

FCC TEST REPORT (PART 24)

REPORT NO.: RF121211C15-1

MODEL NO.: PN07200

FCC ID: NM8PN07200

RECEIVED: Dec. 11, 2012

TESTED: Dec. 12, 2012 ~ Dec. 18, 2012 (for conducted test) Jan. 08, 2013 ~ Jan. 11, 2013 (for radiated test)

- **ISSUED:** Jan. 30, 2013
- **APPLICANT:** HTC Corporation
 - ADDRESS: No. 23, Xinghua Rd., Taoyuan City, Taiwan
- **ISSUED BY:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
- LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
- **TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF121211C15-1	Original release	Jan. 30, 2013



1 CERTIFICATION

PRODUCT:SmartphoneMODEL:PN07200BRAND:HTCAPPLICANT:HTC CorporationTESTED:Dec. 12, 2012 ~ Dec. 18, 2012 (for conducted test)Jan. 08, 2013 ~ Jan. 11, 2013 (for radiated test)TEST SAMPLE:Production UnitSTANDARDS:FCC Part 24, Subpart E

The above equipment (model: PN07200) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY

, **DATE :** Jan. 30, 2013

Ivonne Wu / Senior Specialist

APPROVED BY

DATE : Jan. 30, 2013

Anderson Chiu / Senior Engineer



2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

	APPLIED STANDARD: FCC Part 24 & Part 2							
STANDARD SECTION	TEST TYPE	RESULT	REMARK					
2.1046 24.232	Equivalent isotropically radiated power	PASS	Meet the requirement of limit.					
2.1055 24.235	Frequency Stability	PASS	Meet the requirement of limit.					
2.1049 24.238(b)	Occupied Bandwidth	PASS	Meet the requirement of limit.					
24.232(d)	PEAK TO AVERAGE RATIO	PASS	Meet the requirement of limit.					
24.238(b)	Band Edge Measurements	PASS	Meet the requirement of limit.					
2.1051 24.238	Conducted Spurious Emissions	PASS	Meet the requirement of limit.					
2.1053 24.238	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -17.05dB at 42.69MHz.					

2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
	30MHz ~ 200MHz	2.93 dB
Radiated emissions	200MHz ~1000MHz	2.95 dB
Radiated emissions	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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



2.2 TEST SITE AND INSTRUMENTS

Tested Date: Dec. 12 ~ Dec. 18, 2012

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver Agilent	N9038A	MY51210203	Dec. 22, 2011	Dec. 21, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2011	Dec. 20, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 20, 2011	Dec. 19, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Dec. 20, 2011	Dec. 19, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 20, 2011	Dec. 19, 2012
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 30, 2011	Dec. 29, 2012
Preamplifier EMCI	EMC 330H	980112	Dec. 30, 2011	Dec. 29, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Jan. 02, 2012	Jan. 01, 2013
RF signal cable Worken	RG-213	NA	Jan. 02, 2012	Jan. 01, 2013
Software	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Mar. 23, 2012	Mar. 22, 2013
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Communications Tester-Wireless	E5515C	MY52102544	Sep. 05, 2012	Sep. 04, 2013
Radio Communication Analyzer	MT8820C	6201127458	May 25, 2012	May 24, 2013

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

- 2. The test was performed in HwaYa Chamber 9.
- 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 4. The FCC Site Registration No. is 460141.
- 5. The IC Site Registration No. is IC 7450F-4.



Tested Date: Jan. 07 ~ Jan. 11, 2013

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2012	Apr. 18, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2012	Dec. 16, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Apr. 03, 2012	Apr. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Jan. 07, 2013	Jan. 06, 2014
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 25, 2012	Dec. 24, 2013
Preamplifier EMCI	EMC 012645	980115	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 184045	980116	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 330H	980112	Dec. 28, 2012	Dec. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4	Oct. 19, 2012	Oct. 18, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 19, 2012	Oct. 18, 2013
RF signal cable Worken	RG-213	NA	Dec. 29, 2012	Dec. 28, 2013
Software	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Mar. 23, 2012	Mar. 22, 2013
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
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- 5. The IC Site Registration No. is IC 7450F-4.



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT					
EUT	Smartphone				
MODEL NO.	PN07200				
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.8Vdc (battery)				
MODULATION TYPE	CDMA	QPSK, OQPSK, HPSK			
MODULATION THE	LTE Band 25	QPSK, 16QAM			
	CDMA	1851.3MHz ~ 1908.8MHz			
	LTE Band 25	1852.5MHz ~ 1912.5MHz			
FREQUENCY RANGE	(Channel Bandwidth: 5MHz)	1852.510112 ~ 1912.510112			
	LTE Band 25	1855MHz ~ 1910MHz			
	(Channel Bandwidth: 10MHz)				
	CDMA	239.88mW			
	LTE Band 25	230.67mW			
MAX. EIRP POWER	(Channel Bandwidth: 5MHz)	200.071111			
	LTE Band 25	208.45mW			
	(Channel Bandwidth: 10MHz)	200.101111			
	CDMA	1M28F9W			
	LTE Band 25	QPSK: 4M49G7D			
EMISSION DESIGNATOR	(Channel Bandwidth: 5MHz)	16QAM: 4M49W7D			
	LTE Band 25	QPSK: 8M92G7D			
	(Channel Bandwidth: 10MHz)	16QAM: 8M92W7D			
ANTENNA TYPE	Fixed Internal antenna				
I/O PORTS	Refer to users' manual				
DATA CABLE	Refer to NOTE as below				
ACCESSORY DEVICES	Refer to NOTE as below				

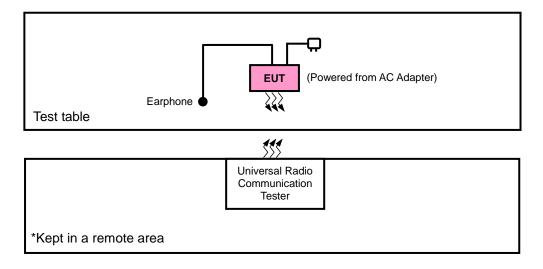
NOTE:

1. The EUT's accessories list refers to EUT photo.

2. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



3.2 CONFIGURATION OF SYSTEM UNDER TEST



3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.



3.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports The worst case was found when positioned on Z-axis for antenna 0 and X-axis for antenna 1 for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

CDMA MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
-	EIRP	25 to 1175	25, 600, 1175	1xRTT
-	FREQUENCY STABILITY	25 to 1175	600	1xRTT
-	OCCUPIED BANDWIDTH	25 to 1175	25, 600, 1175	1xRTT
-	- PEAK TO AVERAGE RATIO		25, 600, 1175	1xRTT
-	- BAND EDGE		25, 1175	1xRTT
-	- CONDCUDETED EMISSION		600	1xRTT
-	RADIATED EMISSION	25 to 1175	600	1xRTT



LTE BAND 25 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	EIRP	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	1 RB / 0 RB Offset
-	EIRP	26090 to 26640	26090, 26365, 26640	10MHz	QPSK	1 RB / 24 RB Offset
	FREQUENCY	26065 to 26665	26365	5MHz	QPSK	1 RB / 0 RB Offset
-	STABILITY	26090 to 26640	26365	10MHz	QPSK	1 RB / 24 RB Offset
	OCCUPIED	26065 to 26665	26065, 26365, 26665	5MHz	QPSK / 16QAM	25 RB / 0 RB Offset
-	BANDWIDTH	26090 to 26640	26090, 26365, 26640	10MHz	QPSK / 16QAM	50 RB / 0 RB Offset
	PEAK TO	26065 to 26665	26065, 26365, 26665	5MHz	QPSK / 16QAM	1 RB / 0 RB Offset
-	AVERAGE RATIO	26090 to 26640	26090, 26365, 26640	10MHz	QPSK / 16QAM	1 RB / 24 RB Offset
	BAND EDGE	26065 to 26665 26665 5MHz	EMU-	ODSK	1 RB / 0 RB Offset	
			20005	SIVIHZ	QPSK	25 RB / 0 RB Offset
			26665	5MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
-		BAND EDGE		26000		QPSK
		00000 to 000 to	26090	10MHz	QPSK	50 RB / 0 RB Offset
		26090 to 26640	26640	10MHz	0.001/	1 RB / 49 RB Offset
		26640	20040		QPSK	50 RB / 0 RB Offset
	CONDCUDETED	26065 to 26665	26365	5MHz	QPSK	1 RB / 0 RB Offset
-	EMISSION	26090 to 26640	26365	10MHz	QPSK	1 RB / 24 RB Offset
-	RADIATED EMISSION	26090 to 26640	26365	10MHz	QPSK	1 RB / 24 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case were found in QPSK modulation.

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	26deg. C, 58%RH	3.8Vdc	Howard Kao
FREQUENCY STABILITY	26deg. C, 58%RH	3.8Vdc	Howard Kao
OCCUPIED BANDWIDTH	26deg. C, 58%RH	3.8Vdc	Howard Kao
BAND EDGE	26deg. C, 58%RH	3.8Vdc	Howard Kao
CONDCUDETED EMISSION	26deg. C, 58%RH	3.8Vdc	Howard Kao
RADIATED EMISSION	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu



3.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2 FCC 47 CFR Part 24 ANSI/TIA/EIA-603-C 2004

NOTE: All test items have been performed and recorded as per the above standards.



4 TEST TYPES AND RESULTS

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP

4.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

- a. The EUT was place on a turntable with 1.727 meter height in a fully anechoic chamber.
- b. The EUT was set at 4.858 meters from the receiving antenna, which was mounted on the antenna tower.
- c. The EUT was rotated along 2 axis: Theta-axis: 180 degree and Phi-axis: 360 degree, Step Size: 15 degree.
- d. The height of the receiving antenna is fixed.
- e. Taking the record of received power.
- f. A dipole antenna was used in place of the EUT for pathloss calibration with a network analyzer.
- g. The gain of the dipole antenna and the insertion loss of the connected RF cable were applied into the pathloss calibration.
- h. The maximum ERP/EIRP was calculated with received power and pathloss.
- i. ERP/EIRP = Ps + Et Es + Gs = Ps + Rt Rs + Gs
 Ps (dBm) : Input power to subsitution antenna.

Gs (dBi or dBd) : Substitution antenna Gain.

Et = Rt + AF

Es = Rs + AF

- AF (dB/m) : Receiver antenna factor
- Rt: The highest received signal in spectrum analyzer for EUT.
- Rs: The highest received signal in spectrum analyzer for substitution antenna.

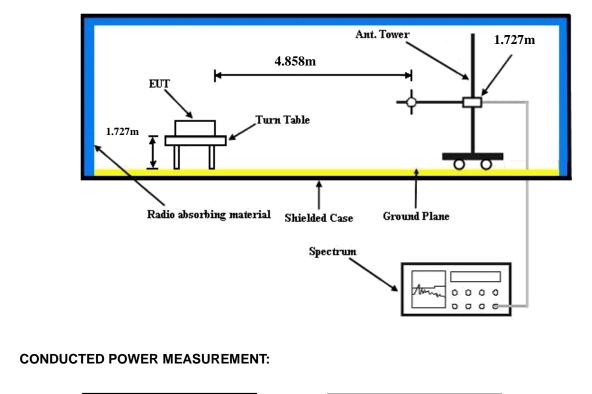
CONDUCTED POWER MEASUREMENT:

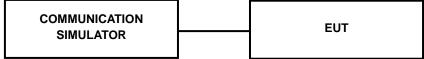
The EUT was set up for the maximum power with CDMA & LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



4.1.3 TEST SETUP

EIRP MEASUREMENT:







4.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	CDMA			
Channel	25	25 600		
Frequency (MHz)	1851.25	1880	1908.75	
RC1+SO55	24.46	24.66	24.34	
RC3+SO55	24.60	24.80	24.38	
RC3+SO32(+ F-SCH)	24.49	24.69	24.27	
RC3+SO32(+SCH)	24.48	24.68	24.26	
RTAP 153.6	24.59	24.79	24.37	
RETAP 4096	24.56	24.76	24.34	



				LTE Band	25			
			Frequency				Target	Measured
BW	Modulation	СН	(MHz)	RB	RB Offset	MPR	Power	Power
		26065	1860	1	0	0	25.1	24.69
		26365	1882.5	1	0	0	25.1	24.86
		26665	1912.5	1	0	0	25.1	25.01
		26065	1860	1	12	0	25.1	24.62
		26365	1882.5	1	12	0	25.1	24.79
		26665	1912.5	1	12	0	25.1	24.94
		26065	1860	1	24	0	25.1	24.45
		26365	1882.5	1	24	0	25.1	24.62
		26665	1912.5	1	24	0	25.1	24.77
		26065	1860	12	0	1	25.1	23.59
	QPSK	26365	1882.5	12	0	1	25.1	23.76
		26665	1912.5	12	0	1	25.1	23.91
		26065	1860	12	6	1	25.1	23.53
		26365	1882.5	12	6	1	25.1	23.7
		26665	1912.5	12	6	1	25.1	23.85
		26065	1860	12	13	1	25.1	23.35
		26365	1882.5	12	13	1	25.1	23.52
		26665	1912.5	12	13	1	25.1	23.67
		26065	1860	25	0	1	25.1	23.34
		26365	1882.5	25	0	1	25.1	23.51
5MHz		26665	1912.5	25	0	1	25.1	23.66
5141112		26065	1860	1	0	1	25.1	23.69
		26365	1882.5	1	0	1	25.1	23.86
		26665	1912.5	1	0	1	25.1	24.01
		26065	1860	1	12	1	25.1	23.59
		26365	1882.5	1	12	1	25.1	23.76
		26665	1912.5	1	12	1	25.1	23.91
		26065	1860	1	24	1	25.1	23.89
		26365	1882.5	1	24	1	25.1	24.06
		26665	1912.5	1	24	1	25.1	24.21
		26065	1860	12	0	2	25.1	22.65
	16QAM	26365	1882.5	12	0	2	25.1	22.82
		26665	1912.5	12	0	2	25.1	22.97
		26065	1860	12	6	2	25.1	22.6
		26365	1882.5	12	6	2	25.1	22.77
		26665	1912.5	12	6	2	25.1	22.92
		26065	1860	12	13	2	25.1	22.38
		26365	1882.5	12	13	2	25.1	22.55
		26665	1912.5	12	13	2	25.1	22.7
		26065	1860	25	0	2	25.1	22.39
		26365	1882.5	25	0	2	25.1	22.56
		26665	1912.5	25	0	2	25.1	22.71



				LTE Band	25			
			Frequency				Target	Measured
BW	Modulation	СН	(MHz)	RB	RB Offset	MPR	Power	Power
		26090	1855	1	0	0	25.1	24.86
		26365	1882.5	1	0	0	25.1	24.64
		26640	1910	1	0	0	25.1	24.78
		26090	1855	1	24	0	25.1	24.74
		26365	1882.5	1	24	0	25.1	24.92
		26640	1910	1	24	0	25.1	25.09
		26090	1855	1	49	0	25.1	24.79
		26365	1882.5	1	49	0	25.1	24.82
		26640	1910	1	49	0	25.1	24.93
		26090	1855	25	0	1	25.1	23.52
	QPSK	26365	1882.5	25	0	1	25.1	23.61
		26640	1910	25	0	1	25.1	23.78
		26090	1855	25	12	1	25.1	23.56
		26365	1882.5	25	12	1	25.1	23.57
		26640	1910	25	12	1	25.1	23.75
		26090	1855	25	25	1	25.1	23.54
		26365	1882.5	25	25	1	25.1	23.37
		26640	1910	25	25	1	25.1	23.52
		26090	1855	50	0	1	25.1	23.53
		26365	1882.5	50	0	1	25.1	23.49
		26640	1910	50	0	1	25.1	23.51
10MHz		26090	1855	1	0	1	25.1	23.53
		26365	1882.5	1	0	1	25.1	23.52
		26640	1910	1	0	1	25.1	23.61
		26090	1855	1	24	1	25.1	23.48
		26365	1882.5	1	24	1	25.1	23.75
		26640	1910	1	24	1	25.1	24.05
		26090	1855	1	49	1	25.1	23.41
		26365	1882.5	1	49	1	25.1	23.71
		26640	1910	1	49	1	25.1	23.73
		26090	1855	25	0	2	25.1	22.45
	16QAM	26365	1882.5	25	0	2	25.1	22.58
		26640	1910	25	0	2	25.1	22.66
		26090	1855	25	12	2	25.1	22.46
		26365	1882.5	25	12	2	25.1	22.61
		26640	1910	25	12	2	25.1	22.66
		26090	1855	25	25	2	25.1	22.42
		26365	1882.5	25	25	2	25.1	22.4
		26640	1910	25	25	2	25.1	22.5
		26090	1855	50	0	2	25.1	22.43
		26365	1882.5	50	0	2	25.1	22.41
		26640	1910	50	0	2	25.1	22.51



EIRP POWER (dBm) ANT. 0

	CDMA Radiated Power EIRP								
	Horizontal Polarization								
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1851.25	-31.20	-51.88	0.00	1.96	22.64	183.65			
1880.00	-31.19	-52.99	0.00	2.00	23.80	239.88			
1908.75	-33.62	-54.28	0.00	1.98	22.64	183.65			
		Ver	tical Polarizati	ion					
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1851.25	-38.29	-52.13	0.00	1.96	15.80	38.02			
1880.00	-37.77	-53.17	0.00	2.00	17.40	54.95			
1908.75	-40.11	-54.13	0.00	1.98	16.00	39.81			

	LTE Band 25 (5MHz) Radiated Power EIRP								
		Horiz	zontal Polariza	ition					
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1860	-41.54	-51.88	0.00	1.96	12.30	16.98			
1882.5	-43.22	-52.99	0.00	2.00	11.77	15.03			
1912.5	-44.06	-54.28	0.00	1.98	12.20	16.60			
		Ver	tical Polarizati	ion					
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1860	-48.49	-52.13	0.00	1.96	5.60	3.63			
1882.5	-49.97	-53.17	0.00	2.00	5.20	3.31			
1912.5	-51.11	-54.13	0.00	1.98	5.00	3.16			



	LTE Band 25 (10MHz) Radiated Power EIRP								
	Horizontal Polarization								
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1855	-41.58	-51.88	0.00	1.96	12.26	16.83			
1882.5	-43.08	-52.99	0.00	2.00	11.91	15.52			
1910	-44.18	-54.28	0.00	1.98	12.08	16.14			
		Ver	tical Polarizati	ion					
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1855	-47.99	-52.13	0.00	1.96	6.1	4.07			
1882.5	-48.77	-53.17	0.00	2.00	6.4	4.37			
1910	-49.01	-54.13	0.00	1.98	7.1	5.13			



ANT. 1

	CDMA Radiated Power EIRP								
	Horizontal Polarization								
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1851.25	-40.26	-51.88	0.00	1.96	13.58	22.80			
1880.00	-41.55	-52.99	0.00	2.00	13.44	22.08			
1908.75	-44.48	-54.28	0.00	1.98	11.78	15.07			
		Ver	tical Polarizati	ion					
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1851.25	-47.09	-52.13	0.00	1.96	7.0	5.01			
1880.00	-47.37	-53.17	0.00	2.00	7.8	6.03			
1908.75	-50.01	-54.13	0.00	1.98	6.1	4.07			

	LTE Band 25 (5MHz) Radiated Power EIRP								
		Horiz	zontal Polariza	ition					
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1860	-31.35	-51.88	0.00	1.96	22.49	177.42			
1882.5	-31.59	-52.99	0.00	2.00	23.40	218.78			
1912.5	-32.63	-54.28	0.00	1.98	23.63	230.67			
		Ver	tical Polarizati	ion					
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1860	-37.59	-52.13	0.00	1.96	16.5	44.67			
1882.5	-37.77	-53.17	0.00	2.00	17.4	54.95			
1912.5	-38.11	-54.13	0.00	1.98	18.0	63.10			



	LTE Band 25 (10MHz) Radiated Power EIRP								
	Horizontal Polarization								
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1855	-31.70	-51.88	0.00	1.96	22.14	163.68			
1882.5	-32.47	-52.99	0.00	2.00	22.52	178.65			
1910	-33.07	-54.28	0.00	1.98	23.19	208.45			
		Ver	tical Polarizat	ion					
Frequency	Rt	Rs	Ps	Gs	EIRP	EIRP			
(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)			
1855	-38.39	-52.13	0.00	1.96	15.7	37.15			
1882.5	-39.07	-53.17	0.00	2.00	16.1	40.74			
1910	-38.81	-54.13	0.00	1.98	17.3	53.70			



4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

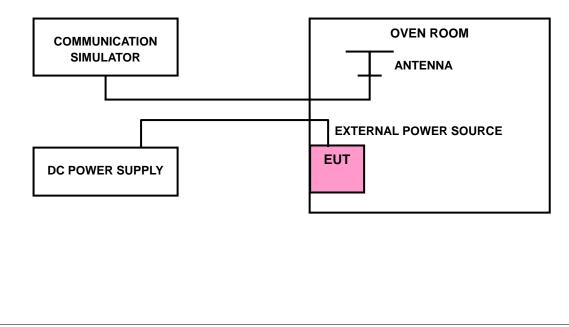
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.2.2 TEST PROCEDURE

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}$ C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

4.2.3 TEST SETUP





4.2.4 TEST RESULTS

ANT. 0

FREQUENCY ERROR VS. VOLTAGE

FREC		QUENCY ERROR (p		
VOLTAGE (Volts)	CDMA	LTE B	LIMIT (ppm)	
	CDMA	5MHz	10MHz	
3.8	0.004	-0.001	-0.004	2.5
3.6	0.004	-0.001	-0.005	2.5
4.2	0.004	-0.003	0.004	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE

	FRE			
ТЕМР. (° С)	CDMA	LTE Band 25		LIMIT (ppm)
	CDWA	5MHz	10MHz	
-30	0.004	-0.002	-0.005	2.5
-20	0.003	-0.002	-0.004	2.5
-10	0.003	-0.003	-0.006	2.5
0	0.005	-0.002	-0.006	2.5
10	0.003	-0.003	-0.007	2.5
20	0.005	0.002	-0.003	2.5
30	0.004	0.003	-0.004	2.5
40	0.004	0.002	0.005	2.5
50	0.005	-0.001	0.007	2.5
55	0.004	-0.003	0.006	2.5



ANT. 1

FREQUENCY ERROR VS. VOLTAGE

	FRE			
VOLTAGE (Volts)	CDMA	LTE B	and 25	LIMIT (ppm)
	CDMA	5MHz	10MHz	
3.8	0.004	-0.001	-0.004	2.5
3.6	0.004	-0.006	0.003	2.5
4.2	0.005	-0.004	0.005	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE

	FRE	opm)		
ТЕМР. (° С)	CDMA	LTE Ba	LIMIT (ppm)	
	CDWA	5MHz	10MHz	
-30	0.006	-0.002	-0.005	2.5
-20	0.008	-0.005	-0.001	2.5
-10	0.006	-0.007	-0.002	2.5
0	0.008	-0.008	0.001	2.5
10	0.006	-0.015	0.004	2.5
20	0.006	0.005	-0.011	2.5
30	0.007	0.002	0.000	2.5
40	0.007	0.003	0.001	2.5
50	0.007	-0.008	-0.001	2.5
55	0.006	0.003	-0.003	2.5

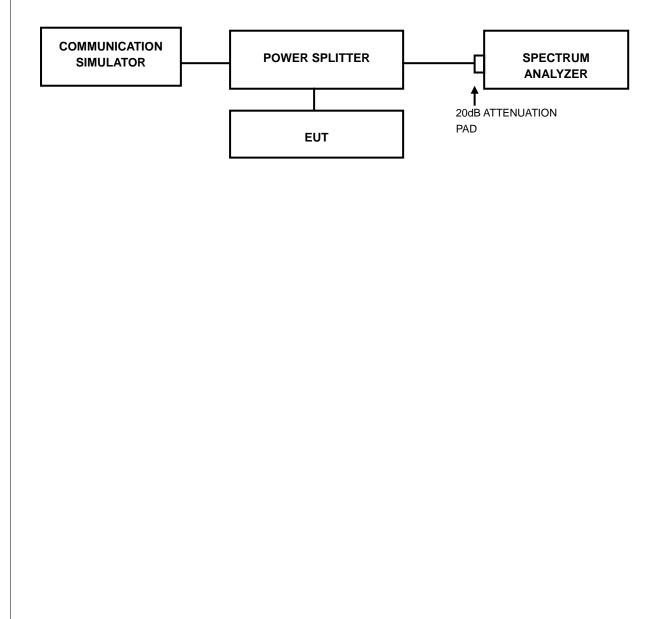


4.3 OCCUPIED BANDWIDTH MEASUREMENT

4.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.2 TEST SETUP





4.3.3 TEST RESULTS

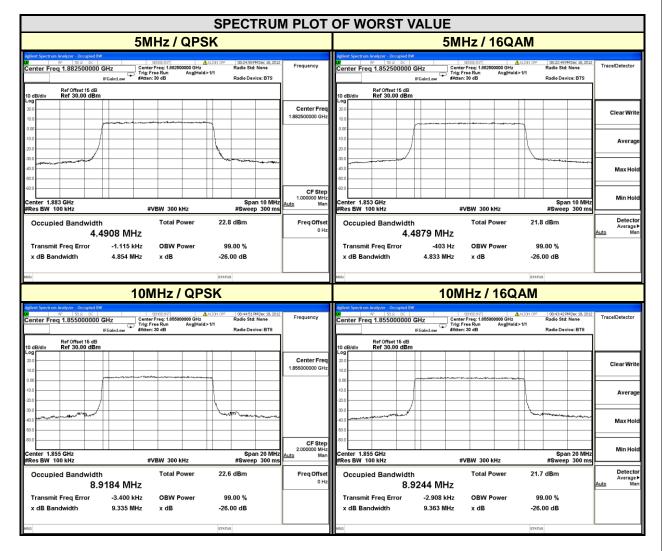
ANT. 0

CHANNEL	FREQUENCY	99% OCCUPIED BANDWIDTH (MHz)
	(MHz)	CDMA
25	1851.3	1.2782
600	1880.0	1.2760
1175	1908.8	1.2780

	SPEC	TRUM	PL	от о	FW	OR	ST \	/ALU	JE	
				CDM	Α					
Agilent Spectru	m Analyzer - Occupied									
enter Fr	RF 50 9 DC eq 1.85125000					IGN OFF	Radio Std: Radio Dev		Trace/Detecto	эr
0 dB/div	Ref Offset 15 dE Ref 30.00 dB									
10.0					www				ClearW	rite
0.0		\square							Avera	age
1.0									MaxH	old
enter 1.8 Res BW			#V	BW 100 kHz			Sp #Sweet	an 3 MHz 3 300 ms	Min H	old
Occupied Bandwidth 1.2782 MHz							dBm		Detec Averag Auto	
Transmit Freq Error -1.433 k x dB Bandwidth 1.434 M			OBW Pov x dB	ver		00 % 00 dB				
sa						STATUS	l l			_



			LTE B	AND 25						
С	HANNEL BAND	WIDTH: 5MH	z	CHANNEL BANDWIDTH: 10MHz						
CHANNEL	FREQUENCY	99% OC BANDWIE	CUPIED OTH (MHz)	CHANNEL	FREQUENCY	99% OCCUPIED BANDWIDTH (MHz)				
	(MHz)	QPSK	16QAM		(MHz)	QPSK	16QAM			
26065	1852.5	4.4876	4.4879	26090	1855	8.9184	8.9244			
26365	1882.5	4.4908	4.4865	26365	1882.5	8.9109	8.9091			
26665	1912.5	4.4873	4.4845	26640	1910	8.8967	8.9044			





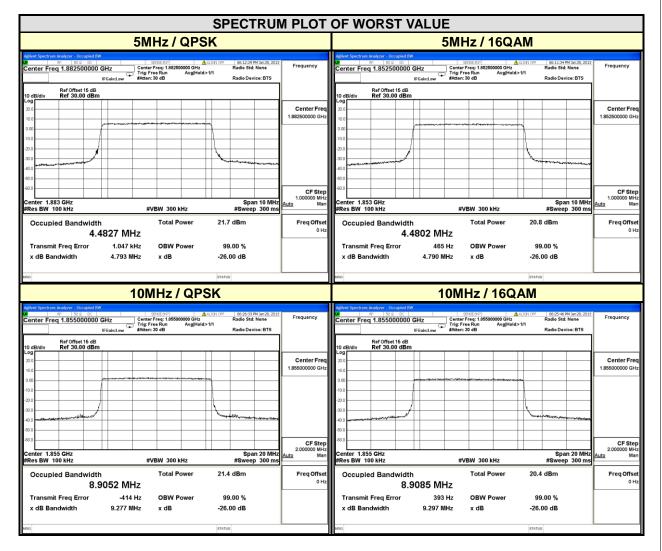
ANT. 1

CHANNEL	FREQUENCY	99% OCCUPIED BANDWIDTH (MHz)					
	(MHz)	CDMA					
25	1851.3	1.2751					
600	1880.0	1.2742					
1175	1908.8	1.2750					

	CDMA											
N	m Analyzer - Occ RF 50 Ω 30.00 dBn	DC 1	Gain:Low				ALIGN OFF	04:15:25 PM 3 Radio Std: No Radio Device	ne	Amptd/Y Scale		
I0 dB/div	Ref Offset Ref 30.00									30.00 dBm		
-og 20.0 10.0			,	ولمر بي مرقد						Attenuation [30 dB]		
10.0							$\left \right $			Scale/Div 10.0 dB		
در مالیک می ر	phan and a second	لىسر					5		unera.			
40.0 50.0												
50.0												
Center 1.8 Res BW				#VI	- 3W 100 F	kHz		Span #Sweep 3	3 MHz 300 ms	Presel Center		
Occupied Bandwidth Total Power 25.5 dBm 1.2751 MHz									Presel Adjus 0 Hz			
			-984 1.427 M				99.00 % -26.00 dB			More 1 of 2		



			LTE B	AND 25						
С	HANNEL BAND	WIDTH: 5MH	z	CHANNEL BANDWIDTH: 10MHz						
CHANNEL	FREQUENCY		CUPIED DTH (MHz)	CHANNEL	FREQUENCY	99% OCCUPIED BANDWIDTH (MHz)				
	(MHz)	QPSK	16QAM		(MHz)	QPSK	16QAM			
26065	1852.5	4.477	4.4802	26090	1855	8.9052	8.9085			
26365	1882.5	4.4827	4.4773	26365	1882.5	8.8986	8.9001			
26665	1912.5	4.4793	4.4752	26640	1910	8.8856	8.8784			



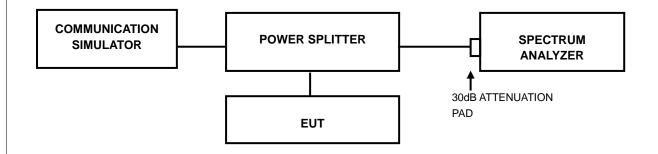


4.4 PEAK TO AVERAGE RATIO

4.4.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.4.2 TEST SETUP



4.4.3 TEST PROCEDURES

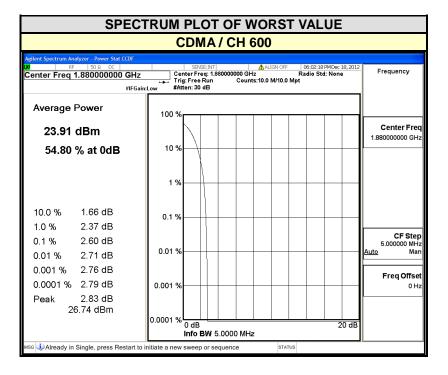
- 1. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- 2. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 3. Record the maximum PAPR level associated with a probability of 0.1%.



4.4.4 TEST RESULTS

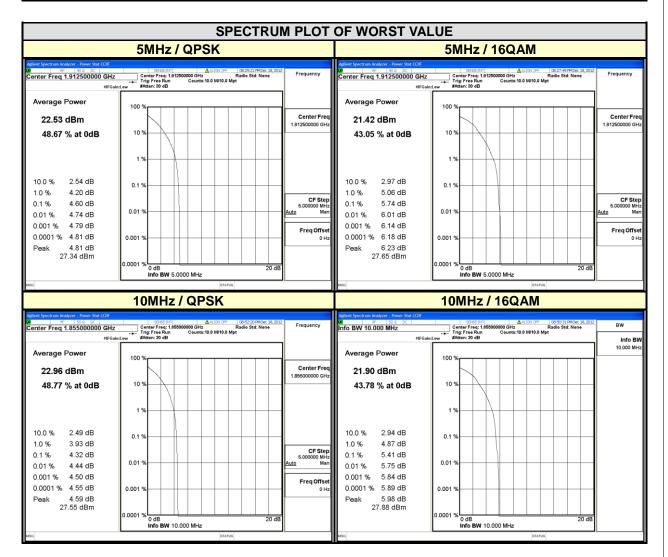
ANT. 0

CHANNEL	FREQUENCY	PEAK TO AVERAGE RATIO (dB)
CHANNEL	(MHz)	CDMA
25	1851.3	2.40
600	1880.0	2.60
1175	1908.8	2.47





			LTE B	AND 25						
С	HANNEL BAND	WIDTH: 5MH	z	CHANNEL BANDWIDTH: 10MHz						
CHANNEL	FREQUENCY	PEAK TO RATIO	AVERAGE D (dB)	CHANNEL	FREQUENCY		AVERAGE D (dB)			
	(MHz)	QPSK	16QAM		(MHz)	QPSK	16QAM			
26065	1852.5	4.33	5.37	26090	1855	4.32	5.41			
26365	1882.5	4.57	5.69	26365	1882.5	4.30	5.40			
26665	1912.5	4.60	5.74	26640	1910	4.03	5.12			





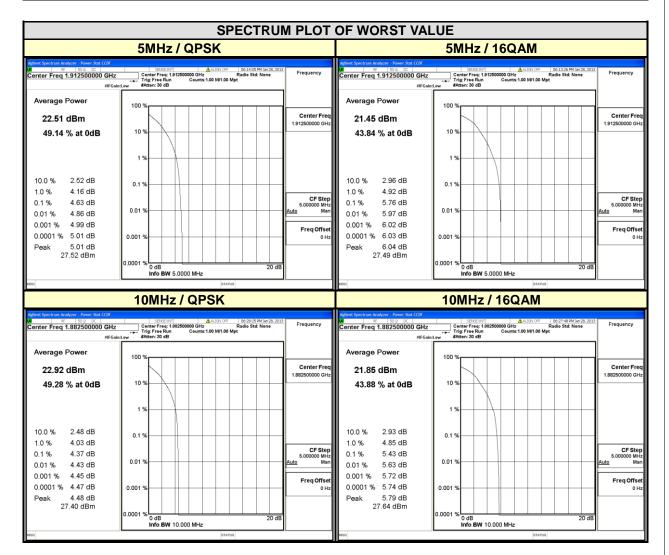
ANT. 1

	FREQUENCY	PEAK TO AVERAGE RATIO (dB)
CHANNEL	(MHz)	CDMA
25	1851.3	3.36
600	1880.0	3.41
1175	1908.8	3.24

SPEC	TRUM PLOT OF WORST VALUE	
	CDMA / CH 600	
Agilent Spectrum Analyzer - Power Stat CCDF	SENSE:INT	28 2012
Center Freq 1.880000000 GHz	Center Freq: 1.880000000 GHz Radio Std: Non Trig: Free Run Counts:10.0 M/10.0 Mpt	
#IFGa	n:Low #Atten: 30 dB	
Average Power	100 %	
24.46 dBm		Center Freq 1.880000000 GHz
51.01 % at 0dB	10 %	
	1 %	
10.0 % 1.87 dB	0.1 %	
1.0 % 2.97 dB 0.1 % 3.41 dB 0.01 % 3.70 dB	0.01 %	CF Step 5.00000 MHz <u>Auto</u> Man
0.001 % 3.84 dB 0.0001 % 3.91 dB	0.001 %	Freq Offset
Peak 3.97 dB 28.43 dBm	0.0001 % 0 dB 2	20 dB
	Info BW 5.0000 MHz	
MSG	STATUS	



			LTE B	AND 25						
С	HANNEL BAND	WIDTH: 5MH	z	CHANNEL BANDWIDTH: 10MHz						
CHANNEL	FREQUENCY	PEAK TO RATIO	AVERAGE D (dB)	CHANNEL	FREQUENCY	PEAK TO AVERAGE RATIO (dB)				
	(MHz)	QPSK	16QAM		(MHz)	QPSK	16QAM			
26065	1852.5	4.28	5.46	26090	1855	4.37	5.40			
26365	1882.5	4.55	5.62	26365	1882.5	4.37	5.43			
26665	1912.5	4.63	5.76	26640	1910	4.15	5.17			



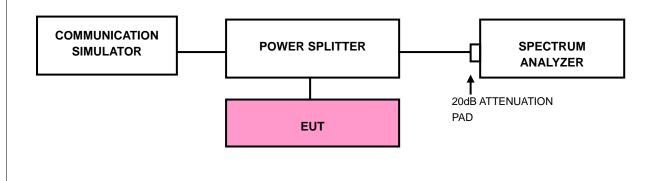


4.5 BAND EDGE MEASUREMENT

4.5.1 LIMITS OF BAND EDGE MEASUREMENT

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

4.5.2 TEST SETUP



4.5.3 TEST PROCEDURES

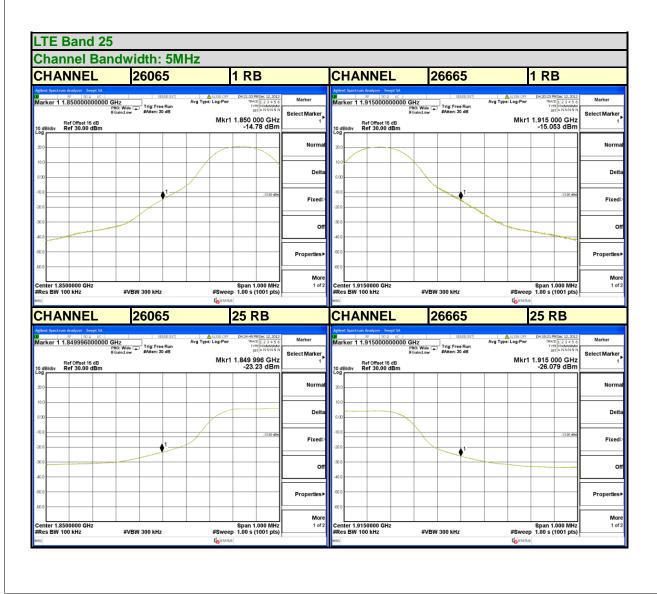
- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 13kHz and VB of the spectrum is 51kHz (CDMA).
- c. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE).
- d. Record the max trace plot into the test report.



4.5.4 TEST RESULTS

ANT. 0

CDM	Α																			
СНА	NNEL			25					CI	AH	INE	L			1	175	5			
100	m Analyzer - Swept SA № 50 @ AC 1.85000000000000	GHz PNO: Wide ↔ IFGain:Low	SENSE:M Trig: Free Run #Atten: 30 dB	Avg Type Avg Hold	ALIGN OFF e: RMS : 100/100	01:46:18 PM TRACE TYPE DET	Dec 12, 2012 1 2 3 4 5 6 A WWWWWW A NNNNN	Peak Search	1,00		Analyzer - Sw № 50 © 91000000	AC 00000 G P	Hz NO: Wide ↔	SEN Trig: Free #Atten: 30	se:ent] Run dB	Avg Type Avg Hold	ALIGN OFF RMS 100/100	01:49:09 TRA Ti	MDec 12, 2012 CE 1 2 3 4 5 6 PE A WWWWW et A NNNNN	Peak Search
	Ref Offset 15 dB Ref 30.00 dBm	I Gam.Low			Mkr1	1.850 00 -34.77		NextPeak	10 dE		ef Offset 15 ef 30.00 (dB	Gamicow				Mkr1		000 GHz 90 dBm	NextPeak
20.0								Next Pk Right	20.0											Next Pk Right
0.00							4	Next Pk Left	10.0 0.00	/										Next Pk Left
-10.0							-13.00 dBn	Marker Delta	-10.0 -20.0		X								-13.00 dBn	Marker Delta
-30.0		<u>+</u>		-	\sim			Mkr→CF	-30.0 -40.0			-		\sim			1			Mkr→CF
-50.0								Mkr→RefLvl	-50.0											Mkr→RefLvl
-60.0 Center 1.8 #Res BW 1	502000 GHz 13 kHz	#VBW	51 kHz*		#Sweep	Span 1.0		More 1 of 2		ter 1.909 s BW 13	8000 GH: kHz	z	#VBW	51 kHz*			#Swee	Span 1 0 1.00 s	.000 MHz (1001 pts)	More 1 of 2
MSG					K STATUS				MSG									5		



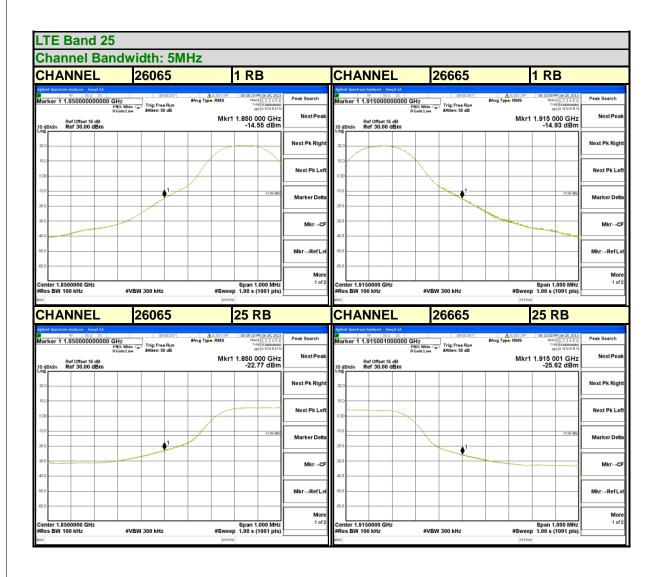


	5						
Channel Bar	ndwidth: 10N						
CHANNEL	26090	1 RB		CHANNEL	26640	1 RB	
Agilent Spectrum Analyzer - Swept SA	SENSE:INT	ALIGN OFF 04:12:58 PMDec 12, 2012	Marker	Agilent Spectrum Analyzer - Swept SA	SENSE:INT	ALIGN OFF 04:16:33 PMDec 12, 2012	Marker
Marker 1 1.849998000000 Ref Offset 15 dB	GHz PNO: Wide IFGain:Low #Atten: 30 dB	Avg Type: Leg-Pwr TRACE[123456 vreinwww.wo ceria kunna n Mkr1 1.849 998 GHz -30,78 dBm	Select Marker	Ref Offset 15 dB	HZ NO: Wide C FGain:Low #Atten: 30 dB	Avg Type: Log-Pwr Trace [1 2 3 4 5 6 Trace [1 2 3 4 5 6] Trace [1 3 4	Select Marker
10 dB/div Ref 30.00 dBm		-50.78 UBII	Normal	10 dB/div Ref 30.00 dBm		-30.374 UBIIL	Norma
0.00			Delta	10.0			Delta
-10.0		-12.00 dBe	Fixed⊳	-10.0		-13.00 dBn	Fixed⊳
-20.0	1		on	-30.0	1		on
-40.0 -50.0			Properties►	-40.0			Properties►
-60.0 Center 1.8500000 GHz #Res BW 100 kHz	#VBW 300 kHz	Span 1.000 MHz #Sweep 1.00 s (1001 pts)	More 1 of 2	-80.0 Center 1.9150000 GHz #Res BW 100 kHz	#VBW 300 kHz	Span 1.000 MHz #Sweep 1.00 s (1001 pts)	More 1 of 2
MSG		STATUS		MSG		Ko status	
CHANNEL							
	26090	50 RB		CHANNEL	26640	50 RB	
Agilent Spectrum Analyzer - Swept SA	SENSE BVT	AUTON OFF 04:14:25 PMDer 12:2012	Peak Search	Agilent Spectrum Analyzer - Swept SA № RF SO Q AC	SENSE:INT	AURILON OFF 04:15:20 PMDer 12:2012	Peak Search
Marker 1 1.849996000000	SENSE:INT		Peak Search Next Peak	Aglent Spectrum Analyzer - Swept SA 9	SENSE:INT		Peak Search Next Peak
Marker 1 1.849996000000	SENSE BVT	August off Decar25PMOR(12,2012 Avg Type: Log-Pwr Trype: Log-Pwr Trype: Log-Pwr Mkr1 1,849 996 GHz		Aglent Spectrum Analyzer - Swept SA 9 8 50 a AC Marker 1 1.915000000000 G P F Ref Offset 15 dB	SENSE:INT	▲ ALUM OFF De-15:20 PMDer 12, 2012 Avg Type: Log-Pwr TRACE[1:2:3:4:5:6 TYPE! NUNNIN DEIA NINNIN Mkr1 1.915 000 GHz	
Ref 50 & AC Marker 1 1.849996000000 Marker 1 1.849996000000 Marker 1 1.849996000000 Ref Offset 15 dB 10 dB/div Ref 30.00 dBm	SENSE BVT	August off Decar25PMOR(12,2012 Avg Type: Log-Pwr Trype: Log-Pwr Trype: Log-Pwr Mkr1 1,849 996 GHz	Next Peak	Addred Spectrum Analyzer Support SA Image: Spectrum Analyzer Support SA <td>SENSE:INT</td> <td>▲ ALUM OFF De-15:20 PMDer 12, 2012 Avg Type: Log-Pwr TRACE[1:2:3:4:5:6 TYPE! NUNNIN DEIA NINNIN Mkr1 1.915 000 GHz</td> <td>NextPeak</td>	SENSE:INT	▲ ALUM OFF De-15:20 PMDer 12, 2012 Avg Type: Log-Pwr TRACE[1:2:3:4:5:6 TYPE! NUNNIN DEIA NINNIN Mkr1 1.915 000 GHz	NextPeak
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UN R	inalyzer - Swept SA ☞ 50 & DC 850000000000000	GHz PN0: Wide →	SENSE:	#A un Av	ALIGN OFF	04:10:49 PM Jan 28, 2013 TRACE 12 3 4 5 6 TYPE A WWWWW DET A NN N N N	Peak Search	Agelent Spectrum Analyzer - Swept SA Marker 1 Marker 1	Search
Re 10 dB/div Re	ef Offset 15 dB ef 35.00 dBm	IFGain:Low	#Atten: 30 di	В	Mkr1	1.850 000 GHz -38.326 dBm			ext Peak
25.0							Next Pk Right	Next F	Pk Right
5.00							Next Pk Left	150	t Pk Left
-5.00						-13.00 dBn	Marker Delta	5.0	ker Delta
-25.0							Mkr→CF		Mkr→CF
-45.0		*~		~	\sim		Mkr⊸RefLvi	450 Mkr-	⊸RefLvl
-55.0 Center 1.850	2000 GHz					Span 1.000 MHz	More 1 of 2		More 1 of 2
#Res BW 13		#VBW	51 kHz*		#Sweep	1.00 s (1001 pts)		west span r.coo min2 span r.coo min2 #Res BW 13 kHz #VBW 51 kHz* #Sweep 1.00 s (1001 pts)	





LTE Band 2	5						
Channel Ba	ndwidth: 10M	ЛНz					
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gilent Spectrum Analyzer - Swept SA	SENSE:INT	▲ ALIGN OFF 06:21:21 PM Jan 28, 2013 #Avg Type: RMS TRACE 12.3 4 5 6	Peak Search	Agilent Spectrum Analyzer - Swept SA	SENSE:INT	ALIGN OFF 06:25:08 PM Jan 28, 2013	Peak Search
Marker 1 1.849997000000	PNO: Wide Trig: Free Run IFGain:Low #Atten: 30 dB	DET A N N N N	NextPeak	Marker 1 1.915000000000 G	GHZ PN0: Wide Trig: Free Run FGain:Low #Atten: 30 dB	#Avg Type: RMS TRACE 123456 TYPE MWWWWW DET A N N N N	NextPea
Ref Offset 15 dB 10 dB/div Ref 30.00 dBm		Mkr1 1.849 997 GHz -30.80 dBm	HEATPEak	Ref Offset 15 dB 10 dB/div Ref 30.00 dBm		Mkr1 1.915 000 GHz -30.49 dBm	Nextrea
20.0			Next Pk Right	20.0			Next Pk Righ
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500 Highly and I went of the			Mkr→RefLvl	-40.0		Subar why and the second and the second s	Mkr→RefLv
60.0				-60.0			
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Center 1.8500000 GHz		Span 1.000 MHz	1 of 2	Center 1.9150000 GHz	## #PWL 000 Ltl-	Span 1.000 MHz	
#Res BW 100 kHz	#VBW 300 kHz	#Sweep 1.00 s (1001 pts)		#Res BW 100 kHz	#VBW 300 kHz	#Sweep 1.00 s (1001 pts)	1 of:
Center 1.8500000 GHz #Res BW 100 kHz	#VBW 300 kHz	#Sweep 1.00 s (1001 pts)		Center 1.9150000 GHz #Res BW 100 kHz	#VBW 300 kHz	#Sweep 1.00 s (1001 pts)	
Res BW 100 kHz SG CHANNEL SG SG SG SG SG SG SG C SG SG C C SG SG SG C C SG SG SG C C SG	26090	#Sweep 1.00 s (1001 pts)		#Res BW 100 kHz	26640	#Sweep 1.00 s (1001 pts)	
Res BW 100 kHz	26090	#Sweep 1.00 s (1001 pts) 11045 50 RB #Avg Type: RMS 1.50 0 GHz Mkr1 1.50 00 GHz	1 of 2	Res BW 100 kHz Hz CHANNEL Advert Support Average Average Support Average Supp	26640	#Sweep 1.00 s (1001 pts)	1 of:
Res BW 100 KHz	26090	#Sweep 1.00 s (1001 pts) strang SO RB 4xyg Type: RMS RAvg Type: RMS Ptrove 100 s (2015) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215) (00215)	1 of 2 Peak Search Next Peak	Res BW 100 kHz Veid CHANNEL Refer Spectrue Provide State Marker 1.91500/2000000 Ref Offset 15 dB LogBidly Ref 30.00 dBm	26640	#Sweep 1.00 s (1001 pts) 17414 50 R RB 4Avg Type: RMS 10624 L RM 2020 1001 10624 L RM 2020 1001 10745 1001 10755 10000 107555 1000 107555 10000 107	1 of Peak Search Next Pea
Res BW 100 kHz	26090	#Sweep 1.00 s (1001 pts) 11045 50 RB #Avg Type: RMS 1.50 0 GHz Mkr1 1.50 00 GHz	1 of 2	Res BW 100 kHz Hz CHANNEL Advert Support Average Average Support Average Supp	26640	#Sweep 1.00 s (1001 pts)	1 of: Peak Search
Res BW 100 kHz Image: Section 200 million Image: Section 200	26090	#Sweep 1.00 s (1001 pts) 11045 50 RB #Avg Type: RMS 1.50 0 GHz Mkr1 1.50 00 GHz	1 of 2 Peak Search Next Peak	PRes BW 100 KHz 1990] CHANNEL 100 - 1990 - 00 - 00 Marker 1 1.91500700000 0 Ref Offset 15 dB 10 dB/dW Ref 30.00 dBm	26640	#Sweep 1.00 s (1001 pts)	1 of Peak Search Next Pea Next Pk Righ
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Res BW 100 kHz	26090	#Sweep 1:00 s (1001 pts)	1 of2 Peak Search Next Peak Next Pk Right Next Pk Left Marker Delta MkrCF	Res BW 100 kHz Hold	26640	#Sweep 1.00 s (1001 pts)	1 of: Peak Search Next Peal



4.6 CONDUCTED SPURIOUS EMISSIONS

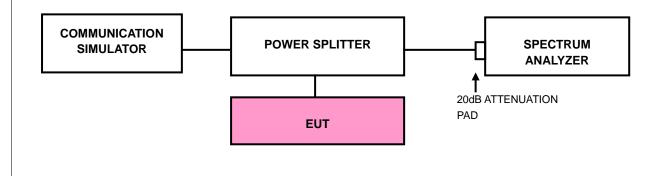
4.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P) dB$. The emission limit equal to -13dBm.

4.6.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 30 MHz to 19.1GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

4.6.3 TEST SETUP





4.6.4 TEST RESULTS

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Ber Offset 15 dB Mkr1 8.919 0 GHz Next Peak 9 0 0 0 0 9 0 0 0 0 9 0 0 0 0 9 0 0 0 0 9 0 0 0 0 9 0 0 0 0 9 0 0 0 0 9 0 0 0 0 9 0 0 0 0 9 0 0 0 0 10 0 0 0 0 11 0 0 0 0 12 0 0 0 0 13 0 0 0 0 14 0 0 0 0 15 0 0 0 0 16 0 0 0 0 16 0 0 0 0 17 0 0 0 0 18 0 0 0 0 19 0 0 0 0 18 0 <td< th=""><th></th></td<>	
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1012	
t 30 MHz Stop 19.100 GHz 10/2 s BW 1.0 MHz #VBW 3.0 MHz #Sweep 504 ms (20000 pts)	
E Band 25 (Channel Bandwidth: 5MHz) LTE Band 25 (Channel Bandwidth: 10MH	10MHz)
HANNEL 26365 CHANNEL 26365	
	IGHz
tr Spectrum Analyzer - Swept SA 10 ⁻ 100 ≥ CC SPEEDT ALUDI OFF 005325 PHOC 18,2012 10 ⁻ 100 ≥ CC SPEEDT ALUDI OFF 005325 PHOC 18,2012 10 ⁻ 10 ⁻	TRACE 1 2 3 4 5 6 TYPE MWWWWW
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Exercises Analyzer 5 wegt 5A SOPEEINT An107/07* D002 DC SOPEEINT An107/07* D002 DC A	3.811 8 GHz -30.84 dBm
Kryschuss Audyter / Sweyt SA Street II. All SP (PR) Ball SP (PR) All SP (PR) Ball SP (PR) B	Next Pk
Andres Andres<	Next Pk



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FREQU	JENCY	RANG	6E : 30)MHz~19).1GHz	
Agilent Spectrum Anal	yzer - Swept SA		SENSE:INT	ALIGN OFF	04:19:17 PM Jan 28, 2013	
	4215210761 GI	NO: East Trig	: Free Run	#Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWWW DET P N N N N N	Peak Search
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-45.0						Mkr→RefLvl
-55.0						More 1 of 2
Start 30 MHz #Res BW 1.0 M	Hz	#VBW 3.0	MHz	#Sweep	Stop 19.100 GHz 04 ms (20000 pts)	

Marker 13.82032/01/01/01/01/2010 Tigs Free Run Ref 0ffset 15 dB Mkr1 3.820 4 GHz -30.64 dBm Next Pk Right Next Pk Right Next Pk Right Next Pk Right Image: Strate Stra		Band 2			el Ba	andw	/idth	n: 5N	ЛHz)		_				•	inne	l Ba	ndv	vidth	n: 10	MHz	
Ref Offset 15 dB w Ref 35.00 dBm Mkr1 13.613 2.014 dBm Next Pk Right Next Pk Righ	CH/	ANNEL	26365								C	HAN	INE	L 26	365							
Image: Note of the state of the st	RE		CY RA	NGE	: 30	DMH:	z~19	9.1G	Hz		FI	REQ	UEN	VCV	RAN	IGE	: 30	MH	z~19).1G	Hz	
Pri 1 3.820352017601 CHz Proster of Bill div Ref 35.00 dBm May Type: Log-Pur (Ed) NUMARK Bellen.tew Max (C) 2.3 ± 0 (ED) NUMARK (ED) NUMARK (ED) NUMARK Pass Search (ED) NUMARK Marker 1 13.61328666 A333 CHz (ED) NUMARK Mark (C) 2.3 ± 0 (ED) NUMARK Pass Search (ED) NUMARK Marker 1 13.61328666 A333 CHz (ED) NUMARK Marker 1 13.613286666 A333 CHz (ED) NUMA											Agile											
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Next Pk Right A Next Pk Right A Next Pk Right A Next Pk Right	dB/div		IFGain:Low				Mk	(r1 3.820	4 GHz	NextPeak		B/div R		idB	Gain:Low				Mkr	1 13.613	3 GHz	NextPeak
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Stop 19.100 GHz 1 of 2 Stop 19.100 GHz Stop 19.100 GHz BW 1.0 MHz #VBW 3.0 MHz #Sweep 504 ms (20000 pts) #Res BW 1.0 MHz #VBW 3.0 MHz #Sweep 504 ms (20000 pts)			#VB	W 3.0 MHz		#	Sweep :			1 072					#VBW	3.0 MHz		#	Sweep 5			1 of 2



4.7 RADIATED EMISSION MEASUREMENT

4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P) dB$. The emission limit equal to -13dBm.

4.7.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G
- c. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15dBi.

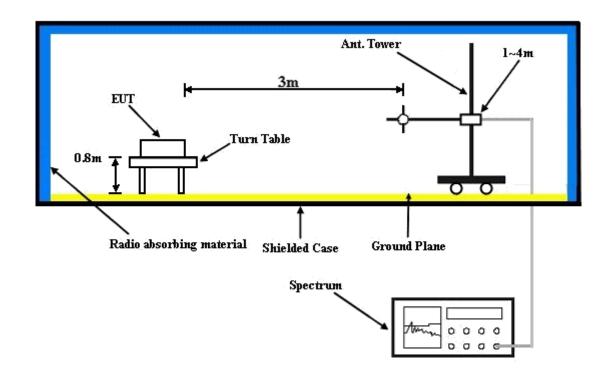
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.7.3 DEVIATION FROM TEST STANDARD

No deviation



4.7.4 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).



4.7.5 TEST RESULTS

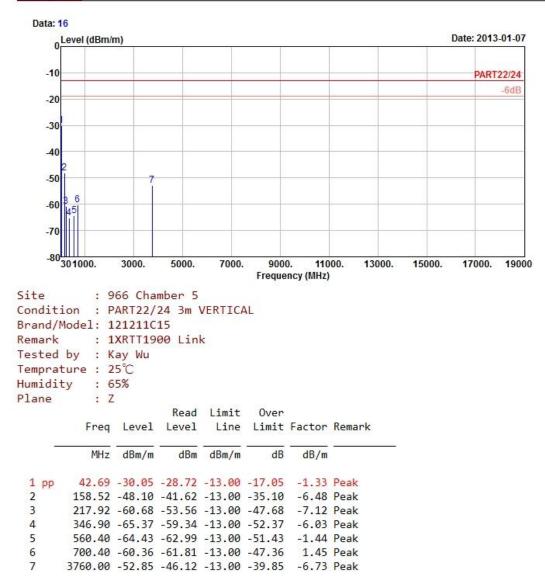
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-10										PAR	-6dB
-20											-Oub
-30											
-40											
	2										
-50	В	7	1					1			
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-60											
-70											
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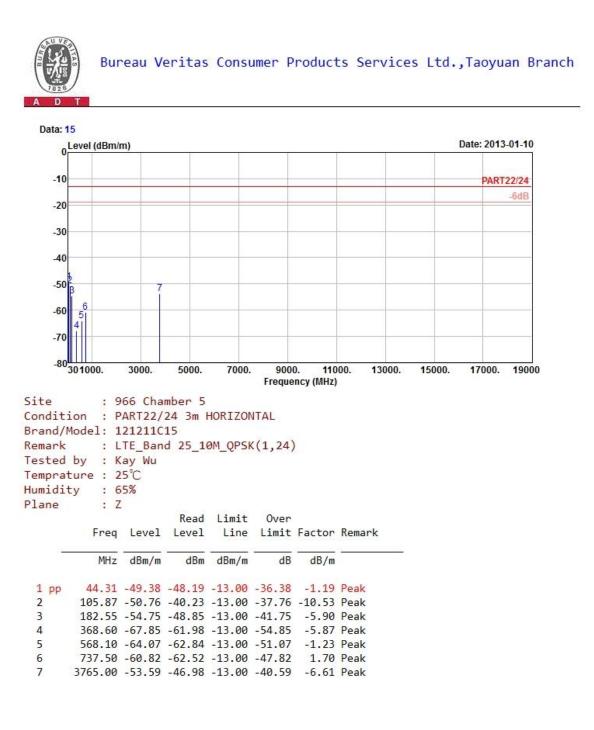






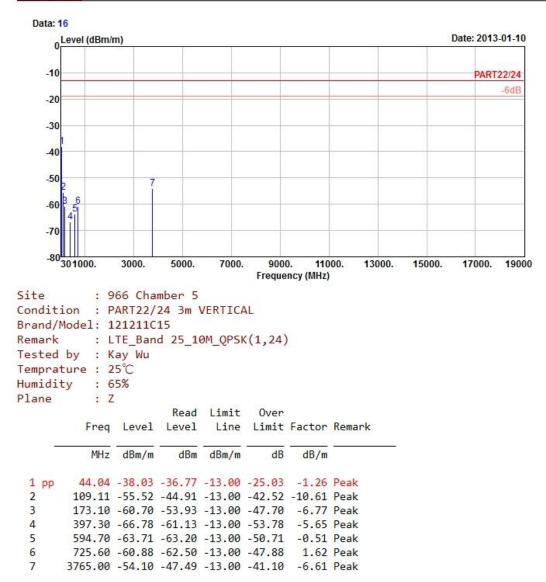
LTE Band 25

Channel Bandwidth: 10MHz / QPSK





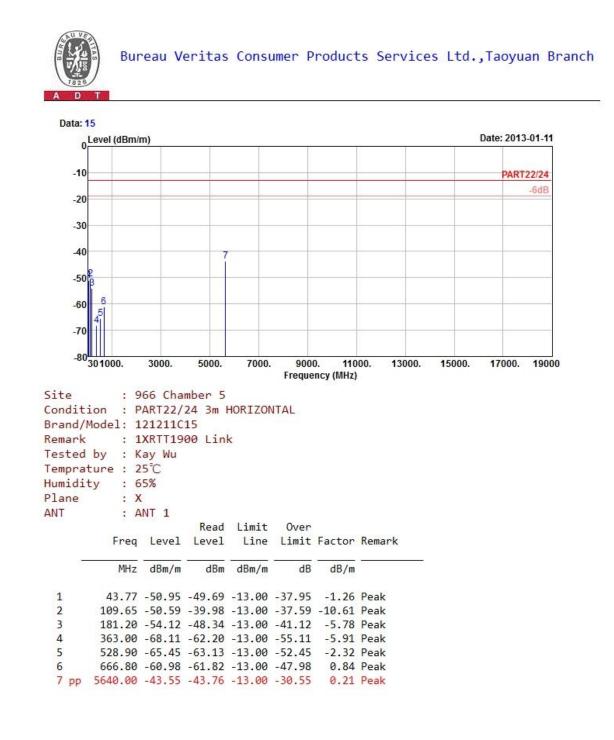






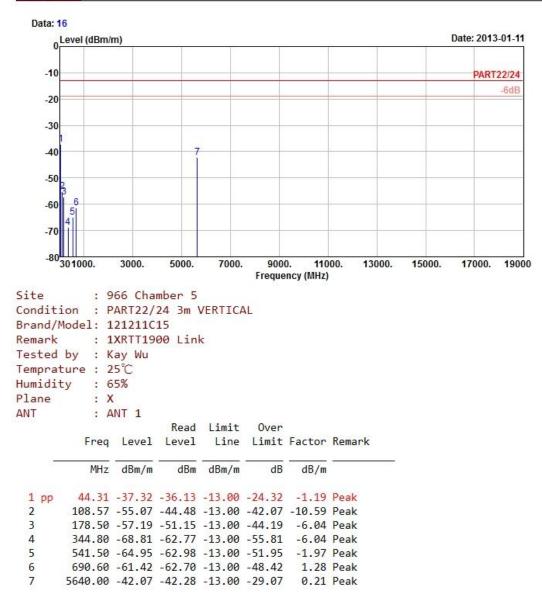
ANT. 1

CDMA:





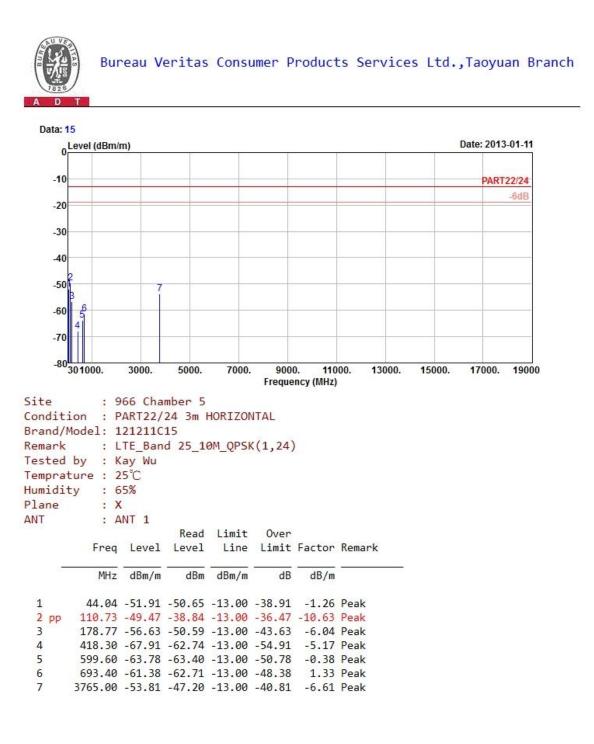






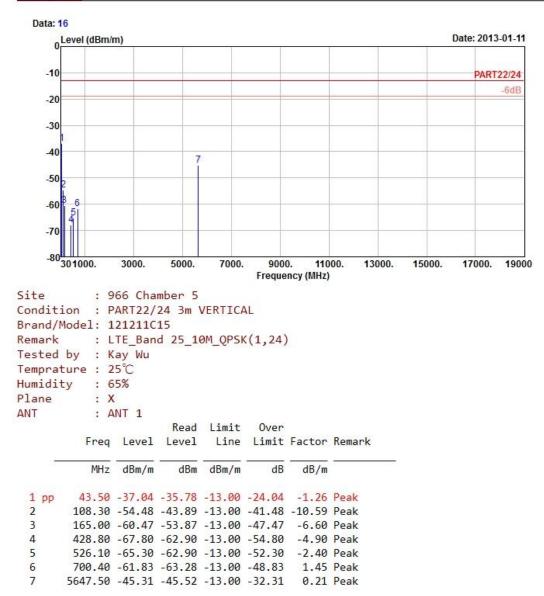
LTE Band 25

Channel Bandwidth: 10MHz / QPSK











5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab: Tel: 886-2-26052180 Fax: 886-2-26051924 Hsin Chu EMC/RF Lab: Tel: 886-3-5935343 Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab: Tel: 886-3-3183232 Fax: 886-3-3270892

Email: <u>service.adt@tw.bureauveritas.com</u> Web Site: <u>www.bureauveritas-adt.com</u>

The address and road map of all our labs can be found in our web site also.



7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

---END----