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Report No.: SHEM130200023901

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FCC Part 15C TEST REPORT

Application No.: SHEM1302000239ME	
Applicant: Andon Health Co., Ltd	
FCC ID:	ZRYAM3
Equipment Under Test (E NOTE: The following samp	EUT): ble(s) submitted was/were identified on behalf of the client as
Product Name:	Activity Monitor
Brand Name: iHealth	
Model:	AM3
Added Model:	N/A
Standards:	FCC PART 15 Subpart C: 2011
Date of Receipt:	Feb.22, 2013
Date of Test: Feb.27, 2013 to Mar.07, 2013	
Date of Issue: Mar.15, 2013	
Test Result : PASS *	

^{*}In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Tony Wu

E&E Section Manager

SGS-CSTC (Shanghai) Co., Ltd.

Man. 2013

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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Version

	Revision Record				
Version	Version Chapter Date Modifier Remark				
00	/	Mar.15, 2013	/	Original	

Authorized for issue by:		
Engineer	Zenger Zhang Print Name	Zenger Zhang
Clerk	Amy Wang Print Name	Any Wang
Reviewer	Keny Xu Print Name	Kony. Ku



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2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	FCC Part 15, Subpart C Section 15.203/15.247 (c)		PASS
AC Power Line Conducted Emission	FCC Part 15, Subpart C Section 15.207	ANSI C63.10 (2009) Section 6.2	PASS
Minimum 6dB Bandwidth	FCC Part 15, Subpart C Section 15.247 (a)(2)	ANSI C63.10 (2009) Section 6.9	PASS
Conducted Peak Output Power	FCC Part 15, Subpart C Section 15.247 (b)(3)	ANSI C63.10 (2009) Section 6.10	PASS
Power Spectrum Density	FCC Part 15, Subpart C Section 15.247 (e)	ANSI C63.10 (2009) Section 6.11	PASS
RF Conducted Spurious Emissions	FCC Part 15, Subpart C Section 15.247(d)	ANSI C63.10 (2009) Section 7.7.10	PASS
Band-edge for RF Conducted Emissions	FCC Part 15, Subpart C Section 15.247(d)	ANSI C63.10 (2009) Section 7.7.10	PASS
Radiated Spurious emissions	FCC Part 15, Subpart C Section 15.209 and Section 15.205	ANSI C63.10 (2009) Section 6.12	PASS
Radiated Band-edge	FCC Part 15, Subpart C Section 15.205 and Section15.209	ANSI C63.10 (2009) Section 6.5	PASS



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4 General Information

4.1 Client Information

Applicant:	Andon Health Co., Ltd
Address of Applicant:	No. 3 JinPing Street, YaAn Road, Nankai District, Tianjin 300190, China
Manufacturer:	Andon Health Co., Ltd
Address of Manufacturer:	No. 3 JinPing Street, YaAn Road, Nankai District, Tianjin 300190, China
Factory:	Andon Health Co., Ltd

4.2 General Description of E.U.T.

Product Name	Activity Monitor
Brand Name:	iHealth
Model No:	AM3
Added Model:	N/A
Product Description:	Portable production

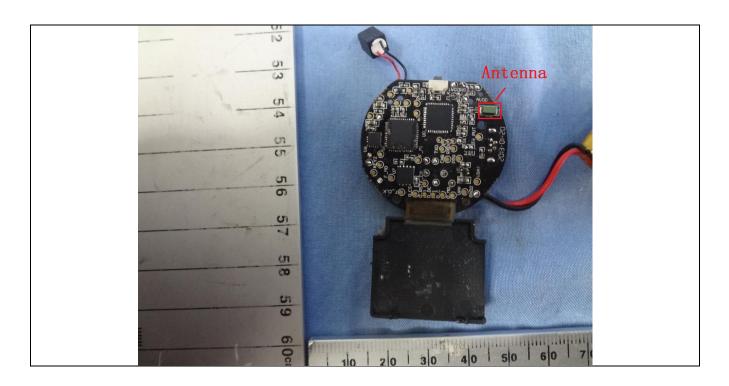
4.3 Technical Specifications:

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Number of Channel:	40
Power Supply:	Battery supply
Antenna Type	Integral
Antenna Gain	2.00dBi



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4.4 Accessories of Product:

	Battery Type:	Li-on Rechargeable Battery
Pottom	Manufacturer:	N/A
Battery:	Model No.:	EEMB LP402024
	Technical Spec.:	3.7 V dc, 165 mAh
Charging:	USB Cable	15cm

4.5 Support equipments for Testing

The EUT has been tested independently.

Software name	Manufacturer	Supplied By
SmartRF_Studio	N/A	Client

4.6 Details of Test Mode

Test Mode	Description of Test Mode
Continue transmitting mode:	Keep the EUT continue transmit data from Bluetooth modular.
Normal working mode:	Keep EUT on normal working mode

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Charging mode:	The EUT on charging.

Test Channel:

Channel	Frequency
The Lowest channel	2402MHz
The Middle channel	2440MHz
The Highest channel	2480MHz



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4.7 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. No.588 West Jindu Road, Songjiang District, Shanghai, China.201612.

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

4.8 Test Facility

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

CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2014-07-26.

FCC – Registration No.: 402683

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

Industry Canada (IC) – IC Assigned Code: 8617A

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The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2014-09-20.

VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.



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5 Equipments Used during Test

⊠ Conducted Emission

	audica Ellission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-04-13	2013-04-12
2	Line impedance stabilization network (LISN)	SCHWARZBECK	NSLK8127	8127-490	2012-10-15	2013-10-24
3	Line impedance stabilization network (LISN)	ETS	3816/2	00034161	2012-10-15	2013-10-24

Radiated Spurious Emission

		•••				
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-06-02	2013-06-01
2	Antenna	SCHWARZBECK	VULB9168	9168-313	2012-10-15	2013-10-24
3	CONTROLLER	INNCO	CO200	474	/	/
4	Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2012-10-15	2013-10-24
5	Antenna	SCHWARZBECK	BBHA9170	9170-373	2012-10-15	2013-10-24
6	Low nosie amplifier	LNA6900	TESEQ	71033	2012-10-15	2013-10-24

☒ RF Conducted Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-06-03	2013-06-01
2	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2012-06-03	2013-06-01
3	Horn Antenna	Rohde & Schwarz	HF906	100284	2012-06-03	2013-06-01
4	ANTENNA	SCHWARZBECK	VULB9168	9168-313	2012-06-03	2013-06-01
5	Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA91703 73	2012-10-15	2013-10-24
6	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2012-10-09	2013-10-08
7	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co;Ltd	BY-2009P		2012-10-09	2013-10-08
8	CLAMP METER	FLUKE	316	86080010	2012-06-03	2013-06-01
9	Thermo- Hygrometer	ZHICHEN	ZC1-2	01050033	2012-10-09	2013-10-08

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			T	T	1	
11	High-low temperature cabinet	Shanghai YuanZhen	GW2050		2012-06-03	2013-06-01
12	Tunable Notch Filter	Wainwright instruments	WRCT1800. 0/ 2000.0- 0.2/40-5SSK	11	2012-06-03	2013-06-01
13	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT800.0/ 880.0- 0.2/40-5SSK	9	2012-06-03	2013-06-01
14	High pass Filter	FSCW	HP 12/2800- 5AA2	19A45-02	2012-06-03	2013-06-01
15	Low nosie amplifier	TESEQ	LNA6900	70133	2012-06-03	2013-06-01
16	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-06-03	2013-06-01
17	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2012-06-03	2013-06-01



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6 Test Results

6.1 E.U.T. test conditions

Test Power: 3.7V DC

Requirements: 15.31(e) For intentional radiators, measurements of the variation of the input

power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a

new battery.

Operating Environment:

Temperature: 20.0 -25.0 °C

Humidity: 35-75 % RH

Atmospheric Pressure: 992 -1020 mbar

6.2 Antenna Requirement

Standard requirement

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna

The antenna is integrated on the main PCB and no consideration of replacement. The gain of the antenna is less than 2.0 dBi.



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6.3 Conducted Emissions on Mains Terminals

Test Requirement: FCC Part 15C, Section 15.207 **Test Method:** ANSI C63.10:2009 Section 6.2

Test Date: Mar.01, 2013

Test Result: Pass

Test Voltage: AC 120V 60Hz
Frequency Range: 150 KHz to 30 MHz

Class/Severity: Class B

Test mode: Charging mode

Limit:

Frequency range MHz	Class E	3 Limits (μV)
IVII IZ	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

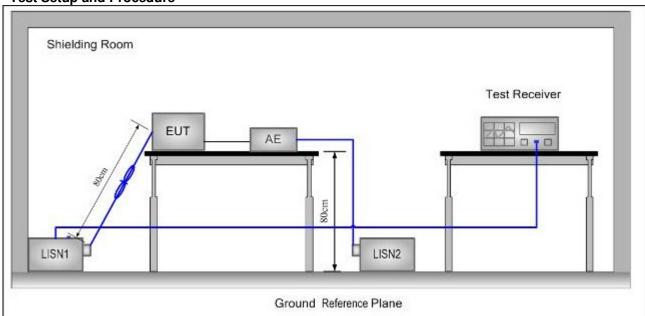
Note2: The lower limit is applicable at the transition frequency.



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Test Setup and Procedure



- 1. The mains terminal disturbance voltage was measured with the EUT in a shielded room.
- 2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu H + 5\Omega$ linear impedance. The power cables of all other units of the EUT was connected to a second LISN, which was bonded to the ground reference plane in the same way as the LISN for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded
- 3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- 4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN and the EUT. The mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m. All other units of the EUT and associated equipment was at least 0,8 m from the LISN.

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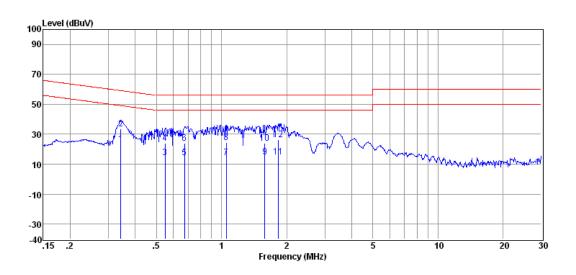
Measurement Data

Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected.

Please see the attached Quasi-peak and Average test results.

Level = Read Level + LISN/ISN Factor + Cable Loss.

Test Mode: Charging mode Test Port: AC Live Line



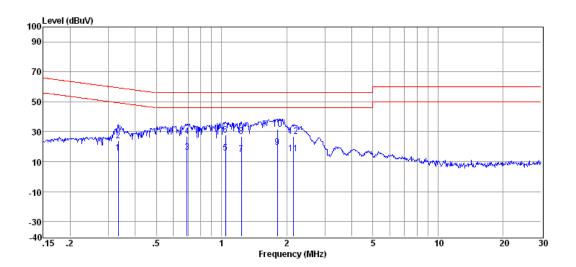
Item	Freq.	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBµV)	(dB)	(dB)	(dBµV)	(dBµV)	(dB)	
1	0.343	23.17	0.15	0.10	23.42	49.13	-25.71	Average
2	0.343	33.22	0.15	0.10	33.47	59.13	-25.66	QP
3	0.549	14.00	0.20	0.10	14.30	46.00	-31.70	Average
4	0.549	23.46	0.20	0.10	23.76	56.00	-32.24	QP
5	0.675	14.01	0.20	0.10	14.31	46.00	-31.69	Average
6	0.675	23.45	0.20	0.10	23.75	56.00	-32.25	QP
7	1.054	14.02	0.21	0.10	14.33	46.00	-31.67	Average
8	1.054	24.40	0.21	0.10	24.71	56.00	-31.29	QP
9	1.585	14.40	0.26	0.10	14.76	46.00	-31.24	Average
10	1.585	23.56	0.26	0.10	23.92	56.00	-32.08	QP
11	1.829	14.28	0.28	0.10	14.66	46.00	-31.34	Average
12	1.829	25.83	0.28	0.10	26.21	56.00	-29.79	QP



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Test Mode: Charging mode **Test Port:** Neutral Line:



Item	Freq.	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBµV)	(dB)	(dB)	(dBµV)	(dBµV)	(dB)	
1	0.334	15.72	0.14	0.10	15.96	49.35	-33.39	Average
2	0.334	23.92	0.14	0.10	24.16	59.35	-35.19	QP
3	0.694	15.91	0.20	0.10	16.21	46.00	-29.79	Average
4	0.694	26.77	0.20	0.10	27.07	56.00	-28.93	QP
5	1.043	15.46	0.20	0.10	15.76	46.00	-30.24	Average
6	1.043	27.65	0.20	0.10	27.95	56.00	-28.05	QP
7	1.236	14.54	0.22	0.10	14.86	46.00	-31.14	Average
8	1.236	26.64	0.22	0.10	26.96	56.00	-29.04	QP
9	1.810	19.29	0.28	0.10	19.67	46.00	-26.33	Average
10	1.810	31.45	0.28	0.10	31.83	56.00	-24.17	QP
11	2.155	14.85	0.30	0.11	15.26	46.00	-30.74	Average
12	2.155	26.38	0.30	0.11	26.79	56.00	-29.21	QP



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6.4 6dB Occupied Bandwidth

Test Requirement: FCC Part 15 C Section 15.247 (a)(2) **Test Method:** ANSI C63.10 (2009) Section 6.9

Test Date: Mar.06, 2013

Test Result: Pass

Final Test Mode: The EUT on continue transmitting mode with GFSK.

Limit: ≥ 500 kHz

report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

Test Procedure:

1. Place the EUT on the table and set it in transmitting mode.

- Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
 - 3. Set the spectrum analyzer as RBW=100KHz, VBW =3* RBW, Span=30/50MHz, Sweep=auto
 - 4. Mark the peak frequency and -6dB (upper and lower) frequency.
 - 5. Repeat above procedures until all frequency measured were complete.

Test date

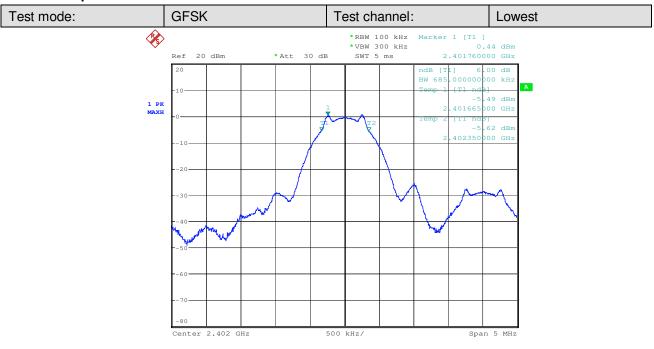
EUT Mode	Test Channel	6dB Occupy Bandwidth (kHz)	Limit (kHz)	Results
	Low	685	500	Pass
GFSK	Middle	685	500	Pass
	High	675	500	Pass



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Test plot as follows:

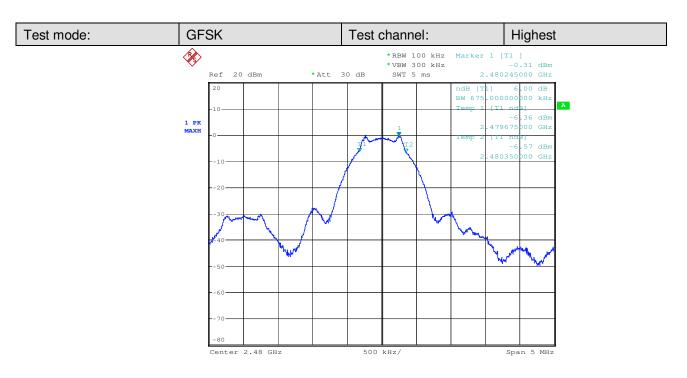






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6.5 Conducted Peak Output Power

Test Requirement: FCC Part 15.247 Section 15.247(b)(1)

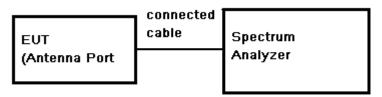
Test Method: ANSI C63.10 (2009) Section 6.10

Test Date: Feb.27, 2013

Test Result: Pass
Test Limit: 30dBm

Final Test Mode: The EUT on continue transmitting mode with GFSK.

Test Configuration:



Test Procedure:

- 1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
- 2. Set the spectrum analyzer: RBW = 3 MHz. VBW = 10 MHz. Sweep = auto; Detector Function = Peak.
- 3. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

Test Results record:

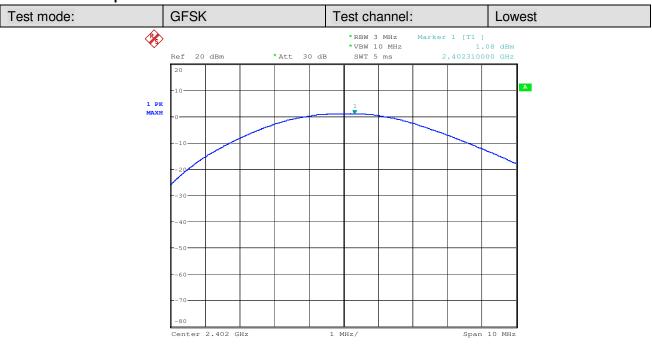
Test		Fundamental Reading		Cable	Output Power		Limit	Margin
Channel	Modulation	Frequency (MHz)	Power (dBm)	Loss (dB)	(dBm)	(mW)	(dBm)	(dB)
Lowest	GFSK	2402	1.08	1.2	2.28	1.69	30	27.72
Middle	GFSK	2441	0.83	1.2	2.03	1.60	30	27.97
Highest	GFSK	2480	0.38	1.2	1.58	1.44	30	28.42



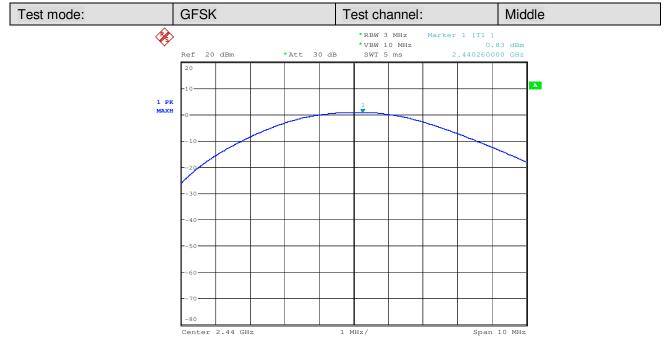
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Test result plot as follows:



Date: 27.FEB.2013 20:23:45



Date: 27.FEB.2013 20:22:21



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Date: 27.FEB.2013 20:23:04



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6.6 Peak Power Spectral Density

Test Requirement: FCC Part 15, Subpart C Section 15.247 (e)

Test Method: ANSI C63.10,2009 Section 6.11.2

Test Date: Feb.27, 2013

Test Result: Pass

Test Limit: 8dBm/3kHz

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Final Test Mode: The EUT on continue transmitting mode with GFSK.

Measurement Procedure: 1. Remove the antenna from the EUT and then connect a low RF

cable from the antenna port to the spectrum.

 Set the spectrum analyzer: Center Frequency= Channel Frequency, RBW = 3kHz VBW = 10kHz. Span= fully encompass the bandwidth, Sweep = auto; Detector Function = Peak Trace

mode=max hold,

3. Set MKR=Center Frequency, Trace=Clear Write.

4. Adjust the Span = 300kHz, Sweep Time=100s, Trace=Max Hold,

MKR=Peak Search.

5. Record the marker level for the particular mode.

6. Repeat these steps for other channel and device modes.

Test Results record:

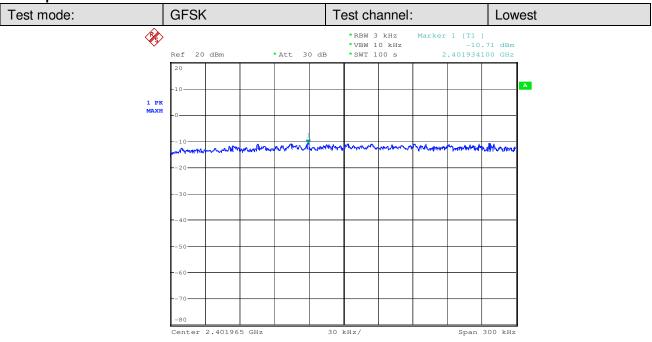
Test mode	Channel	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Peak Power Limit (dBm)	Result
GFSK	Low	-10.71	1.2	-9.51	8	PASS
	Mid	-10.83	1.2	-9.63	8	PASS
	High	-11.42	1.2	-10.22	8	PASS



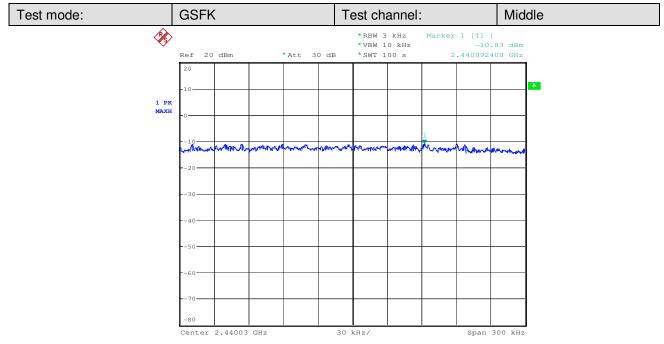
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Test plot as follows:



Date: 27.FEB.2013 20:38:39

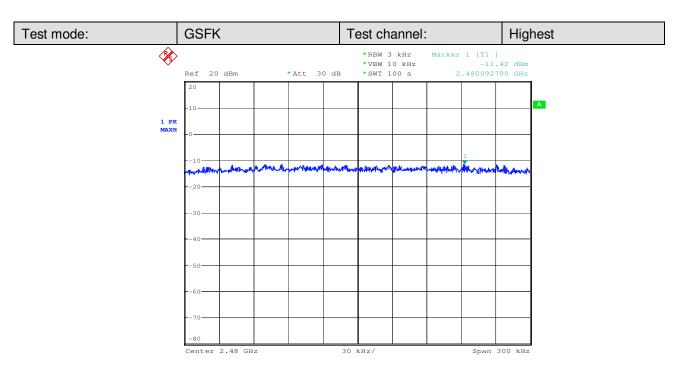


Date: 27.FEB.2013 20:50:25



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6.7 Conducted Spurious Emissions

Test Requirement: FCC Part 15 Section 15.247(d) **Test Method:** ANSI C63.10:2009 Clause 7.7.10

Test Date: Feb.27, 2013

report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

Test Result: Pass

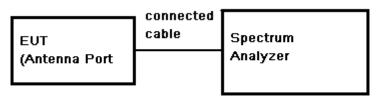
Limit: (d) In any 100 kHz bandwidth outside the frequency band in which the spread

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.

Final Test Mode: The EUT on continue transmitting mode with GFSK.

Test Configuration:



Test Procedure:

- 1. Remove the antenna from the EUT and then connect a low RF cable from
- the antenna port to the spectrum.
- 2. Set the spectrum analyzer: RBW = 100KHz. VBW >= RBW. Sweep = auto; Detector Function = Peak (Max. hold).



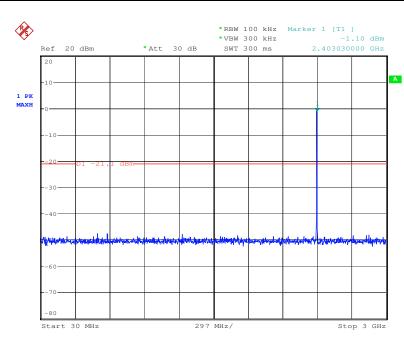
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est plot as follows:

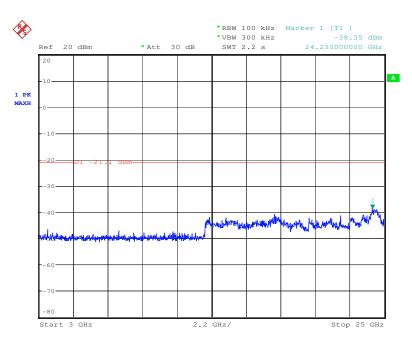
Test mode: GFSK Test channel: Lowest

30M to 3G:



Date: 27.FEB.2013 20:15:09

3G to 25G



Date: 27.FEB.2013 20:15:44

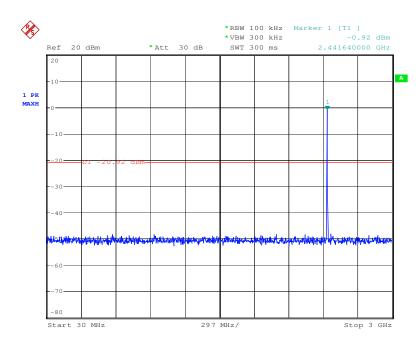


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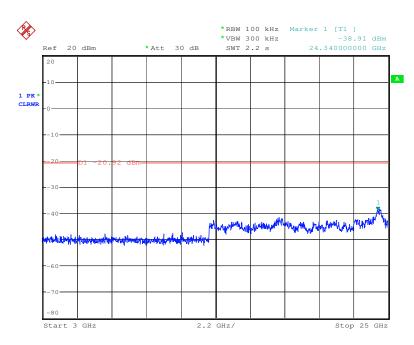
Test mode: GFSK Test channel: Middle

30M to 3G:



Date: 27.FEB.2013 20:16:35

3G to 25G:



Date: 27.FEB.2013 20:17:06

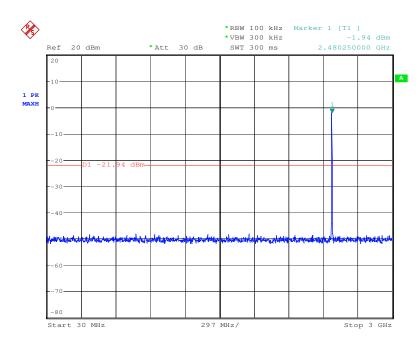


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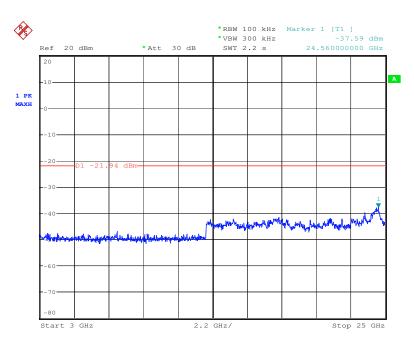
Test mode: GFSK Test channel: Highest

30M to 3G:



Date: 27.FEB.2013 20:18:17

3G to 25M:



Date: 27.FEB.2013 20:18:52



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6.8 Conducted Band-edge

Test Requirement: FCC Part 15 Section 15.247(d) **Test Method:** ANSI C63.10:2009 Clause 7.7.10

Test Date: Feb.27, 2013

report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

Test Result: Pass

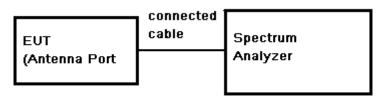
Limit: (d) In any 100 kHz bandwidth outside the frequency band in which the spread

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.

Final Test Mode: The EUT on continue transmitting mode with GFSK.

Test Configuration:



Test Procedure:

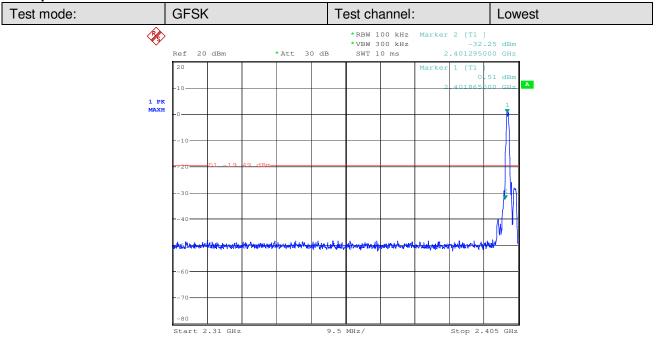
- 1. Remove the antenna from the EUT and then connect a low RF cable from
- the antenna port to the spectrum.
- 2. Set the spectrum analyzer: RBW = 100KHz. VBW >= RBW. Sweep = auto; Detector Function = Peak (Max. hold).



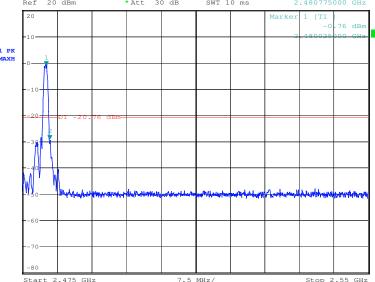
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Test plot as follows:



27.FEB.2013 20:13:19



Date: 27.FEB.2013 20:12:20



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6.9 Radiated Spurious Emissions

Test Requirement: FCC Part 15 Section 15.209 and Section 15.205

Test Method: ANSI C63.10:2009 Clause 6.12

Test Date: Feb.27, 2013

report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

Test Result: Pass

Final Test Mode: The EUT on continue transmitting mode with GFSK.

Test site/setup: Measurement Distance: 3m (Semi-Anechoic Chamber)

Test instrumentation resolution bandwidth 120 kHz and Quasi-Peak

detector applies (30 MHz - 1000 MHz).

For PK value:

RBW = 1 MHz for $f \ge 1$ GHz VBW \ge RBW; Sweep = auto Detector function = peak

Trace = max hold For AV value:

RBW = 1 MHz for $f \ge 1$ GHz VBW =10Hz; Sweep = auto Detector function = peak

Trace = max hold

Receive antenna scan height 1 m - 4 m. polarization Vertical / Horizontal

15.209 Limit: 40.0 dBμV/m between 30MHz & 88MHz

43.5 dBµV/m between 88MHz & 216MHz

 $46.0 \text{ dB}\mu\text{V/m}$ between 216MHz & 960MHz

 $54.0 \text{ dB}\mu\text{V/m}$ above 960MHz



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Test Configuration:

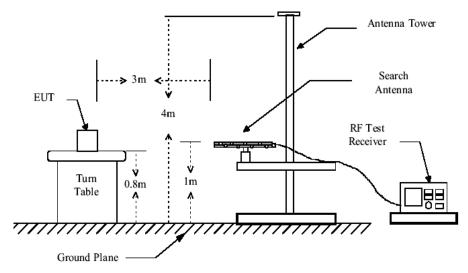


Figure 1. 30MHz to 1GHz radiated emissions test configuration

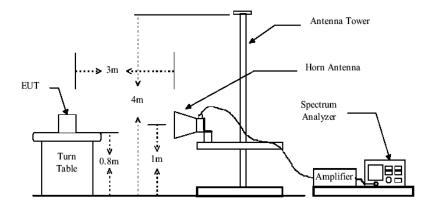


Figure 2. Above 1GHz radiated emissions test configuration

Test Procedure:

The procedure used was ANSI Standard C63.10:2009. The receiver was scanned from 30MHz to 25GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

Low nosie amplifier was used below 1GHz, High pass Filter was used above 3GHz. Between 1G and 3GHz, we did not use any amplifier or filter.



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Test Channel: Low

Test were performed for there spatial orthogonal(X, Y, Z), the worst test data (X orthogonal) was sumitted.

1) For this intentional radiator operates below 25 GHz. the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the third harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 5rd harmonic.

As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

Test data as follows:

Test Antenna: Horizontal

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1787.250	50.13	peak	-8.81	41.32	74.00	-32.68
2	4807.000	46.33	peak	-0.16	46.17	74.00	-27.83
3	7204.000	47.05	peak	6.23	53.28	74.00	-20.72
4	9859.500	37.66	peak	11.38	49.04	74.00	-24.96

Test Antenna: Vertical Test Channel: Low

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1834.250	54.64	peak	-8.44	46.20	74.00	-27.80
2	4807.000	47.31	peak	-0.16	47.15	74.00	-26.85
3	7204.000	47.57	peak	6.23	53.80	74.00	-20.20
4	9847.750	38.40	peak	11.39	49.79	74.00	-24.21

Test Antenna: Horizontal Test Channel: Middle

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2010.500	49.95	peak	-7.11	42.84	74.00	-31.16
2	4877.500	43.63	peak	0.12	43.75	74.00	-30.25
3	7544.750	40.32	peak	7.73	48.05	74.00	-25.95
4	9777.250	37.58	peak	11.49	49.07	74.00	-24.93



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Test Antenna: Vertical Test Channel: Middle

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1987.000	52.05	peak	-7.23	44.82	74.00	-29.18
2	4877.500	45.59	peak	0.12	45.71	74.00	-28.29
3	7591.750	39.92	peak	7.74	47.66	74.00	-26.34
4	9859.500	37.54	peak	11.38	48.92	74.00	-25.08

Test Antenna: Horizontal Test Channel: High

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1658.000	47.13	peak	-9.83	37.30	74.00	-36.70
2	4959.750	46.57	peak	0.45	47.02	74.00	-26.98
3	7603.500	40.15	peak	7.73	47.88	74.00	-26.12
4	9753.750	38.17	peak	11.54	49.71	74.00	-24.29

Test Antenna: Vertical Test Channel: High

Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	1810.750	50.20	peak	-8.63	41.57	74.00	-32.43
2	4959.750	47.62	peak	0.45	48.07	74.00	-25.93
3	7627.000	40.68	peak	7.73	48.41	74.00	-25.59
4	9589.250	38.13	peak	11.78	49.91	74.00	-24.09

Remark: No other radiation has been found.

report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

Test Level = Receiver Reading + Corrected factor(Antenna Factor + Cable Loss - Preamplifier Factor).

Remark: No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.



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6.10 Band edge (Radiated Emission)

Test Requirement:

Section 15.247(d) In addition, radiated emissions which fall in the

restricted bands. as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section

15.205(c).

Test Method: ANSI 63.10:2009 Clause 6.12

Test Date: Feb.27, 2013

Test Result: Pass

Measurement Distance: 3m (Semi-Anechoic Chamber)

Limit: 40.0 dBµV/m between 30MHz & 88MHz;

 $43.5 \text{ dB}_{\mu}\text{V/m}$ between 88MHz & 216MHz; $46.0 \text{ dB}_{\mu}\text{V/m}$ between 216MHz & 960MHz;

 $54.0 \text{ dB}\mu\text{V/m}$ above 960MHz.

Detector: For PK value:

report refer only to the sample(s) tested and such sample(s) are retained for 90 days only

RBW = 1 MHz for $f \ge 1$ GHz VBW \ge RBW; Sweep = auto Detector function = peak

Trace = max hold For AV value:

RBW = 1 MHz for f ≥ 1 GHz VBW =10Hz; Sweep = auto Detector function = peak

Trace = max hold

According to section, 15.35(b) for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Pre-test were performed for there spatial orthogonal(X, Y, Z), the worst test data (X orthogonal) was sumitted.

Test Result: The EUT does meet the FCC requirements.



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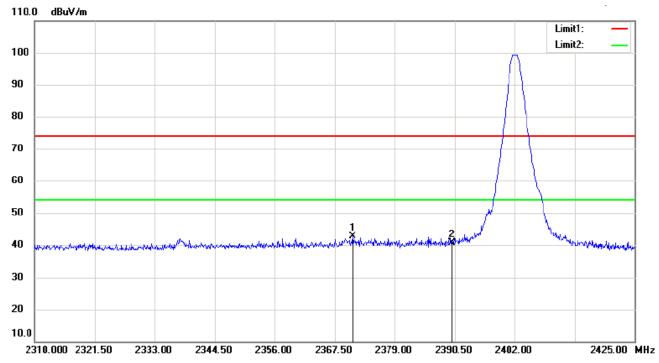
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Measurement Result:

CH Low 2402MHz Radiated Bandage

Modulation: GFSK

Horizontal:



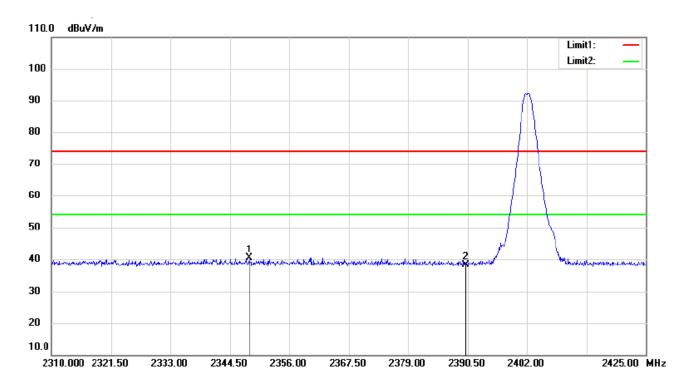
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2370.950	49.32	peak	-6.58	42.74	74.00	-31.26
2	2389.925	47.07	peak	-6.55	40.52	74.00	-33.48



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Vertical:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2348.180	47.05	peak	-6.61	40.44	74.00	-33.56
2	2390.155	44.71	peak	-6.55	38.16	74.00	-35.84



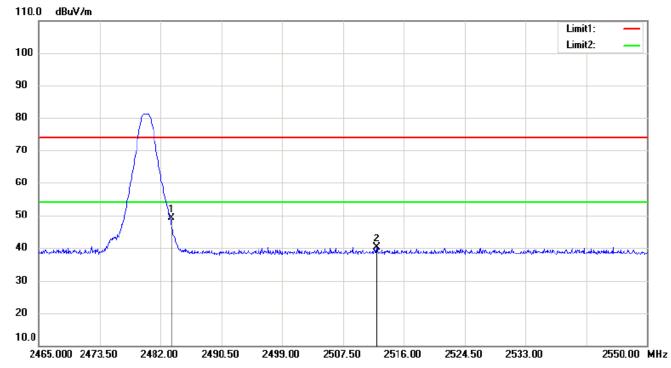
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CH Low 2480MHz Radiated Bandedge

Horizontal:

Modulation: GFSK



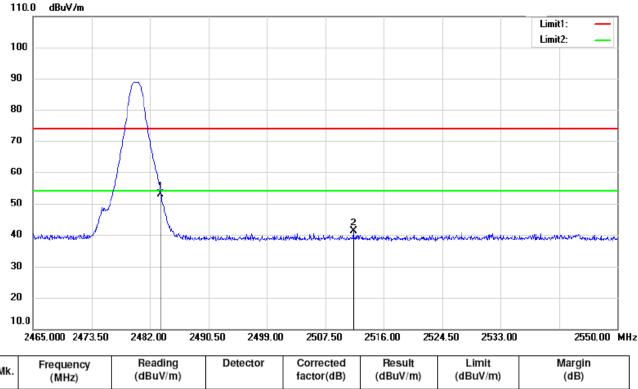
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	55.55	peak	-6.41	49.14	74.00	-24.86
2	2512.175	46.47	peak	-6.36	40.11	74.00	-33.89



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Vertical:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2483.500	59.33	peak	-6.41	52.92	74.00	-21.08
2	2511.580	47.44	peak	-6.36	41.08	74.00	-32.92

Remark: No any other emission which fall in restricted bands can be detected and be reported.

Test Level = Receiver Reading + Corrected factor (Antenna Factor + Cable Loss- Preamplifier Factor)

All frequencies within the "Restricted bands" have been evaluated to compliance. Section 15.205 Restricted bands of operation.



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Except as shown in paragraph 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 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	
13.36 - 13.41	322 - 335.4		



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7 Test Setup Photographs

Refer to the < Appendix A Test Setup photos>.

8 EUT Constructional Details

Refer to the < Appendix A External Photos > & < Appendix B Internal Photos >.

End of Report