FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Applicant:	**Professional Security Corp DBA Personal Safety Corp**
Address:	**1655 Progress Drive, Hiawatha, Iowa 52233, USA**
Product Name:	**Secure® Wireless Alarm Monitor**
Model Name:	**WAM-1**
Brand Name:	**Secure**
FCC ID:	**2ADJMWAM-1**
Report No.:	**MTE/DYY/A15050506**
Date of Issue:	**May 06, 2015**

Issued by:	**Most Technology Service Co., Ltd.**
Address :	**No.5, Langshan 2nd Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China**
Tel :	**86-755-8602 6850**
Fax :	**86-755-2601 3350**

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1. VERIFICATION OF CONFORMITY

Equipment Under Test:	Secure® Wireless Alarm Monitor
Brand Name:	Secure
Model Number:	WAM-1
Series Number:	N/A
Description of Differences:	N/A
FCC ID:	2ADJMWAM-1
Applicant:	Professional Security Corp DBA Personal Safety Corp 1655 Progress Drive, Hiawatha, Iowa 52233, USA
Manufacturer:	Professional Security Corp DBA Personal Safety Corp 1655 Progress Drive, Hiawatha, Iowa 52233, USA
Technical Standards:	47 CFR Part 15 Subpart C
File Number:	MTE/DYY/A15050506
Date of test:	Apr. 02-26, 2015
Deviation:	None
Condition of Test Sample:	Normal
Test Result:	PASS

The above equipment was tested by MOST for compliance with the requirements set forth in FCC rules and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Tested by (+ signature): Daisy

Daisy Yu Apr. 02-26, 2015

Review by (+ signature): Henry

MOST TECHNOLOGY SERVICE CO., LTD. APPROVED EMC & SAFETY

Henry Chen May 06, 2015

Approved by (+ signature):

Mark Wen(Manager) May 06, 2015

2. GENERAL INFORMATION

2.1 Product Information

Product:	Secure® Wireless Alarm Monitor
Trade Name:	Secure
Model Number:	WAM-1
Series Number:	N/A
Description of Differences:	N/A
Power Supply:	DC 6V by Adapter
Frequency Range:	Ch0: 2443MHz, Ch1: 2454MHz
Modulation Type:	GFSK
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Channel Number:	2
Temperature Range:	-20°C ~ +70°C

NOTE:

1. For a more detailed features description about the EUT, please refer to User's Manual.

2.2 Objective

Perform FCC Part 15 Subpart C tests for FCC Marking.

2.3 Test Standards and Results

Test items and the results are as bellow:

No.	Section	Description	Result	Date of Test
1	15.249(a) (d)	Spurious Emission	PASS	2015-04-02
2	15.207	Power Line Conducted Emission Test	PASS	2015-04-02
3	15.249	20dB Bandwidth	PASS	2015-04-06
4	15.203	Antenna Requirement	PASS	2015-04-06

Note: 1. The test result judgment is decided by the limit of measurement standard
2. The information of measurement uncertainty is available upon the customer's request.

2.4 Environmental Conditions

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

- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

2.5 MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

The report uncertainty of measurement y±U, where expended uncertainly U is based on a standard uncertainty multiplied by a coverage factor of k=2,Providing a level of confidence of approximately 95%

- Uncertainty of Conducted Emission, Uc = ±1.8dB
- Uncertainty of Radiated Emission, Uc = ±3.2dB

3. TEST FACILITY

3.1TEST FACILITY

Test Site:	Most Technology Service Co., Ltd.
Location:	No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong ,China
Description:	There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009 and CISPR 16 requirements. The FCC Registration Number is **490827.** The **IC** Registration Number is **7103A-1.** The **CNAS** Registration Number is **CNAS L3573.**
Site Filing:	The site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4:2009 and CISPR 16 requirements that meet industry regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna.

3.2 Test Conditions

The EUT has been tested under normal operating（TX）.

The field strength of radiation emission was measured in the following position: EUT lie-down position (X axis).

The following data show X axis setup.

Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

3.3 Channel List

Channel List for GFSK Mode					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2443MHz				
01	2454MHz				

3.4 Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level, Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively

Pre-test Mode	Description
Mode 1	GFSK CH00/CH01

Note:

The measurements are performed at the highest, middle, lowest available channels.

3.5 Table of Parameters of Text Software Setting

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level, the RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of Mouse

Test software Version	Test channels	
GFSK Mode	2443MHz	2454MHz

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.3.1 of ANSI C63.4:2009,Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 6.3.1 of ANSI C63.4:2009.

3.6 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

4. SETUP OF EQUIPMENT UNDER TEST

4.1 SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
Notebook	Lenovo	E425	R9-KZL4B	1.6m Un-shielded	1.8m Un-shielded

Remark:

All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipment used at Most for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

No.	Equipment	Manufacturer	Model No.	S/N	Calibration date	Calibration Interval
1	Test Receiver	Rohde & Schwarz	ESCI	100492	2015/03/10	1 Year
2	L.I.S.N.	Rohde & Schwarz	ENV216	100093	2015/03/10	1 Year
3	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2015/03/07	1 Year
4	Terminator	Hubersuhner	50Ω	No.1	2015/03/07	1 Year
5	RF Cable	SchwarzBeck	N/A	No.1	2015/03/07	1 Year
6	Test Receiver	Rohde & Schwarz	ESPI	101202	2015/03/10	1 Year
7	Bilog Antenna	Sunol	JB3	A121206	2015/03/14	1 Year
8	Horn Antenna	SCHWARZBECK	BBHA9120D	756	2015/03/14	1 Year
9	Horn Antenna	Penn Engineering	9034	8376	2015/03/14	1 Year
10	Cable	Resenberger	N/A	NO.1	2015/03/07	1 Year
11	Cable	SchwarzBeck	N/A	NO.2	2015/03/07	1 Year
12	Cable	SchwarzBeck	N/A	NO.3	2015/03/07	1 Year
13	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	2015/03/07	1 Year
14	Test Receiver	Rohde & Schwarz	ESCI	100492	2015/03/10	1 Year
15	Spectrum Analyzer	Agilent	E7405A	US44210471	2015/03/07	1 Year

NOTE: *Equipments listed above have been calibrated and are in the period of validation.*

5. 47 CFR Part 15C 15.249 Requirements

5.1 Spurious Emission Test

5.1.1 Requirement

According to FCC section 15.249(a):

Except as provided in paragraph (a) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (μV/m)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

According to FCC section 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.

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

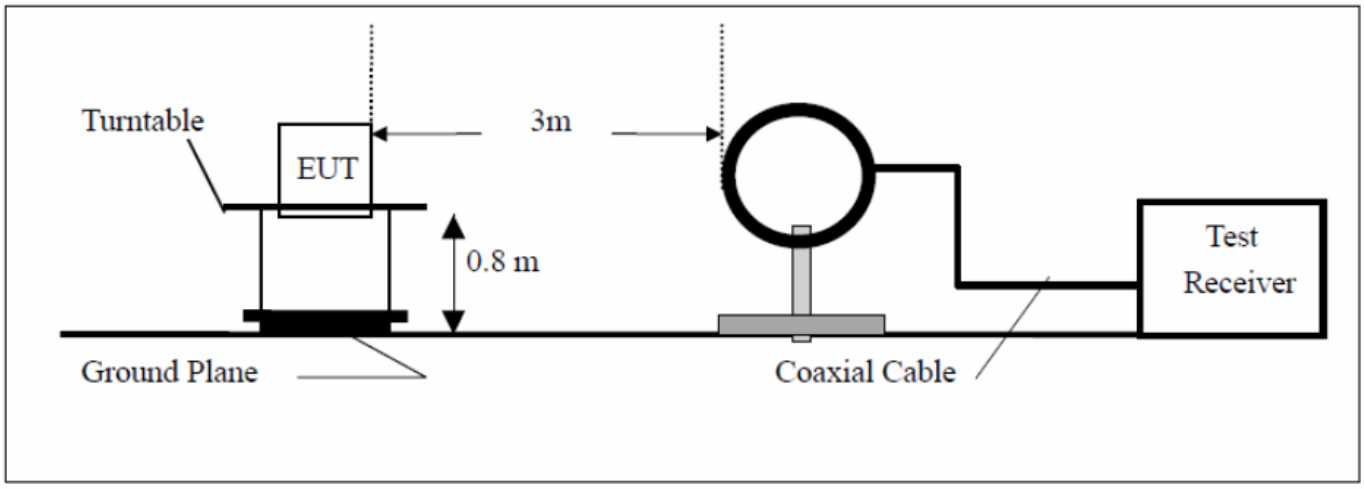
In the above emission table, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

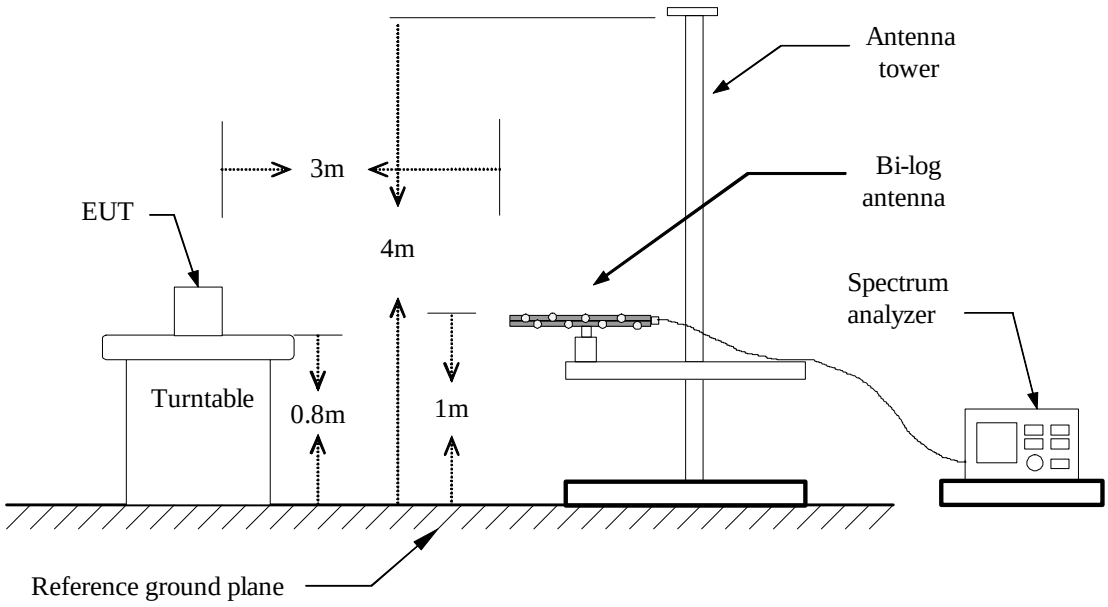
5.1.2 Test Description

Test Setup:

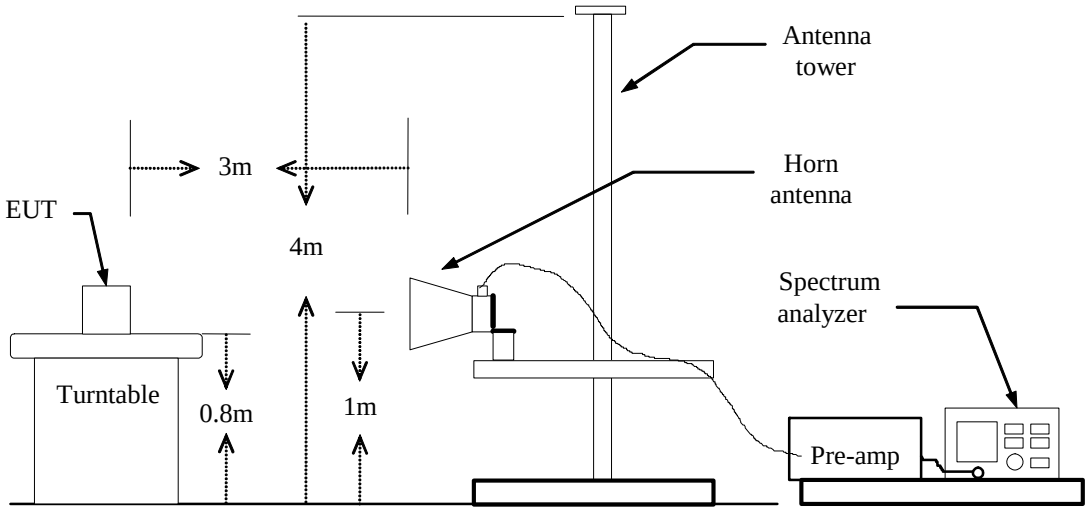
From 9KHz to 30MHz:



From 30MHz to 1GHz:



Above 1GHz:



5.1.3 Test Description

1. For frequencies above 1GHz, the frequencies of maximum emission was recorded by manually positioning the antenna close to the EUT and by moving the antenna over all sides of the EUT while observing a spectral display.

2. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

3. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

4. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

5. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rote table was turned from 0 degrees to 360 degrees to find the maximum reading.

6. Set the spectrum analyzer in the following setting as:

Below 1GHz: PEAK: RBW=100 kHz / VBW=300 kHz / Sweep=AUTO QP: RBW=120 kHz / Sweep=AUTO

Above 1GHz: (a)PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b)AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

7. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test Result

From 9 KHz to 30MHz:

-Note: No test data was detected in below 30MHz.

From 30MHz to 1GHz:

The following test mode(s) were scanned during the preliminary test:

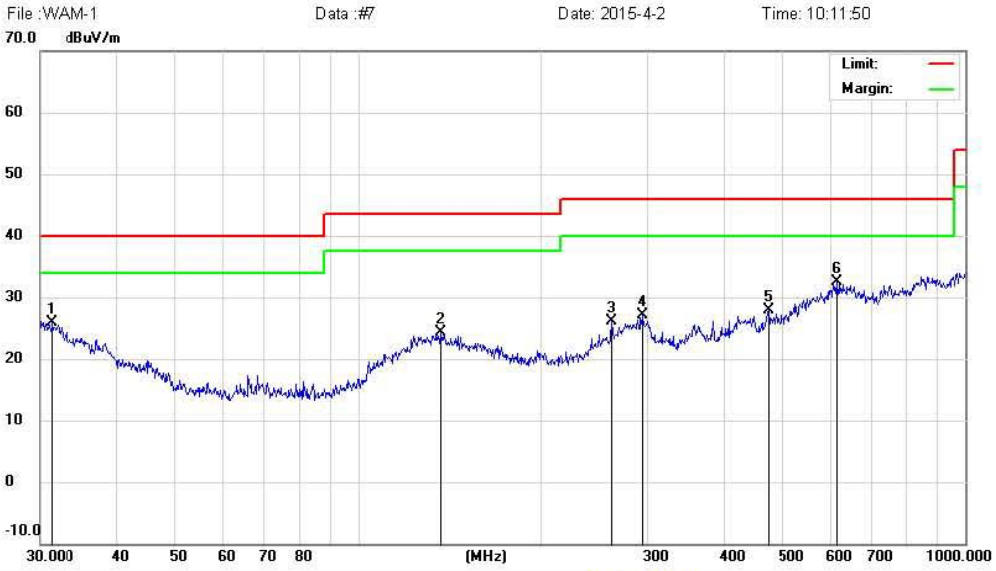
Preliminary Radiated Emission Test				
Frequency Range Investigated		9KHz TO 26 GHz		
Mode of operation	Date	Report No.	Data#	Worst Mode
GFSK	2015-04-02	MTE/DYY/A15050506	WAM-1(V, H)	☒

Note:

The GFSK Low channel modulation type was the worst case condition, The worse test data was shown on the summary data page.

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86026850 Fax: 0755-26013350

Radiated Emission Measurement



Site Chamber #1
Limit: FCC Part15 B 3M Radiation
EUT: Secure® Wireless Alarm Monitor
M/N: WAM-1
Mode: GFSK(CH0)
Note:

Polarization: *Horizontal*
Power: DC 6V by Adapter
Distance: 3m

Temperature: 24.0
Humidity: 52.9 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		31.3992	4.78	21.15	25.93	40.00	-14.07	QP			
2		137.4201	7.05	17.32	24.37	43.50	-19.13	QP			
3		261.9752	8.24	17.86	26.10	46.00	-19.90	QP			
4		294.1136	7.67	19.36	27.03	46.00	-18.97	QP			
5		473.8346	6.60	21.39	27.99	46.00	-18.01	QP			
6	*	616.3716	9.08	23.39	32.47	46.00	-13.53	QP			

*:Maximum data x:Over limit !:over margin

Engineer Signature: lidegan

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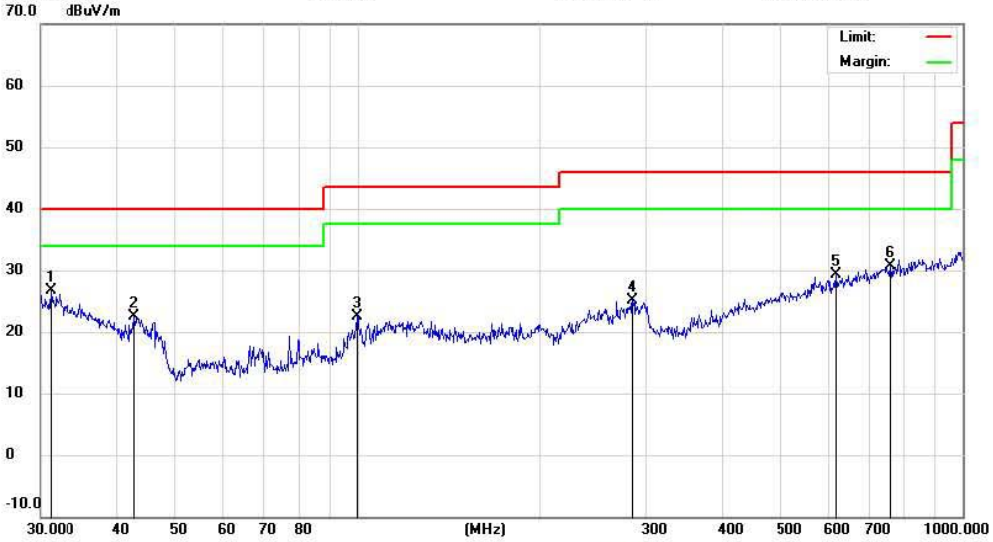
Radiated Emission Measurement

File :WAM-1 Data :#8 Date: 2015-4-2 Time: 10:18:33



Site Chamber #1
Limit: FCC Part15 B 3M Radiation
EUT: Secure® Wireless Alarm Monitor
M/N: WAM-1
Mode: GFSK(CH0)
Note:

Polarization: *Vertical*
Power: DC 6V by Adapter
Distance: 3m

Temperature: 24.0
Humidity: 52.9 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.1797	4.45	22.35	26.80	40.00	-13.20	QP			
2		42.8997	8.22	14.35	22.57	40.00	-17.43	QP			
3		99.8777	9.34	13.18	22.52	43.50	-20.98	QP			
4		284.9766	5.77	19.40	25.17	46.00	-20.83	QP			
5		618.5368	5.77	23.46	29.23	46.00	-16.77	QP			
6		760.7035	5.09	25.62	30.71	46.00	-15.29	QP			

*:Maximum data x:Over limit l:over margin

Engineer Signature: lidegan

Above 1 GHz

Compliance Laboratory
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Radiated Emission Measurement

File :WAM-1 Data :#1 Date: 2015-4-6 Time: 8:16:07

Site site #1 Polarization: *Horizontal* Temperature: 25.9
Limit: FCC RF LIMIT PEAK Power: DC 6V by Adapter Humidity: 51.6 %
EUT: Secure® Wireless Alarm Monitor Distance: 3m
M/N: WAM-1
Mode: GFSK-CH0
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	X	2443.000	99.25	-8.36	90.89	74.00	16.89	peak			
2	*	2443.000	91.25	-8.36	82.89	54.00	28.89	AVG			
3		4886.000	51.02	-5.16	45.86	74.00	-28.14	peak			
4		4886.000	46.01	-5.16	40.85	54.00	-13.15	AVG			

*:Maximum data x:Over limit !:over margin

Engineer Signature: John

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Radiated Emission Measurement

File :WAM-1 Data :#2 Date: 2015-4-6 Time: 8:31:20

Site site #1 Polarization: *Vertical* Temperature: 25.9
Limit: FCC RF LIMIT PEAK Power: DC 6V by Adapter Humidity: 51.6 %
EUT: Secure® Wireless Alarm Monitor Distance: 3m
M/N: WAM-1
Mode: GFSK-CH0
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	X	2443.000	99.25	-8.36	90.89	74.00	16.89	peak			
2	*	2443.000	91.26	-8.36	82.90	54.00	28.90	AVG			
3		4886.000	54.68	-5.16	49.52	74.00	-24.48	peak			
4		4886.000	49.20	-5.16	44.04	54.00	-9.96	AVG			

*:Maximum data x:Over limit !:over margin

Engineer Signature: John

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Radiated Emission Measurement

File :WAM-1 Data :#3 Date: 2015-4-6 Time: 8:45:06

Site site #1 Polarization: *Vertical* Temperature: 25.9
Limit: FCC RF LIMIT PEAK Power: DC 6V by Adapter Humidity: 51.6 %
EUT: Secure® Wireless Alarm Monitor Distance: 3m
M/N: WAM-1
Mode: GFSK-CH1
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	X	2454.000	98.05	-8.34	89.71	74.00	15.71	peak			
2	*	2454.000	93.17	-8.34	84.83	54.00	30.83	AVG			
3		4908.000	55.63	-4.90	50.73	74.00	-23.27	peak			
4		4908.000	48.90	-4.90	44.00	54.00	-10.00	AVG			

*:Maximum data x:Over limit !:over margin

Engineer Signature: John

Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
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Radiated Emission Measurement

File :WAM-1 Data :#4 Date: 2015-4-6 Time: 8:55:33

Site site #1 Polarization: *Horizontal* Temperature: 25.9
Limit: FCC RF LIMIT PEAK Power: DC 6V by Adapter Humidity: 51.6 %
EUT: Secure® Wireless Alarm Monitor Distance: 3m
M/N: WAM-1
Mode: GFSK-CH1
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	X	2454.000	99.81	-8.34	91.47	74.00	17.47	peak			
2	*	2454.000	92.35	-8.34	84.01	54.00	30.01	AVG			
3		4908.000	53.34	-4.90	48.44	74.00	-25.56	peak			
4		4908.000	48.00	-4.90	43.10	54.00	-10.90	AVG			

*:Maximum data x:Over limit !:over margin

Engineer Signature: John

5.2 LINE CONDUCTED EMISSION TEST

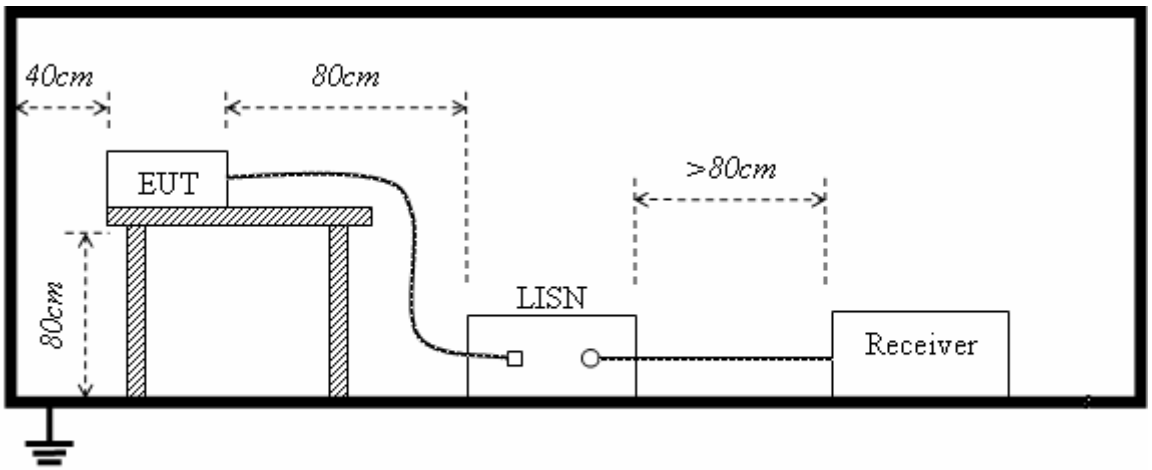
5.2.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

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

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

5.2.2. BLOCK DIAGRAM OF TEST SETUP



5.2.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When 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 FCC Part 15 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per FCC Part 15.
3) All I/O cables were positioned to simulate typical actual usage as per FCC Part 15.
4) The EUT received DC 6V by Adapter which 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 power from a second LISN supplying power of AC 120V/60Hz, 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 30 MHz for emissions in each of the test modes.
8) During the above scans, the emissions were maximized by cable manipulation.

5.2.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

EUT and support equipment was set up on the test bench as per step 9 of the preliminary test.
A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

5.2.5. Test result

The following test mode(s) were scanned during the preliminary test:

Preliminary Conducted Emission Test				
Frequency Range Investigated		150KHz TO 30 MHz		
Mode of operation	Date	Report No.	Data#	Worst Mode
Charging+ BT Mode	2015-04-02	MTE/DYY/A15050506	WAM-1_(V, H)	☒

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

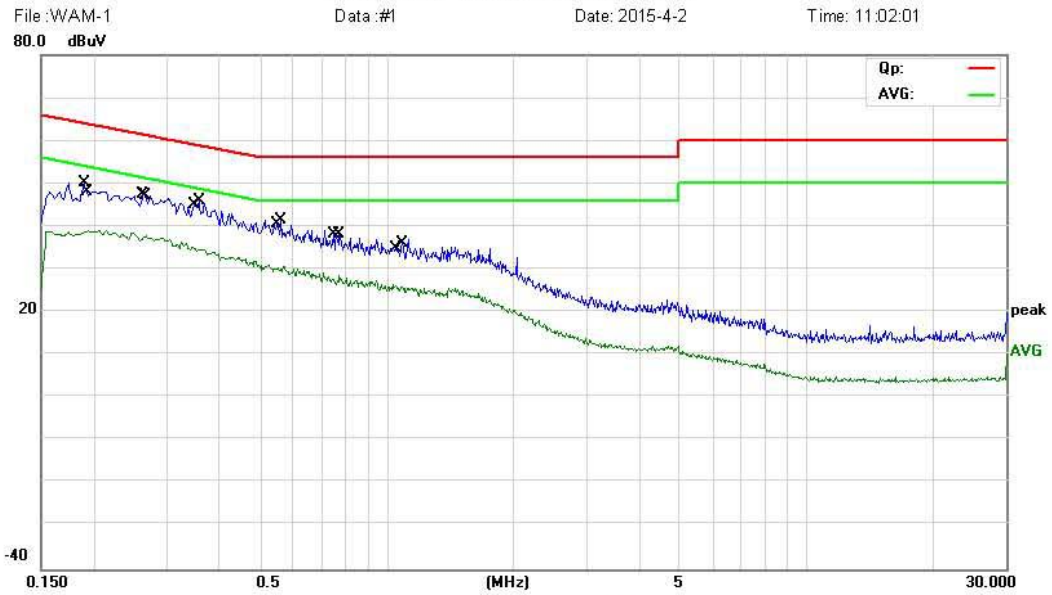
Note:

The GFSK Low channel modulation type was the worst case condition, The worse test data was shown on the summary data page.

5.2.6. TEST RESULT OF LINE CONDUCTED EMISSION TEST

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86026850 Fax: 0755-26013350

Conducted Emission Measurement



Site MOST #1 Phase: L1 Temperature: 25.1
Limit: FCC Part15 B Class B QP Power: DC 6V by Adapter Humidity: 52.4 %
EUT: Secure® Wireless Alarm Monitor
M/N: WAM-1
Mode: GFSK -CH0
Note:

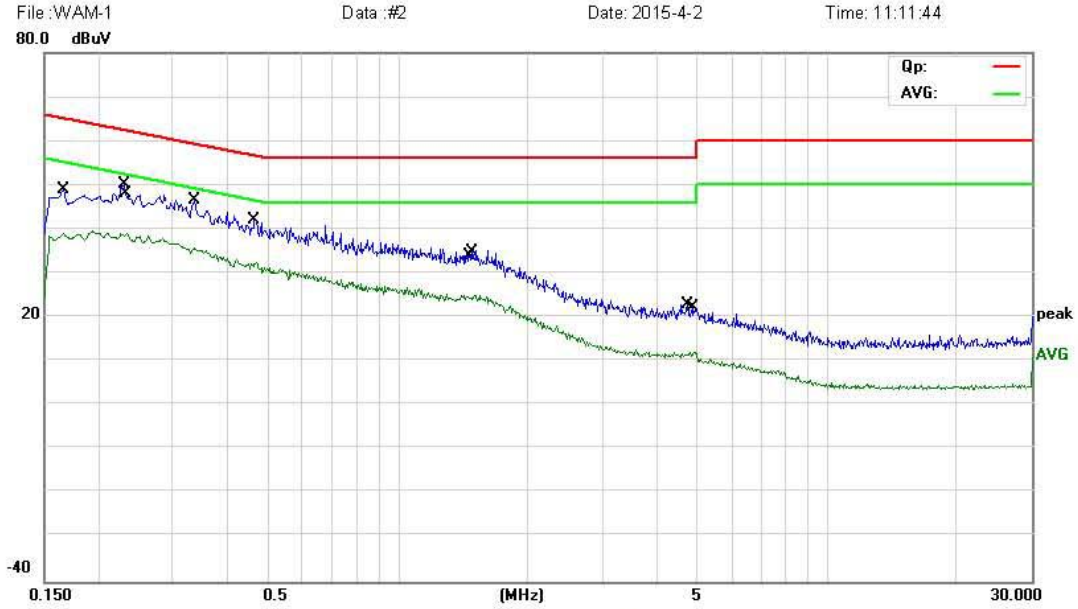
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1900	38.68	11.40	50.08	64.04	-13.96	QP	
2		0.1940	27.33	11.64	38.97	53.86	-14.89	AVG	
3		0.2620	35.94	11.59	47.53	61.37	-13.84	QP	
4		0.2660	26.28	11.56	37.84	51.24	-13.40	AVG	
5		0.3460	24.04	11.03	35.07	49.06	-13.99	AVG	
6	*	0.3580	34.99	10.95	45.94	58.77	-12.83	QP	
7		0.5500	30.53	10.00	40.53	56.00	-15.47	QP	
8		0.5540	20.36	10.00	30.36	46.00	-15.64	AVG	
9		0.7500	17.69	10.00	27.69	46.00	-18.31	AVG	
10		0.7740	28.15	10.00	38.15	56.00	-17.85	QP	
11		1.0500	16.30	9.95	26.25	46.00	-19.75	AVG	
12		1.0900	26.15	9.91	36.06	56.00	-19.94	QP	

*:Maximum data x:Over limit !:over margin

Engineer Signature: Kang

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86026850 Fax: 0755-26013350

Conducted Emission Measurement



Site MOST #1 Phase: N Temperature: 25.1
Limit: FCC Part15 B Class B QP Power: DC 6V by Adapter Humidity: 52.4 %
EUT: Secure® Wireless Alarm Monitor
M/N: WAM-1
Mode: GFSK -CH0
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1660	39.03	9.96	48.99	65.16	-16.17	QP	
2		0.1660	29.04	9.96	39.00	55.16	-16.16	AVG	
3	*	0.2300	38.29	11.80	50.09	62.45	-12.36	QP	
4		0.2340	27.13	11.77	38.90	52.31	-13.41	AVG	
5		0.3380	35.39	11.08	46.47	59.25	-12.78	QP	
6		0.3380	24.54	11.08	35.62	49.25	-13.63	AVG	
7		0.4580	21.81	10.28	32.09	46.73	-14.64	AVG	
8		0.4660	31.83	10.23	42.06	56.58	-14.52	QP	
9		1.4460	15.21	9.55	24.76	46.00	-21.24	AVG	
10		1.4820	25.47	9.52	34.99	56.00	-21.01	QP	
11		4.7340	11.19	11.73	22.92	56.00	-33.08	QP	
12		4.8140	0.20	11.81	12.01	46.00	-33.99	AVG	

*:Maximum data x:Over limit !:over margin

Engineer Signature: Kang

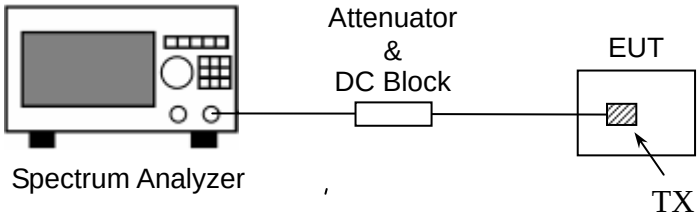
5.3 20 dB Bandwidth

5.3.1 Definition

Intentional radiators operating under the alternative provisions to the general emission limits, as Contained in §§15.217 through 15.257 and in sub-part E of this part, must be designed to ensure that the 20 dB Bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific Rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.3.2 Block Diagram Of Test Setup

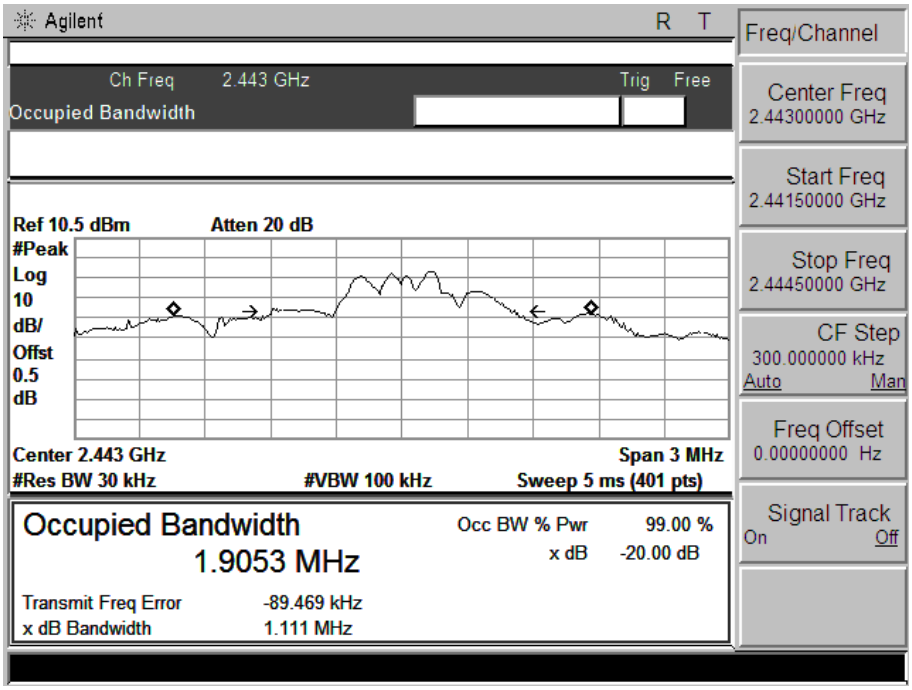
The EUT is powered by the Battery, is coupled to the Spectrum Analyzer (SA) through the Attenuator/DC Block. The path loss as the factor is calibrated to correct the reading. During the measurement, the EUT is activated and is set to operate at maximum power. The RF load attached to the EUT antenna terminal is 50Ohm.



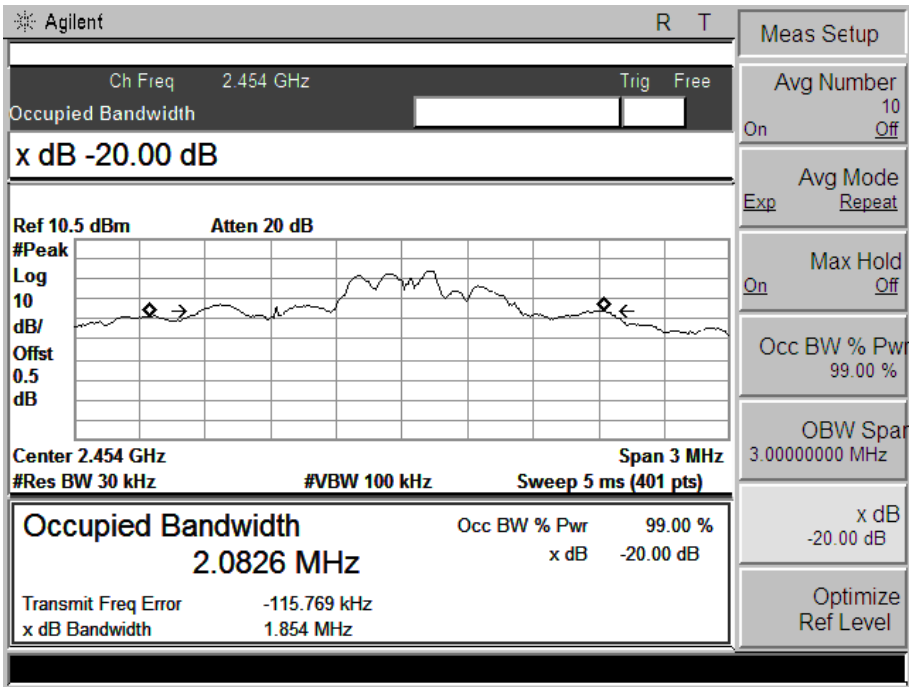
5.3.3 Test Result

GFSK Modulation test result:

Channel	Frequency (MHz)	Test Result(MHz)
0	2443	1.111
1	2454	1.854



CH Low


Agilent
R T
Ch Freq 2.454 GHz
Trig Free
Occupied Bandwidth
x dB -20.00 dB
Ref 10.5 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
0.5
dB
Center 2.454 GHz
Span 3 MHz
#Res BW 30 kHz
#VBW 100 kHz
Sweep 5 ms (401 pts)
Occupied Bandwidth
2.0826 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -115.769 kHz
x dB Bandwidth 1.854 MHz
Meas Setup
Avg Number
10
On Off
Avg Mode
Exp Repeat
Max Hold
On Off
Occ BW % Pwr
99.00 %
OBW Span
3.00000000 MHz
x dB
-20.00 dB
Optimize
Ref Level

CH High

5.4 Antenna Requirement

5.4.1 Definition

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, An analysis of the EUT was performed to determine compliance with FCC Section 15.203. This section requires specific handling and control of antennas used for devices subject to regulations.

5.4.2 Evaluation Criteria

Section 15.203 of the rules states that the subject device must meet at least one of the following criteria:

(a) Antenna must be permanently attached to the unit.

(b) Antenna must use a unique type of connector to attach to the EUT.

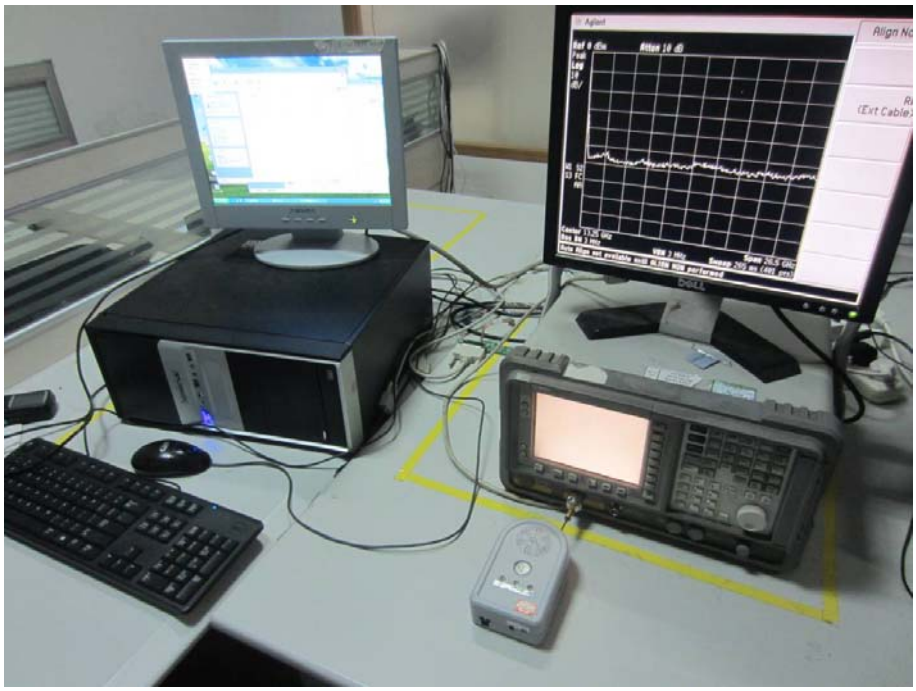
(c) Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit.

5.4.3 Evaluation Results

The antenna used in this product is PCB antenna. The antenna is permanently attached. It is inaccessible to the user.

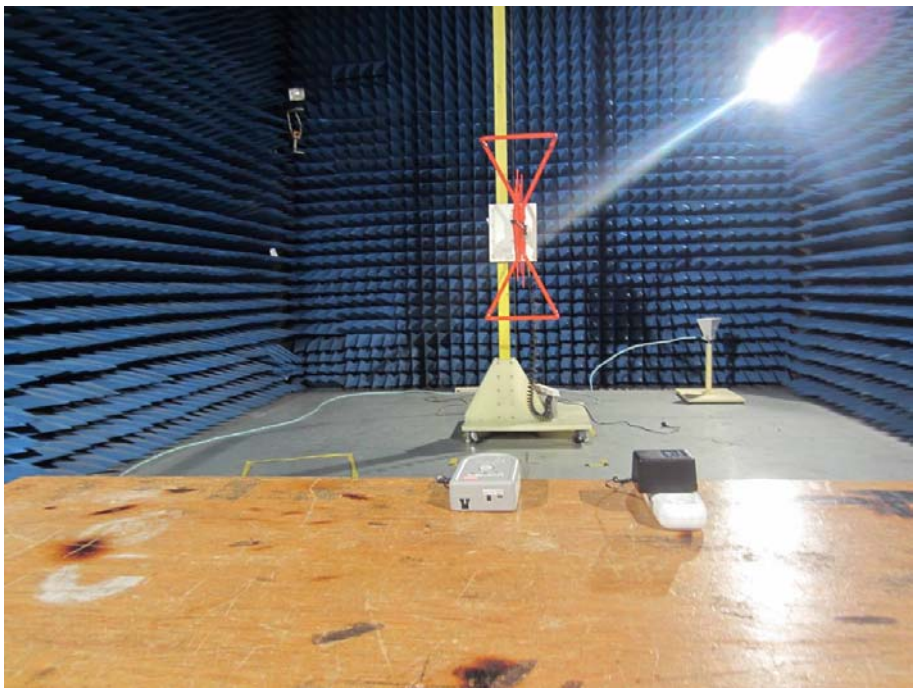
APPENDIX 1
PHOTOGRAPHS OF TEST SETUP

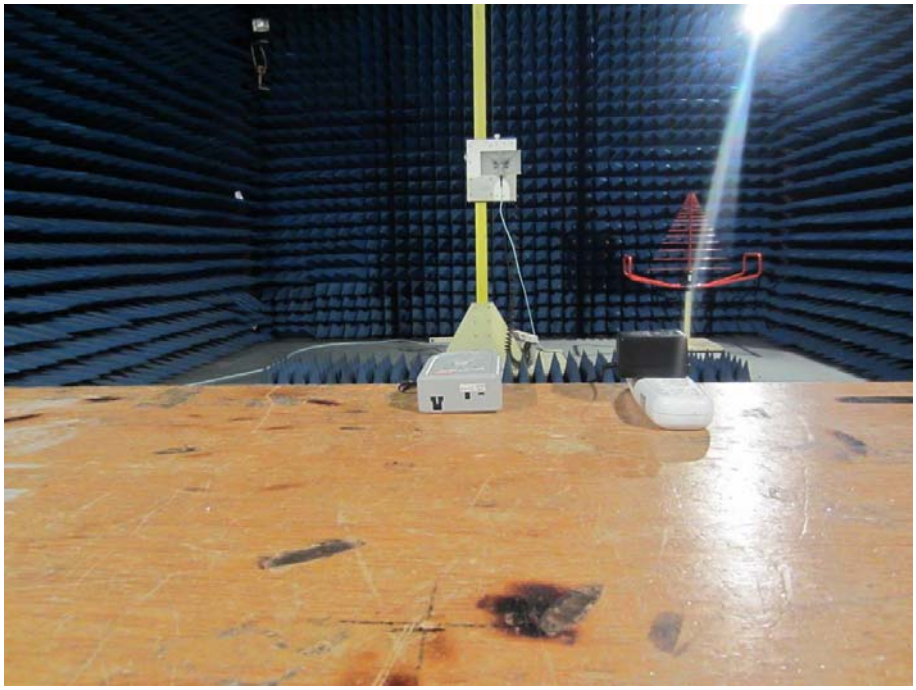
CONDUCTED TEST SETUP



CE TEST SETUP

RE TEST SETUP





------END OF REPORT------