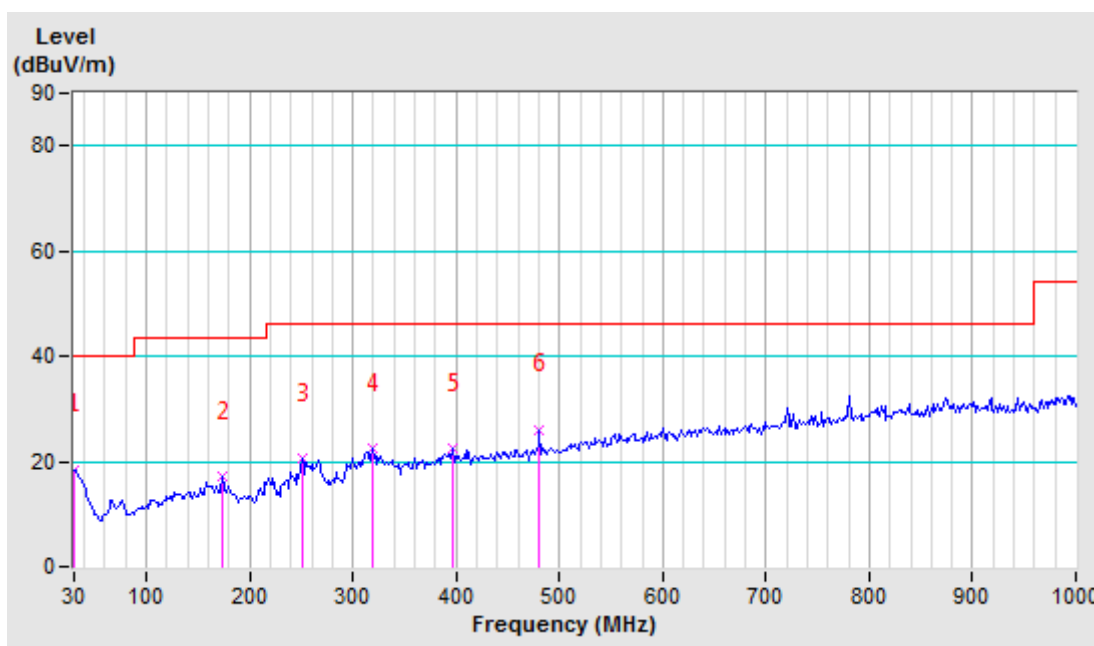
Remarks:

1. Emission Level(dBuA/m) = Raw Value(dBuA) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * ”: Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.

Test Mode	B	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	30.00	-11.09	29.58	18.49	40.00	-21.51	100	43
2	173.01	-17.69	34.83	17.14	43.50	-26.36	100	42
3	250.74	-15.76	36.20	20.44	46.00	-25.56	100	43
4	319.13	-11.02	33.63	22.61	46.00	-23.39	100	204
5	396.86	-9.04	31.51	22.47	46.00	-23.53	100	33
6	480.80	-7.74	33.85	26.11	46.00	-19.89	100	326

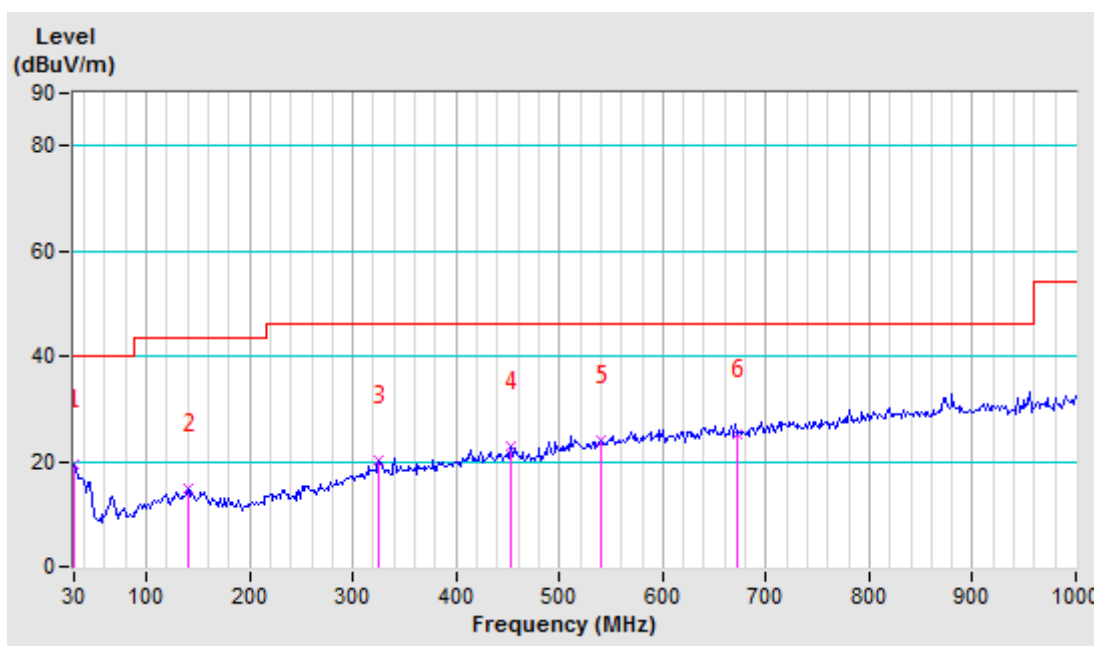
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30-1000MHz.
4. Only emissions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



Test Mode	B	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 10V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	-11.09	30.48	19.39	40.00	-20.61	100	43
2	140.37	-15.97	30.92	14.95	43.50	-28.55	100	42
3	325.35	-11.02	31.07	20.05	46.00	-25.95	100	43
4	452.82	-7.72	30.68	22.96	46.00	-23.04	100	204
5	539.87	-5.19	29.24	24.05	46.00	-21.95	100	33
6	672.00	-2.94	28.25	25.31	46.00	-20.69	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.



Test Mode	C	Frequency Range	9 kHz ~ 30 MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	0.02490	-11.87	64.17	52.30	119.67	-67.37	100	182
2	0.02930	-12.02	63.49	51.47	118.28	-66.81	100	148
3	0.04870	-11.93	58.15	46.22	113.85	-67.63	100	164
4	0.07370	-11.72	49.65	37.93	110.25	-72.32	100	90
5	0.11370	-11.72	50.57	38.85	106.49	-67.64	100	263
6	*0.12770	-11.53	100.12	88.59	105.48	-16.89	100	253
7	0.38280	-11.34	77.02	65.68	95.94	-30.26	100	272
8	0.89330	-10.99	60.69	49.70	69.07	-19.37	100	253
9	1.65900	-11.09	48.51	37.42	64.19	-26.77	100	253
10	2.68140	-11.03	38.66	27.63	69.54	-41.91	100	269
11	8.42780	-10.56	29.79	19.23	69.54	-50.31	100	90
12	12.25780	-10.17	29.14	18.97	69.54	-50.57	100	250

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	0.04160	-11.98	60.76	48.78	115.23	-66.45	100	124
2	0.06590	-11.78	50.66	38.88	111.23	-72.35	100	223
3	0.07760	-11.74	45.06	33.32	109.81	-76.49	100	102
4	0.09650	-11.87	40.94	29.07	107.92	-78.85	100	102
5	0.11440	-11.71	49.53	37.82	106.43	-68.61	100	348
6	*0.12770	-11.53	97.73	86.20	105.48	-19.28	100	360
7	0.38280	-11.34	77.17	65.83	95.94	-30.11	100	343
8	0.89330	-10.99	56.47	45.48	69.07	-23.59	100	0
9	1.91420	-11.15	42.52	31.37	69.54	-38.17	100	188
10	6.89490	-10.77	35.95	25.18	69.54	-44.36	100	172
11	10.47120	-10.30	33.35	23.05	69.54	-46.49	100	164
12	22.21920	-10.12	31.87	21.75	69.54	-47.79	100	27

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	0.01040	-11.33	60.57	49.24	127.30	-78.06	100	223
2	0.02780	-11.97	52.40	40.43	118.73	-78.30	100	176
3	0.05440	-11.88	44.60	32.72	112.88	-80.16	100	176
4	0.08430	-11.79	39.72	27.93	109.08	-81.15	100	158
5	0.11370	-11.72	37.97	26.25	106.49	-80.24	100	341
6	*0.12770	-11.53	86.49	74.96	105.48	-30.52	100	325
7	0.38280	-11.34	64.99	53.65	95.94	-42.29	100	339
8	0.89330	-10.99	49.93	38.94	69.07	-30.13	100	334
9	1.65900	-11.09	36.60	25.51	64.19	-38.68	100	327
10	8.17260	-10.60	29.22	18.62	69.54	-50.92	100	264
11	13.53090	-10.08	28.58	18.50	69.54	-51.04	100	114



12	16.54590	-10.04	28.56	18.52	69.54	-51.02	100	279
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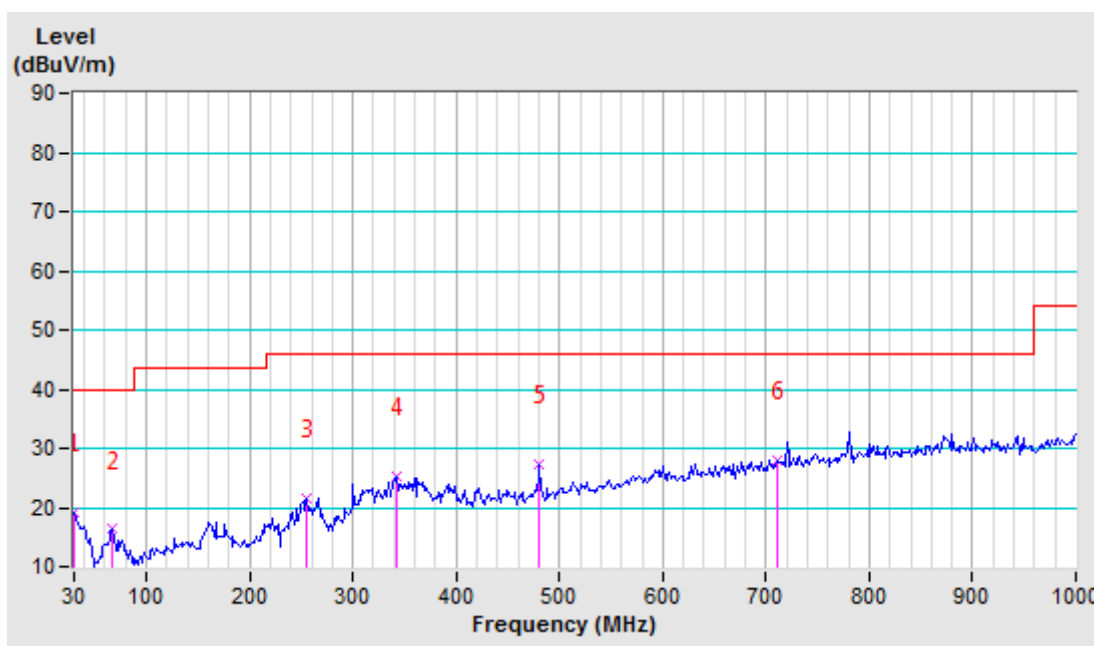
Remarks:

1. Emission Level(dBuA/m) = Raw Value(dBuA) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * ”: Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.

Test Mode	C	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	30.00	-11.09	30.26	19.17	40.00	-20.83	100	43
2	67.31	-23.08	39.37	16.29	40.00	-23.71	100	42
3	255.40	-15.38	36.84	21.46	46.00	-24.54	100	43
4	342.45	-10.69	36.03	25.34	46.00	-20.66	100	204
5	480.80	-7.74	35.05	27.31	46.00	-18.69	100	33
6	710.87	-2.22	30.32	28.10	46.00	-17.90	100	326

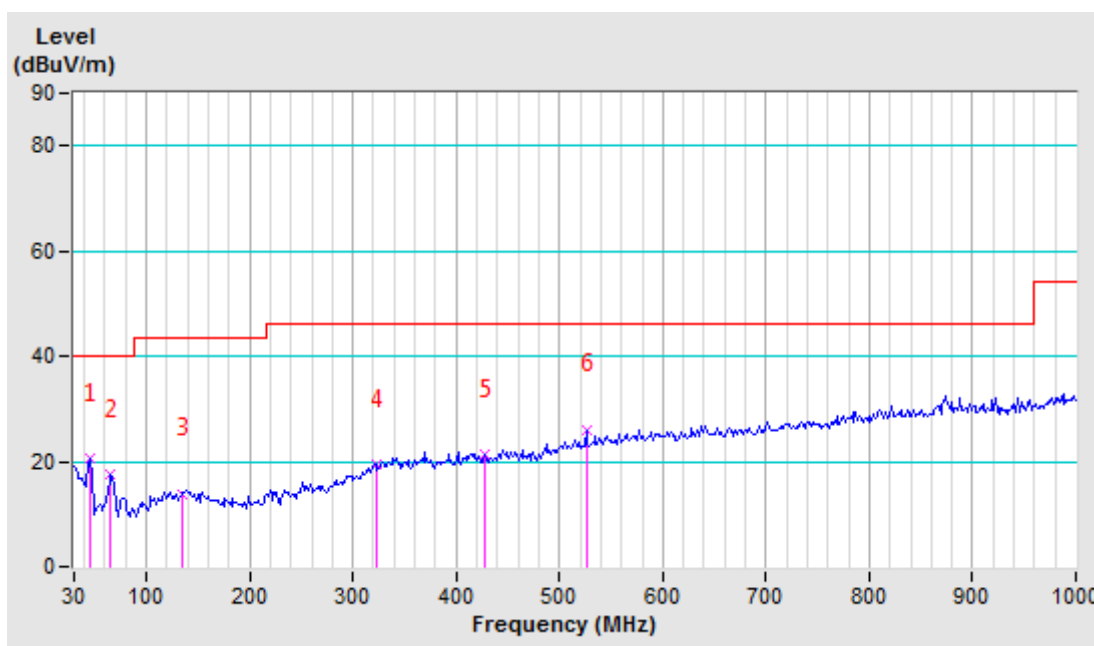
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30-1000MHz.
4. Only emissions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



Test Mode	C	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	45.54	-17.72	38.22	20.50	40.00	-19.50	100	43
2	65.75	-23.23	40.71	17.48	40.00	-22.52	100	42
3	134.15	-16.41	30.29	13.88	43.50	-29.62	100	43
4	322.24	-10.96	30.37	19.41	46.00	-26.59	100	204
5	427.95	-8.43	29.74	21.31	46.00	-24.69	100	33
6	525.88	-5.68	31.77	26.09	46.00	-19.91	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.



Test Mode	D	Frequency Range	9 kHz ~ 30 MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	0.03070	-12.04	66.74	54.70	117.85	-63.15	100	172
2	0.03380	-12.02	63.74	51.72	117.03	-65.31	100	162
3	0.06160	-11.83	55.58	43.75	111.82	-68.07	100	172
4	0.07360	-11.72	51.65	39.93	110.27	-70.34	100	67
5	0.09220	-11.85	44.73	32.88	108.31	-75.43	100	172
6	*0.12770	-11.53	100.17	88.64	105.48	-16.84	100	58
7	0.38280	-11.34	78.58	67.24	95.94	-28.70	100	48
8	1.40380	-11.03	55.88	44.85	65.50	-20.65	100	69
9	2.16950	-11.14	48.58	37.44	69.54	-32.10	100	62
10	3.70230	-10.69	39.03	28.34	69.54	-41.20	100	76
11	8.93830	-10.49	29.98	19.49	69.54	-50.05	100	83
12	14.16680	-10.02	29.56	19.54	69.54	-50.00	100	330

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	0.03520	-12.02	50.20	38.18	116.67	-78.49	100	82
2	0.05390	-11.89	62.33	50.44	112.98	-62.54	100	139
3	0.05700	-11.86	60.95	49.09	112.48	-63.39	100	126
4	0.06600	-11.78	50.77	38.99	111.21	-72.22	100	51
5	0.10820	-11.80	46.95	35.15	106.92	-71.77	100	118
6	*0.12770	-11.53	87.09	75.56	105.48	-29.92	100	360
7	0.38280	-11.34	66.09	54.75	95.94	-41.19	100	349
8	0.89330	-10.99	48.65	37.66	69.07	-31.41	100	353
9	4.34110	-10.72	37.97	27.25	69.54	-42.29	100	185
10	7.91740	-10.63	37.25	26.62	69.54	-42.92	100	189
11	11.49210	-10.22	37.09	26.87	69.54	-42.67	100	136
12	22.98490	-10.09	35.96	25.87	69.54	-43.67	100	341

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	0.01100	-11.35	65.06	53.71	126.76	-73.05	100	80
2	0.05410	-11.89	55.61	43.72	112.94	-69.22	100	171
3	0.05740	-11.86	53.17	41.31	112.42	-71.11	100	181
4	0.07160	-11.74	42.60	30.86	110.51	-79.65	100	201
5	0.10840	-11.79	41.91	30.12	106.90	-76.78	100	146
6	*0.12770	-11.53	94.16	82.63	105.48	-22.85	100	18
7	0.38280	-11.34	72.51	61.17	95.94	-34.77	100	18
8	0.89330	-10.99	50.90	39.91	69.07	-29.16	100	29
9	2.17090	-11.14	41.33	30.19	69.54	-39.35	100	360
10	3.19190	-10.89	40.05	29.16	69.54	-40.38	100	49
11	5.49040	-10.91	36.72	25.81	69.54	-43.73	100	0



12	18.00870	-10.12	28.76	18.64	69.54	-50.90	100	183
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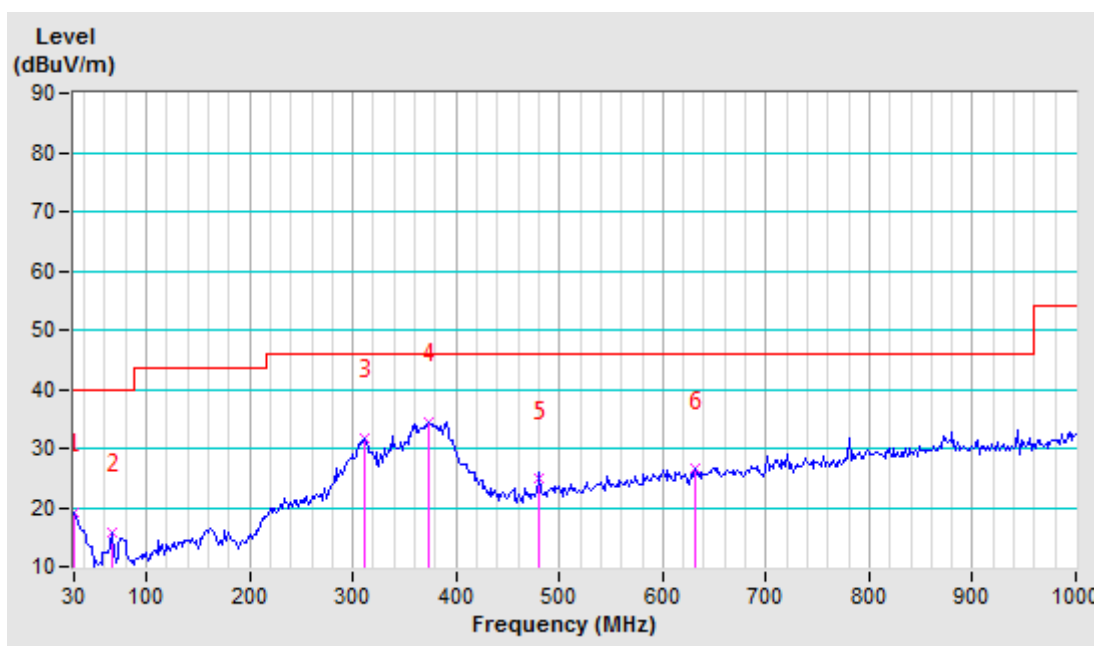
Remarks:

1. Emission Level(dBuA/m) = Raw Value(dBuA) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * “: Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.

Test Mode	D	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	30.00	-11.09	30.24	19.15	40.00	-20.85	100	43
2	67.31	-23.08	38.92	15.84	40.00	-24.16	100	42
3	311.36	-11.96	43.77	31.81	46.00	-14.19	100	43
4	373.54	-9.90	44.41	34.51	46.00	-11.49	100	204
5	479.25	-7.80	32.60	24.80	46.00	-21.20	100	33
6	631.59	-3.44	29.91	26.47	46.00	-19.53	100	326

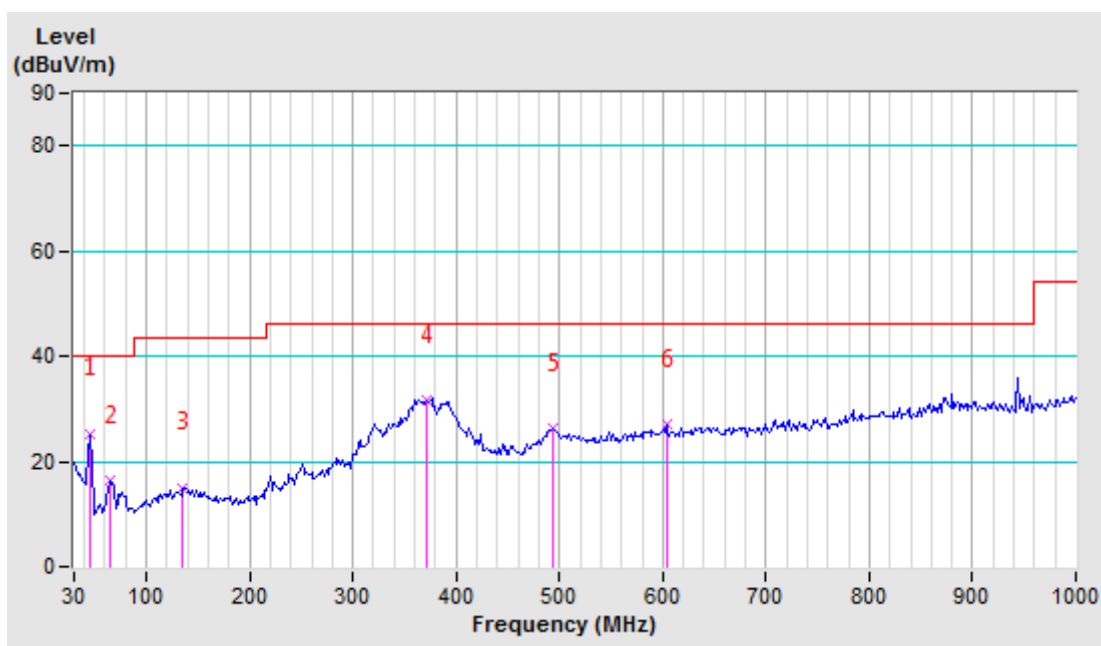
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30-1000MHz.
4. Only emissions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



Test Mode	D	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	45.54	-17.72	43.07	25.35	40.00	-14.65	100	43
2	65.75	-23.23	39.69	16.46	40.00	-23.54	100	42
3	135.71	-16.37	31.43	15.06	43.50	-28.44	100	43
4	371.99	-9.95	41.74	31.79	46.00	-14.21	100	204
5	493.24	-6.84	33.18	26.34	46.00	-19.66	100	33
6	603.61	-4.09	31.29	27.20	46.00	-18.80	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.



Test Mode	E	Frequency Range	9 kHz ~ 30 MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	0.02390	-11.83	54.05	42.22	120.03	-77.81	100	187
2	0.05260	-11.90	51.74	39.84	113.18	-73.34	100	170
3	0.07170	-11.74	50.34	38.60	110.49	-71.89	100	180
4	0.07830	-11.75	48.62	36.87	109.73	-72.86	100	170
5	0.10400	-11.84	43.65	31.81	107.26	-75.45	100	190
6	*0.12770	-11.53	85.52	73.99	105.48	-31.49	100	262
7	0.38280	-11.34	60.60	49.26	95.94	-46.68	100	257
8	0.89330	-10.99	45.64	34.65	69.07	-34.42	100	257
9	1.40380	-11.03	38.82	27.79	65.50	-37.71	100	257
10	6.79340	-10.77	28.96	18.19	69.54	-51.35	100	360
11	11.38010	-10.24	28.93	18.69	69.54	-50.85	100	33
12	14.59810	-9.99	28.59	18.60	69.54	-50.94	100	286

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	0.02700	-11.94	50.19	38.25	118.98	-80.73	100	233
2	0.03520	-12.02	49.93	37.91	116.67	-78.76	100	135
3	0.04860	-11.93	49.33	37.40	113.86	-76.46	100	99
4	0.06560	-11.78	50.63	38.85	111.26	-72.41	100	360
5	0.07820	-11.75	43.89	32.14	109.74	-77.60	100	129
6	*0.12770	-11.53	77.35	65.82	105.48	-39.66	100	346
7	0.38280	-11.34	52.46	41.12	95.94	-54.82	100	354
8	0.74700	-11.06	39.55	28.49	70.48	-41.99	100	58
9	3.83070	-10.65	30.09	19.44	69.54	-50.10	100	139
10	5.61730	-10.91	29.70	18.79	69.54	-50.75	100	180
11	9.29650	-10.44	29.99	19.55	69.54	-49.99	100	333
12	14.54290	-10.00	28.72	18.72	69.54	-50.82	100	111

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	0.01050	-11.33	67.58	56.25	127.21	-70.96	100	73
2	0.03520	-12.02	50.22	38.20	116.67	-78.47	100	162
3	0.05590	-11.87	43.86	31.99	112.65	-80.66	100	71
4	0.08720	-11.81	45.53	33.72	108.79	-75.07	100	67
5	0.10800	-11.80	41.27	29.47	106.93	-77.46	100	24
6	*0.12770	-11.53	91.67	80.14	105.48	-25.34	100	301
7	0.38280	-11.34	66.60	55.26	95.94	-40.68	100	300
8	0.63810	-11.21	57.41	46.20	71.72	-25.52	100	0
9	1.40380	-11.03	44.39	33.36	65.50	-32.14	100	321
10	5.95910	-10.87	29.20	18.33	69.54	-51.21	100	356
11	10.42640	-10.30	29.25	18.95	69.54	-50.59	100	260



12	15.68620	-9.99	28.92	18.93	69.54	-50.61	100	242
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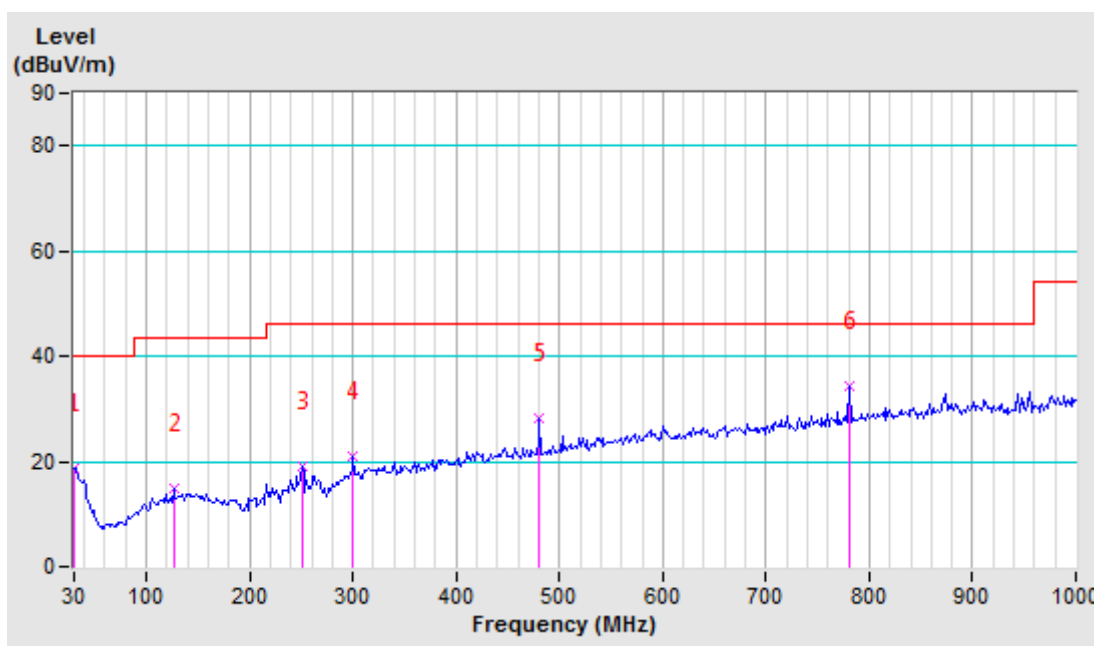
Remarks:

1. Emission Level(dBuA/m) = Raw Value(dBuA) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. “ * ”: Fundamental frequency.
6. Loop antenna was used for all radiated emission below 30MHz.

Test Mode	E	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	30.00	-11.09	29.67	18.58	40.00	-21.42	100	43
2	126.38	-16.59	31.58	14.99	43.50	-28.51	100	42
3	250.74	-15.76	34.75	18.99	46.00	-27.01	100	43
4	300.48	-12.40	33.40	21.00	46.00	-25.00	100	204
5	480.80	-7.74	35.82	28.08	46.00	-17.92	100	33
6	780.82	-0.89	35.23	34.34	46.00	-11.66	100	326

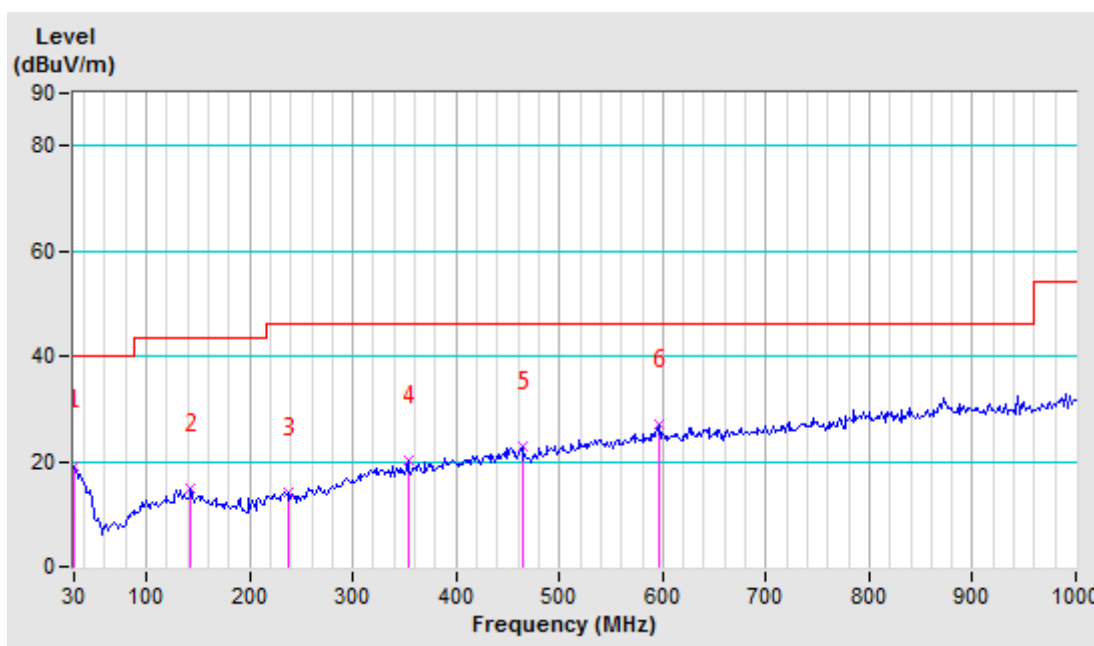
REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30-1000MHz.
4. Only emissions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



Test Mode	E	Frequency Range	30MHz ~ 1000MHz
Test Voltage	DC 12V From adapter	Detector Function	Quasi-Peak (QP)
Environmental Conditions	21deg. C, 67% RH	Tested By	KAMIKO

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	-11.09	30.33	19.24	40.00	-20.76	100	43
2	143.48	-16.14	30.88	14.74	43.50	-28.76	100	42
3	236.75	-16.22	30.41	14.19	46.00	-31.81	100	43
4	353.33	-10.28	30.42	20.14	46.00	-25.86	100	204
5	463.70	-7.73	30.72	22.99	46.00	-23.01	100	33
6	597.39	-4.24	31.46	27.22	46.00	-18.78	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.	Last Cal.	Next Cal.
Horn Antenna	ETS-Lindgren	3117	00062558	Jun. 23,19	Jun. 22,20
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170147	Jun. 23,19	Jun. 22,20
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 12,19	Mar. 11,20
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Mar. 13,19	Mar. 12,20
Broadband Preamplifier	SCHWARZBECK	BBV9718	305	Apr. 21,19	Apr. 20,20
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 09,19	Nov. 08,20
Test Software	ADT	ADT_Radiated V7.6.15.9.2	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated V8.7.07	N/A	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 IC Site Registration No. is 5936A-1.

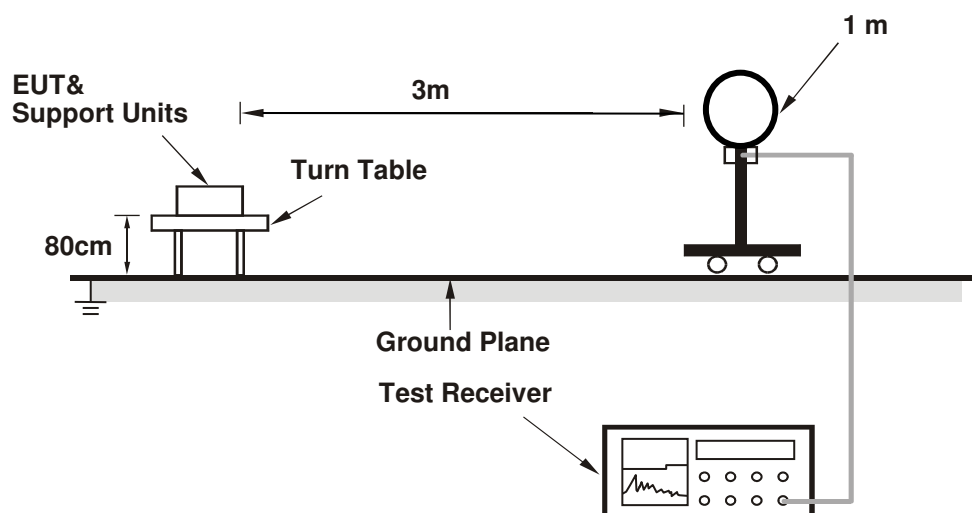
4.3.3 TEST PROCEDURE

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter Semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. Then the Loop antenna was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband loop antenna, which is fixed of a 1m height above the ground, and set away from 3m to the EUT to find the disturbance reading on each frequency.
- The test-receiver system was set to Quasi-peak detect function and specified bandwidth.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



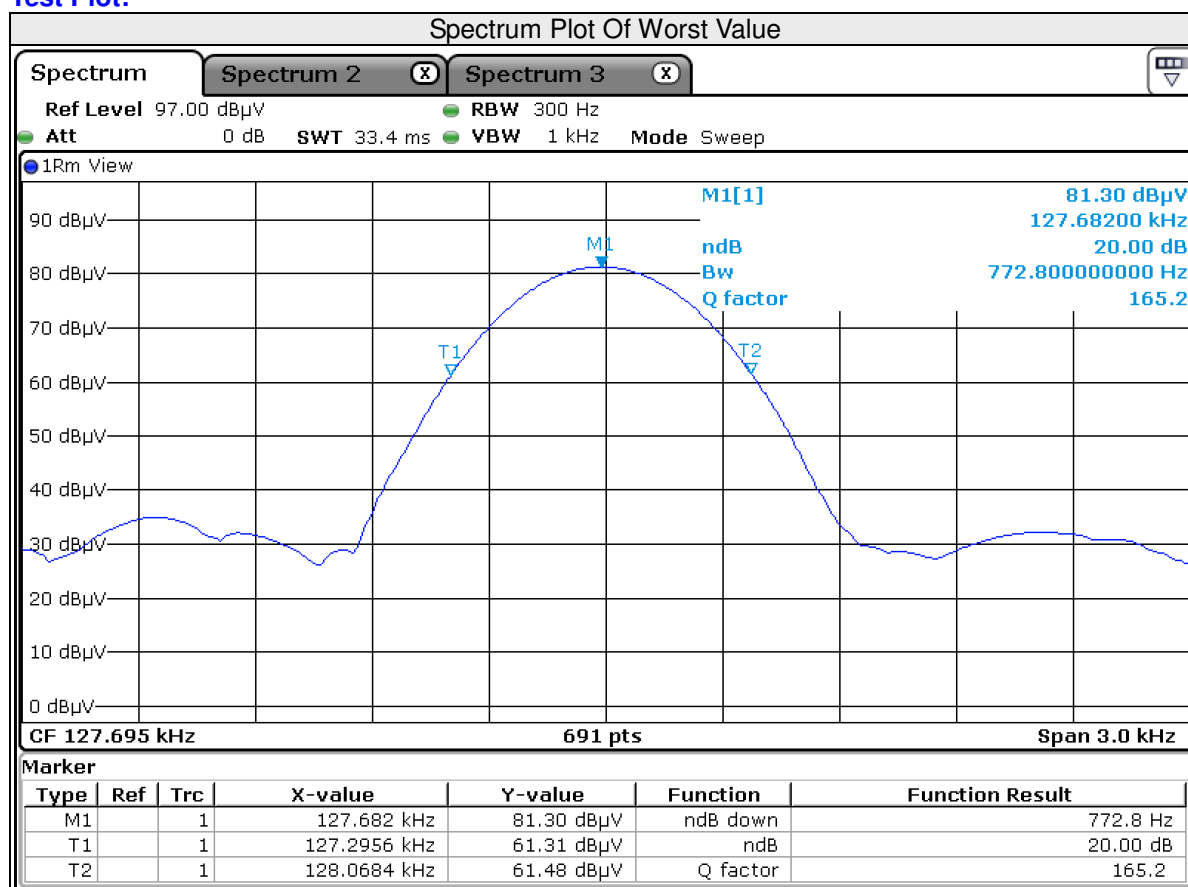
4.3.6 EUT OPERATING CONDITION

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

4.3.7 TEST RESULTS

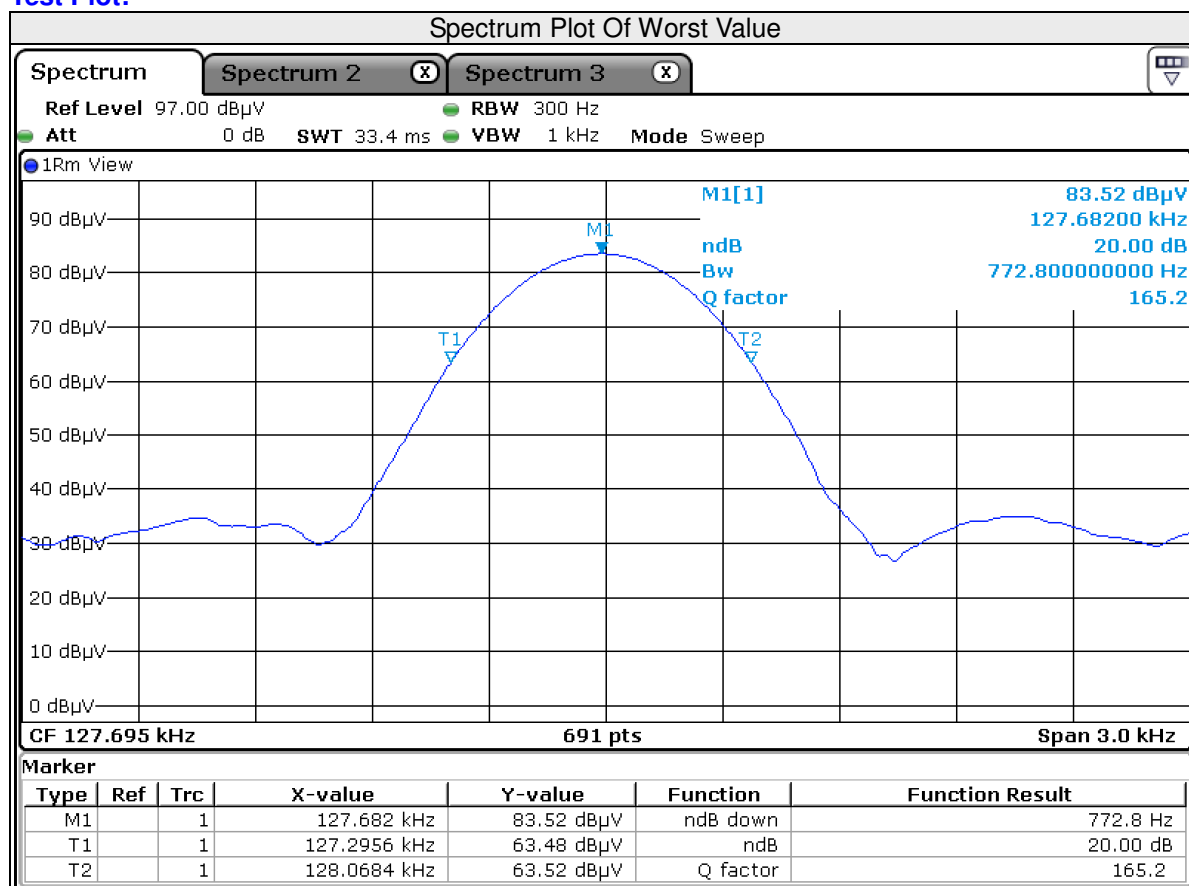
Test Mode	Frequency (kHz)	20dB Bandwidth (Hz)
A	127.695	772.8

Test Plot:



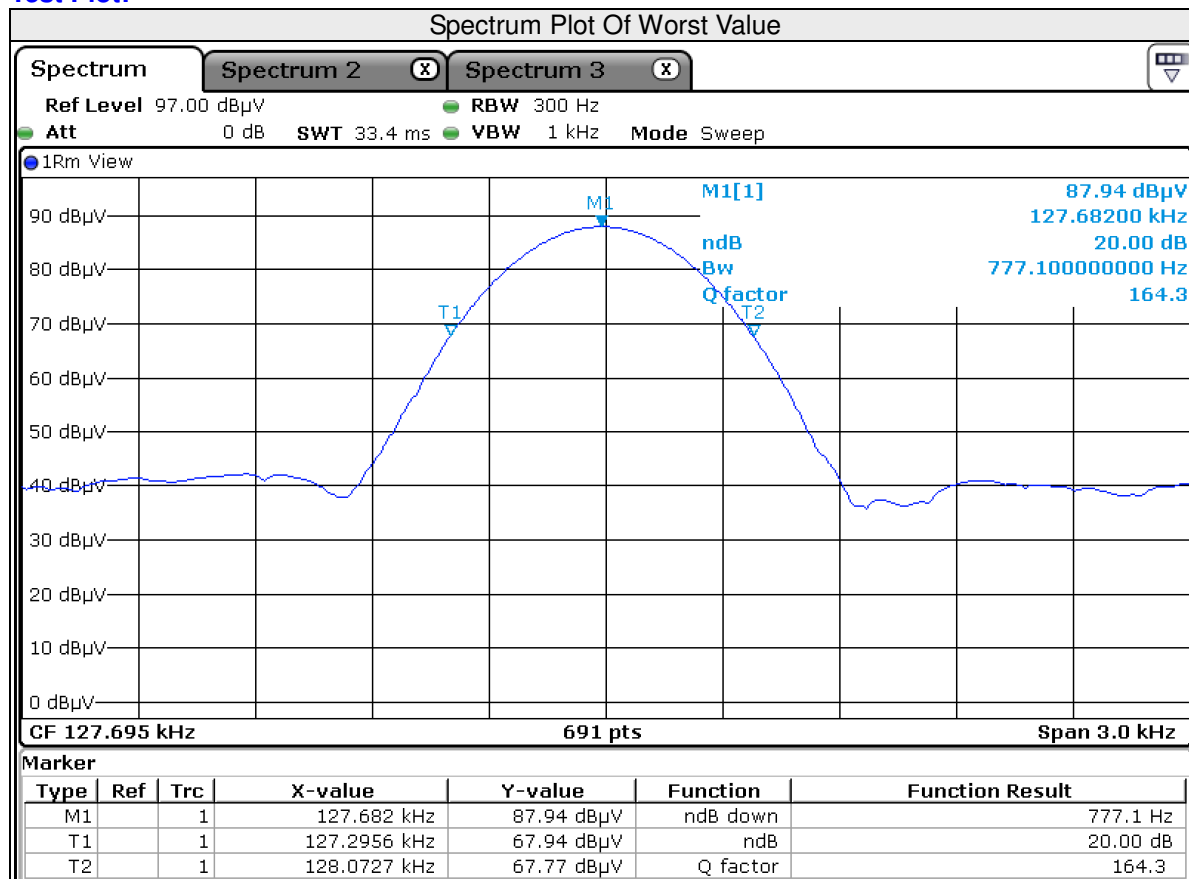
Test Mode	Frequency (kHz)	20dB Bandwidth (Hz)
B	127.695	772.8

Test Plot:



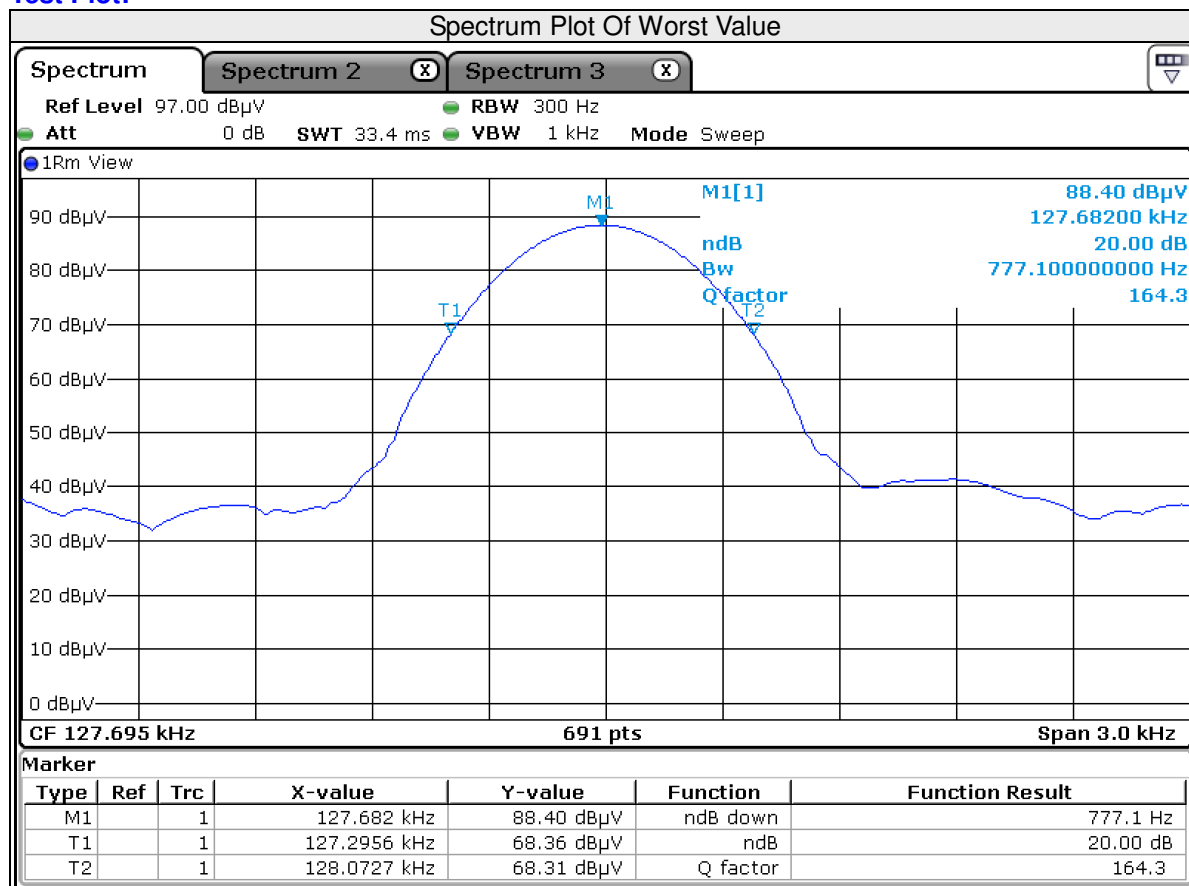
Test Mode	Frequency (kHz)	20dB Bandwidth (Hz)
C	127.695	777.1

Test Plot:



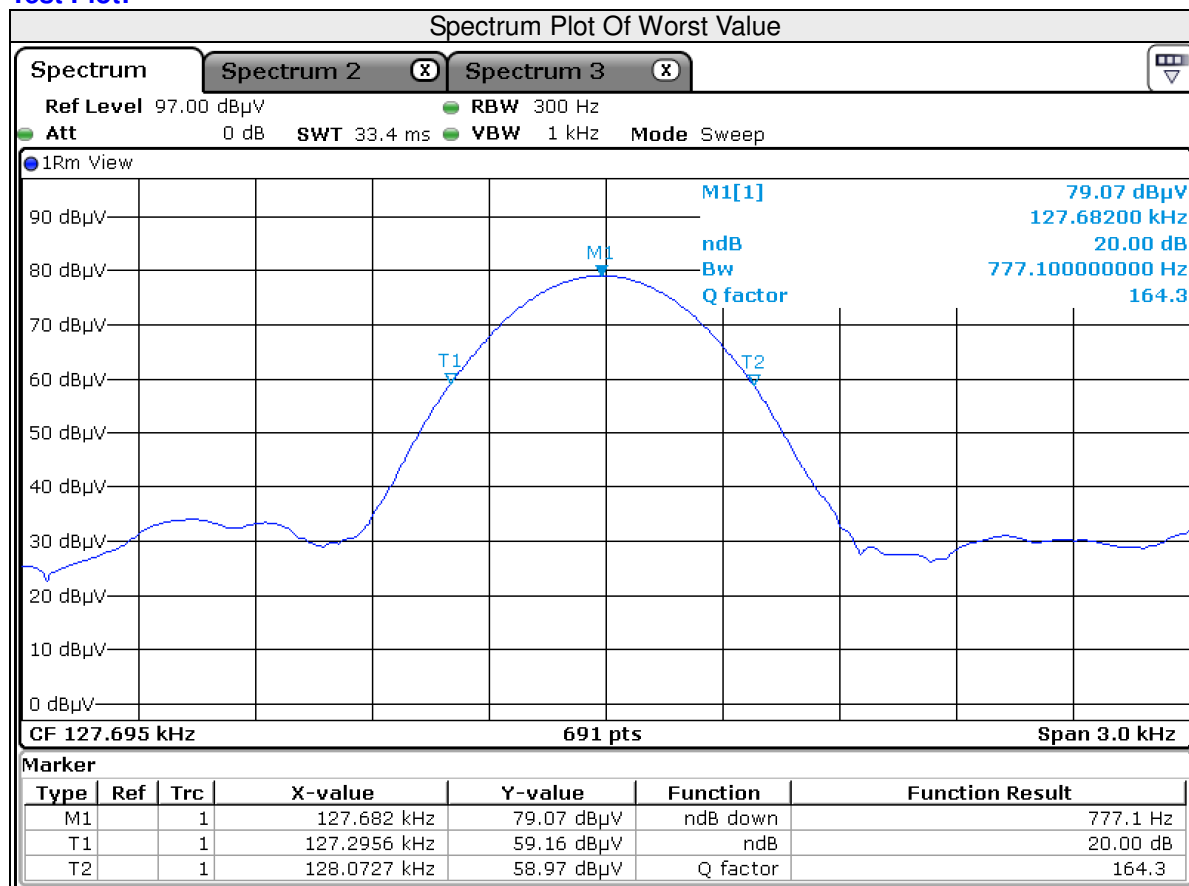
Test Mode	Frequency (kHz)	20dB Bandwidth (Hz)
D	127.695	777.1

Test Plot:



Test Mode	Frequency (kHz)	20dB Bandwidth (Hz)
E	127.695	777.1

Test Plot:





Test Report No.: RF200103N012

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---