FCC TEST REPORT

(PART 27)

REPORT NO.:	RF140303C07-7
MODEL NO.:	0P8B100
FCC ID:	NM80P8B100
RECEIVED:	Mar. 03, 2014
TESTED:	Mar. 15, 2014 ~ Mar. 24, 2014
ISSUED:	Apr. 15, 2014

APPLICANT: HTC Corporation

ADDRESS: 1F, 6-3 Baoqiang Road, Xindian District, New Taipei City, Taiwan 231

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.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140303C07-7	Original release	Apr. 15, 2014

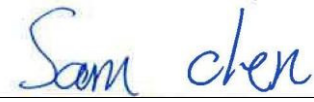
1 CERTIFICATION

PRODUCT:	Smartphone
MODEL NO.:	0P8B100
BRAND:	HTC
APPLICANT:	HTC Corporation
TESTED:	Mar. 15, 2014 ~ Mar. 24, 2014
TEST SAMPLE:	Production Unit
TEST STANDARDS:	**FCC Part 27, Subpart C, L** **FCC Part 2** ANSI C63.4-2003

The above equipment (model: 0P8B100) 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:** Apr. 15, 2014

Ivonne Wu / Supervisor

APPROVED BY :  , **DATE:** Apr. 15, 2014

Sam Chen / Senior Project Engineer

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

LTE BAND 13			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
2.1046 27.50(C)(10)	Maximum Peak Output Power	PASS	Meet the requirement of limit.
2.1055 27.54	Frequency Stability	PASS	Meet the requirement of limit.
2.1049 27.53(g)	Occupied Bandwidth	PASS	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	PASS	Meet the requirement of limit.
27.53(g)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 27.53(g)	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 27.53(g)	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -29.86dB at 2332.80MHz.

LTE Band 4			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
2.1046 27.50(d)(4)	Maximum Peak Output Power	PASS	Meet the requirement of limit.
2.1055 27.54	Frequency Stability	PASS	Meet the requirement of limit.
2.1049 27.53(h)	Occupied Bandwidth	PASS	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	PASS	Meet the requirement of limit.
27.53(h)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -15.70dB at 5177.70MHz.

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
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2013	Apr. 14, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 27. 2014	Feb. 26, 2015
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 19, 2014	Feb. 18, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 26, 2013	Dec. 25, 2014
Preamplifier EMCI	EMC 184045	980116	Jan. 13, 2014	Jan. 12, 2015
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
Software BV ADT	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	Jul. 18, 2013	Jul. 17, 2014
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Communications Tester-Wireless	E5515C	MY52102544	Sep. 05, 2012	Sep. 04, 2014
Radio Communication Analyzer	MT8820C	6201300640	Aug. 01, 2013	Jul. 31, 2014

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 10.

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 690701.

5. The IC Site Registration No. is IC 7450F-10.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Smartphone	
MODEL NO.	0P8B100	
POWER SUPPLY	5Vdc (adapter or host equipment) 3.8Vdc (battery)	
MODULATION TECHNOLOGY	**LTE Band 13**	QPSK, 16QAM
	LTE Band 4	QPSK, 16QAM
FREQUENCY RANGE	**LTE Band 13** **Channel Bandwidth: 10MHz**	782.0MHz
	LTE Band 4 **Channel Bandwidth: 1.4MHz**	1710.7MHz ~ 1754.3MHz
	LTE Band 4 **Channel Bandwidth: 3MHz**	1711.5MHz ~ 1753.5MHz
	LTE Band 4 **Channel Bandwidth: 5MHz**	1712.5MHz ~1752.5MHz
	LTE Band 4 **Channel Bandwidth: 10MHz**	1715.0MHz ~1750.0MHz
	LTE Band 4 **Channel Bandwidth: 15MHz**	1717.5MHz ~1747.5MHz
	LTE Band 4 **Channel Bandwidth: 20MHz**	1720.0MHz ~1745.0MHz
EMISSION DESIGNATOR	**LTE Band 13** **Channel Bandwidth: 10MHz**	8M94W7D
	LTE Band 4 **Channel Bandwidth: 1.4MHz**	1M08G7D
	LTE Band 4 **Channel Bandwidth: 3MHz**	2M69G7D
	LTE Band 4 **Channel Bandwidth: 5MHz**	4M50G7D
	LTE Band 4 **Channel Bandwidth: 10MHz**	8M93W7D
	LTE Band 4 **Channel Bandwidth: 15MHz**	13M4G7D
	LTE Band 4 **Channel Bandwidth: 20MHz**	17M8G7D
MAX. ERP POWER	**LTE Band 13** **Channel Bandwidth: 10MHz**	35.78mW

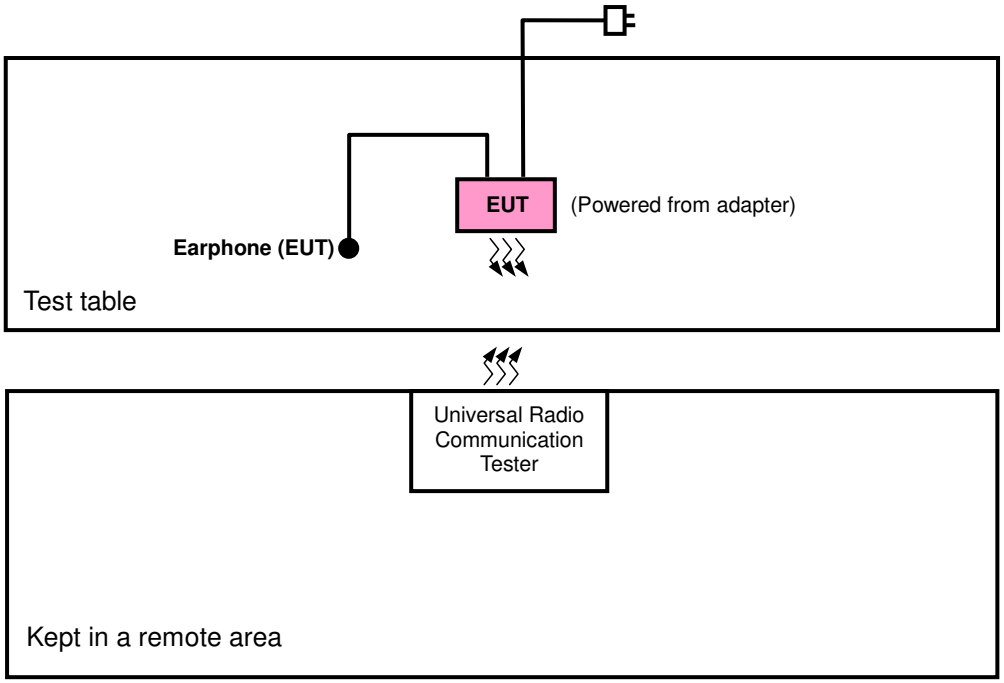
MAX. EIRP POWER	**LTE Band 4 Channel Bandwidth: 1.4MHz**	94.99mW
	LTE Band 4 Channel Bandwidth: 3MHz	103.40mW
	LTE Band 4 Channel Bandwidth: 5MHz	99.20mW
	LTE Band 4 Channel Bandwidth: 10MHz	96.32mW
	LTE Band 4 Channel Bandwidth: 15MHz	111.56mW
	LTE Band 4 Channel Bandwidth: 20MHz	106.34mW
ANTENNA TYPE	Fixed Internal Antenna	
DATA CABLE	Refer to Note as below	
I/O PORTS	Refer to users' manual	
ACCESSORY DEVICES	Refer to Note as below	

NOTE:

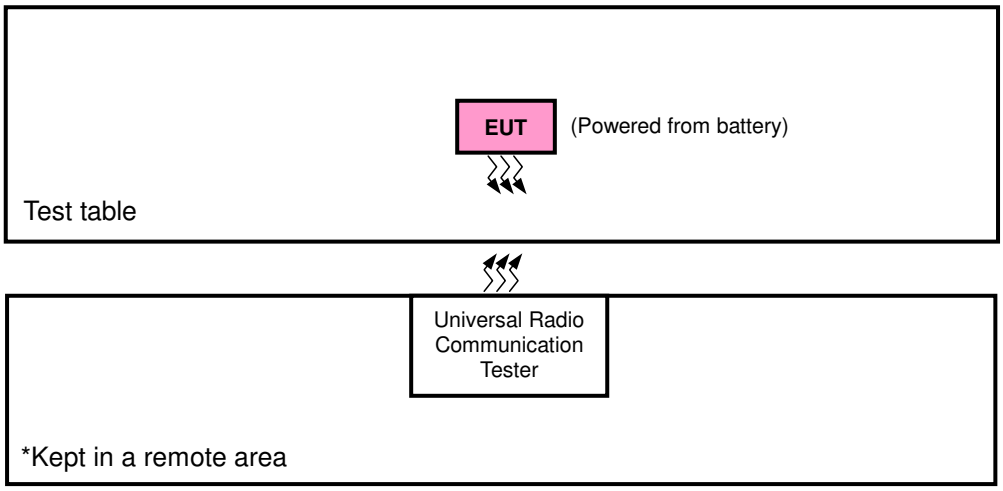
1. The EUT's accessories list refers to Ext. Pho.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST



FOR E.R.P. / E.I.R.P. 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 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 case was found when positioned on Y-plane for ERP, X-plane for EIRP, and Y-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

LTE Band 13

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
-	ERP	23230	23230	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	FREQUENCY STABILITY	23230	23230	10MHz	QPSK	1 RB / 0 RB Offset
-	OCCUPIED BANDWIDTH	23230	23230	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
-	PEAK TO AVERAGE RATIO	23230	23230	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
-	BAND EDGE	23230	23230	10MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			23230	10MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
-	CONDCUDETED EMISSION	23230	23230	10MHz	QPSK	1 RB / 0 RB Offset
-	RADIATED EMISSION	23230	23230	10MHz	QPSK	50 RB / 0 RB Offset

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

LTE Band 4

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
-	EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset t
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	1 RB / 0 RB Offset t
-	FREQUENCY STABILITY	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset t
		20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset t
-	OCCUPIED BANDWIDTH	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	6 RB / 0 RB Offset t
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	15 RB / 0 RB Offset t
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	PEAK TO AVERAGE RATIO	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM	1 RB / 0 RB Offset t
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM	1 RB / 0 RB Offset t
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset t
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset t
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM	50 RB / 0 RB Offset

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
-	BAND EDGE	19957 to 20393	19957	1.4MHz	QPSK	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
			20393	1.4MHz	QPSK	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		19965 to 20385	19965	3MHz	QPSK	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
			20385	3MHz	QPSK	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		19975 to 20375	19975	5MHz	QPSK	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
			20375	5MHz	QPSK	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		20000 to 20350	20000	10MHz	QPSK	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
			20350	10MHz	QPSK	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		20025 to 20325	20025	15MHz	QPSK	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
			20325	15MHz	QPSK	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		20050 to 20300	20050	20MHz	QPSK	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
			20300	20MHz	QPSK	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
-	CONDCUDETED EMISSION	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset t
		19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset t
		19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset t
		20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset t
		20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20175	20MHz	QPSK	50 RB / 0 RB Offset
-	RADIATED EMISSION	19957 to 20393	20175	1.4MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset t
		20050 to 20300	20175	20MHz	QPSK	1 RB / 0 RB Offset t

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

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP/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
PEAK TO AVERAGE RATIO	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 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 27
ANSI C63.4-2003
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

Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

Portable stations (hand-held devices) operating in the 777-787 MHz band are limited to 3 watts ERP

4.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

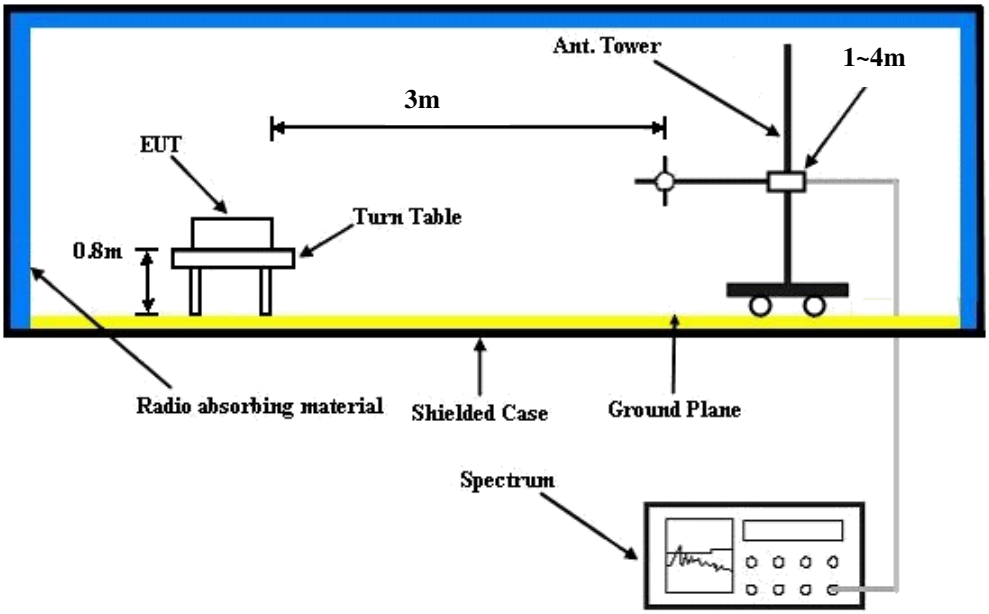
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum 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 b. 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:

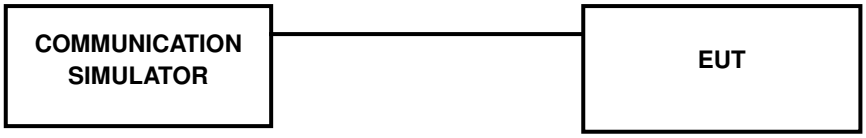
a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 TEST SETUP

EIRP / ERP MEASUREMENT:



CONDUCTED POWER MEASUREMENT:



4.1.4 TEST RESULTS

Average Conducted Output Power (dBm)

Band / BW	Modulation	RB Size	RB Offset	CH 23230 Frequency 782 MHz	3PGG MPR (dB)
13 / 10M	QPSK	1	0	24.88	0
		1	24	25.00	0
		1	49	24.82	0
		25	0	23.99	1
		25	12	23.97	1
		25	25	23.96	1
		50	0	23.94	1
	16QAM	1	0	23.82	1
		1	24	23.94	1
		1	49	23.76	1
		25	0	23.00	2
		25	12	22.97	2
		25	25	22.90	2
		50	0	22.94	2

Band / BW	Modulation	RB Size	RB Offset	Low CH 19957 Frequency 1710.7 MHz	Mid CH 20175 Frequency 1732.5 MHz	High CH 20393 Frequency 1754.3 MHz	3PGG MPR (dB)
4 / 1.4M	QPSK	1	0	24.19	24.37	24.42	0
		1	2	24.34	24.47	24.54	0
		1	5	24.31	24.32	24.36	0
		3	0	24.32	24.41	24.50	0
		3	1	24.31	24.42	24.51	0
		3	3	24.28	24.41	24.43	0
		6	0	23.32	23.45	23.46	1
	16QAM	1	0	23.13	23.31	23.36	1
		1	2	23.28	23.41	23.48	1
		1	5	23.25	23.26	23.30	1
		3	0	23.26	23.35	23.44	1
		3	1	23.25	23.36	23.45	1
		3	3	23.22	23.35	23.37	1
		6	0	22.26	22.39	22.40	2

Band / BW	Modulation	RB Size	RB Offset	Low CH 19965 Frequency 1711.5 MHz	Mid CH 20175 Frequency 1732.5 MHz	High CH 20385 Frequency 1753.5 MHz	3PGG MPR (dB)
4 / 3M	QPSK	1	0	24.26	24.44	24.49	0
		1	7	24.41	24.54	24.61	0
		1	14	24.38	24.39	24.43	0
		8	0	23.39	23.48	23.57	1
		8	3	23.38	23.49	23.58	1
		8	7	23.35	23.48	23.50	1
		15	0	23.39	23.52	23.53	1
	16QAM	1	0	23.20	23.38	23.43	1
		1	7	23.35	23.48	23.55	1
		1	14	23.32	23.33	23.37	1
		8	0	22.33	22.42	22.51	2
		8	3	22.32	22.43	22.52	2
		8	7	22.29	22.42	22.44	2
		15	0	22.33	22.46	22.47	2

Band / BW	Modulation	RB Size	RB Offset	Low CH 19975 Frequency 1712.5 MHz	Mid CH 20175 Frequency 1732.5 MHz	High CH 20375 Frequency 1752.5 MHz	3PGG MPR (dB)
4 / 5M	QPSK	1	0	24.36	24.54	24.59	0
		1	12	24.51	24.64	24.71	0
		1	24	24.48	24.49	24.53	0
		12	0	23.49	23.58	23.67	1
		12	6	23.48	23.59	23.68	1
		12	13	23.45	23.58	23.60	1
		25	0	23.49	23.62	23.63	1
	16QAM	1	0	23.30	23.48	23.53	1
		1	12	23.45	23.58	23.65	1
		1	24	23.42	23.43	23.47	1
		12	0	22.43	22.52	22.61	2
		12	6	22.42	22.53	22.62	2
		12	13	22.39	22.52	22.54	2
		25	0	22.43	22.56	22.57	2

Band / BW	Modulation	RB Size	RB Offset	Low CH 20000 Frequency 1715.0 MHz	Mid CH 20175 Frequency 1732.5 MHz	High CH 20350 Frequency 1750.0 MHz	3PGG MPR (dB)
4 / 10M	QPSK	1	0	24.44	24.62	24.67	0
		1	24	24.59	24.72	24.79	0
		1	49	24.56	24.57	24.61	0
		25	0	23.57	23.66	23.75	1
		25	12	23.56	23.67	23.76	1
		25	25	23.53	23.66	23.68	1
		50	0	23.57	23.70	23.71	1
	16QAM	1	0	23.38	23.56	23.61	1
		1	24	23.53	23.66	23.73	1
		1	49	23.50	23.51	23.55	1
		25	0	22.51	22.60	22.69	2
		25	12	22.50	22.61	22.70	2
		25	25	22.47	22.60	22.62	2
		50	0	22.51	22.64	22.65	2

Band / BW	Modulation	RB Size	RB Offset	Low CH 20025 Frequency 1717.5 MHz	Mid CH 20175 Frequency 1732.5 MHz	High CH 20325 Frequency 1747.5 MHz	3PGG MPR (dB)
4 / 15M	QPSK	1	0	24.56	24.74	24.79	0
		1	37	24.71	24.84	24.91	0
		1	74	24.68	24.69	24.73	0
		36	0	23.69	23.78	23.87	1
		36	19	23.68	23.79	23.88	1
		36	39	23.65	23.78	23.80	1
		75	0	23.69	23.82	23.83	1
	16QAM	1	0	23.50	23.68	23.73	1
		1	37	23.65	23.78	23.85	1
		1	74	23.62	23.63	23.67	1
		36	0	22.63	22.72	22.81	2
		36	19	22.62	22.73	22.82	2
		36	39	22.59	22.72	22.74	2
		75	0	22.63	22.76	22.77	2

Band / BW	Modulation	RB Size	RB Offset	Low CH 20050 Frequency 1720.0 MHz	Mid CH 20175 Frequency 1732.5 MHz	High CH 20300 Frequency 1745.0 MHz	3PGG MPR (dB)
4 / 20M	QPSK	1	0	24.65	24.83	24.88	0
		1	50	24.80	24.93	25.00	0
		1	99	24.77	24.78	24.82	0
		50	0	23.78	23.87	23.96	1
		50	25	23.77	23.88	23.97	1
		50	50	23.74	23.87	23.89	1
		100	0	23.78	23.91	23.92	1
	16QAM	1	0	23.59	23.77	23.82	1
		1	50	23.74	23.87	23.94	1
		1	99	23.71	23.72	23.76	1
		50	0	22.72	22.81	22.90	2
		50	25	22.71	22.82	22.91	2
		50	50	22.68	22.81	22.83	2
		100	0	22.72	22.85	22.86	2

AVERAGE ERP (dBm)

LTE Band 13							
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
Y	23230	782.0	-15.05	32.737	15.54	35.78	H
	23230	782.0	-19.24	32.52	11.13	12.97	V

LTE Band 13							
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(mW)	Polarization (H/V)
Y	23230	782.0	-16.25	32.737	14.34	27.15	H
	23230	782.0	-20.99	32.52	9.38	8.67	V

AVERAGE EIRP (dBm)

LTE Band 4							
Channel Bandwidth: 1.4MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor(dB)**	**EIRP(dBm)**	**EIRP(mW)**	**Polarization (H/V)**
X	19957	1710.7	-23.11	42.49	19.38	86.60	H
	20175	1732.5	-22.55	42.33	19.78	94.99	
	20393	1754.3	-22.66	42.10	19.44	87.90	
	19957	1710.7	-28.44	42.99	14.55	28.51	V
	20175	1732.5	-28.54	42.74	14.20	26.30	
	20393	1754.3	-28.33	42.21	13.88	24.43	

LTE Band 4							
Channel Bandwidth: 1.4MHz / 16QAM							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor(dB)**	**EIRP(dBm)**	**EIRP(mW)**	**Polarization (H/V)**
X	19957	1710.7	-24.09	42.49	18.40	69.10	H
	20175	1732.5	-23.84	42.33	18.49	70.58	
	20393	1754.3	-23.16	42.10	18.94	78.34	
	19957	1710.7	-30.75	42.99	12.24	16.75	V
	20175	1732.5	-30.29	42.74	12.45	17.58	
	20393	1754.3	-29.30	42.21	12.91	19.54	

LTE Band 4							
Channel Bandwidth: 3MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor(dB)**	**EIRP(dBm)**	**EIRP(mW)**	**Polarization (H/V)**
X	19965	1711.5	-22.34	42.49	20.15	103.40	H
	20175	1732.5	-22.49	42.33	19.84	96.32	
	20375	1753.5	-22.33	42.10	19.77	94.84	
	19965	1711.5	-28.61	42.99	14.38	27.42	V
	20175	1732.5	-28.80	42.74	13.94	24.77	
	20375	1753.5	-28.39	42.21	13.82	24.10	

LTE Band 4							
Channel Bandwidth: 3MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19965	1711.5	-24.12	42.49	18.37	68.63	H
	20175	1732.5	-23.78	42.33	18.55	71.56	
	20375	1753.5	-23.00	42.10	19.10	81.28	
	19965	1711.5	-30.80	42.99	12.19	16.56	V
	20175	1732.5	-30.17	42.74	12.57	18.07	
	20375	1753.5	-29.36	42.21	12.85	19.28	

LTE Band 4							
Channel Bandwidth: 5MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19975	1712.5	-22.52	42.49	19.97	99.20	H
	20175	1732.5	-22.42	42.33	19.91	97.88	
	20375	1752.5	-22.36	42.10	19.74	94.19	
	19975	1712.5	-29.22	42.99	13.77	23.82	V
	20175	1732.5	-28.83	42.74	13.91	24.60	
	20375	1752.5	-28.36	42.21	13.85	24.27	

LTE Band 4							
Channel Bandwidth: 5MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	19975	1712.5	-23.80	42.49	18.69	73.88	H
	20175	1732.5	-22.89	42.33	19.44	87.84	
	20375	1752.5	-22.98	42.10	19.12	81.66	
	19975	1712.5	-30.40	42.99	12.59	18.16	V
	20175	1732.5	-29.37	42.74	13.37	21.73	
	20375	1752.5	-29.46	42.21	12.75	18.84	

LTE Band 4							
Channel Bandwidth: 10MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20000	1715.0	-22.74	42.49	19.75	94.30	H
	20175	1732.5	-22.49	42.33	19.84	96.32	
	20350	1750.0	-22.39	42.10	19.71	93.54	
	20000	1715.0	-28.76	42.99	14.23	26.49	V
	20175	1732.5	-28.88	42.74	13.86	24.32	
	20350	1750.0	-28.26	42.21	13.95	24.83	

LTE Band 4							
Channel Bandwidth: 10MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20000	1715.0	-23.72	42.49	18.77	75.25	H
	20175	1732.5	-22.93	42.33	19.40	87.04	
	20350	1750.0	-22.91	42.10	19.19	82.99	
	20000	1715.0	-29.53	42.99	13.46	22.18	V
	20175	1732.5	-29.14	42.74	13.60	22.91	
	20350	1750.0	-28.78	42.21	13.43	22.03	

LTE Band 4							
Channel Bandwidth: 15MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20025	1717.5	-22.01	42.49	20.48	111.56	H
	20175	1732.5	-21.92	42.33	20.41	109.82	
	20325	1747.5	-21.69	42.10	20.41	109.90	
	20025	1717.5	-28.78	42.99	14.21	26.36	V
	20175	1732.5	-28.03	42.74	14.71	29.58	
	20325	1747.5	-28.23	42.21	13.98	25.00	

LTE Band 4							
Channel Bandwidth: 15MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20025	1717.5	-23.72	42.49	18.77	75.25	H
	20175	1732.5	-22.65	42.33	19.68	92.83	
	20325	1747.5	-23.23	42.10	18.87	77.09	
	20025	1717.5	-29.61	42.99	13.38	21.78	V
	20175	1732.5	-29.21	42.74	13.53	22.54	
	20325	1747.5	-29.24	42.21	12.97	19.82	

LTE Band 4							
Channel Bandwidth: 20MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20050	1720.0	-22.29	42.49	20.20	104.59	H
	20175	1732.5	-22.06	42.33	20.27	106.34	
	20300	1745.0	-22.56	42.10	19.54	89.95	
	20050	1720.0	-28.93	42.99	14.06	25.47	V
	20175	1732.5	-28.06	42.74	14.68	29.38	
	20300	1745.0	-28.77	42.21	13.44	22.08	

LTE Band 4							
Channel Bandwidth: 20MHz / 16QAM							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
X	20050	1720.0	-23.09	42.49	19.40	87.00	H
	20175	1732.5	-22.84	42.33	19.49	88.86	
	20300	1745.0	-23.00	42.10	19.10	81.28	
	20050	1720.0	-29.85	42.99	13.14	20.61	V
	20175	1732.5	-29.15	42.74	13.59	22.86	
	20300	1745.0	-29.44	42.21	12.77	18.92	

4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

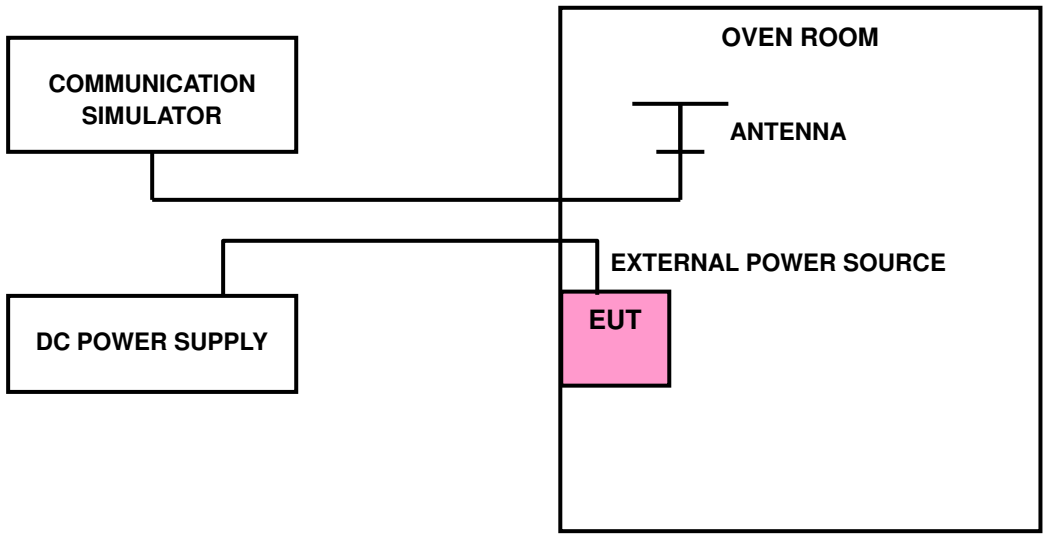
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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 ±0.5℃ 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

FREQUENCY ERROR vs. VOLTAGE

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)							LIMIT (ppm)
	LTE BAND 13	LTE BAND 4						
	10MHz	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	
3.8	0.0027	0.0027	-0.0031	0.0040	-0.0010	0.0013	0.0017	2.5
3.6	-0.0056	0.0051	0.0027	-0.0022	0.0008	0.0008	0.0004	2.5
4.35	-0.0095	0.0026	-0.0032	-0.0023	0.0015	-0.0006	-0.0008	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.35Vdc.

FREQUENCY ERROR vs. TEMPERATURE

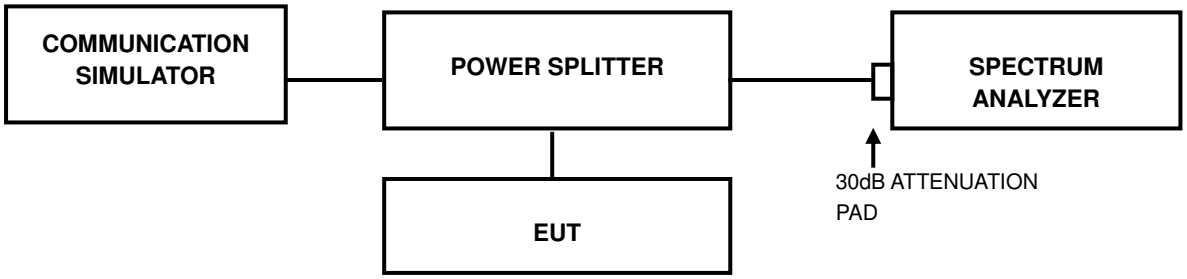
TEMP. (℃)	FREQUENCY ERROR (ppm)							LIMIT (ppm)
	LTE BAND 13	LTE BAND 4						
	10MHz	1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz	
-30	-0.0165	-0.0028	-0.0013	-0.0030	-0.0005	0.0014	0.0045	2.5
-20	-0.0175	-0.0021	-0.0041	-0.0026	0.0017	0.0033	0.0019	2.5
-10	0.0040	-0.0028	-0.0008	-0.0015	0.0013	0.0027	0.0010	2.5
0	-0.0074	-0.0070	0.0006	0.0012	0.0014	0.0018	0.0024	2.5
10	-0.0063	-0.0024	0.0025	0.0036	0.0021	0.0006	0.0024	2.5
20	-0.0049	0.0027	-0.0026	0.0043	-0.0011	0.0002	0.0012	2.5
30	-0.0050	-0.0057	0.0013	-0.0010	0.0017	-0.0013	-0.0002	2.5
40	-0.0022	-0.0020	0.0007	0.0011	0.0005	0.0015	-0.0012	2.5
50	-0.0060	0.0037	-0.0039	-0.0027	0.0010	0.0012	0.0010	2.5
60	-0.0050	-0.0023	-0.0025	-0.0033	-0.0028	-0.0018	0.0007	2.5

4.3 OCCUPIED BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.3.2 TEST SETUP

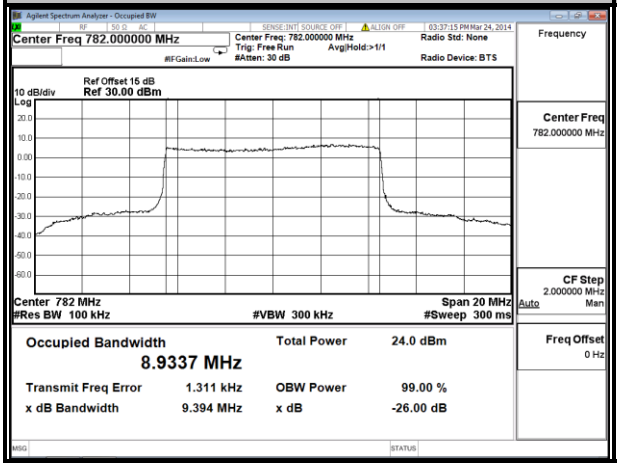
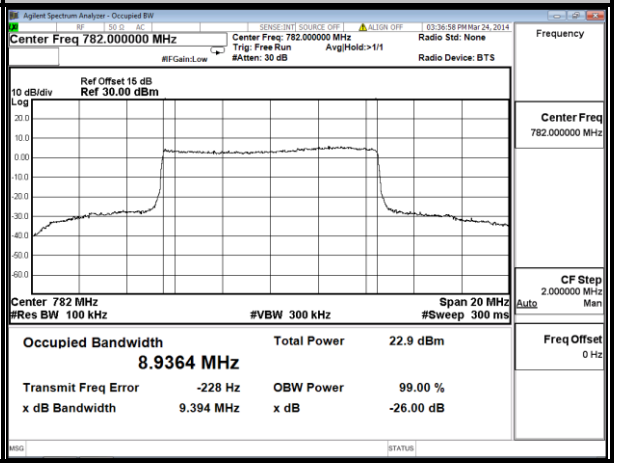


4.3.3 TEST PROCEDURES

a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.4 TEST RESULTS

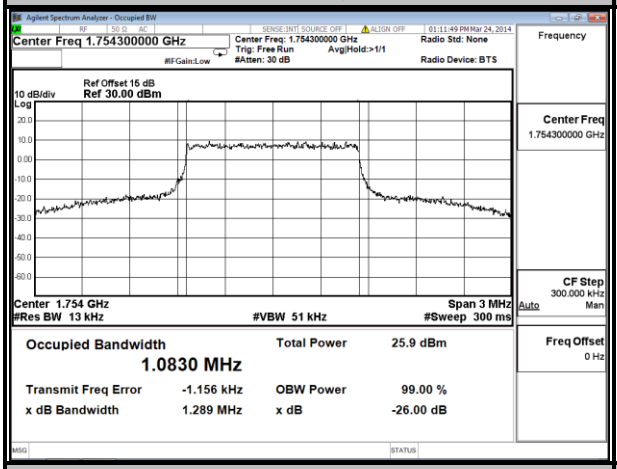
LTE BAND 13			
CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM
23230	782.0	8.9337	8.9364

SPECTRUM PLOT OF WORST VALUE	
10MHz / QPSK	10MHz / 16QAM
	

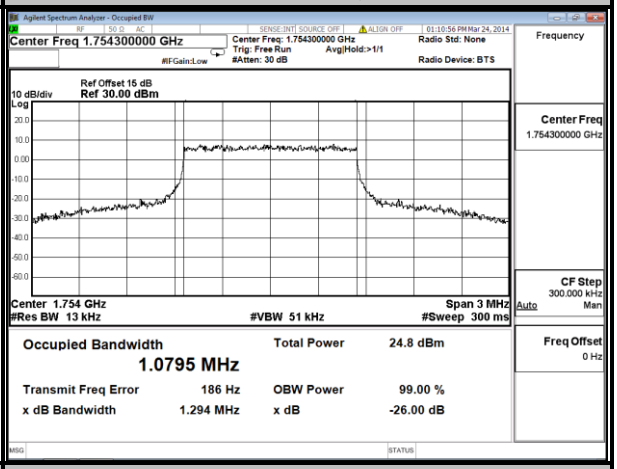
LTE BAND 4							
CHANNEL BANDWIDTH: 1.4MHz				CHANNEL BANDWIDTH: 3MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	1.0773	1.0773	19965	1711.5	2.6849	2.6819
20175	1732.5	1.0796	1.0767	20175	1732.5	2.6841	2.6819
20393	1754.3	1.0830	1.0795	20385	1753.5	2.6879	2.6832

SPECTRUM PLOT OF WORST VALUE

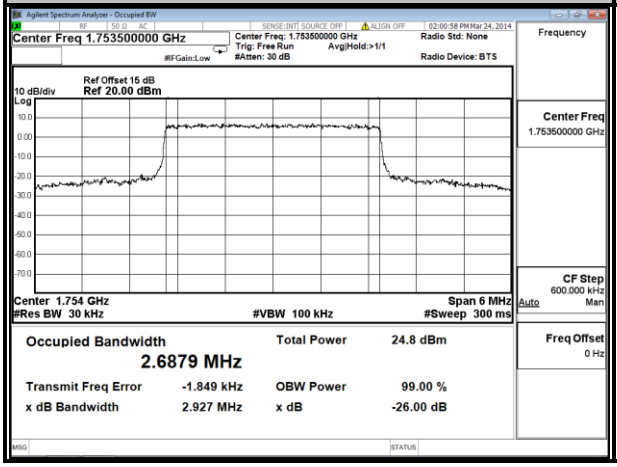
1.4MHz / QPSK



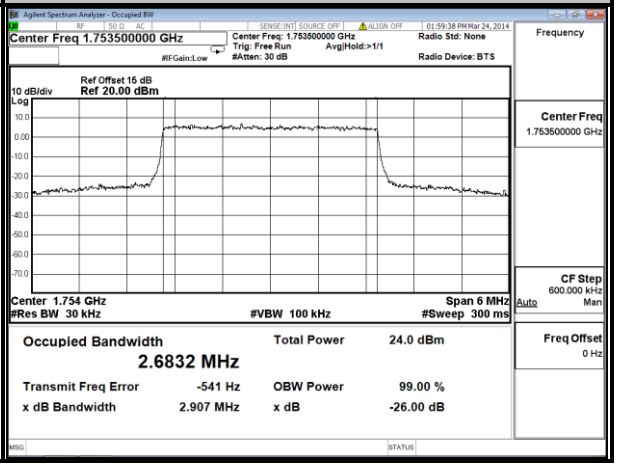
1.4MHz / 16QAM



3MHz / QPSK



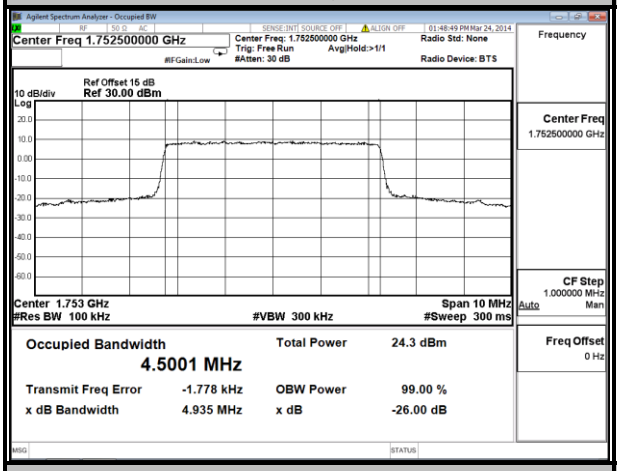
3MHz / 16QAM



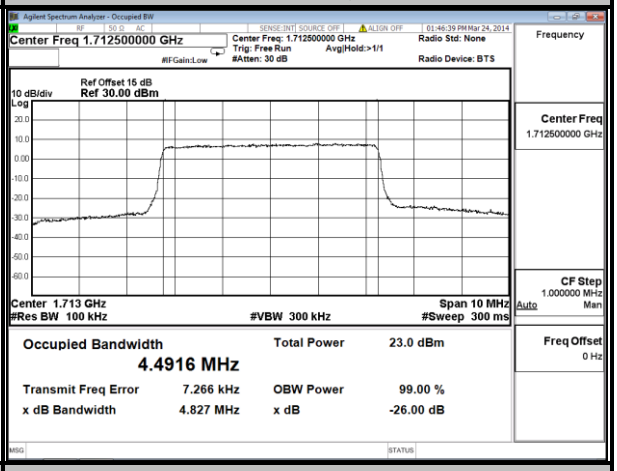
LTE BAND 4							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	4.4978	4.4916	20000	1715.0	8.9140	8.9145
20175	1732.5	4.4952	4.4910	20175	1732.5	8.9234	8.9252
20375	1752.5	4.5001	4.4887	20350	1750.0	8.9181	8.9082

SPECTRUM PLOT OF WORST VALUE

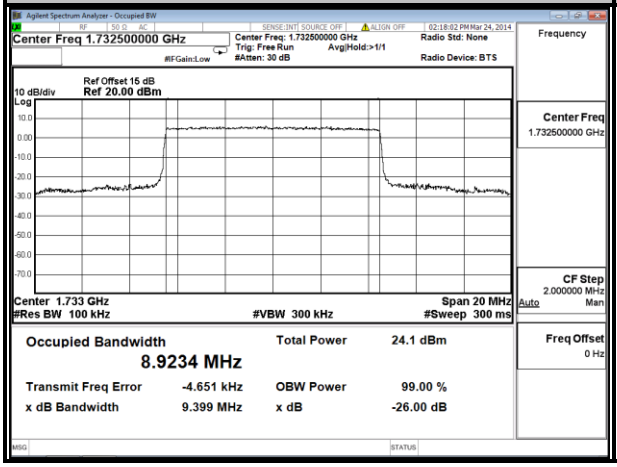
5MHz / QPSK



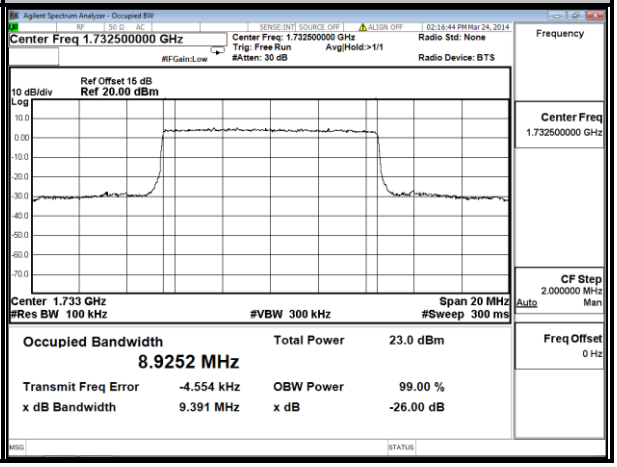
5MHz / 16QAM



10MHz / QPSK



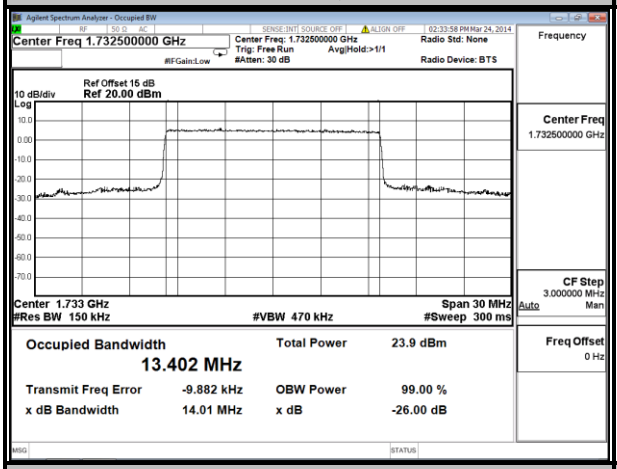
10MHz / 16QAM



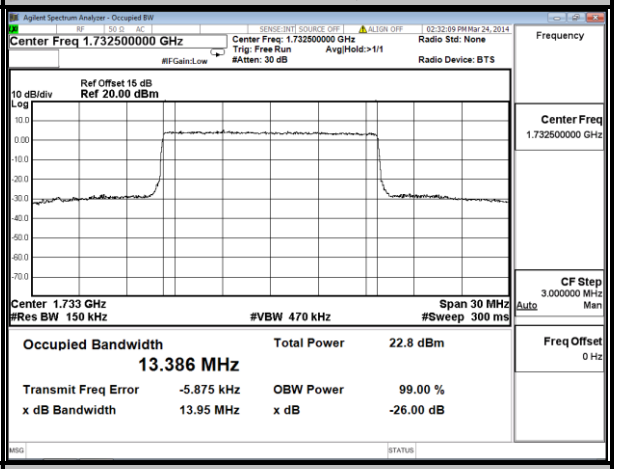
LTE BAND 4							
CHANNEL BANDWIDTH: 15MHz				CHANNEL BANDWIDTH: 20MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	13.353	13.339	20050	1720.0	17.746	17.744
20175	1732.5	13.402	13.386	20175	1732.5	17.848	17.844
20325	1747.5	13.354	13.353	20300	1745.0	17.794	17.797

SPECTRUM PLOT OF WORST VALUE

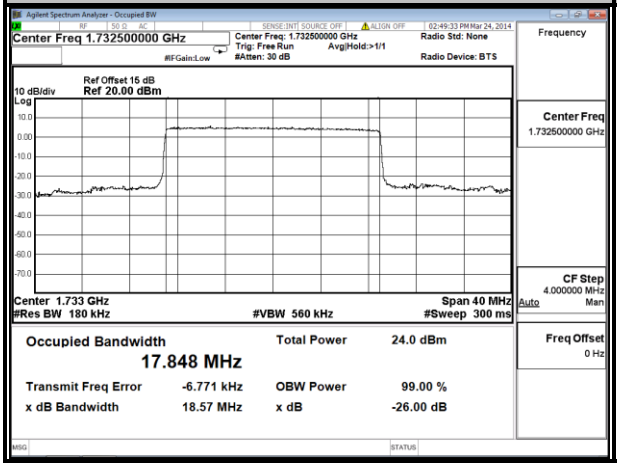
15MHz / QPSK



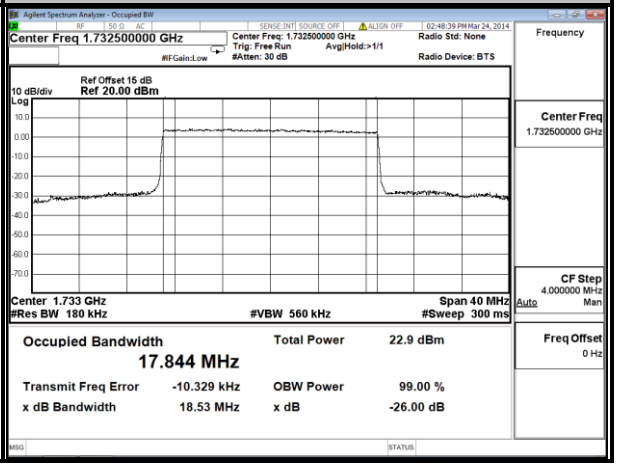
15MHz / 16QAM



20MHz / QPSK



20MHz / 16QAM

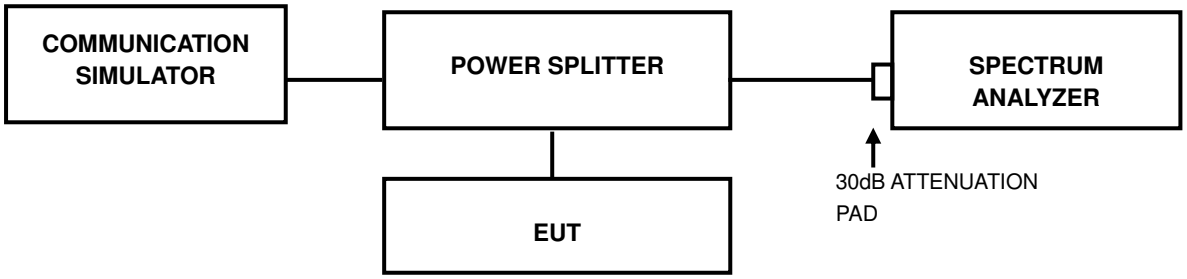


4.4 PEAK TO AVERAGE RATIO

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

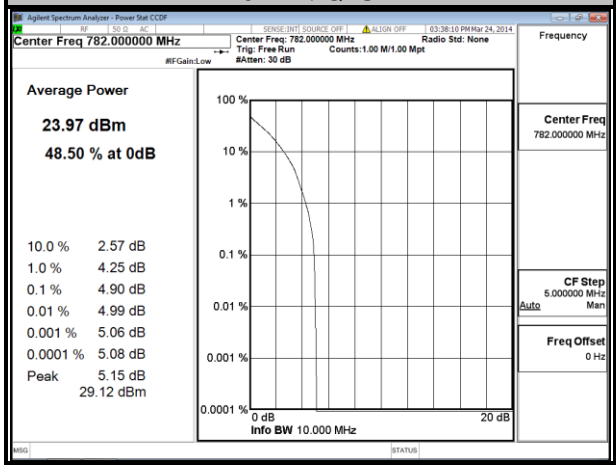
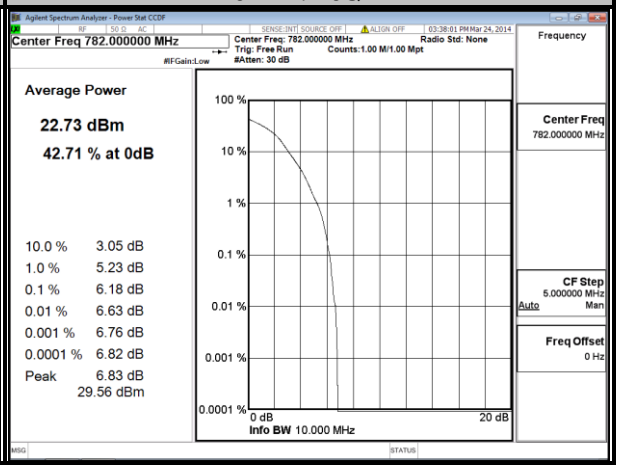


4.4.3 TEST PROCEDURES

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

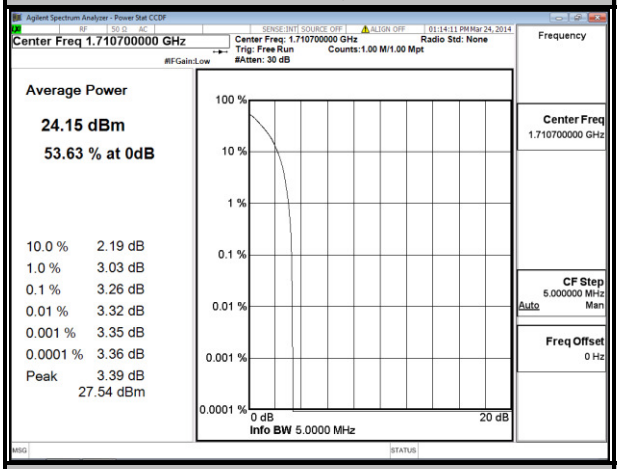
LTE BAND 13			
CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM
23230	782.0	4.90	6.18

SPECTRUM PLOT OF WORST VALUE	
10MHz / QPSK	10MHz / 16QAM
	

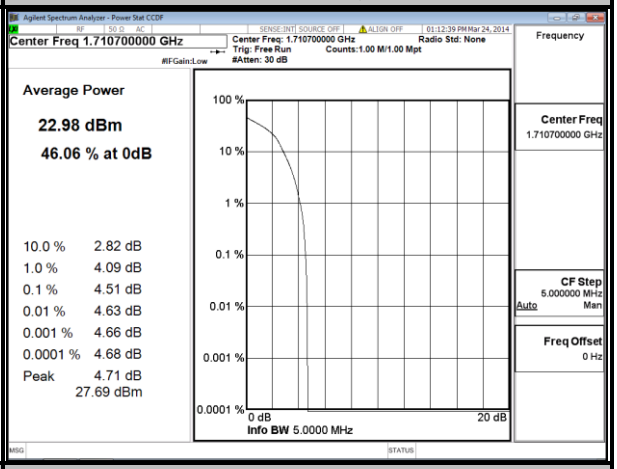
LTE BAND 4							
CHANNEL BANDWIDTH: 1.4MHz				CHANNEL BANDWIDTH: 3MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
19957	1710.7	3.26	4.51	19965	1711.5	3.50	4.77
20175	1732.5	3.22	4.51	20175	1732.5	3.50	4.80
20393	1754.3	1.82	3.02	20385	1753.5	2.46	3.59

SPECTRUM PLOT OF WORST VALUE

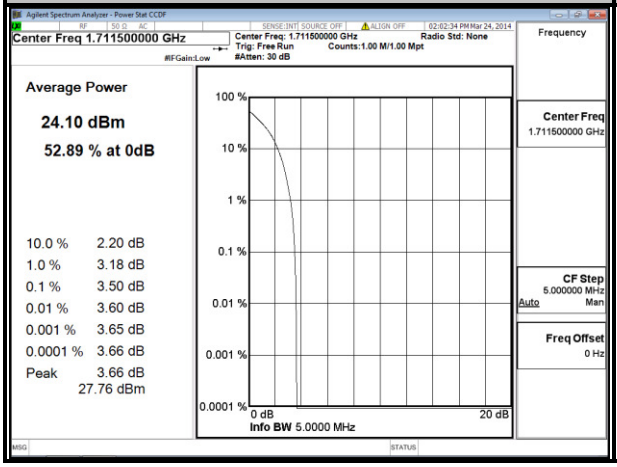
1.4MHz / QPSK



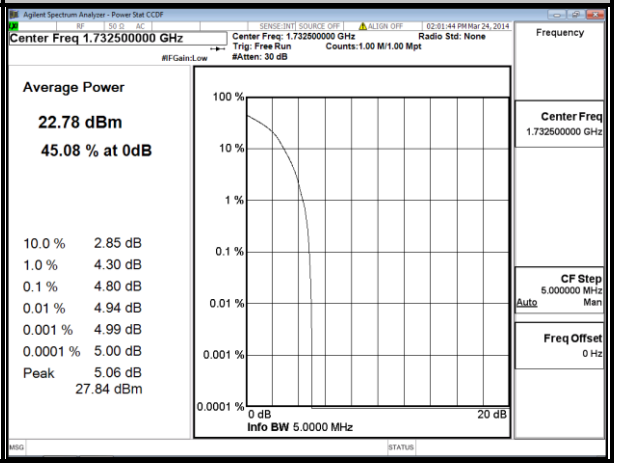
1.4MHz / 16QAM



3MHz / QPSK



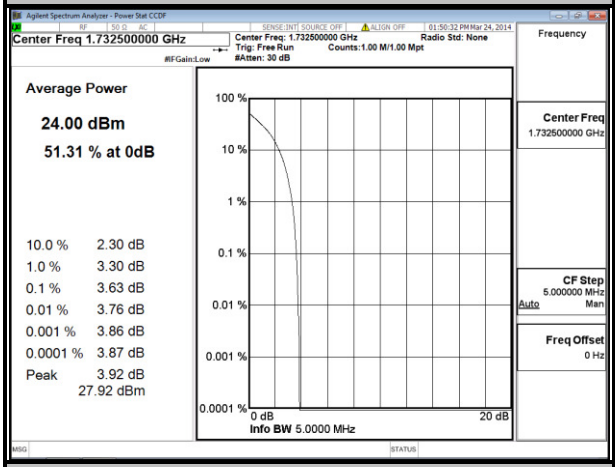
3MHz / 16QAM



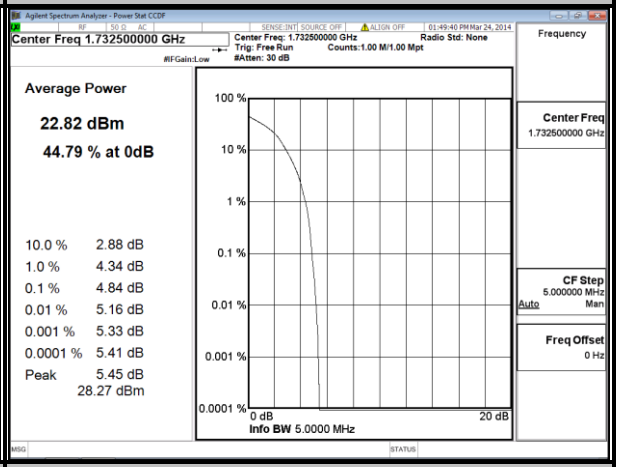
LTE BAND 4							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	3.55	4.82	20000	1715.0	3.55	4.79
20175	1732.5	3.63	4.84	20175	1732.5	3.64	4.83
20375	1752.5	2.60	3.85	20350	1750.0	3.73	5.02

SPECTRUM PLOT OF WORST VALUE

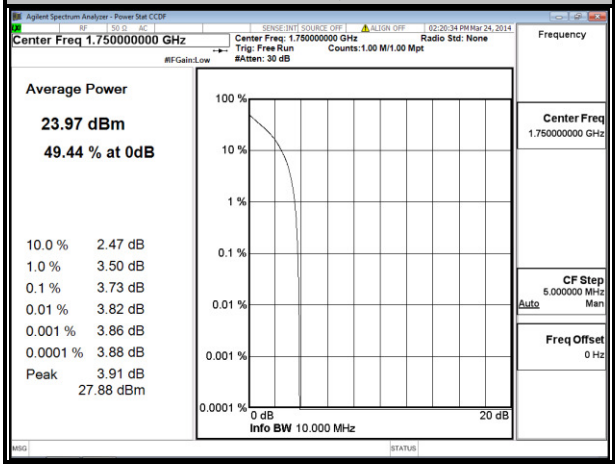
5MHz / QPSK



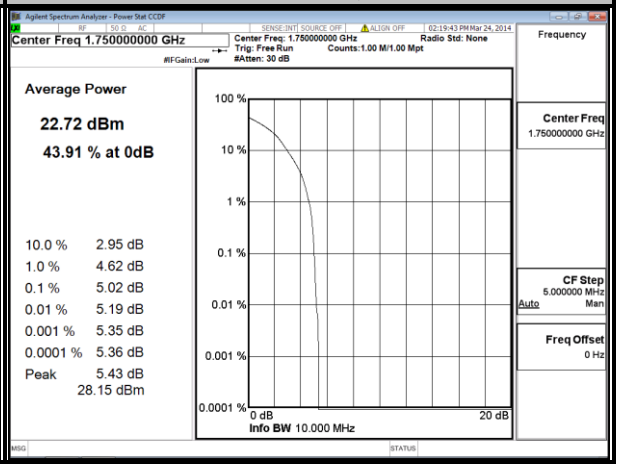
5MHz / 16QAM



10MHz / QPSK



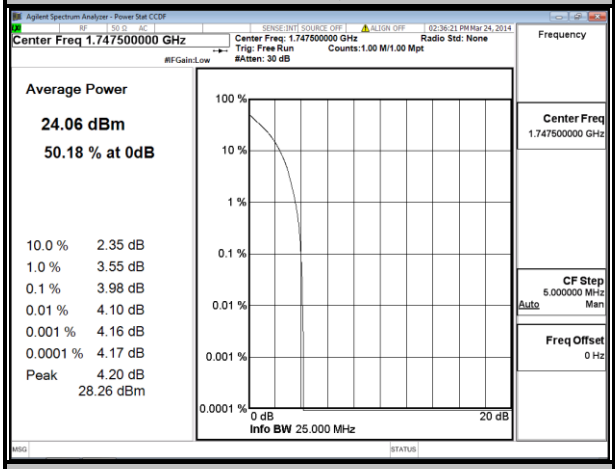
10MHz / 16QAM



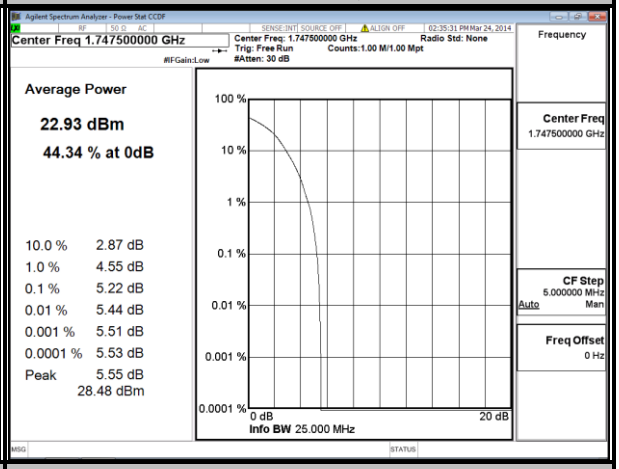
LTE BAND 4							
CHANNEL BANDWIDTH: 15MHz				CHANNEL BANDWIDTH: 20MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
20025	1717.5	3.62	4.84	20050	1720	3.65	4.82
20175	1732.5	3.70	4.80	20175	1732.5	3.66	4.84
20325	1747.5	3.98	5.22	20300	1745	3.68	4.81

SPECTRUM PLOT OF WORST VALUE

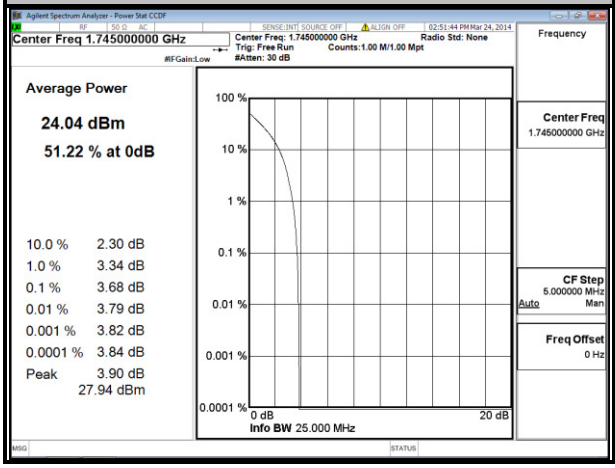
15MHz / QPSK



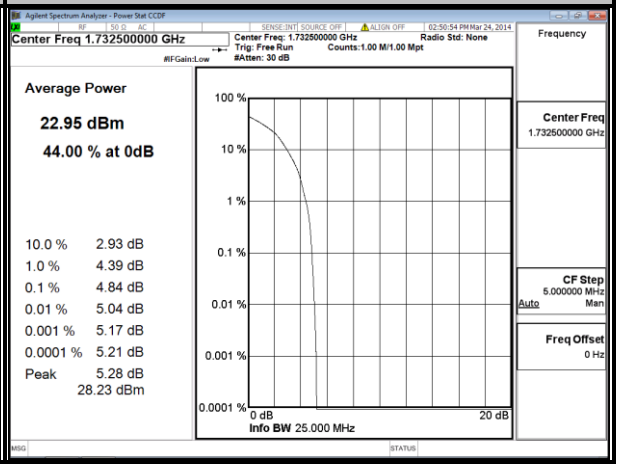
15MHz / 16QAM



20MHz / QPSK



20MHz / 16QAM



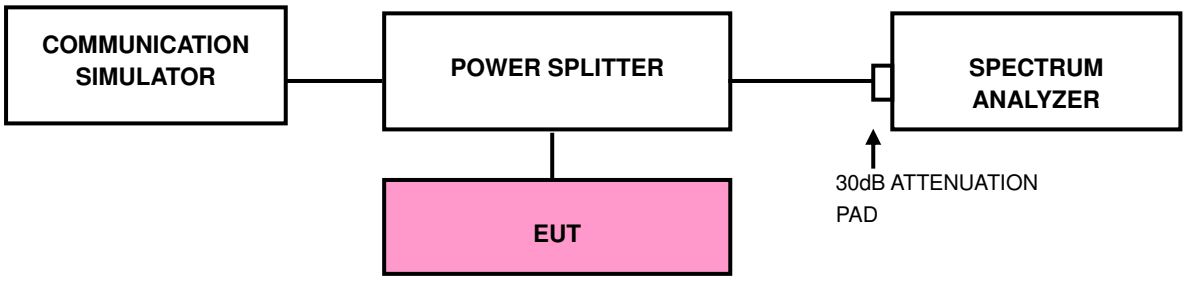
4.5 BAND EDGE MEASUREMENT

4.5.1 LIMITS OF BAND EDGE MEASUREMENT

For operations in the 777-787 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

For operations in the 1710–1755 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB.

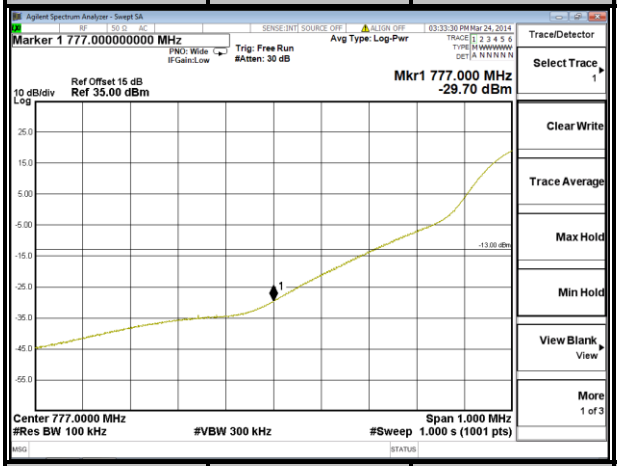
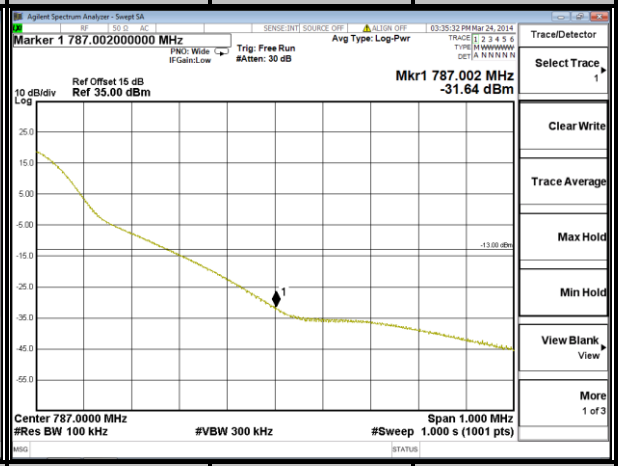
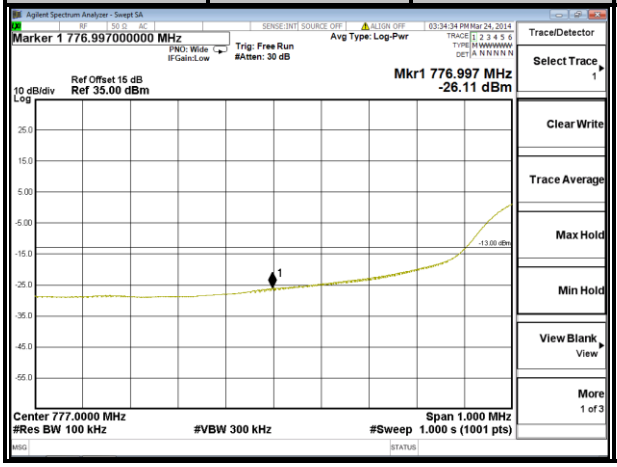
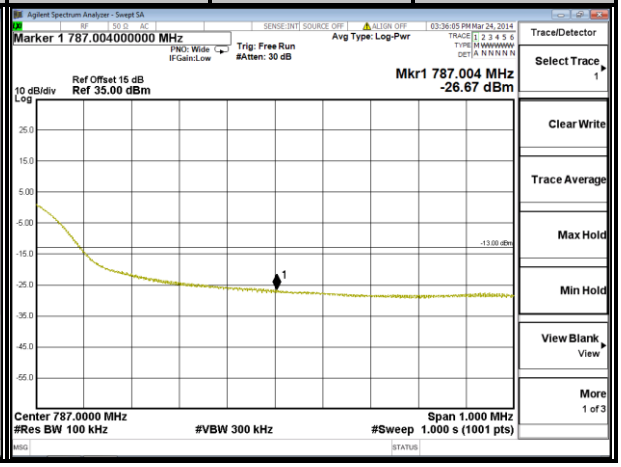
4.5.2 TEST SETUP

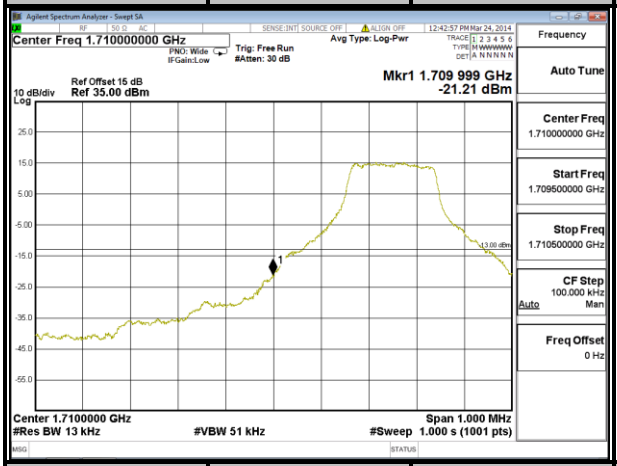
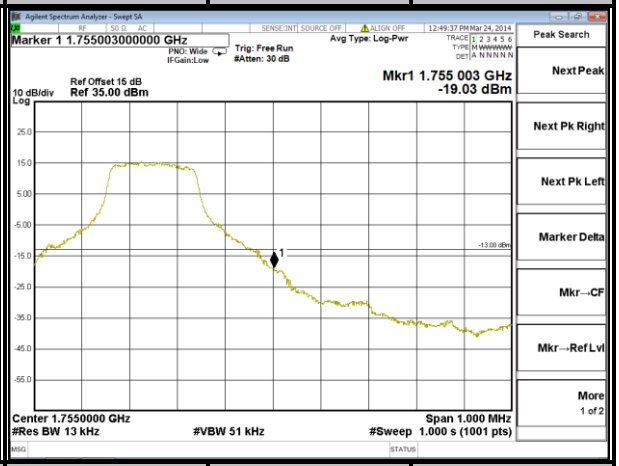
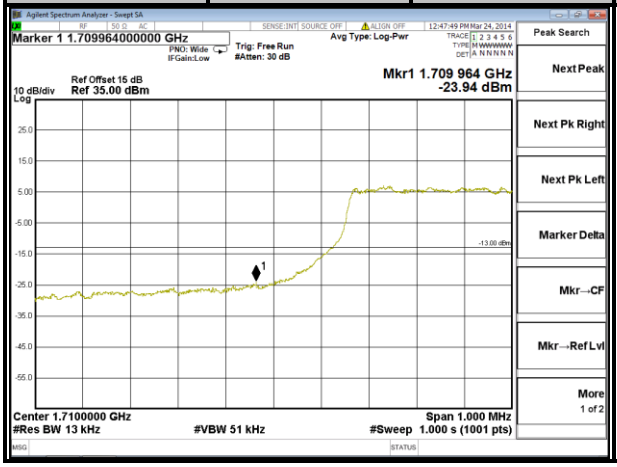
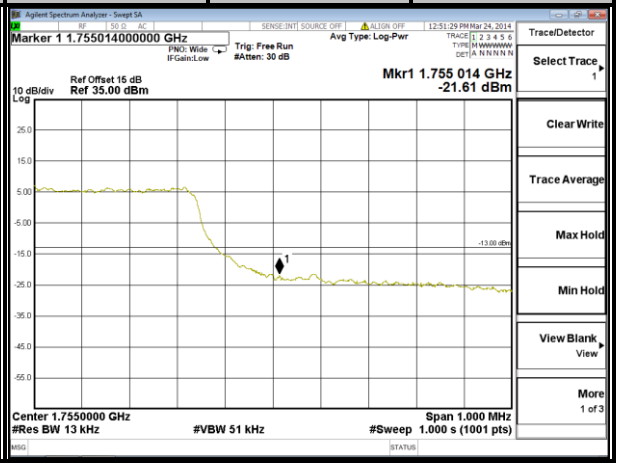


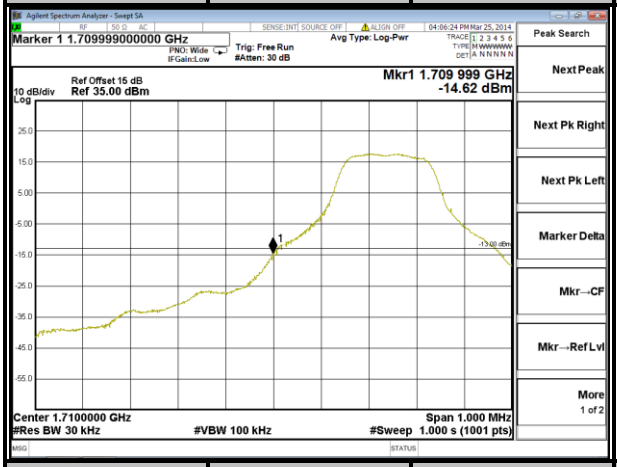
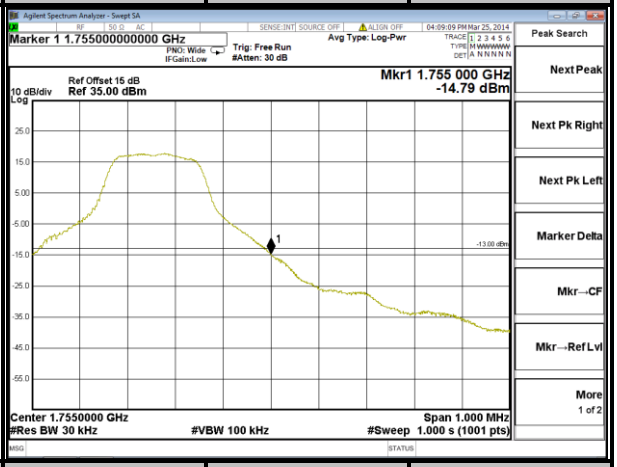
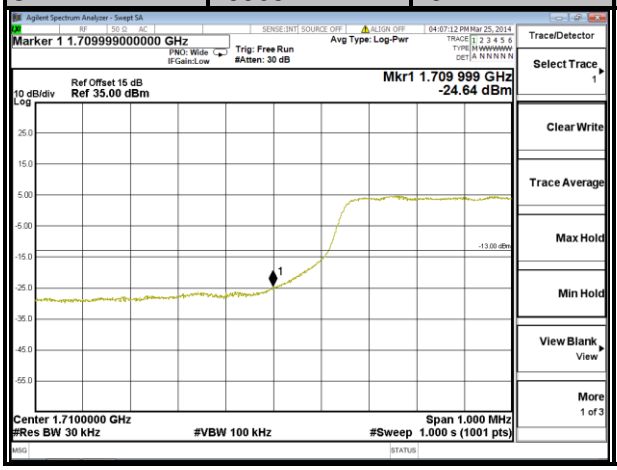
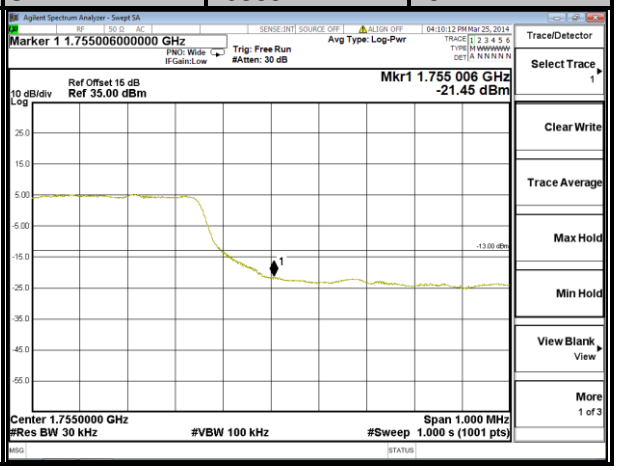
4.5.3 TEST PROCEDURES

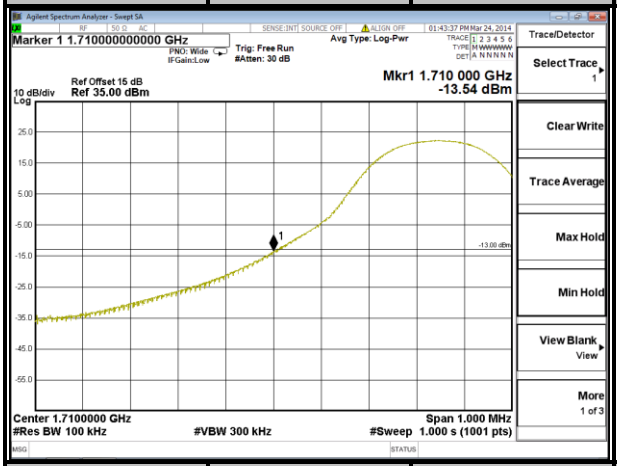
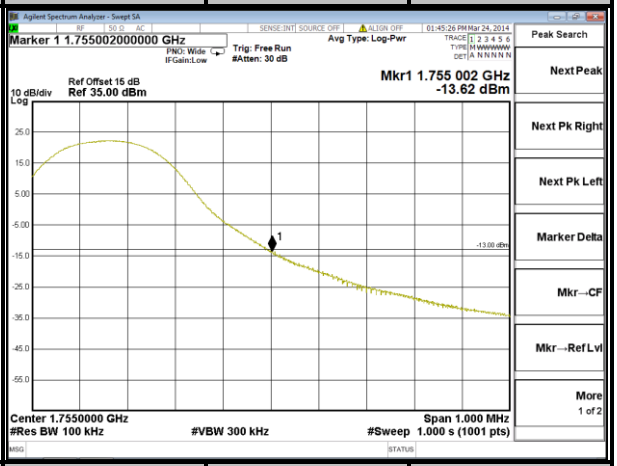
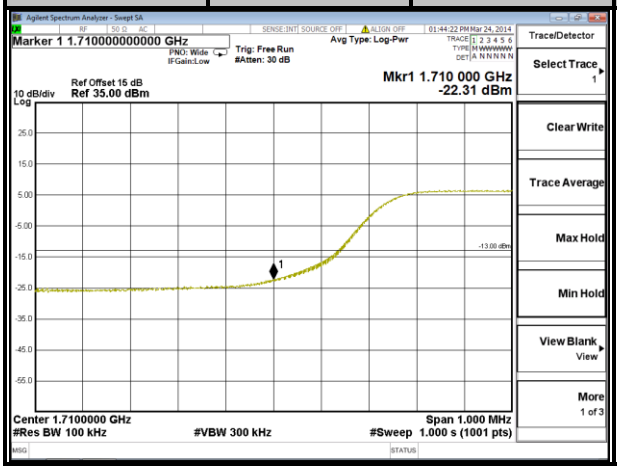
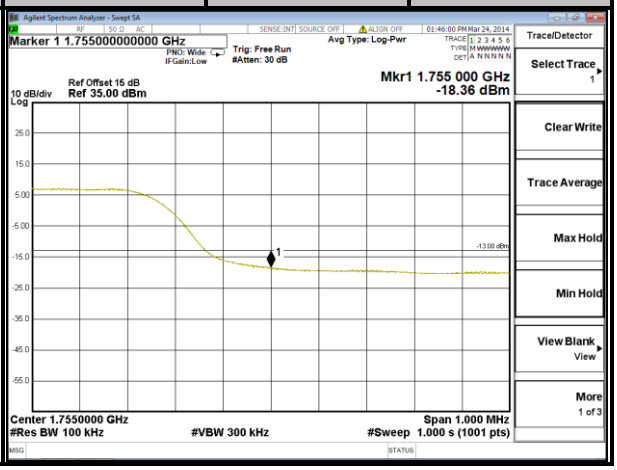
a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
c. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Band 13 Bandwidth 10MHz).
d. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 13kHz and VB of the spectrum is 51kHz (LTE Band 4 Bandwidth 1.4MHz).
e. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Band 4 Bandwidth 3MHz).
f. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Band 4 Bandwidth 5MHz / 10MHz).
g. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Band 4 Bandwidth 15MHz).
h. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 180kHz and VB of the spectrum is 560kHz (LTE Band 4 Bandwidth 20MHz).
i. Record the max trace plot into the test report.

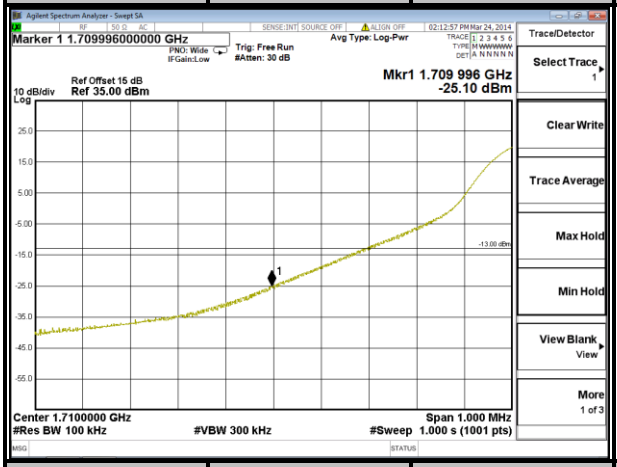
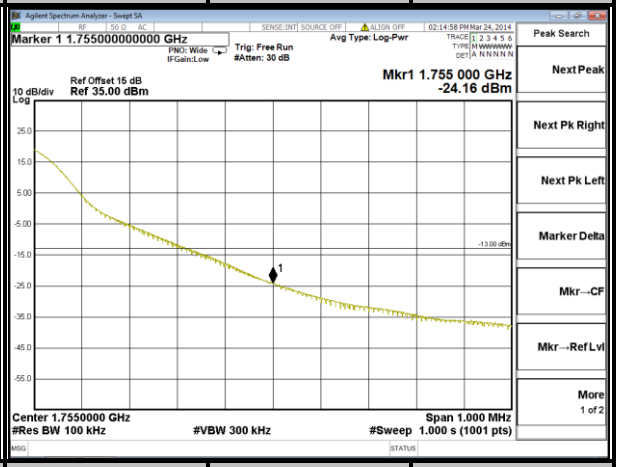
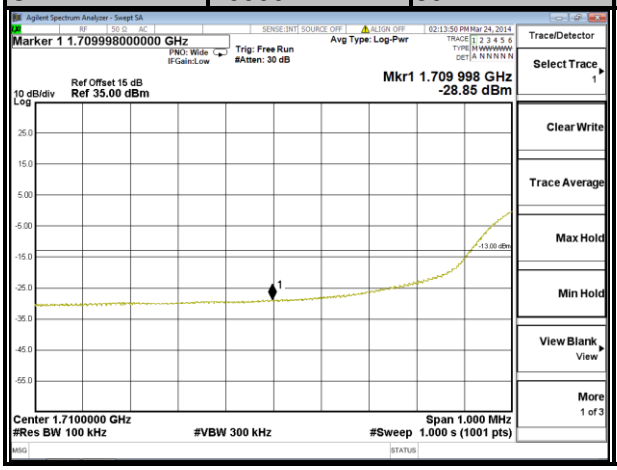
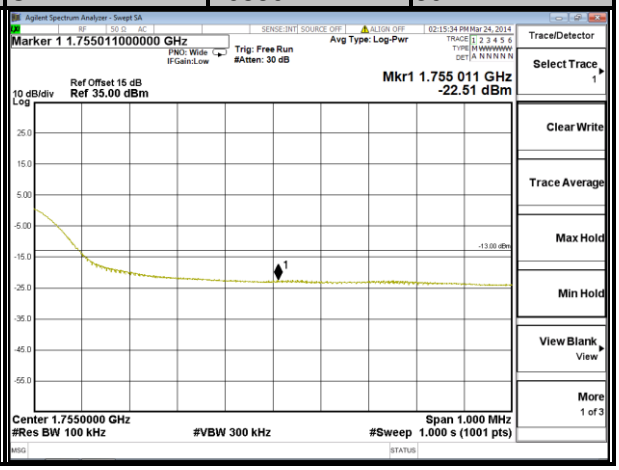
4.5.4 TEST RESULTS

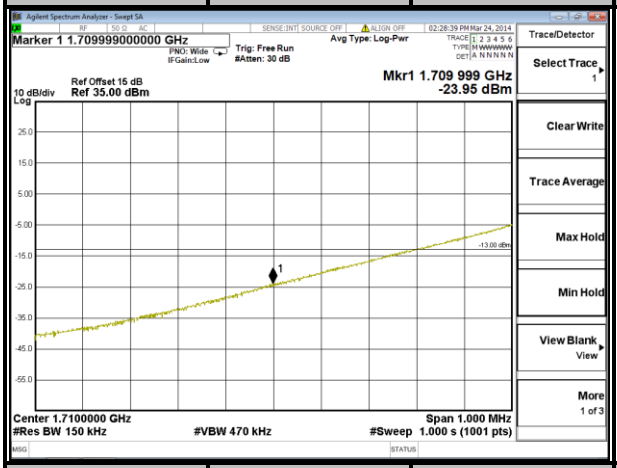
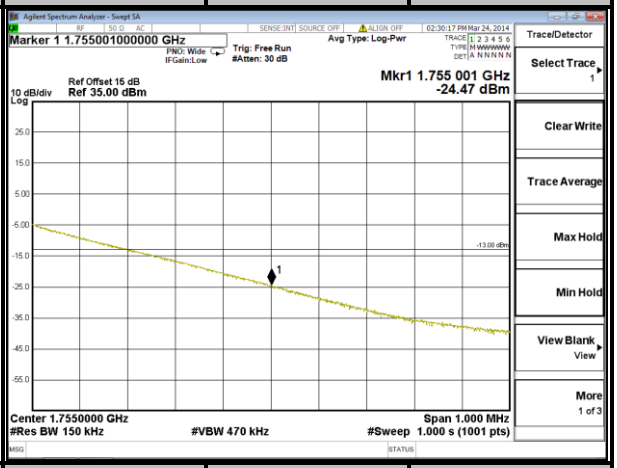
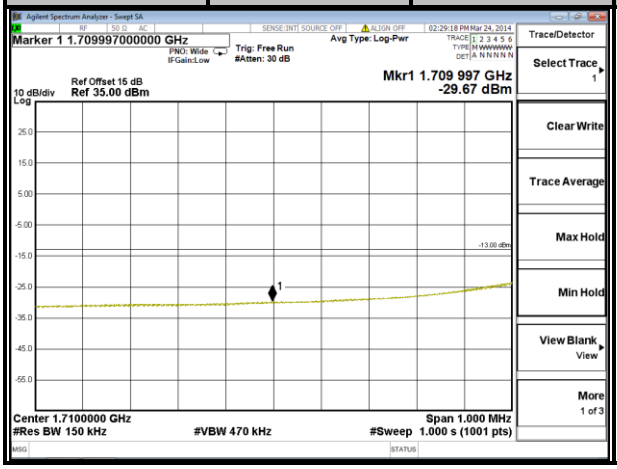
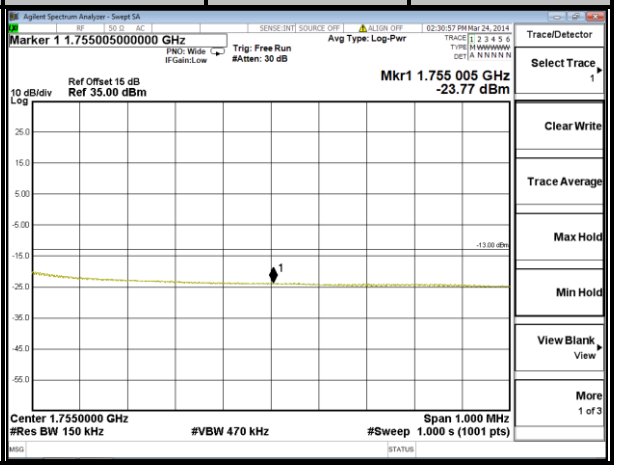
LTE BAND 13					
CHANNEL BANDWIDTH: 10MHz					
CHANNEL	23230	1 RB	CHANNEL	23230	1 RB
					
CHANNEL	23230	50 RB	CHANNEL	23230	50 RB
					

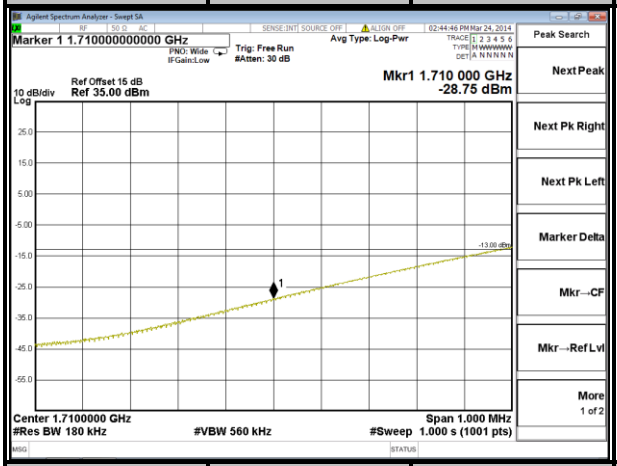
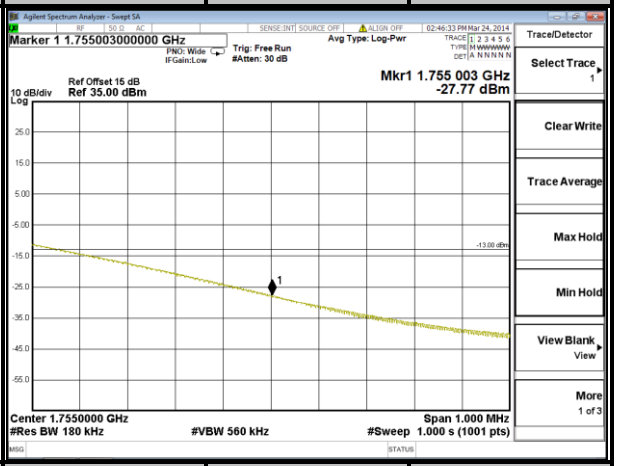
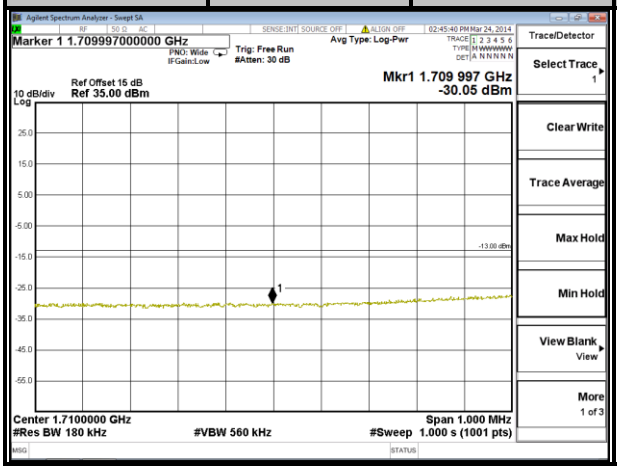
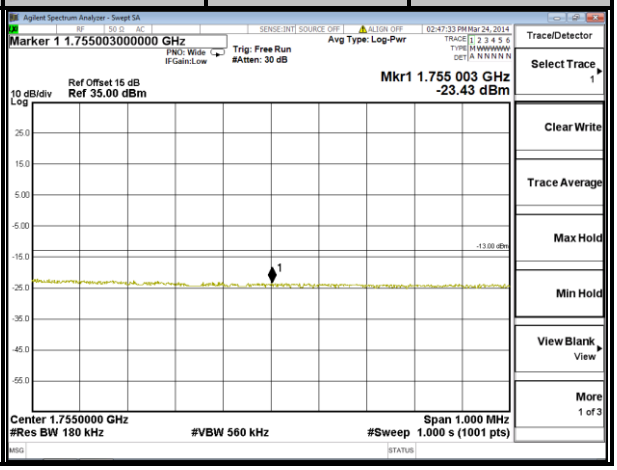
LTE BAND 4					
CHANNEL BANDWIDTH: 1.4MHz					
CHANNEL	19957	1 RB	CHANNEL	20393	1 RB
					
CHANNEL	19957	6 RB	CHANNEL	20393	6 RB
					

LTE BAND 4					
CHANNEL BANDWIDTH: 3MHz					
CHANNEL	19965	1 RB	CHANNEL	20385	1 RB
					
CHANNEL	19965	15 RB	CHANNEL	20385	15 RB
					

LTE BAND 4					
CHANNEL BANDWIDTH: 5MHz					
CHANNEL	19975	1 RB	CHANNEL	20375	1 RB
					
CHANNEL	19975	25 RB	CHANNEL	20375	25 RB
					

LTE BAND 4					
CHANNEL BANDWIDTH: 10MHz					
CHANNEL	20000	1 RB	CHANNEL	20350	1 RB
					
CHANNEL	20000	50 RB	CHANNEL	20350	50 RB
					

LTE BAND 4					
CHANNEL BANDWIDTH: 15MHz					
CHANNEL	20025	1 RB	CHANNEL	20325	1 RB
					
CHANNEL	20025	75 RB	CHANNEL	20325	75 RB
					

LTE BAND 4					
CHANNEL BANDWIDTH: 20MHz					
CHANNEL	20050	1 RB	CHANNEL	20300	1 RB
					
CHANNEL	20050	100 RB	CHANNEL	20300	100 RB
					

4.6 CONDUCTED SPURIOUS EMISSIONS

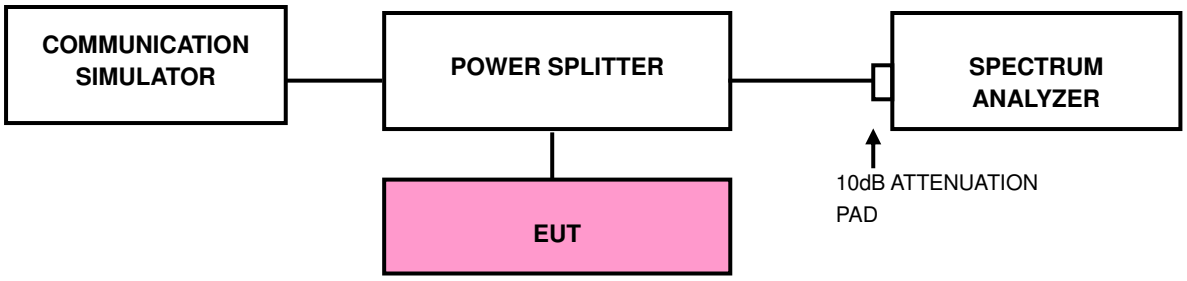
4.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log10(P) dB. The limit of emission is 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 30 MHz to 8GHz for LTE Band 13 and from 30MHz to 18GHz for LTE Band 4. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

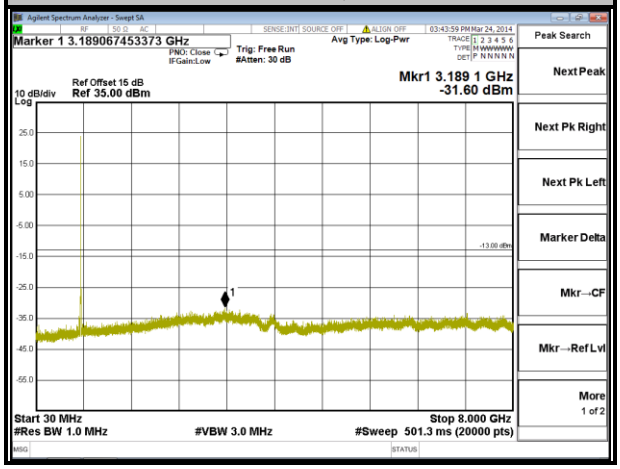
4.6.3 TEST SETUP

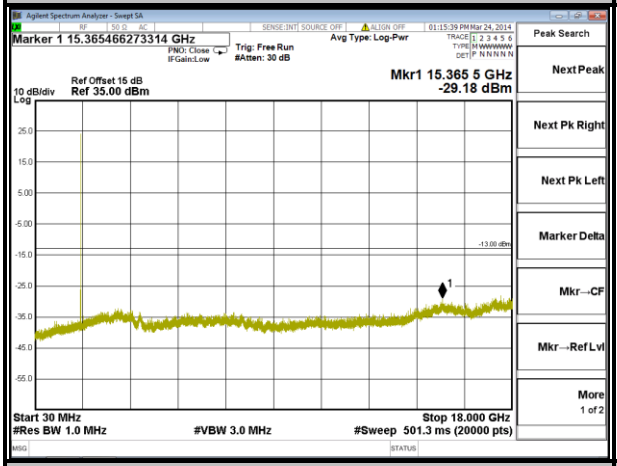
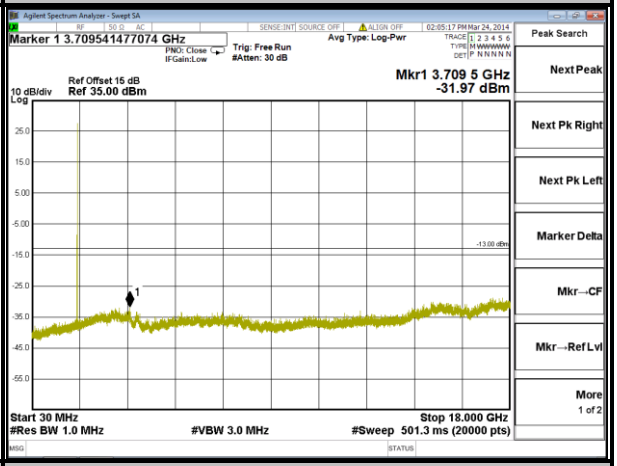
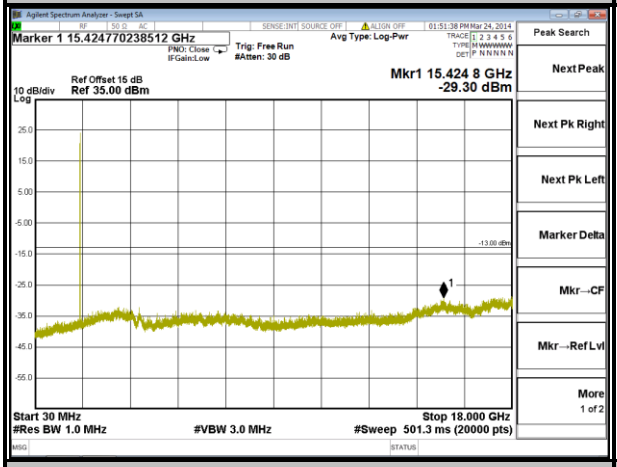
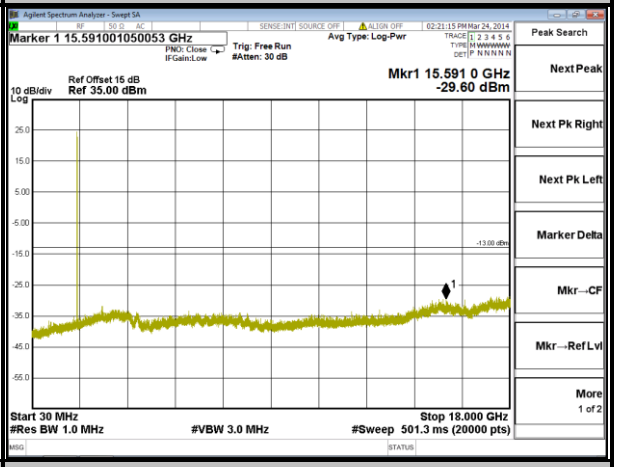
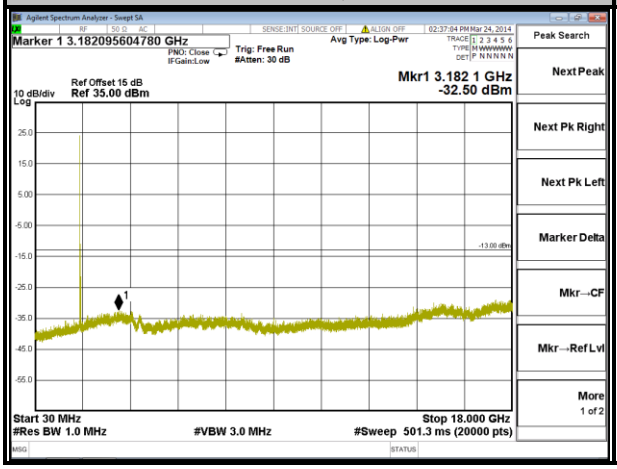
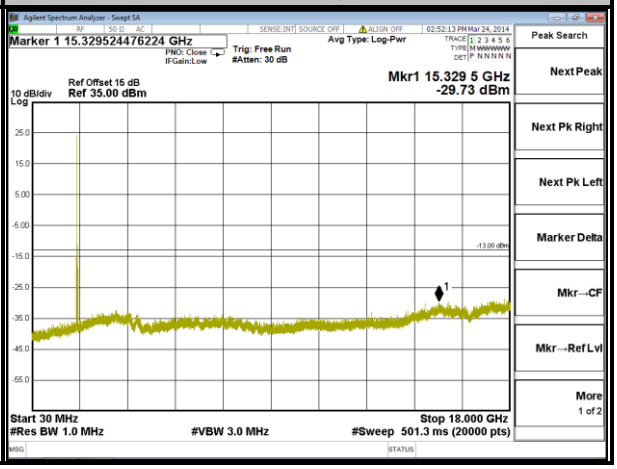


4.6.4 TEST RESULTS

FREQUENCY RANGE: 30MHz~8GHz

LTE BAND 13
CHANNEL 23230
10MHz / QPSK



LTE BAND 4	
CHANNEL 20175	
1.4MHz / QPSK	3MHz / QPSK
	
5MHz / QPSK	10MHz / QPSK
	
15MHz / QPSK	20MHz / QPSK
	

4.7 RADIATED EMISSION MEASUREMENT

4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log10(P) dB. The limit of emission equal to –13dBm

4.7.2 TEST PROCEDURES

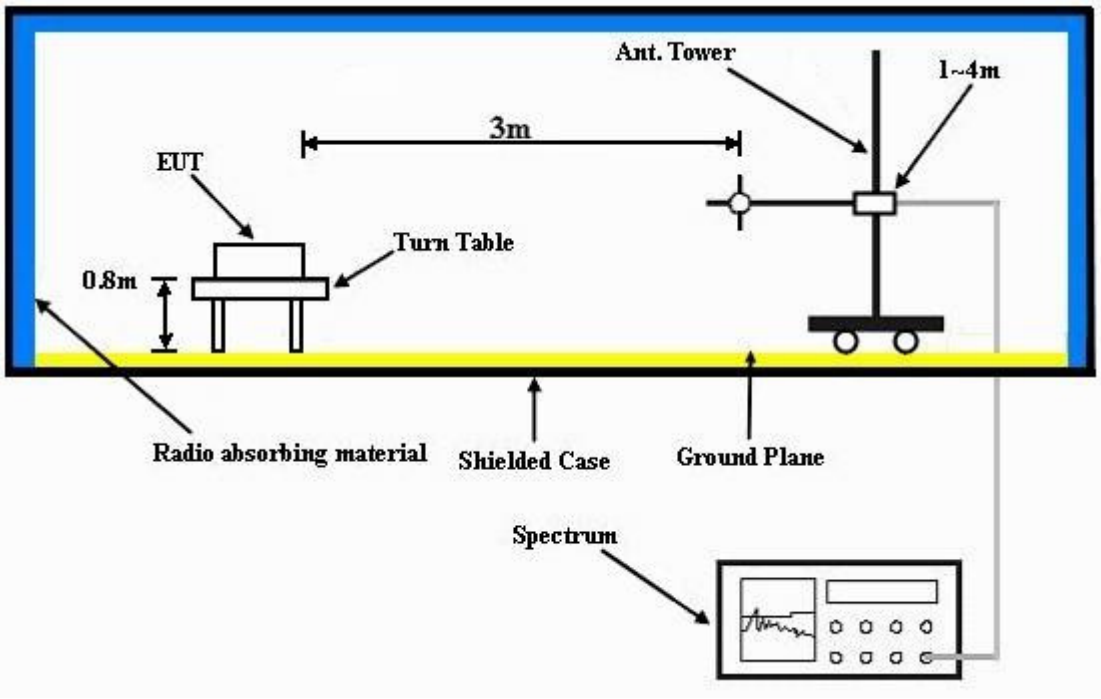
a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 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.P.R power - 2.15dBi.

NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.7.3 DEVIATION FROM TEST STANDARD

No deviation

4.7.4 TEST SETUP



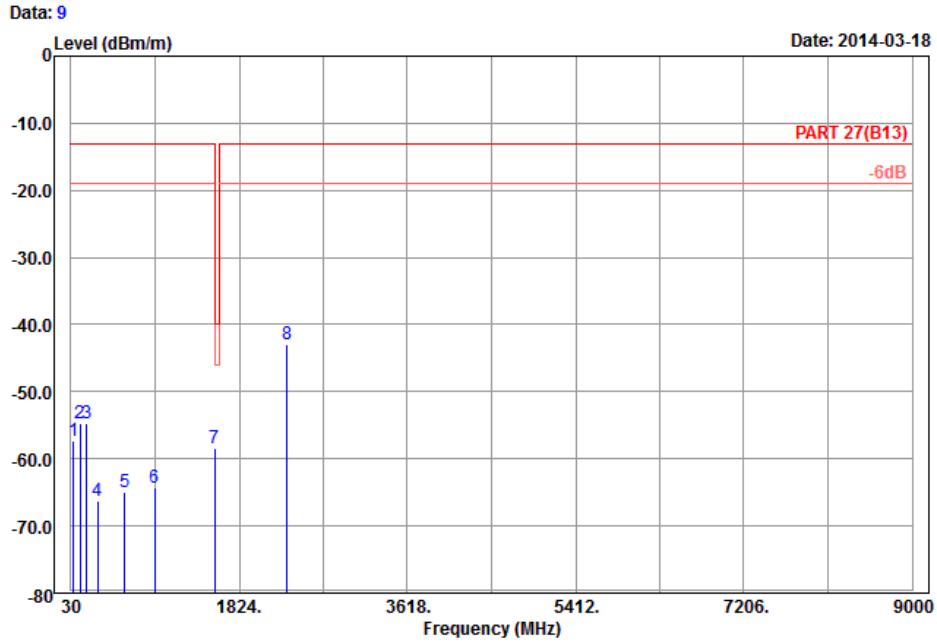
For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.7.5 TEST RESULTS

LTE BAND 13

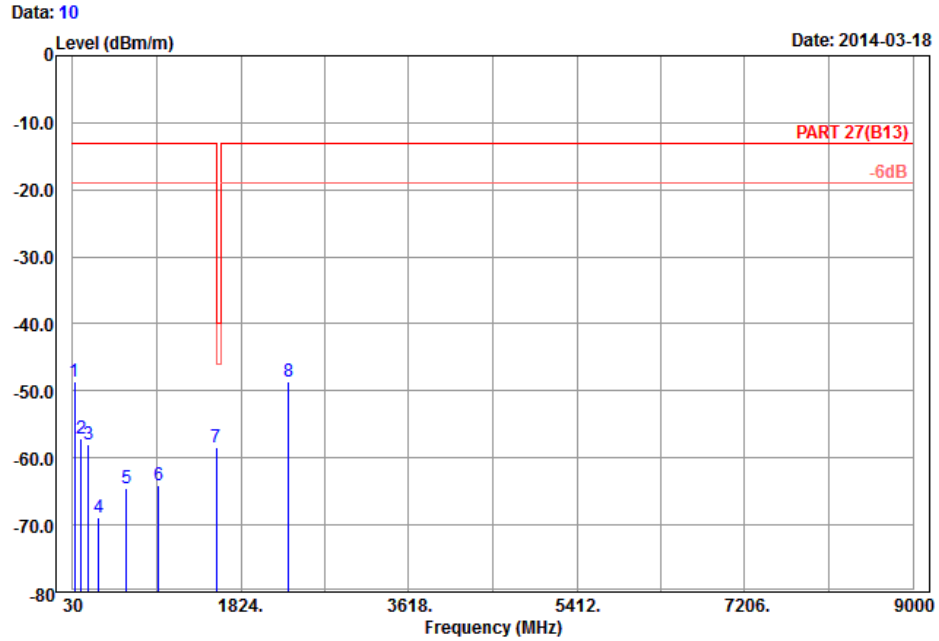
CHANNEL BANDWIDTH: 10MHz / QPSK

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



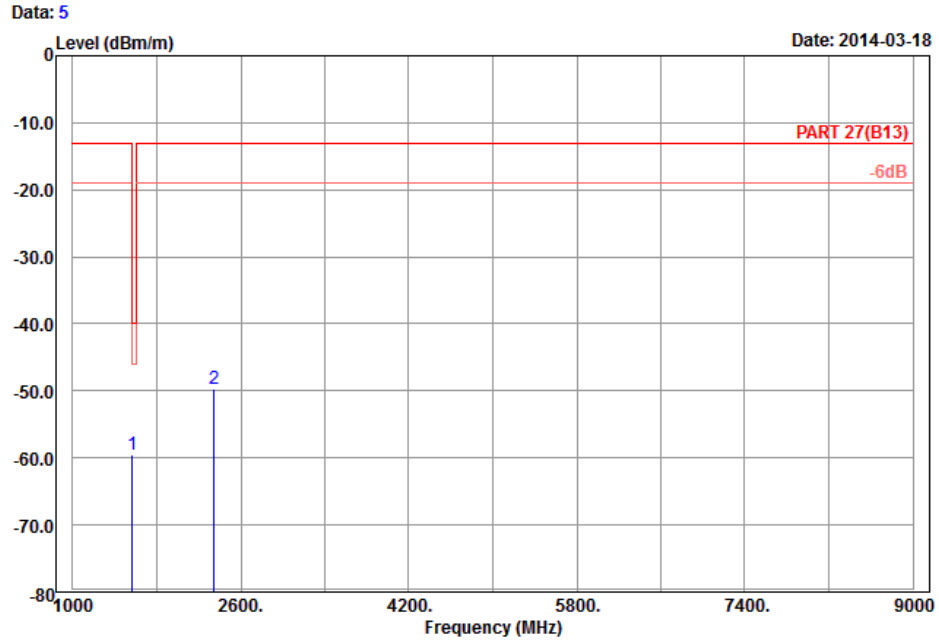
Site : 966 chamber 5
Condition : PART 27(B13) 3m Horizontal
Brand/Model: 0P8B100
Remark : LTE_Band 13_QPSK(1,0)_10M_CH23230
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	55.65	-57.35	-43.29	-13.00	-44.35	-14.06	Peak
2	130.44	-54.66	-47.01	-13.00	-41.66	-7.65	Peak
3	195.51	-54.70	-48.70	-13.00	-41.70	-6.00	Peak
4	316.80	-66.23	-60.47	-13.00	-53.23	-5.76	Peak
5	599.60	-65.02	-65.41	-13.00	-52.02	0.39	Peak
6	925.10	-64.35	-68.37	-13.00	-51.35	4.02	Peak
7 pp	1564.00	-58.44	-65.30	-40.00	-18.44	6.86	Peak
8	2332.80	-42.86	-53.82	-13.00	-29.86	10.96	Peak



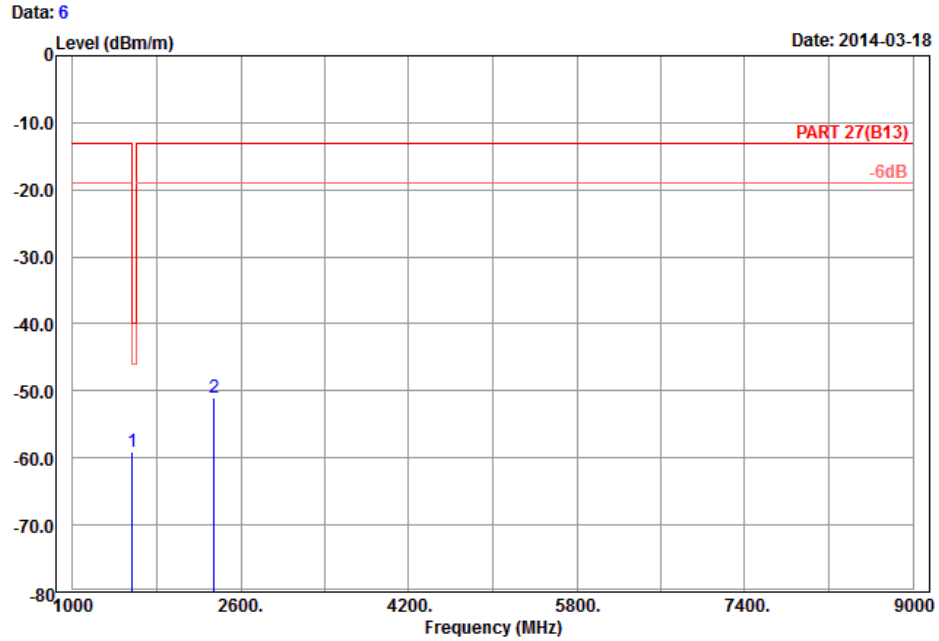
Site : 966 chamber 5
Condition : PART 27(B13) 3m Vertical
Brand/Model: 0P8B100
Remark : LTE_Band 13_QPSK(1,0)_10M_CH23230
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	47.28	-48.56	-35.45	-13.00	-35.56	-13.11	Peak
2	122.61	-57.05	-48.92	-13.00	-44.05	-8.13	Peak
3	197.94	-57.96	-51.87	-13.00	-44.96	-6.09	Peak
4	309.80	-68.93	-63.08	-13.00	-55.93	-5.85	Peak
5	599.60	-64.52	-64.91	-13.00	-51.52	0.39	Peak
6	945.40	-64.14	-69.07	-13.00	-51.14	4.93	Peak
7 pp	1564.00	-58.38	-65.24	-40.00	-18.38	6.86	Peak
8	2332.80	-48.63	-59.59	-13.00	-35.63	10.96	Peak




```
Site        : 966 chamber 5
Condition   : PART 27(B13) 3m Horizontal
Brand/Model: 0P8B100
Remark      : LTE_Band 13_QPSK(50,0)_10M_CH23230
Tested by   : Kay Wu
Plane       : Y
                          Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
          ______ _____ _____ _____ _____ _____ _________
             MHz dBm/m   dBm  dBm/m    dB   dB/m

  1 pp  1564.00 -59.52 -66.38 -40.00 -19.52   6.86 Peak
  2     2346.00 -49.74 -60.68 -13.00 -36.74  10.94 Peak
```



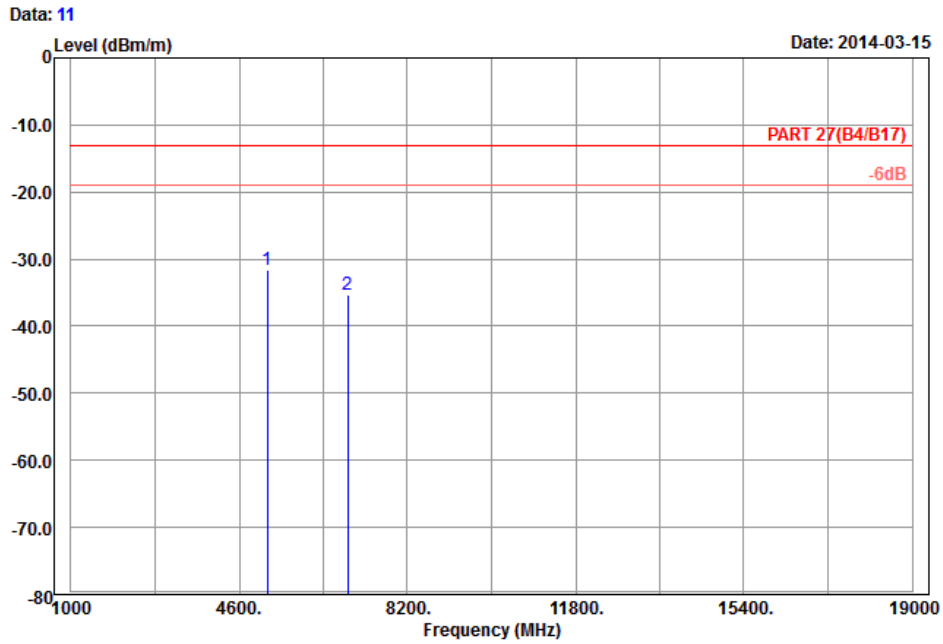
Site : 966 chamber 5
Condition : PART 27(B13) 3m Vertical
Brand/Model: 0P8B100
Remark : LTE_Band 13_QPSK(50,0)_10M_CH23230
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 pp	1564.00	-59.06	-65.92	-40.00	-19.06	6.86	Peak
2	2346.00	-51.01	-61.95	-13.00	-38.01	10.94	Peak

LTE BAND 4

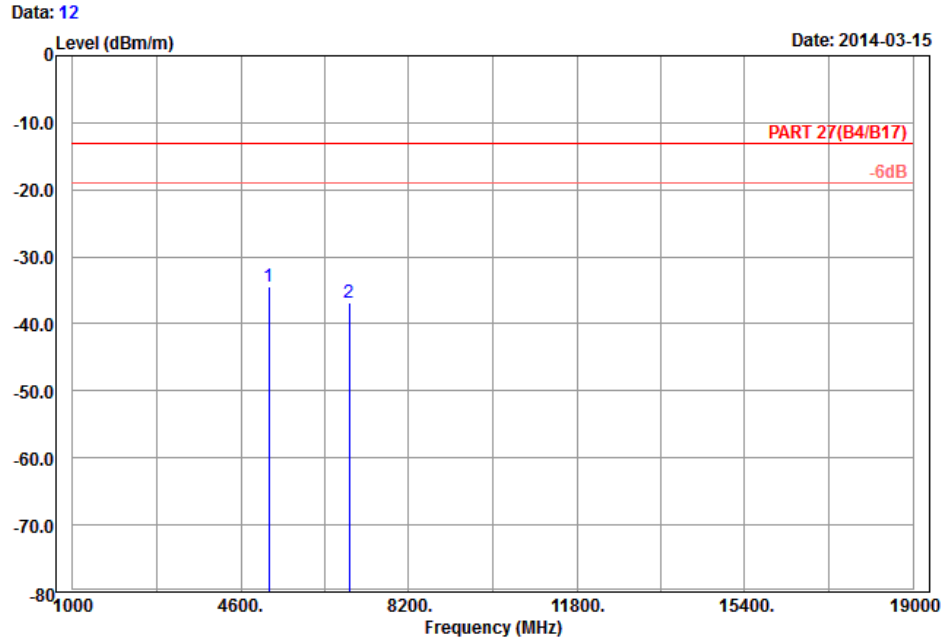
CHANNEL BANDWIDTH: 1.4MHz / QPSK

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site        : 966 chamber 5
Condition   : PART 27(B4/B17) 3m Horizontal
Brand/Model: 0P8B100
Remark      : LTE_Band 4_QPSK(1,0)_1.4M_CH20175
Tested by   : Kay Wu
Plane       : Y
                          Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
        ________ ______ ______ ______ ______ ______ _________
             MHz  dBm/m    dBm  dBm/m     dB   dB/m

  1 pp  5195.85 -31.51 -51.63 -13.00 -18.51  20.12 Peak
  2     6927.80 -35.42 -58.29 -13.00 -22.42  22.87 Peak
```



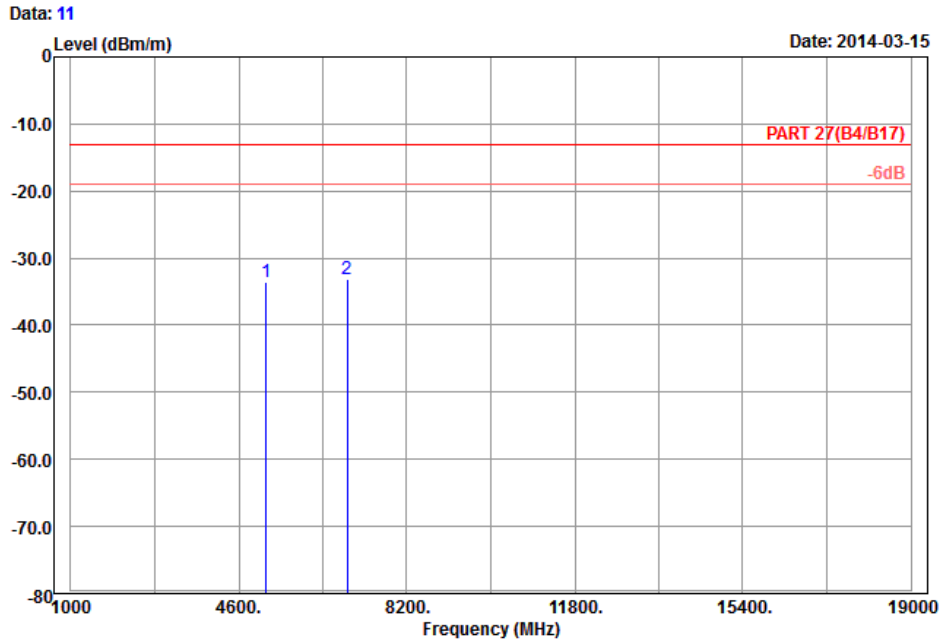
Site : 966 chamber 5
Condition : PART 27(B4/B17) 3m Vertical
Brand/Model: 0P8B100
Remark : LTE_Band 4_QPSK(1,0)_1.4M_CH20175
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 pp	5195.85	-34.49	-54.61	-13.00	-21.49	20.12	Peak
2	6927.80	-36.86	-59.73	-13.00	-23.86	22.87	Peak

LTE BAND 4

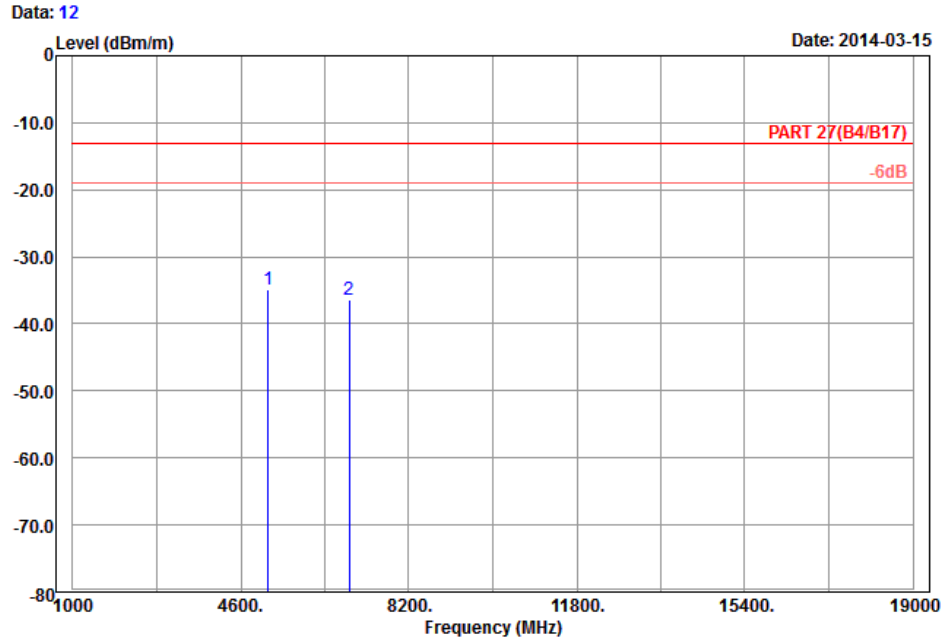
CHANNEL BANDWIDTH: 3MHz / QPSK

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site        : 966 chamber 5
Condition   : PART 27(B4/B17) 3m Horizontal
Brand/Model: 0P8B100
Remark      : LTE_Band 4_QPSK(1,0)_3M_CH20175
Tested by   : Kay Wu
Plane       : Y
                          Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
         ________ _____ _____ _____ _____ _____ _________
              MHz dBm/m   dBm dBm/m    dB   dB/m

  1     5194.20 -33.65 -53.77 -13.00 -20.65  20.12 Peak
  2 pp  6925.60 -33.24 -56.11 -13.00 -20.24  22.87 Peak
```



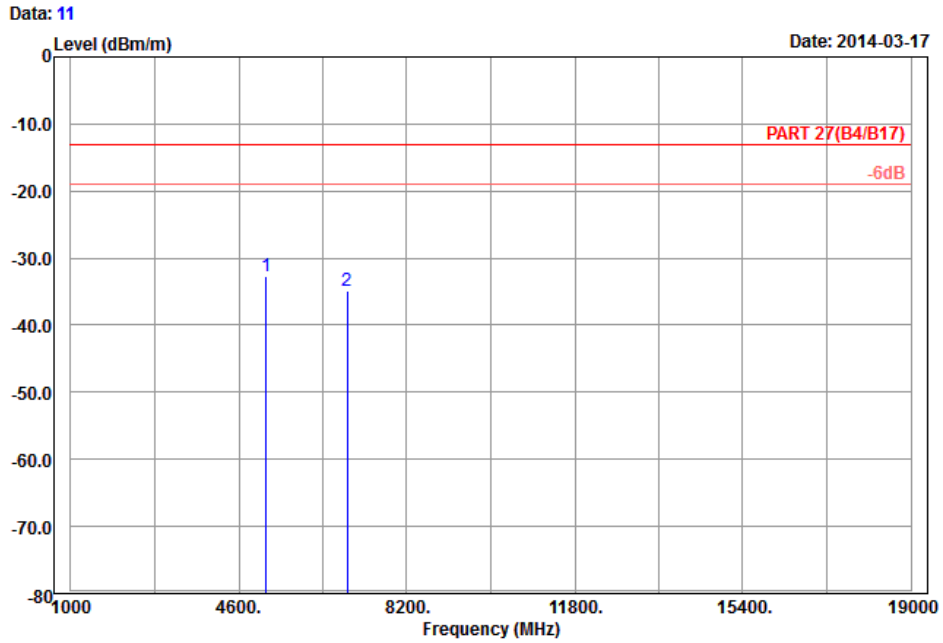

```
Site        : 966 chamber 5
Condition   : PART 27(B4/B17) 3m Vertical
Brand/Model: 0P8B100
Remark      : LTE_Band 4_QPSK(1,0)_3M_CH20175
Tested by   : Kay Wu
Plane       : Y
                        Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
         _______ _____ _____ _____ _____ _____ _______
             MHz dBm/m   dBm dBm/m    dB   dB/m

1 pp  5194.20 -34.78 -54.90 -13.00 -21.78  20.12 Peak
2     6925.60 -36.38 -59.25 -13.00 -23.38  22.87 Peak
```

LTE BAND 4

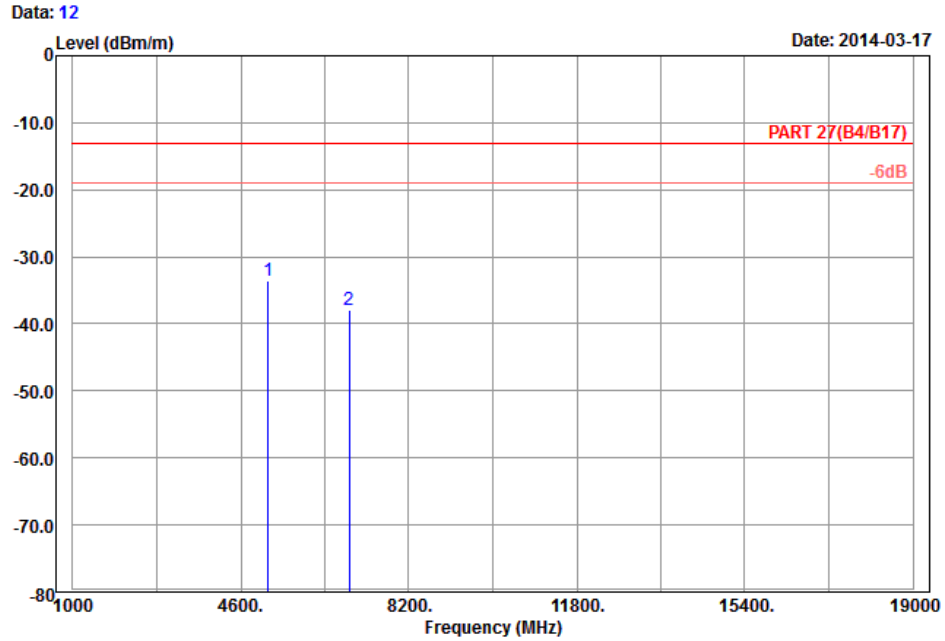
CHANNEL BANDWIDTH: 5MHz / QPSK

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site        : 966 chamber 5
Condition   : PART 27(B4/B17) 3m Horizontal
Brand/Model: 0P8B100
Remark      : LTE_Band 4_QPSK(1,0)_5M_CH20175
Tested by   : Kay Wu
Plane       : Y
                          Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
        ________ _____ _______ _____ _____ ______ ________
             MHz dBm/m    dBm dBm/m    dB   dB/m

1 pp  5190.90 -32.69 -52.81 -13.00 -19.69  20.12 Peak
2     6921.20 -34.80 -57.67 -13.00 -21.80  22.87 Peak
```

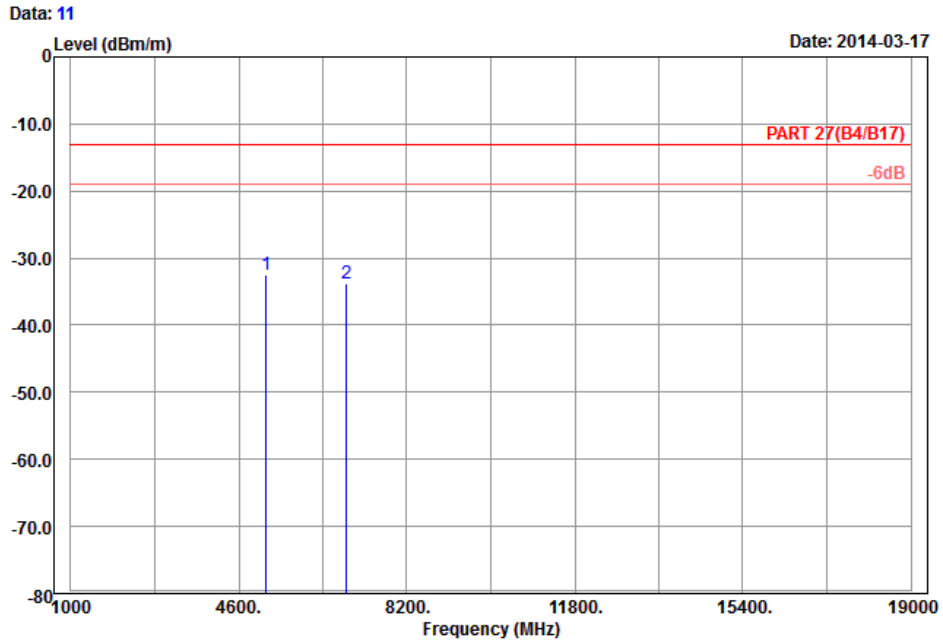


Site : 966 chamber 5
Condition : PART 27(B4/B17) 3m Vertical
Brand/Model: 0P8B100
Remark : LTE_Band 4_QPSK(1,0)_5M_CH20175
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 pp	5190.90	-33.49	-53.61	-13.00	-20.49	20.12	Peak
2	6921.20	-37.97	-60.84	-13.00	-24.97	22.87	Peak

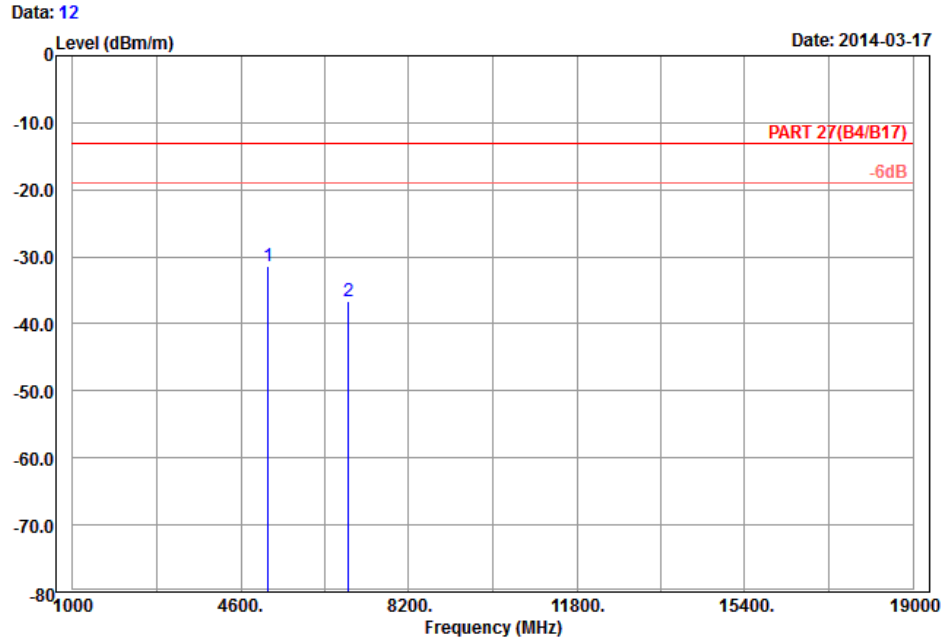
CHANNEL BANDWIDTH: 10MHz / QPSK

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 5
Condition : PART 27(B4/B17) 3m Horizontal
Brand/Model: 0P8B100
Remark : LTE_Band 4_QPSK(1,0)_10M_CH20175
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 pp	5184.30	-32.46	-52.48	-13.00	-19.46	20.02	Peak
2	6912.40	-33.74	-56.57	-13.00	-20.74	22.83	Peak

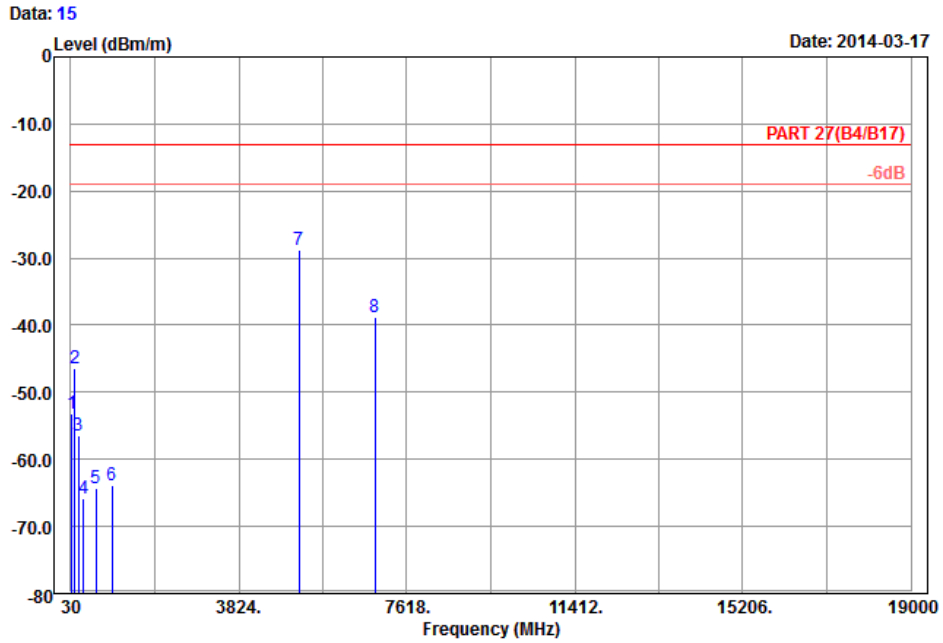


Site : 966 chamber 5
Condition : PART 27(B4/B17) 3m Vertical
Brand/Model: 0P8B100
Remark : LTE_Band 4_QPSK(1,0)_10M_CH20175
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 pp	5184.30	-31.39	-51.41	-13.00	-18.39	20.02	Peak
2	6912.40	-36.67	-59.50	-13.00	-23.67	22.83	Peak

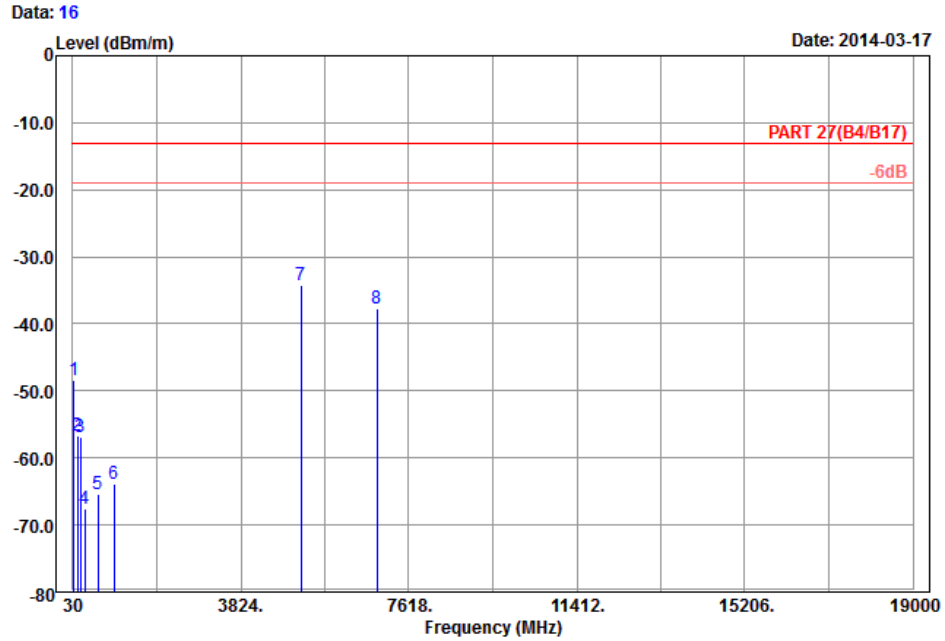
CHANNEL BANDWIDTH: 15MHz / QPSK

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch



Site : 966 chamber 5
Condition : PART 27(B4/B17) 3m Horizontal
Brand/Model: 0P8B100
Remark : LTE_Band 4_QPSK(1,0)_15M_CH20175
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	60.24	-53.25	-39.18	-13.00	-40.25	-14.07	Peak
2	122.07	-46.50	-38.37	-13.00	-33.50	-8.13	Peak
3	195.24	-56.36	-50.40	-13.00	-43.36	-5.96	Peak
4	312.60	-65.76	-59.95	-13.00	-52.76	-5.81	Peak
5	599.60	-64.33	-64.72	-13.00	-51.33	0.39	Peak
6	960.80	-63.92	-69.06	-13.00	-50.92	5.14	Peak
7 pp	5177.70	-28.70	-48.72	-13.00	-15.70	20.02	Peak
8	6903.60	-38.88	-61.71	-13.00	-25.88	22.83	Peak

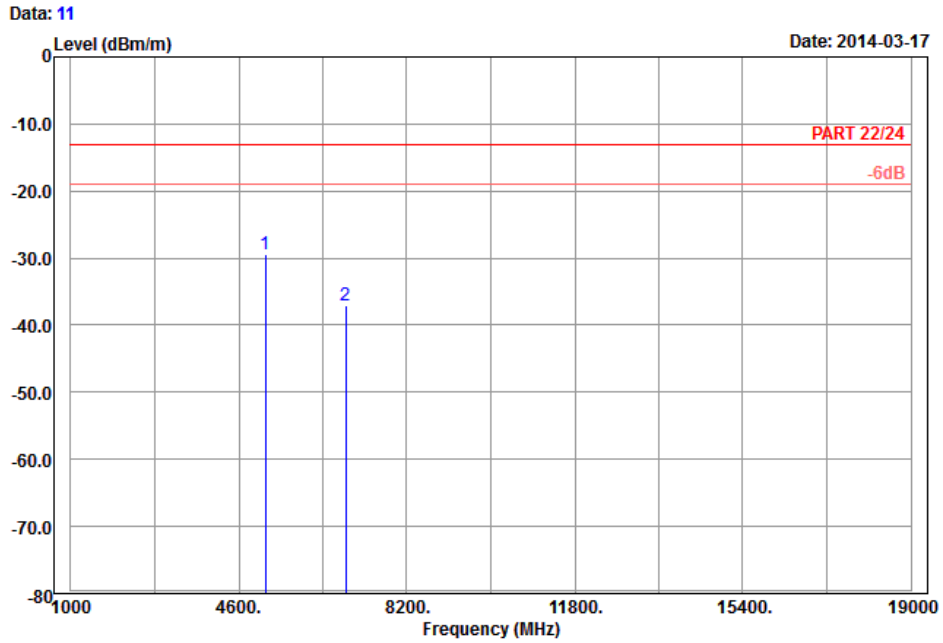


Site : 966 chamber 5
Condition : PART 27(B4/B17) 3m Vertical
Brand/Model: 0P8B100
Remark : LTE_Band 4_QPSK(1,0)_15M_CH20175
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	47.55	-48.35	-35.24	-13.00	-35.35	-13.11	Peak
2	139.89	-56.62	-48.93	-13.00	-43.62	-7.69	Peak
3	198.21	-57.00	-50.91	-13.00	-44.00	-6.09	Peak
4	304.90	-67.57	-61.67	-13.00	-54.57	-5.90	Peak
5	600.30	-65.42	-65.85	-13.00	-52.42	0.43	Peak
6	963.60	-63.79	-68.94	-13.00	-50.79	5.15	Peak
7 pp	5177.70	-34.18	-54.20	-13.00	-21.18	20.02	Peak
8	6903.60	-37.61	-60.44	-13.00	-24.61	22.83	Peak

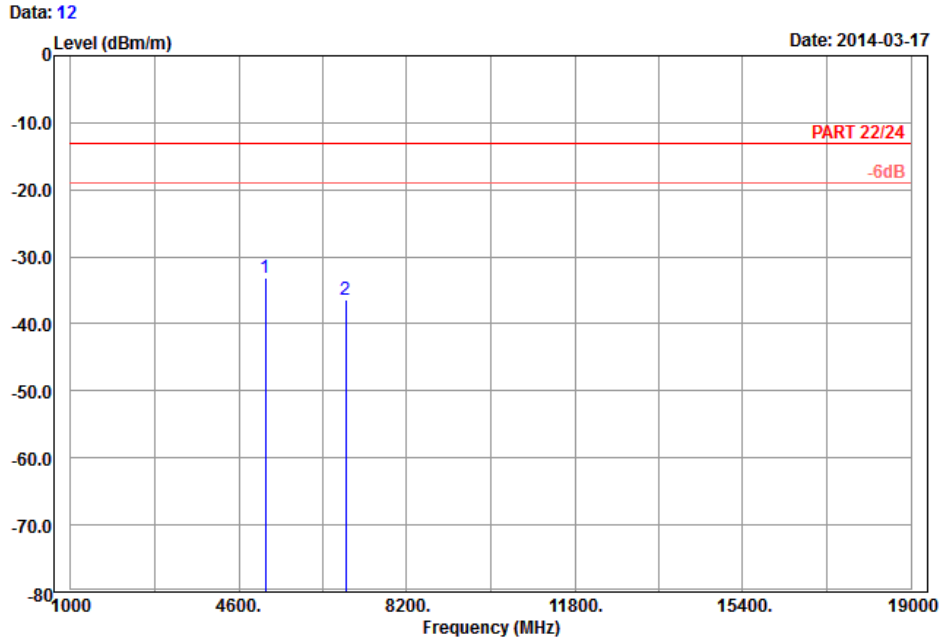
CHANNEL BANDWIDTH: 20MHz / QPSK

Bureau Veritas Consumer Products Services Ltd.,Taoyuan Branch




```
Site        : 966 chamber 5
Condition   : PART 22/24 3m Horizontal
Brand/Model: 0P8B100
Remark      : LTE_Band 4_QPSK(1,0)_20M_CH20175
Tested by   : Kay Wu
Plane       : Y
                        Read  Limit   Over
           Freq  Level  Level   Line  Limit Factor Remark
          _____ _____ _____ _____ _____ _____ _________
             MHz  dBm/m   dBm  dBm/m    dB   dB/m

  1 pp  5171.10 -29.38 -49.40 -13.00 -16.38  20.02 Peak
  2     6894.80 -37.10 -59.90 -13.00 -24.10  22.80 Peak
```



Site : 966 chamber 5
Condition : PART 22/24 3m Vertical
Brand/Model: 0P8B100
Remark : LTE_Band 4_QPSK(1,0)_20M_CH20175
Tested by : Kay Wu
Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 pp	5171.10	-33.24	-53.26	-13.00	-20.24	20.02	Peak
2	6894.80	-36.30	-59.10	-13.00	-23.30	22.80	Peak

5 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: service.adt@tw.bureauveritas.com
Web Site: www.adt.com.tw

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

6 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---