MEASUREMENT REPORT

FCC PART 15.249

FCC ID:	2ANJCALSKY580SH
APPLICANT:	Aurolite Electrical Panyu Guangzhou Limited
Application Type:	Certification
Product:	5.8GHz Microwave Sensor
Model No.:	ALSKY580SH
Brand Name:	Aurolite
FCC Classification:	Low Power Communication Device Transmitter (DXX)
FCC Rule Part(s):	Part 15.249
Test Procedure(s):	ANSI C63.10 - 2013
Test Date:	September 26 ~ October 09, 2017

Reviewed By : Sunny Sun
(Sunny Sun)

Approved By : Marlin Chen
(Marlin Chen)

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
1708RSU01801	Rev. 01	Initial Report	10-19-2017	Invalid
1708RSU01801	Rev. 02	Added the conducted emission test	10-25-2017	Valid

CONTENTS

Description Page

§2.1033 General Information

Applicant:	Aurolite Electrical Panyu Guangzhou Limited
Applicant Address:	Jinhu Industrial Zone, Shihua Road, Hualong Town, Panyu District, Guangzhou City, P.R.China
Manufacturer:	Aurolite Electrical Panyu Guangzhou Limited
Manufacturer Address:	Jinhu Industrial Zone, Shihua Road, Hualong Town, Panyu District, Guangzhou City, P.R.China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
FCC Registration No.:	893164
FCC Rule Part(s):	Part 15.249
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification:	Low Power Communication Device Transmitter (DXX)

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.**

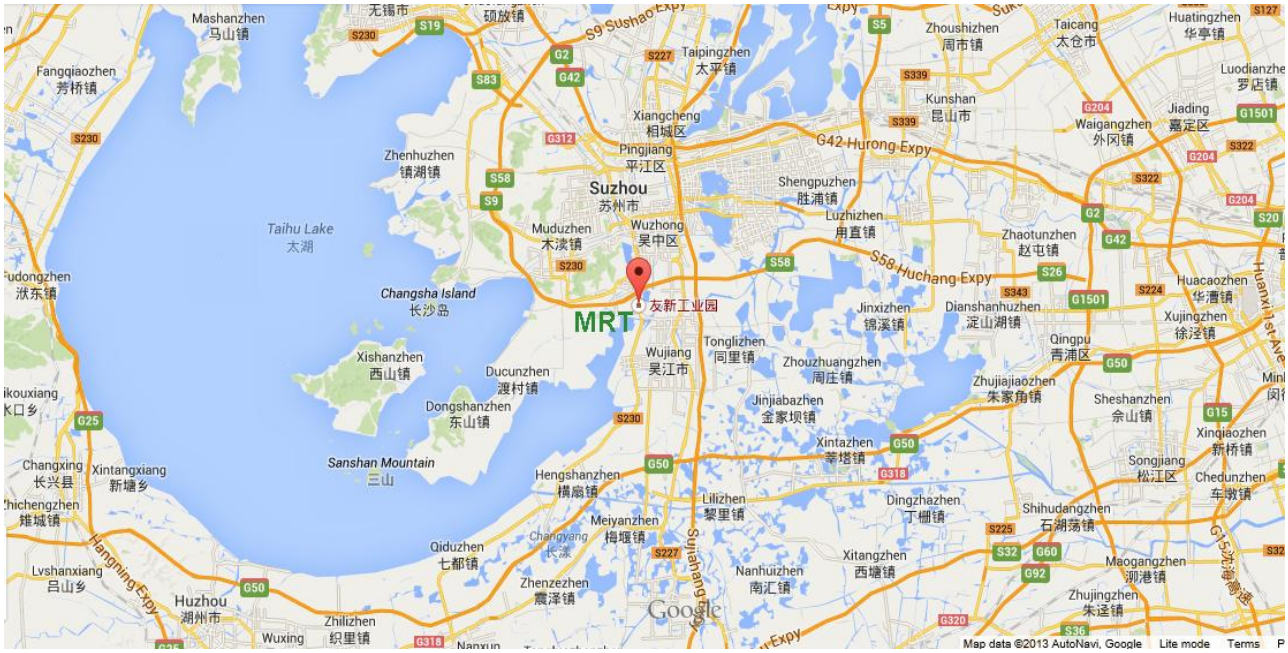
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	5.8GHz Microwave Sensor
Model No.	ALSKY580SH
Frequency Range	5753 ~ 5866 MHz
Antenna Gain	1.62dBi

2.2. Operation Frequency and Channel List

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	5753 MHz	02	5778 MHz	03	5779 MHz
04	5780 MHz	05	5781 MHz	06	5782 MHz
07	5783 MHz	08	5784 MHz	09	5785 MHz
10	5786 MHz	11	5787 MHz	12	5788 MHz
13	5789 MHz	14	5790 MHz	15	5791 MHz
16	5792 MHz	17	5793 MHz	18	5794 MHz
19	5795 MHz	20	5796 MHz	21	5797 MHz
22	5798MHz	23	5799 MHz	24	5800 MHz
25	5801 MHz	26	5802 MHz	27	5803 MHz
28	5804 MHz	29	5805 MHz	30	5806 MHz
31	5807 MHz	32	5808 MHz	33	5809 MHz
34	5810 MHz	35	5811 MHz	36	5812 MHz
37	5813 MHz	38	5814 MHz	39	5815 MHz
40	5866 MHz	--	--	--	--

2.3. Test Configuration

The EUT was tested as described in this report is in compliance with the requirements limits of FCC Rules Part 15.207,15.209, 15.215 and 15.249. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.4. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

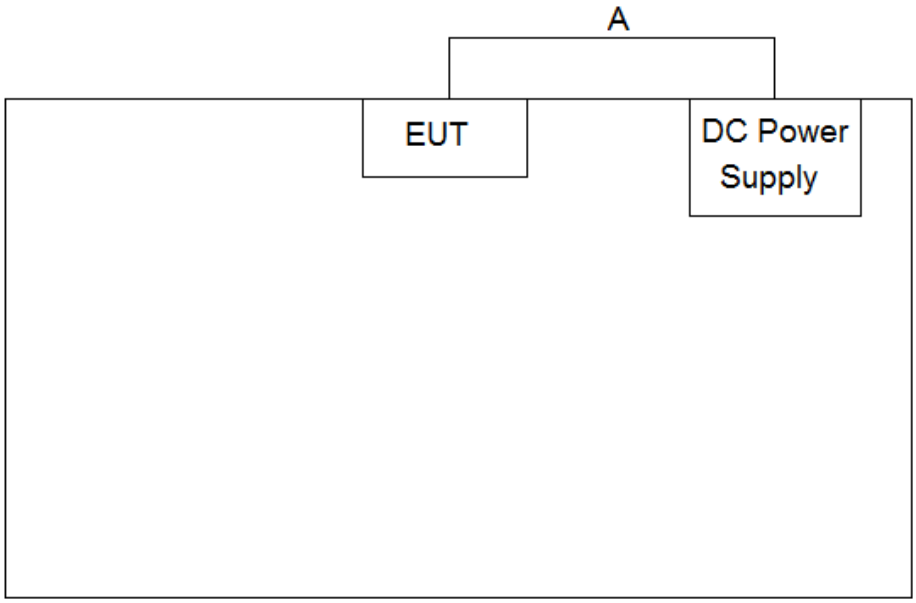
2.5. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

2.6. Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal Cable Description
A	DC Power Cable	Non-Shielding, 1m

2.7. Test System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	DC Power Supply	Guwei	DPS-3303C	EM913553	Non-Shielded, 1.2m

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the requirements provided in FCC 15.207, 15.209, 15.215 and 15.249 were performed in the report of the EUT.

Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.
For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-25GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.
Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section."

- The antenna of the EUT **is permanently attached.**
- There are no provisions for connection to an external antenna.

Conclusion:

This unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2018/06/20
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2018/06/20
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2018/06/20
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06181	1 year	2017/12/20
Shielding Anechoic Chamber	Mikebang	Chamber-SR2	MRTSUE06214	1 year	2018/05/10

Radiated Emission - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cal. Due Date
MXE EMI Receiver	Agilent	N9038A	MRTSUE06125	1 year	2018/08/03
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2018/03/28
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2017/11/21
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2017/11/19
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2017/10/22
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2018/01/04
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06183	1 year	2017/12/20
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2018/05/10

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Agilent	N9038A	MRTSUE06125	1 year	2017/08/03
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06180	1 year	2017/12/20

Software	Version	Function
e3	V8.3.5	EMI Test Software

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB

7. TEST RESULT

7.1. Summary

Product Name: **5.8GHz Microwave Sensor**

FCC ID: **ALSKY580SH**

FCC Classification: **Low Power Communication Device Transmitter (DXX)**

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.2
15.209 15.249	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	Pass	Section 7.3 & 7.4
15.215(c)	20dB Spectrum Bandwidth	20 dB bandwidth of the emission in the specific band	Conducted	Pass	Section 7.5

Notes:

1) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

7.2. Conducted Emission

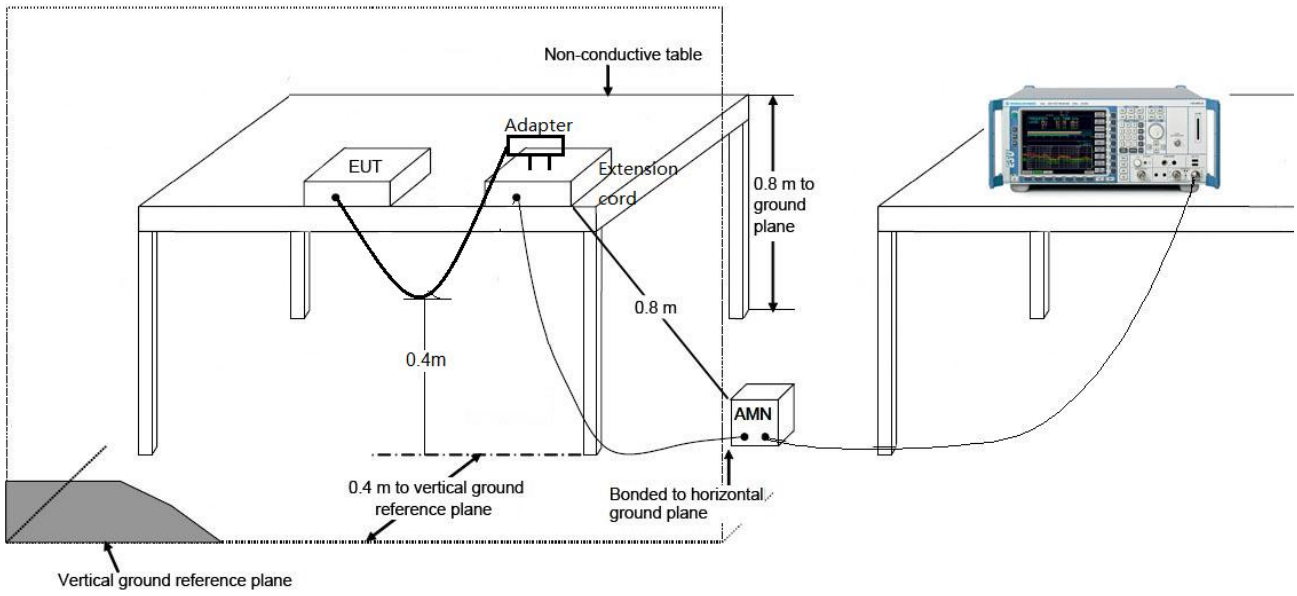
7.2.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

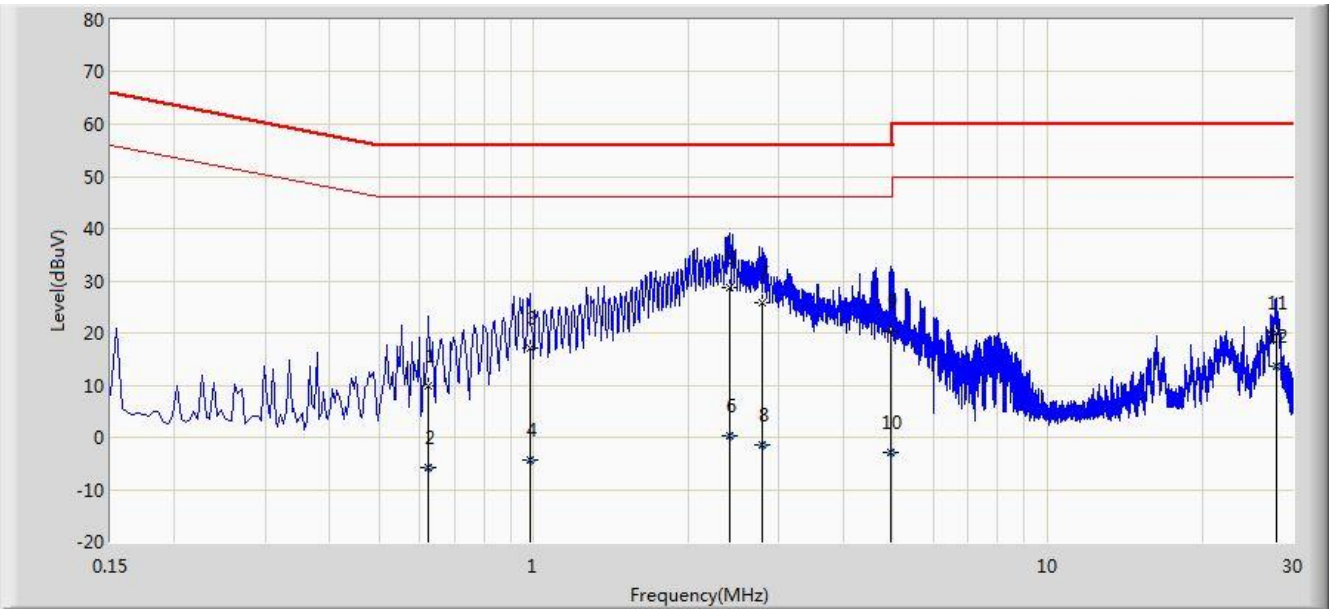
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

7.2.2.Test Setup



7.2.3.Test Result

Site: SR2	Time: 2017/10/25 - 17:01
Limit: FCC_Part15.207_CE_AC Power	Engineer: Polly Zong
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: 5.8GHz Microwave Sensor	Power: AC 120V/60Hz
Test Mode: Transmit at 5753MHz	

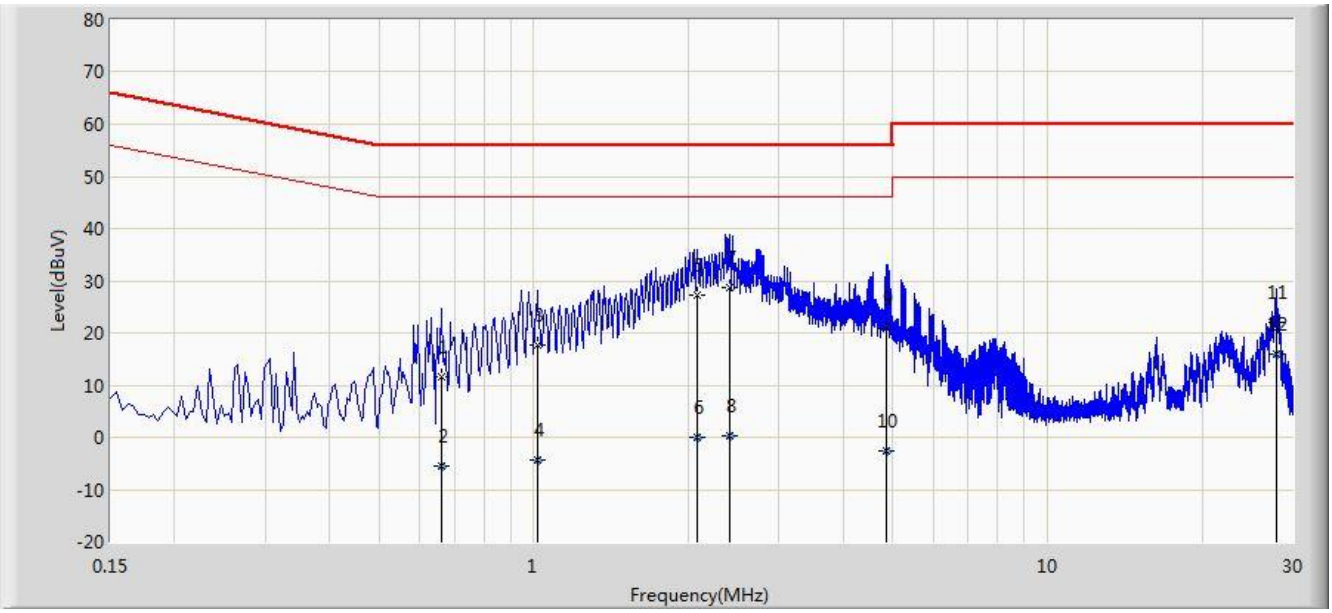


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.622	9.856	-0.247	-46.144	56.000	10.103	QP
2			0.622	-5.901	-16.005	-51.901	46.000	10.103	AV
3			0.982	17.162	7.244	-38.838	56.000	9.917	QP
4			0.982	-4.457	-14.375	-50.457	46.000	9.917	AV
5		*	2.402	28.818	18.958	-27.182	56.000	9.860	QP
6			2.402	0.414	-9.447	-45.586	46.000	9.860	AV
7			2.790	25.709	15.861	-30.291	56.000	9.848	QP
8			2.790	-1.356	-11.204	-47.356	46.000	9.848	AV
9			4.950	20.301	10.277	-35.699	56.000	10.024	QP
10			4.950	-2.783	-12.807	-48.783	46.000	10.024	AV
11			27.934	19.894	9.645	-40.106	60.000	10.249	QP
12			27.934	13.567	3.318	-36.433	50.000	10.249	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

Site: SR2	Time: 2017/10/25 - 17:05
Limit: FCC_Part15.207_CE_AC Power	Engineer: Polly Zong
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: 5.8GHz Microwave Sensor	Power: AC 120V/60Hz
Test Mode: Transmit at 5753MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.662	11.640	1.544	-44.360	56.000	10.096	QP
2			0.662	-5.622	-15.718	-51.622	46.000	10.096	AV
3			1.014	17.546	7.637	-38.454	56.000	9.909	QP
4			1.014	-4.396	-14.305	-50.396	46.000	9.909	AV
5			2.082	27.225	17.353	-28.775	56.000	9.872	QP
6			2.082	0.071	-9.801	-45.929	46.000	9.872	AV
7		*	2.398	28.575	18.710	-27.425	56.000	9.864	QP
8			2.398	0.319	-9.545	-45.681	46.000	9.864	AV
9			4.854	20.950	10.915	-35.050	56.000	10.035	QP
10			4.854	-2.662	-12.697	-48.662	46.000	10.035	AV
11			27.886	22.134	11.751	-37.866	60.000	10.383	QP
12			27.886	16.077	5.694	-33.923	50.000	10.383	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

7.3. Radiated Emission

7.3.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (uV/m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-80	100**	3
80-216	150**	3
216-960	200**	3
Above 960	500	3

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

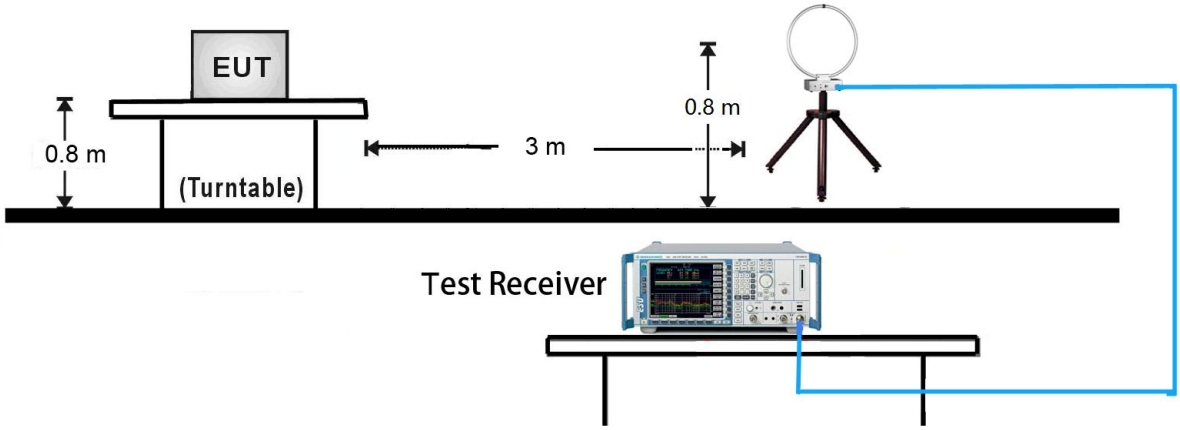
Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m).

FCC Part 15 Subpart C Paragraph 15.249		
Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902-928(MHz)	50	500
2400-2483.5(MHz)	50	500
5725-5875(MHz)	50	500
24.0-24.25(GHz)	250	2500

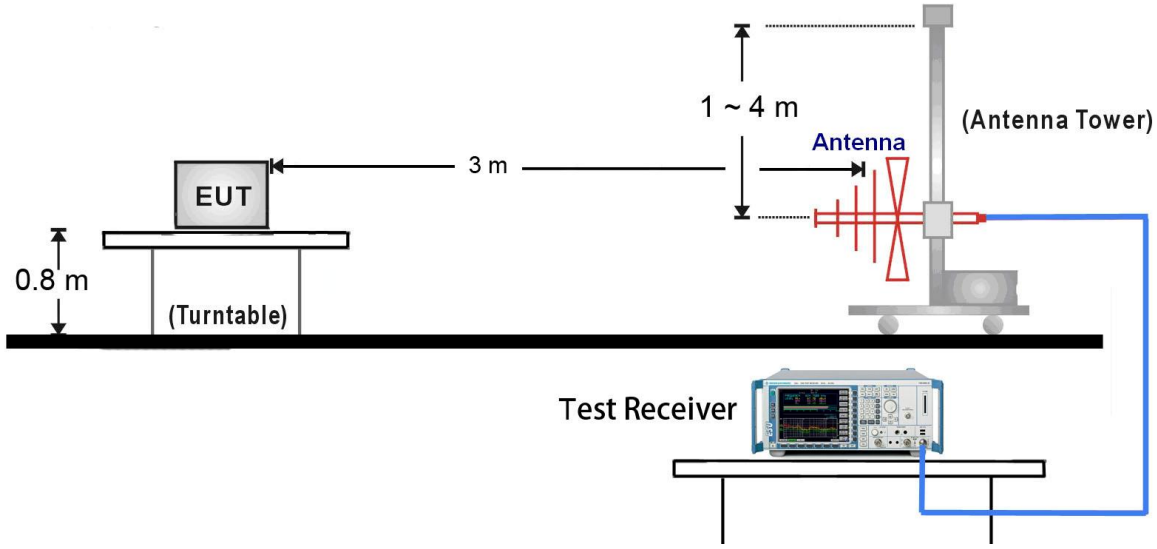
FCC Part 15.249 (d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

7.3.2.Test Setup

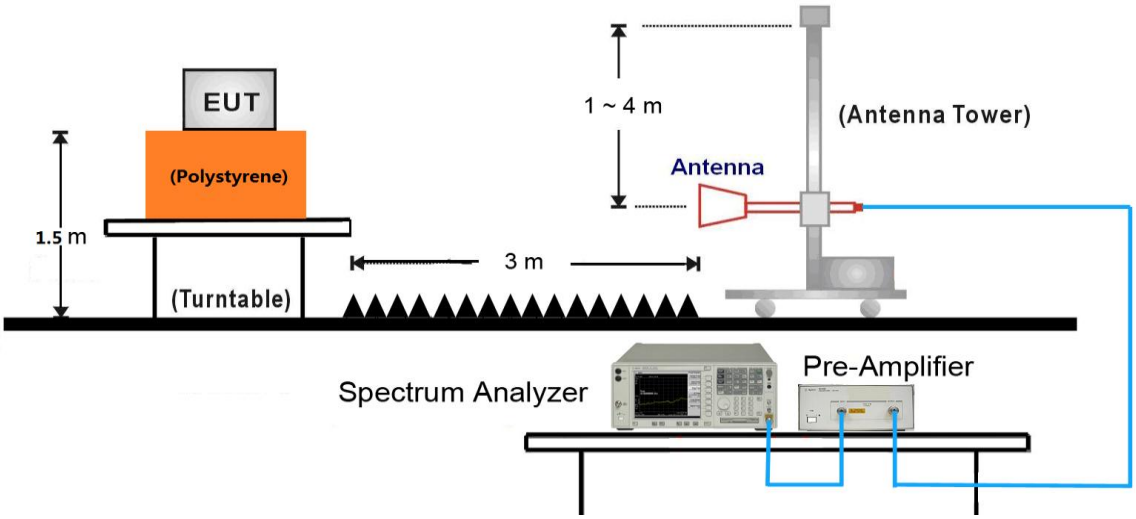
9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



1GHz ~ 40GHz Test Setup:



7.3.3.Test Result

Test Site:	AC1	Test Engineer:	Will Yan
Remark:	**Fundamental Radiated Emission**		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
5753	79.2	3.8	83.0	114.0	-31.0	PK	Horizontal
	66.6	3.8	70.4	94.0	-23.6	AV	Horizontal
	87.1	3.8	90.9	114.0	-23.1	PK	Vertical
	76.4	3.8	80.2	94.0	-13.8	AV	Vertical
5796	79.7	4.0	83.6	114.0	-30.4	PK	Horizontal
	68.3	4.0	72.3	94.0	-21.8	AV	Horizontal
	86.7	4.0	90.6	114.0	-23.4	PK	Vertical
	74.9	4.0	78.9	94.0	-15.1	AV	Vertical
5866	78.2	4.1	82.3	114.0	-31.7	PK	Horizontal
	67.3	4.1	71.4	94.0	-22.6	AV	Horizontal
	87.4	4.1	91.5	114.0	-22.5	PK	Vertical
	75.3	4.1	79.4	94.0	-14.6	AV	Vertical

Note 1: Peak Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: All readings below 1GHz are peak, above 1GHz are performed with peak and/or average measurements as necessary.

Test Site:	AC1	Test Engineer:	Will Yan
Remark:	**General Radiated Emission**		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
304.0	5.9	14.4	20.3	46	-25.7	QP	Horizontal
409.3	3.6	16.7	20.3	46	-25.7	QP	Horizontal
242.9	8.0	12.8	20.8	46	-25.2	QP	Vertical
310.3	7.3	14.6	21.9	46	-24.1	QP	Vertical
7026.5	35.8	6.9	42.7	74	-31.3	PK	Horizontal
11480.5	35.0	12.7	47.7	74	-26.3	PK	Horizontal
8072.0	36.5	8.7	45.2	74	-28.8	PK	Vertical
11506.0	38.6	12.8	51.4	74	-22.6	PK	Vertical
Mid Channel							
309.4	8.2	14.5	22.7	46	-23.3	QP	Horizontal
712.4	6.2	22.2	28.4	46	-17.6	QP	Horizontal
242.9	8.1	12.8	20.9	46	-25.1	QP	Vertical
313.4	8.1	14.7	22.8	46	-23.2	QP	Vertical
9687.0	34.7	10.9	45.6	74	-28.4	PK	Horizontal
11591.0	38.3	12.6	50.9	74	-23.1	PK	Horizontal
9653.0	34.5	11.0	45.5	74	-28.5	PK	Vertical
11591.0	38.8	12.6	51.4	74	-22.6	PK	Vertical
High Channel							
292.4	7.4	14.1	21.5	46	-24.5	QP	Horizontal
405.9	8.2	16.7	24.9	46	-21.1	QP	Horizontal
242.9	9.6	12.8	22.4	46	-23.6	QP	Vertical
302.6	8.1	14.4	22.5	46	-23.5	QP	Vertical
11038.5	32.5	12.9	45.4	74	-28.6	PK	Horizontal
11727.0	39.5	11.9	51.4	74	-22.6	PK	Horizontal
10766.5	34.1	12.5	46.6	74	-27.4	PK	Vertical
11727.0	40.1	11.9	52.0	74	-22.0	PK	Vertical

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) – Pre Amplifier Gain (dB)

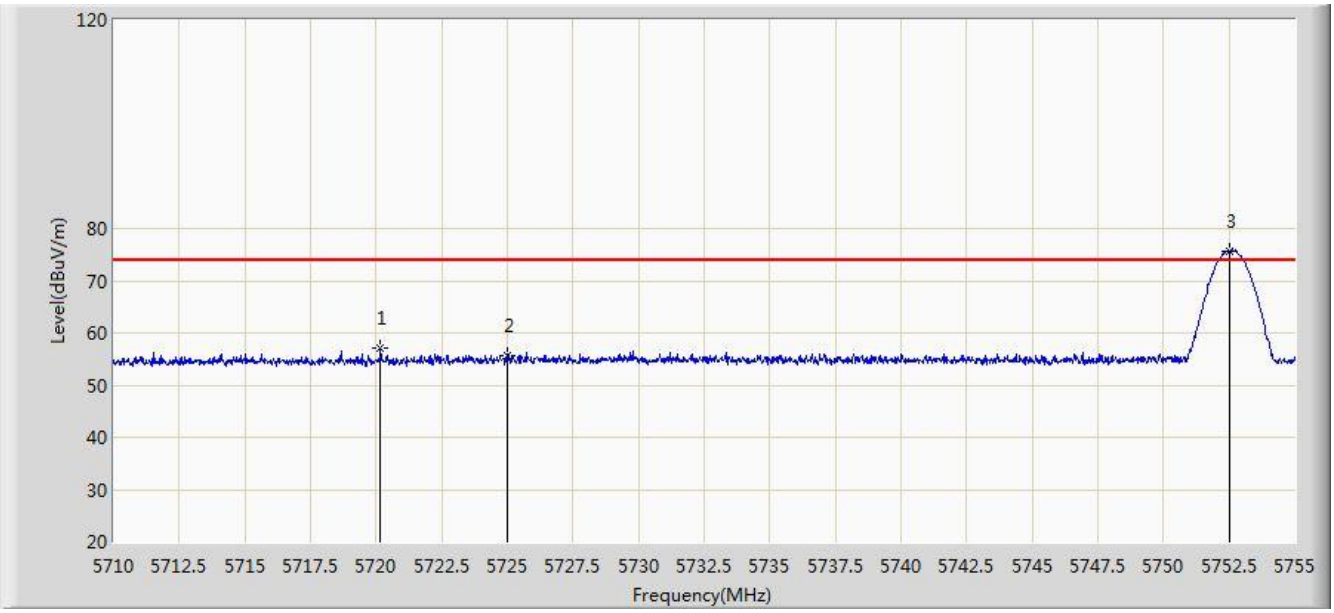
Note 2: Average measurement was not performed when the peak level lower than average limit.

Note 3: The test trace is same as the ambient noise (the test frequency range: 9 kHz ~ 30 MHz and 18 GHz ~ 40 GHz), therefore no data appear in the report.

7.4. Radiated Restricted Band Edge Measurement

7.4.1.Test Result

Site: AC1	Time: 2017/10/10 - 18:35
Limit: FCC_Part15.209_RE(3m)	Engineer: Alex Ma
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 5.8GHz Microwave Sensor	Power: DC 15V
Test Mode: Transmit at channel 5753MHz	

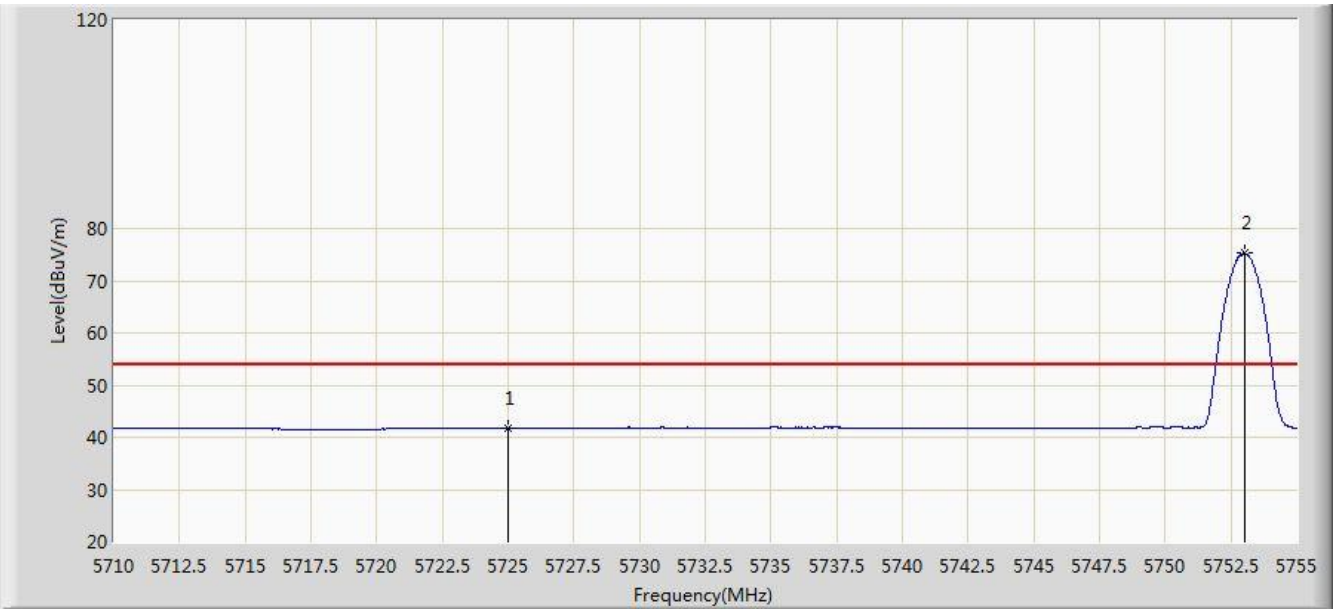


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5720.158	57.171	53.395	-16.829	74.000	3.776	PK
2			5725.000	55.771	51.980	-18.229	74.000	3.791	PK
3			5752.525	75.768	71.887	N/A	N/A	3.881	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2017/10/10 - 18:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Alex Ma
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 5.8GHz Microwave Sensor	Power: DC 15V
Test Mode: Transmit at channel 5753MHz	

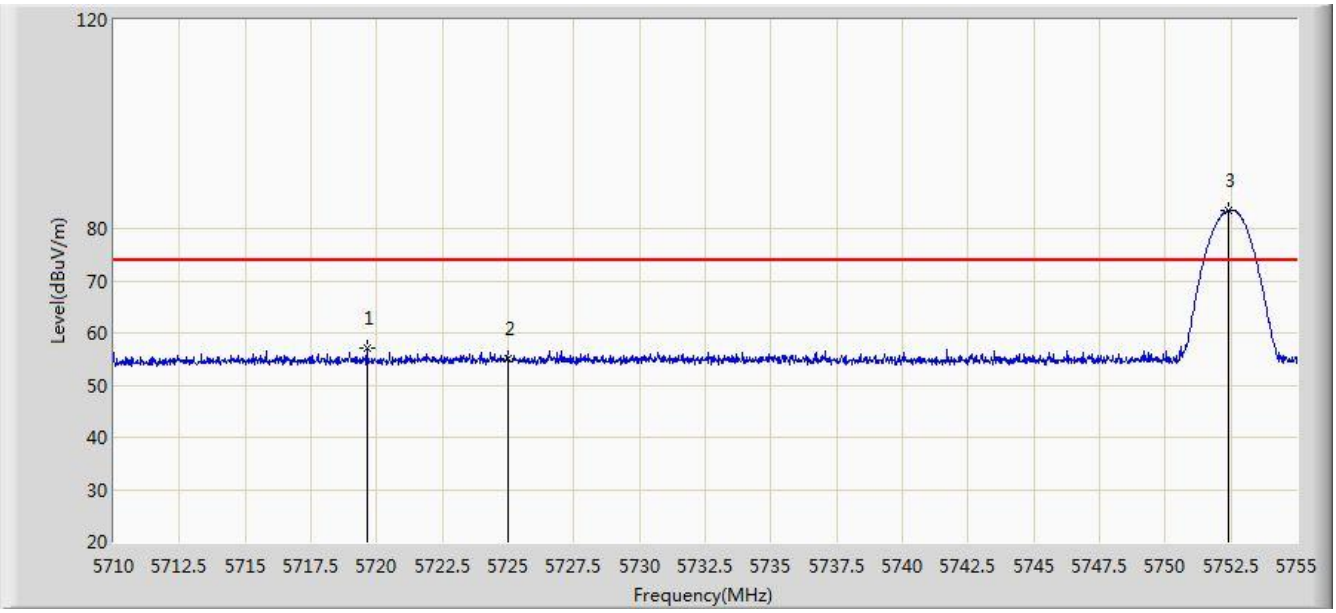


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5725.000	41.731	37.940	-12.269	54.000	3.791	AV
2			5753.020	75.260	71.377	N/A	N/A	3.883	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2017/10/10 - 18:43
Limit: FCC_Part15.209_RE(3m)	Engineer: Alex Ma
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 5.8GHz Microwave Sensor	Power: DC 15V
Test Mode: Transmit at channel 5753MHz	

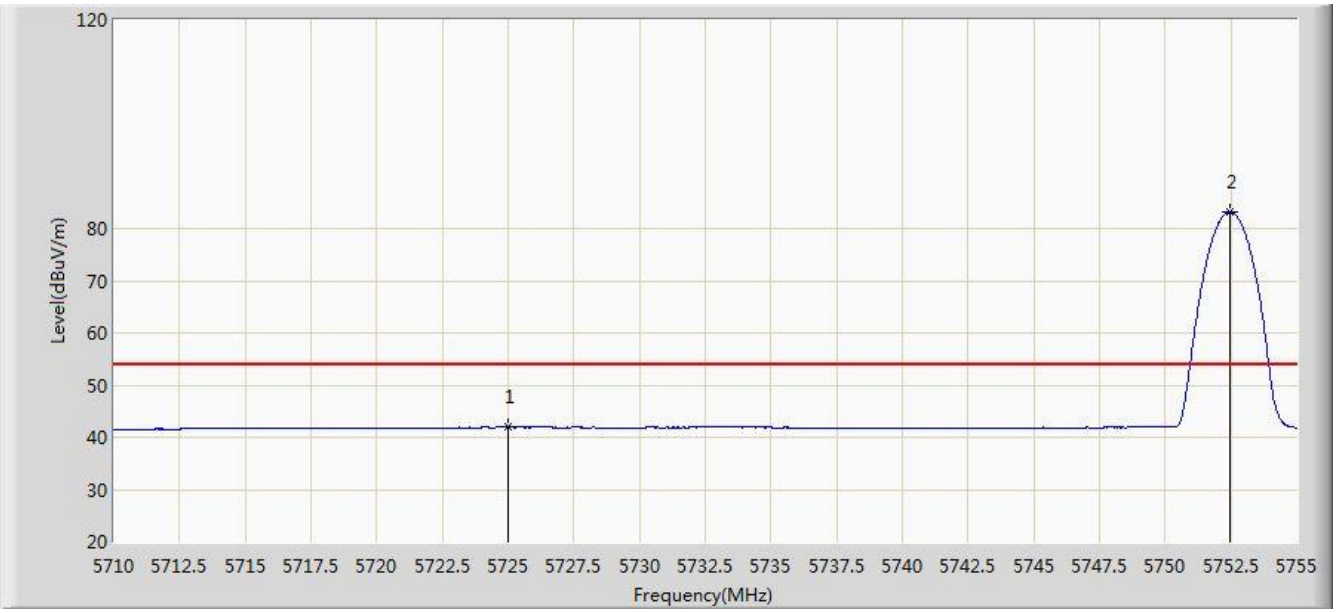


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5719.630	57.121	53.346	-16.879	74.000	3.775	PK
2			5725.000	55.208	51.417	-18.792	74.000	3.791	PK
3			5752.413	83.459	79.579	N/A	N/A	3.881	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2017/10/10 - 18:49
Limit: FCC_Part15.209_RE(3m)	Engineer: Alex Ma
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 5.8GHz Microwave Sensor	Power: DC 15V
Test Mode: Transmit at channel 5753MHz	

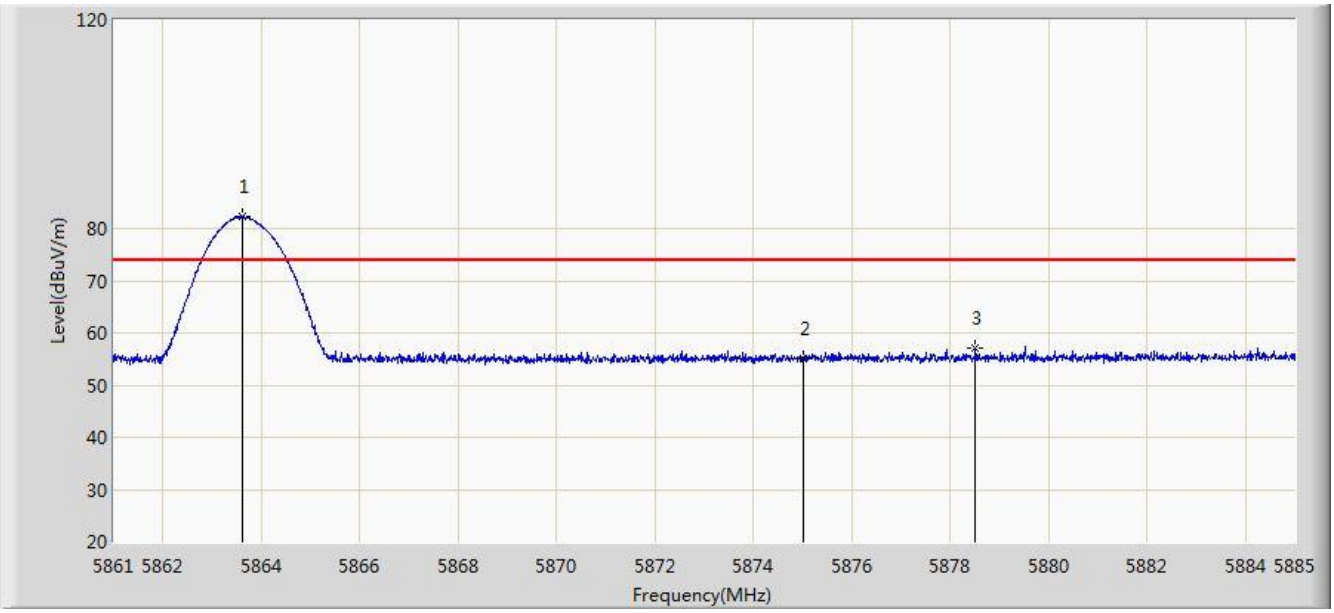


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5725.000	41.905	38.114	-12.095	54.000	3.791	AV
2			5752.458	83.151	79.270	N/A	N/A	3.881	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2017/10/10 - 18:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Alex Ma
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 5.8GHz Microwave Sensor	Power: DC 15V
Test Mode: Transmit at channel 5866MHz	

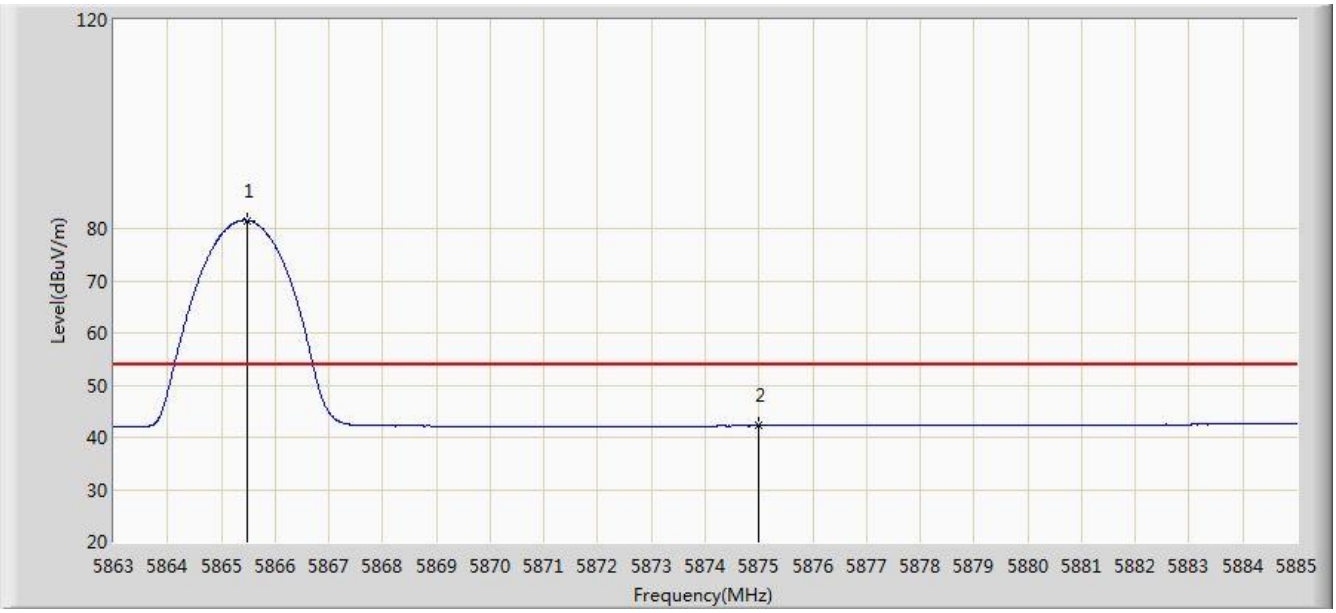


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5863.604	82.178	78.108	N/A	N/A	4.069	PK
2			5875.000	55.176	51.071	-18.824	74.000	4.105	PK
3			5878.508	57.116	53.000	-16.884	74.000	4.116	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2017/10/10 - 18:29
Limit: FCC_Part15.209_RE(3m)	Engineer: Alex Ma
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: 5.8GHz Microwave Sensor	Power: DC 15V
Test Mode: Transmit at channel 5866MHz	

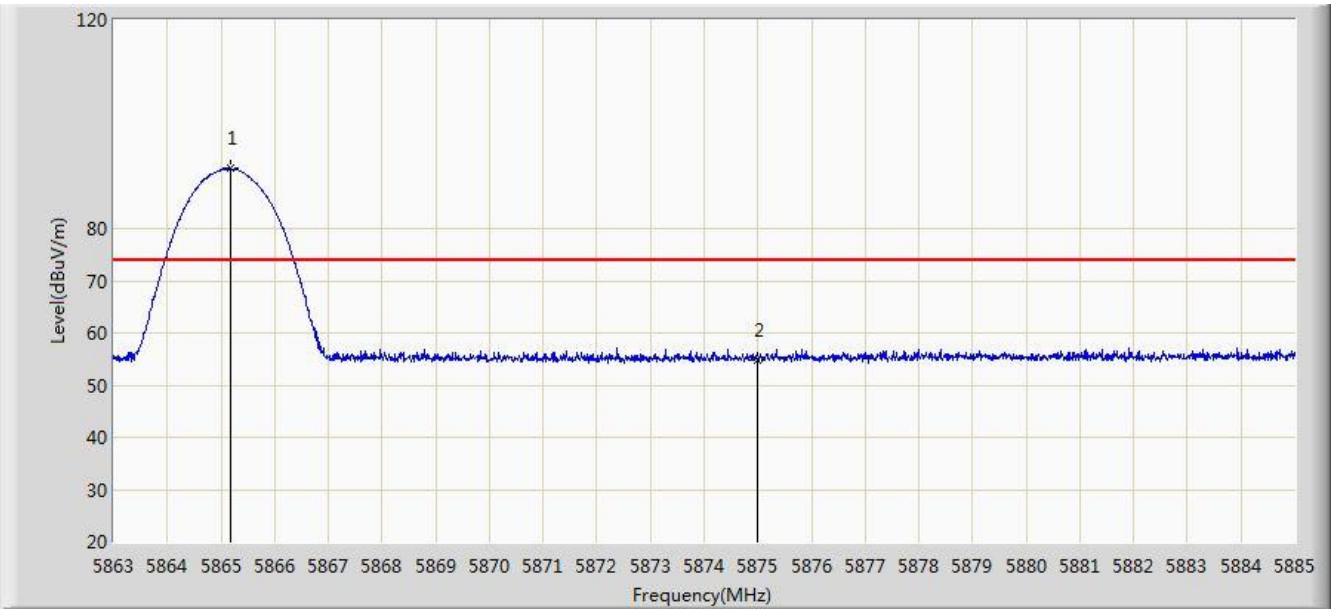


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5866.486	81.568	77.492	N/A	N/A	4.075	AV
2			5875.000	42.195	38.090	-11.805	54.000	4.105	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2017/10/10 - 18:30
Limit: FCC_Part15.209_RE(3m)	Engineer: Alex Ma
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 5.8GHz Microwave Sensor	Power: DC 15V
Test Mode: Transmit at channel 5866MHz	

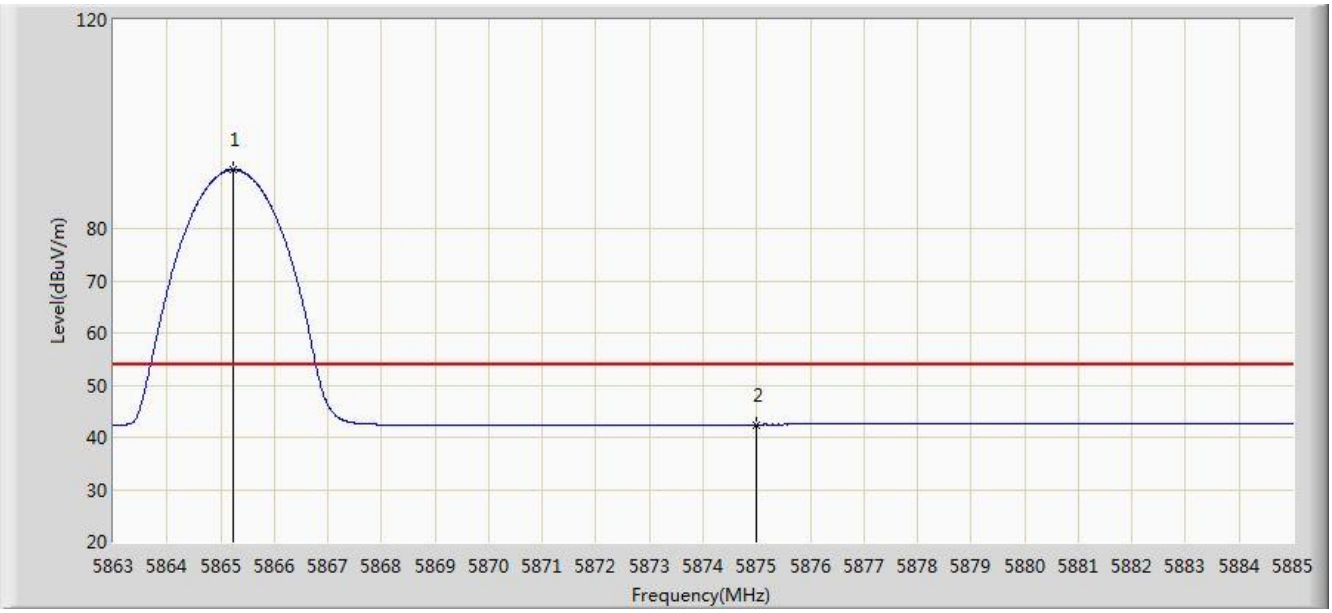


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5866.178	91.473	87.398	N/A	N/A	4.074	PK
2			5875.000	54.896	50.791	-19.104	74.000	4.105	PK

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC1	Time: 2017/10/10 - 18:31
Limit: FCC_Part15.209_RE(3m)	Engineer: Alex Ma
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: 5.8GHz Microwave Sensor	Power: DC 15V
Test Mode: Transmit at channel 5866MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			5866.233	91.233	87.158	N/A	N/A	4.074	AV
2			5875.000	42.442	38.337	-11.558	54.000	4.105	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

7.5. 20dB Spectrum Bandwidth Measurement

7.5.1.Test Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission in the specific band (5725 ~ 5875MHz).

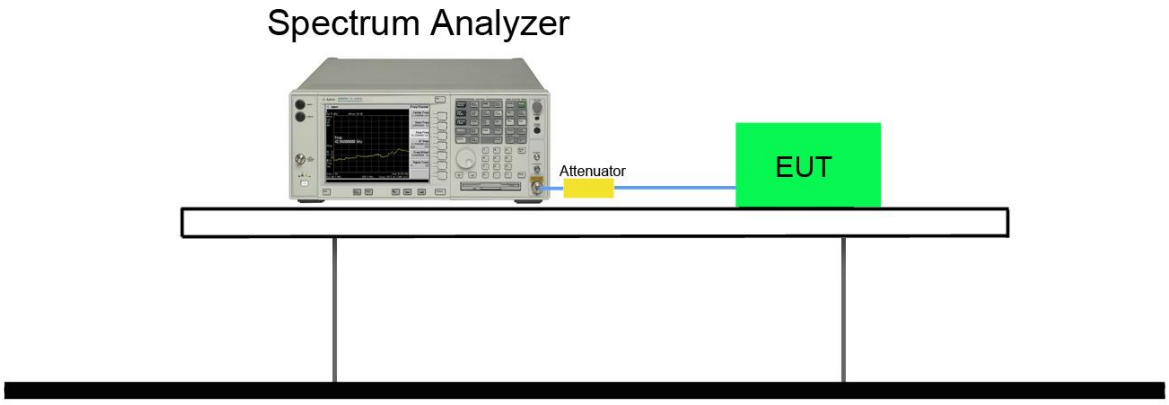
7.5.2.Test Procedure used

ANSI C63.10 Clause 6.9.2

7.5.3.Test Setting

1. Set the spectrum span range to overlap the nominal center frequency
2. Set RBW = 100 kHz
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace was allowed to stabilize and marker the highest level.
8. Determine the display level (the highest level - 20dB) and place two markers, one at the lowest frequency and the other at the highest frequency.

7.5.4.Test Setup

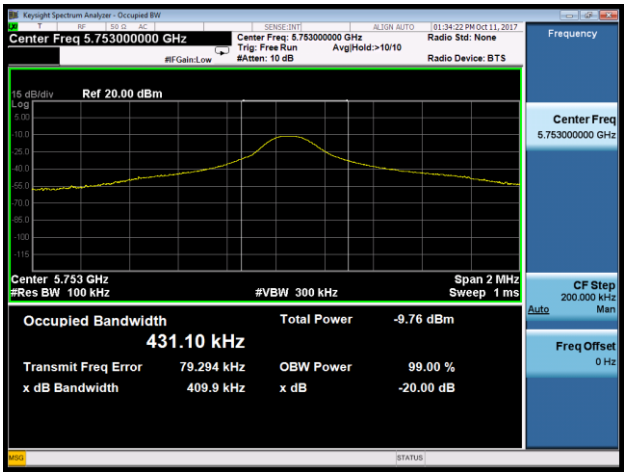


7.5.5.Test Result

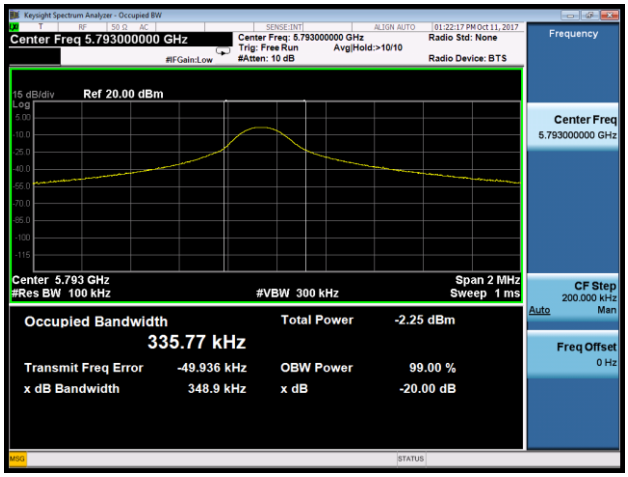
Test Frequency (MHz)	20dB Bandwidth (MHz)	Low Frequency Range (MHz)	High Frequency Range (MHz)	Limit (MHz)	Result
5753	0.41	5752.7951	--	≥ 5725	Pass
5793	0.35	--	--	--	Pass
5866	0.33	--	5866.1672	≤ 5875	Pass

20dB Spectrum Bandwidth

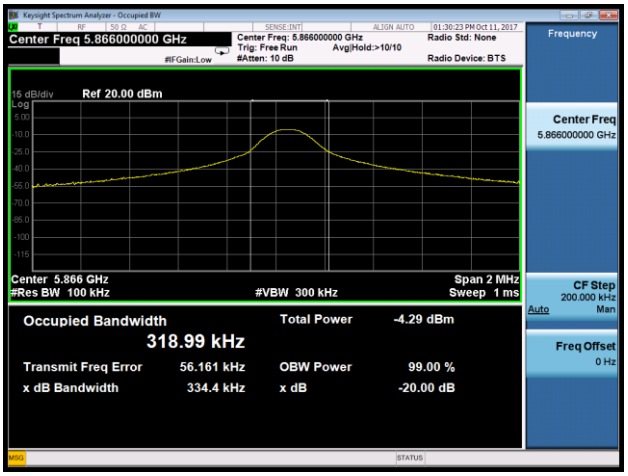
5753 MHz



5793 MHz



5866 MHz



8. CONCLUSION

The data collected relate only the item(s) tested and show that the **5.8GHz Microwave Sensor FCC ID: 2ANJCALSKY580SH** is in compliance with Part 15C of the FCC Rules.

The End