Shenzhen Global Test Service Co.,Ltd.
1F, Building No. 13A, Zhonghaixin Science and Technology City, No.12,6 Road, Ganli Industrial Park, Buji Street, Longgang District, Shenzhen, Guangdong

FCC PART 15 SUBPART C TEST REPORT

FCC PART 15.247

Report Reference No......:	**GTSR16080102-01**
FCC ID..... **:**	**2AG5E-BM-108**
Compiled by (position+printed name+signature)..:	File administrators Jimmy Wang
Supervised by (position+printed name+signature)..:	Test Engineer Peter Xiao
Approved by (position+printed name+signature)..:	Manager Sam Wang
Date of issue.....:	Sep.06, 2016

Representative Laboratory Name .:	**Shenzhen Global Test Service Co.,Ltd.**
Address .....:	1F, Building No. 13A, Zhonghaixin Science and Technology City, No.12,6 Road, Ganli Industrial Park, Buji Street, Longgang District, Shenzhen, Guangdong

Applicant's name.....:	**HaiShiTeng (Shenzhen) Co.,Ltd.**
Address .....:	No 306,Building E,Qifeng Digital Science and Technology park,No.26 Baili Road ,Xialilang Community,Longgang District,Shenzhen,Guangdong province

Test specification .....**:**	
Standard .....:	**FCC Part 15.247-2015: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz**
TRF Originator.....:	Shenzhen Global Test Service Co.,Ltd.
Master TRF.....:	Dated 2014-12

Test item description .....:	Baby monitor
Trade Mark .....:	/
Manufacturer .....:	**HaiShiTeng (Shenzhen) Co.,Ltd.**
Model/Type reference.....:	BM-108
Listed Models .....:	/
Modulation Type .....:	GFSK
Operation Frequency.....:	From 2410.875MHz to 2471.625MHz
EUT Type .....:	Production Unit
Hardware Version .....:	TX_MAIN_V02
Software Version .....:	S_V1.0
Rating .....:	Input:AC100-240V,50/60Hz,0.3A Output:DC 5V,1A
Result.....:	**PASS**

T E S T R E P O R T

Test Report No. :	**GTSR16080102-01**	Sep.06, 2016 Date of issue

Equipment under Test	:	Baby monitor
Model /Type	:	BM-108
Listed Models	:	/
Applicant	:	**HaiShiTeng (Shenzhen) Co.,Ltd.**
Address	:	No 306,Building E,Qifeng Digital Science and Technology park,No.26 Baili Road ,Xialilang Community,Longgang District,Shenzhen,Guangdong province
Manufacturer	:	**HaiShiTeng (Shenzhen) Co.,Ltd.**
Address	:	No 306,Building E,Qifeng Digital Science and Technology park,No.26 Baili Road ,Xialilang Community,Longgang District,Shenzhen,Guangdong province

Test Result:	**PASS**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices
KDB558074 D01 V03r05: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Aug. 25, 2016
Testing commenced on	:	Aug. 25, 2016
Testing concluded on	:	Sep. 06, 2016

2.2. Product Description

Name of EUT	Baby monitor
Trade Mark	/
Model Number	BM-108
List Model	/
FCC ID	2AG5E-BM-108
Adapter information:	Model: HNT-S510 Input: 100-240V～50/60Hz Output:DC 5.0V 1000mA
Antenna Type	Internal
Operation frequency	2410.875MHz to 2471.625MHz
Modulation	GFSK
Antenna gain:	0.64dBi

2.3. Equipment Under Test

Power supply system utilised

Power supply voltage	:	○	230V / 50 Hz	○	120V / 60Hz
		○	12 V DC	○	24 V DC
		●	Other (specified in blank below)		

DC 5.0V from Adapter AC 120V/60Hz

2.4. Short description of the Equipment under Test (EUT)

This is a Baby monitor.

For more details, refer to the user's manual of the EUT.

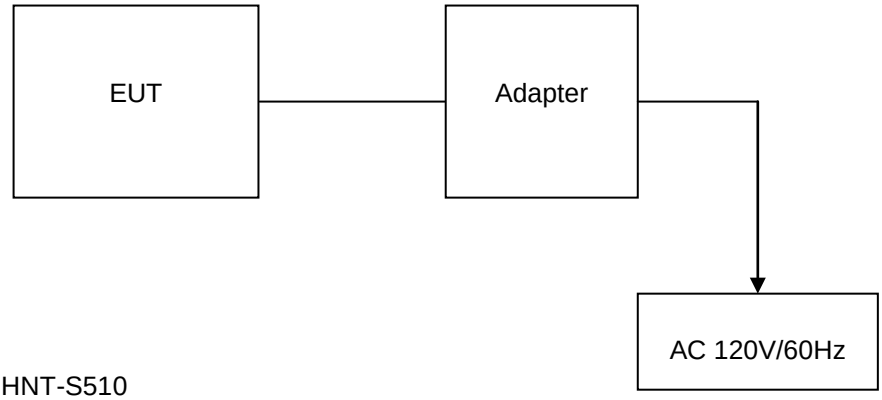
2.5. EUT operation mode

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing .There are 19 channels provided to the EUT. Channel 0/9/18 was selected to test.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
0	**2410.875**	10	2444.625
1	2414.250	11	2448.000
2	2417.625	12	2451.375
3	2421.000	13	2454.750
4	2424.375	14	2458.125
5	2427.750	15	2461.500
6	2431.125	16	2464.875

7	2434.500	17	2468.250
8	2437.875	**18**	**2471.625**
9	**2441.250**	/	/

2.6. Block Diagram of Test Setup



Adapter:

Model: HNT-S510
Input: 100-240V～50/60Hz
Output:DC 5.0V 1000mA
Power Cable: 120cm
◇ Shielded ◆ Unshielded

2.7. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2AG5E-BM-108** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.8. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - Supplied by the lab

○	/	M/N:	/
		Manufacturer:	/

2.9. Modifications

No modifications were implemented to meet testing criteria.

2.10. NOTE

	Test Standards	Reference Report
2.4GHz	FCC Part 15 Subpart C	GTSR16080102-01
RF Exposure evaluation	FCC Per 47CFR §2.1091	GTSR16080102-02

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Global Test Service Co.,Ltd.
1F, Building No. 13A, Zhonghaixin Science and Technology City, No.12,6 Road, Ganli Industrial Park, Buji Street, Longgang District, Shenzhen, Guangdong

Shenzhen CTL Testing Technology Co., Ltd.
1/F.-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, Guangdong, China

3.2. Test Facility

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

FCC-Registration No.: 964637

Shenzhen Global Test Service Co.,Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 964637, Jul 24, 2015.

CNAS-Lab Code: L8169

Shenzhen Global Test Service Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. Date of Registration: Dec. 11, 2015. Valid time is until Dec. 10, 2018.

FCC-Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 970318, December 19, 2013.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Test Description

Test Specification clause	Test case	Test Mode	Test Channel	Recorded In Report		Pass	Fail	NA	NP	Remark
§15.247(b)(4)	Antenna gain	GFSK	☒ Lowest ☒ Middle ☒ Highest	GFSK	☒ Lowest ☒ Middle ☒ Highest	☒	☐	☐	☐	complies
§15.247(e)	Power spectral density	GFSK	☒ Lowest ☒ Middle ☒ Highest	GFSK	☒ Lowest ☒ Middle ☒ Highest	☒	☐	☐	☐	complies
§15.247(a)(2)	Spectrum bandwidth – 6 dB bandwidth	GFSK	☒ Lowest ☒ Middle ☒ Highest	GFSK	☒ Lowest ☒ Middle ☒ Highest	☒ ☒	☐	☐	☐	complies
§15.247(b)(1)	Maximum output power	GFSK	☒ Lowest ☒ Middle ☒ Highest	GFSK	☒ Lowest ☒ Middle ☒ Highest	☒ ☒ ☒	☐	☐	☐	complies
§15.247(d)	Band edge compliance conducted	GFSK	☒ Lowest ☒ Highest	GFSK	☒ Lowest ☒ Highest	☒ ☒	☐	☐	☐	complies
§15.205	Band edge compliance radiated	GFSK	☒ Lowest ☒ Highest	GFSK	☒ Lowest ☒ Highest	☒	☐	☐	☐	complies
§15.247(d)	TX spurious emissions conducted	GFSK	☒ Lowest ☒ Middle ☒ Highest	GFSK	☒ Lowest ☒ Middle ☒ Highest	☒ ☒	☐	☐	☐	complies
§15.247(d)	TX spurious emissions radiated	GFSK	☒ Lowest ☒ Middle ☒ Highest	GFSK	☒ Lowest ☒ Middle ☒ Highest	☒	☐	☐	☐	complies
§15.109	RX spurious emissions radiated	-/-	-/-	-/-	-/-	☒	☐	☐	☐	complies
§15.209(a)	TX spurious Emissions radiated < 30 MHz	GFSK	-/-	GFSK	-/-	☒	☐	☐	☐	complies
§15.107(a) §15.207	Conducted Emissions < 30 MHz	GFSK	-/-	GFSK	-/-	☒	☐	☐	☐	complies

Remark:
1. The measurement uncertainty is not included in the test result.
2. NA = Not Applicable; NP = Not Performed

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Global Test Service Co.,Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.
Hereafter the best measurement capability for Shenzhen GTS laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6. Equipments Used during the Test

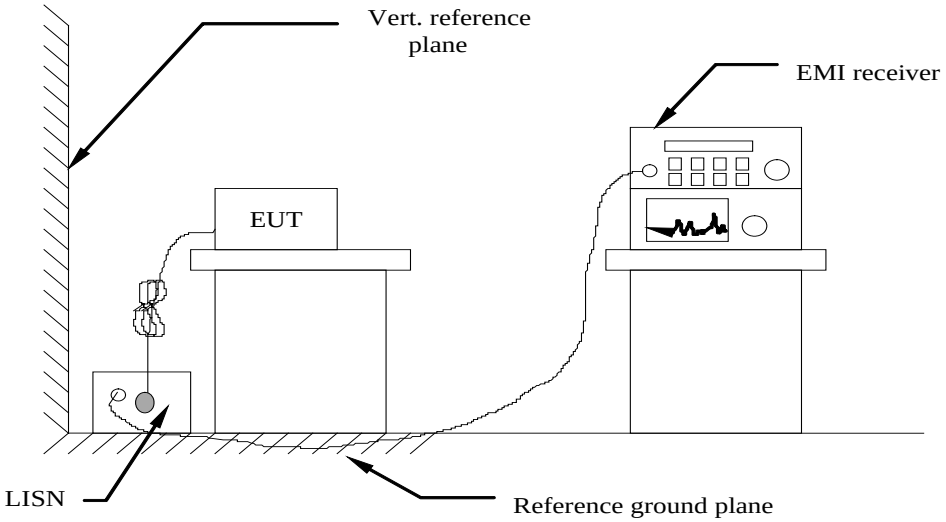
Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	3560.6550.08	2016/05/28	2017/05/27
LISN	R&S	ESH2-Z5	893606/008	2016/05/27	2017/05/26
Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2016/06/02	2017/06/01
EMI Test Receiver	R&S	ESCI	101102	2016/06/26	2017/06/25
Spectrum Analyzer	Agilent	N9020A	MY48010425	2016/06/17	2017/06/16
Controller	EM Electronics	Controller EM 1000	N/A	2016/05/21	2017/05/20
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2016/05/19	2017/05/18
Active Loop Antenna	SCHWARZBECK	FMZB1519	1519-037	2016/05/19	2017/05/18
Amplifier	Agilent	8349B	3008A02306	2016/05/19	2017/05/18
Amplifier	Agilent	8447D	2944A10176	2016/05/19	2017/05/18
Temperature/Humidity Meter	Gangxing	CTH-608	02	2016/05/20	2017/05/19
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	N/A	2016/05/20	2017/05/19
High-Pass Filter	K&L	41H10-1375/U12750-O/O	N/A	2016/05/20	2017/05/19
RF Cable	HUBER+SUHNER	RG214	N/A	2016/05/20	2017/05/19
Data acquisition card	Agilent	U2531A	TW53323507	2016/05/20	2017/05/19
Power Sensor	Agilent	U2021XA	MY5365004	2016/05/20	2017/05/19

Note: 1. The Cal.Interval was one year.

4. TEST CONDITIONS AND RESULTS

4.1. AC Power Conducted Emission

TEST CONFIGURATION



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 C63.10-2013.
2 Support equipment, if needed, was placed as per ANSI C63.10-2013
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2013
4 The EUT received DC5V power, the 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.
8 During the above scans, the emissions were maximized by cable manipulation.

AC Power Conducted Emission Limit

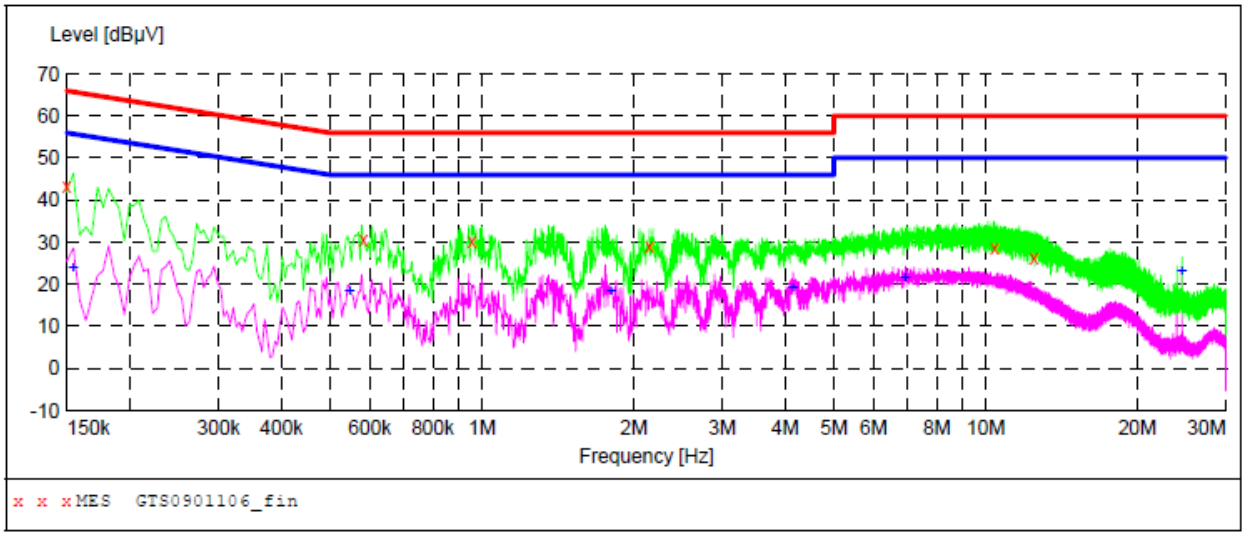
For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following：

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 RESULTS

Remark:We tested in AC 120V/60Hz and AC 240V/60Hz, the worst case was recorded .

Power supply:	DC 5V from Adapter	Polarization	L



MEASUREMENT RESULT: "GTS0901106_fin"

9/1/2016 2:54PM

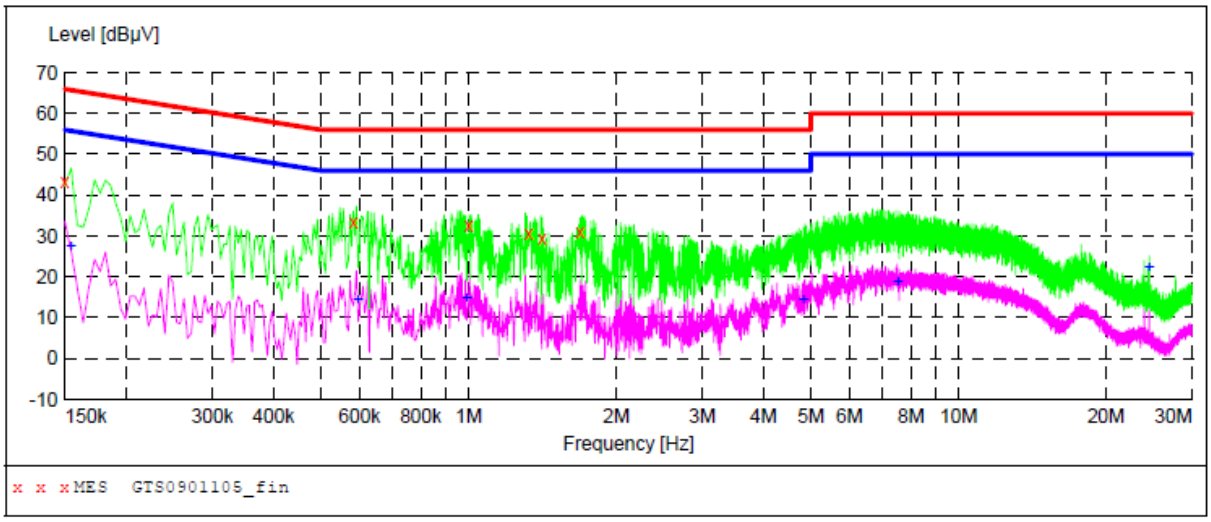
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	43.40	10.1	66	22.6	QP	L1	GND
0.582000	30.90	10.1	56	25.1	QP	L1	GND
0.955500	30.40	10.1	56	25.6	QP	L1	GND
2.148000	29.30	10.2	56	26.7	QP	L1	GND
10.432500	28.60	10.5	60	31.4	QP	L1	GND
12.489000	26.50	10.4	60	33.5	QP	L1	GND

MEASUREMENT RESULT: "GTS0901106_fin2"

9/1/2016 2:54PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154500	24.00	10.1	56	31.8	AV	L1	GND
0.546000	18.30	10.1	46	27.7	AV	L1	GND
1.801500	18.30	10.2	46	27.7	AV	L1	GND
4.137000	19.40	10.2	46	26.6	AV	L1	GND
6.922500	21.80	10.2	50	28.2	AV	L1	GND
24.576000	23.30	10.7	50	26.7	AV	L1	GND

Power supply:	DC 5V from Adapter	Polarization	N



MEASUREMENT RESULT: "GTS0901105_fin"

9/1/2016 2:51PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	43.20	10.1	66	22.8	QP	N	GND
0.582000	33.40	10.1	56	22.6	QP	N	GND
1.000500	32.60	10.2	56	23.4	QP	N	GND
1.329000	30.50	10.2	56	25.5	QP	N	GND
1.414500	29.40	10.2	56	26.6	QP	N	GND
1.689000	31.10	10.2	56	24.9	QP	N	GND

MEASUREMENT RESULT: "GTS0901105_fin2"

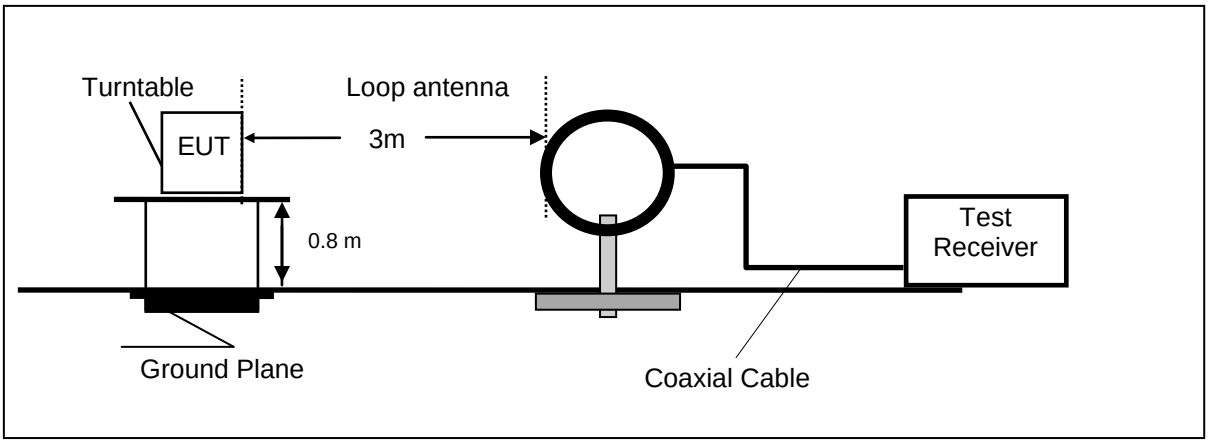
9/1/2016 2:51PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154500	27.50	10.1	56	28.3	AV	N	GND
0.595500	14.40	10.1	46	31.6	AV	N	GND
0.991500	14.80	10.2	46	31.2	AV	N	GND
4.825500	14.60	10.2	46	31.4	AV	N	GND
7.534500	18.80	10.3	50	31.2	AV	N	GND
24.576000	22.40	10.7	50	27.6	AV	N	GND

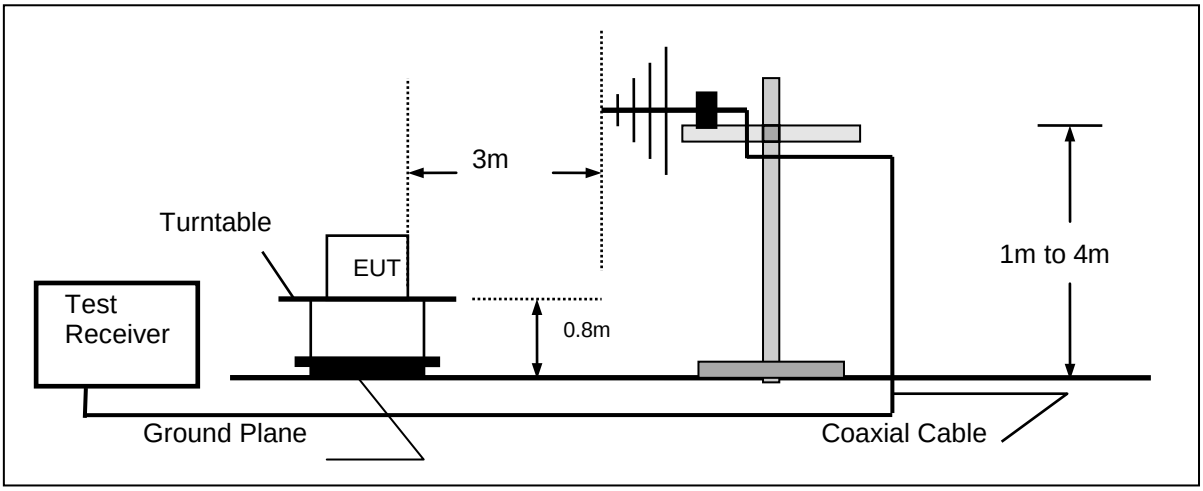
4.2. Radiated Emission

TEST CONFIGURATION

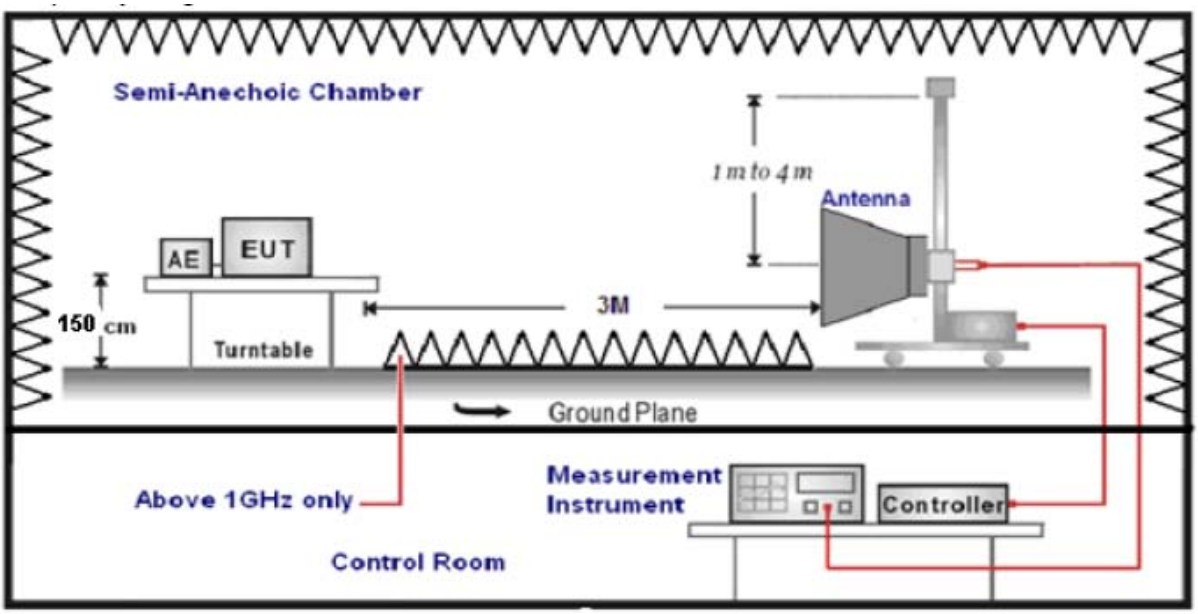
Frequency range 9 KHz – 30MHz



Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz



TEST PROCEDURE

1. The EUT was placed on a turn table which is 0.8m above ground plane when testing frequency range 9 KHz –1GHz;the EUT was placed on a turn table which is 1.5m above ground plane when testing frequency range 1GHz – 25GHz.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. The EUT minimum operation frequency was 32.768KHz and maximum operation frequency was 2480MHz.so radiated emission test frequency band from 9KHz to 25GHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Ultra-Broadband Antenna	3
1GHz-18GHz	Double Ridged Horn Antenna	3
18GHz-25GHz	Horn Anternna	1

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

Transd=AF +CL-AG

RADIATION LIMIT

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the100kHz bandwidth within the band that contains the highest level of desired power.

The pre-test have done for the EUT in three axes and found the worst emission at position shown in test setup photos.

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST RESULTS

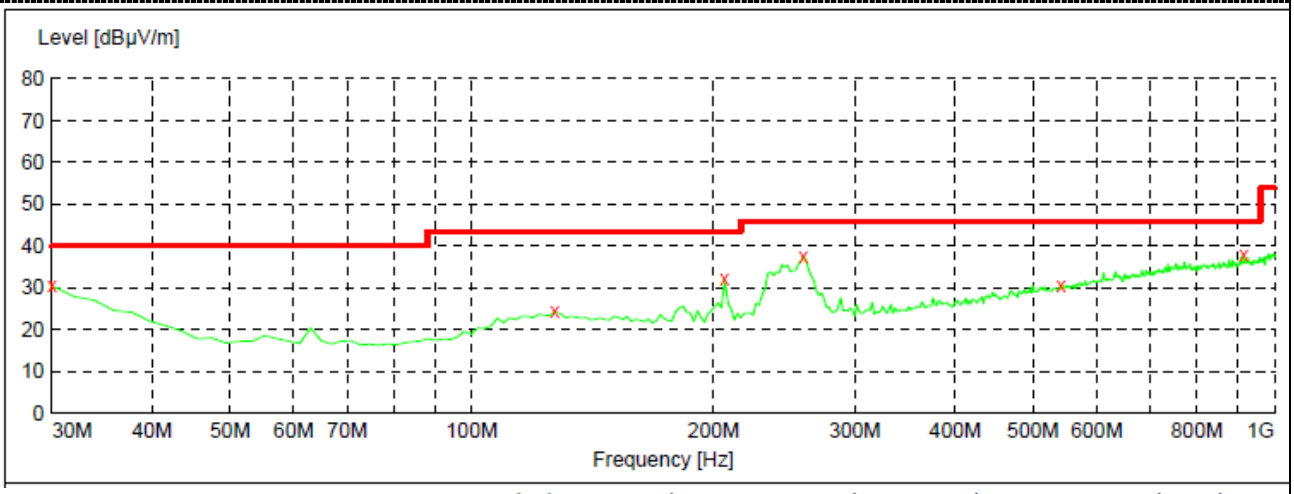
Remark: We tested in AC 120V/60Hz and AC 240V/60Hz, the worst case was recorded.
Test site: Shenzhen CTL Testing Technology Co., Ltd.

For 9KHz to 30MHz

Frequency (MHz)	Corrected Reading (dBuV/m)@3m	FCC Limit (dBuV/m) @3m	Margin (dB)	Detector	Result
0.28	40.25	98.66	58.41	QP	PASS
0.94	42.71	68.15	25.44	QP	PASS
23.45	41.63	69.54	27.91	QP	PASS
26.24	44.20	69.54	25.34	QP	PASS

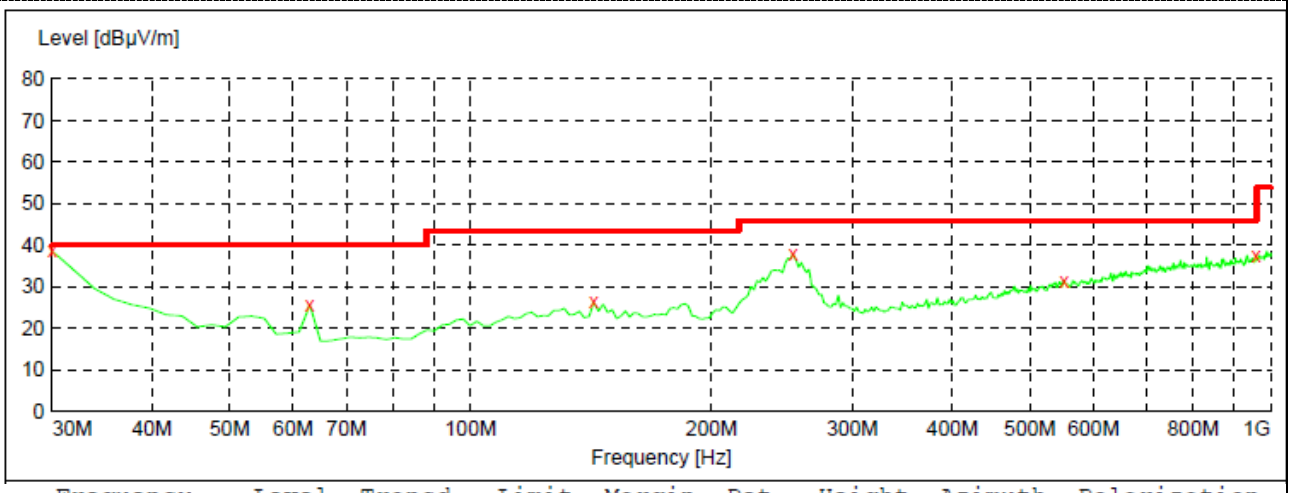
For 30MHz to 1000MHz

Horizontal



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	30.50	20.8	40.0	9.5	PK	150.0	246.00	HORIZONTAL
127.000000	24.30	14.6	43.5	19.2	PK	100.0	105.00	HORIZONTAL
206.540000	32.20	14.1	43.5	11.3	PK	100.0	62.00	HORIZONTAL
258.920000	37.60	14.6	46.0	8.4	PK	100.0	140.00	HORIZONTAL
542.160000	30.70	20.7	46.0	15.3	PK	300.0	206.00	HORIZONTAL
914.640000	37.80	26.1	46.0	8.2	PK	100.0	128.00	HORIZONTAL

Vertical



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	38.60	20.8	40.0	1.4	PK	100.0	124.00	VERTICAL
62.980000	25.60	8.1	40.0	14.4	PK	150.0	152.00	VERTICAL
142.520000	26.30	14.2	43.5	17.2	PK	100.0	262.00	VERTICAL
253.100000	37.90	14.1	46.0	8.1	PK	100.0	105.00	VERTICAL
551.860000	31.60	21.0	46.0	14.4	PK	200.0	86.00	VERTICAL
959.260000	37.70	26.6	46.0	8.3	PK	100.0	116.00	VERTICAL

For 1GHz to 25GHz

Frequency(MHz):				2410.875			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4821.750	54.08	PK	74.00	19.92	1.00 H	162	52.29	32.35	7.04	37.6	1.79
1	4821.750	42.72	AV	54.00	11.28	1.00 H	162	40.93	32.35	7.04	37.6	1.79
2	7232.625	44.62	PK	74.00	29.38	1.00 H	140	34.33	38.12	8.87	36.7	10.29
2	7232.625	--	AV	--	--	--	--	--	--	--	--	--

Frequency(MHz):				2410.875			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4821.750	53.78	PK	74.00	20.22	1.00 V	86	51.99	32.35	7.04	37.6	1.79
1	4821.750	43.54	AV	54.00	10.46	1.00 V	86	41.75	32.35	7.04	37.6	1.79
2	7232.625	46.78	PK	74.00	27.22	1.00 V	135	36.49	38.12	8.87	36.7	10.29
2	7232.625	--	AV	--	--	--	--	--	--	--	--	--

Frequency(MHz):				2441.250			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4882.500	55.62	PK	74.00	18.38	1.00 H	206	52.72	32.24	7.86	37.2	2.90
1	4882.500	46.71	AV	54.00	7.29	1.00 H	206	43.81	32.24	7.86	37.2	2.90
2	7323.750	45.82	PK	74.00	28.18	1.00 H	146	34.48	38.20	8.94	35.8	11.34
2	7323.750	--	AV	--	--	--	--	--	--	--	--	--

Frequency(MHz):				2441.250			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4882.500	53.94	PK	74.00	20.06	1.00 V	287	51.04	32.24	7.86	37.2	2.90
1	4882.500	45.82	AV	54.00	8.18	1.00 V	287	42.92	32.24	7.86	37.2	2.90
2	7323.750	46.73	PK	74.00	27.27	1.00 V	216	35.39	38.20	8.94	35.8	11.34
2	7323.750	--	AV	--	--	--	--	--	--	--	--	--

Frequency(MHz):				2471.625			Polarity:			HORIZONTAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4943.250	52.84	PK	74.00	21.16	1.00 H	92	48.05	32.97	8.12	36.3	4.79
1	4943.250	45.90	AV	54.00	8.1	1.00 H	92	41.11	32.97	8.12	36.3	4.79
2	7414.875	47.82	PK	74.00	26.18	1.00 H	128	35.90	38.54	9.08	35.7	11.92
2	7414.875	--	AV	--	--	--	--	--	--	--	--	--

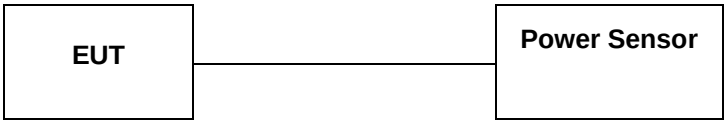
Frequency(MHz):				2471.625			Polarity:			VERTICAL		
No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
1	4943.250	54.97	PK	74.00	19.03	1.00 V	64	50.18	32.97	8.12	36.3	4.79
1	4943.250	47.52	AV	54.00	6.48	1.00 V	64	42.73	32.97	8.12	36.3	4.79
2	7414.875	46.35	PK	74.00	27.65	1.00 V	35	34.43	38.54	9.08	35.7	11.92
2	7414.875	--	AV	--	--	--	--	--	--	--	--	--

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. The other emission levels were very low against the limit.

4.3. Maximum Peak Output Power

TEST CONFIGURATION



TEST PROCEDURE

According to KDB558074 D01 DTS Measurement Guidance Section 9.1 Maximum peak conducted output power,9.1.2.
The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

LIMIT

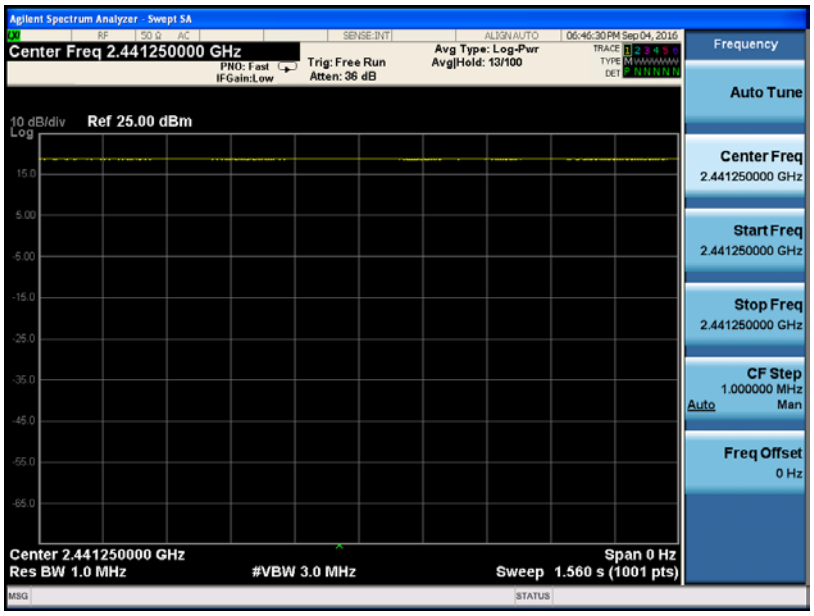
The Maximum Peak Output Power Measurement is 30dBm.

TEST RESULTS

Type	Channel	Peak Output power (dBm)	Average Output power (dBm)	Limit (dBm)	Result
GFSK	0	18.52	15.42	30	Pass
	9	18.01	16.14		
	18	18.87	16.65		

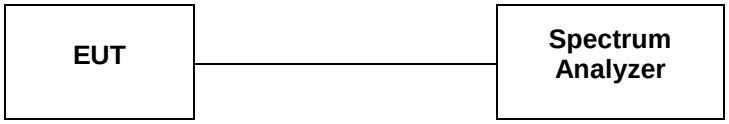
Note: 1.The test results including the cable lose.

Duty cycle used in all test items: 100%



4.4. Power Spectral Density

TEST CONFIGURATION



TEST PROCEDURE

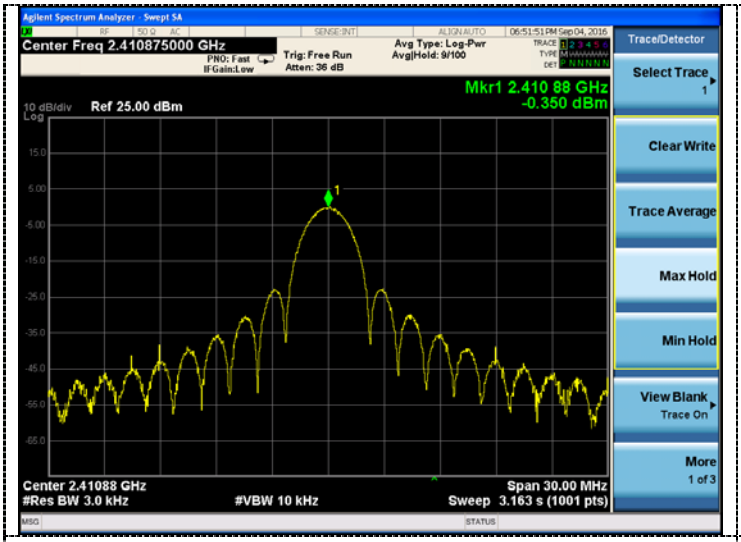
1.Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2.Set the RBW =100 kHz.
3.Set the VBW =300 KHz.
4.Set the span to 1.5 times the DTS channel bandwidth.
5.Detector = peak.
6.Sweep time = auto couple.
7.Trace mode = max hold.
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 8 dBm.

LIMIT

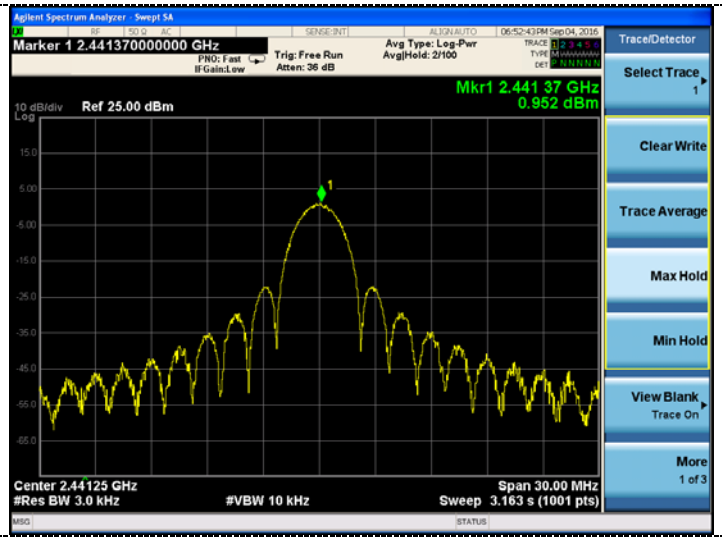
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST RESULTS

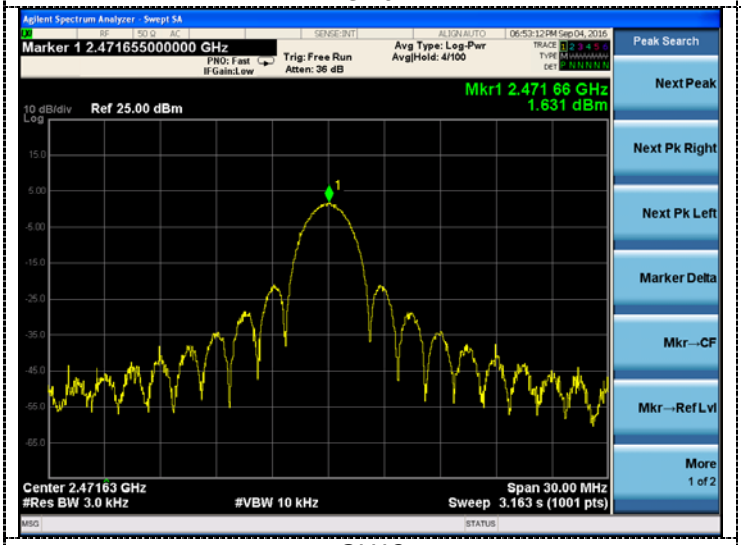
Type	Channel	Power Spectral Density (dBm/3KHz)	Limit (dBm/3KHz)	Result
GFSK	0	-0.350	8.00	Pass
	9	0.952		
	18	1.631		


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.410875000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
Avg Type: Log-Pwr
Avg|Hold: 9/100
Mkr1 2.410 88 GHz
-0.350 dBm
10 dB/div
Log
Ref 25.00 dBm
Center 2.41088 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 30.00 MHz
Sweep 3.163 s (1001 pts)
Trace/Detector
Select Trace
1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank
Trace On
More
1 of 3

CH0


Agilent Spectrum Analyzer - Swept SA
Marker 1 2.441370000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
Avg Type: Log-Pwr
Avg|Hold: 2/100
Mkr1 2.441 37 GHz
0.952 dBm
10 dB/div
Log
Ref 25.00 dBm
Center 2.44125 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 30.00 MHz
Sweep 3.163 s (1001 pts)
Trace/Detector
Select Trace
1
Clear Write
Trace Average
Max Hold
Min Hold
View Blank
Trace On
More
1 of 3

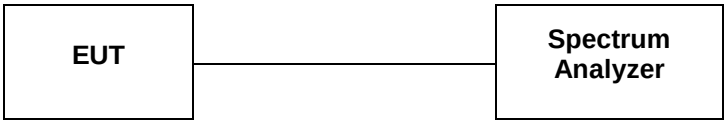
CH9


Agilent Spectrum Analyzer - Swept SA
Marker 1 2.471655000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
Avg Type: Log-Pwr
Avg|Hold: 4/100
Mkr1 2.471 66 GHz
1.631 dBm
10 dB/div
Log
Ref 25.00 dBm
Center 2.47163 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 30.00 MHz
Sweep 3.163 s (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

CH18

4.5. 6dB Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

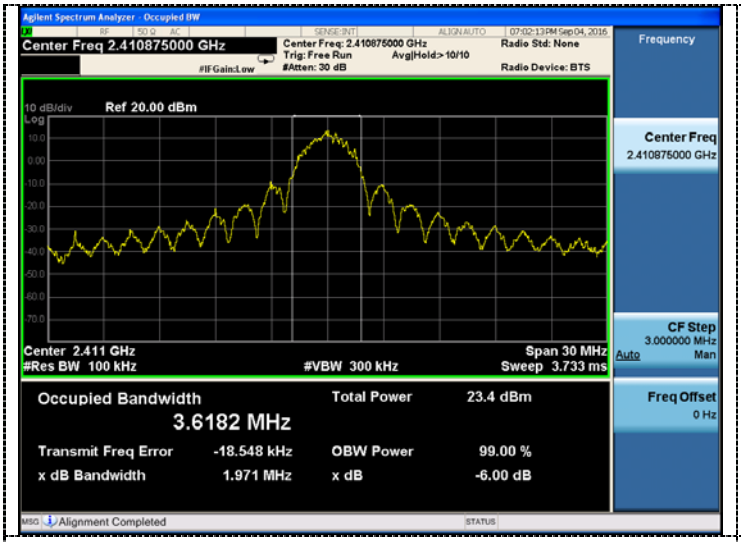
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW=100 KHz and VBW=300KHz.
The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.
According to KDB558074 D01 for one of the following procedures may be used to determine the modulated DTS device signal bandwidth.
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

LIMIT

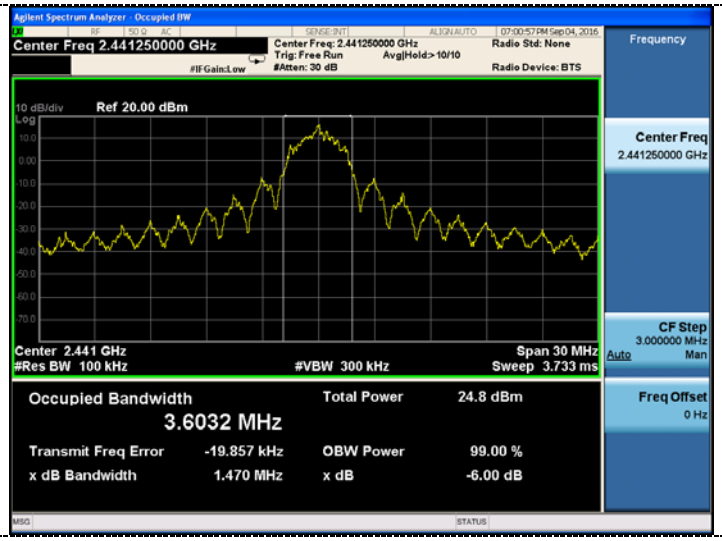
For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

TEST RESULTS

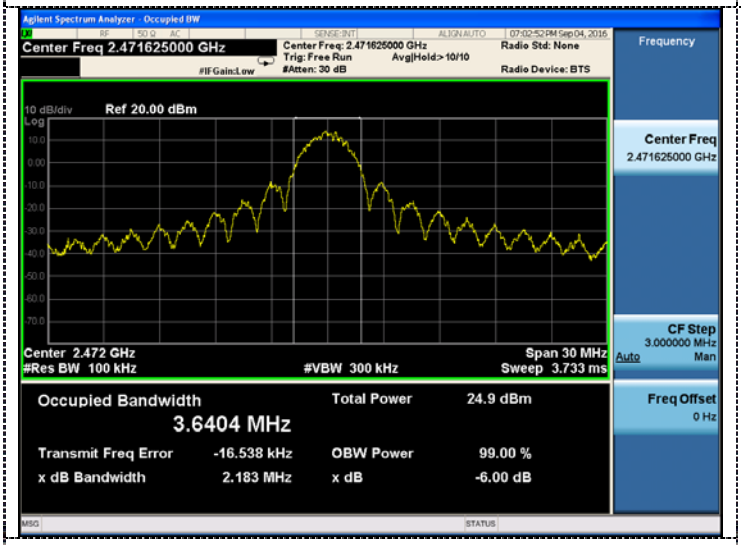
Type	Channel	6dB Bandwidth (KHz)	Limit (KHz)	Result
GFSK	0	1.971	≥500	Pass
	9	1.470		
	18	2.183		


Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.410875000 GHz
Center Freq: 2.410875000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
Frequency
10 dB/div
Ref 20.00 dBm
Log
Center Freq
2.410875000 GHz
Center 2.411 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 3.733 ms
CF Step
3.000000 MHz
Auto
Man
Occupied Bandwidth
3.6182 MHz
Total Power
23.4 dBm
Freq Offset
0 Hz
Transmit Freq Error
-18.548 kHz
OBW Power
99.00 %
x dB Bandwidth
1.971 MHz
x dB
-6.00 dB
Alignment Completed
MSG
STATUS

CH0


Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.441250000 GHz
Center Freq: 2.441250000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
Frequency
10 dB/div
Ref 20.00 dBm
Log
Center Freq
2.441250000 GHz
Center 2.441 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 3.733 ms
CF Step
3.000000 MHz
Auto
Man
Occupied Bandwidth
3.6032 MHz
Total Power
24.8 dBm
Freq Offset
0 Hz
Transmit Freq Error
-19.857 kHz
OBW Power
99.00 %
x dB Bandwidth
1.470 MHz
x dB
-6.00 dB
MSG
STATUS

CH9


Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.471625000 GHz
Center Freq: 2.471625000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
#IFGain:Low
Frequency
10 dB/div
Ref 20.00 dBm
Log
Center Freq
2.471625000 GHz
Center 2.472 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 30 MHz
Sweep 3.733 ms
CF Step
3.000000 MHz
Auto
Man
Occupied Bandwidth
3.6404 MHz
Total Power
24.9 dBm
Freq Offset
0 Hz
Transmit Freq Error
-16.538 kHz
OBW Power
99.00 %
x dB Bandwidth
2.183 MHz
x dB
-6.00 dB
MSG
STATUS

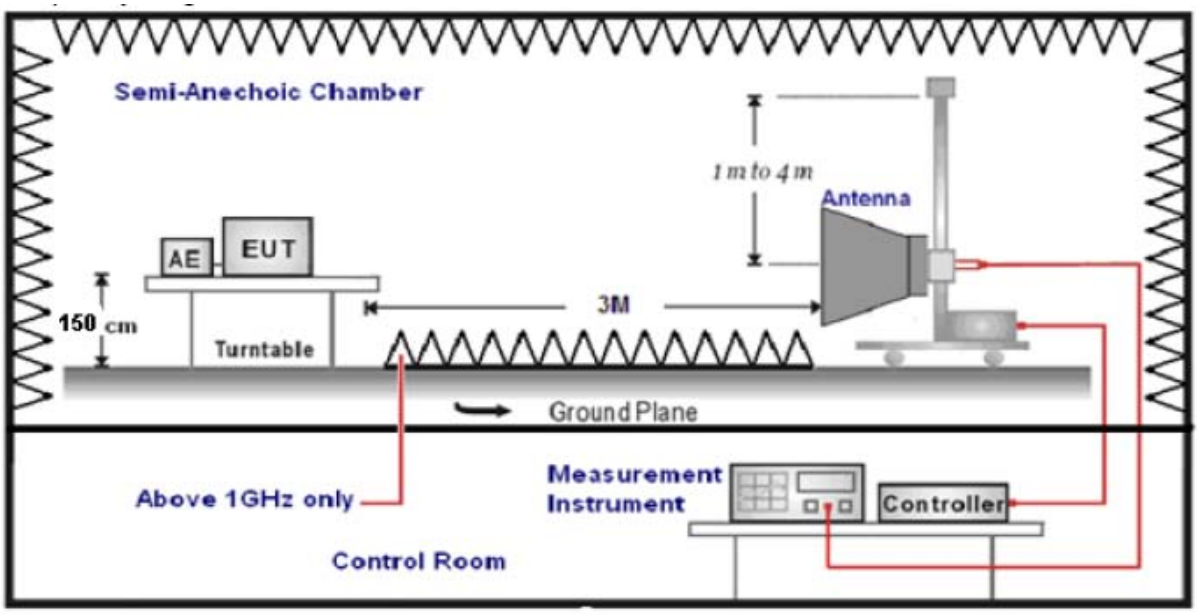
CH18

4.6. Band Edge Compliance of RF Emission

TEST REQUIREMENT

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 CONFIGURATION



TEST PROCEDURE

1. The EUT was placed on a turn table which is 1.5m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed..
5. The distance between test antenna and EUT was 3 meter:
6. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

LIMIT

Below -20dB of the highest emission level in operating band.
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)

TEST RESULTS

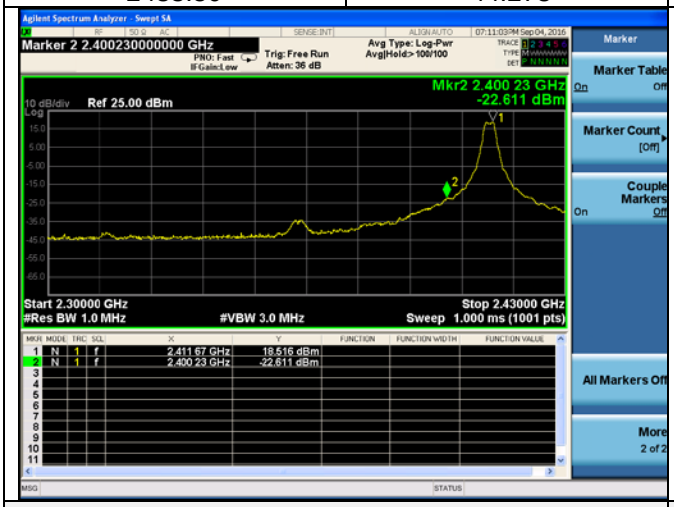
Remark: Test site: Shenzhen CTL Testing Technology Co., Ltd.

4.6.1 For Radiated Bandedge Measurement

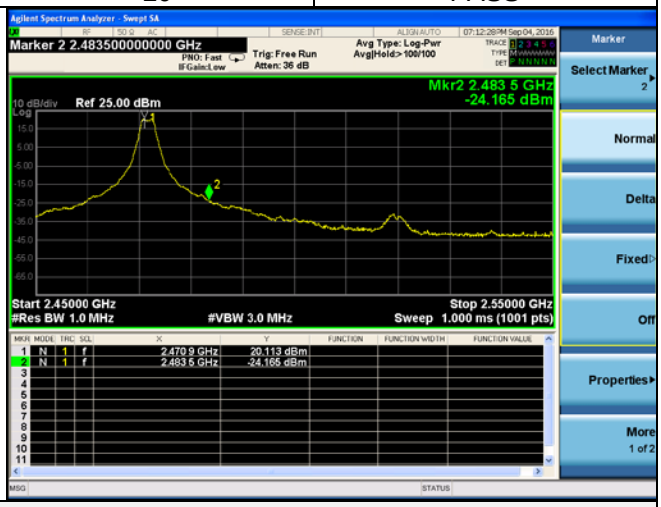
Frequency(MHz):			2410.875			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	50.34	PK	74.00	23.66	1.00	168	55.65	27.49	3.32	36.12	-5.31
2390.00	41.05	AV	54.00	12.95	1.00	168	46.36	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2410.875**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	51.73	PK	74.00	22.27	1.00	205	57.04	27.49	3.32	36.12	-5.31
2390.00	43.61	AV	54.00	10.39	1.00	205	48.92	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2471.625**			**Polarity:**			**HORIZONTAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	50.84	PK	74.00	23.16	1.00	135	56.56	27.45	3.38	36.55	-5.72
2483.50	39.65	AV	54.00	14.35	1.00	135	45.37	27.45	3.38	36.55	-5.72
Frequency(MHz):			**2471.625**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	52.64	PK	74.00	21.36	1.00	216	58.36	27.45	3.38	36.55	-5.72
2483.50	42.75	AV	54.00	11.25	1.00	216	48.47	27.45	3.38	36.55	-5.72

4.6.2 For Conducted Bandedge Measurement

Frequency (MHz)	Delta Peak to Band emission (dBc)	Limit (dBc)	Verdict
2400.00	-41.127	-20	PASS
2483.50	-44.278	-20	PASS



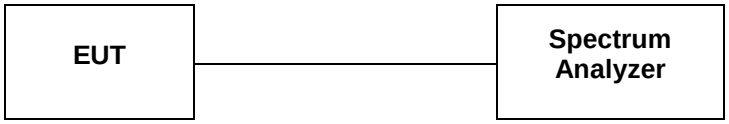
2410.875



2471.625

4.7. Spurious RF Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

The Spurious RF conducted emissions compli ance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2013 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=100kHz and VBW= 300KHz to measure the peak field strength , and mwasure frequeny range from 9KHz to 25GHz.

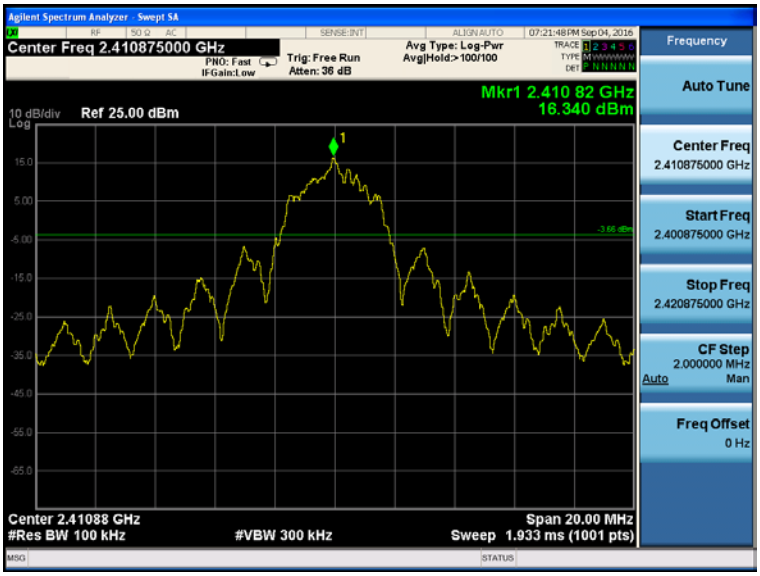
LIMIT

1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

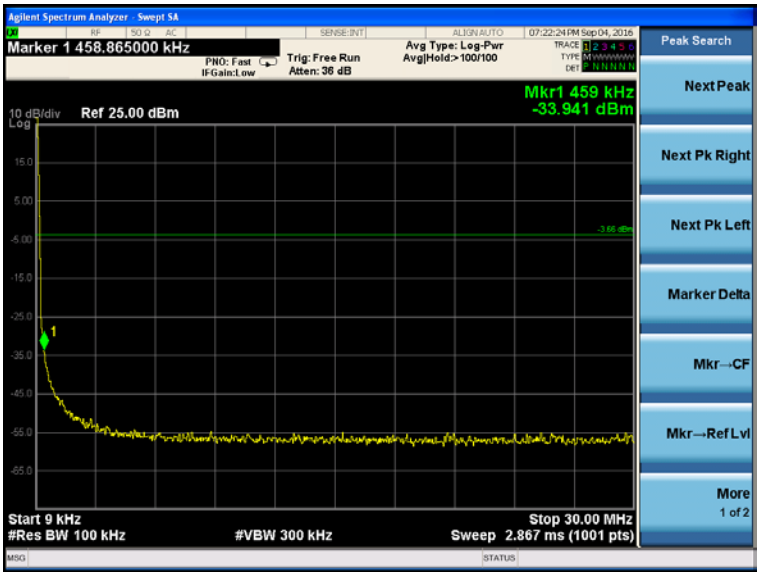
TEST RESULTS

Remark: The measurement frequency range is from 9KHz to the 10^{th} harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.

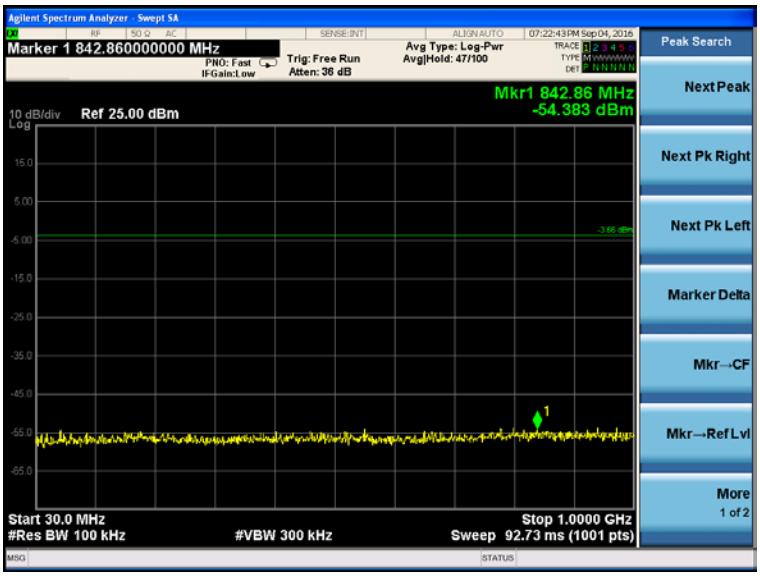
Test Mode:	GFSK	Test channel :	0



Channel 0

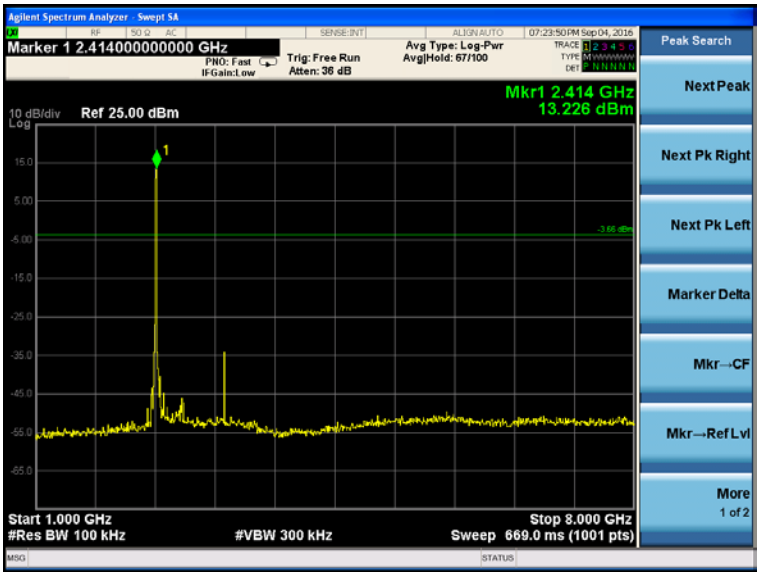


9KHz~30MHz

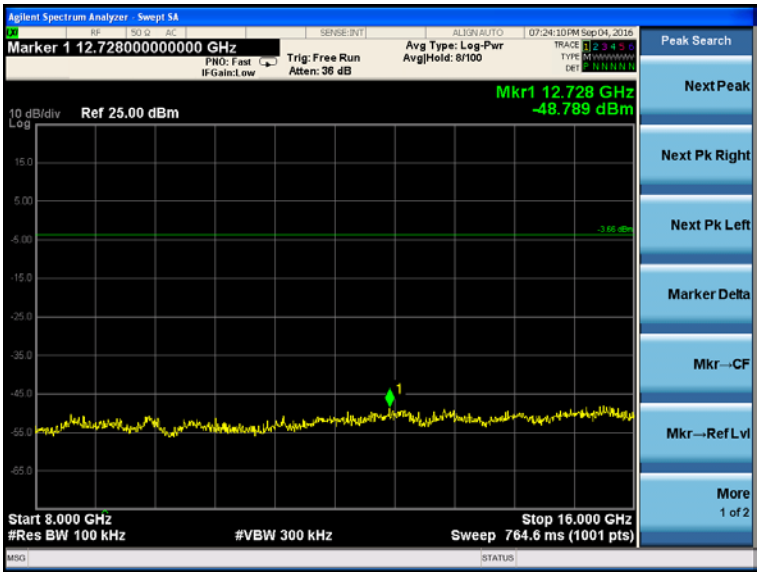


30M Hz~1GHz

Test Mode:	GFSK	Test channel :	0



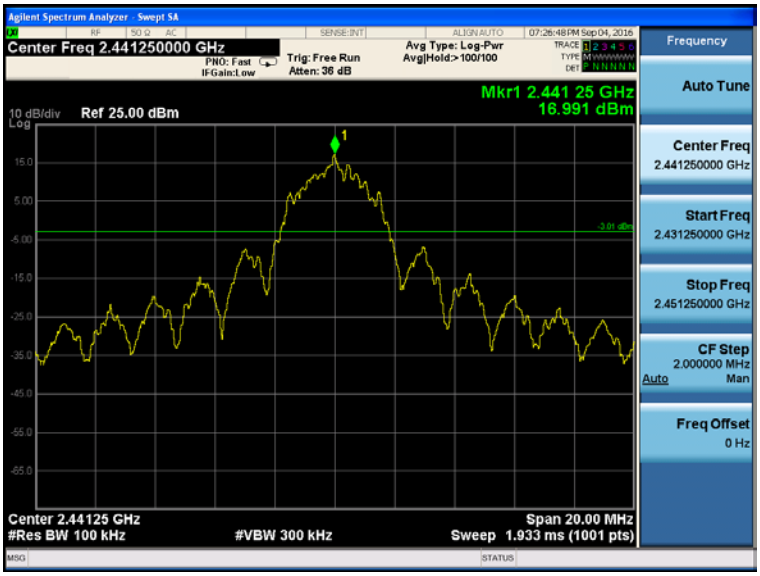
1GHz~8GHz



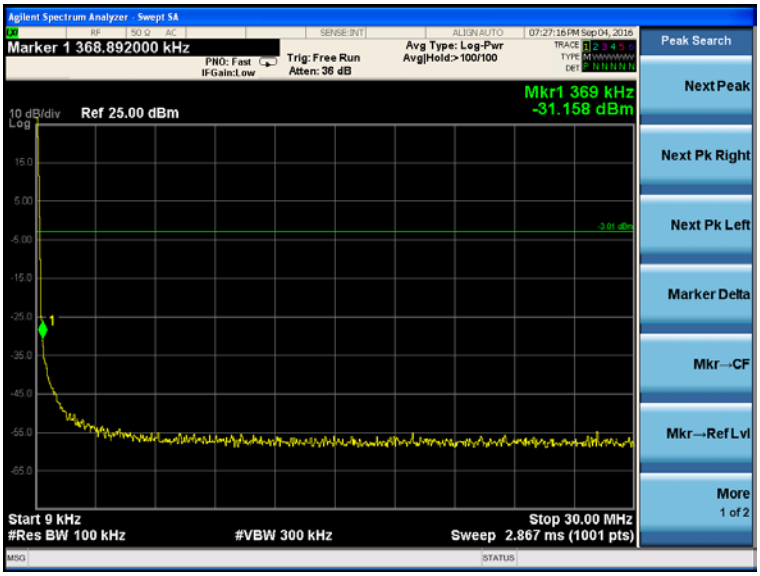
8GHz~16GHz

16GHz~25GHz

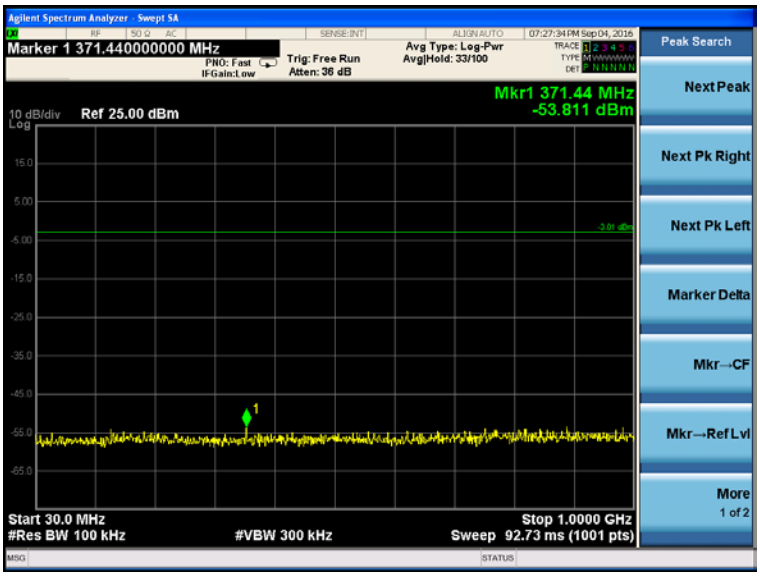
Test Mode:	GFSK	Test channel :	9



Channel 9

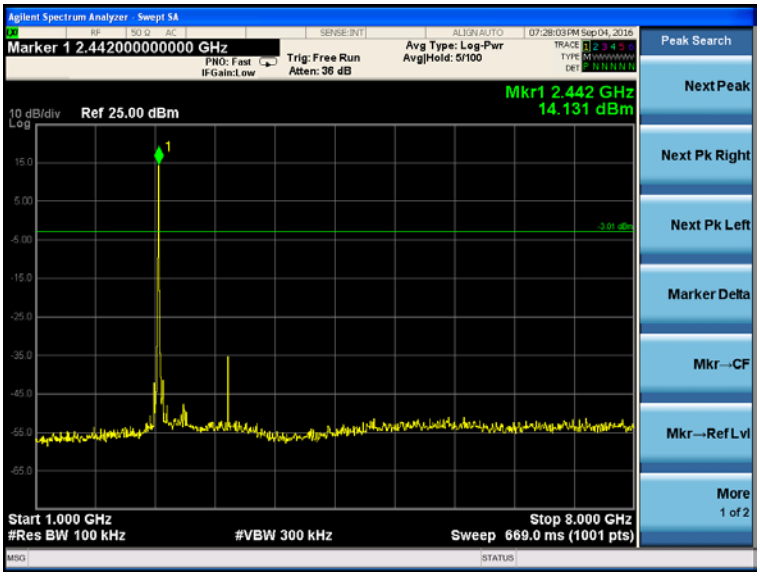


9KHz~30MHz



30M Hz~1GHz

Test Mode:	GFSK	Test channel :	9

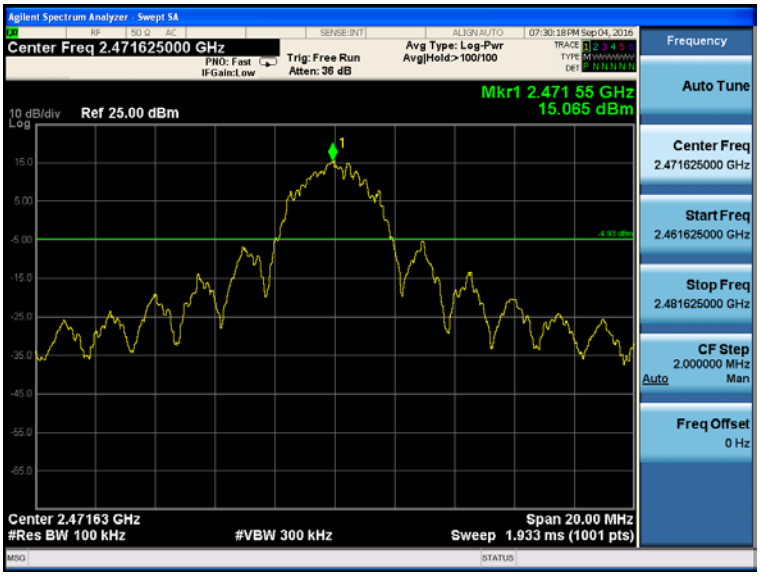


1GHz~8GHz

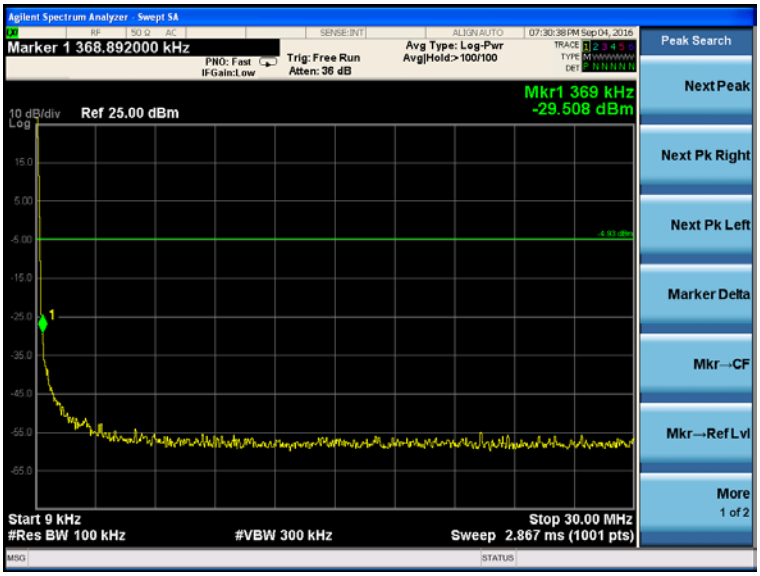
8GHz~16GHz

16GHz~25GHz

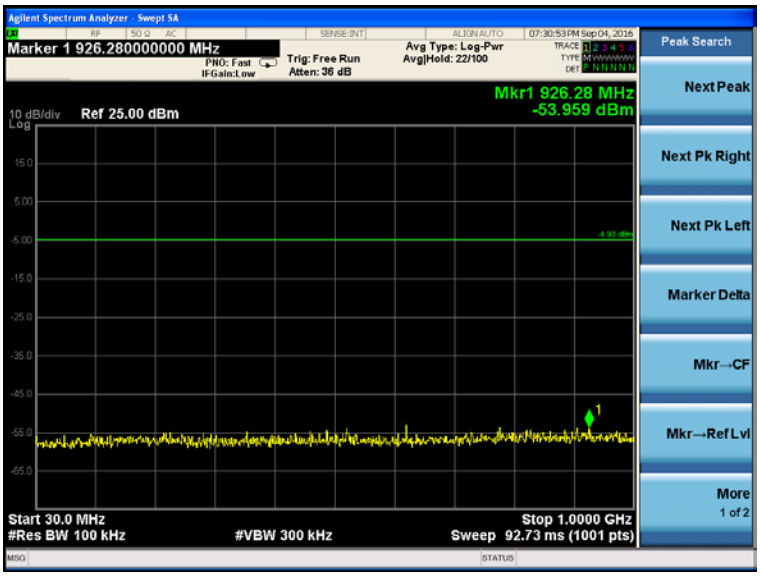
Test Mode:	GFSK	Test channel :	18



Channel 18

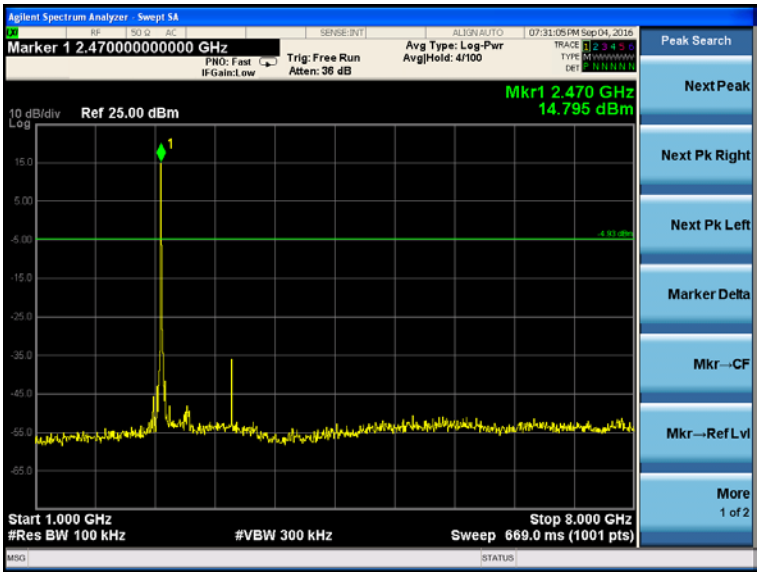


9KHz~30MHz



30M Hz~1GHz

Test Mode:	GFSK	Test channel :	18



1GHz~8GHz

8GHz~16GHz

16GHz~25GHz

4.8. Antenna Requirement

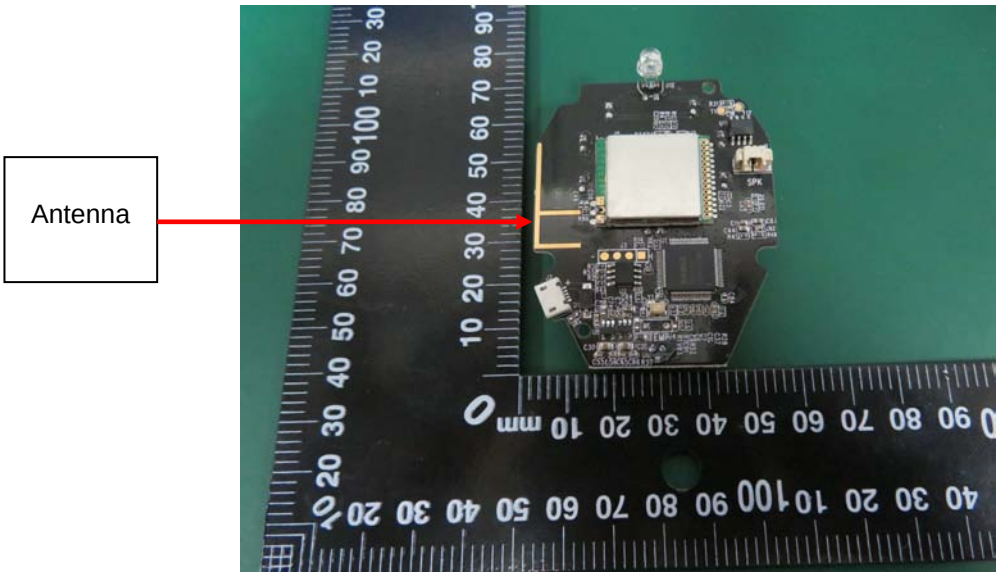
Standard Applicable

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.

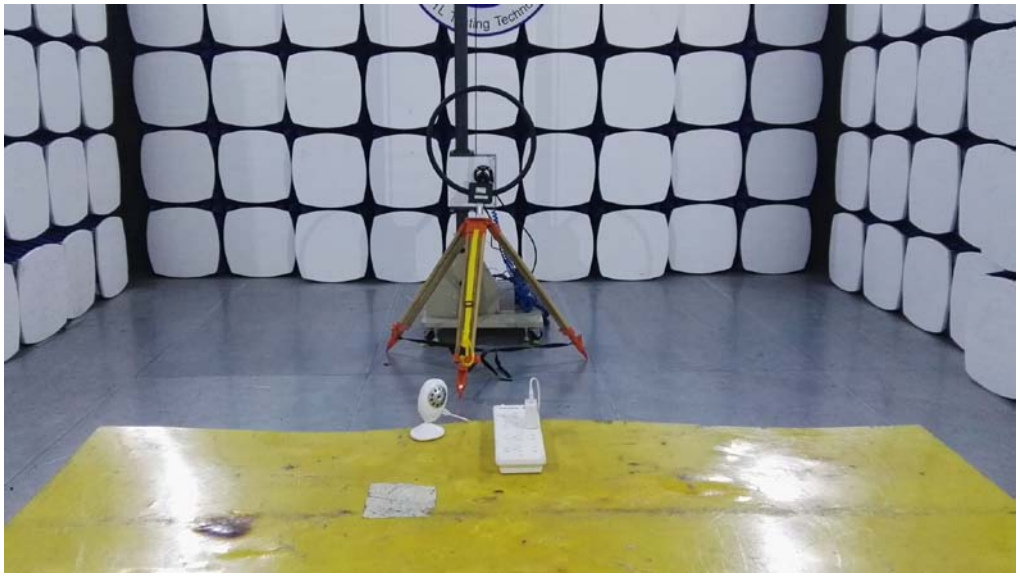
And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

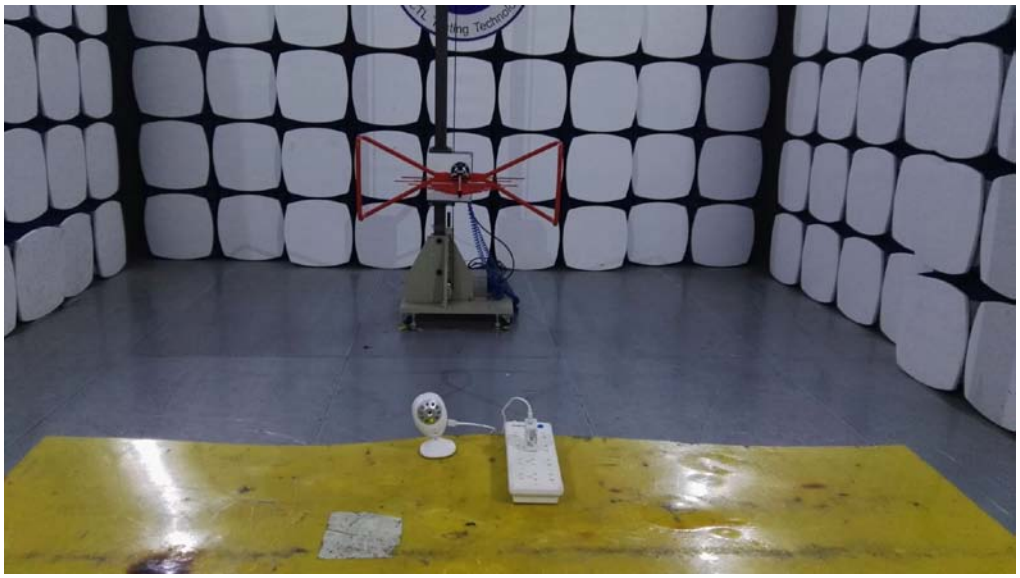
Antenna Information

The antenna is layout on PCB board and no consideration of replacement. Antenna gain is 0.64dBi.



5. Test Setup Photos of the EUT



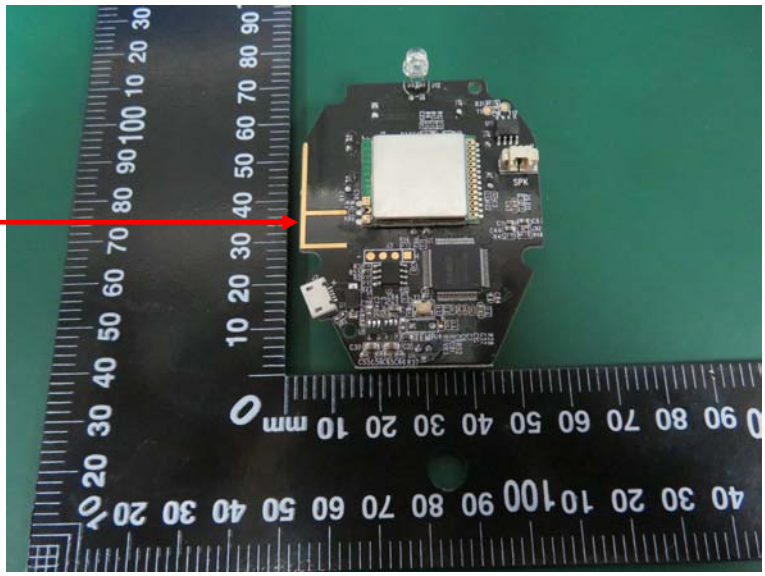


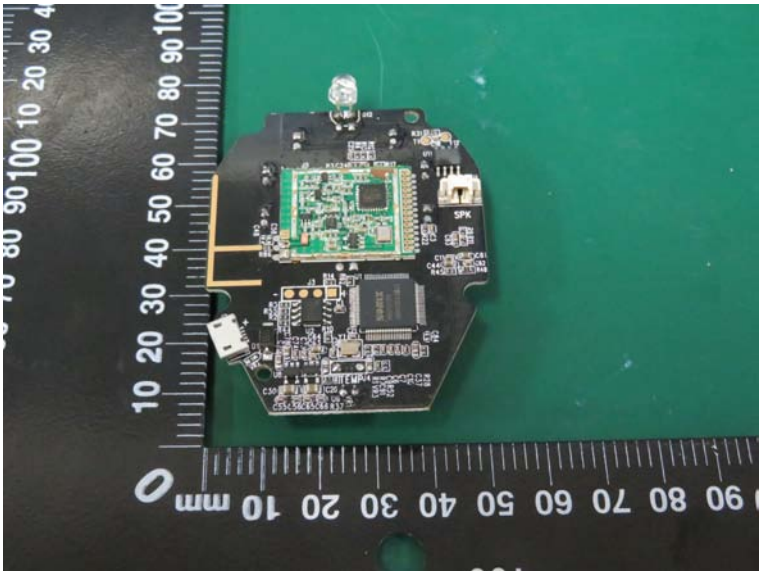
6. External and Internal Photos of the EUT

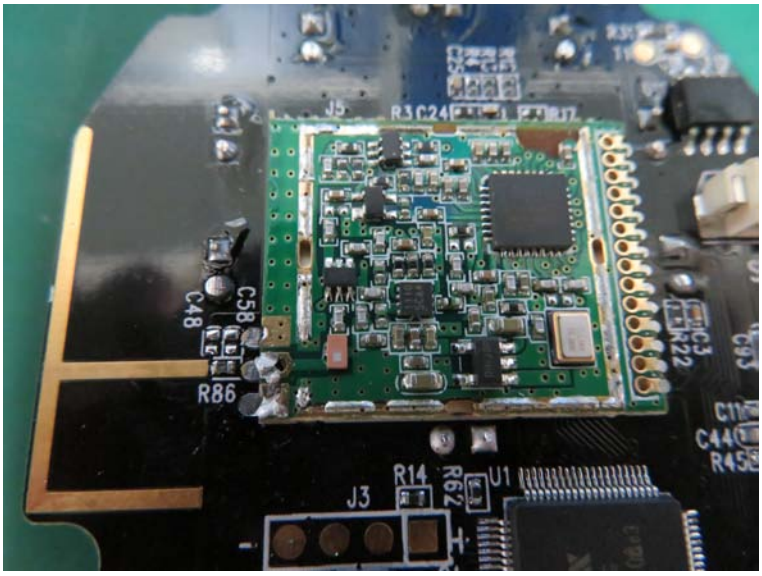
External Photos

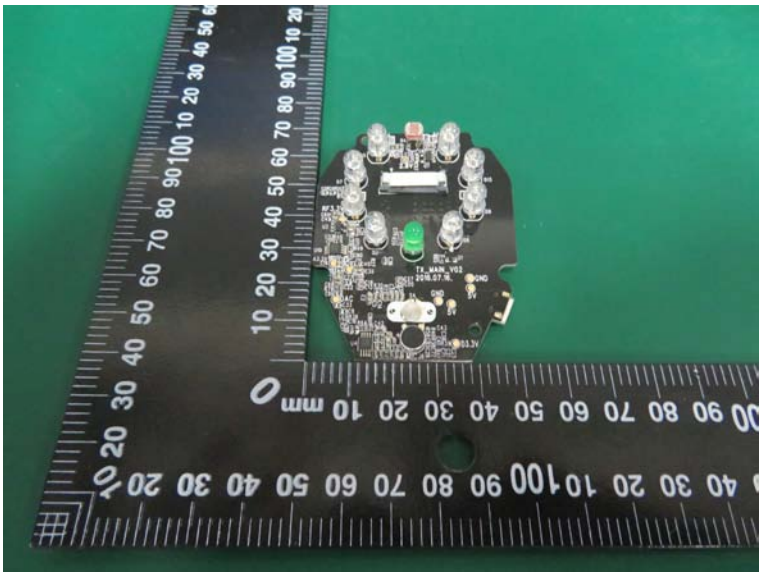

Switching Power Supply
MODEL: HNT-S510
INPUT: 100-240V ac~50/60Hz 0.3A
OUTPUT: DC5V 1 A
Made in China
PIN 1+
PIN 5-

Internal Photos









.....End of Report.....