

FCC Test Report

Client Name : ZADEZ TECHNOLOGY CO., LIMITED.

Client Address : RM 1005, 10/F HO KING COMM CTR, 2-16 FA
YUEN ST MONGKOK KLN, HONG KONG,
China

Product Name : Nano receiver

Report Date : Sept. 24, 2022

Shenzhen Anbotek Compliance Laboratory Limited



Shenzhen Anbotek Compliance Laboratory Limited

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Contents

1. General Information	5
1.1. Client Information	5
1.2. Description of Device (EUT)	5
1.3. Auxiliary Equipment Used During Test	6
1.4. Description of Test Configuration	6
1.5. Description of Test Setup	7
1.6. Test Equipment List	8
1.7. Measurement Uncertainty	9
1.8. Description of Test Facility	9
2. Summary of Test Results	9
3. Conducted Emission Test	11
3.1. Test Standard and Limit	11
3.2. Test Setup	11
3.3. Test Procedure	11
3.4. Test Data	11
4. Radiated Emission and Band Edge	14
4.1. Test Standard and Limit	14
4.2. Test Setup	15
4.3. Test Procedure	16
4.4. Test Data	17
5. 20dB Bandwidth Test	24
5.1. Test Standard and Limit	24
5.2. Test Setup	24
5.3. Test Procedure	24
5.4. 5.4. Test Data	24
6. Antenna Requirement	27
6.1. Test Standard and Requirement	27
6.2. Antenna Connected Construction	27
APPENDIX I -- TEST SETUP PHOTOGRAPH	28
APPENDIX II -- EXTERNAL PHOTOGRAPH	28
APPENDIX III -- INTERNAL PHOTOGRAPH	28



TEST REPORT

Applicant : ZADEZ TECHNOLOGY CO., LIMITED.
Manufacturer : DONGGUAN SHANGGUI ELECTRONICS CO., LTD.
Product Name : Nano receiver
Model No. : M-338, M-331, M-353
Trade Mark : ZADEZ
Rating(s) : Input: 5V $\Rightarrow$ 24.73mA
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

Sept. 05, 2022

Date of Test

Sept. 06~24, 2022

Prepared by



(Ella Liang)

Approved & Authorized Signer



(Kingkong Jin)



Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Sept. 24, 2022



1. General Information

1.1. Client Information

Applicant	:	ZADEZ TECHNOLOGY CO., LIMITED.
Address	:	RM 1005, 10/F HO KING COMM CTR, 2-16 FA YUEN ST MONGKOK KLN, HONG KONG, China
Manufacturer	:	DONGGUAN SHANGGUI ELECTRONICS CO., LTD.
Address	:	No.7, 7th Str. YinCheng Rd., Xiabian Village, Chang'an Town, Dongguan City, G.D, China
Factory	:	DONGGUAN SHANGGUI ELECTRONICS CO., LTD.
Address	:	No.7, 7th Str. YinCheng Rd., Xiabian Village, Chang'an Town, Dongguan City, G.D, China

1.2. Description of Device (EUT)

Product Name	:	Nano receiver
Model No.	:	M-338, M-331, M-353 (Note: All samples are the same except the model number, so we prepare "M-338" for test only.)
Trade Mark	:	ZADEZ
Test Power Supply	:	DC 5V
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A

RF Specification

Operation Frequency	:	2405~2470MHz
Number of Channel	:	8 Channels
Modulation Type	:	GFSK
Antenna Type	:	PCB Antenna
Antenna Gain(Peak)	:	-1.66 dBi

Remark: 1) 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)
COMPUTER	MODEL: DELL

1.4. Description of Test Configuration

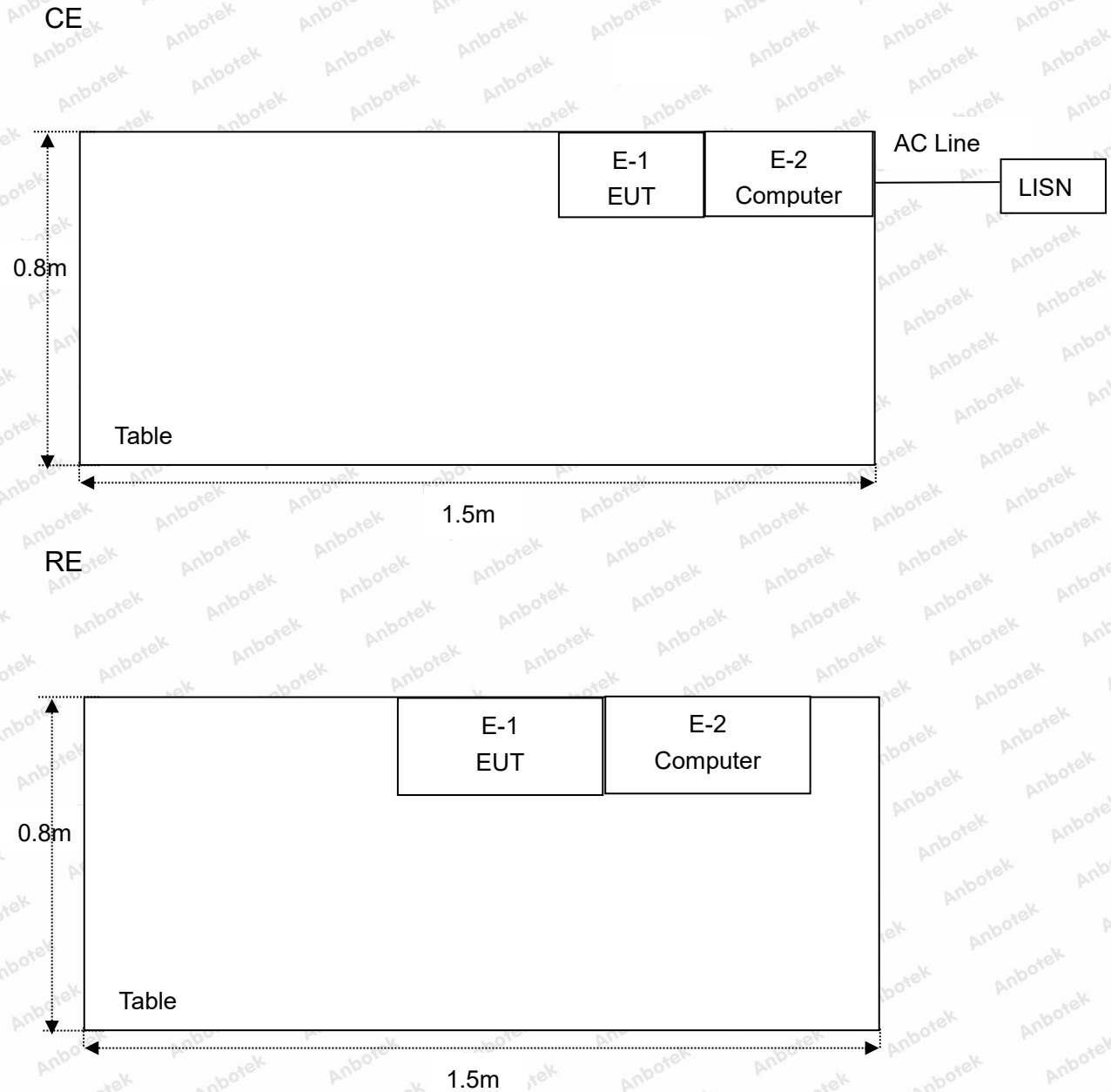
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2405	1	2413	2	2422	3	2430	4	2440
5	2450	6	2460	7	2470				

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 0, 3 and 7.



1.5. Description of Test Setup



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	Schwarzbeck	NSLK 8127	8127386	Sept. 7, 2022	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Sept. 7, 2022	1 Year
3.	Spectrum Analysis	Keysight	N9020A	MY53100616	Nov.11 , 2021	1 Year
4.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	Oct. 25, 2021	1 Year
5.	Pre-amplifier	EMtrace	RP01A	50017	Sept. 7, 2022	1 Year
6.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 02, 2020	2 Year
7.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	01417	Nov. 02, 2020	2 Year
8.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Nov. 02, 2020	2 Year
9.	Test Software	Ferrari Technology	EZ-EMC	N/A	N/A	N/A
10.	Switch box	Meike	/	/	Nov. 10, 2021	1 Year
11.	Power Sensor box	Meike	/	/	Oct. 23, 2021	1 Year
12.	MXG RF Vector Signal Generator	Agilent	N5182A	MY47420822	Feb. 28, 2022	1 Year
13.	Signal Generator	Agilent	E4425B	GB39340038	Oct. 23, 2021	1 Year
14.	DC Power Supply	Longwei	TPR-6420D	020215240	N/A	N/A



1.7. Measurement Uncertainty

Radiation Uncertainty	:	Ur = 3.9 dB (Horizontal)
		Ur = 3.8 dB (Vertical)
Conduction Uncertainty	:	Uc = 3.4 dB

1.8. Description of Test Facility

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

FCC-Registration No.: 184111

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. 184111.

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.518102



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.		

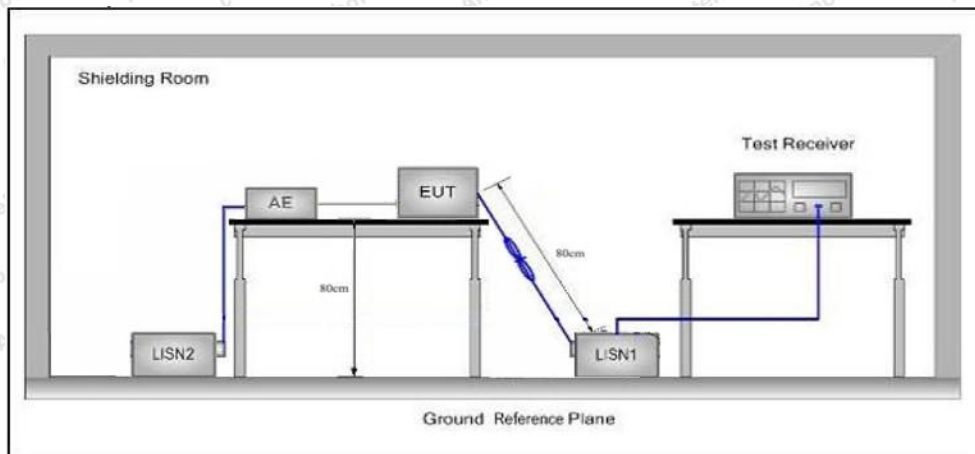


3. Conducted Emission Test

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 Middle CH (2430MHz) which is the worst case, only the worst case is recorded in the report.

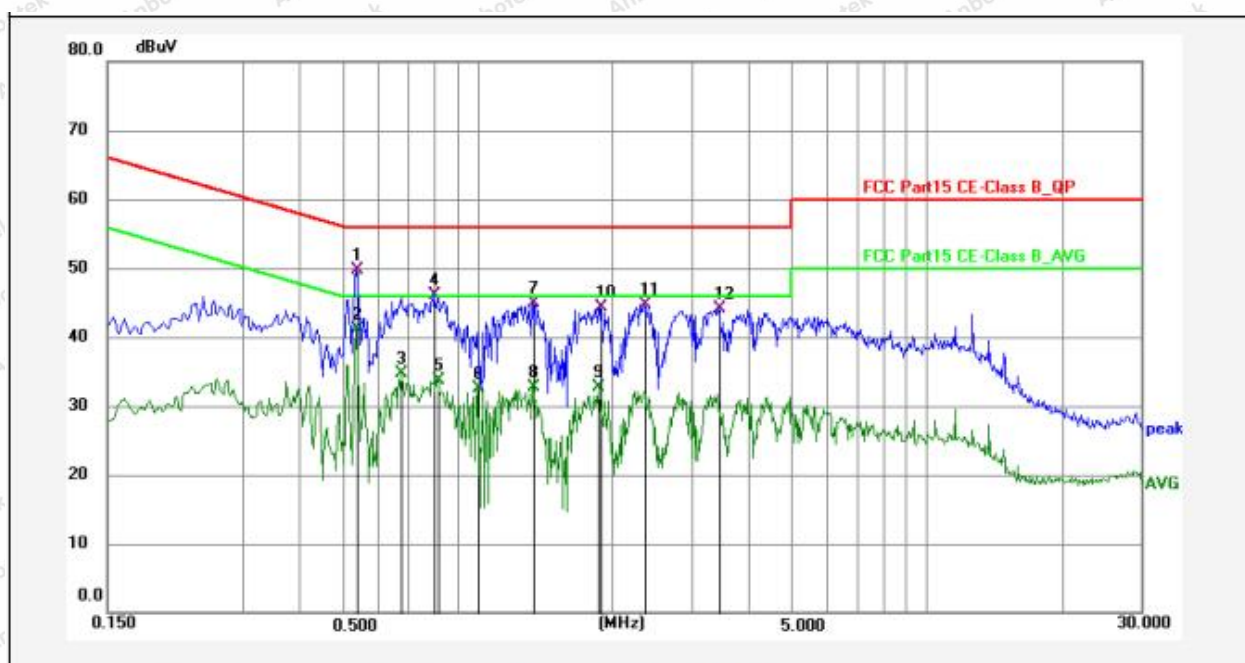
AC conducted emission pre-test at both at AC 120V/60Hz and AC 240V/60Hz modes, recorded worst case AC 120V/60Hz.

Please to see the following pages.



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Middle CH (2430MHz)
Test Specification: AC 120V, 60Hz for adapter
Comment: Live Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH

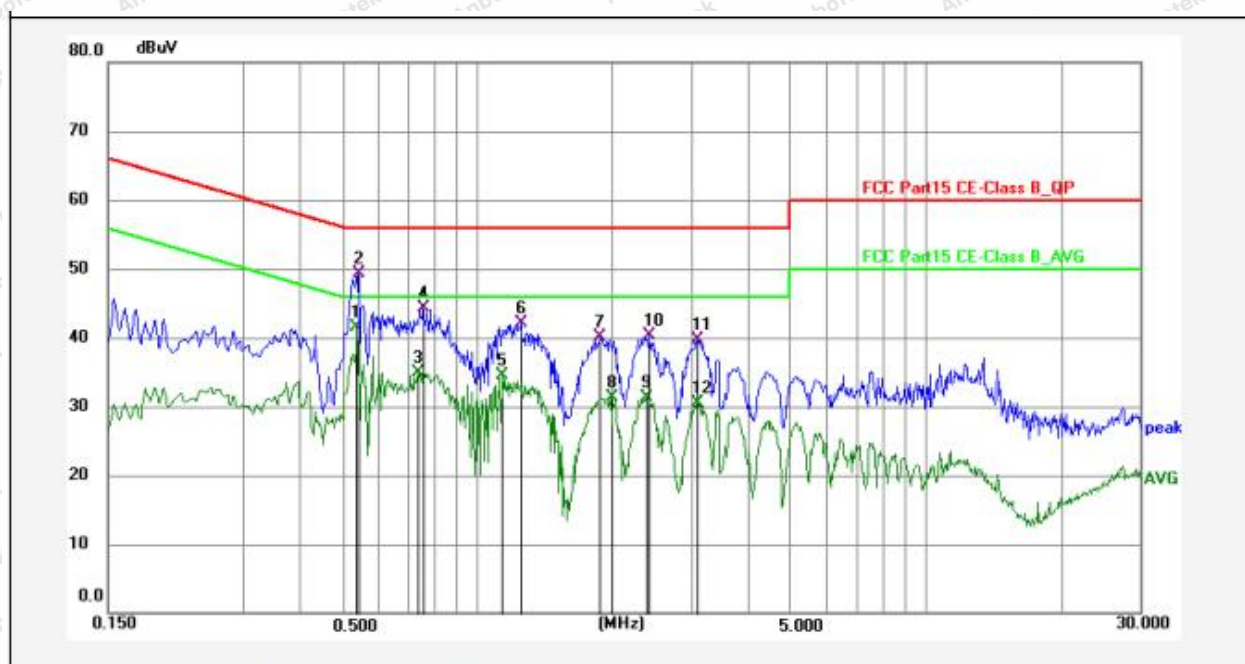


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.5378	48.87	0.87	49.74	56.00	-6.26	QP	
2	0.5378	40.29	0.87	41.16	46.00	-4.84	AVG	
3	0.6753	33.77	0.90	34.67	46.00	-11.33	AVG	
4	0.8002	45.13	0.92	46.05	56.00	-9.95	QP	
5	0.8131	32.74	0.92	33.66	46.00	-12.34	AVG	
6	0.9997	31.66	0.94	32.60	46.00	-13.40	AVG	
7	1.3238	43.99	0.94	44.93	56.00	-11.07	QP	
8	1.3238	31.71	0.94	32.65	46.00	-13.35	AVG	
9	1.8581	31.76	0.93	32.69	46.00	-13.31	AVG	
10	1.8779	43.33	0.93	44.26	56.00	-11.74	QP	
11	2.3460	43.83	0.94	44.77	56.00	-11.23	QP	
12	3.4356	43.19	0.94	44.13	56.00	-11.87	QP	



Conducted Emission Test Data

Test Site: 1# Shielded Room
Operating Condition: Middle CH (2430MHz)
Test Specification: AC 120V, 60Hz for adapter
Comment: Neutral Line
Temp.(°C)/Hum.(%RH): 22.1°C/52%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.5370	40.62	0.84	41.46	46.00	-4.54	AVG	
2	0.5414	48.45	0.84	49.29	56.00	-6.71	QP	
3	0.7350	34.00	0.86	34.86	46.00	-11.14	AVG	
4	0.7575	43.44	0.86	44.30	56.00	-11.70	QP	
5	1.1400	33.66	0.85	34.51	46.00	-11.49	AVG	
6	1.2525	41.27	0.87	42.14	56.00	-13.86	QP	
7	1.8870	39.11	0.90	40.01	56.00	-15.99	QP	
8	1.9905	30.38	0.90	31.28	46.00	-14.72	AVG	
9	2.3955	30.39	0.92	31.31	46.00	-14.69	AVG	
10	2.4224	39.38	0.92	40.30	56.00	-15.70	QP	
11	3.1065	38.70	0.94	39.64	56.00	-16.36	QP	
12	3.1065	29.51	0.94	30.45	46.00	-15.55	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

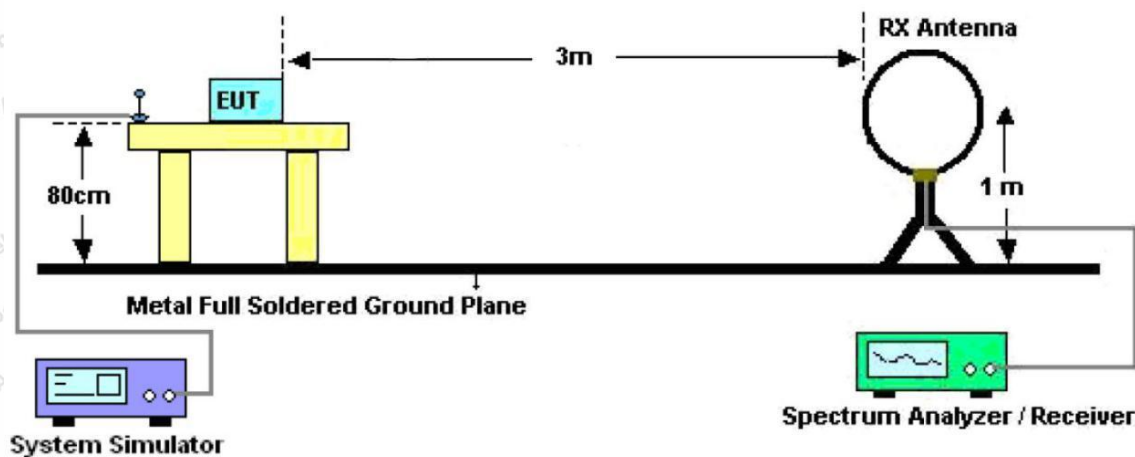


Figure 2. 30MHz to 1GHz

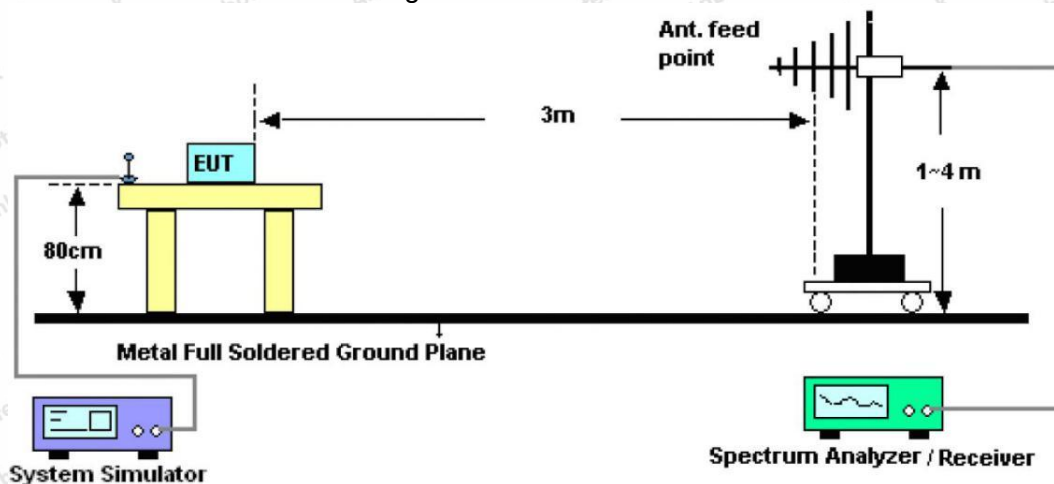
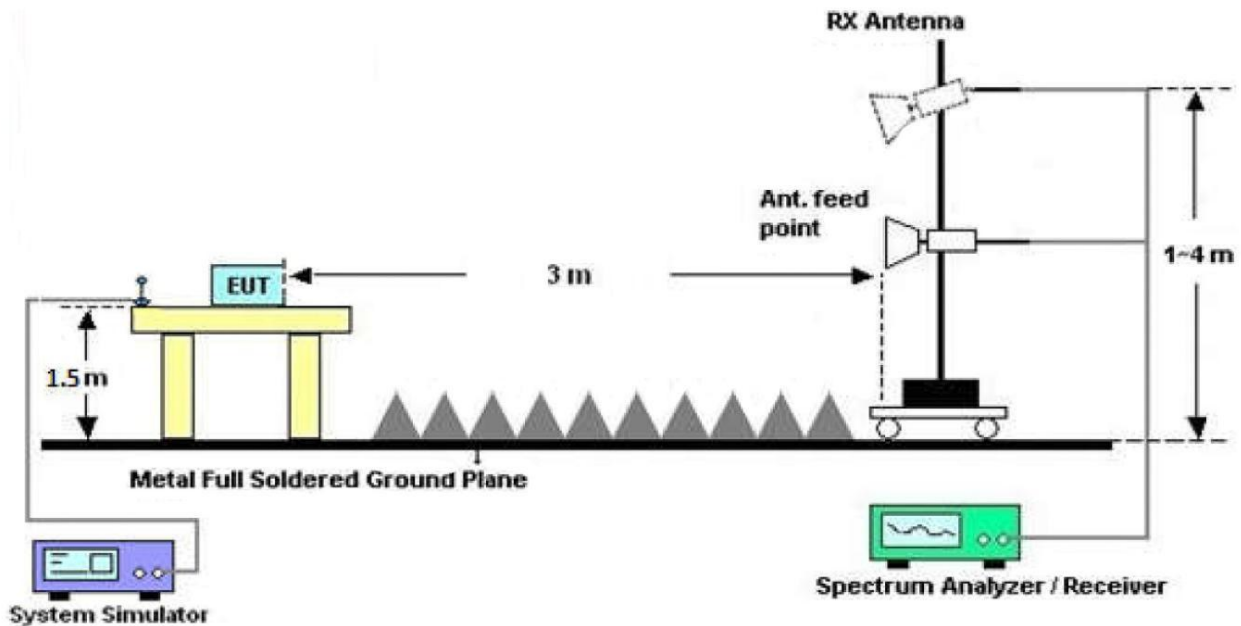


Figure 3. Above 1 GHz





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 MID CH (2430MHz) which is the worst case, only the worst case is recorded in the report.



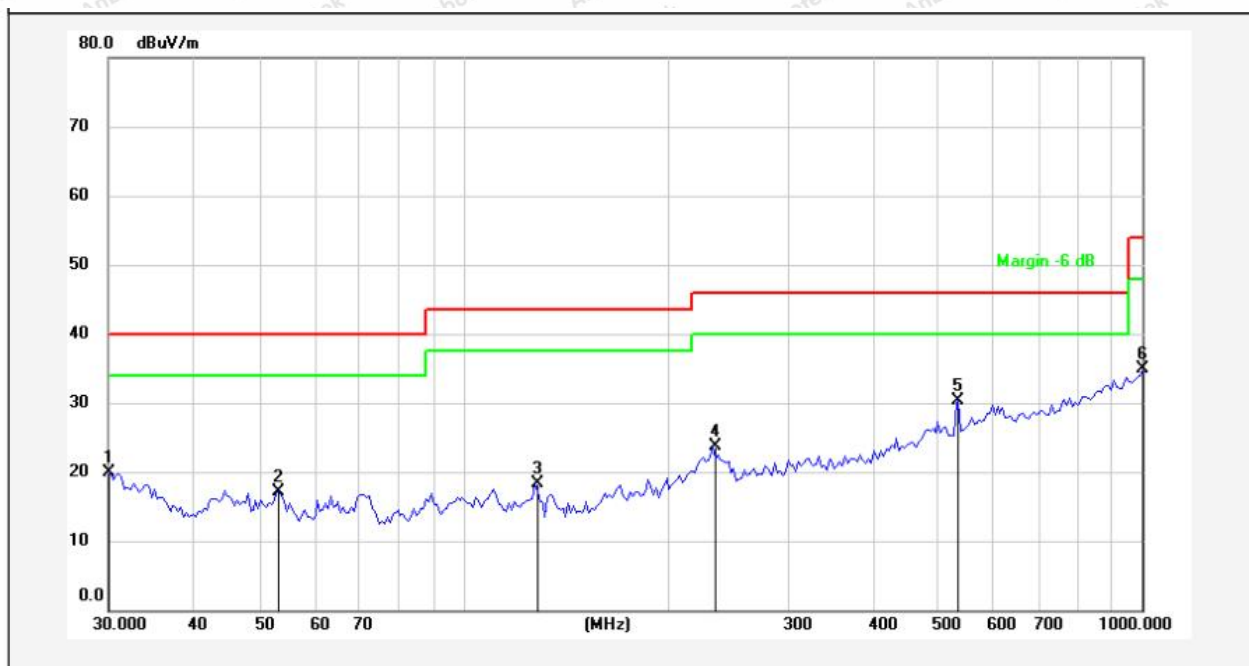
Test Results (30~1000MHz)

Test Mode: MID CH (2430MHz)

Power Source: DC 5V

Polarization: Vertical

Temp.(°C)/Hum.(%RH): 22.5°C/50%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	30.2641	35.96	-16.13	19.83	40.00	-20.17	QP			
2	53.5052	32.03	-14.99	17.04	40.00	-22.96	QP			
3	127.4409	34.97	-16.59	18.38	43.50	-25.12	QP			
4	233.3487	35.50	-11.87	23.63	46.00	-22.37	QP			
5	536.6473	34.27	-4.06	30.21	46.00	-15.79	QP			
6	1000.0000	28.55	6.32	34.87	54.00	-19.13	QP			



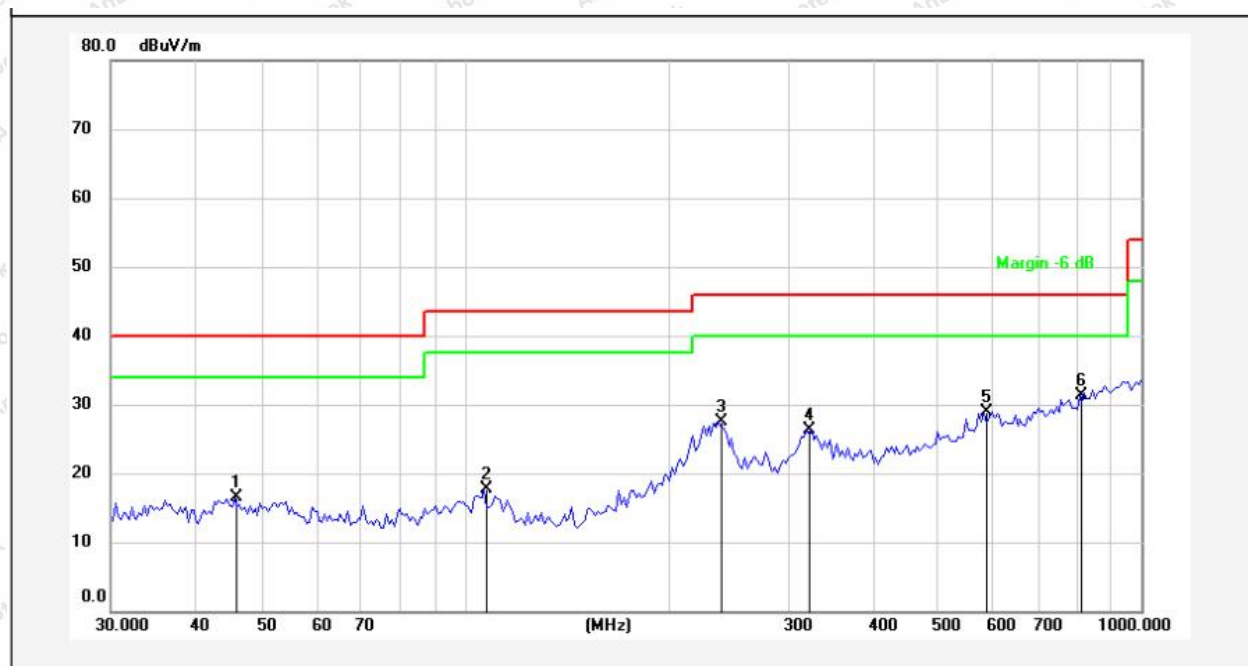
Test Results (30~1000MHz)

Test Mode: MID CH (2430MHz)

Power Source: DC 5V

Polarization: Horizontal

Temp.(°C)/Hum.(%RH): 22.5°C/50%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	45.6948	30.91	-14.34	16.57	40.00	-23.43	QP			
2	106.9461	32.50	-14.73	17.77	43.50	-25.73	QP			
3	237.4760	39.25	-11.67	27.58	46.00	-18.42	QP			
4	319.9370	36.17	-9.91	26.26	46.00	-19.74	QP			
5	585.8157	30.71	-1.78	28.93	46.00	-17.07	QP			
6	810.2654	29.95	1.40	31.35	46.00	-14.65	QP			



Test Results (1GHz-25GHz)

Test channel: Lowest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2405.00	81.28	9.75	91.03	114.00	-22.97	Vertical
4810.00	27.26	15.27	42.53	74.00	-31.47	Vertical
7215.00	27.53	18.09	45.62	74.00	-28.38	Vertical
9620.00	27.97	23.76	51.73	74.00	-22.27	Vertical
12025.00	*			74.00		Vertical
14430.00	*			74.00		Vertical
2405.00	82.32	9.75	92.07	114.00	-21.93	Horizontal
4810.00	27.03	15.27	42.30	74.00	-31.70	Horizontal
7215.00	27.61	18.09	45.70	74.00	-28.30	Horizontal
9620.00	27.60	23.76	51.36	74.00	-22.64	Horizontal
12025.00	*			74.00		Horizontal
14430.00	*			74.00		Horizontal

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2405.00	71.21	9.75	80.96	94.00	-13.04	Vertical
4810.00	15.53	15.27	30.80	54.00	-23.20	Vertical
7215.00	16.58	18.09	34.67	54.00	-19.33	Vertical
9620.00	17.44	23.76	41.20	54.00	-12.80	Vertical
12025.00	*			54.00		Vertical
14430.00	*			54.00		Vertical
2405.00	72.55	9.75	82.30	94.00	-11.70	Horizontal
4810.00	15.36	15.27	30.63	54.00	-23.37	Horizontal
7215.00	16.64	18.09	34.73	54.00	-19.27	Horizontal
9620.00	17.11	23.76	40.87	54.00	-13.13	Horizontal
12025.00	*			54.00		Horizontal
14430.00	*			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 Line (dBuV/m)	Over Limit (dB)	polarization
2430.00	84.61	9.75	94.36	114.00	-19.64	Vertical
4860.00	26.81	15.42	42.23	74.00	-31.77	Vertical
7290.00	27.50	18.02	45.52	74.00	-28.48	Vertical
9720.00	27.47	23.80	51.27	74.00	-22.73	Vertical
12150.00	*			74.00		Vertical
14580.00	*			74.00		Vertical
2430.00	80.54	9.75	90.29	114.00	-23.71	Horizontal
4860.00	26.84	15.42	42.26	74.00	-31.74	Horizontal
7290.00	27.48	18.02	45.50	74.00	-28.50	Horizontal
9720.00	27.32	23.80	51.12	74.00	-22.88	Horizontal
12150.00	*			74.00		Horizontal
14580.00	*			74.00		Horizontal
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2430.00	72.29	9.75	82.04	94.00	-11.96	Vertical
4860.00	15.62	15.42	31.04	54.00	-22.96	Vertical
7290.00	16.44	18.02	34.46	54.00	-19.54	Vertical
9720.00	17.29	23.80	41.09	54.00	-12.91	Vertical
12150.00	*			54.00		Vertical
14580.00	*			54.00		Vertical
2430.00	69.43	9.75	79.18	94.00	-14.82	Horizontal
4860.00	15.47	15.42	30.89	54.00	-23.11	Horizontal
7290.00	16.99	18.02	35.01	54.00	-18.99	Horizontal
9720.00	17.41	23.80	41.21	54.00	-12.79	Horizontal
12150.00	*			54.00		Horizontal
14580.00	*			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 Line (dBuV/m)	Over Limit (dB)	polarization
2470.00	82.42	9.75	92.17	114.00	-21.83	Vertical
4940.00	26.94	15.58	42.52	74.00	-31.48	Vertical
7410.00	27.66	17.93	45.59	74.00	-28.41	Vertical
9880.00	28.17	23.83	52.00	74.00	-22.00	Vertical
12350.00	*			74.00		Vertical
14820.00	*			74.00		Vertical
2470.00	83.04	9.75	92.79	114.00	-21.21	Horizontal
4940.00	26.98	15.58	42.56	74.00	-31.44	Horizontal
7410.00	27.69	17.93	45.62	74.00	-28.38	Horizontal
9880.00	27.70	23.83	51.53	74.00	-22.47	Horizontal
12350.00	*			74.00		Horizontal
14820.00	*			74.00		Horizontal
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2470.00	73.98	9.75	83.73	94.00	-10.27	Vertical
4940.00	16.74	15.58	32.32	54.00	-21.68	Vertical
7410.00	17.71	17.93	35.64	54.00	-18.36	Vertical
9880.00	17.94	23.83	41.77	54.00	-12.23	Vertical
12350.00	*			54.00		Vertical
14820.00	*			54.00		Vertical
2470.00	71.41	9.75	81.16	94.00	-12.84	Horizontal
4940.00	16.65	15.58	32.23	54.00	-21.77	Horizontal
7410.00	17.79	17.93	35.72	54.00	-18.28	Horizontal
9880.00	17.56	23.83	41.39	54.00	-12.61	Horizontal
12350.00	*			54.00		Horizontal
14820.00	*			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:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2310.00	39.54	9.58	49.12	74.00	-24.88	Horizontal
2390.00	39.80	9.73	49.53	74.00	-24.47	Horizontal
2310.00	39.84	9.58	49.42	74.00	-24.58	Vertical
2390.00	39.98	9.73	49.71	74.00	-24.29	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2310.00	28.37	9.58	37.95	54.00	-16.05	Horizontal
2390.00	28.71	9.73	38.44	54.00	-15.56	Horizontal
2310.00	28.67	9.58	38.25	54.00	-15.75	Vertical
2390.00	28.78	9.73	38.51	54.00	-15.49	Vertical

Test Mode: Highest

Peak value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2483.50	49.19	9.91	59.10	74.00	-14.90	Horizontal
2500.00	39.28	9.94	49.22	74.00	-24.78	Horizontal
2483.50	49.76	9.91	59.67	74.00	-14.33	Vertical
2500.00	40.40	9.94	50.34	74.00	-23.66	Vertical

Average value:

Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
2483.50	38.61	9.91	48.52	54.00	-5.48	Horizontal
2500.00	30.12	9.94	40.06	54.00	-13.94	Horizontal
2483.50	38.90	9.91	48.81	54.00	-5.19	Vertical
2500.00	30.06	9.94	40.00	54.00	-14.00	Vertical

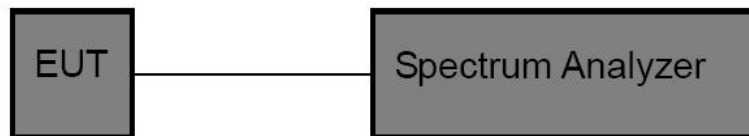


5. 20dB Bandwidth Test

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 $\geq$ 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. Test Data

Test Item	: 20dB Bandwidth	Test Mode	: CH Low ~ CH High
Test Voltage	: DC 5V	Temperature	: 22.4℃
Test Result	: PASS	Humidity	: 55%RH

Channel	Bandwidth (MHz)	Result
Low	1.804	PASS
Middle	1.753	PASS
High	1.789	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 -1.66 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 -----

