

FCC REPORT

Applicant: ASmart LIGHT CO.,LTD

Address of Applicant: 506 N GARFIELD AVE SUITE#210 ALHAMBRA,CA 91801 USA

Equipment Under Test (EUT)

Product Name: Microwave motion Sensor

Model No.: HB01DMS-A, HB01DMS-B, HB01DMS-C

Trade mark: ASmart

FCC ID: 2AW5A-HB01DMS-A

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249

Date of sample receipt: 09 Oct., 2021

Date of Test: 09 Oct., to 20 Oct., 2021

Date of report issued: 12 Nov., 2021

Test Result: PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	21 Oct., 2021	Original
01	09 Nov., 2021	Update page 5, 12
02	12 Nov., 2021	Update page 5, 14, 15

Tested by:



Test Engineer

Date:

12 Nov., 2021

Reviewed by:



Project Engineer

Date:

12 Nov., 2021

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4 Test Summary

Test Items	Section in CFR 47	Result
Antenna requirement	15.203/15.249 (a)	Pass
AC Power Line Conducted Emission	15.207	Pass
Field Strength Of The Fundamental Signal	15.249 (a)	Pass
Radiated Spurious Emission	15.249(a)(d)/15.209	Pass
20dB Bandwidth	15.215 (c)	Pass
Band Edge	15.249(a)(d)	Pass
Remark: 1. Pass: Meet the requirement. 2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).		
Test Method:	ANSI C63.10-2013 KDB 558074 D01 15.249 Meas Guidance v05r02	

5 General Information

5.1 Client Information

Applicant:	ASmart LIGHT CO.,LTD
Address:	506 N GARFIELD AVE SUITE#210 ALHAMBRA,CA 91801 USA
Manufacturer:	ASmart LIGHT CO.,LTD
Address:	506 N GARFIELD AVE SUITE#210 ALHAMBRA,CA 91801 USA

5.2 General Description of E.U.T.

Product Name:	Microwave motion Sensor
Model No.:	HB01DMS-A, HB01DMS-B, HB01DMS-C
Operation Frequency:	5743.5-5860MHz
Modulation technology:	FMCW
Antenna Type:	Internal Antenna
Antenna gain:	-0.61 dBi
Power supply:	DC 12V
Remark:	Model No.: HB01DMS-A, HB01DMS-B, HB01DMS-C were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being outgoing cable connection mode.
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

Operation Frequency 5743.5-5860MHz					
Frequency	5743.5 MHz	Frequency	5796.85 MHz	Frequency	5860 MHz
Note: In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency were selected to perform the test.					

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode	Keep the EUT in continuous transmitting with modulation
The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.	

5.4 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
ASmart LIGHT CO.,LTD	LED Corn Lamp	AST-CLW08C-120WBCMA1-EXLPcK	/	/

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 150KHz) for V-AMN	3.11 dB
Conducted Emission (150kHz ~ 30MHz) for V-AMN	2.62 dB
Conducted Emission (150kHz ~ 30MHz) for AAN	3.54 dB
Radiated Emission (30MHz ~ 1GHz) for 3m SAC	4.45 dB
Radiated Emission (1GHz ~ 18GHz) for 3m SAC	5.34 dB
Radiated Emission (18GHz ~ 40GHz) for 3m SAC	5.34 dB

5.6 Additions to, deviations, or exclusions from the method

No

5.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations: ● FCC - Designation No.: CN1211 JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551. ● ISED – CAB identifier.: CN0021 The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1. ● A2LA - Registration No.: 4346.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf
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5.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd. Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China. Tel: +86-755-23118282, Fax: +86-755-23116366 Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com

5.9 Test Instruments list

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
3m SAC	ETS	RFD-100	Q1984	04-14-2021	04-13-2024
BiConiLog Antenna	SCHWARZBECK	VULB9163	9163-1246	03-07-2021	03-06-2022
Biconical Antenna	SCHWARZBECK	VUBA 9117	9117#359	06-17-2021	06-17-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	912D-916	03-07-2021	03-06-2022
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	1067	04-02-2021	04-01-2022
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	1068	04-02-2021	04-01-2022
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022
Spectrum analyzer	Keysight	N9010B	MY60240202	11-27-2020	11-26-2021
Low Pre-amplifier	SCHWARZBECK	BBV9743B	00305	03-07-2021	03-06-2022
High Pre-amplifier	SKET	LNPA_0118G-50	MF280208233	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-1G-NN-8M	JYT3M-1	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-18G-NN-8M	JYT3M-2	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-1G-BB-5M	JYT3M-3	03-07-2021	03-06-2022
Cable	Bost	JYT3M-40G-SS-8M	JYT3M-4	04-02-2021	04-01-2022
EMI Test Software	Tonscend	TS+	Version:3.0.0.1		

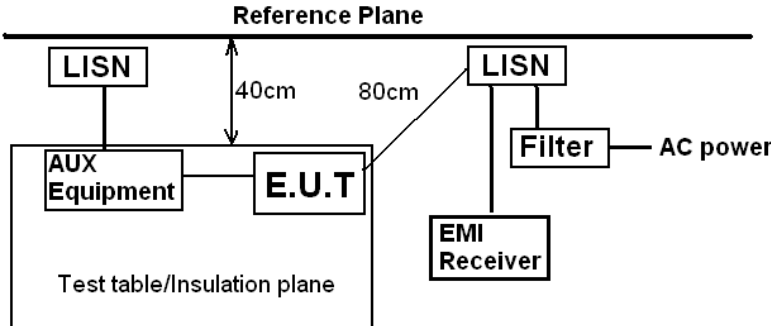
Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI 3	101189	03-03-2021	03-02-2022
LISN	Rohde & Schwarz	ENV432	101602	04-06-2021	04-05-2022
LISN	Rohde & Schwarz	ESH3-Z5	843862/010	06-18-2020	06-17-2022
RF Switch	TOP PRECISION	RSU0301	N/A	03-03-2021	03-02-2022
Cable	Bost	JYTCE-1G-NN-2M	JYTCE-1	03-03-2021	03-02-2022
Cable	Bost	JYTCE-1G-BN-3M	JYTCE-2	03-03-2021	03-02-2022
EMI Test Software	AUDIX	E3	Version: 6.110919b		

6 Test results and Measurement Data

6.1 Antenna requirement:

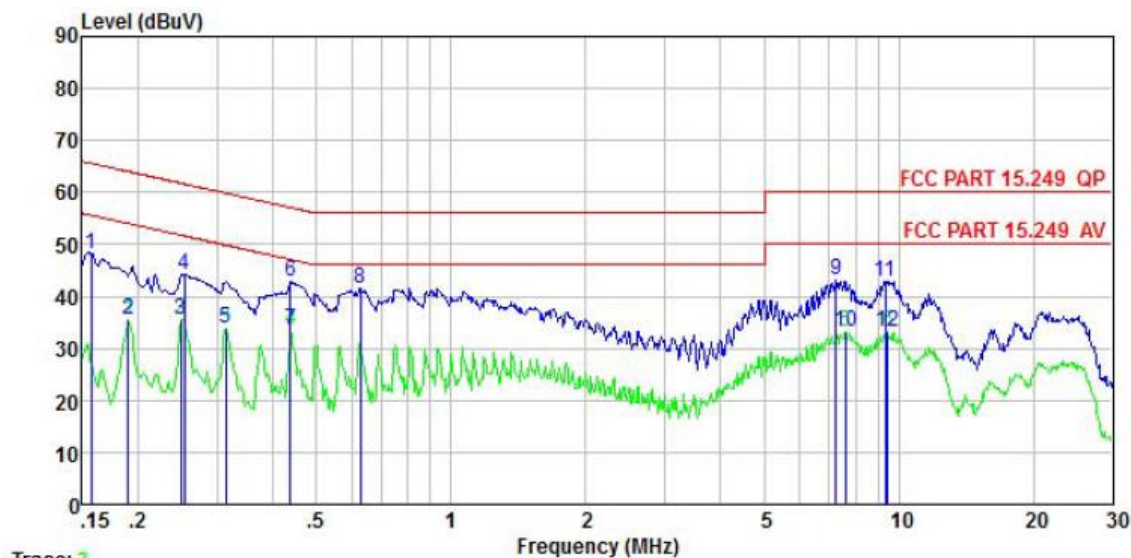
Standard requirement:	FCC Part 15 C Section 15.203 /249(a)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique 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. 15.249(a) requirement: (i) Systems operating in the 5725-5875 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
E.U.T Antenna:	
The antenna is an Internal antenna which cannot replace by end-user, the best-case gain of the antenna is -0.61 dBi.	

6.2 Conducted Emission

Test Requirement:	FCC Part 15 C Section 15.207		
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9kHz, VBW=30kHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test procedure	- The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. - The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). - Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10(latest version) on conducted measurement.		
Test setup:	 <i>Remark:</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m		
Test Instruments:	Refer to section 5.9 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

Measurement Data:

Product name:	Microwave motion Sensor	Product model:	HB01DMS-A
Test by:	Mike	Test mode:	Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Line
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Humi: 55%



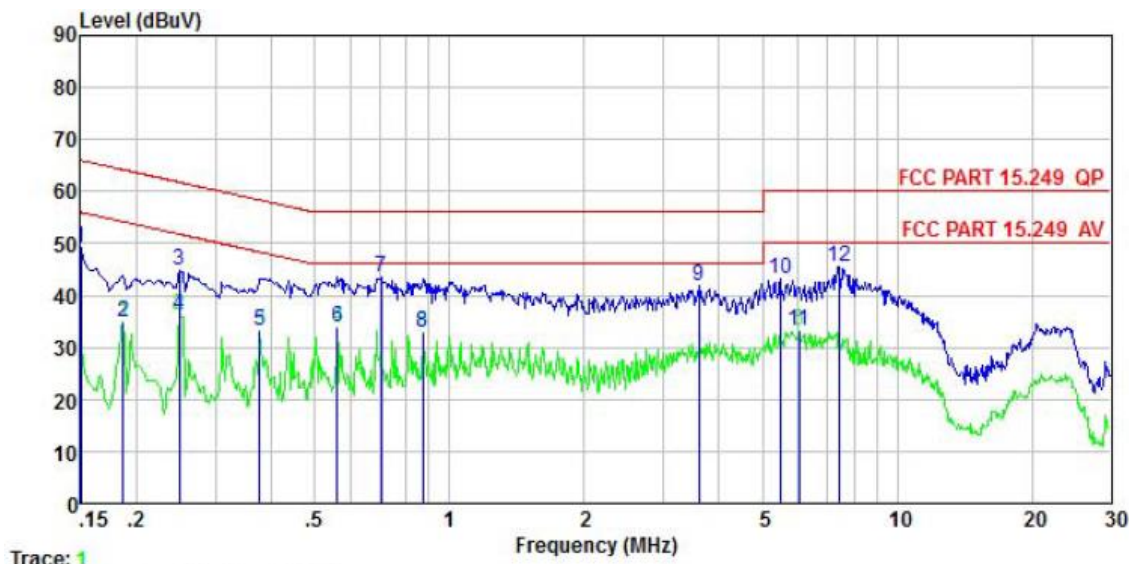
Trace: 3

	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.157	38.04	10.22	-0.07	0.01	48.20	65.60	-17.40	QP
2	0.190	25.26	10.23	-0.14	0.03	35.38	54.02	-18.64	Average
3	0.249	25.49	10.25	-0.22	0.01	35.53	51.78	-16.25	Average
4	0.253	34.11	10.25	-0.22	0.01	44.15	61.64	-17.49	QP
5	0.313	23.81	10.26	-0.15	0.03	33.95	49.88	-15.93	Average
6	0.437	32.45	10.28	0.11	0.03	42.87	57.11	-14.24	QP
7	0.437	23.11	10.28	0.11	0.03	33.53	47.11	-13.58	Average
8	0.627	31.69	10.30	-0.38	0.02	41.63	56.00	-14.37	QP
9	7.252	31.04	10.50	1.39	0.10	43.03	60.00	-16.97	QP
10	7.606	21.27	10.52	1.47	0.10	33.36	50.00	-16.64	Average
11	9.302	30.45	10.58	1.82	0.12	42.97	60.00	-17.03	QP
12	9.451	20.61	10.58	1.85	0.12	33.16	50.00	-16.84	Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Aux Factor + Cable Loss.

Product name:	Microwave motion Sensor	Product model:	HB01DMS-A
Test by:	Mike	Test mode:	Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Humi: 55%



Trace: 1

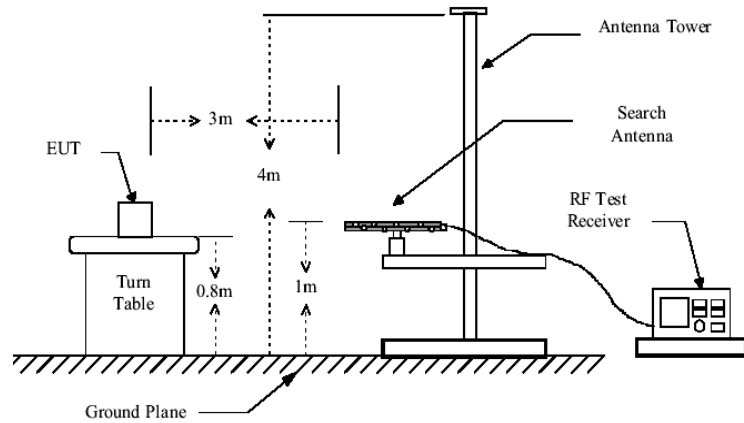
	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.150	39.01	10.19	0.01	0.01	49.22	66.00	-16.78	QP
2	0.186	24.79	10.21	0.00	0.02	35.02	54.20	-19.18	Average
3	0.249	34.68	10.24	0.01	0.01	44.94	61.78	-16.84	QP
4	0.249	25.91	10.24	0.01	0.01	36.17	51.78	-15.61	Average
5	0.377	23.05	10.26	-0.04	0.03	33.30	48.34	-15.04	Average
6	0.561	23.42	10.29	0.03	0.02	33.76	46.00	-12.24	Average
7	0.705	32.97	10.30	0.04	0.03	43.34	56.00	-12.66	QP
8	0.871	22.38	10.31	0.06	0.04	32.79	46.00	-13.21	Average
9	3.603	30.83	10.37	0.44	0.08	41.72	56.00	-14.28	QP
10	5.476	31.95	10.43	0.71	0.09	43.18	60.00	-16.82	QP
11	6.024	21.76	10.45	0.76	0.09	33.06	50.00	-16.94	Average
12	7.407	34.03	10.50	0.93	0.10	45.56	60.00	-14.44	QP

Notes:

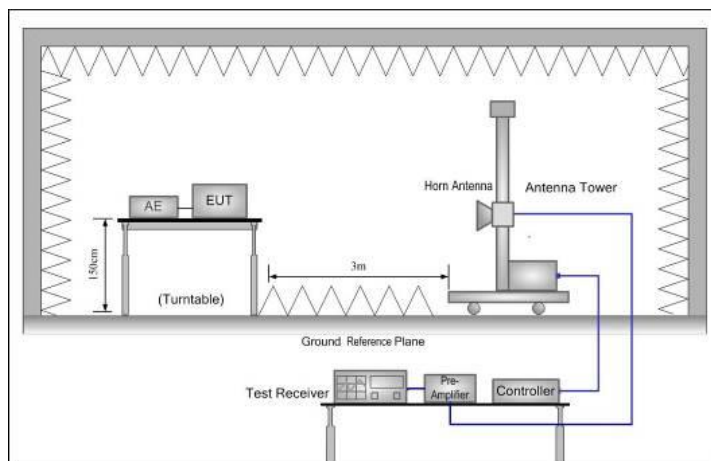
1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Aux Factor + Cable Loss.

6.3 Radiated Emission

Test Requirement:	FCC Part 15 C Section 15.205 and 15.209				
Test Frequency Range:	9kHz to 40GHz				
Test Distance:	3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit: (Field strength of the fundamental signal)	Frequency		Limit (dBuV/m @3m)		Remark
	5743.5-5860MHz		94		Average Value
			114		Peak Value
Limit: (Spurious Emissions)	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz		54.0		Average Value
			74.0		Peak Value
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.				
Test setup:	Below 1GHz				



Above 1GHz



Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case. 2. 9 kHz to 30MHz is lower than the limit 20dB, so only shows the data of above 30MHz in this report.

6.3.1 Field Strength Of The Fundamental Signal

Lowest Field Strength Of The Fundamental Signal						
Peak value:						
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5743.5	64.51	17.3	81.81	114	-32.19	Vertical
5743.5	54.69	17.3	71.99	114	-42.01	Horizontal
Average value:						
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5743.5	63.89	17.3	81.19	94	-12.81	Vertical
5743.5	53.83	17.3	71.13	94	-22.87	Horizontal
Middle Field Strength Of The Fundamental Signal						
Peak value:						
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5796.85	67.00	18.83	85.83	114	-28.17	Vertical
5796.85	57.87	18.83	76.70	114	-37.30	Horizontal
Average value:						
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5796.85	66.84	18.83	85.67	94	-8.33	Vertical
5796.85	57.59	18.83	76.42	94	-17.58	Horizontal
Highest Field Strength Of The Fundamental Signal						
Peak value:						
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5860	65.71	19.15	84.86	114	-29.14	Vertical
5860	55.63	19.15	74.78	114	-39.22	Horizontal
Average value:						
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5860	65.36	19.15	84.51	94	-9.49	Vertical
5860	55.23	19.15	74.38	94	-19.62	Horizontal
Remark: 1. Final Level = Receiver Read level + Factor						

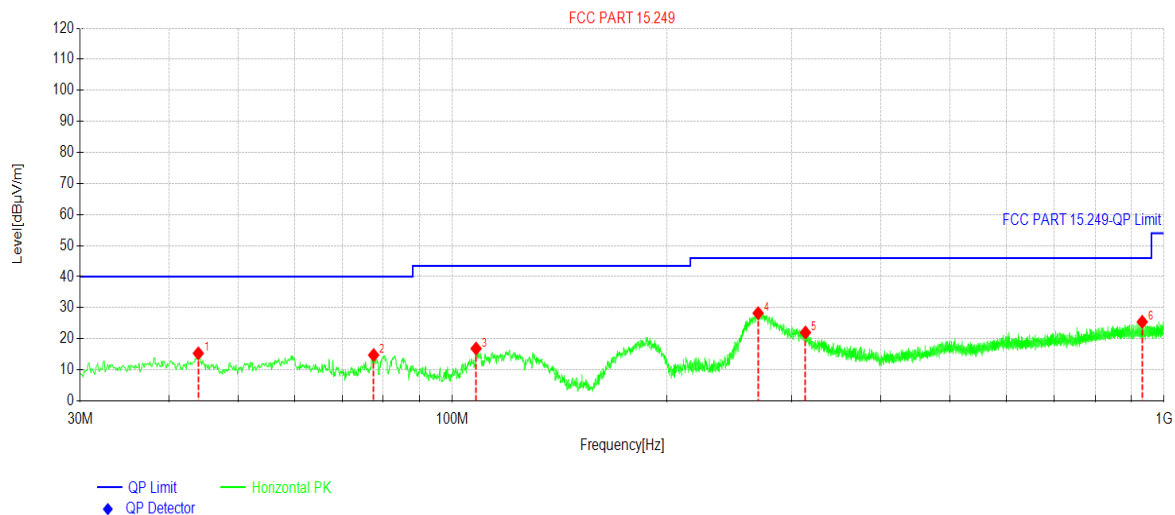
6.3.2 Spurious Emissions

Above 1GHz

Lowest						
Peak Value						
Frequency (MHz)	Read Level (dBuV)	Factor	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11487.00	55.77	7.19	62.96	74.00	-11.04	Vertical
11487.00	56.26	7.20	63.46	74.00	-10.54	Horizontal
Average Value						
Frequency (MHz)	Read Level (dBuV)	Factor	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11487.00	43.06	7.19	50.25	54.00	-3.75	Vertical
11487.00	45.13	7.20	52.33	54.00	-1.67	Horizontal
Middle						
Peak Value						
Frequency (MHz)	Read Level (dBuV)	Factor	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11593.70	53.80	6.75	60.55	74.00	-13.45	Vertical
11593.70	54.10	6.75	60.85	74.00	-13.15	Horizontal
Average Value						
Frequency (MHz)	Read Level (dBuV)	Factor	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11593.70	46.40	6.75	53.15	54.00	-0.85	Vertical
11593.70	46.36	6.75	53.11	54.00	-0.89	Horizontal
Highest						
Peak Value						
Frequency (MHz)	Read Level (dBuV)	Factor	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11720.30	52.33	7.42	59.75	74.00	-14.25	Vertical
11720.30	52.11	7.42	59.53	74.00	-14.47	Horizontal
Average Value						
Frequency (MHz)	Read Level (dBuV)	Factor	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11720.30	45.33	7.42	52.75	54.00	-1.25	Vertical
11720.30	43.63	7.42	51.05	54.00	-2.95	Horizontal
Remark: 1. Final Level = Receiver Read level + Factor 2. The spurious emissions is tested up to 40GHz, the emission levels of other frequencies are lower than the limit 20dB and not show in test report, only report the worst case.						

Below 1GHz

Product name:	Microwave motion Sensor	Product model:	HB01DMS-A
Test By:	Mike	Test mode:	Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Humi: 57%



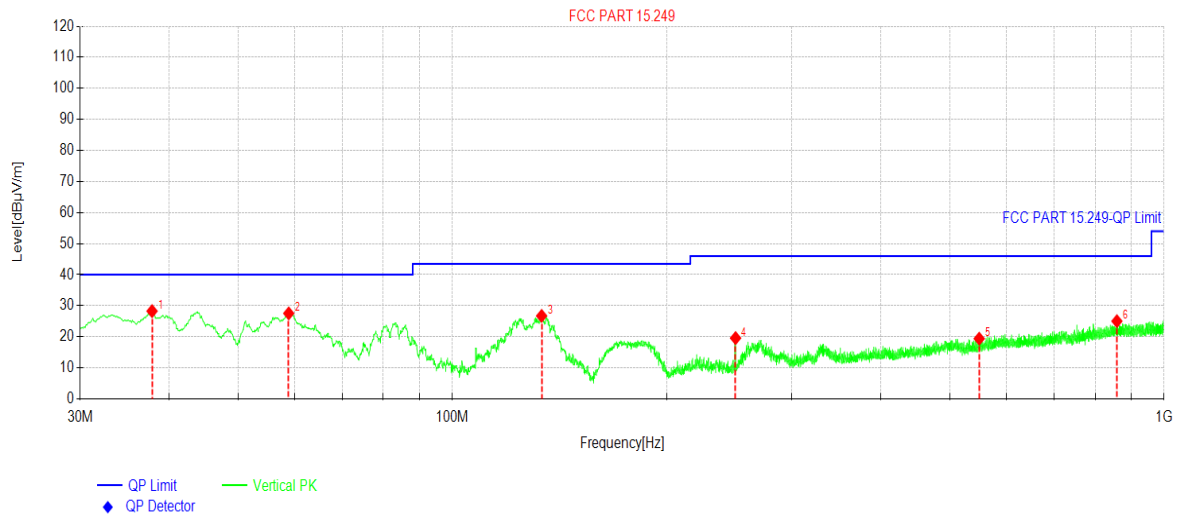
Suspected Data List

NO.	Freq. [MHz]	Reading[dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	43.9694	30.23	15.31	-14.92	40.00	24.69	PK	Horizontal
2	77.5348	31.97	14.75	-17.22	40.00	25.25	PK	Horizontal
3	107.995	32.78	16.84	-15.94	43.50	26.66	PK	Horizontal
4	268.934	41.75	28.25	-13.50	46.00	17.75	PK	Horizontal
5	313.462	34.40	22.02	-12.38	46.00	23.98	PK	Horizontal
6	931.899	26.61	25.44	-1.17	46.00	20.56	PK	Horizontal

Remark:

- Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product name:	Microwave motion Sensor	Product model:	HB01DMS-A
Test By:	Mike	Test mode:	Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Humi: 57%

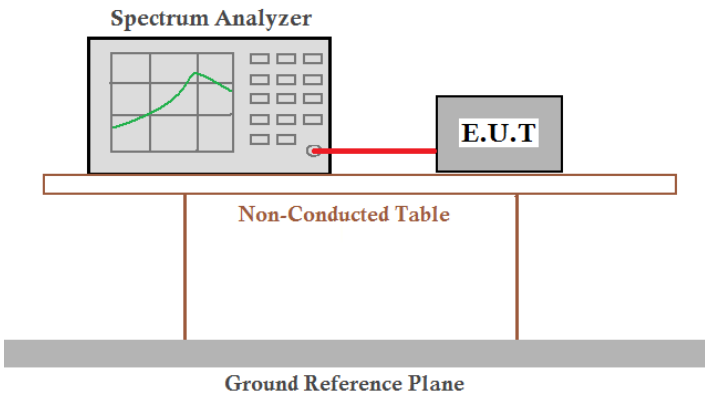


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	37.8578	42.96	28.26	-14.70	40.00	11.74	PK	Vertical
2	58.9089	42.47	27.54	-14.93	40.00	12.46	PK	Vertical
3	133.509	44.41	26.73	-17.68	43.50	16.77	PK	Vertical
4	250.018	33.36	19.57	-13.79	46.00	26.43	PK	Vertical
5	549.972	26.27	19.38	-6.89	46.00	26.62	PK	Vertical
6	858.559	26.35	25.03	-1.32	46.00	20.97	PK	Vertical

Remark:

- Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).
- The emission levels of other frequencies are very lower than the limit and not show in test report.

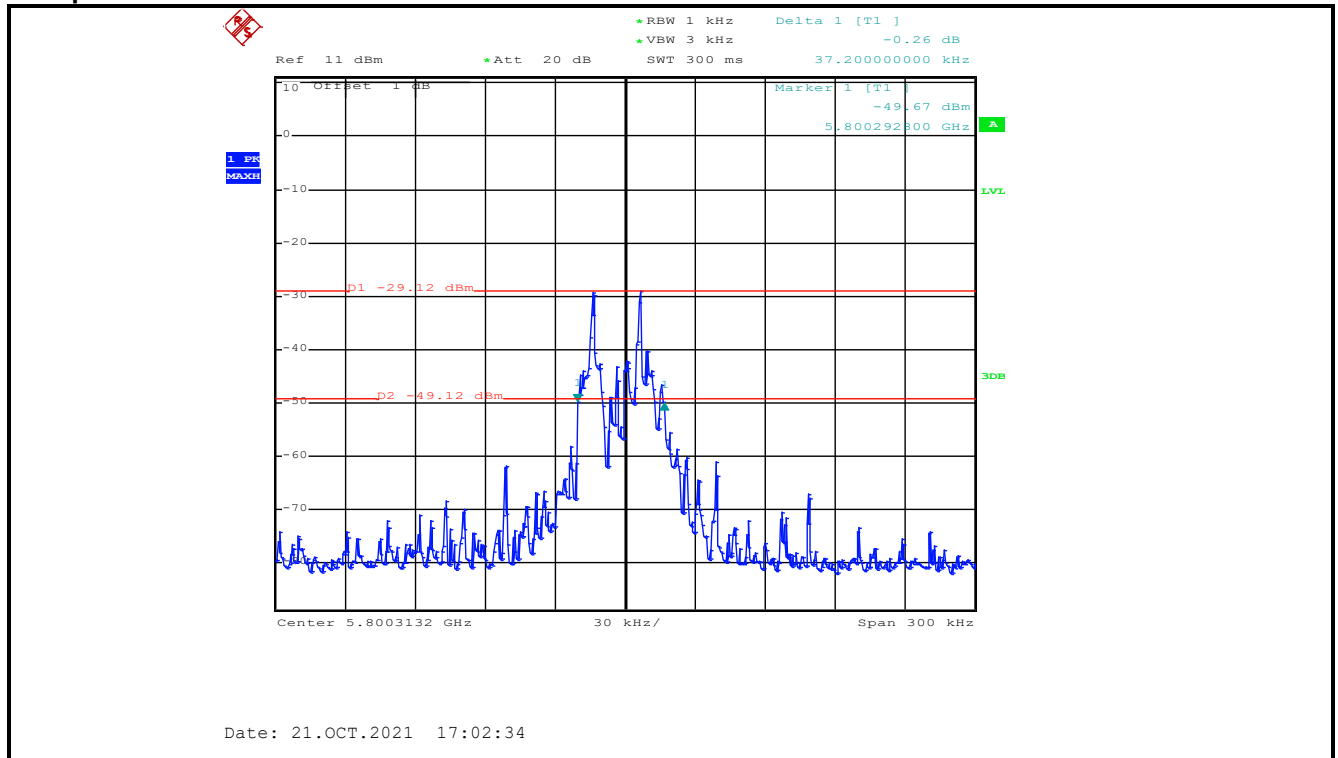
6.4 20dB Bandwidth

Test Requirement:	FCC Part15 C Section 15.215(c)
Receiver setup:	RBW=1kHz, VBW=3kHz, detector: Peak
Limit:	N/A
Test Procedure:	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set the EUT to proper test channel. 3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points. 4. Read 20dB bandwidth.
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by two vertical legs. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

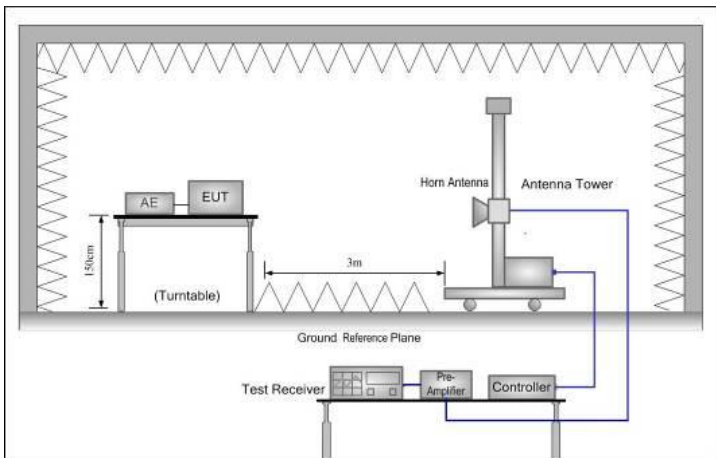
20dB bandwidth (MHz)	Results
0.0372	Passed

Test plot as follows:

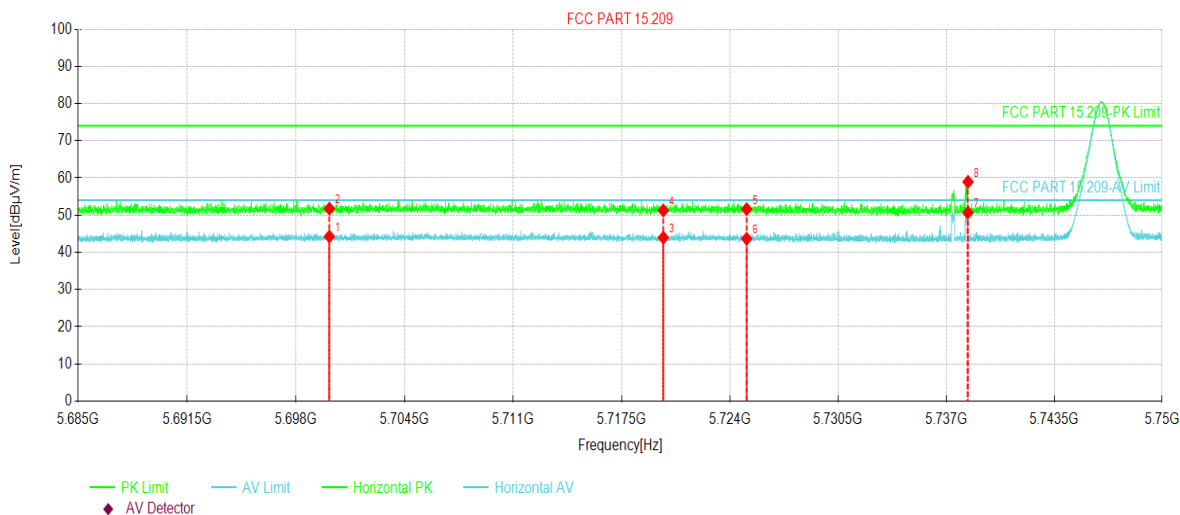


6.5 Band Edge

6.5.1 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.249				
Test Frequency Range:	5600MHz to 6000Hz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	Above 1GHz		54.00		Average Value
			74.00		Peak Value
Test Procedure:	1. The EUT was placed on the top of a rotating table 1.5m(above 1GHz) above the groundat a 3 meter chamber.The table was rotated 360 degrees todetermine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, whichwas mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified andthen reported in a data sheet.				
Test setup:	Above 1GHz 				
Test Instruments:	Refer to section 5.9 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				

Product name:	Microwave motion Sensor	Product model:	HB01DMS-A
Test By:	Mike	Test mode:	Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	DC12V	Environment:	Temp: 24℃ Humi: 57%

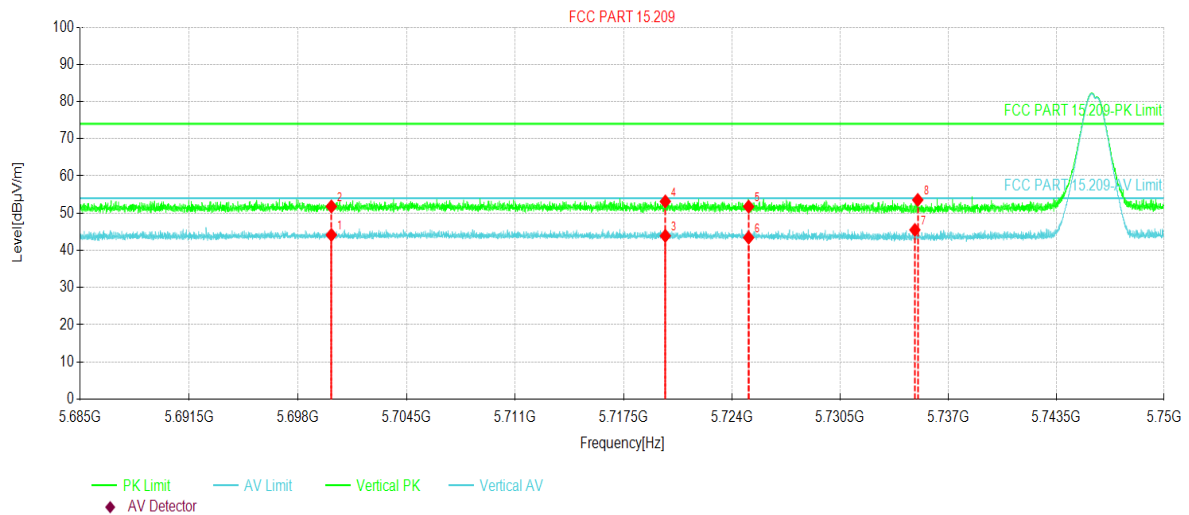


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	5700.00	27.13	44.26	17.13	54.00	9.74	AV	Horizontal
2	5700.00	34.61	51.74	17.13	74.00	22.26	PK	Horizontal
3	5720.00	26.75	43.96	17.21	54.00	10.04	AV	Horizontal
4	5720.00	34.05	51.26	17.21	74.00	22.74	PK	Horizontal
5	5725.00	34.38	51.61	17.23	74.00	22.39	PK	Horizontal
6	5725.00	26.44	43.67	17.23	54.00	10.33	AV	Horizontal
7	5738.30	33.39	50.67	17.28	54.00	3.33	AV	Horizontal
8	5738.30	41.67	58.95	17.28	74.00	15.05	PK	Horizontal

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are lower than the limit 20dB and not show in test report.

Product name:	Microwave motion Sensor	Product model:	HB01DMS-A
Test By:	Mike	Test mode:	Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	DC12V	Environment:	Temp: 24℃ Humi: 57%

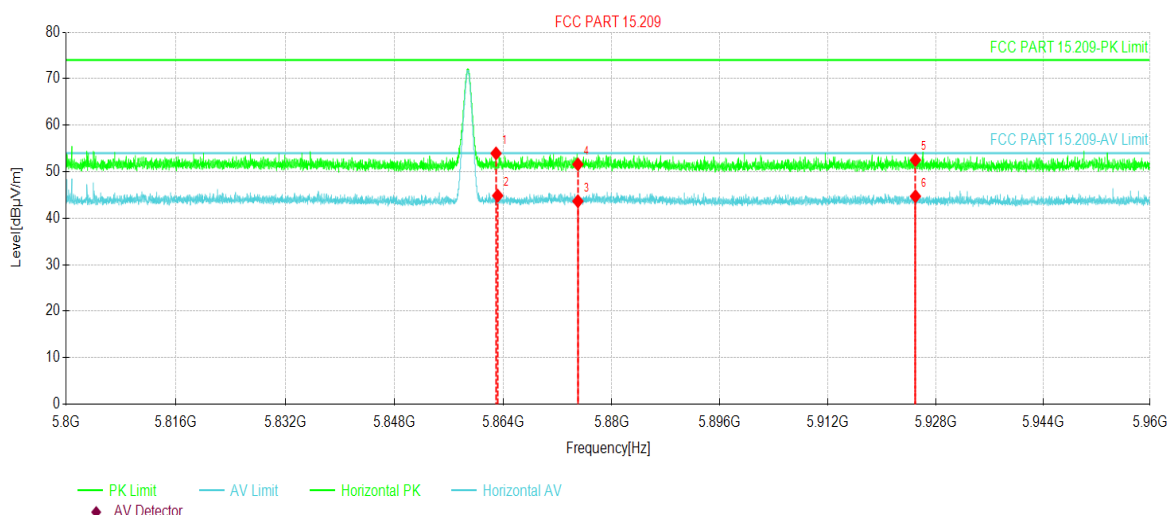


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	5700.00	27.01	44.14	17.13	54.00	9.86	AV	Vertical
2	5700.00	34.67	51.80	17.13	74.00	22.20	PK	Vertical
3	5720.00	26.68	43.89	17.21	54.00	10.11	AV	Vertical
4	5720.00	35.94	53.15	17.21	74.00	20.85	PK	Vertical
5	5725.00	34.52	51.75	17.23	74.00	22.25	PK	Vertical
6	5725.00	26.19	43.42	17.23	54.00	10.58	AV	Vertical
7	5734.99	28.22	45.49	17.27	54.00	8.51	AV	Vertical
8	5735.16	36.28	53.55	17.27	74.00	20.45	PK	Vertical

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are lower than the limit 20dB and not show in test report.

Product name:	Microwave motion Sensor	Product model:	HB01DMS-A
Test By:	Mike	Test mode:	Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC12V	Environment:	Temp: 24℃ Humi: 57%

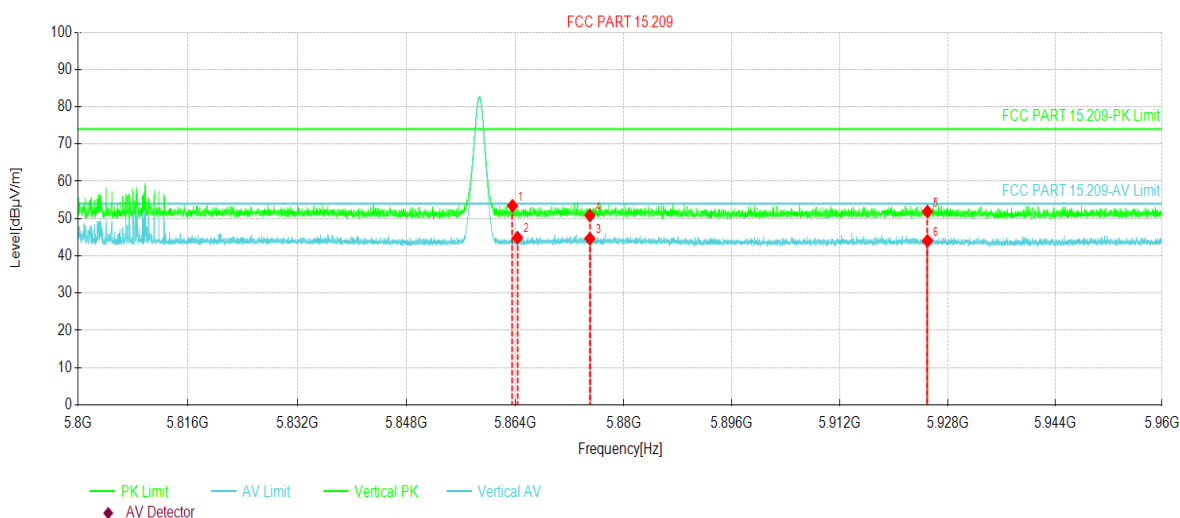


Suspected Data List								
NO.	Freq. [MHz]	Reading [dBuV/m]	Level [dBuV/m]	Factor [dB]	Limit [dBuV/m]	Margin [dB]	Trace	Polarity
1	5862.94	36.37	53.93	17.56	74.00	20.07	PK	Horizontal
2	5863.18	27.28	44.84	17.56	54.00	9.16	AV	Horizontal
3	5875.00	26.08	43.65	17.57	54.00	10.35	AV	Horizontal
4	5875.00	34.00	51.57	17.57	74.00	22.43	PK	Horizontal
5	5925.00	35.12	52.50	17.38	74.00	21.50	PK	Horizontal
6	5925.00	27.33	44.71	17.38	54.00	9.29	AV	Horizontal

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are lower than the limit 20dB and not show in test report.

Product name:	Microwave motion Sensor	Product model:	HB01DMS-A
Test By:	Mike	Test mode:	Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC 12V	Environment:	Temp: 24℃ Humi: 57%



Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	5863.60	35.86	53.42	17.56	74.00	20.58	PK	Vertical
2	5864.34	27.31	44.87	17.56	54.00	9.13	AV	Vertical
3	5875.00	27.04	44.61	17.57	54.00	9.39	AV	Vertical
4	5875.00	33.26	50.83	17.57	74.00	23.17	PK	Vertical
5	5925.00	34.50	51.88	17.38	74.00	22.12	PK	Vertical
6	5925.00	26.63	44.01	17.38	54.00	9.99	AV	Vertical

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are lower than the limit 20dB and not show in test report.