FCC TEST REPORT

Test report
On Behalf of
Smartree Technology Co., Ltd.
For
Baby Monitor
Model No.: SM935TX, SM935D, SM935, SM35, SM35D

FCC ID: 2AKVZ-SM935TX

Prepared for :	**Smartree Technology Co., Ltd.** **5F, A Block, North NO. 8, Shangxue Industrial Park, Bantian Street, Longgang District, Shenzhen, China**
Prepared By :	**Shenzhen HUAK Testing Technology Co., Ltd.** **1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China**
Date of Test:	**July 18, 2019 ~ July 25, 2019**
Date of Report:	**July 25, 2019**
Report Number:	**HK1907161700-E**

TEST RESULT CERTIFICATION

Applicant's name	:	**Smartree Technology Co., Ltd.**
Address	:	**5F, A Block, North NO. 8, Shangxue Industrial Park, Bantian Street, Longgang District, Shenzhen, China**
Manufacture's Name	:	**Smartree Technology Co., Ltd.**
Address	:	**5F, A Block, North NO. 8, Shangxue Industrial Park, Bantian Street, Longgang District, Shenzhen, China**

Product description

Trade Mark:		N/A
Product name	:	Baby Monitor
Model and/or type reference	:	SM935TX, SM935D, SM935, SM35, SM35D
Standards	:	FCC Rules and Regulations Part 15 Subpart C Section 15.249 ANSI C63.10: 2013

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Date of Test	:	
Date (s) of performance of tests	:	**July 18, 2019 ~ July 25, 2019**
Date of Issue	:	**July 25, 2019**
Test Result	:	**Pass**

Testing Engineer : Gary Qian

(Gary Qian)

Technical Manager : Eden Hu

(Eden Hu)

Authorized Signatory : Jason Zhou

(Jason Zhou)

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1. TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

DESCRIPTION OF TEST	RESULT
CONDUCTED EMISSIONS TEST	COMPLIANT
RADIATED EMISSION TEST	COMPLIANT
BAND EDGE	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	COMPLIANT
ANTENNA REQUIREMENT	COMPLIANT

1.2 TEST FACILITY

Test Firm : Shenzhen HUAK Testing Technology Co., Ltd.

Address 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China

1.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty(9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty(30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty(Above 1GHz)	=	4.06dB, k=2

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Baby Monitor
Trade Mark	N/A
Model Name	SM935TX
Serial No.	SM935D, SM935, SM35, SM35D
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: SM935TX
FCC ID	2AKVZ-SM935TX
Antenna Type	Internal Antenna
Antenna Gain	0dBi
Operation frequency	2410.875MHz~2471.625MHz
Number of Channels	19CH
Modulation Type	FSK
Power Source	DC Power
Power Rating	AC Adapter: Model:EP10-050070WXEA Input: AC 100-240V, 50/60Hz, 0.3A. Output: DC 5V, 0.7A Adaptor: Model:AW007WR-0500070VV Input: AC 100-240V, 50/60Hz, 0.3A. Output: DC 5V, 0.7A

2.2 Carrier Frequency of Channels

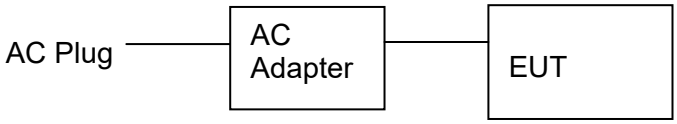
Channel List			
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
01	2410.875	11	2444.625
02	2414.250	12	2448.000
03	2417.625	13	2451.375
04	2421.000	14	2454.750
05	2424.375	15	2458.125
06	2427.750	16	2461.500
07	2431.125	17	2464.875
08	2434.500	18	2468.250
09	2437.875	19	2471.625
10	2441.250	20	

2.3 Operation of EUT during testing

Operating Mode
The mode is used: **Transmitting mode**
Low Channel: 2410.875MHz
Middle Channel: 2441.250MHz
High Channel: 2471.625MHz

2.4 DESCRIPTION OF TEST SETUP

Operation of EUT during conducted testing and Radiation testing:



Operation of EUT Above1GHz Radiation testing:

● Adapter information

AC Adapter 1:

Model:K05S050060U

Input: AC 100-240V, 50/60Hz, 0.2A

Output: DC 5V, 0.6A

Adaptor 2:

Model:EP19-050060WXLA

Input: AC 100-240V, 50/60Hz, 200mA Max.

Output: DC 5V, 0.6A

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. The worst case is X&Z position

2.5 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	R&S	ENV216	HKE-002	Dec. 27, 2018	1 Year
2.	Receiver	R&S	ESCI 7	HKE-010	Dec. 27, 2018	1 Year
3.	RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2018	1 Year
4.	Spectrum analyzer	R&S	FSP40	HKE-025	Dec. 27, 2018	1 Year
5.	Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2018	1 Year
6.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Dec. 27, 2018	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESCI 7	HKE-010	Dec. 27, 2018	1 Year
8.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Dec. 27, 2018	1 Year
9.	Loop Antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Dec. 27, 2018	1 Year
10.	Horn Antenna	Schewarzbeck	9120D	HKE-013	Dec. 27, 2018	1 Year
11.	Pre-amplifier	EMCI	EMC051845 SE	HKE-015	Dec. 27, 2018	1 Year
12.	Pre-amplifier	Agilent	83051A	HKE-016	Dec. 27, 2018	1 Year
13.	EMI Test Software EZ-EMC	Tonscend	JG-001C120 -B Version	HKE-083	Dec. 27, 2018	N/A
14.	Power Sensor	Agilent	E9300A	HKE-086	Dec. 27, 2018	1 Year
15.	Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2018	1 Year
16.	Signal generator	Agilent	N5182A	HKE-029	Dec. 27, 2018	1 Year
17.	Signal Generator	Agilent	83630A	HKE-028	Dec. 27, 2018	1 Year
18.	Shielded room	Shiel Hong	4*3*3	HKE-039	Dec. 27, 2018	3 Year

3. CONDUCTED EMISSIONS TEST

3.1 Conducted Power Line Emission Limit

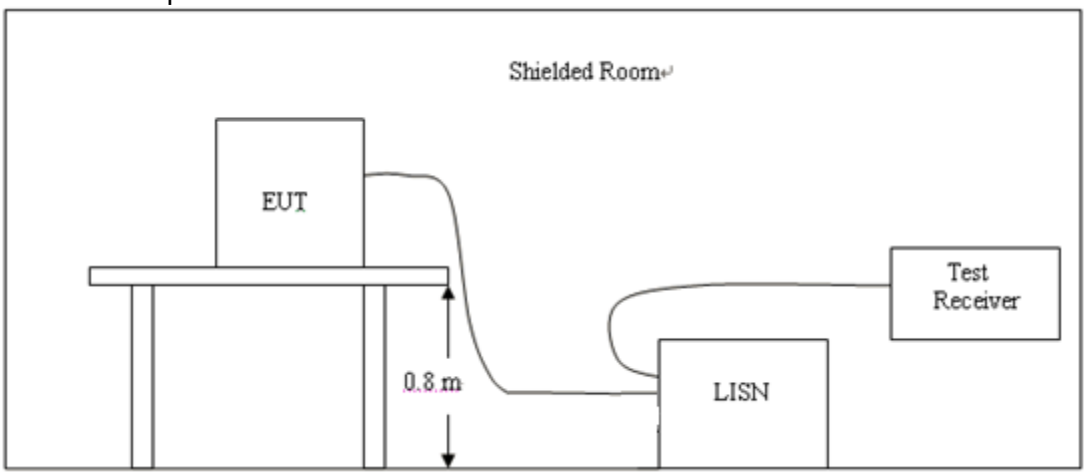
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

3.2 Test Setup



3.3 Test Procedure

1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.

2, Support equipment, if needed, was placed as per ANSI C63.10.

3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.

5, All support equipments received AC power from a second LISN, if any.

6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.

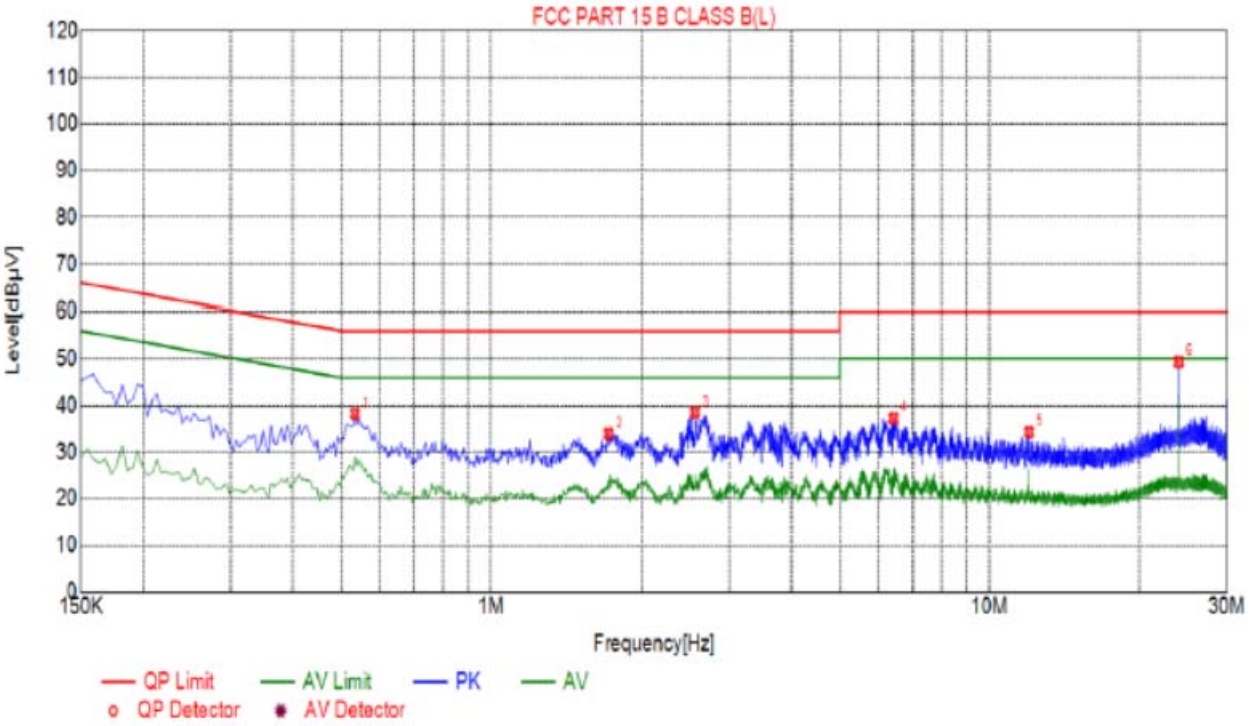
7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

3.4 Test Result

PASS

Adapter Model No.: EP10-050070WXEA
All the test modes completed for test. only the worst result of AC 240V/60Hz(FSK High Channel) was reported
as below:

Test Specification: Line



Suspected List

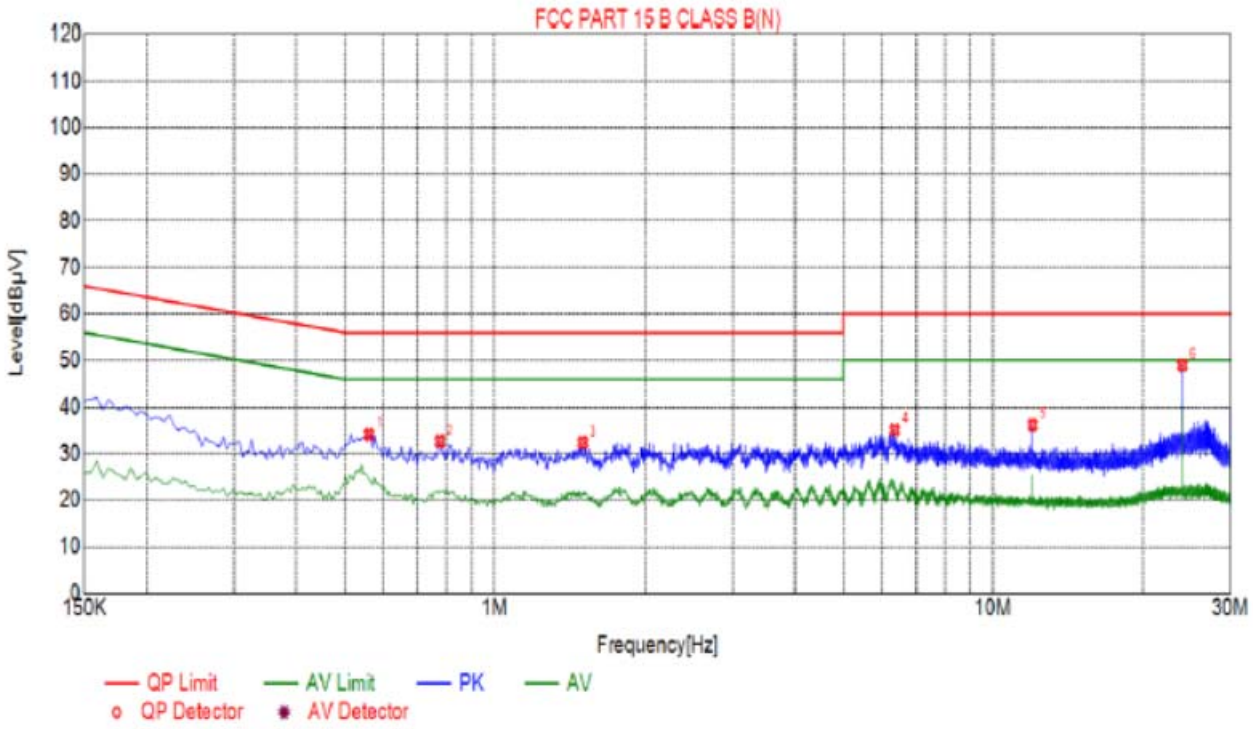
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Detector
1	0.5325	38.22	10.05	56.00	17.78	PK
2	1.7205	33.96	10.13	56.00	22.04	PK
3	2.5665	38.51	10.20	56.00	17.49	PK
4	6.4230	37.25	10.22	60.00	22.75	PK
5	11.9985	34.30	9.99	60.00	25.70	PK
6	24.0000	49.37	10.22	60.00	10.63	PK

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Test Specification: Neutral



Suspected List

NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Detector
1	0.5595	34.13	10.06	56.00	21.87	PK
2	0.7755	32.66	10.05	56.00	23.34	PK
3	1.5000	32.36	10.10	56.00	23.64	PK
4	6.3465	35.11	10.22	60.00	24.89	PK
5	11.9985	36.17	9.99	60.00	23.83	PK
6	24.0000	49.00	10.22	60.00	11.00	PK

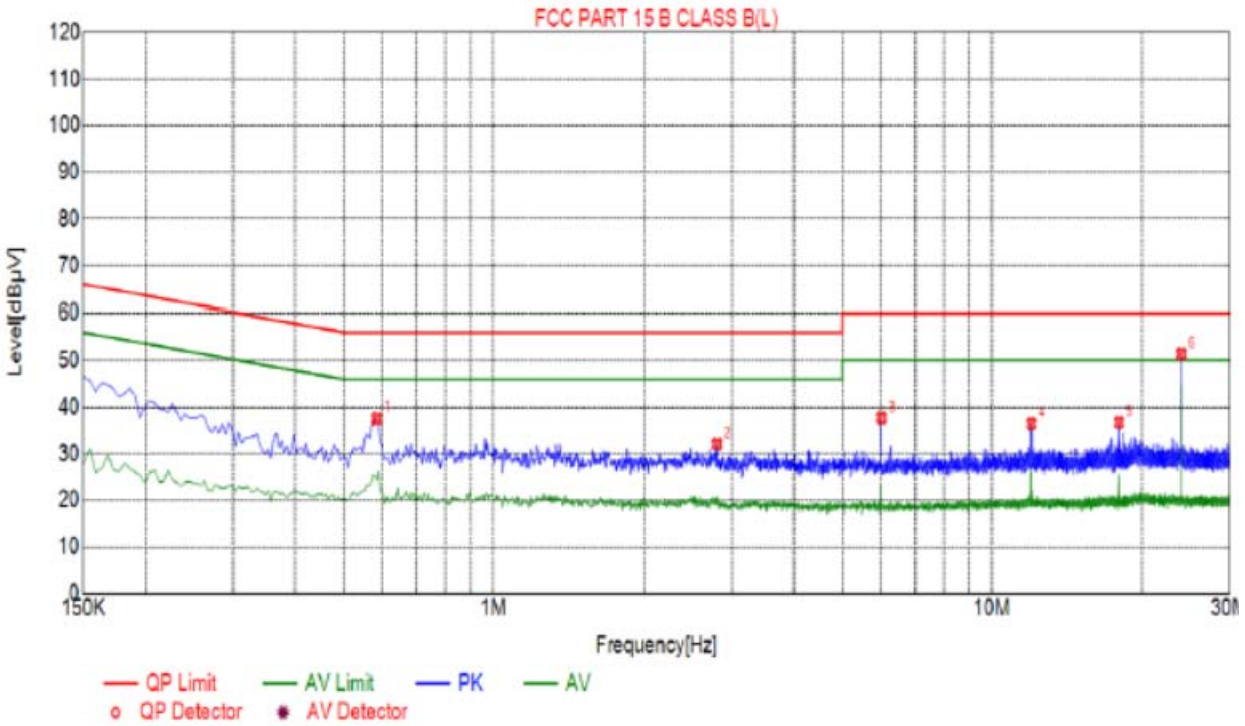
Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Adapter Model No.: AW007WR-0500070VV
All the test modes completed for test. only the worst result of AC 240V/60Hz(FSK High Channel) was reported
as below:

Test Specification: Line



Suspected List

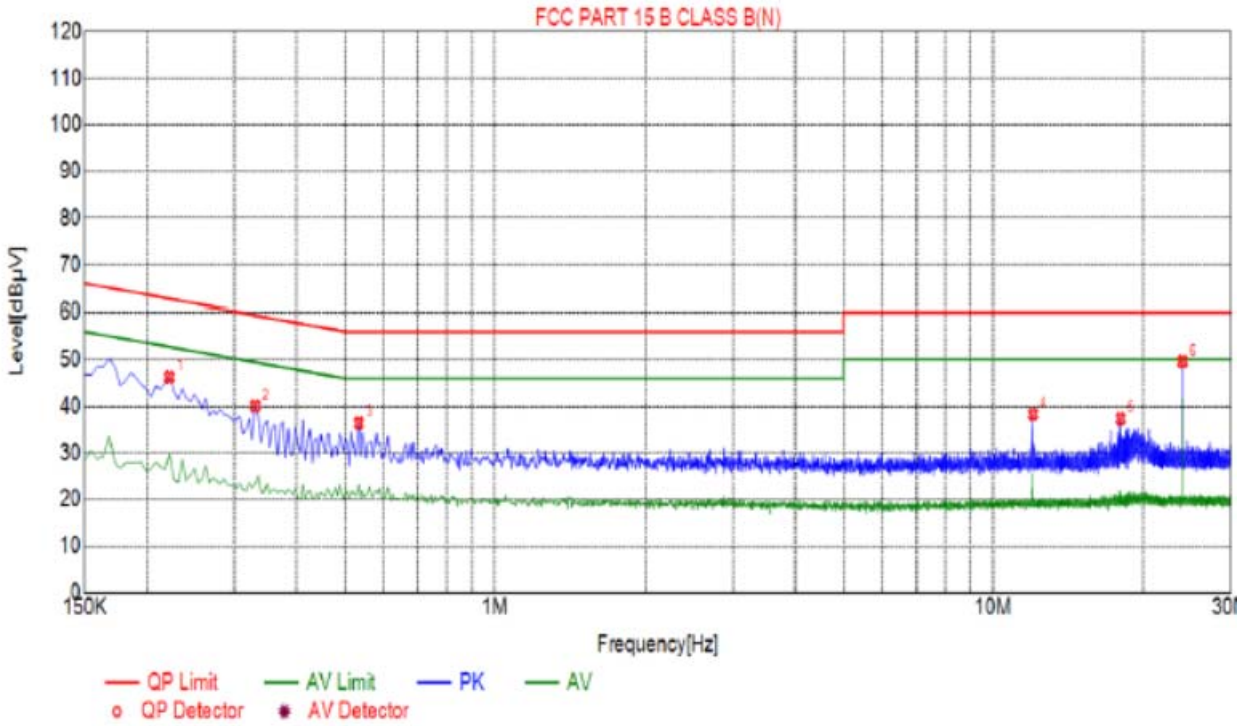
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Detector
1	0.5820	37.52	10.05	56.00	18.48	PK
2	2.8050	32.07	10.21	56.00	23.93	PK
3	6.0000	37.70	10.23	60.00	22.30	PK
4	11.9895	36.46	9.99	60.00	23.54	PK
5	17.9745	36.72	10.03	60.00	23.28	PK
6	24.0000	51.40	10.22	60.00	8.60	PK

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Test Specification: Neutral



Suspected List						
NO.	Freq. [MHz]	Level [dBµV]	Factor [dB]	Limit [dBµV]	Margin [dB]	Detector
1	0.2220	46.27	10.04	62.74	16.47	PK
2	0.3300	40.06	10.04	59.45	19.39	PK
3	0.5325	36.42	10.05	56.00	19.58	PK
4	12.0120	38.31	9.99	60.00	21.69	PK
5	18.0060	37.36	10.03	60.00	22.64	PK
6	24.0000	49.63	10.22	60.00	10.37	PK

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

4 RADIATED EMISSION TEST

4.1 Radiation Limit

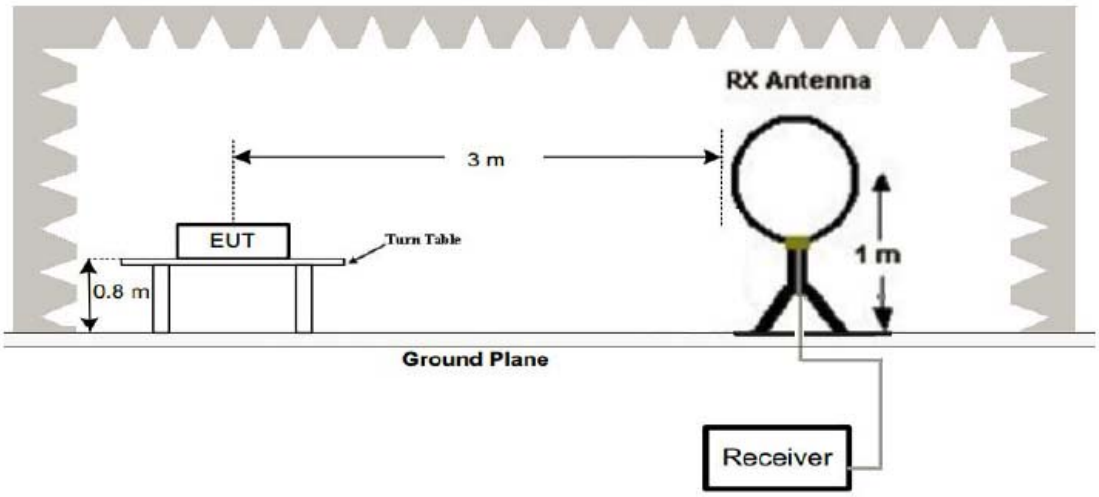
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

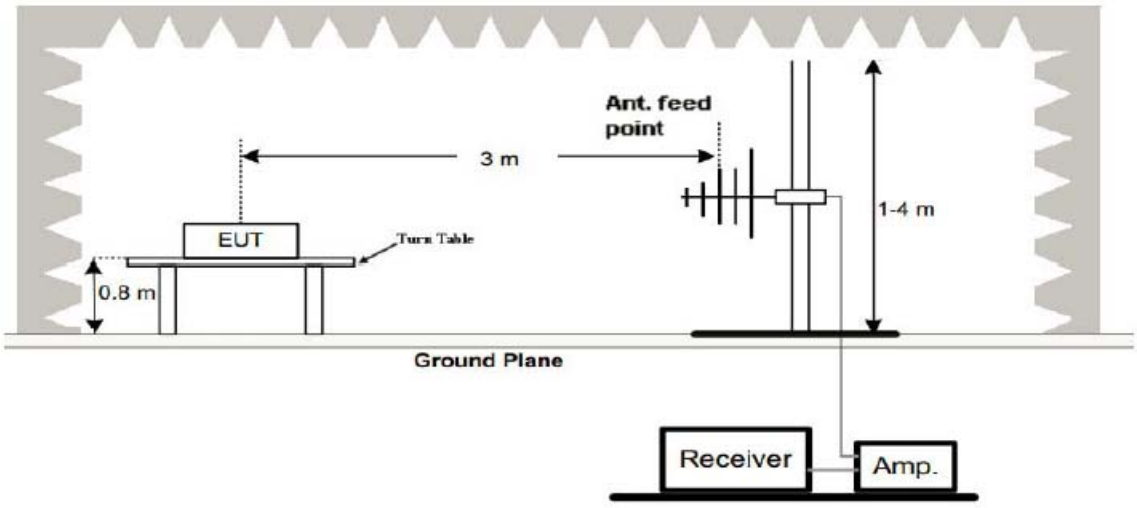
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 Test Setup

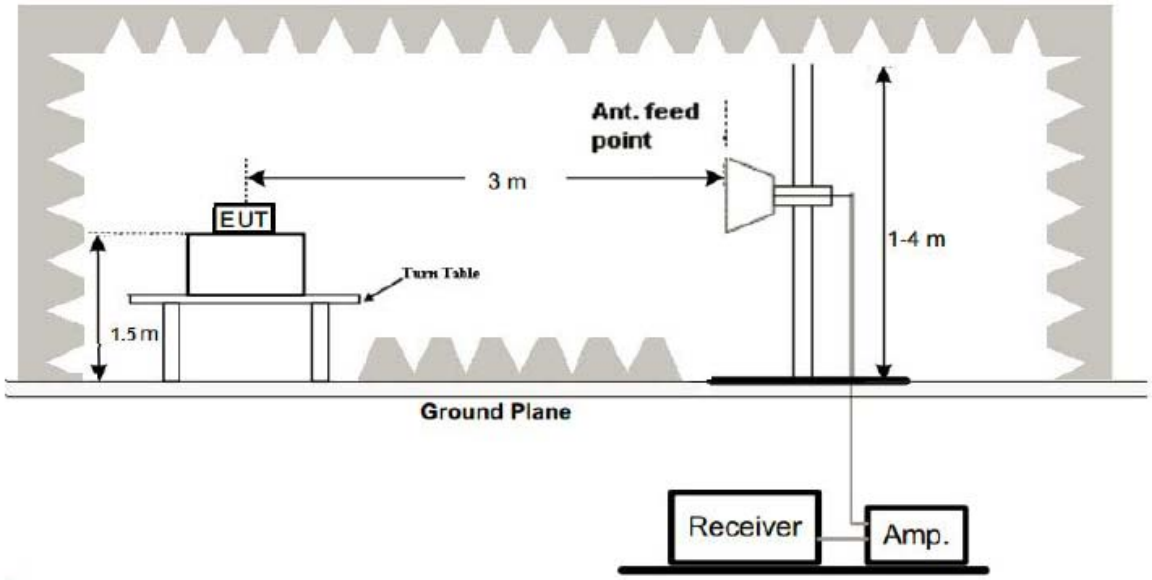
（1）Radiated Emission Test-Up Frequency Below 30MHz



（2）Radiated Emission Test-Up Frequency 30MHz~1GHz



（3）Radiated Emission Test-Up Frequency Above 1GHz



4.3 Test Procedure

1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

Note:
For battery operated equipment, the equipment tests shall be performed using a new battery.

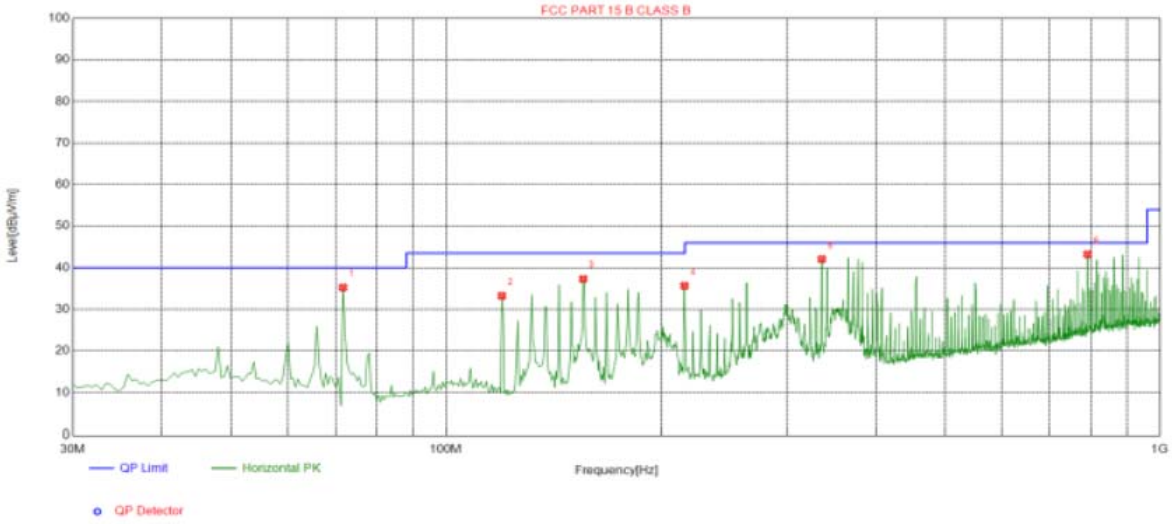
4.4 Test Result

PASS

Adapter Model No.: EP10-050070WXEA
All the test modes completed for test. only the worst result of AC 240V/60Hz(FSK High Channel) was reported
as below:

Below 1GHz Test Results:

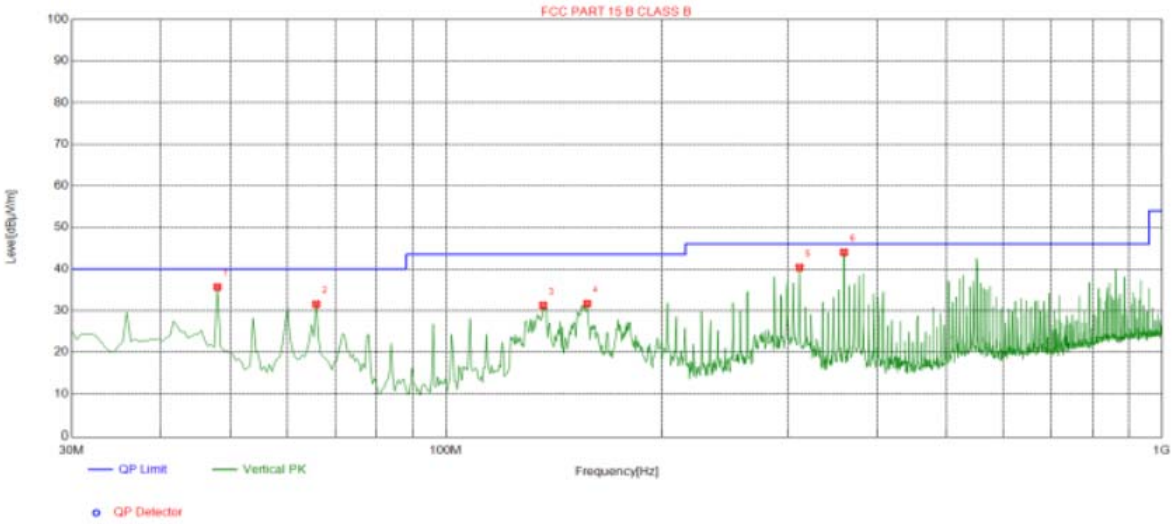
Antenna polarity: H



Suspected List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	71.7100	35.27	-17.98	40.00	4.73	100	12	Horizontal
2	119.725	33.25	-17.05	43.50	10.25	100	90	Horizontal
3	155.615	37.31	-18.54	43.50	6.19	100	93	Horizontal
4	215.755	35.66	-14.66	43.50	7.84	100	293	Horizontal
5	336.035	42.08	-11.62	46.00	3.92	100	114	Horizontal
6	791.935	43.24	-3.24	46.00	2.76	100	97	Horizontal

Remark:
Margin = Limit – Level
Level=Test receiver reading + factor
Factor= Antenna factor + cable loss- Amp factor

Antenna polarity: V



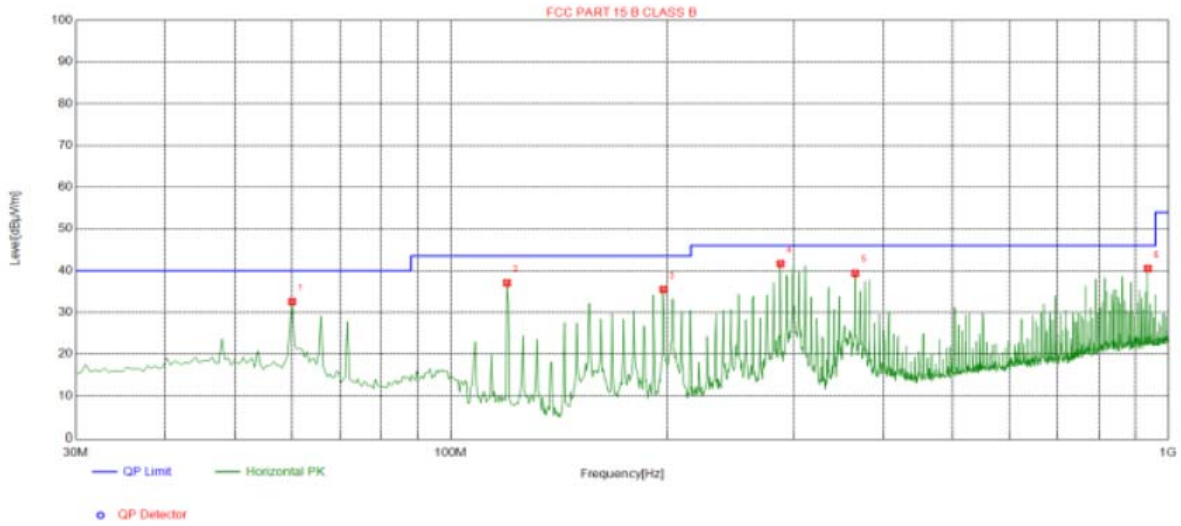
Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	47.9450	35.67	-13.65	40.00	4.33	100	135	Vertical
2	65.8900	31.53	-16.64	40.00	8.47	100	145	Vertical
3	136.700	31.24	-18.98	43.50	12.26	100	60	Vertical
4	157.555	31.65	-18.40	43.50	11.85	100	90	Vertical
5	311.785	40.36	-12.52	46.00	5.64	100	33	Vertical
6	359.800	44.04	-11.35	46.00	1.96	100	250	Vertical

Remark:
Margin = Limit – Level
Level=Test receiver reading + factor
Factor= Antenna factor + cable loss- Amp factor

Adapter Model No.: AW007WR-0500070VV
All the test modes completed for test. only the worst result of AC 240V/60Hz(FSK High Channel) was reported
as below:

Below 1GHz Test Results:

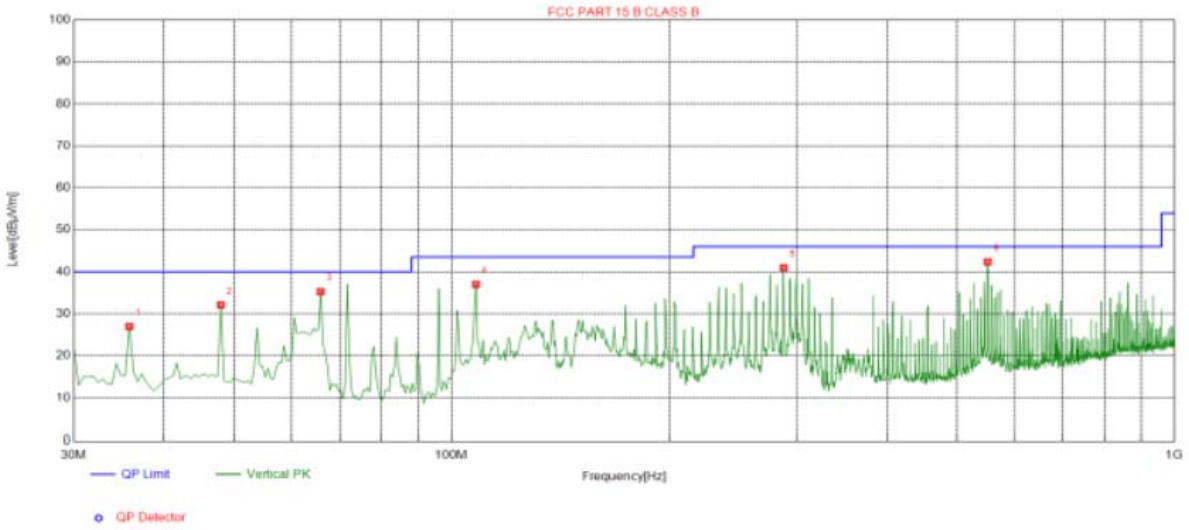
Antenna polarity: H



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	60.0700	32.57	-15.18	40.00	7.43	100	12	Horizontal
2	119.725	37.06	-17.05	43.50	6.44	100	49	Horizontal
3	197.810	35.50	-15.27	43.50	8.00	100	292	Horizontal
4	288.020	41.66	-12.92	46.00	4.34	100	76	Horizontal
5	366.105	39.38	-11.13	46.00	6.62	100	303	Horizontal
6	936.465	40.50	-1.64	46.00	5.50	100	194	Horizontal

Remark:
Margin = Limit – Level
Level=Test receiver reading + factor
Factor= Antenna factor + cable loss- Amp factor

Antenna polarity: V



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	35.8200	26.97	-15.88	40.00	13.03	100	78	Vertical
2	47.9450	32.13	-13.65	40.00	7.87	100	152	Vertical
3	65.8900	35.28	-16.64	40.00	4.72	100	13	Vertical
4	108.085	37.02	-15.42	43.50	6.48	100	294	Vertical
5	288.020	40.99	-12.92	46.00	5.01	100	50	Vertical
6	551.860	42.37	-6.91	46.00	3.63	100	23	Vertical

Remark:
Margin = Limit – Level
Level=Test receiver reading + factor
Factor= Antenna factor + cable loss- Amp factor

Remark：
(1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
(2) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.

Harmonics and Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBµV/m)	Limit@3m (dBµV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: *1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor*
2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Above 1 GHz Test Results:

CH Low (2410.875MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2410.875	110.91	-5.84	105.07	114	-8.93	peak
2410.875	84.29	-5.84	78.45	94	-15.55	AVG
4821.750	57.85	-3.64	54.21	74	-19.79	peak
4821.750	46.72	-3.64	43.08	54	-10.92	AVG
7232.625	54.34	-0.95	53.39	74	-20.61	peak
7232.625	41.54	-0.95	40.59	54	-13.41	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2410.875	109.84	-5.84	104	114	-10	peak
2410.875	84.33	-5.84	78.49	94	-15.51	AVG
4821.750	57.77	-3.64	54.13	74	-19.87	peak
4821.750	45.96	-3.64	42.32	54	-11.68	AVG
7232.625	55.52	-0.95	54.57	74	-19.43	peak
7232.625	41.26	-0.95	40.31	54	-13.69	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

CH Middle (2441.250MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2441.250	113.85	-5.71	108.14	114	-5.86	peak
2441.250	85.39	-5.71	79.68	94	-14.32	AVG
4882.500	57.07	-3.51	53.56	74	-20.44	peak
4882.500	46.73	-3.51	43.22	54	-10.78	AVG
7323.750	54.87	-0.82	54.05	74	-19.95	peak
7323.750	39.31	-0.82	38.49	54	-15.51	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2441.250	109.3	-5.71	103.59	114	-10.41	peak
2441.250	86.37	-5.71	80.66	94	-13.34	AVG
4882.500	57.23	-3.51	53.72	74	-20.28	peak
4882.500	45.15	-3.51	41.64	54	-12.36	AVG
7323.750	56.28	-0.82	55.46	74	-18.54	peak
7323.750	41.62	-0.82	40.8	54	-13.2	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

CH High (2471.625MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2471.625	110.92	-5.65	105.27	114	-8.73	peak
2471.625	84.71	-5.65	79.06	94	-14.94	AVG
4943.250	55.04	-3.43	51.61	74	-22.39	peak
4943.250	45.38	-3.43	41.95	54	-12.05	AVG
7414.875	55.01	-0.75	54.26	74	-19.74	peak
7414.875	40.08	-0.75	39.33	54	-14.67	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2471.625	106.45	-5.65	100.8	114	-13.2	peak
2471.625	84.08	-5.65	78.43	94	-15.57	AVG
4943.250	55.33	-3.43	51.9	74	-22.1	peak
4943.250	44.83	-3.43	41.4	54	-12.6	AVG
7414.875	54.27	-0.75	53.52	74	-20.48	peak
7414.875	39.51	-0.75	38.76	54	-15.24	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 25 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement within this frequency range shown “--- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.
(7)All modes of operation were investigated and the worst-case emissions are reported.

5 BAND EDGE

5.1 Limits

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.

5.2 Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 100KHz and VBM to 300KHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 100 KHz and VBW to 300 KHz, to measure the conducted peak band edge.

5.3 Test Result

PASS

Radiated Band Edge Test:

Operation Mode: TX CH Low (2410.875MHz)

Horizontal (Worst case)

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2310	53.03	-5.81	47.22	74	-26.78	peak
2310	/	-5.81	/	54	/	AVG
2390	53.76	-5.84	47.92	74	-26.08	peak
2390	/	-5.84	/	54	/	AVG
2400	52.7	-5.84	46.86	74	-27.14	peak
2400	/	-5.84	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2310	53.36	-5.81	47.55	74	-26.45	peak
2310	/	-5.81	/	54	/	AVG
2390	53.99	-5.84	48.15	74	-25.85	peak
2390	/	-5.84	/	54	/	AVG
2400	52.73	-5.84	46.89	74	-27.11	peak
2400	/	-5.84	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Operation Mode: TX CH High (2471.625MHz)

Horizontal (Worst case)

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	52.88	-5.65	47.23	74	-26.77	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	50.99	-5.65	45.34	74	-28.66	peak
2500.00	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.50	53.68	-5.65	48.03	74	-25.97	peak
2483.50	/	-5.65	/	54	/	AVG
2500.00	52.89	-5.65	47.24	74	-26.76	peak
2500.00	/	-5.65	/	54	/	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

6 OCCUPIED BANDWIDTH MEASUREMENT

6.1 Test Setup

Same as Radiated Emission Measurement

6.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Based on ANSI C63.10 section 6.9.2: RBW= 100KHz. VBW= 300 KHz, Span=10MHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

6.3 Measurement Equipment Used

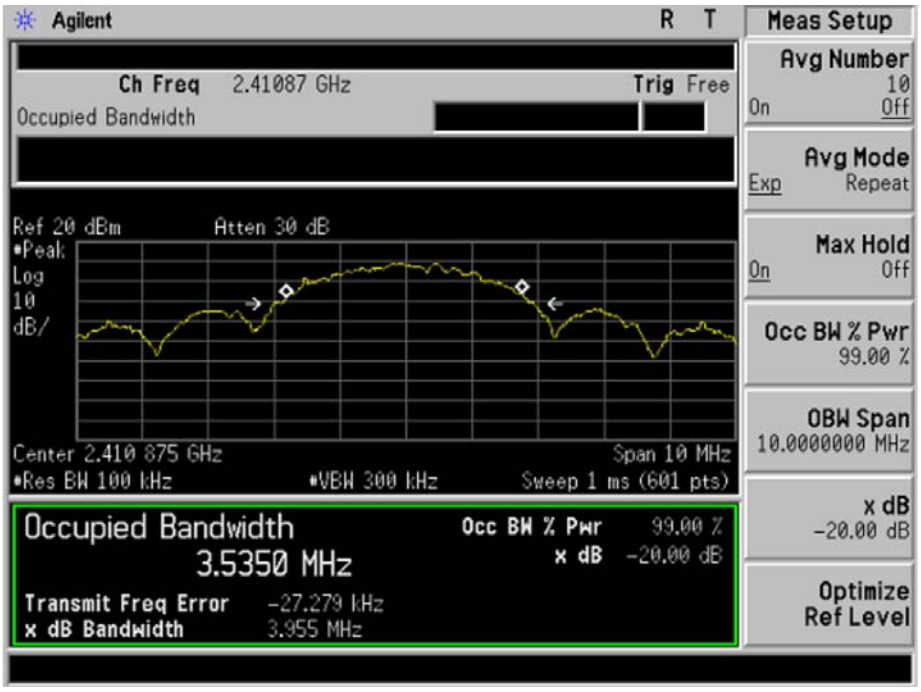
Same as Radiated Emission Measurement

6.4 Test Result

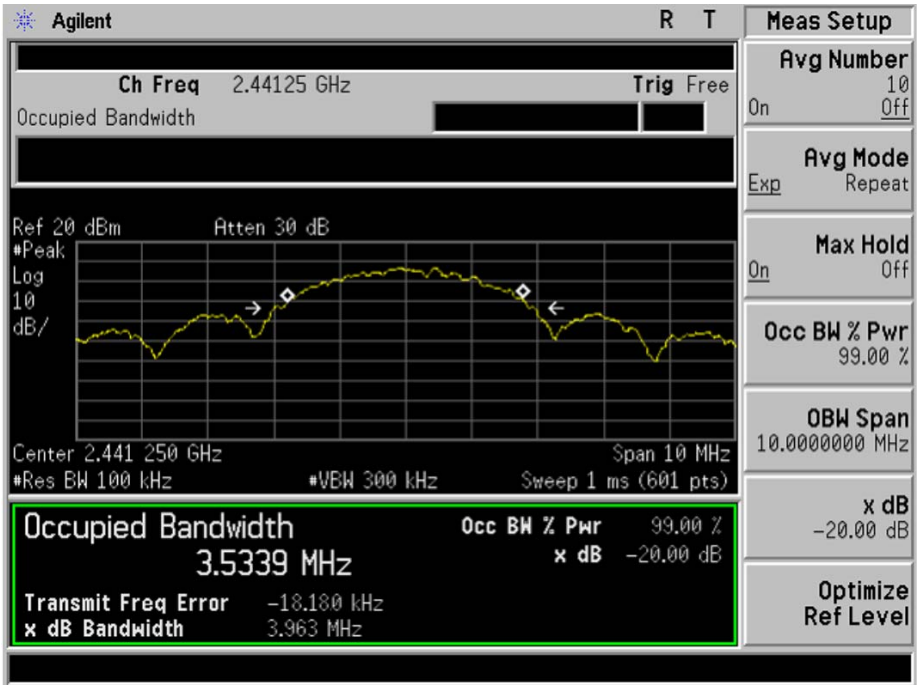
PASS

Test channel	20dB Bandwidth (MHz)	Result
Lowest	3.955	**PASS**
Middle	3.963	**PASS**
Highest	3.883	**PASS**

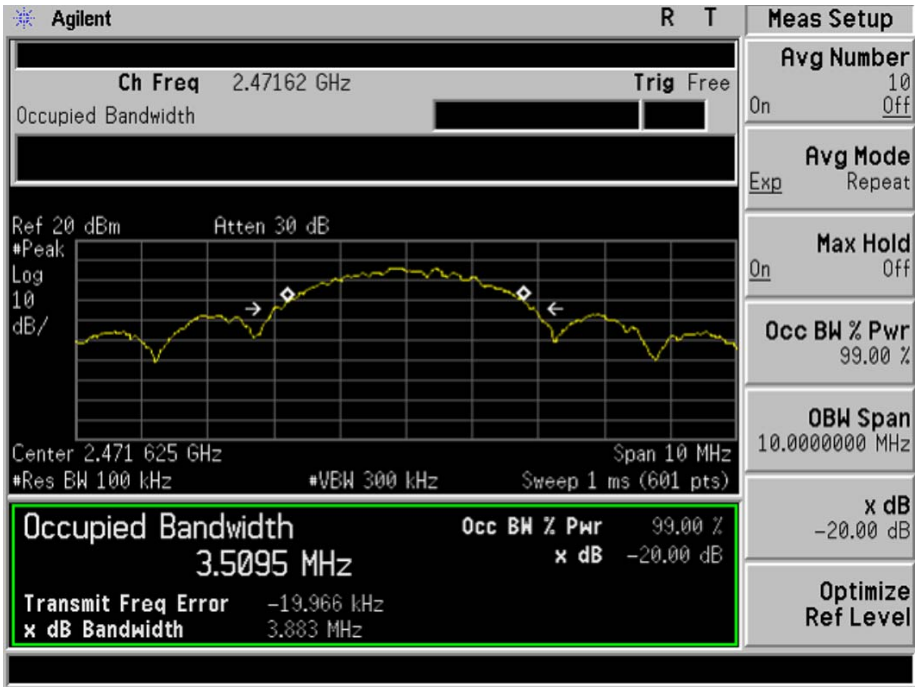
Lowest channel



Middle channel



Highest channel



7 ANTENNA REQUIREMENT

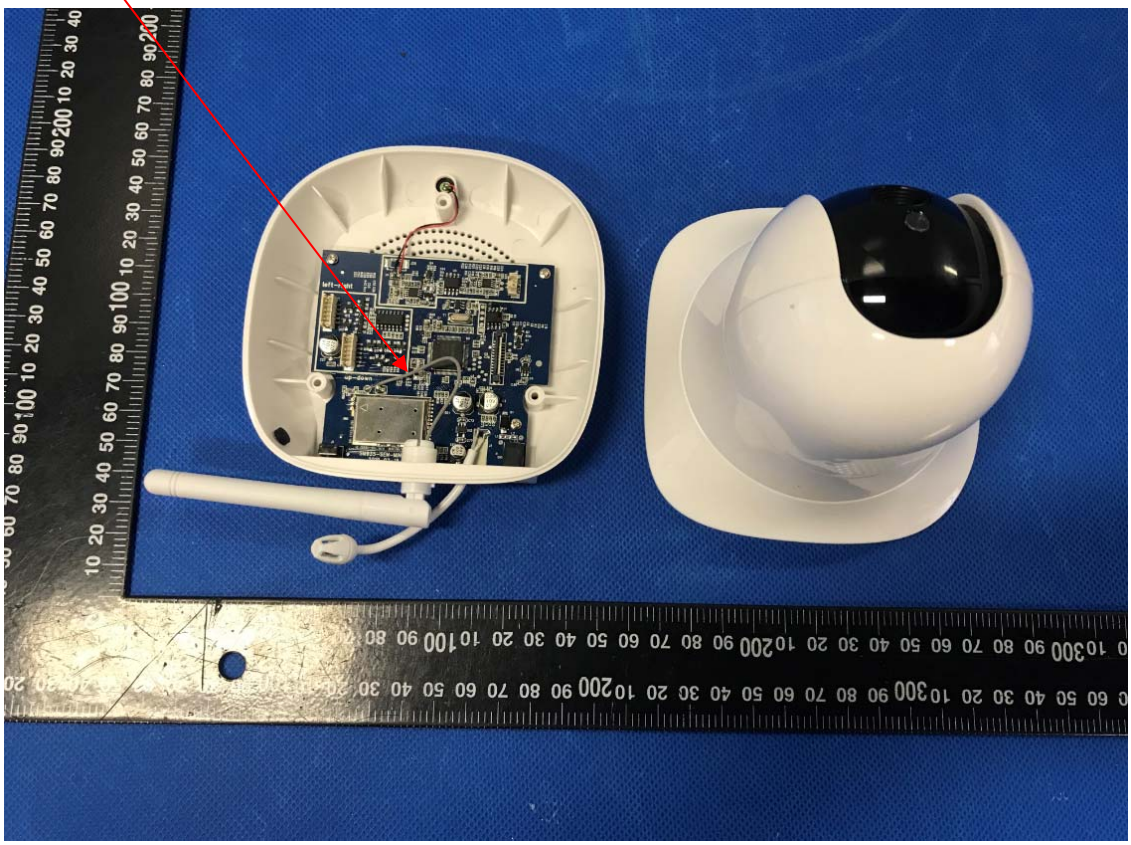
Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, 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. And according to FCC 47 CFR Section 15.249, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Antenna Connected Construction

The antenna used in this product is a Internal Antenna, The directional gains of antenna used for transmitting is 0dBi.

ANTENNA



8 PHOTOGRAPH OF TEST

Radiated Emission

Conducted Emission

9 PHOTOGRAPH OF TEST

Reference to the reporter : ANNEX A of external photos and ANNEX B of internal photos

---------End of test report---------