

FCC TEST REPORT (PART 24)

REPORT NO.: RF130627C19-1

MODEL NO.: M530S

FCC ID: UZI-M30S58

RECEIVED: Jun. 27, 2013

TESTED: Jul. 15 ~ Aug. 09, 2013

ISSUED: Aug. 12, 2013

APPLICANT: BandRich Inc.

ADDRESS: 6F., No. 71, Zhouzi St., Neihu Dist., Taipei City

11493, Taiwan (R.O.C.)

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
RF130627C19-1	Original release	Aug. 12, 2013

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1 CERTIFICATION

PRODUCT: LTE/CDMA module

MODEL NO.: M530S

BRAND: BandLuxe

APPLICANT: BandRich Inc.

TEST SAMPLE: ENGINEERING SAMPLE

TESTED: Jul. 15 ~ Aug. 09, 2013

TEST STANDARDS: FCC Part 24, Subpart E

FCC Part 2

The above equipment (model: M530S) 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: Aug. 12, 2013

APPROVED BY: , DATE: Aug. 12, 2013

Anderson Chiu / Senior Engineer



2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

STANDARD SECTION	TEST TYPE AND LIMIT	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.
24.238(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 –24.22dB at 5726.25MHz.

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	9kHz~30MHz	2.44 dB
	30MHz ~ 200MHz	3.34 dB
Dadiated emissions	200MHz ~1000MHz	3.35 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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Dec. 25, 2012	Dec. 24, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jan. 31, 2013	Jan. 30, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Mar. 20, 2013	Mar. 19, 2014
HORN Antenna SCHWARZBECK	9120D	209	Sep. 03, 2012	Sep. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Loop Antenna	HFH2-Z2	100070	Jan. 31, 2012	Jan. 30, 2014
Preamplifier Agilent	8447D	2944A10633	Oct. 25, 2012	Oct. 24, 2013
Preamplifier Agilent	8449B	3008A01964	Oct. 25, 2012	Oct. 24, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250723/4	Aug. 28, 2012	Aug. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/4	Aug. 28, 2012	Aug. 27, 2013
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Mar. 22, 2013	Mar. 21, 2014
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Communications Tester-Wireless	E5515C	MY50266653	Oct. 08, 2012	Oct. 09, 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 3.
- 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 988962.
- 5. The IC Site Registration No. is IC 7450F-3.



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	LTE/CDMA module				
MODEL NO.	M530S				
POWER SUPPLY	3.7Vdc (host equipment)				
MODILI ATION TYPE	CDMA	QPSK, OQPSK, HPSK			
MODULATION TYPE	LTE	QPSK, 16QAM			
	CDMA	1851.25MHz ~ 1908.75MHz			
	LTE Band 25 (Channel Bandwidth: 3MHz)	1851.5MHz ~ 1913.5MHz			
FREQUENCY RANGE	LTE Band 25 (Channel Bandwidth: 5MHz)	1852.5MHz ~ 1912.5MHz			
	LTE Band 25 (Channel Bandwidth: 10MHz)	1855.0MHz ~ 1910.0MHz			
	CDMA	380.19mW (25.80dBm)			
	LTE Band 25 (Channel Bandwidth: 3MHz)	220.29mW (23.43dBm)			
MAX. EIRP POWER	LTE Band 25 (Channel Bandwidth: 5MHz)	198.15mW (22.97dBm)			
	LTE Band 25 (Channel Bandwidth: 10MHz)	213.30mW (23.29dBm)			
	CDMA	1M29F9W			
	LTE Band 25	QPSK: 2M73G7D			
EMICOION	(Channel Bandwidth: 3MHz)	16QAM: 2M74W7D			
EMISSION DESIGNATOR	LTE Band 25	QPSK: 4M50G7D			
	(Channel Bandwidth: 5MHz)	16QAM: 4M50W7D			
	LTE Band 25	QPSK: 8M97G7D			
	(Channel Bandwidth: 10MHz)	16QAM: 8M97W7D			
CATEGORY	LTE: 3				
ANTENNA TYPE	Dipole antenna with 0.88dBi gain				
ANTENNA CONNECTOR	IPEX 20279				
DATA CABLE	NA				
I/O PORTS	Refer to user's manual				
ACCESSORY DEVICES	NA				



NOTE:

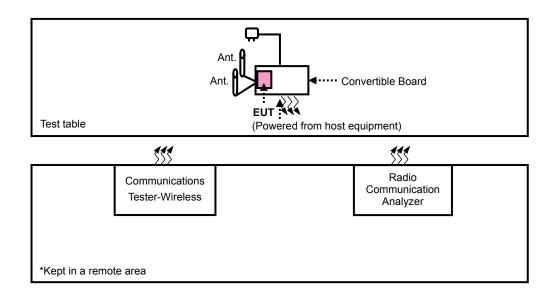
1. The convertible Board consumes power from the following adapter (for support unit only).

Brand	TPT
Model	FSY050200UU12-2
Input Power	100-240Vac, 50/60Hz, 0.6A
Output Power 5Vdc, 2A	
Power Line	1.8m cable without core attached on adapter

2. The above EUT information is declared by manufacturer and for more detailed feature 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. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Antenna x2	NA	NA	NA	NA
2	Convertible Board	BandLuxe	PCIe Mini Card evaluation board 1.0	NA	NA
3	Communications Tester-Wireless	Agilent	8960 Series 10	MY50260642	NA
4	Radio Communication Analyzer	Anritsu	MT8820C	6201010284	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA
3	NA
4	NA .

NOTE:

- 1. All power cords of the above support units are non-shielded (1.8m).
- 2. Items 3-4 act as communication partners to transfer data.
- 3. Items 1 -2 were provided by the client.



3.4 DESCRIPTION OF TEST MODES

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 cases were found when positioned on **Z-plane** for antenna. Following channel(s) was (were) selected for the final test as listed below:

CDMA

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



LTE Band 25

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK	1 RB / 0 RB Offset
EIRP	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	1 RB / 0 RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK	1 RB / 0 RB Offset
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK	1 RB / 0 RB Offset
FREQUENCY STABILITY	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	1 RB / 0 RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK	1 RB / 0 RB Offset
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK/16QAM	15 RB / 0RB Offset
OCCUPIED BANDWIDTH	26065 to 26665	26065, 26365, 26665	5MHz	QPSK/16QAM	25 RB / 0RB Offset
	26090 to 26640	26090, 26365, 26640	10MHz	QPSK/16QAM	50 RB / 0RB Offset
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK/16QAM	1 RB / 0 RB Offset
PEAK TO AVERAGE RATIO	26065 to 26665	26065, 26365, 26665	5MHz	QPSK/16QAM	1 RB / 0 RB Offset
RATIO	26090 to 26640	26090, 26365, 26640	10MHz	QPSK/16QAM	1 RB / 0 RB Offset
	000554-00075	6055 to 26675 26055, 26675 3MHz	OMI I-	- ODOK	15 RB / 0RB Offset
	26055 to 26675		QPSK	1 RB / 0RB Offset	
DAND EDGE	00005 1- 00005	00005 00005	5MIL	ODOK	25 RB / 0RB Offset
BAND EDGE	26065 to 26665	26065, 26665	5MHz	QPSK	1 RB / 0RB Offset
	00000 1- 00040	00000 00040	400411-	QPSK	50 RB / 0RB Offset
	26090 to 26640	26090, 26640	10MHz		1 RB / 0RB Offset
	26055 to 26675	26055, 26365, 26675	3MHz	QPSK	1 RB / 0 RB Offset
CONDCUDETED EMISSION	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	1 RB / 0 RB Offset
EMISSION	26090 to 26640	26090, 26365, 26640	10MHz	QPSK	1 RB / 0 RB Offset
	26055 to 26675	26055	3MHz	QPSK	1 RB / 0 RB Offset
RADIATED EMISSION	26065 to 26665	26665	5MHz	QPSK	1 RB / 0 RB Offset
Below 1GHz	26090 to 26640	26090	10MHz	QPSK	1 RB / 0 RB Offset
DARLITED ELWONISH	26055 to 26675	26055, 26365, 26675	3MHz	QPSK	1 RB / 0 RB Offset
RADIATED EMISSION	26065 to 26665	26065, 26365, 26665	5MHz	QPSK	1 RB / 0 RB Offset
Above 1GHz	26090 to 26640	26090, 26365, 26640	10MHz	QPSK	1 RB / 0 RB Offset

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
EIDD	27deg. C, 66%RH	120Vac, 60Hz	Martin Lee
EIRP	28deg. C, 68%RH	120Vac, 60Hz	Martin Lee
FREQUENCY STABILITY	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
OCCUPIED BANDWIDTH	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
PEAK TO AVERAGE RATIO	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
BAND EDGE	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
CONDCUDETED EMISSION	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
RADIATED EMISSION	24deg. C, 64%RH (CDMA)	120Vac, 60Hz	Ted Chang
Below 1GHz	25deg. C, 65%RH (LTE)	120Vac, 60Hz	Chris Lin
RADIATED EMISSION	24deg. C, 64%RH (CDMA)	120Vac, 60Hz	Ted Chang
Above 1GHz	25deg. C, 65%RH (LTE)	120Vac, 60Hz	Ted Chang



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

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. All measurements were done at low, middle and high operational frequency range. RWB and VBW is 5MHz for CDMA mode and 10MHz for LTE mode.
- b. 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.
- c. 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 c. Record the power level of S.G
- d. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.

CONDUCTED POWER MEASUREMENT:

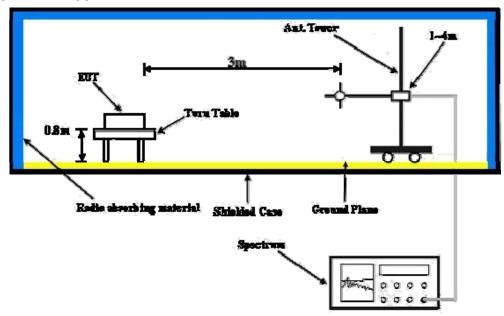
The EUT was set up for the maximum power with CDMA / LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

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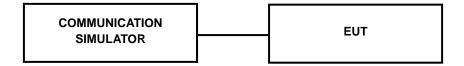
4.1.3 TEST SETUP

EIRP POWER MEASUREMENT:



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

CONDUCTED POWER MEASUREMENT:



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



4.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band		CDMA	
Channel	25	600	1175
Frequency	1851.25	1880	1908.75
RC1+SO55	24.45	24.44	24.77
RC3+SO55	24.46	24.18	24.45
RC3+SO32(+ F-SCH)	24.43	24.19	24.30
RC3+SO32(+SCH)	24.42	24.29	24.36
RTAP 153.6	23.85	23.88	24.07
RETAP 4096	23.87	23.89	24.09

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				LTE Band	25			
			Frequency				Target	Measured
BW	Modulation	СН	(MHz)	RB	RB Offset	MPR	Power	Power
		26055	1851.5	1	0	0	23	22.26
		26365	1882.5	1	0	0	23	22.31
		26675	1913.5	1	0	0	23	22.42
		26055	1851.5	1	7	0	23	22.34
		26365	1882.5	1	7	0	23	22.4
		26675	1913.5	1	7	0	23	22.41
		26055	1851.5	1	14	0	23	22.15
		26365	1882.5	1	14	0	23	22.25
		26675	1913.5	1	14	0	23	22.38
		26055	1851.5	8	0	1	23	21.3
	QPSK	26365	1882.5	8	0	1	23	21.21
		26675	1913.5	8	0	1	23	21.3
		26055	1851.5	8	3	1	23	21.07
		26365	1882.5	8	3	1	23	21.31
		26675	1913.5	8	3	1	23	21.33
		26055	1851.5	8	7	1	23	21.08
		26365	1882.5	8	7	1	23	21.22
		26675	1913.5	8	7	1	23	21.23
		26055	1851.5	15	0	1	23	21.06
		26365	1882.5	15	0	1	23	21.26
2 MH-		26675	1913.5	15	0	1	23	21.02
3 MHz		26055	1851.5	1	0	1	23	21.26
		26365	1882.5	1	0	1	23	21.31
		26675	1913.5	1	0	1	23	21.42
		26055	1851.5	1	7	1	23	21.34
		26365	1882.5	1	7	1	23	21.4
		26675	1913.5	1	7	1	23	21.56
		26055	1851.5	1	14	1	23	21.15
		26365	1882.5	1	14	1	23	21.25
		26675	1913.5	1	14	1	23	21.38
		26055	1851.5	8	0	2	23	20.3
	16QAM	26365	1882.5	8	0	2	23	20.21
		26675	1913.5	8	0	2	23	20.3
		26055	1851.5	8	3	2	23	20.07
		26365	1882.5	8	3	2	23	20.31
		26675	1913.5	8	3	2	23	20.33
		26055	1851.5	8	7	2	23	20.08
		26365	1882.5	8	7	2	23	20.22
		26675	1913.5	8	7	2	23	20.23
		26055	1851.5	15	0	2	23	20.06
		26365	1882.5	15	0	2	23	20.26
		26675	1913.5	15	0	2	23	20.02



				LTE Band	25			
			Frequency				Target	Measured
BW	Modulation	СН	(MHz)	RB	RB Offset	MPR	Power	Power
		26065	1852.5	1	0	0	23	22.28
		26365	1882.5	1	0	0	23	22.33
		26665	1912.5	1	0	0	23	22.44
		26065	1852.5	1	12	0	23	22.36
		26365	1882.5	1	12	0	23	22.42
		26665	1912.5	1	12	0	23	22.41
		26065	1852.5	1	24	0	23	22.17
		26365	1882.5	1	24	0	23	22.27
		26665	1912.5	1	24	0	23	22.4
		26065	1852.5	12	0	1	23	21.01
	QPSK	26365	1882.5	12	0	1	23	21.23
		26665	1912.5	12	0	1	23	21.32
		26065	1852.5	12	6	1	23	21.09
		26365	1882.5	12	6	1	23	21.33
		26665	1912.5	12	6	1	23	21.35
		26065	1852.5	12	13	1	23	21.1
		26365	1882.5	12	13	1	23	21.24
		26665	1912.5	12	13	1	23	21.25
		26065	1852.5	25	0	1	23	21.08
		26365	1882.5	25	0	1	23	21.28
5 MIL-		26665	1912.5	25	0	1	23	21.04
5 MHz		26065	1852.5	1	0	1	23	21.28
		26365	1882.5	1	0	1	23	21.33
		26665	1912.5	1	0	1	23	21.44
		26065	1852.5	1	12	1	23	21.36
		26365	1882.5	1	12	1	23	21.42
		26665	1912.5	1	12	1	23	21.58
		26065	1852.5	1	24	1	23	21.17
		26365	1882.5	1	24	1	23	21.27
		26665	1912.5	1	24	1	23	21.4
		26065	1852.5	12	0	2	23	20.01
	16QAM	26365	1882.5	12	0	2	23	20.23
		26665	1912.5	12	0	2	23	20.32
		26065	1852.5	12	6	2	23	20.09
		26365	1882.5	12	6	2	23	20.33
		26665	1912.5	12	6	2	23	20.35
		26065	1852.5	12	13	2	23	20.1
		26365	1882.5	12	13	2	23	20.24
		26665	1912.5	12	13	2	23	20.25
		26065	1852.5	25	0	2	23	20.08
		26365	1882.5	25	0	2	23	20.28
		26665	1912.5	25	0	2	23	20.04



				LTE Band	25			
			Frequency				Target	Measured
BW	Modulation	СН	(MHz)	RB	RB Offset	MPR	Power	Power
		26090	1855	1	0	0	23	22.31
		26365	1882.5	1	0	0	23	22.36
		26640	1910	1	0	0	23	22.47
		26090	1855	1	24	0	23	22.39
		26365	1882.5	1	24	0	23	22.45
		26640	1910	1	24	0	23	22.44
		26090	1855	1	49	0	23	22.2
		26365	1882.5	1	49	0	23	22.3
		26640	1910	1	49	0	23	22.43
		26090	1855	25	0	1	23	21.04
	QPSK	26365	1882.5	25	0	1	23	21.26
		26640	1910	25	0	1	23	21.35
		26090	1855	25	12	1	23	21.12
		26365	1882.5	25	12	1	23	21.36
		26640	1910	25	12	1	23	21.38
		26090	1855	25	25	1	23	21.13
		26365	1882.5	25	25	1	23	21.27
		26640	1910	25	25	1	23	21.28
		26090	1855	50	0	1	23	21.11
		26365	1882.5	50	0	1	23	21.31
40 МП-		26640	1910	50	0	1	23	21.07
10 MHz		26090	1855	1	0	1	23	21.31
		26365	1882.5	1	0	1	23	21.36
		26640	1910	1	0	1	23	21.47
		26090	1855	1	24	1	23	21.39
		26365	1882.5	1	24	1	23	21.45
		26640	1910	1	24	1	23	21.61
		26090	1855	1	49	1	23	21.2
		26365	1882.5	1	49	1	23	21.3
		26640	1910	1	49	1	23	21.43
		26090	1855	25	0	2	23	20.04
	16QAM	26365	1882.5	25	0	2	23	20.26
		26640	1910	25	0	2	23	20.35
		26090	1855	25	12	2	23	20.12
		26365	1882.5	25	12	2	23	20.36
		26640	1910	25	12	2	23	20.38
		26090	1855	25	25	2	23	20.13
		26365	1882.5	25	25	2	23	20.27
		26640	1910	25	25	2	23	20.28
		26090	1855	50	0	2	23	20.11
		26365	1882.5	50	0	2	23	20.31
		26640	1910	50	0	2	23	20.07



EIRP POWER

CDMA

MODE TX channel 25											
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1851.25	-21.28	17.26	1.07	18.33	33.00	-14.67				
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1851.25	-13.81	24.73	1.07	25.80	33.00	-7.20				

MOD	MODE TX channel 600										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1880.00	-24.33	14.39	1.12	15.51	33.00	-17.49				
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1880.00	-12.98	23.28	1.12	24.40	33.00	-8.60				

MOD	DE TX channel 1175										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1908.75	-25.74	5.74 13.36 1.11 14.47 33.00 -18.53								
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No. Freq. (MHz) Reading S.G Power Correction (dBm) Value (dBm) Factor (dB)					EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1908.75	-12.31	23.59	1.11	24.70	33.00	-8.30				



LTE Band 25 (Channel Bandwidth 3MHz)

MOD	MODE TX channel 26055										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1851.50	-24.70	13.84	1.07	14.91	33.00	-18.09				
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1851.50	-14.26	22.36	1.07	23.43	33.00	-9.57				

MOD	MODE TX channel 26365										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No. Freq. (MHz) Reading S.G Power Correction (dBm) Value (dBm) Factor (dB)					EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1882.50	-24.84	13.91	1.12	15.03	33.00	-17.97				
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No. Freq. (MHz) Reading S.G Power Correction (dBm) Value (dBm) Factor (dB)					EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1882.50	-15.85	20.38	1.12	21.50	33.00	-11.50				

MOD	TX channel 26665										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1913.50	-25.04	25.04 13.56 0.77 14.33 33.00 -18.67								
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No. Freq. (MHz) Reading S.G Power Correction (dBm) Value (dBm) Factor (dB)					EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1913.50	-16.50	21.16	0.77	21.93	33.00	-11.07				



LTE Band 25 (Channel Bandwidth 5MHz)

MOD	MODE TX channel 26065										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1852.50	-22.67	15.88	1.07	16.95	33.00	-16.05				
	Al	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1852.50	-14.71	21.90	1.07	22.97	33.00	-10.03				

MODE TX channel 26365											
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1882.50	-24.43	14.32	1.12	15.44	33.00	-17.56				
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	1882.50	-16.25	19.98	1.12	21.10	33.00	-11.90				

MOD	E	TX char	nnel 26665						
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
I No. I Freg. (MHz) I		Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)		
1	1912.50	-24.51	14.09	0.77	14.86	33.00	-18.14		
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M			
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm) Limit (dl		Margin (dB)		
1	1912.50	-15.62	22.03	0.77	22.80	33.00	-10.20		



LTE Band 25 (Channel Bandwidth 10MHz)

MODE TX channel 26090										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
No.	No. Freq. (MHz)		S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	1855.00	-24.59	13.97	1.08	15.05	33.00	-17.95			
	Al	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M				
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	1855.00	-14.36	22.21	1.08	23.29	33.00	-9.71			

MODE TX channel 26365										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
No. Freg. (MHz)		Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	1882.50	-22.92	13.68	1.12	14.80	33.00	-18.20			
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M				
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	1882.50	-16.11	20.12	1.12	21.24	33.00	-11.76			

MODE TX channel 26640										
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
No. I Freg. (MHz)		Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	1910.00	-26.17	12.44	0.77	13.21	33.00	-19.79			
	Al	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M				
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	1910.00	-15.93	21.71	0.77	22.48	33.00	-10.52			



4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

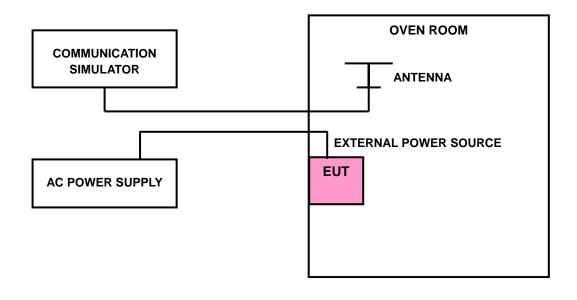
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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 AC 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



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4.2.4 TEST RESULTS

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)						
			LIMIT (ppm)				
(2,	CDMA	3MHz	5MHz	10MHz	di Irray		
132	-0.013	-0.010	-0.011	-0.011	2.5		
120	-0.011	-0.007	-0.009	-0.006	2.5		
108	-0.012	-0.008	-0.010	-0.009	2.5		

NOTE: The applicant defined the normal working voltage of the battery is from 108Vac to 132Vac.

FREQUENCY ERROR vs. TEMPERATURE

	FREQUENCY ERROR (ppm)							
TEMP. (℃)	CDMA		LIMIT (ppm)					
	CDMA	3MHz	5MHz	10MHz	(I-I-)			
50	-0.018	-0.013	-0.014	-0.016	2.5			
40	-0.016	-0.013	-0.012	-0.014	2.5			
30	-0.013	-0.010	-0.011	-0.009	2.5			
20	-0.011	-0.007	-0.009	-0.006	2.5			
10	-0.015	-0.013	-0.013	-0.011	2.5			
0	-0.018	-0.015	-0.016	-0.015	2.5			
-10	-0.015	-0.020	-0.021	-0.018	2.5			
-20	-0.025	-0.023	-0.022	-0.022	2.5			
-30	-0.026	-0.025	-0.025	-0.026	2.5			

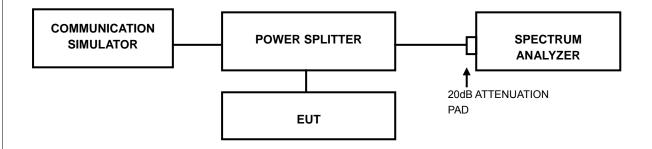


4.3 OCCUPIED BANDWIDTH MEASUREMENT

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



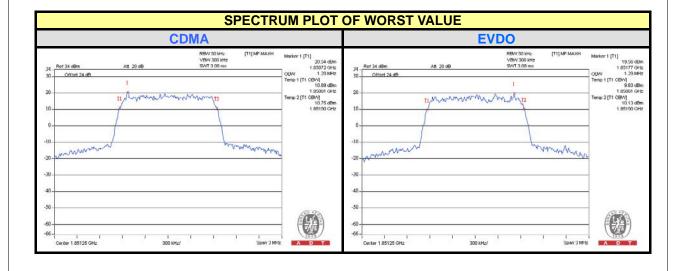
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4.3.3 TEST RESULTS

CDMA

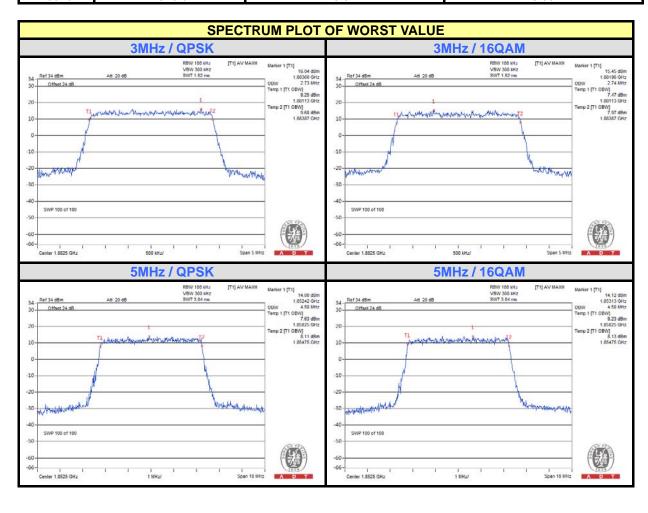
CHANNEL	EDECLIENCY (MILE)	99% OCCUPIED BANDWIDTH (MHz)			
	FREQUENCY (MHz)	CDMA	EVDO		
25	1851.25	1.29	1.29		
600	1880.00	1.28	1.28		
1175	1908.75	1.28	1.28		



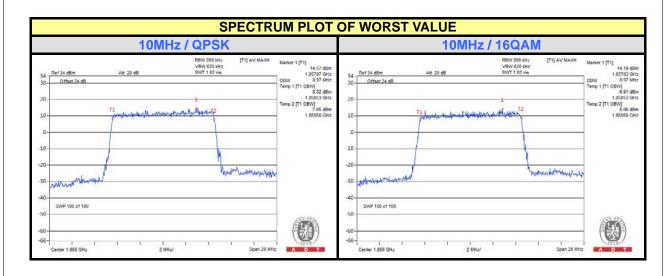


LTE Band 25

LTE Daliu 23									
LTE BAND 25									
(CHANNEL BAND	WIDTH 3MF	lz		CHANNEL BAND	OWIDTH 5MH	Z		
CHANNEL	EDECHENCY		CCUPIED DTH (MHz)	CHANNEL	FREQUENCY		CCUPIED DTH (MHz)		
	(MHz)	QPSK	16QAM		(MHz)	QPSK	16QAM		
26055	1851.5	2.72	2.72	26065	1852.5	4.50	4.50		
26365	1882.5	2.73	2.74	26365	1882.5	4.48	4.48		
26675	1913.5	2.73	2.73	26665	1912.5	4.48	4.50		
		C	HANNEL BA	NDWIDTH 10	MHz				
CHANNEL	FDFOUENO	N/ (8411)	99% OCCUPIED BANDWIDTH (MHz)						
CHANNEL	FREQUENCY (MHz)			QPSK		16QAM			
26090	1855.	.0		8.97		8.97			
26365	1882.5			8.97		8.97			
26640	1910.	.0		8.97 8.93					







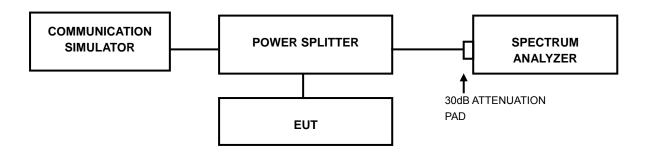


4.4 PEAK TO AVERAGE RATIO

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

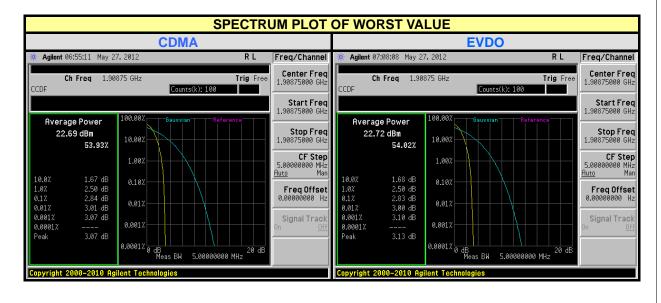
- 1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
- 2. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 3. Record the maximum PAPR level associated with a probability of 0.1%.



4.4.4 TEST RESULTS

CDMA

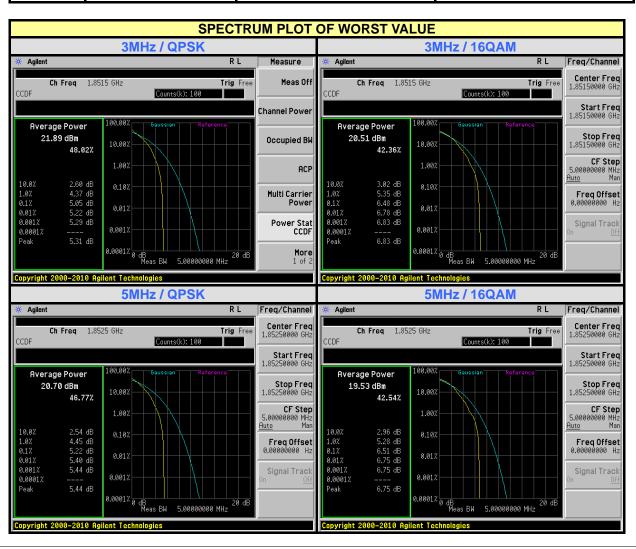
OHANINE	EDECUENOV (MIL.)	PEAK TO AVERAGE RATIO (dB)			
CHANNEL	FREQUENCY (MHz)	CDMA	EVDO		
25	1851.25	2.71	2.67		
600	1880.00	2.72	2.70		
1175	1908.75	2.84	2.83		



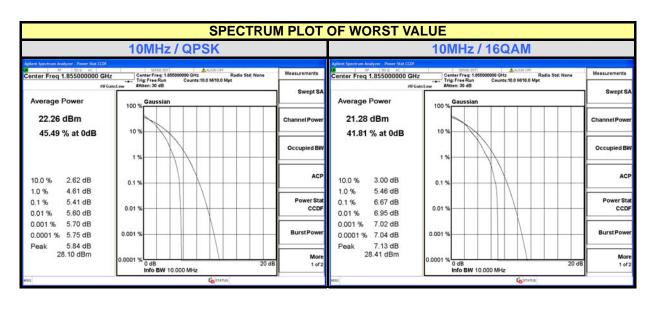


LTE Band 25

ETE BANG 25									
LTE BAND 25									
(CHANNEL BAND	WIDTH 3MF	lz		CHANNE	EL BAND	WIDTH 5MH	Z	
CHANNEL	EDECLIENCY		AVERAGE O (dB)	CHANNEL	FREQU		PEAK TO AVERAGE RATIO (dB)		
	(MHz)	QPSK	16QAM	011111111	(MH	Hz)	QPSK	16QAM	
26055	1851.5	5.05	6.48	26065	1852.5		5.22	6.51	
26365	1882.5	4.85	5.87	26365	188	2.5	4.69	5.93	
26675	1913.5	4.96	6.13	26665	1912.5		5.07	6.29	
		C	HANNEL BA	NDWIDTH 10	MHz				
OHANDE		N/ (1411)	PEAK TO AVERAGE RATIO (dB)						
CHANNEL	FREQUENCY (MHz)		QPSK			16QAM			
26090	1855.	.0		5.41		6.67			
26365	1882.5		4.78		4.77				
26640	1910.0			4.68 4.67					







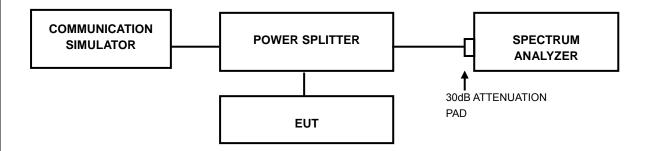


4.5 BAND EDGE MEASUREMENT

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

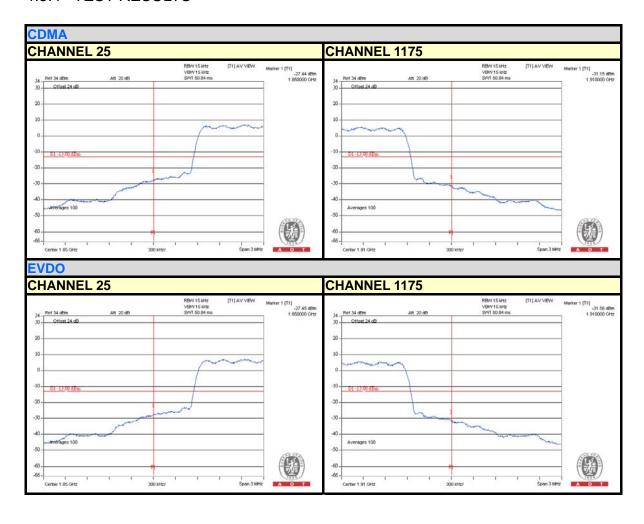


4.5.3 TEST PROCEDURES

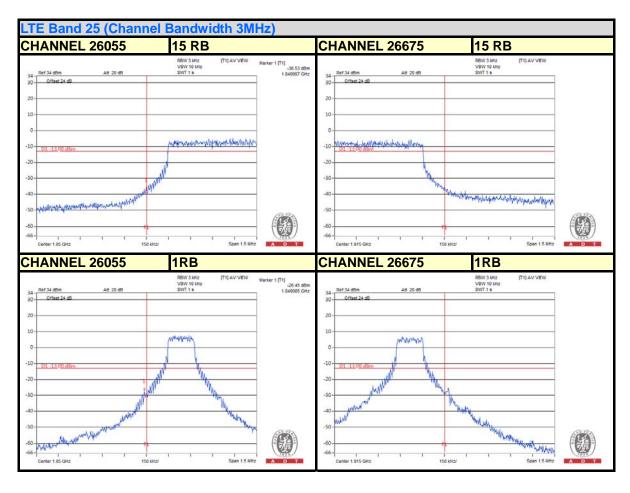
- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 3MHz. RB of the spectrum is 15kHz and VB of the spectrum is 15kHz (CDMA/EVDO).
- c. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (LTE).
- d. Record the max trace plot into the test report.



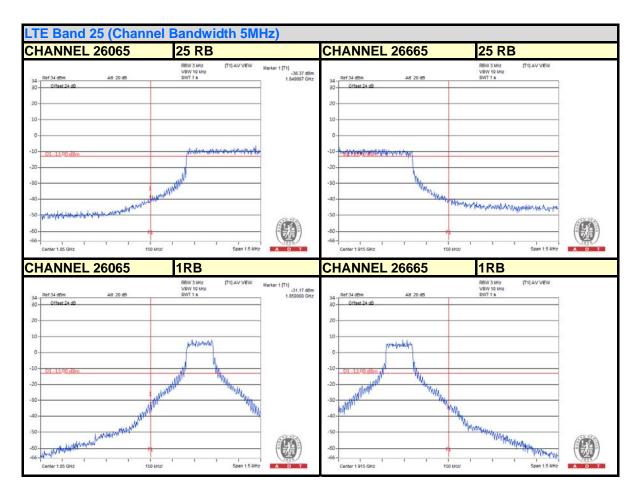
4.5.4 TEST RESULTS



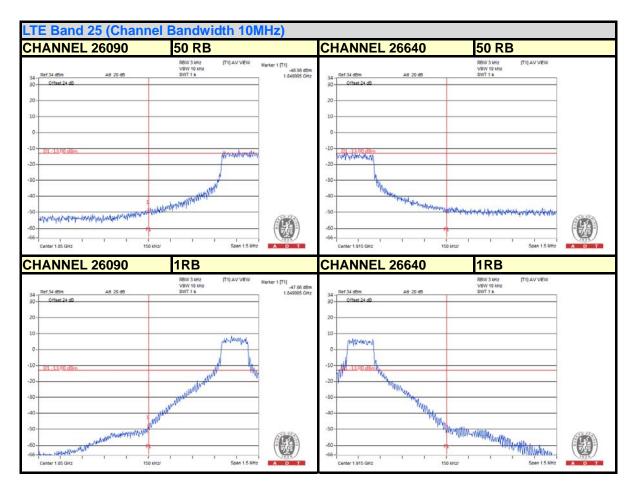














4.6 CONDUCTED SPURIOUS EMISSIONS

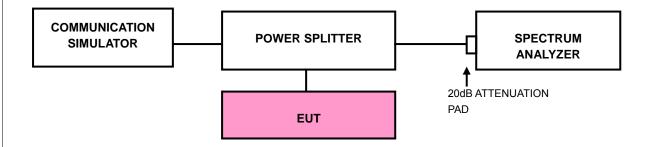
4.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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.
- b. Measuring frequency range is from 9kHz to 20GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

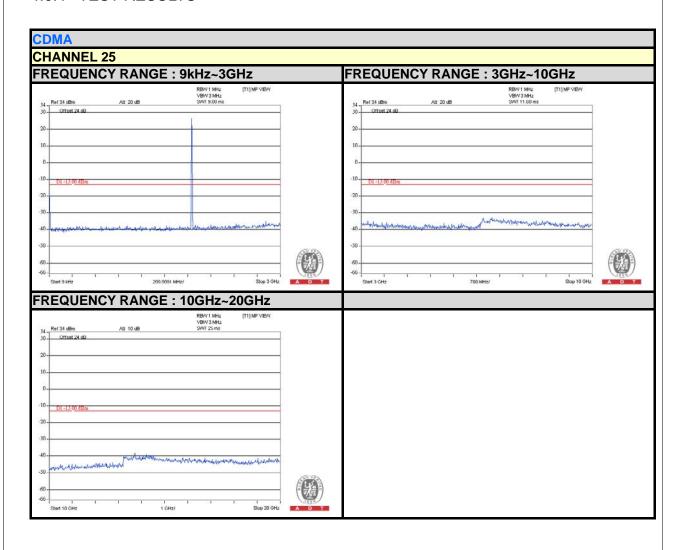
4.6.3 TEST SETUP



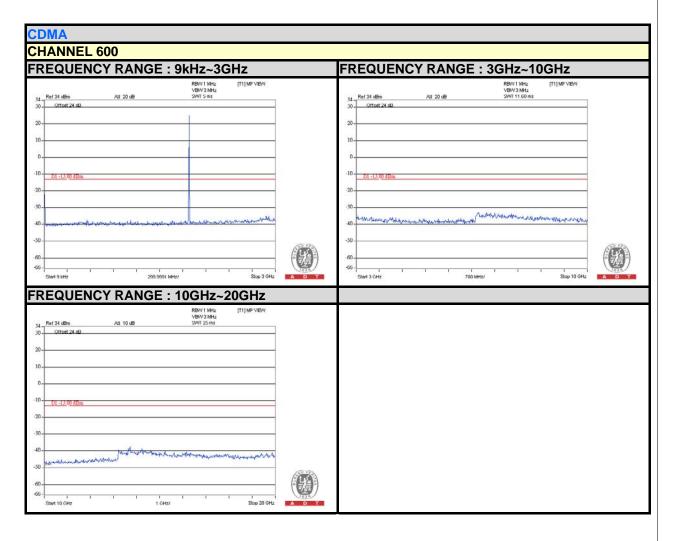
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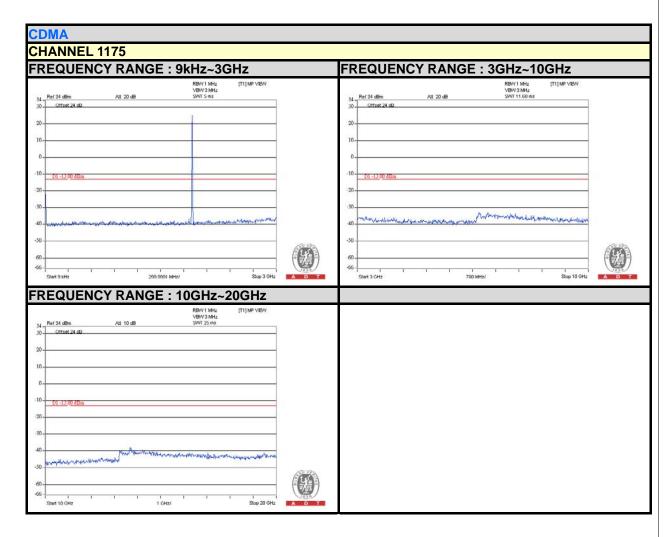
4.6.4 TEST RESULTS















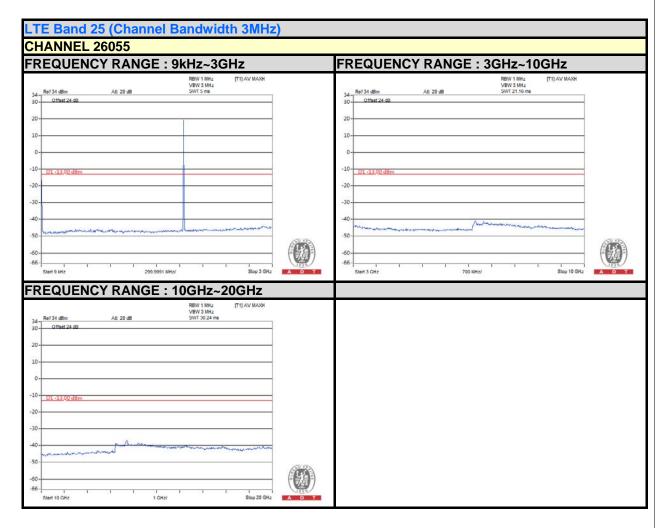




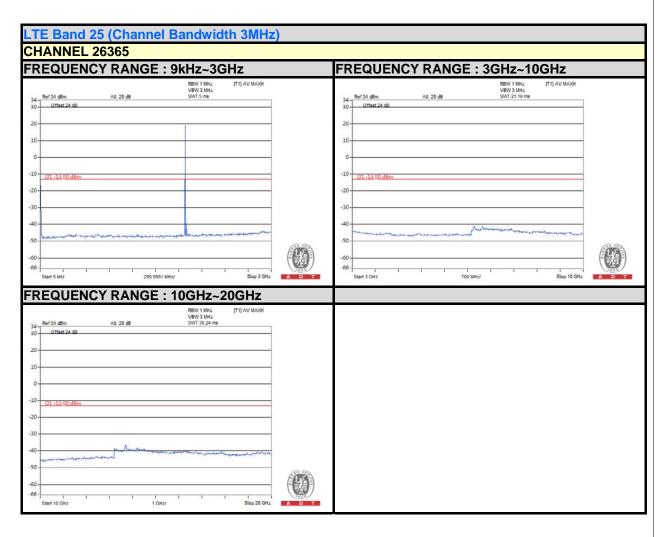




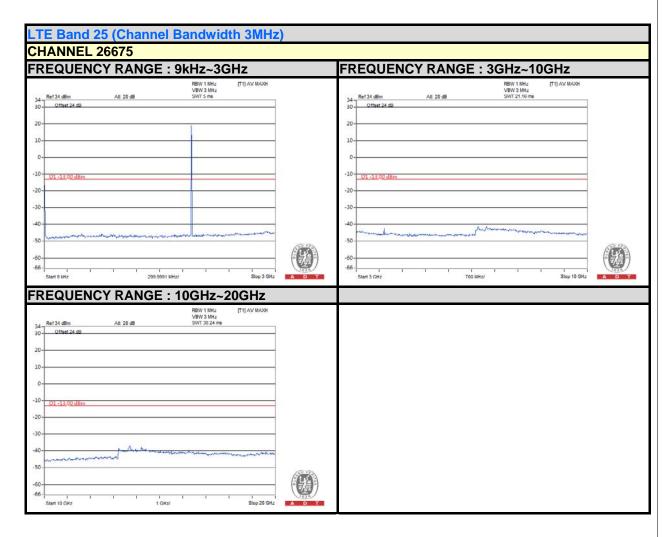




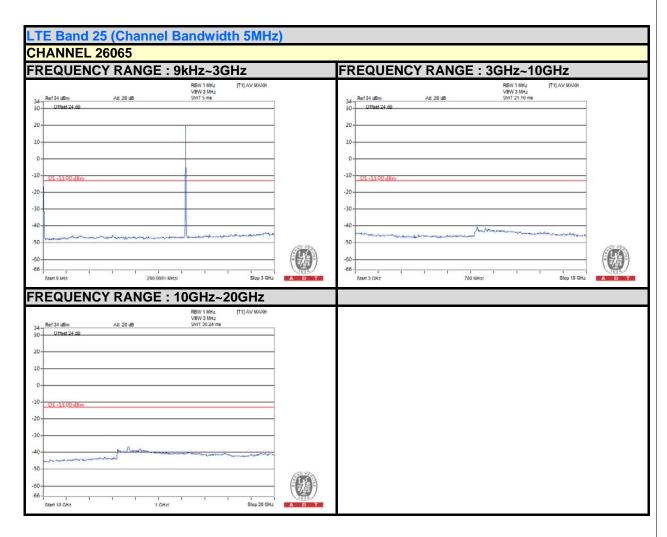




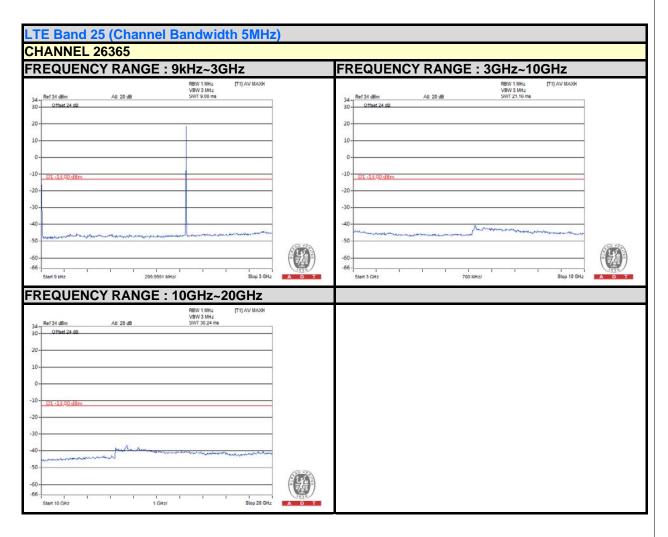




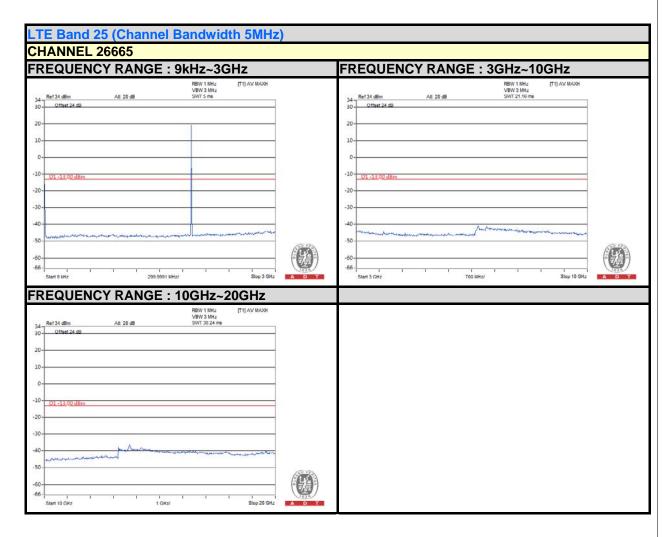




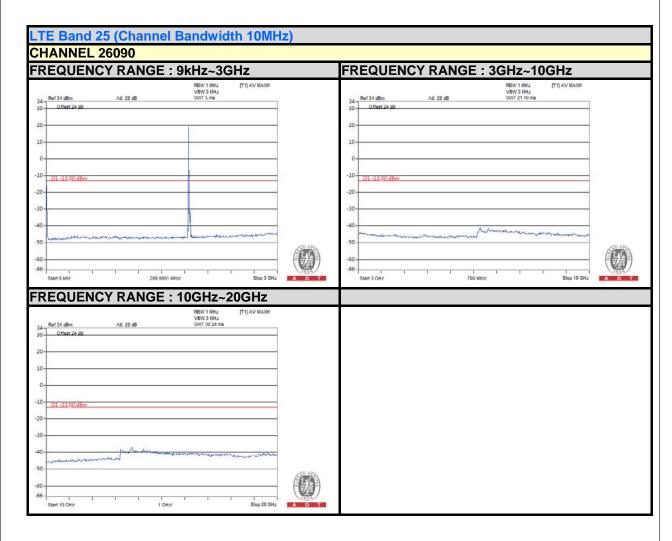




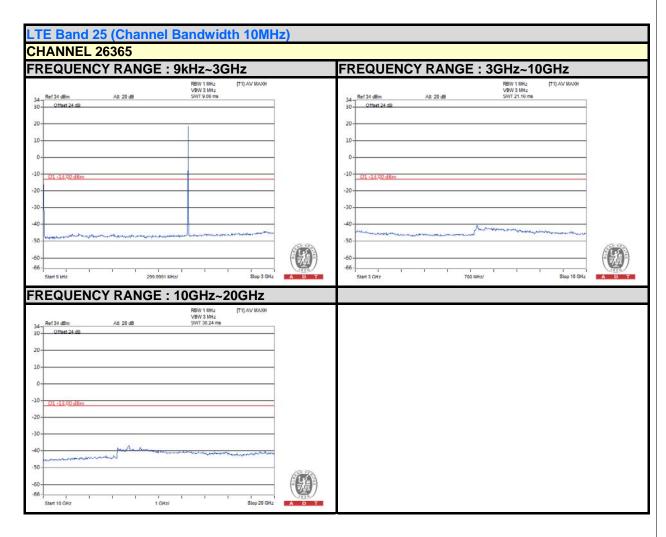




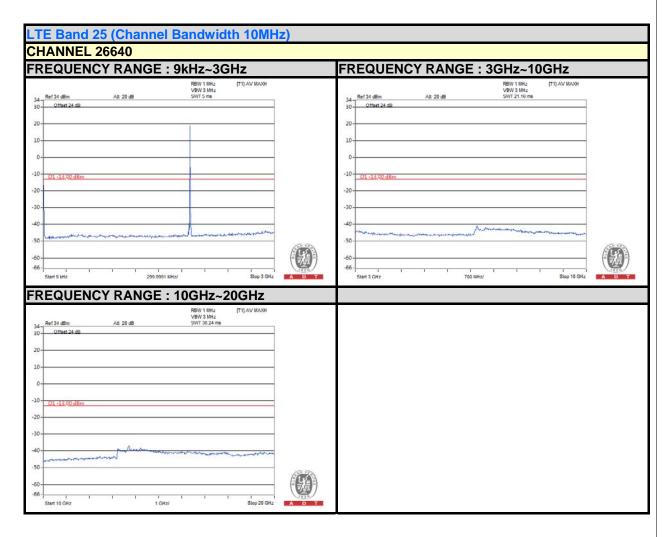














4.7 RADIATED EMISSION MEASUREMENT

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. 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.P.R power 2.15dBi.

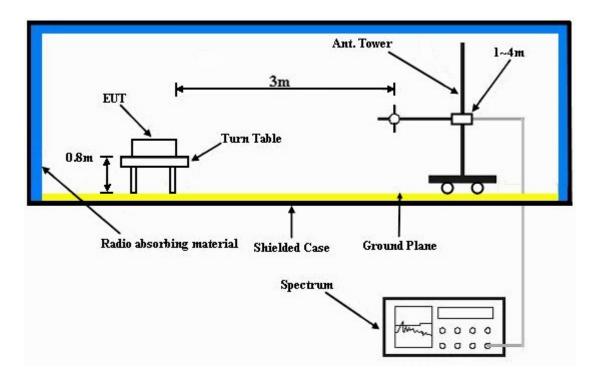
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

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

CDMA

MODE	TX channel 1175	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

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	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	45.55	-71.08	-58.34	-9.97	-68.31	-13.00	-55.31			
2	107.76	-68.06	-75.21	0.57	-74.64	-13.00	-61.64			
3	187.45	-65.31	-75.20	3.88	-71.32	-13.00	-58.32			
4	298.26	-75.20	-84.50	5.14	-79.36	-13.00	-66.36			
5	436.27	-77.27	-82.03	5.13	-76.90	-13.00	-63.90			
6	572.34	-76.94	-80.86	4.55	-76.31	-13.00	-63.31			
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M				
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	45.55	-59.20	-55.14	-9.97	-65.11	-13.00	-52.11			
2	105.81	-62.64	-68.78	0.64	-68.14	-13.00	-55.14			
3	181.62	-63.29	-67.08	3.12	-63.96	-13.00	-50.96			
4	354.63	-77.61	-83.63	5.21	-78.42	-13.00	-65.42			
5	428.50	-77.27	-80.45	5.15	-75.30	-13.00	-62.30			
6	570.40	-76.94	-78.34	4.55	-73.79	-13.00	-60.79			

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



MODE	TX channel 25	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	3702.50	-51.67	-47.57	7.16	-40.41	-13.00	-27.41				
2	5553.75	-56.29	-45.34	6.78	-38.56	-13.00	-25.56				
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
No.	Freq. (MHz) 3702.50	· ·			-38.02	-13.00	Margin (dB) -25.02				

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

MODE	TX channel 600	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	3760.00	-54.20	-49.85	7.10	-42.75	-13.00	-29.75			
2	5640.00	-56.54	-45.54	6.77	-38.77	-13.00	-25.77			
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M				
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)			
1	3760.00	-53.09	-49.08	7.10	-41.98	-13.00	-28.98			
2	5640.00	-55.04	-45.27	6.77	-38.50	-13.00	-25.50			

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



MODE	TX channel 1175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 64%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	3817.50	-51.42	-46.82	7.05	-39.77	-13.00	-26.77				
2	5726.25	-55.03	-43.96	6.74	-37.22	-13.00	-24.22				
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	3817.50	-47.98	-44.07	7.14	-36.93	-13.00	-23.93				

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



LTE Band 25 (Channel Bandwidth 3MHz)

MODE	TX channel 26065	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Chris Lin		

	AN ⁻	ΓENNA POL	ARITY & TES	T DISTANCE	: HORIZONT	AL AT 3 M	
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	39.72	-70.30	-55.26	-10.93	-66.19	-13.00	-53.19
2	111.64	-62.40	-69.38	0.41	-68.97	-13.00	-55.97
3	189.40	-58.84	-69.09	4.12	-64.97	-13.00	-51.97
4	296.31	-66.58	-75.91	5.15	-70.76	-13.00	-57.76
5	461.54	-74.20	-79.12	5.04	-74.08	-13.00	-61.08
6	757.01	-75.20	-74.27	4.55	-69.72	-13.00	-56.72
	Al	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M	
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	230.22	-63.29	-74.67	5.43	-69.24	-13.00	-56.24
2	296.31	-60.41	-69.74	5.15	-64.59	-13.00	-51.59
3	521.80	-71.59	-76.18	4.78	-71.40	-13.00	-58.40
4	659.82	-73.74	-76.04	4.92	-71.12	-13.00	-58.12
5	801.72	-73.97	-72.69	4.02	-68.67	-13.00	-55.67
6	961.12	-77.96	-74.74	3.91	-70.83	-13.00	-57.83

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



MODE	Channel 26055	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	3703.00	-49.87	-45.77	7.16	-38.61	-13.00	-25.61				
2	5554.50	-55.47	-44.51	6.78	-37.73	-13.00	-24.73				
	Al	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M					
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)				
1	3703.00	-47.81	-43.94	7.16	-36.78	-13.00	-23.78				
2	5554.50	-53.69	-44.23	6.78	-37.45	-13.00	-24.45				

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

MODE	Channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3765.00	-54.25	-49.87	7.09	-42.78	-13.00	-29.78
2	5647.50	-55.84	-44.83	6.77	-38.06	-13.00	-25.06
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M	
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3765.00	-52.00	-47.97	7.09	-40.88	-13.00	-27.88
2	5647.50	-53.99	-44.19	6.77	-37.42	-13.00	-24.42

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



MODE	Channel 26675	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
1	3827.00	-54.85	-50.23	7.06	-43.17	-13.00	-30.17	
2	5740.50	-55.98	-44.90	6.74	-38.16	-13.00	-25.16	
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M		
No.	Freq. (MHz)	Reading	S.G Power	Correction	EIRP (dBm)	Limit (dBm)	Margin (dB)	
		(dBm)	Value (dBm)	Factor (dB)			a. g (a.2)	
1	3827.00	(dBm) -52.69	-48.55	7.06	-41.49	-13.00	-28.49	

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



LTE Band 25 (Channel Bandwidth 5MHz)

MODE	TX channel 26665	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Chris Lin		

	AN [*]	TENNA POL	ARITY & TES	T DISTANCE	: HORIZONT	AL AT 3 M	
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	41.66	-70.45	-56.13	-10.61	-66.74	-13.00	-53.74
2	111.64	-62.52	-69.50	0.41	-69.09	-13.00	-56.09
3	193.29	-59.29	-69.91	4.62	-65.29	-13.00	-52.29
4	296.31	-66.58	-75.91	5.15	-70.76	-13.00	-57.76
5	461.54	-72.70	-77.62	5.04	-72.58	-13.00	-59.58
6	801.72	-73.52	-72.24	4.02	-68.22	-13.00	-55.22
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M	
No.		Dooding	S.G Power	Correction			
	Freq. (MHz)	Reading (dBm)	Value (dBm)	Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	Freq. (MHz) 41.66	Ū	0.0 . 0		EIRP (dBm) -51.38	-13.00	Margin (dB) -38.38
1 2		(dBm)	Value (dBm)	Factor (dB)		. ,	5 , ,
	41.66	(dBm) -55.09	Value (dBm) -40.77	-10.61	-51.38	-13.00	-38.38
2	41.66 199.12	(dBm) -55.09 -60.51	Value (dBm) -40.77 -71.56	-10.61 5.35	-51.38 -66.21	-13.00 -13.00	-38.38 -53.21
2	41.66 199.12 296.31	(dBm) -55.09 -60.51 -59.20	Value (dBm) -40.77 -71.56 -68.53	-10.61 5.35 5.15	-51.38 -66.21 -63.38	-13.00 -13.00 -13.00	-38.38 -53.21 -50.38

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



MODE	Channel 26065	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
1	3705.00	-51.58	-47.46	7.15	-40.31	-13.00	-27.31	
2	5557.50	-55.98	-45.02	6.78	-38.24	-13.00	-25.24	
	Al	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M		
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
1	3705.00	-48.94	-45.06	7.15	-37.91	-13.00	-24.91	
2	5557.50	-54.08	-44.61	6.78	-37.83	-13.00	-24.83	

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

MODE	Channel 26365	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3765.00	-53.87	-49.49	7.09	-42.40	-13.00	-29.40
2	5647.50	-55.88	-44.87	6.77	-38.10	-13.00	-25.10
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M	
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3765.00	-51.74	-47.71	7.09	-40.62	-13.00	-27.62
2	5647.50	-54.44	-44.64	6.77	-37.87	-13.00	-24.87

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



MODE	Channel 26665	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)		
1	3825.00	-53.84	-49.22	7.06	-42.16	-13.00	-29.16		
2	5737.50	-55.58	-44.50	6.74	-37.76	-13.00	-24.76		
	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
	A	NIENNA PO	LAKIII & IE	ONA I CIU I C	E. VERTICA	LAIJW			
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)		
No.		Reading	S.G Power	Correction			Margin (dB) -27.22		

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



LTE Band 25 (Channel Bandwidth 10MHz)

MODE	TX channel 26090	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Chris Lin		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)		
1	43.61	-70.15	-56.62	-10.29	-66.91	-13.00	-53.91		
2	111.64	-62.34	-69.32	0.41	-68.91	-13.00	-55.91		
3	191.34	-59.04	-69.51	4.37	-65.14	-13.00	-52.14		
4	296.31	-66.38	-75.71	5.15	-70.56	-13.00	-57.56		
5	461.54	-73.74	-78.66	5.04	-73.62	-13.00	-60.62		
6	757.01	-74.68	-73.75	4.55	-69.20	-13.00	-56.20		
	Α	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	L AT 3 M			
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)		
1	39.72	-55.91	-40.87	-10.93	-51.80	-13.00	-38.80		
2	199.12				00 74				
	199.12	-61.01	-72.06	5.35	-66.71	-13.00	-53.71		
3	296.31	-61.01 -59.42	-72.06 -68.75	5.35 5.15	-66.71 -63.60	-13.00 -13.00	-53.71 -50.60		
3	296.31	-59.42	-68.75	5.15	-63.60	-13.00	-50.60		

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



MODE	Channel 26090	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
1	3710.00	-50.24	-46.11	7.15	-38.96	-13.00	-25.96	
2	5565.00	-55.63	-44.67	6.78	-37.89	-13.00	-24.89	
	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
1	3710.00	-48.78	-44.89	7.15	-37.74	-13.00	-24.74	
2	5565.00	-53.13	-43.63	6.78	-36.85	-13.00	-23.85	

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

MODE	Channel 26365	rnel 26365 FREQUENCY RANGE	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
1	3765.00	-53.15	-48.77	7.09	-41.68	-13.00	-28.68	
2	5647.50	-55.21	-44.20	6.77	-37.43	-13.00	-24.43	
	A	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M		
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
1	3765.00	-51.57	-47.54	7.09	-40.45	-13.00	-27.45	
2	5647.50	-54.35	-44.55	6.77	-37.78	-13.00	-24.78	

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



MODE	Channel 26640	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	120Vac, 60 Hz
TESTED BY	Ted Chang		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	
1	3820.00	-53.70	-49.09	7.05	-42.04	-13.00	-29.04	
2	5730.00	-56.20	-45.12	6.74	-38.38	-13.00	-25.38	
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
	Al	NTENNA PO	LARITY & TE	ST DISTANC	E: VERTICA	LAT3M		
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	L AT 3 M Limit (dBm)	Margin (dB)	
No.		Reading	S.G Power	Correction			Margin (dB) -27.89	

- 1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
- 2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



5 PHOTOGRAPHS OF THE TEST CONFIGURATION							
Please refer to the attached file (Test Setup Photo).							

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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:

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Web Site: www.bureauveritas-adt.com

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

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

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

---END---

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