

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No:CCIS15110091602

FCC REPORT

(Bluetooth)

Applicant: SUN CUPID TECHNOLOGY(HK)LIMITED

Address of Applicant: 16/F,CEO Tower,77 Wing Hong Street,Cheung Sha Wan,Hong

Kong

Equipment Under Test (EUT)

Product Name: LTE mobile phone

Model No.: N5L

Trade mark: NUU

FCC ID: 2ADINNUUN5L

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

Date of sample receipt: 30 Nov., 2015

Date of Test: 30 Nov., to 15 Dec., 2015

Date of report issued: 16 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 CCISproduct 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.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery orfalsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



2 Version

Version No.	Date	Description
00	16 Dec., 2015	Original

Tested by: Date: 16 Dec., 2015

Test Engineer

Reviewed by: Date: 16 Dec., 2015

Project Engineer





3 Contents

		P	Page
1		COVER PAGE	1
2		VERSION	2
3		CONTENTS	
4		TEST SUMMARY	4
5		GENERAL INFORMATION	5
	5.1	1 CLIENT INFORMATION	5
	5.2		
	5.3		
	5.4		
	5.5	5 LABORATORY LOCATION	7
	5.6	5 TEST INSTRUMENTS LIST	8
6		TEST RESULTS AND MEASUREMENT DATA	9
•			
	6.1		
	6.2		
	6.3 6.4		
	6.5		
	6.6		
	6.7		
	6.8		
	6.9		
		6.9.1 Conducted Emission Method	33
		6.9.2 Radiated Emission Method	37
	6.1	10 Spurious Emission	50
		6.10.1 Conducted Emission Method	
		6.10.2 Radiated Emission Method	57
7		TEST SETUP PHOTO	62
8		EUT CONSTRUCTIONAL DETAILS	63





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.

Page 4 of 63

Project No.:CCIS151100916RF



5 General Information

5.1 Client Information

Applicant:	SUN CUPID TECHNOLOGY(HK)LIMITED
Address of Applicant:	16/F,CEO Tower,77 Wing Hong Street,Cheung Sha Wan,Hong Kong
Manufacturer:	Sun cupid(Shen Zhen) Electronic Ltd.
Address of Manufacturer:	Baolong Industrial City, Longgang District, Shenzhen Hi-Tech Road, Building 1, A7

5.2 General Description of E.U.T.

Product Name:	LTE mobile phone
Model No.:	N5L
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:	-0.15dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V-3000mAh
AC adapter:	Model: HNFL050100UU
	Input:100-240V AC,50/60Hz 0.2A
	Output:5V DC MAX 1000mA





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		



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 andfully describedin 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

Page 7 of 63



5.6 Test Instruments list

Radia	Radiated Emission:									
Item	Test Equipment	Manufacturer	Manufacturer Model 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					

Project No.:CCIS151100916RF



6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement: FCC

FCC Part15 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 Bluetoothantenna is anintegral antenna which permanently attached, and the best case gain of the antenna is-0.15dBi.







6.2 Conducted Emissions

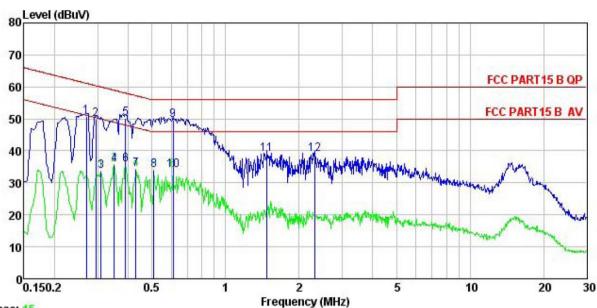
Test Requirement:	FCC Part15 C Section 15.207					
Test Method:	ANSI C63.4:2009					
Test Frequency Range:	150kHz to 30MHz					
Class / Severity:	Class B					
Receiver setup:	RBW=9kHz, VBW=30kHz, Sweep time=auto					
Limit:	[[]	Limit (c	IBuV)			
	Frequency range (MHz)	Quasi-peak	Average			
	0.15-0.5	66 to 56*	56 to 46*			
	0.5-5	56	46			
	5-30	60	50			
	* Decreases with the logarithm	•				
Test setup:	Reference Plane					
	AUX Equipment Test table/Insulation plane Remark E.U.T. Equipment Under Test LISM: Line Impedence Stabilization Network Test table height=0.8m	Filter — AC pow				
Test procedure:	 The E.U.T and simulators a line impedance stabilization 50ohm/50uH coupling impedance. The peripheral devices are LISN that provides a 50ohm termination. (Please refer to photographs). Both sides of A.C. line are dinterference. In order to find positions of equipment and according to ANSI C63.4: 2 	n network(L.I.S.N.). This dance for the measuricalso connected to the n/50uH coupling imped the block diagram of the checked for maximum different the maximum emissionall of the interface cabo	is provides a ng equipment. main power through a dance with 500hm the test setup and conducted on, the relative eles must be changed			
Test Uncertainty:	_		±3.28 dB			
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Bluetooth (Continuous transm					
Test results:	Pass	······································				
Tool roomis.	1. 400					

Measurement Data









Trace: 15

: CCIS Shielding Room : FCC PART15 B QP LISN LINE : LTE mobile phone Site

Condition EUT

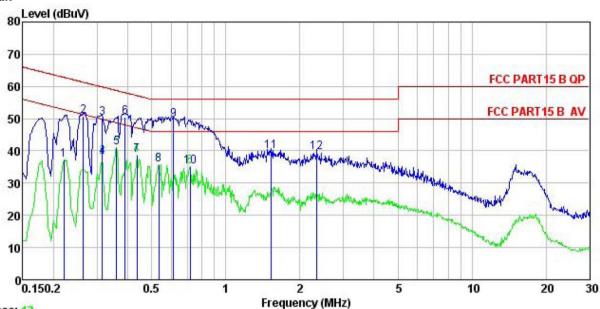
Model : N5L
Test Mode : BT mode
Power Rating : AC 120V/60Hz
Environment : Temp: 23 °C Huni:56% Atmos:101KPa

Test Engineer: Caret Remark :

Freq	Section 1 - The Total Control				Limit Line	Over Limit	Remark
MHz	dBu∜	<u>dB</u>		dBu₹	dBu∜	<u>ab</u>	
0.270	39.71	0.27	10.75	50.73			
0.296	38.98	0.26	10.74	49.98	60.37	-10.39	QP
0.310	22.76	0.26	10.74	33.76	49.97	-16.21	Average
0.350	24.83	0.27	10.73	35.83	48.96	-13.13	Average
0.389	39.30	0.28	10.72	50.30	58.08	-7.78	QP
0.389	24.75	0.28	10.72	35.75	48.08	-12.33	Average
0.431	23.10	0.28	10.73	34.11			
0.510	22.80	0.28	10.76	33.84	46.00	-12.16	Average
0.611	38.53	0.25	10.77	49.55	56.00	-6.45	QP
0.611	22.97	0.25	10.77	33.99			
1.480	27, 86		10.92				
2.321	27.76	0.26	10.94	38.96			
	MHz 0. 270 0. 296 0. 310 0. 350 0. 389 0. 431 0. 510 0. 611 0. 611 1. 480	Freq Level MHz dBuV 0.270 39.71 0.296 38.98 0.310 22.76 0.350 24.83 0.389 39.30 0.389 24.75 0.431 23.10 0.510 22.80 0.611 38.53 0.611 22.97 1.480 27.86	Freq Level Factor MHz dBuV dB 0.270 39.71 0.27 0.296 38.98 0.26 0.310 22.76 0.26 0.350 24.83 0.27 0.389 39.30 0.28 0.389 24.75 0.28 0.431 23.10 0.28 0.431 23.10 0.28 0.510 22.80 0.28 0.611 38.53 0.25 0.611 22.97 0.25 1.480 27.86 0.26	MHz dBuV dB dB 0.270 39.71 0.27 10.75 0.296 38.98 0.26 10.74 0.310 22.76 0.26 10.74 0.350 24.83 0.27 10.73 0.389 39.30 0.28 10.72 0.431 23.10 0.28 10.72 0.431 23.10 0.28 10.73 0.510 22.80 0.28 10.76 0.611 38.53 0.25 10.77 0.611 22.97 0.25 10.77 1.480 27.86 0.26 10.92	MHz dBuV dB dB dBuV 0.270 39.71 0.27 10.75 50.73 0.296 38.98 0.26 10.74 49.98 0.310 22.76 0.26 10.74 33.76 0.350 24.83 0.27 10.73 35.83 0.389 39.30 0.28 10.72 50.30 0.431 23.10 0.28 10.72 35.75 0.431 23.10 0.28 10.73 34.11 0.510 22.80 0.28 10.76 33.84 0.611 38.53 0.25 10.77 49.55 0.611 22.97 0.25 10.77 33.99 1.480 27.86 0.26 10.92 39.04	MHz dBuV dB dB dBuV dBuV 0.270 39.71 0.27 10.75 50.73 61.12 0.296 38.98 0.26 10.74 49.98 60.37 0.310 22.76 0.26 10.74 33.76 49.97 0.350 24.83 0.27 10.73 35.83 48.96 0.389 39.30 0.28 10.72 50.30 58.08 0.389 24.75 0.28 10.72 35.75 48.08 0.431 23.10 0.28 10.73 34.11 47.24 0.510 22.80 0.28 10.76 33.84 46.00 0.611 38.53 0.25 10.77 49.55 56.00 0.611 22.97 0.25 10.77 33.99 46.00 1.480 27.86 0.26 10.92 39.04 56.00	MHz dBuV dB dB dBuV dBuV dB 0.270 39.71 0.27 10.75 50.73 61.12 -10.39 0.296 38.98 0.26 10.74 49.98 60.37 -10.39 0.310 22.76 0.26 10.74 33.76 49.97 -16.21 0.350 24.83 0.27 10.73 35.83 48.96 -13.13 0.389 39.30 0.28 10.72 50.30 58.08 -7.78 0.389 24.75 0.28 10.72 35.75 48.08 -12.33 0.431 23.10 0.28 10.73 34.11 47.24 -13.13 0.510 22.80 0.28 10.73 34.11 47.24 -13.13 0.611 38.53 0.25 10.77 49.55 56.00 -6.45 0.611 22.97 0.25 10.77 33.99 46.00 -12.01 1.480 27.86 0.26



Neutral:



Trace: 13

Site

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

EUT : LTE mobile phone

Model : N5L Test Mode : BT mode Power Rating : AC 120V/60Hz

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

Test Engineer: Caret

Remark

Freq					Limit Line		Remark
MHz	dBu₹	dB	dB	dBu₹	₫₿uѶ	<u>dB</u>	
0.220	26.22	0.25	10.76	37.23	52.83	-15.60	Average
0.264	39.71	0.26	10.75	50.72	61.29	-10.57	QP
0.315	39.21	0.26	10.74	50.21	59.84	-9.63	QP
0.315	27.08	0.26	10.74	38.08	49.84	-11.76	Average
0.360	30.10	0.25	10.73	41.08	48.74	-7.66	Average
0.389	39.62	0.25	10.72	50.59	58.08	-7.49	QP
0.435	27.81	0.26	10.73	38.80	47.15	-8.35	Average
0.535	24.57	0.27	10.76	35.60	46.00	-10.40	Average
0.614	38.60	0.22	10.77	49.59			
0.716	24.26	0.18	10.78	35.22	46.00	-10.78	Average
1.527	28.63	0.26	10.93	39.82	56.00	-16.18	QP
2.346	28.25	0.29	10.94	39.48			4 (C) 7 (C) (C)
	Freq 0.220 0.264 0.315 0.315 0.360 0.389 0.435 0.535 0.614 0.716 1.527	Freq Level MHz dBuV 0.220 26.22 0.264 39.71 0.315 39.21 0.315 27.08 0.360 30.10 0.389 39.62 0.435 27.81 0.535 24.57 0.614 38.60 0.716 24.26 1.527 28.63	Read LISN Freq Level Factor MHz dBuV dB 0.220 26.22 0.25 0.264 39.71 0.26 0.315 39.21 0.26 0.315 27.08 0.26 0.360 30.10 0.25 0.389 39.62 0.25 0.435 27.81 0.26 0.535 24.57 0.27 0.614 38.60 0.22 0.716 24.26 0.18 1.527 28.63 0.26	Read LISN Cable Level Factor Loss MHz dBuV dB dB	Read LISN Cable Level Freq Level Factor Loss Level MHz dBuV dB dB dBuV 0.220 26.22 0.25 10.76 37.23 0.264 39.71 0.26 10.75 50.72 0.315 39.21 0.26 10.74 50.21 0.360 30.10 0.25 10.74 38.08 0.389 39.62 0.25 10.72 50.59 0.435 27.81 0.26 10.73 38.80 0.535 24.57 0.27 10.76 35.60 0.614 38.60 0.22 10.77 49.59 0.716 24.26 0.18 10.78 35.22 1.527 28.63 0.26 10.93 39.82	Read LISN Cable Limit Freq Level Factor Loss Level Line MHz dBuV dB dB dBuV dBuV 0.220 26.22 0.25 10.76 37.23 52.83 0.264 39.71 0.26 10.75 50.72 61.29 0.315 39.21 0.26 10.74 50.21 59.84 0.360 30.10 0.25 10.73 38.08 49.84 0.389 39.62 0.25 10.73 41.08 48.74 0.435 27.81 0.26 10.73 38.80 47.15 0.535 24.57 0.27 10.76 35.60 46.00 0.614 38.60 0.22 10.77 49.59 56.00 0.716 24.26 0.18 10.78 35.22 46.00 1.527 28.63 0.26 10.93 39.82 56.00	Read LISN Cable Loss Limit Over Limit MHz dBuV dB dB dBuV dBuV dB 0.220 26.22 0.25 10.76 37.23 52.83 -15.60 0.264 39.71 0.26 10.75 50.72 61.29 -10.57 0.315 39.21 0.26 10.74 50.21 59.84 -9.63 0.315 27.08 0.26 10.74 38.08 49.84 -11.76 0.360 30.10 0.25 10.73 41.08 48.74 -7.66 0.389 39.62 0.25 10.72 50.59 58.08 -7.49 0.435 27.81 0.26 10.73 38.80 47.15 -8.35 0.535 24.57 0.27 10.76 35.60 46.00 -10.40 0.614 38.60 0.22 10.77 49.59 56.00 -6.41 0.716 24.26 0.18 10.78 35.22

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 Part15 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	

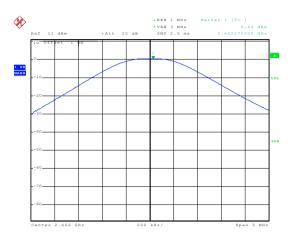
Measurement Data

	GFSK mode		
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	0.40	21.00	Pass
Middle	0.98	21.00	Pass
Highest	1.34	21.00	Pass
	π/4-DQPSK mode		
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-0.32	21.00	Pass
Middle	0.23	21.00	Pass
Highest	0.56 21.00		Pass
	8DPSK mode		
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	-0.20	21.00	Pass
Middle	0.29	21.00	Pass
Highest	0.50	21.00	Pass



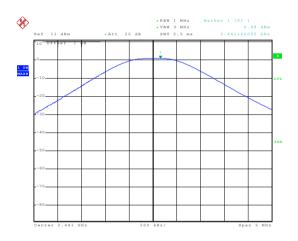
Test plot as follows:

Modulation mode:GFSK



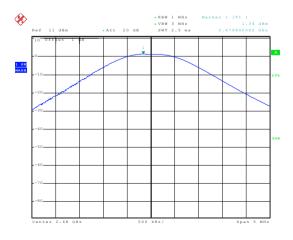
Date: 28.NOV.2015 03:07:06

Lowest channel



Date: 28.NOV.2015 03:07:21

Middle channel

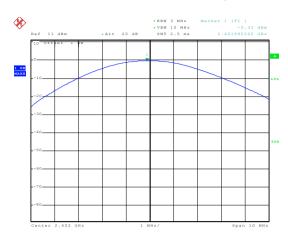


Date: 28.NOV.2015 03:07:34

Highest channel

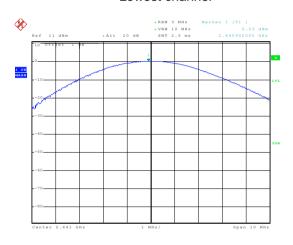


Modulation mode:π/4-DQPSK



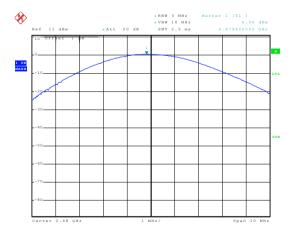
Date: 28.NOV.2015 03:20:55

Lowest channel



Date: 28.NOV.2015 03:21:11

Middle channel

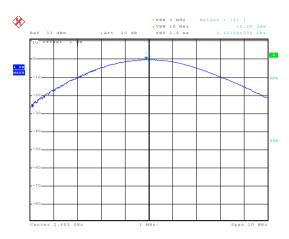


Date: 28.NOV.2015 03:21:29

Highest channel

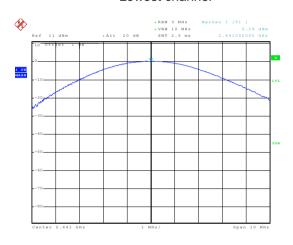


Modulation mode:8DPSK



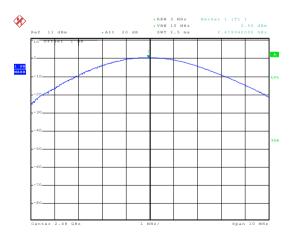
Date: 28.NOV.2015 03:22:14

Lowest channel



Date: 28.NOV.2015 03:22:01

Middle channel



Date: 28.NOV.2015 03:21:50

Highest channel



6.4 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=30kHz, VBW=100kHz, 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	

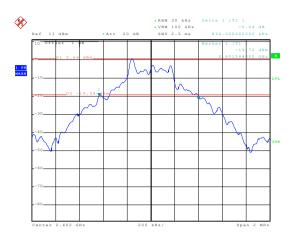
Measurement Data

Toot shannel	20dB Occupy Bandwidth (kHz)		
Test channel	GFSK	π/4-DQPSK	8DPSK
Lowest	836	1120	1168
Middle	832	1120	1168
Highest	836	1124	1168

Test plot as follows:

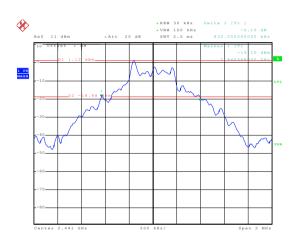


Modulation mode:GFSK



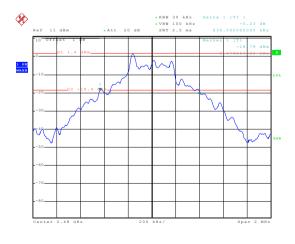
Date: 28.NOV.2015 03:13:54

Lowest channel



Date: 28.NOV.2015 03:14:36

Middle channel

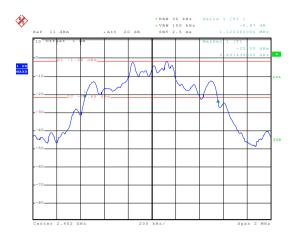


Date: 28.NOV.2015 03:15:01

Highest channel

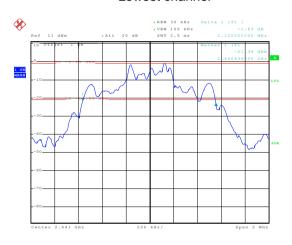


Modulation mode:π/4-DQPSK



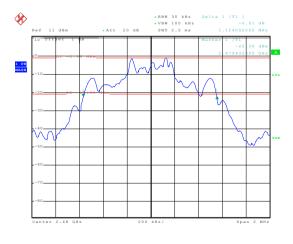
Date: 28.NOV.2015 03:27:03

Lowest channel



Date: 28.NOV.2015 03:27:37

Middle channel

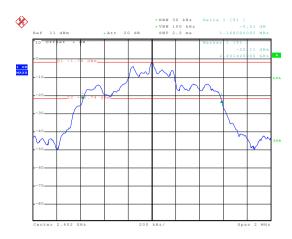


Date: 28.NOV.2015 03:28:02

Highest channel

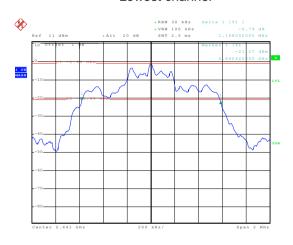


Modulation mode:8DPSK



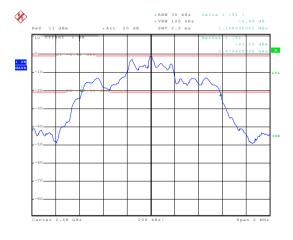
Date: 28.NOV.2015 03:31:07

Lowest channel



Date: 28.NOV.2015 03:29:06

Middle channel



Date: 28.NOV.2015 03:31:41

Highest channel





6.5 Carrier Frequencies Separation

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=100kHz, VBW=300kHz, 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	1004	557.33	Pass
Middle	1004	557.33	Pass
Highest	1004	557.33	Pass
	π/4-DQPSK mo	de	
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Lowest	1004 749.33		Pass
Middle	1000 749.33		Pass
Highest	1000	749.33	Pass
8DPSK mode			
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Lowest	1000 778.67 Pass		Pass
Middle	1000	778.67	Pass
Highest	1004 778.67 Pass		Pass

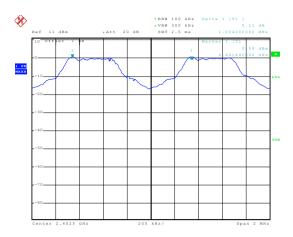
Note: According to section 6.4

Note. According to section	0.7	
Mode	20dB bandwidth (kHz)	Limit (kHz)
	(worse case)	(Carrier Frequencies Separation)
GFSK	836	557.33
π/4-DQPSK	1124	749.33
8DPSK	1168	778.67

Test plot as follows:

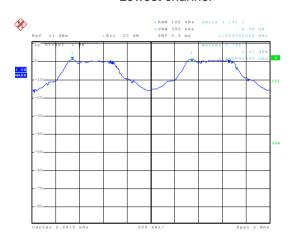


Modulation mode:GFSK



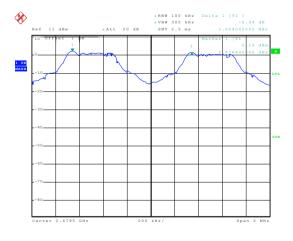
Date: 28.NOV.2015 03:19:00

Lowest channel



Date: 28.NOV.2015 03:19:30

Middle channel

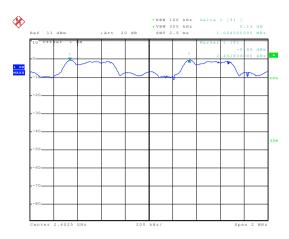


Date: 28.NOV.2015 03:20:03

Highest channel

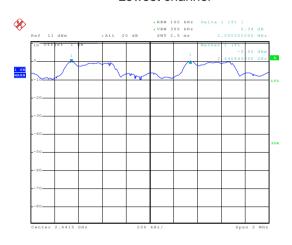


Modulation mode:π/4-DQPSK



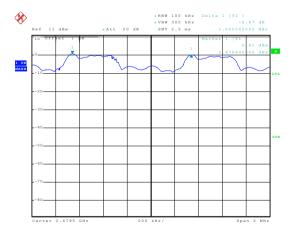
Date: 28.NOV.2015 03:35:02

Lowest channel



Date: 28.NOV.2015 03:35:41

Middle channel

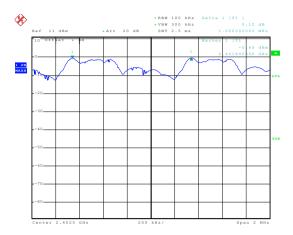


Date: 28.NOV.2015 03:36:22

Highest channel

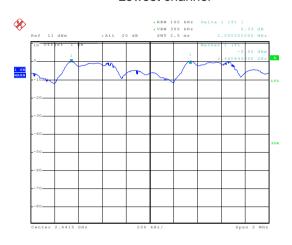


Modulation mode:8DPSK



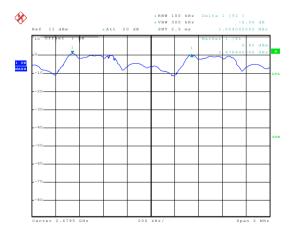
Date: 28.NOV.2015 03:32:44

Lowest channel



Date: 28.NOV.2015 03:33:26

Middle channel



Date: 28.NOV.2015 03:34:03

Highest channel



6.6 Hopping Channel Number

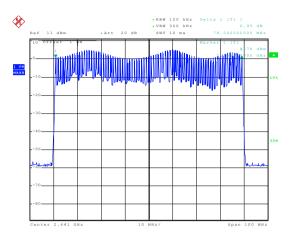
Test Requirement:	FCC Part15 C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=100kHz, VBW=300kHz, Frequency range=2400MHz-2483.5MHz, Detector=Peak	
Limit:	15 channels	
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane	
Test Instruments:	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

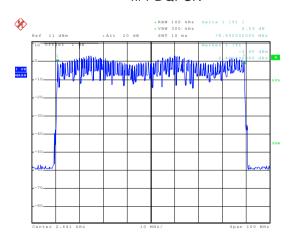


GFSK



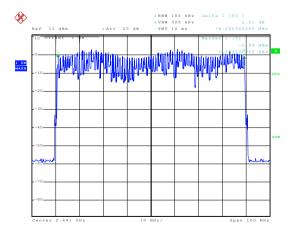
Date: 28.NOV.2015 03:51:57

π/4-DQPSK



Date: 28.NOV.2015 03:48:46

8DPSK



Date: 28.NOV.2015 03:46:01



6.7 Dwell Time

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2009 and KDB DA00-705	
Receiver setup:	RBW=1MHz, VBW=1MHz, Span=0Hz, 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)

Mode	Packet	Dwell time (second)	Limit (second)	Result
	DH1	0.12544		
GFSK	DH3	0.26816	0.4	Pass
	DH5	0.31616		
	2-DH1	0.12992		
π/4-DQPSK	2-DH3	0.26944	0.4	Pass
	2-DH5	0.31531		
	3-DH1	0.12800		
8DPSK	3-DH3	0.26656	0.4	Pass
	3-DH5	0.31360		

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

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

DH1 time slot=0.392*(1600/ (2*79))*31.6=125.44ms DH3 time slot=1.676*(1600/ (4*79))*31.6=268.16ms DH5 time slot=2.964*(1600/ (6*79))*31.6=316.16ms

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

2-DH3 time slot=1.684*(1600/ (4*79))*31.6=269.44ms

2-DH5 time slot=2.956*(1600/ (6*79))*31.6=315.31ms

3-DH1 time slot=0.400*(1600/ (2*79))*31.6=128.00ms 3-DH3 time slot=1.666*(1600/ (4*79))*31.6=266.56ms

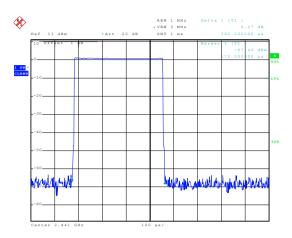
3-DH5 time slot=2.940*(1600/ (6*79))*31.6=313.60ms

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



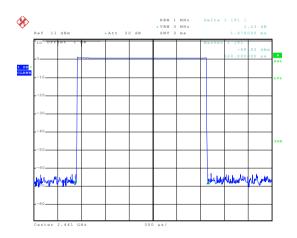
Test plot as follows:

Modulation mode:GFSK



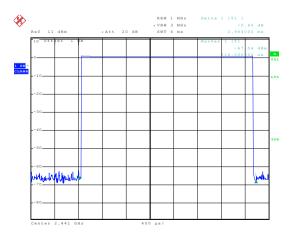
Date: 28.NOV.2015 03:16:23

DH1



Date: 28.NOV.2015 03:17:02

DH3

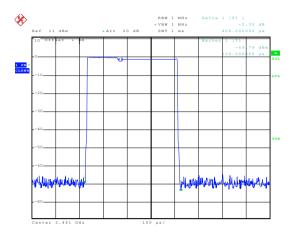


Date: 28.NOV.2015 03:17:30

DH5

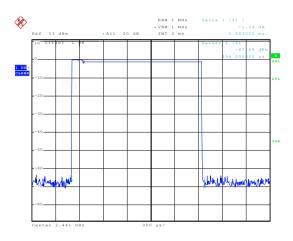


Modulation mode:π/4-DQPSK



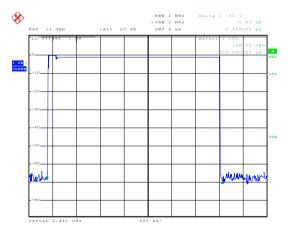
Date: 28.NOV.2015 03:37:31

2-DH1



Date: 28.NOV.2015 03:39:11

2-DH3

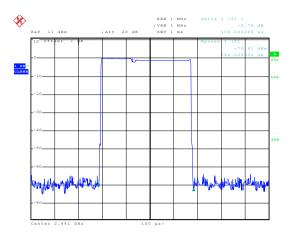


Date: 28.NOV.2015 03:39:41

2-DH5

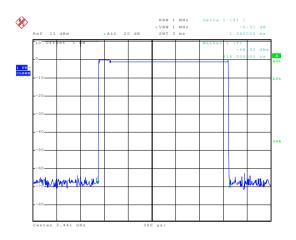


Modulation mode:8DPSK



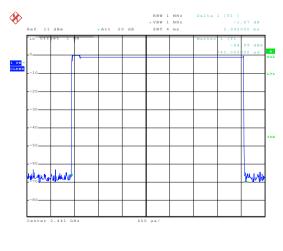
Date: 28.NOV.2015 03:38:07

3-DH1



Date: 28.NOV.2015 03:38:43

3-DH3



Date: 28.NOV.2015 03:40:12

3-DH5

6.8 Pseudorandom Frequency Hopping Sequence

Test Requirement: FCC Part15 C Section 15.247 (a)(1) requirement:

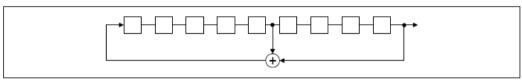
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

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

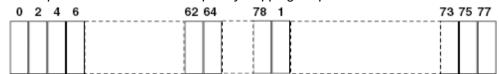
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized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

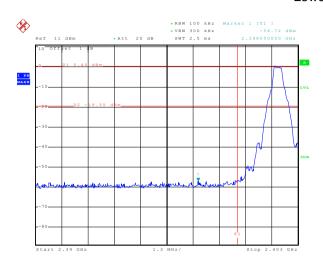
Test Requirement:	FCC Part15 C Section 15.247 (d)	
Test Method:	ANSI C63.10:2009 and DA00-705	
Receiver setup:	RBW=100kHz, VBW=300kHz, Detector=Peak	
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that 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	

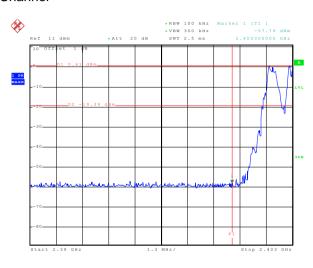
Test plot as follows:



GFSK

Lowest Channel



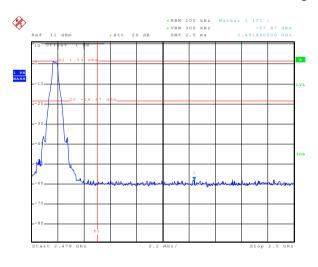


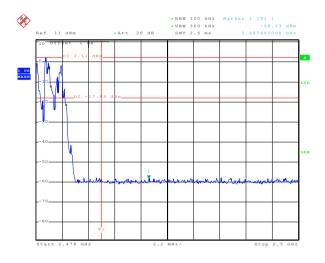
Date: 28.NOV.2015 03:08:29

No-hopping mode

Hopping mode

Highest Channel





Date: 28.NOV.2015 03:10:54

No-hopping mode

Date: 28.NOV.2015 03:10:27

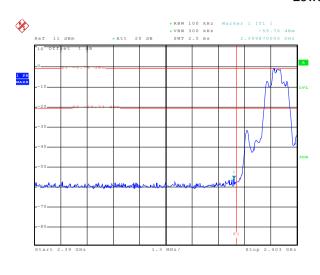
Date: 28.NOV.2015 03:09:32

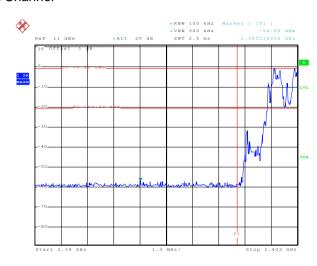
Hopping mode



$\pi/4$ -DQPSK

Lowest Channel





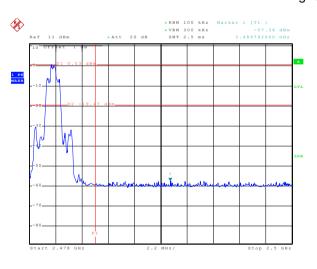
Date: 28.NOV.2015 03:25:11

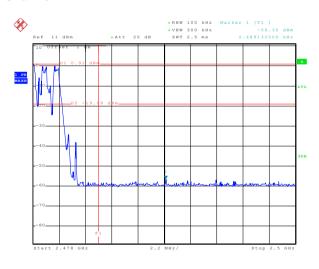
No-hopping mode

Date: 28.NOV.2015 03:24:42

Hopping mode

Highest Channel





Date: 28.NOV.2015 04:59:32

No-hopping mode

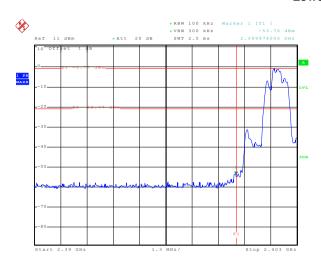
Date: 28.NOV.2015 05:00:40

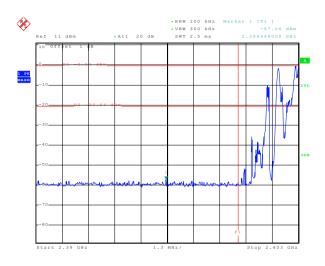
Hopping mode



8DPSK

Lowest Channel





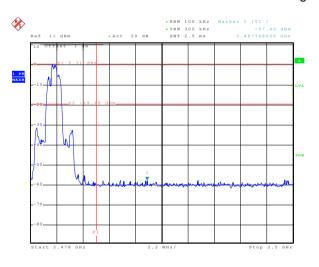
Date: 28.NOV.2015 03:22:55

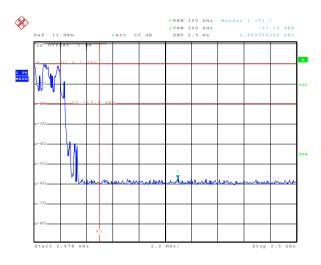
No-hopping mode

Date: 28.NOV.2015 03:23:29

Hopping mode

Highest Channel





Date: 28.NOV.2015 05:02:22

No-hopping mode

Date: 28.NOV.2015 05:01:55

Hopping mode



6.9.2 Radiated Emission Method

Test Requirement:	FCC Part15 C S	Section 15.20	9 and 15.205					
Test Method:	ANSI C63.10: 2009							
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	1MHz	3MHz	Peak Value			
		RMS	1MHz	3MHz	Average Value			
Limit:	Freque	ency	Limit (dBuV		Remark			
	Above 1	GHz	54.0 74.0		Average Value Peak Value			
Test setup:	AE EUT (Turntable)	Ground Reference Plane Test Receiver	forn Antenna Tower Controller					
Test Procedure:	groundat a 3 todetermine 2. The EUT was antenna, whistower. 3. The antenna ground to de horizontal an measuremer 4. For each sus and thenthe the rotatable maximum resonant specified Bar 5. The test-rece Specified Bar 6. If the emission limit specified EUT would be 10dB margin	meter camber the position of a set 3 meters chwas mount height is varitermine the mad vertical polant. Spected emission antenna was turned from the cading. Server system who had been been been been been been been bee	er. The table we fell the highest rest away from the ed on the top ed from one maximum value arizations of the tuned to height om 0 degrees was set to Pea Maximum Hold EUT in peak a could be stop therwise the ested one by	vas rotated adiation. The interferer of a variable of a variable of the field one antenna was arrangents from 1 m to 360 degrated Mode. The mode was apped and the missions the one using process.	nce-receiving e-height antenna r meters above the d strength. Both are set to make the ed to its worst case neter to 4 meters and rees to find the unction and 10dB lower than the he peak values of the hat 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.

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

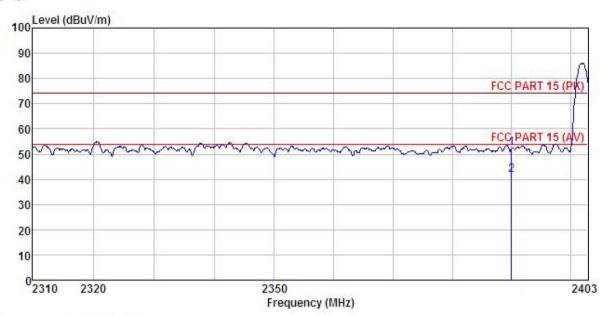




GFSK mode

Test channel: Lowest

Horizontal:



Site

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

Pro : 916RF

: LTE mobile phone EUT

: N5L Model

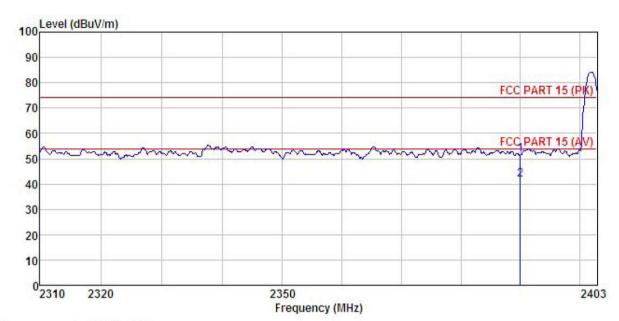
Test mode : DH1-L mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
Remark

Rema

ları	ζ :									
	90 PA		Antenna				Limit			
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
ē	MHz	dBu∜	dB/m	<u>dB</u>	dB	$\overline{dBuV/m}$	$\overline{dBuV/m}$	dB		4
	2390.000	18.18	27.58	6.63	0.00	52.39	74.00	-21.61	Peak	
2	2390.000	7.60	27.58	6.63	0.00	41.81	54.00	-12.19	Average	







Site

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

: 916RF Pro

EUT : LTE mobile phone

: N5L Model

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

Test Engineer: Carey Remark :

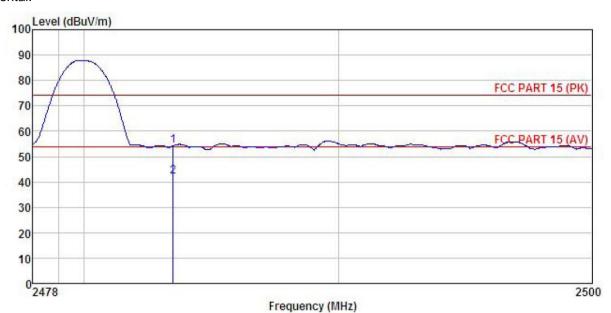
11.	•	Read	Antenna	Cable	Preamp		Limit	Over		
	Freq		Factor						Remark	
77	MHz	dBu₹	dB/m	dB	dB	dBu√/m	dBuV/m	<u>dB</u>		
	2390.000		4 7 F 2 7 F 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			51.49				
	2390.000	7.57	27.58	6.63	0.00	41.78	54.00	-12.22	Averag	e





Test channel:Highest

Horizontal:



Site

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

Pro : 916RF

: LTE mobile phone : N5L EUT

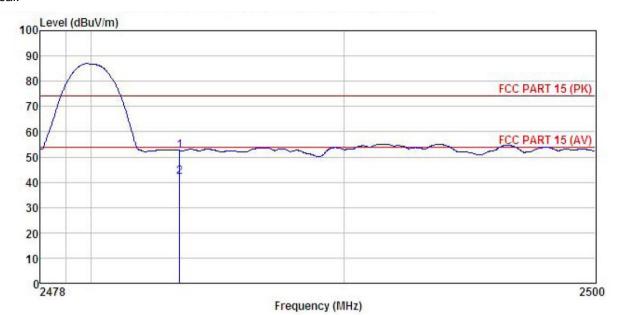
Model Test mode : DH1-H mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey

Rema

arı	ĸ :	Pood	Antenna	Cabla	Drooms		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level			Remark	
-	MHz	dBu∜	dB/m	dB	<u>d</u> B	$\overline{dBuV/m}$	$\overline{dBuV/m}$	dB		-
	2483.500 2483.500	7.5000.0000	27.52 27.52			54.30 42.24			Peak Average	







Site Condition

: 3m chamber : FCC_PART 15 (PK) 3m BBHA9120(1G18) VERTICAL

: 916RF Pro

EUT : LTE mobile phone

Model

: N5L : DH1-H mode Test mode Power Rating: AC 120V/60Hz Environment: Temp:25.5°C Huni:55% Test Engineer: Carey

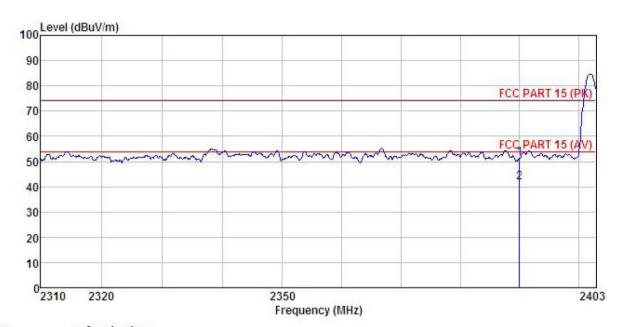
	Freq		ReadAntenna Cable Preamp Level Factor Loss Factor						
	MHz	dBu∀	dB/m	<u>dB</u>	<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	
1 2	2483.500 2483.500				T. T. T. T. T. C.				





π/4-DQPSK mode Test channel: Lowest

Horizontal:



Site

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

Pro : 916RF EUT

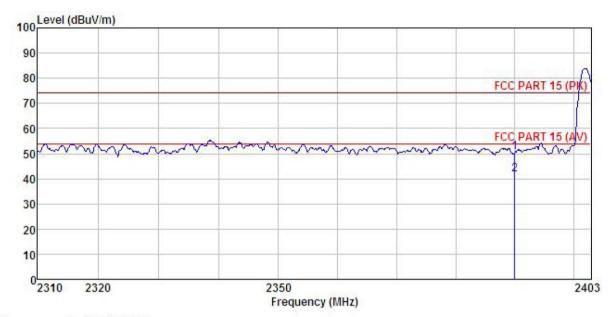
: LTE mobile phone Model : N5L

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

	Freq		Antenna Factor				Limit Over Line Limit	Remark	
-	MHz	dBu∜	dB/m	₫B	dB	dBuV/m	dBuV/m	<u>dB</u>	
	2390.000 2390.000								







Site

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

Pro EUT : 916RF

: LTE mobile phone Model : N5L Test mode : 2DH1-L mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey

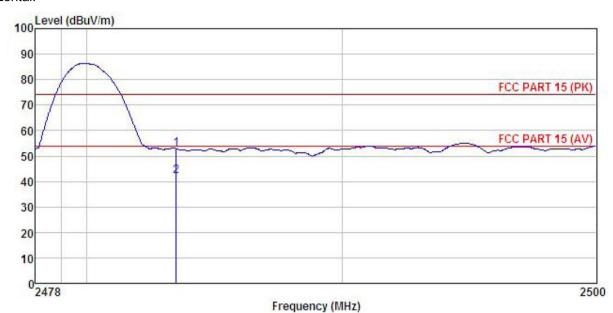
	Freq		Antenna Factor						
	MHz	MHz dBuV	dB/m dE		<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	
1 2	2390.000 2390.000								





Test channel:Highest

Horizontal:



Site 3m chamber

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

Pro : 916RF

: LTE mobile phone : N5L EUT

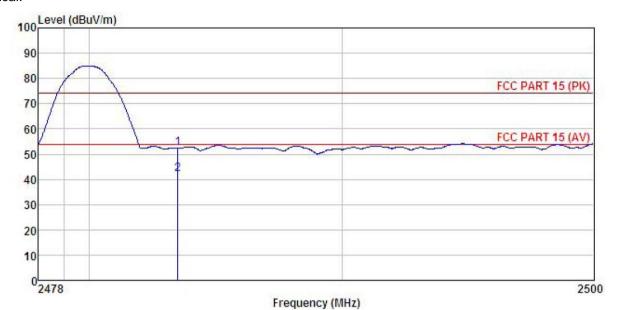
Model

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

	Freq		Antenna Factor						
-	MHz	dBu∜	—dB/m	₫B	dB	dBuV/m	dBuV/m	<u>dB</u>	
	2483.500 2483.500								







Site

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

Pro : 916RF

EUT : LTE mobile phone

: NbL
Test mode : 2DH1-H mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
Remark :

II TI										
	Freq		Antenna Factor				Limit Line		Remark	
1	MHz	dBu∇	<u>dB</u> /m	<u>dB</u>	<u>d</u> B	dBu∀/m	dBuV/m	<u>dB</u>		
8	2483.500	18.01	27.52	6.85	0.00	52.38	74.00	-21.62	Peak	
2	2483.500	7.85				42.22	54.00	-11.78	Average	

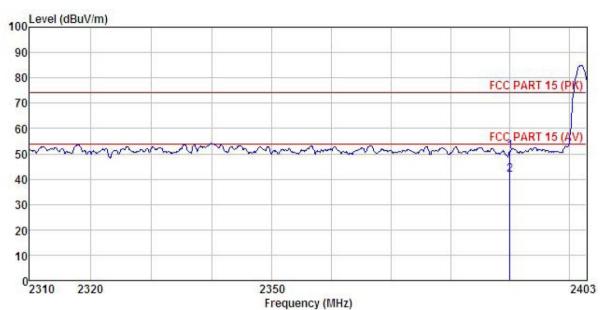




8DPSK mode

Test channel: Lowest

Horizontal:



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

Pro 916RF

EUT LTE mobile phone

: N5L Model

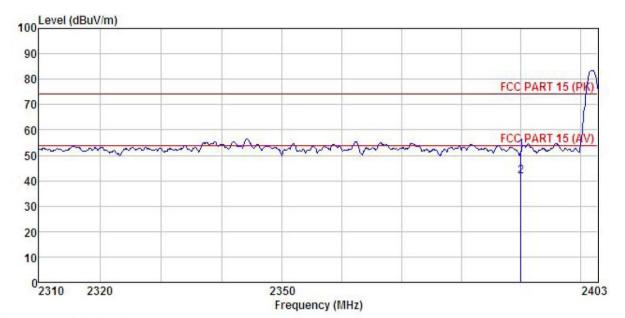
Test mode : 3DH1-L mode Power Rating : AC 120V/60Hz Environment : Temp:25.5°C Huni:55%

Test Engineer: Carey

	Freq		Antenna Factor						
-	MHz	MHz dBuV dB/m	<u>dB</u>	<u>d</u> B	$\overline{dBuV/m}$	dBuV/m	<u>dB</u>		
0.00	2390.000 2390.000		700000000000000000000000000000000000000			51.08 41.78	4,000		







Site

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

: 916RF Pro

EUT : LTE mobile phone Model : N5L

Test mode : 3DH1-L mode Power Rating : AC 120V/60Hz

Environment : Temp: 25.5°C Huni: 55%

Test Engineer: Carey Remark :

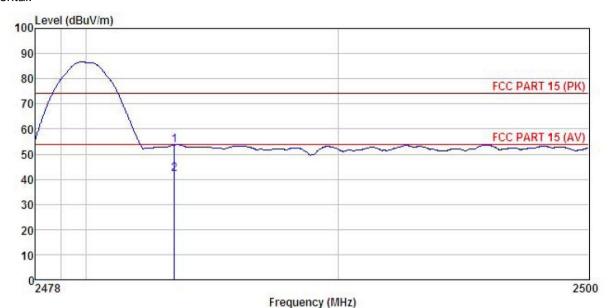
Chiar.	ð.	Read	ReadAntenna		Preamn		Limit	Over	
	Freq		Factor						Remark
5	MHz	dBu∜	dB/m	dB	dB	dBuV/m	dBuV/m	<u>dB</u>	
1	2390.000	17.76	27.58	6.63	0.00	51.97	74.00	-22.03	Peak
2	2390.000	7.51	27.58	6.63	0.00	41.72	54.00	-12.28	Average





Test channel:Highest

Horizontal:



Site

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

: 916RF Pro

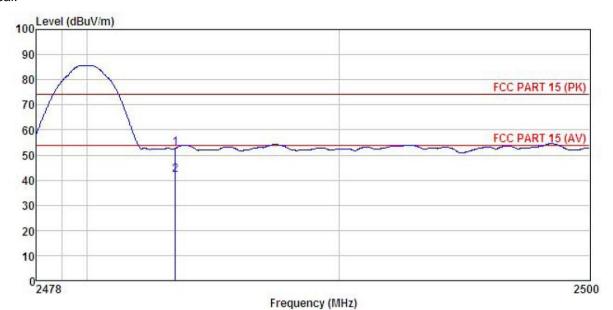
: LTE mobile phone : N5L EUT Model

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

emari	A	Antenna Factor			Remark
-		 — <u>d</u> B/m	 	 	
1 2	2483.500 2483.500				







Site

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

Pro : 916RF

EUT : LTE mobile phone

: N5L
Test mode : 3DH1-H mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
Remark :

11.	•	Read	Antenna	Cable	Preamp		Limit	Over		
	Freq		Factor						Remark	
-	MHz	dBu∜	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
	2483.500					52.65				
	2483.500	7.82	27.52	6.85	0.00	42.19	54.00	-11.81	Average	



6.10 Spurious Emission

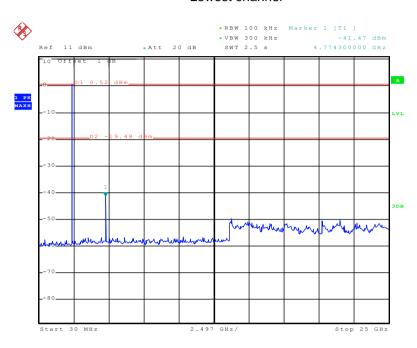
6.10.1 Conducted Emission Method

Test Requirement:	FCC Part15 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

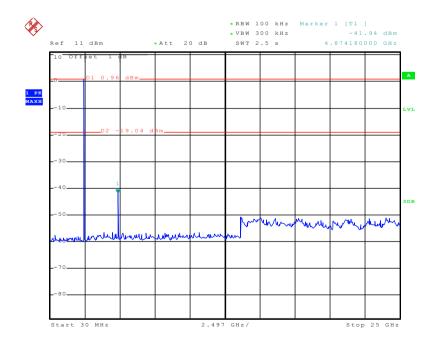
Lowest channel



Date: 28.NOV.2015 03:13:00

30MHz~25GHz

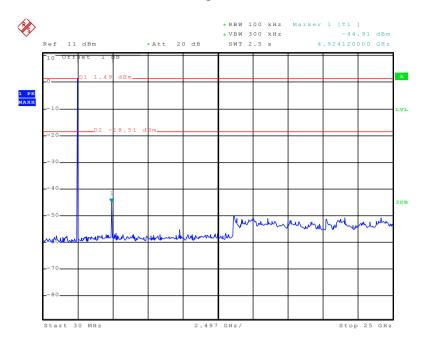
Middle channel



Date: 28.NOV.2015 03:12:25



Highest channel

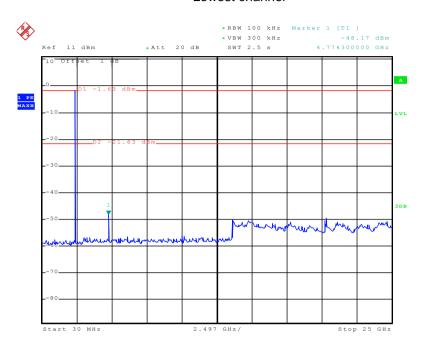


Date: 28.NOV.2015 03:11:51



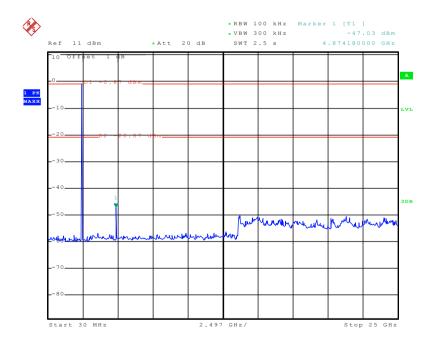
π/4-DQPSK

Lowest channel



Date: 28.NOV.2015 03:53:46

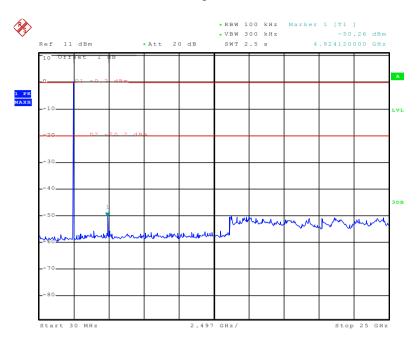
30MHz~25GHz Middle channel



Date: 28.NOV.2015 03:54:15



Highest channel

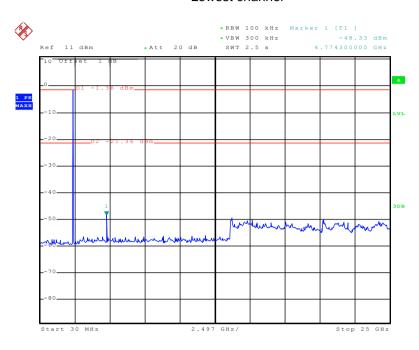


Date: 28.NOV.2015 03:55:48



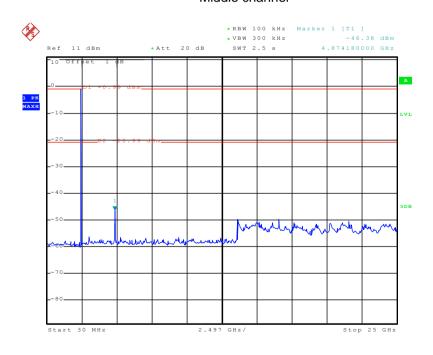
8DPSK

Lowest channel



Date: 28.NOV.2015 03:58:23

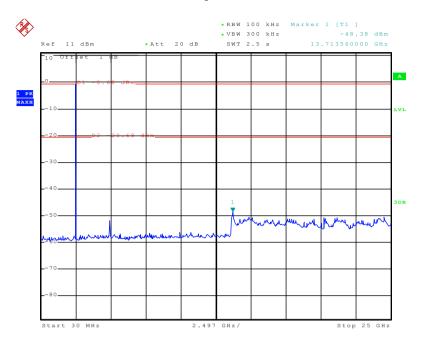
30MHz~25GHz Middle channel



Date: 28.NOV.2015 03:57:13



Highest channel



Date: 28.NOV.2015 03:59:37





6.10.2 Radiated Emission Method

5.10.2 Radiated Emission Method									
Test Requirement:	FCC Part15 C Section 15.209								
Test Method:	ANSI C63.10: 2009								
Test Frequency Range:	9kHz to 25GHz								
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	Peak Value				
	Above 1G112	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	H ₇	54.0)	Average Value				
	Above 10)1 IZ	74.0)	Peak Value				
Test setup:	Tum Table 0.8 Ground Plane — Above 1GHz	EUT 3m	Da -	Antenra Sear Anter Receiver					





Test Procedure:	The EUT was placed on the top of a rotating table 0.8 meters above the groundat a 3 meter chamber. The table was rotated 360 degrees todetermine the position of the highest radiation.
	The EUT was set 3 meters away from the interference-receiving antenna, whichwas 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 thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatablewas turned from 0 degrees to 360 degrees to find the maximum reading.
	The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth 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

- 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.

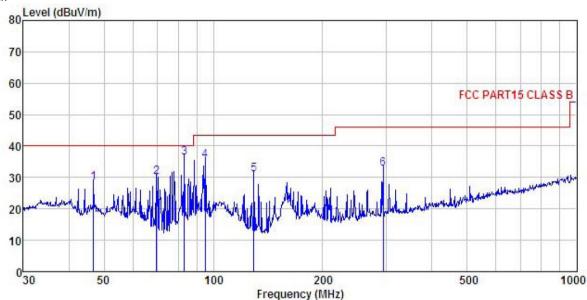




Measurement data:

Below 1GHz

Vertical:



Site

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

: 916RF Pro EUT

: LTE mobile phone : N5L Model

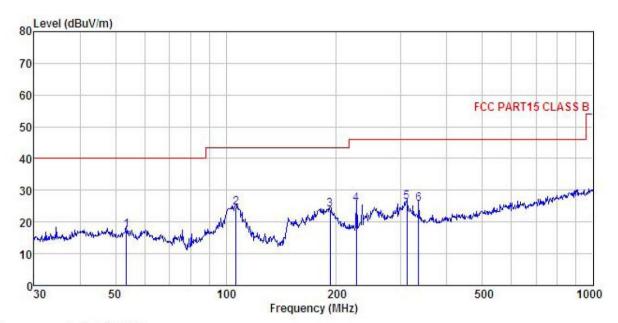
Test mode : NOL
Test mode : BT mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey

	Freq		Antenna Factor				Limit Line	Over Limit	Remark
-	MHz	dBu∀	dB/m	dB	dB	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>dB</u>	
1	46.830	44.05	13.44	0.58	29.85	28.22	40.00	-11.78	QP
2	69.845	50.12	8.79	0.79	29.72	29.98	40.00	-10.02	QP
3	83.230	55.28	9.72	0.87	29.61	36.26	40.00	-3.74	QP
4	95.093	51.19	12.84	0.93	29.55	35.41	43.50	-8.09	QP
4 5	129.468	50.04	9.03	1.19	29.33	30.93	43.50	-12.57	QP
6	293.084	46.66	12.92	1.75	28.46	32.87	46.00	-13.13	QP





Horizontal:



Site

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

Pro

: 916RF : LTE mobile phone EUT

Model : N5L Test mode : BT mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%

Test Engineer: Carey

CHAIK									
	Freq		Antenna Factor					Over Limit	Remark
-	MHz	dBu₹	dB/m	₫B	dB	dBuV/m	dBuV/m	dB	
1	53.505	33.58	13.11	0.64	29.81	17.52	40.00	-22.48	QP
2	106.385	40.52	12.59	1.02	29.48	24.65	43.50	-18.85	QP
	192.419	40.80	10.56	1.37	28.88	23.85	43.50	-19.65	QP
4 5	226.894	41.43	11.51	1.51	28.67	25.78	46.00	-20.22	QP
5	311.087	39.69	13.22	1.81	28.48	26.24	46.00	-19.76	QP
6	334.859	38.35	13.92	1.89	28.53	25.63	46.00	-20.37	QP



Above 1GHz:

Test channel:			Lowest		Level:		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	45.60	31.53	10.57	40.24	47.46	74.00	-26.54	Vertical
4804.00	43.81	31.53	10.57	40.24	45.67	74.00	-28.33	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	36.09	31.53	10.57	40.24	37.95	54.00	-16.05	Vertical
4804.00	34.74	31.53	10.57	40.24	36.60	54.00	-17.40	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	42.88	31.58	10.66	40.15	44.97	74.00	-29.03	Vertical
4882.00	44.28	31.58	10.66	40.15	46.37	74.00	-27.63	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	33.12	31.58	10.66	40.15	35.21	54.00	-18.79	Vertical
4882.00	35.47	31.58	10.66	40.15	37.56	54.00	-16.44	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	43.62	31.69	10.73	40.03	46.01	74.00	-27.99	Vertical
4960.00	43.43	31.69	10.73	40.03	45.82	74.00	-28.18	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	34.83	31.69	10.73	40.03	37.22	54.00	-16.78	Vertical
4960.00	34.58	31.69	10.73	40.03	36.97	54.00	-17.03	Horizontal

- 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.