



FCC TEST REPORT

FCC ID: 2BOV9-RA01SA

On Behalf of

Shenzhen Huixing Electronics Co., Ltd

clock radio

Model No.: RA01SA, RA01

Prepared for : Shenzhen Huixing Electronics Co., Ltd
Address : Room701, Second Unit, Building 1, Fuqian Road, Fumin Community,
Fucheng Street, Longhua District, Shenzhen, China

Prepared By : Shenzhen PSI Testing Co., Ltd.
Address : 1-2/F., Building 5, Yudafu Industrial Park, No.10, Xingye West Road,
Shajing Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Report Number : psi2504024-C01-R01
Date of Receipt : April 3, 2025
Date of Test : April 4, 2025- April 13, 2025
Date of Report : April 13, 2025
Version Number : V0

TABLE OF CONTENTS

Description	Page
1. General Information	5
1.1. Description of Device (EUT)	5
1.2. Accessories of Device (EUT)	5
1.3. Tested Supporting System Details	6
1.4. Block Diagram of Connection Between EUT and Simulators	6
2. Summary of Standards And Results	7
2.1. Description of Standards and Results.....	7
2.2. Test Mode Description.....	8
2.3. Test Equipment List	9
2.4. Test Facility	10
2.5. Measurement Uncertainty	10
3. Power Line Conducted Emission Test	11
3.1. Test Limits	11
3.2. Block Diagram of Test Setup.....	11
3.3. Configuration of EUT on Test.....	12
3.4. Operating Condition of EUT	12
3.5. Test Procedure	12
3.6. Test Results	13
4. Radiated Emission Test	16
4.1. Test Limit	16
4.2. Block Diagram of Test Setup.....	17
4.3. Configuration of EUT on Test.....	18
4.4. Operating Condition of EUT	18
4.5. Test Procedure	18
4.6. Test Results	19
5. Photograph	25
6. Photos of The EUT	25

TEST REPORT DECLARATION

Applicant : Shenzhen Huixing Electronics Co., Ltd
Address : Room701, Second Unit, Building 1, Fuqian Road, Fumin Community, Fucheng Street, Longhua District, Shenzhen, China
Manufacturer : Shenzhen Huixing Electronics Co., Ltd
Address : Room701, Second Unit, Building 1, Fuqian Road, Fumin Community, Fucheng Street, Longhua District, Shenzhen, China
EUT Description : clock radio
(A) Model No. : RA01SA, RA01
(B) Trademark : N/A

Measurement Standard Used:

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

Test Result: PASS

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

Jensen Wang

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

Simple Guan

Date of issue.....: April 13, 2025

Revision History

Revision	IssueDate	Revisions	Revised By
REV0	April 13, 2025	Initial released Issue	Jensen Wang



1. General Information

1.1. Description of Device (EUT)

Product Name	:	clock radio
Model Number	:	RA01SA, RA01
Diff	:	There is no difference except the name of the model. All tests are made with the RA01SA model.
Highest Frequency	:	More than 108MHz
Test Voltage	:	AC 120V/60Hz DC 4.5V from battery
EUT information	:	Input: AC 120V/ DC 4.5V
Trademark	:	N/A
Software version	:	N/A
Hardware version	:	N/A

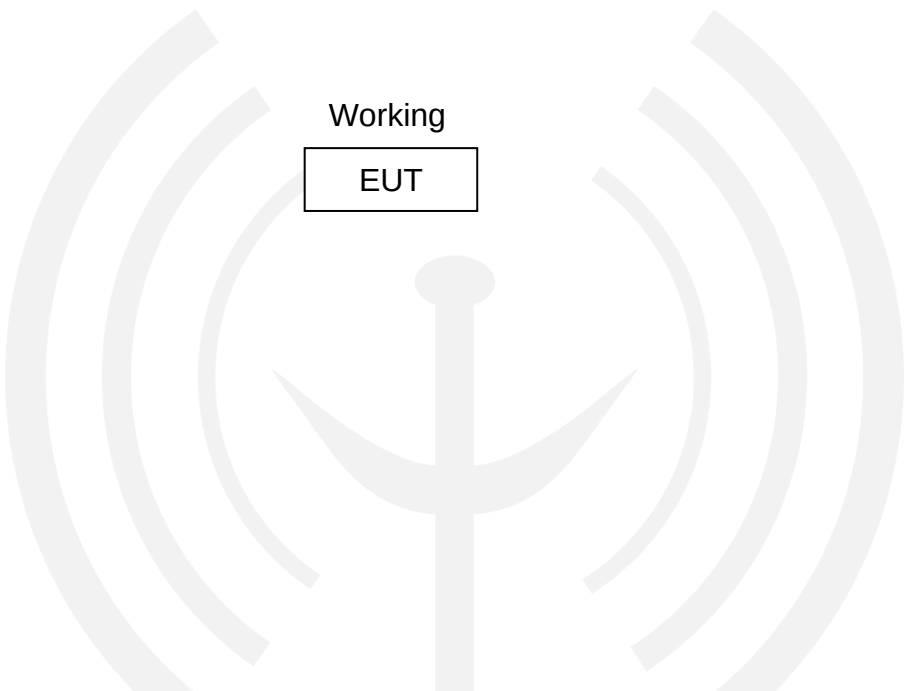
1.2. Accessories of Device (EUT)

Accessories	:	N/A
Manufacturer	:	N/A
Model	:	N/A
specifications	:	N/A

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)	/	/	/	/	/
(b)	/	/	/	/	/
©	/	/	/	/	/

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.	Working(FM Mode)	AC 120V/60Hz
2.	Working(AM Mode)	AC 120V/60Hz
Note: ※1 is the worst mode for test, so this report only reflected this mode		

For Radiated Emission Test		
Mode No.	Test Mode	Test Voltage
※1.	Working(FM Mode)	AC 120V/60Hz
2.	Working(AM Mode)	AC 120V/60Hz
3.	Working(FM Mode)	DC 4.5V from battery
4.	Working(AM Mode)	DC 4.5V from battery
Note: ※1 is the worst mode for test, so this report only reflected this 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	2024.12.18	1 Year
2.	L.I.S.N.	Rohde&Schwarz	ENV 216	102282	/	2024.12.18	1 Year
3.	L.I.S.N.	RFT	NNB111	13835240	/	2024.12.18	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	2024.12.18	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB 9168	01448	/	2025.01.02	2 Year
4.	6dB Fixed Attenuator	SKET	AP_DC01G-2W-N-6dB	SK2020053101	/	2024.12.18	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	2024.12.18	1 Year
3.	Horn Antenna	Schwarz beck	BBHA 9120 D	02706	/	2025.01.02	2 Year
4.	Amplifier	SKET	LAPA_01G18G-45dB	SK2022032901	/	2024.12.18	1 Yea

ForTest 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

2.5. Measurement Uncertainty

Test Item	Frequency range	Uncertainty
Uncertainty for Conduction emission test	0.009~0.15MHz	1.92
	0.15~30MHz	2.17
Uncertainty for Radiation Emission test (Distance: 3m Polarize: V)	30~1000MHz	2.74
Uncertainty for Radiation Emission test (Distance: 3m Polarize: H)	30~1000MHz	2.76
Uncertainty for Radiation Emission test (Distance: 3m)	1~6GHz	4.02
	6~18GHz	4.30
(95% confidence levels, k=2)		

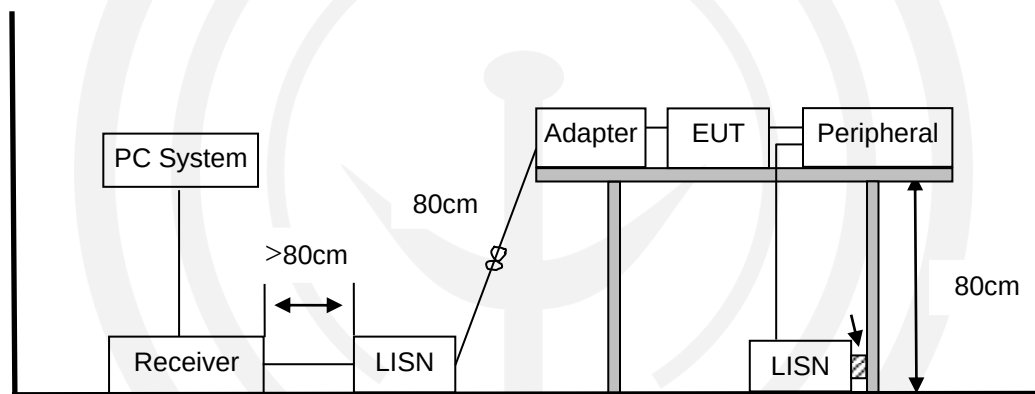
3. Power Line Conducted Emission Test

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.

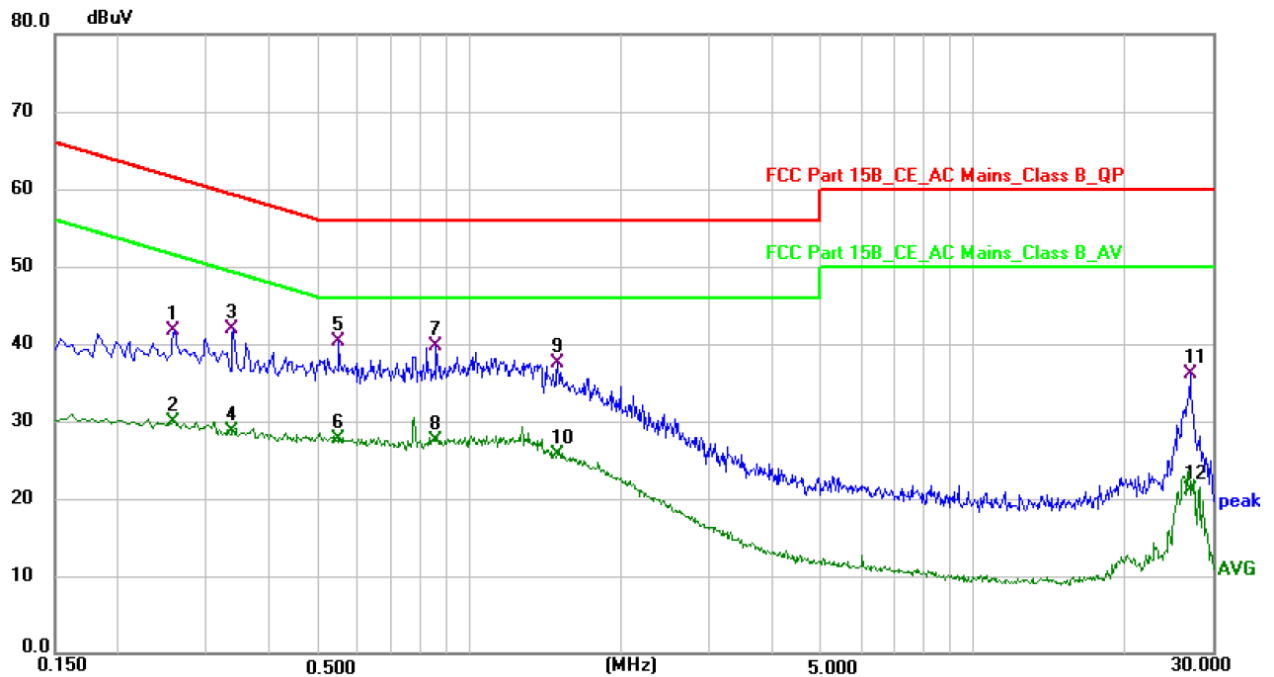
3.5. Test Procedure

- (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

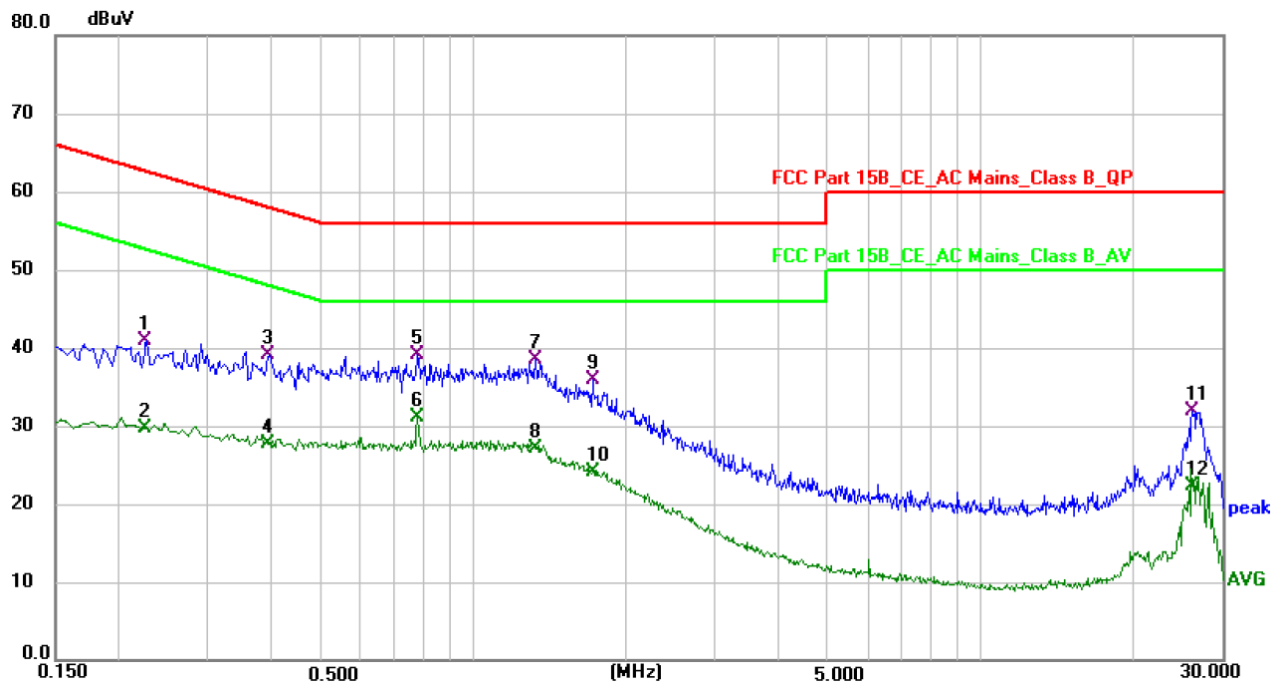
Test Date : 2025.4.7	Temperature : 26°C
Test Engineer : Jensen Wang	Humidity : 54%
Test Voltage : AC 120V/60Hz	
Test Mode : Mode 1	
Test Results : PASS	
Note: The test results are listed in next pages. If the limits for the measurement with the average detector are met when using a receiver with a peak 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. 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.	



Polarization: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2580	31.78	9.97	41.75	61.50	-19.75	QP
2	0.2580	19.84	9.97	29.81	51.50	-21.69	AVG
3	0.3379	32.00	9.85	41.85	59.25	-17.40	QP
4	0.3379	18.93	9.85	28.78	49.25	-20.47	AVG
5 *	0.5500	30.42	9.79	40.21	56.00	-15.79	QP
6	0.5500	17.92	9.79	27.71	46.00	-18.29	AVG
7	0.8580	30.33	9.42	39.75	56.00	-16.25	QP
8	0.8580	18.09	9.42	27.51	46.00	-18.49	AVG
9	1.5020	28.18	9.40	37.58	56.00	-18.42	QP
10	1.5020	16.32	9.40	25.72	46.00	-20.28	AVG
11	26.9980	25.58	10.44	36.02	60.00	-23.98	QP
12	26.9980	10.57	10.44	21.01	50.00	-28.99	AVG

Note: Level = Reading + Factor Margin = Level - Limit

Polarization: N

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2260	30.98	9.98	40.96	62.60	-21.64	QP
2	0.2260	19.69	9.98	29.67	52.60	-22.93	AVG
3	0.3940	29.46	9.56	39.02	57.98	-18.96	QP
4	0.3940	18.21	9.56	27.77	47.98	-20.21	AVG
5	0.7780	29.36	9.71	39.07	56.00	-16.93	QP
6 *	0.7780	21.33	9.71	31.04	46.00	-14.96	AVG
7	1.3260	29.10	9.43	38.53	56.00	-17.47	QP
8	1.3260	17.67	9.43	27.10	46.00	-18.90	AVG
9	1.7220	26.54	9.33	35.87	56.00	-20.13	QP
10	1.7220	14.70	9.33	24.03	46.00	-21.97	AVG
11	26.2540	21.32	10.54	31.86	60.00	-28.14	QP
12	26.2540	11.73	10.54	22.27	50.00	-27.73	AVG

Note: Level = Reading + Factor Margin = Level - Limit

4. Radiated Emission Test

4.1. Test Limit

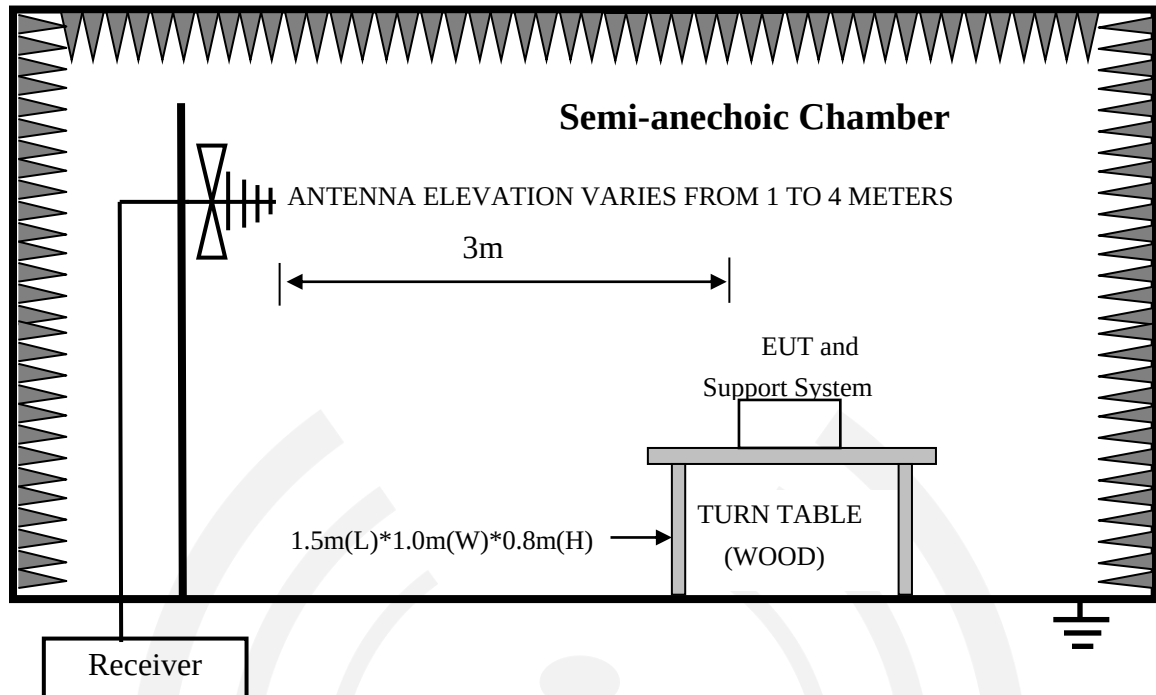
Frequency MHz			Distance (Meters)	Limits dB(μV)
30	~	88	3	40.0
88	~	216	3	43.5
216	~	960	3	46.0
960	~	1000	3	54.0
Above 1GHz			3	74(Peak) 54(Average)

- 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:

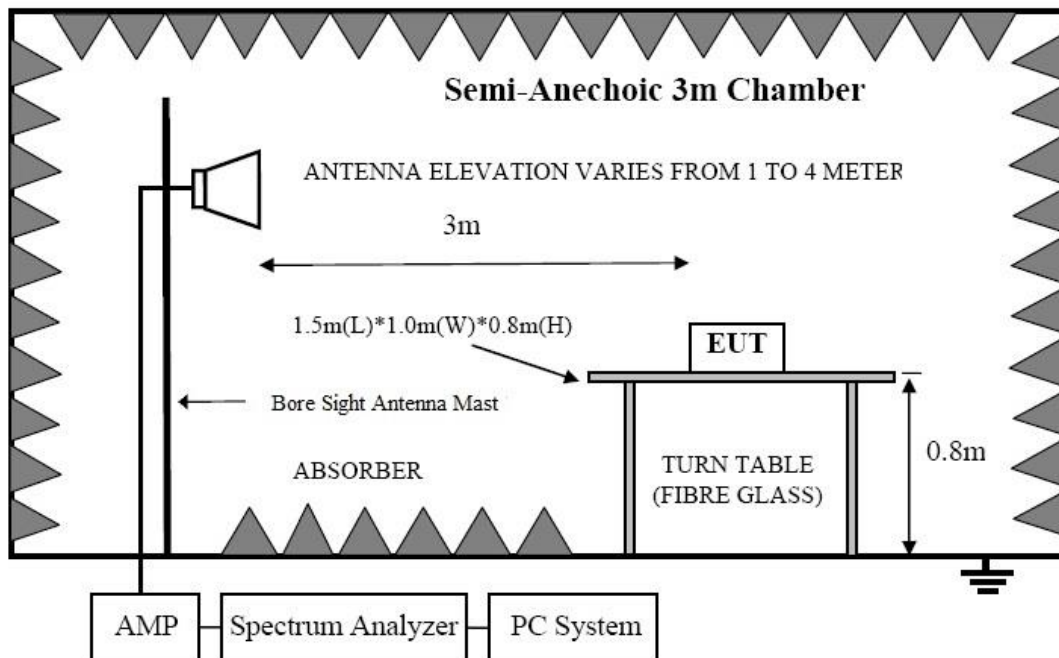
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

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.

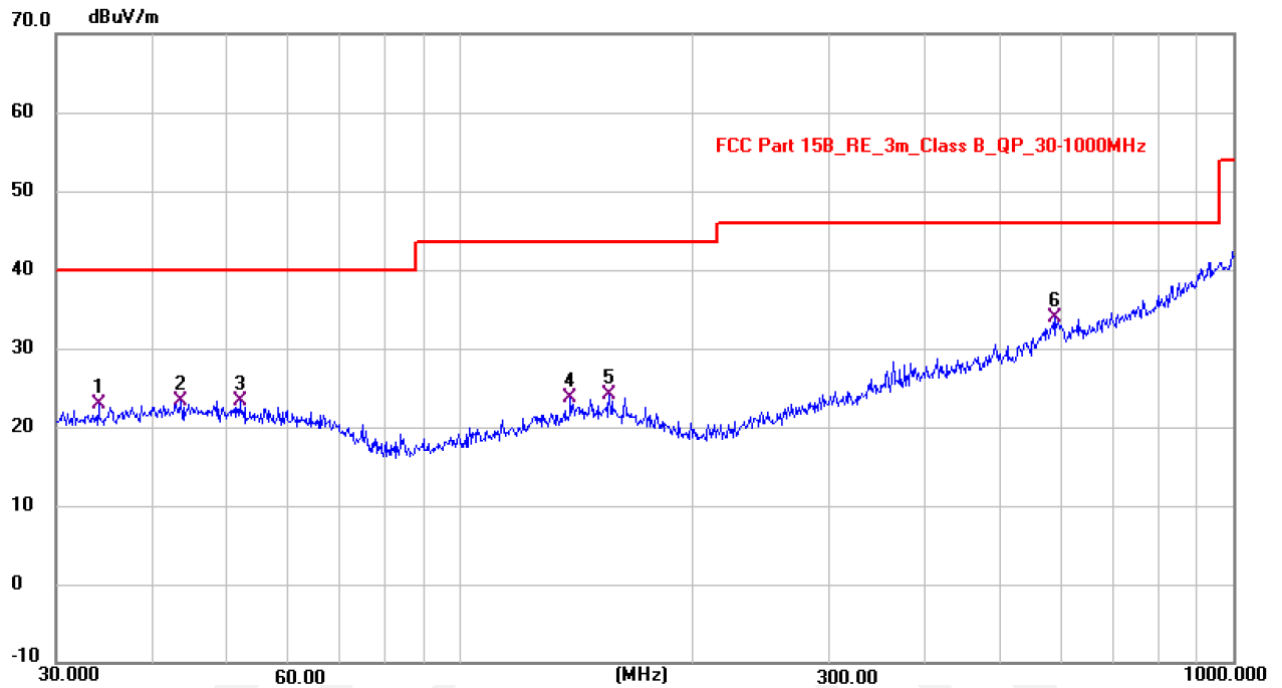
4.5. Test Procedure

- (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

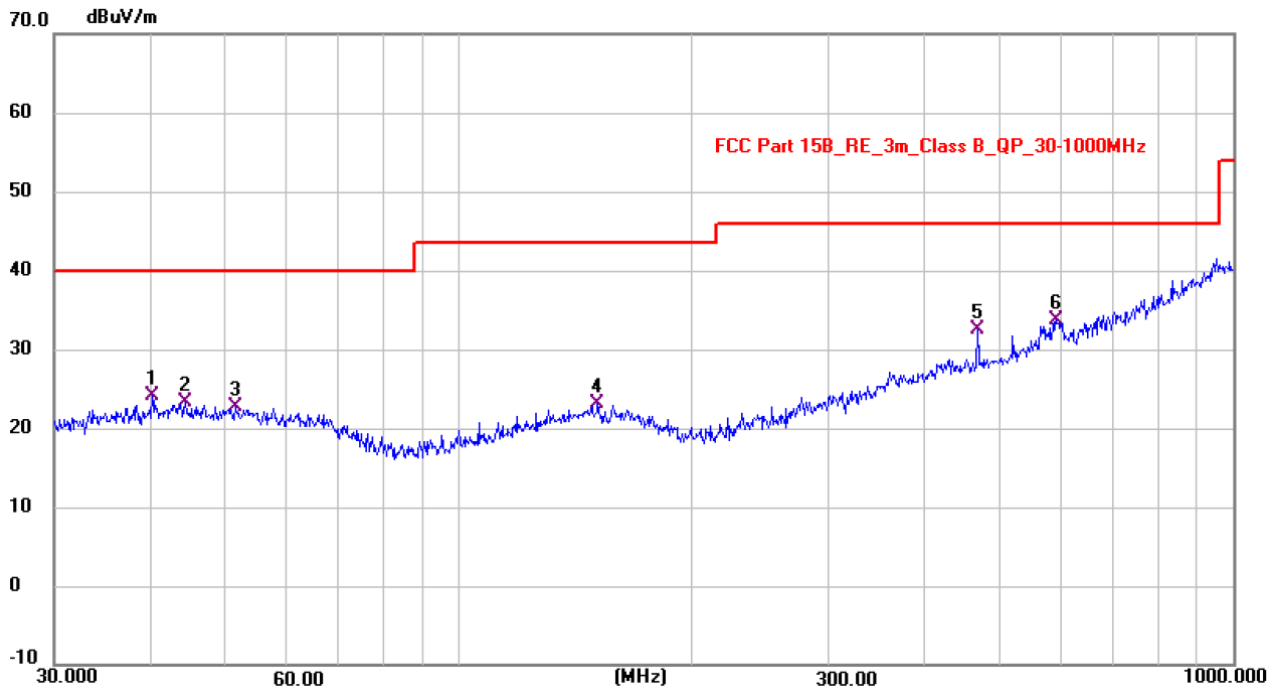
Frequency Range : 30MHz~1000MHz	
Test Date : 2025.4.10	Temperature : 26°C
Test Engineer : Jensen Wang	Humidity : 54%
Test Mode : Mode 1	
Test Results : PASS	
Note: 1. The test results are listed in next pages. 2. If the limits for the measurement with the quasi-peak detector are met when using a receiver 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: Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	34.0813	9.23	13.68	22.91	40.00	-17.09	QP
2	43.6584	8.79	14.42	23.21	40.00	-16.79	QP
3	52.0023	9.44	13.94	23.38	40.00	-16.62	QP
4	139.0562	9.94	13.84	23.78	43.50	-19.72	QP
5	156.0468	9.85	14.26	24.11	43.50	-19.39	QP
6 *	588.9051	11.37	22.58	33.95	46.00	-12.05	QP

Note: Level = Reading + Factor Margin = Level - Limit

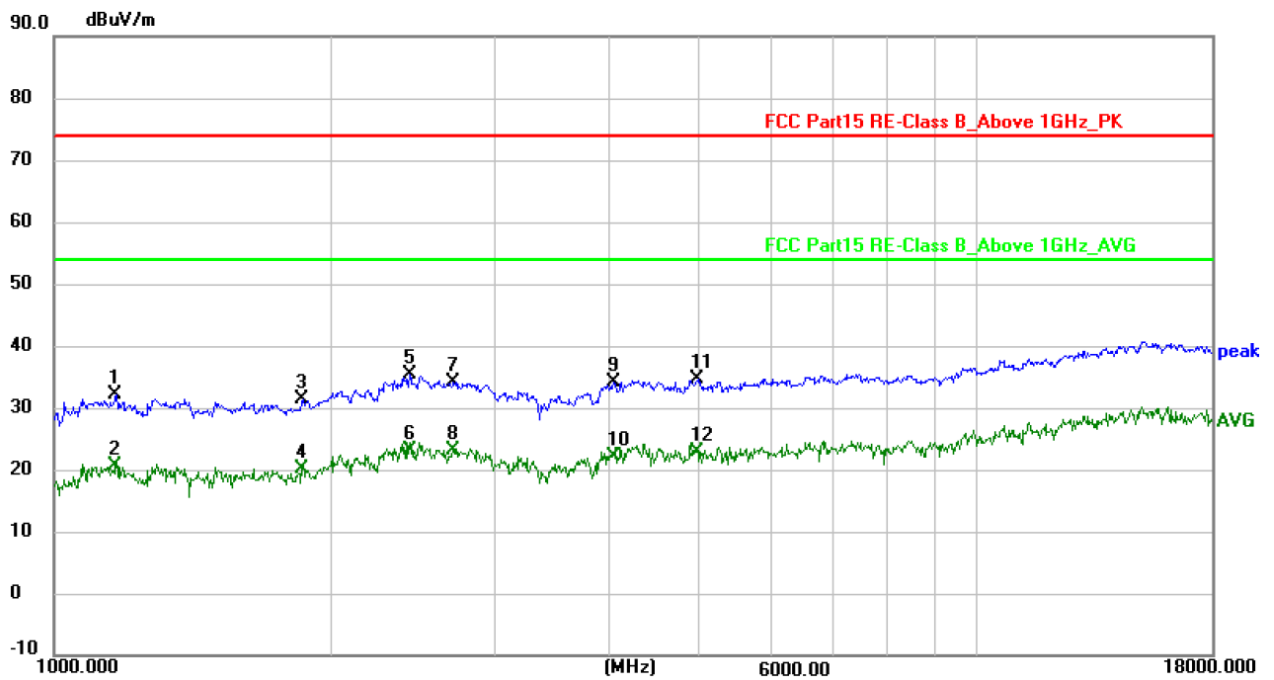
Antenna polarity: Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	40.2228	9.50	14.56	24.06	40.00	-15.94	QP
2	44.3141	8.99	14.38	23.37	40.00	-16.63	QP
3	51.5711	8.76	13.98	22.74	40.00	-17.26	QP
4	151.1991	8.90	14.15	23.05	43.50	-20.45	QP
5	468.0549	13.09	19.38	32.47	46.00	-13.53	QP
6 *	592.7898	11.08	22.68	33.76	46.00	-12.24	QP

Note: Level = Reading + Factor Margin = Level - Limit

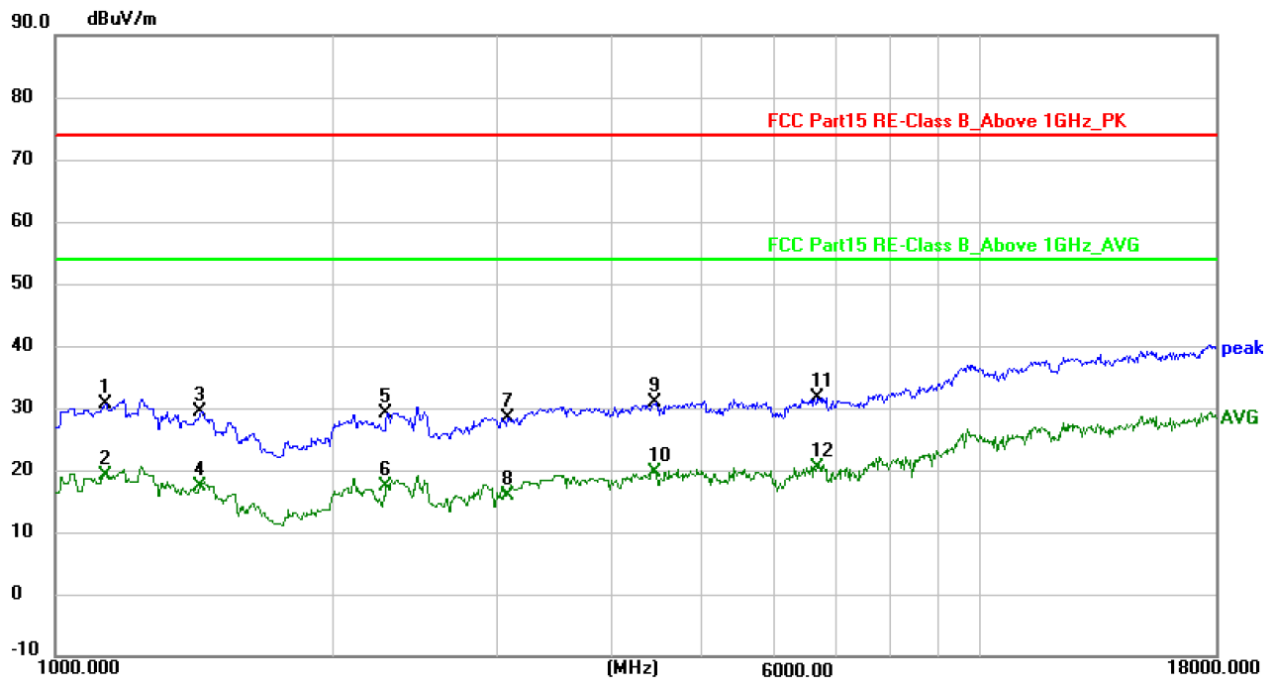
Frequency Range : Above 1GHz	
Test Date : 2025.4.10	Temperature : 26°C
Test Engineer : Jensen Wang	Humidity : 54%
Test Mode : Mode 1	
Test Results : PASS	
Note: 1. The test results are listed in next pages.	
2. If the limits for the measurement with the quasi-peak detector are met when using a receiver 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: Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1168.919	85.46	-53.37	32.09	74.00	-41.91	peak
2	1168.919	73.92	-53.37	20.55	54.00	-33.45	AVG
3	1861.588	85.03	-53.57	31.46	74.00	-42.54	peak
4	1861.588	73.62	-53.57	20.05	54.00	-33.95	AVG
5	2428.671	88.82	-53.54	35.28	74.00	-38.72	peak
6	2428.671	76.70	-53.54	23.16	54.00	-30.84	AVG
7	2710.622	87.61	-53.50	34.11	74.00	-39.89	peak
8 *	2710.622	76.75	-53.50	23.25	54.00	-30.75	AVG
9	4039.212	86.63	-52.61	34.02	74.00	-39.98	peak
10	4039.212	74.74	-52.61	22.13	54.00	-31.87	AVG
11	4988.058	85.88	-51.37	34.51	74.00	-39.49	peak
12	4988.058	74.35	-51.37	22.98	54.00	-31.02	AVG

Note: Level = Reading + Factor Margin = Level - Limit

Antenna polarity: Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1132.340	83.98	-53.36	30.62	74.00	-43.38	peak
2	1132.340	72.52	-53.36	19.16	54.00	-34.84	AVG
3	1439.343	82.72	-53.45	29.27	74.00	-44.73	peak
4	1439.343	70.73	-53.45	17.28	54.00	-36.72	AVG
5	2285.640	82.81	-53.56	29.25	74.00	-44.75	peak
6	2285.640	70.87	-53.56	17.31	54.00	-36.69	AVG
7	3087.140	81.88	-53.40	28.48	74.00	-45.52	peak
8	3087.140	69.36	-53.40	15.96	54.00	-38.04	AVG
9	4468.000	82.92	-52.06	30.86	74.00	-43.14	peak
10	4468.000	71.74	-52.06	19.68	54.00	-34.32	AVG
11	6661.000	81.98	-50.33	31.65	74.00	-42.35	peak
12 *	6661.000	70.80	-50.33	20.47	54.00	-33.53	AVG

Note: Level = Reading + Factor Margin = Level - Limit

5. Photograph

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

6. Photos of The EUT

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

----END OF REPORT----

