



# FCC TEST REPORT (PART 90S)

**REPORT NO.:** RF120117C24-7

**MODEL NO.:** PJ75100

**FCC ID:** NM8PJ75100

**RECEIVED:** Jan. 17, 2012

**TESTED:** Feb. 02 ~ Mar. 26, 2012

**ISSUED:** Mar. 26, 2012

**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.,  
New Taipei City, Taiwan (R.O.C)

**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei  
Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	N/A	Mar. 26, 2012



# 1 CERTIFICATION

**PRODUCT:** Smartphone

**MODEL:** PJ75100

**BRAND:** HTC

**APPLICANT:** HTC Corporation

**TESTED :** Feb. 02 ~ Feb. 14, 2012

**TEST SAMPLE:** Production Unit

**STANDARDS : FCC Part 90, Subpart S**

The above equipment (model: PJ75100) 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** : Mar. 26, 2012  
Ivonne Wu / Senior Specialist

**APPROVED BY** : Gary Chang , **DATE** : Mar. 26, 2012  
Gary Chang / Technical Manager

## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 90 & Part 2			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
2.1046 90.635 (b)	Maximum Peak Output Power Limit: max. 100 watts e.r.p peak power	PASS	Meet the requirement of limit. Max. e.r.p is 20.01dBm at 817.9MHz.
2.1055 90.213	Frequency Stability AFC Freq. Error vs. Voltage AFC Freq. Error vs. Temperature Limit: max. $\pm 2.5$ ppm	PASS	Meet the requirement of limit.
2.1049 90.209	Occupied Bandwidth (*)	PASS	Meet the requirement of limit.
2.1051 90.691	Emission Masks	PASS	Meet the requirement of limit.
2.1051 90.691	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 90.691	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -13.78dB at 44.31MHz.

Note: (\*) The test case of bandwidth limitations is waiver, and please refer to appendix B.

### 2.1 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 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  $k=2$ .

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>EUT</b>	Smartphone	
<b>MODEL NO.</b>	PJ75100	
<b>POWER SUPPLY</b>	5.0Vdc (adapter or host equipment) 3.7Vdc (Li-ion battery)	
<b>MODULATION TYPE</b>	<b>CDMA</b>	QPSK, OQPSK, HPSK
<b>FREQUENCY RANGE</b>	<b>CDMA</b>	817.9MHz ~ 822.75MHz
<b>MAX. ERP POWER</b>	<b>CDMA</b>	0.10Watts
<b>ANTENNA TYPE</b>	Fixed Internal antenna with -2dBi gain for CDMA Fixed Internal antenna with -3.5dBi gain for EVDO	
<b>I/O PORTS</b>	Refer to users' manual	
<b>DATA CABLE</b>	Refer to Note as below	
<b>ACCESSORY DEVICES</b>	Refer to Note as below	

**NOTE:**

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

### 3.2 DESCRIPTION OF TEST MODES

The device includes CDMA and EV-DO transmitter. CDMA transmitter only supports 1x RTT without EV-DO mode. EV-DO transmitter only supports EV-DO without 1x RTT mode.

	CHANNEL	FREQUENCY	TX MODE
LOW	476	817.9 MHz	1xEVDO Rev. 0 & Rev. A
MIDDLE	573	820.325 MHz	1xEVDO Rev. 0 & Rev. A
HIGH	670	822.75 MHz	1xEVDO Rev. 0 & Rev. A

**NOTE:**

1. Below 1 GHz, the channel 476, 573 and 670 were pre-tested in chamber. The channel 384 was the worst case and chosen for final test.
2. Above 1 GHz, the channel 573 was tested individually.
3. The channel space is 0.03MHz.
4. After pretest of output power and spurious emission for rev 0 and rev A, measured value of rev 0 is higher than rev A mode. Therefore, all tests were performed under rev 0 mode.

	CHANNEL	FREQUENCY	TX MODE
LOW	476	817.9 MHz	CDMA2000
MIDDLE	573	820.325 MHz	CDMA2000
HIGH	670	822.75 MHz	CDMA2000

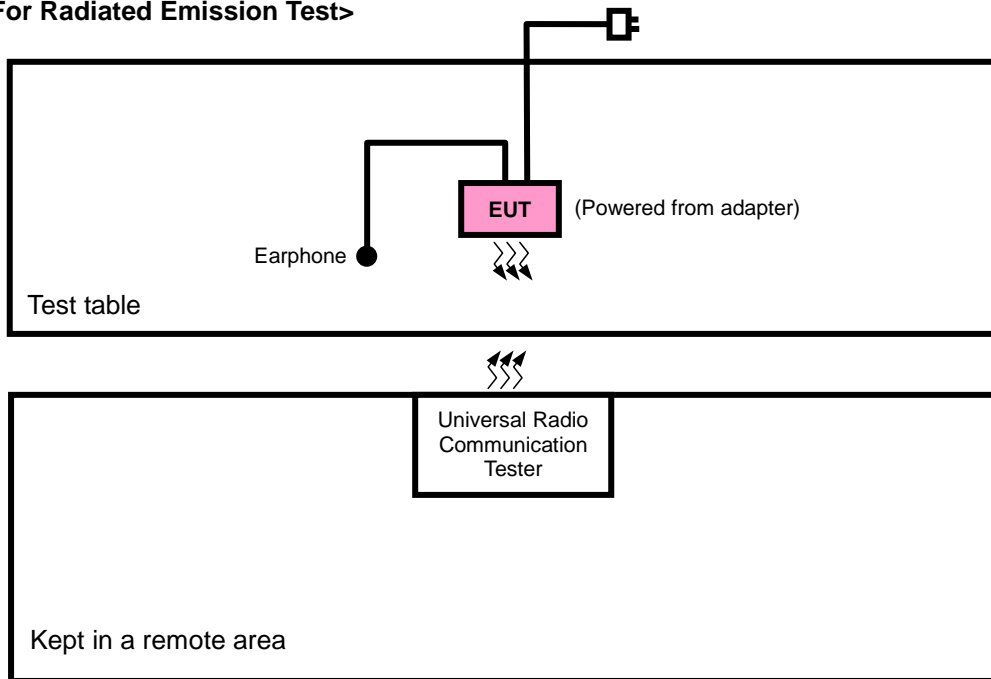
**NOTE:**

1. Below 1 GHz, the channel 476, 573 and 670 were pre-tested in chamber. The channel 573 was the worst case and chosen for final test.
2. Above 1 GHz, the channel 573 was tested individually.
3. The channel space is 0.03MHz.

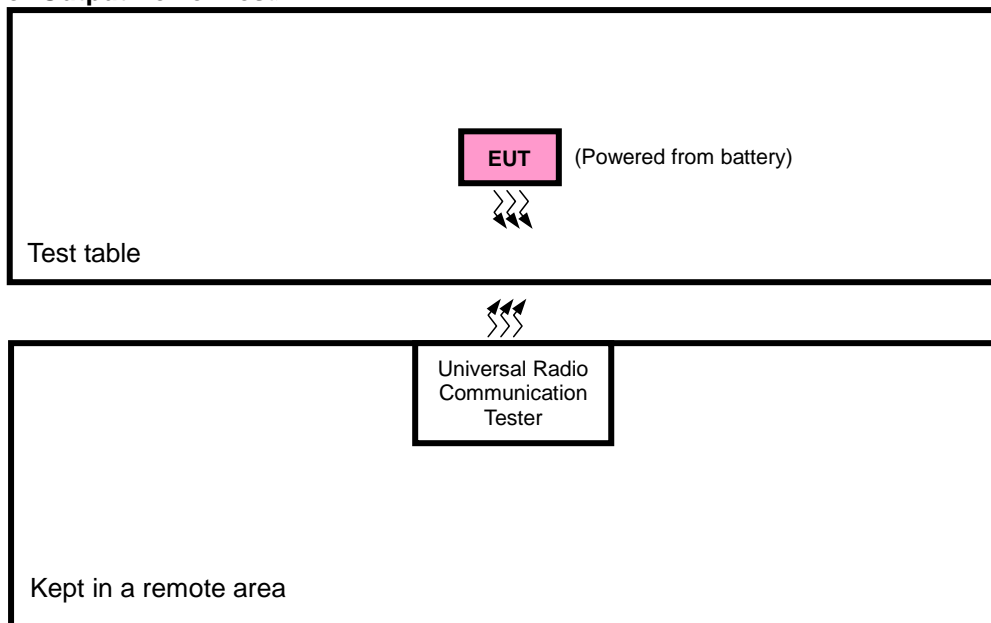


### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

#### <For Radiated Emission Test>



#### <For Output Power Test>



### 3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Universal Radio Communication Tester	R&S	CMU200	104484	NA
2	Radio Communication Analyzer	Anritsu	MT8820C	6201010284	NA
3	Earphone	Merry	RC E190	NA	NA

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

**NOTE 1:** All power cords of the above support units are non shielded (1.8m).

**NOTE 2:** Item 1-2 acted as a communication partners to transfer data.

**NOTE 3:** Item 3 was provided by client.

### 3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

#### FOR CDMA:

EUT CONFIGURE MODE	APPLICABLE TO						DESCRIPTION
	OP	FS	OB	EM	CE	RE	
-	√	√	√	√	√	√	-

Where **OP:** Output power **FS:** Frequency stability  
**OB:** Occupied bandwidth **EM:** Emission Masks  
**CE:** Conducted spurious emissions **RE:** Radiated emission

#### OUTPUT POWER MEASUREMENT:

- 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 (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	AXIS
476 to 670	476, 573, 670	CDMA	X
476 to 670	476, 573, 670	1xEVDO Rev. 0	Y

#### FREQUENCY STABILITY MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
476 to 670	573	CDMA

#### OCCUPIED BANDWIDTH MEASUREMENT:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
476 to 670	573	CDMA

**EMISSION MASKS MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
476 to 670	476, 573, 670	CDMA

**CONDUCTED SPURIOUS EMISSIONS MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
476 to 670	573	CDMA

**RADIATED EMISSION MEASUREMENT:**

- 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 (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	AXIS
476 to 670	573	CDMA	Z
476 to 670	573	1xEVDO Rev. 0	Y

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	25deg. C, 53%RH	3.7Vdc	Phoenix Chen
FS	25deg. C, 53%RH	3.7Vdc	Phoenix Chen
OB	25deg. C, 53%RH	3.7Vdc	Phoenix Chen
EM	25deg. C, 53%RH	3.7Vdc	Phoenix Chen
BE	25deg. C, 53%RH	3.7Vdc	Phoenix Chen
CE	25deg. C, 53%RH	3.7Vdc	Phoenix Chen
RE	25deg. C, 65%RH	120Vac, 60Hz	David Huang



### **3.4 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 90**

**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**

The radiated peak output power shall be according to the specific rule Part 90.635 that "Mobile station are limited to 100 watts e.r.p".

#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2011	Apr. 18, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 04, 2011	Aug. 03, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Sep. 06, 2011	Sep. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 20, 2011	Jul. 19, 2012
Preamplifier Agilent	8449B	3008A01911	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8447D	2944A10638	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 13, 2011	Aug. 12, 2012
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn Table Controller EMCO	2090	NA	NA	NA

- 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.

### 4.1.3 TEST PROCEDURES

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

- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 476, 573 and 670 (CDMA) (low, middle and high operational frequency range.)
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value“ of step c. Record the power level of S.G
- d.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$
- e. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  
 $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi.}$

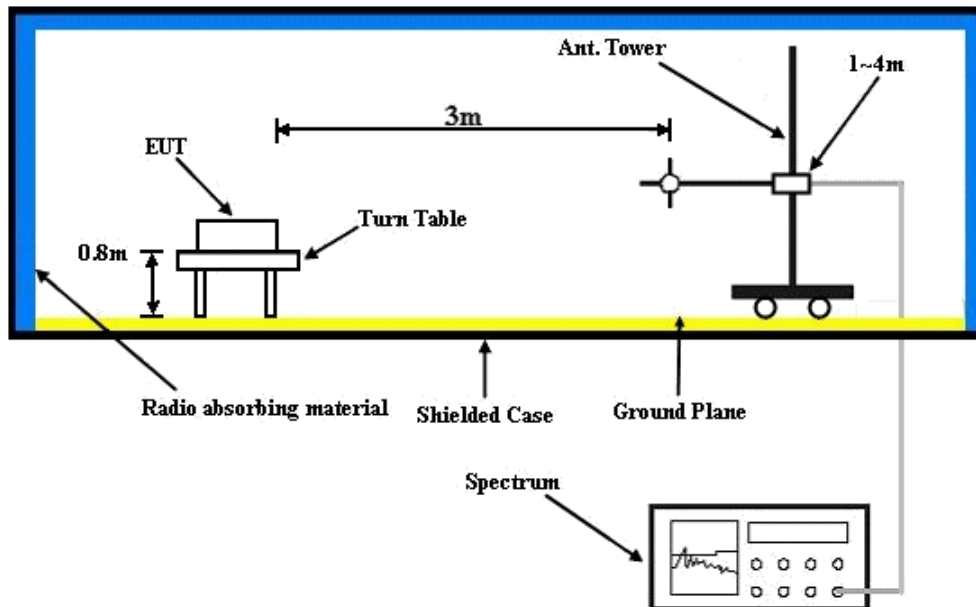
#### **CONDUCTED POWER MEASUREMENT:**

- a. The EUT was set up for the maximum power with CDMA 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.



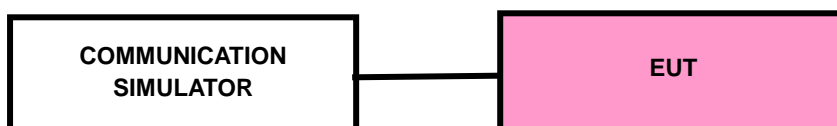
#### 4.1.4 TEST SETUP

##### EIRP / ERP MEASUREMENT:



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

##### CONDUCTED POWER MEASUREMENT:



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

#### 4.1.5 EUT OPERATING CONDITIONS

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

#### 4.1.6 TEST RESULTS

##### CONDUCTED OUTPUT POWER (dBm)

Band	CDMA2000 BC0		
	476	573	670
Channel	476	573	670
Frequency	817.9	820.325	822.75
RC1+SO55	25.03	25.02	24.76
RC3+SO55	25.04	25.03	24.71
RC3+SO32(+ F-SCH)	25.02	25.02	24.73
RC3+SO32(+SCH)	25.03	25.01	24.71
RTAP 153.6	23.92	23.99	23.75
RETAP 4096	23.96	24.07	23.84

##### ERP POWER

##### FOR CDMA MODE

Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(W)	Polarization (H/V)
X	476	817.9	-10.47	32.63	20.01	0.10	H
	573	820.325	-10.63	32.74	19.96	0.10	H
	670	822.75	-11.18	32.83	19.50	0.09	H
	476	817.9	-19.75	32.77	10.87	0.01	V
	573	820.325	-19.79	32.61	10.67	0.01	V
	670	822.75	-20.04	32.72	10.53	0.01	V

##### FOR 1xEVDO Rev. 0 MODE

Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	ERP(dBm)	ERP(W)	Polarization (H/V)
Y	476	817.9	-12.38	32.63	18.10	0.06	H
	573	820.325	-11.89	32.74	18.70	0.07	H
	670	822.75	-11.93	32.83	18.75	0.07	H
	476	817.9	-19.56	32.77	11.06	0.01	V
	573	820.325	-19.08	32.61	11.38	0.01	V
	670	822.75	-19.44	32.72	11.13	0.01	V



## 4.2 FREQUENCY STABILITY MEASUREMENT

### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

1.5 ppm for fixed and base station. 2.5 ppm is for mobile station

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Spectrum Analyzer Agilent	E4446A	MY43360128	Feb. 22, 2011	Feb. 21, 2012
Hewlett Packard RF cable	8120-6192	01428251	NA	NA
RF cable	SUCOFLEX 104	257029	Sep. 11, 2011	Sep. 10, 2012
WIT Standard Temperature & Humidity Chamber	MHU-225AU	920842	Jun. 15, 2011	Jun. 14, 2012

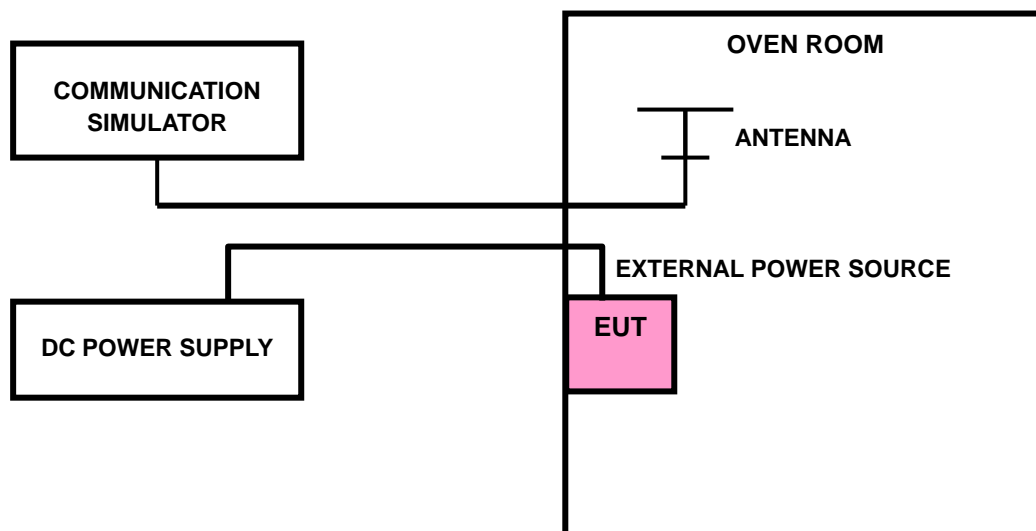
**NOTE:** The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

#### 4.2.3 TEST PROCEDURE

- a. Because of the measure the carrier frequency under the condition of the AFC lock, it shall be used the mobile station in the CDMA link mode. This is accomplished with the use of the R&S CMU200 simulator station. The oven room could control the temperatures and humidity. The CDMA link channel is the 573.
- b. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- c. EUT is connected the external power supply to control the DC input power. The various Volts from the minimum 3.6Volts to 4.2Volts. Each step shall be record the frequency error rate.
- d. 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.
- e. 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.

#### 4.2.4 TEST SETUP



## 4.2.5 TEST RESULTS

### FOR CDMA:

AFC FREQUENCY ERROR vs. VOLTAGE			
VOLTAGE (Volts)	FREQUENCY ERROR (Hz)	FREQUENCY ERROR (ppm)	LIMIT (ppm)
3.8	-19.81	-0.02	2.5
3.6	-19.17	-0.02	2.5
4.2	-21.35	-0.03	2.5

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

AFC FREQUENCY ERROR vs. TEMP.			
TEMP. (°C)	FREQUENCY ERROR (Hz)	FREQUENCY ERROR (ppm)	LIMIT (ppm)
-10	-13.18	-0.02	2.5
0	-14.33	-0.02	2.5
10	-17.19	-0.02	2.5
20	16.22	0.02	2.5
30	16.98	0.02	2.5
40	19.83	0.02	2.5
50	17.13	0.02	2.5
55	-17.55	-0.02	2.5

### 4.3 OCCUPIED BANDWIDTH MEASUREMENT

#### 4.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

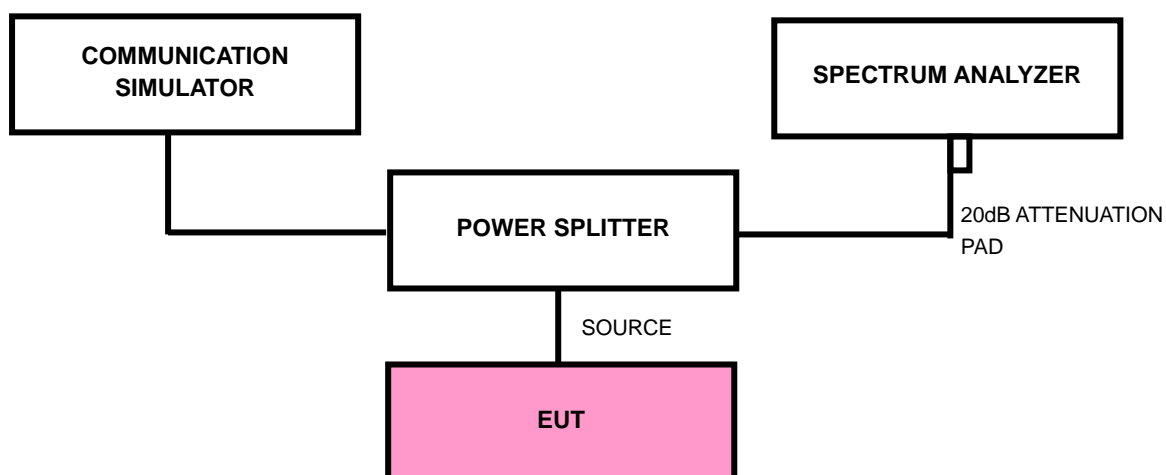
The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

#### 4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
Mini-Circuits Power Splitter	ZN2PD-9G	NA	May 25, 2011	May 24, 2012
RF cable	SUCOFLEX 104	274403/4	Aug. 20, 2011	Aug. 19, 2012
RF cable	SUCOFLEX 104	250729/4	Aug. 19, 2011	Aug. 18, 2012
RF cable	SUCOFLEX 104	214377/4	Aug. 19, 2011	Aug. 18, 2012
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

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

#### 4.3.3 TEST SETUP



#### 4.3.4 TEST PROCEDURES

- a. The EUT makes a call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at channel 573 (CDMA).
- b. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

#### 4.3.5 EUT OPERATING CONDITION

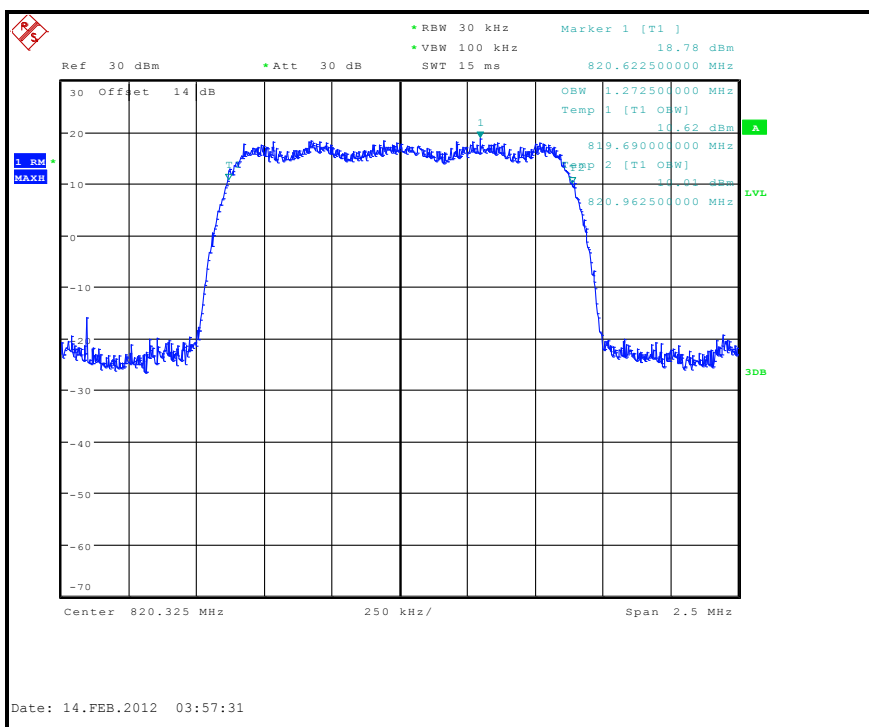
- a. The EUT makes a call to the communication simulator.
- b. The communication simulator station system controlled a EUT to export maximum and minimum output power under transmission mode and specific channel frequency.

### 4.3.6 TEST RESULTS

#### FOR CDMA MODE

CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (MHz)
573	820.325	1.2725

#### CH 573





## 4.4 EMISSION MASK MEASUREMENT

### 4.4.1 LIMITS OF BAND EDGE MEASUREMENT

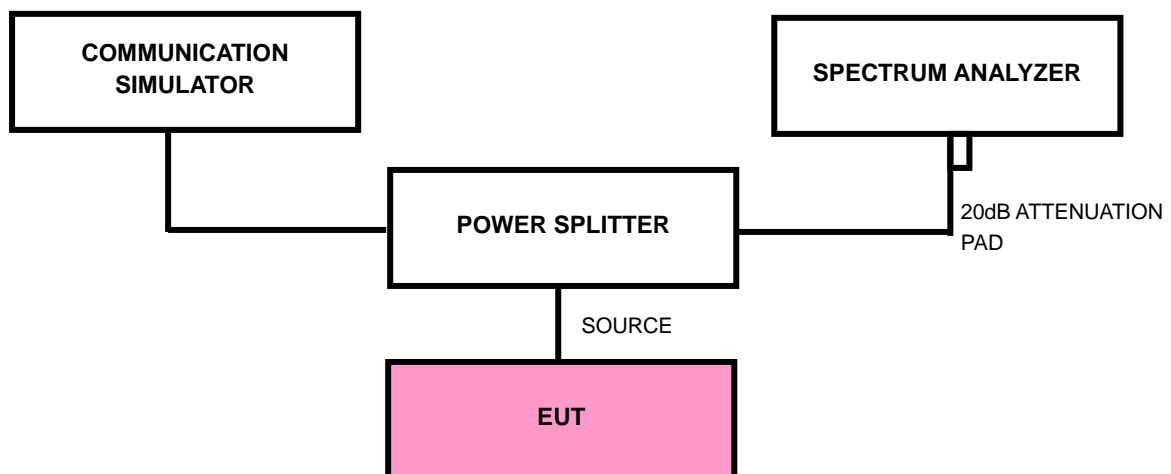
According to FCC part 90.691 shall be tested the emission mask. For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \text{ Log}_{10}(f/6.1)$  decibels or  $50 + 10 \text{ Log}_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

### 4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
Mini-Circuits Power Splitter	ZN2PD-9G	NA	May 25, 2011	May 24, 2012
RF cable	SUCOFLEX 104	274403/4	Aug. 20, 2011	Aug. 19, 2012
RF cable	SUCOFLEX 104	250729/4	Aug. 19, 2011	Aug. 18, 2012
RF cable	SUCOFLEX 104	214377/4	Aug. 19, 2011	Aug. 18, 2012
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

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

### 4.4.3 TEST SETUP



#### 4.4.4 TEST PROCEDURES

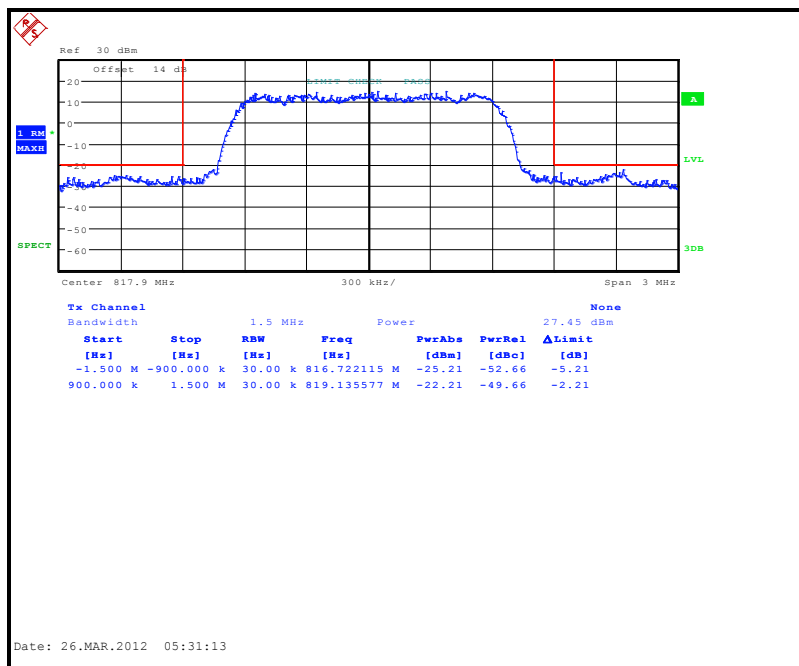
- a. The measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- b. Record the test plot.

#### 4.4.5 EUT OPERATING CONDITION

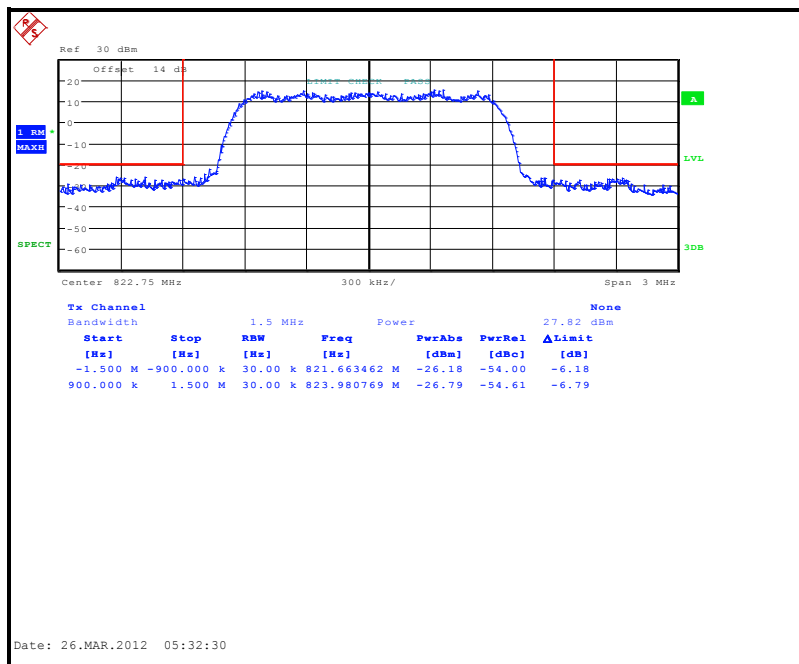
- a. The EUT makes a phone call to the communication simulator.
- b. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

## 4.4.6 TEST RESULTS

### FOR CDMA MODE LOWER CHANNEL



### HIGHER CHANNEL



## 4.5 CONDUCTED SPURIOUS EMISSIONS

### 4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

### 4.5.2 TEST INSTRUMENTS

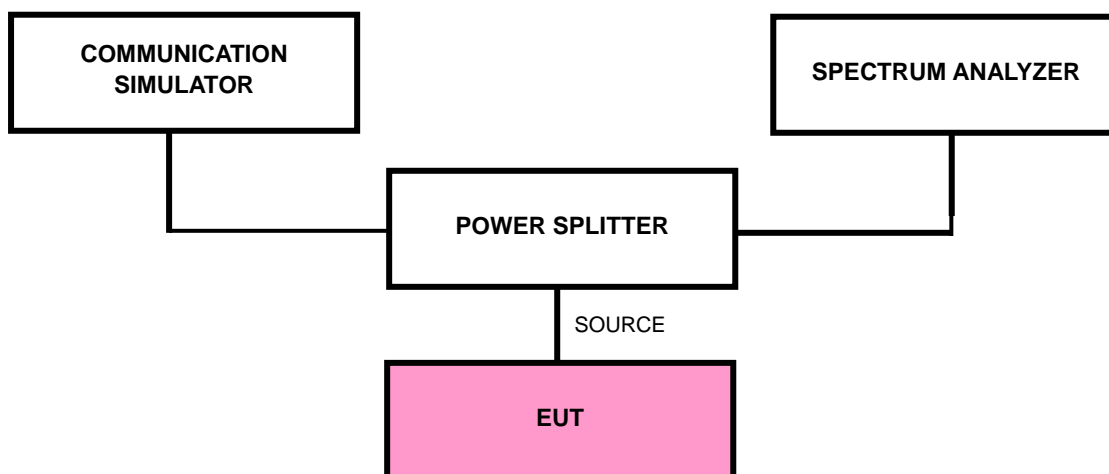
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
SPECTRUM ANALYZER R&S	FSP40	100039	Feb. 23, 2011	Feb. 22, 2012
Mini-Circuits Power Splitter	ZN2PD-9G	NA	May 25, 2011	May 24, 2012
RF cable	SUCOFLEX 104	274403/4	Aug. 20, 2011	Aug. 19, 2012
RF cable	SUCOFLEX 104	250729/4	Aug. 19, 2011	Aug. 18, 2012
RF cable	SUCOFLEX 104	214377/4	Aug. 19, 2011	Aug. 18, 2012
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

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

#### 4.5.3 TEST PROCEDURE

- a. All measurements were done at 3 channels, 476, 573 and 670 (low, middle and high operational frequency range.)
- b. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. Measuring frequency range is from 30 MHz to 9GHz. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

#### 4.5.4 TEST SETUP



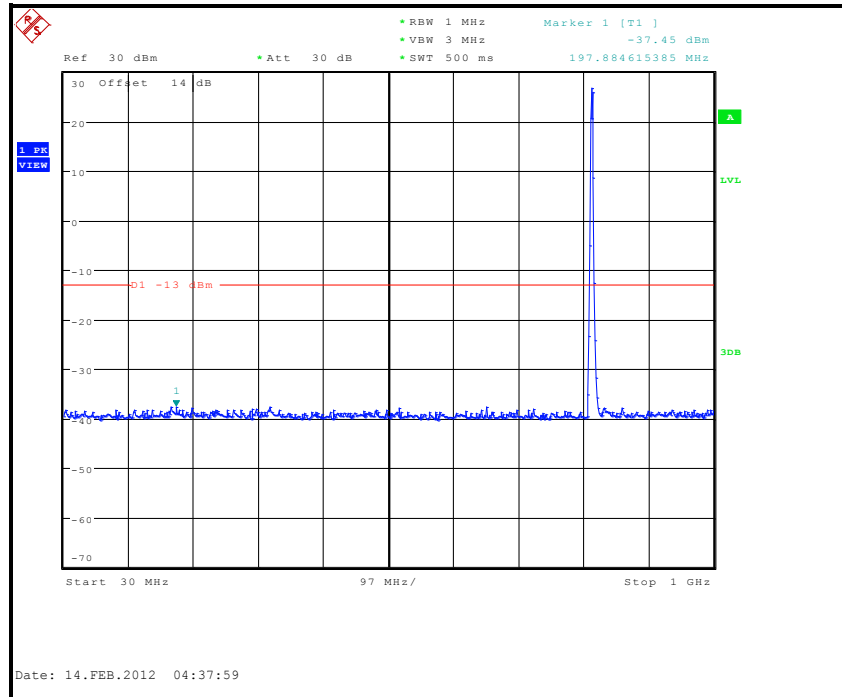
#### 4.5.5 EUT OPERATING CONDITIONS

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

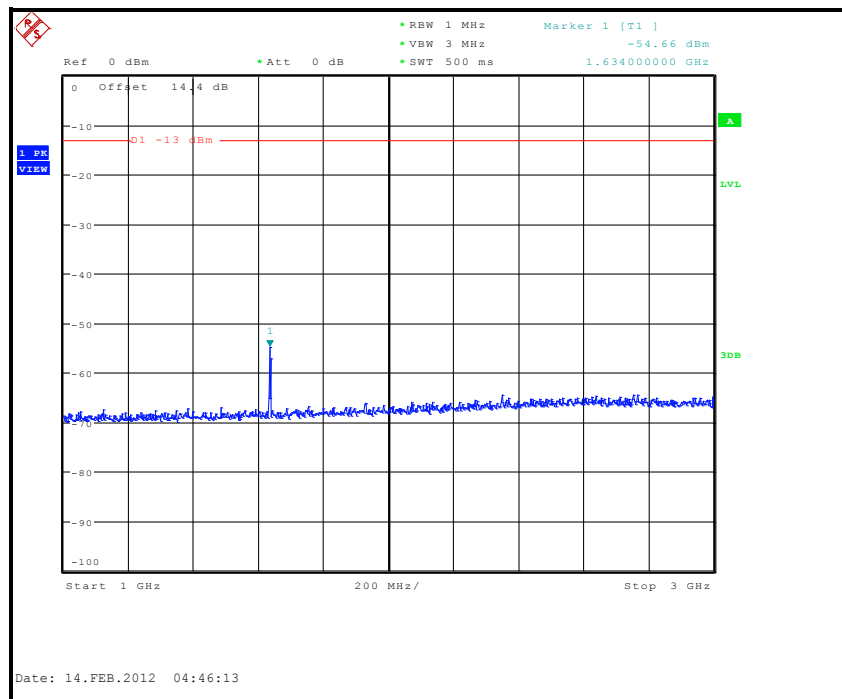
## 4.5.6 TEST RESULTS

**FOR CDMA:**

**CH476: 30MHz ~ 1GHz**



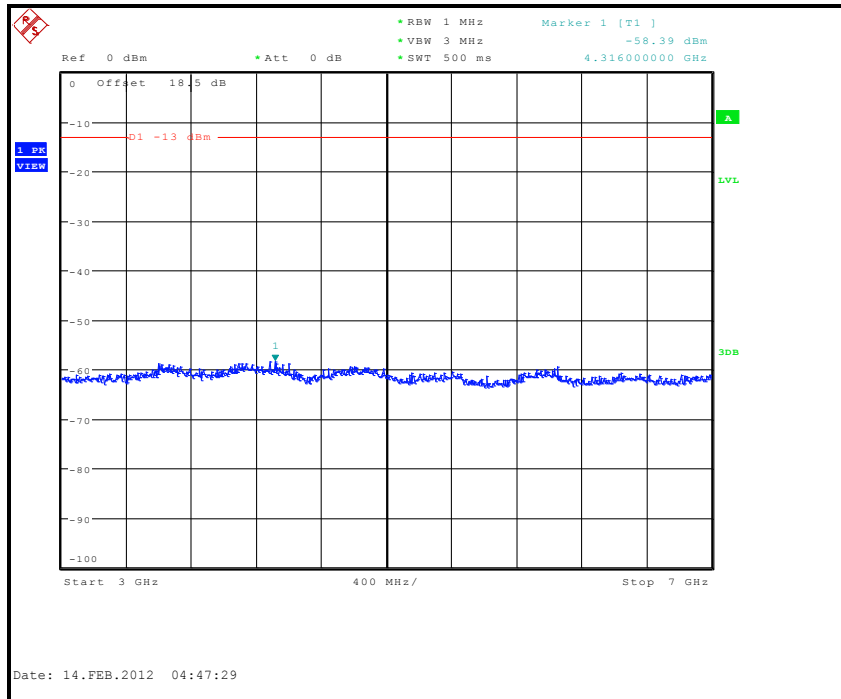
**1GHz ~ 3GHz**



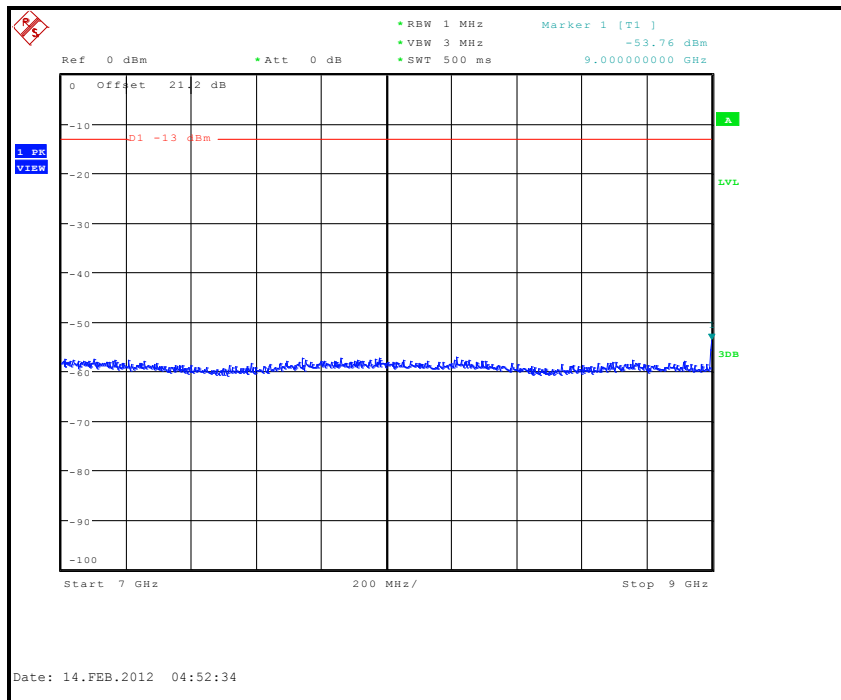


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### 3GHz ~ 7GHz



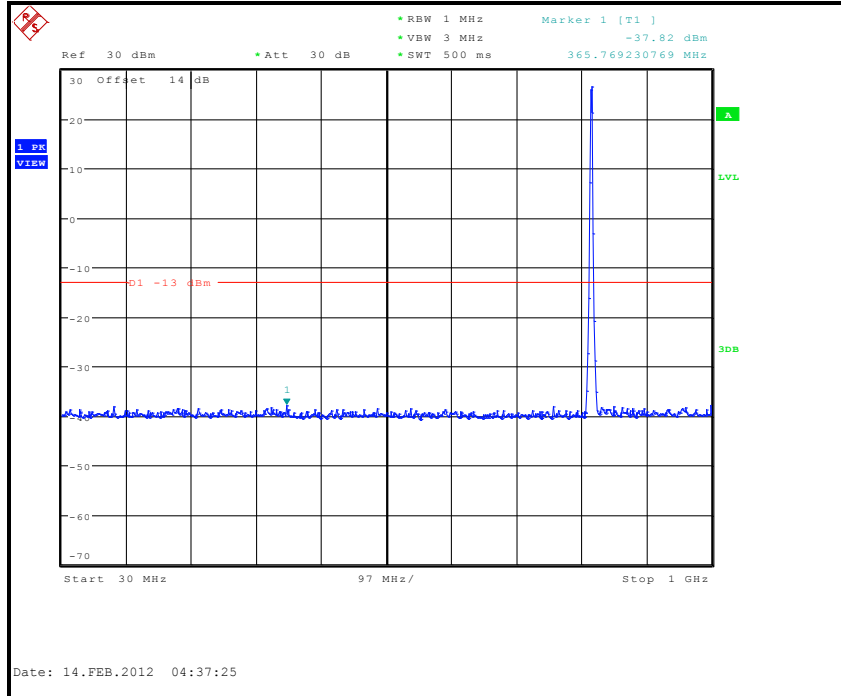
### 7GHz ~ 9GHz



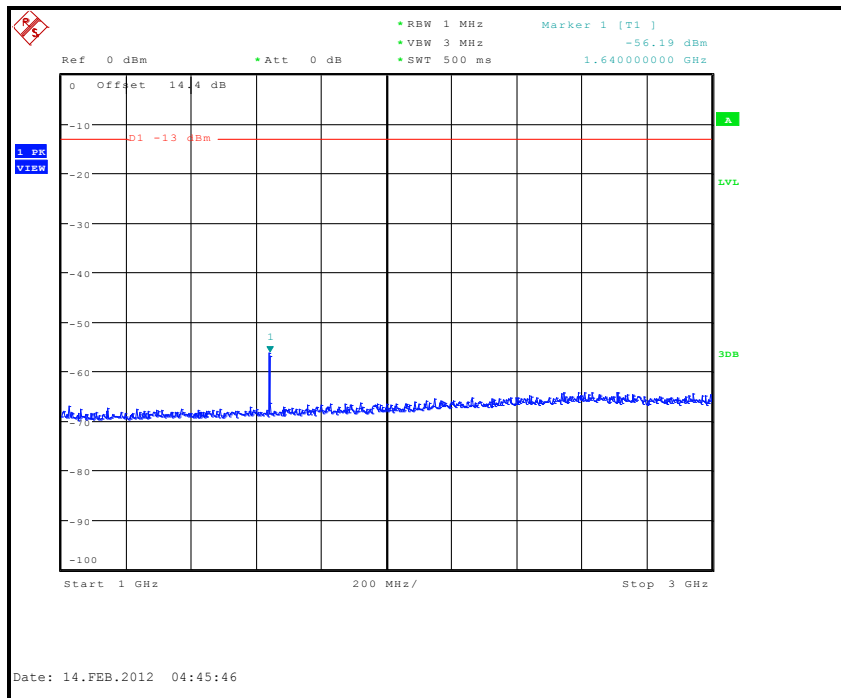


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### CH573: 30MHz ~ 1GHz



### 1GHz ~ 3GHz

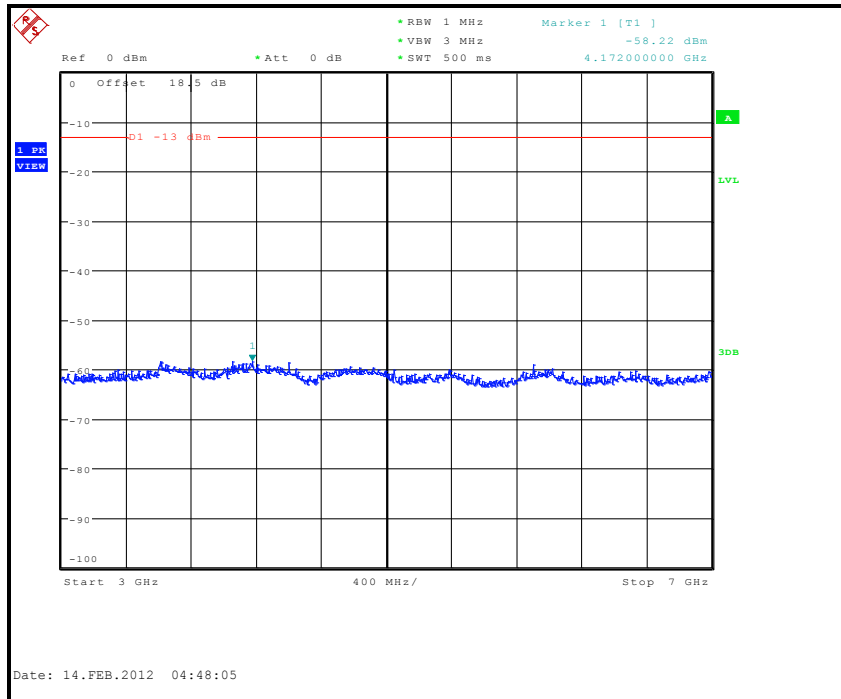




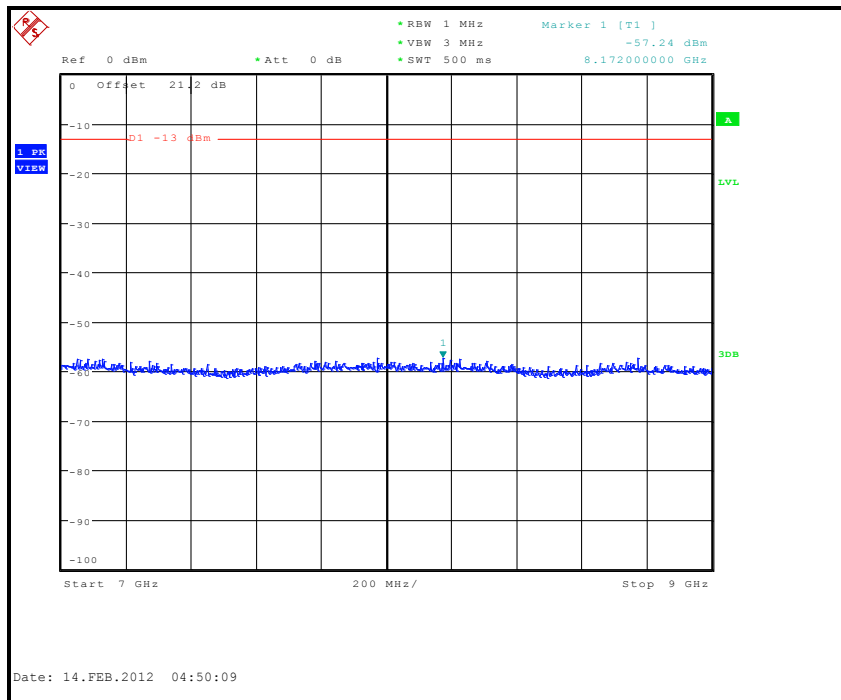


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### 3GHz ~ 7GHz



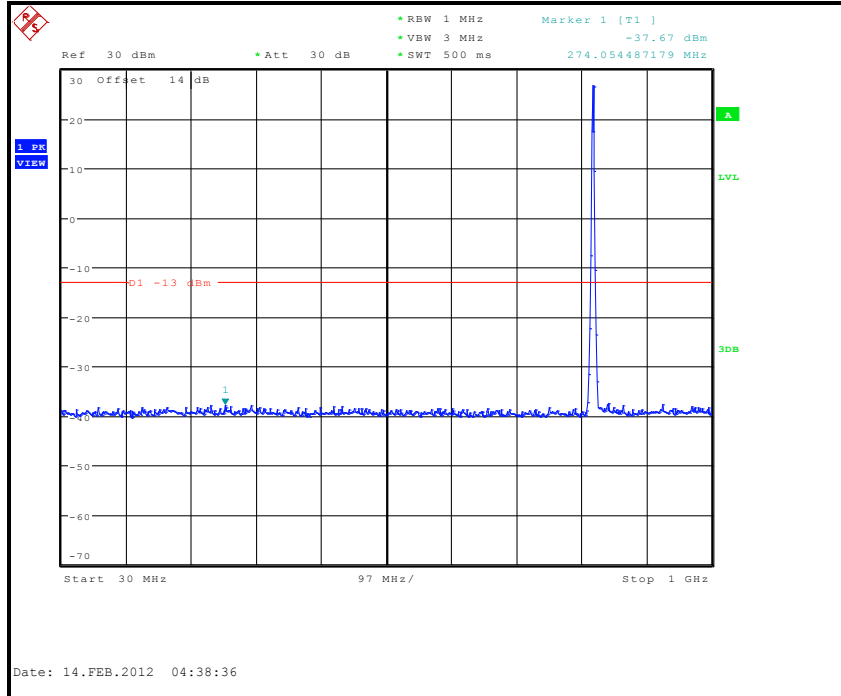
### 7GHz ~ 9GHz



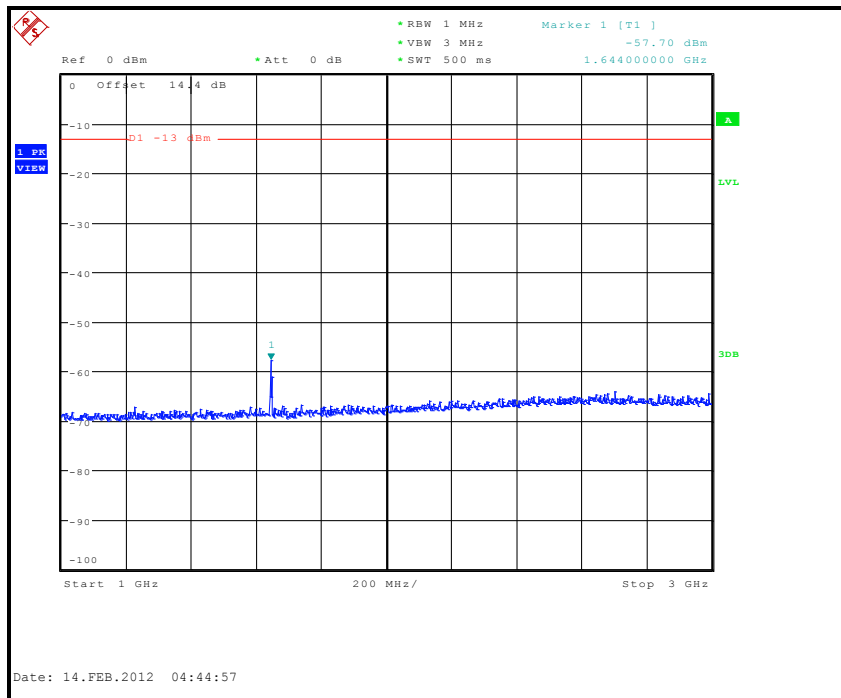


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### CH670: 30MHz ~ 1GHz



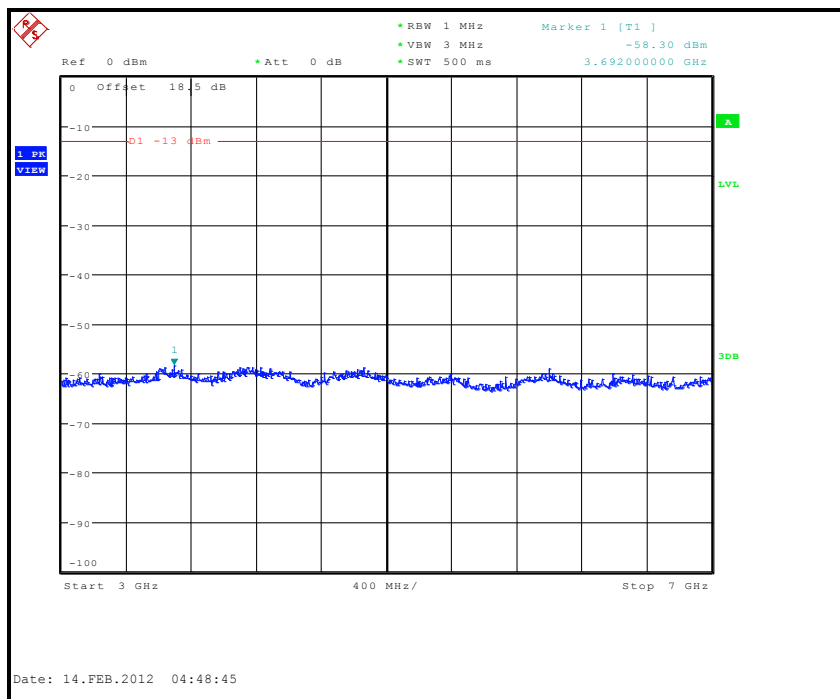
### 1GHz ~ 3GHz



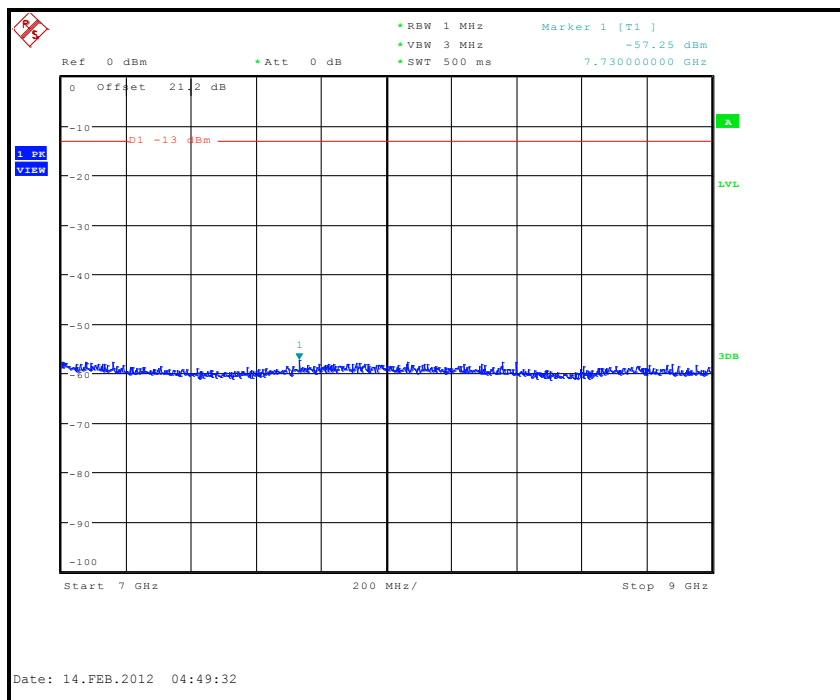


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### 3GHz ~ 7GHz



### 7GHz ~ 9GHz



## 4.6 RADIATED EMISSION MEASUREMENT

### 4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

### 4.6.2 TEST INSTRUMENTS

Same as 4.1.2.

#### 4.6.3 TEST PROCEDURES

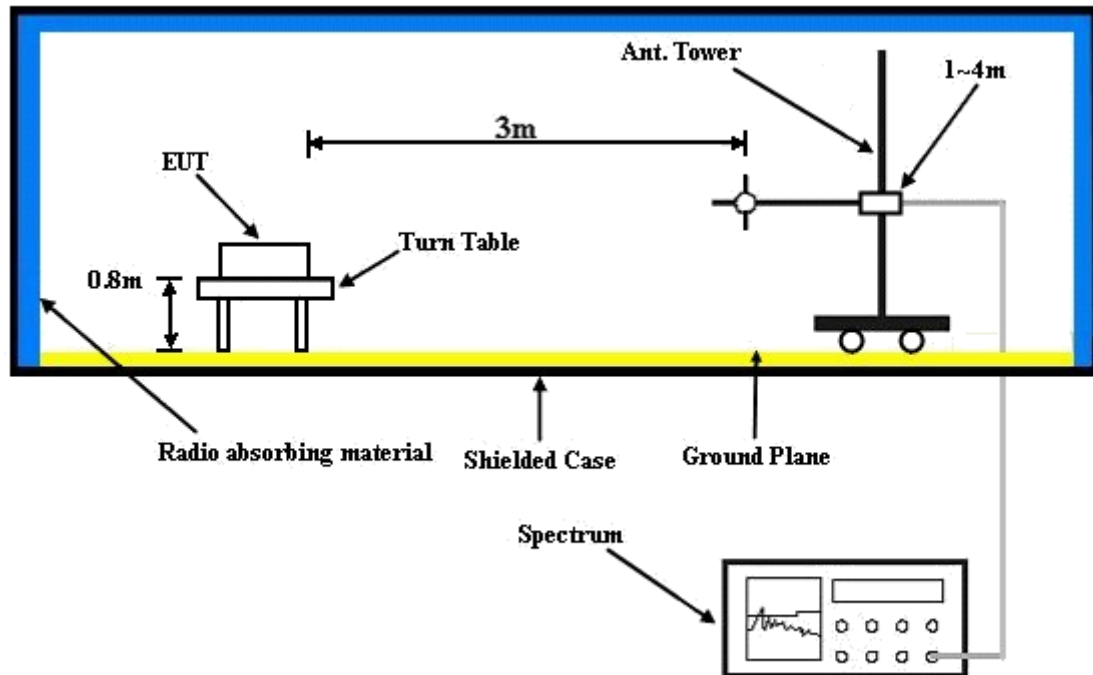
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 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.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi}$ .

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

#### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.6.5 TEST SETUP



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

#### 4.6.6 EUT OPERATING CONDITIONS

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



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### 4.6.7 TEST RESULTS

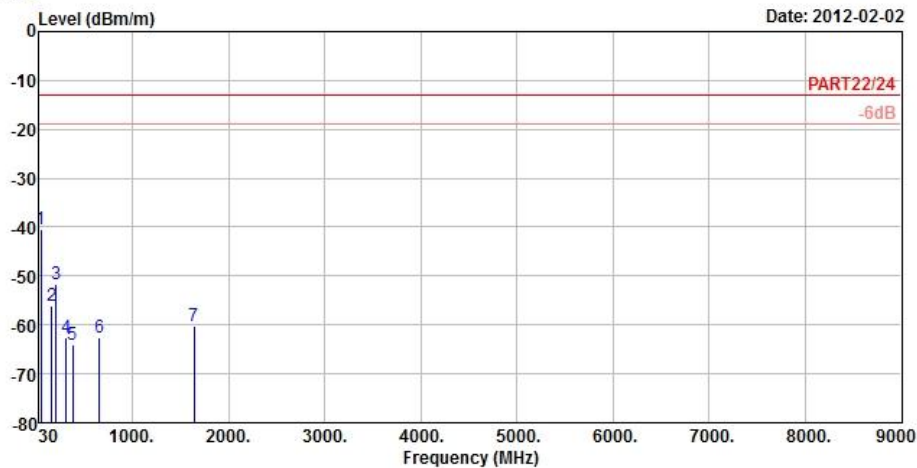
#### FOR CDMA:



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Data: 9



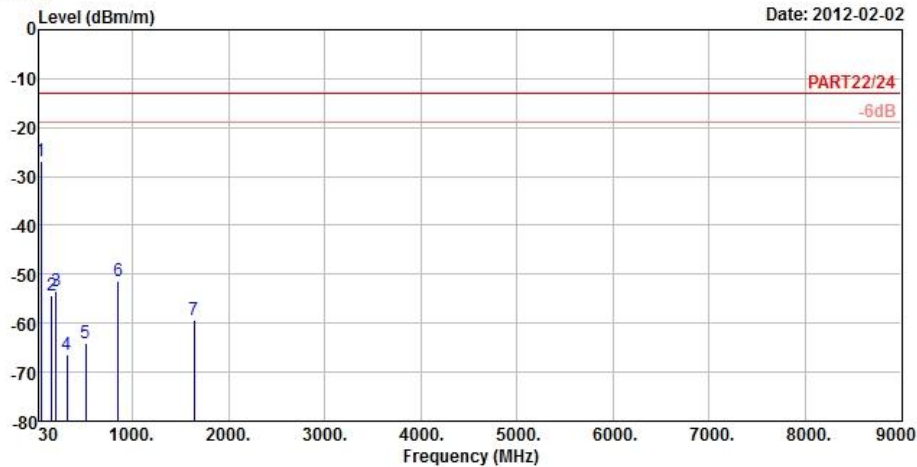
Site : 966 Chamber 5  
 Condition : PART22/24 3m EIRP\_RSE \_1G~19G HORIZONTAL  
 Brand/Model: PJ75100  
 Remark : 1XRTT CH573 Link(Battery 1)  
 Tested by : David Huang  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Z

	Read	Limit	Over			
Freq	Level	Level	Line	Limit	Factor	Remark
MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1 pp	44.31	-40.40	-39.21	-13.00	-27.40	-1.19 Peak
2	160.95	-56.22	-49.69	-13.00	-43.22	-6.53 Peak
3	207.39	-51.57	-43.97	-13.00	-38.57	-7.60 Peak
4	311.90	-62.44	-56.15	-13.00	-49.44	-6.29 Peak
5	374.90	-63.94	-58.12	-13.00	-50.94	-5.82 Peak
6	658.40	-62.59	-63.29	-13.00	-49.59	0.70 Peak
7	1640.25	-60.15	-60.15	-13.00	-47.15	0.00 Peak



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Data: 10



Site : 966 Chamber 5  
 Condition : PART22/24 3m EIRP\_RSE \_1G~19G VERTICAL  
 Brand/Model: PJ75100  
 Remark : 1XRTT CH573 Link(Battery 1)  
 Tested by : David Huang  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Z

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	pp	44.31	-26.78	-25.59	-13.00	-13.78	-1.19 Peak
2		162.30	-54.18	-47.63	-13.00	-41.18	-6.55 Peak
3		207.12	-53.32	-45.72	-13.00	-40.32	-7.60 Peak
4		316.80	-66.57	-60.32	-13.00	-53.57	-6.25 Peak
5		514.90	-64.13	-61.44	-13.00	-51.13	-2.69 Peak
6		848.80	-51.38	-53.79	-13.00	-38.38	2.41 Peak
7		1640.25	-59.30	-59.30	-13.00	-46.30	0.00 Peak



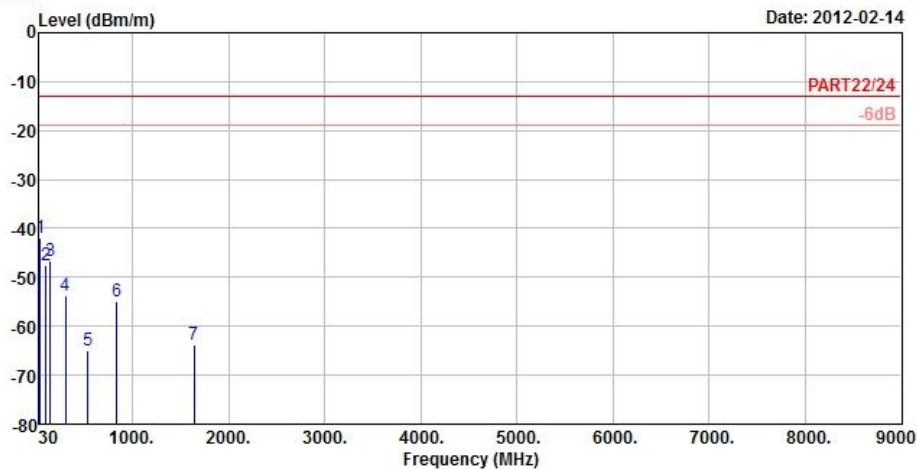
FOR 1xEVDO Rev. 0:



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

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Data: 9



Site : 966 Chamber 5  
 Condition : PART22/24 3m EIRP\_RSE\_1G~19G HORIZONTAL  
 Brand/Model: PJ75100  
 Remark : 1xEVDO CH573 Link(Battery 1)  
 Tested by : David Huang  
 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	pp	41.34	-41.85	-41.85	-13.00	-28.85	0.00 Peak
2		96.42	-47.58	-47.58	-13.00	-34.58	0.00 Peak
3		147.99	-46.58	-46.58	-13.00	-33.58	0.00 Peak
4		301.40	-53.64	-53.64	-13.00	-40.64	0.00 Peak
5		538.70	-64.95	-64.95	-13.00	-51.95	0.00 Peak
6		835.50	-54.99	-54.99	-13.00	-41.99	0.00 Peak
7		1640.25	-63.63	-49.92	-13.00	-50.63	-13.71 Peak



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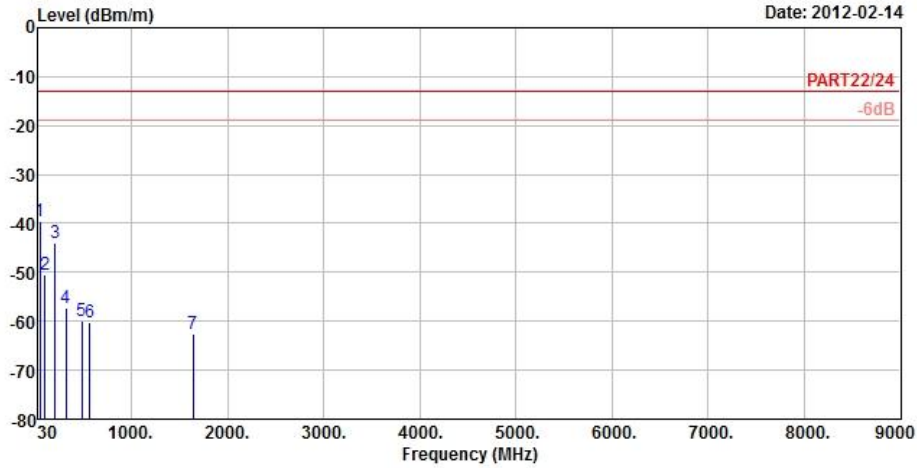


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Data: 10

Date: 2012-02-14

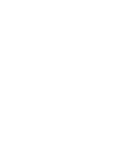


Site : 966 Chamber 5  
 Condition : PART22/24 3m EIRP\_RSE\_1G~19G VERTICAL  
 Brand/Model: PJ75100  
 Remark : 1xEVDO CH573 Link(Battery 1)  
 Tested by : David Huang  
 Temperature : 25°C  
 Humidity : 65%  
 Plane : Y

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	pp	44.31	-39.46	-39.46	-13.00	-26.46	0.00 Peak
2		98.85	-50.42	-50.42	-13.00	-37.42	0.00 Peak
3		207.12	-43.90	-43.90	-13.00	-30.90	0.00 Peak
4		316.80	-57.38	-57.38	-13.00	-44.38	0.00 Peak
5		483.40	-59.83	-59.83	-13.00	-46.83	0.00 Peak
6		565.30	-60.11	-60.11	-13.00	-47.11	0.00 Peak
7		1640.25	-62.60	-48.89	-13.00	-49.60	-13.71 Peak

## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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





## 6 INFORMATION ON THE TESTING LABORATORIES

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

Copies of accreditation and authorization certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

[www.adt.com.tw/index.5.phtml](http://www.adt.com.tw/index.5.phtml). 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: 886-3-3185050

**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.

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

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



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## 8 APPENDIX B – FCC Document

Please see OpDes (Waiver)\_NM8PJ75100.pdf

---END---

