FCC Test Report

Applicant	:	**Anker Innovations Limited**
Address	:	**Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hong Kong**
Product Name	:	**Nano Receiver**
Report Date	:	**Dec. 11, 2023**

Shenzhen Anbotek Compliance Laboratory Limited

Contents

TEST REPORT

Applicant	:	Anker Innovations Limited
Manufacturer	:	Anker Innovations Limited
Product Name	:	Nano Receiver
Test Model No.	:	A7850
Reference Model No.	:	N/A
Trade Mark	:	ANKER
Rating(s)	:	Input: DC 5V
Test Standard(s)	:	**FCC Part15 Subpart C, Paragraph 15.249**
Test Method(s)	:	**ANSI C63.10: 2020**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt	Nov. 14, 2023
Date of Test	Nov. 14 ~ 29, 2023

Prepared by

Nian xiu Chen

(Nianxiu Chen)

Approved & Authorized Signer

Edward pan

(Edward Pan)

Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Dec. 11, 2023

1. General Information

1.1. Client Information

Applicant	:	Anker Innovations Limited
Address	:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hong Kong
Manufacturer	:	Anker Innovations Limited
Address	:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hong Kong

1.2. Description of Device (EUT)

Product Name	:	Nano Receiver
Test Model No.	:	A7850
Reference Model No.	:	N/A
Trade Mark	:	ANKER
Test Power Supply	:	DC 5V via PC from Adapter input AC 120V/60Hz/ DC 5V via PC
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Frequency	:	2403~2479MHz
Number of Channel	:	16 Channels
Modulation Type	:	GFSK
Antenna Type	:	PCB Antenna
Antenna Gain(Peak)	:	-2.12 dBi
Remark: 1) All of the RF specification are provided by customer. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

1.3. Auxiliary Equipment Used During Test

Description	Rating(s)
MacBook Air	Model: A1466 Input: 14.85V/3.05A CMIIT ID:C02HXB48DRVC
Adapter	Input: AC 100-240V, 1A, 50-60Hz Output: 14.85V/3.05A
Mouse	Manufacturer: Anker Innovations Limited Model: A7852M Input: DC 3V by AAA*2 battery

1.4. Description of Test Configuration

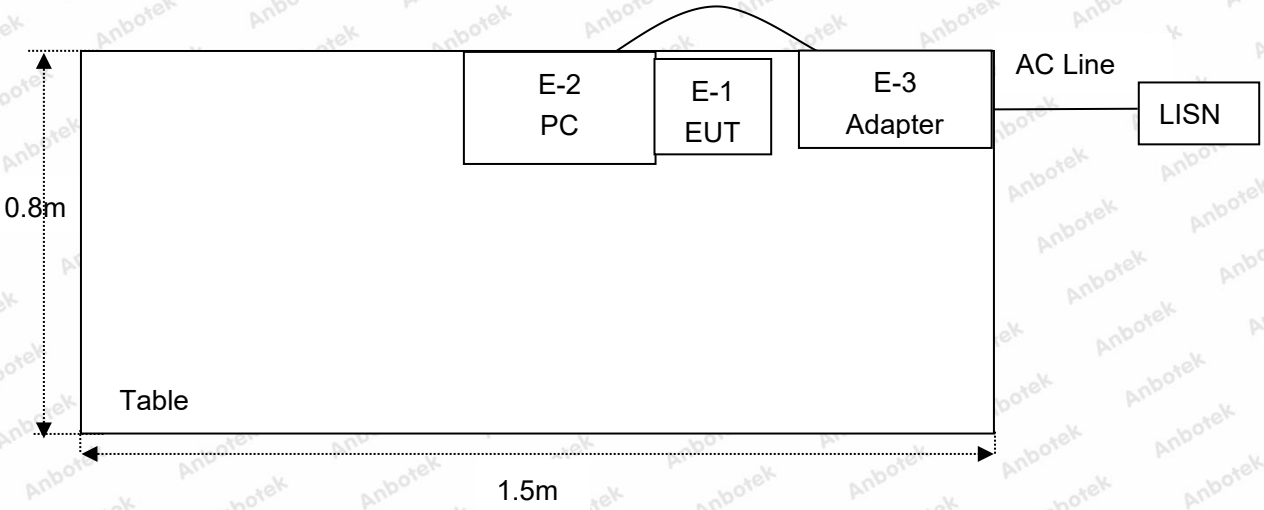
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
01	**2403**	05	2422	**09**	**2441**	13	2463
02	2407	06	2426	10	2445	14	2466
03	2414	07	2436	11	2453	15	2473
04	2419	08	2439	12	2459	**16**	**2479**

Note:

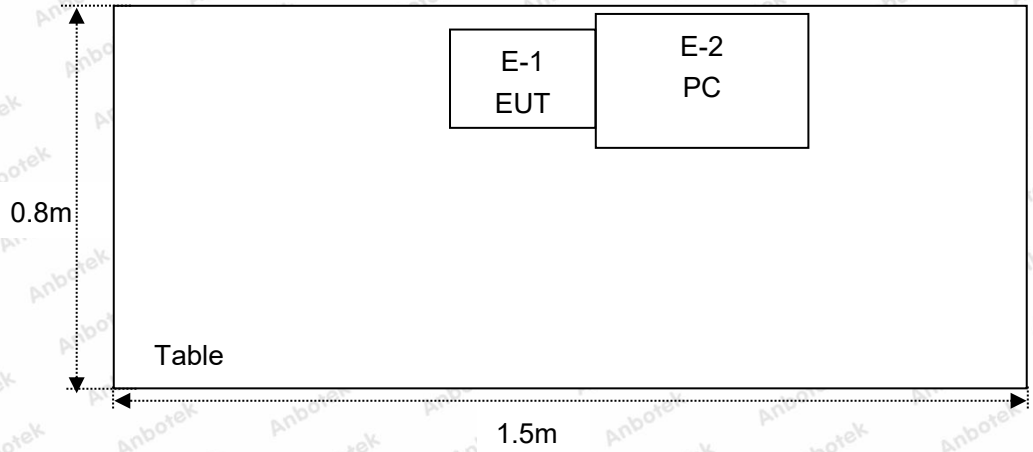
1. The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.
2. EUT was tested with Channel 01, 09 and 16.

1.5. Description of Test Setup

CE



RE



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	100055	Oct. 12, 2023	1 Year
2.	Three Phase V-type Artificial Power Network	CYBERTEK	EM5040DT	E215040DT001	Jul. 05, 2023	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Oct. 12, 2023	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Oct. 12, 2023	1 Year
5.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Oct. 12, 2023	1 Year
6.	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	Oct. 12, 2023	1 Year
7.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	345	Oct. 23, 2022	3 Year
9.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Oct. 12, 2023	1 Year
10.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Oct. 12, 2023	1 Year
11.	Pre-amplifier	SONOMA	310N	186860	Oct. 12, 2023	1 Year
12.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
13.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Oct. 12, 2023	1 Year
14.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Oct. 12, 2023	1 Year
15.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 12, 2023	1 Year
16.	DC Power Supply	IVYTECH	IV3605	1804D360510	Oct. 20, 2023	1 Year
17.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 16, 2023	1 Year

1.7. Measurement Uncertainty

Parameter	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	3.8dB
Occupied Bandwidth	925Hz
Conducted Spurious Emission	1.24dB
Radiated spurious emissions (Below 30MHz)	3.53dB
Radiated spurious emissions (30MHz~1GHz)	Horizontal: 3.92dB; Vertical: 4.52dB
Radiated spurious emissions (above 1GHz)	1G-6GHz: 4.78dB; 6G-18GHz: 4.88dB 18G-40GHz: 5.68dB
The measurement uncertainty and decision risk evaluated according to AB/WI-RF-F-032. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

1.8. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 434132

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 434132.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

1.9. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotek and all revisions are duly noted in the revisions section.
5. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
6. The authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2. Summary of Test Results

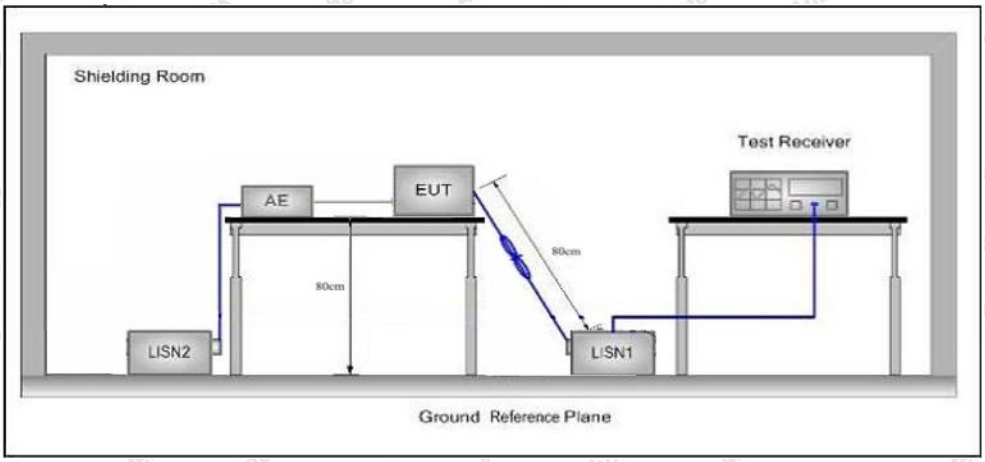
Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.205/15.209/15.249	Radiated Emission	PASS
15.249(d)	Band Edge	PASS
15.215(c)	20dB Bandwidth	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50
Remark: (1) *Decreasing linearly with logarithm of the frequency. (2) The lower limit shall apply at the transition frequency.			

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2020 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

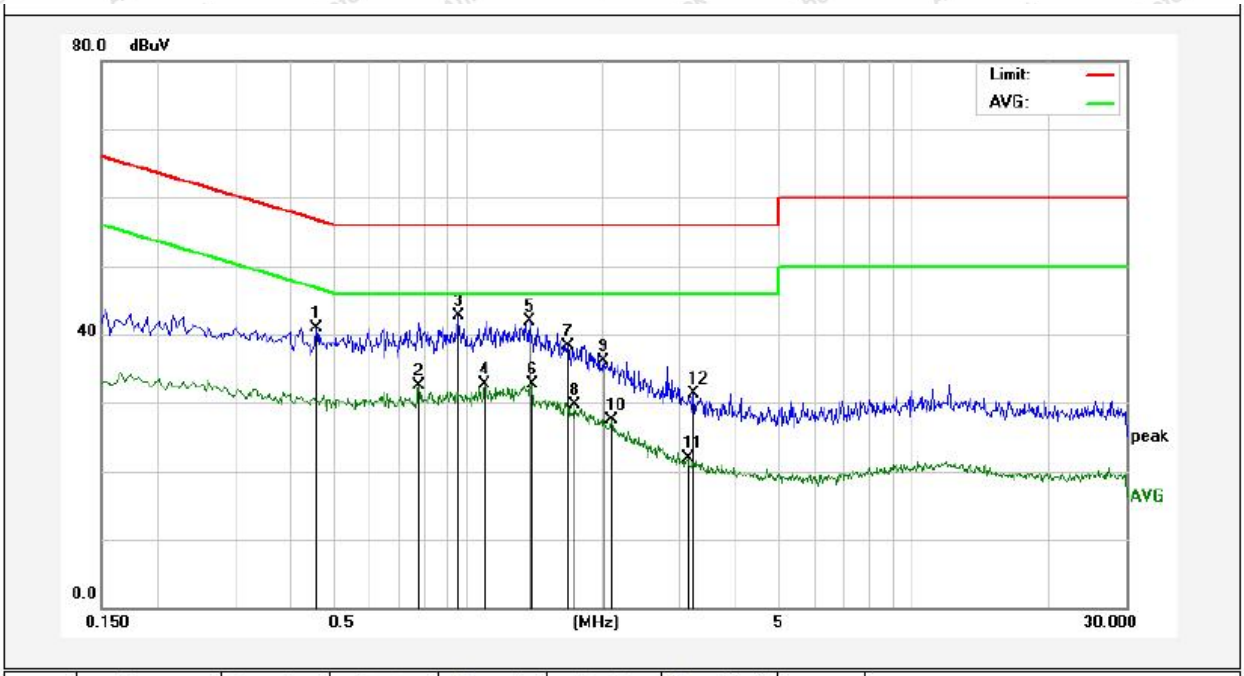
During the test, pre-scan all modes, and found the Low CH (2403MHz) which is the worst case, only the worst case is recorded in the report.

AC conducted emission pre-test at both at AC 120V/60Hz and AC 240V/60Hz modes, recorded worst case AC 120V/60Hz.

Please to see the following pages.

Conducted Emission Test Data

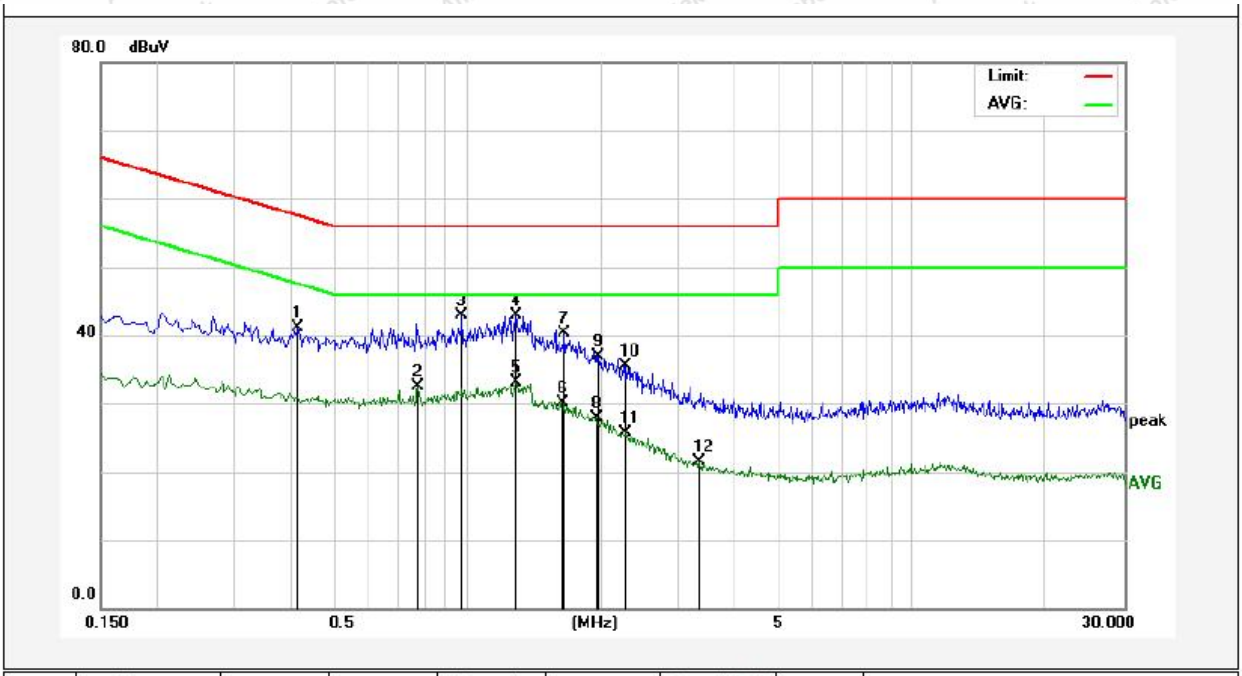
Test Site: 1# Shielded Room
Operating Condition: 2403MHz
Test Specification: DC 5V via PC from Adapter input AC 120V/60Hz
Comment: Live Line
Temp.(℃)/Hum.(%RH): 23.5℃/65%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.4580	21.13	19.83	40.96	56.73	-15.77	QP	
2	0.7780	12.55	19.86	32.41	46.00	-13.59	AVG	
3	0.9500	22.92	19.85	42.77	56.00	-13.23	QP	
4	1.0900	12.84	19.85	32.69	46.00	-13.31	AVG	
5	1.3740	22.06	19.84	41.90	56.00	-14.10	QP	
6	1.3980	12.94	19.84	32.78	46.00	-13.22	AVG	
7	1.6780	18.56	19.84	38.40	56.00	-17.60	QP	
8	1.7420	9.93	19.84	29.77	46.00	-16.23	AVG	
9	2.0140	16.26	19.83	36.09	56.00	-19.91	QP	
10	2.1099	7.62	19.83	27.45	46.00	-18.55	AVG	
11	3.1099	1.98	19.84	21.82	46.00	-24.18	AVG	
12	3.2139	11.47	19.84	31.31	56.00	-24.69	QP	

Conducted Emission Test Data

Test Site:	1# Shielded Room
Operating Condition:	2403MHz
Test Specification:	DC 5V via PC from Adapter input AC 120V/60Hz
Comment:	Neutral Line
Temp.(℃)/Hum.(%RH):	23.5℃/65%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.4180	21.24	19.82	41.06	57.49	-16.43	QP	
2	0.7780	12.59	19.86	32.45	46.00	-13.55	AVG	
3	0.9740	23.14	19.85	42.99	56.00	-13.01	QP	
4	1.2940	23.00	19.84	42.84	56.00	-13.16	QP	
5	1.2940	13.22	19.84	33.06	46.00	-12.94	AVG	
6	1.6420	10.22	19.84	30.06	46.00	-15.94	AVG	
7	1.6580	20.45	19.84	40.29	56.00	-15.71	QP	
8	1.9420	8.12	19.83	27.95	46.00	-18.05	AVG	
9	1.9700	17.11	19.83	36.94	56.00	-19.06	QP	
10	2.2780	15.60	19.83	35.43	56.00	-20.57	QP	
11	2.2780	5.79	19.83	25.62	46.00	-20.38	AVG	
12	3.3260	1.60	19.84	21.44	46.00	-24.56	AVG	

4. Radiated Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.209 and 15.205				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3

Remark:

(1)The lower limit shall apply at the transition frequency.

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Test Standard	FCC Part15 C Section 15.249					
Test Limit	Frequency (MHz)	Field Strength of fundamental ((millivolts /meter)	Field Strength of Harmonics (microvolts/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	2400~2483.5	50	-	114.0	Peak	3
	2400~2483.5	50	-	94.0	Average	3
	2400~2483.5	-	500	74.0	Peak	3
	2400~2483.5	-	500	54.0	Average	3

Remark:

(1) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

4.2. Test Setup

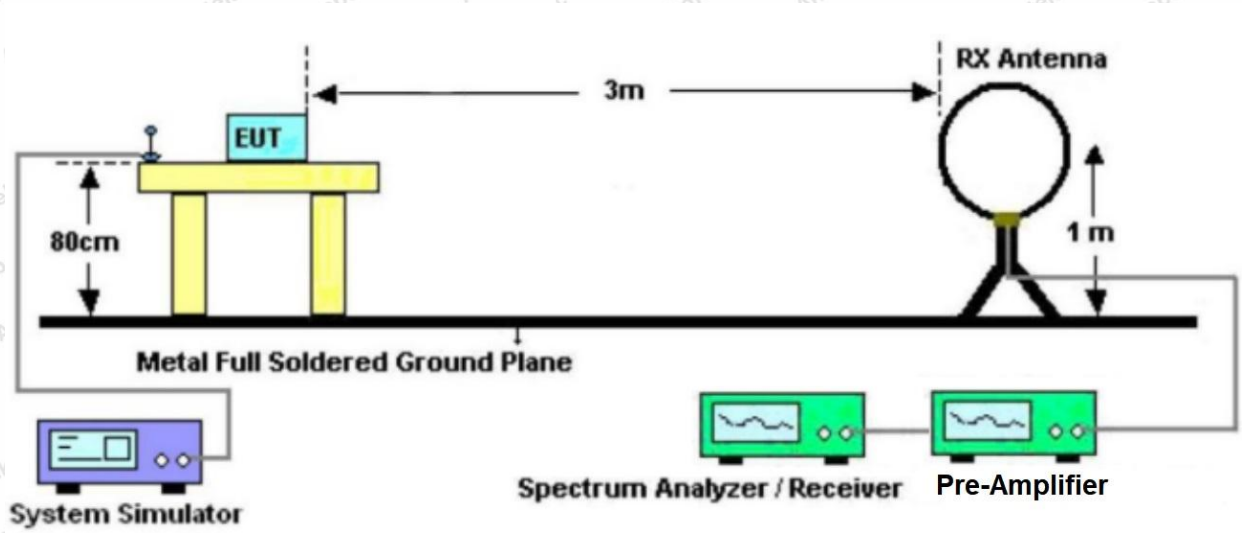


Figure 1. Below 30MHz

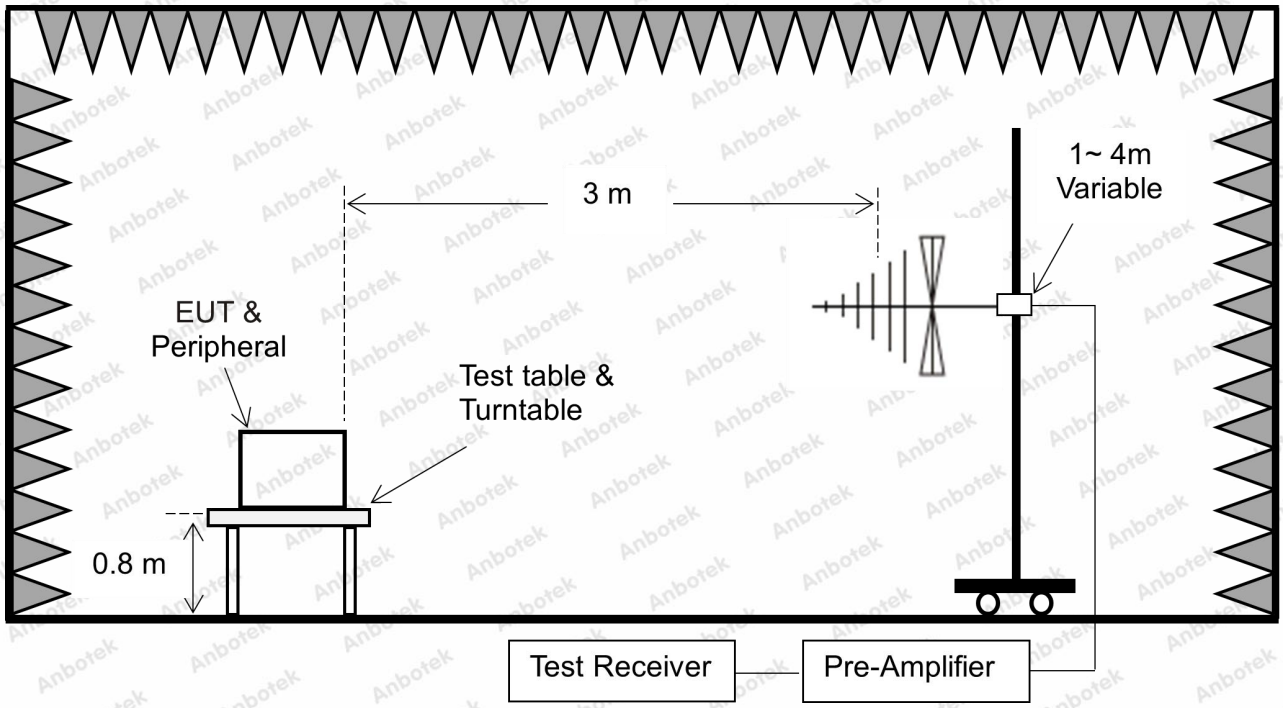


Figure 2. 30MHz to 1GHz

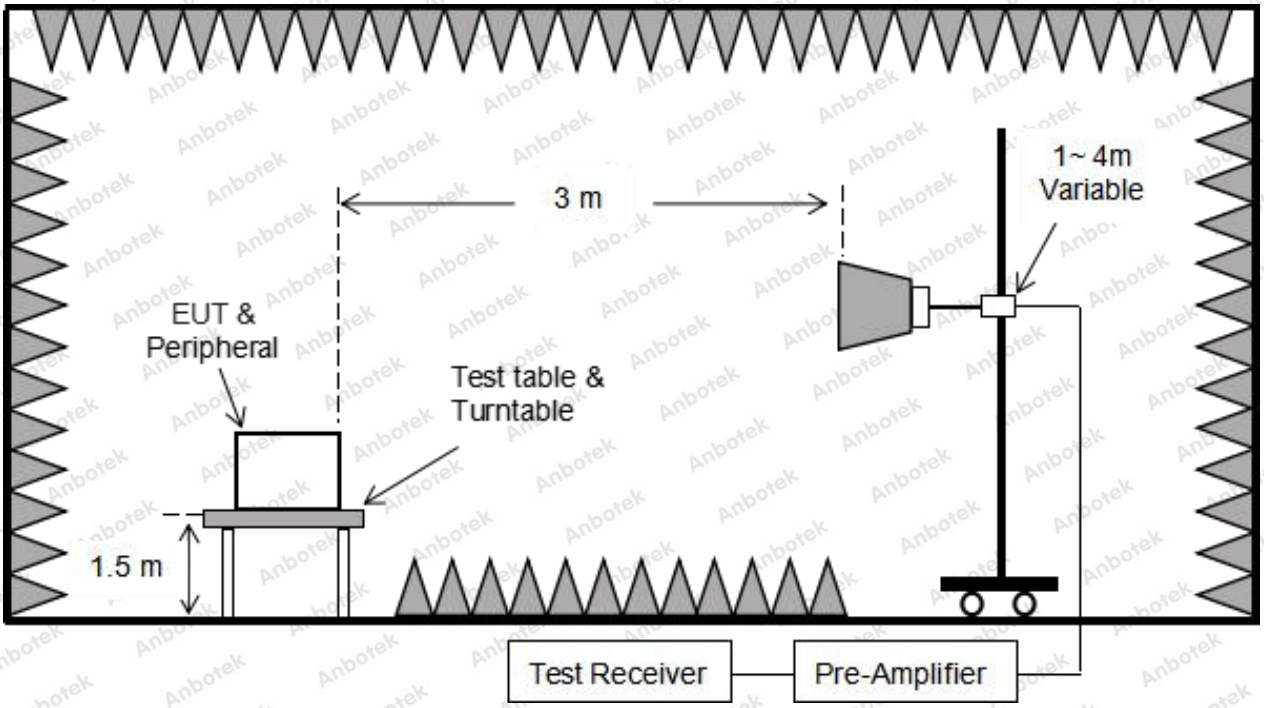


Figure 3. Above 1 GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.
For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.
The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

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.

For 9kHz to 150kHz, Set the spectrum analyzer as:
RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:
RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:
RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:
RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.
RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

4.4. Test Data

PASS

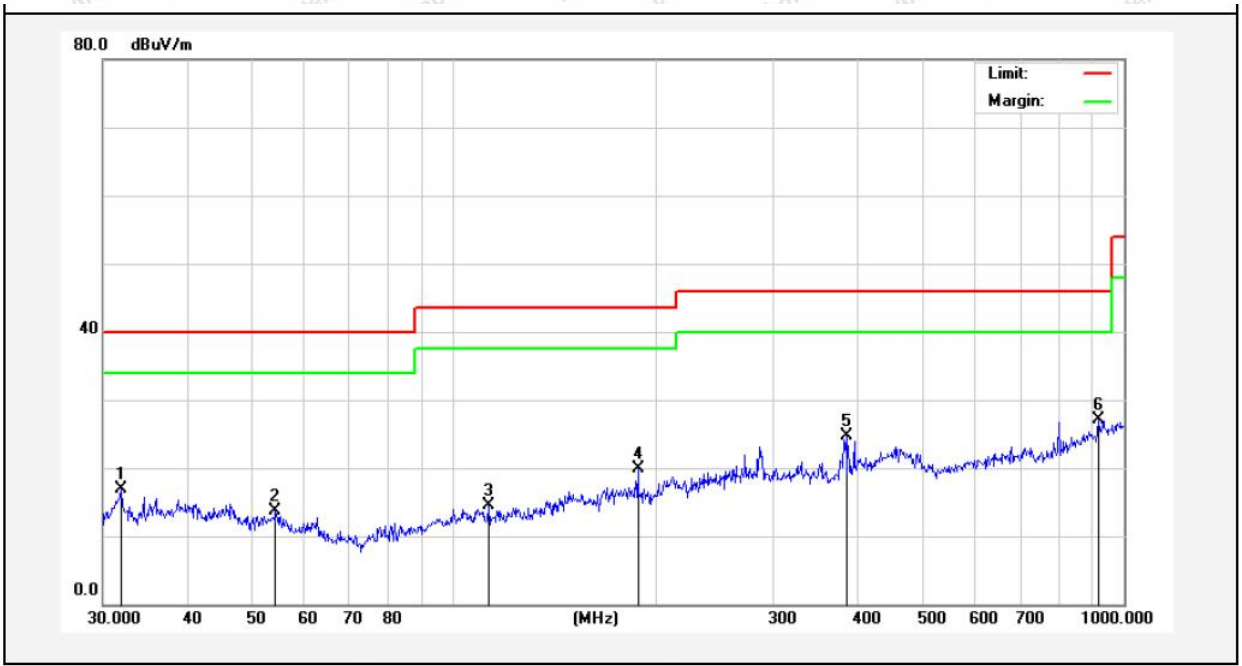
During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

During the test, pre-scan all the modes, and found the Low CH (2403MHz) which is the worst case, only the worst case is recorded in the report.

Test Results (30~1000MHz)

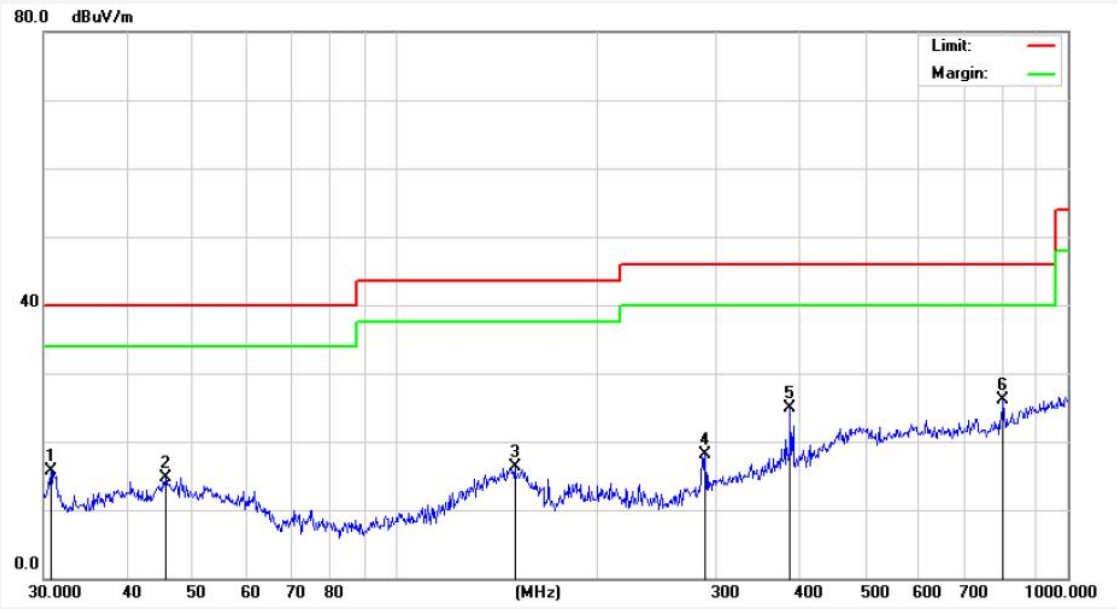
Test Mode:	2403MHz
Power Source:	DC 5V via PC
Polarization:	Horizontal
Temp.(℃)/Hum.(%RH):	21.0℃/56%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	31.9546	36.46	-19.54	16.92	40.00	-23.08	QP			
2	54.2610	31.13	-17.35	13.78	40.00	-26.22	QP			
3	112.9196	37.85	-23.41	14.44	43.50	-29.06	QP			
4	188.4125	42.63	-22.82	19.81	43.50	-23.69	QP			
5	385.2805	40.81	-16.09	24.72	46.00	-21.28	QP			
6	916.0687	33.16	-6.04	27.12	46.00	-18.88	QP			

Test Results (30~1000MHz)

Test Mode:	2403MHz
Power Source:	DC 5V via PC
Polarization:	Vertical
Temp.(℃)/Hum.(%RH):	21.0℃/56%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	30.7455	33.46	-17.84	15.62	40.00	-24.38	QP			
2	45.5348	29.83	-15.13	14.70	40.00	-25.30	QP			
3	150.5378	38.41	-22.07	16.34	43.50	-27.16	QP			
4	289.0021	34.72	-16.64	18.08	46.00	-27.92	QP			
5	386.6338	39.57	-14.59	24.98	46.00	-21.02	QP			
6	801.7863	34.32	-8.24	26.08	46.00	-19.92	QP			

Test Results (1GHz-25GHz)

Test channel: Lowest						
Peak value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2403.00	82.45	9.75	92.20	114.00	-21.80	Vertical
4806.00	29.13	15.27	44.40	74.00	-29.60	Vertical
7209.00	29.08	18.09	47.17	74.00	-26.83	Vertical
9612.00	30.16	23.76	53.92	74.00	-20.08	Vertical
12015.00	*			74.00		Vertical
14418.00	*			74.00		Vertical
2403.00	83.39	9.75	93.14	114.00	-20.86	Horizontal
4806.00	28.74	15.27	44.01	74.00	-29.99	Horizontal
7209.00	29.85	18.09	47.94	74.00	-26.06	Horizontal
9612.00	28.40	23.76	52.16	74.00	-21.84	Horizontal
12015.00	*			74.00		Horizontal
14418.00	*			74.00		Horizontal
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2403.00	72.38	9.75	82.13	94.00	-11.87	Vertical
4806.00	17.40	15.27	32.67	54.00	-21.33	Vertical
7209.00	18.13	18.09	36.22	54.00	-17.78	Vertical
9612.00	19.63	23.76	43.39	54.00	-10.61	Vertical
12015.00	*			54.00		Vertical
14418.00	*			54.00		Vertical
2403.00	73.62	9.75	83.37	94.00	-10.63	Horizontal
4806.00	17.07	15.27	32.34	54.00	-21.66	Horizontal
7209.00	18.88	18.09	36.97	54.00	-17.03	Horizontal
9612.00	17.91	23.76	41.67	54.00	-12.33	Horizontal
12015.00	*			54.00		Horizontal
14418.00	*			54.00		Horizontal

Remark:

1.Result =Reading + Factor

2. “*” means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Test Results (1GHz-25GHz)

Test channel: Middle						
Peak value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2441.00	86.01	9.75	95.76	114.00	-18.24	Vertical
4882.00	27.74	15.27	43.01	74.00	-30.99	Vertical
7323.00	33.21	18.09	51.30	74.00	-22.70	Vertical
9764.00	29.89	23.76	53.65	74.00	-20.35	Vertical
12205.00	*			74.00		Vertical
14646.00	*			74.00		Vertical
2441.00	81.41	9.75	91.16	114.00	-22.84	Horizontal
4882.00	27.29	15.27	42.56	74.00	-31.44	Horizontal
7323.00	33.76	18.09	51.85	74.00	-22.15	Horizontal
9764.00	32.00	23.76	55.76	74.00	-18.24	Horizontal
12205.00	*			74.00		Horizontal
14646.00	*			74.00		Horizontal
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2441.00	73.69	9.75	83.44	94.00	-10.56	Vertical
4882.00	18.90	15.27	34.17	54.00	-19.83	Vertical
7323.00	16.98	18.09	35.07	54.00	-18.93	Vertical
9764.00	18.46	23.76	42.22	54.00	-11.78	Vertical
12205.00	*			54.00		Vertical
14646.00	*			54.00		Vertical
2441.00	70.30	9.75	80.05	94.00	-13.95	Horizontal
4882.00	14.81	15.27	30.08	54.00	-23.92	Horizontal
7323.00	18.13	18.09	36.22	54.00	-17.78	Horizontal
9764.00	18.30	23.76	42.06	54.00	-11.94	Horizontal
12205.00	*			54.00		Horizontal
14646.00	*			54.00		Horizontal

Remark:

1.Result =Reading + Factor

2. “*” means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Test Results (1GHz-25GHz)

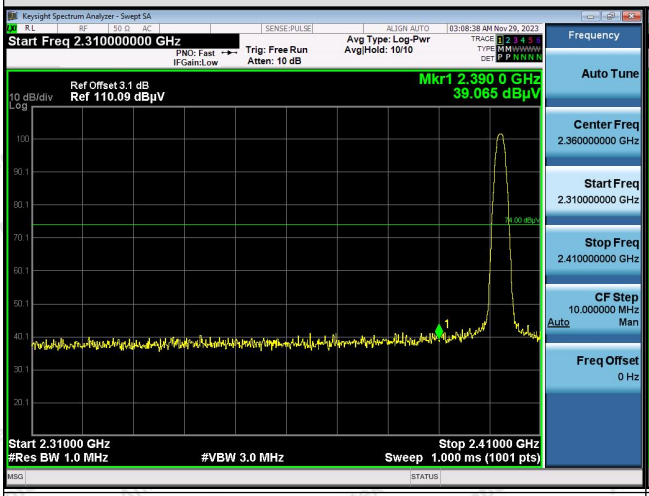
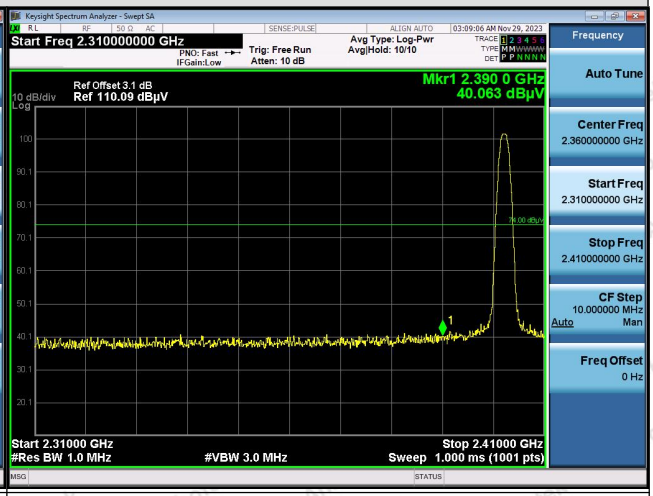
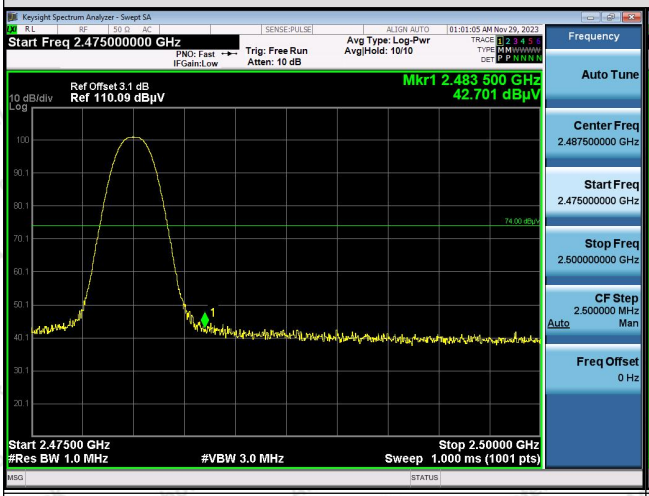
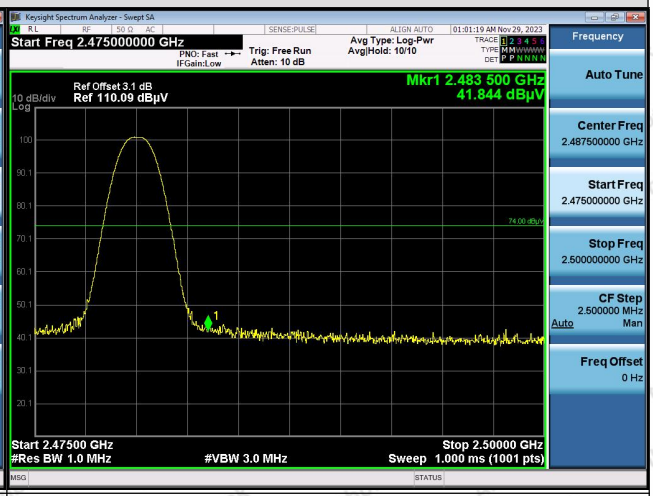
Test channel: Highest						
Peak value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2479.00	83.72	9.75	93.47	114.00	-20.53	Vertical
4958.00	31.66	15.27	46.93	74.00	-27.07	Vertical
7437.00	28.96	18.09	47.05	74.00	-26.95	Vertical
9916.00	33.07	23.76	56.83	74.00	-17.17	Vertical
12395.00	*			74.00		Vertical
14874.00	*			74.00		Vertical
2479.00	84.44	9.75	94.19	114.00	-19.81	Horizontal
4958.00	27.76	15.27	43.03	74.00	-30.97	Horizontal
7437.00	33.06	18.09	51.15	74.00	-22.85	Horizontal
9916.00	28.55	23.76	52.31	74.00	-21.69	Horizontal
12395.00	*			74.00		Horizontal
14874.00	*			74.00		Horizontal
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2479.00	75.28	9.75	85.03	94.00	-8.97	Vertical
4958.00	16.09	15.27	31.36	54.00	-22.64	Vertical
7437.00	19.40	18.09	37.49	54.00	-16.51	Vertical
9916.00	17.28	23.76	41.04	54.00	-12.96	Vertical
12395.00	*			54.00		Vertical
14874.00	*			54.00		Vertical
2479.00	72.81	9.75	82.56	94.00	-11.44	Horizontal
4958.00	15.19	15.27	30.46	54.00	-23.54	Horizontal
7437.00	22.38	18.09	40.47	54.00	-13.53	Horizontal
9916.00	20.05	23.76	43.81	54.00	-10.19	Horizontal
12395.00	*			54.00		Horizontal
14874.00	*			54.00		Horizontal

Remark:

1.Result =Reading + Factor

2. “*” means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Radiated Band Edge:

Test Mode: Lowest	
	
Peak Value(Vertical)	Peak Value(Horizontal)
Test Mode: Highest	
	
Peak Value(Vertical)	Peak Value(Horizontal)

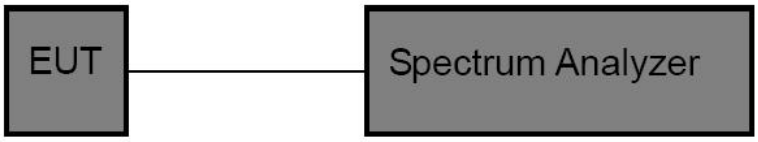
Note: When the PK measure result value is less than the AVG limit value, the AV measure result values test not applicable.

5. 20dB Bandwidth Test

5.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.215(c)
Test Limit	N/A

5.2. Test Setup



5.3. Test Procedure

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as:
   RBW = 30kHz, VBW≥3*RBW =100kHz,
   Detector= Average
   Trace mode= Max hold.
   Sweep- auto couple.
4. Mark the peak frequency and –20dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

5.4. 5.4. Test Data

Test Item	:	20dB Bandwidth	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 5V via PC	Temperature	:	25.7℃
Test Result	:	PASS	Humidity	:	46%RH

Channel	Bandwidth (kHz)	Result
Low	3040	PASS
Middle	2760	PASS
High	2416	PASS

Low Channel

Mid Channel

High Channel

6. Antenna Requirement

6.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	1) 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.

6.2. Antenna Connected Construction

The antenna is a PCB Antenna which permanently attached, and the best case gain of the antenna is -2.12 dBi. It complies with the standard requirement.

APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

---------- End of Report ----------