



FCC TEST REPORT

FCC ID:2AUP3-P11B

Applicant: Jiangsu Cooostar Technology Co.,Ltd
Address: Building 8,No 99,Taihu Road, Tinghu District,Yancheng, Jiangsu China
Manufacturer: Jiangsu Cooostar Technology Co.,Ltd
Address: Building 8,No 99,Taihu Road, Tinghu District,Yancheng, Jiangsu China
EUT: Mobile power with wires and magnetism
Trade Mark: N/A
Model Number: P11-B
P13-B, P11-A, P13-A
Date of Receipt: Apr. 08, 2025
Test Date: Apr. 08, 2025 to Apr. 15, 2025
Date of Report: Apr. 15, 2025
Prepared By: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Roa Baolong Industrial Zone, Baolong Street, Longgang Shenzhen, Guangdong, China
Applicable Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.231
ANSI C63.10:2013
Test Result: Pass
Report Number: DLE-250425005R

Prepared (Test Engineer): Dimon Tan

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



TABLE OF CONTENTS

1. VERSION	3
2. TEST SUMMARY	4
2.1 TEST FACILITY	5
2.2 MEASUREMENT UNCERTAINTY	5
3. GENERAL INFORMATION	6
3.1 GENERAL DESCRIPTION OF EUT	6
3.2 TEST MODE	7
3.3 BLOCK DIAGRAM OF EUT CONFIGURATION	9
3.4 TEST CONDITIONS	10
3.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)	10
3.6 EQUIPMENTS LIST FOR ALL TEST ITEMS	11
4. CONDUCTED EMISSION TEST	13
4.1 CONDUCTED EMISSION MEASUREMENT	13
4.1.1 POWER LINE CONDUCTED EMISSION Limits	13
4.1.2 TEST PROCEDURE	13
4.1.3 DEVIATION FROM TEST STANDARD	13
4.1.4 TEST SETUP	14
4.1.5 EUT OPERATING CONDITIONS	14
4.1.6 TEST RESULT	15
5. RADIATED EMISSION MEASUREMENT	17
5.1 RADIATED EMISSION LIMITS	17
5.2 ANECHOIC CHAMBER TEST SETUP DIAGRAM	18
5.3 TEST PROCEDURE	19
5.4 DEVIATION FROM TEST STANDARD	19
5.5 TEST RESULT	20
6. 20DB BANDWIDTH TEST	26
6.1 TEST PROCEDURE	26
6.2 LIMIT	26
6.3 TEST SETUP	26
6.4 DEVIATION FROM STANDARD	26
6.5 TEST RESULT	27
7. ANTENNA REQUIREMENT	28
8. TEST SETUP PHOTO	29
9. EUT CONSTRUCTIONAL DETAILS	29



1. VERSION

Report No.	Version	Description	Approved
DLE-250425005R	Rev.01	Initial issue of report	Apr. 15, 2025



2. TEST SUMMARY

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Spurious Emission	15.209(a)(f)	Pass
20dB Bandwidth	15.215	Pass

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



2.1 TEST FACILITY

Shenzhen DL Testing Technology Co., Ltd.

Add. : 101-201, Building C, Shuanghuan, No.8, Baoqing Roa Baolong Industrial Zone, Baolong Stree
Longgang Shenzhen, Guangdong, China

FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.: 27485

CAB identifier: CN0118

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	3m camber Radiated spurious emission(9KHz-30MHz)	U=4.5dB
2	3m camber Radiated spurious emission(30MHz-1GHz)	U=4.8dB
3	3m chamber Radiated spurious emission(1GHz-6GHz)	U=4.9dB
4	3m chamber Radiated spurious emission(6GHz-40GHz)	U=5.0dB
5	Conducted disturbance	U=3.2dB
6	RF conducted Spurious Emission	U=2.2dB
7	RF Occupied Bandwidth	U=1.8MHz
8	humidity uncertainty	U=5.3%
9	Temperature uncertainty	U=0.59°C



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Mobile power with wires and magnetism
Model No.:	P11-B
Serial No.:	P13-B, P11-A, P13-A
Model Difference:	All the model are the same circuit and RF module, Only the model name different.
Hardware Version:	V 1.0
Software Version:	V 1.1
Operation Frequency:	115kHz-205kHz
Modulation Type:	ASK
Antenna Type:	Loop Coil Antenna
Antenna Gain:	0dBi
Ratings:	Type-C Input: 5V \leq 3A, 9V \leq 2A, 12V \leq 1.5A Type-C Output: 5V \leq 3A, 9V \leq 2.22A, 12V \leq 1.67A USB-A Output: 5V \leq 3A, 9V \leq 2A, 10V \leq 2.25A, 12V \leq 1.5A Type-C Cable Input: 5V \leq 3A, 9V \leq 2A, 12V \leq 1.5A Type-C Cable Output: 5V \leq 3A, 9V \leq 2.22A, 12V \leq 1.67A USB Cable Input: 5V \leq 2A Lightning Cable Output: 5V \leq 2A Wireless Charging Output: 5W/7.5W/10W/15W (MAX) Multi-Port Total Output: 5V \leq 3A Maximum Output: 22.5W
Battery Capacity:	10000mAh/3.85V/38.5Wh
Transmitting Mode:	Keep the EUT in continuously wireless charging mode



3.2 TEST MODE

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

a. EUT mode of AC/DC Adapter + wireless charge output:

Test Modes:	Test Coil:	Description:
Mode 1	ANT 1	AC/DC Adapter (12V/1.5A) + EUT + Phone 15W (Battery Status: <1%)
Mode 2		AC/DC Adapter (12V/1.5A) + EUT + Phone 15W (Battery Status: 50%)
Mode 3		AC/DC Adapter (12V/1.5A) + EUT + Phone 15W (Battery Status: >98%)
Mode 4		AC/DC Adapter (9V/2A) + EUT + Phone 15W (Battery Status: <1%)
Mode 5		AC/DC Adapter (9V/2A) + EUT + Phone 15W (Battery Status: 50%)
Mode 6		AC/DC Adapter (9V/2A) + EUT + Phone 15W (Battery Status: >98%)
Mode 7		AC/DC Adapter (5V/3A) + EUT + Phone 15W (Battery Status: <1%)
Mode 8		AC/DC Adapter (5V/3A) + EUT + Phone 15W (Battery Status: 50%)
Mode 9		AC/DC Adapter (5V/3A) + EUT + Phone 15W (Battery Status: >98%)
Mode 10		AC/DC Adapter (12V/1.5A) + EUT + Phone 10W (Battery Status: <1%)
Mode 11		AC/DC Adapter (12V/1.5A) + EUT + Phone 10W (Battery Status: 50%)
Mode 12		AC/DC Adapter (12V/1.5A) + EUT + Phone 10W (Battery Status: >98%)
Mode 13		AC/DC Adapter (9V/2A) + EUT + Phone 10W (Battery Status: <1%)
Mode 14		AC/DC Adapter (9V/2A) + EUT + Phone 10W (Battery Status: 50%)
Mode 15		AC/DC Adapter (9V/2A) + EUT + Phone 10W (Battery Status: >98%)
Mode 16		AC/DC Adapter (5V/3A) + EUT + Phone 10W (Battery Status: <1%)
Mode 17		AC/DC Adapter (5V/3A) + EUT + Phone 10W (Battery Status: 50%)
Mode 18		AC/DC Adapter (5V/3A) + EUT + Phone 10W (Battery Status: >98%)
Mode 19		AC/DC Adapter (12V/1.5A) + EUT + Phone 7.5W (Battery Status: <1%)
Mode 20		AC/DC Adapter (12V/1.5A) + EUT + Phone 7.5W (Battery Status: 50%)
Mode 21		AC/DC Adapter (12V/1.5A) + EUT + Phone 7.5W (Battery Status: >98%)
Mode 22		AC/DC Adapter (9V/2A) + EUT + Phone 7.5W (Battery Status: <1%)
Mode 23		AC/DC Adapter (9V/2A) + EUT + Phone 7.5W (Battery Status: 50%)
Mode 24		AC/DC Adapter (9V/2A) + EUT + Phone 7.5W (Battery Status: >98%)
Mode 25		AC/DC Adapter (5V/3A) + EUT + Phone 5W (Battery Status: <1%)
Mode 26		AC/DC Adapter (5V/3A) + EUT + Phone 5W (Battery Status: 50%)
Mode 27		AC/DC Adapter (5V/3A) + EUT + Phone 5W (Battery Status: >98%)
Mode 28		AC/DC Adapter (12V/1.5A) + EUT + Phone 5W (Battery Status: <1%)
Mode 29		AC/DC Adapter (12V/1.5A) + EUT + Phone 5W (Battery Status: 50%)
Mode 30		AC/DC Adapter (12V/1.5A) + EUT + Phone 5W (Battery Status: >98%)



Mode 31		AC/DC Adapter (9V/2A) + EUT + Phone 5W (Battery Status: <1%)
Mode 32		AC/DC Adapter (9V/2A) + EUT + Phone 5W (Battery Status: 50%)
Mode 33		AC/DC Adapter (9V/2A) + EUT + Phone 5W (Battery Status: >98%)
Mode 34		AC/DC Adapter (5V/3A) + EUT + Phone 5W (Battery Status: <1%)
Mode 35		AC/DC Adapter (5V/3A) + EUT + Phone 5W (Battery Status: 50%)
Mode 36		AC/DC Adapter (5V/3A) + EUT + Phone 5W (Battery Status: >98%)

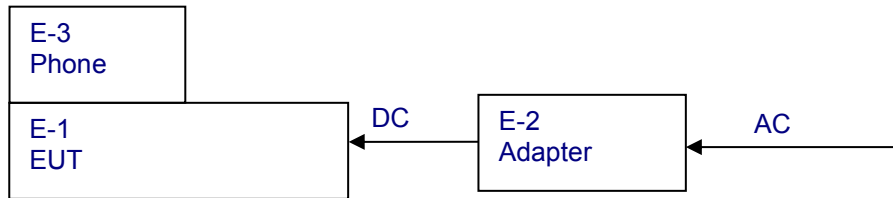
b. EUT mode of wireless charge output:

Test Modes:	Test Coil:	Description:
Mode 1a	ANT 1	EUT + Phone 15W (Battery Status: <1%)
Mode 2a		EUT + Phone 15W (Battery Status: 50%)
Mode 3a		EUT + Phone 15W (Battery Status: >98%)
Mode 4a		EUT + Phone 10W (Battery Status: <1%)
Mode 5a		EUT + Phone 10W (Battery Status: 50%)
Mode 6a		EUT + Phone 10W (Battery Status: >98%)
Mode 7a		EUT + Phone 7.5W (Battery Status: <1%)
Mode 8a		EUT + Phone 7.5W (Battery Status: 50%)
Mode 9a		EUT + Phone 7.5W (Battery Status: >98%)
Mode 10a		EUT + Phone 5W (Battery Status: <1%)
Mode 11a		EUT + Phone 5W (Battery Status: 50%)
Mode 12a		EUT + Phone 5W (Battery Status: >98%)



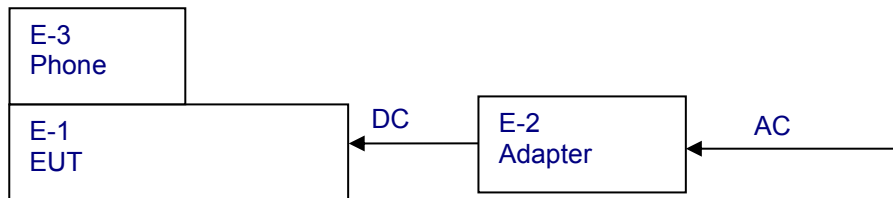
3.3 BLOCK DIAGRAM OF EUT CONFIGURATION

Conducted Emission

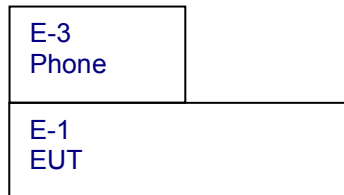


Radiated Emission

A:



B:





3.4 TEST CONDITIONS

Temperature: 23~26℃

Relative Humidity: 54~63 %

3.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

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.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Mobile power with wires and magnetism	N/A	P11-B	N/A	EUT
E-2	AC/DC Adapter	HUAWEI	HW-200200CP1	N/A	Auxiliary
E-3	Phone	APPLE	iPhone 13 Pro	N/A	Auxiliary

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	0.8M	DC cable unshielded

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.



3.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Conduction Emissions Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	N/A	Sep. 30, 2024	Sep. 29, 2025
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Sep. 30, 2024	Sep. 29, 2025
3	Test Cable	N/A	C-01	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
4	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Sep. 29, 2024	Sep. 28, 2025
5	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\

Radiation Emissions & Radiation Spurious Emissions Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 29, 2024	Sep. 28, 2025
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 30, 2024	Sep. 29, 2025
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Sep. 29, 2024	Sep. 28, 2025
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	00877	N/A	Sep. 30, 2024	Sep. 29, 2025
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Sep. 30, 2024	Sep. 29, 2025
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Sep. 30, 2024	Sep. 29, 2025
7	Loop Antenna	TESEQ	HLA6121	58357	N/A	Oct. 11, 2024	Oct. 10, 2025
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Sep. 29, 2024	Sep. 28, 2025
9	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Sep. 29, 2024	Sep. 28, 2025
10	Amplifier (500MHz-40GHz)	QuanJuDa	DLE-161	097	N/A	Sep. 30, 2024	Sep. 29, 2025
11	Test Cable	N/A	R-01	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
12	Test Cable	N/A	R-02	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
13	Test Cable	N/A	R-03	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
14	D.C. Power Supply	LongWei	TPR-6405D	GQ7516	N/A	Sep. 29, 2024	Sep. 28, 2025
15	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\
16	Turntable	MF	MF-7802BS	N/A	N/A	\	\
17	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\



RF Conducted Test

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 29, 2024	Sep. 28, 2025
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 30, 2024	Sep. 29, 2025
3	Test Cable	N/A	RF-01	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
4	Test Cable	N/A	RF-02	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
5	Test Cable	N/A	RF-03	N/A	N/A	Sep. 30, 2024	Sep. 29, 2025
6	ESG Signal Generator	Agilent	E4421B	GB40051203	B.03.84	Sep. 29, 2024	Sep. 28, 2025
7	Signal Generator	Agilent	N5182A	MY47420215	A.01.87	Sep. 29, 2024	Sep. 28, 2025
8	Magnetic Field Probe Tester	Narda	ELT-400	0-0344/M-1752	N/A	Sep. 29, 2024	Sep. 28, 2025
9	Van der Hoofden measuring head	Schwarzbeck Mess-elektronik	VDHH 9502	9502-039	N/A	Sep. 30, 2024	Sep. 29, 2025
10	Wideband Radio Communication Test	R&S	CMW500	106504	V 3.7.22	Sep. 30, 2024	Sep. 29, 2025
11	MWRF Power Meter Test system	MW	MW100-RF CB	10371	N/A	Sep. 29, 2024	Sep. 28, 2025
12	D.C. Power Supply	LongWei	TPR-6405D	GQ7516	N/A	Sep. 29, 2024	Sep. 28, 2025
13	RF Software	MW	MTS8310	V2.0.0.0	N/A	\	\



4. CONDUCTED EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION Limits

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quas-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) *Decreases with the logarithm of the frequency.

4.1.2 TEST PROCEDURE

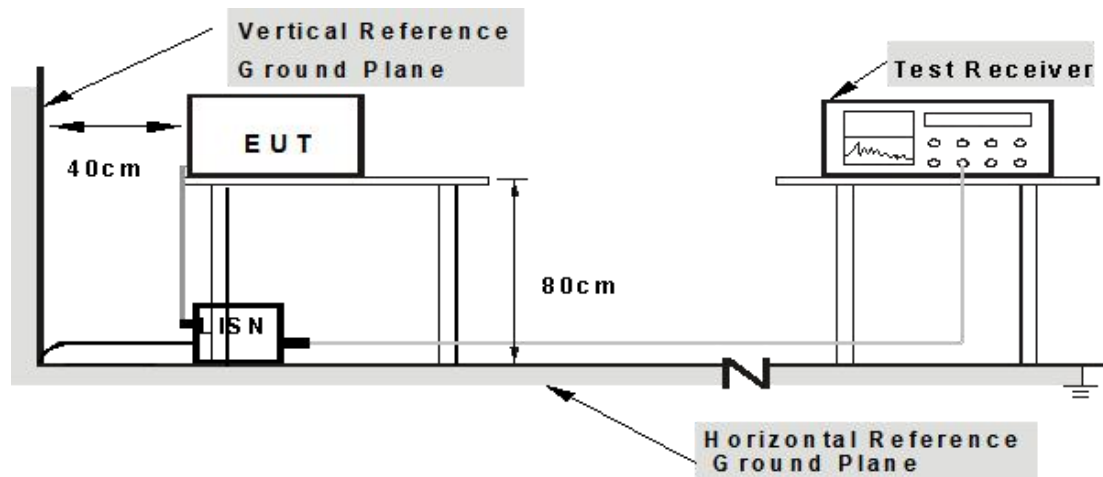
- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation



4.1.4 TEST SETUP



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

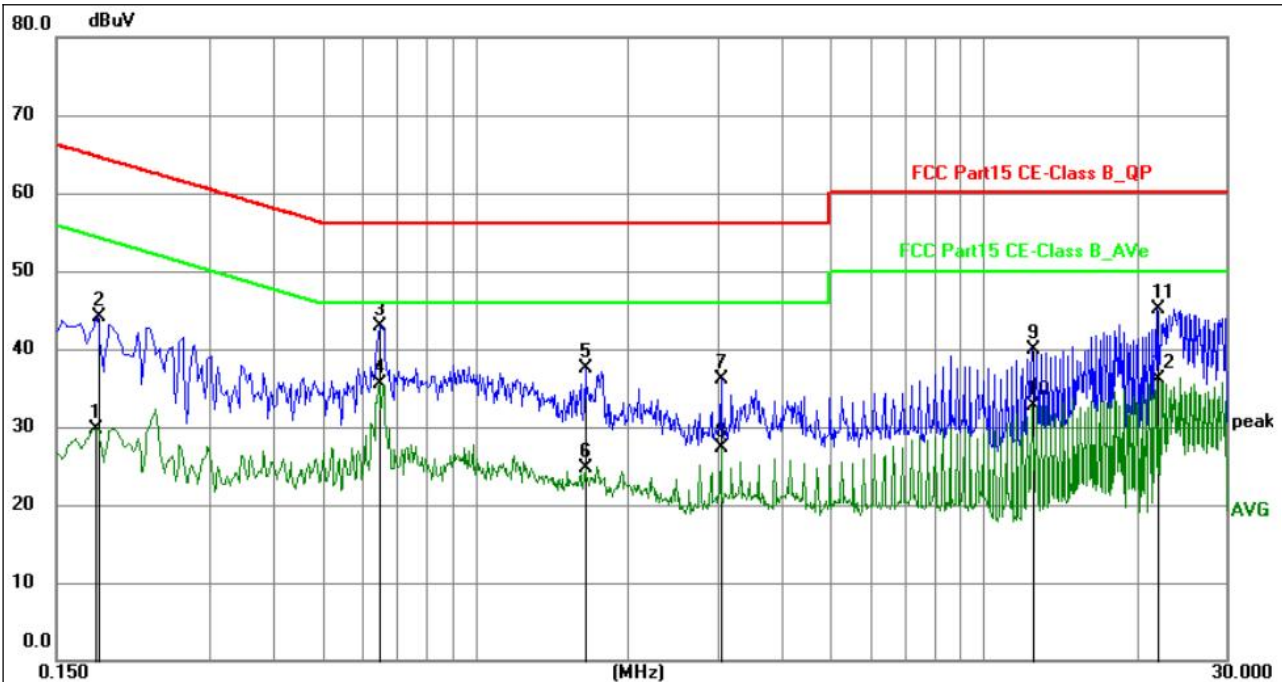
4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



4.1.6 TEST RESULT

Temperature :	26°C	Relative Humidity :	54%
Pressure :	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode :	Mode 1



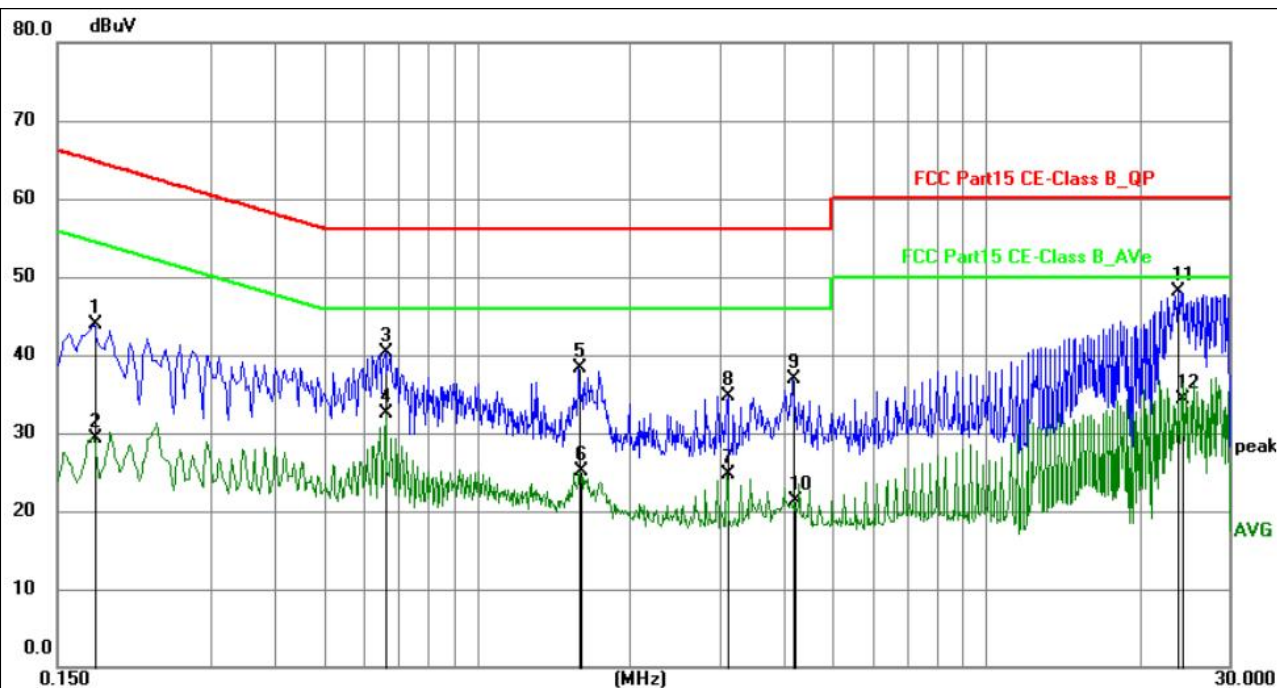
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1796	9.40	20.30	29.70	54.50	-24.80	AVG	P	
2	0.1815	23.83	20.31	44.14	64.42	-20.28	QP	P	
3	0.6493	22.64	20.29	42.93	56.00	-13.07	QP	P	
4	0.6493	15.13	20.29	35.42	46.00	-10.58	AVG	P	
5	1.6529	17.23	20.30	37.53	56.00	-18.47	QP	P	
6	1.6529	4.34	20.30	24.64	46.00	-21.36	AVG	P	
7	3.0525	15.80	20.33	36.13	56.00	-19.87	QP	P	
8	3.0525	6.89	20.33	27.22	46.00	-18.78	AVG	P	
9	12.4890	19.50	20.47	39.97	60.00	-20.03	QP	P	
10	12.4890	12.24	20.47	32.71	50.00	-17.29	AVG	P	
11	22.0290	24.60	20.55	45.15	60.00	-14.85	QP	P	
12	22.0290	15.46	20.55	36.01	50.00	-13.99	AVG	P	

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi - Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Reading level + Correct Factor.
4. Correct Factor = Liss factor+ Cable loss factor + limiter factor.
5. Margin = Measurement Level-Limit.
6. All test modes were tested, with only the worst Mode 1 recorded.



Temperature :	26°C	Relative Humidity :	54%
Pressure :	101kPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode :	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1770	23.64	20.28	43.92	64.63	-20.71	QP	P	
2	0.1770	9.06	20.28	29.34	54.63	-25.29	AVG	P	
3	0.6629	19.94	20.29	40.23	56.00	-15.77	QP	P	
4	0.6629	12.18	20.29	32.47	46.00	-13.53	AVG	P	
5	1.5900	17.99	20.30	38.29	56.00	-17.71	QP	P	
6	1.5988	4.77	20.30	25.07	46.00	-20.93	AVG	P	
7	3.1065	4.40	20.32	24.72	46.00	-21.28	AVG	P	
8	3.1110	14.48	20.32	34.80	56.00	-21.20	QP	P	
9	4.1685	16.60	20.34	36.94	56.00	-19.06	QP	P	
10	4.2045	0.88	20.34	21.22	46.00	-24.78	AVG	P	
11	23.8604	27.42	20.63	48.05	60.00	-11.95	QP	P	
12	24.1530	13.72	20.64	34.36	50.00	-15.64	AVG	P	

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi - Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Reading level + Correct Factor.
4. Correct Factor = Lisen factor+ Cable loss factor + limiter factor.
5. Margin = Measurement Level-Limit.
6. All test modes were tested, with only the worst Mode 1 recorded.



5. RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 1GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average

5.1 RADIATED EMISSION LIMITS

Limits for frequency below 30MHz

Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	$2400/F(\text{kHz})$	300	Quasi-peak Value
0.490-1.705	$24000/F(\text{kHz})$	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

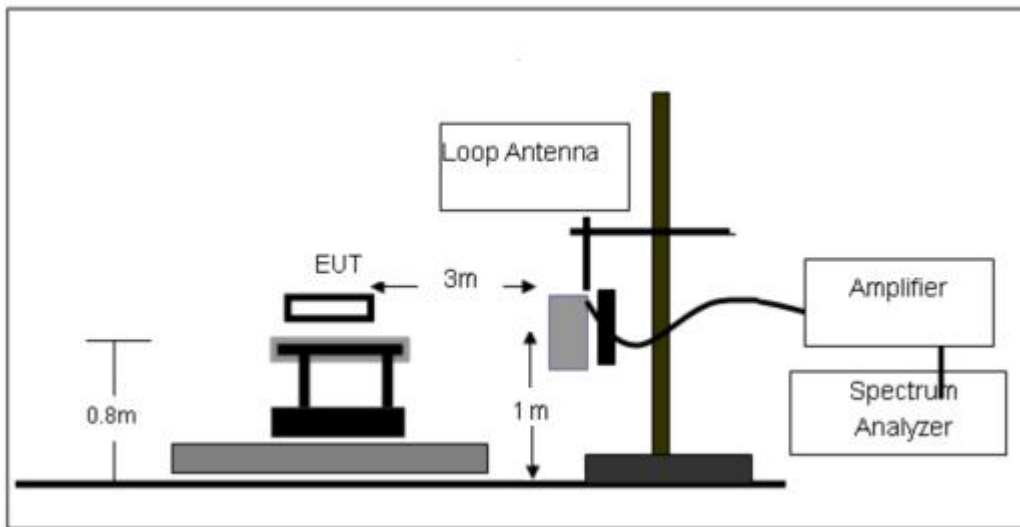
Limits for frequency Above 30MHz

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

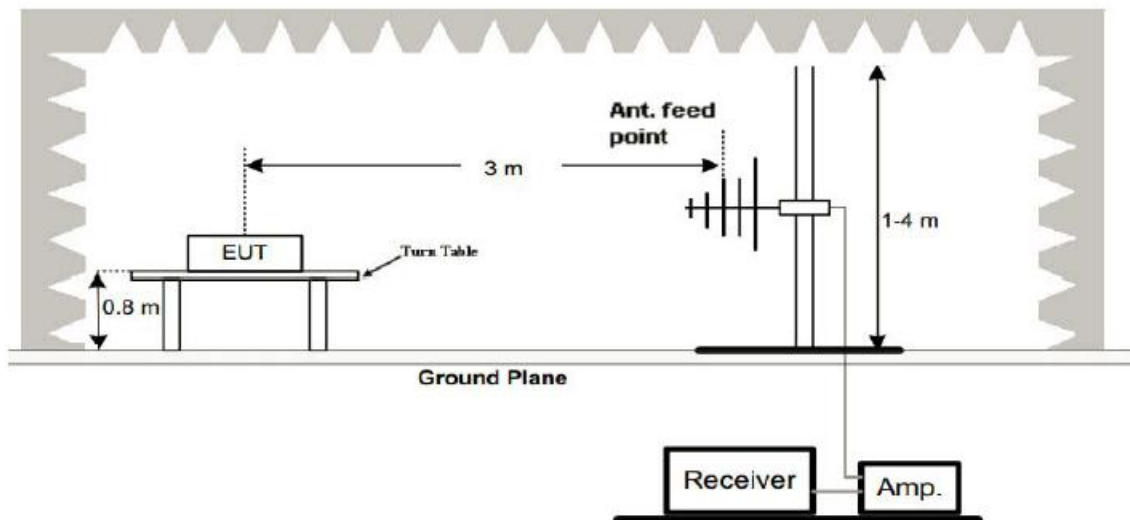


5.2 ANECHOIC CHAMBER TEST SETUP DIAGRAM

(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.



5.3 TEST PROCEDURE

Below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 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 loop antenna and in the center of a loop antenna, which was mounted on the top of a variable-height antenna tower.
- c. For each suspected emission, the EUT was arranged to its worst case, the height of interference-receiving loop antenna centre is 1 meter above the ground, and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- d. Both coaxial (loop plane perpendicular to the ground plane and to the measurement axis) and coplanar (loop plane perpendicular to the ground plane and coplanar with the measurement axis) polarizations of the antenna are set to make the measurement.
- 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

5.4 DEVIATION FROM TEST STANDARD

No deviation



5.5 TEST RESULT

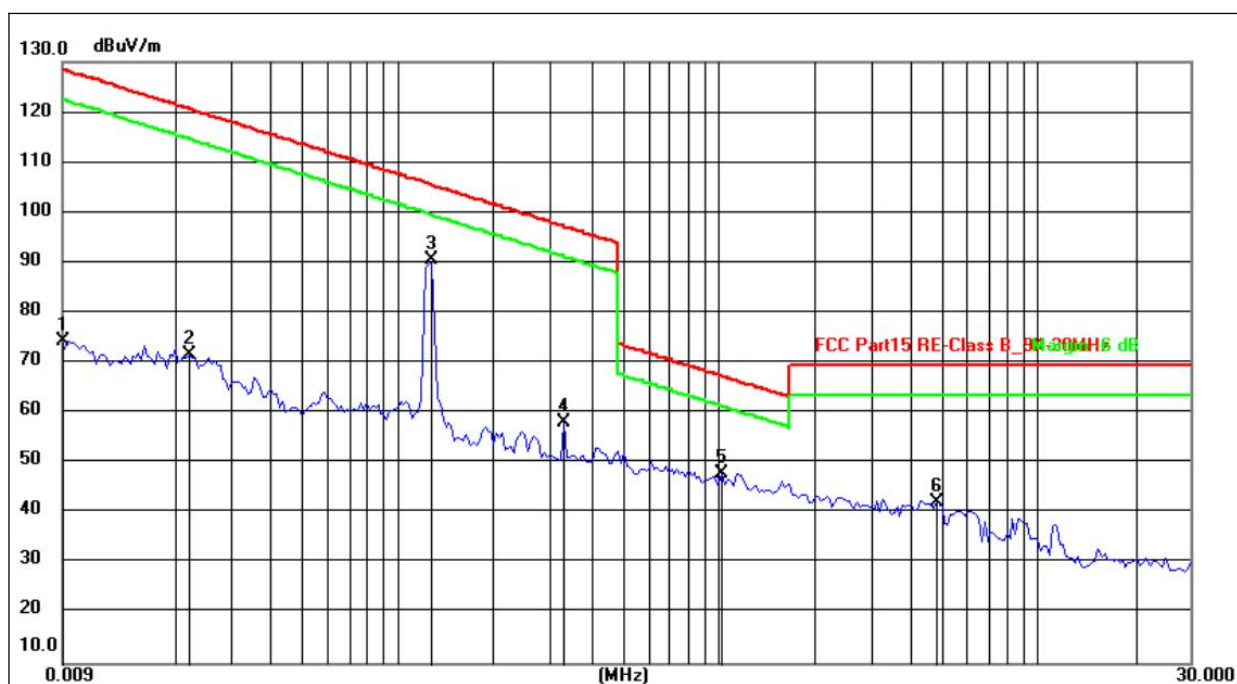
Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

Limit dBuV/m @3m = Limit dBuV/m @30m + 40

A: 9 kHz~30 MHz

Temperature :	26°C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	coaxial
Test Voltage :	DC 12V	Test Mode :	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0091	74.40	0.05	74.45	128.42	-53.97	peak
2	0.0223	51.22	20.40	71.62	120.64	-49.02	peak
3	0.1270	70.64	19.92	90.56	105.53	-14.97	peak
4	0.3326	38.09	20.13	58.22	97.17	-38.95	peak
5	1.0354	28.01	19.94	47.95	67.30	-19.35	peak
6	4.8357	22.64	19.49	42.13	69.54	-27.41	peak

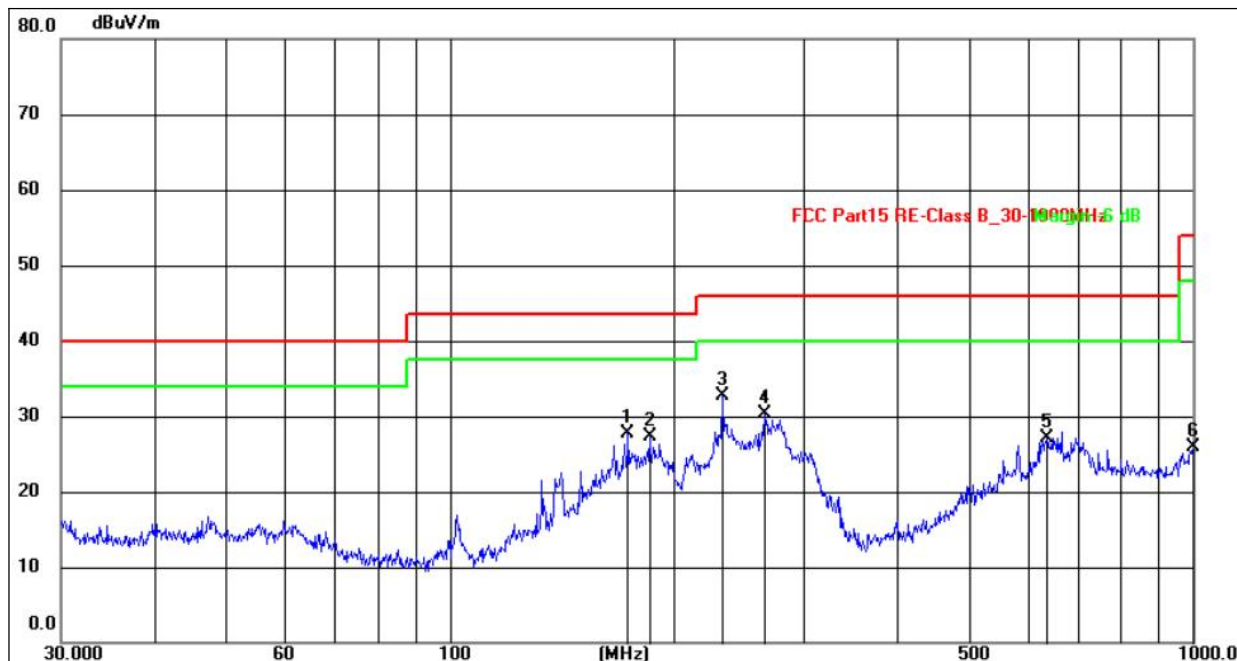
Remarks:

- 1.An initial pre-scan was performed on the peak detector.
- 2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
- 3.Final Level = Reading level + Correct Factor.
- 4.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
- 5.Margin= Measurement Level-Limit.



30MHz-1GHz

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 12V	Test Mode:	Mode 1



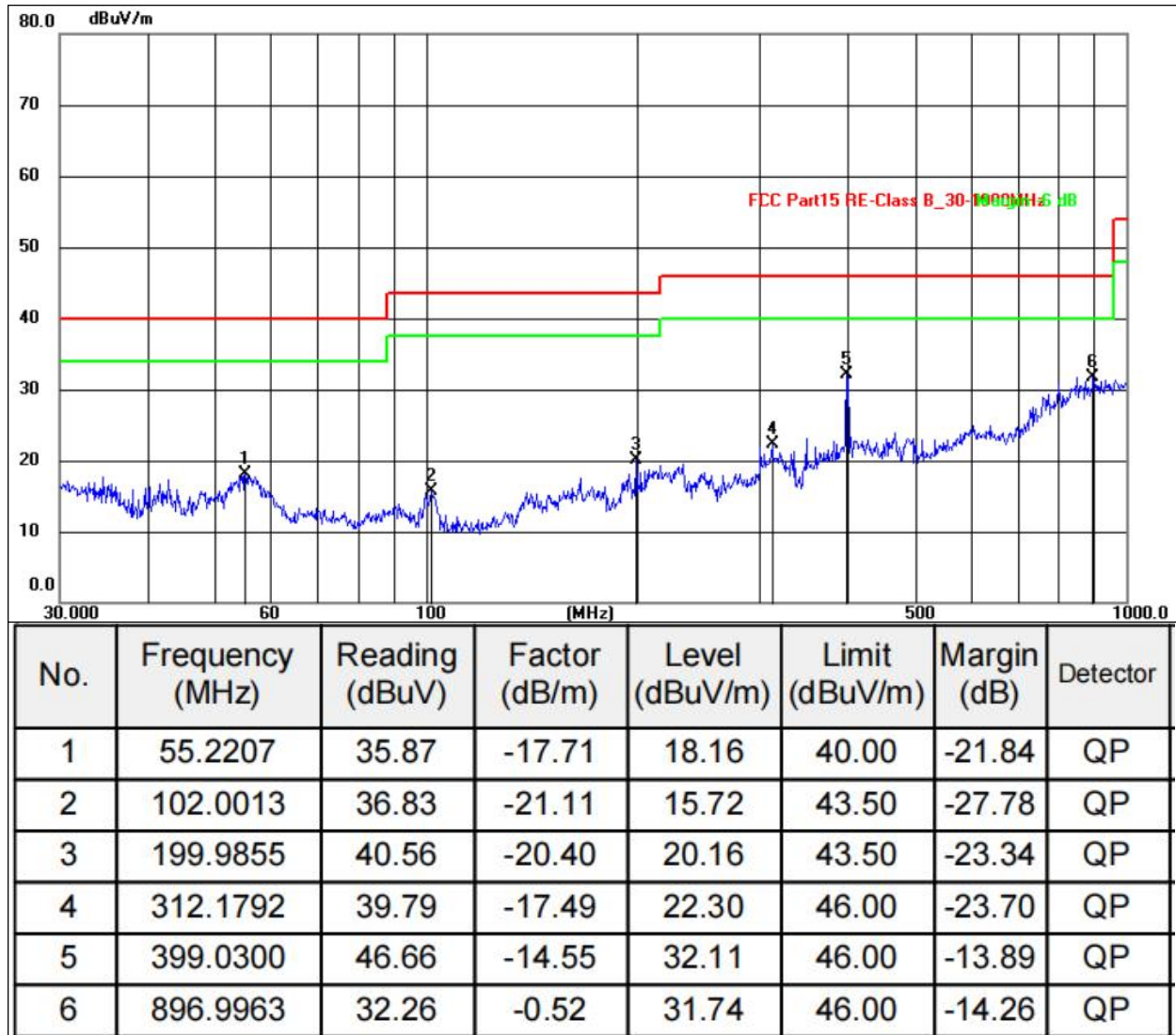
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	173.8135	44.87	-17.08	27.79	43.50	-15.71	QP
2	185.7880	45.25	-17.85	27.40	43.50	-16.10	QP
3	232.5318	49.29	-16.50	32.79	46.00	-13.21	QP
4	265.6757	45.17	-14.82	30.35	46.00	-15.65	QP
5	636.1340	34.75	-7.68	27.07	46.00	-18.93	QP
6	1000.0000	30.37	-4.56	25.81	54.00	-28.19	QP

Remarks:

- 1.An initial pre-scan was performed on the peak detector.
- 2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
- 3.Final Level = Reading level + Correct Factor.
- 4.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
- 5.Margin= Measurement Level-Limit.
- 6.All test modes were tested, with only the worst Mode 1 recorded.



Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 12V	Test Mode:	Mode 1



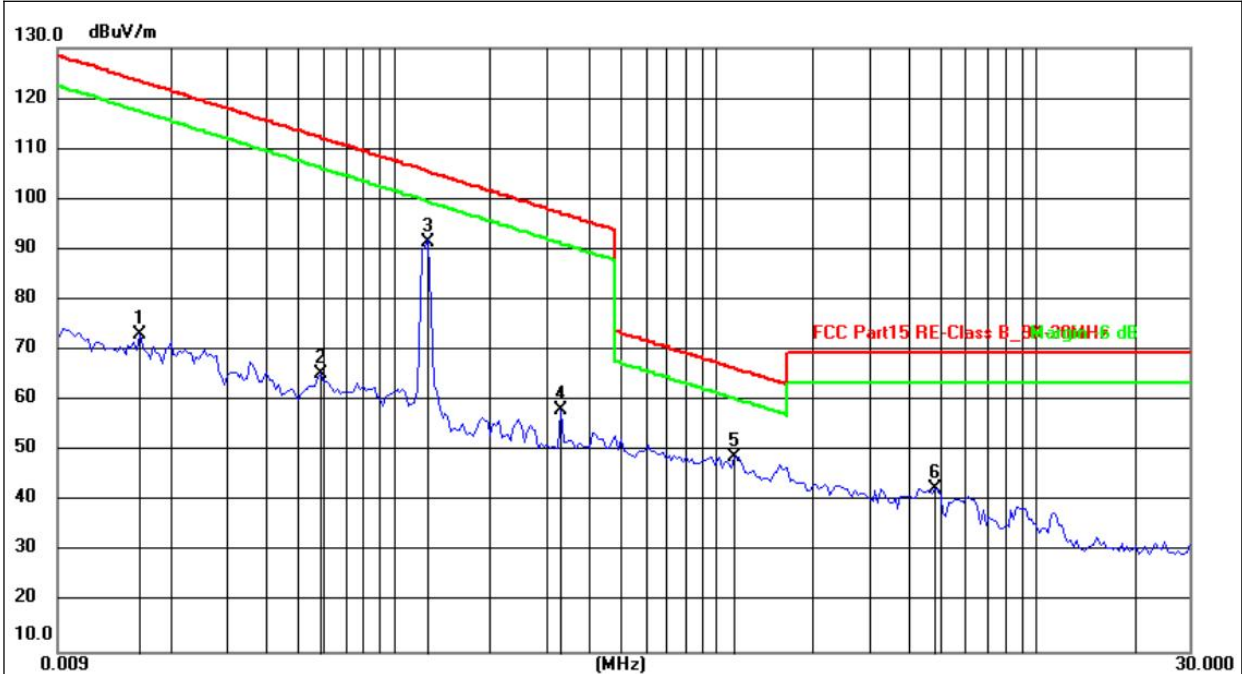
Remarks:

1. An initial pre-scan was performed on the peak detector.
2. Quasi-Peak measurements were performed at the frequencies with maximized peak emission.
3. Final Level = Reading level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss factor - Amplifier factor.
5. Margin = Measurement Level - Limit.
6. All test modes were tested, with only the worst Mode 1 recorded.



B: 9 kHz~30 MHz

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	coaxial
Test Voltage:	DC 3.85V	Test Mode:	Mode 1a



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.0160	52.57	20.49	73.06	123.52	-50.46	peak
2	0.0592	45.44	19.80	65.24	112.16	-46.92	peak
3	0.1270	71.44	19.92	91.36	105.53	-14.17	peak
4	0.3326	38.09	20.13	58.22	97.17	-38.95	peak
5	1.1451	28.99	19.93	48.92	66.43	-17.51	peak
6	4.8357	23.14	19.49	42.63	69.54	-26.91	peak

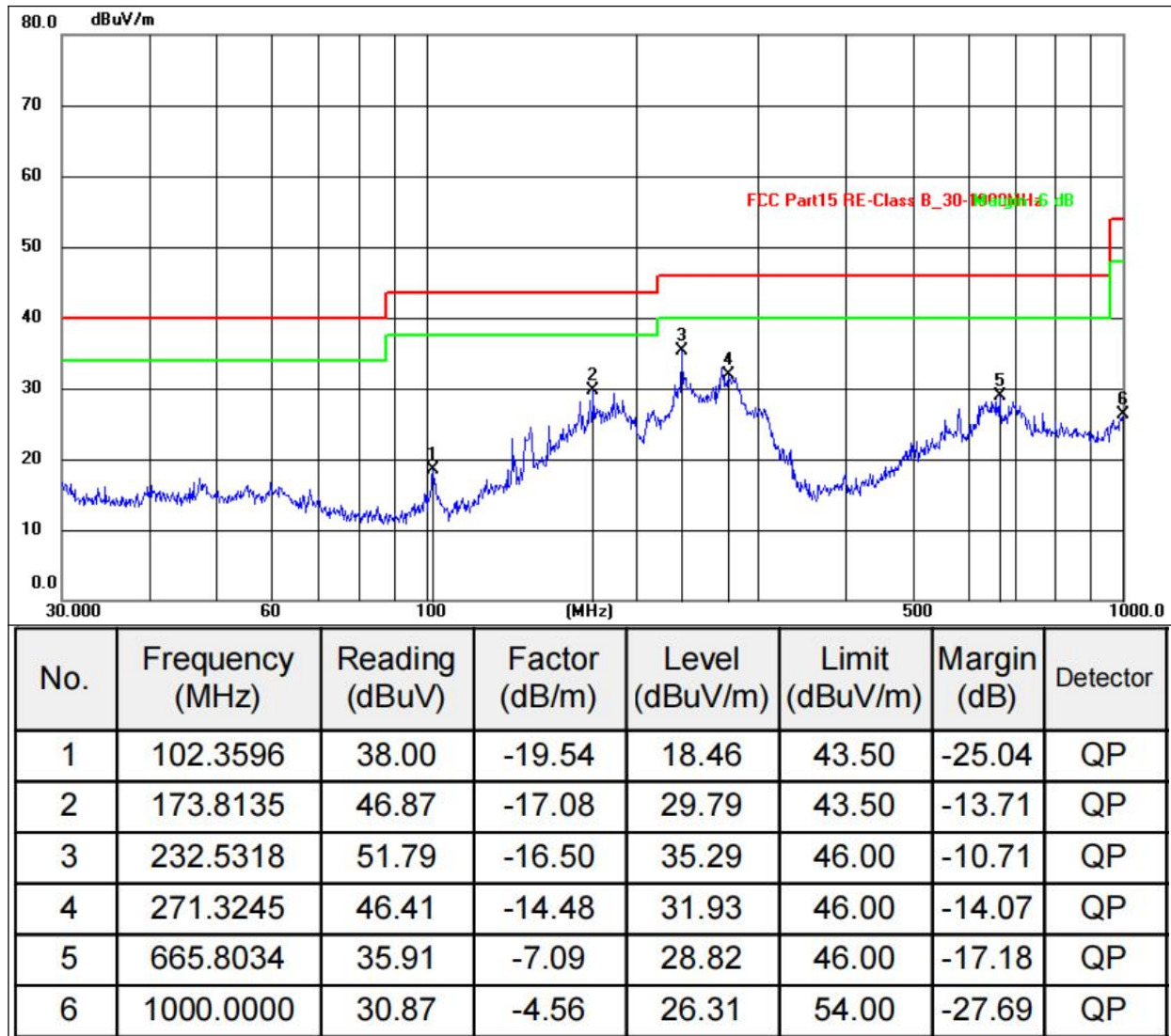
Remarks:

- 1.An initial pre-scan was performed on the peak detector.
- 2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
- 3.Final Level = Reading level + Correct Factor.
- 4.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
- 5.Margin= Measurement Level-Limit.



30MHz-1GHz

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	DC 3.85V	Test Mode:	Mode 1a

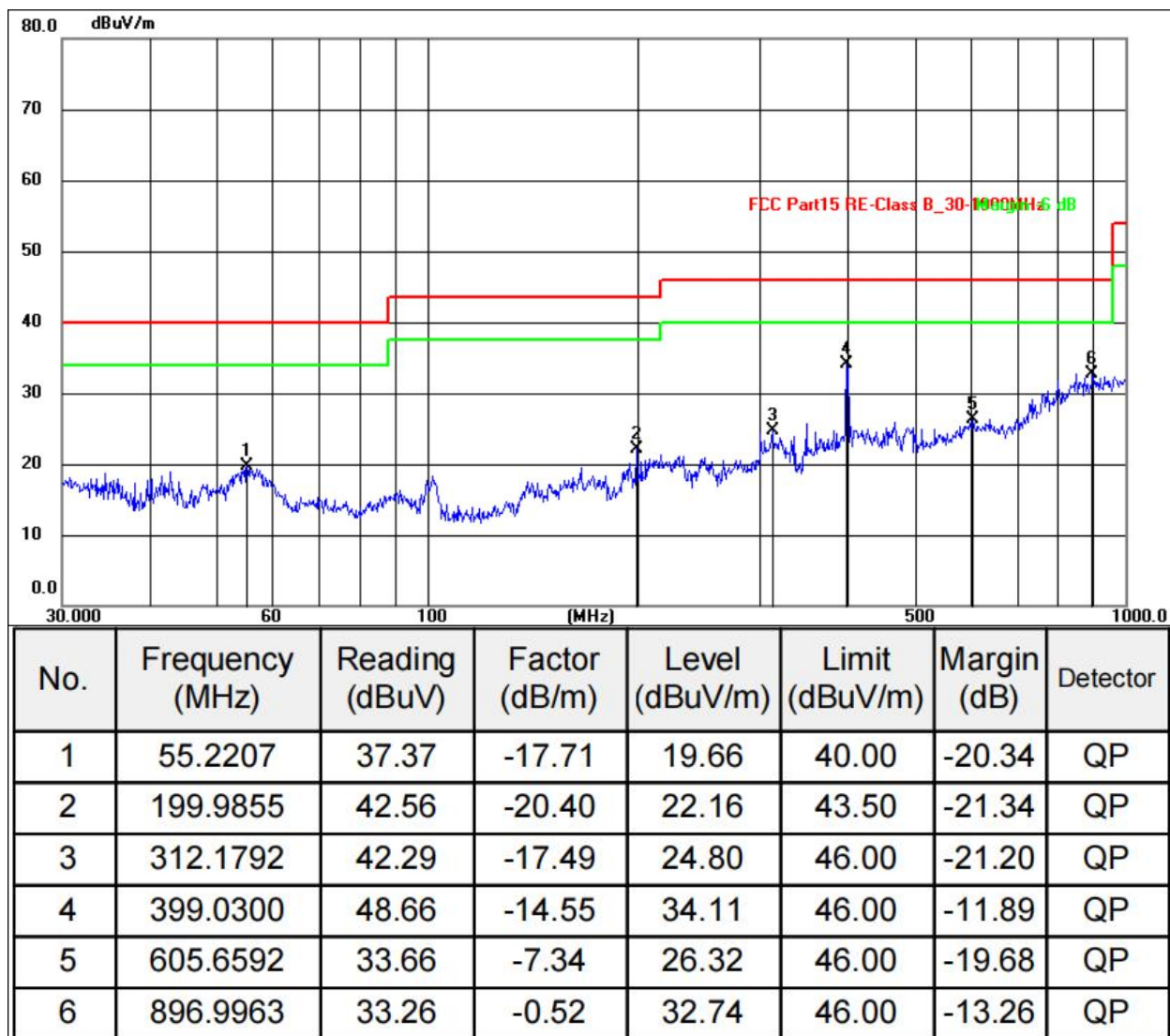


Remarks:

- 1.An initial pre-scan was performed on the peak detector.
- 2.Quasi-Peak measurement were performed at the frequencies with maximized peak emission.
- 3.Final Level = Reading level + Correct Factor.
- 4.Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
- 5.Margin= Measurement Level-Limit.
- 6.All test modes were tested, with only the worst Mode 1a recorded.



Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	DC 3.85V	Test Mode:	Mode 1a



Remarks:

1. An initial pre-scan was performed on the peak detector.
2. Quasi-Peak measurements were performed at the frequencies with maximized peak emission.
3. Final Level = Reading level + Correct Factor.
4. Correct Factor = Antenna factor + Cable loss factor - Amplifier factor.
5. Margin = Measurement Level - Limit.
6. All test modes were tested, with only the worst Mode 1a recorded.



6. 20DB BANDWIDTH TEST

6.1 TEST PROCEDURE

1. Se span = 1.5 ~ 5 times OBW.
2. Set RBW = 1%~5% OBW.
3. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
4. Detector = peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

6.2 LIMIT

N/A

6.3 TEST SETUP



6.4 DEVIATION FROM STANDARD

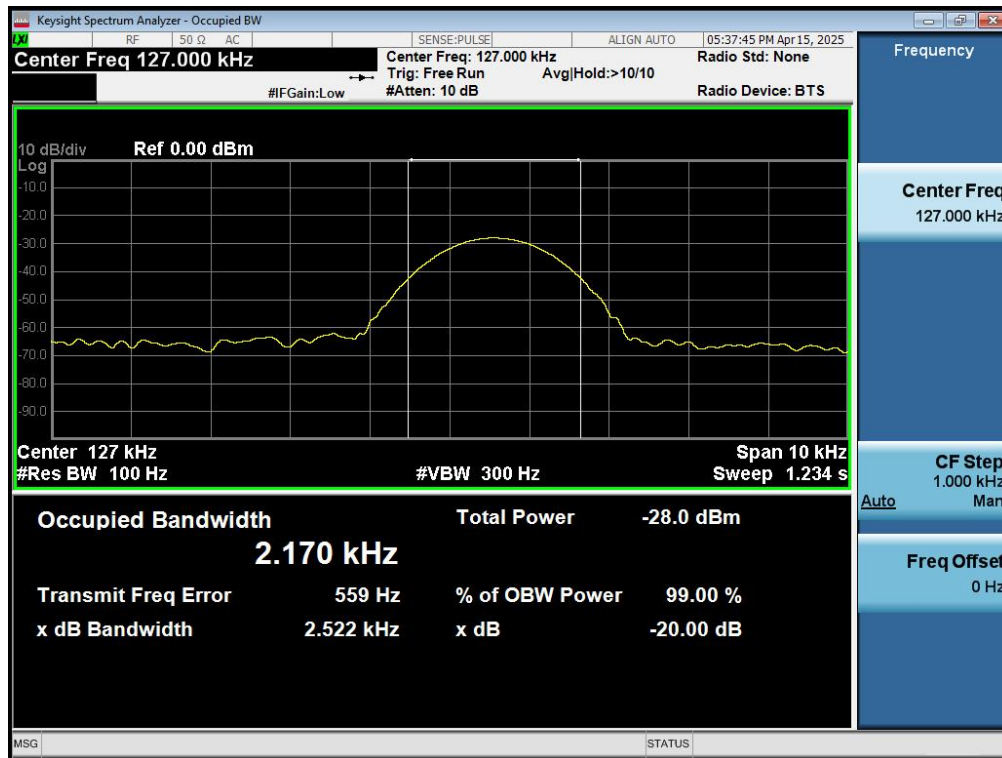
No deviation.



6.5 TEST RESULT

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Test Voltage:	DC 3.85V

Test Coil	Frequency (kHz)	20dB Bandwidth (kHz)	Result
ANT 1	127.00	2.522	Pass





7. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
EUT Antenna:	
The antenna is Loop Coil antenna, the best case gain of the antennas is 0dBi, reference to the appendix II for details	



8. TEST SETUP PHOTO

Reference to the appendix I for details.

9. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

***** END OF REPORT *****