FCC Test Report

Applicant	:	**Lanquad Semiconductor Co.Ltd**
Address	:	**Room 415, Building No.1, Yinkun Chuangxinhui, 61# Wenjing Road, Pukou District, Nanjing, Jiangsu, 210031, China**
Product Name	:	**K58S55 Microwave Motion Sensor**
Report Date	:	**Dec. 19, 2023**

Shenzhen Anbotek Compliance Laboratory Limited

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
1.9. Disclaimer 10
2. Summary of Test Results 11
3. Conducted Emission Test 12
3.1. Test Standard and Limit 12
3.2. Test Setup 12
3.3. Test Procedure 12
3.4. Test Data 12
4. Radiated Emission and Band Edge 15
4.1. Test Standard and Limit 15
4.2. Test Setup 16
4.3. Test Procedure 17
4.4. Test Data 18
5. 20dB Bandwidth Test 25
5.1. Test Standard and Limit 25
5.2. Test Setup 25
5.3. Test Procedure 25
5.4. Test Data 25
6. Antenna Requirement 28
6.1. Test Standard and Requirement 28
6.2. Antenna Connecteds Construction 28
APPENDIX I -- TEST SETUP PHOTOGRAPH 29
APPENDIX II -- EXTERNAL PHOTOGRAPH 29
APPENDIX III -- INTERNAL PHOTOGRAPH 29

TEST REPORT

Applicant	:	Lanquad Semiconductor Co.Ltd
Manufacturer	:	Lanquad Semiconductor Co.Ltd
Product Name	:	K58S55 Microwave Motion Sensor
Test Model No.	:	K58S55
Reference Model No.	:	N/A
Trade Mark	:	Lanquad
Rating(s)	:	Input: 5-12V⎓

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. 16, 2023
Date of Test	Nov. 16~Dec. 11, 2023
Prepared by	Ella Liang (Ella Liang)
Approved & Authorized Signer	Edward pan (Edward Pan)

Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Dec. 19, 2023

1. General Information

1.1. Client Information

Applicant	:	Lanquad Semiconductor Co.Ltd
Address	:	Room 415, Building No.1, Yinkun Chuangxinhui, 61# Wenjing Road, Pukou District, Nanjing, Jiangsu, 210031, China
Manufacturer	:	Lanquad Semiconductor Co.Ltd
Address	:	Room 415, Building No.1, Yinkun Chuangxinhui, 61# Wenjing Road, Pukou District, Nanjing, Jiangsu, 210031, China
Factory	:	Lanquad Semiconductor Co.Ltd
Address	:	Room 415, Building No.1, Yinkun Chuangxinhui, 61# Wenjing Road, Pukou District, Nanjing, Jiangsu, 210031, China

1.2. Description of Device (EUT)

Product Name	:	K58S55 Microwave Motion Sensor
Test Model No.	:	K58S55
Reference Model No.	:	N/A
Trade Mark	:	Lanquad
Test Power Supply	:	DC 5V from Adapter input AC 120V/60Hz
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Frequency	:	5730~5835MHz
Number of Channel	:	36 Channels
Modulation Type	:	CW
Antenna Type	:	PCB Antenna
Antenna Gain(Peak)	:	3.5dBi
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

Title	Manufacturer	Model No.	Serial No.
Xiaomi 33W adapter	Xiaomi	MDY-11-EX	SA62212LA04358J

1.4. Description of Test Configuration

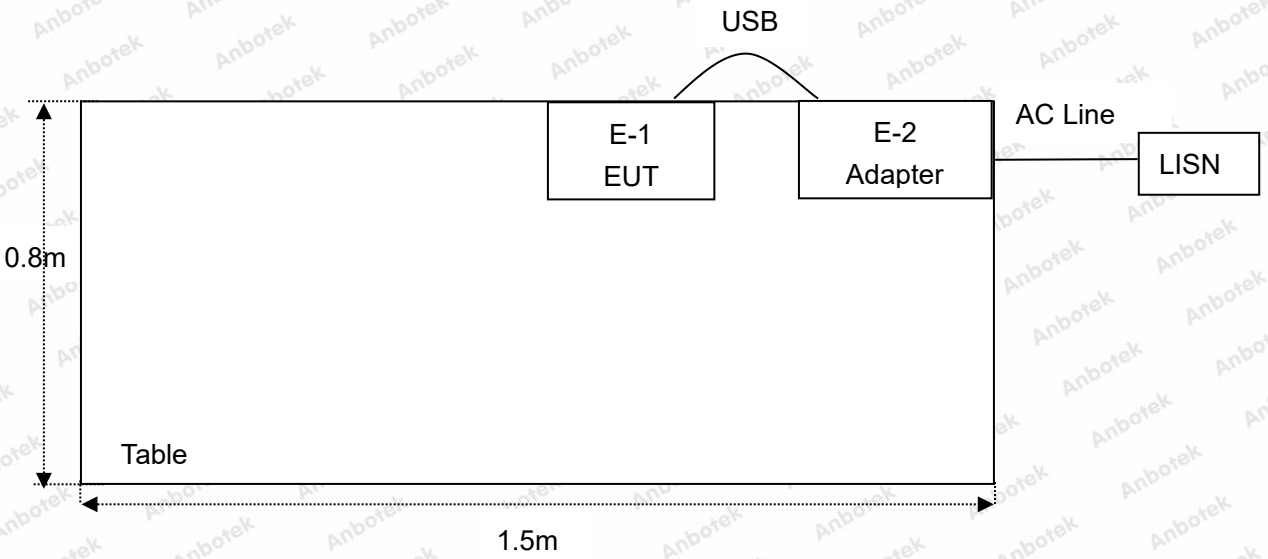
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
01	5730	14	5769	27	5808
02	5733	15	5772	28	5811
03	5736	16	5775	29	5814
04	5739	17	5778	30	5817
05	5742	18	5781	31	5820
06	5745	19	5784	32	5823
07	5748	20	5787	33	5826
08	5751	21	5790	34	5829
09	5754	22	5793	35	5832
10	5757	23	5796	36	5835
11	5760	24	5799		
12	5763	25	5802		
13	5766	26	5805		

Note:

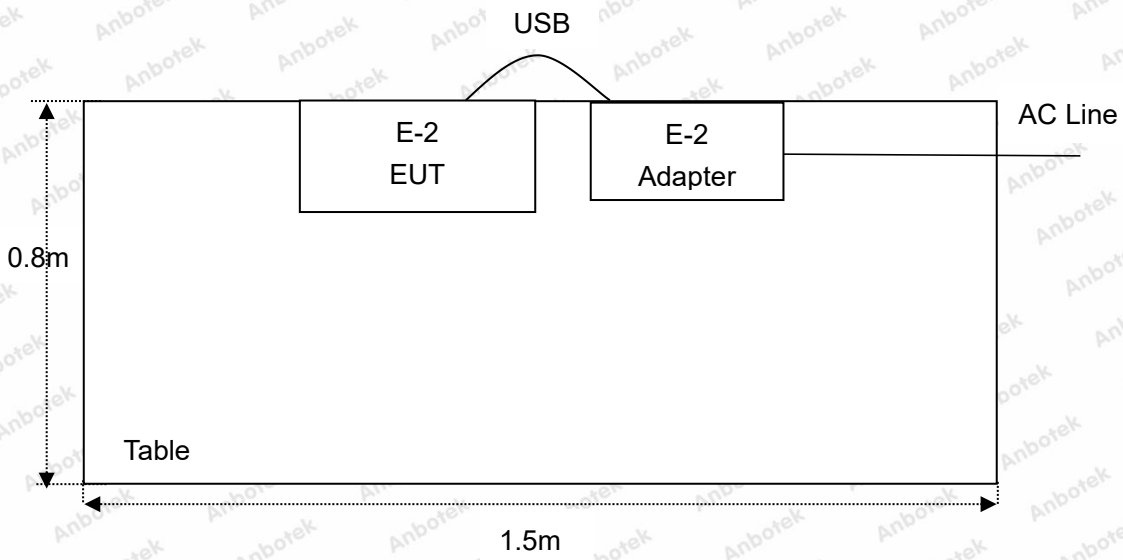
1. The engineering test program was provided and the EUT was programmed to be in continuously transmitting mode.
2. EUT was tested with Channel 01, 18 and 36.

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-KHWS80 B	N/A	Oct. 16, 2023	1 Year
18.	Spectrum Analyzer	Rohde & Schwarz	FSV40-N	101792	May. 26, 2023	1 Year

1.7. Measurement Uncertainty

Parameter	Uncertainty
Occupied Bandwidth	925Hz
Conducted emissions (AMN 150kHz~30MHz)	3.8dB
Conducted Output Power	0.76dB
Power Spectral Density	0.76dB
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

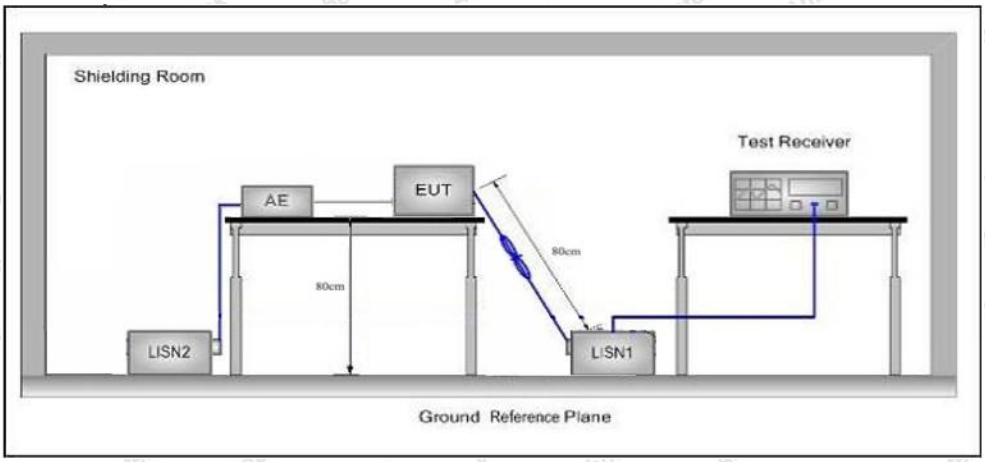
Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	PASS
15.205/15.209/15.249	Radiated Emission	PASS
15.249(d)	Band Edge	PASS
15.215(c)	20dB Bandwidth	PASS
Remark: “N/A” is an abbreviation for Not Applicable.		

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

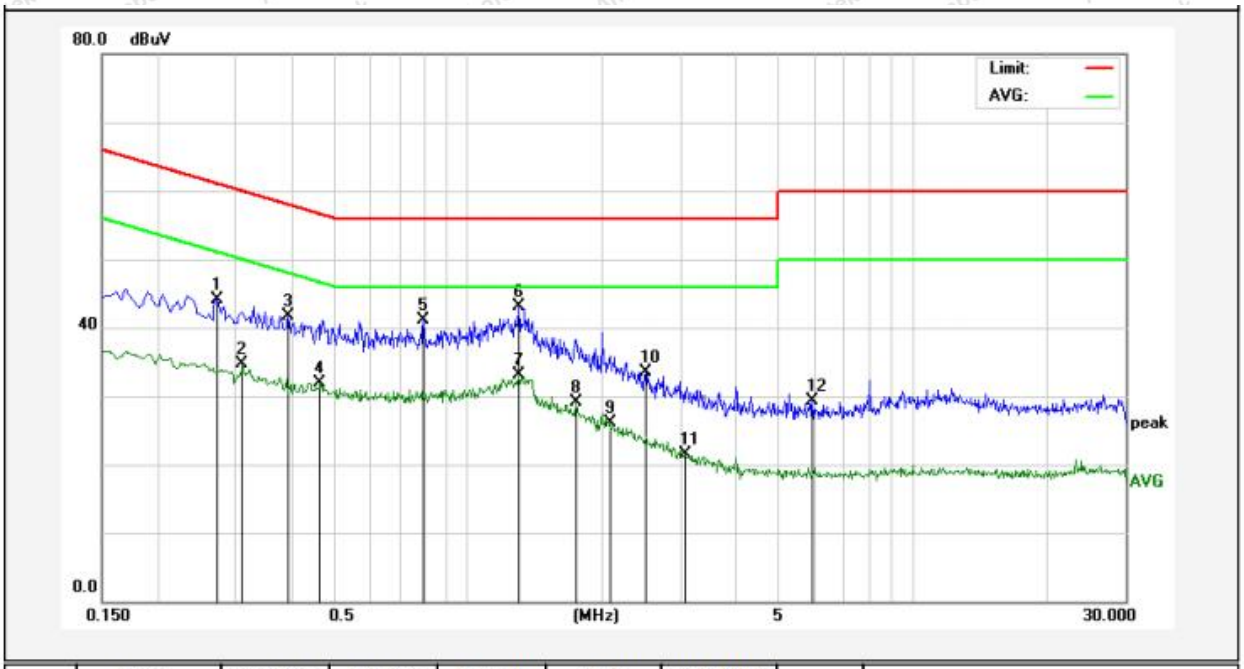
During the test, pre-scan all modes, only the worst case is recorded in the report.

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

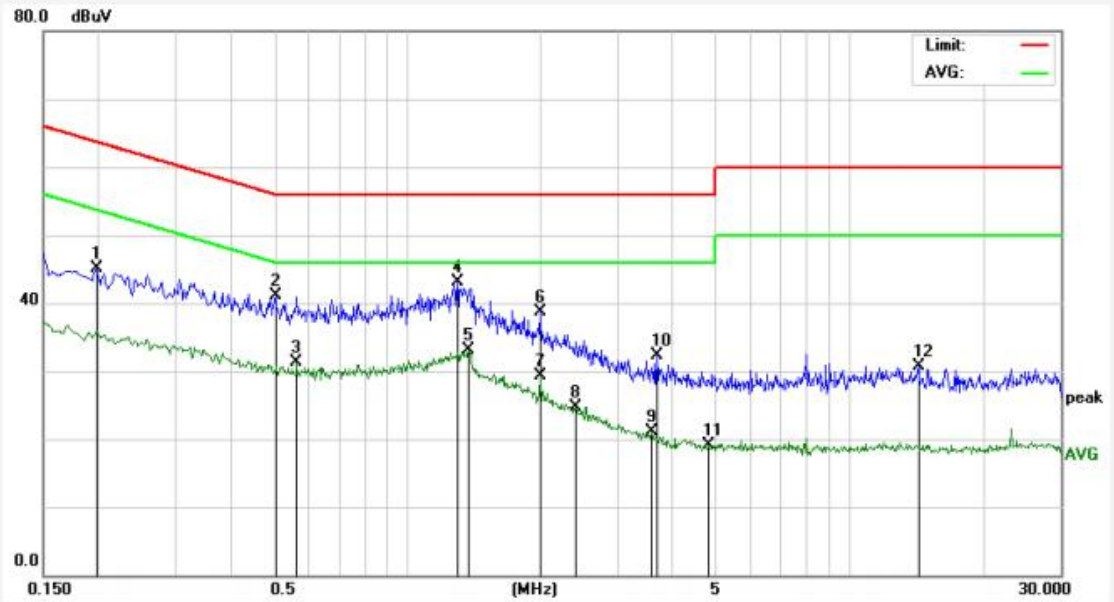
Test Site:	1# Shielded Room
Operating Condition:	Low CH (5730MHz)
Test Specification:	DC 5V from Adapter input AC 120V/60Hz
Comment:	Live Line
Temp.(℃)/Hum.(%RH):	23.5℃/65%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit (dBuV)	Over Limit (dB)	Detector	Remark
1	0.2740	24.25	19.83	44.08	60.99	-16.91	QP	
2	0.3100	14.87	19.83	34.70	49.97	-15.27	AVG	
3	0.3940	21.99	19.81	41.80	57.98	-16.18	QP	
4	0.4660	12.15	19.84	31.99	46.58	-14.59	AVG	
5	0.7940	21.19	19.86	41.05	56.00	-14.95	QP	
6	1.2980	23.33	19.84	43.17	56.00	-12.83	QP	
7	1.2980	13.29	19.84	33.13	46.00	-12.87	AVG	
8	1.7500	9.20	19.84	29.04	46.00	-16.96	AVG	
9	2.0780	6.36	19.83	26.19	46.00	-19.81	AVG	
10	2.5059	13.59	19.84	33.43	56.00	-22.57	QP	
11	3.0820	1.69	19.84	21.53	46.00	-24.47	AVG	
12	5.9420	9.53	19.85	29.38	60.00	-30.62	QP	

Conducted Emission Test Data

Test Site:	1# Shielded Room
Operating Condition:	Low CH (5730MHz)
Test Specification:	DC 5V 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	0.1980	25.32	19.83	45.15	63.69	-18.54	QP	
2	0.5020	21.17	19.85	41.02	56.00	-14.98	QP	
3	0.5620	11.51	19.86	31.37	46.00	-14.63	AVG	
4	1.2980	23.31	19.84	43.15	56.00	-12.85	QP	
5	1.3779	13.25	19.84	33.09	46.00	-12.91	AVG	
6	1.9980	18.85	19.83	38.68	56.00	-17.32	QP	
7	1.9980	9.38	19.83	29.21	46.00	-16.79	AVG	
8	2.4020	4.94	19.83	24.77	46.00	-21.23	AVG	
9	3.5660	1.23	19.85	21.08	46.00	-24.92	AVG	
10	3.6620	12.50	19.85	32.35	56.00	-23.65	QP	
11	4.8180	-0.68	19.85	19.17	46.00	-26.83	AVG	
12	14.3060	10.47	20.15	30.62	60.00	-29.38	QP	

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)
	5725~5875	50	-	114.0	Peak	3
	5725~5875	50	-	94.0	Average	3
	5725~5875	-	500	74.0	Peak	3
	5725~5875	-	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

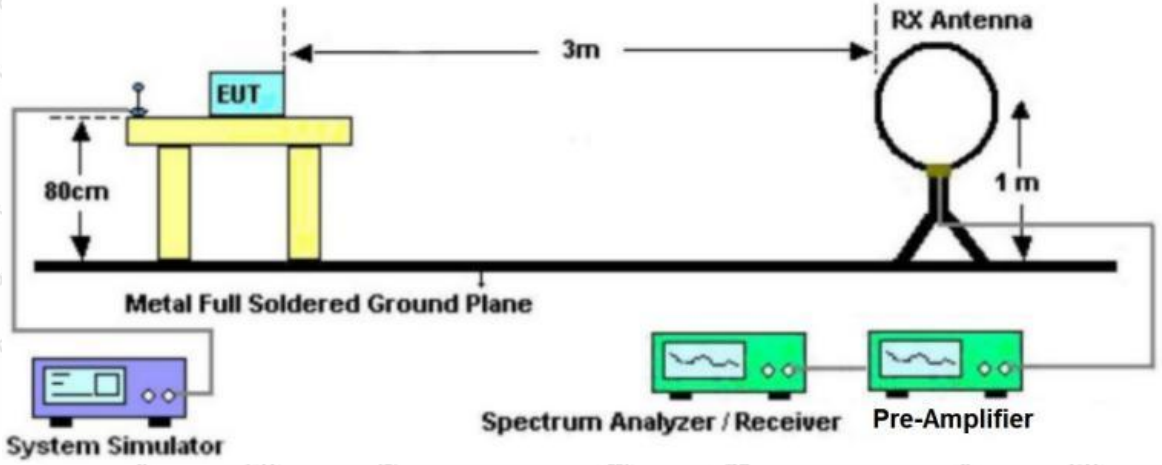


Figure 1. Below 30MHz

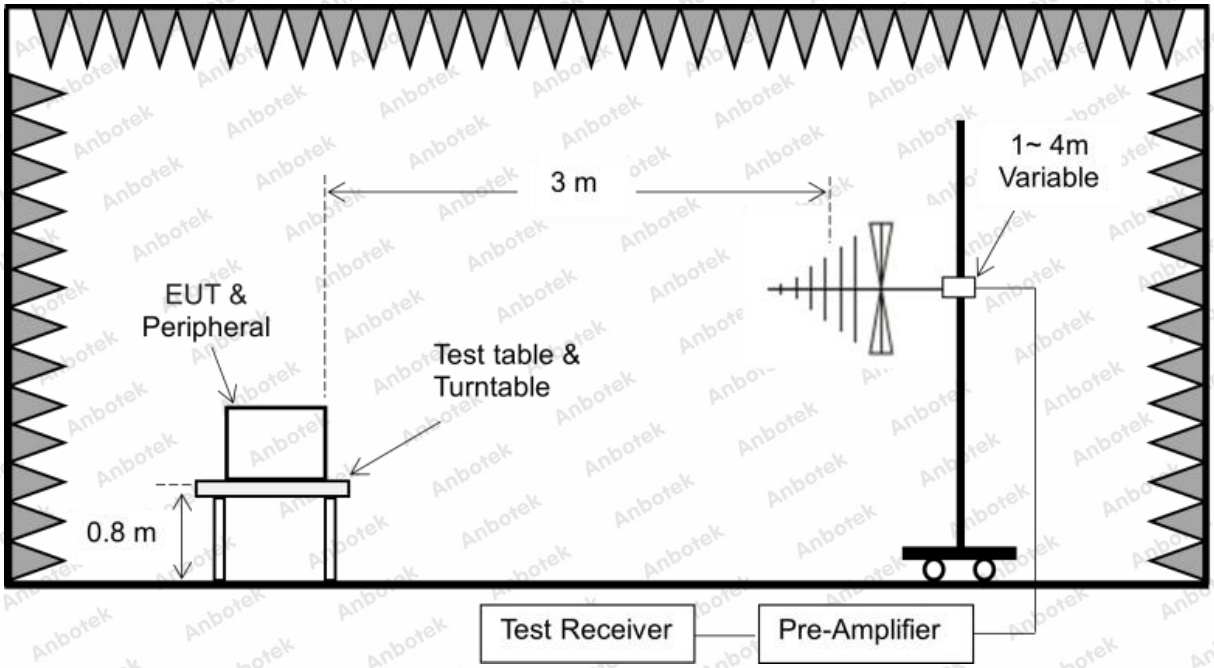


Figure 2. 30MHz to 1GHz

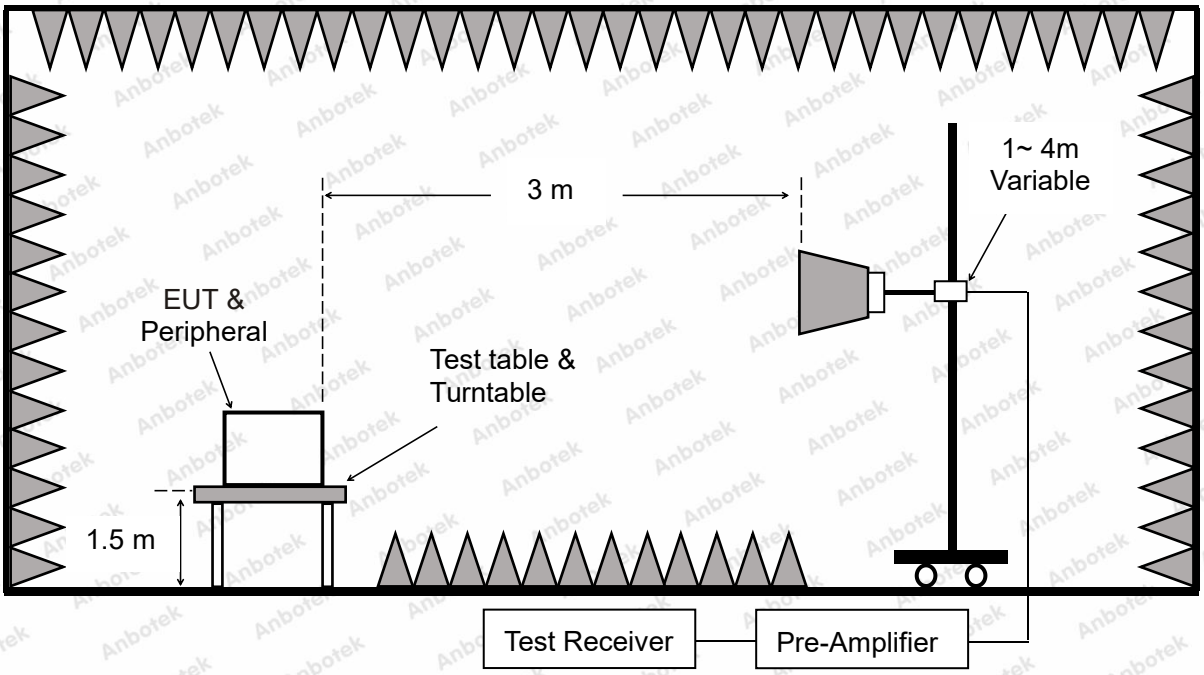


Figure 3. Above 1 GHz

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

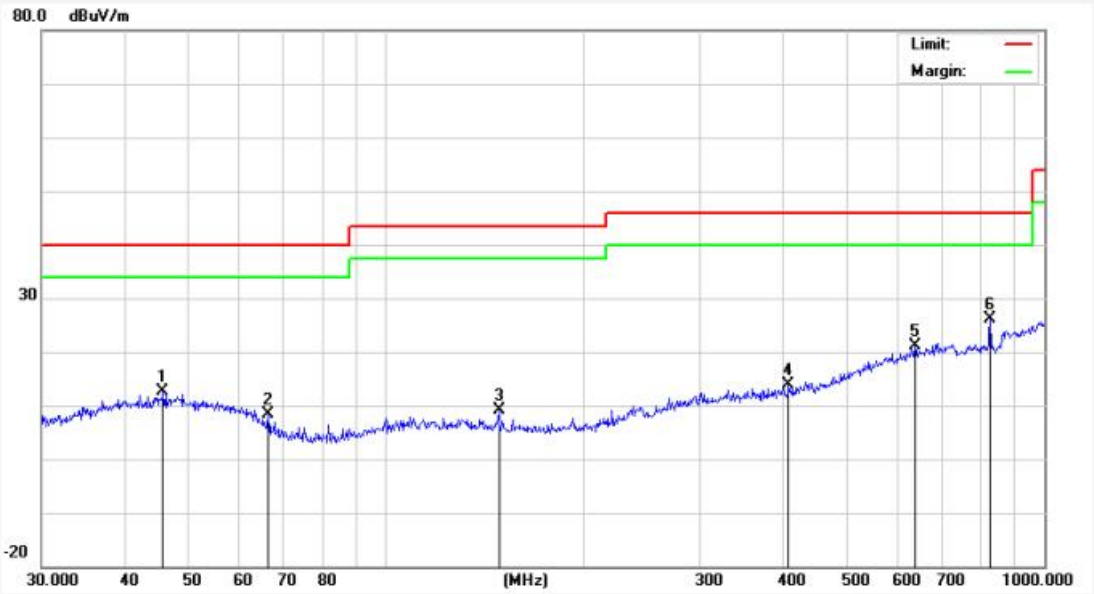
During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

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, only the worst case is recorded in the report.

Test Results (30~1000MHz)

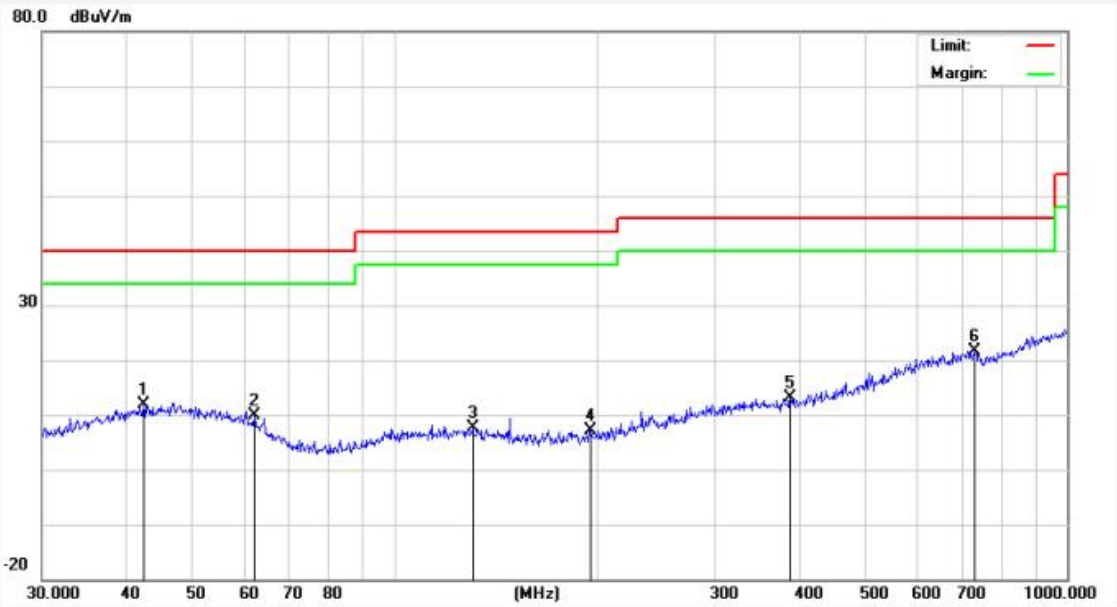
Test Mode: Low CH (5730MHz)
Power Source: DC 5V from Adapter input AC 120V/60Hz
Polarization: Vertical
Temp.(℃)/Hum.(%RH): 21℃/65%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	45.8553	27.87	-15.30	12.57	40.00	-27.43	QP			
2	66.2662	28.39	-20.07	8.32	40.00	-31.68	QP			
3	148.4410	32.02	-22.88	9.14	43.50	-34.36	QP			
4	408.9460	29.81	-16.02	13.79	46.00	-32.21	QP			
5	636.1340	31.69	-10.62	21.07	46.00	-24.93	QP			
6	827.4934	33.89	-7.83	26.06	46.00	-19.94	QP			

Test Results (30~1000MHz)

Test Mode: Low CH (5730MHz)
Power Source: DC 5V from Adapter input AC 120V/60Hz
Polarization: Horizontal
Temp.(℃)/Hum.(%RH): 21℃/65%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	42.4508	26.77	-14.81	11.96	40.00	-28.04	QP			
2	61.9951	28.05	-18.22	9.83	40.00	-30.17	QP			
3	130.8369	29.18	-21.52	7.66	43.50	-35.84	QP			
4	195.8220	26.95	-19.86	7.09	43.50	-36.41	QP			
5	387.9920	27.70	-14.57	13.13	46.00	-32.87	QP			
6	729.3583	31.26	-9.52	21.74	46.00	-24.26	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
5730.00	84.67	9.75	94.42	114.00	-19.58	Vertical
11460.00	38.67	15.27	53.94	74.00	-20.06	Vertical
17190.00	37.10	18.09	55.19	74.00	-18.81	Vertical
22920.00	28.02	23.76	51.78	74.00	-22.22	Vertical
28650.00	*			74.00		Vertical
34380.00	*			74.00		Vertical
5730.00	85.66	9.75	95.41	114.00	-18.59	Horizontal
11460.00	35.12	15.27	50.39	74.00	-23.61	Horizontal
17190.00	36.30	18.09	54.39	74.00	-19.61	Horizontal
22920.00	31.78	23.76	55.54	74.00	-18.46	Horizontal
28650.00	*			74.00		Horizontal
34380.00	*			74.00		Horizontal
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
5730.00	82.16	9.75	91.91	94.00	-2.09	Vertical
11460.00	34.86	15.27	50.13	54.00	-3.87	Vertical
17190.00	35.03	18.09	53.12	54.00	-0.88	Vertical
22920.00	29.60	23.76	53.36	54.00	-0.64	Vertical
28650.00	*			54.00		Vertical
34380.00	*			54.00		Vertical
5730.00	83.57	9.75	93.32	94.00	-0.68	Horizontal
11460.00	34.18	15.27	49.45	54.00	-4.55	Horizontal
17190.00	32.02	18.09	50.11	54.00	-3.89	Horizontal
22920.00	24.78	23.76	48.54	54.00	-5.46	Horizontal
28650.00	*			54.00		Horizontal
34380.00	*			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
5781.00	82.22	9.75	91.97	114.00	-22.03	Vertical
11562.00	34.74	15.27	50.01	74.00	-23.99	Vertical
17343.00	32.50	18.09	50.59	74.00	-23.41	Vertical
23124.00	31.40	23.76	55.16	74.00	-18.84	Vertical
28905.00	*			74.00		Vertical
34686.00	*			74.00		Vertical
5781.00	86.33	9.75	96.08	114.00	-17.92	Horizontal
11562.00	33.76	15.27	49.03	74.00	-24.97	Horizontal
17343.00	29.49	18.09	47.58	74.00	-26.42	Horizontal
23124.00	30.39	23.76	54.15	74.00	-19.85	Horizontal
28905.00	*			74.00		Horizontal
34686.00	*			74.00		Horizontal
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
5781.00	78.67	9.75	88.42	94.00	-5.58	Vertical
11562.00	31.71	15.27	46.98	54.00	-7.02	Vertical
17343.00	31.55	18.09	49.64	54.00	-4.36	Vertical
23124.00	25.90	23.76	49.66	54.00	-4.34	Vertical
28905.00	*			54.00		Vertical
34686.00	*			54.00		Vertical
5781.00	83.47	9.75	93.22	94.00	-0.78	Horizontal
11562.00	34.26	15.27	49.53	54.00	-4.47	Horizontal
17343.00	32.40	18.09	50.49	54.00	-3.51	Horizontal
23124.00	26.96	23.76	50.72	54.00	-3.28	Horizontal
28905.00	*			54.00		Horizontal
34686.00	*			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
5835.00	83.44	9.75	93.19	114.00	-20.81	Vertical
11670.00	35.41	15.27	50.68	74.00	-23.32	Vertical
17505.00	32.30	18.09	50.39	74.00	-23.61	Vertical
23340.00	32.56	23.76	56.32	74.00	-17.68	Vertical
29175.00	*			74.00		Vertical
35010.00	*			74.00		Vertical
5835.00	86.33	9.75	96.08	114.00	-17.92	Horizontal
11670.00	33.22	15.27	48.49	74.00	-25.51	Horizontal
17505.00	30.25	18.09	48.34	74.00	-25.66	Horizontal
23340.00	25.63	23.76	49.39	74.00	-24.61	Horizontal
29175.00	*			74.00		Horizontal
35010.00	*			74.00		Horizontal
Average value:						
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	polarization
5835.00	80.16	9.75	89.91	94.00	-4.09	Vertical
11670.00	34.05	15.27	49.32	54.00	-4.68	Vertical
17505.00	31.42	18.09	49.51	54.00	-4.49	Vertical
23340.00	24.12	23.76	47.88	54.00	-6.12	Vertical
29175.00	*			54.00		Vertical
35010.00	*			54.00		Vertical
5835.00	84.06	9.75	93.81	94.00	-0.19	Horizontal
11670.00	31.97	15.27	47.24	54.00	-6.76	Horizontal
17505.00	33.71	18.09	51.80	54.00	-2.20	Horizontal
23340.00	27.63	23.76	51.39	54.00	-2.61	Horizontal
29175.00	*			54.00		Horizontal
35010.00	*			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 channel: Lowest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Antenna Pol.	Detector
5725.00	42.00	17.05	59.05	74.00	-14.96	H	Peak
5725.00	42.28	17.05	59.33	74.00	-14.68	V	Peak
5725.00	29.43	17.05	46.48	54.00	-7.52	H	AVG
5725.00	30.75	17.05	47.80	54.00	-6.21	V	AVG
Test channel: Highest							
Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Antenna Pol.	Detector
5875.00	42.83	17.21	60.04	74.00	-13.96	H	Peak
5875.00	41.21	17.21	58.42	74.00	-15.59	V	Peak
5875.00	29.73	17.21	46.94	54.00	-7.07	H	AVG
5875.00	30.13	17.21	47.34	54.00	-6.67	V	AVG

Remark:

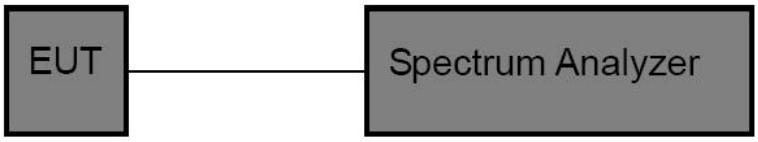
1. Level =Reading+ Factor

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



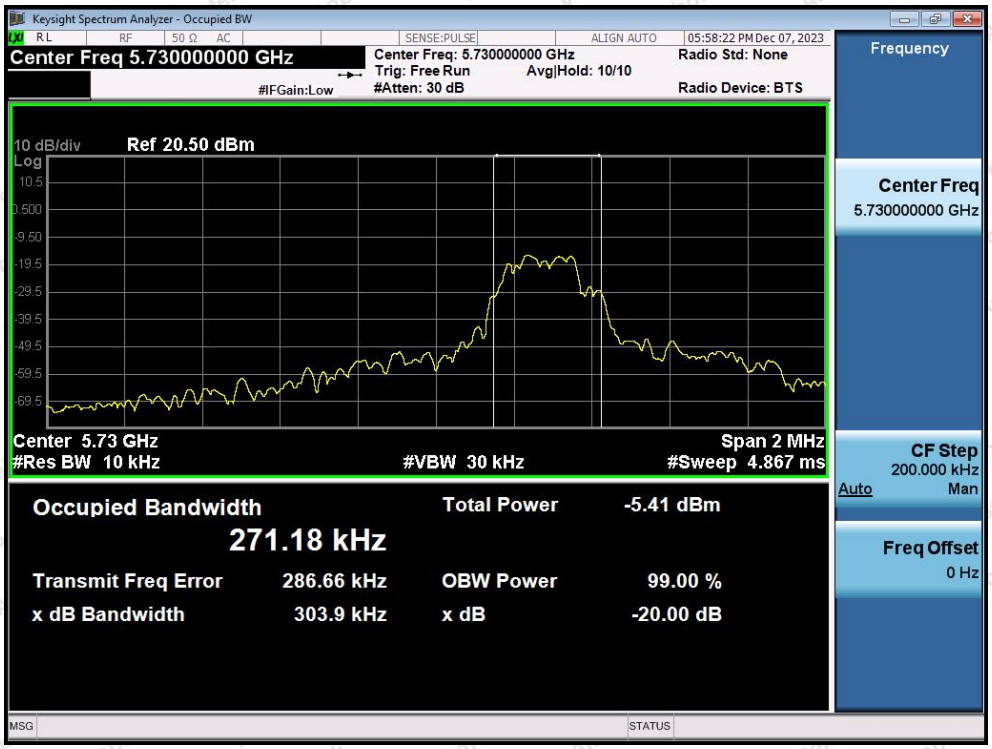
5.3. Test Procedure

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 = 10kHz, VBW≥3*RBW =30kHz,
   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.

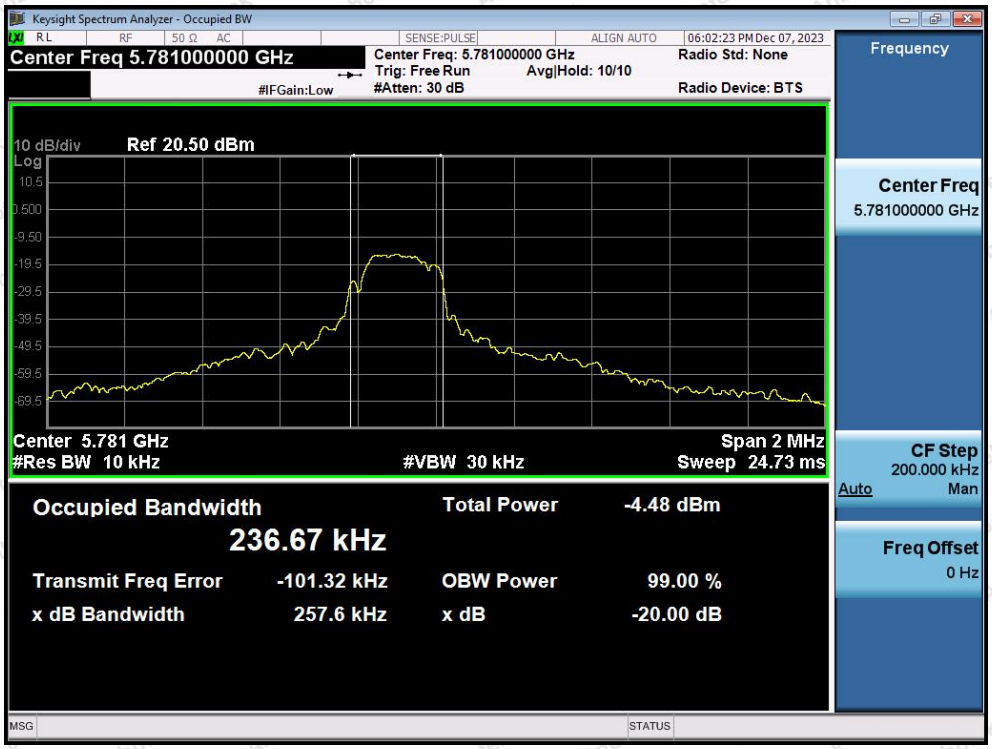
5.4. Test Data

Test Item	:	20dB Bandwidth	Test Mode	:	CH Low ~ CH High
Test Voltage	:	DC 5V from Adapter input AC 120V/60Hz	Temperature	:	25℃
Test Result	:	PASS	Humidity	:	56.4%RH

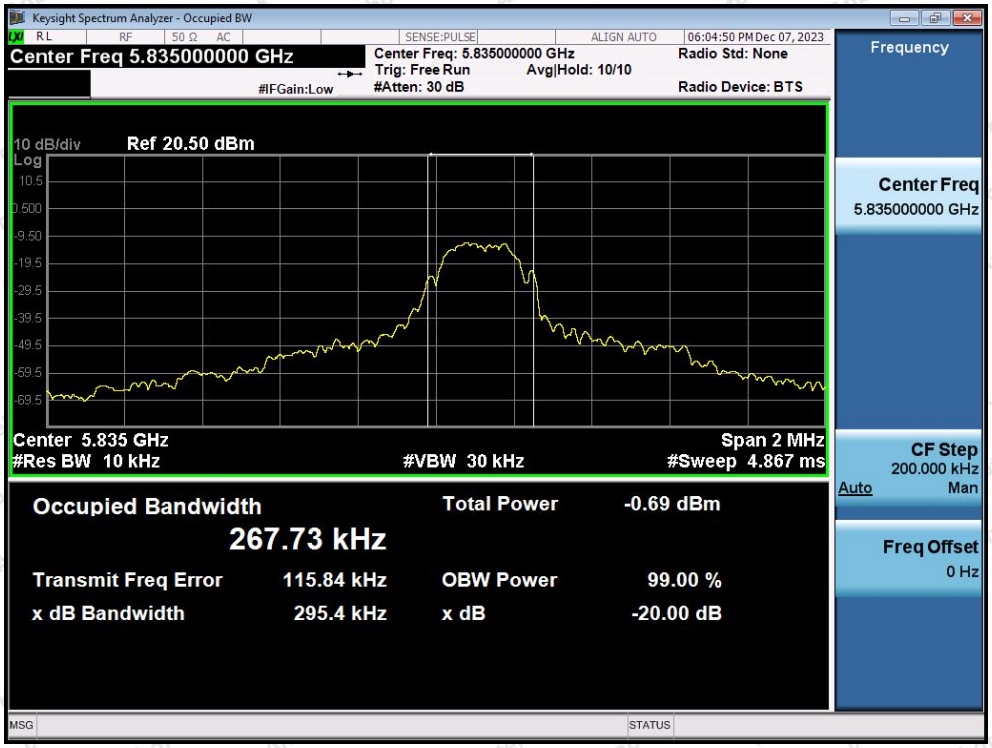
Channel	Bandwidth (kHz)	Result
Low	303.9	PASS
Middle	257.6	PASS
High	295.4	PASS



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 Connecteds Construction

The antenna is a PCB Antenna which permanently attached, and the best case gain of the antenna is 3.5dBi. 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 ----------