



# FCC TEST REPORT (PART 27)

**REPORT NO.:** RF121225C13-2

**MODEL NO.:** PM33100

**FCC ID:** NM8PM33100

**RECEIVED:** Dec. 25, 2012

**TESTED:** Jan. 23, 2013 ~ Jan. 31, 2013

**ISSUED:** Feb. 08, 2013

**APPLICANT:** HTC Corporation

**ADDRESS:** 23, Xinghua Rd., Taoyuan 330, 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.,  
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**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
RF121225C13-2	Original release	Feb. 08, 2013



## 1 CERTIFICATION

**PRODUCT:** Smartphone  
**MODEL NO.:** PM33100  
**BRAND:** HTC  
**APPLICANT:** HTC Corporation  
**TESTED:** Jan. 23, 2013 ~ Jan. 31, 2013  
**TEST SAMPLE:** Production Unit  
**TEST STANDARDS:** **FCC Part 27, Subpart C, L**  
**FCC Part 2**  
ANSI C63.4-2003

The above equipment (model: PM33100) 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** : Ivonne Wu , **DATE:** Feb. 08, 2013  
Ivonne Wu / Senior Specialist

**APPROVED BY** : Anderson Chiu , **DATE:** Feb. 08, 2013  
Anderson Chiu / Senior Engineer

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

OPERATING BAND: 704–716 MHz			
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 -7.51dB at 1420.00MHz.

OPERATING BAND: 1710~1755 MHz			
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 -7.51dB at 1420.00MHz.

## 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. 19, 2012	Apr. 18, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2012	Dec. 16, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Apr. 03, 2012	Apr. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9120 D	209	Sep. 03, 2012	Sep. 02, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170153	Jan. 17, 2012	Jan. 16, 2013
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 25, 2012	Dec. 24, 2013
Preamplifier EMCI	EMC 012645	980115	Dec. 28, 2012	Dec. 27, 2013
Preamplifier EMCI	EMC 330H	980112	Dec. 28, 2012	Dec. 27, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4	Oct. 19, 2012	Oct. 18, 2013
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 19, 2012	Oct. 18, 2013
RF signal cable Worken	RG-213	NA	Dec. 29, 2012	Dec. 28, 2013
Software	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Mar. 23, 2012	Mar. 22, 2013
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Communications Tester-Wireless	E5515C	MY52102049	Jun. 11, 2012	Jun. 10, 2013
Radio Communication Analyzer	MT8820C	6201168830	Jul. 17, 2012	Jul. 16, 2013

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

2. The test was performed in HwaYa Chamber 9.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 460141.

5. The IC Site Registration No. is IC 7450F-4.



### 3 GENERAL INFORMATION

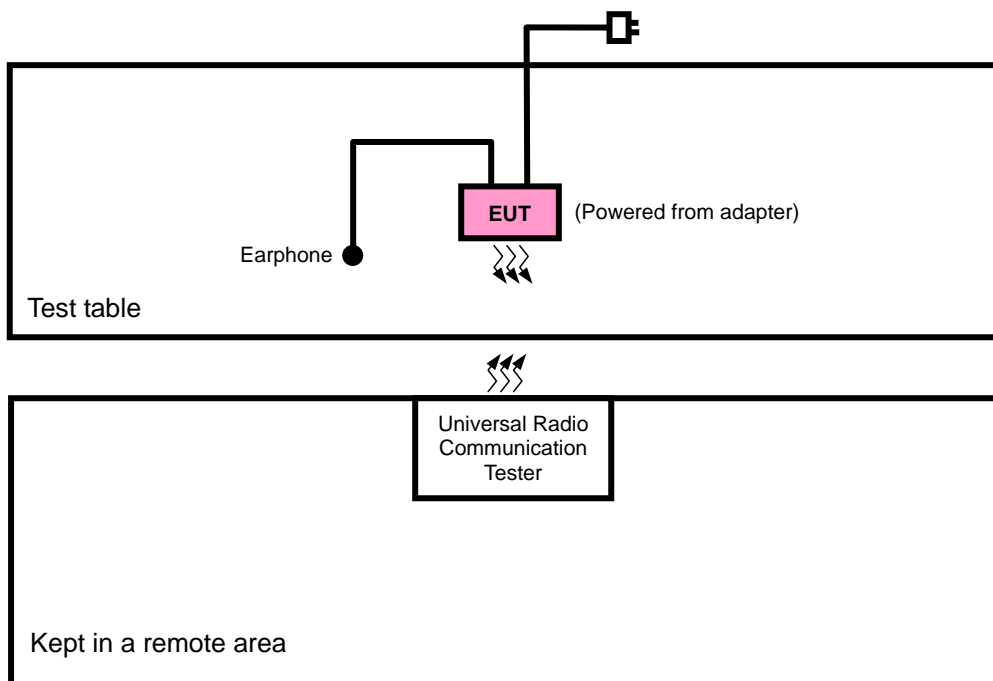
#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Smartphone	
<b>MODEL NO.</b>	PM33100	
<b>POWER SUPPLY</b>	5Vdc (adapter or host equipment) 3.8Vdc (battery)	
<b>MODULATION TECHNOLOGY</b>	LTE Band 17	QPSK, 16QAM
	LTE Band 4	QPSK, 16QAM
<b>FREQUENCY RANGE</b>	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711MHz
	LTE Band 4 Channel Bandwidth: 5MHz	1712.5MHz ~1752.5MHz
	LTE Band 4 Channel Bandwidth: 10MHz	1715.0MHz ~1750.0MHz
<b>EMISSION DESIGNATOR</b>	LTE Band 17 Channel Bandwidth: 5MHz	4M49G7D
	LTE Band 17 Channel Bandwidth: 10MHz	8M91G7D
	LTE Band 4 Channel Bandwidth: 5MHz	4M48G7D
	LTE Band 4 Channel Bandwidth: 10MHz	8M92G7D
<b>MAX. ERP POWER (W)</b>	LTE Band 17 Channel Bandwidth: 5MHz	58.48mW
	LTE Band 17 Channel Bandwidth: 10MHz	59.57mW
	LTE Band 4 Channel Bandwidth: 5MHz	341.19mW
	LTE Band 4 Channel Bandwidth: 10MHz	325.84mW
<b>CATEGORY</b>	3	
<b>ANTENNA TYPE</b>	Fixed Internal Antenna	
<b>DATA CABLE</b>	Refer to Note as below	
<b>I/O PORTS</b>	Refer to users' manual	
<b>ACCESSORY DEVICES</b>	Refer to Note as below	

**NOTE:**

1. The EUT's accessories list refers to Ext Pho.pdf.
2. The device has 2 configurations as below.  
Main Sample (A): Battery 1 + Photo Camera 1  
2nd Sample (B): Battery 2 + Photo Camera 2
3. 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**



**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 as listed below for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	TEST ITEM	AXIS FOR RADIATED EMISSION
A	Main Sample	LTE Band 17 : Z
		LTE Band 4 : Y
B	2 <sup>nd</sup> Sample	LTE Band 17 : X
		LTE Band 4 : Y

#### LTE Band 17

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK	1 RB / 12 RB Offset
B		23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB / 24 RB Offset
A	FREQUENCY STABILITY	23755 to 23825	23790	5MHz	QPSK	1 RB / 12 RB Offset
		23780 to 23800	23790	10MHz	QPSK	1 RB / 24 RB Offset
A	OCCUPIED BANDWIDTH	23755 to 23825	23755, 23790, 23825	5MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK, 16QAM	50 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	23755 to 23825	23755, 23790, 23825	5MHz	QPSK	1 RB / 12 RB Offset
					16QAM	1 RB / 12 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB / 24 RB Offset
					16QAM	1 RB / 0 RB Offset
A	BAND EDGE	23755 to 23825	23755	5MHz	QPSK	1 RB / 0 RB Offset
			23825	5MHz	QPSK	1 RB / 24 RB Offset
		23780 to 23800	23780	10MHz	QPSK	1 RB / 0 RB Offset
					50 RB / 0 RB Offset	
			23800	10MHz	QPSK	1 RB / 49 RB Offset
					50 RB / 0 RB Offset	
A	CONDCUDETED EMISSION	23755 to 23825	23790	5MHz	QPSK	1 RB / 12 RB Offset
		23780 to 23800	23790	10MHz	QPSK	1 RB / 24 RB Offset
A	RADIATED EMISSION	23780 to 23800	23790	10MHz	QPSK	1 RB / 24 RB Offset
B	RADIATED EMISSION	23780 to 23800	23790	10MHz	QPSK	1 RB / 24 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 CONFIGUR E MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	19975 to 20375	19975, 20175, 20375	5MHz	QPSK	1 RB / 24 RB Offset
B		20000 to 20350	20000, 20175, 20350	10MHz	QPSK	1 RB / 0 RB Offset
A	FREQUENCY STABILITY	19975 to 20375	20175	5MHz	QPSK	1 RB / 24 RB Offset
		20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	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
A	PEAK TO AVERAGE RATIO	19975 to 20375	19975, 20175, 20375	5MHz	QPSK	1 RB / 24 RB Offset
					16QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK	1 RB / 0 RB Offset
					16QAM	1 RB / 24 RB Offset
A	BAND EDGE	19975 to 20375	19975	5MHz	QPSK	1 RB / 0 RB Offset
			20375	5MHz	QPSK	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	
A	CONDCUDED EMISSION	19975 to 20375	20175	5MHz	QPSK	1 RB / 24 RB Offset
		20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
B	RADIATED EMISSION	20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset

**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
BAND EDGE	26deg. C, 58%RH	3.8Vdc	Howard Kao
CONDCUDED 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 704-716 MHz band are limited to 3 watts ERP

#### 4.1.2 TEST PROCEDURES

##### **EIRP / ERP MEASUREMENT:**

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

$P_s$  (dBm) : Input power to substitution antenna.

$G_s$  (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

$E_s = R_s + AF$

AF (dB/m) : Receiver antenna factor

$R_t$ : The highest received signal in spectrum analyzer for EUT.

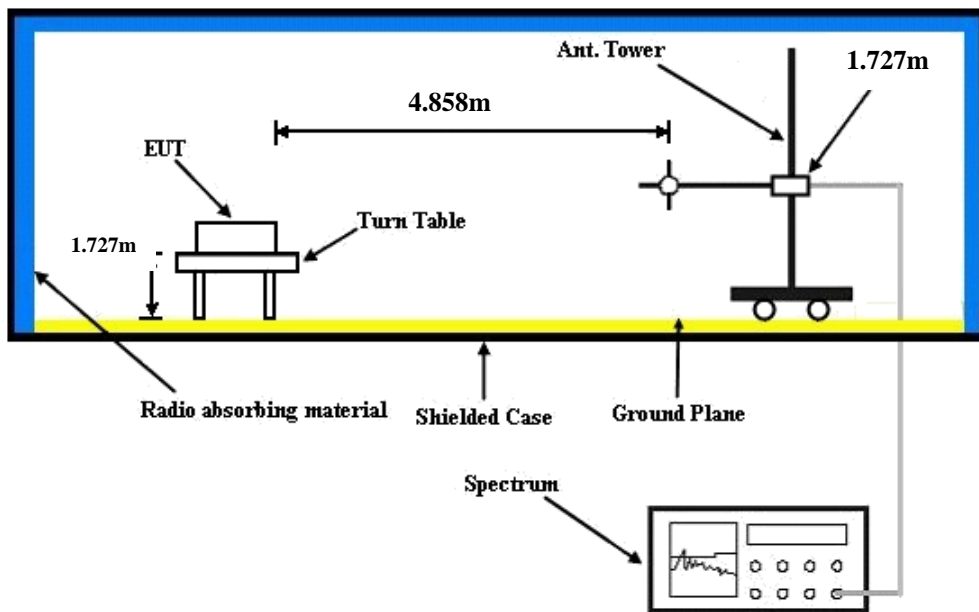
$R_s$ : The highest received signal in spectrum analyzer for substitution antenna.

**CONDUCTED POWER MEASUREMENT:**

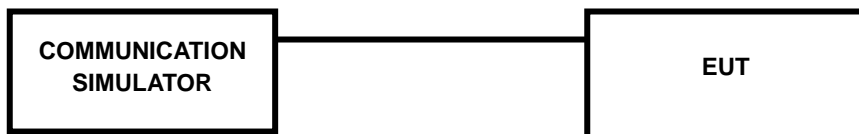
- a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

**4.1.3 TEST SETUP**

**EIRP / ERP MEASUREMENT:**



**CONDUCTED POWER MEASUREMENT:**



#### 4.1.4 TEST RESULTS

##### AVERAGE CONDUCTED OUTPUT POWER (dBm)

LTE Band 17								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
5 MHz	QPSK	23755	706.5	1	0	0	23.4	22.92
		23790	710	1	0	0	23.4	22.95
		23825	713.5	1	0	0	23.4	23.1
		23755	706.5	1	12	0	23.4	23.08
		23790	710	1	12	0	23.4	23.11
		23825	713.5	1	12	0	23.4	23.26
		23755	706.5	1	24	0	23.4	22.67
		23790	710	1	24	0	23.4	22.7
		23825	713.5	1	24	0	23.4	22.85
		23755	706.5	12	0	1	23.4	21.93
		23790	710	12	0	1	23.4	21.96
		23825	713.5	12	0	1	23.4	22.11
		23755	706.5	12	6	1	23.4	21.99
		23790	710	12	6	1	23.4	22.02
		23825	713.5	12	6	1	23.4	22.17
	23755	706.5	12	13	1	23.4	22.12	
	23790	710	12	13	1	23.4	22.15	
	23825	713.5	12	13	1	23.4	22.3	
	23755	706.5	25	0	1	23.4	21.93	
	23790	710	25	0	1	23.4	21.96	
	23825	713.5	25	0	1	23.4	22.11	
	23755	706.5	1	0	1	23.4	21.92	
	23790	710	1	0	1	23.4	21.95	
	23825	713.5	1	0	1	23.4	22.1	
	23755	706.5	1	12	1	23.4	22.1	
	23790	710	1	12	1	23.4	22.13	
	23825	713.5	1	12	1	23.4	22.28	
	23755	706.5	1	24	1	23.4	22.09	
	23790	710	1	24	1	23.4	22.12	
	23825	713.5	1	24	1	23.4	22.27	
23755	706.5	12	0	2	23.4	21.04		
23790	710	12	0	2	23.4	21.07		
23825	713.5	12	0	2	23.4	21.22		
23755	706.5	12	6	2	23.4	21.08		
23790	710	12	6	2	23.4	21.11		
23825	713.5	12	6	2	23.4	21.26		
23755	706.5	12	13	2	23.4	21.2		
23790	710	12	13	2	23.4	21.23		
23825	713.5	12	13	2	23.4	21.38		
23755	706.5	25	0	2	23.4	20.98		
23790	710	25	0	2	23.4	21.01		
23825	713.5	25	0	2	23.4	21.16		





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LTE Band 17								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
10MHz	QPSK	23780	709	1	0	0	23.4	22.91
		23790	710	1	0	0	23.4	23.11
		23800	711	1	0	0	23.4	23.01
		23780	709	1	24	0	23.4	23.16
		23790	710	1	24	0	23.4	23.36
		23800	711	1	24	0	23.4	23.26
		23780	709	1	49	0	23.4	22.83
		23790	710	1	49	0	23.4	23.03
		23800	711	1	49	0	23.4	22.93
		23780	709	25	0	1	23.4	21.88
		23790	710	25	0	1	23.4	22.08
		23800	711	25	0	1	23.4	21.98
		23780	709	25	12	1	23.4	21.95
		23790	710	25	12	1	23.4	22.15
		23800	711	25	12	1	23.4	22.05
		23780	709	25	25	1	23.4	21.96
		23790	710	25	25	1	23.4	22.16
		23800	711	25	25	1	23.4	22.06
	23780	709	50	0	1	23.4	21.8	
	23790	710	50	0	1	23.4	22	
	23800	711	50	0	1	23.4	21.9	
	23780	709	1	0	1	23.4	22.14	
	23790	710	1	0	1	23.4	22.34	
	23800	711	1	0	1	23.4	22.63	
	23780	709	1	24	1	23.4	21.8	
	23790	710	1	24	1	23.4	22	
	23800	711	1	24	1	23.4	22.29	
	23780	709	1	49	1	23.4	21.81	
	23790	710	1	49	1	23.4	22.01	
	23800	711	1	49	1	23.4	22.3	
	23780	709	25	0	2	23.4	20.58	
	23790	710	25	0	2	23.4	20.78	
	23800	711	25	0	2	23.4	21.07	
	23780	709	25	12	2	23.4	20.63	
	23790	710	25	12	2	23.4	20.83	
	23800	711	25	12	2	23.4	21.12	
23780	709	25	25	2	23.4	20.7		
23790	710	25	25	2	23.4	20.9		
23800	711	25	25	2	23.4	21.19		
23780	709	50	0	2	23.4	21.55		
23790	710	50	0	2	23.4	21.75		
23800	711	50	0	2	23.4	22.04		
23780	709	1	0	1	23.4	22.14		
23790	710	1	0	1	23.4	22.34		
23800	711	1	0	1	23.4	22.63		
23780	709	1	24	1	23.4	21.8		
23790	710	1	24	1	23.4	22		
23800	711	1	24	1	23.4	22.29		
23780	709	1	49	1	23.4	21.81		
23790	710	1	49	1	23.4	22.01		
23800	711	1	49	1	23.4	22.3		
23780	709	25	0	2	23.4	20.58		
23790	710	25	0	2	23.4	20.78		
23800	711	25	0	2	23.4	21.07		
23780	709	25	12	2	23.4	20.63		
23790	710	25	12	2	23.4	20.83		
23800	711	25	12	2	23.4	21.12		
23780	709	25	25	2	23.4	20.7		
23790	710	25	25	2	23.4	20.9		
23800	711	25	25	2	23.4	21.19		
23780	709	50	0	2	23.4	21.55		
23790	710	50	0	2	23.4	21.75		
23800	711	50	0	2	23.4	22.04		



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LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
5 MHz	QPSK	19975	1712.5	1	0	0	23.3	23.08
		20175	1732.5	1	0	0	23.3	23.09
		20375	1752.5	1	0	0	23.3	23.16
		19975	1712.5	1	12	0	23.3	23.09
		20175	1732.5	1	12	0	23.3	23.1
		20375	1752.5	1	12	0	23.3	23.17
		19975	1712.5	1	24	0	23.3	23.1
		20175	1732.5	1	24	0	23.3	23.11
		20375	1752.5	1	24	0	23.3	23.18
		19975	1712.5	12	0	1	23.3	22.01
		20175	1732.5	12	0	1	23.3	22.02
		20375	1752.5	12	0	1	23.3	22.09
		19975	1712.5	12	6	1	23.3	22.01
		20175	1732.5	12	6	1	23.3	22.02
		20375	1752.5	12	6	1	23.3	22.09
		19975	1712.5	12	13	1	23.3	22.01
		20175	1732.5	12	13	1	23.3	22.02
		20375	1752.5	12	13	1	23.3	22.09
	19975	1712.5	25	0	1	23.3	21.97	
	20175	1732.5	25	0	1	23.3	21.98	
	20375	1752.5	25	0	1	23.3	22.05	
	19975	1712.5	1	0	1	23.3	22.11	
	20175	1732.5	1	0	1	23.3	22.12	
	20375	1752.5	1	0	1	23.3	22.19	
	19975	1712.5	1	12	1	23.3	22.1	
	20175	1732.5	1	12	1	23.3	22.11	
	20375	1752.5	1	12	1	23.3	22.18	
	19975	1712.5	1	24	1	23.3	22.07	
	20175	1732.5	1	24	1	23.3	22.08	
	20375	1752.5	1	24	1	23.3	22.15	
	19975	1712.5	12	0	2	23.3	21.09	
	20175	1732.5	12	0	2	23.3	21.1	
	20375	1752.5	12	0	2	23.3	21.17	
	19975	1712.5	12	6	2	23.3	21.05	
	20175	1732.5	12	6	2	23.3	21.06	
	20375	1752.5	12	6	2	23.3	21.13	
19975	1712.5	12	13	2	23.3	21.1		
20175	1732.5	12	13	2	23.3	21.11		
20375	1752.5	12	13	2	23.3	21.18		
19975	1712.5	25	0	2	23.3	20.93		
20175	1732.5	25	0	2	23.3	20.94		
20375	1752.5	25	0	2	23.3	21.01		



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LTE Band 4								
BW	Modulation	CH	Frequency	RB	RB Offset	MPR	Target	Measured
			(MHz)				Power	Power
10MHz	QPSK	20000	1715	1	0	0	23.3	23.24
		20175	1732.5	1	0	0	23.3	23.25
		20350	1750	1	0	0	23.3	23.02
		20000	1715	1	24	0	23.3	23.17
		20175	1732.5	1	24	0	23.3	23.18
		20350	1750	1	24	0	23.3	22.95
		20000	1715	1	49	0	23.3	23.06
		20175	1732.5	1	49	0	23.3	23.07
		20350	1750	1	49	0	23.3	22.84
		20000	1715	25	0	1	23.3	22.04
		20175	1732.5	25	0	1	23.3	22.05
		20350	1750	25	0	1	23.3	21.82
		20000	1715	25	12	1	23.3	22.11
		20175	1732.5	25	12	1	23.3	22.12
		20350	1750	25	12	1	23.3	21.89
		20000	1715	25	25	1	23.3	21.98
		20175	1732.5	25	25	1	23.3	21.99
		20350	1750	25	25	1	23.3	21.76
	20000	1715	50	0	1	23.3	21.99	
	20175	1732.5	50	0	1	23.3	22	
	20350	1750	50	0	1	23.3	21.77	
	20000	1715	1	0	1	23.3	22.2	
	20175	1732.5	1	0	1	23.3	22.27	
	20350	1750	1	0	1	23.3	21.93	
	20000	1715	1	24	1	23.3	22.3	
	20175	1732.5	1	24	1	23.3	22.31	
	20350	1750	1	24	1	23.3	22.08	
	20000	1715	1	49	1	23.3	22.05	
	20175	1732.5	1	49	1	23.3	22.06	
	20350	1750	1	49	1	23.3	21.83	
	20000	1715	25	0	2	23.3	21.19	
	20175	1732.5	25	0	2	23.3	21.2	
	20350	1750	25	0	2	23.3	20.97	
	20000	1715	25	12	2	23.3	21.07	
	20175	1732.5	25	12	2	23.3	21.08	
	20350	1750	25	12	2	23.3	20.85	
20000	1715	25	25	2	23.3	20.93		
20175	1732.5	25	25	2	23.3	20.94		
20350	1750	25	25	2	23.3	20.71		
20000	1715	50	0	2	23.3	20.95		
20175	1732.5	50	0	2	23.3	20.96		
20350	1750	50	0	2	23.3	20.73		
	16QAM							

**TEST MODE A**

**AVERAGE ERP (dBm)**

**LTE BAND 17**

**CHANNEL BANDWIDTH: 5MHz QPSK**

LTE Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
706.5	-29.45	-48.12	0.00	-1.08	17.59	57.41
710	-29.83	-48.28	0.00	-0.93	17.52	56.49
713.5	-29.92	-48.35	0.00	-0.76	17.67	58.48
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
706.5	-43.60	-47.97	0.00	-1.08	3.29	2.13
710	-44.09	-48.01	0.00	-0.93	2.99	1.99
713.5	-44.72	-48.05	0.00	-0.76	2.57	1.81

**CHANNEL BANDWIDTH: 10MHz QPSK**

LTE Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
709.0	-29.42	-48.12	0.00	-1.08	17.62	57.81
710.0	-29.84	-48.28	0.00	-0.93	17.51	56.36
711.0	-29.84	-48.35	0.00	-0.76	17.75	59.57
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
709.0	-43.33	-47.97	0.00	-1.08	3.56	2.27
710.0	-43.93	-48.01	0.00	-0.93	3.15	2.07
711.0	-44.04	-48.05	0.00	-0.76	3.25	2.11

**AVERAGE EIRP (dBm)**

**LTE BAND 4**

**CHANNEL BANDWIDTH: 5MHz QPSK**

LTE Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1712.5	-30.19	-51.88	0.00	1.96	23.65	231.74
1732.5	-30.11	-52.99	0.00	2.00	24.88	307.61
1752.5	-32.87	-54.28	0.00	1.98	23.39	218.27
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1712.5	-30.81	-52.13	0.00	1.96	23.28	212.81
1732.5	-30.56	-53.17	0.00	2.00	24.61	289.07
1752.5	-33.01	-54.13	0.00	1.98	23.10	204.17

**CHANNEL BANDWIDTH: 10MHz QPSK**

LTE Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1715	-29.72	-51.88	0.00	1.96	24.12	258.23
1732.5	-30.83	-52.99	0.00	2.00	24.16	260.62
1750	-32.50	-54.28	0.00	1.98	23.76	237.68
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1715	-30.27	-52.13	0.00	1.96	23.82	240.99
1732.5	-31.26	-53.17	0.00	2.00	23.91	246.04
1750	-32.70	-54.13	0.00	1.98	23.41	219.28

**TEST MODE B**

**AVERAGE ERP (dBm)**

**LTE BAND 17**

**CHANNEL BANDWIDTH: 5MHz QPSK**

LTE Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
706.5	-29.57	-48.12	0.00	-1.08	17.47	55.85
710	-29.80	-48.28	0.00	-0.93	17.55	56.89
713.5	-30.47	-48.35	0.00	-0.76	17.12	51.52
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
706.5	-43.48	-47.97	0.00	-1.08	3.41	2.19
710	-44.02	-48.01	0.00	-0.93	3.06	2.02
713.5	-44.55	-48.05	0.00	-0.76	2.74	1.88

**CHANNEL BANDWIDTH: 10MHz QPSK**

LTE Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
709.0	-29.51	-48.12	0.00	-1.08	17.53	56.62
710.0	-29.90	-48.28	0.00	-0.93	17.45	55.59
711.0	-30.26	-48.35	0.00	-0.76	17.33	54.08
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (mW)
709.0	-43.79	-47.97	0.00	-1.08	3.10	2.04
710.0	-44.12	-48.01	0.00	-0.93	2.96	1.98
711.0	-44.47	-48.05	0.00	-0.76	2.82	1.91

**AVERAGE EIRP (dBm)**

**LTE BAND 4**

**CHANNEL BANDWIDTH: 5MHz QPSK**

LTE Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1712.5	-30.65	-51.88	0.00	1.96	23.19	208.45
1732.5	-29.72	-52.99	0.00	2.00	25.27	336.51
1752.5	-31.93	-54.28	0.00	1.98	24.33	271.02
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1712.5	-30.13	-52.13	0.00	1.96	23.96	248.89
1732.5	-29.84	-53.17	0.00	2.00	25.33	341.19
1752.5	-31.79	-54.13	0.00	1.98	24.32	270.40

**CHANNEL BANDWIDTH: 10MHz QPSK**

LTE Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1715	-29.16	-51.88	0.00	1.96	24.68	293.76
1732.5	-30.66	-52.99	0.00	2.00	24.33	271.02
1750	-31.13	-54.28	0.00	1.98	25.13	325.84
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	EIRP (dBm)	EIRP (mW)
1715	-29.66	-52.13	0.00	1.96	24.43	277.33
1732.5	-30.85	-53.17	0.00	2.00	24.32	270.40
1750	-31.07	-54.13	0.00	1.98	25.04	319.15

## 4.2 FREQUENCY STABILITY MEASUREMENT

### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

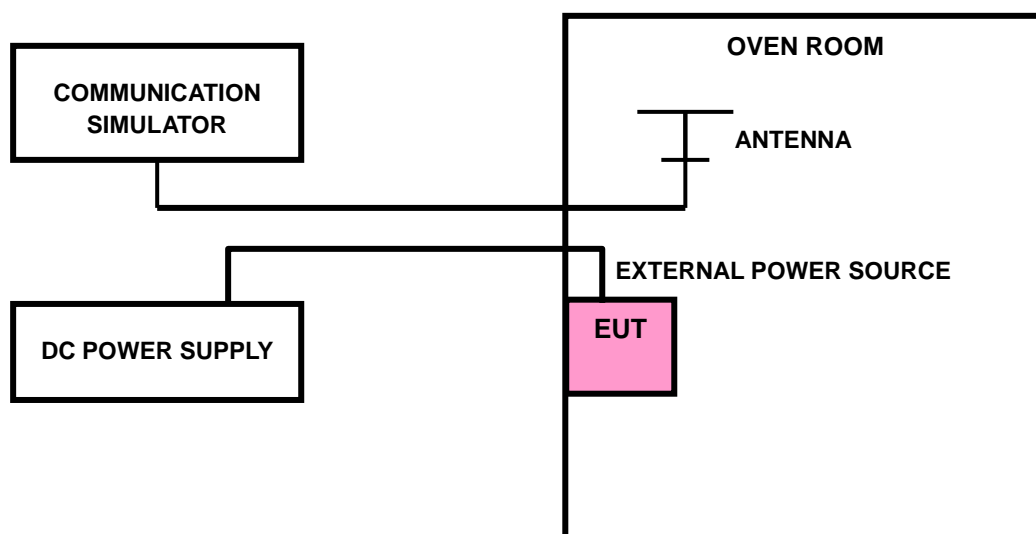
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 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  $\pm 0.5^{\circ}\text{C}$  during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

### 4.2.3 TEST SETUP





#### 4.2.4 TEST RESULTS

VOLTAGE (Volts)	FREQUENCY ERROR (ppm)				LIMIT (ppm)
	LTE BAND 4		LTE BAND 17		
	5MHz	10MHz	5MHz	10MHz	
3.8	0.003	0.005	-0.010	0.010	2.5
3.6	0.002	0.003	0.001	-0.010	2.5
4.35	-0.004	-0.002	0.001	0.001	2.5

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

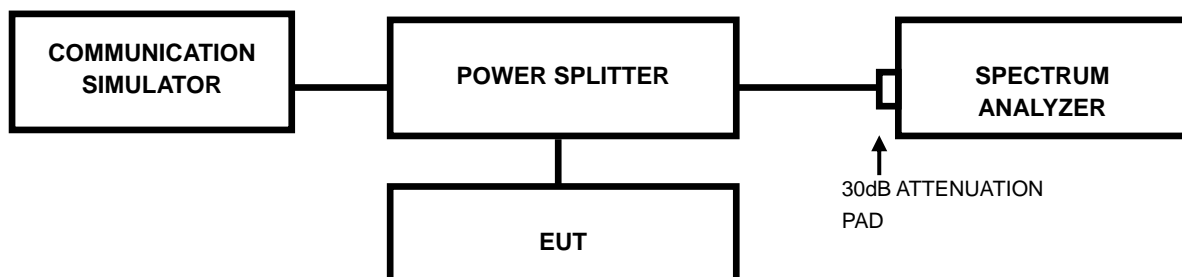
TEMP. (°C)	FREQUENCY ERROR (ppm)				LIMIT (ppm)
	LTE BAND 4		LTE BAND 17		
	5MHz	10MHz	5MHz	10MHz	
-30	0.007	0.005	-0.010	0.010	2.5
-20	0.002	0.002	-0.010	0.010	2.5
-10	-0.008	-0.002	-0.010	0.010	2.5
0	-0.003	0.002	0.010	-0.010	2.5
10	0.004	0.003	0.010	-0.010	2.5
20	-0.002	-0.002	-0.010	0.010	2.5
30	-0.003	0.008	-0.010	0.010	2.5
40	0.003	0.003	-0.010	-0.010	2.5
50	0.005	0.003	-0.010	0.010	2.5
55	-0.007	0.002	0.010	0.010	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



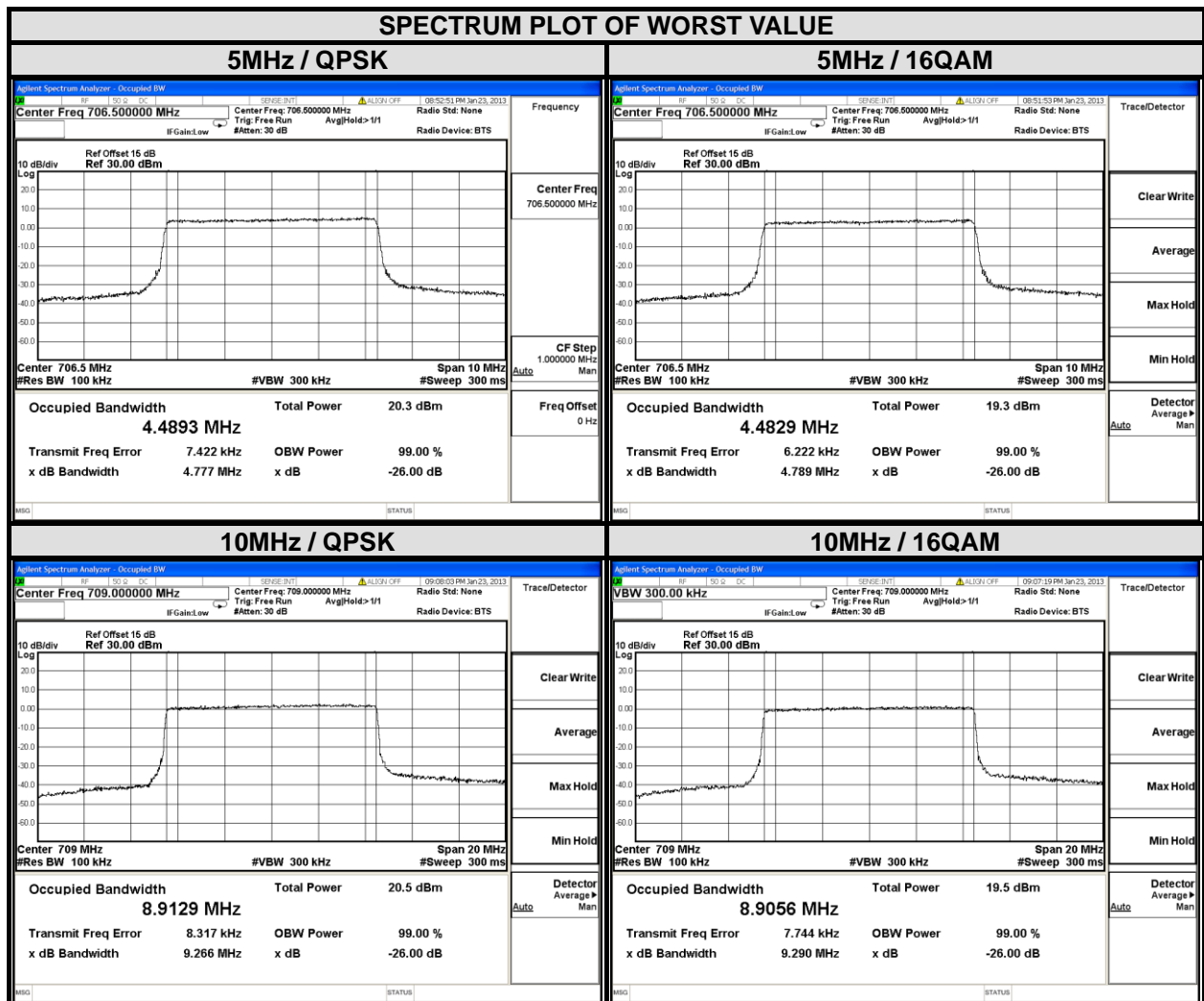
### 4.3.3 TEST PROCEDURES

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



### 4.3.4 TEST RESULTS

LTE BAND 17							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	4.4893	4.4829	23780	709.0	8.9129	8.9056
23790	710.0	4.4819	4.4726	23790	710.0	8.8995	8.9024
23825	713.5	4.4804	4.4757	23800	711.0	8.8935	8.8884

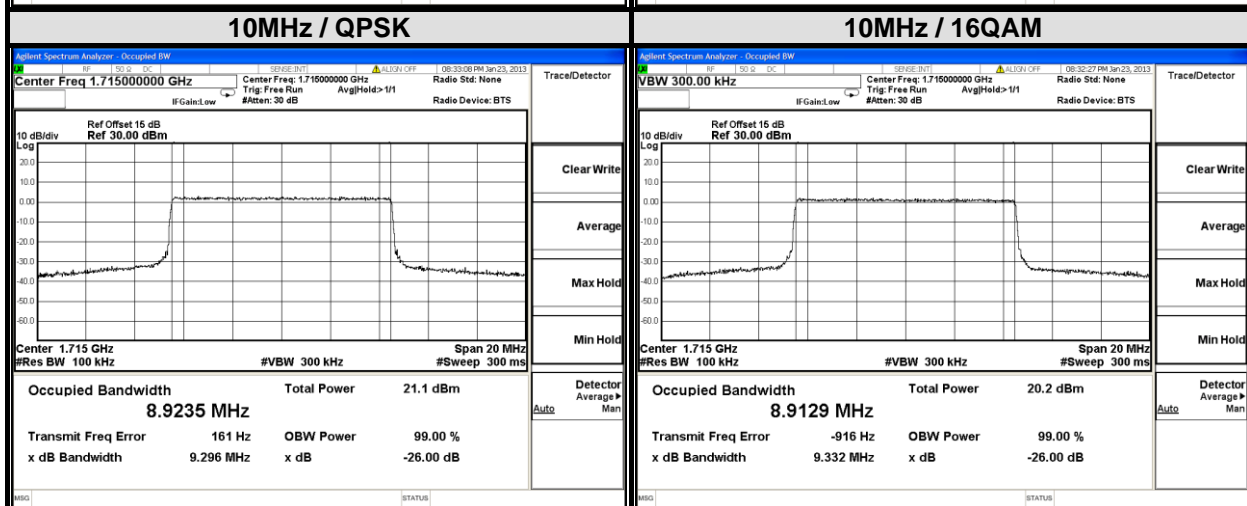
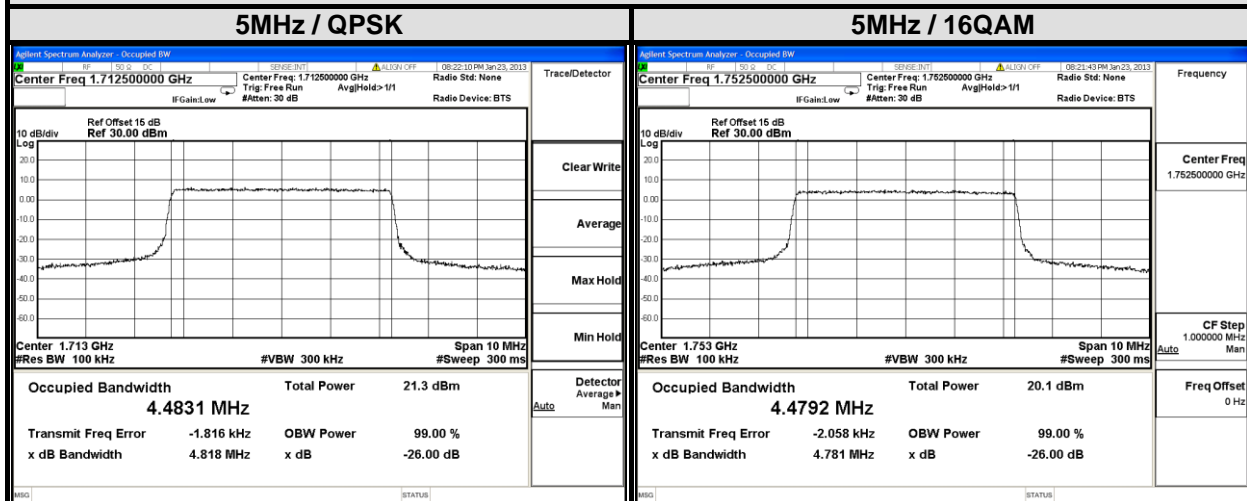




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LTE BAND 4							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)	
		QPSK	16QAM			QPSK	16QAM
19975	1712.5	4.4831	4.4754	20000	1715.0	8.9235	8.9129
20175	1732.5	4.4817	4.4784	20175	1732.5	8.9098	8.9075
20375	1752.5	4.4831	4.4792	20350	1750.0	8.9153	8.9097

**SPECTRUM PLOT OF WORST VALUE**

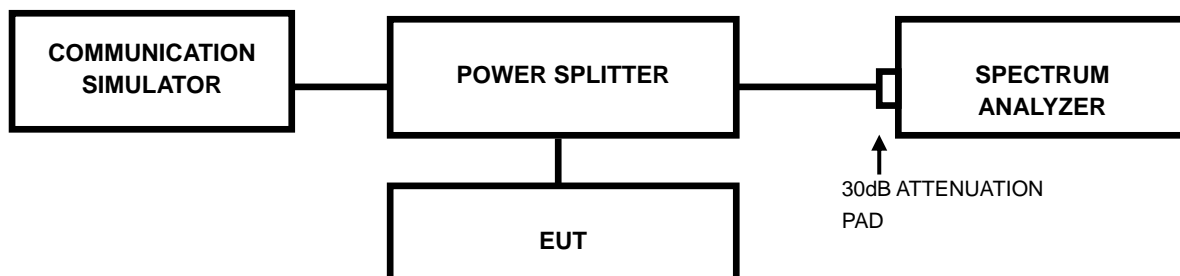


## 4.4 PEAK TO AVERAGE RATIO

### 4.4.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

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

### 4.4.2 TEST SETUP



### 4.4.3 TEST PROCEDURES

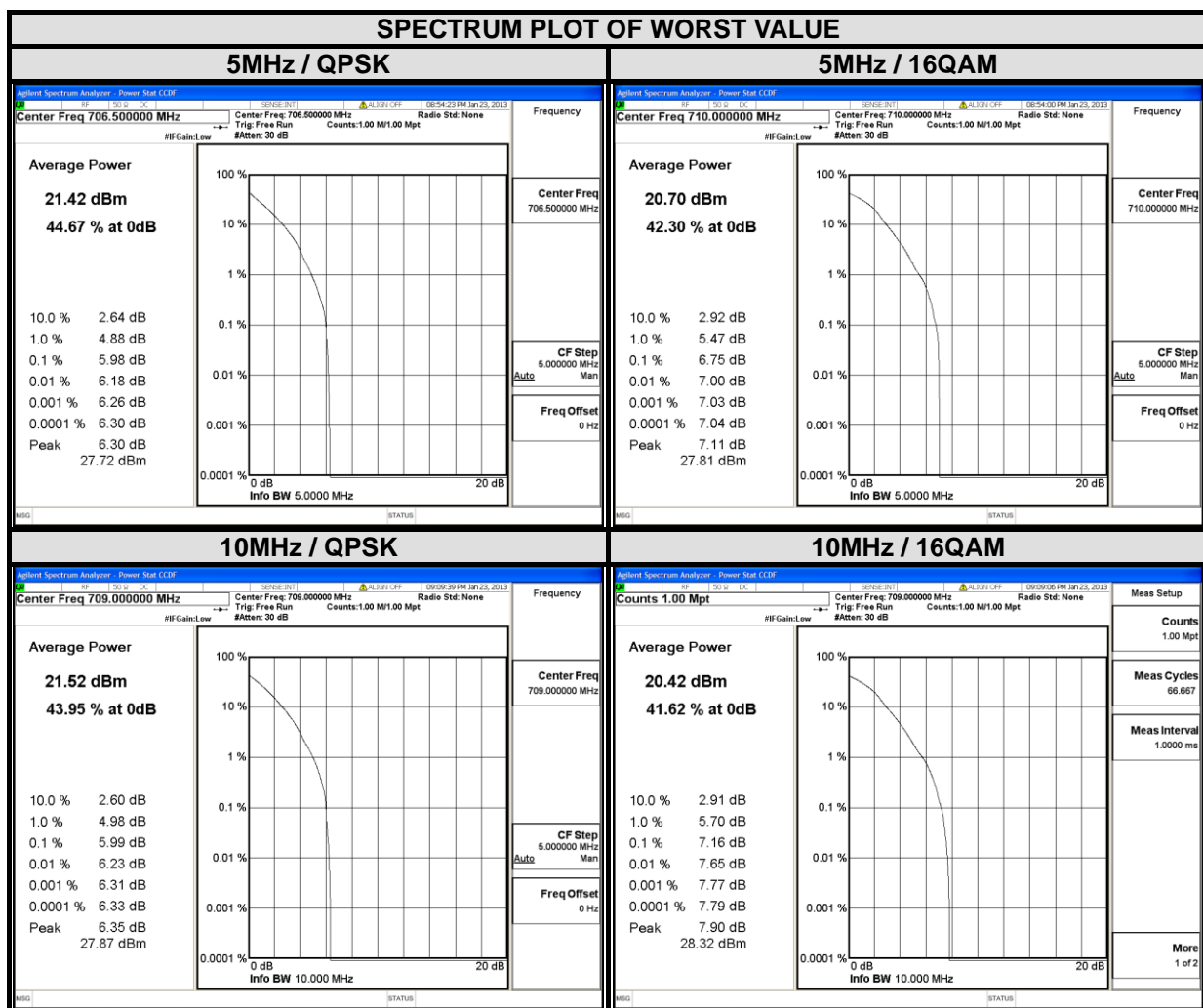
1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.



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### 4.4.4 TEST RESULTS

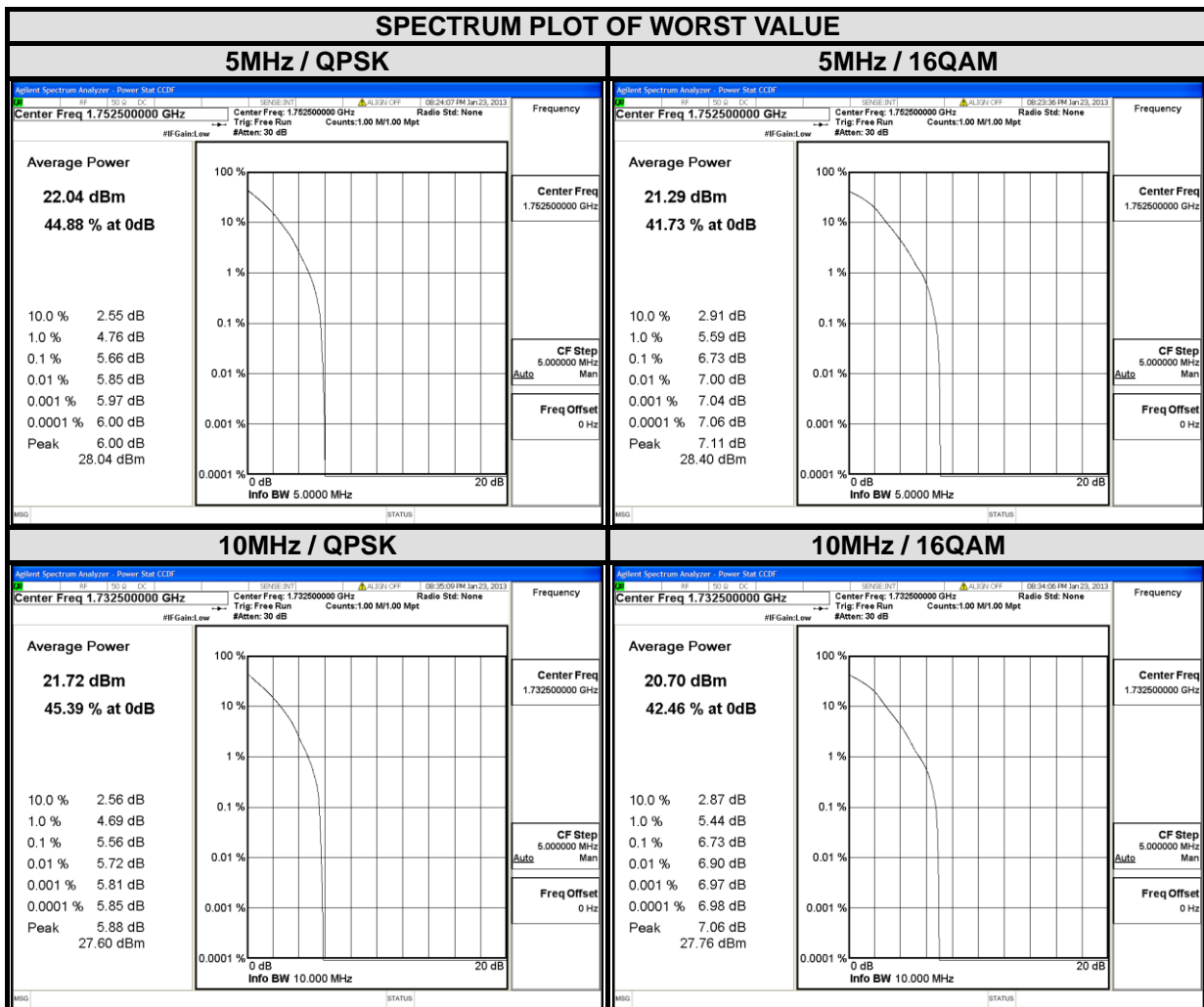
LTE BAND 17							
CHANNEL BANDWIDTH: 5MHz				CHANNEL BANDWIDTH: 10MHz			
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM			QPSK	16QAM
23755	706.5	5.98	4.11	23780	709.0	5.99	7.16
23790	710.0	5.64	6.75	23790	710.0	5.95	7.12
23825	713.5	5.16	6.34	23800	711.0	5.83	7.10





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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	5.39	6.57	20000	1715.0	5.37	6.65
20175	1732.5	5.20	6.31	20175	1732.5	5.56	6.73
20375	1752.5	5.66	6.73	20350	1750.0	5.19	6.26



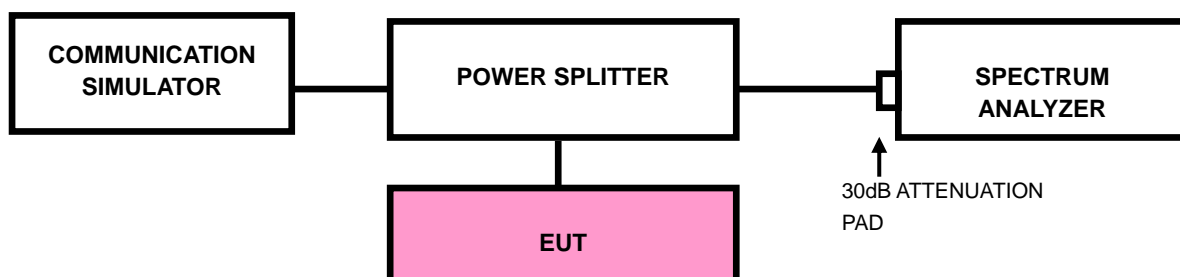
## 4.5 BAND EDGE MEASUREMENT

### 4.5.1 LIMITS OF BAND EDGE MEASUREMENT

For operations in the 704-716 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 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB.

### 4.5.2 TEST SETUP



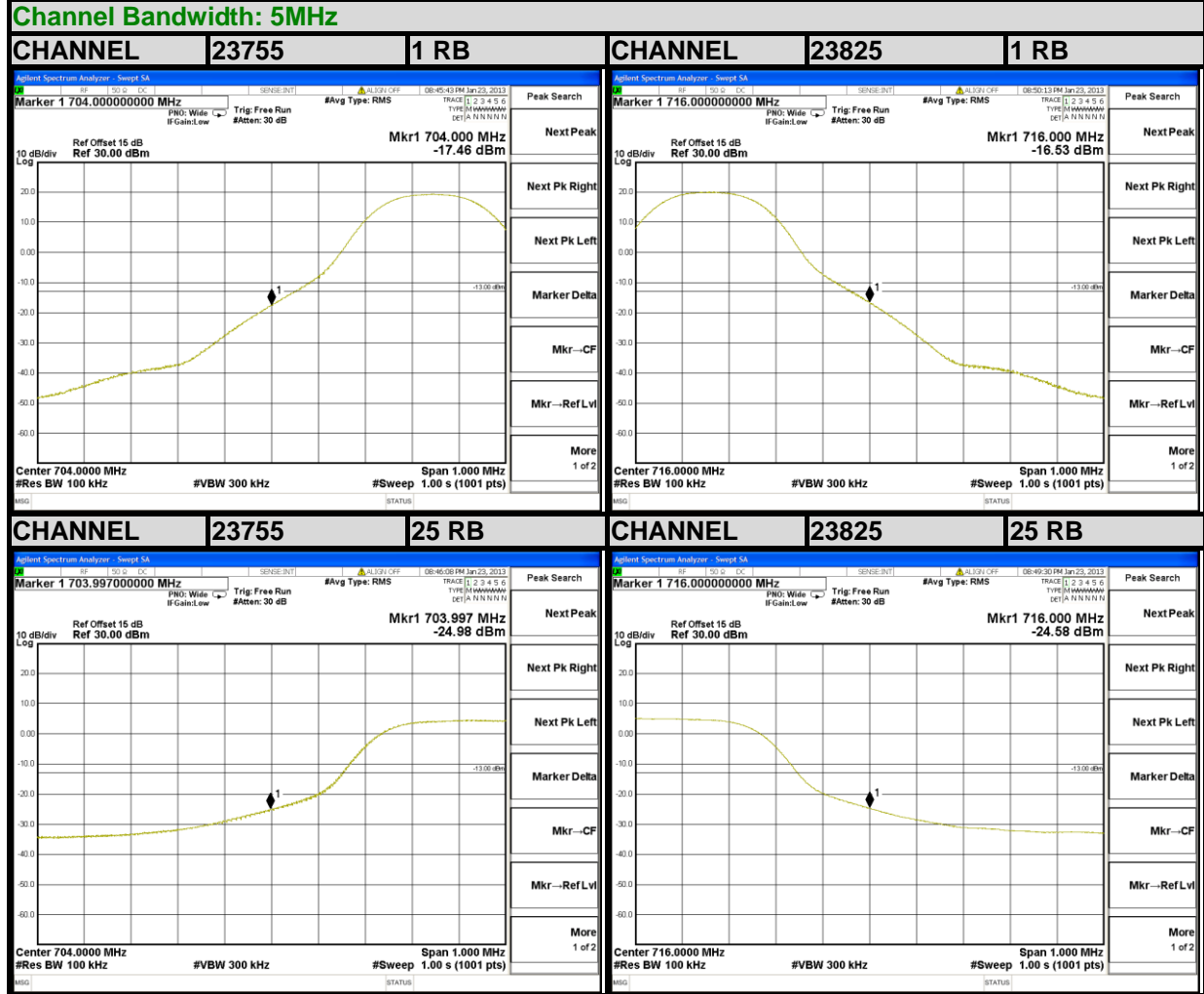


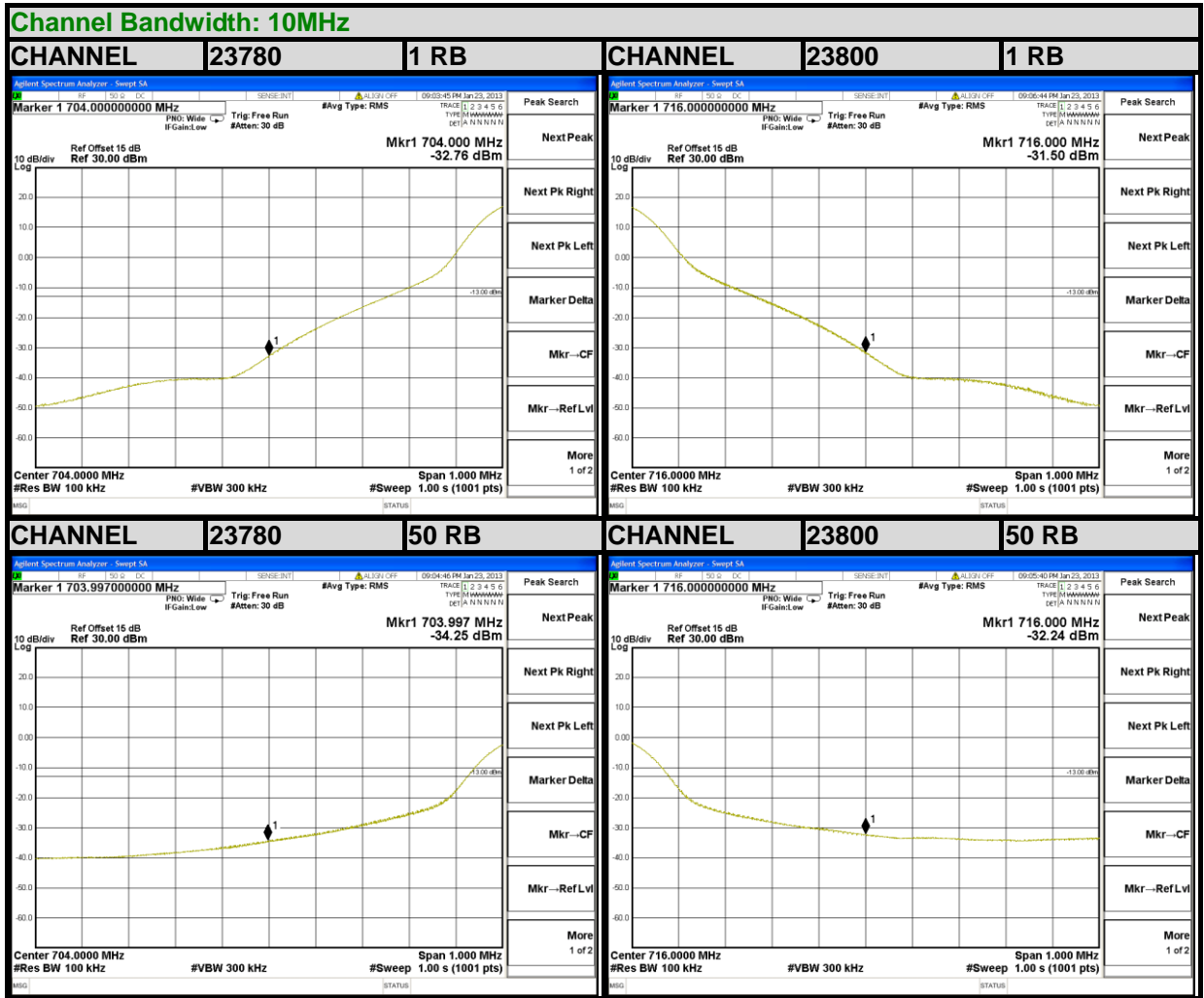
#### 4.5.3 TEST PROCEDURES

- 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 2 MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz.
- d. Record the max trace plot into the test report.

### 4.5.4 TEST RESULTS

#### LTE BAND 17

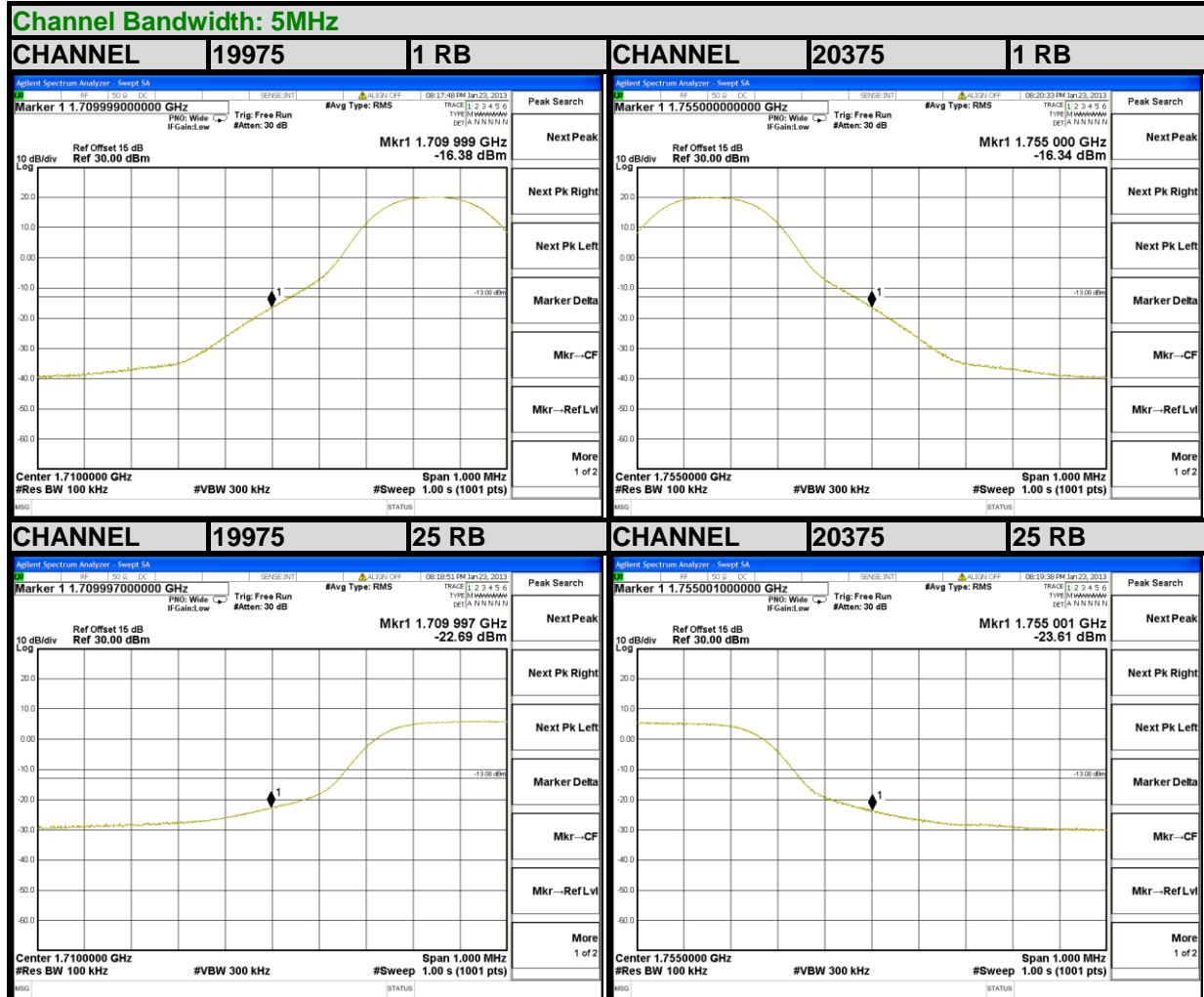


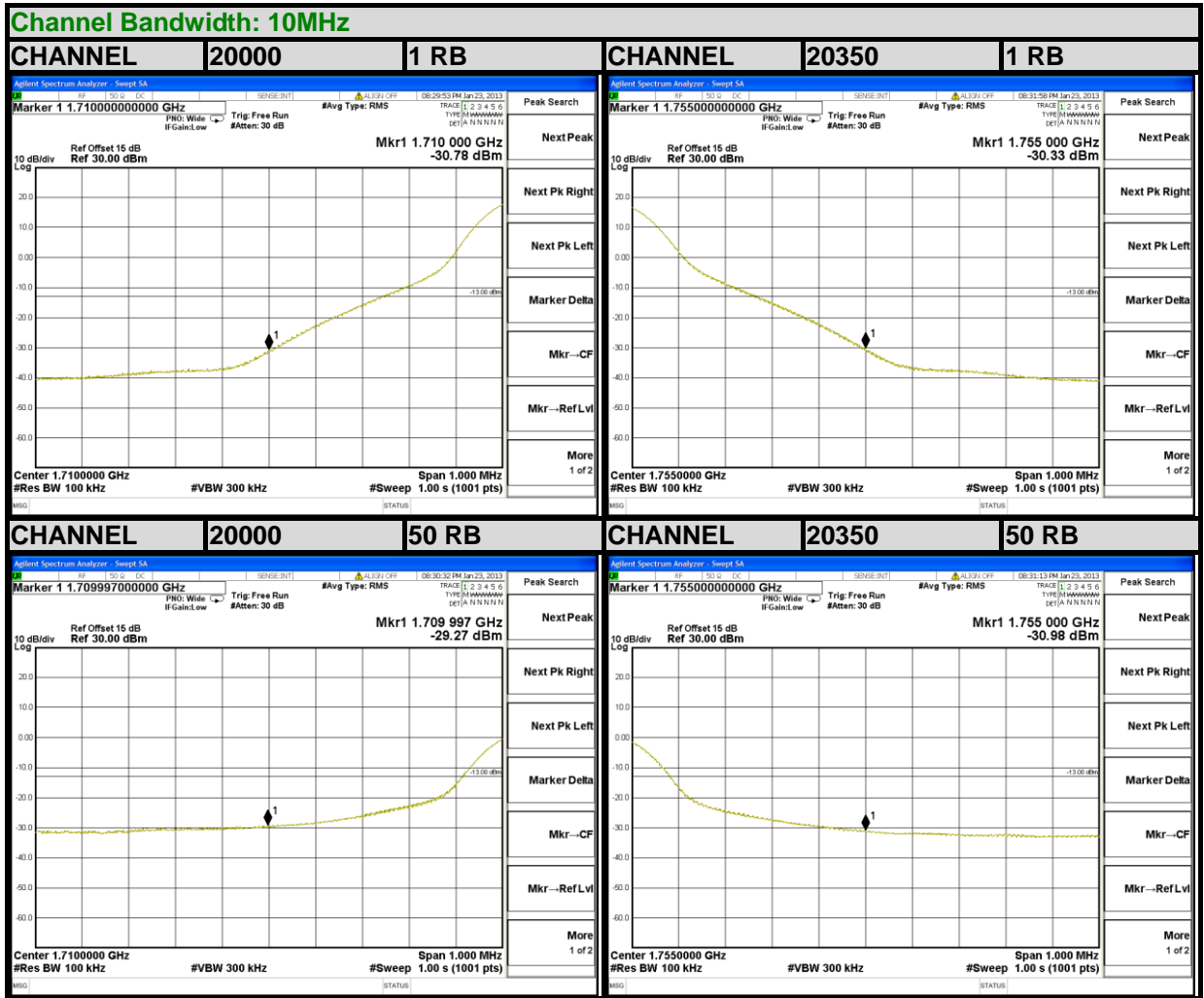




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### LTE BAND 4





## 4.6 CONDUCTED SPURIOUS EMISSIONS

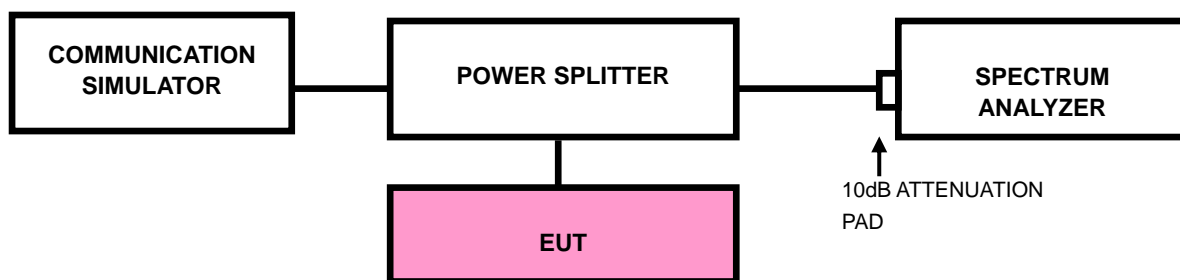
### 4.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

### 4.6.2 TEST PROCEDURE

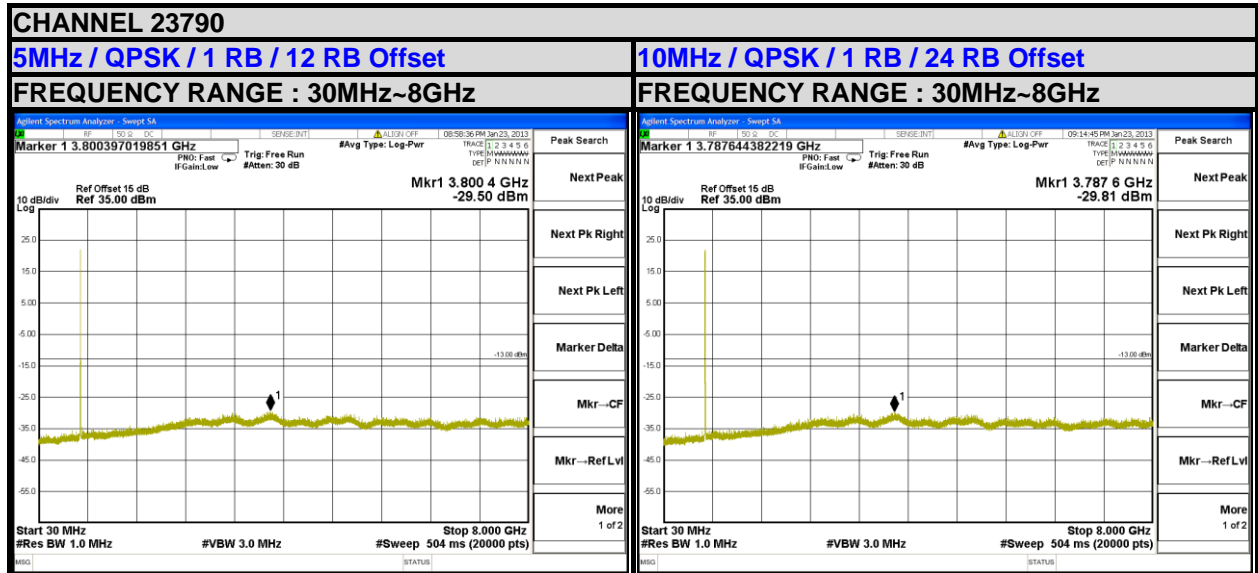
- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 30 MHz to 8GHz for LTE Band 17 and from 30MHz to 18GHz for LTE Band 4. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

### 4.6.3 TEST SETUP

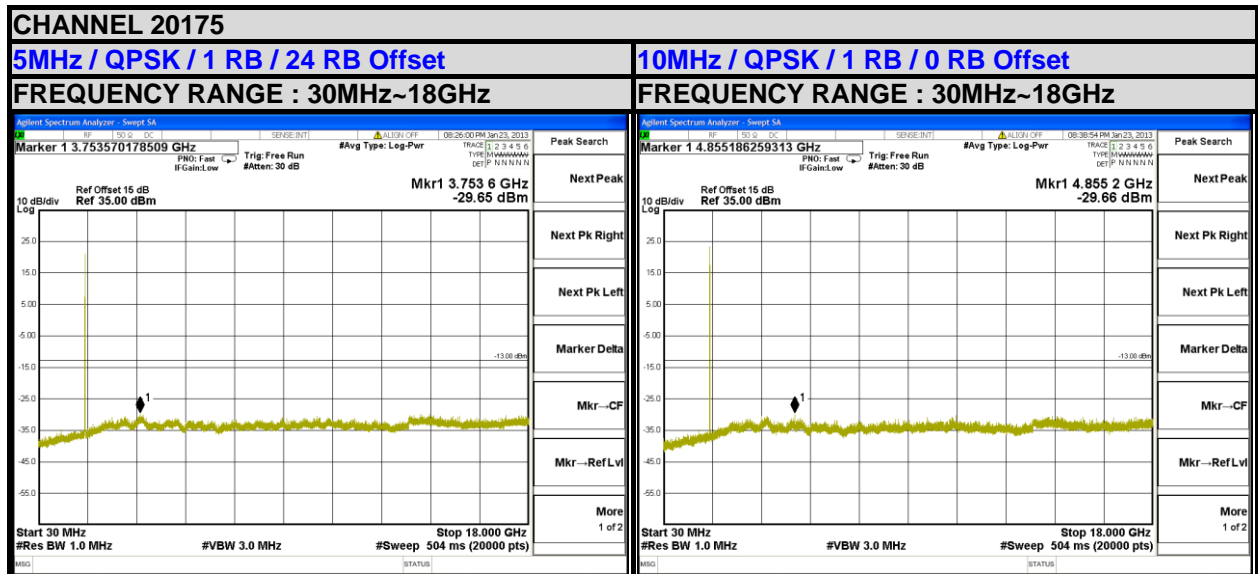


### 4.6.4 TEST RESULTS

#### LTE BAND 17



#### LTE BAND 4



## 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  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

### 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.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi.}$

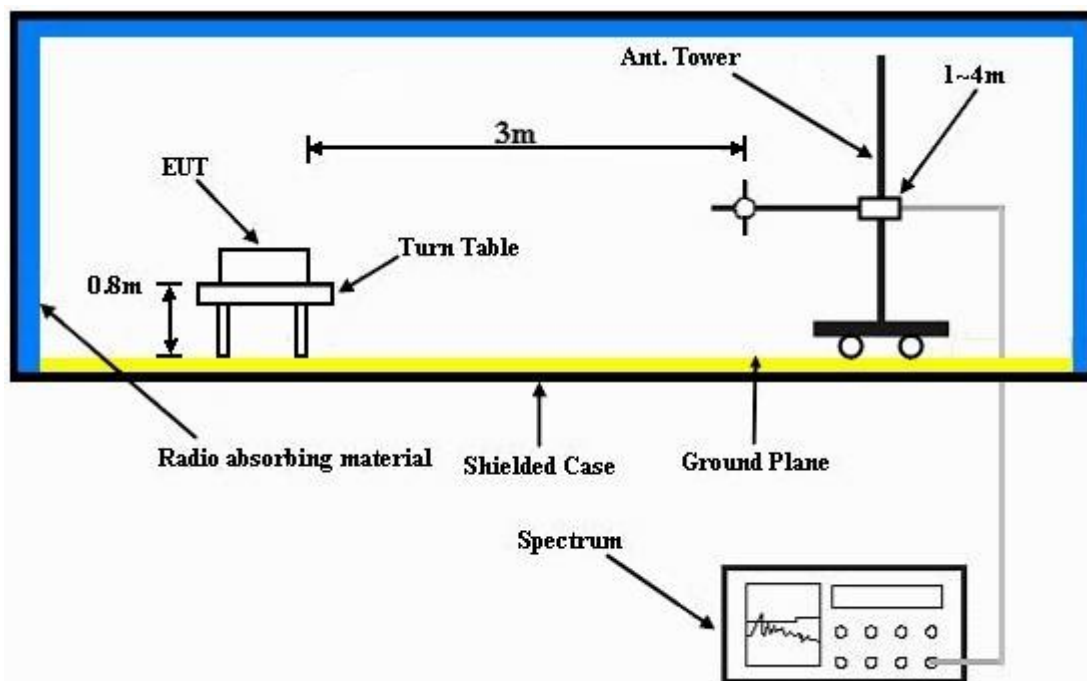
**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

### 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

TEST MODE A

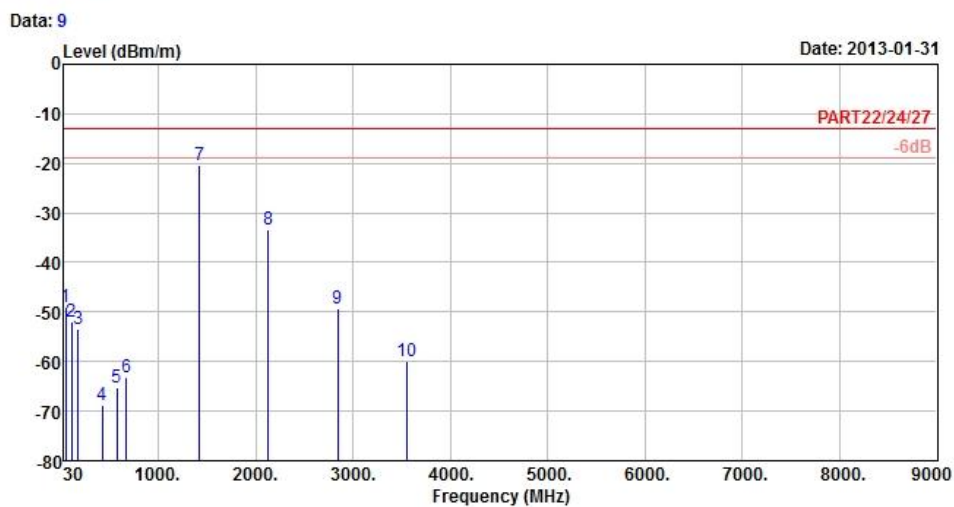
LTE BAND 17

CHANNEL BANDWIDTH: 10MHz / QPSK



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T



Site : 966 Chamber 5  
 Condition : PART22/24/27 3m HORIZONTAL  
 Brand/Model: 121225C13  
 Remark : LTE\_Band 17\_10M\_QPSK(1,24)  
 Tested by : Kay Wu  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Z

	Freq	Level	Read	Limit	Over		
	MHz	dBm/m	Level	Line	Limit	Factor	Remark
			dBm	dBm/m	dB	dB/m	
1	45.12	-49.11	-47.35	-13.00	-36.11	-1.76	Peak
2	110.19	-51.88	-41.25	-13.00	-38.88	-10.63	Peak
3	178.77	-53.50	-47.46	-13.00	-40.50	-6.04	Peak
4	426.00	-68.65	-63.67	-13.00	-55.65	-4.98	Peak
5	576.50	-65.23	-64.21	-13.00	-52.23	-1.02	Peak
6	667.50	-63.31	-64.17	-13.00	-50.31	0.86	Peak
7 pp	1420.00	-20.51	-8.00	-13.00	-7.51	-12.51	Peak
8	2130.00	-33.50	-23.14	-13.00	-20.50	-10.36	Peak
9	2840.00	-49.17	-41.07	-13.00	-36.17	-8.10	Peak
10	3550.00	-60.03	-52.77	-13.00	-47.03	-7.26	Peak



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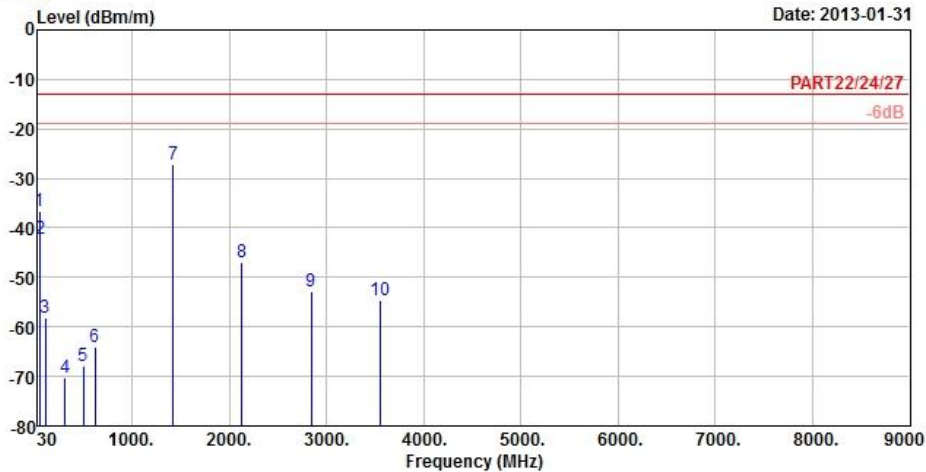


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2013-01-31



Site : 966 Chamber 5  
 Condition : PART22/24/27 3m VERTICAL  
 Brand/Model: 121225C13  
 Remark : LTE\_Band 17\_10M\_QPSK(1,24)  
 Tested by : Kay Wu  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Z

	Freq	Level	Read	Limit	Over		
	MHz	dBm/m	Level	Line	Limit	Factor	Remark
			dBm	dBm/m	dB	dB/m	
1	44.58	-36.61	-35.42	-13.00	-23.61	-1.19	Peak
2	58.08	-42.21	-36.41	-13.00	-29.21	-5.80	Peak
3	106.95	-58.26	-47.71	-13.00	-45.26	-10.55	Peak
4	311.90	-70.40	-64.11	-13.00	-57.40	-6.29	Peak
5	498.10	-68.02	-64.88	-13.00	-55.02	-3.14	Peak
6	615.70	-64.07	-64.00	-13.00	-51.07	-0.07	Peak
7 pp	1420.00	-27.21	-14.70	-13.00	-14.21	-12.51	Peak
8	2130.00	-47.07	-36.71	-13.00	-34.07	-10.36	Peak
9	2840.00	-52.93	-44.83	-13.00	-39.93	-8.10	Peak
10	3550.00	-54.66	-47.40	-13.00	-41.66	-7.26	Peak

**LTE BAND 4**

**CHANNEL BANDWIDTH: 10MHz / QPSK**

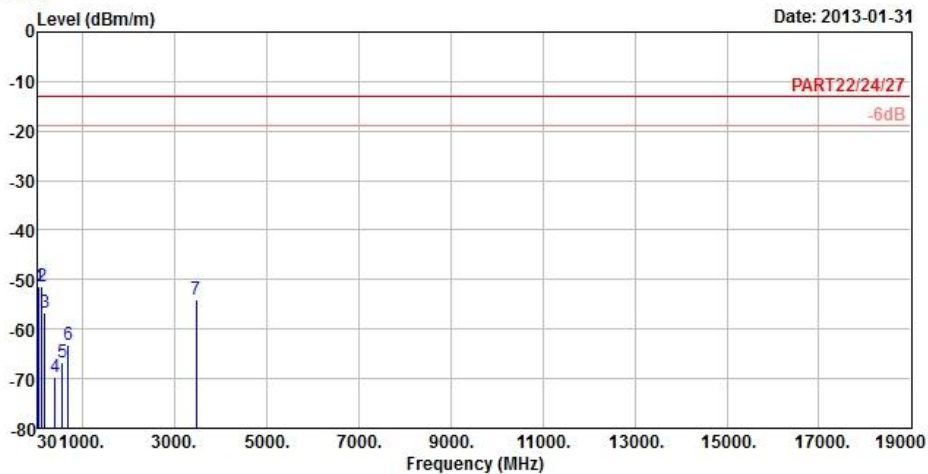


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 13

Date: 2013-01-31



Site : 966 Chamber 5  
 Condition : PART22/24/27 3m HORIZONTAL  
 Brand/Model: 121225C13  
 Remark : LTE\_Band 4\_10M\_QPSK(1,0)  
 Tested by : Kay Wu  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	42.96	-51.37	-50.04	-13.00	-38.37	-1.33	Peak
2 pp	108.30	-51.29	-40.70	-13.00	-38.29	-10.59	Peak
3	178.50	-56.71	-50.67	-13.00	-43.71	-6.04	Peak
4	400.80	-69.66	-64.04	-13.00	-56.66	-5.62	Peak
5	554.80	-66.71	-65.11	-13.00	-53.71	-1.60	Peak
6	694.10	-63.26	-64.61	-13.00	-50.26	1.35	Peak
7	3465.00	-54.04	-46.41	-13.00	-41.04	-7.63	Peak



A D T

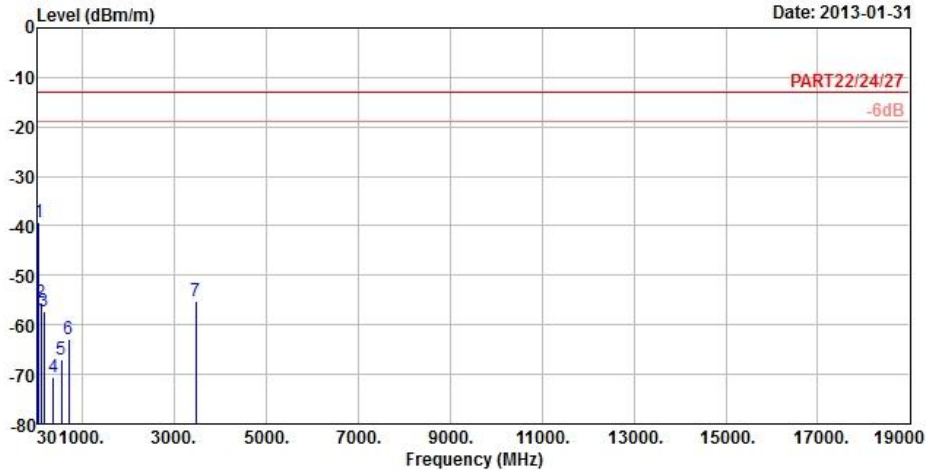


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 14

Date: 2013-01-31



Site : 966 Chamber 5  
 Condition : PART22/24/27 3m VERTICAL  
 Brand/Model: 121225C13  
 Remark : LTE\_Band 4\_10M\_QPSK(1,0)  
 Tested by : Kay Wu  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Y

	Freq	Level	Read	Limit	Over	
	MHz	dBm/m	Level	Line	Limit	Factor Remark
			dBm	dBm/m	dB	dB/m
1	pp	44.58	-39.37	-38.18	-13.00	-26.37 -1.19 Peak
2		105.60	-55.59	-45.06	-13.00	-42.59 -10.53 Peak
3		164.19	-57.41	-50.83	-13.00	-44.41 -6.58 Peak
4		374.90	-70.48	-64.66	-13.00	-57.48 -5.82 Peak
5		538.00	-67.02	-64.97	-13.00	-54.02 -2.05 Peak
6		710.20	-62.82	-64.34	-13.00	-49.82 1.52 Peak
7		3465.00	-55.12	-47.49	-13.00	-42.12 -7.63 Peak



A D T

TEST MODE B

LTE BAND 17

CHANNEL BANDWIDTH: 10MHz / QPSK

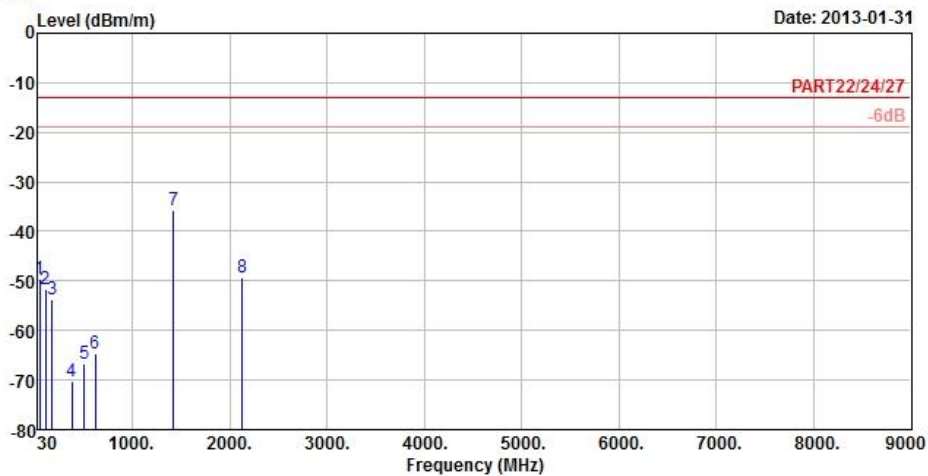


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 9

Date: 2013-01-31



Site : 966 Chamber 5  
 Condition : PART22/24/27 3m HORIZONTAL  
 Brand/Model: 121225C13  
 Remark : LTE\_Band 17\_10M\_QPSK(1,24)  
 Tested by : Kay Wu  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : X

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	45.12	-49.45	-47.69	-13.00	-36.45	-1.76	Peak
2	110.46	-51.76	-41.13	-13.00	-38.76	-10.63	Peak
3	177.96	-53.68	-47.64	-13.00	-40.68	-6.04	Peak
4	378.40	-70.14	-64.34	-13.00	-57.14	-5.80	Peak
5	506.50	-66.69	-63.76	-13.00	-53.69	-2.93	Peak
6	615.00	-64.62	-64.53	-13.00	-51.62	-0.09	Peak
7 pp	1420.00	-35.80	-23.29	-13.00	-22.80	-12.51	Peak
8	2130.00	-49.20	-38.84	-13.00	-36.20	-10.36	Peak



A D T

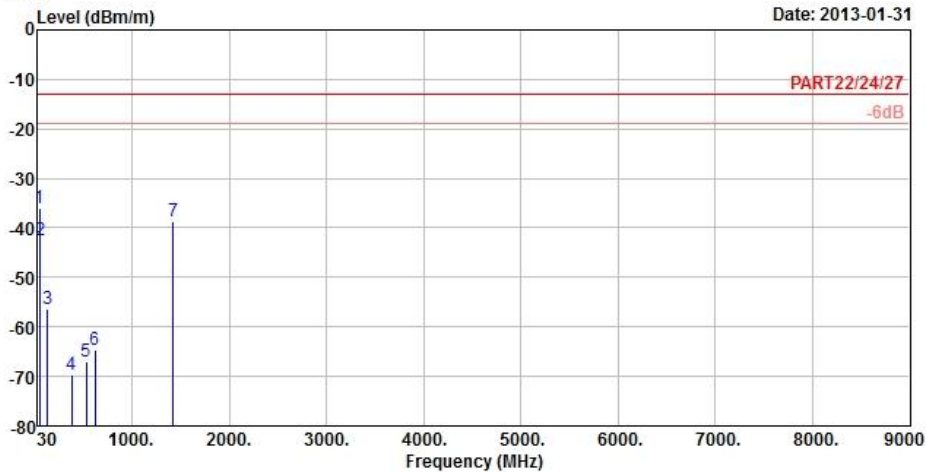


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 10

Date: 2013-01-31



Site : 966 Chamber 5  
 Condition : PART22/24/27 3m VERTICAL  
 Brand/Model: 121225C13  
 Remark : LTE\_Band 17\_10M\_QPSK(1,24)  
 Tested by : Kay Wu  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : X

	Freq	Level	Read	Limit	Over		
	MHz	dBm/m	Level	Line	Limit	Factor	Remark
			dBm	dBm/m	dB	dB/m	
1	pp	44.31	-36.03	-34.84	-13.00	-23.03	-1.19 Peak
2		57.81	-42.39	-36.59	-13.00	-29.39	-5.80 Peak
3		126.93	-56.42	-47.39	-13.00	-43.42	-9.03 Peak
4		379.80	-69.58	-63.80	-13.00	-56.58	-5.78 Peak
5		527.50	-66.89	-64.54	-13.00	-53.89	-2.35 Peak
6		615.00	-64.66	-64.57	-13.00	-51.66	-0.09 Peak
7		1420.00	-38.57	-26.06	-13.00	-25.57	-12.51 Peak





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### LTE BAND 4

### CHANNEL BANDWIDTH: 10MHz / QPSK

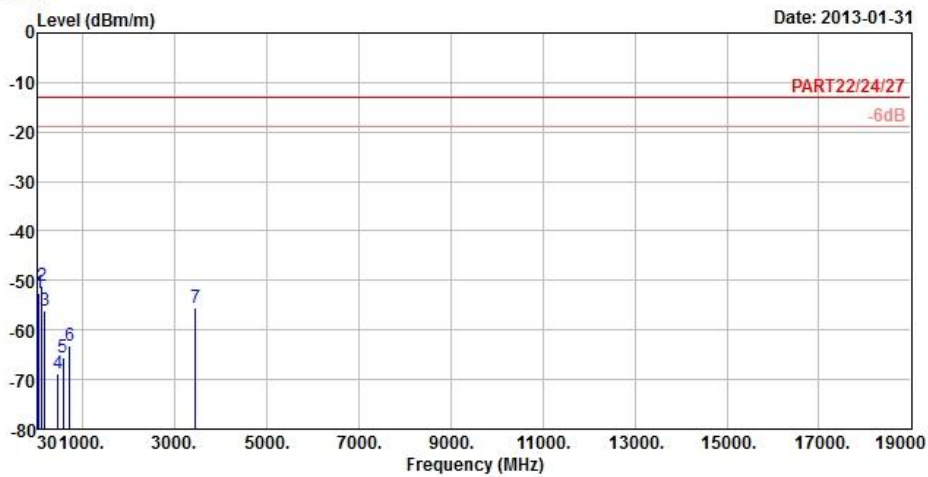


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 15

Date: 2013-01-31



Site : 966 Chamber 5  
 Condition : PART22/24/27 3m HORIZONTAL  
 Brand/Model: 121225C13  
 Remark : LTE\_Band 4\_10M\_QPSK(1,0)  
 Tested by : Kay Wu  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Y  
 Sample : 2nd

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	42.96	-52.51	-51.18	-13.00	-39.51	-1.33	Peak
2 pp	110.73	-51.02	-40.39	-13.00	-38.02	-10.63	Peak
3	178.77	-56.19	-50.15	-13.00	-43.19	-6.04	Peak
4	461.00	-68.65	-64.55	-13.00	-55.65	-4.10	Peak
5	576.50	-65.68	-64.66	-13.00	-52.68	-1.02	Peak
6	720.70	-63.20	-64.79	-13.00	-50.20	1.59	Peak
7	3456.20	-55.52	-47.86	-13.00	-42.52	-7.66	Peak





A D T

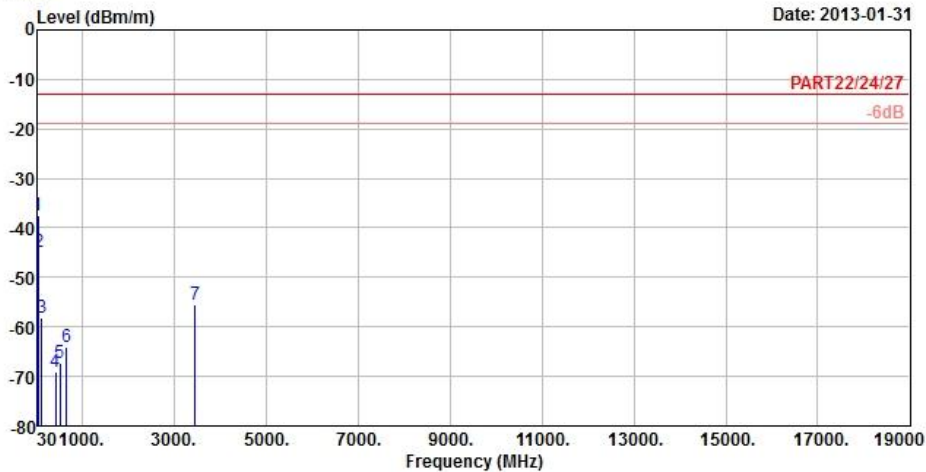


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 16

Date: 2013-01-31



Site : 966 Chamber 5  
 Condition : PART22/24/27 3m VERTICAL  
 Brand/Model: 121225C13  
 Remark : LTE\_Band 4\_10M\_QPSK(1,0)  
 Tested by : Kay Wu  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Y  
 Sample : 2nd

	Freq	Level	Read	Limit	Over	
	MHz	dBm/m	Level	Line	Limit	Factor Remark
			dBm	dBm/m	dB	dB/m
1	pp	42.69	-37.60	-36.27	-13.00	-24.60 -1.33 Peak
2		55.65	-44.89	-39.54	-13.00	-31.89 -5.35 Peak
3		106.41	-58.21	-47.66	-13.00	-45.21 -10.55 Peak
4		418.30	-69.13	-63.96	-13.00	-56.13 -5.17 Peak
5		515.60	-67.36	-64.70	-13.00	-54.36 -2.66 Peak
6		660.50	-64.09	-64.82	-13.00	-51.09 0.73 Peak
7		3456.20	-55.51	-47.85	-13.00	-42.51 -7.66 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:

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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](mailto:service.adt@tw.bureauveritas.com)

**Web Site:** [www.adt.com.tw](http://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---**