



FCC TEST REPORT

FCC ID:2BDGR-KD-662

On Behalf of

Shenzhen Katieworld Electronic Technology Co., Ltd

GPS pet electronic fence

Model No.: KD-662

Prepared for : Shenzhen Katieworld Electronic Technology Co., Ltd
Address : Floor 2, Building 33, Baotian Industrial Zone, Chengtian Community,
Xixiang Street, Baoan District, Shenzhen China

Prepared By : Shenzhen PSI Testing Co., Ltd.
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TEST REPORT DECLARATION


Applicant : Shenzhen Katieworld Electronic Technology Co., Ltd
 Address : Floor 2, Building 33, Baotian Industrial Zone, Chengtian Community, Xixiang Street, Baoan District, Shenzhen China
 Manufacturer : Shenzhen Katieworld Electronic Technology Co., Ltd
 Address : Floor 2, Building 33, Baotian Industrial Zone, Chengtian Community, Xixiang Street, Baoan District, Shenzhen China
 EUT Description : GPS pet electronic fence
 (A) Model No. : KD-662
 (B) Trademark : N/A


Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart B Class B, ANSI C63.4:2014

The device described above is tested by Shenzhen PSI Testing Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The test results are contained in this test report and Shenzhen PSI Testing Co., Ltd. is assumed full responsibility for the accuracy and completeness of test. Also, this report shows that the EUT is technically compliant with the FCC Part15 requirements.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen PSI Testing Co., Ltd.

Tested by (name + signature).....: Jensen Wang
 Test Engineer 

Approved by (name + signature).....: Simple Guan
 Project Manager 

Date of issue.....: November 07, 2023

Revision History

Revision	IssueDate	Revisions	Revised By
REV0	November 07, 2023	Initial released Issue	Jensen Wang



1. General Information

1.1. Description of Device (EUT)

Product Name : GPS pet electronic fence

Model Number : KD-662

Diff : N/A

Highest Frequency : Less than 3GHz

EUT information : Input: AC 120V/60Hz or DC 3.7V from battery

Trademark : N/A

Software version : V1.0

Hardware version : V1.0

Note: 1.EUT only has GPS reception function and no other transmission function.

2. Built-in battery information: 3.7V 1500mAh 5.55wh

1.2. Accessories of Device (EUT)

Power Source	:	Adapter
Manufacturer	:	Shenzhen Katieworld Electronic Technology Co., Ltd
Model	:	HYM807-0501
Ratings	:	Input: AC 100-240V, 50/60Hz Output: DC 5V 1A

1.3. Tested Supporting System Details

No.	Description	Manufacturer	Model	Serial Number	Certification or SDOC
1	/	/	/	/	/
2	/	/	/	/	/
3	/	/	/	/	/
4	/	/	/	/	/

1.4. Block Diagram of Connection Between EUT and Simulators



Signal Cable Description of the above Support Units

No.	Port Name	Cable	Length	Shielded (Yes or No)	Detachable (Yes or No)
(a)	/	/	/	/	/
	/	/	/	/	/

2. Summary of Standards And Results

2.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

EMISSION			
Description of Test Item	Standard	Limits	Results
Power Line Conducted Emission Test	FCC Part 15.107 ANSI C63.4:2014	Class B	P
Radiated Emission Test	FCC Part 15.109 ANSI C63.4:2014	Class B	P

Note:

1. P is an abbreviation for Pass.
2. F is an abbreviation for Fail.
3. N/A is an abbreviation for Not Applicable.
4. Conclusion determination rules of this report: Unless there are clear provisions on measurement uncertainty in the standard or customer requirements, decision by actual test data without considering measurement uncertainty.

2.2. Test Mode Description

For Power Line Conducted Emission Test		
Mode No.	Test Mode	Test Voltage
※1.	GPS mode	AC 120V/60Hz
2.	Standby	AC 120V/60Hz

Note: ※is worst case mode, and this report only reflected the worst case mode.

For Radiated Emission Test		
Mode No.	Test Mode	Test Voltage
※1.	GPS mode	AC 120V/60Hz
2.	Standby	AC 120V/60Hz
3	GPS mode	DC 3.7V from battery
4	Standby	DC 3.7V from battery

Note: ※is worst case mode, and this report only reflected the worst case mode.

2.3. Test Equipment List

For Power Line Conducted Emission Test Equipment:							
Item	Equipment	Manufacturer	Model No.	Serial No.	Firmware Version	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde&Schwarz	ESCI 7	101032/003	4.42 SP3	2022.12.30	1 Year
2.	L.I.S.N.	Rohde&Schwarz	ENV 216	102282	/	2022.12.30	1 Year
3.	L.I.S.N.	RFT	NNB111	13835240	/	2023.05.04	1 Year

For Frequency Range 30MHz~1GHz Radiated Emission Test Equipment:							
Item	Equipment	Manufacturer	Model No.	Serial No.	Firmware Version	Last Cal.	Cal. Interval
1.	9*6*6 anechoic chamber	SKET	9*6*6	/	/	2022.12.20	3 Year
2.	Test Receiver	Rohde&Schwarz	ESCI 7	101032/003	4.42 SP3	2022.12.30	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB 9168	01448	/	2022.12.26	2 Year
4.	6dB Fixed Attenuator	SKET	AP_DC01G-2W-N-6dB	SK2020053101	/	2022.12.30	1 Year

For Frequency Range above 1GHz Radiated Emission Test Equipment:							
Item	Equipment	Manufacturer	Model No.	Serial No.	Firmware Version	Last Cal.	Cal. Interval
1.	9*6*6 anechoic chamber	SKET	9*6*6	/	/	2022.12.20	3 Year
2.	Spectrum Analyzer	Rohde&Schwarz	FSV-40N	101648	3.70	2022.12.30	1 Year
3.	Horn Antenna	Schwarz beck	BBHA 9120 D	02706	/	2022.12.26	2 Year
4.	Amplifier	SKET	LAPA_01G18G-45dB	SK2022032901	/	2023.12.30	1 Yea

For Test Software Information			
Item	Software Name	Manufacturer	Version
RE	EZ-EMC	Farad	PSI-3A1
CE	EZ-EMC	Farad	PSI-3A1

2.4. Test Facility

Shenzhen PSI Testing Co., Ltd.

1-2F, Building 5, Yudafu Industrial Park, No. 10, Xingye West Road, Shajing Street, Bao'an District, Shenzhen, Guangdong, China 518104

September 13, 2023 File on Federal Communication Commission

Registration Number: 916281

2.5. Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.17dB
Uncertainty for Radiation Emission test(<1G)	2.74 dB (Distance: 3m Polarize: V)
	2.76 dB (Distance: 3m Polarize: H)
Uncertainty for Radiation Emission test(1G~6G)	4.02 dB
Uncertainty for Radiation Emission test(6G~18G)	4.30 dB
(95% confidence levels, k=2)	

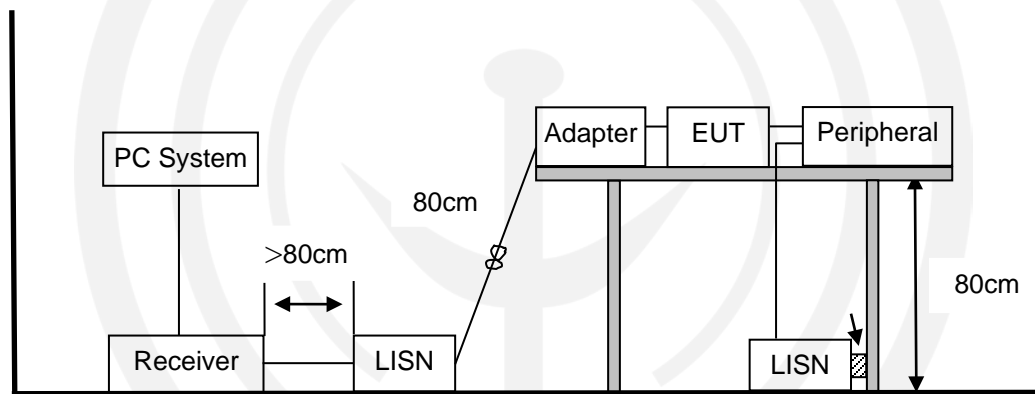
3. Power Line Conducted Emission Test

3.1. Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

- Notes:
1. Emission level=Read level+LISN factor-Preamplifier factor+Cable loss
 2. *Decreasing linearly with logarithm of frequency.
 3. The lower limit shall apply at the transition frequencies.

3.2. Block Diagram of Test Setup



3.3. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4. Operating Condition of EUT

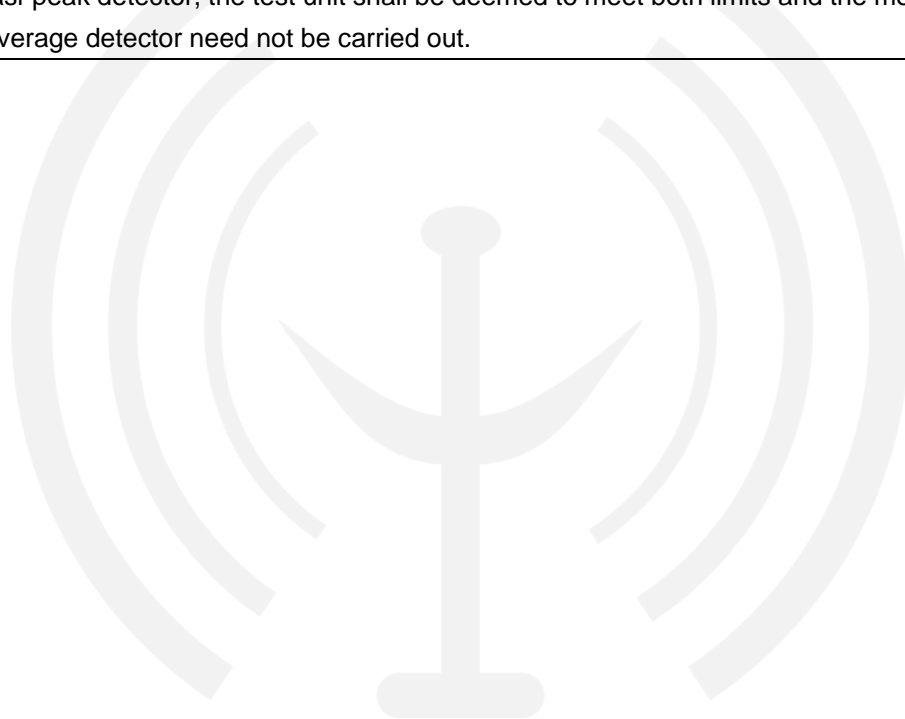
- (1) Setup the EUT as shown as Section 3.2.
- (2) Turn on the power of all equipment.
- (3) Let the EUT work in test mode and 15 minutes before taking the test.

3.5. Test Procedure

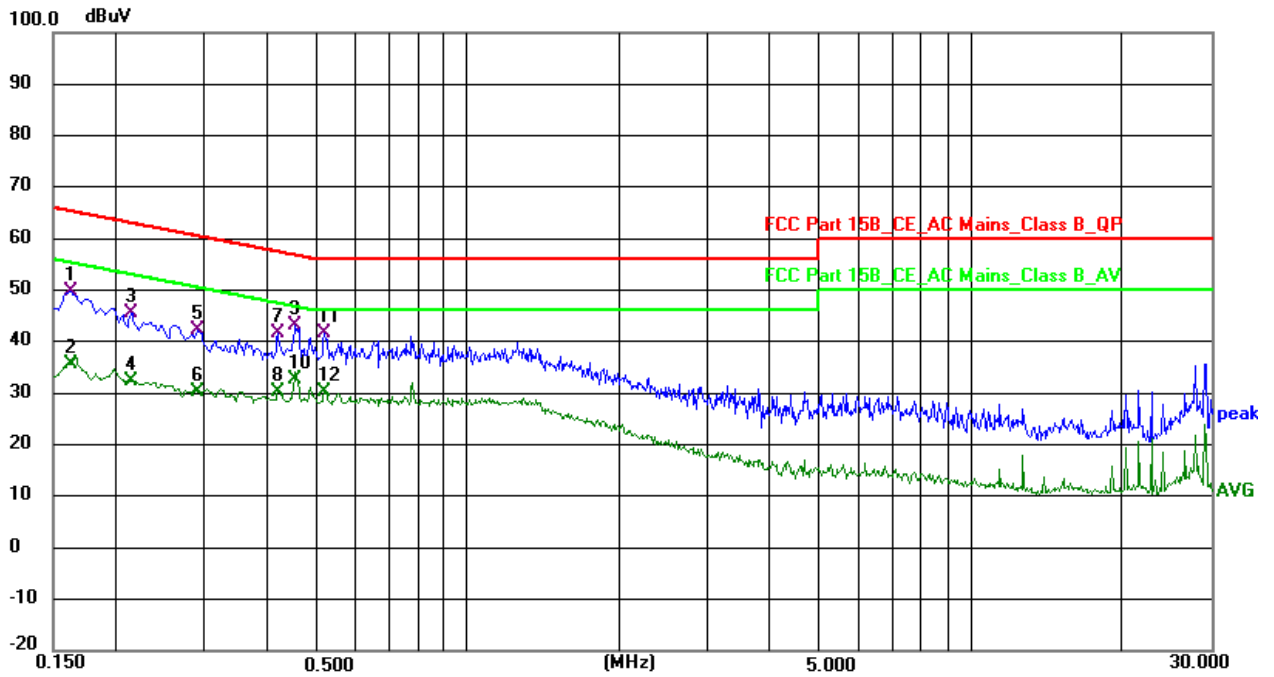
- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N.#2). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4:2014 on conducted Emission test.
- (2) The frequency range from 150kHz to 30MHz is checked, the bandwidth of test receiver (R&S TEST RECEIVER ESCI) is set at 9kHz.

3.6. Test Results

Test Date : 2023.11.03	Temperature : 24°C
Test Engineer : Jensen Wang	Humidity : 56%
M/N : KD-662	
Test Mode : Mode 1	
Test Results : PASS	
Note: 1. The test results are listed in next pages. 2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. 3. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.	

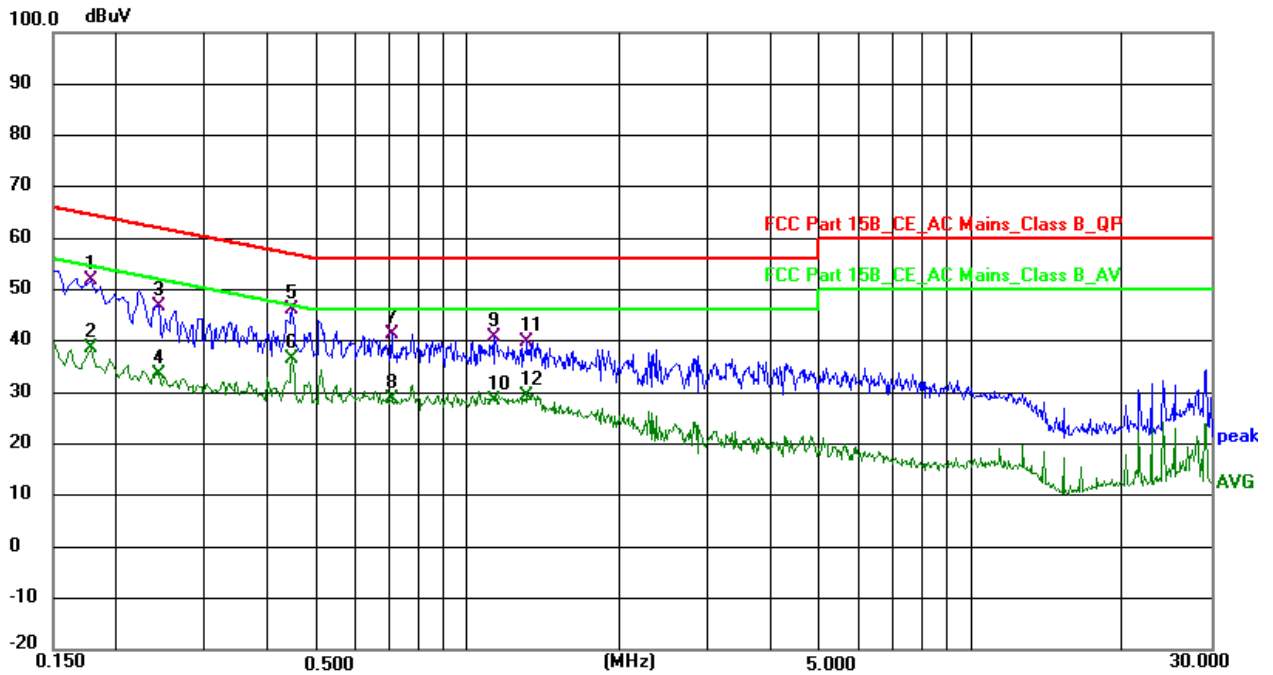


Polarity: N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1620	39.83	9.84	49.67	65.36	-15.69	QP	P
2	0.1620	25.87	9.84	35.71	55.36	-19.65	AVG	P
3	0.2140	35.57	10.01	45.58	63.05	-17.47	QP	P
4	0.2140	22.29	10.01	32.30	53.05	-20.75	AVG	P
5	0.2900	32.43	9.81	42.24	60.52	-18.28	QP	P
6	0.2900	20.49	9.81	30.30	50.52	-20.22	AVG	P
7	0.4180	32.14	9.59	41.73	57.49	-15.76	QP	P
8	0.4180	20.68	9.59	30.27	47.49	-17.22	AVG	P
9 *	0.4540	33.40	9.67	43.07	56.80	-13.73	QP	P
10	0.4540	22.92	9.67	32.59	46.80	-14.21	AVG	P
11	0.5180	31.91	9.78	41.69	56.00	-14.31	QP	P
12	0.5180	20.36	9.78	30.14	46.00	-15.86	AVG	P

Polarity: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1780	41.81	9.95	51.76	64.58	-12.82	QP	P
2	0.1780	28.58	9.95	38.53	54.58	-16.05	AVG	P
3	0.2420	36.92	9.97	46.89	62.03	-15.14	QP	P
4	0.2420	23.69	9.97	33.66	52.03	-18.37	AVG	P
5	0.4460	36.40	9.75	46.15	56.95	-10.80	QP	P
6 *	0.4460	26.68	9.75	36.43	46.95	-10.52	AVG	P
7	0.7060	31.86	9.43	41.29	56.00	-14.71	QP	P
8	0.7060	19.42	9.43	28.85	46.00	-17.15	AVG	P
9	1.1300	31.27	9.41	40.68	56.00	-15.32	QP	P
10	1.1300	19.16	9.41	28.57	46.00	-17.43	AVG	P
11	1.3099	30.40	9.40	39.80	56.00	-16.20	QP	P
12	1.3099	19.89	9.40	29.29	46.00	-16.71	AVG	P

4. Radiated Emission Test

4.1. Test Limit

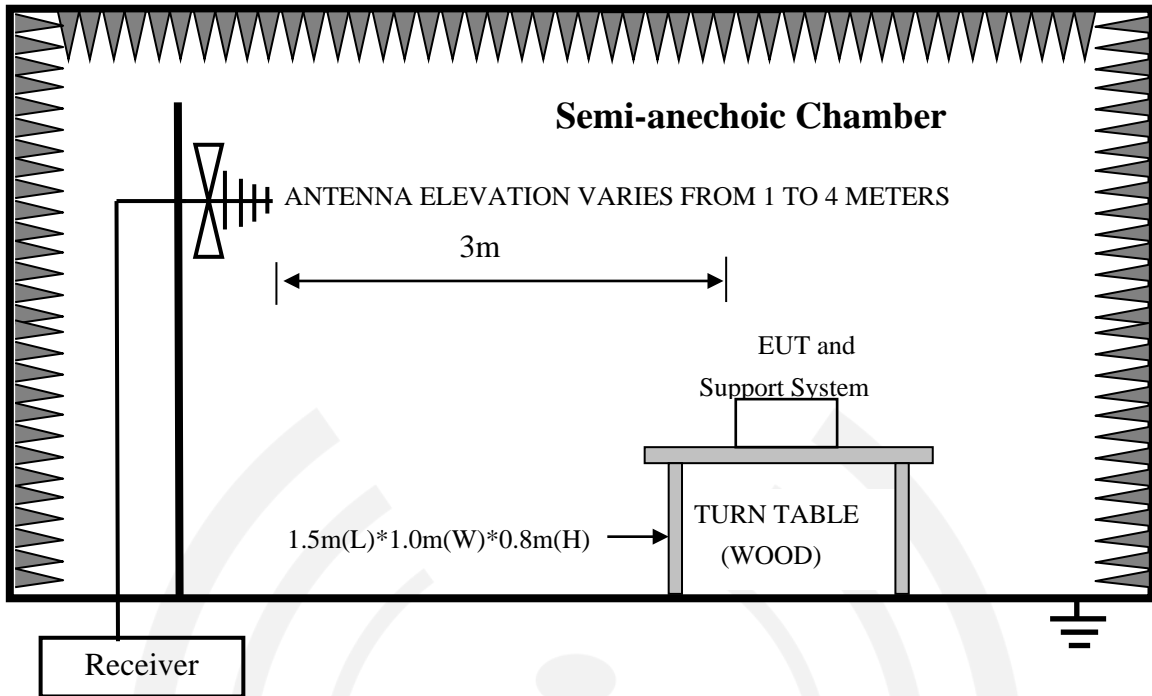
Frequency MHz			Distance (Meters)	Limits dB(μ V)
30	~	88	3	40.0
88	~	216	3	43.5
216	~	960	3	46.0
960	~	1000	3	54.0
Above 1GHz			3	74(Peak) 54(Average)

- Notes:
1. The smaller limit shall apply at the cross point between two frequency bands.
 2. Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
 3. Frequency range of radiated measurements:

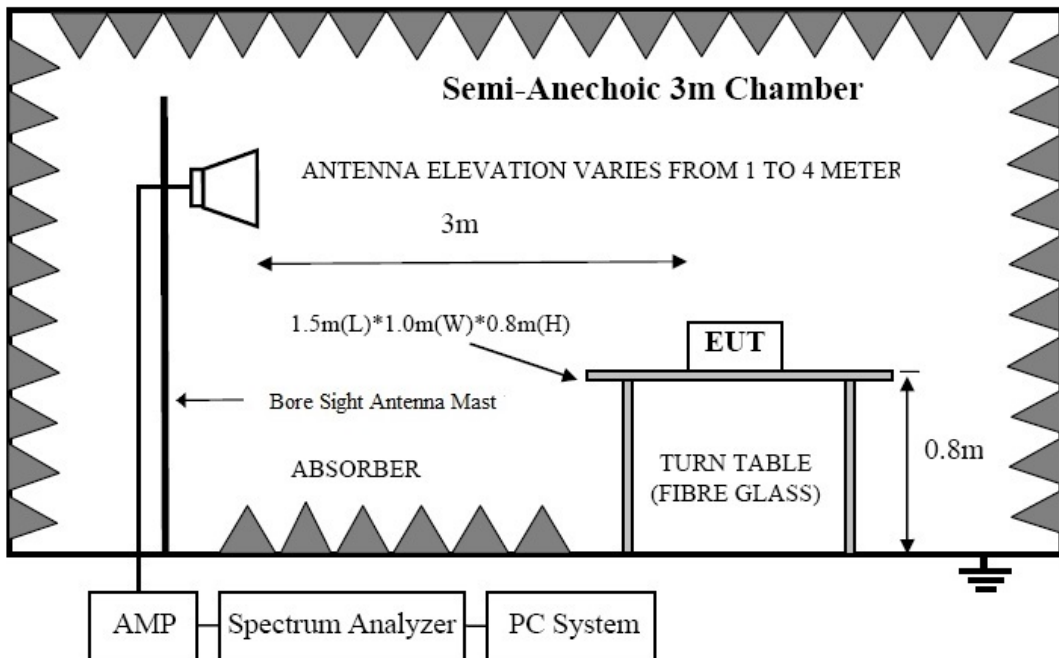
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

4.2. Block Diagram of Test Setup

In Semi Anechoic Chamber (3m) Test Setup Diagram for 30MHz~1000MHz



In Semi Anechoic Chamber (3m) Test Setup Diagram for Above 1GHz



4.3. Configuration of EUT on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner that tends to maximize its emission characteristics in normal application.

4.4. Operating Condition of EUT

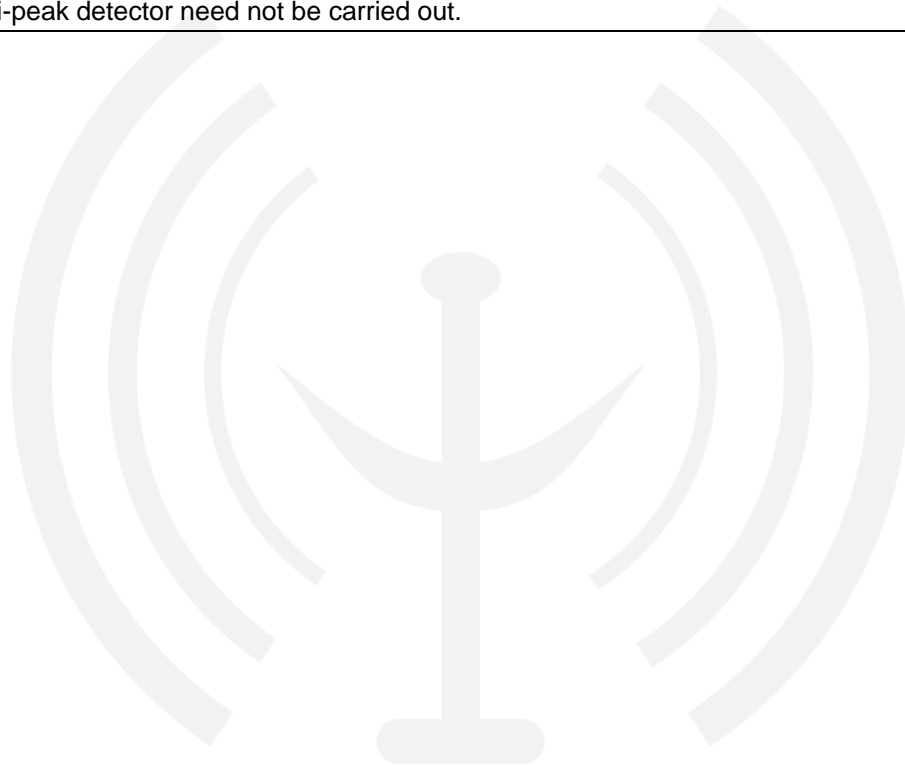
- (1) Setup the EUT as shown as Section 4.2.
- (2) Turn on the power of all equipment.
- (3) Let the EUT work in test mode and 15 minutes before taking the test.

4.5. Test Procedure

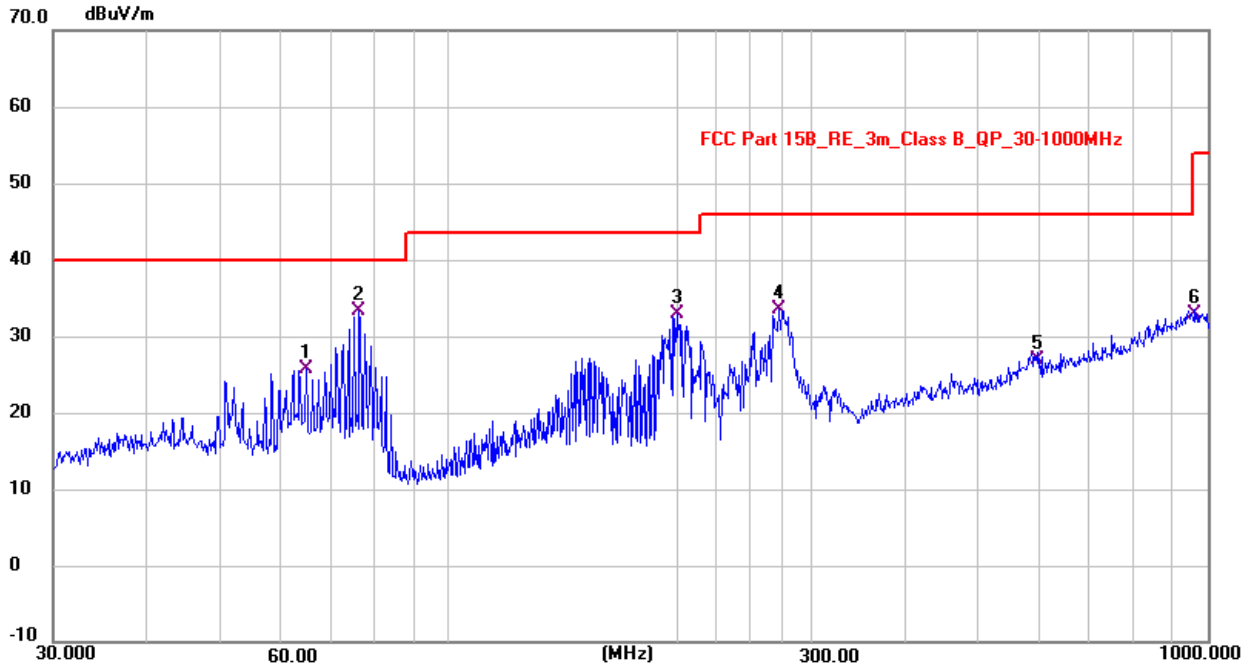
- (1) The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4:2014 on Radiated Emission test.
- (2) For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- (3) The frequency range from 30MHz to 1000MHz is checked, the bandwidth of test receiver (R&S TEST RECEIVER ESR) is set at 120kHz.
- (4) The frequency range from above 1GHz is checked, the bandwidth of spectrum analyzer (Analyzer Spectrum Analyzer FSV-40N) is set at 1MHz.
- (5) The frequency range from 30MHz to 1000MHz was pre-scanned with a peak detector and all final readings of measurement from Test Receiver are Quasi-Peak values, the frequency range above 1GHz was pre-scanned with a peak detector and all final readings of measurement from Spectrum Analyzer are peak and average values checked, all measurement distance is 3m in 3m semi anechoic chamber.

4.6. Test Results

Frequency Range	: 30MHz~1000MHz		
Test Date	: 2023.11.03	Temperature	: 24°C
Test Engineer	: Jensen Wang	Humidity	: 56%
M/A	: KD-662		
Test Mode	: Mode 1		
Test Results	: PASS		
Note:	1. The test results are listed in next pages. 2. If the limits for the measurement with the quasi-peak detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet limits and the measurement with the quasi-peak detector need not be carried out.		

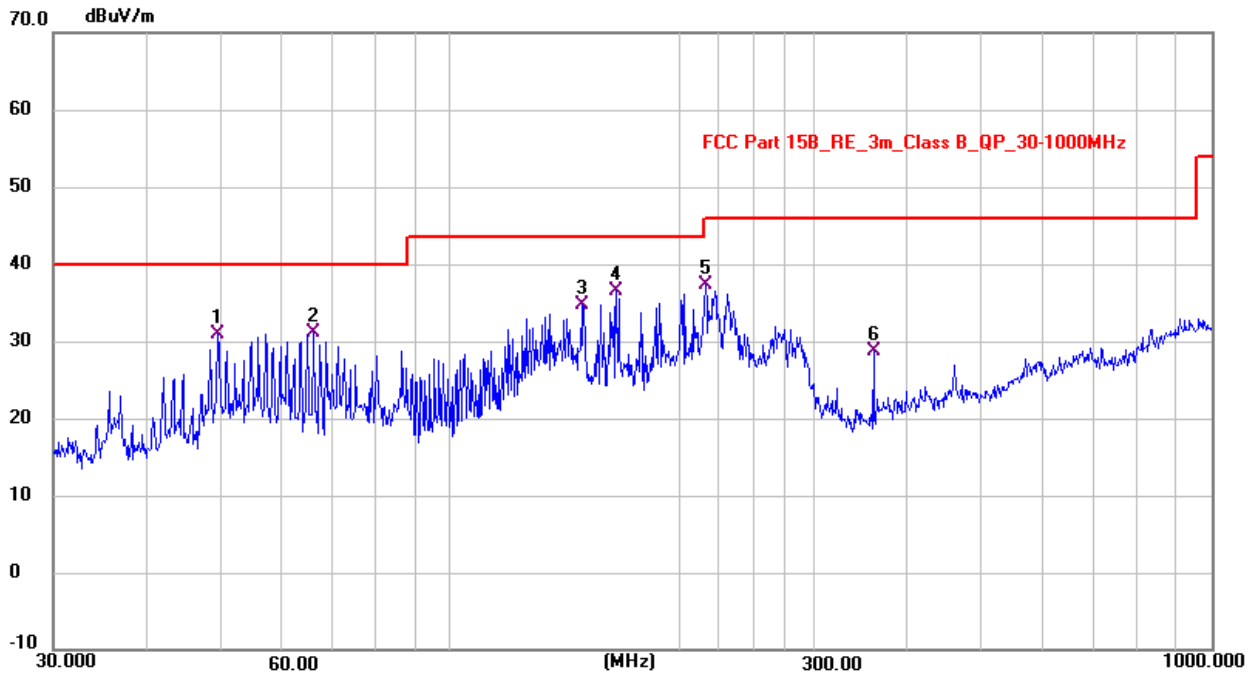


Antenna polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1	64.7728	13.97	11.64	25.61	40.00	-14.39	QP	100	360	P
2 *	76.2108	23.87	9.45	33.32	40.00	-6.68	QP	100	360	P
3	199.4601	22.78	10.06	32.84	43.50	-10.66	QP	100	360	P
4	272.9945	20.43	13.00	33.43	46.00	-12.57	QP	100	360	P
5	599.0586	6.31	20.67	26.98	46.00	-19.02	QP	100	360	P
6	962.1622	7.73	25.23	32.96	54.00	-21.04	QP	100	360	P

Antenna polarity: Vertical

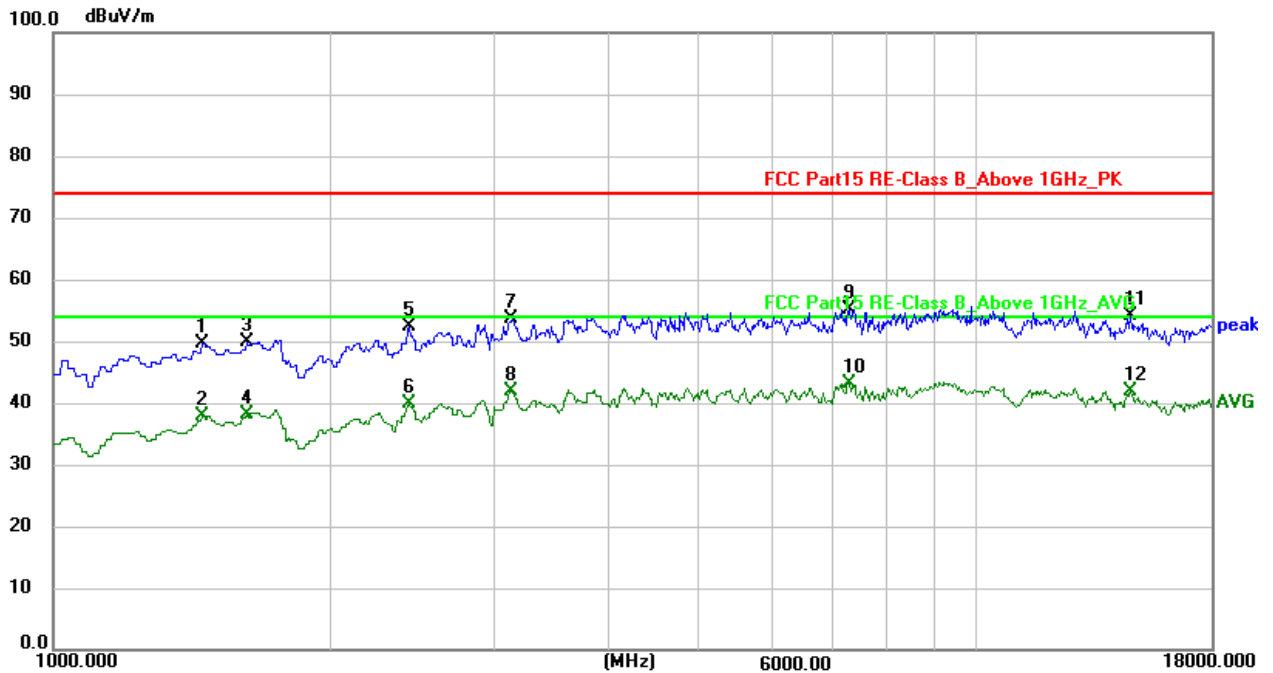


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1	49.5328	17.64	13.22	30.86	40.00	-9.14	QP	100	0	P
2	66.0921	19.67	11.51	31.18	40.00	-8.82	QP	100	0	P
3	148.5712	21.70	13.01	34.71	43.50	-8.79	QP	100	0	P
4 *	165.1244	23.72	12.75	36.47	43.50	-7.03	QP	100	0	P
5	216.1186	26.70	10.60	37.30	46.00	-8.70	QP	100	0	P
6	360.1319	13.55	15.18	28.73	46.00	-17.27	QP	100	0	P

Frequency Range	: Above 1GHz		
Test Date	: 2023.11.03	Temperature	: 24°C
Test Engineer	: Jensen Wang	Humidity	: 56%
M/N	: KD-662		
Test Mode	: Mode 1		
Test Results	: PASS		
Note:	1. The test results are listed in next pages. 2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out.		

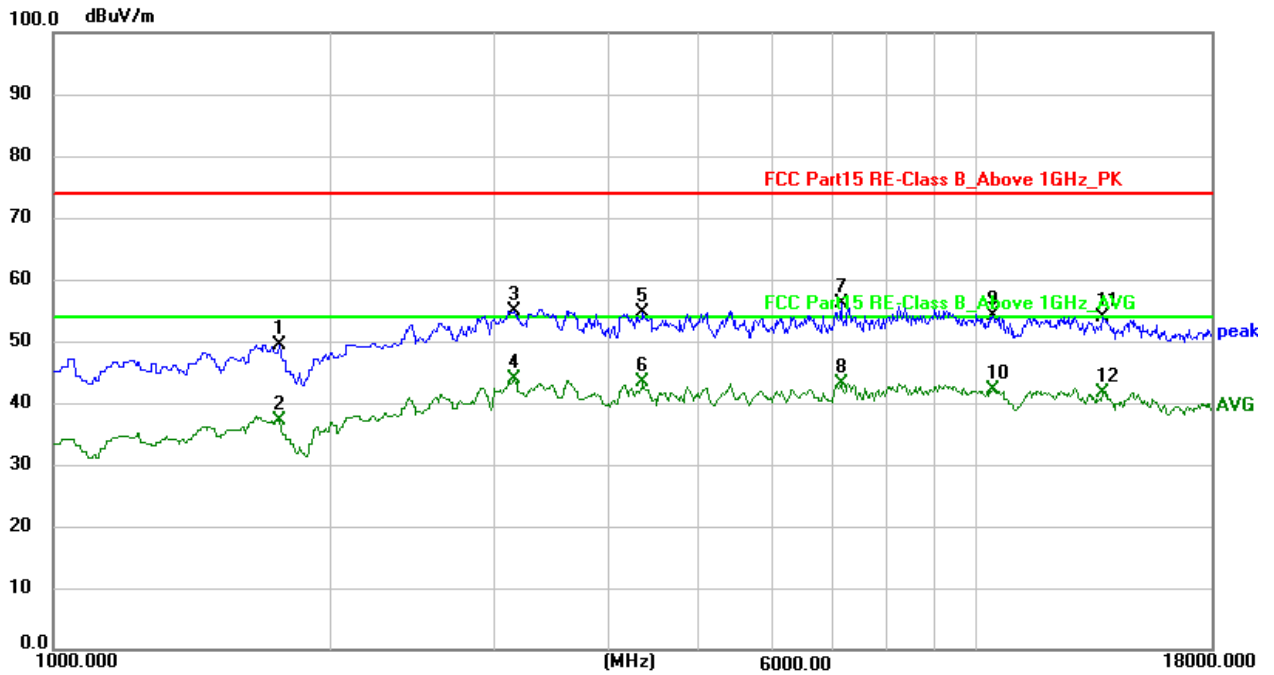


Antenna polarity: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1447.688	77.21	-27.47	49.74	74.00	-24.26	peak
2	1447.688	65.39	-27.47	37.92	54.00	-16.08	AVG
3	1620.431	77.34	-27.43	49.91	74.00	-24.09	peak
4	1620.431	65.50	-27.43	38.07	54.00	-15.93	AVG
5	2428.671	78.28	-26.00	52.28	74.00	-21.72	peak
6	2428.671	65.89	-26.00	39.89	54.00	-14.11	AVG
7	3141.144	77.48	-23.94	53.54	74.00	-20.46	peak
8	3141.144	65.71	-23.94	41.77	54.00	-12.23	AVG
9	7273.000	69.03	-13.85	55.18	74.00	-18.82	peak
10 *	7273.000	56.88	-13.85	43.03	54.00	-10.97	AVG
11	14685.000	62.39	-8.37	54.02	74.00	-19.98	peak
12	14685.000	50.16	-8.37	41.79	54.00	-12.21	AVG

Antenna polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1757.026	76.83	-27.38	49.45	74.00	-24.55	peak
2	1757.026	64.45	-27.38	37.07	54.00	-16.93	AVG
3	3159.000	78.87	-23.90	54.97	74.00	-19.03	peak
4 *	3159.000	67.74	-23.90	43.84	54.00	-10.16	AVG
5	4349.000	78.98	-24.28	54.70	74.00	-19.30	peak
6	4349.000	67.66	-24.28	43.38	54.00	-10.62	AVG
7	7137.000	70.12	-13.97	56.15	74.00	-17.85	peak
8	7137.000	57.06	-13.97	43.09	54.00	-10.91	AVG
9	10418.000	65.43	-11.18	54.25	74.00	-19.75	peak
10	10418.000	53.27	-11.18	42.09	54.00	-11.91	AVG
11	13716.000	62.45	-8.50	53.95	74.00	-20.05	peak
12	13716.000	50.06	-8.50	41.56	54.00	-12.44	AVG

5. Photos of test setup

Reference to the **appendix I Test Setup Photo** for details.

6. Photos of EUT

Reference to the **appendix II external photos** and **appendix III internal photos** for details.

----- END OF REPORT-----

