FCC PART 15 Subpart C TEST REPORT

Applicant	:	Shanghai Tigercel Communication Technologies Corp.
Address	:	Room 810, building 1, No. 100 Qinzhou Road, Xuhui District, Shanghai, China P.C: 200235
Manufacturer	:	Shanghai Tigercel Communication Technologies Corp.
Address	:	Room 810, building 1, No. 100 Qinzhou Road, Xuhui District, Shanghai, China P.C: 200235
Factory	:	Shanghai Tigercel Communication Technologies Corp.
Address	:	Room 810, building 1, No. 100 Qinzhou Road, Xuhui District, Shanghai, China P.C: 200235
E.U.T.	:	GSM Wireless Data Terminal
Brand Name	:	N/A
Model No.	:	IF862
Measurement Standard	:	FCC PART 15.247
FCC ID	:	2AIGX-2016IF862
Date of Receiver :	:	April 29, 2016
Date of Test :	:	April 29, 2016 to May 11, 2016
Date of Report :	:	May 12, 2016

This Test Report is Issued Under the Authority of :

Prepared by

Rose Hu / Engineer

Approved & Authorized Signer

Sunny Q.A. Director

Note: This test report is for the customer shown above and their specific product only. It may not be duplicated or used in part without prior written consent from Dongguan Nore Testing Center Co., Ltd. The test results referenced from this report are relevant only to the sample tested.

Table of Contents

Revision History of This Test Report

Report Number	Description	Issued Date
NTC1604341F	Initial Issue	2016-05-12

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

Product Name	:	GSM Wireless Data Terminal
Model name	:	IF682
Model Difference Description	:	N/A
Power Supply	:	Li-lithium Battery 3.8V 450mAh DC 5V come from external USB Port
Hardware Version	:	A9188_A13
Software Version	:	SW_A9188_S6385_L100_V165_TIGERCEL_CTA
Frequency Range	:	Cellular Band: 824.2-848.8MHz (TX) 869.2-893.8MHz(RX) PCS Band: 1850.2-1909.8MHz (TX) 1930.2-1989.8MHz(RX) Bluetooth: 2402-2480MHz
Modulation	:	GMSK for GSM/PCS GFSK for Bluetooth
GPRS Multi-slot class	:	8/10/12
Antenna Type	:	Integral
Antenna Gain	:	1.4dBi for GSM850 2.2dBi for PCS1900 -5.6dBi for Bluetooth
Number of Channels	:	299 for GSM850 124 for PCS1900 40 for Bluetooth
Note	:	This measurement and test report only pertains to the Bluetooth portion of the EUT. For measurement and test results to the GSM functions please refer to report number NTC1604338F.

BLE Channel List

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

Note: According to section 15.31(m), regards to the operating frequency range over 10MHz, the Lowest, Middle, and the Highest frequency of channel were selected to perform the test. The selected frequency see below:

Channel	Frequency MHz
1	2402
20	2440
40	2480

Test Item	Software	Description
Conducted RF Testing and Radiated testing	nRFgo Studio	Set the EUT to different modulation and channel

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2AIGX-2016IF862 filing to comply with Section 15.247 of the FCC Part 15(2016), Subpart C Rule.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters. All other measurements were made in accordance with the procedures in 47 CFR part 2.

1.4 Equipment Modifications

Not available for this EUT intended for grant.

1.5 Support Device

Adapter	:	Model: BSYC050200UW Input: AC100-240V 50/60Hz 0.5A Output: DC 5.0V 2000mA

1.6 Test Facility and Location

Listed by FCC, July 03, 2014
The Certificate Registration Number is 665078.
Listed by Industry Canada, June 18, 2014
The Certificate Registration Number is 9743A.

Dongguan NTC Co., Ltd.
(Full Name: Dongguan Nore Testing Center Co., Ltd.)

Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong, China
(Full Name: Building D, Gaosheng Science & Technology Park, Zhouxi Longxi Road, Nancheng District, Dongguan, Guangdong, China.

1.7 Summary of Test Results

FCC Rules	Description Of Test	Result
§15.207 (a)	AC Power Conducted Emission	Compliance
§15.247(b)(3)	Max. Conducted Output Power	Compliance
§15.247(a)(2)	6dB Bandwidth	Compliance
§15.247(e)	Power Spectral Density	Compliance
§15.247(d)	Band Edge and Conducted Spurious Emissions	Compliance
§15.247(d),§15.209, §15.205	Radiated Spurious Emissions and Restricted Bands	Compliance
§15.203	Antenna Requirement	Compliance

Note: The full charge battery used during the test.

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 Special Accessories

Not available for this EUT intended for grant.

2.3 Description of test modes

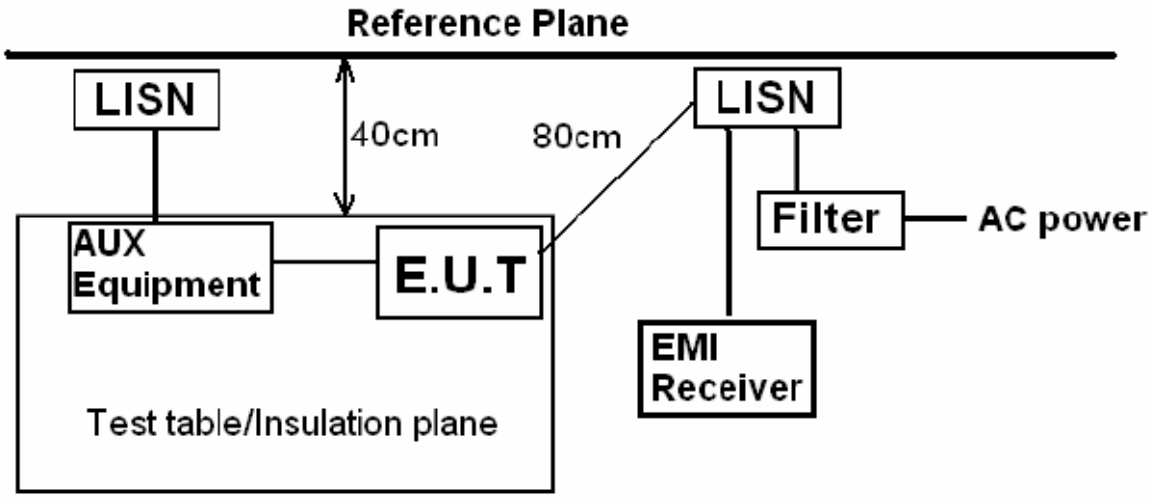
The EUT has been tested under continuous operating condition (The duty cycle >98%). Test program used to control the EUT staying in continuous transmitting mode. The Lowest, Middle and highest channel were chosen for testing, and modulation type GFSK was tested, but only the worst case data is shown in this report.

2.4 EUT Exercise

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

3. Conducted Emissions Test

3.1 Test SET-UP (Block Diagram of Configuration)



3.2 Test Condition

Test Requirement: FCC Part 15.207

Frequency Range: 150KHz ~ 30MHz

Detector: RBW 9KHz, VBW 30KHz

Operation Mode: Charging+BT Mode

3.3 Measurement Results

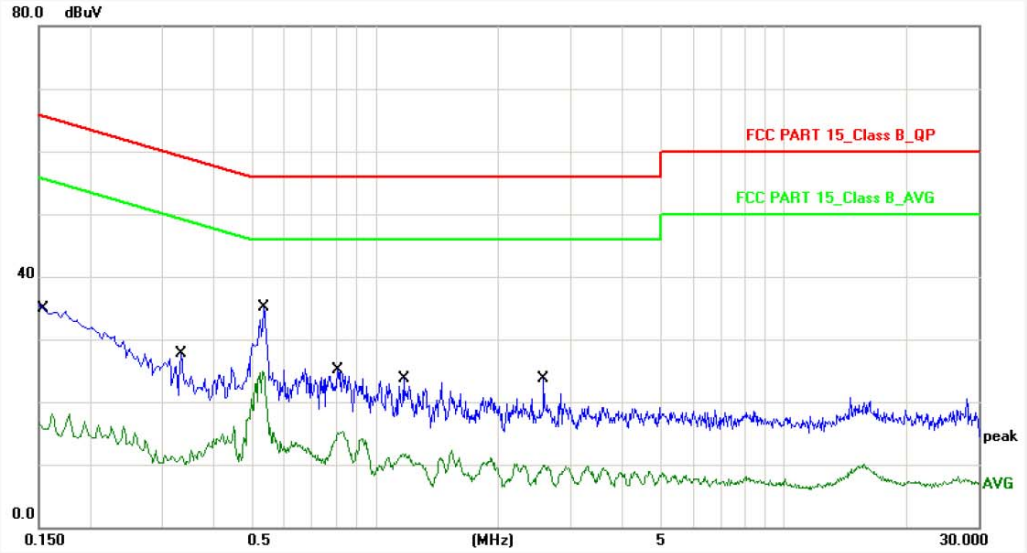
Please refer to following plots of the worst case: Lowest channel.

.

Dongguan NTC Co., Ltd.
Tel: +86-769-22022444 Fax: +86-769-22022799
Web: Http://www.ntc-c.com

Site: Conduction

Test Time: 2016-5-10 14:01:55



Report No.: IF862
Test Standard: FCC PART 15_Class B_QP
Test item: Conducted Emission
Phase: N
Applicant: Tigercel
Temp.( )/Hum.(%): 24(C) / 54 %
Product: GSM wireless data terminal
Power Rating: DC5V(Form Adapter)
Model No.: IF862
Test Engineer: Steven

Test Mode: Charging+BT Mode
Remark:

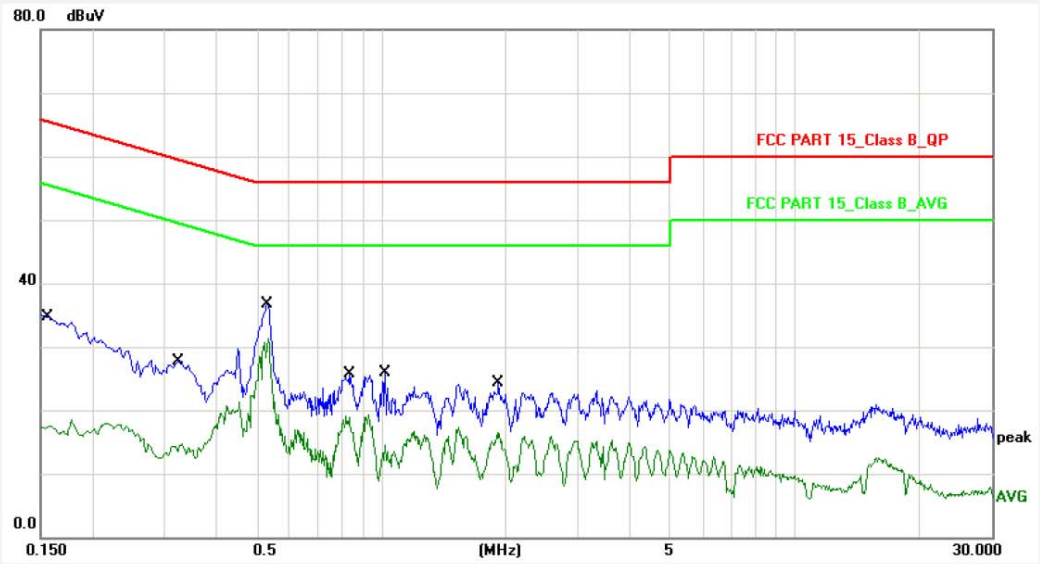
No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1556	10.80	23.79	34.59	65.69	-31.10	QP	P	
2	0.1556	10.80	7.35	18.15	55.69	-37.54	AVG	P	
3	0.3339	10.80	16.93	27.73	59.35	-31.62	QP	P	
4	0.3339	10.80	2.63	13.43	49.35	-35.92	AVG	P	
5	0.5340	10.80	24.26	35.06	56.00	-20.94	QP	P	
6	0.5340	10.80	14.17	24.97	46.00	-21.03	AVG	P	
7	0.8100	10.80	14.39	25.19	56.00	-30.81	QP	P	
8	0.8100	10.80	4.44	15.24	46.00	-30.76	AVG	P	
9	1.1740	10.80	12.85	23.65	56.00	-32.35	QP	P	
10	1.1740	10.80	0.93	11.73	46.00	-34.27	AVG	P	
11	2.5900	10.80	12.83	23.63	56.00	-32.37	QP	P	
12	2.5900	10.80	-0.84	9.96	46.00	-36.04	AVG	P	

Note: Level=Reading+Factor.
Margin=Limit-Level.

Dongguan NTC Co., Ltd.
Tel: +86-769-22022444 Fax: +86-769-22022799
Web: Http://www.ntc-c.com

Site: Conduction

Test Time: 2016-5-10 14:07:15



Report No.:	**IF862**		
Test Standard:	**FCC PART 15_Class B_QP**		
Test item:	**Conducted Emission**	**Phase:**	**L1**
Applicant:	**Tigercel**	**Temp.( )/Hum.(%):**	**24(C) / 54 %**
Product:	**GSM wireless data terminal**	**Power Rating:**	**DC5V(Form Adapter)**
Model No.:	**IF862**	**Test Engineer:**	**Steven**

Test Mode: **Charging+BT Mode**

Remark:

No.	Frequency (MHz)	Factor (dBuV)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1580	10.80	23.21	34.01	65.56	-31.55	QP	P	
2	0.1580	10.80	6.75	17.55	55.56	-38.01	AVG	P	
3	0.3220	10.80	16.98	27.78	59.65	-31.87	QP	P	
4	0.3220	10.80	3.92	14.72	49.65	-34.93	AVG	P	
5	0.5299	10.80	25.91	36.71	56.00	-19.29	QP	P	
6	0.5299	10.80	20.47	31.27	46.00	-14.73	AVG	P	
7	0.8420	10.80	14.84	25.64	56.00	-30.36	QP	P	
8	0.8420	10.80	8.28	19.08	46.00	-26.92	AVG	P	
9	1.0220	10.80	15.07	25.87	56.00	-30.13	QP	P	
10	1.0220	10.80	3.67	14.47	46.00	-31.53	AVG	P	
11	1.9260	10.80	13.58	24.38	56.00	-31.62	QP	P	
12	1.9260	10.80	5.65	16.45	46.00	-29.55	AVG	P	

Note: Level=Reading+Factor.
Margin=Limit-Level.

4. Max. Conducted Output Power

4.1 Measurement Procedure

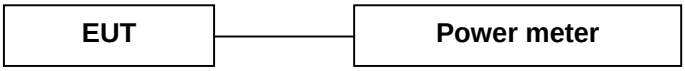
Maximum Conducted Output power at Antenna Terminals, FCC Rules 15.247(b)(3):

One of the following procedures may be used to determine the maximum peak conducted output power of a DTS EUT.

RBW≥DTS bandwidth
This procedure shall be used when the measurement instrument has available a resolution bandwidth than is greater than the DTS bandwidth.

1. Set the RBW≥DTS bandwidth;
2. Set VBW≥3*RBW;
3. Set span≥3*RBW;
4. Sweep time = auto couple
5. Detector = peak
6. Trace mode = max hold;
7. Allow trace to fully stabilize;
8. Use peak marker function to determine the peak amplitude level.

4.2 Test SET-UP (Block Diagram of Configuration)



4.3 Measurement Results

Please refer to following table.

Modulation:	GFSK		
Temperature :	21 ℃	Humidity :	49 %
Test By:	Sance	Test Date :	May 07, 2016
Test Result:	PASS		

Frequency MHz	Data Rate Mbps	Peak Output Power dBm	Limit dBm
Low Channel: 2402	1	1.10	30
Middle Channel: 2440	1	1.37	30
High Channel: 2480	1	1.82	30

5. 6dB Bandwidth

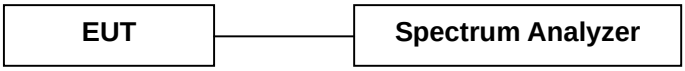
5.1 Measurement Procedure

DTS 6dB Channel Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below:

1. For 6dB bandwidth, Set the RBW = 100KHz.
   For 20dB bandwidth, Set the RBW=1-5% of the OBW, not to exceed 1MHz.
2. Set the VBW ≥ 3 x RBW
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.2 Test SET-UP (Block Diagram of Configuration)



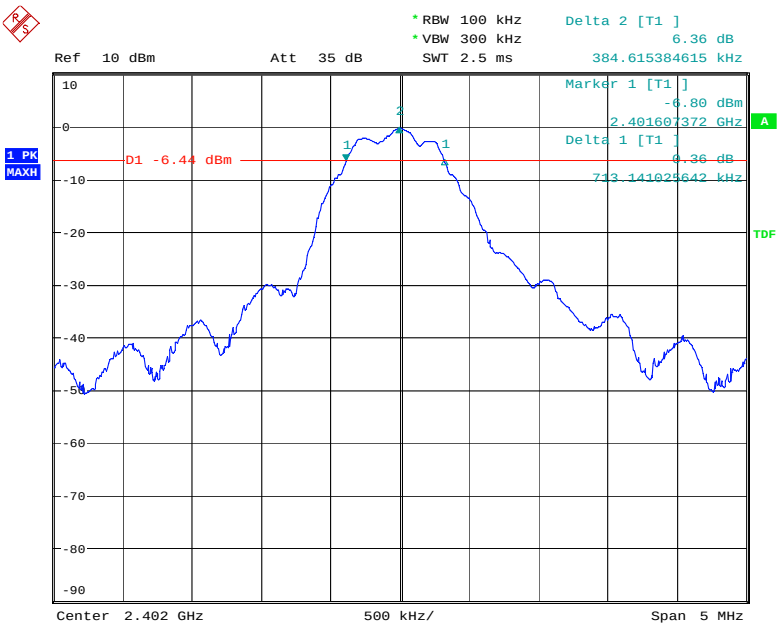
5.3 Measurement Results

Please refer to following table and plots.

Modulation:	GFSK		
Temperature :	21 ℃	Humidity :	49 %
Test By:	Sance	Test Date :	May 07, 2016
Test Result:	PASS		

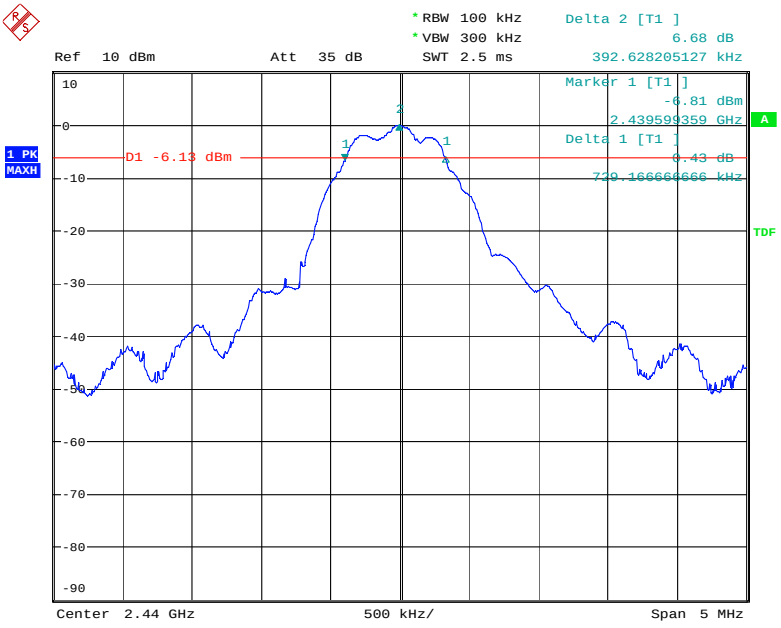
Frequency MHz	Data Rate Mbps	6dB Bandwidth KHz	Limit
Low Channel: 2402	1	713.1	>500KHz
Middle Channel: 2440	1	729.2	>500KHz
High Channel: 2480	1	713.1	>500KHz

6dB bandwidth Low Channel



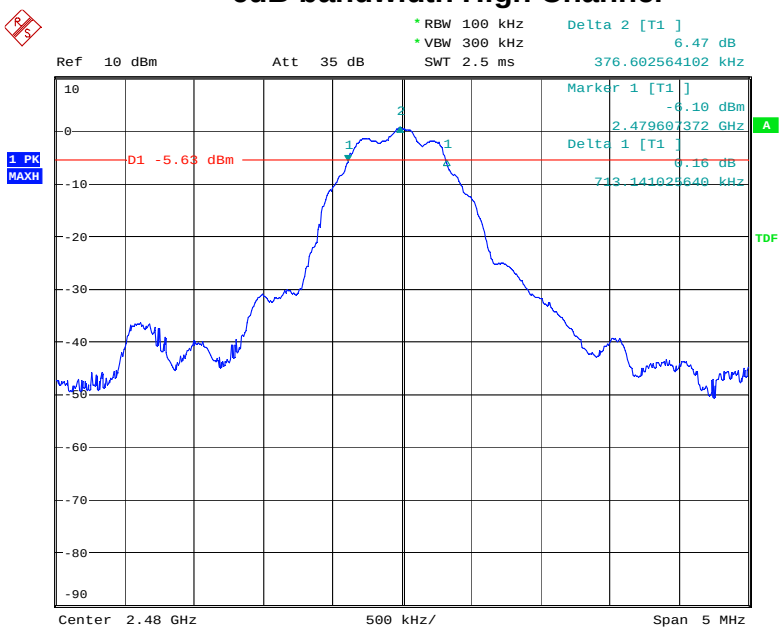
Date: 7.MAY.2016 08:59:51

6dB bandwidth Middle Channel



Date: 7.MAY.2016 08:57:40

6dB bandwidth High Channel



Date: 7.MAY.2016 09:01:41

6. Power Spectral Density

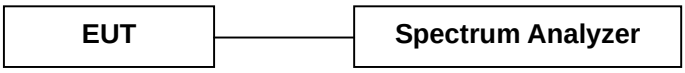
6.1 Measurement Procedure

DTS 6dB Channel Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below:

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz≤RBW≤100KHz
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.2 Test SET-UP (Block Diagram of Configuration)



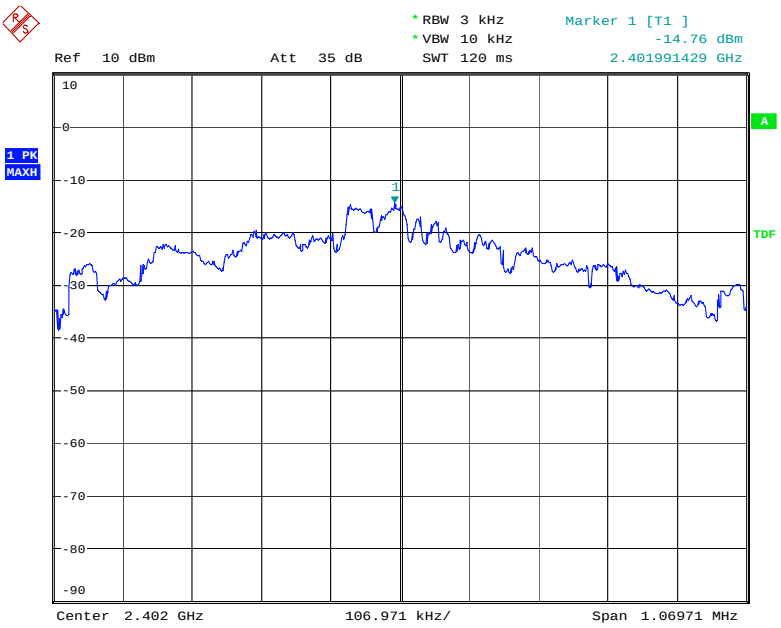
6.3 Measurement Results

Please refer to following table and plots.

Modulation:	GFSK		
Temperature :	21 ℃	Humidity :	49 %
Test By:	Sance	Test Date :	May 07, 2016
Test Result:	PASS		

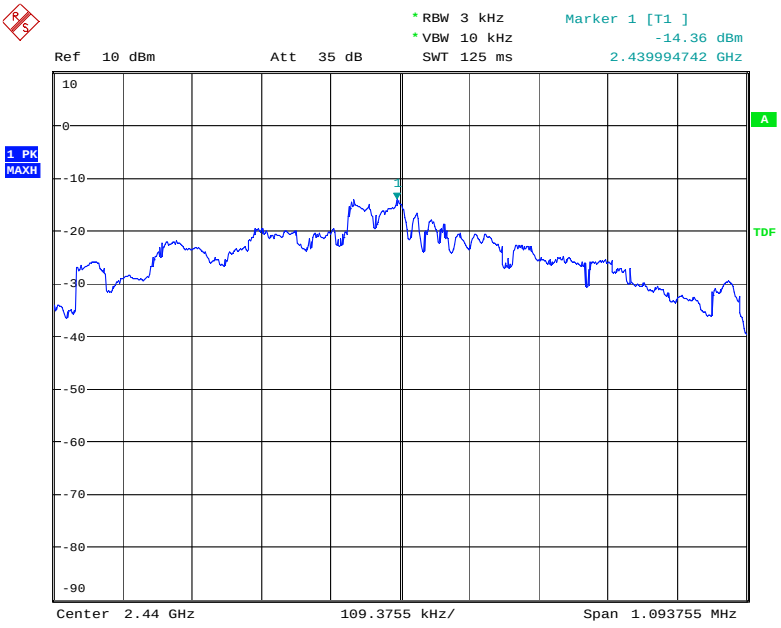
Frequency MHz	Data Rate Mbps	PSD dBm/3kHz	Limit dBm/3kHz
Low Channel: 2402	1	-14.76	8
Middle Channel: 2440	1	-14.36	8
High Channel: 2480	1	-13.57	8

Low Channel



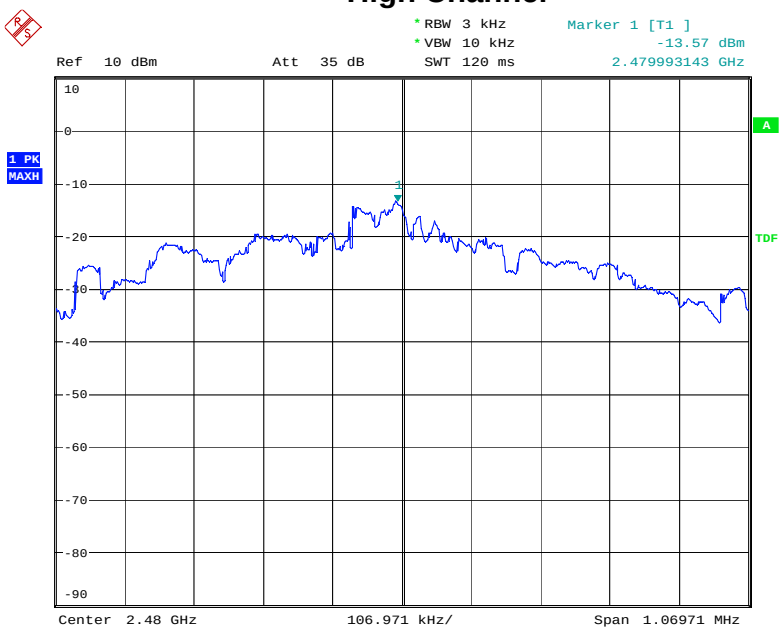
Date: 7.MAY.2016 09:05:20

Middle Channel



Date: 7.MAY.2016 09:04:36

High Channel



Date: 7.MAY.2016 09:03:43

7. Band Edge and Conducted Spurious Emissions

7.1 Requirement and Measurement Procedure

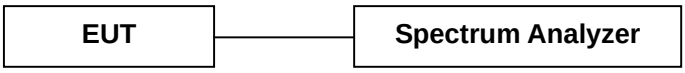
In any 100KHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below.

A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Band (MHz)	Level	Resolution Bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	3 MHz
	Average	1 MHz	10 Hz

7.2 Test SET-UP (Block Diagram of Configuration)



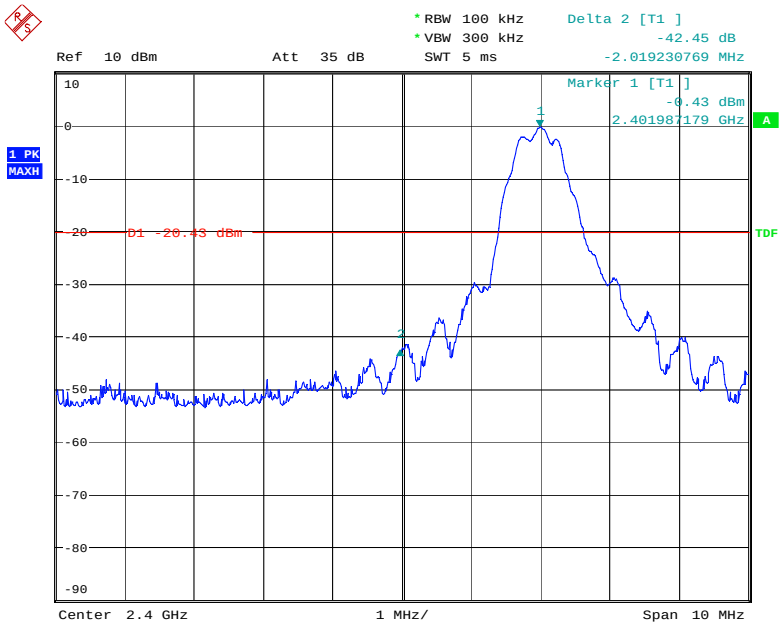
7.3 Measurement Results

The test plots and table showed all spurious emission and up to the tenth harmonic was measured and they were found to be at least 20dB below the highest level of the desired power in the passband. Please refer to below plots.

Freq. (MHz)	Ant.Pol. (H/V)	Reading Level(dBuV)		Factor (dB/m)	Emission Level (dBuV)		Limit 3m (dBuV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
2390.000	H	40.73	26.52	8.06	48.79	34.58	74.00	54.00	-25.21	-19.42
2390.000	V	38.03	22.39	8.06	46.09	30.45	74.00	54.00	-27.91	-23.55
2483.500	H	40.79	27.27	8.36	49.15	35.63	74.00	54.00	-24.85	-18.37
2483.500	V	37.46	22.66	8.36	45.82	31.02	74.00	54.00	-28.18	-22.98

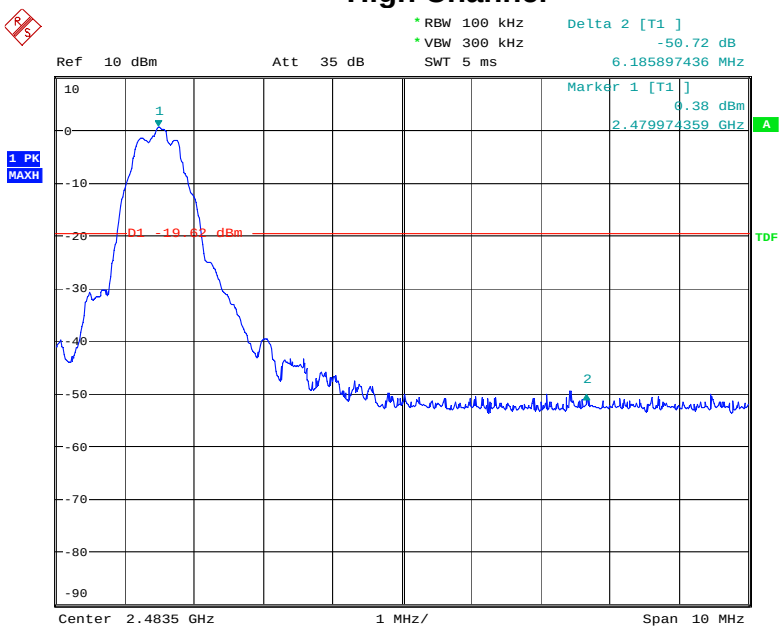
Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) Measurement uncertainty : ±3.7dB

Band Edge
Low Channel



Date: 7.MAY.2016 09:06:21

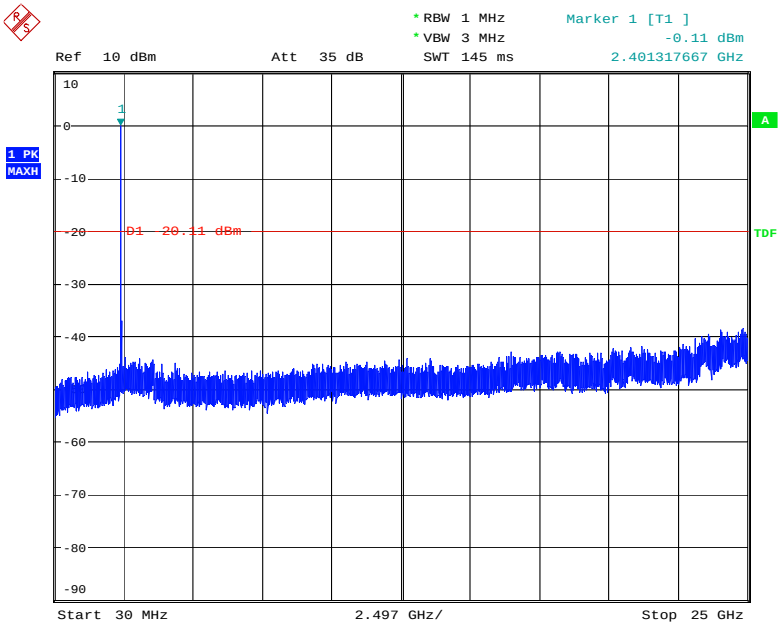
High Channel



Date: 7.MAY.2016 09:07:14

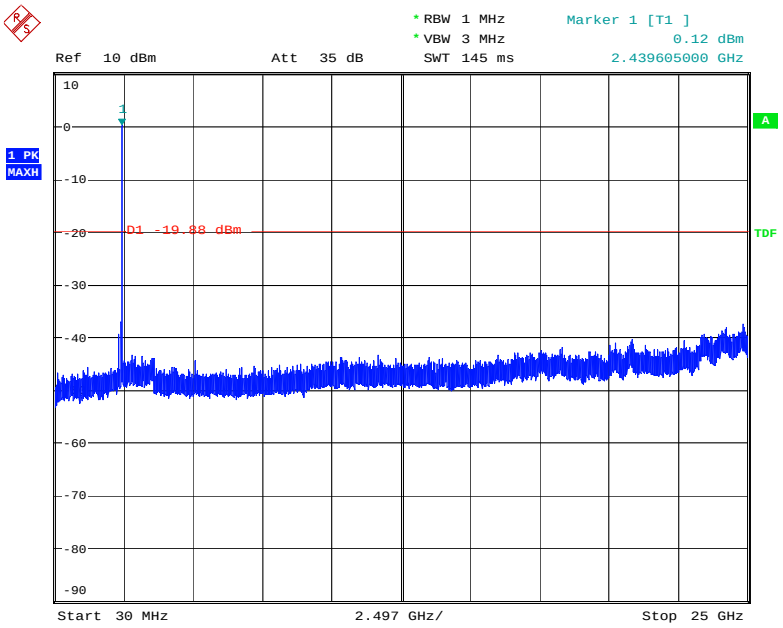
Conducted Spurious Emissions

Low Channel



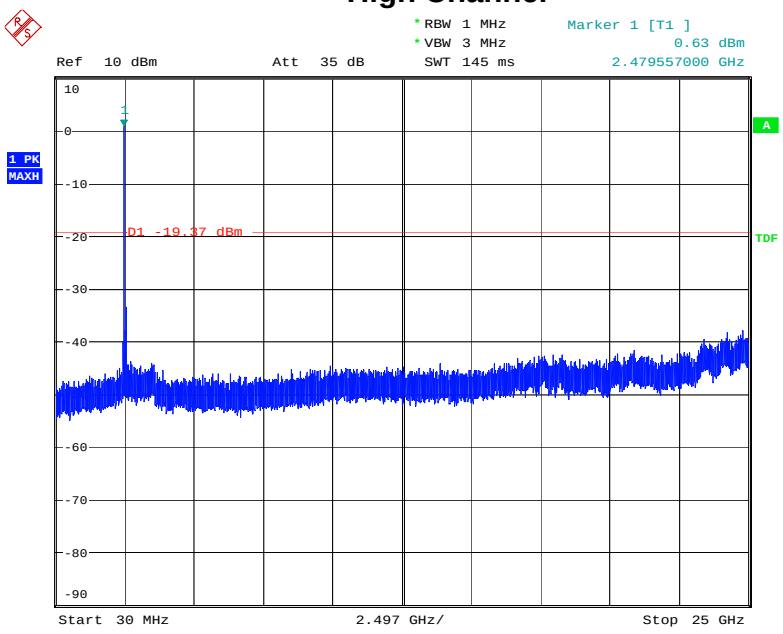
Date: 7.MAY.2016 09:08:27

Middle Channel



Date: 7.MAY.2016 09:10:27

High Channel



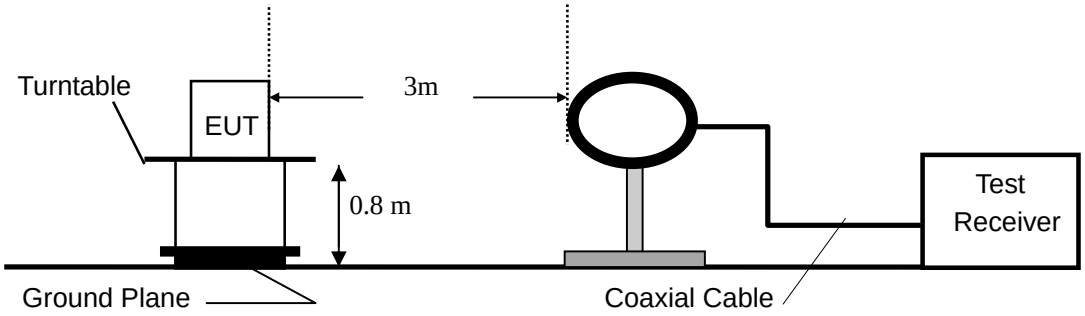
Date: 7.MAY.2016 09:11:08

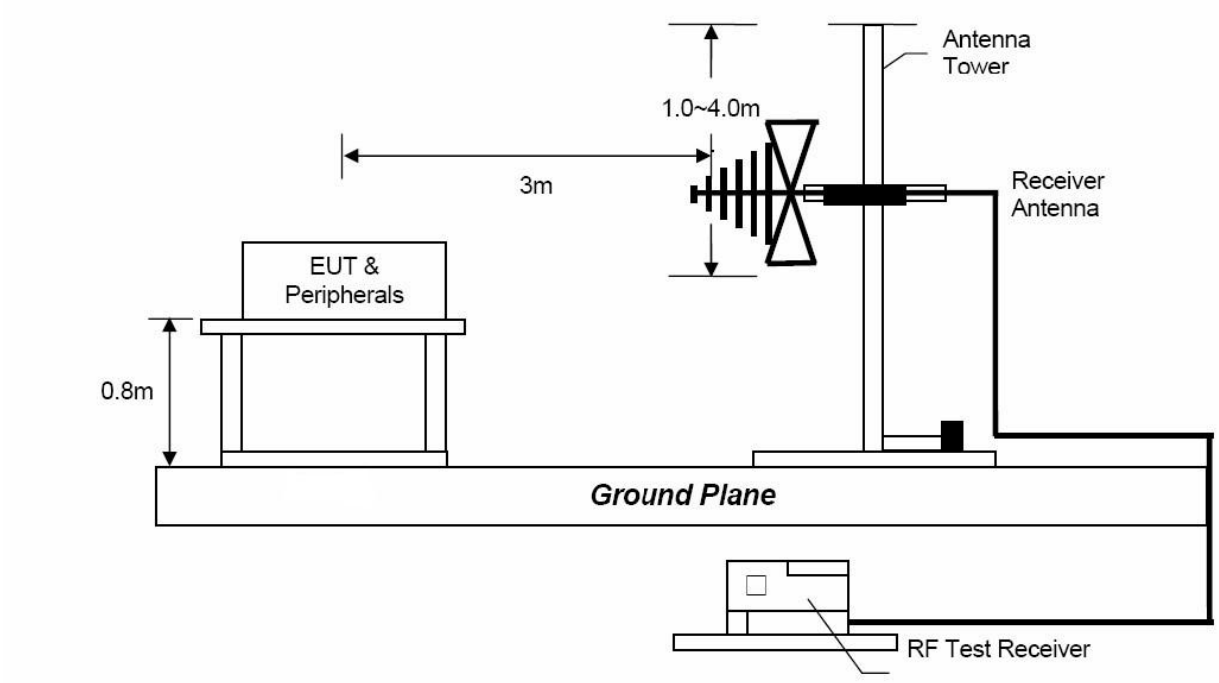
Note: Sweep points=30001pts

8. Radiated Spurious Emissions and Restricted Bands

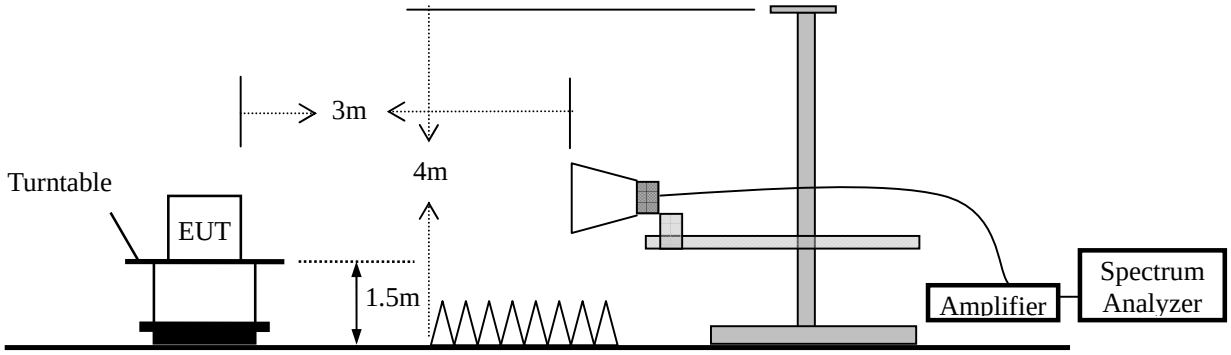
8.1 Test SET-UP (Block Diagram of Configuration)

8.1.1 Radiated Emission Test Set-Up, Frequency Below 30MHz





8.1.2 Radiated Emission Test Set-Up, Frequency above 1GHz



8.2 Measurement Procedure

a. Blow 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room.
b. For the radiated emission test above 1GHz:
The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
d. The height of antenna 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.
e. 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. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.
f. A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Band (MHz)	Level	Resolution Bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	3 MHz
	Average	1 MHz	10 Hz

8.3 Limit

Frequency range MHz	Distance Meters	Field Strengths Limit (15.209) μV/m
0.009 ~ 0.490	300	2400/F(kHz)
0.490 ~ 1.705	30	24000/F(kHz)
1.705 ~ 30	30	30
30 ~ 88	3	100
88 ~ 216	3	150
216 ~ 960	3	200
Above 960	3	500

Remark：(1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
(4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.
(5) §15.247(d) specifies that emissions which fall in the restricted bands, as defined in §15.205 comply with radiated emission limits specified in §15.209.

8.4 Measurement Results

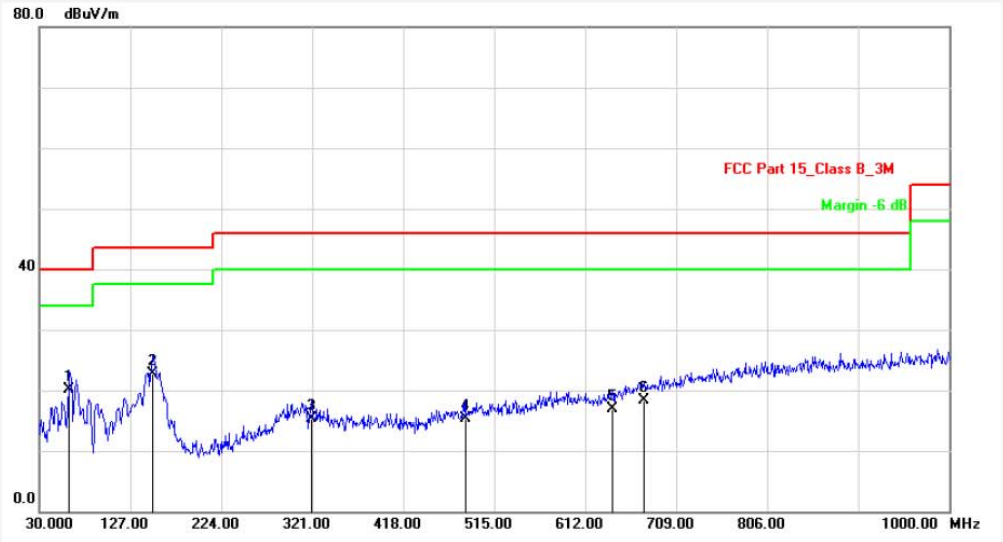
Please refer to following plots of the worst case: Lowest channel.

.

Dongguan NTC Co., Ltd.
Tel:+86-769-22022444 Fax:+86-769-22022799
Web: Http://www.ntc-c.com

Site: Radiation

Test Time: 2016-5-10 15:44:34



Report No.:	IF862		
Test Standard:	FCC Part 15_Class B_3M	Test Distance:	3m
Test item:	Radiation Emission	Ant. Polarization:	Vertical
Applicant:	Tigercel	Temp.(C)/Hum.(%):	22(C) / 54 %
Product:	GSM wireless data terminal	Power Rating:	DC5V(From Adapter)
Model No.:	IF862	Test Engineer:	Steven
Test Mode:	Charging+BT Mode		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	62.0100	-14.84	34.94	20.10	40.00	-19.90	QP			P	
2	151.2500	-18.47	41.17	22.70	43.50	-20.80	QP			P	
3	320.0300	-11.93	27.23	15.30	46.00	-30.70	QP			P	
4	483.9600	-9.12	24.52	15.40	46.00	-30.60	QP			P	
5	641.1000	-6.11	23.11	17.00	46.00	-29.00	QP			P	
6	674.0800	-4.51	22.91	18.40	46.00	-27.60	QP			P	

Note: Level=Reading+Factor.

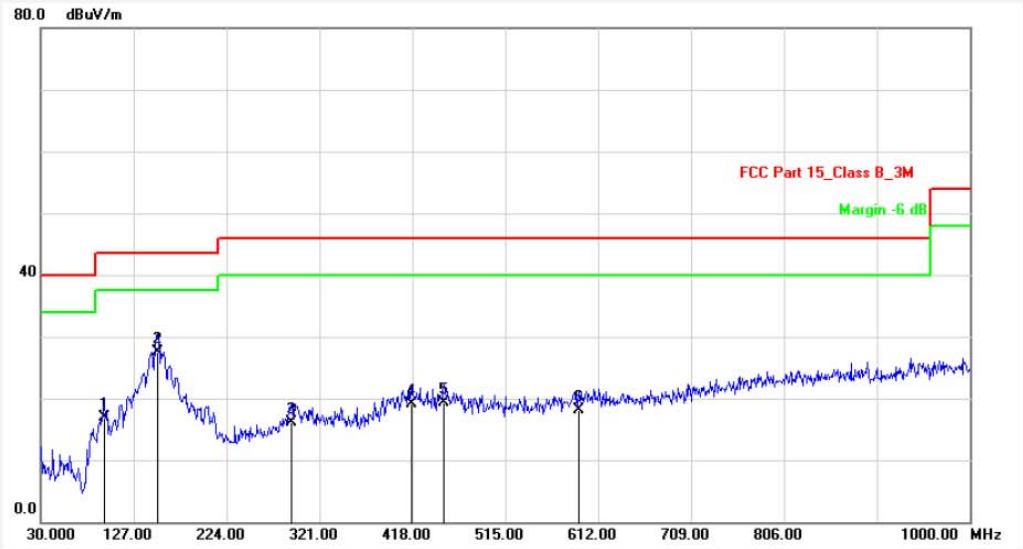
Margin=Limit-Level.

Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Dongguan NTC Co., Ltd.
Tel:+86-769-22022444 Fax:+86-769-22022799
Web: Http://www.ntc-c.com

Site: Radiation

Test Time: 2016-5-10 15:38:30



Report No.:	**IF862**		
Test Standard:	**FCC Part 15_Class B_3M**	**Test Distance:**	**3m**
Test item:	**Radiation Emission**	**Ant. Polarization:**	**Horizontal**
Applicant:	**Tigercel**	**Temp.(C)/Hum.(%):**	**22(C) / 54 %**
Product:	**GSM wireless data terminal**	**Power Rating:**	**DC5V(From Adapter)**
Model No.:	**IF862**	**Test Engineer:**	**Steven**

Test Mode: **Charging+BT Mode**

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	95.9600	-12.65	29.65	17.00	43.50	-26.50	QP			P	
2	152.2200	-15.43	42.93	27.50	43.50	-16.00	QP			P	
3	291.9000	-10.70	26.90	16.20	46.00	-29.80	QP			P	
4	417.0300	-8.71	27.91	19.20	46.00	-26.80	QP			P	
5	450.9800	-7.93	27.33	19.40	46.00	-26.60	QP			P	
6	591.6300	-5.23	23.43	18.20	46.00	-27.80	QP			P	

Note: Level=Reading+Factor.

Margin=Limit-Level.

Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Modulation:	GFSK		
Frequency Range:	1-25GHz	Test Date :	May 07, 2016
Test Result:	PASS	Temperature :	21 ℃
Measured Distance:	3m	Humidity :	49 %
Test By:	Sance		

Freq. (MHz)	Ant.Pol. (H/V)	Reading Level(dBuV)		Factor (dB/m)	Emission Level (dBuV)		Limit 3m (dBuV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
Operation Mode: TX Mode (Low)										
4804	V	32.35	21.29	14.63	46.98	35.92	74.00	54.00	-27.02	-18.08
7206	V	31.50	18.76	20.68	52.18	39.44	74.00	54.00	-21.82	-14.56

4804	H	30.73	19.66	14.63	45.36	34.29	74.00	54.00	-28.64	-19.71
7206	H	30.19	19.43	20.68	50.87	40.11	74.00	54.00	-23.13	-13.89

Operation Mode: TX Mode (Mid)										
4884	V	33.01	21.87	14.98	47.99	36.85	74.00	54.00	-26.01	-17.15
7326	V	30.09	19.83	20.93	51.02	40.76	74.00	54.00	-22.98	-13.24

4884	H	31.15	21.12	14.98	46.13	36.10	74.00	54.00	-27.87	-17.90
7326	H	32.03	20.84	20.93	52.96	41.77	74.00	54.00	-21.04	-12.23

Operation Mode: TX Mode (High)										
4960	V	33.08	24.03	15.30	48.38	39.33	74.00	54.00	-25.62	-14.67
7440	V	30.45	19.80	21.16	51.61	40.96	74.00	54.00	-22.39	-13.04

4960	H	32.02	21.82	15.30	47.32	37.12	74.00	54.00	-26.68	-16.88
7440	H	30.33	19.88	21.16	51.49	41.04	74.00	54.00	-22.51	-12.96

Other harmonics emissions are lower than 10dB below the allowable limit.

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level + Factor
(3) Factor= Antenna Gain + Cable Loss – Amplifier Gain
(4) Data of measurement within this frequency range shown " ---" in the table above means the reading of emissions are attenuated more than 10dB below the permissible limits.
(5) Measurement uncertainty : ±3.7dB.
(6) Horn antenna used for the emission over 1000MHz.

9. Antenna Application

9.1 Antenna requirement

According to of FCC part 15C section 15.203 and 15.240:

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.
Systems operating in the 2400-2483.5MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

9.2 Measurement Results

The antenna is integral antenna and no consideration of replacement, and the best case gain of the antenna is -5.6dBi. So, the antenna is consider meet the requirement.

10. Test Equipment List

Description	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due Date
Test Receiver	Rohde & Schwarz	ESCI7	100837	Nov. 23, 2015	Nov. 22, 2016
Antenna	Schwarzbeck	VULB9162	9162-010	Nov. 26, 2015	Nov. 25, 2016
Cable	Huber+Suhner	CBL2-NN-1M	22390001	Nov. 07, 2015	Nov. 06, 2016
Power Amplifier	HP	HP 8447D	1145A00203	Nov. 07, 2015	Nov. 06, 2016
Horn Antenna	Schwarzbeck	BBHA9170	9170-372	Oct. 23, 2015	Oct. 22, 2016
Horn Antenna	Com-Power	AH-118	071078	Nov. 05, 2015	Nov. 04, 2016
Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	Sep. 01, 2015	Aug. 31, 2016
Pre-Amplifier	Agilent	8449B	3008A02964	Nov. 03, 2015	Nov. 02, 2016
Temporary antenna connector	TESCOM	SS402	N/A	N/A	N/A
Power Meter	Anritsu	ML2495A	1139001	Nov. 05, 2015	Nov. 04, 2016
Power Sensor	Anritsu	MA2411B	100345	Nov. 05, 2015	Nov. 04, 2016
L.I.S.N.	Rohde & Schwarz	ENV 216	101317	Nov. 07, 2015	Nov. 06, 2016
Loop antenna	Daze	ZA30900A	0708	Oct.10, 2015	Oct.09, 2016

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

---End---