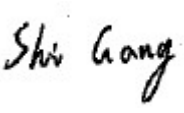
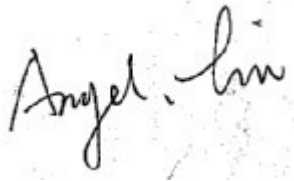
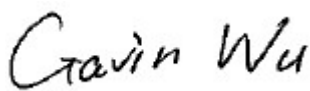


TEST REPORT

Report No.:	EM201100418-8	Application No.:	ZJ00010987
Client:	Mobile Devices Ingenierie		
Address:	100 avenue de Stalingrad VILLEJUIF-France		
Sample Description:	MUNIC		
Model:	D4M 35MD02		
Test Location:	EMC Laboratory of Guangzhou GRG Metrology and Test Technology Co., Ltd		
Test Specification:	FCC Part 15,Subpart C(Section 15.247):2010		
Issue Date:	2011-12-09		
Test Result:	Pass.		
Tested By:	Reviewed By:	Approved By:	
Shi Gang/ Test Engineer	Angel Liu / Technical Support	Gavin Wu / Manager	
			
Date:2011-12-09	Date:2011-12-09	Date:2011-12-09	
Other Aspects:			
Abbreviations: ok / P = passed; fail / F = failed; n.a. / N = not applicable			
The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT.			

GRG Metrology and Test Technology Co., Ltd.

Address: 163, Pingyun Road, West of Huangpu Avenue, Guangzhou, Guangdong, P.R. China

Tel:+86-20-38699960

Fax:+86-20-38695185

Email: cert-center@grg.net.cn

<http://www.grgtest.com>

Ver.:1.0 / 01.Jan.2011

DIRECTIONS OF TEST

1. This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.
2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.
3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.

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1. TEST RESULT SUMMARY

FCC Part 15,Subpart C(Section 15.247):2010			
Standard	Item	Rule Section	Result
FCC Part 15,Subpart C(Section 15.247)	Antenna Requirement	FCC Part 15.203	PASS
	Conduction Emissions	FCC Part 15.207	N/A(Note)
	Number of Hopping Frequency	FCC Part 15.247(a)(1)(iii)	PASS
	Dwell Time	FCC Part 15.247(a)(1)(iii)	PASS
	Hopping channel separation	FCC Part 15.247(a)(1)	PASS
	Spectrum bandwidth of a frequency Hopping sequence	FCC Part 15.247(a)(1)	PASS
	Maximum Peak Output power	FCC Part 15.247(b)	PASS
	Spurious Emission from Tx	FCC Part 15.247(d) FCC Part 15.209	PASS
	Band Edge measurement	FCC Part 15.247(d)	PASS

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Mobile Devices Ingenierie
Address: 100 avenue de Stalingrad VILLEJUIF-France

2.2 MANUFACTURER

Name: Shenzhen Longhorn Technology Co., Ltd.
Address: Longhorn Hi-tech estate Gongyeyuan Rd. Dalang Street, Bao'an Shenzhen 518109

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: MUNIC
Model No.: D4M 35MD02
Adding Model: /
Trade Name: 
Power Supply: DC 5V, 2000mA MAX, 7.5W
Frequency Range: Bluetooth: 2402MHz~2480MHz
GPRS: TX:824.2MHz ~ 848.8MHz;RX: 869.2MHz ~ 893.8MHz
TX:1850.2MHz ~ 1909.8MHz;RX: 1930.2MHz ~ 1989.8MHz
FM Transmitter: 88.1-107.9MHz
GPS: 1575.42MHz
Type of emission: FHSS;GPRS;FM
Note: The FM part test refer to report: EM201100418-9
The GPRS part test refer to report: EM201100418-10

2.4 LOCAL SUPPORTIVE INSTRUMENTS

Cable Description	Length (M)	From/Port	To
DC Cable 1	1.5	DC Power supply	EUT
DC Cable 2	1.4	Power source	DC Power supply
Serial Cable	1.2	PC	EUT

Name of Equipment	Manufacturer	Model	Serial Number
PC	Lenovo	E46L	EB22867264

3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests and measurements refer to this report were performed by EMC Laboratory of Guangzhou GRG Metrology and Test Technology CO., LTD.

Add. : 163 Pingyun Rd, West of Huangpu Ave, Guangzhou, 510656, P. R. China

Telephone: +86-20-38699959, 38699960, 38699961

Fax : +86-20-38695185

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC Listed Lab (No. 688188)
China	CNAS (No.L0446)
China	DILAC (No.DL175)
Canada	Registration No.:8355A-1

3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	30MHz~1000MHz	4.2dB
		1GHz~26.5GHz	4.2dB
	Vertical	30MHz~1000MHz	4.4dB
		1GHz~26.5GHz	4.4dB

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

3.4 LIST OF USED TEST EQUIPMENT AT GREGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Dwell Time				
Receiver	R&S	ESU40	100106	2012-09-26
Number of Hopping Frequency				
Receiver	R&S	ESU40	100106	2012-09-26
Hopping channel separation				
Receiver	R&S	ESU40	100106	2012-09-26
Spectrum bandwidth of a frequency Hopping sequence				
Receiver	R&S	ESU40	100106	2012-09-26
Maximum Peak Output power				
Receiver	R&S	ESU40	100106	2012-09-26
Horn antenna	SCHWARZBECK	BBHA9120D	D752	2012-08-07
Spurious Emission from Tx				
Biconical Log-periodic Antenna	ETS.LINDGREN	3142C	00075971	2012-09-26
Receiver	R&S	ESU40	100106	2012-06-09
Horn antenna	SCHWARZBECK	BBHA9120D	D752	2013-10-14
Band Edge measurement				
Receiver	R&S	ESU40	100106	2012-09-26

NOTE: The calibration interval of the above test instruments is 12 months.

4. RADIO TECHNICAL REQUIREMENTS SPECIFICATION

4.1 TEST FREQUENCIES

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	27	2429	54	2456
1	2403	28	2430	55	2457
2	2404	29	2431	56	2458
3	2405	30	2432	57	2459
4	2406	31	2433	58	2460
5	2407	32	2434	59	2461
6	2408	33	2435	60	2462
7	2409	34	2436	61	2463
8	2410	35	2437	62	2464
9	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

Test frequency is the lowest channel: 0 channel(2402MHz), middle channel: 39 channel(2441MHz) and highest channel: 78 channel(2480MHz)

5. ANTENNA REQUIREMENT

The EUT antenna is PCB Printed antenna. Antenna gain is 0dBi .which accordance 15.203.is considered sufficient to comply with the provisions of this section



Antenna

6. RADIATED ELECTROMAGNETIC DISTURBANCE

6.1 LIMITS

Frequency (MHz)	Quasi-peak(dB μ V/m)
30 ~ 88	40
88~216	43.5
216 ~ 960	46
Above 960	54

NOTE: (1) The lower limit shall apply at the transition frequencies.

Frequency (GHz)	Quasi-peak(dB μ V/m)
1 ~ 26.5	74
1~ 26.5	54

6.2 TEST PROCEDURES

Test Method:

ANSI C63.4:2003; FCC Part 15.247(d) ; FCC Part 15.209

Procedure of Preliminary Test

Radiated emission tests shall be made with the receive or transmit antenna located at a horizontal distance of 3 m plus half of the maximum width of the EUT being tested, measured from the centre of the EUT. The tests shall be performed with the equipment configured as closely as possible to its typical, practical operation. Unless stated otherwise, cables and wiring shall be as specified by the manufacturer and the equipment shall be in its housing (or cabinet) with all covers and access panels in place. Any deviation from normal EUT operating conditions shall be included in the test report.

The EUT (on a non-conductive support structure, where applicable) shall be placed on a remotely operated turntable, to allow the EUT to be rotated. The height of the EUT above the ground plane shall be according to the following requirements.

- Table-top equipment is placed on a non-conductive set-up table with height $0,8\text{ m} \pm 0,01\text{ m}$, ANSI C63.4:2003 specifies the method to determine the impact of the non-conductive set-up table on test results.
- Floor-standing equipment is placed on a non-conductive support, as specified in the applicable product standard. If there are no EUT height placement requirements in the product standard, the EUT shall be placed on a non-conductive support at a height of 5 cm to 15 cm above the ground plane.

Interface cables, loads, and devices should be connected to at least one of each type of the interface ports of the EUT and, where practical, each cable shall be terminated in a device typical for its actual use. Where there are multiple interface ports of the same type, a typical number of these devices shall be connected to devices or loads. It is sufficient to connect only one of the loads, provided that it can be shown, for example by preliminary testing, that the connection of further ports would not significantly increase the level of disturbance (that is, more than 2 dB) or significantly degrade the immunity level.

The test mode(s) described in Item 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.4 producing the highest emission level. The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

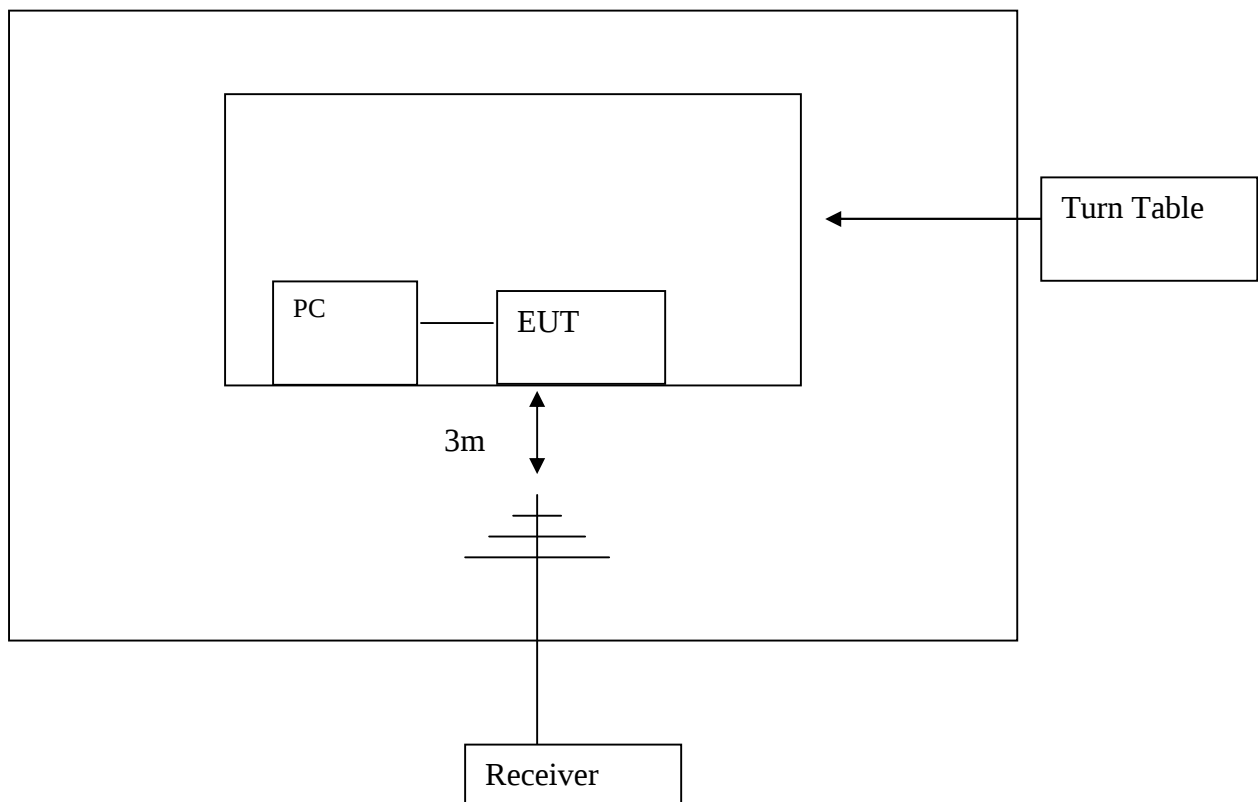
EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test. The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level. Record at least six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only QP reading is presented. The test data of the worst-case condition(s) was recorded.

Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

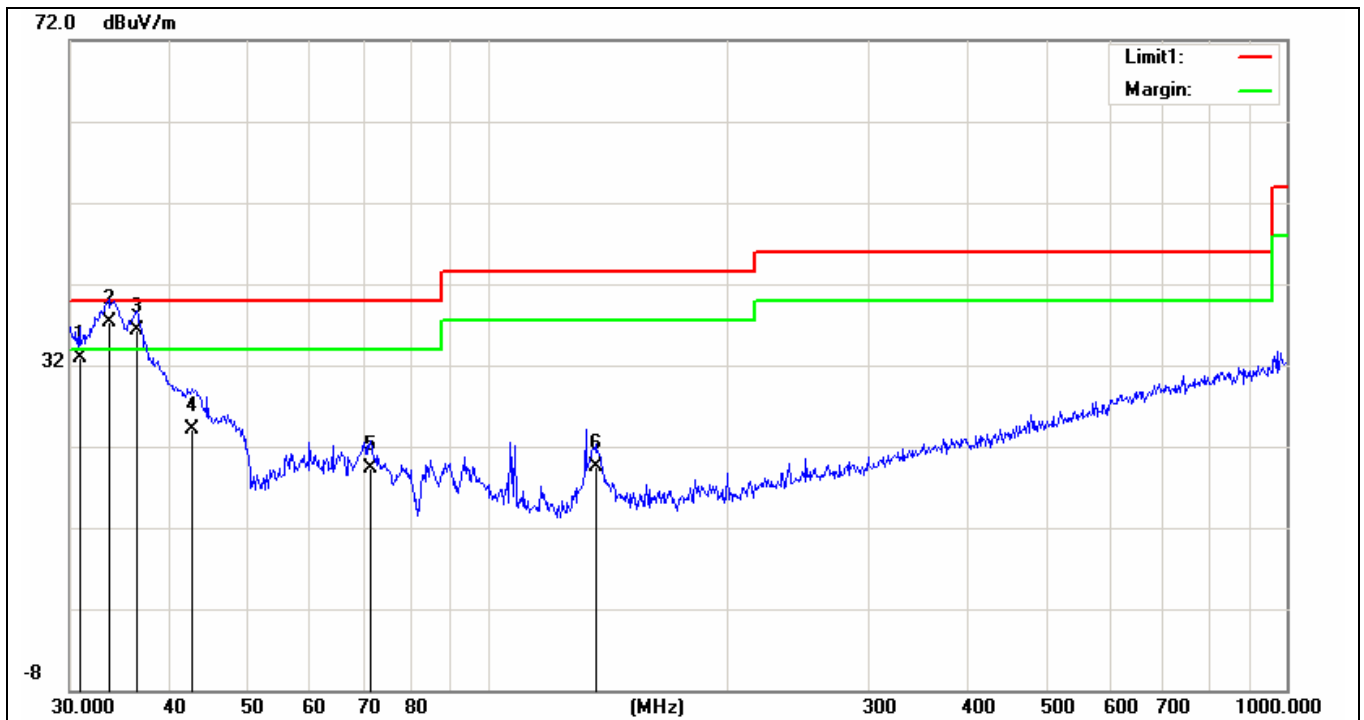
6.3 TEST SETUP

The EUT is connect to PC, open the EUT, Use software turn off the GPRS, FM mode, and use the software control BT test mode, The test measured by the receiver or spectrum analyzer.



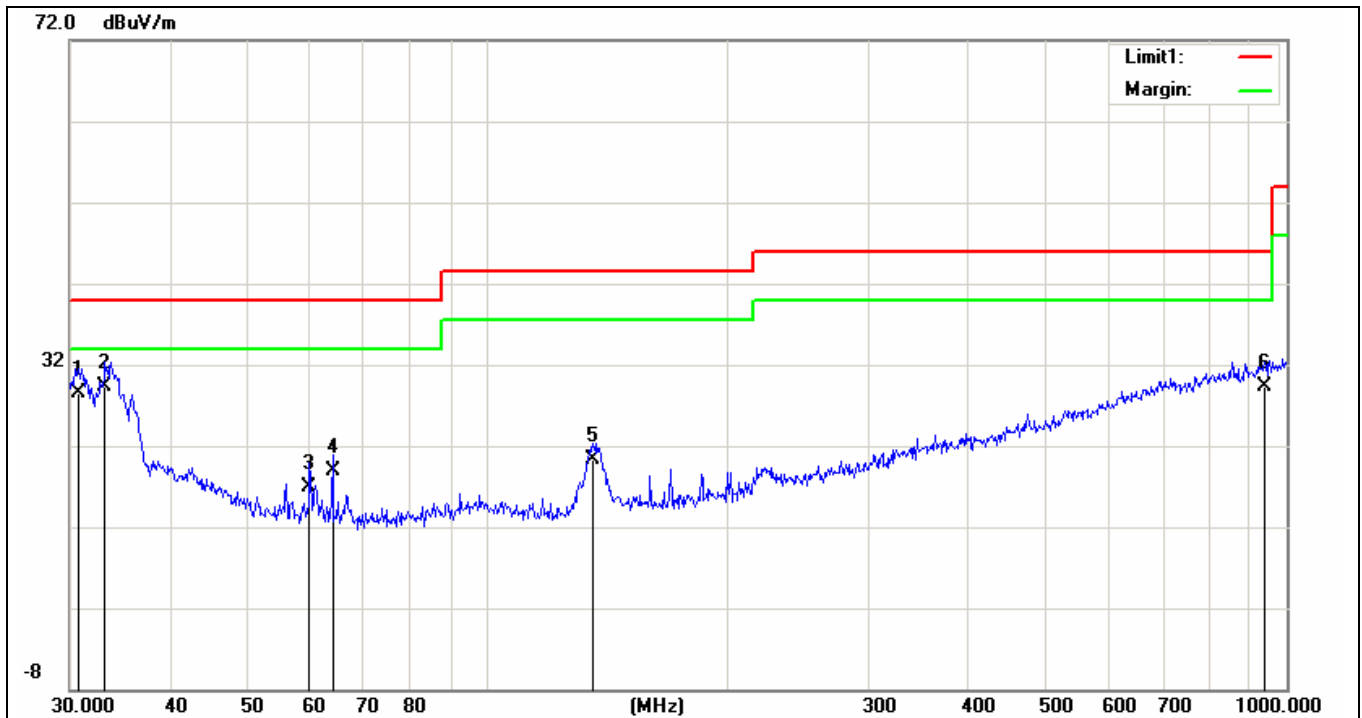
6.4 TEST RESULTS

Test Result:	Pass	Probe:	Vertical
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	DC 12V
Test item:	Radiation Test	Date:	2011-11-18
Temp./Hum.(%RH):	26/60%RH	Time:	11:51:11
EUT:	MUNIC	Model:	D4M 35MD02
Note:	Test mode: GFSK Low channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.8535	14.10	18.89	32.99	40.00	-7.01	QP
2	33.5623	20.10	17.26	37.36	40.00	-2.64	QP
3	36.3813	20.71	15.52	36.23	40.00	-3.77	QP
4	42.7496	11.70	12.36	24.06	40.00	-15.94	QP
5	71.3298	11.50	7.76	19.26	40.00	-20.74	QP
6	136.4598	10.50	9.00	19.50	43.50	-24.00	QP

Test Result:	Pass	Probe:	Horizontal
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	DC 12V
Test item:	Radiation Test	Date:	2011-11-18
Temp./Hum.(%RH):	26/60%RH	Time:	11:53:55
EUT:	MUNIC	Model:	D4M 35MD02
Note:	Test mode: GFSK Low channel		

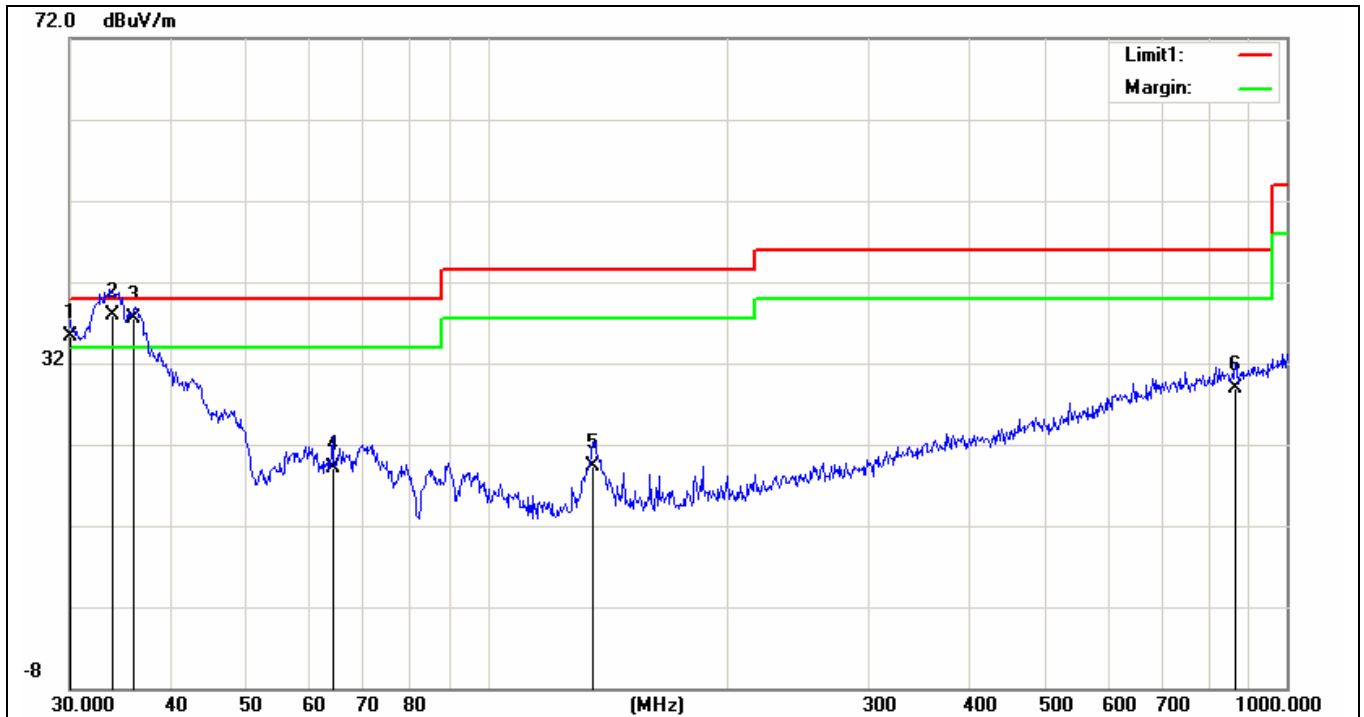


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.7455	9.60	18.97	28.57	40.00	-11.43	QP
2	33.2112	11.80	17.48	29.28	40.00	-10.72	QP
3	59.8588	8.91	8.04	16.95	40.00	-23.05	QP
4	63.9828	11.12	7.87	18.99	40.00	-21.01	QP
5	135.5062	11.32	8.95	20.27	43.50	-23.23	QP
6	938.8326	3.22	26.18	29.40	46.00	-16.60	QP

Emission above 1GHz:

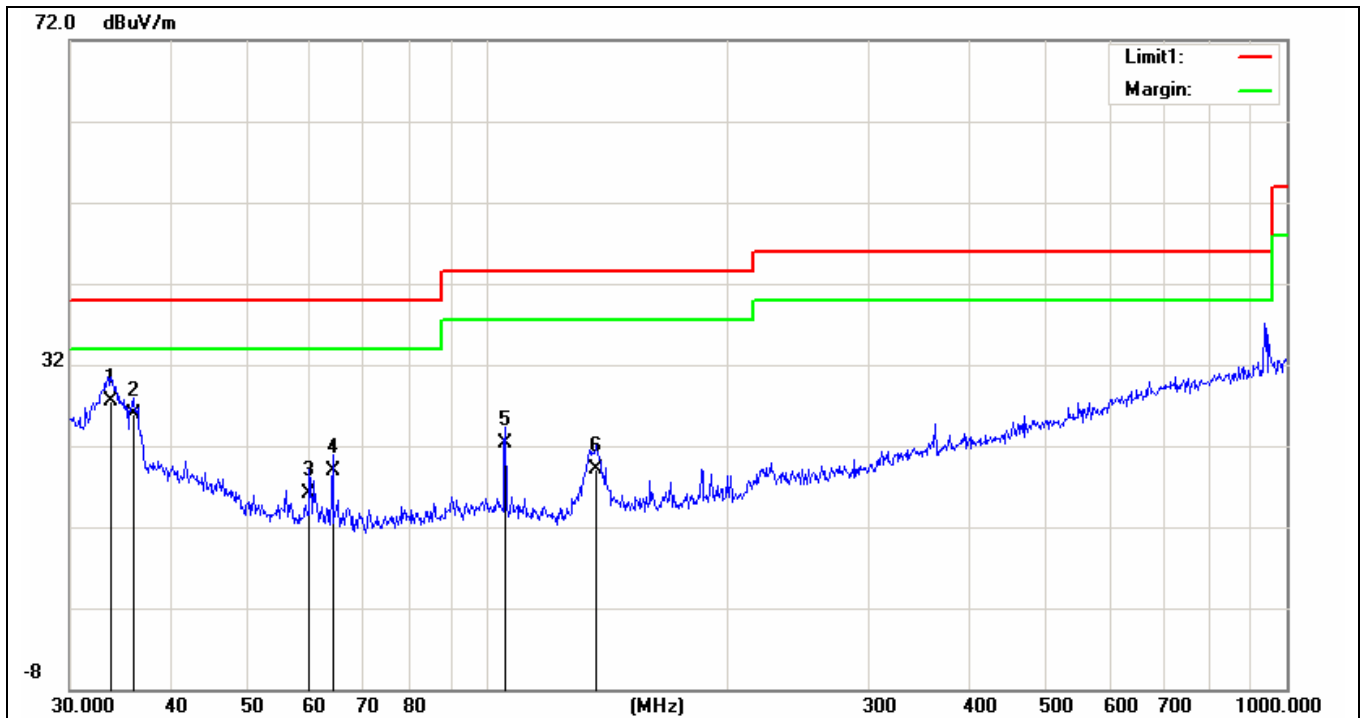
Frequency (MHz)	Antenna polarization	Detector PK/AV	Result (dBuV/m)	Limit (dBuV/m)	Result
4804	Vertical	PK	48.21	74	Pass
4804	Vertical	AV	45.20	54	Pass
7206	Vertical	PK	45.31	74	Pass
7206	Vertical	AV	41.22	54	Pass
4804	Horizontal	PK	46.80	74	Pass
4804	Horizontal	AV	43.12	54	Pass
7206	Horizontal	PK	44.52	74	Pass
7206	Horizontal	AV	40.70	54	Pass

Test Result:	Pass	Probe:	Vertical
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	DC 12V
Test item:	Radiation Test	Date:	2011-11-18
Temp./Hum.(%RH):	26/60%RH	Time:	11:56:31
EUT:	MUNIC	Model:	D4M 35MD02
Note:	Test mode: GFSK Middle channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.0000	15.87	19.43	35.30	40.00	-4.70	QP
2	33.9174	20.78	17.04	37.82	40.00	-2.18	QP
3	36.1272	21.92	15.68	37.60	40.00	-2.40	QP
4	63.9828	11.29	7.87	19.16	40.00	-20.84	QP
5	135.5062	10.42	8.95	19.37	43.50	-24.13	QP
6	863.0562	3.50	25.37	28.87	46.00	-17.13	QP

Test Result:	Pass	Probe:	Horizontal
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	DC 12V
Test item:	Radiation Test	Date:	2011-11-18
Temp./Hum.(%RH):	26/60%RH	Time:	11:58:46
EUT:	MUNIC	Model:	D4M 35MD02
Note:	Test mode: GFSK Middle channel		

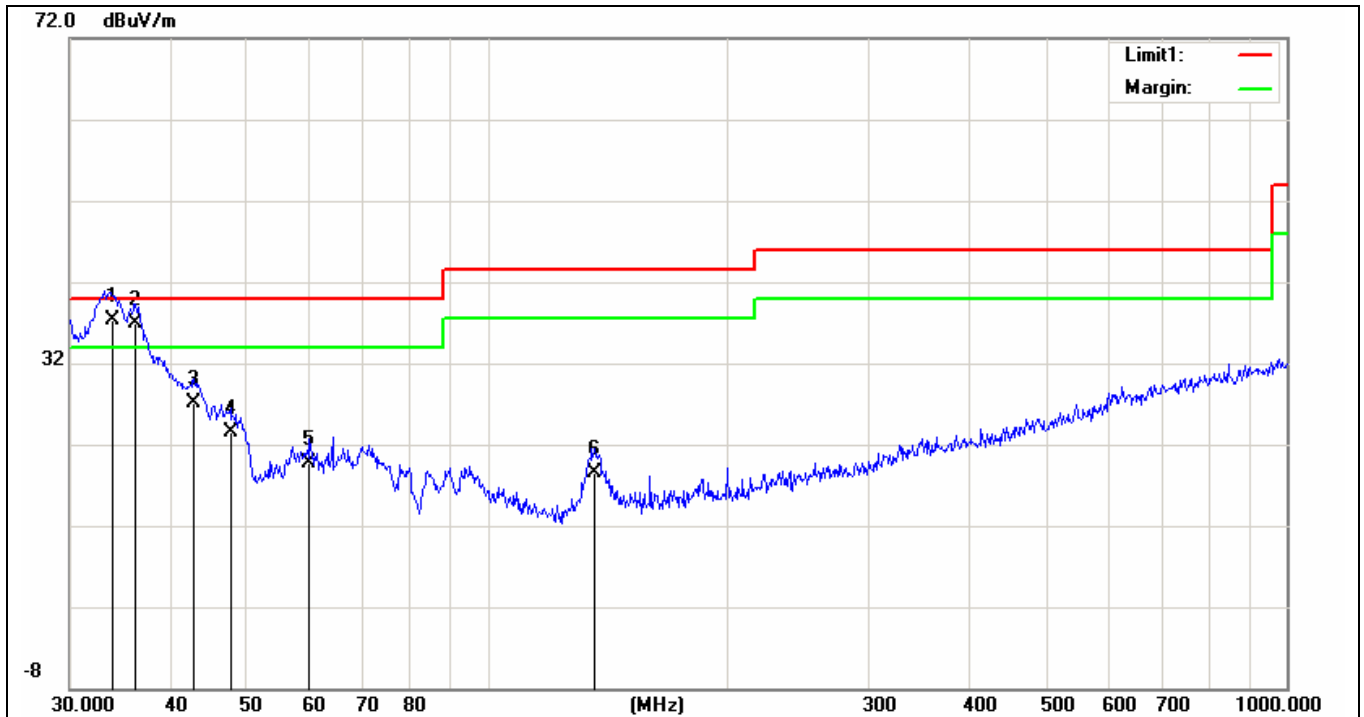


No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	33.7986	10.44	17.12	27.56	40.00	-12.44	QP
2	36.0007	10.05	15.76	25.81	40.00	-14.19	QP
3	59.8588	8.02	8.04	16.06	40.00	-23.94	QP
4	63.9828	10.99	7.87	18.86	40.00	-21.14	QP
5	105.2718	12.51	9.73	22.24	43.50	-21.26	QP
6	136.9391	10.06	9.02	19.08	43.50	-24.42	QP

Emission above 1GHz:

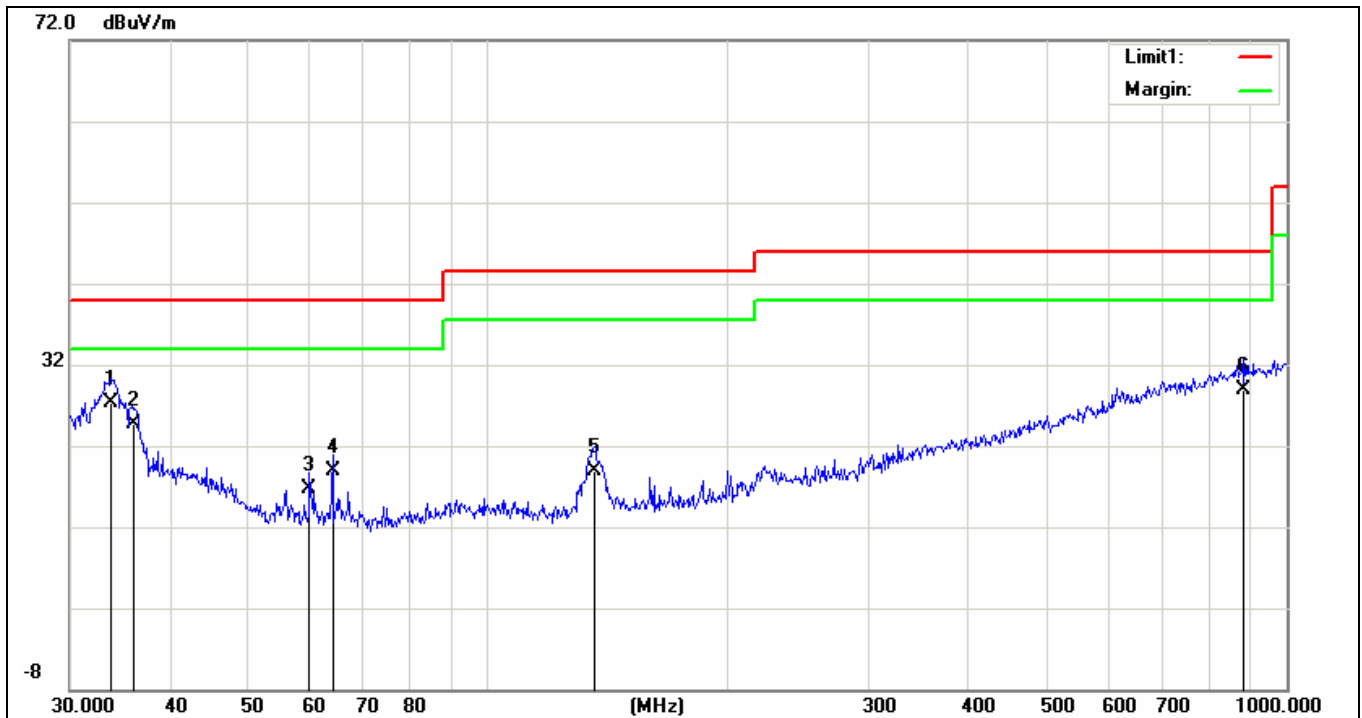
Frequency (MHz)	Antenna polarization	Detector PK/AV	Result (dBuV/m)	Limit (dBuV/m)	Result
4882	Vertical	PK	47.31	74	Pass
4882	Vertical	AV	44.52	54	Pass
7323	Vertical	PK	46.40	74	Pass
7323	Vertical	AV	42.10	54	Pass
4882	Horizontal	PK	46.50	74	Pass
4882	Horizontal	AV	42.90	54	Pass
7323	Horizontal	PK	43.50	74	Pass
7323	Horizontal	AV	41.70	54	Pass

Test Result:	Pass	Probe:	Vertical
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	DC 12V
Test item:	Radiation Test	Date:	2011-11-18
Temp./Hum.(%RH):	26/60%RH	Time:	12:02:01
EUT:	MUNIC	Model:	D4M 35MD02
Note:	Test mode: GFSK High channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	33.9174	20.27	17.04	37.31	40.00	-2.69	QP
2	36.2541	21.29	15.60	36.89	40.00	-3.11	QP
3	42.8998	14.88	12.31	27.19	40.00	-12.81	QP
4	47.6586	12.98	10.58	23.56	40.00	-16.44	QP
5	59.8588	11.70	8.04	19.74	40.00	-20.26	QP
6	136.0319	9.53	8.98	18.51	43.50	-24.99	QP

Test Result:	Pass	Probe:	Horizontal
Standard:	(RE)FCC PART 15 class B 3m	Power Source:	DC 12V
Test item:	Radiation Test	Date:	2011-11-18
Temp./Hum.(%RH):	26/60%RH	Time:	12:04:13
EUT:	MUNIC	Model:	D4M 35MD02
Note:	Test mode: GFSK High channel		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	33.7986	10.19	17.12	27.31	40.00	-12.69	QP
2	36.1272	9.09	15.68	24.77	40.00	-15.23	QP
3	59.8588	8.66	8.04	16.70	40.00	-23.30	QP
4	63.9828	10.96	7.87	18.83	40.00	-21.17	QP
5	135.9822	9.99	8.98	18.97	43.50	-24.53	QP
6	881.4067	3.20	25.73	28.93	46.00	-17.07	QP

Emission above 1GHz:

Frequency (MHz)	Antenna polarization	Detector PK/AV	Result (dBuV/m)	Limit (dBuV/m)	Result
4960	Vertical	PK	47.20	74	Pass
4960	Vertical	AV	44.18	54	Pass
7440	Vertical	PK	46.91	74	Pass
7440	Vertical	AV	43.20	54	Pass
4960	Horizontal	PK	46.80	74	Pass
4960	Horizontal	AV	43.10	54	Pass
7440	Horizontal	PK	44.20	74	Pass
7440	Horizontal	AV	41.10	54	Pass

Note: This device was tested in the GFSK, 8DPSK mode; we found the maximum radiation emission is GFSK mode, so the record is GFSK mode test data

7. NUMBER OF HOPPING FREQUENCY

7.1 LIMITS

At least 15 channels frequency

7.2 TEST PROCEDURES

Test Method:

ANSI C63.4:2003; FCC Part 15.247(a)(1)(iii)

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

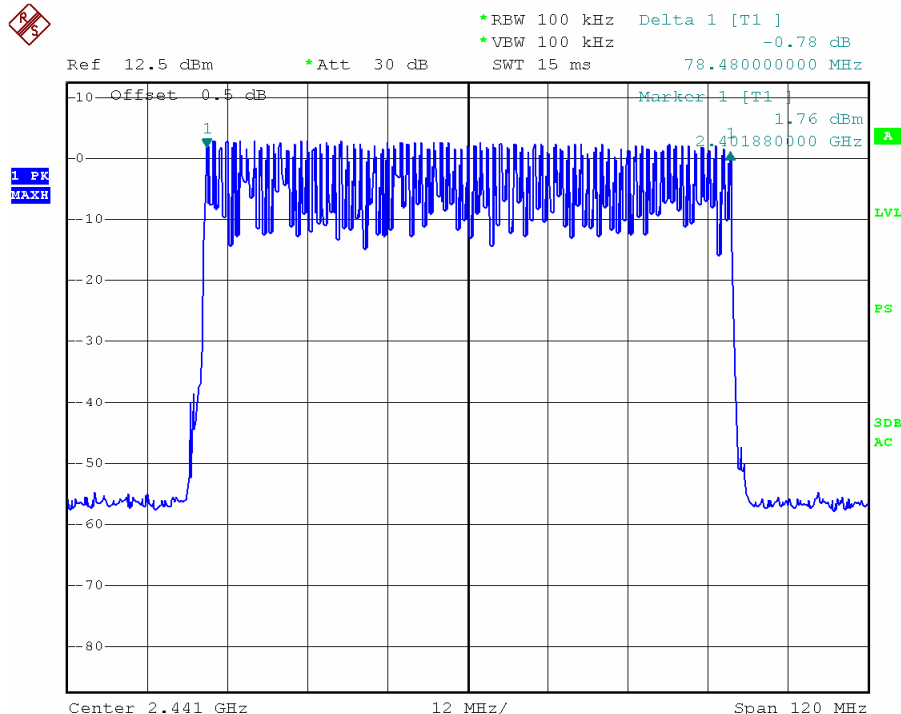
Set the spectrum analyzer: RBW = 100 KHz VBW $\geq$ RBW , Span = enough to catch the trace. Sweep = auto; Detector Function = Peak. Trace = Max,hold.

7.3 TEST SETUP

The EUT is connect to PC, open the EUT, Use software turn off the GPRS, FM mode, and use the software control BT test mode, The test measured by the receiver or spectrum analyzer.



7.4 TEST RESULTS



Total 79 channel

Note: The EUT compliant the requirements

8. DWELL TIME

8.1 LIMITS

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

8.2 TEST PROCEDURES

Test Method:

ANSI C63.4:2003; FCC Part 15.247(a)(1) (iii)

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

Set spectrum analyzer span = 0. centered on a hopping channel;

Set RBW = 1MHz and VBW $\geq$ 1MHz. Sweep = as necessary to capture the entire dwell time per hopping channel. Detector Function = Peak. Trace = Max hold;

Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.). repeat this test for each variation.

The limit is specified in one of the subparagraphs of this Section. Submit this plot(s). An oscilloscope may be used instead of a spectrum analyzer.

8.3 TEST SETUP

The EUT is connect to PC, open the EUT, Use software turn off the GPRS, FM mode, and use the software control BT test mode, The test measured by the receiver or spectrum analyzer.



8.4 TEST RESULTS

Mode: GFSK DH5

Channel	Pulse width (ms)	Dwell time (Sec.)	Limit (Sec.)	Result
Low Channel	3.12	0.333	0.4	Pass
Mid Channel	3.12	0.333	0.4	Pass
High Channel	3.12	0.333	0.4	Pass

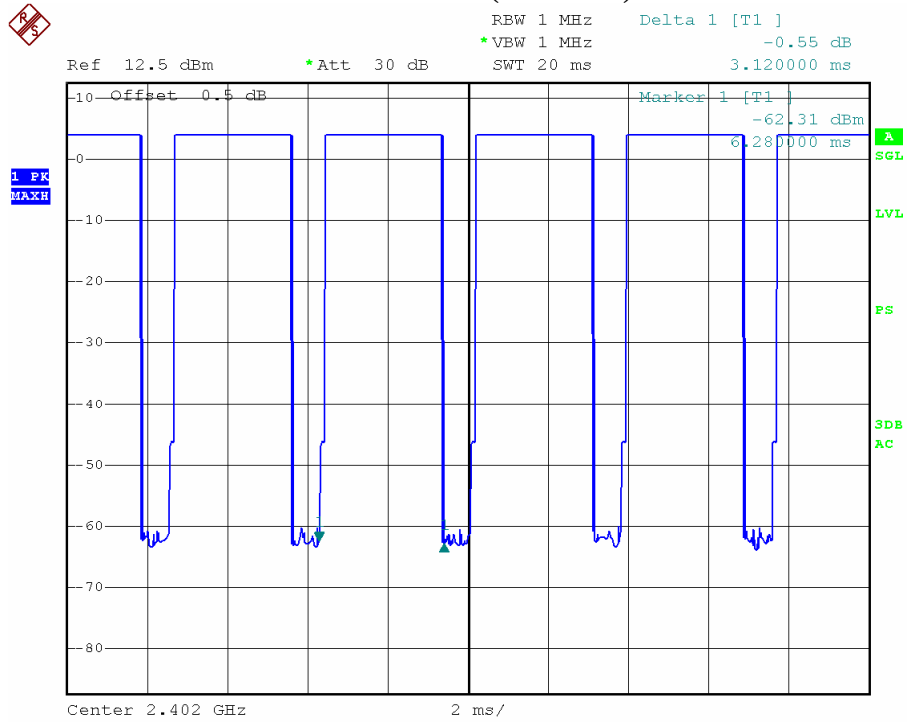
NOTE: Dwell time = Pulse time*(1600/6/79)*31.6S

Mode: 8DPSK DH5

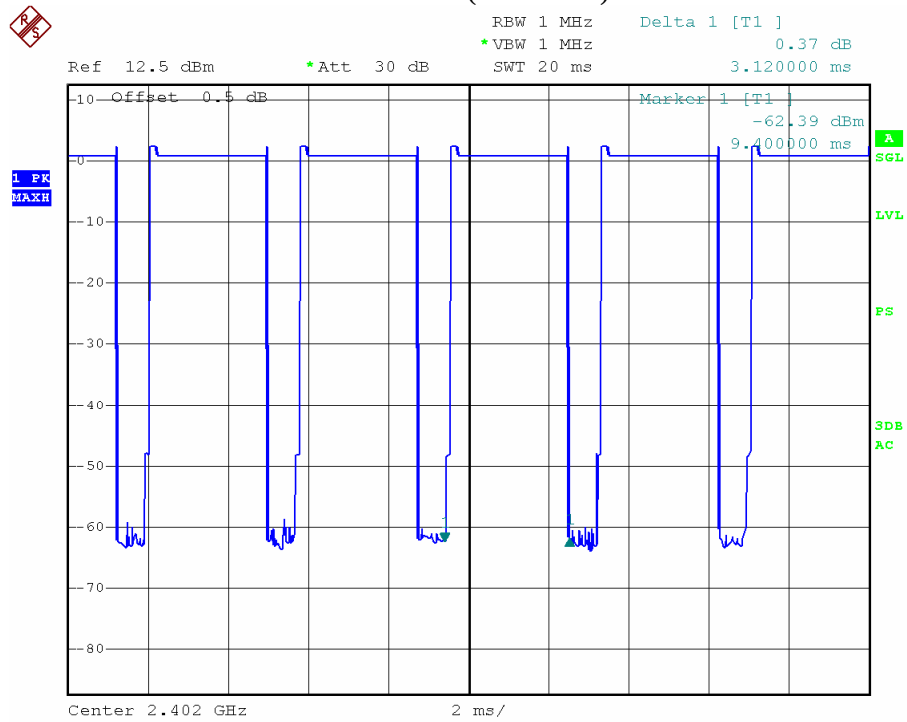
Channel	Pulse width (ms)	Dwell time (Sec.)	Limit (Sec.)	Result
Low Channel	3.12	0.333	0.4	Pass
Mid Channel	3.12	0.333	0.4	Pass
High Channel	3.12	0.333	0.4	Pass

NOTE: Dwell time = Pulse time*(1600/6/79)*31.6S

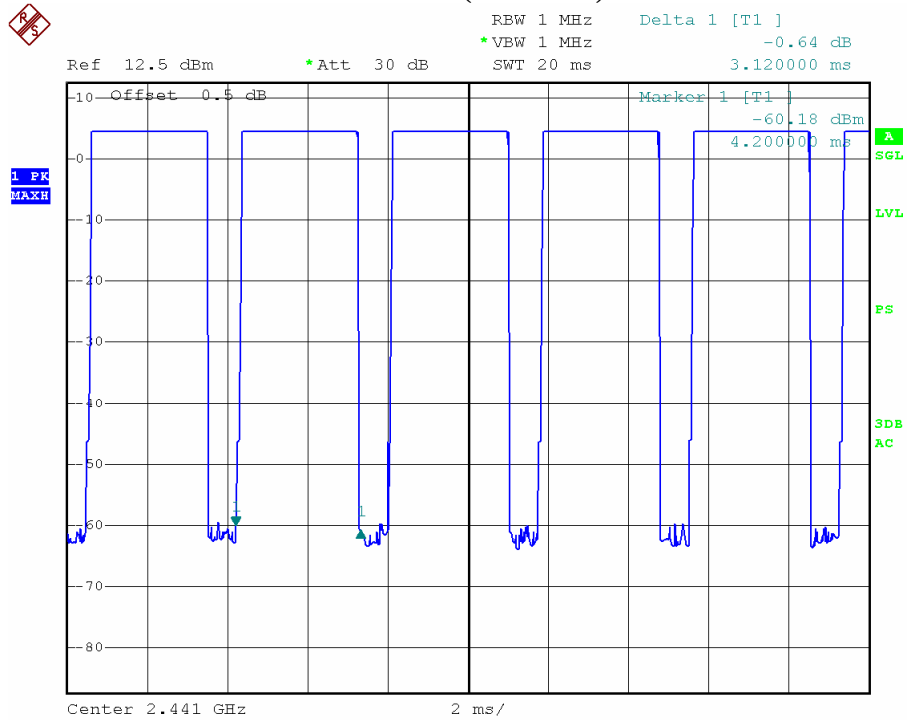
Lowest channel (2.402 GHz):Normal DH5



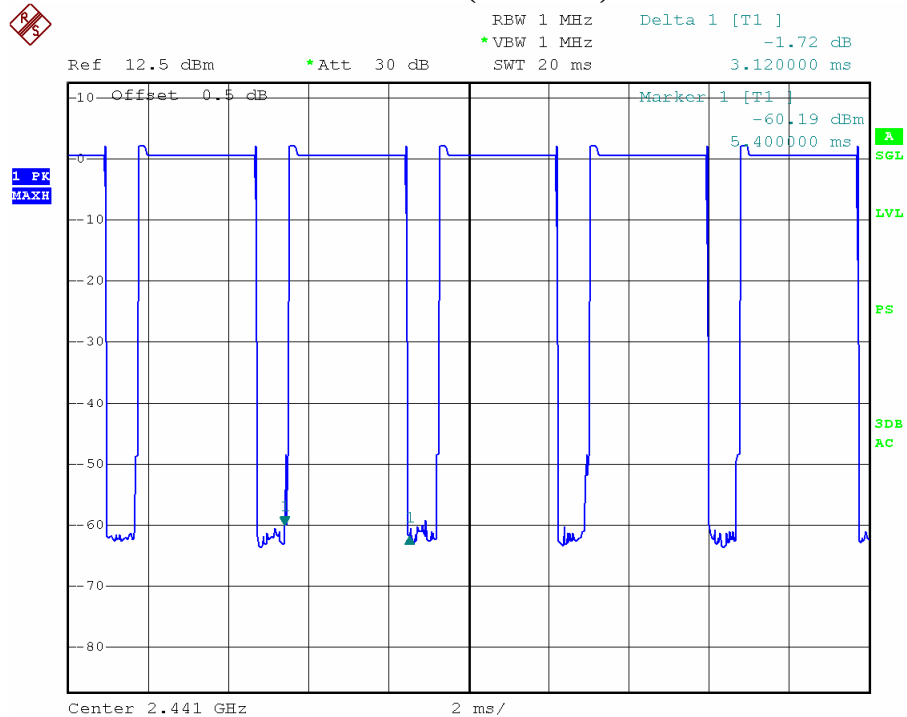
Lowest channel (2.402 GHz): EDR 3DH5



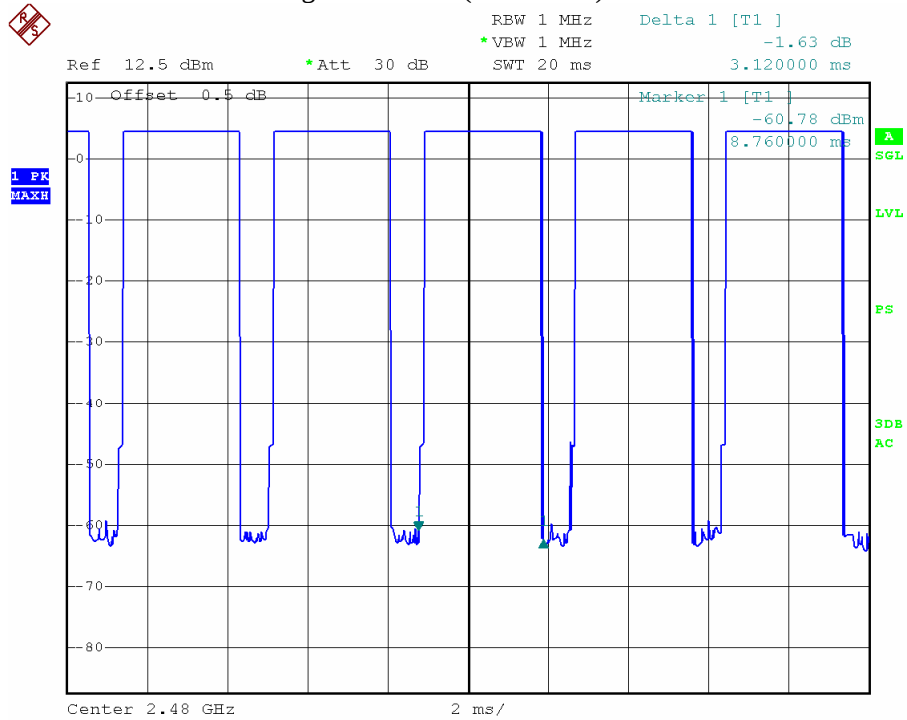
Middle channel (2.441 GHz):Normal DH5



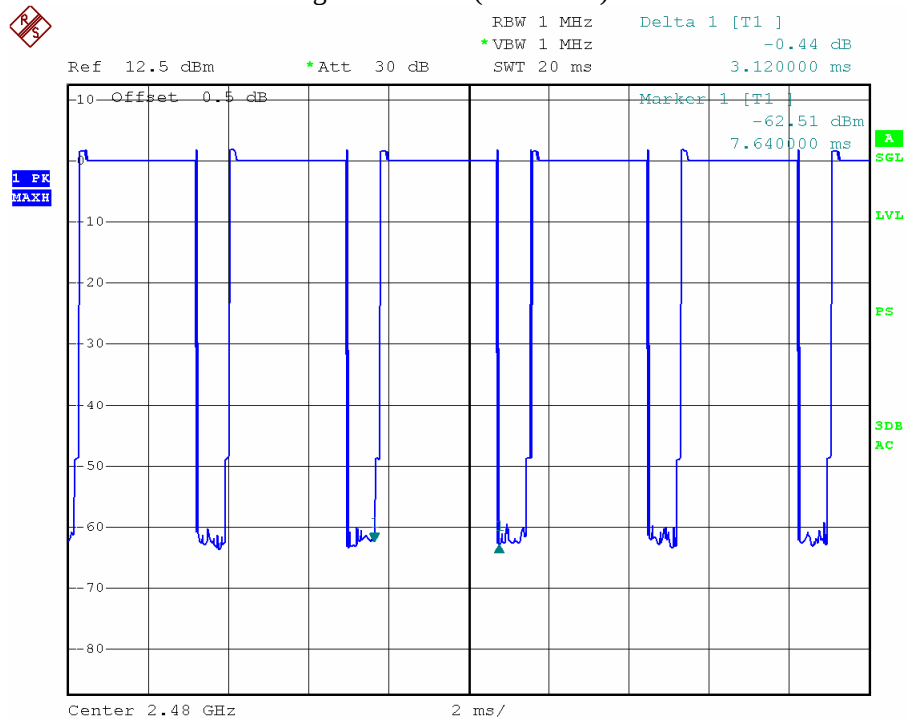
Middle channel (2.441 GHz): EDR 3DH5



Highest channel (2.480 GHz): Normal DH5



Highest channel (2.480GHz): EDR 3DH5



9. CHANNEL BANDWIDTH

9.1 LIMITS

For frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater

9.2 TEST PROCEDURES

Test Method:

ANSI C63.4:2003; FCC Part 15.247(a)(1)

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

Set spectrum analyzer span = 3. centered on two hopping channel;

Set RBW = 100kHz and VBW $\geq$ 100kHz. Sweep = auto. Detector Function = Peak. Trace = Max hold;

9.3 TEST SETUP

The EUT is connect to PC, open the EUT, Use software turn off the GPRS, FM mode, and use the software control BT test mode, The test measured by the receiver or spectrum analyzer.

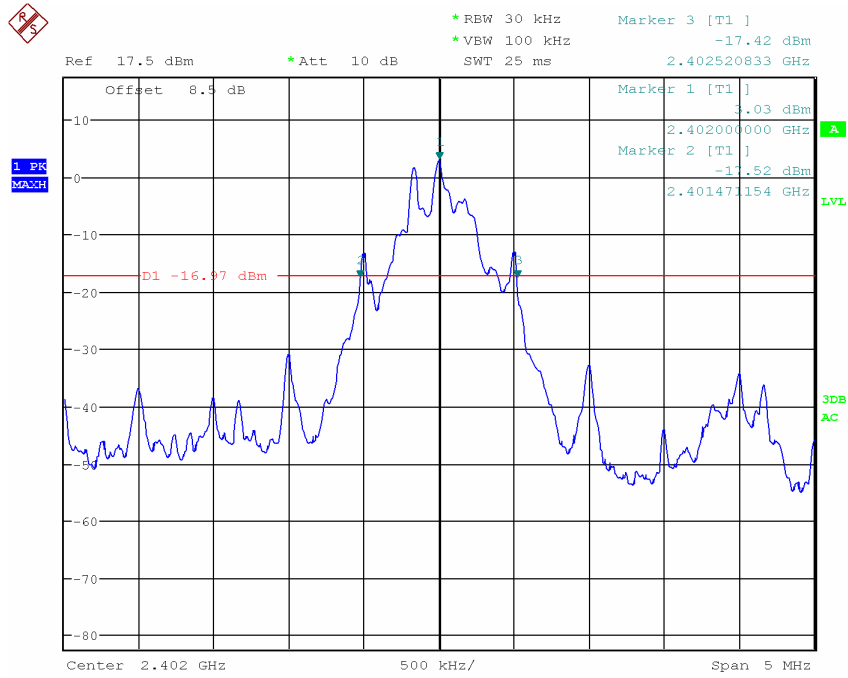


9.4 TEST RESULTS

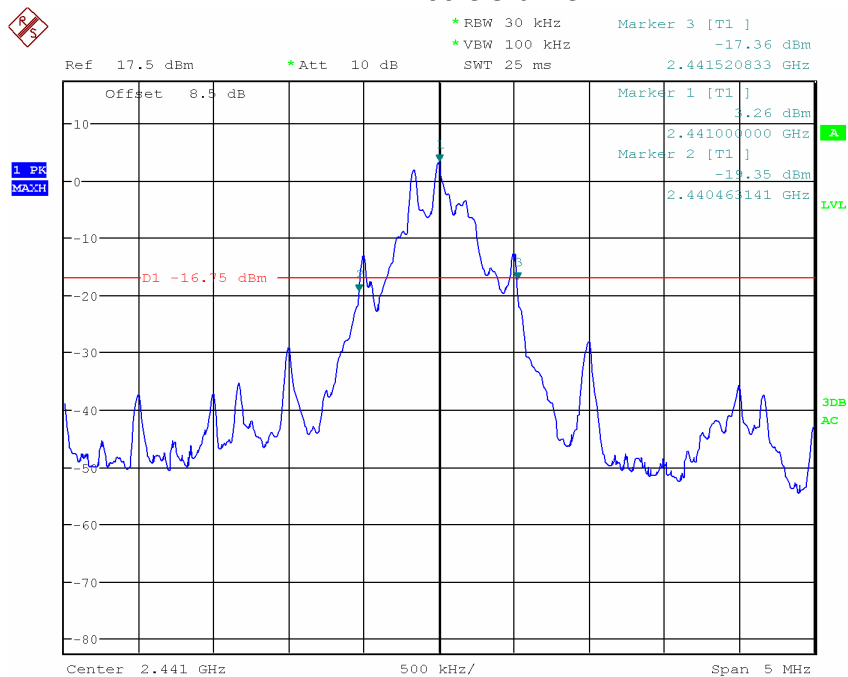
Mode: GFSK

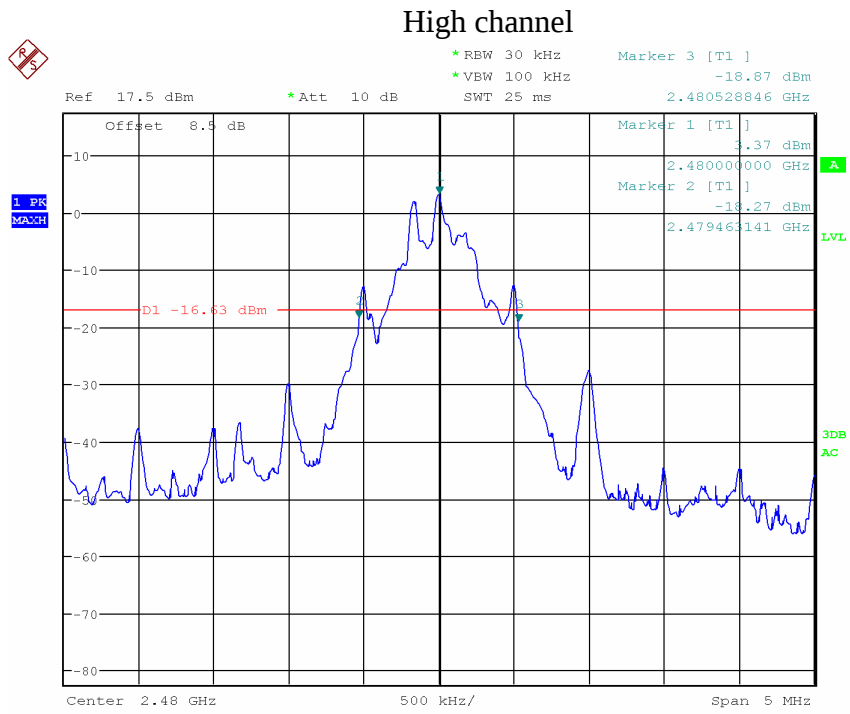
Test Channel	20dB bandwidth	PASS/FAIL
Lower Channels (channel 0 and channel 1)	1.050MHz	Pass
Middle Channels (channel 39 and channel 40)	1.058MHz	Pass
Upper Channels (channel 77 and channel 78)	1.068MHz	Pass

Low channel



Middle channel

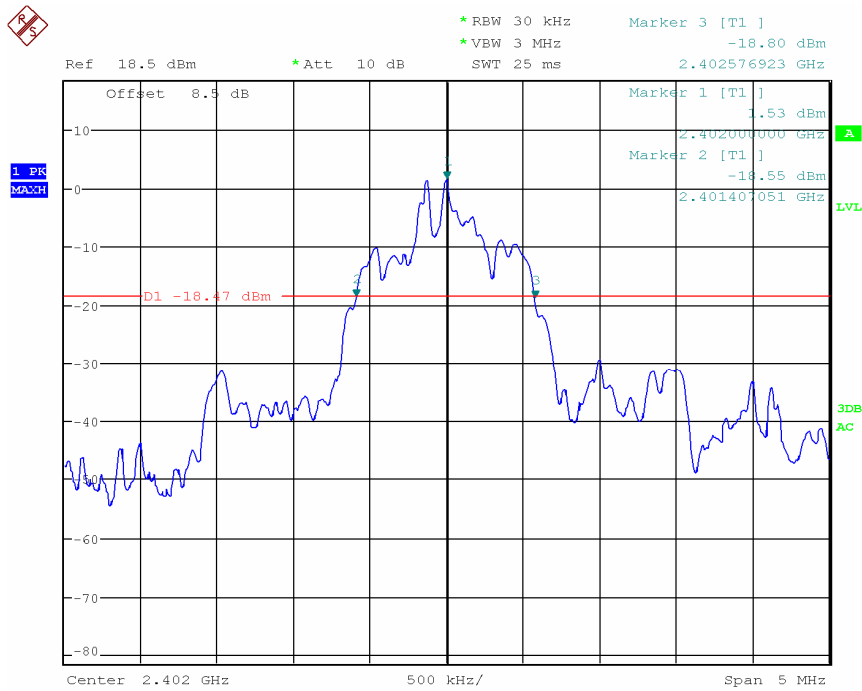




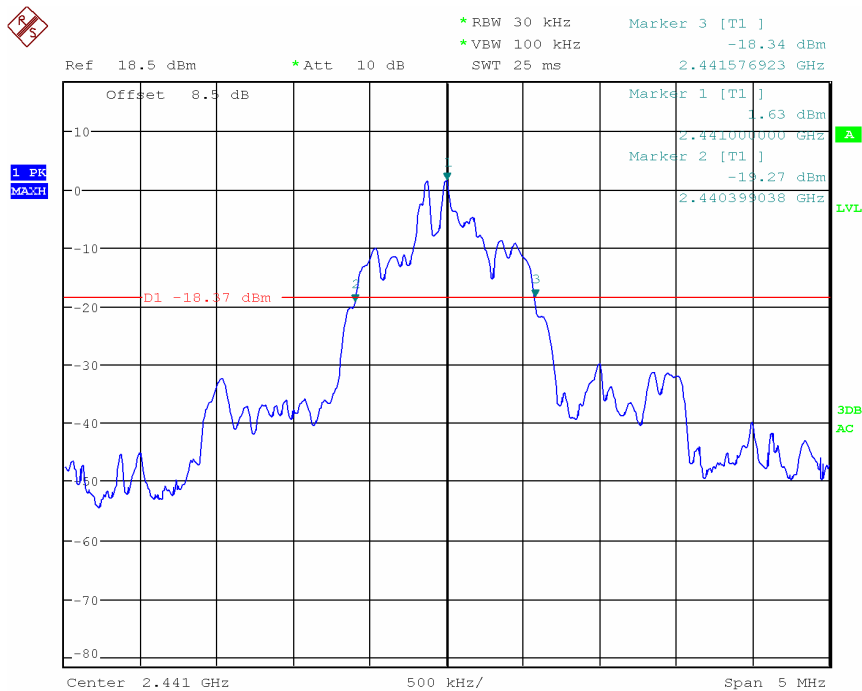
Mode: 8DPSK

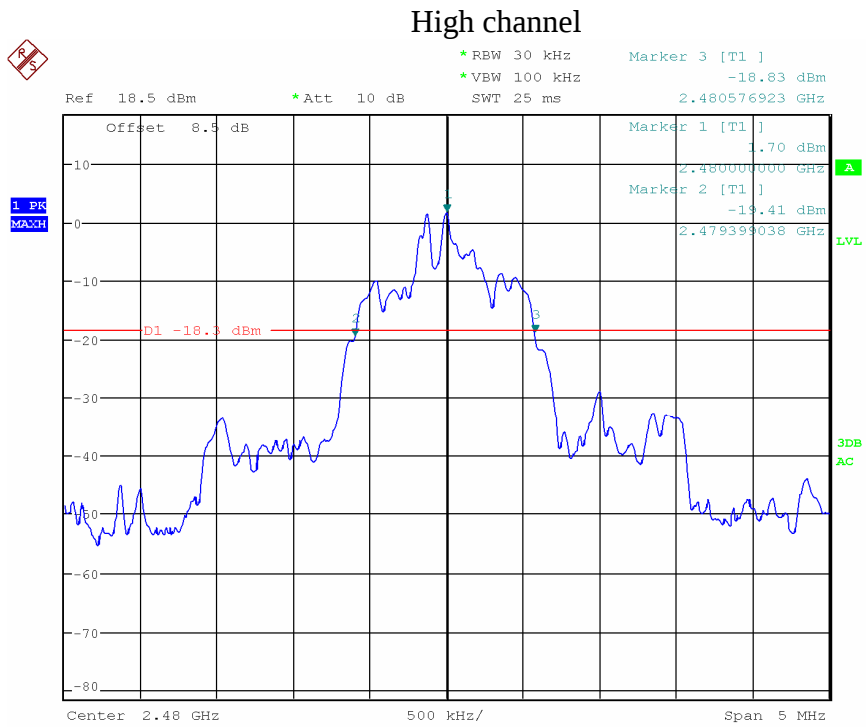
Test Channel	20dB bandwidth	PASS/FAIL
Lower Channels (channel 0 and channel 1)	1.170MHz	Pass
Middle Channels (channel 39 and channel 40)	1.178MHz	Pass
Upper Channels (channel 77 and channel 78)	1.178MHz	Pass

Low channel



Middle channel





10. HOPPING CHANNEL SEPARATION

10.1 LIMITS

At least 25kHz or two-third of 20dB hopping channel bandwidth (whichever is greater)

10.2 TEST PROCEDURES

Test Method:

ANSI C63.4:2003; FCC Part 15.247(a)(1)

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

Set spectrum analyzer span = 3. centered on two hopping channel;

Set RBW = 30kHz and VBW $\geq$ 100kHz. Sweep = auto. Detector Function = Peak. Trace = Max hold;

10.3 TEST SETUP

The EUT is connect to PC, open the EUT, Use software turn off the GPRS, FM mode, and use the software control BT test mode, The test measured by the receiver or spectrum analyzer.

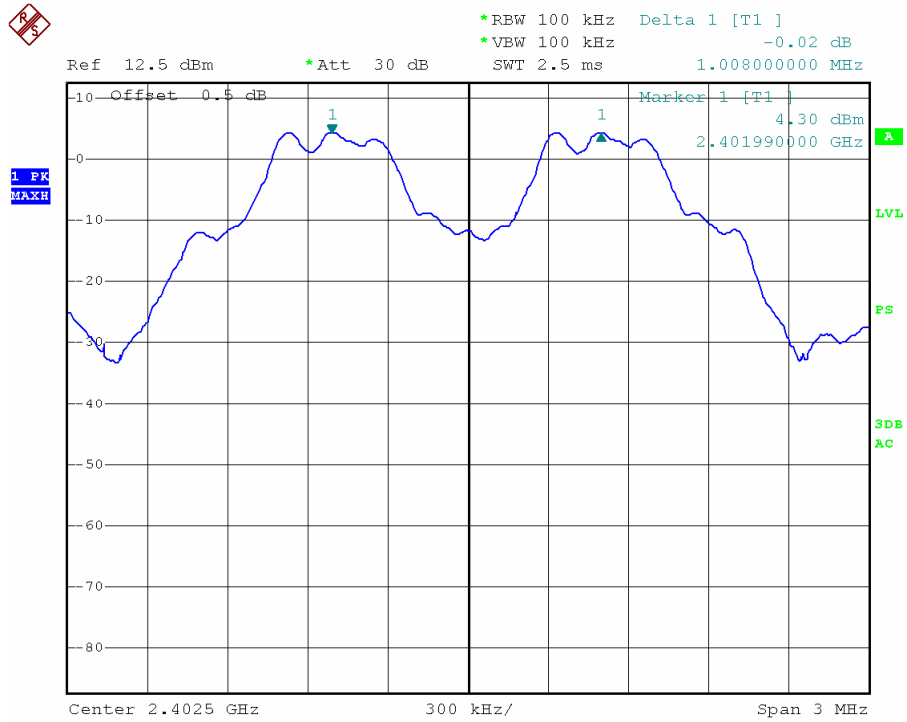


10.4 TEST RESULTS

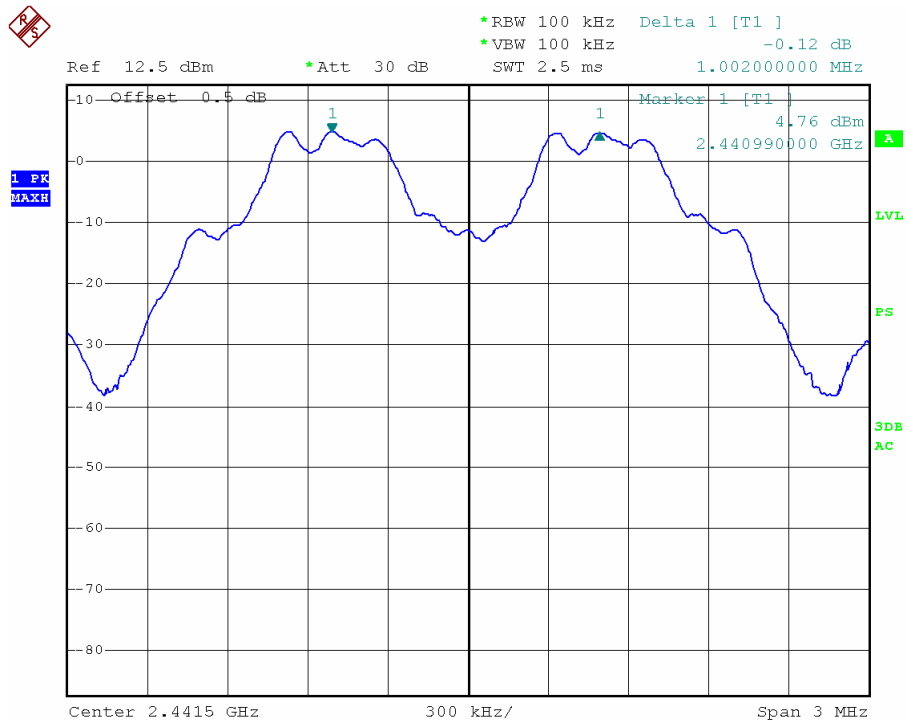
Mode: GFSK

Test Channel	Carrier Frequencies Separated	Limit	PASS/FAIL
Lower Channels (channel 0 and channel 1)	1.0080MHz	$\geq 1\text{MHz}$	Pass
Middle Channels (channel 39 and channel 40)	1.0020MHz		Pass
Upper Channels (channel 77 and channel 78)	1.0020MHz		Pass

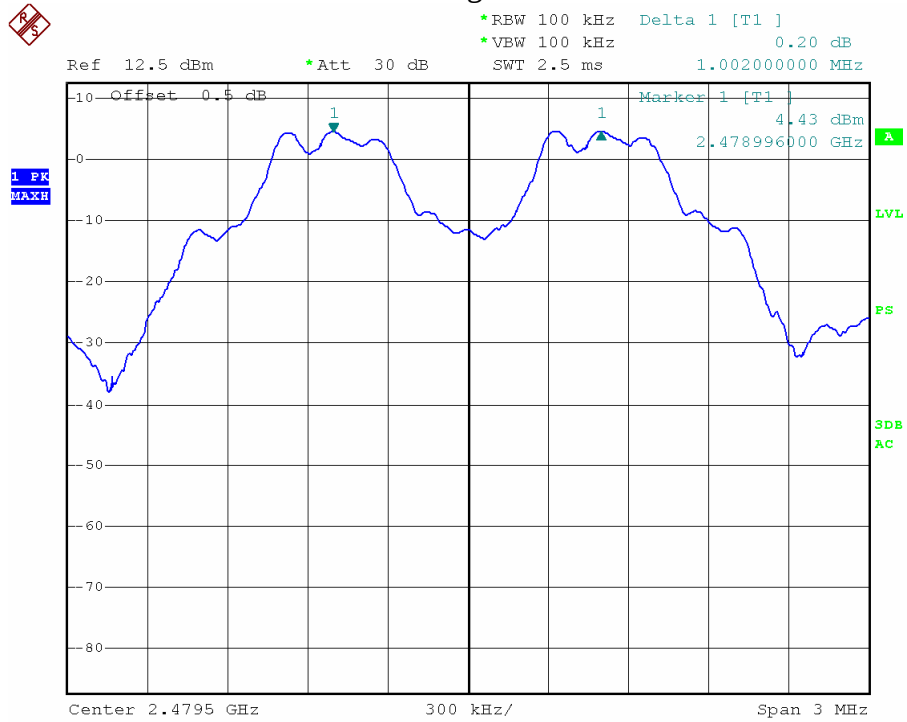
Low channel



Middle channel

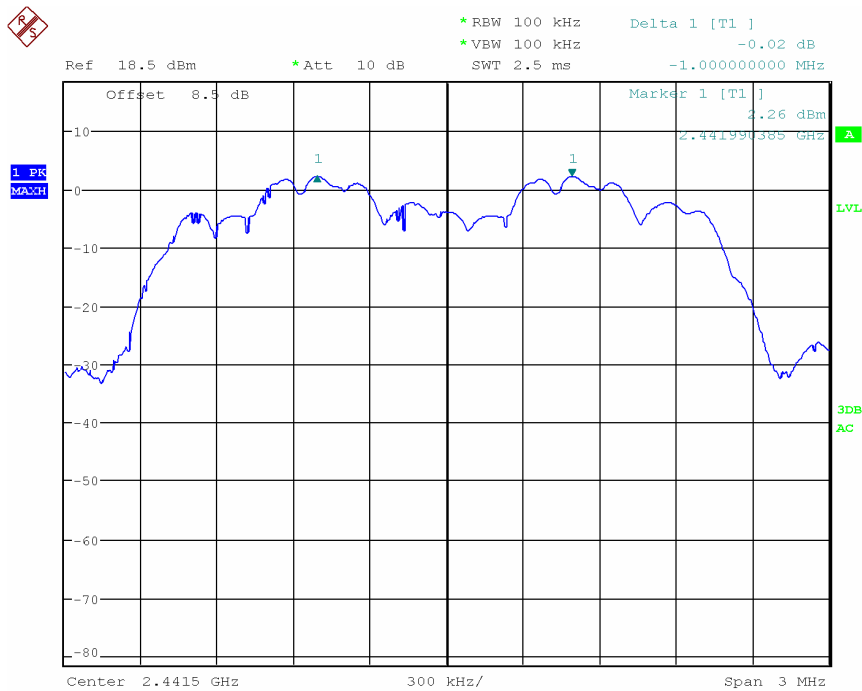
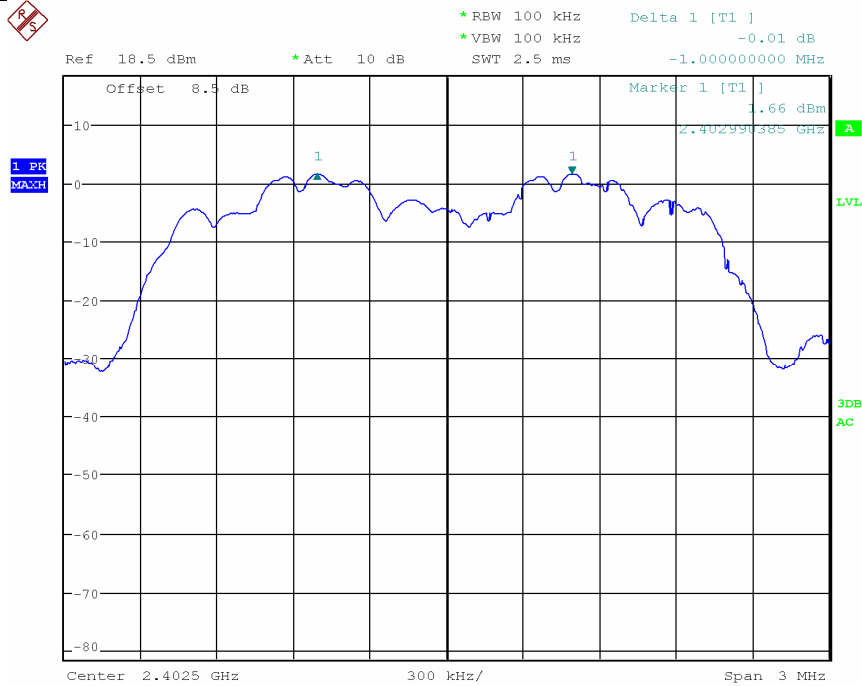


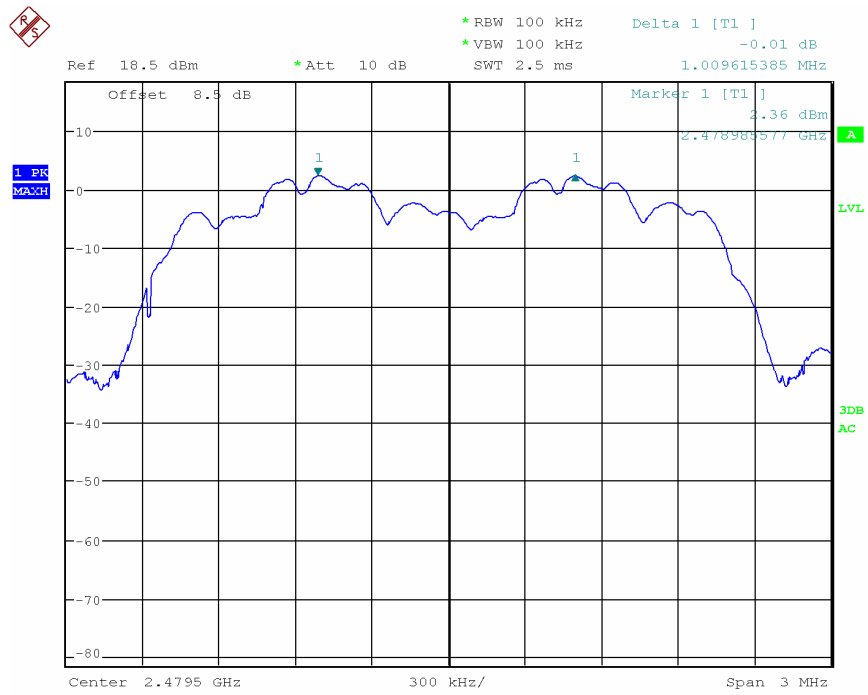
High channel



Mode: 8DPSK

Test Channel	Carrier Frequencies Separated	Limit	PASS/FAIL
Lower Channels (channel 0 and channel 1)	1.0000MHz	$\geq 1\text{MHz}$	Pass
Middle Channels (channel 39 and channel 40)	1.0000MHz		Pass
Upper Channels (channel 77 and channel 78)	1.0096MHz		Pass





11. MAXIMUM PEAK OUTPUT POWER

11.1 LIMITS

The maximum Peak output power measurement is 1W

11.2 TEST PROCEDURES

Test Method:

ANSI C63.4:2003; FCC Part 15.247(b)

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

Set the spectrum analyzer: RBW >1MHz VBW >= RBW , Span = enough to catch the trace.

Sweep = auto; Detector Function = Peak. Trace = Max,hold.

11.3 TEST SETUP

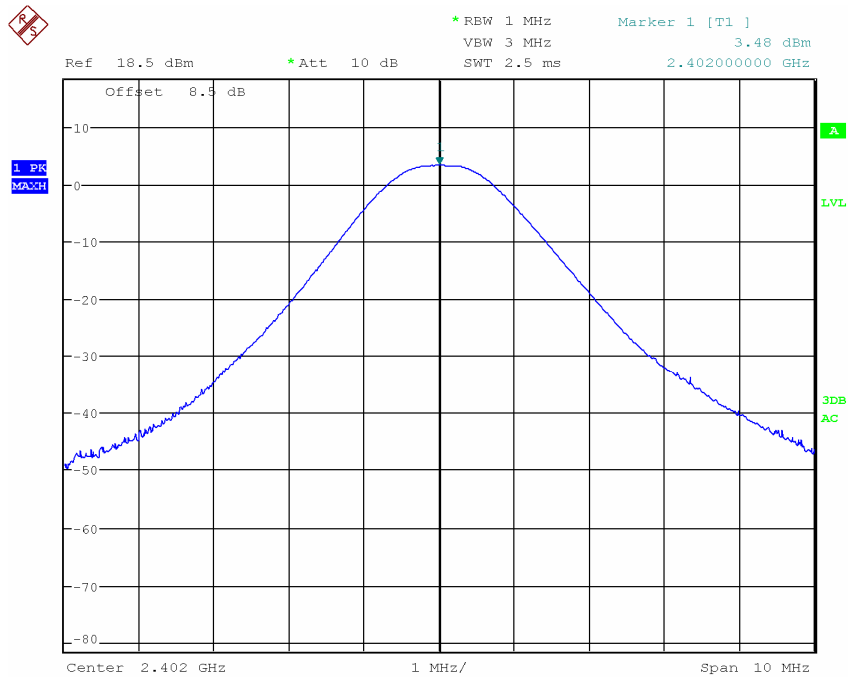
The EUT is connect to PC, open the EUT, Use software turn off the GPRS, FM mode, and use the software control BT test mode, The test measured by the receiver or spectrum analyzer.



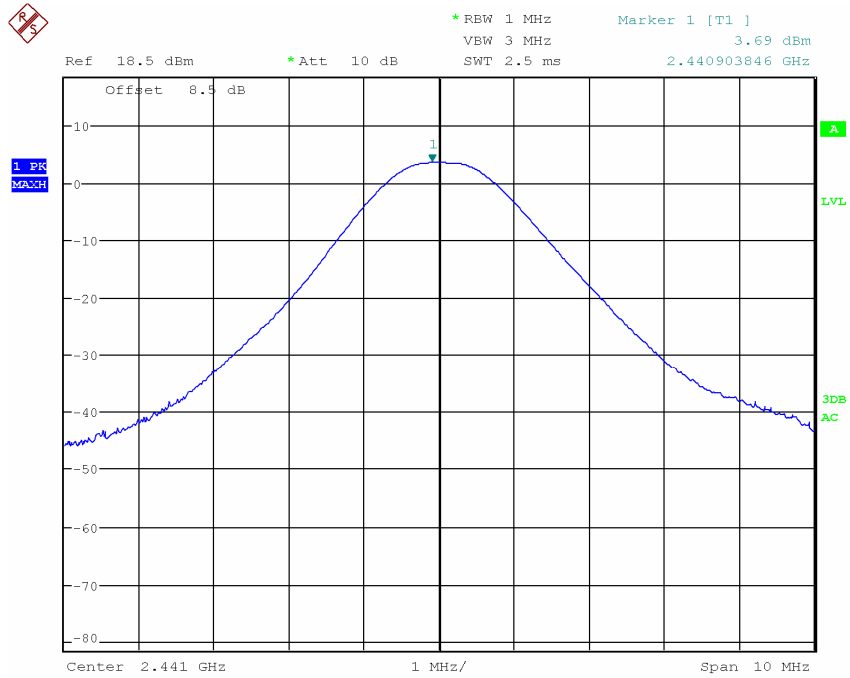
11.4 TEST RESULTS

Mode: GFSK:			
Channel	PK output power(dBm)	Limit(dBm)	Result
Lowest Frequency 2402MHz	3.48	30	Pass
Middle Frequency 2441MHz	3.69	30	Pass
Highest Frequency 2480MHz	4.37	30	Pass

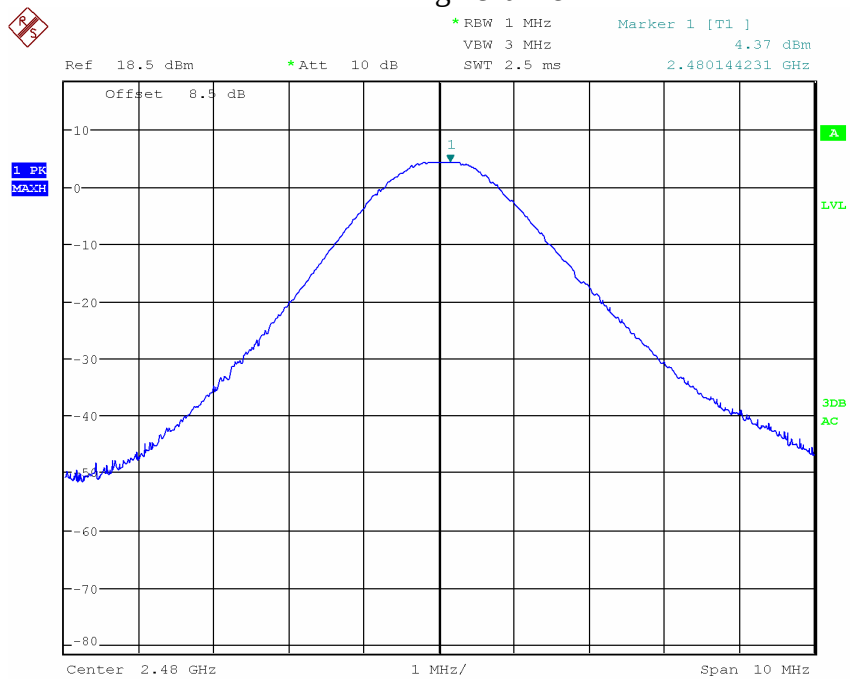
Low channel



Middle channel

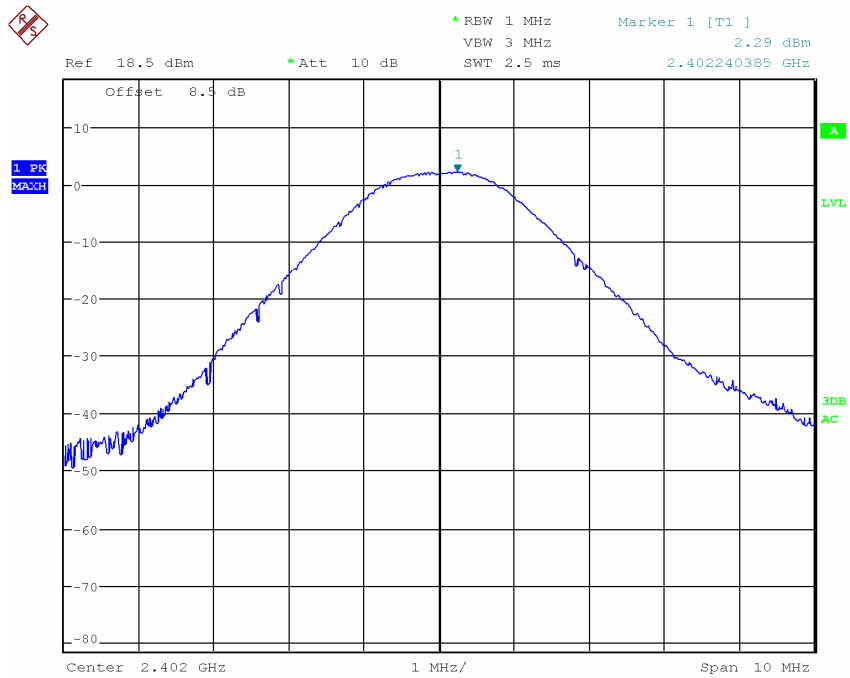


High channel



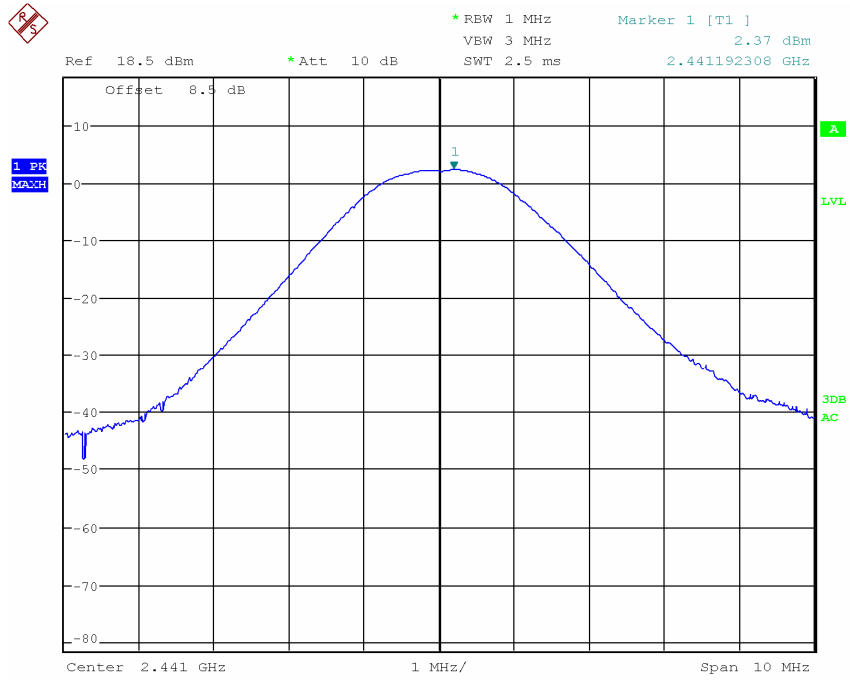
Mode: 8DPSK:			
Channel	PK output power(dBm)	Limit(dBm)	Result
Lowest Frequency 2402MHz	2.29	30	Pass
Middle Frequency 2441MHz	2.37	30	Pass
Highest Frequency 2480MHz	2.37	30	Pass

Low channel

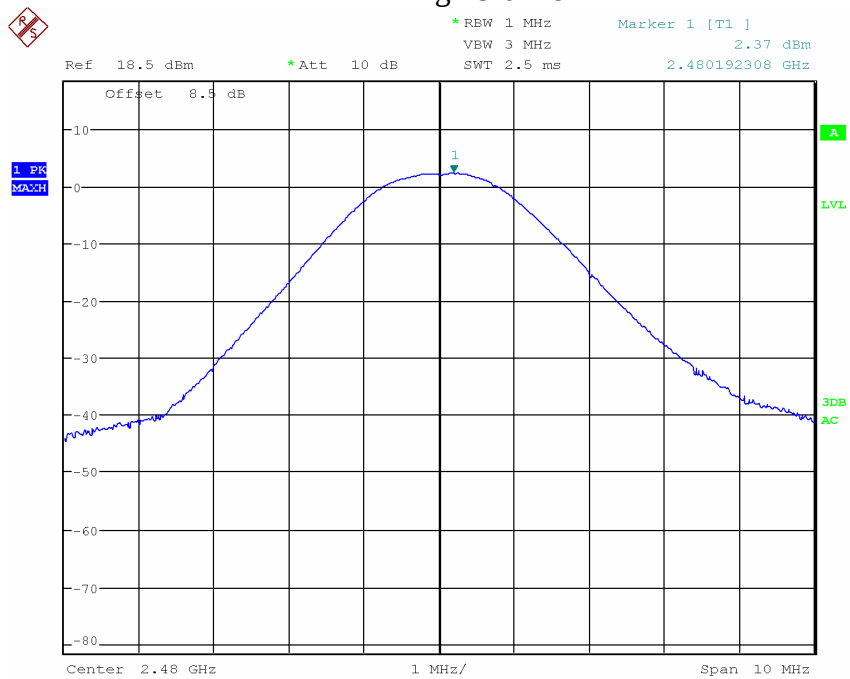


Date: 15.FEB.2012 18:36:36

Middle channel



High channel



12. OUT OF BAND EMISSIONS

12.1 LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

12.2 TEST PROCEDURES

Test Method:

ANSI C63.4:2003; FCC Part 15.247(d)

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

Set the spectrum analyzer: RBW $\geq$ 1% of the span (set 10 kHz). VBW $\geq$ RBW, Span = enough to catch the trace. Sweep = auto; Detector Function = Peak/AV. Trace = Max,hold.

12.3 TEST SETUP

The EUT is connect to PC, open the EUT, Use software turn off the GPRS, FM mode, and use the software control BT test mode, The test measured by the receiver or spectrum analyzer.

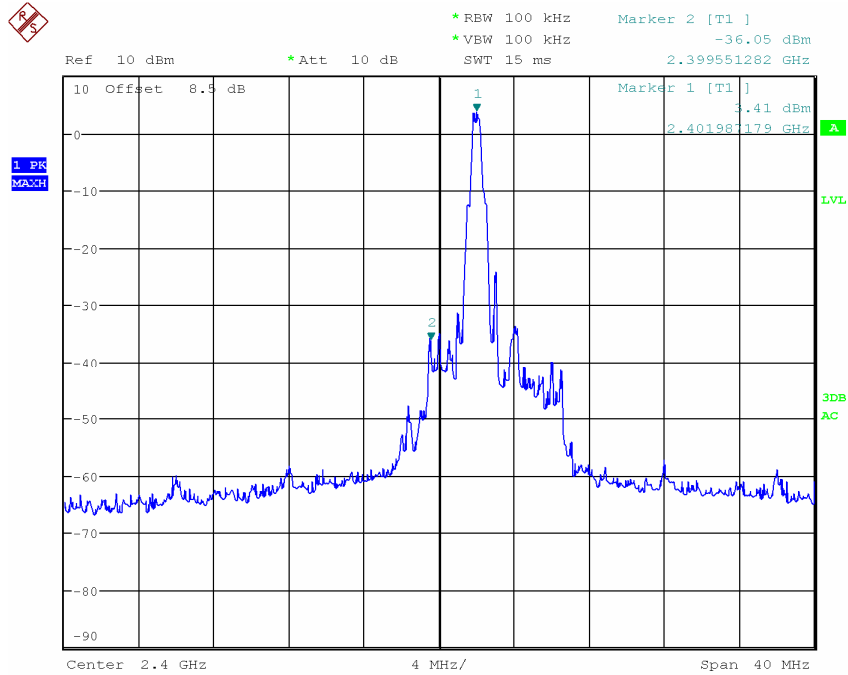


12.4 TEST RESULTS

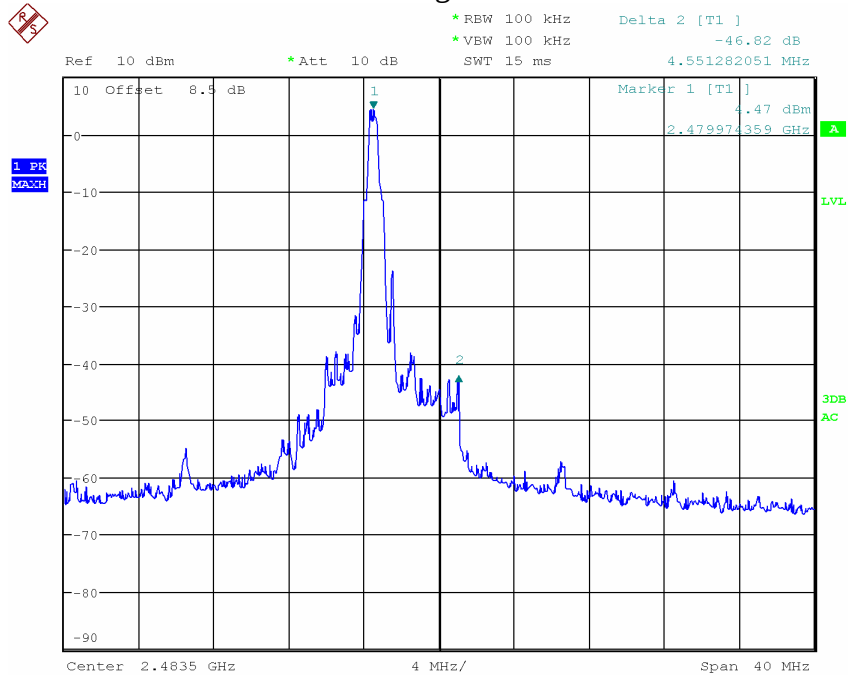
The band edges were measured and recorded Result:

Mode: GFSK:

Low channel

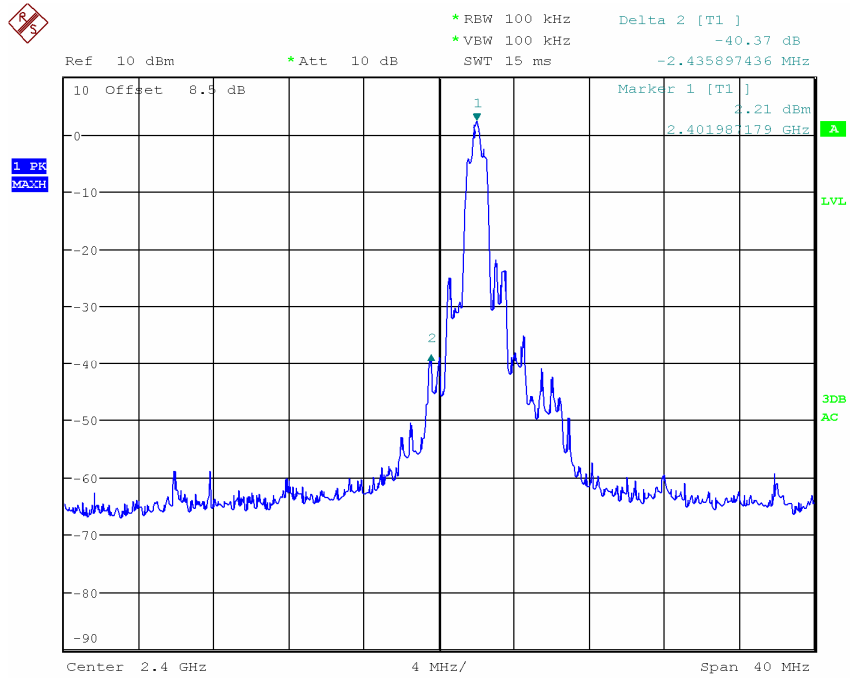


High channel

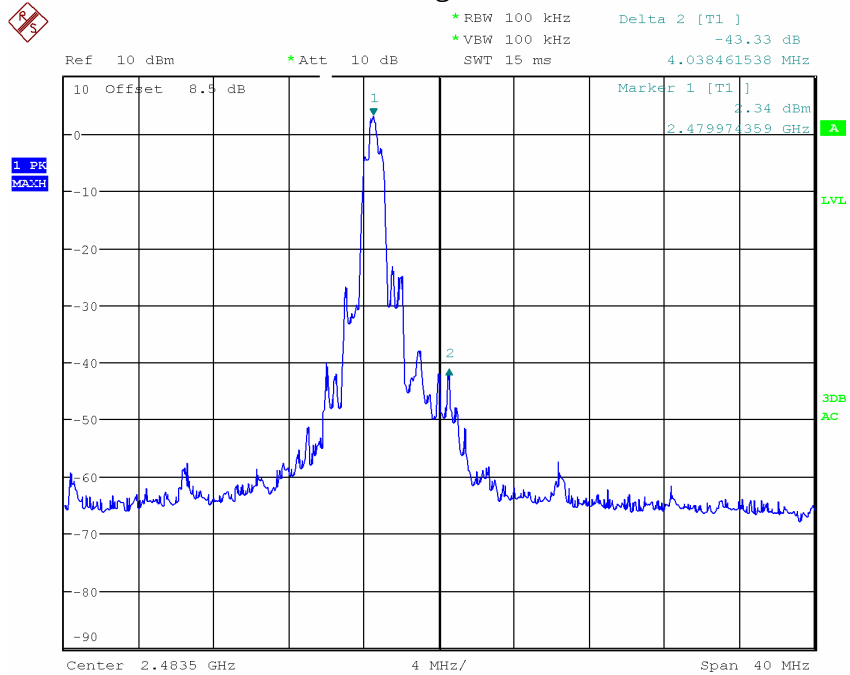


Mode: 8DPSK:

Low channel



High channel



Note*: According PCC Part 15.247(d) the result is passed

13. RADIATED BAND EDGE

13.1 LIMITS

According to 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)).

Limit:	40.0 dBμV/m between 30MHz & 88MHz;
	43.5 dBμV/m between 88MHz & 216MHz;
	46.0 dBμV/m between 216MHz & 960MHz;
	54.0 dBμV/m between 960MHz & 1000MHz
	74.0 dBμV/m, PK, 54 dBμV/m AV above 1000MHz

Section 15.205 Restricted bands of operation.

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

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	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		

13.2 TEST PROCEDURES

Test Method:

ANSI C63.4:2003; FCC Part 15.247(d)

13.3 TEST SETUP

The EUT setup sees section 6.3

13.3 TEST RESULTS

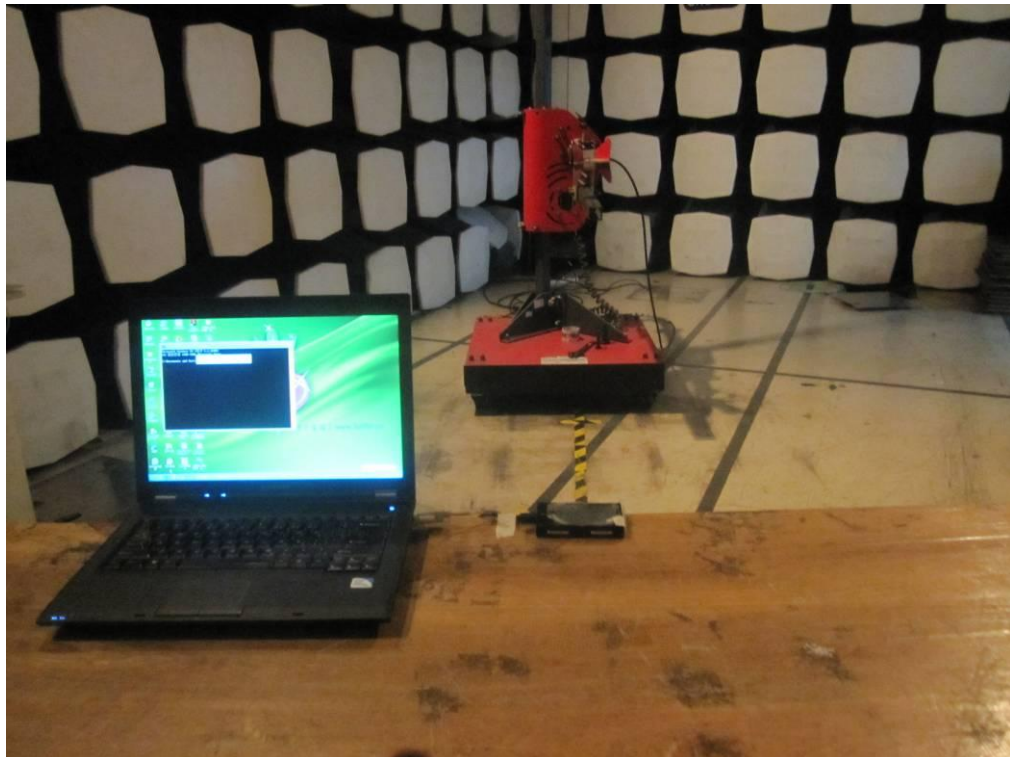
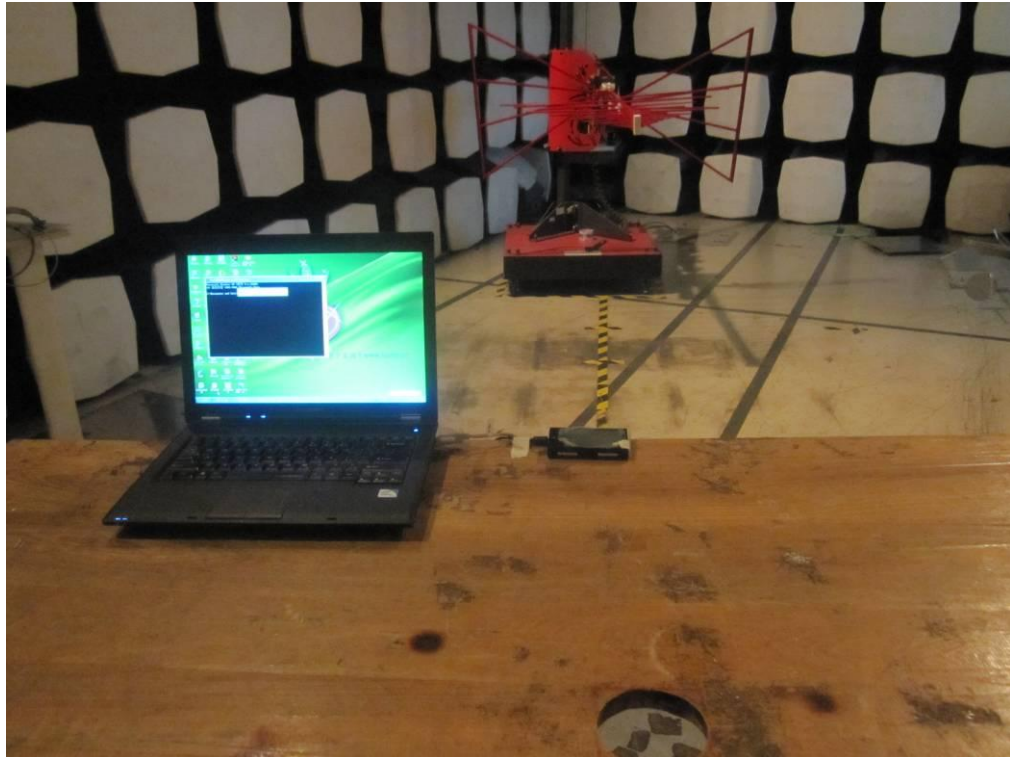
Mode: GFSK:

Frequency (MHz)	Reading dBuV	Limit	Result
2399.2MHz	53.21	PK below 74	Pass
2488.4 MHz	47.02	PK below 74	Pass
2399.2MHz	42.41	AV below 54	Pass
2489.4 MHz	39.12	AV below 54	Pass

Mode: 8DPSK:

Frequency (MHz)	Reading dBuV	Limit	Result
2399.2MHz	50.01	PK below 74	Pass
2488.4 MHz	45.23	PK below 74	Pass
2399.2MHz	40.80	AV below 54	Pass
2489.4 MHz	37.52	AV below 54	Pass

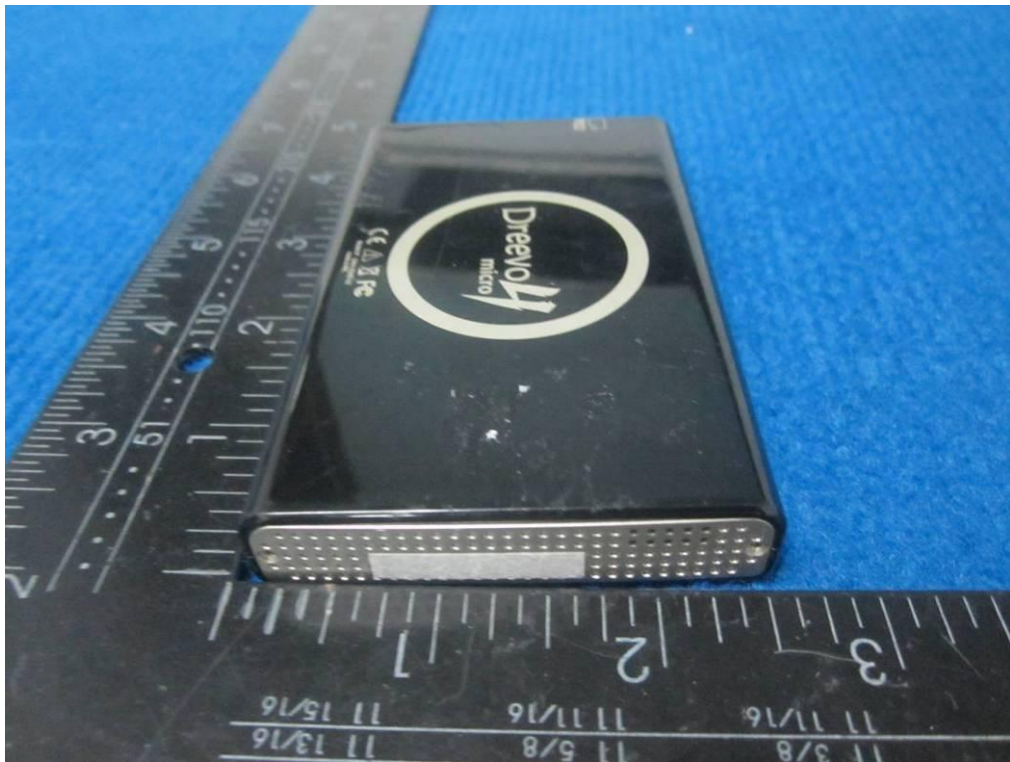
APPENDIX A: PHOTOGRAPH OF THE TEST ARRANGEMENT



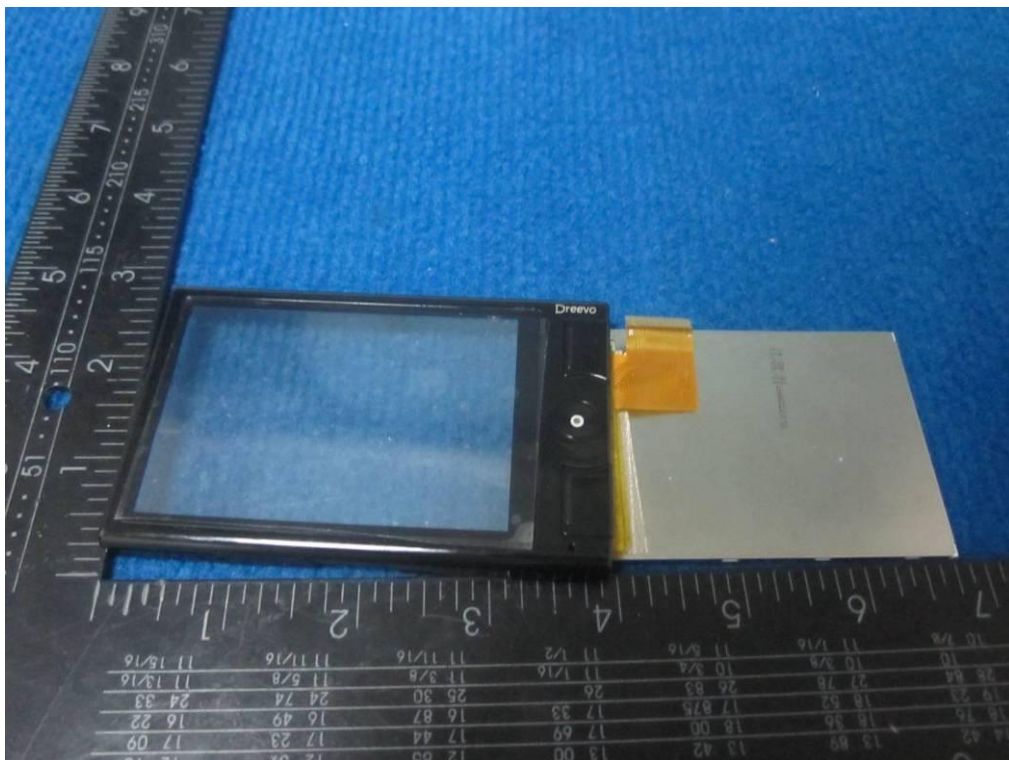
APPENDIX B: PHOTOGRAPH OF THE EUT











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