

Report No: CCIS15120092602

# **FCC REPORT**

# (Bluetooth)

Applicant: Interglobe Connection Corp

Address of Applicant: 7500 NW 25th Street 112 Miami, Florida 33122 USA

**Equipment Under Test (EUT)** 

Product Name: Flip phone

Model No.: F350

Trade mark: SOLE

FCC ID: 2AC7ISOLE-F350

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 03 Dec., 2015

**Date of Test:** 03 Dec., to 29 Dec., 2015

Date of report issued: 30 Dec., 2015

Test Result: PASS \*

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

### Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. 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.

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# 2 Version

Version No.	Date	Description
00	30 Dec., 2015	Original

Test Engineer

Reviewed by: Date: 30 Dec., 2015

Project Engineer





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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna Requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(1)	Pass
20dB Occupied Bandwidth	15.247 (a)(1)	Pass
Carrier Frequencies Separation	15.247 (a)(1)	Pass
Hopping Channel Number	15.247 (a)(1)	Pass
Dwell Time	15.247 (a)(1)	Pass
Radiated Emission	15.205/15.209	Pass
Band Edge	15.247(d)	Pass

Pass: The EUT complies with the essential requirements in the standard.



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# **5** General Information

# 5.1 Client Information

Applicant:	Interglobe Connection Corp
Address of Applicant:	7500 NW 25th Street 112 Miami, Florida 33122 USA

# 5.2 General Description of E.U.T.

Product Name:	Flip phone
Model No.:	F350
Operation Frequency:	2402MHz~2480MHz
Transfer rate:	1/2/3 Mbits/s
Number of channel:	79
Modulation type:	GFSK, π/4-DQPSK, 8DPSK
Modulation technology:	FHSS
Antenna Type:	Internal Antenna
Antenna gain:	3 dBi
Power supply:	Rechargeable Li-ion Battery DC3.7V-800mAh
AC adapter:	Input:100-240V AC, 50/60Hz 0.15A
	Output:5V DC MAX 1000mA



Project No.: CCIS151200926RF



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

Shenzhen Zhongjian Nanfang Testing Co., Ltd. No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366

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#### 5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with worst case data rate.
Remark	GFSK (1 Mbps) is the worst case mode.

The sample was placed 0.8m above the ground plane of 3m chamber\*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working with a fresh battery, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

# 5.4 Laboratory Facility

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

#### ● FCC - Registration No.: 817957

Shenzhen Zhongjian Nanfang Testing Co., Ltd. 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 out files. Registration 817957, February 27, 2012.

### ● IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

### CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

### 5.5 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282 Fax: +86-755-23116366





# 5.6 Test Instruments list

Radia	Radiated Emission:								
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)			
1	3m SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017			
2	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	03-28-2015	03-28-2016			
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	03-28-2015	03-28-2016			
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2015	03-31-2016			
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	04-01-2015	03-31-2016			
6	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	04-01-2015	03-31-2016			
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	04-01-2015	03-31-2016			
8	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	03-28-2015	03-28-2016			
9	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	03-28-2015	03-28-2016			
10	Loop antenna	Laplace instrument	RF300	EMC0701	04-01-2015	03-31-2016			

Cond	Conducted Emission:										
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)					
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	08-23-2014	08-22-2017					
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	03-28-2015	03-28-2016					
3	LISN	CHASE	MN2050D	CCIS0074	03-28-2015	03-28-2016					
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2015	03-31-2016					
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A					



### 6 Test results and Measurement Data

# 6.1 Antenna requirement

# Standard requirement:

FCC Part 15 C 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(c) (1)(i) requirement:

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

### E.U.T Antenna:

The Bluetooth antenna is an integral antenna which permanently attached, and the best case gain of the antenna is 3 dBi.







# 6.2 Conducted Emissions

Test Requirement:	FCC Part 15 C Section 15.207					
Test Method:	ANSI C63.4:2009					
Test Frequency Range:	150 kHz to 30 MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9 kHz, VBW=30 kHz, S	weep time=auto				
Limit:		Limit (d	IBuV)			
Ziiiii.	Frequency range (MHz)	Prequency range (MHZ) Quasi-peak Average				
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	46				
	5-30 60 50					
	* Decreases with the logarithm of the frequency.					
Test setup:	Reference Plane					
	AUX Equipment  Test table/Insulation plane  Remark E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m	Filter — AC pow				
Test procedure:	<ol> <li>The E.U.T and simulators a line impedance stabilization 50ohm/50uH coupling impedance.</li> <li>The peripheral devices are LISN that provides a 50ohm termination. (Please refer to photographs).</li> <li>Both sides of A.C. line are interference. In order to find positions of equipment and according to ANSI C63.4: 2</li> </ol>	n network (L.I.S.N.). The edance for the measuring also connected to the m/50uH coupling imped to the block diagram of checked for maximum do the maximum emissionall of the interface cab	is provides a ng equipment. main power through a lance with 50ohm the test setup and conducted on, the relative les must be changed			
Test Uncertainty:			$\pm 3.28~\mathrm{dB}$			
Test Instruments:	Refer to section 5.7 for details	}				
Test mode:	Bluetooth (Continuous transm	itting) mode				
Test results:	Pass					

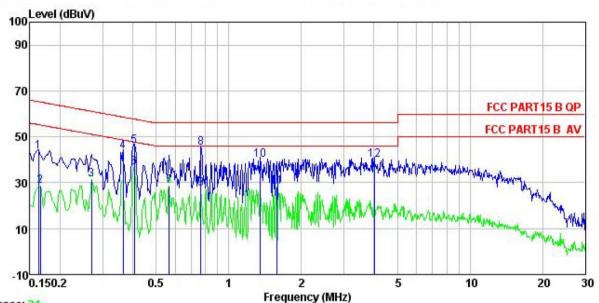
### **Measurement Data**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366





### Line:



Trace: 21

Site

: CCIS Shielding Room : FCC PART15 B QP LISN LINE Condition

EUT : Flip phone Model : F350 Test Mode : BT mode Power Rating : AC 120V/60Hz

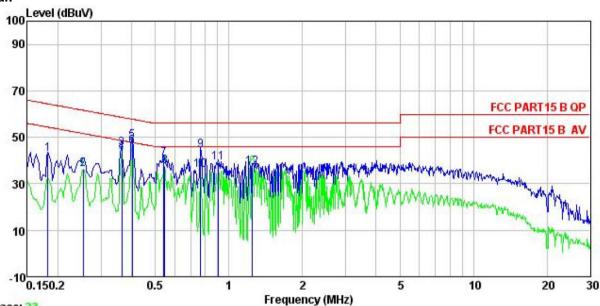
Environment : Temp: 23 °C Huni:56% Atmos:101KPa

Test Engineer: Viki Remark :

Freq	Read Level				Limit Line	Over Limit	Remark
MHz	dBu∀	₫B	₫B	dBu₹	dBu∀	<u>dB</u>	
0.162	32.46	0.27	10.77	43.50	65.34	-21.84	QP
0.166	17.40	0.27	10.77	28.44	55.16	-26.72	Average
0.270	20.40	0.27	10.75	31.42	51.12	-19.70	Average
0.365	32.51	0.27	10.73	43.51	58.61	-15.10	QP
0.406	35.00	0.28	10.72	46.00	57.73	-11.73	QP
0.406	25.60	0.28	10.72	36.60	47.73	-11.13	Average
0.567	17.43	0.26	10.77	28.46	46.00	-17.54	Average
0.767	34.09	0.23	10.80	45.12	56.00	-10.88	QP
0.767	16.12	0.23	10.80	27.15	46.00	-18.85	Average
1.352	28.82	0.25	10.91	39.98	56.00	-16.02	QP
1.577	16.91	0.26	10.93	28.10	46.00	-17.90	Average
4.006	28.90	0.28	10.89	40.07	56.00	-15.93	QP
	MHz 0. 162 0. 166 0. 270 0. 365 0. 406 0. 406 0. 567 0. 767 1. 352 1. 577	Freq Level  MHz dBuV  0.162 32.46 0.166 17.40 0.270 20.40 0.365 32.51 0.406 35.00 0.406 25.60 0.567 17.43 0.767 34.09 0.767 16.12 1.352 28.82 1.577 16.91	Freq Level Factor  MHz dBuV dB  0.162 32.46 0.27 0.166 17.40 0.27 0.270 20.40 0.27 0.365 32.51 0.27 0.406 35.00 0.28 0.406 25.60 0.28 0.406 25.60 0.28 0.567 17.43 0.26 0.767 34.09 0.23 0.767 16.12 0.23 1.352 28.82 0.25 1.577 16.91 0.26	Freq         Level         Factor         Loss           MHz         dBuV         dB         dB           0.162         32.46         0.27         10.77           0.166         17.40         0.27         10.77           0.270         20.40         0.27         10.75           0.365         32.51         0.27         10.73           0.406         35.00         0.28         10.72           0.406         25.60         0.28         10.72           0.567         17.43         0.26         10.77           0.767         34.09         0.23         10.80           0.767         16.12         0.23         10.80           1.352         28.82         0.25         10.91           1.577         16.91         0.26         10.93	MHz         dBuV         dB         dB         dBuV           0.162         32.46         0.27         10.77         43.50           0.166         17.40         0.27         10.77         28.44           0.270         20.40         0.27         10.75         31.42           0.365         32.51         0.27         10.73         43.51           0.406         35.00         0.28         10.72         46.00           0.406         25.60         0.28         10.72         36.60           0.567         17.43         0.26         10.77         28.46           0.767         34.09         0.23         10.80         45.12           0.767         16.12         0.23         10.80         27.15           1.352         28.82         0.25         10.91         39.98           1.577         16.91         0.26         10.93         28.10	MHz         dBuV         dB         dB         dBuV         dBuV           0.162         32.46         0.27         10.77         43.50         65.34           0.166         17.40         0.27         10.77         28.44         55.16           0.270         20.40         0.27         10.75         31.42         51.12           0.365         32.51         0.27         10.73         43.51         58.61           0.406         35.00         0.28         10.72         46.00         57.73           0.406         25.60         0.28         10.72         36.60         47.73           0.567         17.43         0.26         10.77         28.46         46.00           0.767         34.09         0.23         10.80         45.12         56.00           0.767         16.12         0.23         10.80         27.15         46.00           1.352         28.82         0.25         10.91         39.98         56.00           1.577         16.91         0.26         10.93         28.10         46.00	MHz         dBuV         dB         dB         dBuV         dBuV         dB           0.162         32.46         0.27         10.77         43.50         65.34         -21.84           0.166         17.40         0.27         10.77         28.44         55.16         -26.72           0.270         20.40         0.27         10.75         31.42         51.12         -19.70           0.365         32.51         0.27         10.73         43.51         58.61         -15.10           0.406         35.00         0.28         10.72         46.00         57.73         -11.73           0.406         25.60         0.28         10.72         36.60         47.73         -11.73           0.406         25.60         0.28         10.72         28.46         46.00         -17.54           0.767         17.43         0.26         10.77         28.46         46.00         -17.54           0.767         16.12         0.23         10.80         27.15         46.00         -18.85           1.352         28.82         0.25         10.91         39.98         56.00         -16.02           1.577         16.91         0.26



### Neutral:



Trace: 23

Site

: CCIS Shielding Room : FCC PART15 B QP LISN NEUTRAL Condition

: Flip phone : F350 EUT Model

Test Mode : BT mode
Power Rating : AC 120V/60Hz
Environment : Temp: 23 °C Huni: 56% Atmos: 101KPa

Test Engineer: Viki

Fred		LISN	Cable		Limit	Over	
rreq	Level	Factor	Loss	Level	Line	Limit	Remark
MHz	dBu∀	₫B	₫B	dBu₹	dBu₹	₫B	
0.182	31.64	0.25	10.77	42.66	64.42	-21.76	QP
0.253	25.31	0.26	10.75	36.32	51.64	-15.32	Average
0.365	34.34	0.25	10.73	45.32			
0.365	32.53	0.25	10.73	43.51	48.61	-5.10	Average
0.402	37.50	0.25	10.72	48.47	57.81	-9.34	QP
0.402	35.00	0.25	10.72	45.97	47.81	-1.84	Average
0.541	29.90	0.26	10.76	40.92	56.00	-15.08	QP
0.546	26.63	0.26	10.76	37.65	46.00	-8.35	Average
0.767	33.47	0.19	10.80	44.46	56.00	-11.54	QP
0.767	24.90	0.19	10.80	35.89	46.00	-10.11	Average
0.904	28.26	0.21	10.84	39.31	56.00	-16.69	QP
1.249	25.88	0.24	10.90	37.02	46.00	-8.98	Average
	MHz 0.182 0.253 0.365 0.365 0.402 0.541 0.546 0.767 0.767 0.904	MHz dBuV  0.182 31.64 0.253 25.31 0.365 34.34 0.365 32.53 0.402 37.50 0.402 35.00 0.541 29.90 0.546 26.63 0.767 33.47 0.767 24.90 0.904 28.26	0.182 31.64 0.25 0.253 25.31 0.26 0.365 34.34 0.25 0.365 32.53 0.25 0.402 37.50 0.25 0.402 37.50 0.25 0.541 29.90 0.26 0.546 26.63 0.26 0.767 33.47 0.19 0.767 24.90 0.19 0.904 28.26 0.21	MHz dBuV dB dB  0.182 31.64 0.25 10.77 0.253 25.31 0.26 10.75 0.365 34.34 0.25 10.73 0.365 32.53 0.25 10.73 0.402 37.50 0.25 10.72 0.402 35.00 0.25 10.72 0.402 35.00 0.25 10.72 0.541 29.90 0.26 10.76 0.546 26.63 0.26 10.76 0.767 33.47 0.19 10.80 0.767 24.90 0.19 10.80 0.904 28.26 0.21 10.84	MHz dBuV dB dB dB dBuV  0.182 31.64 0.25 10.77 42.66 0.253 25.31 0.26 10.75 36.32 0.365 34.34 0.25 10.73 45.32 0.365 32.53 0.25 10.73 43.51 0.402 37.50 0.25 10.72 48.47 0.402 35.00 0.25 10.72 45.97 0.541 29.90 0.26 10.76 40.92 0.546 26.63 0.26 10.76 40.92 0.546 26.63 0.26 10.76 37.65 0.767 33.47 0.19 10.80 35.89 0.904 28.26 0.21 10.84 39.31	MHz dBuV dB dB dBuV dBuV  0.182 31.64 0.25 10.77 42.66 64.42 0.253 25.31 0.26 10.75 36.32 51.64 0.365 34.34 0.25 10.73 45.32 58.61 0.365 32.53 0.25 10.73 43.51 48.61 0.402 37.50 0.25 10.72 48.47 57.81 0.402 35.00 0.25 10.72 45.97 47.81 0.541 29.90 0.26 10.76 40.92 56.00 0.546 26.63 0.26 10.76 40.92 56.00 0.546 26.63 0.26 10.76 37.65 46.00 0.767 33.47 0.19 10.80 44.46 56.00 0.767 24.90 0.19 10.80 35.89 46.00 0.904 28.26 0.21 10.84 39.31 56.00	MHz dBuV dB dB dB dBuV dBuV dB  0.182 31.64 0.25 10.77 42.66 64.42 -21.76 0.253 25.31 0.26 10.75 36.32 51.64 -15.32 0.365 34.34 0.25 10.73 45.32 58.61 -13.29 0.365 32.53 0.25 10.73 43.51 48.61 -5.10 0.402 37.50 0.25 10.73 43.51 48.61 -5.10 0.402 35.00 0.25 10.72 48.47 57.81 -9.34 0.402 35.00 0.25 10.72 45.97 47.81 -1.84 0.541 29.90 0.26 10.76 40.92 56.00 -15.08 0.546 26.63 0.26 10.76 40.92 56.00 -15.08 0.546 26.63 0.26 10.76 37.65 46.00 -8.35 0.767 33.47 0.19 10.80 44.46 56.00 -11.54 0.767 24.90 0.19 10.80 35.89 46.00 -10.11 0.904 28.26 0.21 10.84 39.31 56.00 -16.69

#### Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level = Receiver Read level + LISN Factor + Cable Loss



# 6.3 Conducted Output Power

Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=1MHz, VBW=3MHz, Detector=Peak (If 20dB BW ≤1 MHz) RBW=3MHz, VBW=10MHz, Detector=Peak (If 20dB BW > 1 MHz and < 3MHz)	
Limit:	125 mW(21 dBm)	
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane	
Test Instruments:	Refer to section 5.7 for details	
Test mode:	Non-hopping mode	
Test results:	Pass	

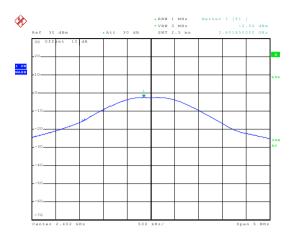
#### **Measurement Data**

	GFSK mo	de	
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-2.50	21.00	Pass
Middle	-2.81	21.00	Pass
Highest	-3.52	21.00	Pass
	π/4-DQPSK ι	mode	
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-1.36	21.00	Pass
Middle	-1.73	21.00	Pass
Highest	-2.55	21.00	Pass
	8DPSK mode		
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-1.05	21.00	Pass
Middle	-1.45	21.00	Pass
Highest	-2.34	21.00	Pass



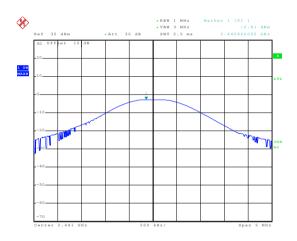
### Test plot as follows:

# Modulation mode: GFSK



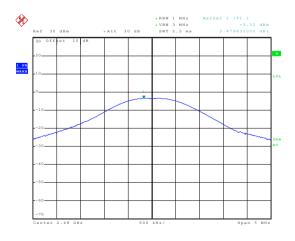
Date: 25.DEC.2015 09:51:09

#### Lowest channel



Date: 25.DEC.2015 09:51:41

### Middle channel

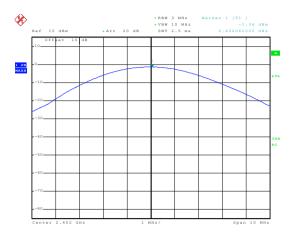


Date: 25.DEC.2015 09:52:12

Highest channel

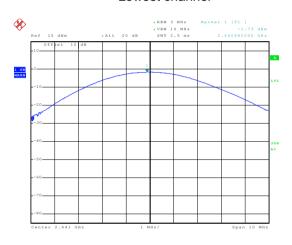


### Modulation mode: π/4-DQPSK



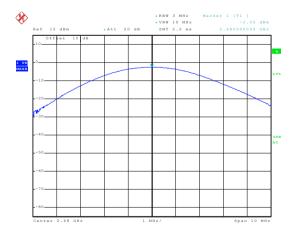
Date: 25.DEC.2015 11:17:05

#### Lowest channel



Date: 25.DEC.2015 11:16:39

### Middle channel

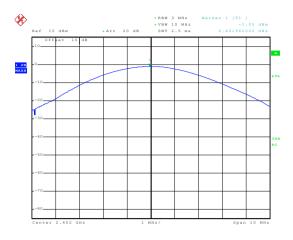


Date: 25.DEC.2015 11:16:17

Highest channel

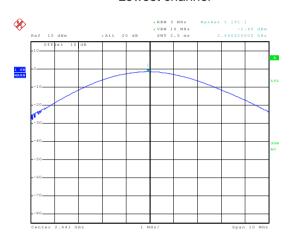


### Modulation mode: 8DPSK



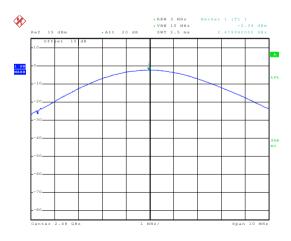
Date: 25.DEC.2015 11:15:02

#### Lowest channel



Date: 25.DEC.2015 11:15:28

### Middle channel



Date: 25.DEC.2015 11:15:47

Highest channel



# 6.4 20dB Occupy Bandwidth

Test Requirement:	FCC Part 15 C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=30 kHz, VBW=100 kHz, detector=Peak	
Limit:	NA	
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane	
Test Instruments:	Refer to section 5.7 for details	
Test mode:	Non-hopping mode	
Test results:	Pass	

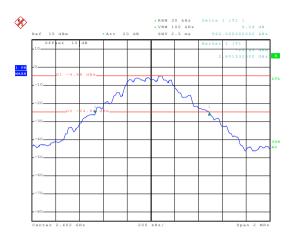
### **Measurement Data**

Test channel	20dB Occupy Bandwidth (kHz)		
rest channel	GFSK	π/4-DQPSK	8DPSK
Lowest	960	1372	1260
Middle	960	1444	1256
Highest	992	1340	1272

# Test plot as follows:

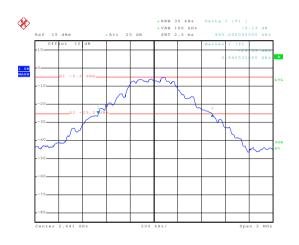


# Modulation mode: GFSK



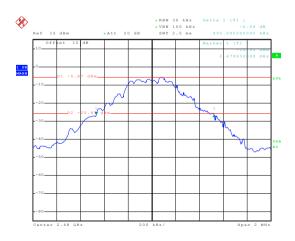
Date: 25.DEC.2015 09:57:08

### Lowest channel



Date: 25.DEC.2015 09:55:37

### Middle channel

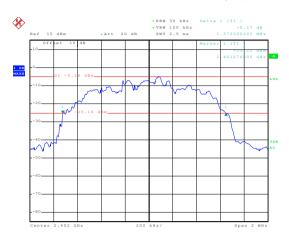


Date: 25.DEC.2015 09:54:24

Highest channel

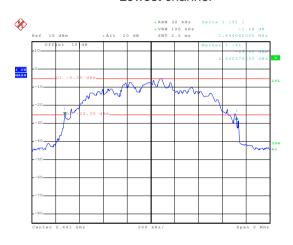


### Modulation mode: π/4-DQPSK



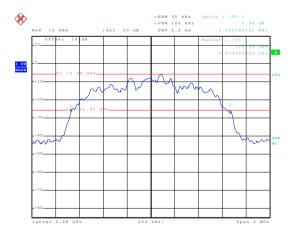
Date: 25.DEC.2015 11:22:35

#### Lowest channel



Date: 25.DEC.2015 11:23:48

### Middle channel

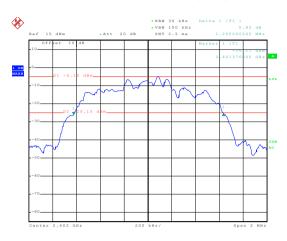


Date: 25.DEC.2015 11:25:31

Highest channel

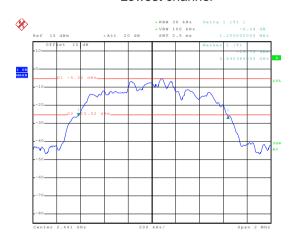


### Modulation mode: 8DPSK



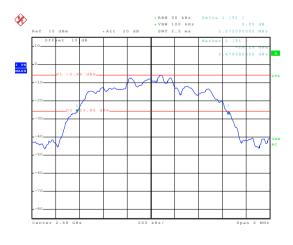
Date: 25.DEC.2015 11:28:57

#### Lowest channel



Date: 25.DEC.2015 11:27:56

### Middle channel



Date: 25.DEC.2015 11:26:48

Highest channel





# 6.5 Carrier Frequencies Separation

Test Requirement:	FCC Part 15 C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=100 kHz, VBW=300 kHz, detector=Peak	
Limit:	0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)	
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane	
Test Instruments:	Refer to section 5.7 for details	
Test mode:	Hopping mode	
Test results:	Pass	

### **Measurement Data**





GFSK mode			
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Lowest	1000	661.33	Pass
Middle	1000	661.33	Pass
Highest	1004	661.33	Pass
	π/4-DQPSK mo	de	
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Lowest	1000	962.67	Pass
Middle	1004	962.67	Pass
Highest	1000	962.67	Pass
	8DPSK mode		
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Lowest	1000	848.00	Pass
Middle	1004	848.00	Pass
Highest	1000	848.00	Pass

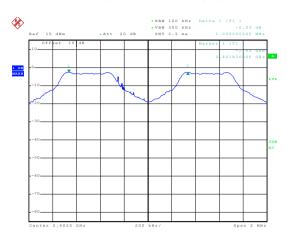
Note: According to section 6.4

Mode	20dB bandwidth (kHz) (worse case)	Limit (kHz) (Carrier Frequencies Separation)
GFSK	992	661.33
π/4-DQPSK	1444	962.67
8DPSK	1272	848.00

# Test plot as follows:

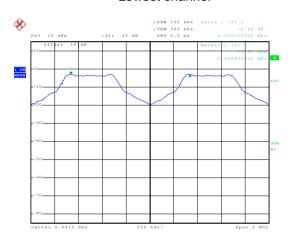


### Modulation mode: GFSK



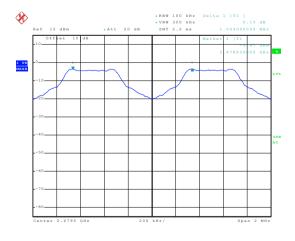
Date: 25.DEC.2015 09:59:26

#### Lowest channel



Date: 25.DEC.2015 10:00:13

### Middle channel

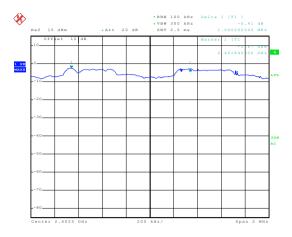


Date: 25.DEC.2015 10:05:37

Highest channel

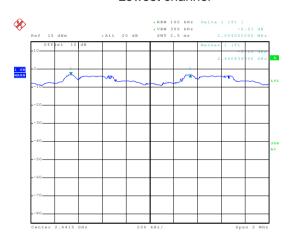


### Modulation mode: π/4-DQPSK



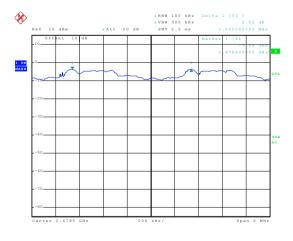
Date: 25.DEC.2015 11:09:04

#### Lowest channel



Date: 25.DEC.2015 11:10:02

### Middle channel



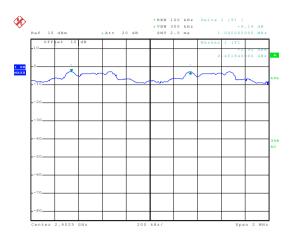
Date: 25.DEC.2015 11:10:54

Highest channel

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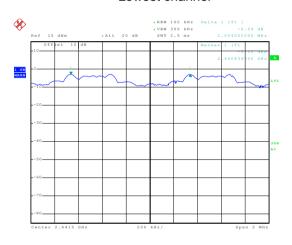


### Modulation mode: 8DPSK



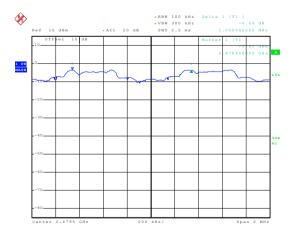
Date: 25.DEC.2015 11:14:10

#### Lowest channel



Date: 25.DEC.2015 11:13:10

### Middle channel



Date: 25.DEC.2015 11:12:14

Highest channel



# 6.6 Hopping Channel Number

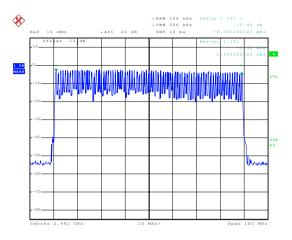
Test Requirement:	FCC Part 15 C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=100 kHz, VBW=300 kHz, Frequency range=2400MHz-2483.5MHz, Detector=Peak	
Limit:	15 channels	
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane	
Test Instruments:	Refer to section 5.7 for details	
Test mode:	Hopping mode	
Test results:	Pass	

# **Measurement Data:**

Mode	Hopping channel numbers	Limit	Result
GFSK, π/4-DQPSK, 8DPSK	79	15	Pass

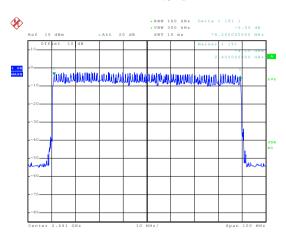


### GFSK



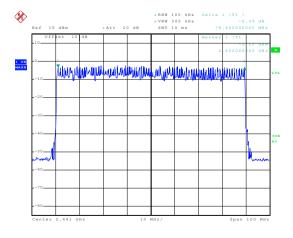
Date: 25.DEC.2015 10:07:45

#### π/4-DQPSK



Date: 25.DEC.2015 10:54:37

### 8DPSK



Date: 25.DEC.2015 10:51:49



### 6.7 Dwell Time

Test Requirement:	FCC Part 15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2009 and KDB DA00-705
Receiver setup:	RBW=1 MHz, VBW=1 MHz, Span=0 Hz, Detector=Peak
Limit:	0.4 Second
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane
Test Instruments:	Refer to section 5.7 for details
Test mode:	Hopping mode
Test results:	Pass

### Measurement Data (Worse case)

	<u> </u>			
Mode	Packet	Dwell time (second)	Limit (second)	Result
	DH1	0.13824		
GFSK	DH3	0.26848	0.4	Pass
	DH5	0.31253		
	2-DH1	0.12992		
π/4-DQPSK	2-DH3	0.26704	0.4	Pass
	2-DH5	0.31371		
	3-DH1	0.12992		
8DPSK	3-DH3	0.26688	0.4	Pass
	3-DH5	0.31104		

For GFSK,  $\pi/4$ -DQPSK and 8DPSK:

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s

DH1 time slot=0.432\*(1600/ (2\*79))\*31.6=138.24ms DH3 time slot=1.678\*(1600/ (4\*79))\*31.6=268.48ms DH5 time slot=2.930\*(1600/ (6\*79))\*31.6=312.53ms

2-DH1 time slot=0.406\*(1600/ (2\*79))\*31.6=129.92ms

2-DH3 time slot=1.669\*(1600/ (4\*79))\*31.6=267.04ms

2-DH5 time slot=2.941\*(1600/ (6\*79))\*31.6=313.71ms

3-DH1 time slot=0.406\*(1600/ (2\*79))\*31.6=129.92ms

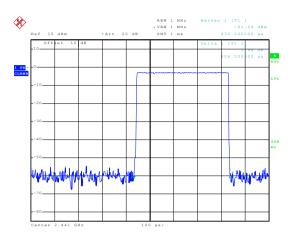
3-DH3 time slot=1.668\*(1600/ (4\*79))\*31.6=266.88ms

3-DH5 time slot=2.916\*(1600/ (6\*79))\*31.6=311.04ms



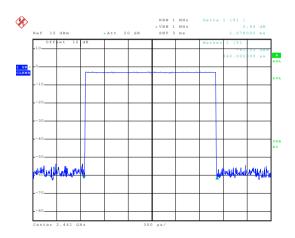
# Test plot as follows:

### Modulation mode: GFSK



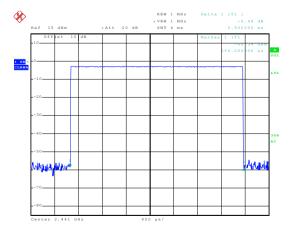
Date: 25.DEC.2015 10:10:41

### DH1



Date: 25.DEC.2015 10:11:53

### DH3

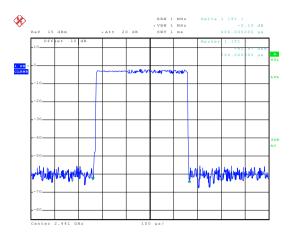


Date: 25.DEC.2015 10:13:21

DH5

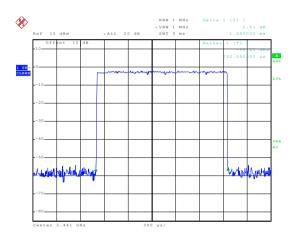


### Modulation mode: π/4-DQPSK



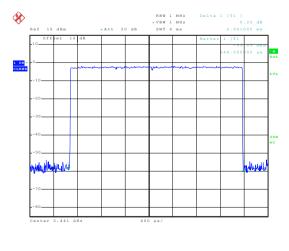
Date: 25.DEC.2015 10:42:18

### 2-DH1



Date: 25.DEC.2015 10:43:37

### 2-DH3

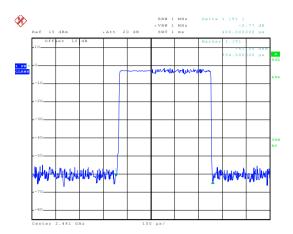


Date: 25.DEC.2015 10:44:26

2-DH5

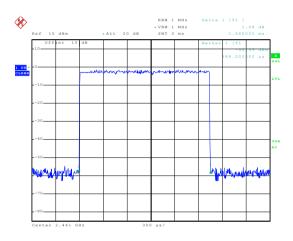


### Modulation mode: 8DPSK



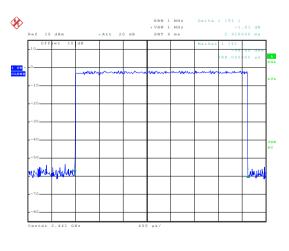
Date: 25.DEC.2015 10:37:59

### 3-DH1



Date: 25.DEC.2015 10:39:56

### 3-DH3



Date: 25.DEC.2015 10:40:48

3-DH5

Report No: CCIS15120092602

# 6.8 Pseudorandom Frequency Hopping Sequence

# Test Requirement: FCC Part 15 C Section 15.247 (a)(1) requirement:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively. 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, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

### **EUT Pseudorandom Frequency Hopping Sequence**

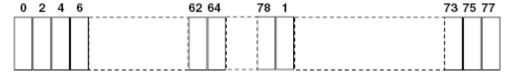
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: 29-1 = 511 bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.





# 6.9 Band Edge

# 6.9.1 Conducted Emission Method

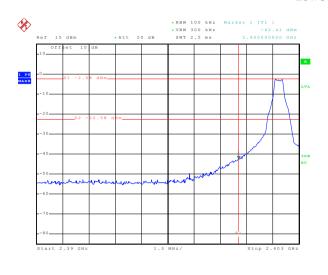
Test Requirement:	FCC Part 15 C Section 15.247 (d)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=100 kHz, VBW=300 kHz, Detector=Peak	
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power 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 setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane	
Test Instruments:	Refer to section 5.7 for details	
Test mode:	Non-hopping mode and hopping mode	
Test results:	Pass	

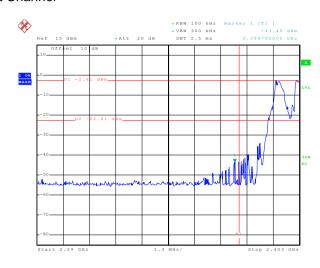
# Test plot as follows:



### **GFSK**

### Lowest Channel





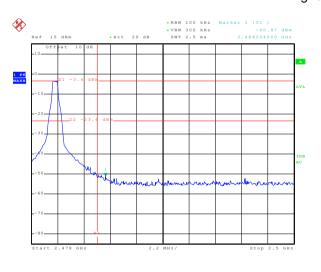
Date: 25.DEC.2015 10:17:02

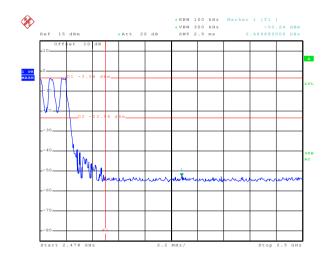
No-hopping mode

Hopping mode

# **Highest Channel**

Date: 25.DEC.2015 10:18:22





Date: 25.DEC.2015 10:22:16

No-hopping mode

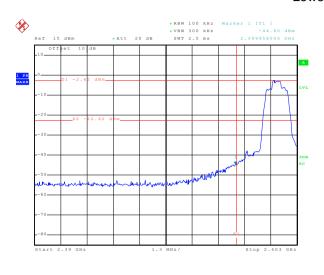
Date: 25.DEC.2015 10:20:59

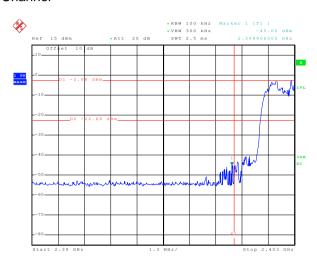
Hopping mode



### $\pi/4$ -DQPSK

#### **Lowest Channel**





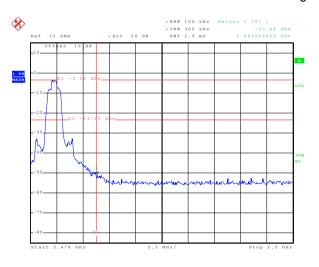
Date: 25.DEC.2015 10:33:35

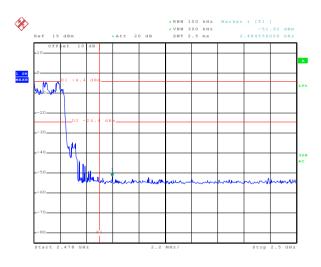
No-hopping mode

Date: 25.DEC.2015 10:32:39

Hopping mode

# **Highest Channel**





Date: 25.DEC.2015 10:24:14

No-hopping mode

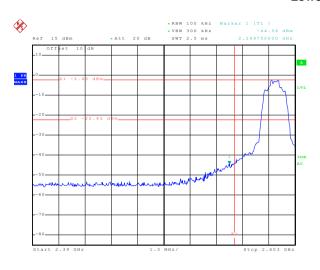
Date: 25.DEC.2015 10:31:05

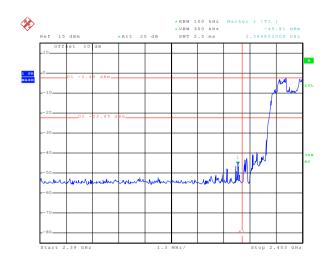
Hopping mode



### 8DPSK

### Lowest Channel





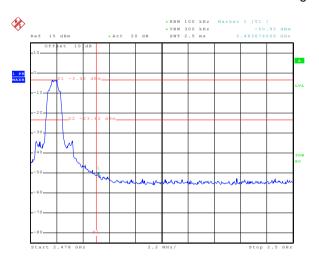
Date: 25.DEC.2015 10:34:33

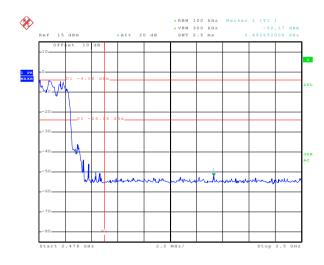
No-hopping mode

Date: 25.DEC.2015 10:35:50

Hopping mode

# **Highest Channel**





Date: 25.DEC.2015 10:25:38

No-hopping mode

Date: 25.DEC.2015 10:27:28

Hopping mode



### 6.9.2 Radiated Emission Method

	1								
Test Requirement:	FCC Part 15 C	Section 15.20	9 and 15.205						
Test Method:	ANSI C63.10: 2	009							
Test Frequency Range:	2.3GHz to 2.5G	Hz							
Test site:	Measurement D	istance: 3m							
Receiver setup:	Frequency	Detector	RBW	VBW	Remark				
	Above 1GHz	Peak RMS	1MHz	3MHz	Peak Value				
Limit:	Freque		1MHz Limit (dBuV	3MHz (m @3m)	Average Value Remark				
Littit.		-	54.0		Average Value				
	Above 1	GHZ	74.0	0	Peak Value				
Test setup:	1. The EUT was placed on the top of a rotating table 0.8 meters above the								
Test Procedure:	ground at a 3 determine th  2. The EUT wa antenna, white tower.  3. The antennate ground to de horizontal and measuremer  4. For each sustand then the and the rotate maximum resumble.  5. The test-recesus Specified Ba  6. If the emission limit specified EUT would be 10dB margin.	B meter cambe e position of the position of the set 3 meters che was mount the management of the management of the management of the position	er. The table was set to Peak Maximum Hole EUT in peak tested one by the feet one by the rwise the etested one by the rwise	was rotated diation. The interference of a variable of the field one antenna was arrangents from 1 regrees to 36 at Detect Field Mode. The mode was apped and the emissions the one using process to 36 at Detect Field Mode.	and degrees to ance-receiving ole-height antenna of the distrength. Both are set to make the ed to its worst case meter to 4 meters of degrees to find the function and and another than the need to its worst case meter to 4 meters of the did not have beak, quasi-peak or				
Test Instruments:	Refer to section			•					
Test mode:	Non-hopping m								
Test results:	Passed								

### Remark:

- 1. During the test, pre-scan the GFSK,  $\pi/4$ -DQPSK, 8DPSK, and all data were shown in report.
- 2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.

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Bao'an District, Shenzhen, Guangdong, China
Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366

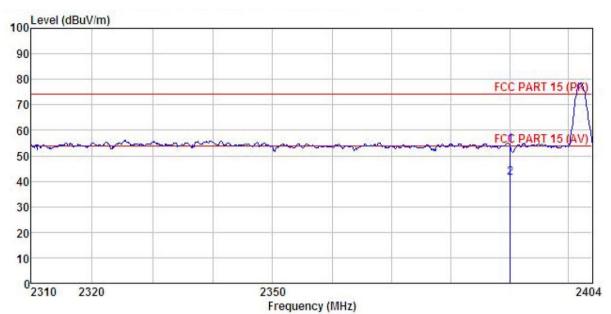




### **GFSK** mode

Test channel: Lowest

Horizontal:



Site

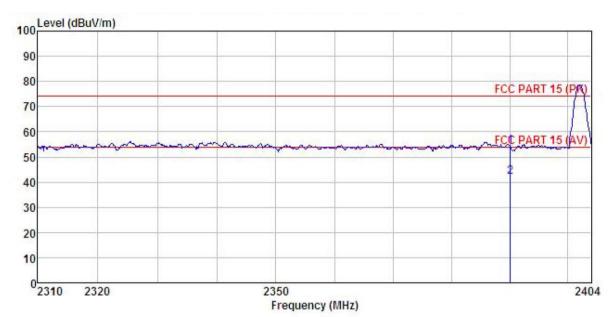
: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL Condition

EUT : Flip phone : F450 Model : DH1-L Mode Test mode Power Rating: AC 120V/60Hz
Environment: Temp:25.5°C Huni:55%
Test Engineer: Viki
REMARK:

		Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-	MHz	dBu∜		d <u>B</u>	<u>dB</u>	$\overline{dBuV/m}$	dBuV/m	<u>dB</u>	
1	2390.000	19.99	27.58	6.63	0.00	54.20	74.00	-19.80	Peak
2	2390, 000	7, 23	27, 58	6, 63	0.00	41.44	54,00	-12.56	Average







Site Condition 3m chamber FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL

Flip phone F450 EUT : r450

Test mode : DHI-L Mode

Power Rating : AC 120V/60Hz

Environment : Temp:25.5°C Huni:55%

Test Engineer: Viki

REMARK :

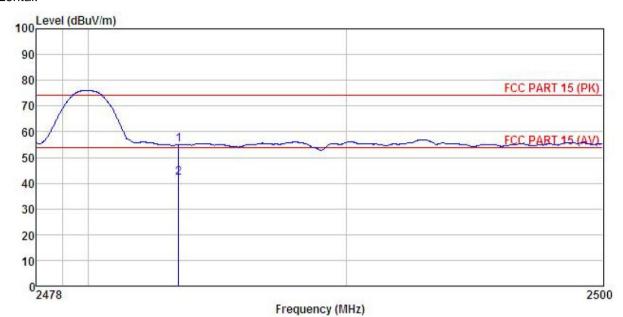
	Freq		eadAntenna Cable Preamp vel Factor Loss Factor						Remark
	MHz	dBu√	dB/m	<u>dB</u>	<u>d</u> B	$\overline{dBuV/m}$	dBuV/m	dB	
1 2	2390.000 2390.000					54.20 42.03			





Test channel: Highest

### Horizontal:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL Condition

EUT : Flip phone

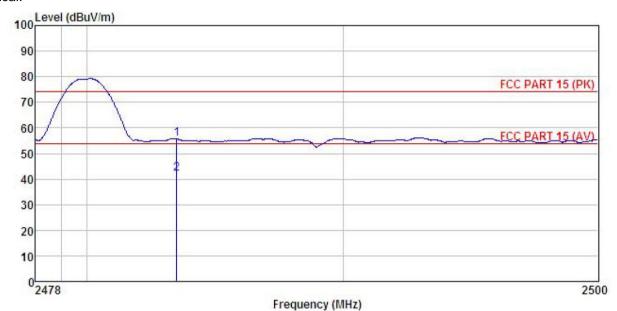
: F450 Model : DH1-H Mode Test mode Power Rating : AC 120V/60Hz

Environment: Temp: 25.5°C Huni: 55% Test Engineer: Viki REMARK:

	Freq			a Cable Preamp r Loss Factor			Limit Line		Remark	
_	MHz	dBu₹	<u>dB</u> /m	<u>d</u> B	<u>dB</u>	dBuV/m	dBu√/m	<u>dB</u>		_
1 2	2483.500 2483.500									







Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL : Flip phone Condition EUT

Model : F450

Test mode : P450

Test mode : DH1-H Mode

Power Rating : AC 120V/60Hz

Environment : Temp:25.5°C Huni:55%

Test Engineer: Viki

REMARK :

	Freq				Cable Preamp Loss Factor 1				
-	MHz	dBu∇	dB/π			$\overline{dBuV/m}$	dBuV/m	<u>ab</u>	
	2483.500 2483.500								

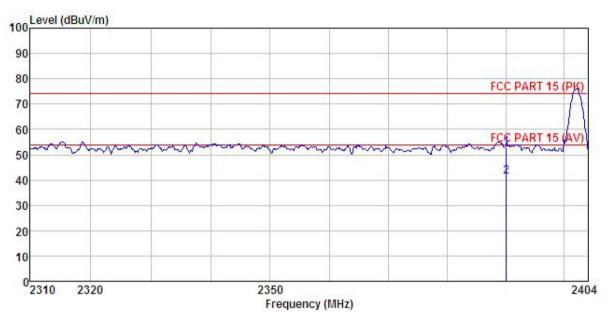




### π/4-DQPSK mode

Test channel: Lowest

Horizontal:



Site Condition : 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL

EUT : Flip phone Model : F450
Test mode : 2DH1-L Mode
Power Rating : AC 120V/60Hz

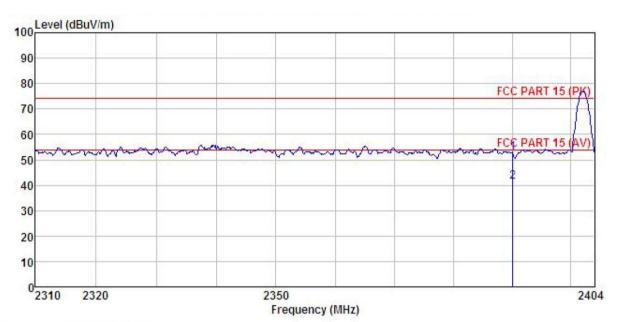
Environment : Temp:25.5°C Huni:55% Test Engineer: Viki

REMARK

	Freq		adAntenna Cable el Factor Loss						
_	MHz	dBu∇	<u>dB</u> /m	<u>d</u> B	<u>ab</u>	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>dB</u>	
1 2	2390.000 2390.000	18.38 7.26	27.58 27.58			52.59 41.47			







Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL : Flip phone : F450 Condition

EUT Model

Test mode : P450
Test mode : 2DH1-L Mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Viki
REMARK :

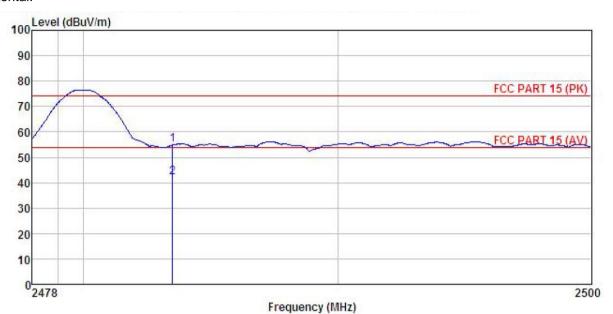
EMARI	, i	Read	Ant enna	Cable	Preamo		Limit	Over	
	Freq		Factor						Remark
-	MHz	dBu∇	<u>dB</u> /m	dB	<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	
1 2	2390.000 2390.000			T (5/) T (72)	0.00 0.00				





Test channel: Highest

### Horizontal:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL Condition

: Flip phone : F450 EUT

: r450

lest mode : 2DH1-H Mode

Power Rating : AC 120V/60Hz

Environment : Temp:25.5°C Huni:55%

Test Engineer: Viki

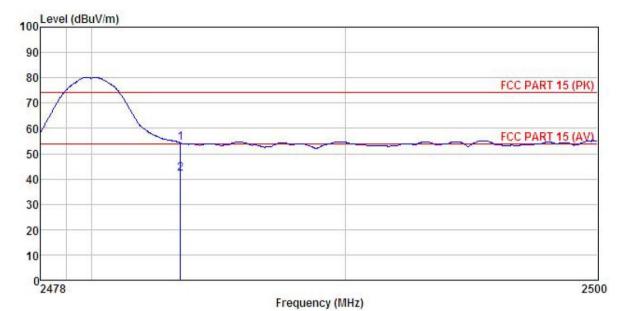
REMARK :

1 2

	Read	Antenna	Cable	Preamp		Limit	Ower	
Freq		Factor						
MHz	dBuV	dB/m	₫B	<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	 -
2483.500 2483.500				0.00 0.00				







Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL : Flip phone : F450 Condition EUT

: F450
Test mode : 2DH1-H Mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Viki
REMARK :

линг		Read	Antenna	Cable	Preamp		Limit	Ower	ver		
	Freq		Factor								
	MHz	dBuV	<u>dB</u> /m	<u>dB</u>	<u>dB</u>	dBuV/m	dBuV/m	<u>d</u> B			
	2483.500 2483.500										

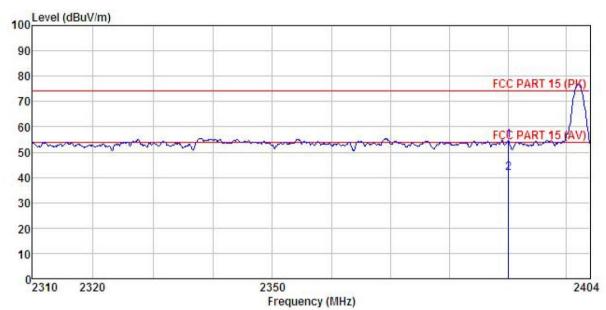




### 8DPSK mode

Test channel: Lowest

Horizontal:



Site Condition

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL EUT

: Flip phone Model : F450

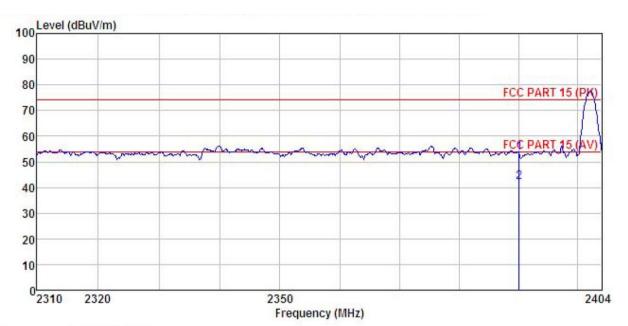
Test mode : 3DH1-L Mode Power Rating : AC 120V/60Hz Environment : Temp:25.5°C Huni:55%

Test Engineer: Viki REMARK :

CHEAT	v :	Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	−dBuV	<u>dB</u> /m	<u>d</u> B	<u>ab</u>	dBuV/m	$\overline{dBuV/m}$	<u>dB</u>	
1 2	2390.000 2390.000				0.00 0.00				







Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL Condition

EUT : Flip phone : r450
Test mode : 3DH1-L Mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Viki
REMARK Model : F450

REMARK

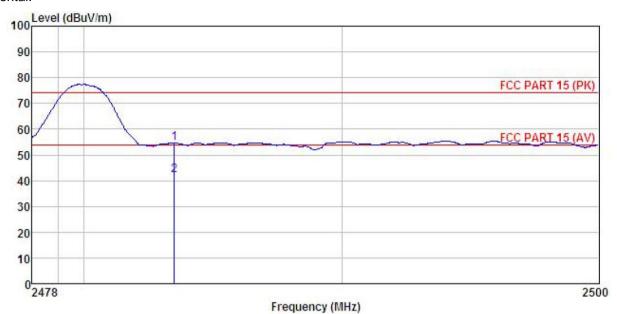
	Freq		Antenna Factor						Remark
	MHz	dBu₹	<u>dB</u> /m	dB	<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	
1	2390.000	19.24	27.58	6.63	0.00	53.45	74.00	-20.55	Peak
2	2390.000	7.87	27.58	6.63	0.00	42.08	54.00	-11.92	Average





Test channel: Highest

### Horizontal:



Site 3m chamber

Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL

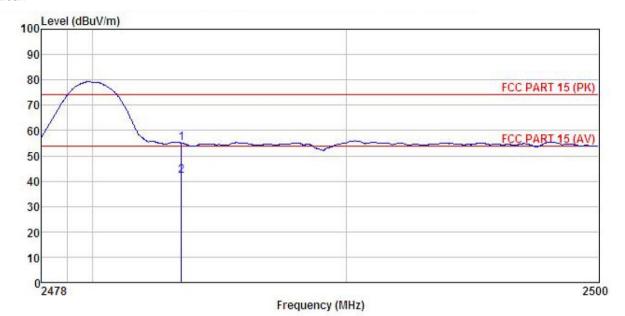
: Flip phone : F450 EUT Model

Test mode : 3DH1-H Mode Power Rating: AC 120V/60Hz
Environment: Temp:25.5°C Huni:55%
Test Engineer: Viki
REMARK:

אנטוונט	n .	Read	Antenna	Cable	Preamp		Limit	Over	
	Freq		Factor						
	MHz	dBu₹	dB/m	dB	dB	dBuV/m	dBuV/m	<u>d</u> B	
1 2	2483.500 2483.500								







Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL Condition

: F450
Test mode : 3DH1-H Mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Viki
REMARK : EUT : Flip phone

	Freq		Antenna Factor					
,	MHz	dBu₹	dB/π	 <u>d</u> B	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>dB</u>	
1 2	2483.500 2483.500			0.00 0.00				



## 6.10 Spurious Emission

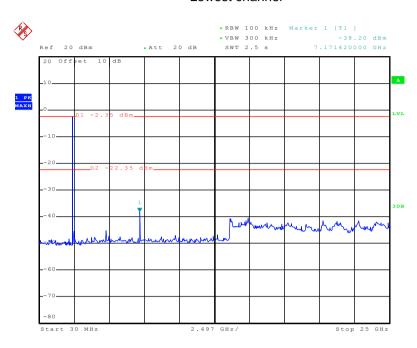
## 6.10.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)							
Test Method:	ANSI C63.10:2009 and DA00-705							
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 setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane							
Test Instruments:	Refer to section 5.7 for details							
Test mode:	Non-hopping mode							
Test results:	Pass							



### **GFSK**

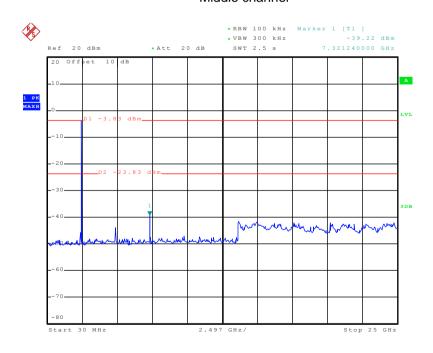
### Lowest channel



Date: 25.DEC.2015 04:03:01

## 30MHz~25GHz

## Middle channel

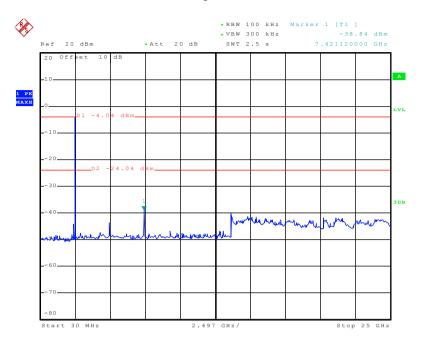


Date: 25.DEC.2015 04:03:52

30MHz~25GHz



## Highest channel



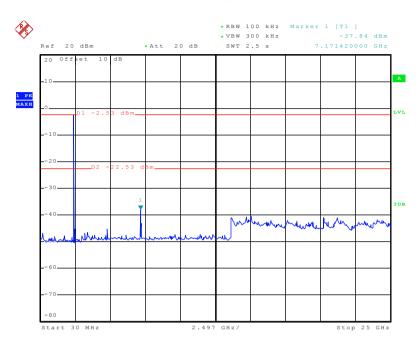
Date: 25.DEC.2015 04:04:59

30MHz~25GHz



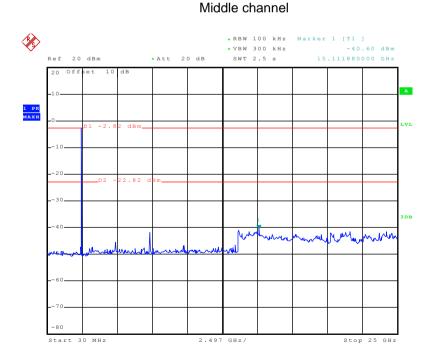
### π/4-DQPSK

### Lowest channel



Date: 25.DEC.2015 04:01:30

# 30MHz~25GHz

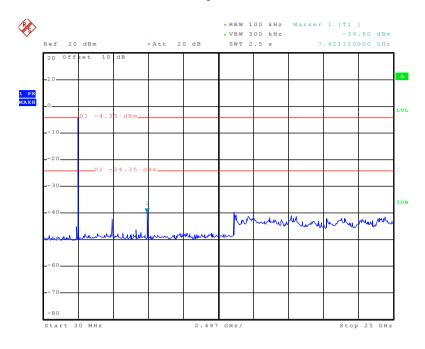


Date: 25.DEC.2015 03:59:46

30MHz~25GHz



### Highest channel



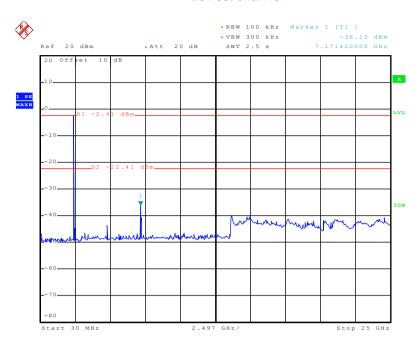
Date: 25.DEC.2015 03:58:53

30MHz~25GHz



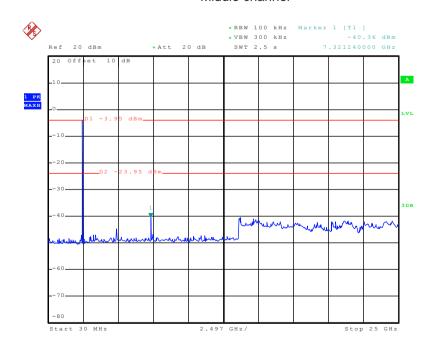
### 8DPSK

### Lowest channel



Date: 25.DEC.2015 03:55:04

## 30MHz~25GHz Middle channel

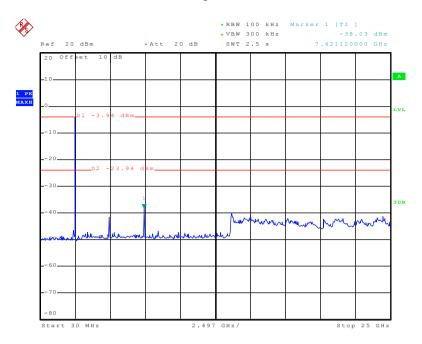


Date: 25.DEC.2015 03:56:23

30MHz~25GHz



## Highest channel



Date: 25.DEC.2015 03:57:29

30MHz~25GHz





### 6.10.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209								
Test Method:	ANSI C63.10: 2009								
Test Frequency Range:	9 kHz to 25 GHz								
Test site:	Measurement Distance: 3m								
Receiver setup:	Frequency	Detector	RBW	VBW	Remark				
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value				
	Above 1GHz	Peak 1MHz 3MHz							
	Above 1GHz	RMS	1MHz	3MHz	Average Value				
Limit:	Frequen	су	Limit (dBuV/	/m @3m)	Remark				
	30MHz-88I	MHz	40.0	)	Quasi-peak Value				
	88MHz-216	6MHz	43.5	5	Quasi-peak Value				
	216MHz-960	OMHz	46.0	)	Quasi-peak Value				
	960MHz-1	GHz	54.0	)	Quasi-peak Value				
	Above 1G	: :	54.0	)	Average Value				
	Above 10	11 12	74.0	)	Peak Value				
	Turn Table 0.8  Ground Plane —  Above 1GHz	EUT Jam	Pa	Antenra Tower					





Test Procedure:	<ol> <li>The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving</li> </ol>
	antenna, which was mounted on the top of a variable-height antenna tower.
	3. 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.
	4. 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 rota 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.
	6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Uncertainty:	±4.88 dB
Test Instruments:	Refer to section 5.7 for details
Test mode:	Non-hopping mode
Test results:	Pass

#### Remark:

- 1. During the test, pre-scan the GFSK,  $\pi/4$ -DQPSK, 8DPSK modulation, and found the GFSK modulation is the worst case.
- 2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.
- 3. 9 kHz to 30 MHz is noise floor, so only shows the data of above 30MHz in this report.

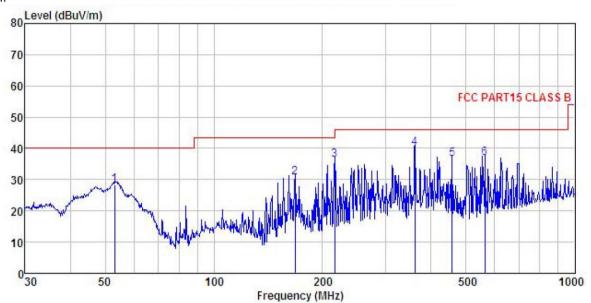




### Measurement data:

### **Below 1GHz**

Vertical:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL Condition

EUT : Flip phone Model : F450 Test mode : BT Mode Power Rating : AC 120V/60Hz

Environment : Temp: 25.5°C Huni: 55%

Test Engineer: Viki

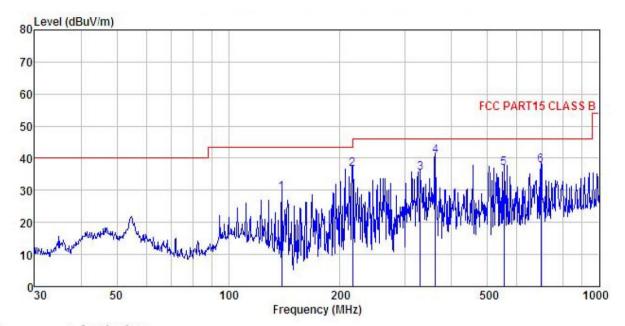
REMARK

	Freq		Antenna Factor						Remark
-	MHz	dBu∜	dB/π		<u>dB</u>	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>d</u> B	
1	53.131	44.43	13.12	0.64	29.81	28.38	40.00	-11.62	QP
2	167.824	49.55	8.90	1.34	29.07	30.72	43.50	-12.78	QP
3	216.024	52.37	11.07	1.46	28.73	36.17	46.00	-9.83	QP
4	360.448	52.34	14.43	1.98	28.61	40.14	46.00	-5.86	QP
	457.507	47.76	15.59	2.28	28.88	36.75	46.00	-9.25	QP
6	562.662	45.44	17.83	2.56	29.06	36.77	46.00	-9.23	QP





### Horizontal:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL : F150 phone Condition

EUT Model : F450 Test mode : BT Mode Power Rating : AC 120V/60Hz

Environment: Temp: 25.5°C Huni: 55%

Test Engineer: Viki REMARK :

		Read.	Antenna	Cable	Preamn		Limit	Over	
	Freq		Factor						
-	MHz	dBu∜	$\overline{-dB}/\overline{m}$	ā <u>ā</u>	dB	$\overline{dBuV/m}$	dBuV/m		
1	139.361	48.98	8.19	1.25	29.28	29.14	43.50	-14.36	QP
2	216.024	52.83	11.07	1.46	28.73	36.63	46.00	-9.37	QP
2 3 4	329.039	48.33	13.73	1.87	28.51	35.42	46.00	-10.58	QP
4	361.714	52.80	14.43	1.98	28.61	40.60	46.00	-5.40	QP
5	552.883	45.72	17.62	2.54	29.09	36.79	46.00	-9.21	QP
6	696.857	44.62	18.80	2.90	28.68	37.64	46.00	-8.36	QP



### **Above 1GHz:**

Te	st channel		Lowest		Le	vel:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	53.34	31.53	10.57	40.24	55.20	74.00	-18.80	Vertical
4804.00	46.64	31.53	10.57	40.24	48.50	74.00	-25.50	Horizontal
Te	st channel		Lowest		Level:		Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	43.46	31.53	10.57	40.24	45.32	54.00	-8.68	Vertical
4804.00	39.54	31.53	10.57	40.24	41.40	54.00	-12.60	Horizontal

Te	st channel:		Middle		Le	vel:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	48.70	31.58	10.66	40.15	50.79	74.00	-23.21	Vertical
4882.00	46.31	31.58	10.66	40.15	48.40	74.00	-25.60	Horizontal
Te	st channel:		Middle		Level:		Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	39.61	31.58	10.66	40.15	41.70	54.00	-12.30	Vertical
4882.00	39.54	31.58	10.66	40.15	41.63	54.00	-12.37	Horizontal

Te	st channel:		Highest		Le	vel:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	56.08	31.69	10.73	40.03	58.47	74.00	-15.53	Vertical
4960.00	49.42	31.69	10.73	40.03	51.81	74.00	-22.19	Horizontal
Te	st channel:	•	Highest		Level:		Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	39.30	31.69	10.73	40.03	41.69	54.00	-12.31	Vertical
4960.00	39.37	31.69	10.73	40.03	41.76	54.00	-12.24	Horizontal

### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.