

## HCT CO., LTD.

Product Compliance Division

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#### **FCC Certification**

Applicant Name: PANTECH CO., LTD.		Date of Issue: October 29, 2010 Location:
<b>Address:</b> Pantech Bldg, I-2, DMC, Sai Mapo-gu, Seoul, 121-792, K	0 0	HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheon- si, Kyunggi-Do, Korea(Lab) <b>Test Report No.:</b> HCTR1010FR17-1 <b>HCT FRN:</b> 0005866421
		IC Recognition No.: IC 5944A-2
FCC ID:	JYCRAY	
APPLICANT:	PANTECH CO.,	LTD.
FCC Model(s):	UML290	
EUT Type:	USB Modem	
FCC Classification:	PCS Licensed Transmitte	er (PCB)
FCC Rule Part(s):	§2 , §27	
Tx Frequency:	782 MHz (LTE – Band 13	3)
Max. RF Output Power:	0.24W (23.83 dBm) ERP 0.25W (24.05 dBm) ERP	
Emission Designator(s):	8M90G7D (QPSK) / 8M9	2W7D (16-QAM)

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. **HCT CO., LTD.** Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Report prépared by

Test engineer of RF Team

Approved by

Sang Jun Lee Manager of RF Team

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# <u>Version</u>

TEST REPORT NO.	DATE	DESCRIPTION		
HCTR1010FR17	October 25, 2010	First Approval Report		
HCTR1010FR17-1	October 29, 2010	Processing comment		

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## **MEASUREMENT REPORT**

## **1. GENERAL INFORMATION**

Applicant Name:	PANTECH CO., LTD.
Address:	Pantech Bldg, I-2, DMC, Sangam-dong Mapo-gu, Seoul, 121-792, Korea
FCC ID:	JYCRAY
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§2 , §27
EUT Type:	USB Modem
FCC Model(s):	UML290
Tx Frequency:	782 MHz (LTE – Band 13)
Max. RF Output Power:	0.24W (23.83 dBm) EPR (QPSK) 0.25W (24.05 dBm) ERP (16-QAM)
Emission Designator(s):	8M90G7D (QPSK) / 8M92W7D (16-QAM)
Antenna Specification	Manufacturer: KARAM Solution.
	Antenna type: Internal Antenna Peak Gain: -2.22 dBi
Date(s) of Tests:	October 01, 2010 ~ October 08, 2010

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## 2. INTRODUCTION

#### **2.1. EUT DESCRIPTION**

The PANTECH CO., LTD. UML290 USB Modem consists of GSM850, GSM1900, GPRS Class12, GPRS mode Class B(GPRS and GSM, but not simultaneously), EDGE, WCDMA850, WCDMA1900, HSDPA, HSUPA, Cellular CDMA, PCS CDMA and EVDO Rev.A, LTE Band 13.

#### 2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

#### 2.3. TEST FACILITY

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 105-1, Jangam-ri , Majang-Myeon, Icheon-si, 467-811, KOREA.

The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated June 10, 2009 (Registration Number: 90661)

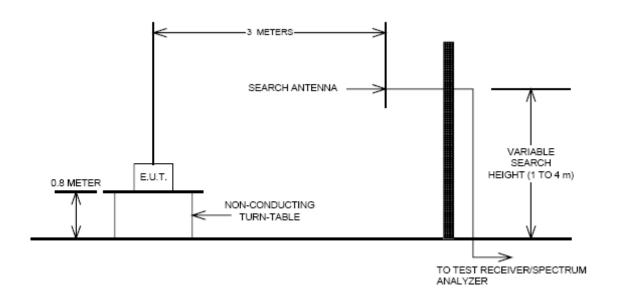
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## **3. DESCRIPTION OF TESTS**

## 3.1 EFFECTIVE RADIATED POWER/EQUIVALENT ISOTROPIC RADIATED POWER

#### Test Set-up



#### **Test Procedure**

Radiated emission measurements were performed at an SAC(Semi-Anechoic Chamber)

The equipment under test is placed on a non-conductive styrofoam resin table 3-meters from the receive antenna. A styrofoam turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

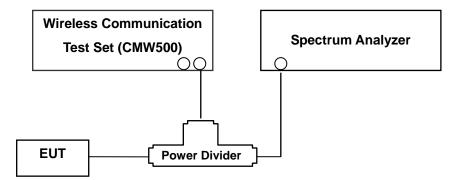
The maximum EIRP was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

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#### 3.2 OCCUPIED BANDWIDTH.

Test set-up



(Configuration of conducted Emission measurement) Test Procedure

The EUT was setup to maximum output power at its lowest channel. The occupied bandwidth was measured using a spectrum analyzer. The measurements are repeated for the highest and a middle channel. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Plots of the EUT's occupied bandwidth are shown herein.

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### **3.3 BLOCK FREQUENCY RANGE**

Two paired channels of 11 megahertz each are available for assignment in Block C in the 746–757 MHz and 776 – 787 MHz bands. In the event that no licenses for two channels in this Block C are assigned based on the results of the first auction in which such licenses were offered because the auction results do not satisfy the applicable reserve price, the spectrum in the 746 – 757 MHz and 776 – 787 MHz bands will instead be made available for assignment at a subsequent auction as follows:

(i) Two paired channels of 6 megahertz each available for assignment in Block C1 in the 746–752 MHz and 776–782 MHz bands.

(ii) Two paired channels of 5 megahertz each available for assignment in Block C2 in the 752–757 MHz and 782–787 MHz bands

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## 3.4 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL.

**Test Procedure** 

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer.

The EUT was setup to maximum output power at its lowest channel. The Resolution BW of the analyzer is set to 1 % of the emission bandwidth to show compliance with the - 13 dBm limit, in the 1 MHz bands immediately outside and adjacent to the edge of the frequency block. The 1 MHz RBW was used to scan from 30 MHz to 26.5 GHz. A display line was placed at - 13 dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

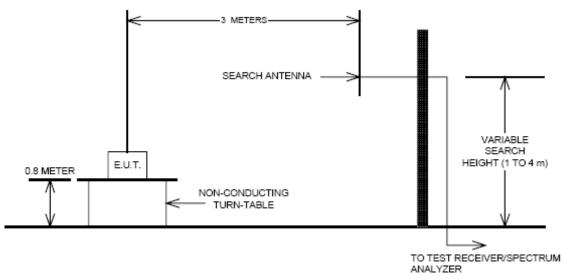
- Band Edge Requirement : In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

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## 3.5 RADIATED SPURIOUS AND HARMONIC EMISSIONS

## Test Set-up



The measurement facilities used for this test have been documented in previous filings with the commission pursuant to section § 2.948. The SAC(Semi-Anechoic Chamber) meets requirements in ANSI C63.4 –2003. A mast capable of lifting the receiving antenna from a height of one to four meters is used together with a rotatable styrofoam platform mounted at three from the antenna mast.

- 1) The unit mounted on a styrofoam turntable 1.5 m × 1.0 m × 0.80 m is 0.8 meter above test site ground level.
- 2) During the emission test, the turntable is rotated and the EUT is manipulated to find the configuration resulting in maximum emission under normal condition of installation and operation.
- 3) The antenna height and polarization are also varied from 1 to 4 meters until the maximum signal is found.
- 4) The spectrum shall be scanned up to the 10<sup>th</sup> harmonic of the fundamental frequency.

#### Test Procedure

The equipment under test is placed on a non-conductive styrofoam resin table 3-meters from the receive antenna. A styrofoam turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

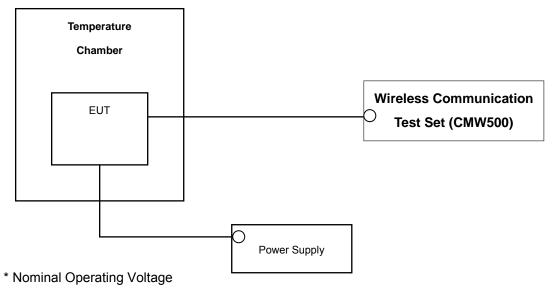
The maximum EIRP was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

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### **3.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE**

## Test Set-up



#### Test Procedure

The frequency stability of the transmitter is measured by:

a.) Temperature: The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from battery end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification — the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm$  0.000 25 %( $\pm$  2.5 ppm) of the center frequency.

#### Time Period and Procedure:

The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).

1. The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

2. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one halfhour is provided to allow stabilization of the equipment at each temperature level. **NOTE: The EUT is tested down to the battery endpoint.** 

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## **4. LIST OF TEST EQUIPMENT**

Manufacture	Model/ Equipment	Serial Number	Calibration Interval	Calibration Due
R&S	ESI40/ Spectrum Analyzer	831564/003	Annual	10/30/2010
Agilent	E4416A/ Power Meter	GB41291412	Annual	01/14/2011
Agilent	E9327A/ Power Sensor	MY4442009	Annual	07/23/2011
ROHDE & SCHWARZ	CMW500/ Base Station	100990	Annual	08/13/2011
MITEQ	AMF-6D-001180-35-20P/AMP	990893	Annual	05/20/2011
Wainwright	WHK1.2/15G-10EF/H.P.F	2	Annual	06/25/2011
Wainwright	WHK3.3/18G-10EF/H.P.F	1	Annual	06/25/2011
Agilent	775D/ Dual Directional Coupler	12922	Annual	12/24/2010
Agilent	11636B/ Power Divider	11377	Annual	12/24/2010
Digital	EP-3010/ Power Supply	3110117	Annual	01/08/2011
Schwarzbeck	UHAP/ Dipole Antenna	585	Biennial	02/13/2011
Schwarzbeck	UHAP/ Dipole Antenna	558	Biennial	02/13/2011
Korea Engineering	KR-1005L / Chamber	KRAB07063-2CH	Annual	12/28/2010
Schwarzbeck	BBHA 9120D/ Horn Antenna	296	Biennial	09/23/2011
Agilent	N9020A / Spectrum Analyzer	US45303008	Annual	03/03/2011

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## **5. SUMMARY OF TEST RESULTS**

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result
2.1049	Occupied Bandwidth	N/A		PASS
2.1051, 27.53(c)(2)	Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	< 43 +10 log <sub>10</sub> (P[Watts]) < 65 + 10 log <sub>10</sub> (P[Watts]) in a 6.25 KHz bandwidth for emissions in the 763 – 775 MHz and 793 – 805 MHz bands	CONDUCTED	PASS
2.1046	Conducted Output Power	N/A		PASS
2.1055, 27.54	Frequency stability / variation of ambient temperature	< 2.5 ppm		PASS
27.50(b)(10)	Effective Radiated Power	< 3 Watts max. ERP		PASS
2.1053, 27.53(c)(2) 27.53©(4)	Undesirable Out-of-Band Emissions	< 43 +10 log <sub>10</sub> (P[Watts]) for all out-of-band emissions	RADIATED	PASS
2.1053,27.53(f)	Undesirable Emissions in the 1559 – 1610 MHz band	< -40dBm/MHz EIRP (wideband) < -50dBm EIRP (narrowband)		PASS

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## **6. SAMPLE CALCULATION**

## A. ERP Sample Calculation

Mode	Ch./ Freq.		Measured	Substitude		C.L	Pol.	ERP	
wode	channel	Freq.(MHz)	Level(dBm)	LEVEL(dBm)	Ant. Gain	U.L	FUI.	w	dBm
LTE	23230	782	-11.56	34.28	-8.32	1.17	Н	0.30	24.79

#### ERP = SubstitudeLEVEL(dBm) + Ant. Gain – CL(Cable Loss)

1) The EUT mounted on a wooden tripod is 0.8 meter above test site ground level.

2) During the test, the turn table is rotated and the antenna height is also varied from 1 to 4 meters until the maximum signal is found.

3) Record the field strength meter's level.

4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.

5) Increase the signal generator output till the field strength meter's level is equal to the item (3).

6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power (**ERP**).

## **B. Emission Designator**

### **QPSK Modulation**

Emission Designator = 8M95G7D

LTE BW = 8.95 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Amplitude/Angle Modulated

### **16QAM Modulation**

#### Emission Designator = 8M94W7D

LTE BW = 8.94 MHz

D = Amplitude/Angle Modulated

7 = Quantized/Digital Info

W = Combination (Audio/Data)

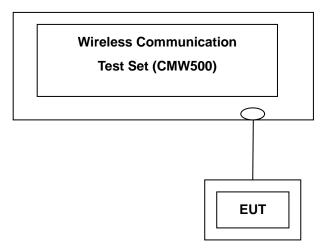
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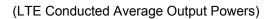
## 7. TEST DATA

### 7.1 CONDUCTED OUTPUT POWER

A base station simulator was used to establish communication with the EUT. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported. Conducted Output Powers of EUT are reported below.



**Test Result** 



Band	Frequency(Mhz)	Channel	Resource	Resource Block	Average Po	wer [dBm]
			Block Size	Offset	QPSK	16-QAM
		23230	1	0	23.12	23.14
LTE	782		1	49	23.03	22.82
	102		25	12	21.90	20.93
			50	0	21.34	21.06

Note : Detecting mode is average.

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## 7.2 OCCUPIED BANDWIDTH

Band	Frequency(Mhz)	Modulation	Resource Block Size	Resource Block Offset	Data(RB 1:KHz / RB 25,50:MHz)
	782		1	0	509.57
	782	QPSK	1	49	506.25
	782	QFON	25	12	4.5466
LTE	782		50	-	8.9033
	782		1	0	508.38
	782	16-QAM	1	49	533.76
	782		25	12	4.5390
	782		50	-	8.9221

- Plots of the EUT's Occupied Bandwidth are shown Page 27 ~ 30.

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### 7.3 CONDUCTED SPURIOUS EMISSIONS

Band	Frequency (Mhz)	Modulation	Resource Block Size	Resource Block Offset	Frequency of Maximum Harmonic (GHz)	Maximum Data [dBm]
	782		1	0	5.1125	-36.362
	782	QPSK	1	49	2.2654	-34.402
	782	QFSK	25	12	2.4407	-35.662
LTE	782		50	-	2.4037	-35.020
	782		1	0	5.3105	-36.100
	782	16 OAM	1	49	2.4358	-35.288
	782 16-QAM		25	12	5.5965	-35.957
	782		50	-	2.2234	-34.896

- Plots of the EUT's Conducted Spurious Emissions are shown Page 31 ~ 38.

#### 7.3.1 BAND EDGE

Note : In the 763 – 775 MHz and 793 – 805 MHz band, the FCC limit is  $65 + 10log_{10}(P_{Watts]}) = -35 \text{ dBm in a}$ 6.25 KHz bandwidth.

By using a 10KHz bandwidth, the limit was adjusted by 10log<sub>10</sub>(10KHz/6.25KHz) = 2.04 dB.

<u>LIMIT : - 35 dBm + 2.04 dB = - 32.96 dBm.</u>

- Plots of the EUT's Band Edge are shown Page 23 ~ 26, 39 ~ 42.

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### 7.4 EFFECTIVE RADIATED POWER OUTPUT

Ch /	Freq	eq Measured Substitude		Ant.	C.L	Pol. (EUT - Antenna of EUT	ERP		
channel	Freq (MHz)	Modulation	Level (dBm)	Level (dBm)	Gain(dBd)	U.L	- Detecting Antenna)	w	dBm
23230	782.00	QPSK	-12.91	35.45	-9.98	1.64	X – H – H	0.24	23.83
23230	102.00	16-QAM	-12.69	35.67	-9.98	1.64	X – H – H	0.25	24.05

Note: Worst case is 1 resource block. This unit was tested with a notebook computer.

#### NOTES:

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a non-conductive styrofoam resin table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For 1 MHz BW signals, a peak detector is used, with RBW = VBW = 1 MHz. For 10 MHz BW signals, a peak detector is used, with RBW = VBW = 10 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

Also, we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna. The worst case of the EUT is X plane in LTE mode. Also worst case of detecting Antenna is horizontal polarization in LTE mode.

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## 7.5 RADIATED SPURIOUS EMISSIONS 7.5.1 RADIATED SPURIOUS EMISSIONS

OPERATING FREQUENCY :	782.00 MHz
MEASURED OUTPUT POWER:	24.05 dBm = 0.254W
MODULATION SIGNAL:	16-QAM
DISTANCE:	3 meters
LIMIT: - (43 + 10 log10 (W)) =	- 37.05 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitude Level (dBm)	C.L	Pol	ERP (dBm)	dBc
00000	2346.00	-56.99	8.07	-64.34	2.22	Н	-58.49	-82.54
23230 (782.00)	3128.00	-	9.29	-	2.70	-	-	-
(762.00)	3910.00	-	10.36	-	2.85	-	-	-

**NOTES:** <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u> <u>according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:</u>

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5<sup>th</sup> Harmonic for all channel.

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is 1 resource block.

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#### 7.5.2 RADIATED SPURIOUS EMISSIONS (1559 ~ 1610 MHz Band)

OPERATING FREQUENCY :	782.00 MHz
MODULATION SIGNAL:	16-QAM
DISTANCE:	<u>3 meters</u>
NARROWBAND EMISSION LIMIT:	- 50 dBm
WIDEBAND EMISSION LIMIT:	- 40 dBm/MHz

FREQUENCY (MHz)	EMISSION TYPE	Measured Level (dBm)		Substitude Level (dBm)		Pol	ERP (dBm)	MARGIN (dB)
1561.38	WIDEBAND	-58.38	8.81	-70.46	1.70	Н	-63.35	-23.35
1596.53	VIDEDAND	-55.48	9.04	-67.92	1.71	Н	-60.59	-20.59

**NOTES:** <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u> <u>according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:</u>

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5<sup>th</sup> Harmonic for <u>all channel.</u>

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is 1 resource block.

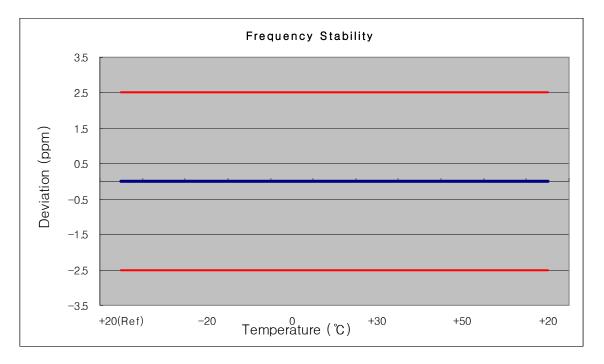
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## 7.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE 7.6.1 FREQUENCY STABILITY (LTE)

OPERATING FREQUENCY:	782,000,000 Hz
CHANNEL:	23230
REFERENCE VOLTAGE:	5 VDC
DEVIATION LIM IT:	± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	222	
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm	
100%		+20(Ref)	781 999 998	0	0.000 000	0.000	
100%		-30	782 000 002	2.16	0.000 000	0.003	
100%		-20	782 000 004	3.65	0.000 000	0.005	
100%		-10	781 999 999	-1.07	0.000 000	-0.001	
100%	5.00	0	782 000 002	2.19	0.000 000	0.003	
100%		+10	781 999 993	-7.22	-0.000 001	-0.009	
100%		+30	781 999 991	-8.84	-0.000 001	-0.011	
100%		+40	781 999 996	-3.75	0.000 000	-0.005	
100%		+50	781 999 992	-8.12	-0.000 001	-0.010	
115%	5.75	+20	782 000 003	3.14	0.000 000	0.004	
85%	4.25	+20	781 999 996	-3.75	0.000 000	-0.005	



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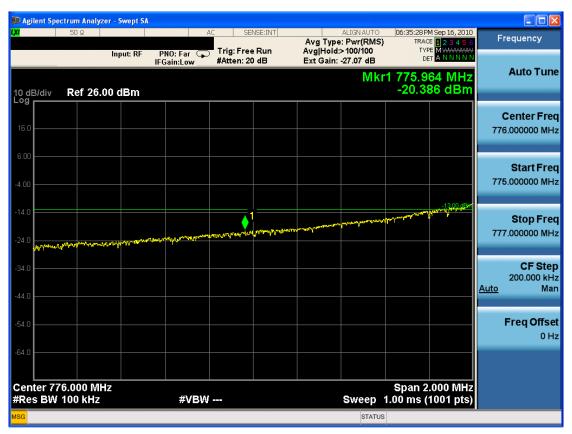
FCC CERTIFICATION REPORT						
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50 Ω	Input: RF	AC PNO: Far	SENSE:INT		ALIGN AUTO Pwr(RMS) 100/100	06:37:41 PM Sep 16, 2010 TRACE 1 2 3 4 5 6 TYPE MWWWWA	Frequency
0 dB/div Ref 2		Gain:Low #Atte	en: 20 dB	Ext Gain: ⊰	27.07 dB	DET ANNNN 775.998 MHz -19.018 dBm	Auto Tur
<b>og</b> 16.0							Center Fre 776.000000 Mi
.00							<b>Start Fr</b> 775.000000 M
4.0	and the second		1	-upmphonepul	-13 <sup>1</sup> 8-1-1-2-1-2-1-2		Stop Fr 777.000000 M
4.0							<b>CF St</b> e 200.000 k <u>Auto</u> M
4.0							Freq Offs 0
enter 776.000 f Res BW 100 kH		#VBW			Sweep 1	Span 2.000 MHz .00 ms (1001 pts)	

■ Lower Band Edge (QPSK – RB Size 1, RB Offset 0)

■ Lower Band Edge (16-QAM – RB Size 1, RB Offset 0)



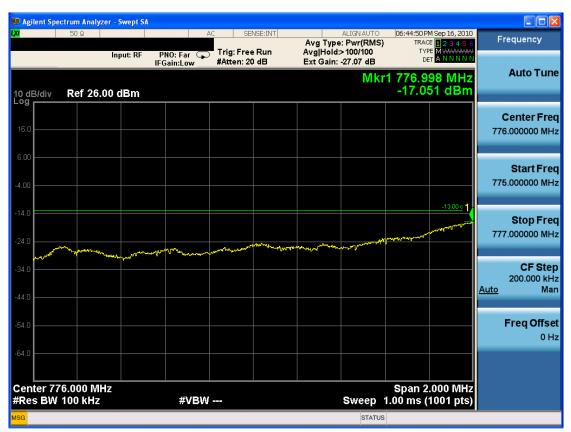
FCC CERTIFICATION REPORT					
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#### 💴 Agilent Spectrum Analyzer - Swept SA 09:05:36 AM Sep 17, 2010 TRACE 1 2 3 4 5 6 TYPE M<del>WWWWW</del> DET A N N N N N SENSE:INT Frequency Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -27.07 dB Trig: Free Run PNO: Far 😱 Input: RF #Atten: 20 dB IFGain:Low Auto Tune Mkr1 776.952 MHz -14.069 dBm 10 dB/div Log Ref 26.00 dBm **Center Freq** 776.000005 MHz Start Freq 775.000005 MHz -13.00 ~~\~<sup>W</sup> **Stop Freq** 777.000005 MHz <sub>የ</sub>ምግቢስ እንቅ n marine **CF** Step 200.000 kHz Auto Man **Freq Offset** 0 Hz Center 776.000 MHz #Res BW 100 kHz Span 2.000 MHz Sweep 1.00 ms (1001 pts) #VBW ----STATUS

#### ■ Lower Band Edge (QPSK – RB Size 50)

#### ■ Lower Band Edge (16-QAM – RB Size 50)



	FCC CERTIFICATION REPORT					
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50 Ω			SENSE:INT	ALIGN AUTO Avg Type: Pwr(RMS Avg Hold:>100/100		Frequency
) dB/div Ref :	1 26.00 dBm	FGain:Low	Atten: 20 dB	Ext Gain: -27.07 dB	r1 774.928 MHz -48.971 dBm	Auto Tur
6.0						<b>Center Fr</b> 768.999997 M
00						<b>Start Fr</b> 762.999994 M
4.0						Stop Fr 775.000000 M
1.0					-32.96 dBm	CF St 1.200001 M <u>Auto</u> M
	h.M.M.M.M.M.M.M.M.M.M.M.M.M.M.M.M.M.M.M	marken	upper and an and an and an	of reading to the second second	What and the state of the second	Freq Offs 0
4.0 tart 763.000 M Res BW 10 kH		#VBW		Sweep	Stop 775.000 MHz 143 ms (1001 pts)	

■ Lower Emission Mask ( 763 – 775 MHz ) QPSK – RB Size 1, RB Offset 0

#### ■ Lower Emission Mask ( 763 – 775 MHz ) 16-QAM – RB Size 1, RB Offset 0

	50 Ω	lyzer - Swept S		IC S	ENSE:INT		ALIGN AUTO	06:58:09 P	M Sep 16, 2010	
	_	Input: RF	PNO: Far 😱 IFGain:Low	Trig: Fre #Atten: 2		Avg Ho	/pe: Pwr(RMS) Id:>100/100 in: -27.07 dB	TRAC TY D	CE 1 2 3 4 5 6 PE M WWWWW ET A N N N N N	Frequency
) dB/div	Ref 2	6.00 dBm					Mkr	1 774.9 -46.8	88 MHz 60 dBm	Auto Tui
- <u>-</u>										Center Fre
6.0										768.999997 MI
5.00										Start Fre
.00										762.999994 MI
4.0										Stop Fre
4.0										775.000000 MI
4.0									-32.96 dBm	CF Ste
4.0									1,	1.200001 M Auto M
4.0									and the state of t	Freq Offs
4.0 <b>///////</b> 4/	arry any have	Mannudham	in the strategy and the second	mun	aprime had been	lendroment for the fi	AND AND AND A MAN	-4F		01
4.0										
	3.000 MH / 10 kHz	IZ	#VBW				<u>.</u>	Stop 775	.000 MHz	
(es du			#VDVV				Sweep	145 1115 (	1001 pts)	

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🗊 Agilent Spe		er - Swept SA								
LXI	50 Ω			AC S	ENSE:INT		ALIGNAUTO [ype: Pwr(RMS]		M Sep 16, 2010	Frequency
		Input: RF	PNO: Far 🕞 IFGain:Low	Trig: Fre #Atten: 3		Avg H	ype: Pwr(RMS, old:>100/100 ain: -27.07 dB	TY D	CE <b>1</b> 2 3 4 5 6 PE M <del>WWWWWW</del> ET A N N N N N	
10 dB/div	Ref 26.0	00 dBm					Mk	r1 774.7 -43.8	36 MHz 24 dBm	Auto Tune
										Center Freq
16.0										768.999997 MHz
6.00										Start Freq
-4.00										762.999994 MHz
-14.0										Stop Freq
-24.0										775.000000 MHz
-34.0									-32.96 dBm	CF Step
									4	1.200001 MHz Auto Man
-44.0								a Malena Marina Ma	NWWARYWAN	
-54.0	Jun Hittan Bolin	month	Nohlupphal	and the second	whether the sold	and the second s	dunda for an fela parter			Freq Offset 0 Hz
-64.0	and a later of a later of a	hel II tentes et ardad	n in god i strandijeranj	allasos de la ban	11 - 14 - 14 - 14					
<b>0</b> 44 700								04		
Start 763. #Res BW	000 MHz 10 kHz		#VBW				Sweep	stop 775 187 ms (	.000 MHz 1001 pts)	
MSG							STATUS	3		

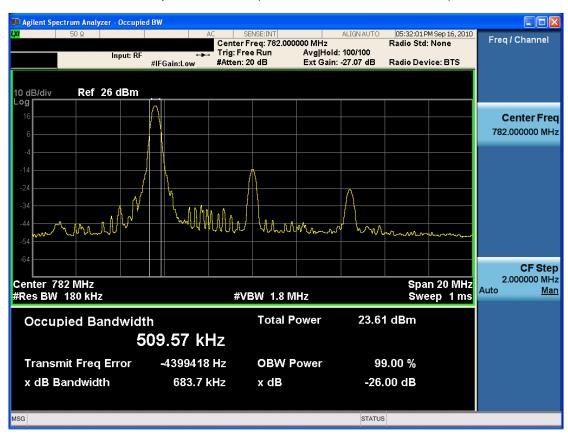
■ Lower Emission Mask ( 763 – 775 MHz ) QPSK – RB Size 50

■ Lower Emission Mask ( 763 – 775 MHz ) 16-QAM – RB Size 50

Agilent Spectrum Analyze 50 Ω		AC	SE	NSE:INT		ALIGN AUTO	07:02:27 P	M Sep 16, 2010	
		PNO: Far 😱 FGain:Low	Trig: Free #Atten: 20	e Run	Avg Hold	e: Pwr(RMS) l:>100/100 : -27.07 dB	TRAC	CE 1 2 3 4 5 6 PE MWWWWW A N N N N N	Frequency
0 dB/div <b>Ref 26.0</b>	00 dBm					Mkı	r1 774.8 -42.2	56 MHz 59 dBm	Auto Tun
og									Center Fre
6.0									768.999997 MI
									Start Fre
.00									762.999994 M
4.0									
4.0									Stop Fre
4.0									775.000000 MI
								-32.96 dBm	CF Ste
4.0								1	1.200001 M
4.0								LANNE BOATH	<u>Auto</u> M
						he monthly have	al years and	al dat de .	Eron Offe
4.0	المعتمرية المعاد	مر مرقب بالله	معد لدريقانه	Land and the Association	and a state of the				Freq Offs
4.0 4.0 4.0	in historikan (hadi	in a state of the second s	al de la faite						
tart 763.000 MHz							Stop 775	.000 MHz	
Res BW 10 kHz						Sweep	187 ms (		

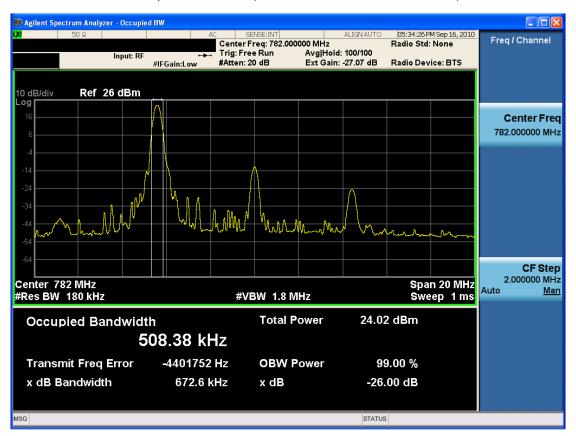
	FCC CERTIFICATION REPORT					
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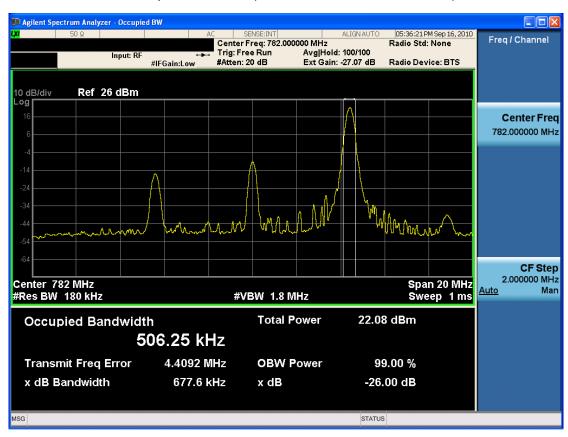
#### Occupied Bandwidth (QPSK – RB Size 1, RB Offset 0)

■ Occupied Bandwidth (16-QAM – RB Size 1, RB Offset 0)



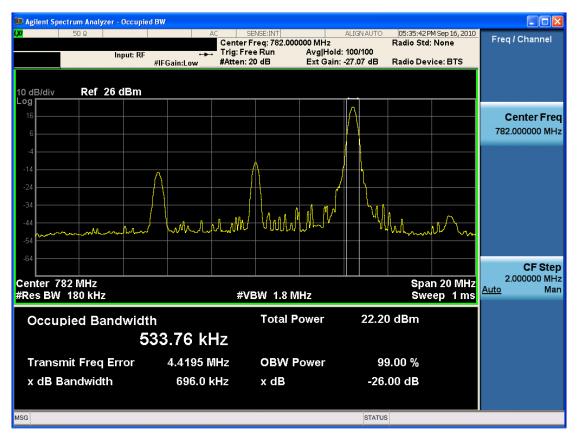
FCC CERTIFICATION REPORT					
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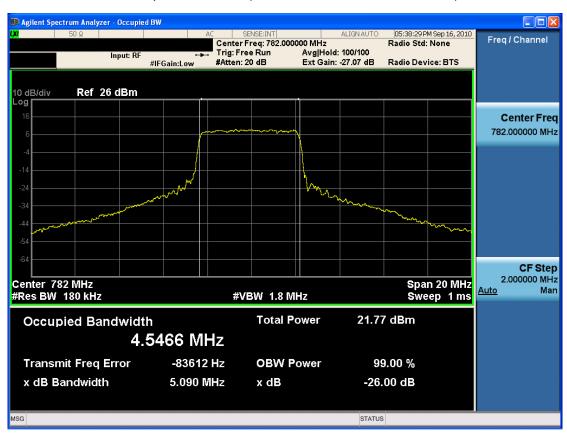
Occupied Bandwidth (QPSK – RB Size 1, RB Offset 49)

■ Occupied Bandwidth (16-QAM – RB Size 1, RB Offset 49)



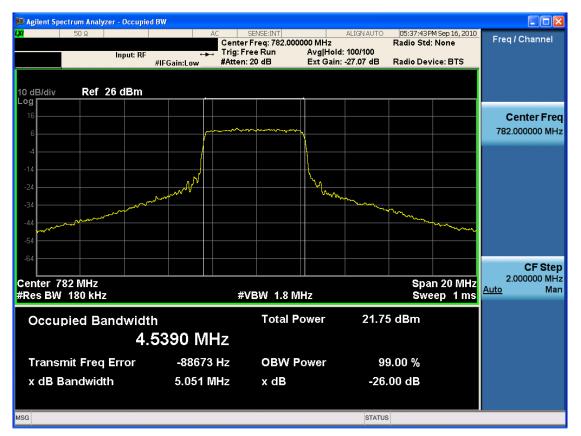
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Occupied Bandwidth (QPSK – RB Size 25, RB Offset 12)

■ Occupied Bandwidth (16-QAM – RB Size 25, RB Offset 12)



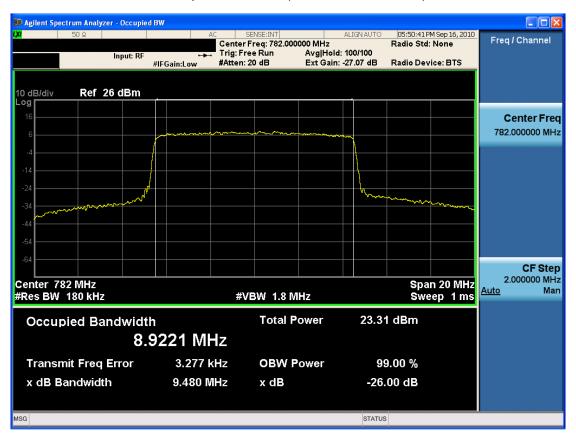
	FCC CERTIFICATION REPORT						
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#### 🕅 Agilent Spectrum Analyzer - Occupied BW 05:39:44 PM Sep 16, 2010 Radio Std: None ALIGN AUTO Freq / Channel Center Freq: 782.000000 MHz Trig: Free Run Avg|Ho #Atten: 20 dB Ext Gai Avg|Hold: 100/100 Ext Gain: -27.07 dB Input: RF Radio Device: BTS #IFGain:Low 10 dB/div Ref 26 dBm og **Center Freq** 782.000000 MHz **CF** Step 2.000000 MHz Center 782 MHz #Res BW 180 kHz Span 20 MHz Sweep 1 ms <u>Auto</u> Man #VBW 1.8 MHz Occupied Bandwidth **Total Power** 23.13 dBm 8.9033 MHz 12.967 kHz **OBW Power** 99.00 % Transmit Freq Error x dB Bandwidth 9.463 MHz x dB -26.00 dB STATUS MSG

#### Occupied Bandwidth (QPSK – RB Size 50)

Occupied Bandwidth (16-QAM – RB Size 50)



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🗊 Agilent Sj	pectrum Analyz	er - Swept SA								
L <mark>XI</mark>	50 Ω			AC SE	ENSE:INT	Ανα Τι	ALIGNAUTO ype: Pwr(RMS)		M Sep 16, 2010	Frequency
	_		PNO: Fast 🔸	Trig: Fre #Atten: 2		AvgHo	old: 100/100 in: -27.07 dB	TY		
10 dB/div Log	Ref 26.0	00 dBm					Mk	r1 2.24 -36.1	0 7 GHz 00 dBm	Auto Tune
16.0										Center Freq
										1.265000000 GHz
6.00										Start Freq
-4.00									-13.00 dBm	30.000000 MHz
-14.0									-10.00 ubii	Stop Fred
-24.0										2.500000000 GHz
-34.0				Lat hat a	و معرف الم	la d dd an la	wyweryn terf yn genau'r ar ffi ywer	hlister	1 www.en.ol.web.	CF Step 247.000000 MHz
-44.0	within in the star	hand the sheet of the second	ere verenter	<b>(), (), (, ), (, ), ()</b> , (), (), (), (), (), (), (), (), (), ()	*****		Africa Africa da construcción de construcción de construcción de la construcción de construcción de construcción			<u>Auto</u> Man
-54.0										Freq Offset
-64.0										0 Hz
	.265 GHz V 1.0 MHz		#VBW				Sweep	Span 2 3.87 ms (	2.470 GHz 1001 pts)	
MSG							STATUS			

### ■ Conducted Spurious (16-QAM – RB Size 1, RB Offset 0)

#### ■ Conducted Spurious (16-QAM – RB Size 1, RB Offset 0)

	1.0 MHz		#VBW				Sweep	9.20 ms (1	1001 pts)	
tart 2.50								Stop 8.	.000 GHz	
4.0										
4.0										Freq Offs 0 H
										Eron Offe
4.0	What have a strength of the st	ling of the second s	AN AL AND							<u>Auto</u> M
4.0	ماد المرب				n allally is an	denter and the	4mberland	mundumound	haadaharana m	CF Ste 550.000000 MI
					. 1					05.00
4.0										8.000000000 G
4.0										Stop Fr
									-13.00 dBm	
.00										2.500000000 G
.00										Start Fro
										5.25000000 Gi
6.0										Center Fre 5.250000000 GI
dB/div	Rei 20.									
	Ref 26.	00 dBm					Mk	r1 5.310 -36 88	) 5 GHz 34 dBm	Auto Tui
		Input: RF	PNO: Fast 🔸 IFGain:Low	#Atten:			: -27.07 dB			Auto Tu
	00 8				ee Run		e: Pwr(RMS) I: 100/100	TRACE		Frequency
	50 Ω			AC	SENSE:INT		ALIGN AUTO	05:56:48 PN	4 Sep 16, 2010	

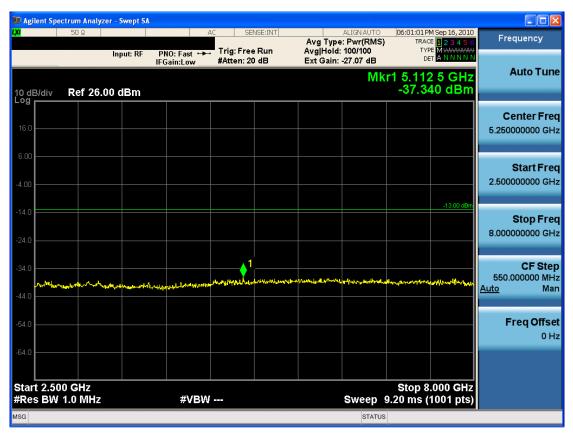
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💴 Agilent Sp	ectrum Analyz	er - Swept SA								
LXI	50 Ω		1	AC SE	NSE:INT	Ανα Τν	ALIGN AUTO pe: Pwr(RMS		M Sep 16, 2010 E <mark>1 2 3 4 5 6</mark>	Frequency
			PNO: Fast ↔ FGain:Low	Trig: Fre #Atten: 2		AvgHol	id: 100/100 n: -27.07 dB	TYI	E MWWWWW A N N N N N	
	-		FGain:Low	#Atten. 2		Ext Gai		kr1 2.48	7 6 4 7	Auto Tune
10 dB/div	Ref 26.	00 dBm					IVII	-36.3	62 dBm	
										Center Freq
16.0										1.265000000 GHz
6.00										Start Freq
-4.00										30.000000 MHz
4.00										
-14.0									-13.00 dBm	Stop Freq
										2.500000000 GHz
-24.0										
-34.0									1	CF Step
	Nala L. J. Maidel	<sub>นาสส</sub> ี่ไปปก <sub>ับคุณ</sub> โลย <sub>ังไ</sub> ปาก	w Lynn Montheles	and the second of the second	Marylary - Ararley	the short-some	hoper ghatter	preserved by many preserved and the second	-latre of the	247.000000 MHz Auto Man
-44.0										Auto Mari
510										Freq Offset
-54.0										0 Hz
-64.0										
Start 30	MHz							Stop 2	.500 GHz	
	/ 1.0 MHz		#VBW				Sweep	3.87 ms (	1001 pts)	
MSG							STATU	S		

■ Conducted Spurious (QPSK – RB Size 1, RB Offset 0)

■ Conducted Spurious (QPSK – RB Size 1, RB Offset 0)



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🗾 Agi	ilent Spectr	um Analyz	zer - Swept SA								
L <b>X</b> I		50 Ω		1	4C :	SENSE:INT	Aua	ALIGNAUTO		M Sep 16, 2010 E <mark>1 2 3 4 5 6</mark>	Frequency
			Input: RF	PNO: Fast 🔸 FGain:Low	. Trig: Fr #Atten:		Avgil	Hold: 100/100 Bain: -27.07 dB	) TYF DE		
10 dl	B/div	Ref 26.	00 dBm					Mł	(r1 2.43) -35.2	58 GHz 88 dBm	Auto Tune
<b>Log</b> 16.0											Center Freq 1.265000000 GHz
6.00 -4.00											Start Freq 30.000000 MHz
-14.0 -24.0										-13.00 dBm	<b>Stop Freq</b> 2.500000000 GHz
-34.0	ligner-property l	Johnstan	und the second states of the s	ANA Hitefelorialation	lunundus dur	pedanaf ndamatan tan	huidymaan	ng an tag an gran an a	Merionen Madate	1 ณ.ค.ศ.ศ.ศ.ศ.ศ.ศ.	CF Step 247.000000 MHz <u>Auto</u> Man
-54.0											<b>Freq Offset</b> 0 Hz
-64.0 Star	t 30 MH	2							Stop 2	.500 GHz	
	s BW 1.			#VBW				Sweep	3.87 ms (	1001 pts)	
MSG								STATU	S		

■ Conducted Spurious (16-QAM – RB Size 1, RB Offset 49)

#### ■ Conducted Spurious (16-QAM – RB Size 1, RB Offset 49)

Res BW	1.0 MHz		#VBW				sweep s	9.20 ms (	TOOT DIS)	
tart 2.50			#VBW				Sween (	Stop 8	.000 GHz 1001 pts)	
4.0										UF
4.0										Freq Offs 0 H
4.0										_
Mar Mark	والمرجلة المرساني مردعه	atricted and the second	ومعطيه العطارور والمعالية والمعاد	waltel white	<sub>Re</sub> lamphol <sup>a</sup> thalatana	<b>⋒</b> ₽₽₩₩₩₩₽₩₩₽₽₩	When the second	www.	and the second	550.000000 MI Auto Ma
4.0								1		CF Ste
4.0 <u> </u>										8.00000000 G
4.0									-13.00 dBm	Stop Fr
										2.50000000 G
										<b>Start Fr</b> 2.500000000 G
.00										
6.0										5.250000000 G
<sup>og</sup>										Center Fr
dB/div	Ref 26.	.00 dBm					Mk	r1 7.24 -37.1	1 0 GHz 48 dBm	Auto Tu
		Input: RF	PNO: Fast 🔸 IFGain:Low	#Atten:			in: -27.07 dB			Auto Tu
	JU X				ee Run		ype: Pwr(RMS) old: 100/100	TRAC TY	E 1 2 3 4 5 6 M M M M M M M M M M M M M M M M M M M	Frequency
	50 Ω			vc I	SENSE:INT		ALIGN AUTO	06:00:200	M Sep 16, 2010	

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D Agi	ilent Spec	trum Analy	yzer - Swept SA								
<mark>LXI</mark>		50 Ω		1	AC SE	ENSE:INT	Avg Typ	ALIGNAUTO e: Pwr(RMS	TRAG	M Sep 16, 2010 CE <mark>1 2 3 4 5 6</mark>	Frequency
			Input: RF	PNO: Fast ↔→	Trig: Fre #Atten: 2		Avg Hold Ext Gain:	l: 100/100 : -27.07 dB	TY D	PE MWWWWW ET A N N N N N	
								M	(r1 2.26	5 4 GHz	Auto Tune
10 di Log	B/div	Ref 26	.00 dBm						-34.4	02 dBm	
208											Center Freq
16.0											1.265000000 GHz
6.00											
6.00											Start Freq
-4.00											30.000000 MHz
										-13.00 dBm	
-14.0											Stop Freq
-24.0	<u> </u>										2.500000000 GHz
										<mark>_</mark> 1	OF Oton
-34.0						the solution of the diff	Alle Martin bala des		mandunlar	Lungue marine	CF Step 247.000000 MHz
-44.0	proglandstarbol	by had a provided in	Mounthederstander	white when the start	and a start the second s		nanan				<u>Auto</u> Man
-54.0											Freq Offset 0 Hz
-64.0											0112
Star	L 30 M	Hz							Stop 2	.500 GHz	
		1.0 MHz	2	#VBW				Sweep	3.87 ms (	1001 pts)	
MSG								STATU	s		

■ Conducted Spurious (QPSK – RB Size 1, RB Offset 49)

■ Conducted Spurious (QPSK – RB Size 1, RB Offset 49)

	50 Ω	zer - Swept SA	A	c c	ENSE:INT		ALIGN AUTO	06:06:16 PM Sep 1	<b>- D</b>
	20 22		PNO: Fast ↔ Gain:Low		e Run	AvgHold	e: Pwr(RMS)	TRACE 12 TYPE MW DET A N	3456 Frequency
0 dB/div og	Ref 26.	00 dBm					Mk	r1 6.311 5 ( -37.078 d	GHz Auto Tur IBm
16.0									<b>Center Fre</b> 5.250000000 GH
5.00 <b></b>									Start Fre 2.500000000 GH
24.0								-13	00 dBm Stop Fre 8.000000000 GH
4.0 4.0	mlmenmen	مر <sup>ارم</sup> تر <sub>ال</sub> الي ومن منهم الم	Magal Pullary as the	of the second second second	المراجع	ahijiyishahijirawai	1	huunhahuulutipassaanyu julawa	CF Ste 550.000000 Mi <u>Auto</u> Mi
54.0 <b></b>									Freq Offs 0 H
itart 2.50	0 GHz 1.0 MHz		#VBW				Sweep	Stop 8.000 9.20 ms (1001	GHz

		FCC CERTIFICATION REPORT		www.hct.co.kr
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D Agi	ilent Spec	trum Analy	zer - Swept SA								
L <b>X</b> I		50 Ω			AC	SENSE:INT	Aua	ALIGN AUTO		M Sep 16, 2010 CE <mark>1 2 3 4 5 6</mark>	Frequency
			Input: RF	PNO: Fast ↔ IFGain:Low		Free Run n:20 dB	Avg	Hold: 100/100 Gain: -27.07 dB	γγ Π.Ο. ΤΥ D		
10 dl	B/div	Ref 26.	.00 dBm					Μ	kr1 2.44 -35.6	0 7 GHz 62 dBm	Auto Tune
Log 16.0											Center Freq 1.265000000 GHz
6.00 -4.00											Start Freq 30.000000 MHz
-14.0 -24.0										-13.00 dBm	<b>Stop Freq</b> 2.500000000 GHz
-34.0	narily Allow	woodellabor	۲ <b>۹ مرکوم میکور کور میکور م</b>	1124 WWWWWWW	philippine	an a	aple (Jallations)	Minjillynganagagillenagagi	Mlongle-Marinh	1 National Antipology Ann	<b>CF Step</b> 247.000000 MHz <u>Auto</u> Man
-54.0											<b>Freq Offset</b> 0 Hz
-64.0	+ 20 M								Otom 6	500 CU-	
	t 30 M s BW 1	HZ 1.0 MHZ		#VBW				Sweep	Stop 2 3.87 ms (	2.500 GHz (1001 pts)	
MSG								STATU	IS		

■ Conducted Spurious (QPSK – RB Size 25, RB Offset 12)

■ Conducted Spurious (QPSK – RB Size 25, RB Offset 12)

5	<mark>im Analyzer - S</mark> 50 Ω			AC	SENSE:INT		ALIGN AUTO	06:21:13 PM Sep 1(	5 2010
			PNO: Fast ↔ Gain:Low		ree Run	Avg Hol	be: Pwr(RMS) d: 100/100 n: -27.07 dB		Frequency
) dB/div	tef 26.00 c	dBm					Mk	r1 6.245 5 C -37.013 d	GHz Auto Tu Bm
6.0									<b>Center Fr</b> 5.250000000 G
.00									Start Fre 2.500000000 Gi
4.0								-13	00 dBm Stop Frd 8.000000000 Gl
4.0 1.0	under <sup>(Aug</sup> , 2014), for the se	Angel Hartingtong	مروب میلی میلی میلی میلی میلی میلی میلی میل	, gaaa hay hay hay hay hay hay hay hay hay	shere we had the had	nlintagenment	1 Multilanariana dari walio	hand the second s	CF Sto 550.000000 M <u>Auto</u> M
4.0									Freq Offs 0
4.0 tart 2.500 ( Res BW 1.0			#VBW				Sween	Stop 8.000 9.20 ms (1001	GHz

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🗊 Agi	ilent Spect		zer - Swept SA								
L <b>X</b> I		50 Ω			AC SE	ENSE:INT	Ανα Τνρ	ALIGNAUTO E: Pwr(RMS)	TRAC	M Sep 16, 2010 E <mark>1 2 3 4 5 6</mark>	Frequency
			Input: RF	PNO: Fast 🔸 IFGain:Low	Trig: Fre #Atten: 2		Avg Hold Ext Gain:	: 100/100 -27.07 dB	TYF DE		
10 di Log	B/div	Ref 26.	00 dBm					Mk	r1 2.38 -35.9	1 4 GHz 57 dBm	Auto Tune
16.0											Center Freq 1.265000000 GHz
6.00 -4.00											Start Freq 30.000000 MHz
-14.0										-13.00 dBm	<b>Stop Freq</b> 2.50000000 GHz
-34.0	all white the second	nelly required	rfslattförstarmartmanula	nut hatveryn als	ي. مولدها را را معال المراجع	hyllb-abelly-typ-by-	n. In white	. Alliant and the second	Junger Annald	1 Webbookstanteristice	CF Step 247.000000 MHz <u>Auto</u> Man
-44.0 -54.0											<b>Freq Offset</b> 0 Hz
-64.0											
	t 30 M sBW 1	Hz .0 MHz		#VBW				Sweep	Stop 2 3.87 ms (	.500 GHz 1001 pts)	
MSG								STATUS			

■ Conducted Spurious (16-QAM – RB Size 25, RB Offset 12)

■ Conducted Spurious (16-QAM – RB Size 25, RB Offset 12)



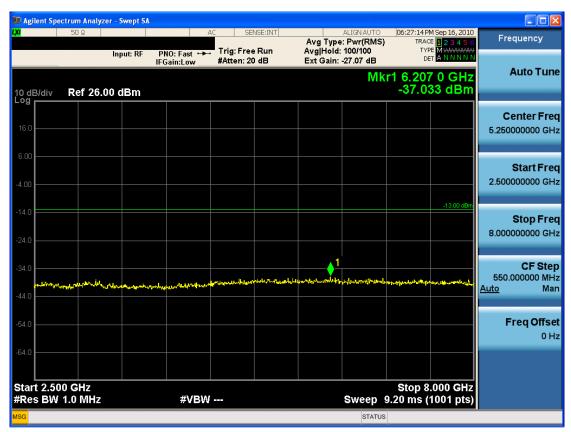
		FCC CERTIFICATION REPORT		www.hct.co.kr
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- 0	Spectrum Analyzer	- Swept SA								
LXI	50 Ω		β	KC SE	NSE:INT	Avg Type	ALIGNAUTO E: Pwr(RMS)	TRAC	M Sep 16, 2010	Frequency
			NO:Fast ↔ Gain:Low	Trig: Free #Atten: 20		Avg Hold: Ext Gain:		TYI Di	ET A N N N N N	
							Mk	r1 2.40	3 7 GHz	Auto Tune
10 dB/div Log	Ref 26.00	dBm						-35.0	20 dBm	
										Center Freq
16.0			1							1.265000000 GHz
6.00										Start Freq
-4.00										30.000000 MHz
									-13.00 dBm	
-14.0										Stop Freq
-24.0										2.500000000 GHz
									<u>_1</u>	
-34.0								Mundusp	utura inist Hant	CF Step 247.000000 MHz
-44.0	windowenybardella	nthely you when the	1 the following the	ality of the states of the sta	efteliterinteristion <sup>1</sup>	npulvellphund	li li fordi d'Andre and a da	all all as a shall be	ALL VILLE	<u>Auto</u> Man
-54.0										Freq Offset
										0 Hz
-64.0										
	2 B 41 1-							<b>O</b> tom 2	500 011-	
Start 30 #Res B	U MHZ W 1.0 MHZ		#VBW				Sweep	stop 2 3.87 m <u>s (</u>	.500 GHz 1001 pts)	
MSG							STATUS			

#### ■ Conducted Spurious (QPSK – RB Size 50)

#### ■ Conducted Spurious (QPSK – RB Size 50)



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D Agi	lent Spec	trum Analy	/zer - Swept SA								
LXI		50 Ω			AC SE	ENSE:INT	Ava	ALIGN AUTO Type: Pwr(RMS	) TRA	M Sep 16, 2010 CE <mark>1 2 3 4 5 6</mark>	Frequency
			Input: RF	PNO: Fast 🔸	Trig: Fre #Atten: 2		AvgiH	fold: 100/100 ain: -27.07 dB	, TY D		
10 dl	3/div	Ref 26	.00 dBm					MI	(r1 2.22) -34.8	3 4 GHz 96 dBm	Auto Tune
Log 16.0											Center Freq 1.265000000 GHz
6.00 -4.00											Start Freq 30.000000 MHz
-14.0 -24.0										-13.00 dBm	<b>Stop Freq</b> 2.500000000 GHz
-34.0	Mangulat	Munuhant	halen ya ana ana ana ana ana ana ana ana ana	ury while warming	numanalia	with providing of	Jankillin	Levenson datagi di <sup>n</sup> eradi di	here and a start	1 anthrothistophis	CF Step 247.000000 MHz <u>Auto</u> Man
-54.0											<b>Freq Offset</b> 0 Hz
-64.0											
	t 30 M s BW 1	Hz 1.0 MHz		#VBW				Sweep	Stop 2 3.87 ms (	.500 GHz 1001 pts)	
MSG								STATU	s		

### ■ Conducted Spurious (16-QAM – RB Size 50)

#### ■ Conducted Spurious (16-QAM – RB Size 50)

tart 2.50 Res BW	0 GHZ 1.0 MHZ		#VBW				Sweep 9	stop 8. 0.20 ms (1	000 GHz 001 pts)	
								Oton 0		
4.0										01
4.0										Freq Offs
4.0	webourner were the	**************************************	production and the second	, alimenter	and and a state of the state of	urah han Muyada Alba		hand and a state of the second se	when the she	CF Ste 550.000000 M <u>Auto</u> M
l.0					. 1					
4.0									10.00 00/1	Stop Fr 8.000000000 G
									-13.00 dBm	2.500000000 G
00										Start Fr
6.0										5.250000000 G
dB/div	Ref 26.	00 dBm						-07.07	Tabiii	Center Fr
			II Gam.cow					1 5.442	5 GHz 1 dBm	Auto Tu
		Input: RF	PNO: Fast ++-	. Trig: Fi #Atten:	ree Run 20 dB	Avg H	ype: Pwr(RMS) old: 100/100 ain: -27.07 dB	TRACI TYPI DE	123456 M <del>WWWWW</del> ANNNNN	Frequency
	50 Ω		1	AC	SENSE:INT		ALIGN AUTO	06:24:57 PN	1 Sep 16, 2010	

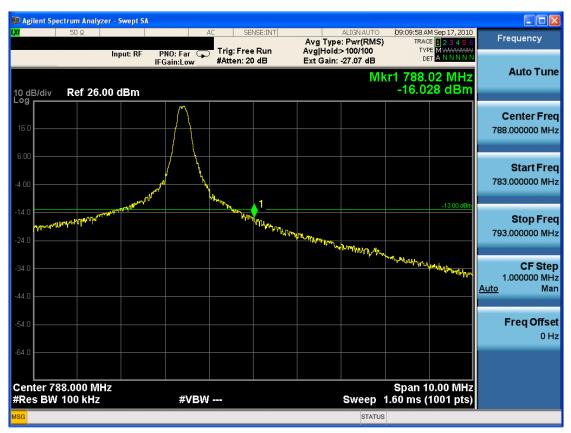
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■ Upper Band Edg (16-QAM – RB Size 1, RB Offset 49)

■ Upper Band Edg (QPSK – RB Size 1, RB Offset 49)



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#### 🕅 Agilent Spectrum Analyzer - Swept SA 09:13:18 AM Sep 17, 2010 TRACE 1 2 3 4 5 6 TYPE M WWWWW DET A N N N N N Frequency Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -27.07 dB Trig: Free Run PNO: Far 😱 IFGain:Low Input: RF #Atten: 20 dB Auto Tune Mkr1 788.08 MHz -19.864 dBm 10 dB/div Log Ref 26.00 dBm **Center Freq** 788.000000 MHz N/M Start Freq 783.000000 MHz **Stop Freq** 793.000000 MHz Uh. WWWWW N **CF** Step 1.000000 MHz Man Auto **Freq Offset** 0 Hz Center 788.000 MHz #Res BW 100 kHz Span 10.00 MHz Sweep 1.60 ms (1001 pts) #VBW ----STATUS

#### ■ Upper Band Edg (QPSK – RB Size 50)

#### ■ Upper Band Edg (16-QAM – RB Size 50)



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	ctrum Analyzer	- Swept SA									
	50 Ω		PNO: Far 😱 Gain:Low	<b>.</b>		Avg Type Avg Hold: Ext Gain:		09:16:34 AM TRAC TYP DE	4 Sep 17, 2010 E <b>1 2 3 4 5 6</b> E M <del>WWWWW</del> T A N N N N N	Fred	quency
0 dB/div	Ref 26.00		Gain:Low	#Atten: 20		Ext Gam.		1 795.2	08 MHz 29 dBm	4	uto Tun
og 16.0											enter Fre 00000 MH
.00											Start Fre 00000 M⊦
4.0											<b>Stop Fre</b> 00000 M⊦
14.0									-32.96 dBm	1.2 <u>Auto</u>	CF Ste 00000 MH Ma
54.0	yllyyl yng rannod yllyyl	1 Hele New York Marken of	had mithelings	ph.f.vierAlzontalia	1.1 <sup>4</sup> 1.11.14.14.14.14.14	happenhaussen	hrendriddaequary	and the grad	w.J. Januari Halli Aliyaya	Fi	reqOffso 0⊦
54.0 Start 793.	000 MHz							Stop 805.	.000 MHz		
Res BW	10 kHz		#VBW				Sweep	143 ms ('	1001 pts)		

■ Upper Emission Mask (793 – 805 MHz ) 16-QAM – RB Size 1, RB Offset 49)

#### ■ Upper Emission Mask (793 – 805 MHz ) QPSK – RB Size 1, RB Offset 49)

	50 S	2		ept SA		ļ	AC	SEM	NSE:INT		ALIGN A	UTO	09:17:14 A	M Sep 17, 2010		
			Input	t: RF	PNO: F FGain:I	ar ⊊ _ow_		g: Free ten: 20		Avg H	ype: Pwr(F old:>100/1 ain: -27.07	00 (	TRAC TYP DE	E 123456 E MWWWWW T A N N N N N		requency
dB/div	Ref	26.0	0 dE	3m								Mki	r1 795.1 -50.9	48 MHz 46 dBm		Auto Tu
<sup>′</sup>																Center Fr
6.0			+													9.000000 M
00																Start Fr
															79	3.000000 M
1.0			$\rightarrow$													Stop Fr
1.0															80	5.000000 M
+.0																
l.0														-32.96 dBm		CF St
															Auto	1.200000 M M
4.0			<u>1</u>													
1.0		,	Å N													Freq Offs
with ligh	Malap	where	×,	munuh	hall have been been been been been been been be	a formation of	where a	and the state	hally have been	hally have		white	wayper which have	mohilindition		0
4.0																
art 793											_		Stop 805	.000 MHz		
Res BW	10 K	HZ			3	#VBW					Swe	ep	143 ms (	1001 pts)		

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	um Analyzer - : 50 Ω In	put: RF P	NO: Far 🗔	Trig: Free		Avg Hold:		TRAC	M Sep 17, 2010 CE <b>1</b> 2 3 4 5 6 PE M <del>WWWWW</del> ET A N N N N N	Frequency
) dB/div	Ref 26.00 (		Gain:Low	#Atten: 20	) dB	Ext Gain:		1 793.5	52 MHz 62 dBm	Auto Tur
6.0										Center Fro 799.000000 Mi
.00										<b>Start Fr</b> 793.000000 M
4.0 4.0										<b>Stop Fr</b> 805.000000 M
4.0 4.0									-32.96 dBm	<b>CF St</b> 1.200000 M <u>Auto</u> M
4.0	htp://www.wayarayawayawayawayawayawayawayawayawaya	L <sub>VI,hideft</sub> yliandir, fy	hyperal human d.m	udaanadahan day	<b>vr4vi<sup>l</sup>min</b> Mi	h <sup>l</sup> uunhinimi	ahyarikan jing Manikan ji	Magneriumula	leath to the second	Freq Offs
4.0 tart 793.00	00 MHz 0 kHz		#VBW				Sweep	Stop 805	.000 MHz 1001 pts)	

■ Upper Emission Mask (793 – 805 MHz ) QPSK –RB Size 50

#### ■ Upper Emission Mask (793 – 805 MHz ) 16-QAM –RB Size 50

Res BW				#VBV	v			Sweep	143 ms (	1001 pts)		
start 793	.000 M	IHz							Stop 805	.000 MHz		
64.0									a service and the	ontrolladin (1) (14 vi vi		0 H
54.0				A SHALL AND A SHALL AND A	and the second	Warey Hon Bry Mary	allowlerway	hahalahlalikalanahalas	Mary Marker	. I the back of	Fre	eq Offs
HALO THINK MANY	-	abolyhythelyrig	Hendred to co	مرابع المرابع								
44.0											Auto 1.20	Ma
34.0										-32.96 dBm		CF Ste
24.0												
												top Fre
14.0												top Era
4.00											793.00	0000 MH
												tart Fre
6.00												
16.0											799.00	0000 MH
vy											Cer	nter Fre
0 dB/div	<b>R</b> ef :	26.00 d	Bm						-43.0	92 dBm		
				FGain:Low	#Atte	en: 20 dB	Ext G	iain: -27.07 dB Mk	r1 793.0			uto Tur
		Inp	ut: RF	PNO: Far 🕞		Free Run	Avgil	Type: Pwr(RMS lold:>100/100	) TRAC TYI	CE <b>1 2 3 4 5 6</b> PE M <del>WWWWW</del> ET A N N N N N		acticy
	50 Ω				AC	SENSE:INT		ALIGN AUTO		M Sep 17, 2010	Erecu	uency

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