

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan

District, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594 Report No.: SZEM141100614103

Email: ee.shenzhen@sgs.com Page: 1 of 60

# **FCC REPORT**

**Application No.:** SZEM1411006141CR(SGS GZ NO.:GZME1410000804ME)

Applicant:FUDAKANG INDUSTRIAL CO., LTD.Manufacturer:FUDAKANG INDUSTRIAL CO., LTD.Factory:FUDAKANG INDUSTRIAL CO., LTD.Product Name:Wrist type Blood pressure monitor

Item No.: FT-B13W-BT

FT-B11W, FT-B12W, FT-B13W, FT-B14W, FT-B21Y, FT-

**Add Item No.:** B22Y, FT-B11W-V, FT-B12W-V, FT-B13W-V, FT-B14W-V,

FT-B21Y-V, FT-B22Y-V, FT-B13W-UR

FCC ID: 2ADNQFTB13WBT

**Standards:** 47 CFR Part 15, Subpart C (2013)

**Date of Receipt:** 2014-11-10

**Date of Test:** 2014-11-28 to 2014-11-29

**Date of Issue:** 2014-12-31

Test Result: PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

This report supersedes our previous report SZEM141100614101, issued on 2014-12-04, which is hereby deemed null and void.

#### Authorized Signature:



Jack Zhang

#### **EMC Laboratory Manager**

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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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.



Report No.: SZEM141100614103

Page: 2 of 60

# 2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00		2014-12-04		Original

Authorized for issue by:		
Tested By	Eric Fu (Eric Fu) /Project Engineer	2014-11-29  Date
Prepared By	(Linlin Lv) /Clerk	2014-12-04  Date
Checked By	(Kevin Feng) /Reviewer	2014-12-08  Date



Report No.: SZEM141100614103

Page: 3 of 60

# 3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 2009	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(3)	KDB558074 D01 v03r02	PASS
6dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(2)	KDB558074 D01 v03r02	PASS
Power Spectral Density	47 CFR Part 15, Subpart C Section 15.247 (e)	KDB558074 D01 v03r02	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	KDB558074 D01 v03r02	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	KDB558074 D01 v03r02	PASS
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2009	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 2009	PASS

#### Remark:

Item No.: FT-B11W, FT-B12W, FT-B13W, FT-B14W, FT-B21Y, FT-B22Y, FT-B11W-V, FT-B12W-V, FT-B13W-V, FT-B14W-V, FT-B21Y-V, FT-B22Y-V, FT-B13W-UR, FT-B13W-BT

Only the item FT-B13W-BT was tested, since the circuit design, PCB layout, electrical components used, internal wiring and functions were identical for the above items, with difference being Item number and outlook appearance.



Report No.: SZEM141100614103

Page: 4 of 60

## 4 Contents

		Page
1	1 COVER PAGE	1
2	2 VERSION	2
3		
4		
5	5 GENERAL INFORMATION	5
	5.1 CLIENT INFORMATION	5
	5.2 GENERAL DESCRIPTION OF EUT	
	5.3 TEST ENVIRONMENT	
	5.4 DESCRIPTION OF SUPPORT UNITS	
	5.5 TEST LOCATION	
	5.7 DEVIATION FROM STANDARDS	
	5.8 ABNORMALITIES FROM STANDARD CONDITIONS	
	5.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER	
6	6 EQUIPMENT LIST	g
7		11
•		
	7.1 ANTENNA REQUIREMENT	
	7.2 CONDUCTED PEAK OUTPUT POWER	
	7.4 Power Spectral Density	
	7.5 BAND-EDGE FOR RF CONDUCTED EMISSIONS	
	7.6 Spurious RF Conducted Emissions	
	7.7 RADIATED SPURIOUS EMISSION	
	7.7.1 Spurious Emissions	
	7.8 RESTRICTED BANDS AROUND FUNDAMENTAL FREQUENCY	
8	PHOTOGRAPHS - EUT TEST SETUP	47
	8.1 RADIATED EMISSION	47
9	9 PHOTOGRAPHS - EUT CONSTRUCTIONAL DETAILS	48-60



Report No.: SZEM141100614103

Page: 5 of 60

## 5 General Information

#### 5.1 Client Information

Applicant:	FUDAKANG INDUSTRIAL CO., LTD.	
Address of Applicant:	No.8 Yinghe Road, Yuanjiangyuan Management Zone, Changping Town, Dongguan, Guangdong, China	
Manufacturer:	FUDAKANG INDUSTRIAL CO., LTD.	
Address of Manufacturer:	No.8 Yinghe Road, Yuanjiangyuan Management Zone, Changping Town, Dongguan, Guangdong, China	
Factory:	FUDAKANG INDUSTRIAL CO., LTD.	
Address of Factory:	No.8 Yinghe Road, Yuanjiangyuan Management Zone, Changping Town, Dongguan, Guangdong, China	

# 5.2 General Description of EUT

<b>-</b>	
Product Name:	Wrist type Blood pressure monitor
Item No.:	FT-B11W, FT-B12W, FT-B13W, FT-B14W, FT-B21Y, FT-B11W-V, FT-B12W-V, FT-B13W-V, FT-B14W-V, FT-B21Y-V, FT-B22Y-V, FT-B13W-UR, FT-B13W-BT
Bluetooth Version:	4.1
Carrier Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Number of Channel:	40
Sample Type:	Portable production
Antenna Type and Gain:	Type :Integral
	Gain: 2.25dBi
Battery:	DC 3V (2 "AAA" Batteries)



Report No.: SZEM141100614103

Page: 6 of 60

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	11	2422MHz	21	2442MHz	31	2462MHz
2	2404MHz	12	2424MHz	22	2444MHz	32	2464MHz
3	2406MHz	13	2426MHz	23	2446MHz	33	2466MHz
4	2408MHz	14	2428MHz	24	2448MHz	34	2468MHz
5	2410MHz	15	2430MHz	25	2450MHz	35	2470MHz
6	2412MHz	16	2432MHz	26	2452MHz	36	2472MHz
7	2414MHz	17	2434MHz	27	2454MHz	37	2474MHz
8	2416MHz	18	2436MHz	28	2456MHz	38	2476MHz
9	2418MHz	19	2438MHz	29	2458MHz	39	2478MHz
10	2420MHz	20	2440MHz	30	2460MHz	40	2480MHz

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

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



Report No.: SZEM141100614103

Page: 7 of 60

#### 5.3 Test Environment

Operating Environment:		
Temperature:	22.0 °C	
Humidity:	48 % RH	
Atmospheric Pressure:	1005mbar	

# 5.4 Description of Support Units

The EUT has been tested independently

#### 5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.



Report No.: SZEM141100614103

Page: 8 of 60

# 5.6 Test Facility

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

#### • CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab 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.

#### VCCI

The 10m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

#### • FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen 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 No.: 556682.

#### Industry Canada (IC)

Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.

#### 5.7 Deviation from Standards

None.

#### 5.8 Abnormalities from Standard Conditions

None.

# 5.9 Other Information Requested by the Customer

None.



Report No.: SZEM141100614103

Page: 9 of 60

# 6 Equipment List

RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2015-06-10
2	EMI Test Receiver	Agilent Technologies	N9038A	SEL0312	2015-09-16
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2015-10-24
5	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2015-10-24
6	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2015-10-24
7	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2015-05-16
8	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2015-10-24
9	Coaxial cable	SGS	N/A	SEL0027	2015-05-29
10	Coaxial cable	SGS	N/A	SEL0189	2015-05-29
11	Coaxial cable	SGS	N/A	SEL0121	2015-05-29
12	Coaxial cable	SGS	N/A	SEL0178	2015-05-29
13	Band filter	Amindeon	82346	SEL0094	2015-05-16
14	Barometer	Chang Chun	DYM3	SEL0088	2015-05-16
15	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24
16	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24
17	Signal Generator (10M-27GHz)	Rohde & Schwarz	SMR27	SEL0067	2015-05-16
18	Signal Generator	Rohde & Schwarz	SMY01	SEL0155	2015-10-24
19	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2015-06-04



Report No.: SZEM141100614103

Page: 10 of 60

	RF connected test					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)	
1	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-24	
2	Humidity/ Temperature Indicator	HYGRO	ZJ1-2B	SEL0033	2015-10-24	
3	Spectrum Analyzer	Rohde & Schwarz	FSP	SEL0154	2015-10-24	
4	Coaxial cable	SGS	N/A	SEL0178	2015-05-29	
5	Coaxial cable	SGS	N/A	SEL0179	2015-05-29	
6	Barometer	ChangChun	DYM3	SEL0088	2015-05-16	
7	Signal Generator	Rohde & Schwarz	SML03	SEL0068	2015-05-16	
8	Band filter	amideon	82346	SEL0094	2015-05-16	
9	POWER METER	R&S	NRVS	SEL0144	2015-10-24	
10	Attenuator	Beijin feihang taida	TST-2-6dB	SEL0205	2015-05-16	
11	Power Divider(splitter)	Agilent Technologies	11636B	SEL0130	2015-10-24	

Note: The calibration interval is one year, all the instruments are valid.



Report No.: SZEM141100614103

Page: 11 of 60

## 7 Test results and Measurement Data

# 7.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(c)

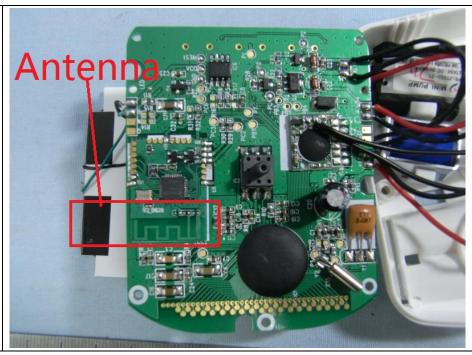
15.203 requirement:

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:**



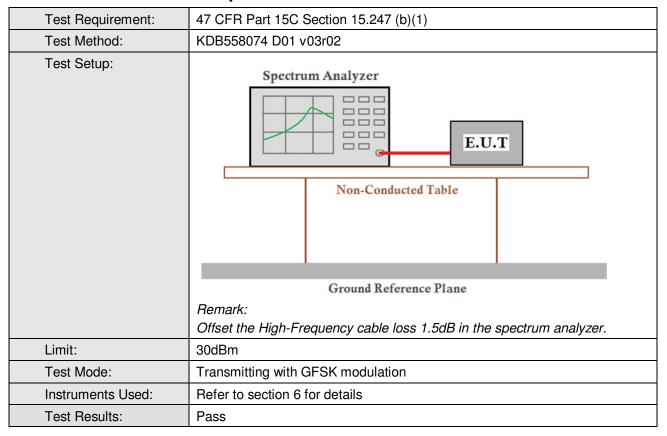
The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.25 dBi.



Report No.: SZEM141100614103

Page: 12 of 60

# 7.2 Conducted Peak Output Power



#### Measurement Data

Measurement Data					
GFSK mode					
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result		
Lowest	-0.08	30.00	Pass		
Middle	-0.34	30.00	Pass		
Highest	-0.53	30.00	Pass		



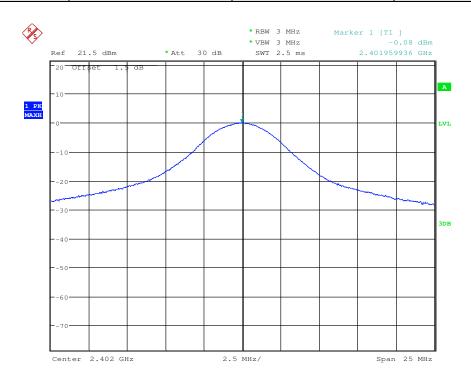


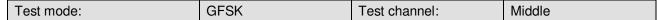
Report No.: SZEM141100614103

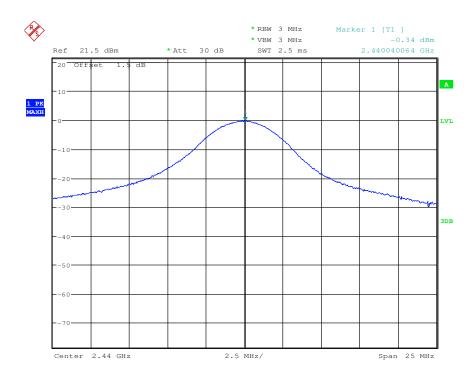
Page: 13 of 60

#### Test plot as follows:

Test mode: GFSK Test channel: Lowest





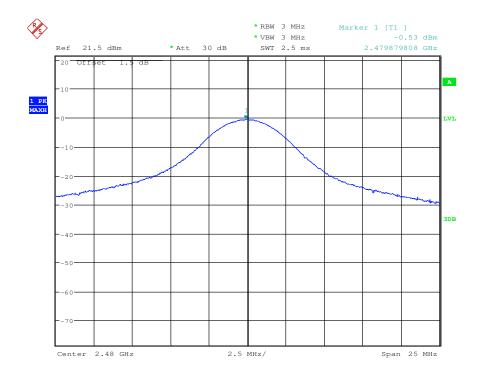




Report No.: SZEM141100614103

Page: 14 of 60

Test mode: GFSK Test channel: Highest



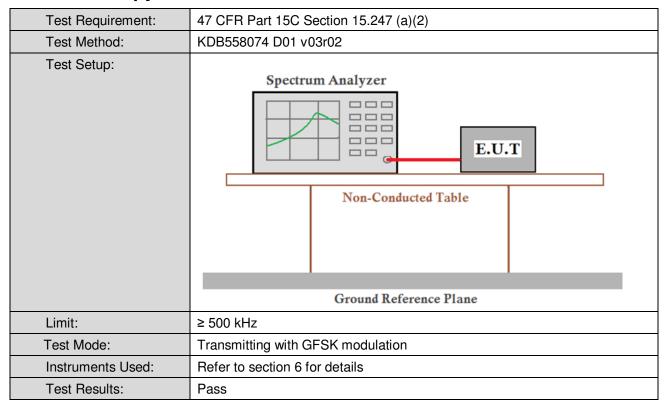
<sup>&</sup>quot;This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."



Report No.: SZEM141100614103

Page: 15 of 60

## 7.3 6dB Occupy Bandwidth



#### **Measurement Data**

Test channel	6dB Occupy Bandwidth (MHz)	Limit (kHz)	Result
Lowest	0.658653846154	≥500	Pass
Middle	0.668269230769	≥500	Pass
Highest	0.677884615385	≥500	Pass

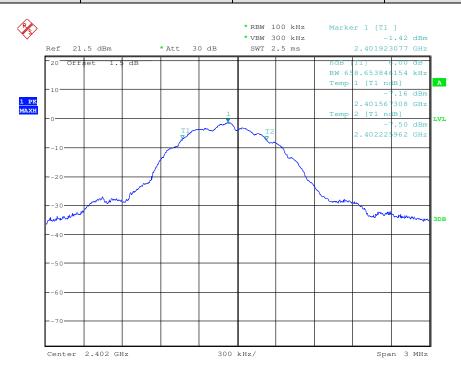


Report No.: SZEM141100614103

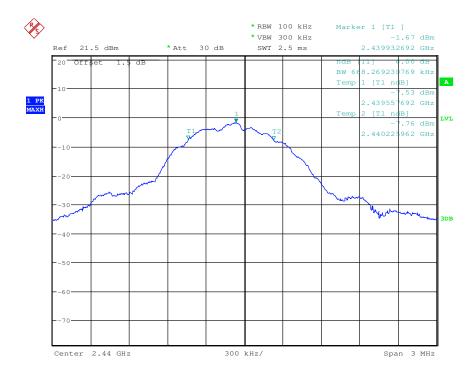
Page: 16 of 60

#### Test plot as follows:

Test mode: GFSK Test channel: Lowest



Test mode: GFSK Test channel: Middle

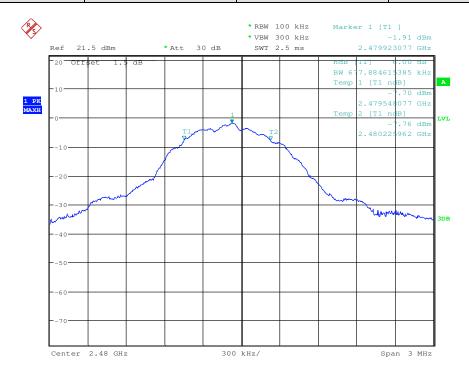




Report No.: SZEM141100614103

Page: 17 of 60

Test mode: GFSK Test channel: Highest



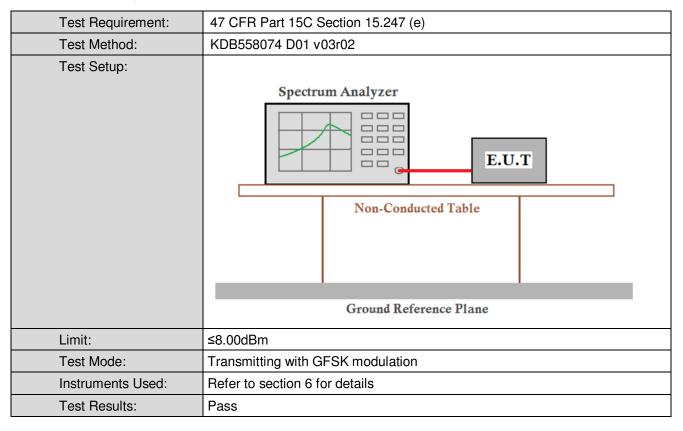
<sup>&</sup>quot;This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."



Report No.: SZEM141100614103

Page: 18 of 60

# 7.4 Power Spectral Density



#### **Measurement Data**

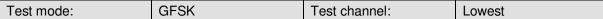
GFSK mode									
Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result						
Lowest	-1.44	≤8.00	Pass						
Middle	-1.72	≤8.00	Pass						
Highest	-1.94	≤8.00	Pass						

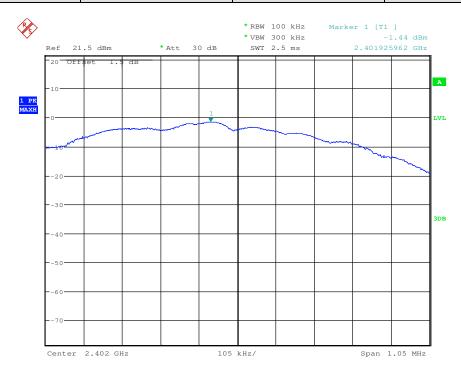


Report No.: SZEM141100614103

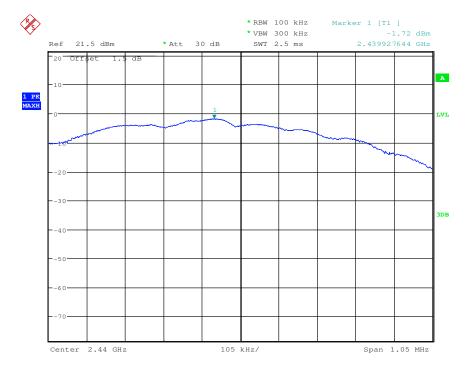
Page: 19 of 60

#### Test plot as follows:







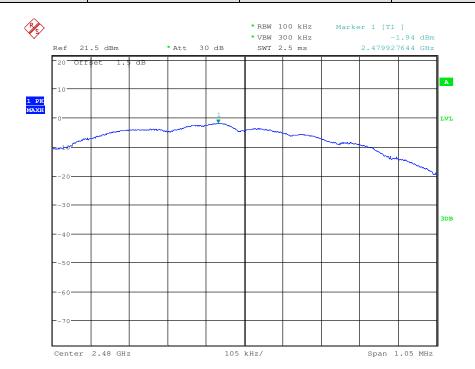




Report No.: SZEM141100614103

Page: 20 of 60

Test mode: GFSK Test channel: Highest



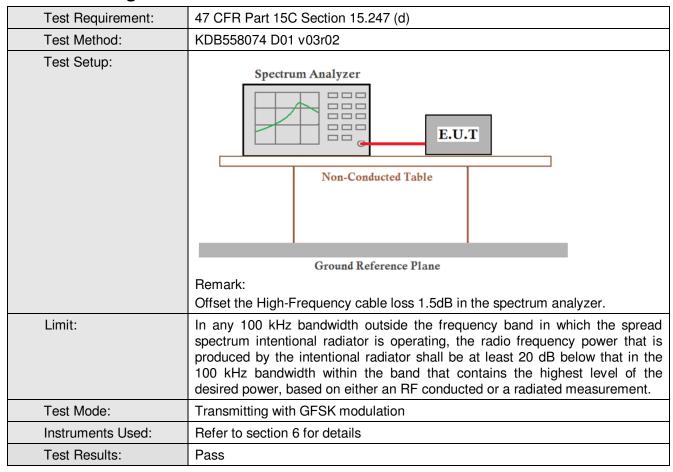
<sup>&</sup>quot;This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."



Report No.: SZEM141100614103

Page: 21 of 60

## 7.5 Band-edge for RF Conducted Emissions



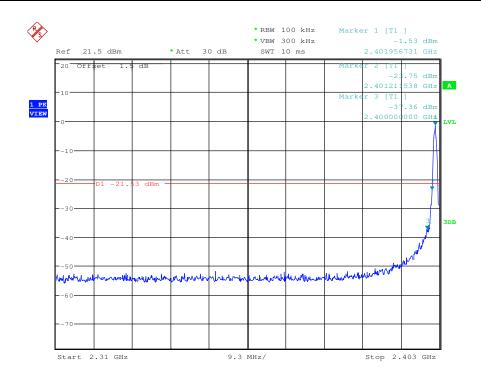


Report No.: SZEM141100614103

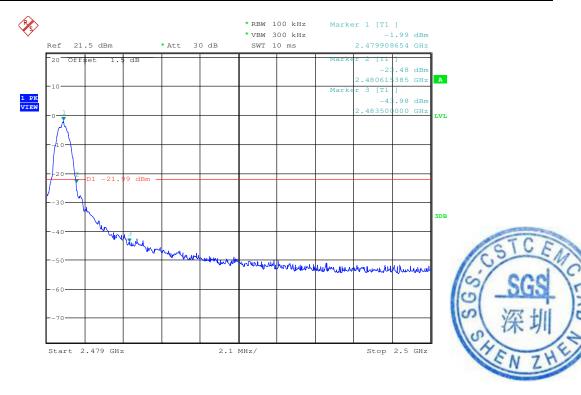
Page: 22 of 60

#### Test plot as follows:

Test mode: GFSK Test channel: Lowest









Report No.: SZEM141100614103

Page: 23 of 60

# 7.6 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)					
Test Method:	KDB558074 D01 v03r02					
Test Setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane  Remark:					
	Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.					
Test Mode:	Transmitting with GFSK modulation					
Instruments Used:	Refer to section 6 for details					
Test Results:	Pass					

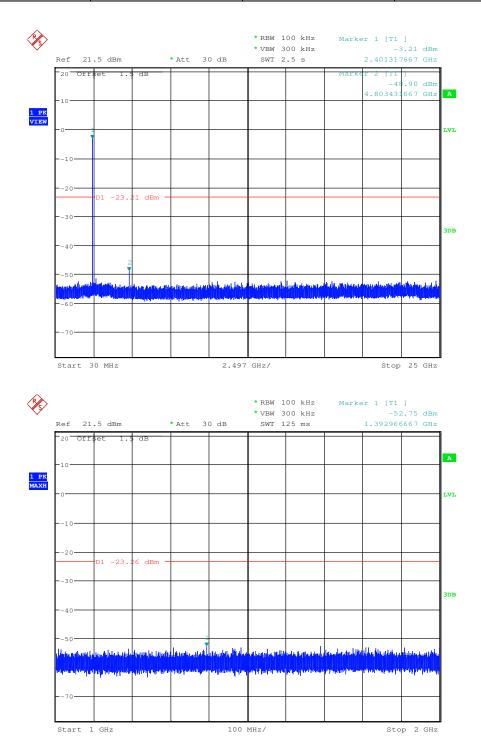


Report No.: SZEM141100614103

Page: 24 of 60

#### Test plot as follows:

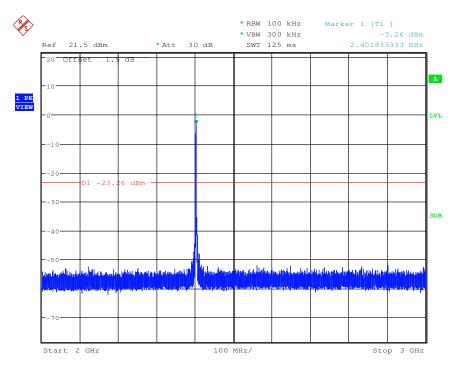
Test mode: GFSK Test channel: Lowest

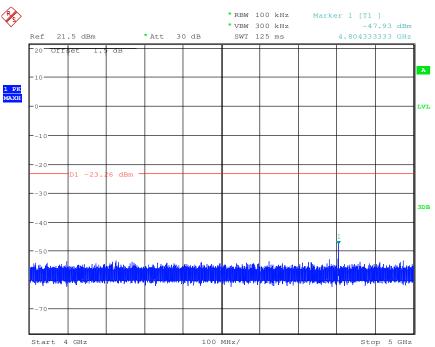




Report No.: SZEM141100614103

Page: 25 of 60



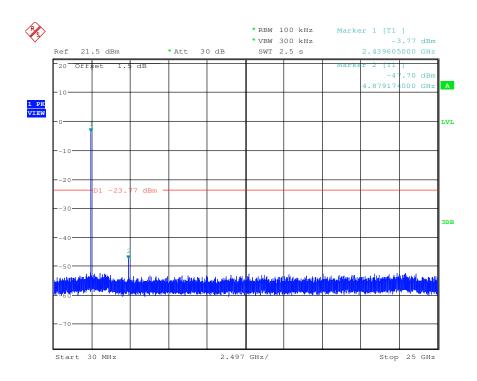


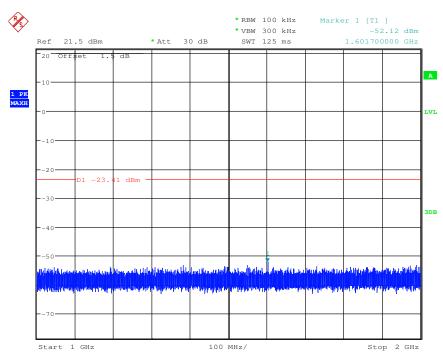


Report No.: SZEM141100614103

Page: 26 of 60

Test mode: GFSK Test channel: Middle

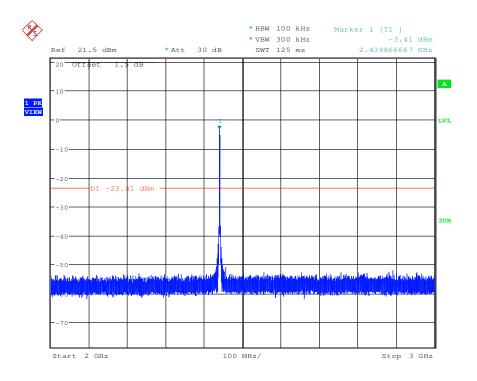


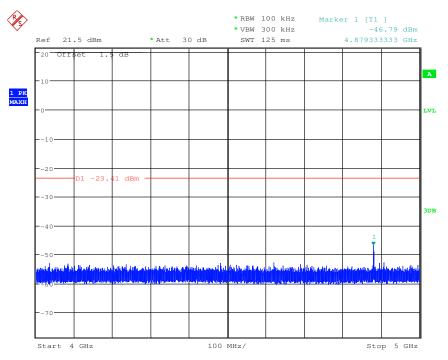




Report No.: SZEM141100614103

Page: 27 of 60



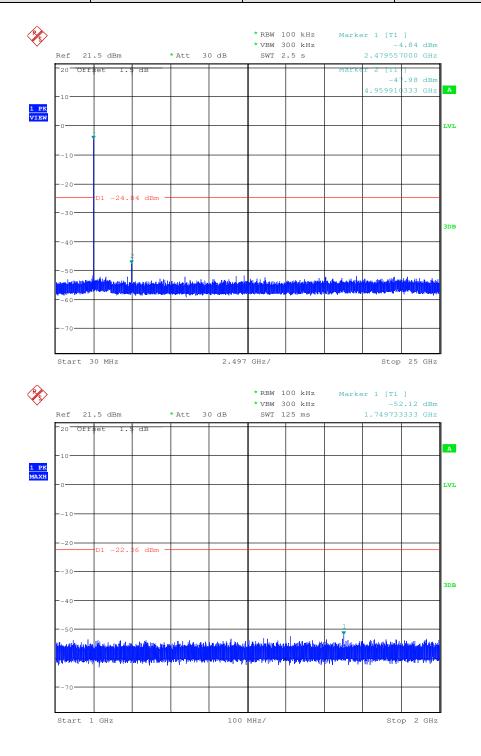




Report No.: SZEM141100614103

Page: 28 of 60

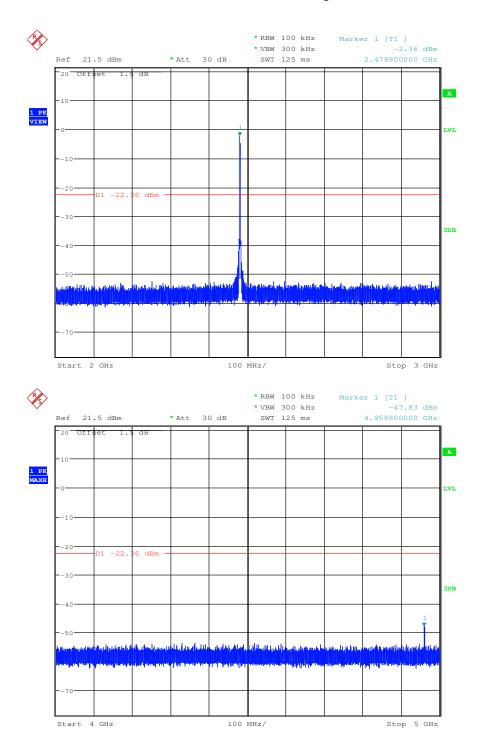
Test mode: GFSK Test channel: Highest





Report No.: SZEM141100614103

Page: 29 of 60



#### Remark:

Pretest 9kHz to 25GHz, find the highest point when testing, so only the worst data were shown in the test report.

<sup>&</sup>quot;This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."



Report No.: SZEM141100614103

Page: 30 of 60

# 7.7 Radiated Spurious Emission

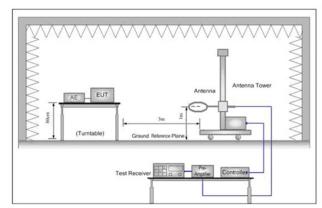
Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205								
Test Method:	ANSI C63.10 2009								
Test Site:	Measurement Distance	: 3m	ı (Semi-Anech	noic Cham	ber	·)			
Receiver Setup:	Frequency		Detector	RBW		VBW	Remark		
	0.009MHz-0.090MH	z	Peak	10kHz	<u> </u>	30kHz	Peak		
	0.009MHz-0.090MH	z	Average	10kHz	<u> </u>	30kHz	Average		
	0.090MHz-0.110MH	Z	Quasi-peak	10kHz	<u> </u>	30kHz	Quasi-peak		
	0.110MHz-0.490MH	Z	Peak	10kHz	<u> </u>	30kHz	Peak		
	0.110MHz-0.490MH	z	Average	10kHz	<u> </u>	30kHz	Average		
	0.490MHz -30MHz		Quasi-peak	10kHz	<u> </u>	30kHz	Quasi-peak		
	30MHz-1GHz	30MHz-1GHz		100 kH	lz	300kHz	Quasi-peak		
	Above 1GHz		Peak	1MHz	<u>,</u>	3MHz	Peak		
	Above rariz		Peak	1MHz	<u>.</u>	10Hz	Average		
Limit:	Frequency		eld strength crovolt/meter)	Limit (dBuV/m)		Remark	Measureme distance (r		
	0.009MHz-0.490MHz	2	400/F(kHz)	-		-	300		
	0.490MHz-1.705MHz	24	1000/F(kHz)	-		-	30		
	1.705MHz-30MHz		30	-		-	30		
	30MHz-88MHz		100	40.0	Ø	uasi-peak	3		
	88MHz-216MHz		150	43.5	Q	uasi-peak	3		
	216MHz-960MHz		200	46.0	Q	uasi-peak	3		
	960MHz-1GHz		500	54.0	Q	uasi-peak	3		
	Above 1GHz		500	54.0	,	Average	3		
	Note: 15.35(b), Unless otherwise specified, the limit on peak rad frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the tot peak emission level radiated by the device.								

<sup>&</sup>quot;This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> and conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="https://www.sgs.com/terms">www.sgs.com/terms</a> e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."



Report No.: SZEM141100614103

Page: 31 of 60



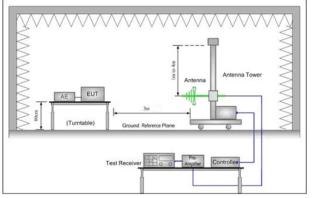


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

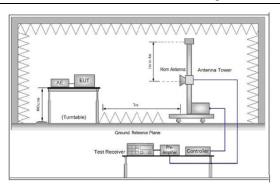


Figure 3. Above 1 GHz

#### Test Procedure:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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, quasipeak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel (2402MHz),the middle channel (2440MHz),the Highest channel (2480MHz)



Report No.: SZEM141100614103

Page: 32 of 60

	<ul> <li>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.</li> <li>i. Repeat above procedures until all frequencies measured was complete.</li> </ul>
Test Mode:	Transmitting with GFSK modulation
Instruments Used:	Refer to section 6 for details
Test Results:	Pass

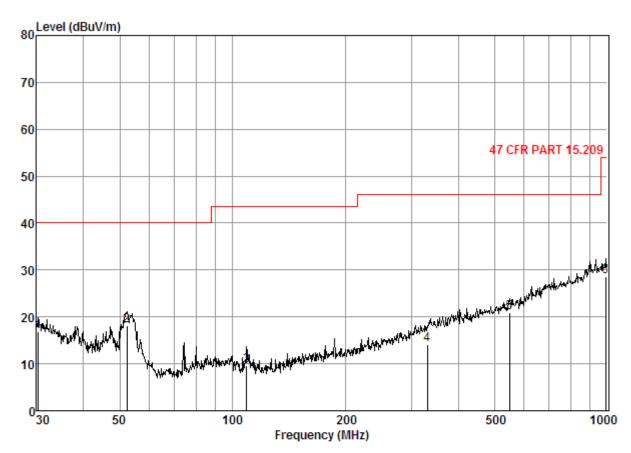




Report No.: SZEM141100614103

Page: 33 of 60

Radiated Emission below 1GHz						
30MHz~1GHz (QP)						
Test mode:	Transmitting mode	Vertical				



Condition: 47 CFR PART 15.209 3m 3142C VERTICAL

Job No. : 6141CR Test Mode: TX mode

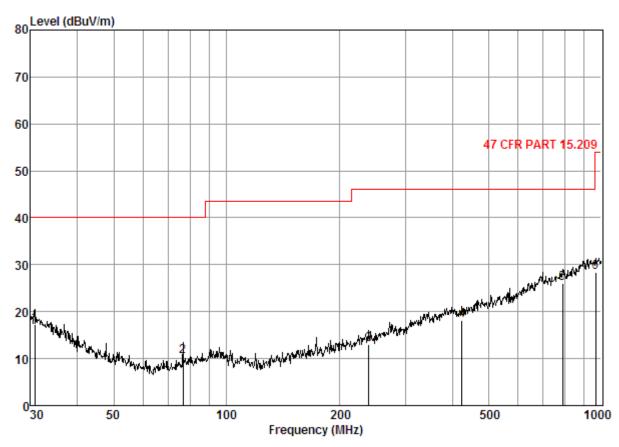
	Freq	CableAntenna Loss Factor		-	Read Level		Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	$\overline{\text{dBuV/m}}$	$\overline{\text{dBuV/m}}$	dB
1 2 3 4 5	30. 32 52. 21 109. 03 331. 35 549. 02 989. 54	0.64 0.96 1.46 2.93 3.99 5.72	18. 52 8. 37 8. 74 14. 98 18. 98 23. 93	25. 58 25. 74 25. 72 24. 71 26. 62 25. 71	23. 20 34. 47 25. 17 20. 97 24. 49 24. 56	16. 78 18. 06 9. 65 14. 17 20. 84 28. 50	40.00 43.50 46.00 46.00	-23. 22 -21. 94 -33. 85 -31. 83 -25. 16 -25. 50



Report No.: SZEM141100614103

Page: 34 of 60

Test mode: Transmitting mode Horizontal



Condition: 47 CFR PART 15.209 3m 3142C HORIZONTAL

Job No. : 6141CR Test Mode: TX mode

Freq	CableAntenna F Loss Factor F		-			Limit Line	Over Limit
MHz	dB	dB/m	dB	dBuV	$\overline{\text{dBuV/m}}$	$\overline{\text{dBuV/m}}$	dB
1 30.75 2 76.51 3 239.99 4 425.03 5 787.85 6 965.54	0.65 1.23 2.44 3.36 4.92 5.47	18. 28 7. 49 11. 88 16. 30 21. 95 23. 51	25. 63 25. 38 25. 12 25. 54 25. 79 25. 83	24. 08 27. 05 23. 88 23. 95 24. 91 25. 15	17. 38 10. 39 13. 08 18. 07 25. 99 28. 30	40.00 46.00 46.00 46.00	-22.62 -29.61 -32.92 -27.93 -20.01 -25.70



Report No.: SZEM141100614103

Page: 35 of 60

Transmitter Emission above 1GHz									
Test mode:	(	GFSK	Test	channel:	Lowest	Re	emark:	Peak	
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Lir (dBuV/n	I I imit	Polarization	
3814.113	6.79	33.18	38.88	47.33	48.42	74	-25.58	Vertical	
4804.000	6.42	34.70	39.24	49.06	50.94	74	-23.06	Vertical	
7206.000	8.92	35.63	39.07	47.49	52.97	74	-21.03	Vertical	
8315.519	9.55	35.83	38.77	45.50	52.11	74	-21.89	Vertical	
9608.000	9.99	37.33	37.93	42.81	52.20	74	-21.80	Vertical	
10957.830	10.26	38.06	38.20	42.78	52.90	74	-21.10	Vertical	
3719.627	6.84	33.09	38.84	46.79	47.88	74	-26.12	Horizontal	
4804.000	6.42	34.70	39.24	46.26	48.14	74	-25.86	Horizontal	
6001.583	8.08	36.30	39.18	45.97	51.17	74	-22.83	Horizontal	
7206.000	8.92	35.63	39.07	45.99	51.47	74	-22.53	Horizontal	
9608.000	9.99	37.33	37.93	43.59	52.98	74	-21.02	Horizontal	
11625.290	10.45	38.33	38.53	42.64	52.89	74	-21.11	Horizontal	

Test mode:		GFSK		t channel:	Middle	Rem	ark:	Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3588.694	6.92	32.99	38.78	47.64	48.77	74	-25.23	Vertical
4880.000	6.58	34.78	39.26	46.12	48.22	74	-25.78	Vertical
6001.583	8.08	36.30	39.18	46.02	51.22	74	-22.78	Vertical
7320.000	9.07	35.51	39.06	46.89	52.41	74	-21.59	Vertical
9760.000	9.90	37.80	37.84	41.93	51.79	74	-22.21	Vertical
11236.180	10.33	38.13	38.34	42.53	52.65	74	-21.35	Vertical
3827.805	6.78	33.20	38.88	47.67	48.77	74	-25.23	Horizontal
4880.000	6.58	34.78	39.26	50.42	52.52	74	-21.48	Horizontal
5895.006	7.92	36.10	39.19	49.05	53.88	74	-20.12	Horizontal
7320.000	9.07	35.51	39.06	48.47	53.99	74	-20.01	Horizontal
9760.000	9.90	37.80	37.84	42.42	52.28	74	-21.72	Horizontal
11236.180	10.33	38.13	38.34	42.34	52.46	74	-21.54	Horizontal



Report No.: SZEM141100614103

Page: 36 of 60

Test mode:		GFSK	Tes	t channel:	Highest	Rem	ark:	Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3653.574	6.88	33.04	38.81	47.61	48.72	74	-25.28	Vertical
4960.000	6.76	34.86	39.29	47.42	49.75	74	-24.25	Vertical
6088.229	8.06	36.20	39.17	46.30	51.39	74	-22.61	Vertical
7440.000	9.23	35.43	39.05	45.54	51.15	74	-22.85	Vertical
9920.000	9.81	38.27	37.75	40.71	51.04	74	-22.96	Vertical
11708.900	10.48	38.41	38.57	41.72	52.04	74	-21.96	Vertical
3588.694	6.92	32.99	38.78	47.60	48.73	74	-25.27	Horizontal
4960.000	6.76	34.86	39.29	49.54	51.87	74	-22.13	Horizontal
5937.408	7.98	36.18	39.19	48.71	53.68	74	-20.32	Horizontal
7440.000	9.23	35.43	39.05	46.58	52.19	74	-21.81	Horizontal
9920.000	9.81	38.27	37.75	41.70	52.03	74	-21.97	Horizontal
11625.290	10.45	38.33	38.53	43.12	53.37	74	-20.63	Horizontal

#### Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
  - Final Test Level = Receiver Reading + Antenna Factor + Cable Factor Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3) As shown in this section, for frequencies above 1GHz, the 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. So, only the peak measurements were shown in the report.

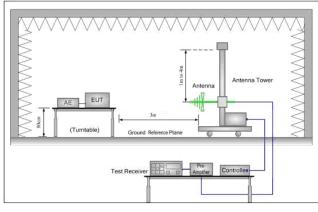


Report No.: SZEM141100614103

Page: 37 of 60

## 7.8 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205						
Test Method:	ANSI C63.10 2009						
Test Site:	Measurement Distance: 3m	(Semi-Anechoic Chambe	r)				
Limit:	Frequency	Limit (dBuV/m @3m)	Remark				
	30MHz-88MHz	40.0	Quasi-peak Value				
	88MHz-216MHz 43.5 Quasi-peak Va						
	216MHz-960MHz	46.0	Quasi-peak Value				
	960MHz-1GHz	54.0	Quasi-peak Value				
	Above 1GHz	54.0	Average Value				
	Above IGHZ	74.0	Peak Value				
Test Setup:							



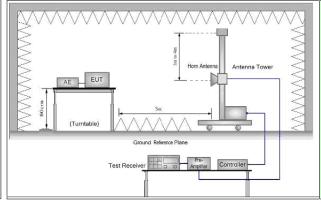


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz

#### Test Procedure:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot.



Report No.: SZEM141100614103

Page: 38 of 60

	Repeat for each power and modulation for lowest and highest channel g. Test the EUT in the lowest channel, the Highest channel h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with GFSK modulation
Instruments Used:	Refer to section 6 for details
Test Results:	Pass



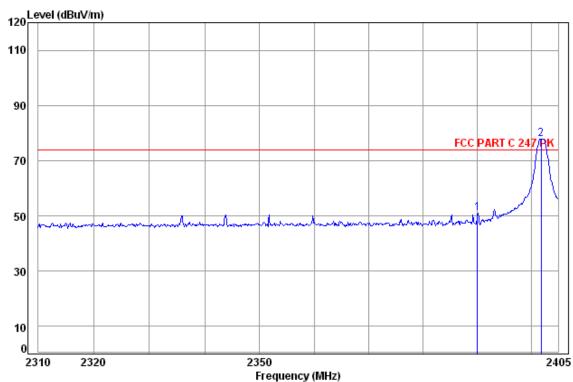
Report No.: SZEM141100614103

Page: 39 of 60

#### Test plot as follows:

Test mode:	GFSK	Test channel:	Lowest	Remark:	Peak	Vertical





Site : chamber

Condition: FCC PART C 247 PK 3m Vertical

Job No: : 6141CR

Mode: : 2402 Bandedge

	Freq			Preamp Factor					Remark
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
	2390.00 2401.80								

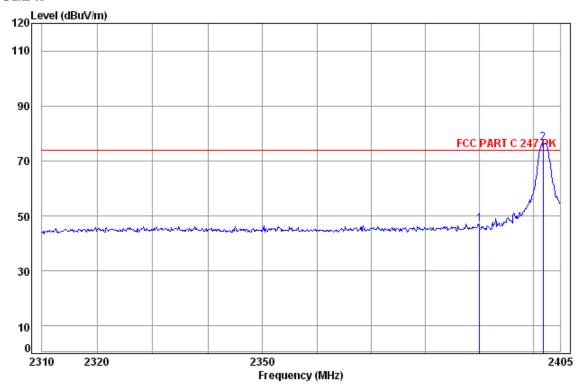


Report No.: SZEM141100614103

Page: 40 of 60

Test mode: GFSK Test channel: Lowest Remark: Peak Horizontal





Site : chamber

Condition: FCC PART C 247 PK 3m Horizontal

Job No: : 6141CR

Mode: : 2402 Bandedge

Cable Ant Preamp Read Limit 0ver Loss Factor Factor Limit Remark Freq Level Level Line MHz dΒ dB/m dΒ dBuV dBuV/m dBuV/m dΒ 2390.00 4.90 32.35 38.46 48.20 46.99 74.00 -27.01 4.92 32.41 38.46 77.60 76.47 2 pp 2401.80 74.00

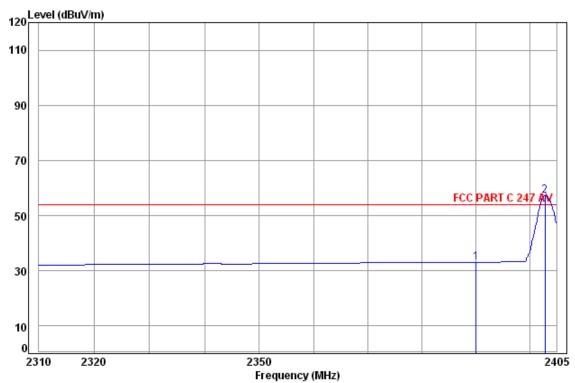


Report No.: SZEM141100614103

Page: 41 of 60

**GFSK** Test mode: Test channel: Lowest Remark: Average Vertical





Site : chamber

Condition: FCC PART C 247 AV 3m Vertical

Job No: : 6141CR

Mode: : 2402 Bandedge

		Cable	Ant	Preamp	Read		Limit	0∨er	
	Freq	Loss	Factor	Factor	Le∨el	Le∨el	Line	Limit	Remark
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
					CID CIT		ci z ci i / iii		
1	2200 00	4 00	22.25	20 46	2/1 22	22 12	E / DO	20.00	
1	2390.00	4.90	32.33	30.40	34.33	55.12	54.00	-20.00	
2 pp	2402.87	4.92	32.41	38.46	58.37	57.24	54.00	3.24	

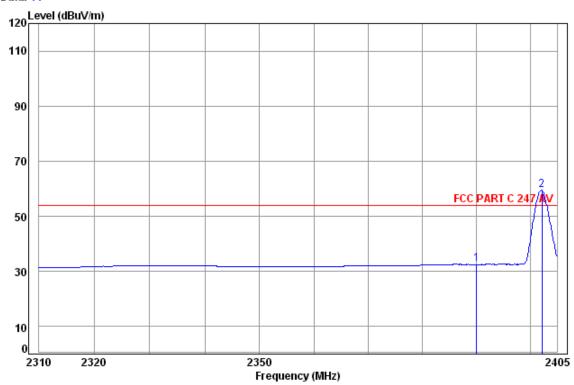


Report No.: SZEM141100614103

Page: 42 of 60

Test mode: GFSK Test channel: Lowest Remark: Average Horizontal





Site : chamber

Condition: FCC PART C 247 AV 3m Horizontal

Job No: : 6141CR

Mode: : 2402 Bandedge

Cable Ant Preamp Read 0ver Limit Loss Factor Factor Level Level Line Limit Remark MHz dΒ dB/m dΒ dBuV dBuV/m dBuV/m dΒ 2390.00 4.90 32.35 38.46 33.76 32.55 54.00 -21.45 2 pp 2402.19 4.92 32.41 38.46 60.56 59.43 54.00



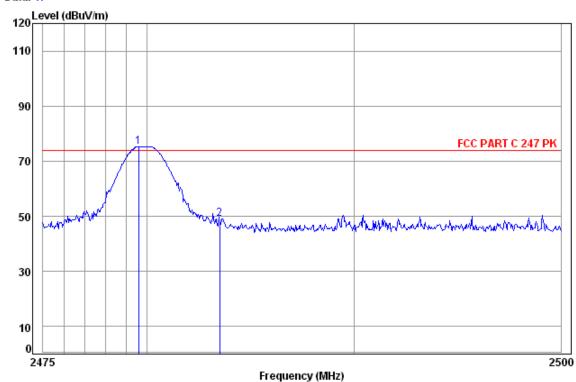


Report No.: SZEM141100614103

43 of 60 Page:

Peak **GFSK** Test mode: Test channel: Highest Remark: Vertical





Site : chamber

Condition: FCC PART C 247 PK 3m Vertical

Job No: : 6141CR

Mode: : 2480 Bandedge

ı	Cable Freq Loss		Preamp Factor					Remark
	MHz dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
	9.61 5.02 3.50 5.03							

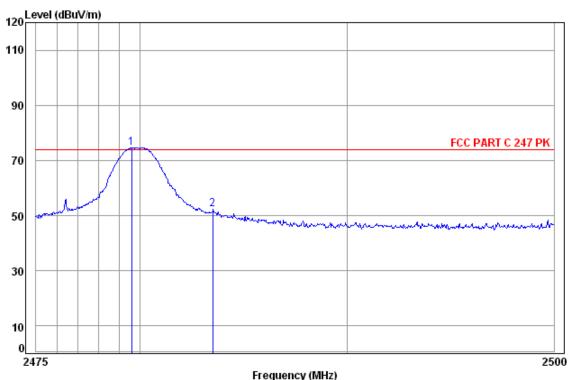


Report No.: SZEM141100614103

Page: 44 of 60

Test mode: GFSK Test channel: Highest Remark: Peak Horizontal





Site : chamber

Condition: FCC PART C 247 PK 3m Horizontal

Job No: : 6141CR

Mode: : 2480 Bandedge

Ant Preamp Cable Limit 0ver Read Freq Loss Factor Factor Le∨el Level Line Limit Remark dBuV dBuV/m dBuV/m MHz dB dB/m dB dB 2479.61 5.02 32.44 38.47 75.49 74.48 74.00 2483.50 5.03 32.44 38.47 53.29 52.29 74.00 -21.71

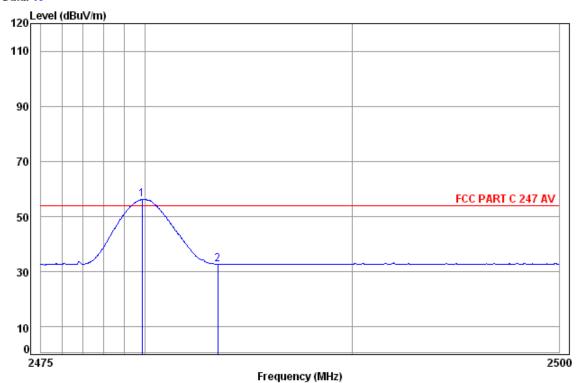


Report No.: SZEM141100614103

Page: 45 of 60

Т	est mode:	GFSK	Test channel:	Highest	Remark:	Average	Vertical
	001 111000.	G. C. C		9	1 101114111	, o. ago	· o. t.oa.





Site : chamber

Condition: FCC PART C 247 AV 3m Vertical

Job No: : 6141CR

Mode: : 2480 Bandedge

	Freq			Preamp Factor					Remark
_	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
	2479.86 2483.50								

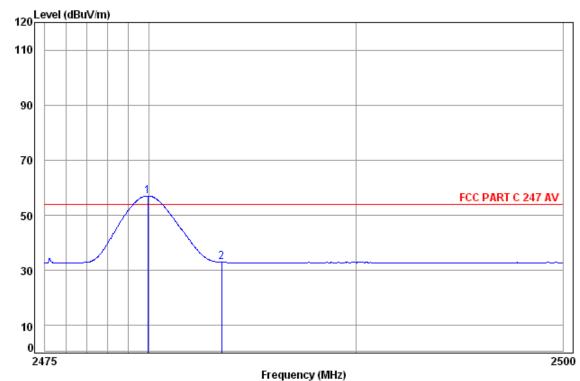


Report No.: SZEM141100614103

Page: 46 of 60

Test mode:	GFSK	Test channel:	Highest	Remark:	Average	Horizontal
Tool Illoud.	GI OI	i cot oriarii ci.	riigiicat	i tomant.	/ w crage	i ionzonia





Site : chamber

Condition: FCC PART C 247 AV 3m Horizontal

Job No: : 6141CR

Mode: : 2480 Bandedge

	Freq			Preamp Factor					Remark
-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 рр	2479.96	5.02	32.44	38.47	58.04	57.03	54.00	3.03	
2	2483.50	5.03	32.44	38.47	33.89	32.89	54.00	-21.11	

#### Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor



Report No.: SZEM141100614103

Page: 47 of 60

# 8 Photographs - EUT Test Setup

Test Item No.: FT-B11W

#### 8.1 Radiated Emission







Report No.: SZEM141100614103

Page: 48 of 60

## 9 Photographs - EUT Constructional Details

Test Item No.: FT-B11W

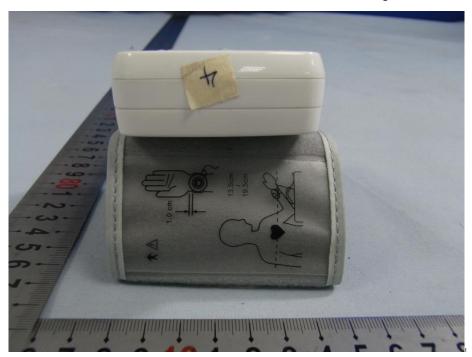


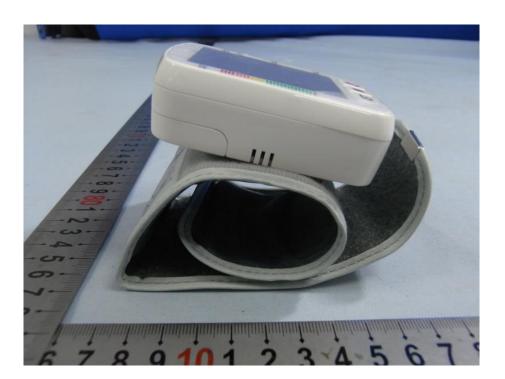




Report No.: SZEM141100614103

Page: 49 of 60







Report No.: SZEM141100614103

Page: 50 of 60







Report No.: SZEM141100614103

Page: 51 of 60







Report No.: SZEM141100614103

Page: 52 of 60









Report No.: SZEM141100614103

Page: 53 of 60







Report No.: SZEM141100614103

Page: 54 of 60



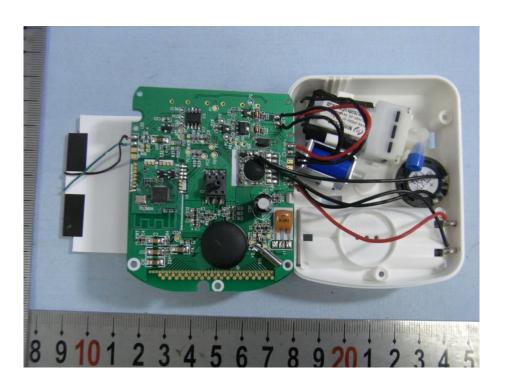




Report No.: SZEM141100614103

Page: 55 of 60







Report No.: SZEM141100614103

Page: 56 of 60

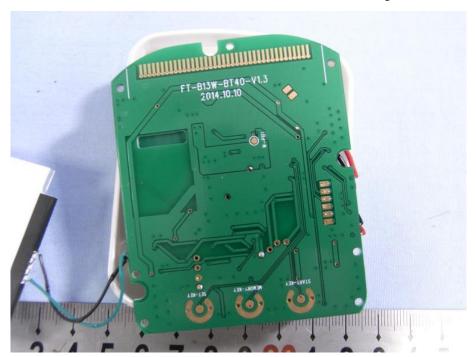






Report No.: SZEM141100614103

Page: 57 of 60



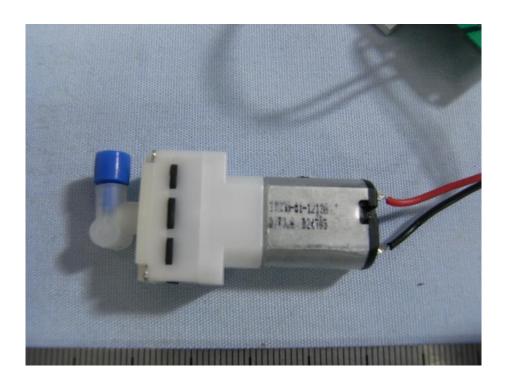




Report No.: SZEM141100614103

Page: 58 of 60

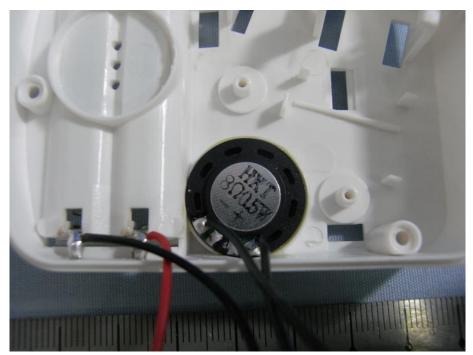






Report No.: SZEM141100614103

Page: 59 of 60







Report No.: SZEM141100614103

Page: 60 of 60

