

FCC RADIO TEST REPORT

FCC ID: 2AN6W-XF-808

Product:	Video baby monitor
Trade Name:	N/A
Model Name:	XF-808
Serial Model:	XF-809, XF-810, XF-812, XF-815
Report No.:	UNIA2018091728FR-01

Prepared for

Shenzhen XinFuChuang Electronic Co., Ltd
5th Floor, Building 2#, Road 1 No.5, ShangXue Technology Park, Bantian Street
LongGang District, Shenzhen, China

Prepared by

Shenzhen United Testing Technology Co., Ltd.
2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang
Community, Xixiang Str, Bao'an District, Shenzhen, China

TEST RESULT CERTIFICATION

Applicant's name: Shenzhen XinFuChuang Electronic Co., Ltd
Address: 5th Floor, Building 2#, Road 1 No.5, ShangXue Technology Park,
Bantian Street, LongGang District, Shenzhen, China

Manufacture's Name: Shenzhen XinFuChuang Electronic Co., Ltd
Address: 5th Floor, Building 2#, Road 1 No.5, ShangXue Technology Park,
Bantian Street, LongGang District, Shenzhen, China

Product description

Product name : Video baby monitor
Trade Mark : N/A
Model and/or type reference .: XF-808, XF-809, XF-810, XF-812, XF-815

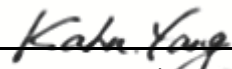
Standards.....: FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.10: 2013
KDB 558074 D01 DTS Meas Guidance v04

This device described above has been tested by Shenzhen United Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.


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Date of Test.....: Aug. 31, 2018
Date (s) of performance of tests: Aug. 31, 2018 -- Sep. 10, 2018
Date of Issue: Sep. 10, 2018
Test Result.....: Pass

Prepared by:


Kahn yang/Editor

Reviewer:


Sherwin Qian/Supervisor

Approved & Authorized Signer:


Liuze/Manager

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1 TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

FCC Part 15.247, Subpart C			
Standard section	Test Item	Judgment	Remark
15.207	Conducted emission	PASS	--
15.247(a)(2)	6dB Bandwidth	PASS	--
15.247(b)(3)	Output Power	PASS	--
15.247(c)	Radiated Spurious Emission	PASS	--
15.247(d)	Conducted Spurious & Band Edge Emission	PASS	--
15.247(e)	Power Spectral Density	PASS	--
15.205	Restricted Band Edge Emission	PASS	--
15.247(d)/part 15.209(a)	Band Edge Emission	PASS	--
15.203	Antenna requirement	PASS	--

Note: 1."N/A"denotes test is not applicable in this Test report
 2.all tests are according to ANSI C63.10-2013

1.2 TEST FACILITY

Test Firm : Shenzhen United Testing Technology Co., Ltd.
 Address : 2F, Annex Bldg, Jiahuangyuan Tech Park, #365 Baotian 1 Rd, Tiegang Community, Xixiang Str, Bao'an District, Shenzhen, China

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

CNAS-LAB Code: L6494

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

Designation Number: CN1227

Test Firm Registration Number: 674885

The 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.

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	Video baby monitor
Trade Mark	N/A
Model Name	XF-808
Serial No.	XF-809, XF-810, XF-812, XF-815
Model Difference	All models have the same functionality, software and electronics, only the color, front frame shape and model names may differ. Test sample model: XF-808
FCC ID	2AN6W-XF-808
Antenna Type	Internal Antenna
Antenna Gain	1.0dbi
Frequency Range	2410.875MHz – 2471.625MHz
Number of Channels	19
Modulation Type	GFSK
Battery	3.7V 700mAh
Adapter Model	N/A

2.2 Carrier Frequency of Channels

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2410.875	10	2444.625
01	2414.250	11	2448.000
02	2417.625	12	2451.375
03	2421.000	13	2454.750
04	2424.375	14	2458.125
05	2427.750	15	2461.500
06	2431.125	16	2464.875
07	2434.500	17	2468.250
08	2437.875	18	2471.625
09	2441.250		

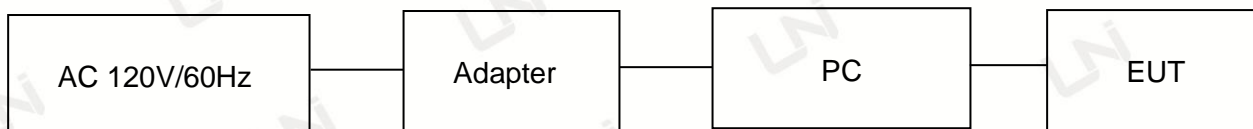
2.3 Operation of EUT during testing

Operating Mode: 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:



Adapter model: Lenovo 65W

Input: 100-240V ~1.5A

Output: 20V--3.25A

Operation of EUT during Radiation and Above1GHz Radiation testing:



2.5 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
CONDUCTED EMISSIONS TEST					
1	AMN	Schwarzbeck	NNLK8121	8121370	2019.9.9
2	AMN	ETS	3810/2	00020199	2019.9.9
3	EMI TEST RECEIVER	Rohde&Schwarz	ESCI	101210	2019.9.9
4	AAN	TESEQ	T8-Cat6	38888	2019.9.9
RADIATED EMISSION TEST					
1	Horn Antenna	Sunol	DRH-118	A101415	2019.9.29
2	BicoNILog Antenna	Sunol	JB1 Antenna	A090215	2019.9.29
3	PREAMP	HP	8449B	3008A00160	2019.9.9
4	PREAMP	HP	8447D	2944A07999	2019.9.9
5	EMI TEST RECEIVER	Rohde&Schwarz	ESR3	101891	2019.9.9
6	VECTOR Signal Generator	Rohde&Schwarz	SMU200A	101521	2019.9.28
7	Signal Generator	Agilent	E4421B	MY4335105	2019.9.28
8	MXA Signal Analyzer	Agilent	N9020A	MY50510140	2019.9.28
9	MXA Signal Analyzer	Agilent	N9020A	MY51110104	2019.9.9
10	ANT Tower&Turn table Controller	Champro	EM 1000	60764	2019.9.28
11	Anechoic Chamber	Taihe Maorui	9m*6m*6m	966A0001	2019.9.9

12	Shielding Room	Taihe Maorui	6.4m*4m*3m	643A0001	2019.9.9
13	RF Power sensor	DARE	RPR3006W	15I00041SNO88	2019.3.14
14	RF Power sensor	DARE	RPR3006W	15I00041SNO89	2019.3.14
15	RF power divider	Anritsu	K241B	992289	2019.9.28
16	Wideband radio communication tester	Rohde&Schwarz	CMW500	154987	2019.9.28
17	Biconical antenna	Schwarzbeck	VHA 9103	91032360	2019.9.8
18	Biconical antenna	Schwarzbeck	VHA 9103	91032361	2019.9.8
19	Broadband Hybrid Antennas	Schwarzbeck	VULB9163	VULB9163#958	2019.9.8
20	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1680	2019.1.12
21	Active Receive Loop Antenna	Schwarzbeck	FMZB 1919B	00023	2019.11.02
22	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170651	2019.03.14
23	Microwave Broadband Preampfier	Schwarzbeck	BBV 9721	100472	2019.10.24
24	Active Loop Antenna	Com-Power	AL-130R	10160009	2019.05.10
25	Power Meter	KEYSIGHT	N1911A	MY50520168	2019.05.10

3 TEST CONDITIONS AND RESULTS

3.1 CONDUCTED EMISSIONS TEST

Limit

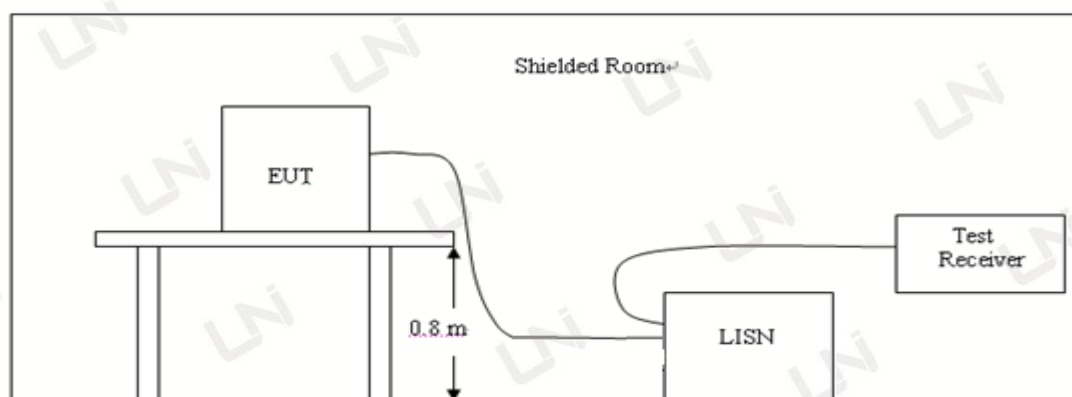
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage(dB μ V)			
	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.

Test Setup



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.

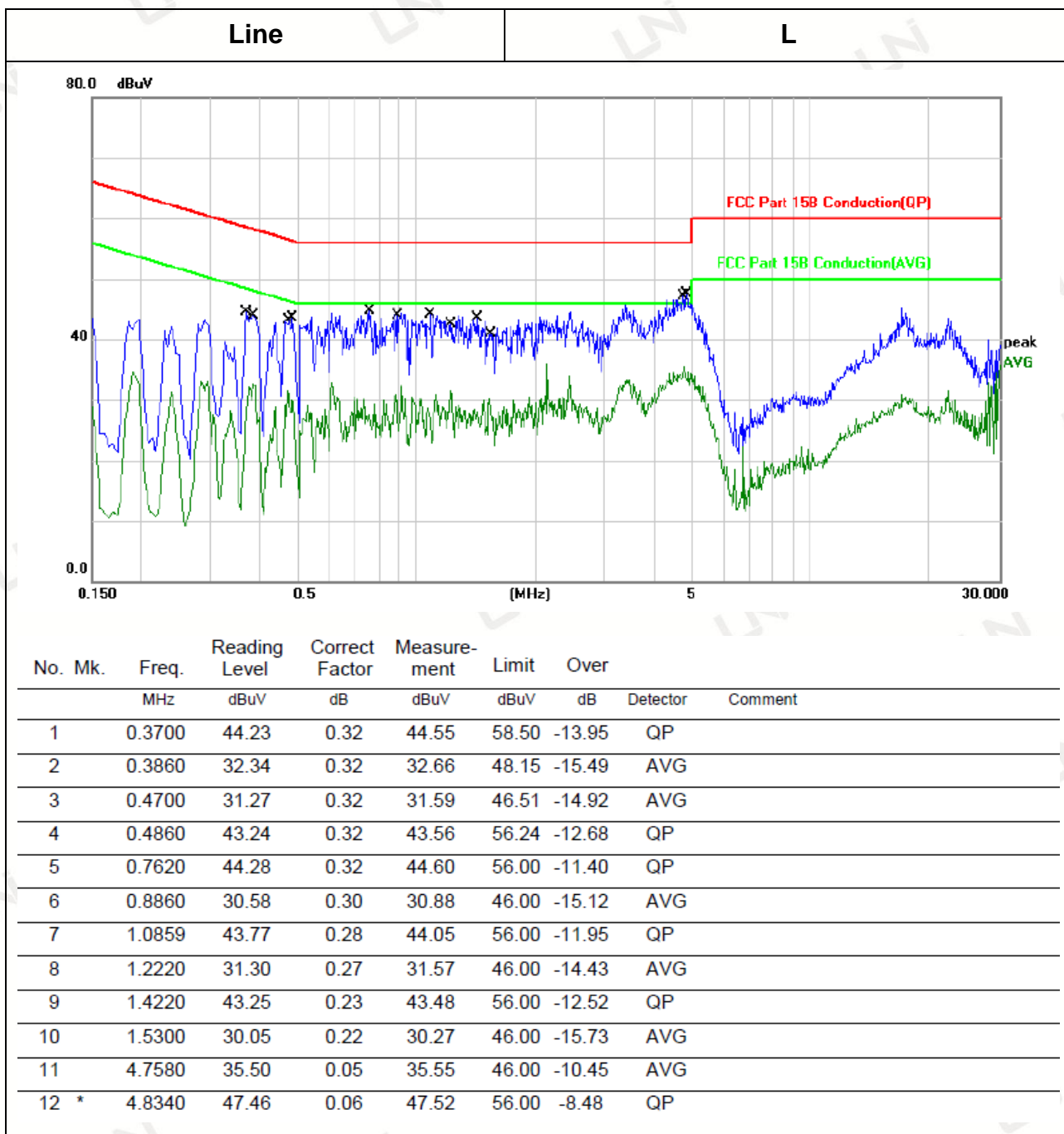
Test Result

---PASS---

Remark:

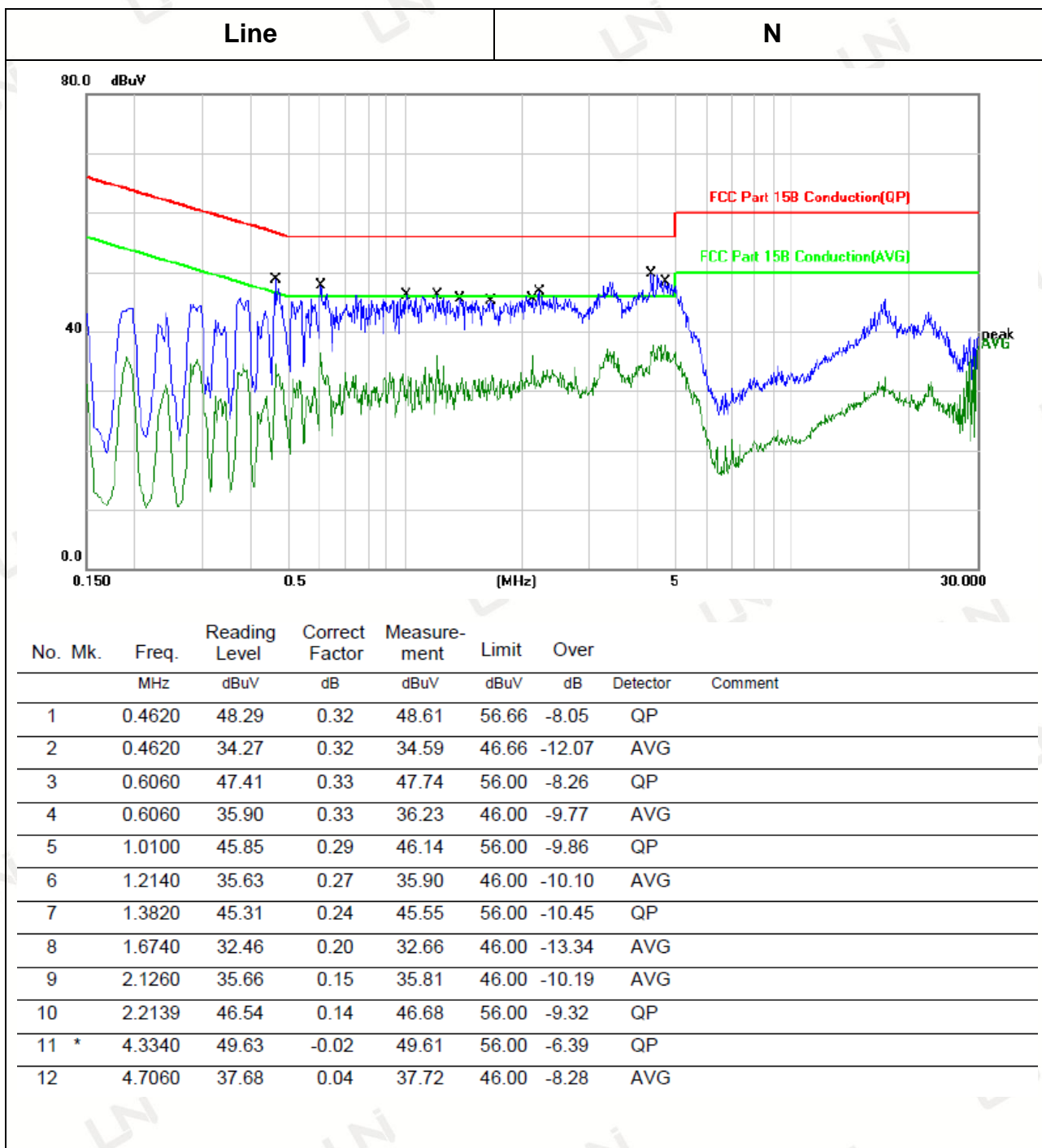
1. All modes were tested at AC 120V and 240V, only the worst result of AC 120V was reported.
2. All modes of GFSK were tested at Low, Middle, and High channel, only the worst result of GFSK High Channel was reported as below:

Temperature:	26°C	Relative Humidity:	48%
Test Date:	Sep. 07, 2018	Pressure:	1030hPa
Test Voltage:	Transmitter :DC 5.0V from others Receiver :DC 3.7V from battery	Phase:	
Test Mode:	Normal working mode		



Remark: Factor = Insertion Loss + Cable Loss, Result = Reading + Factor, Margin = Result – Limit.

Temperature:	26°C	Relative Humidity:	48%
Test Date:	Sep. 07, 2018	Pressure:	1030hPa
Test Voltage:	Transmitter :DC 5.0V from others Receiver :DC 3.7V from battery	Phase:	
Test Mode:	Normal working mode		



Remark: Factor = Insertion Loss + Cable Loss, Result = Reading + Factor, Margin = Result – Limit.

3.2 RADIATED EMISSION TEST

Limit

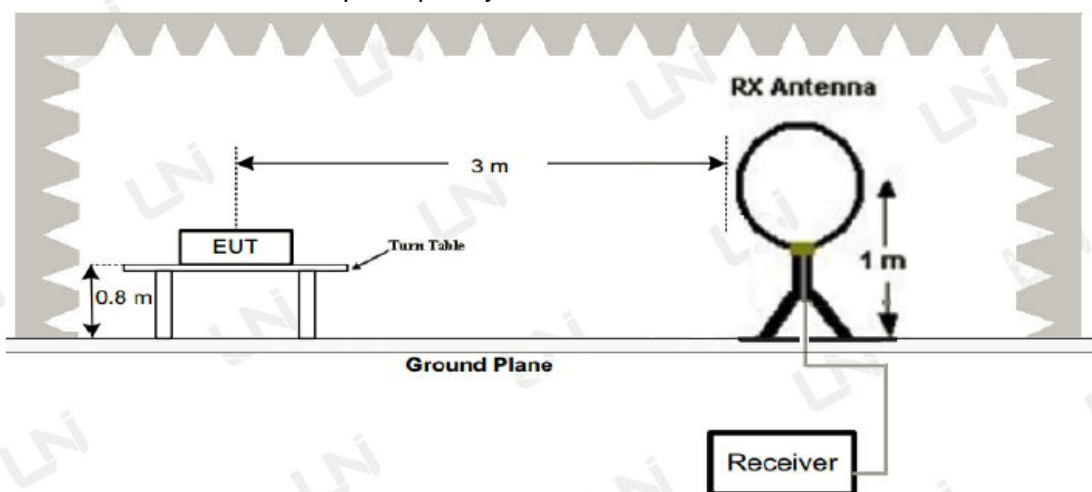
For unintentional device, according to § 15.209(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

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

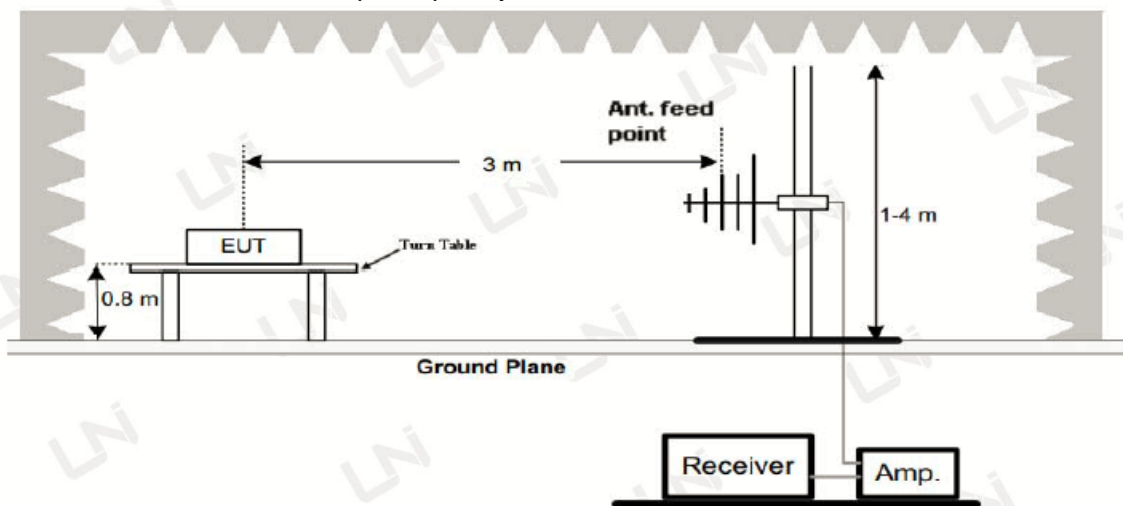
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

Test Setup

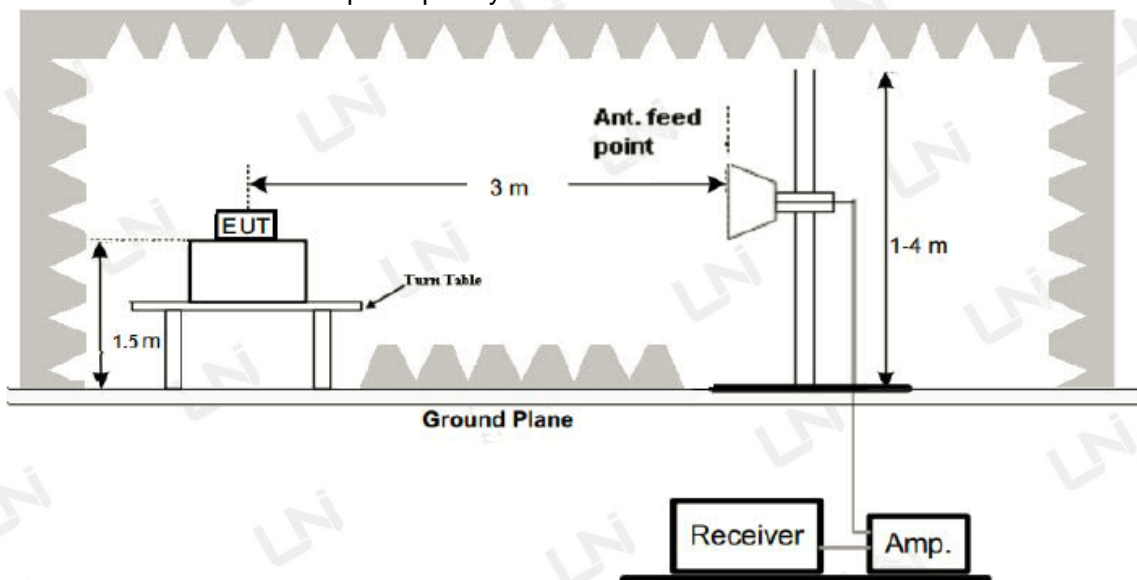
1. Radiated Emission Test-Up Frequency Below 30MHz



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



3. Radiated Emission Test-Up Frequency Above 1GHz



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.

Test Result

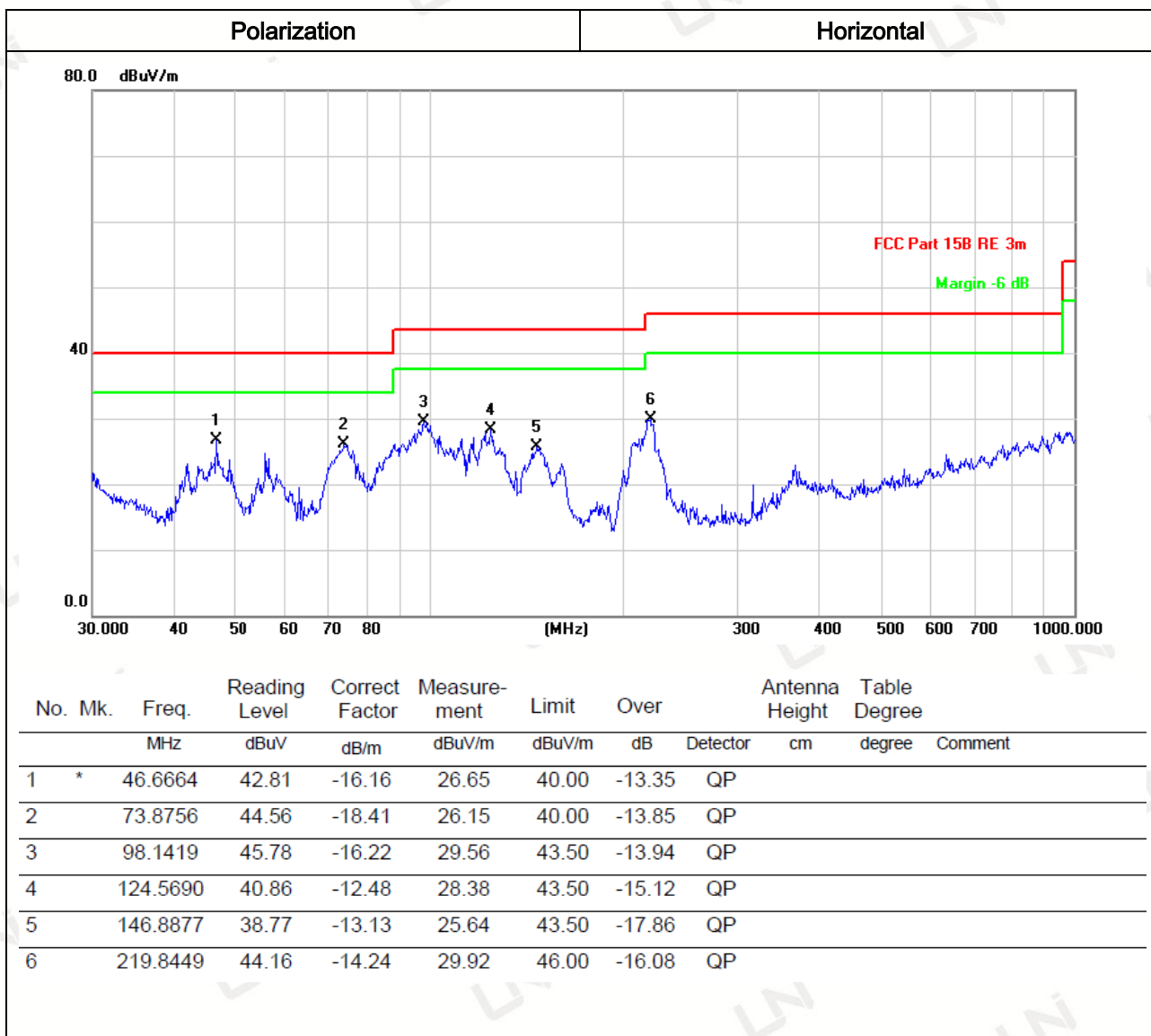
---PASS---

Remark:

1. All modes of GFSK were test at Low, Middle, and High channel, only the worst result of GFSK High Channel was reported for below 1GHz test.
2. By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "Z axis" position was the worst, and test data recorded in this report.
3. Radiated emission test from 9KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9KHz to 30MHz and not recorded in this report.

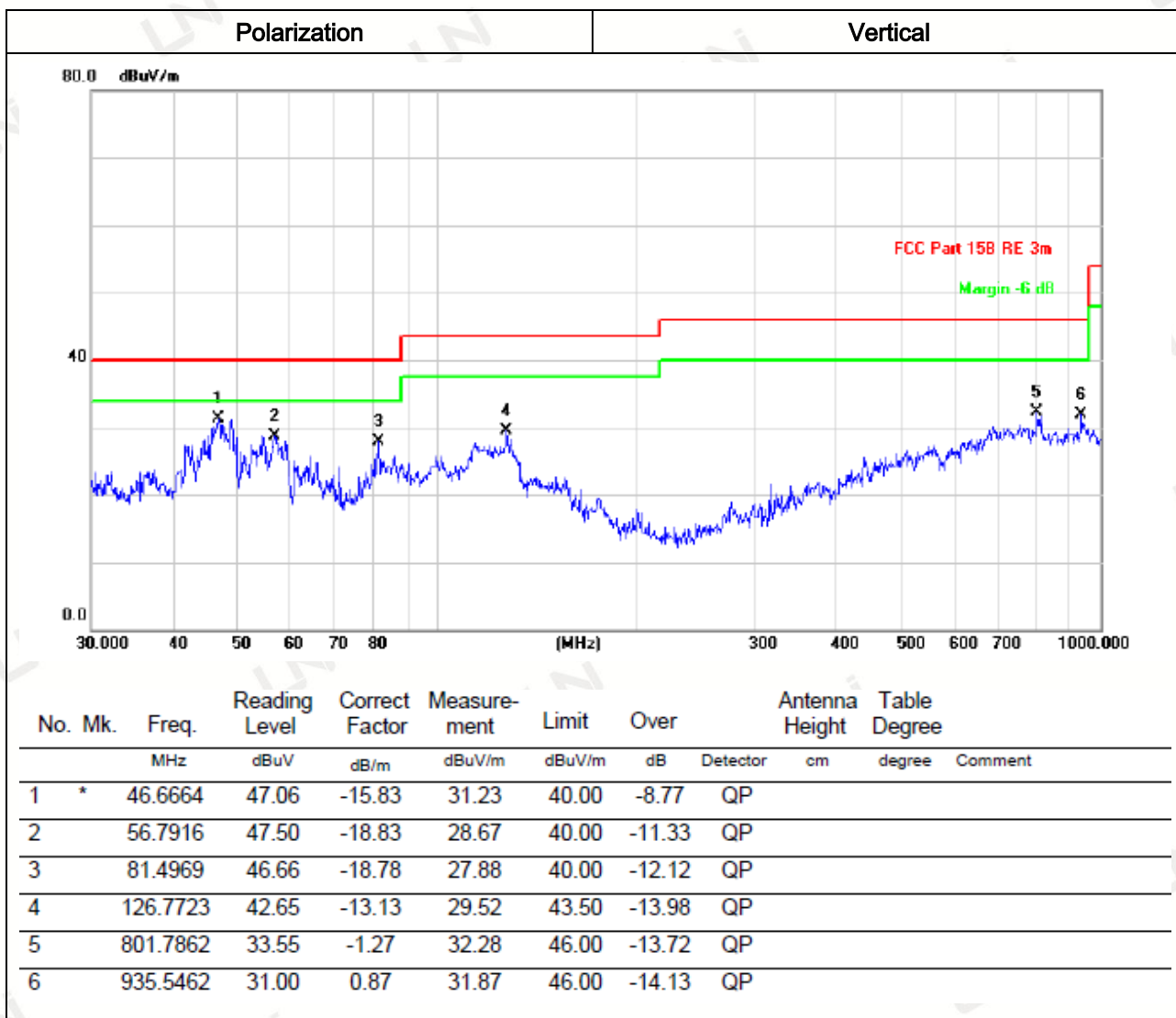
Below 1GHz Test Results:

Temperature:	24°C	Relative Humidity:	45%
Test Date:	Sep. 07, 2018	Pressure:	1030hPa
Test Voltage:	Transmitter :DC 5.0V from others Receiver :DC 3.7V from battery	Phase:	
Test Mode:	Normal working mode		



Remark: Absolute Level = Reading Level + Factor, Margin = Absolute Level – Limit
 Factor = Ant. Factor + Cable Loss – Pre-amplifier

Temperature:	24°C	Relative Humidity:	45%
Test Date:	Sep. 07, 2018	Pressure:	1030hPa
Test Voltage:	Transmitter :DC 5.0V from others Receiver :DC 3.7V from battery	Polarization:	Vertical
Test Mode:	Normal working mode		



Remark: Absolute Level = Reading Level + Factor, Margin = Absolute Level – Limit
 Factor = Ant. Factor + Cable Loss – Pre-amplifier

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.

Above 1 GHz Test Results (GFSK Mode):

CH Low : 2410.875MHz

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4821.750	58.67	-3.64	55.03	74	-18.97	PK
4821.750	43.64	-3.61	40.03	54	-13.97	AV
6176.552	52.31	-2.24	50.07	74	-23.93	PK
6176.552	41.22	-2.24	38.98	54	-15.02	AV
7232.625	60.16	-0.95	59.21	74	-14.79	PK
7232.625	45.69	-0.95	44.74	54	-9.26	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4821.750	60.04	-3.61	56.43	74	-17.57	PK
4821.750	45.73	-3.61	42.12	54	-11.88	AV
6176.552	53.77	-2.24	51.53	74	-22.47	PK
6176.552	44.30	-2.24	42.06	54	-11.94	AV
7232.625	59.05	-0.95	58.10	74	-15.90	PK
7232.625	47.44	-0.95	46.49	54	-7.51	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit

CH Middle : 2441.250MHz

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type
4882.500	57.28	-3.47	53.81	74	-20.19	PK
4882.500	46.84	-3.47	43.37	54	-10.63	AV
6225.460	55.69	-2.21	53.48	74	-20.52	PK
6225.460	45.66	-2.21	43.45	54	-10.55	AV
7323.750	58.13	-0.82	57.31	74	-16.69	PK
7323.750	43.98	-0.82	43.16	54	-10.84	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type
4882.500	58.78	-3.47	55.31	74	-18.69	PK
4882.500	47.42	-3.47	43.95	54	-10.05	AV
6225.460	55.80	-2.21	53.59	74	-20.41	PK
6225.460	46.83	-2.21	44.62	54	-9.38	AV
7323.750	59.95	-0.82	59.13	74	-14.87	PK
7323.750	44.86	-0.82	44.04	54	-9.96	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit

CH High (2471.625MHz)

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4943.25	56.36	-3.45	52.91	74	-21.09	PK
4943.25	43.37	-3.45	39.92	54	-14.08	AV
6239.450	55.43	-2.24	53.19	74	-20.81	PK
6239.450	42.34	-2.24	40.1	54	-13.9	AV
7414.875	57.66	-0.79	56.87	74	-17.13	PK
7414.875	43.04	-0.79	42.25	54	-11.75	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit

Vertical:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4943.25	58.05	-3.45	54.6	74	-19.4	PK
4943.25	44.39	-3.45	40.94	54	-13.06	AV
6239.450	56.85	-2.24	54.61	74	-19.39	PK
6239.450	44.03	-2.24	41.79	54	-12.21	AV
7414.875	58.97	-0.79	58.18	74	-15.82	PK
7414.875	45.12	-0.79	44.33	54	-9.67	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Margin = Absolute Level – Limit

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.

Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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.

Test Result

---PASS---

Radiated Band Edge Test:

Operation Mode: Transmitting mode of GFSK

CH LOW: 2410.875MHz

Horizontal:

Frequency (MHz)	Reading Result (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2310	52.88	-5.81	47.07	74	-26.93	PK
2310	/	-5.81	/	54	/	AV
2390	55.07	-5.84	49.23	74	-24.77	PK
2390	/	-5.84	/	54	/	AV
2400	58.16	-5.84	52.32	74	-21.68	PK
2400	/	-5.84	/	54	/	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
2310	54.31	-5.81	48.50	74	-25.50	PK
2310	/	-5.81	/	54	/	AV
2390	57.35	-5.84	51.51	74	-22.49	PK
2390	/	-5.84	/	54	/	AV
2400.00	60.27	-5.84	54.43	74	-19.57	PK
2400.00	/	-5.84	/	54	/	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

CH HIGH : 2471.625MHz

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	Type
2483.5	56.77	-5.65	51.12	74	-22.88	PK
2483.5	/	-5.65	/	54	/	AV
2490.35	53.04	-5.68	47.36	74	-26.64	PK
2490.35	/	-5.68	/	54	/	AV
2500	52.21	-5.72	46.49	74	-27.51	PK
2500	/	-5.72	/	54	/	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	Type
2483.5	58.69	-5.65	53.04	74	-20.96	PK
2483.5	/	-5.65	/	54	/	AV
2490.35	55.32	-5.68	49.64	74	-24.36	PK
2490.35	/	-5.68	/	54	/	AV
2500	53.84	-5.72	48.12	74	-25.88	PK
2500	/	-5.72	/	54	/	AV

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

3.4 Maximum Peak Output Power

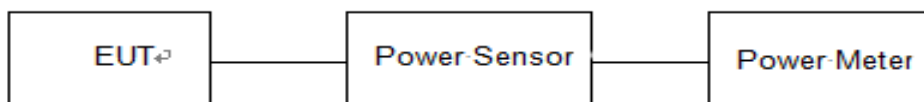
Limit

The Maximum Peak Output Power Measurement is 30dBm.

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

Test Configuration



Test Result

---PASS---

Type	Channel	Output power (dBm)	Antenna Gain (dbi)	EIRP (dBm)	Limit (dBm)	Result
GFSK	00	16.35	1.0dbi	17.35	30.00	Pass
	09	15.42	1.0dbi	16.42		
	18	14.81	1.0dbi	15.81		

3.5 Power Spectral Density

Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

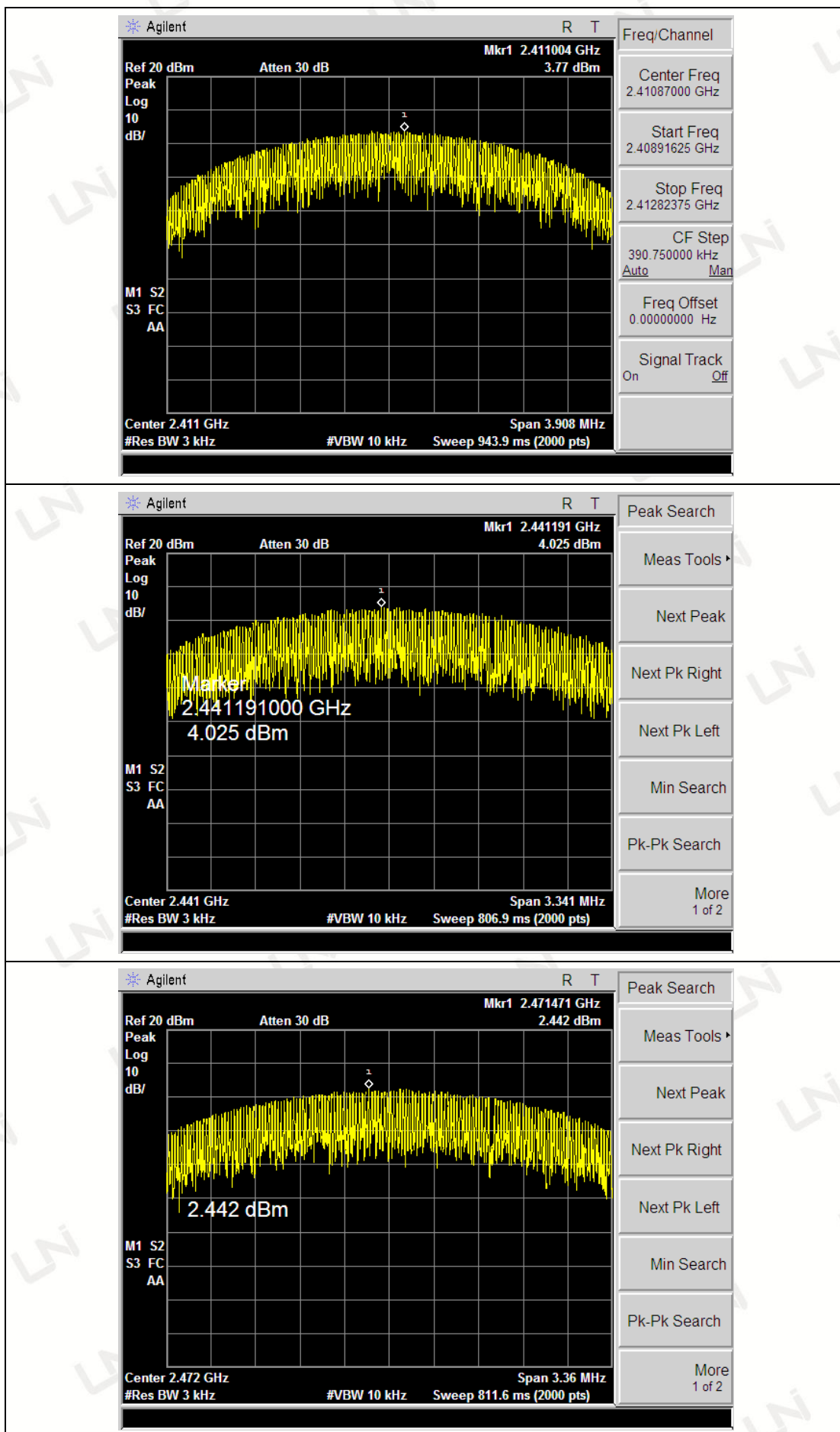
Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW \geq 3 kHz.
3. Set the VBW \geq 3 \times RBW.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be 8dBm.

Test Results

---PASS---

Type	Channel	Power Spectral Density (dBm/3KHz)	Limit (dBm/3KHz)	Result
GFSK	00	3.770	8.00	Pass
	09	4.025		
	18	2.442		



3.6 OCCUPIED BANDWIDTH MEASUREMENT

Limit

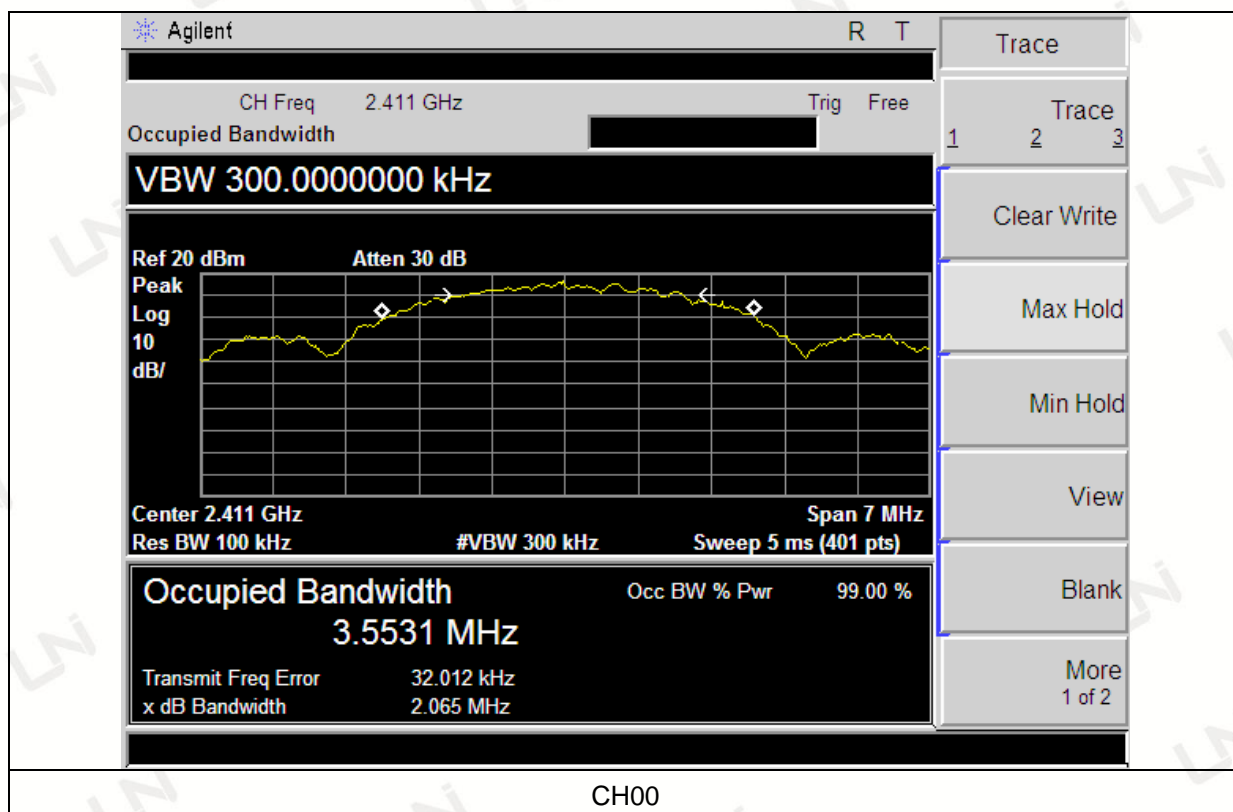
For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

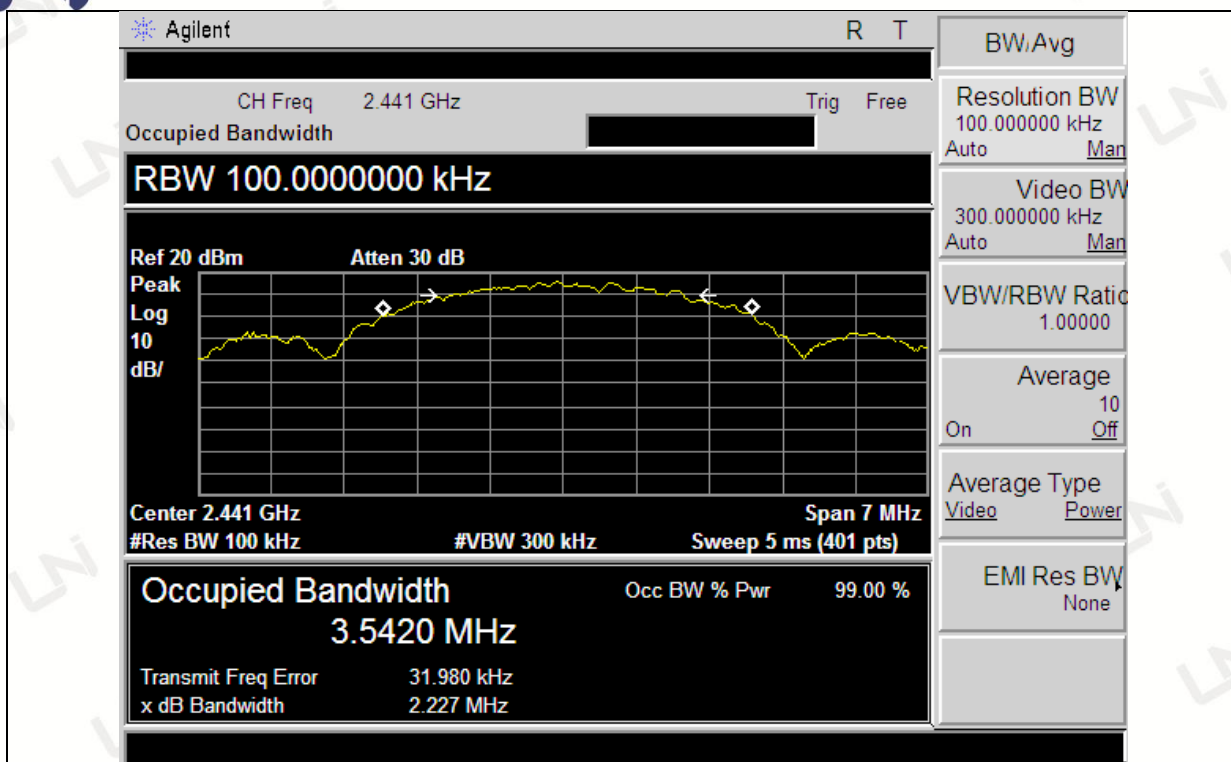
Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

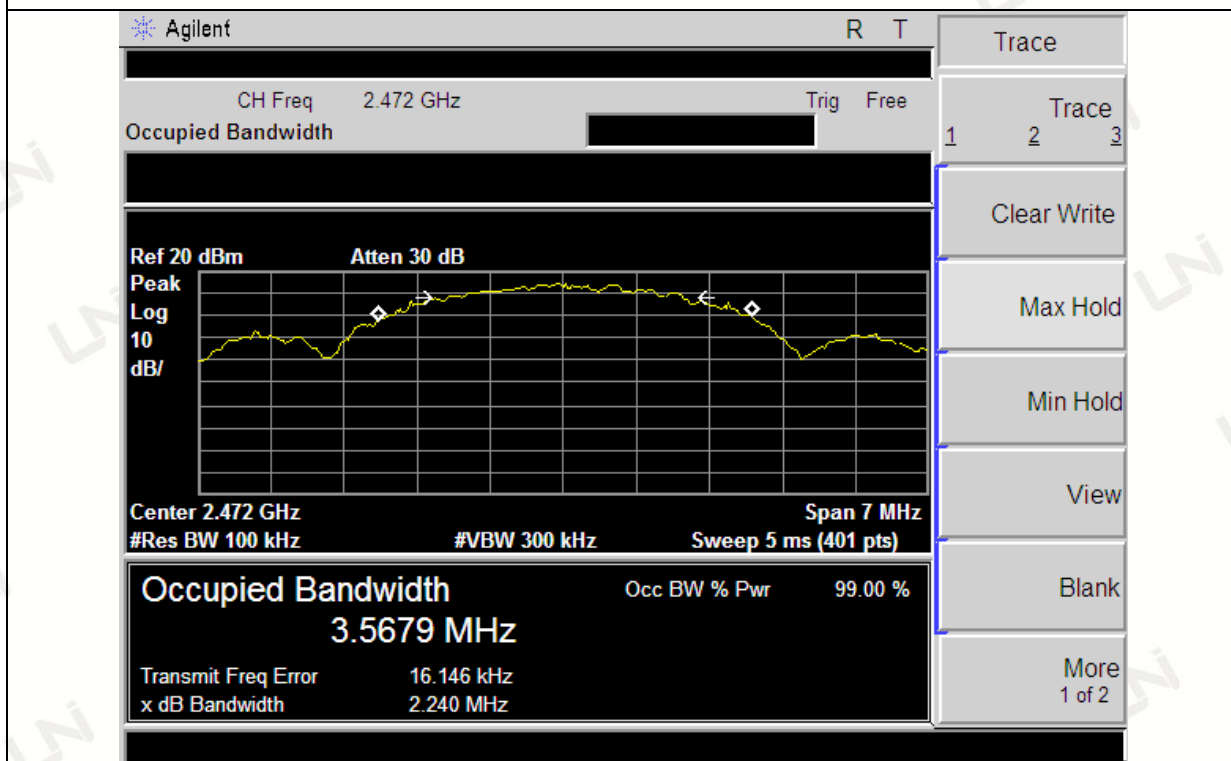
GFSK Modulation:

Frequency	6dB Bandwidth (MHz)	99% OBW (MHz)	Limit (KHz)	Result
2410.875MHz	2.065	3.5531	≥500	PASS
2441.250MHz	2.227	3.5420		PASS
2471.625MHz	2.240	3.5443		PASS





CH09



CH18

3.7 Out-of-band Emissions

Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

Test Procedure

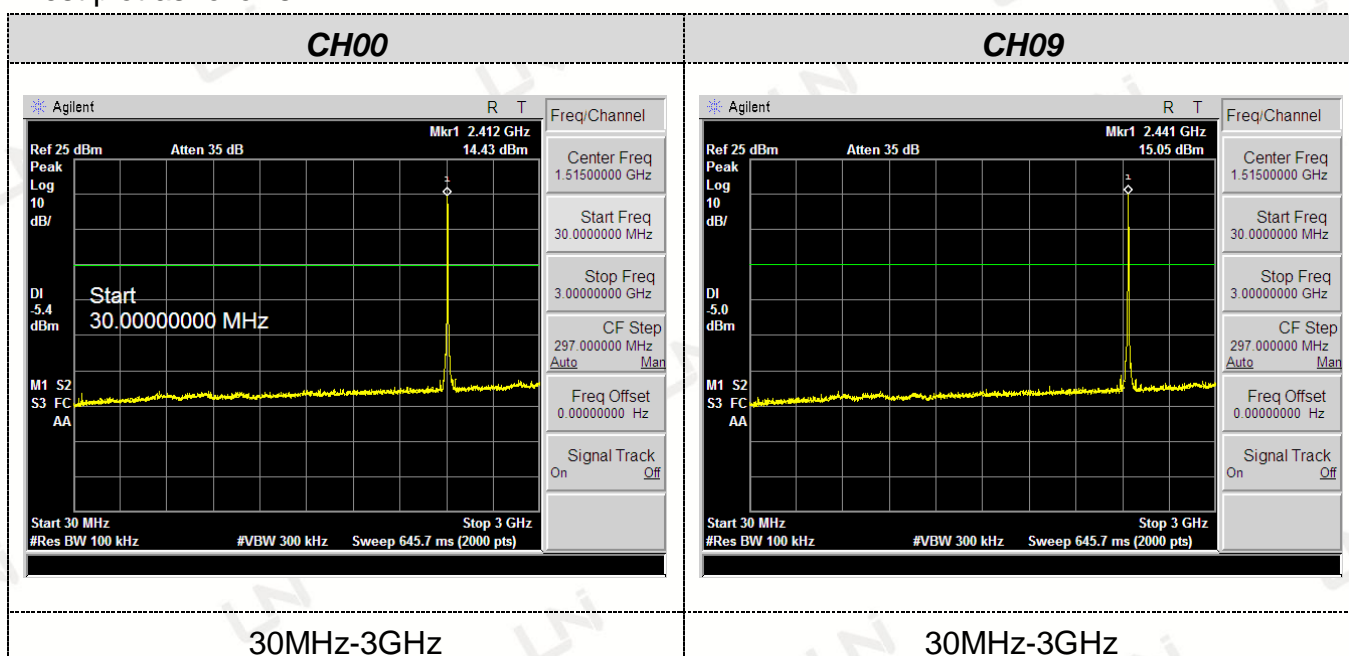
Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=100 kHz, VBW= 300 kHz, peak detector , and max hold.

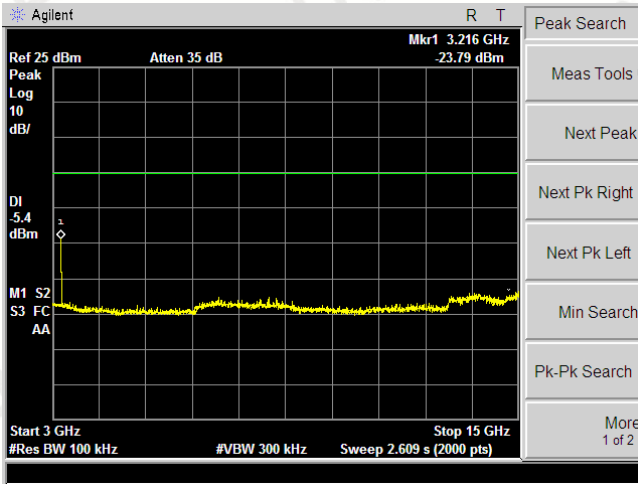
Measurements utilizing these setting are made of the in-band reference level, bandedge and out-of-band emissions.

Test Results

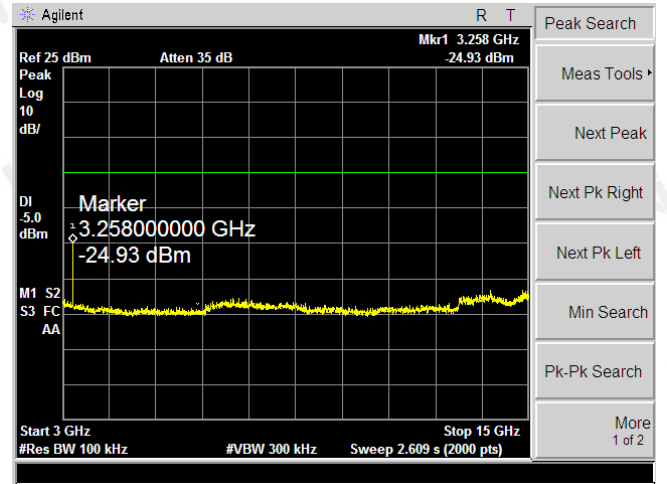
Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandage measurement data.

Test plot as follows:



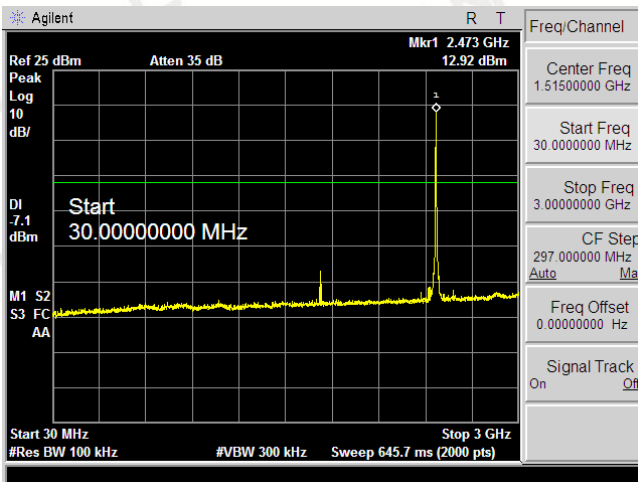


3GHz-15GHz

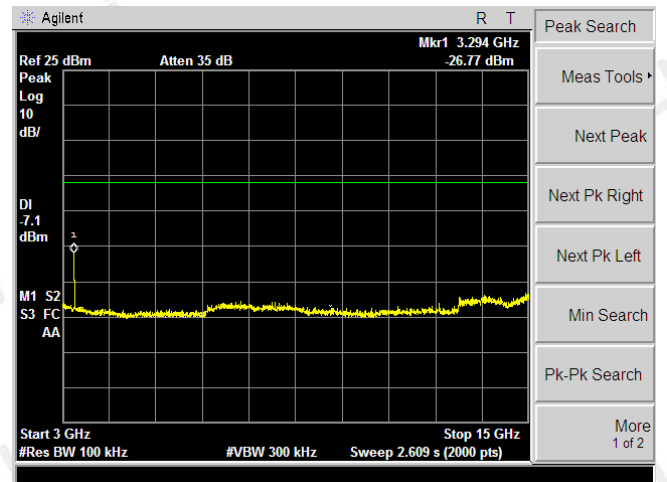


3GHz-15GHz

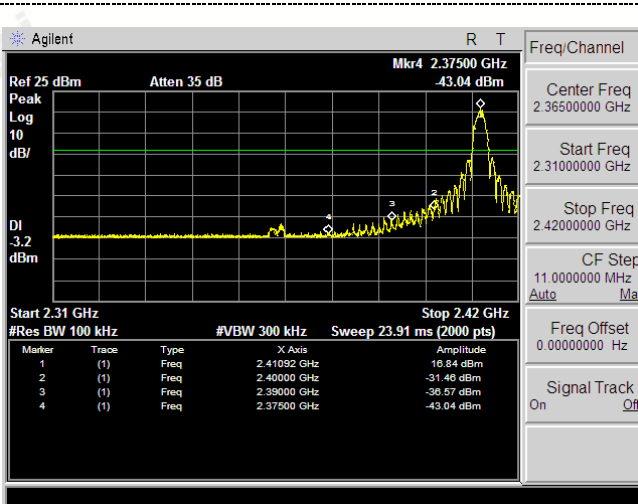
CH18



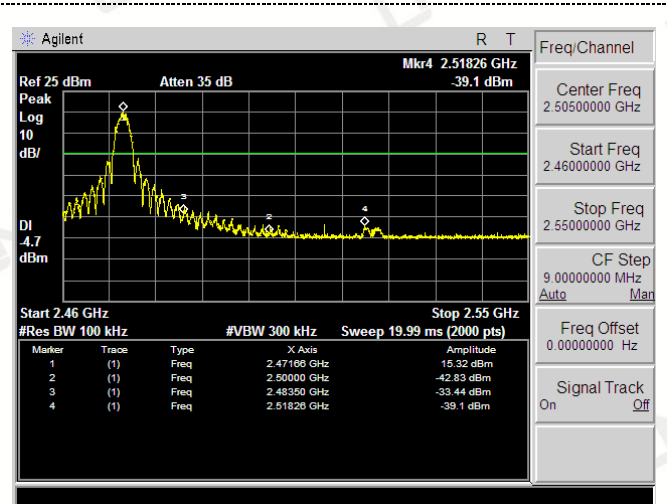
30MHz-3GHz



3GHz-15GHz



Left Band edge



Right Band edge

4 ANTENNA REQUIREMENT

Standard Applicable:

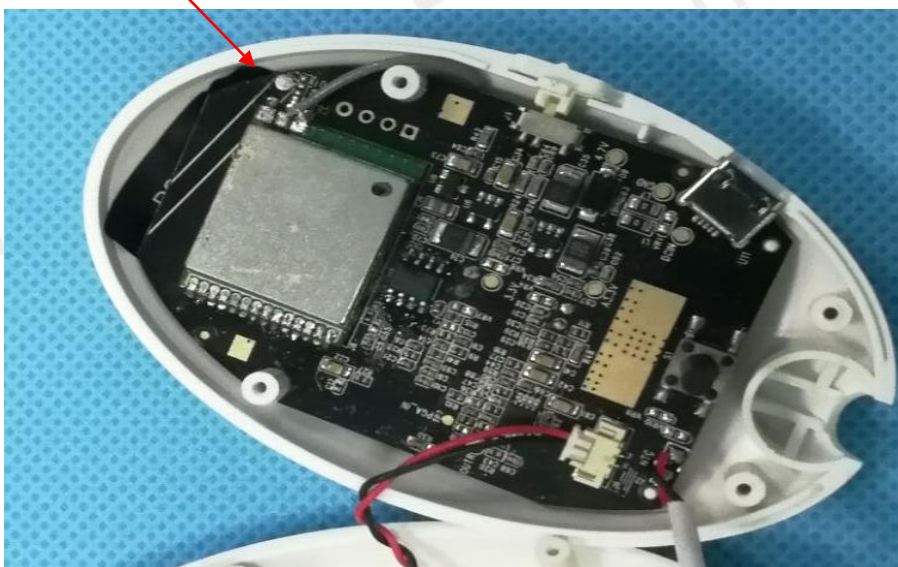
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna Connected Construction

The antenna used in this product is a Integral Antenna, The directional gains of antenna used for transmitting is 1dBi.

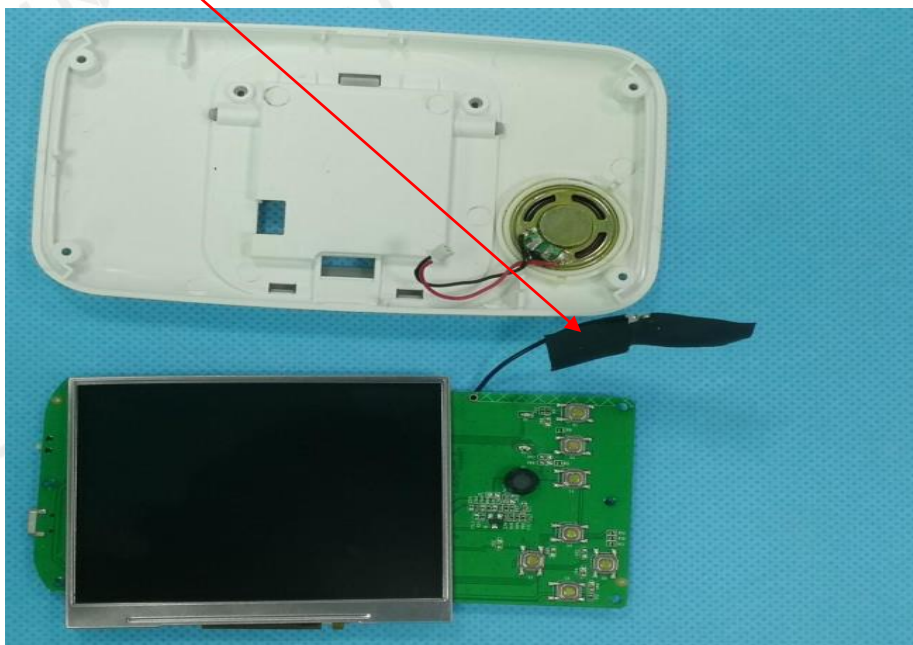
ANTENNA

transmitter

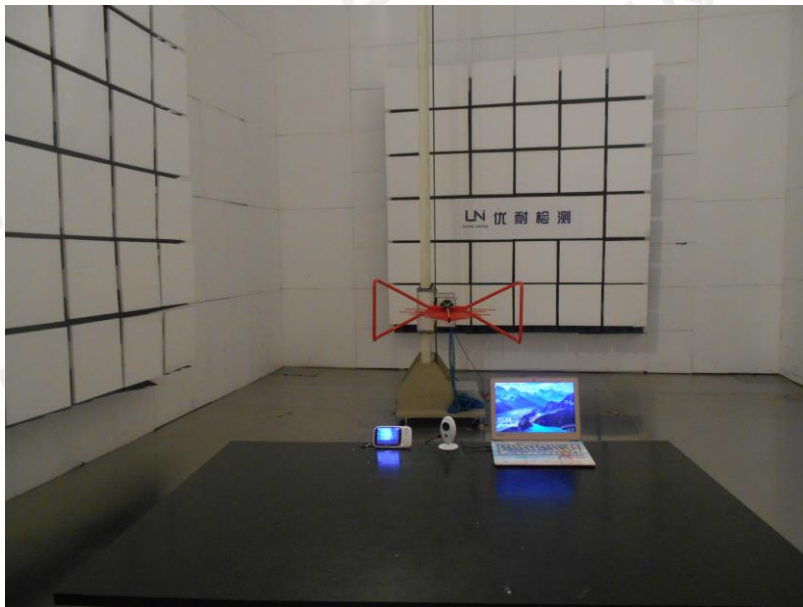


ANTENNA

recevier



5 PHOTOGRAPH OF TEST

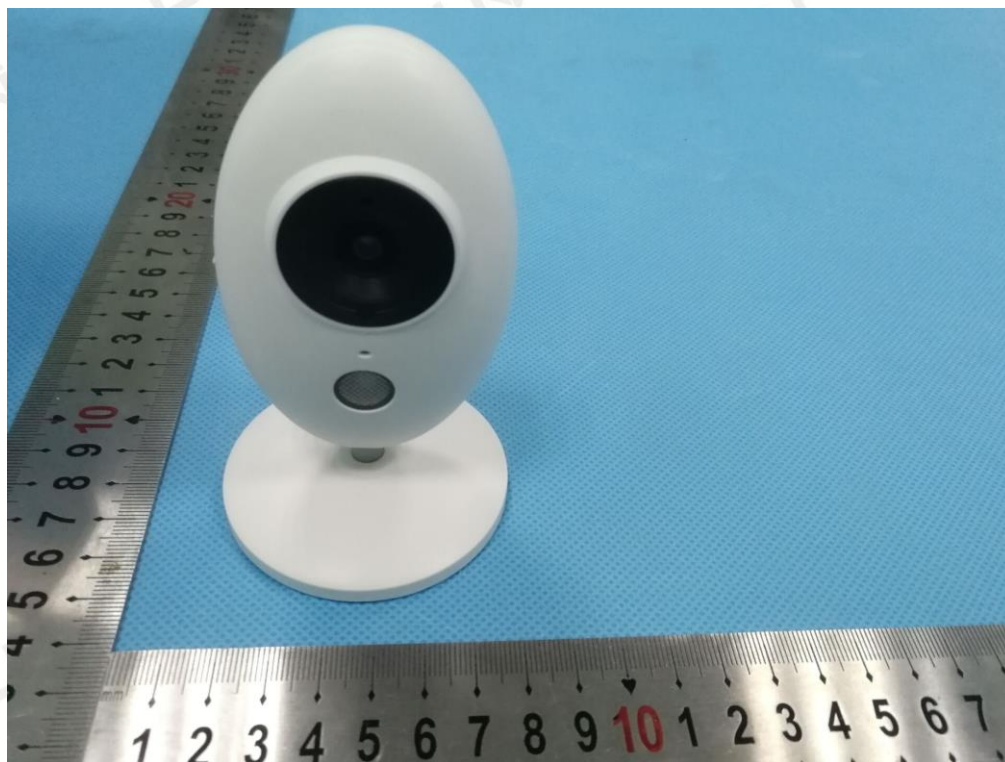


6 PHOTOGRAPH OF EUT

External Photos of EUT



Transmitter





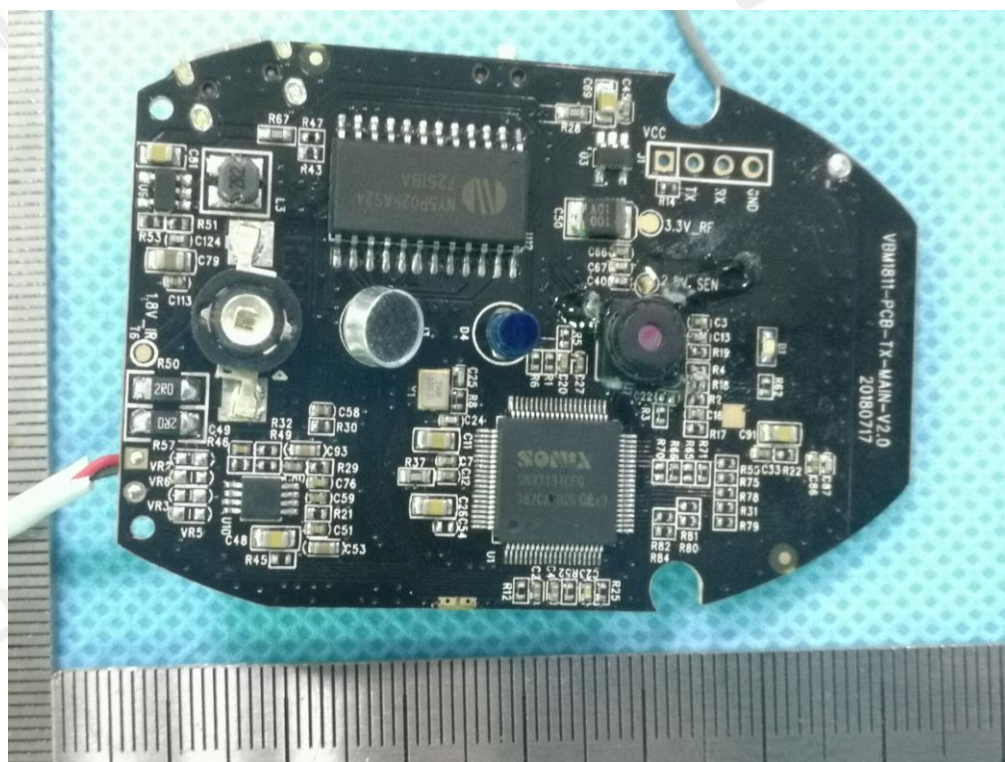
Receiver

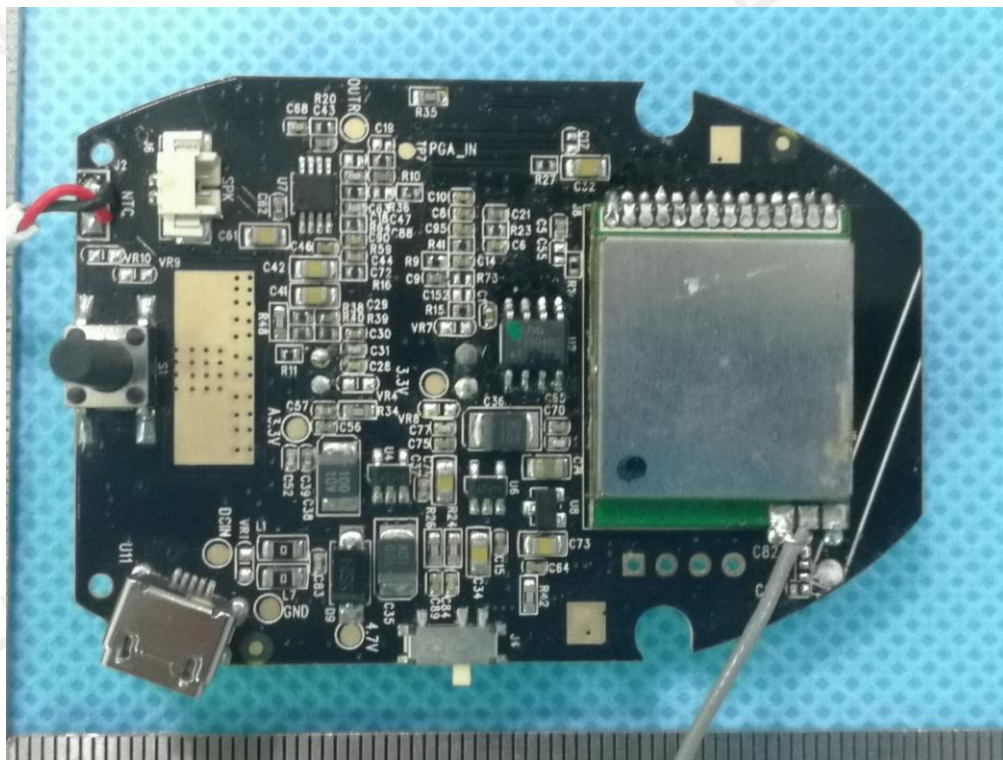




Internal Photos of EUT

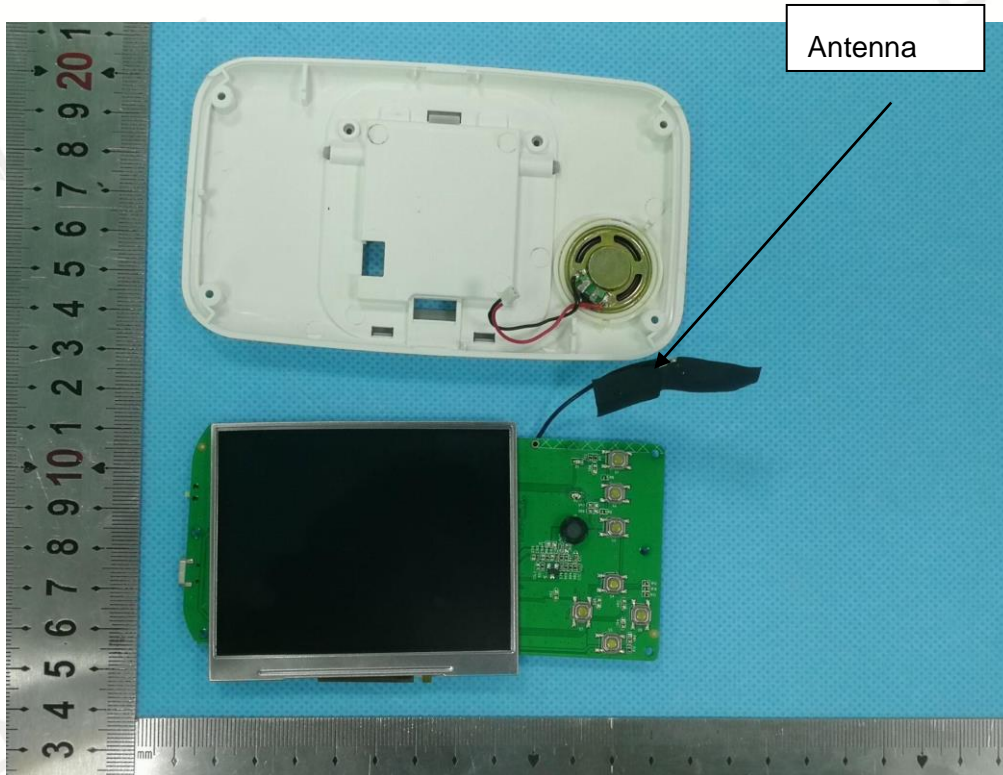
Transmitter

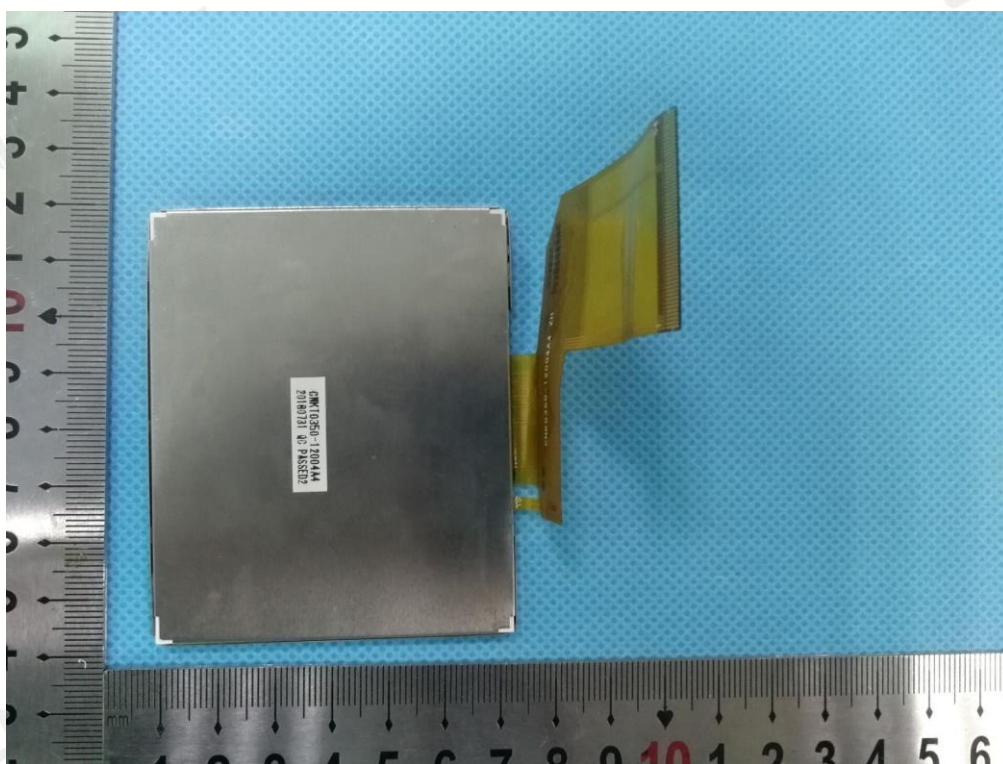
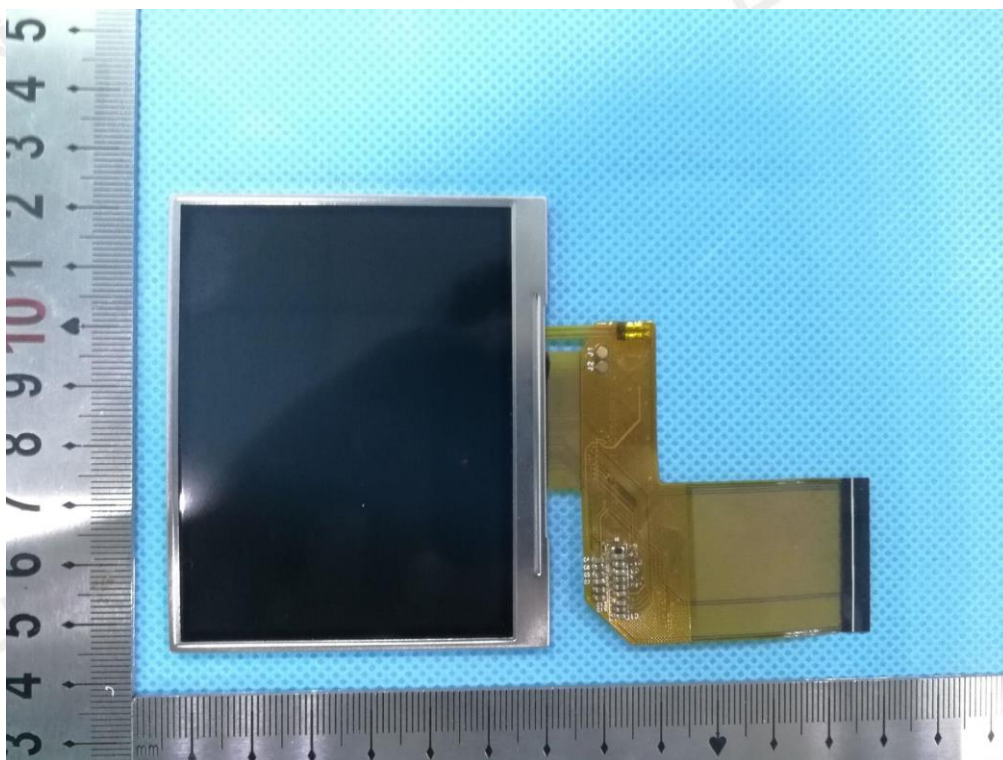


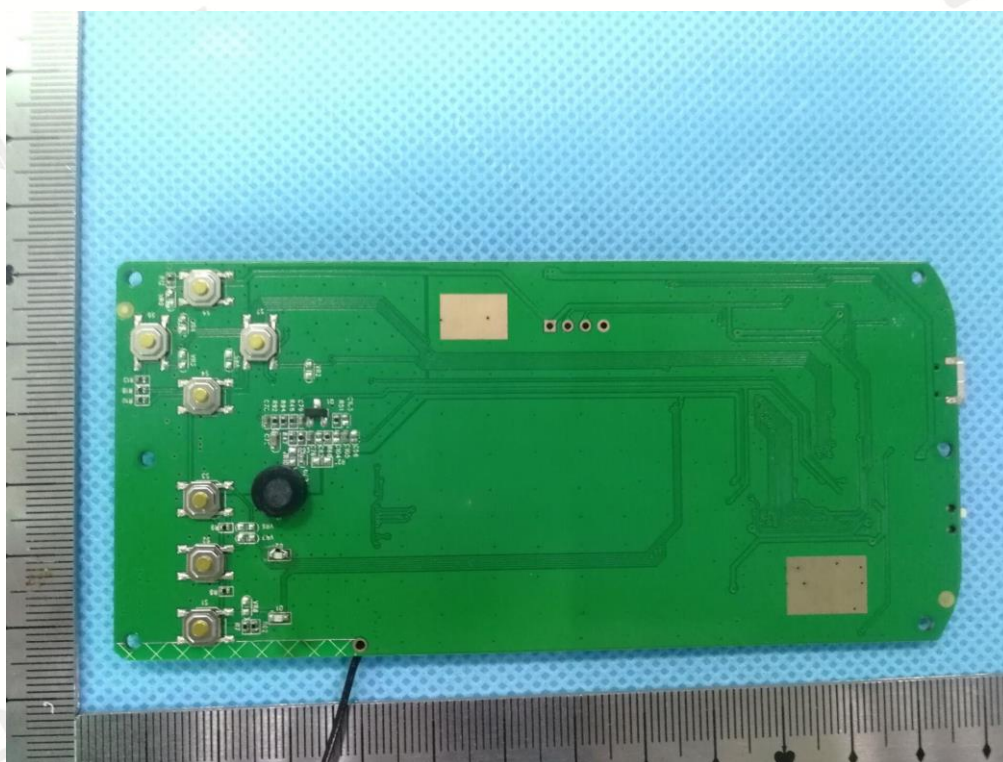
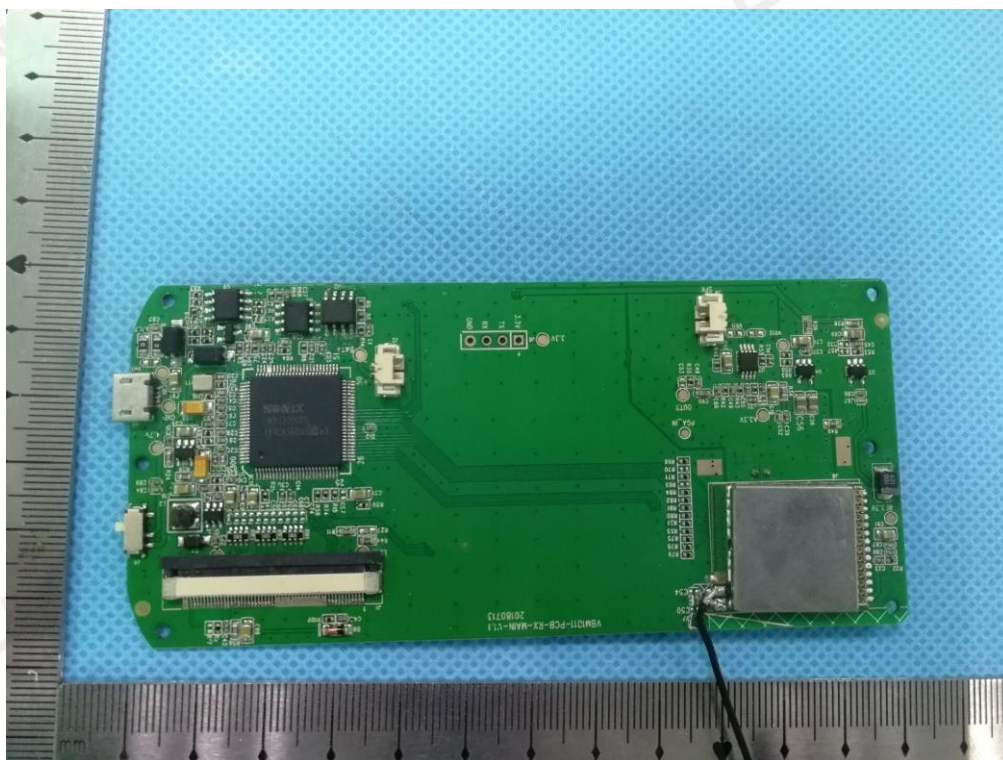


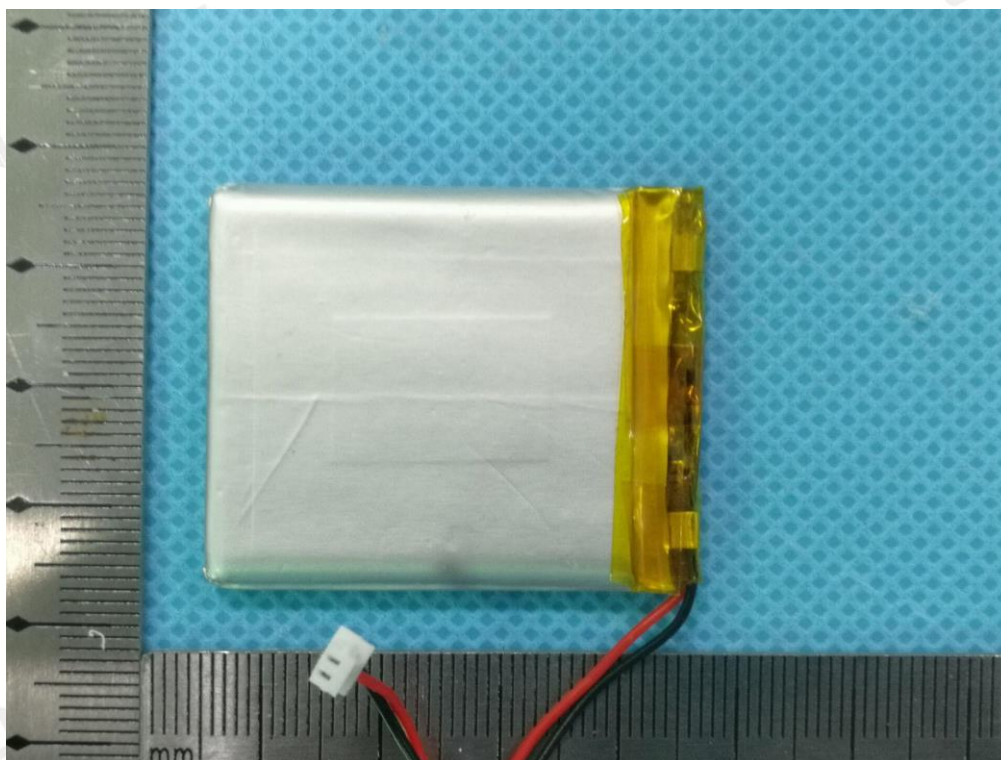
Receiver











*****End of Report*****