ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E

OF

Product Name:	**RM-595**
Brand Name:	**Nokia**
Model Name:	**RM-595**
Model Difference:	**N/A**
FCC ID:	**QMNRM-595**
Report No.:	**EH/2009/90034**
Issue Date:	**Oct. 9, 2009**
FCC Rule Part:	**2 , 22H & 24E**
Prepared for:	**Nokia Inc.** **12278 Scripps Summit Dr.** **San Diego, CA 92131, USA**
Prepared by:	**SGS Taiwan Ltd.** **Electronics & Communication Laboratory** **No. 134, Wu Kung Rd., Wuku Industrial Zone,** **Taipei County, Taiwan.**

CERTIFICATION OF COMPLIANCE

Applicant:	Nokia Inc. 12278 Scripps Summit Dr., San Diego, CA 92131, USA
Manufacturer:	Compal Communications(Nanjing)Co.Ltd Nanjing Jiangning Export Processing Zone (South Area) No.68-2 Suyuan Street
Product Name:	RM-595
Brand Name:	Nokia
FCC ID:	QMNRM-595
Model No.:	RM-595
Model Difference:	N/A
File Number:	EH/2009/90034
Date of test:	Sep. 18, 2009 ~ Sep. 30, 2009
Date of EUT Received:	Sep. 18, 2009

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C-2004, Issue the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule PART 22 subpart H, PART 24 subpart E.

The test results of this report relate only to the tested sample identified in this report.

Test By:		***Date:***	Oct. 9, 2009
	Bondi Liu/Engineer		
Prepared By:		***Date:***	Oct. 9, 2009
	Alex Chen/Engineer-P		
Approved By:		***Date:***	Oct. 9, 2009
	Vincent Su/Manager		

Version

Version No.	Date	Description
00	Oct. 5, 2009	Initial creation of document
01	Oct. 9, 2009	1. Correct the EUT receive date on Page 2. 2. Revised General information on Page 6. 3. Correct the test methodology to TIA/EIA 603C on Page 7. 4. Remove attenuator description in section 5.3 on Page 12. 5. Add and revised the conducted power on Page 13. 6. Remove Part 27.53 description on Page 32 and 43. 7. Correct the limitation to 2.5ppm on Page 61 and 64. 8. Add measurement uncertainty on Page 12, 16, 22, 33, 59, 62. 9. Remove the Table 8.1 on Page 32.

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1. GENERAL INFORMATION

1.1 Product Description

General:

Type Name:	RM-595	
Brand Name:	NOKIA	
Model Name:	RM-595	
Model Difference:	N/A	
Simple Hands-Free (SHF)	Model: HS-125, Brand: Nokia	
Power Supply:	3.7 Vdc re-chargeable battery or 5Vdc by AC/DC power adapter	
	Battery Model:	BL-4C, Brand: NOKIA
	Adaptor Model:	AC-6U , Brand: NOKIA

CDMA:

Cellular Phone Standards Frequency Range and Power:	CDMA2000 Cellular	824.70 ~ 848.31MHz	24.59 dBm
	CDMA2000 PCS	1851.25 ~ 1908.75 MHz	24.44 dBm
	EVDO Cellular	824.70 ~ 848.31MHz	24.63 dBm
	EVDO PCS	1851.25 ~ 1908.75 MHz	24.41 dBm
Type of Emission:	1M25F9W		
MEID:	A00000018B01B7A		
Software Version:	SN_2250B_TCL		
Hardware Version:	3200		

Bluetooth:

Frequency Range:	2402 – 2480MHz
Bluetooth Version:	V2.1 + EDR (GFSK + π /4DQPSK + 8DPSK)
Channel number:	79 channels
Transmit Power:	3.57 dBm (Peak)
Modulation type:	Frequency Hopping Spread Spectrum
Antenna Designation:	Chip Antenna, -0.11dBi.

Final amplifier voltage and current information

Test Mode	DC voltage (V)	DC current (mA)
CDMA 2000 Cellular	**3.7Vdc**	**130**
CDMA 2000 PCS	**3.7Vdc**	**140**
EVDO Cellular	**3.7Vdc**	**120**
EVDO PCS	**3.7Vdc**	**130**

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: QMNRM-595** filing to comply with Section Part 22 subpart H , Part 24 subpart E of the FCC CFR 47 Rules.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures document of TIA/EIA 603C and FCC 47 CFR 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

1.4 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

2. SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The Nokia CDMA2000 Phone was stayed in engineering mode (RC3/SO55)to fix the Tx frequency which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Measurement at Antenna Port:

According to measurement procured TIA/EIA 603C, the EUT is placed on a turn table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

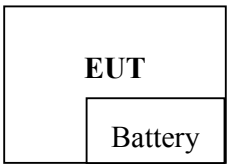
2.3.2 Radiated Emissions (ERP/EIRP):

According to measurement procured TIA/EIA 603C and TIA/EIA IS-98 for Mobile stations. The EUT is placed on a turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements.

A standard antenna was used to replace the EUT and connect to the SG. Adjust the SG output level to reach the max emission level which were measured above.

2.4 Configuration of Tested System

Fig. 1-1 Configuration for Radiated Emission



Remote Side

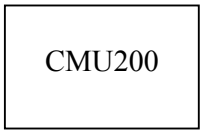


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Universal Radio Communication Tester	R&S	CMU200	102189	N/A	Un-shielded

3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Conducted Power Output	Compliant
§2.1046(a) §22.913(a)(2) §24.232©	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% Occupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a)	Out of Band Emissions at Antenna Terminals and Band Edge	Compliant
§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation (TX)	Compliant
§2.1055(a)(1) §22.355 §24.235	Frequency Stability vs. Temperature	Compliant
§2.1055(d)(2) §22.355 §24.235	Frequency Stability vs. Voltage	Compliant

4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

Set EUT power control "all up bits" for all test mode through base station.

The Channel Low, Mid and High for each type of bands with rated data rate were chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (E1 mode) and lie down position (E1, E2 mode) for CDMA2000 Cellular and PCS bands. The worst-case E2 mode for channels Low, Mid and High were reported.

The worse case was the CDMA2000 with RC3/SO55 for Cellular and PCS bands after testing all application configurations declared by the applicant.

5. RF POWER OUTPUT MEASUREMENT

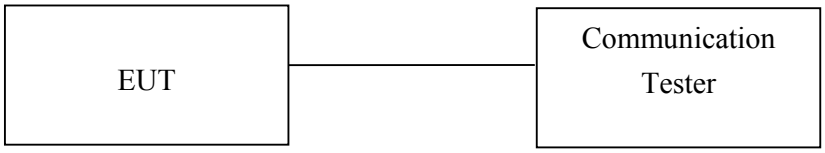
5.1 Standard Applicable

According to FCC §2.1046.

FCC 22.913(a)(2) Mobile station are limited to 7W.

FCC 24.232© Mobile station are limited to 2W.

5.2 Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

5.3 Measurement Procedure

The transmitter output was connected to a calibrated Communication Tester by a low lost RF cable.

5.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Communication Test	R&S	CMU200	102189	05/13/2009	05/12/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2009	02/12/2010

5.5 Measurement Uncertainty:

Conducted Output Power Test: ±1.3dBm.

5.6 Measurement Result

EUT Mode	Frequency (MHz)	CH	Reading (dBm)
CDMA2000 CELLULAR Band (RC3/SO55)	824.70	1013	24.56
	836.52	384	24.59
	848.31	777	24.57

EUT Mode	Frequency (MHz)	CH	Reading (dBm)
EVDO CELLULAR Band (Rate/Slot:153.6)	824.70	1013	24.58
	836.52	384	24.63
	848.31	777	24.45

EUT Mode	Frequency (MHz)	CH	Reading (dBm)
CDMA2000 PCS Band (RC3/SO55)	1851.25	25	24.23
	1880.00	600	24.34
	1908.75	1175	24.44

EUT Mode	Frequency (MHz)	CH	Reading (dBm)
EVDO PCS Band (Rate/Slot:153.6)	1851.25	25	24.41
	1880.00	600	24.20
	1908.75	1175	24.27

6. ERP/EIRP MEASUREMENT

6.1 Standard Applicable

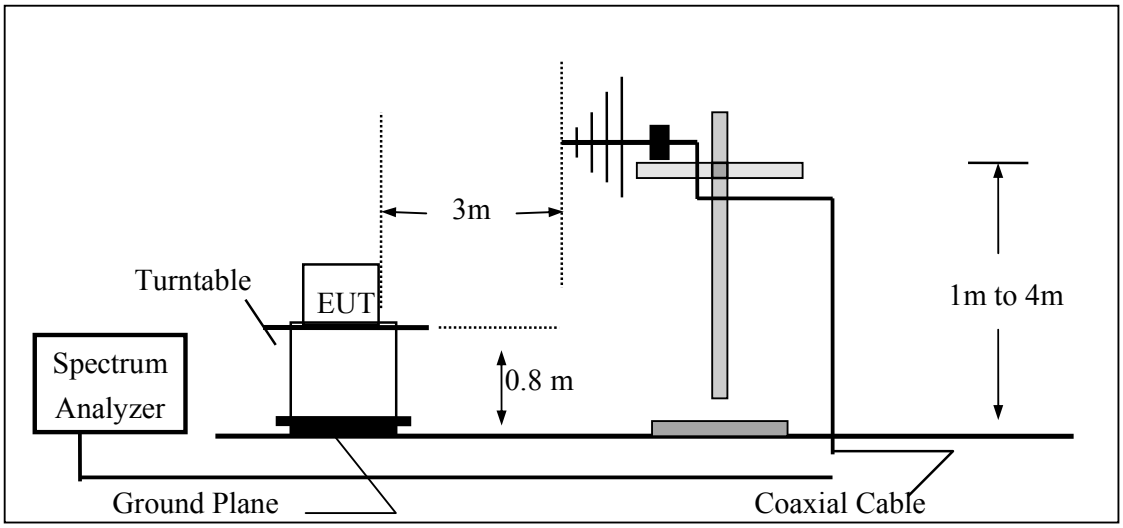
According to FCC §2.1046

FCC 22.913(a)(2) Mobile station are limited to 7W ERP.

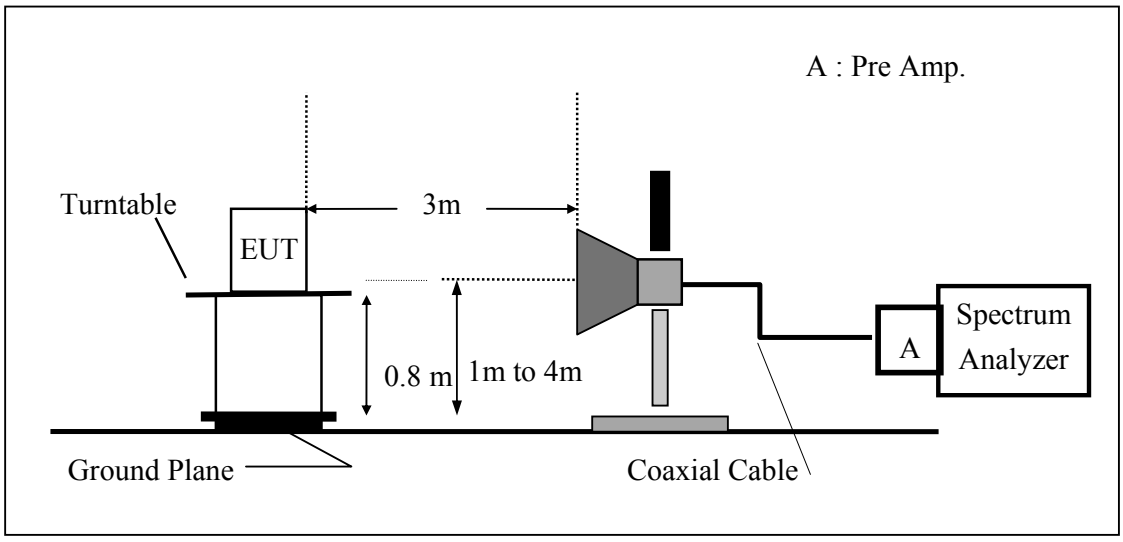
FCC 24.232(c) Mobile station are limited to 2W EIRP.

6.2 Test SET-UP (Block Diagram of Configuration)

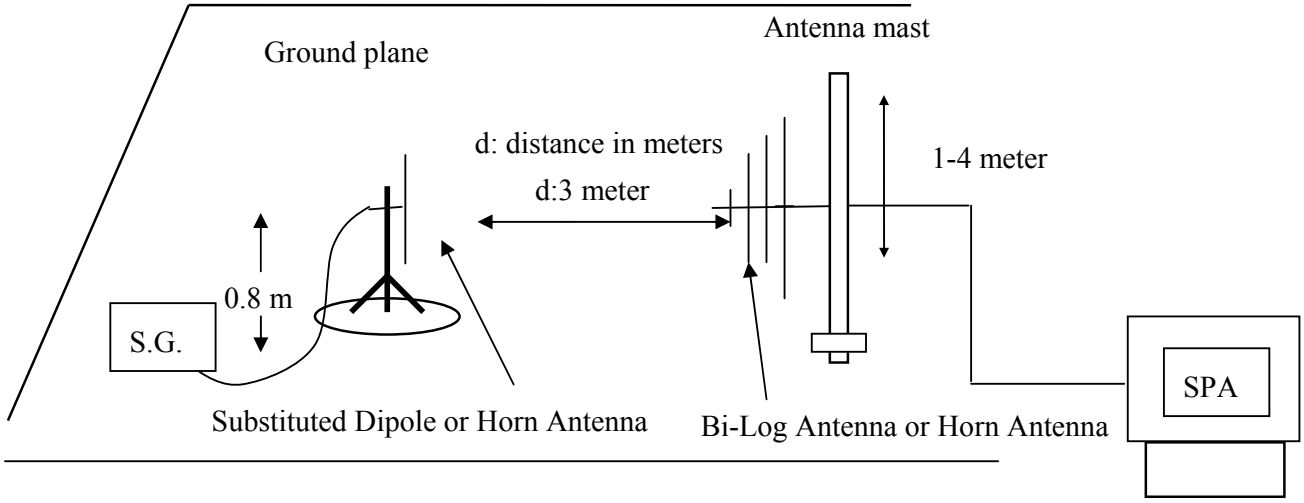
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



6.3 Measurement Procedure

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)

The measurement uncertainty is ±4.42dB.

6.4 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2008	07/03/2010
Spectrum Analyzer	R&S	FSP 40	100034	02/22/2009	02/21/2010
Communication Test	R&S	CMU200	102189	05/13/2009	05/12/2010
Bi-log Antenna	SCHWAZBECK	VULB9163	152	06/03/2009	06/02/2010
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	08/16/2009	08/15/2010
Pre-Amplifier	HP	8447D	2944A09469	07/19/2009	07/18/2010
Pre-Amplifier	HP	8494B	3008A00578	02/26/2009	02/25/2010
Signal Generator	R&S	SMR40	100210	02/09/2009	02/10/2010
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2008	10/08/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2008	10/08/2009
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	10/09/2008	10/08/2009
Site NSA	SGS	966 chamber	N/A	11/17/2008	11/16/2009
Attenuator	Mini-Circuit	BW-S10W5	N/A	09/23/2009	09/22/2010
Dipole Antenna	SCHWAZBECK	VHAP	908/909	06/10/2009	06/11/2010
Dipole Antenna	SCHWAZBECK	UHAP	891/892	06/10/2009	06/11/2010
Horn antenna	SCHWAZBECK	BBHA 9120D	N/A	08/16/2009	08/15/2010

6.5 Measurement Result

Refer to following pages for detail.

6.5.1.Measurement Result:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
CDMA2000	824.70	1013	H	V	115.03	28.67	-7.88	3.63	17.16	38.45
				H	127.24	40.98	-7.88	3.63	29.48	38.45
			E1	V	125.94	39.58	-7.88	3.63	28.07	38.45
				H	114.58	28.32	-7.88	3.63	16.82	38.45
			E2	V	115.57	29.21	-7.88	3.63	17.70	38.45
				H	127.17	40.91	-7.88	3.63	29.41	38.45
	836.52	384	H	V	114.62	28.36	-7.88	3.65	16.83	38.45
				H	127.02	40.79	-7.88	3.65	29.26	38.45
			E1	V	126.03	39.77	-7.88	3.65	28.24	38.45
				H	114.91	28.68	-7.88	3.65	17.15	38.45
			E2	V	115.14	28.88	-7.88	3.65	17.35	38.45
				H	127.33	41.10	-7.88	3.65	29.57	38.45
	848.31	777	H	V	114.65	28.50	-7.88	3.67	16.95	38.45
				H	127.28	41.08	-7.88	3.67	29.53	38.45
			E1	V	126.29	40.13	-7.88	3.67	28.58	38.45
				H	113.88	27.68	-7.88	3.67	16.13	38.45
			E2	V	113.67	27.52	-7.88	3.67	15.97	38.45
				H	127.31	41.11	-7.88	3.67	29.56	38.45

Remark：

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=1.5MHz, VBW=1.5MHz,

Above 1GHz was RBW=1.5MHz , VBW=1.5MHz

6.5.2.Measurement Result:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
CDMA2000 PCS	1851.25	25	H	V	118.13	13.74	9.90	5.56	18.08	33.00
				H	125.82	21.64	9.90	5.56	25.98	33.00
			E1	V	121.75	17.36	9.90	5.56	21.70	33.00
				H	121.87	17.69	9.90	5.56	22.03	33.00
			E2	V	121.18	16.79	9.90	5.56	21.13	33.00
				H	123.61	19.43	9.90	5.84	23.49	33.00
	1880.00	600	H	V	118.77	14.41	9.99	5.61	18.79	33.00
				H	126.13	21.99	9.99	5.61	26.36	33.00
			E1	V	121.68	17.32	9.99	5.61	21.70	33.00
				H	121.66	17.52	9.99	5.61	21.89	33.00
			E2	V	122.71	18.35	9.99	5.61	22.73	33.00
				H	124.44	20.30	9.99	5.61	24.67	33.00
	1908.75	1013	H	V	117.50	13.17	10.07	5.66	17.59	33.00
				H	125.29	21.18	10.07	5.66	25.59	33.00
			E1	V	121.16	16.83	10.07	5.66	21.25	33.00
				H	120.79	16.68	10.07	5.66	21.09	33.00
			E2	V	121.80	17.47	10.07	5.66	21.89	33.00
				H	124.33	20.22	10.07	5.66	24.63	33.00

Remark：

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=1.5MHz, VBW=1.5MHz,

Above 1GHz was RBW=1.5MHz , VBW=1.5MHz

6.5.3.Measurement Result:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
EVDO Cell	824.70	1013	H	V	114.63	28.27	-7.88	3.63	16.76	38.45
				H	127.10	40.84	-7.88	3.63	29.34	38.45
			E1	V	124.89	38.53	-7.88	3.63	27.02	38.45
				H	114.37	28.11	-7.88	3.63	16.61	38.45
			E2	V	114.84	28.48	-7.88	3.63	16.97	38.45
				H	126.50	40.24	-7.88	3.63	28.74	38.45
	836.52	384	H	V	113.79	27.53	-7.88	3.65	16.00	38.45
				H	127.09	40.86	-7.88	3.65	29.33	38.45
			E1	V	125.51	39.25	-7.88	3.65	27.72	38.45
				H	114.37	28.14	-7.88	3.65	16.61	38.45
			E2	V	116.27	30.01	-7.88	3.65	18.48	38.45
				H	127.08	40.85	-7.88	3.65	29.32	38.45
	848.31	777	H	V	114.54	28.39	-7.88	3.67	16.84	38.45
				H	126.65	40.45	-7.88	3.67	28.90	38.45
			E1	V	125.46	39.30	-7.88	3.67	27.75	38.45
				H	114.64	28.44	-7.88	3.67	16.89	38.45
			E2	V	114.18	28.03	-7.88	3.67	16.48	38.45
				H	126.42	40.22	-7.88	3.67	28.67	38.45

Remark：

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=1.5MHz, VBW=1.5MHz,

Above 1GHz was RBW=1.5MHz , VBW=1.5MHz

6.5.4.Measurement Result:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
EVDO PCS	1851.25	25	H	V	117.73	13.34	9.90	5.56	17.68	33.00
				H	125.07	20.89	9.90	5.56	25.23	33.00
			E1	V	121.65	17.26	9.90	5.56	21.60	33.00
				H	120.96	16.78	9.90	5.56	21.12	33.00
			E2	V	122.64	18.25	9.90	5.56	22.59	33.00
				H	124.51	20.33	9.90	5.84	24.39	33.00
	1880.00	600	H	V	118.46	14.10	9.99	5.61	18.48	33.00
				H	125.49	21.35	9.99	5.61	25.72	33.00
			E1	V	121.38	17.02	9.99	5.61	21.40	33.00
				H	121.58	17.44	9.99	5.61	21.81	33.00
			E2	V	121.66	17.30	9.99	5.61	21.68	33.00
				H	123.94	19.80	9.99	5.61	24.17	33.00
	1908.75	1013	H	V	117.32	12.99	10.07	5.66	17.41	33.00
				H	124.11	20.00	10.07	5.66	24.41	33.00
			E1	V	121.50	17.17	10.07	5.66	21.59	33.00
				H	121.22	17.11	10.07	5.66	21.52	33.00
			E2	V	122.17	17.84	10.07	5.66	22.26	33.00
				H	124.25	20.14	10.07	5.66	24.55	33.00

Remark：

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=1.5MHz, VBW=1.5MHz,

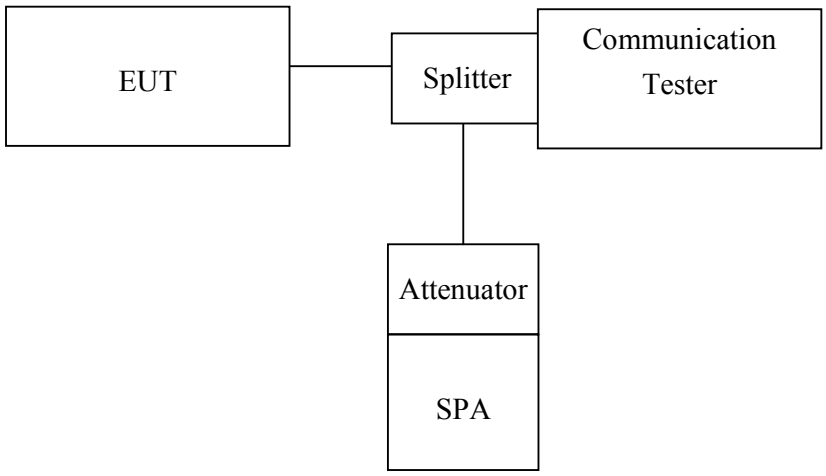
Above 1GHz was RBW=1.5MHz , VBW=1.5MHz

7. 99% OCCUPIED BANDWIDTH MEASUREMENT

7.1 Standard Applicable

According to §FCC 2.1049.

7.2 Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

7.3 Measurement Procedure

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW (10/30KHz) was set to about 1% of emission BW, VBW= 3 times RBW(30/100KHz), -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

7.4 Measurement Uncertainty

Frequency Tolerance : ±290Hz.

7.5 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2009	07/03/2010
Power Sensor	Anritsu	MA2490A	31431	07/07/2009	07/06/2010
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2009	02/12/2010
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2009	07/04/2010
Splitter	Agilent	11636B	51818 / 51820	07/05/2009	07/04/2010
Signal Generator	R&S	SMR40	100210	01/22/2009	01/21/2010
DC Power Supply	Agilent	6038A	2929A-07548	06/27/2009	06/26/2010

7.6 Measurement Result:.

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
CDMA2000 Cellular	824.70	1013	1.2707
	836.52	384	1.2642
	848.31	777	1.2736

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
CDMA2000 PCS	1851.25	25	1.2768
	1880.00	600	1.2724
	1908.75	1175	1.2757

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EVDO Cellular	824.70	1013	1.2732
	836.52	384	1.2825
	848.31	777	1.2745

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EVDO PCS	1851.25	25	1.2747
	1880.00	600	1.2699
	1908.75	1175	1.2764

Figure 7-1: CDMA2000 Cellular Channel 1013

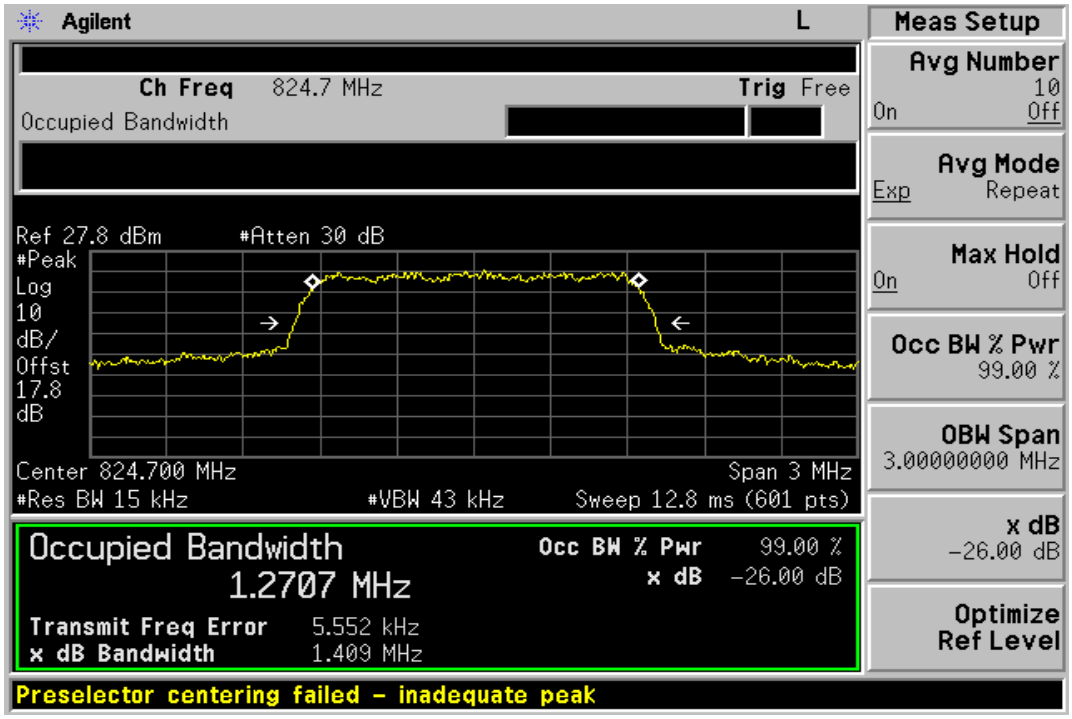


Figure 7-2 CDMA2000 Cellular Channel 384

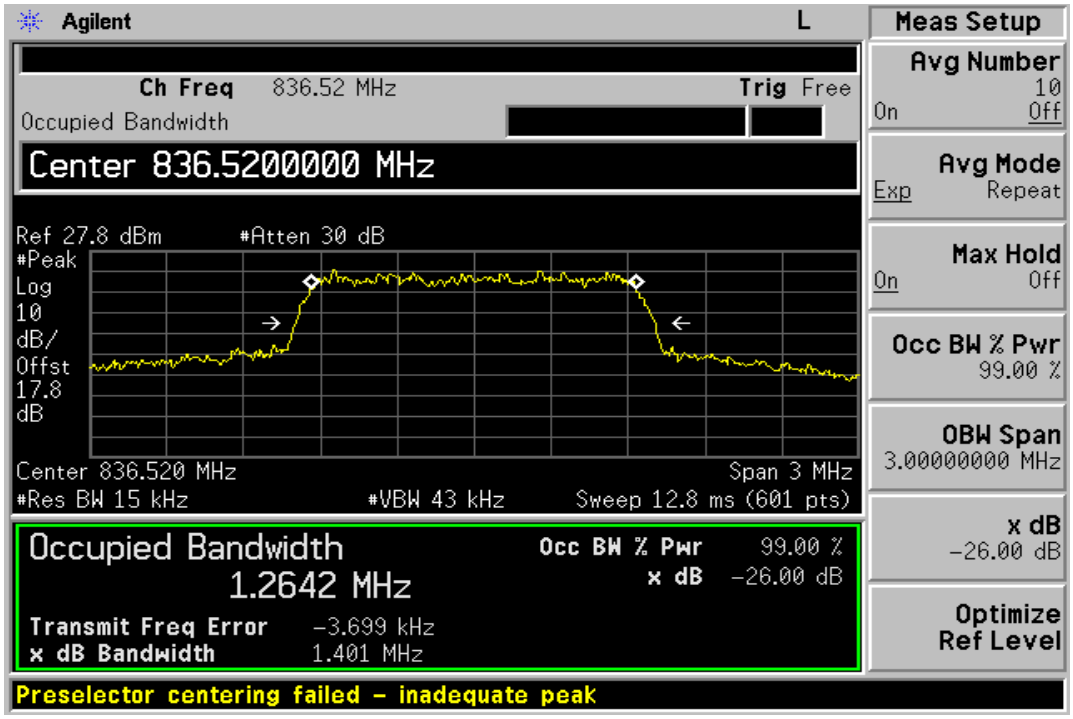


Figure 7-3: CDMA2000 Cellular Channel 777

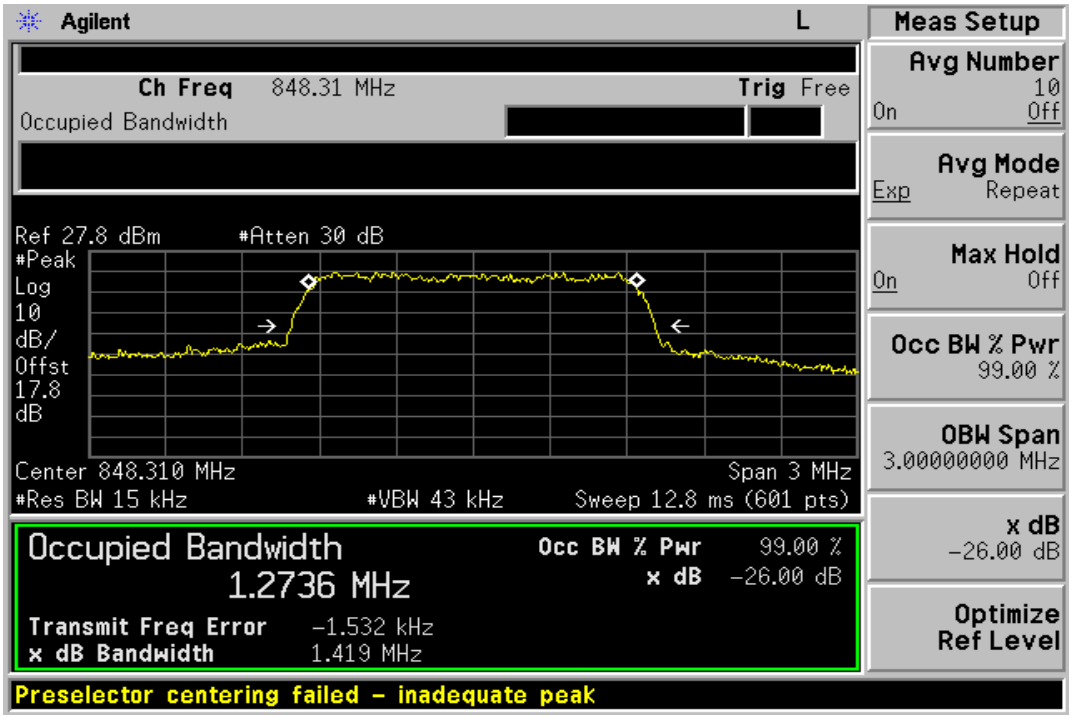


Figure 7-4: CDMA2000 PCS Channel 25

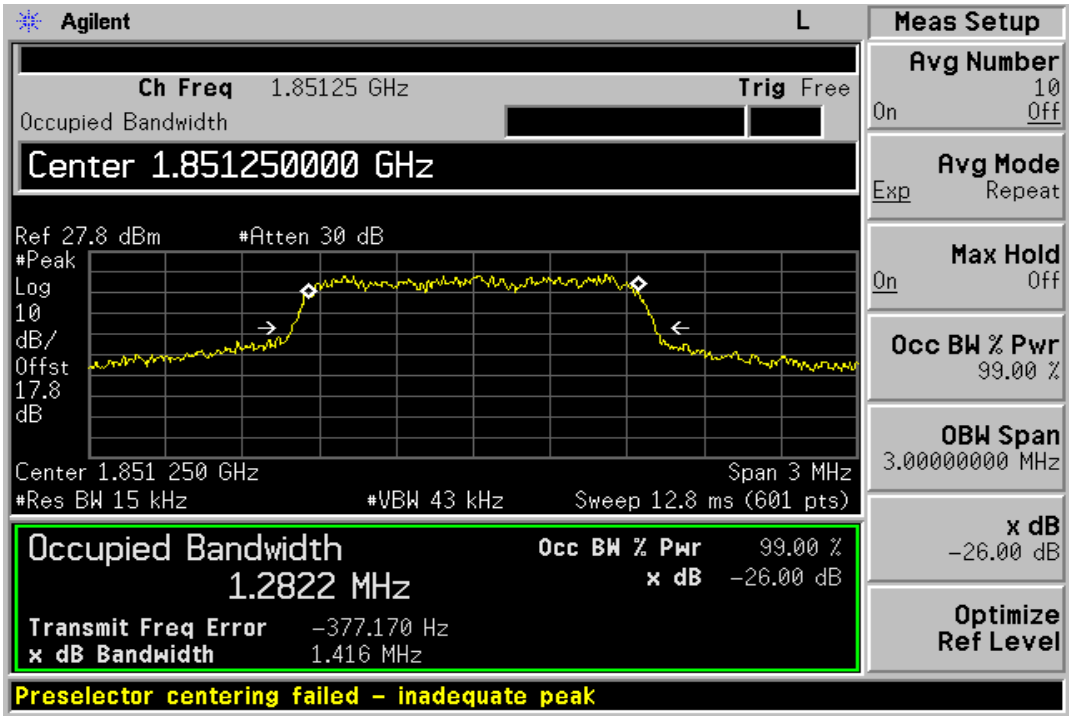


Figure 7-5 CDMA2000 PCS Channel 600

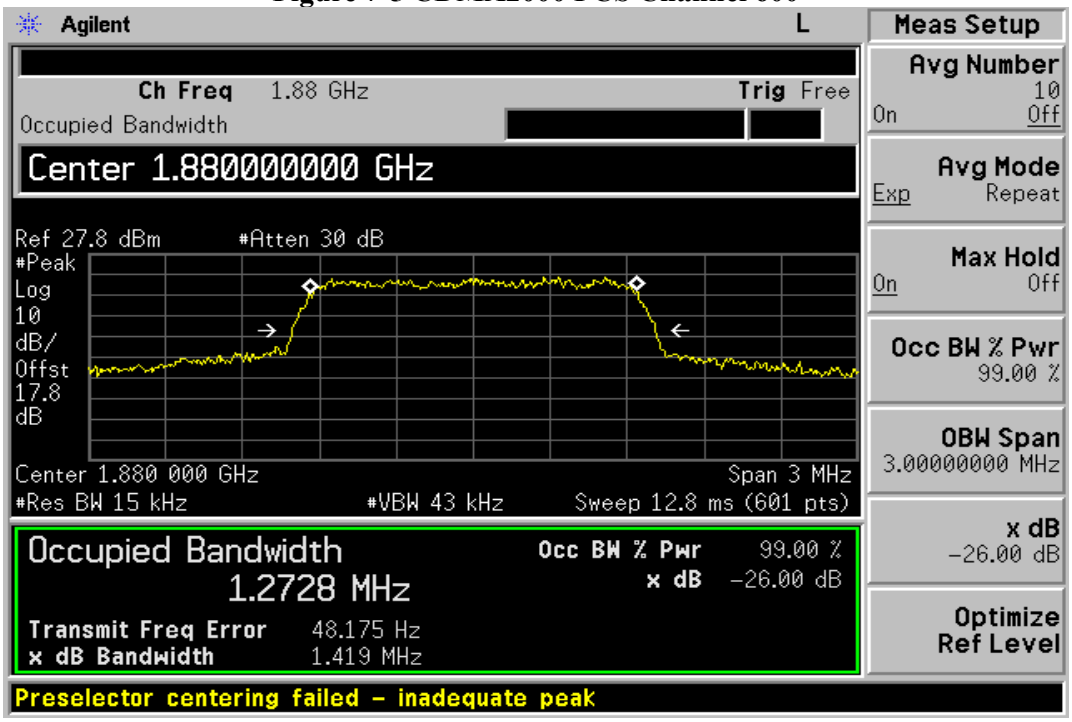


Figure 7-6: CDMA2000 PCS Channel 1175

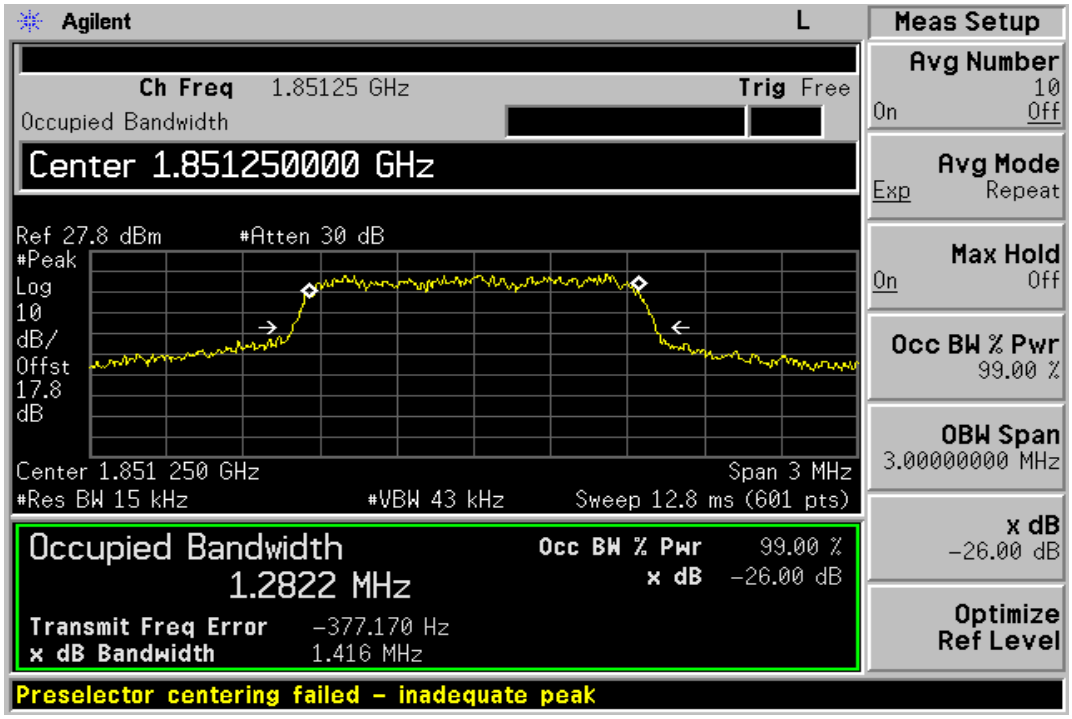


Figure 7-7: CDMA2000 PCS Channel 25

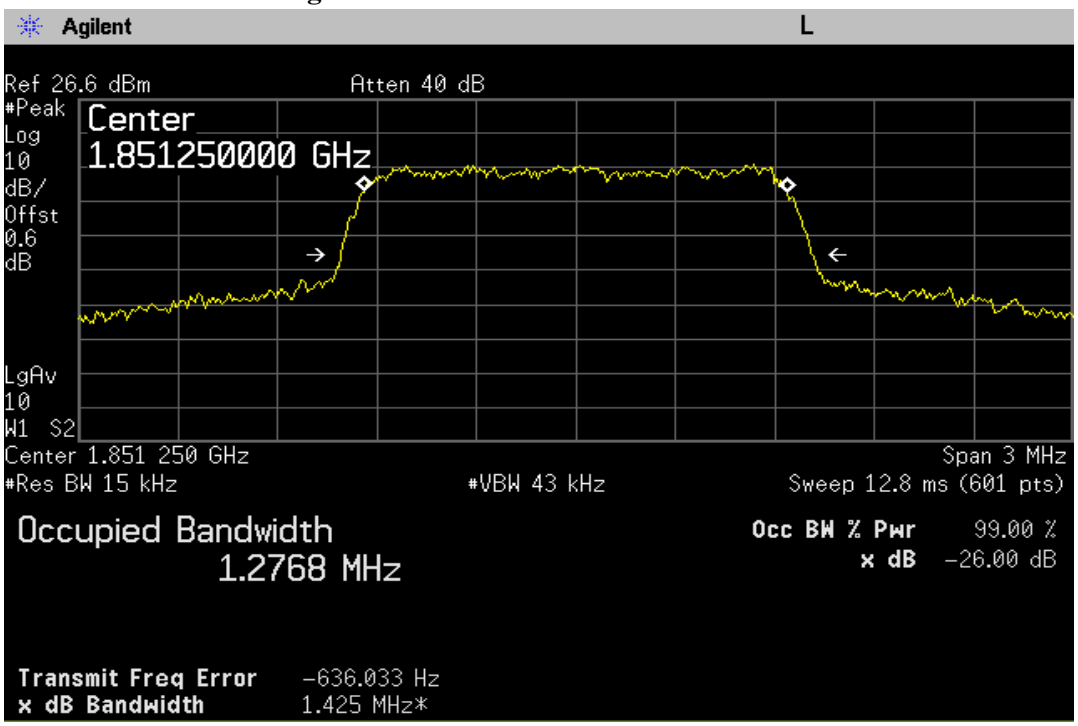


Figure 7-8: CDMA2000 PCS Channel 600

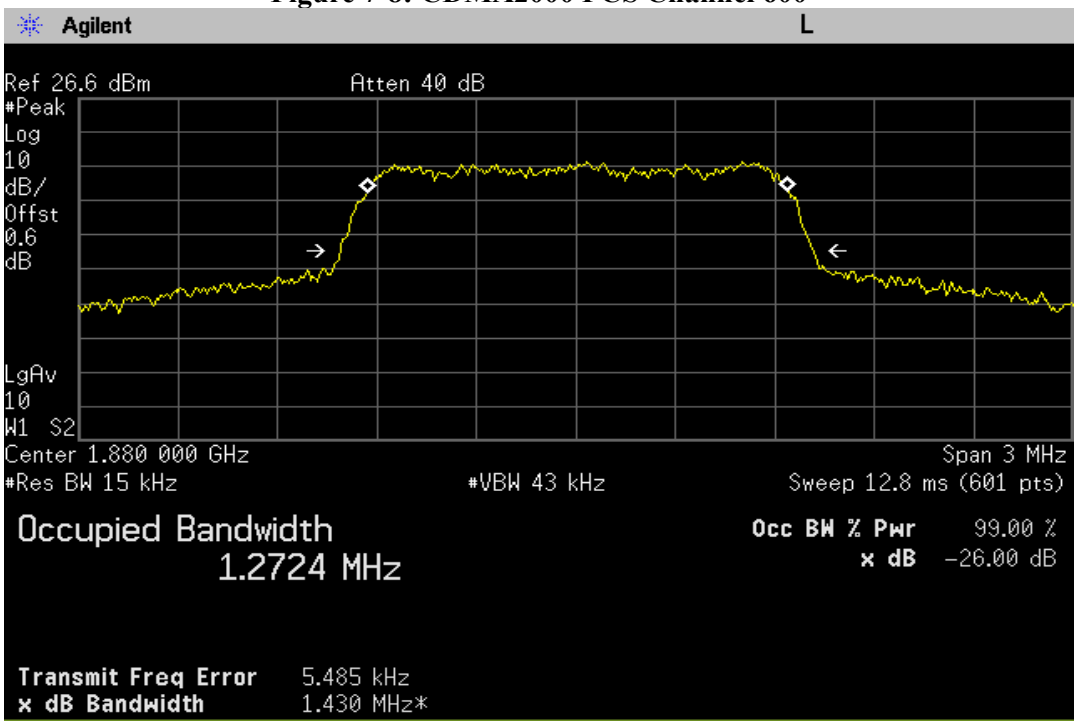


Figure 7-9: EVDO Cellular Channel 1013

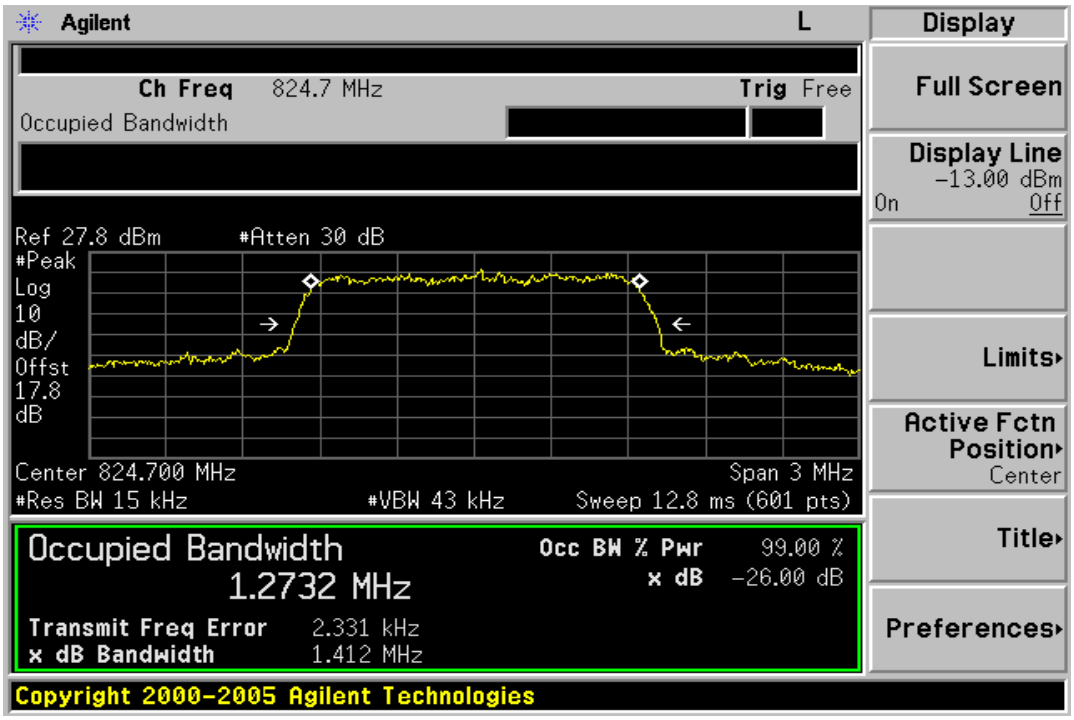


Figure 7-10: EVDO Cellular Channel 384

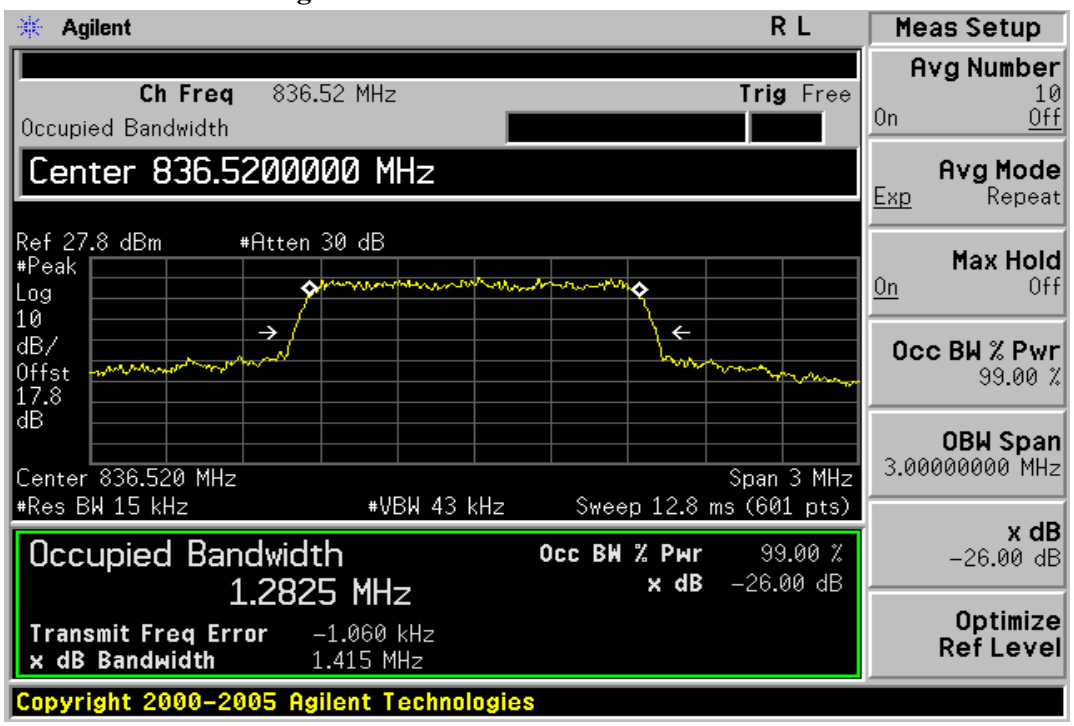


Figure 7-11: EVDO Cellular Channel 777

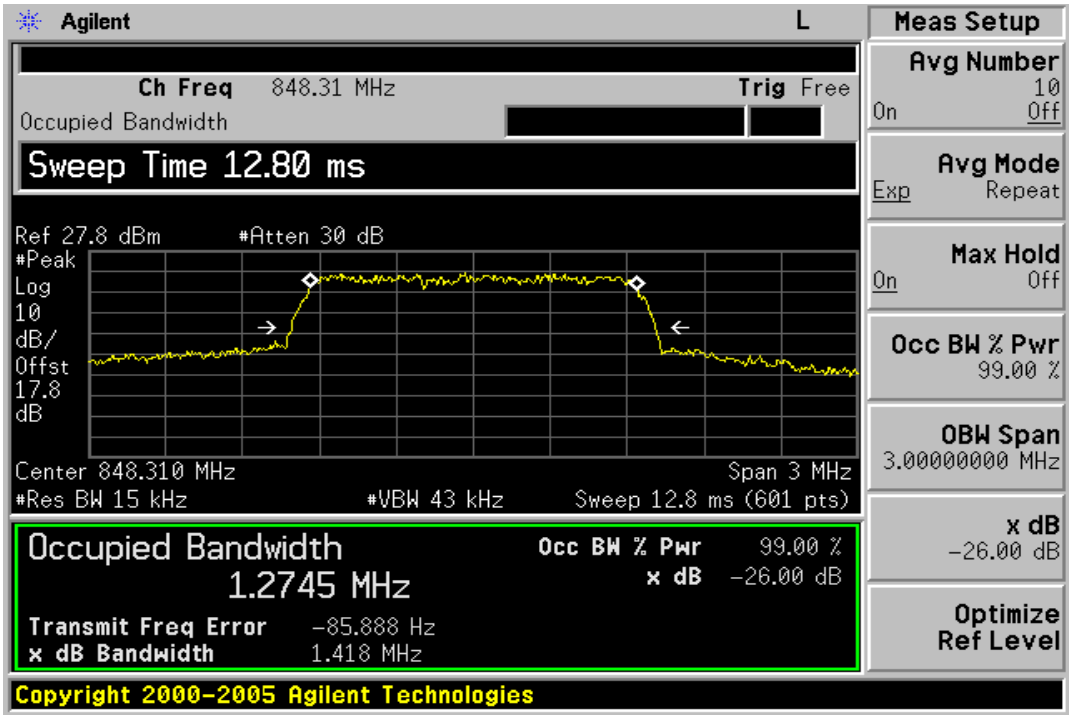


Figure 7-12: EVDO PCS Channel 25

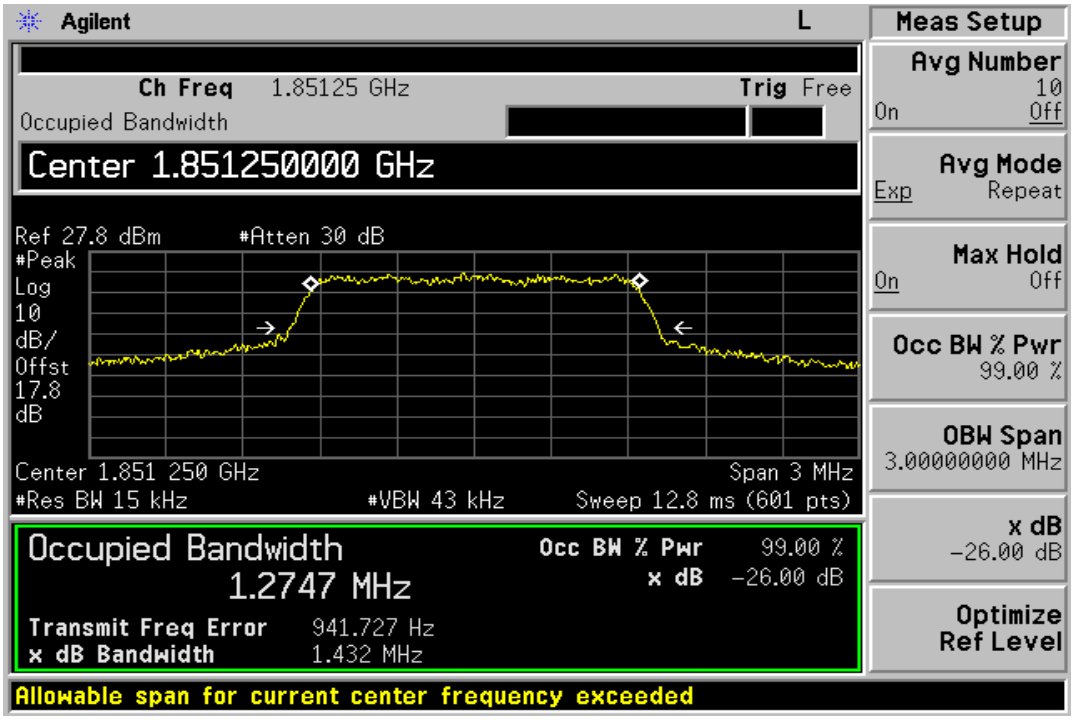


Figure 7-13: EVDO PCS Channel 600

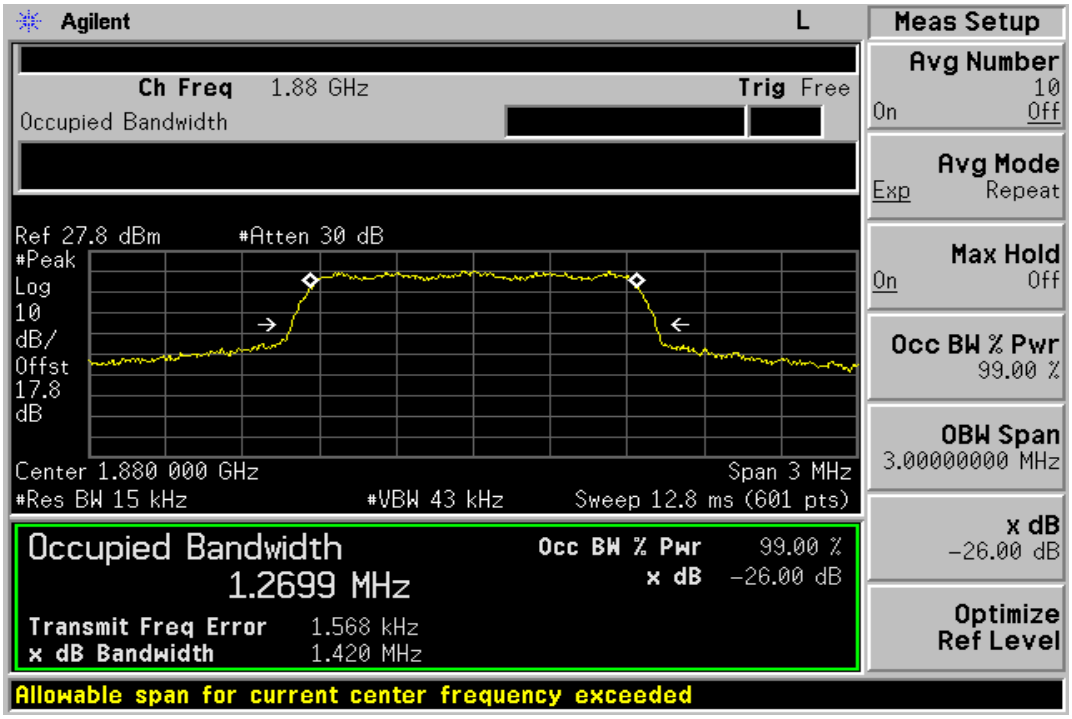
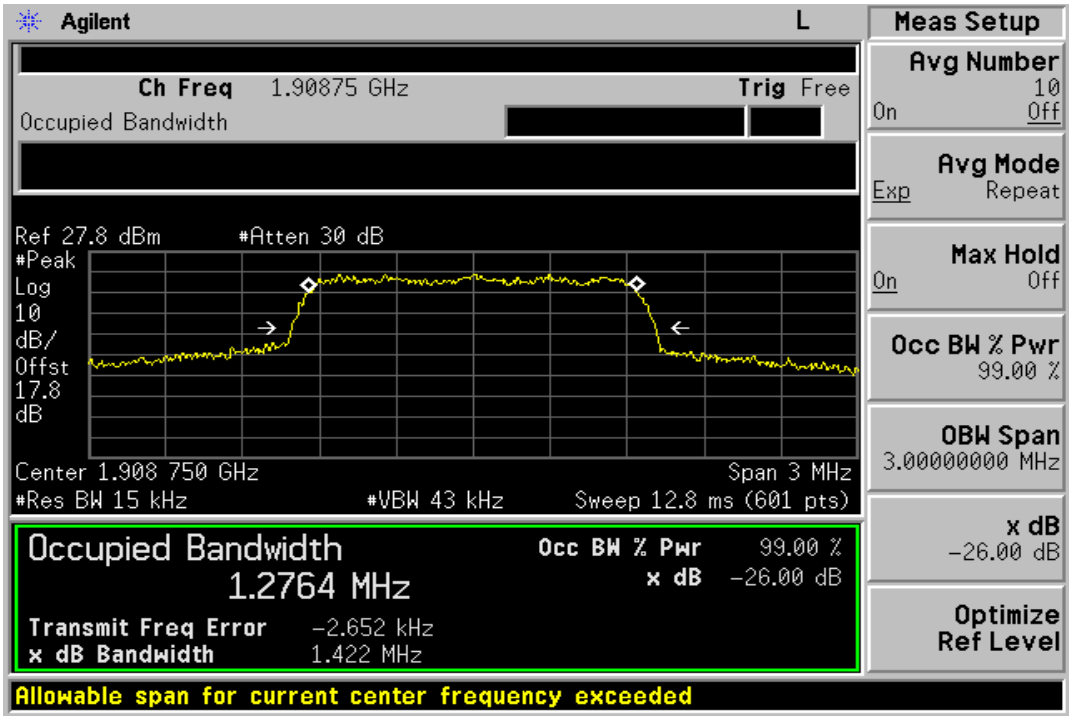


Figure 7-13: EVDO PCS Channel 1175



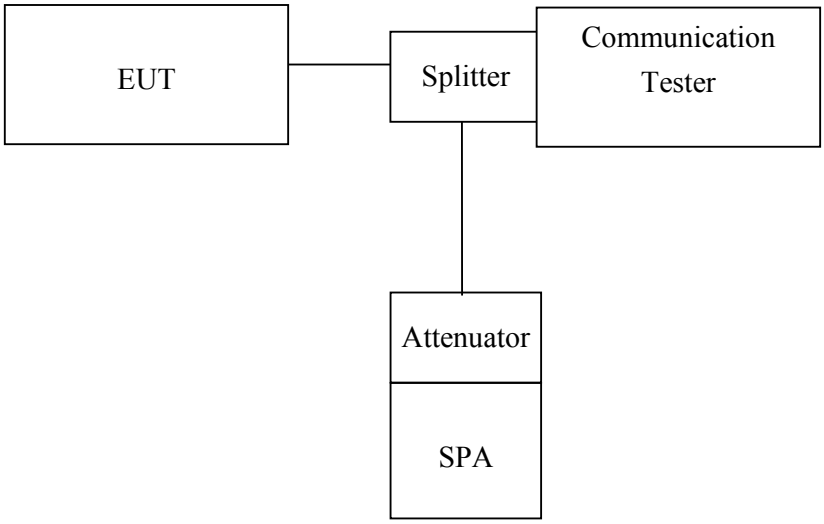
8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

8.1 Standard Applicable

According to FCC §2.1051.

FCC §22.917(a),§24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

8.2 Test SET-UP



Note: *Measurement setup for testing on Antenna connector*

8.3 Measurement Procedure

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements: In the 1 MHz 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.

The measurement uncertainty is ±1.8dB.

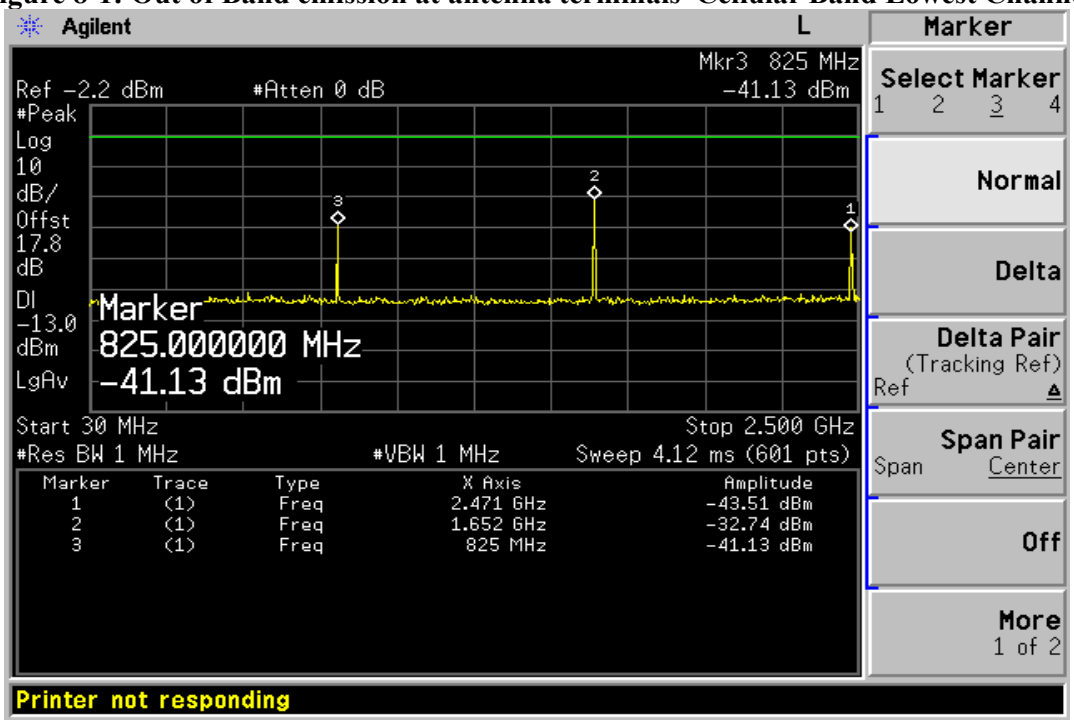
8.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2009	07/03/2010
Power Sensor	Anritsu	MA2490A	31431	07/07/2008	07/06/2010
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2009	02/12/2010
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2009	07/04/2010
Splitter	Mini-Circuit	ZFSC-2-10G	N/A	10/07/2008	10/06/2009
Signal Generator	R&S	SMR40	100210	01/22/2009	01/21/2010
DC Power Supply	Agilent	6038A	2929A-07548	07/05/2009	07/04/2010
Band reject filter	Wicro-tronics	BRM13462	001	06/28/2009	06/29/2010

8.5. Measurement Result

Refer to next page for plots.

Figure 8-1: Out of Band emission at antenna terminals–Cellular Band Lowest Channel



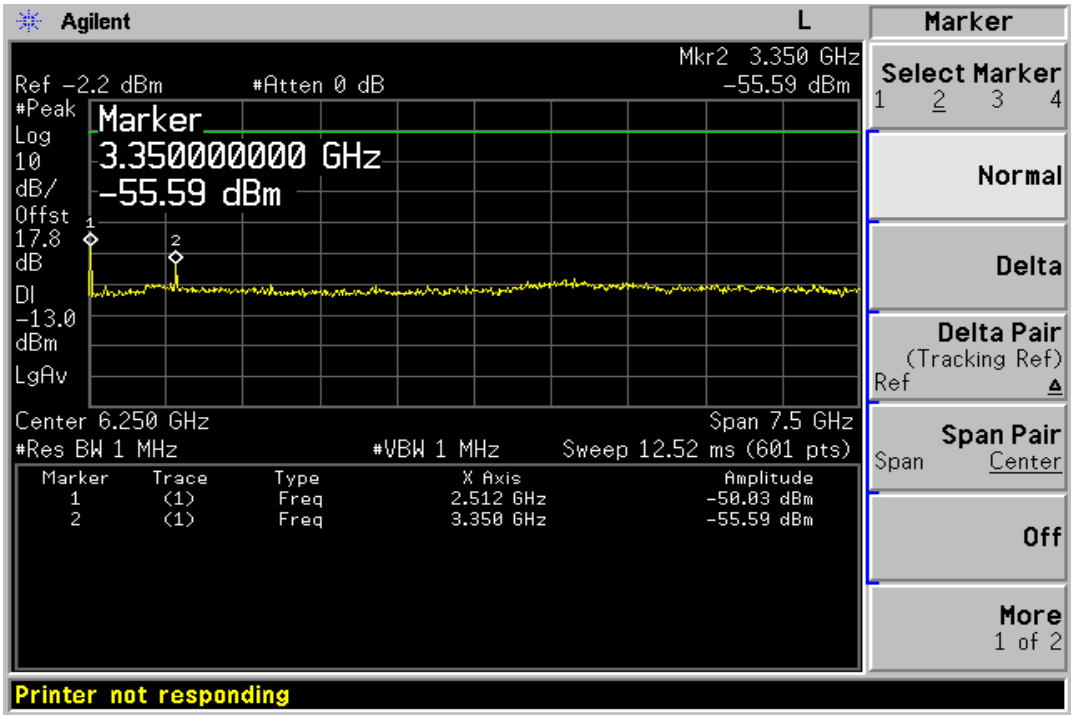
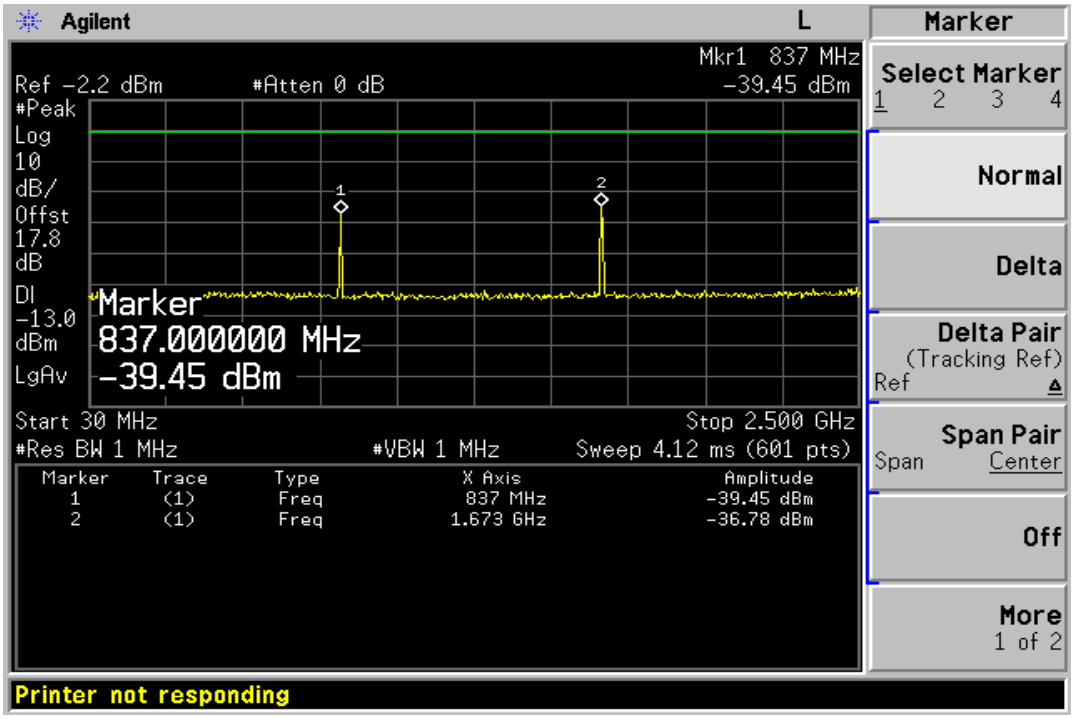


Figure 8-2: Out of Band emission at antenna terminals –Cellular Band Mid Channel



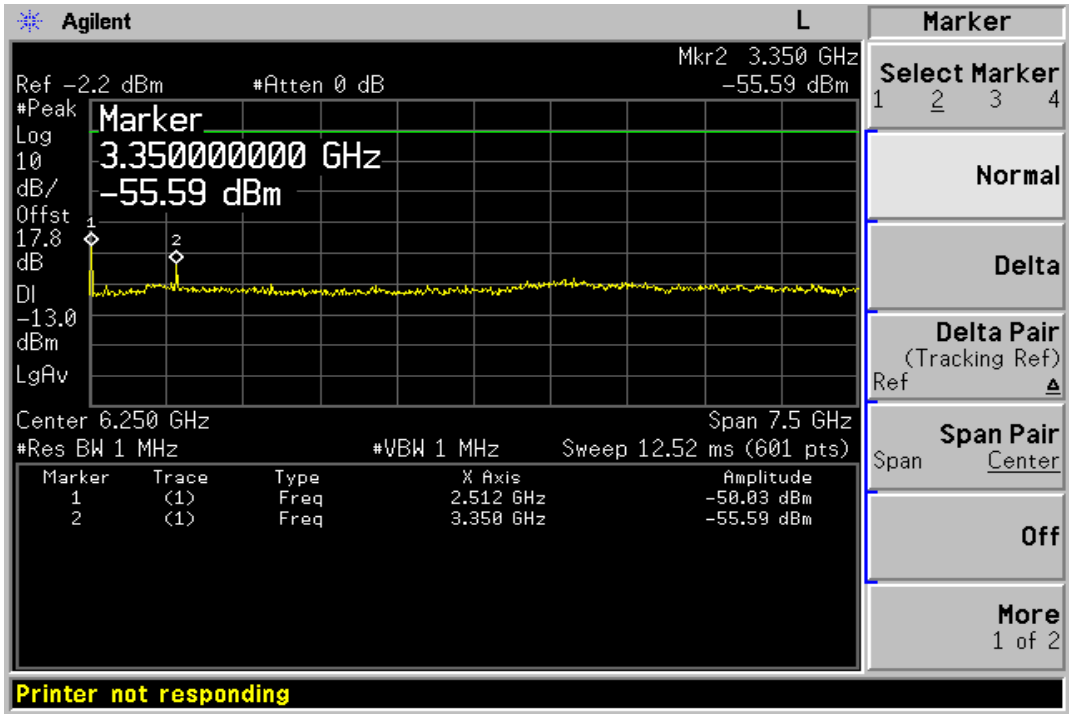
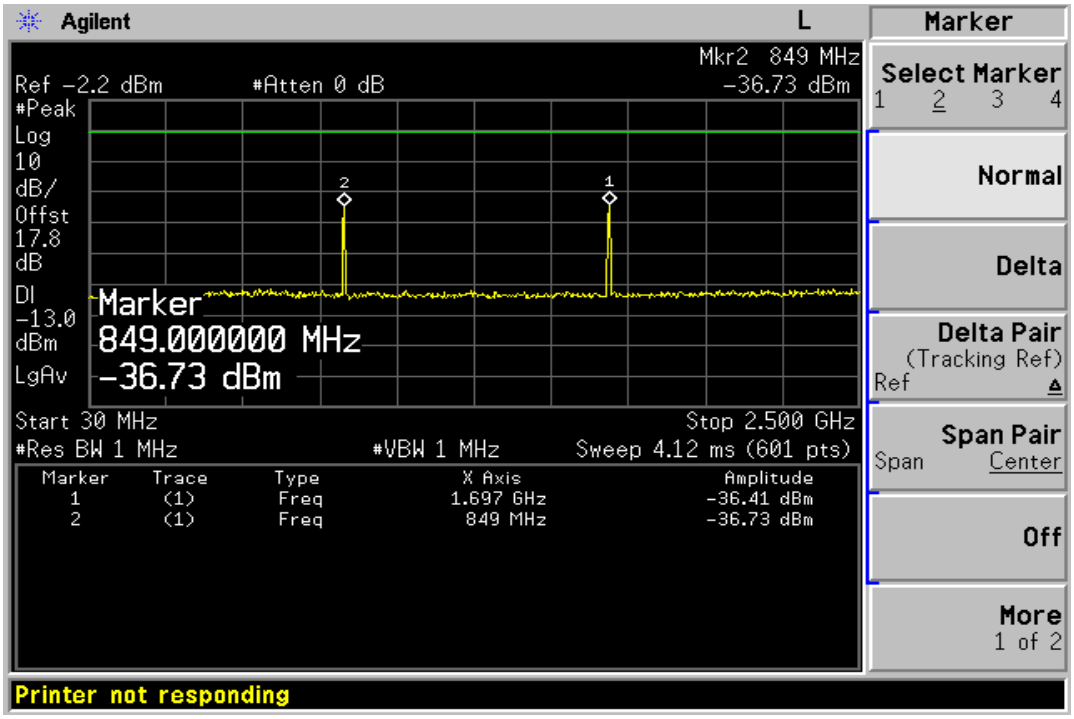


Figure 8-3: Out of Band emission at antenna terminals–Cellular Band Highest Channel



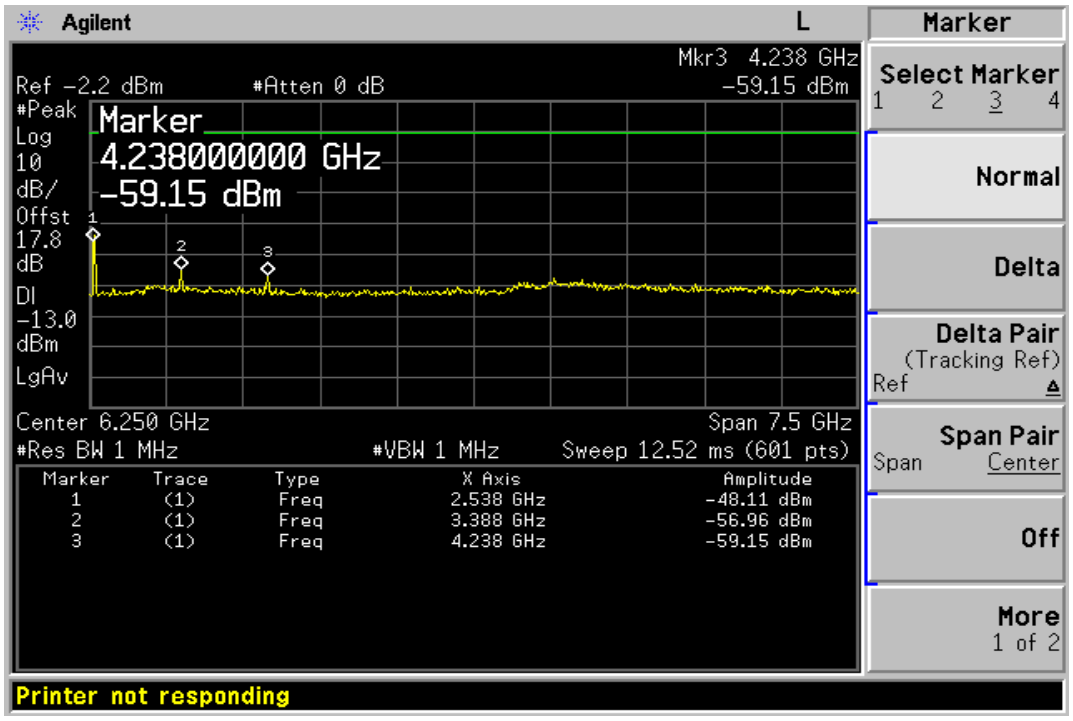


Figure 8-4: Band edge emission at antenna terminals –Cellular Band Channel Lowest

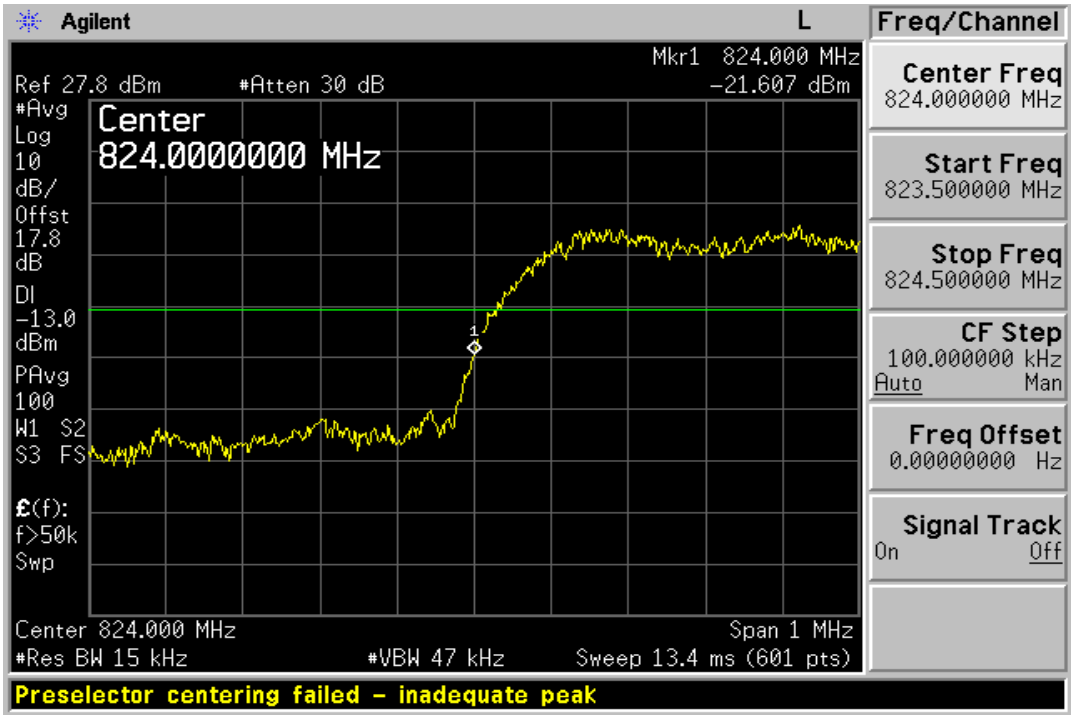


Figure 8-5: Band edge emission at antenna terminals –Cellular Band Channel Highest

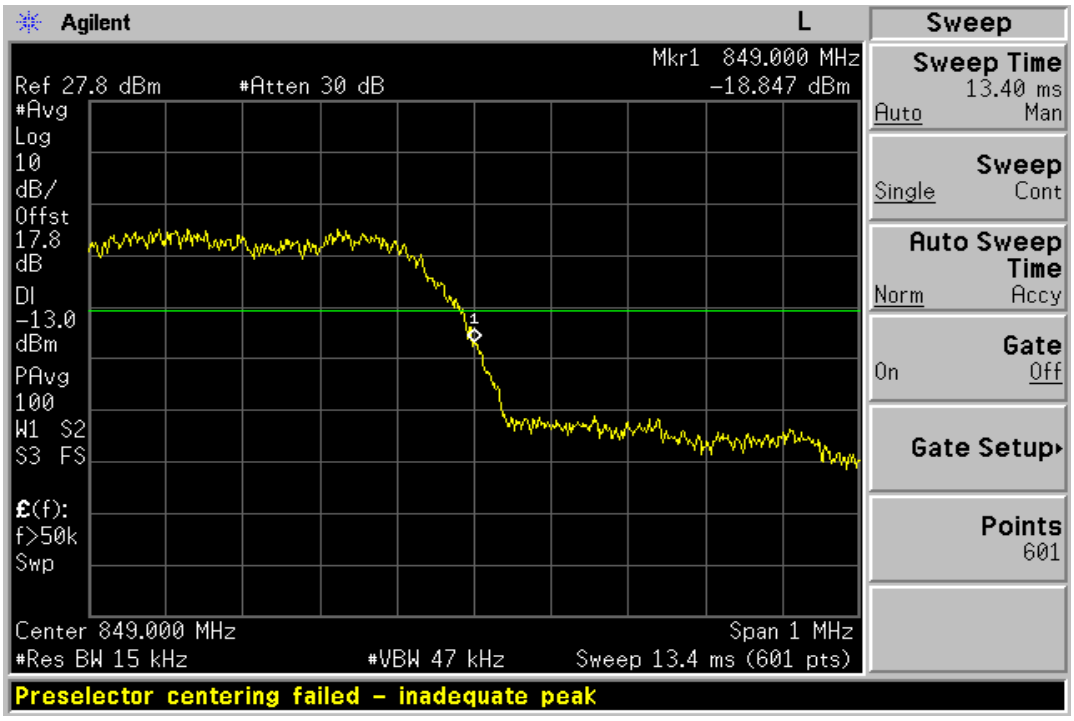
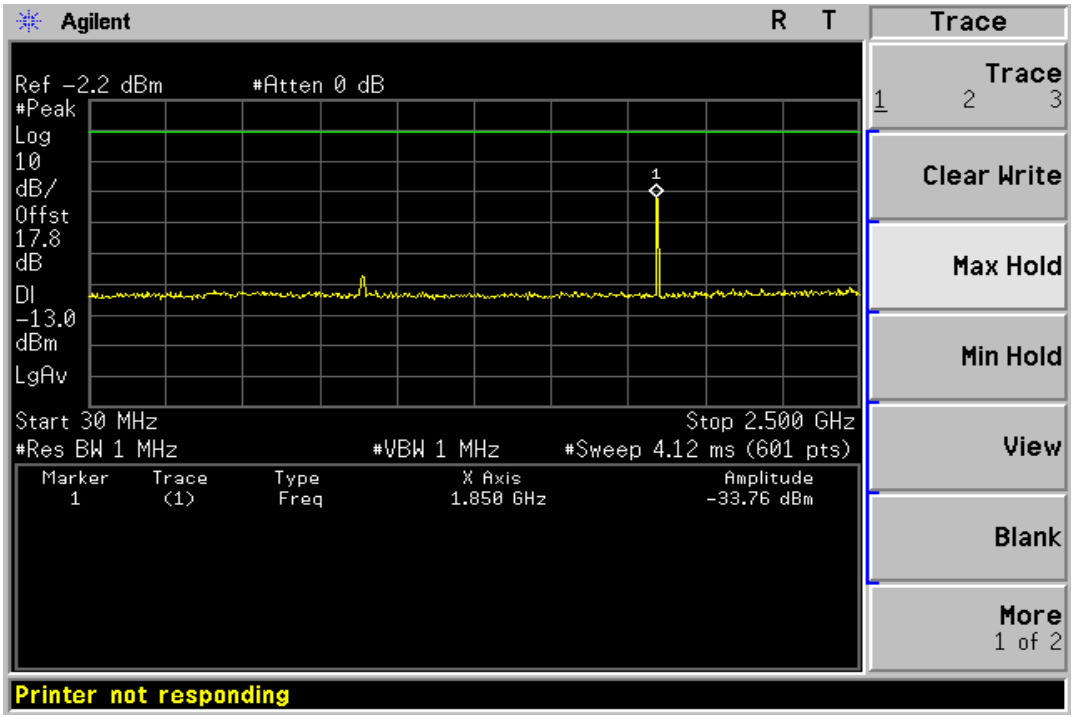


Figure 8-6: Out of Band emission at antenna terminals–PCS Band Lowest Channel



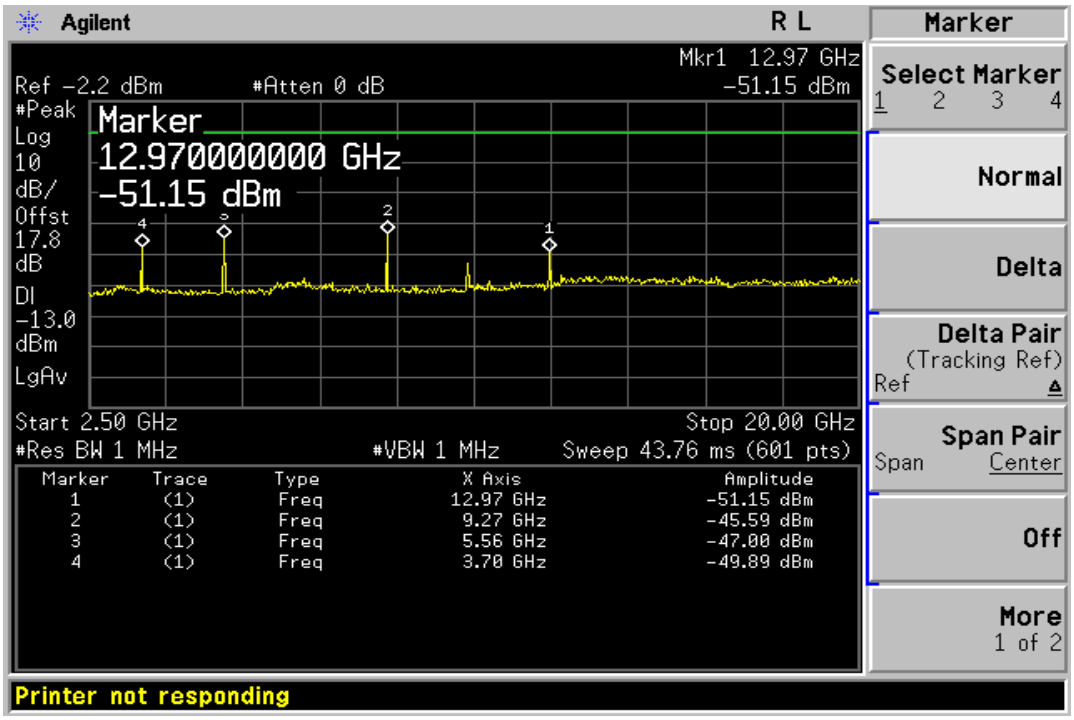
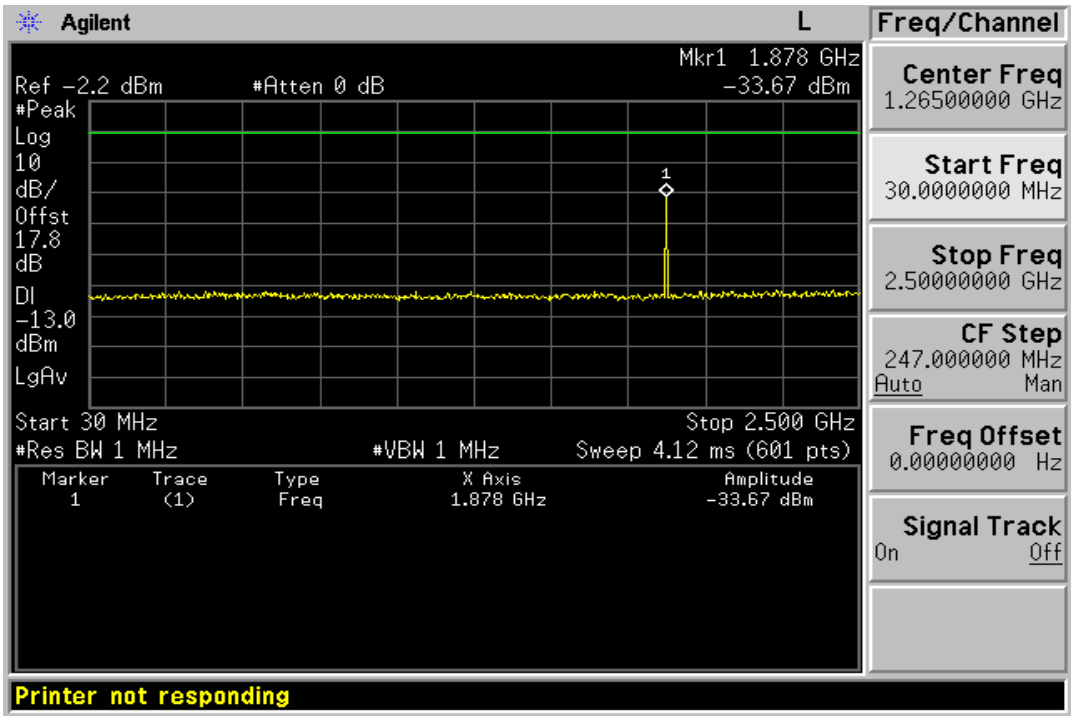


Figure 8-7: Out of Band emission at antenna terminals –PCS Band Mid Channel



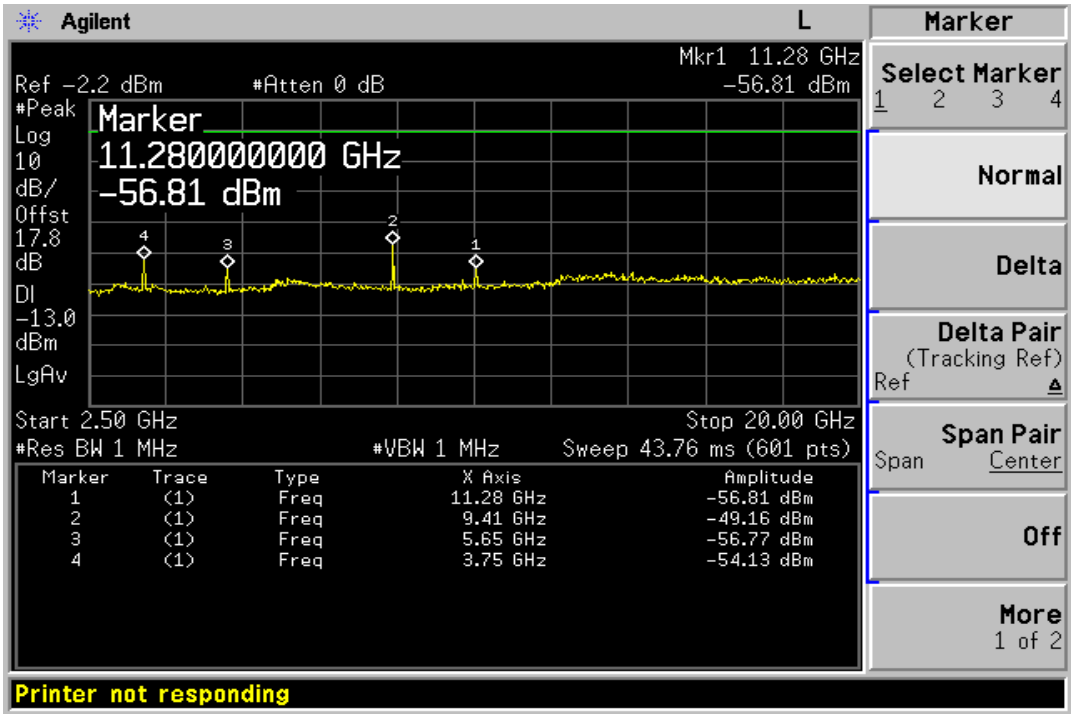
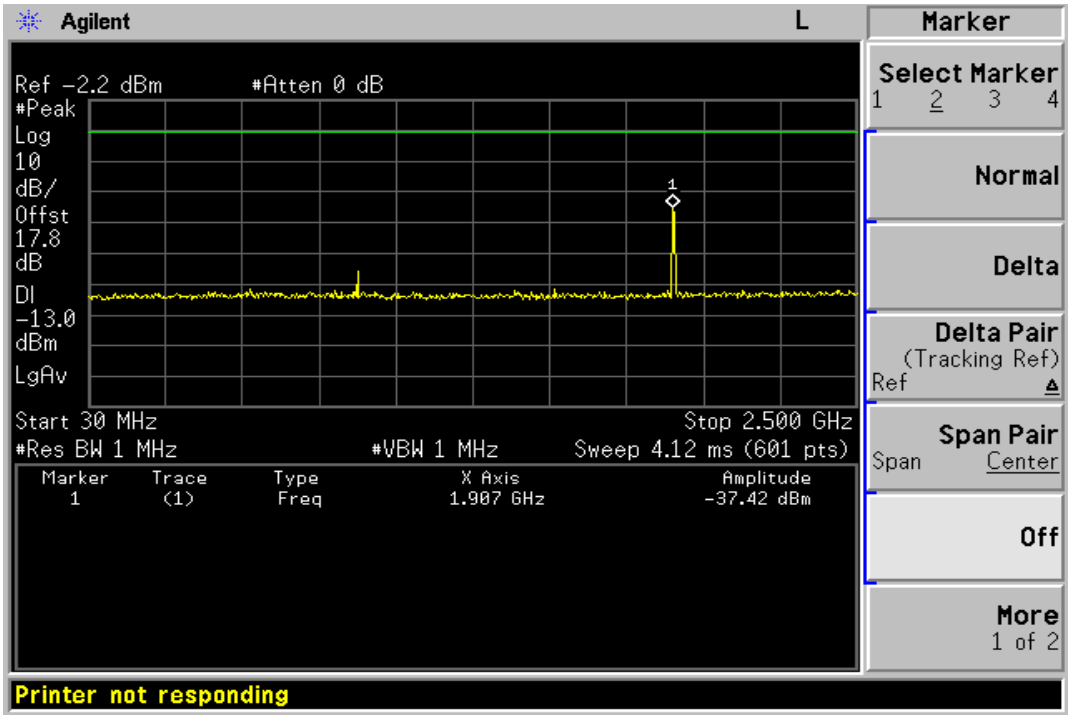


Figure 8-8: Out of Band emission at antenna terminals–PCS Band Highest Channel



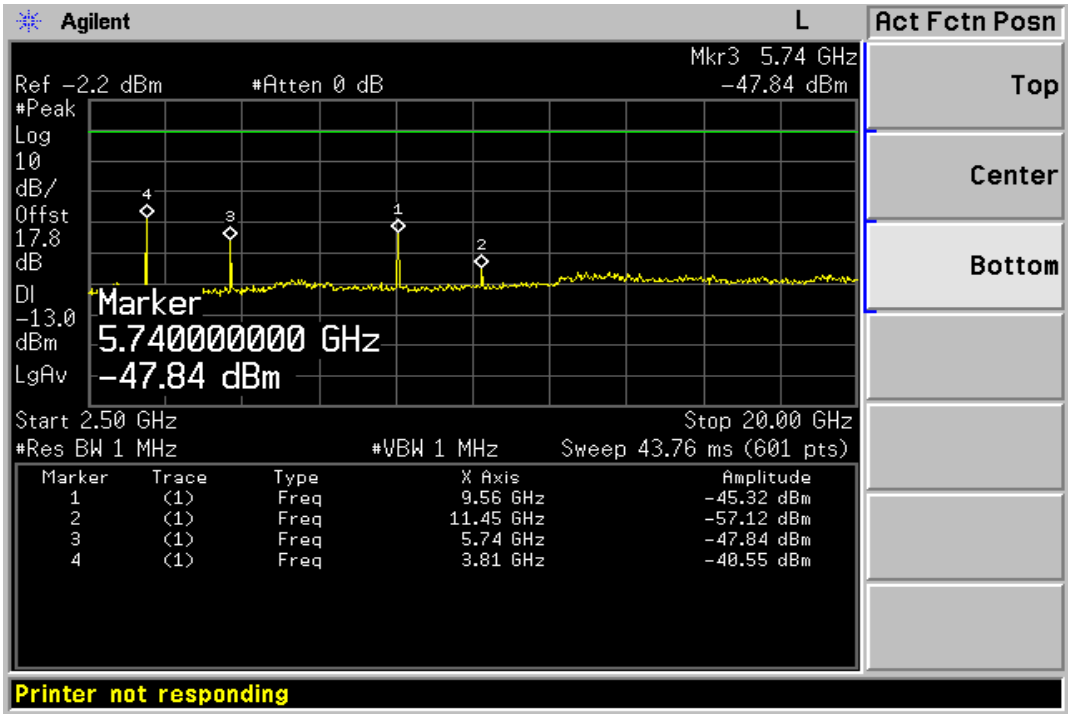


Figure 8-9: Band edge emission at antenna terminals –PCS Band Lowest Channel

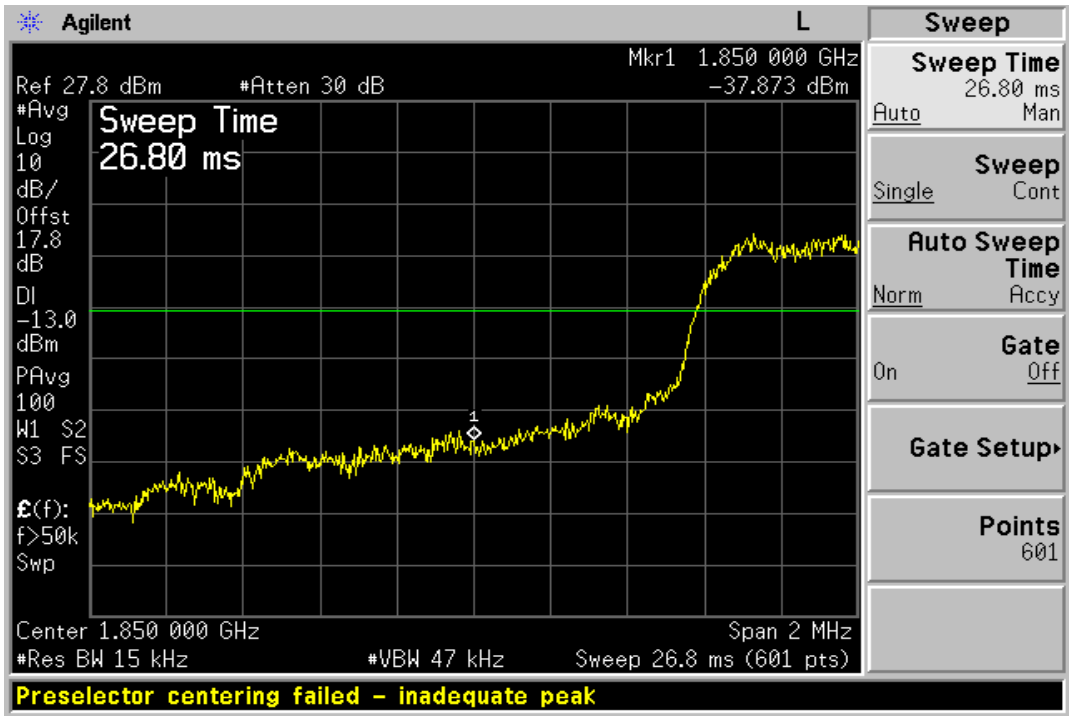
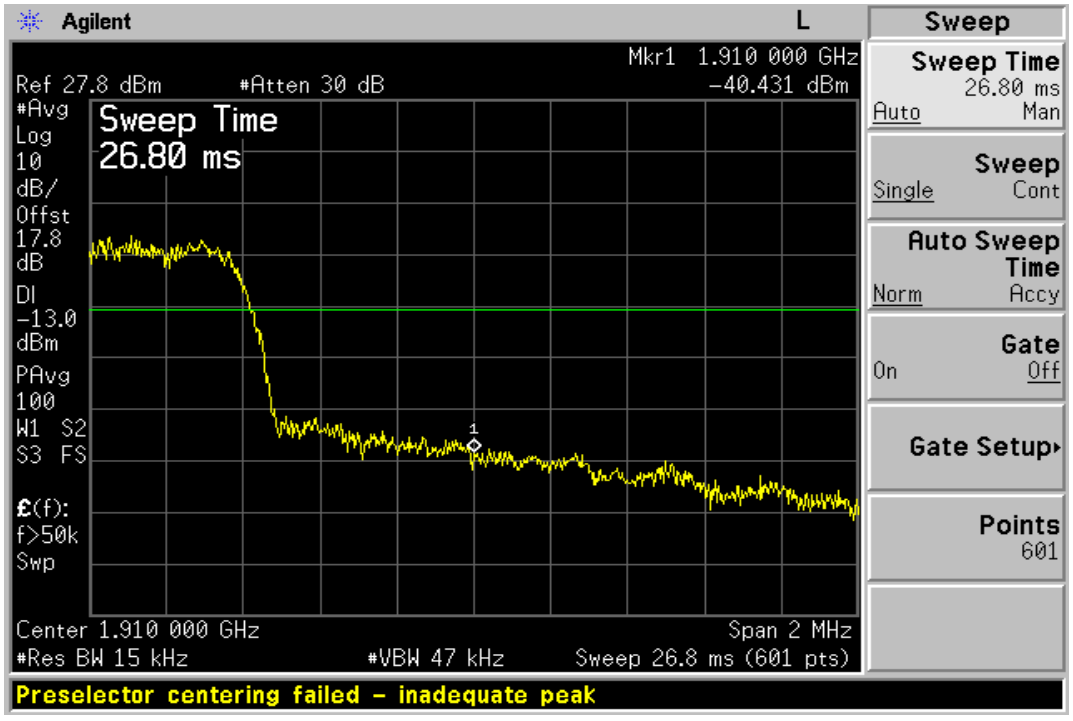


Figure 8-10: Band edge emission at antenna terminals –PCS Band Highest Channel



9. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT(TX)

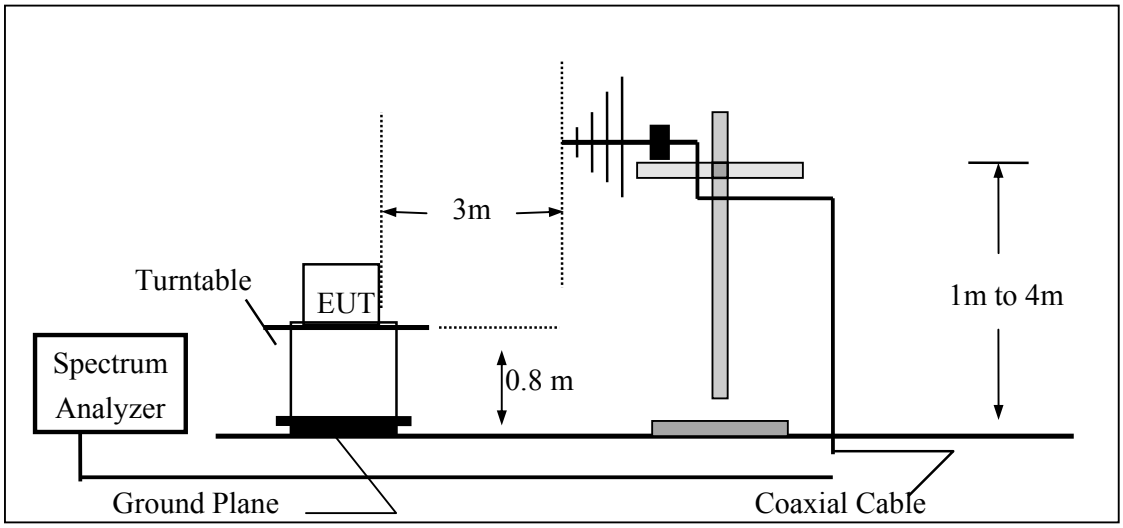
9.1 Standard Applicable

According to FCC §2.1053,

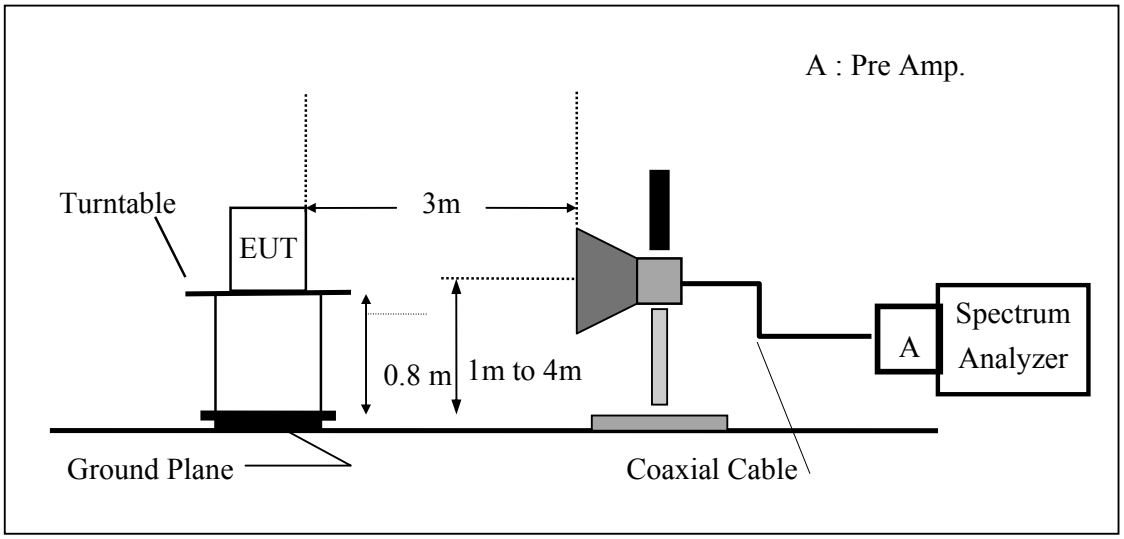
FCC §22.917(a),§24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

9.2 EUT Setup (Block Diagram of Configuration)

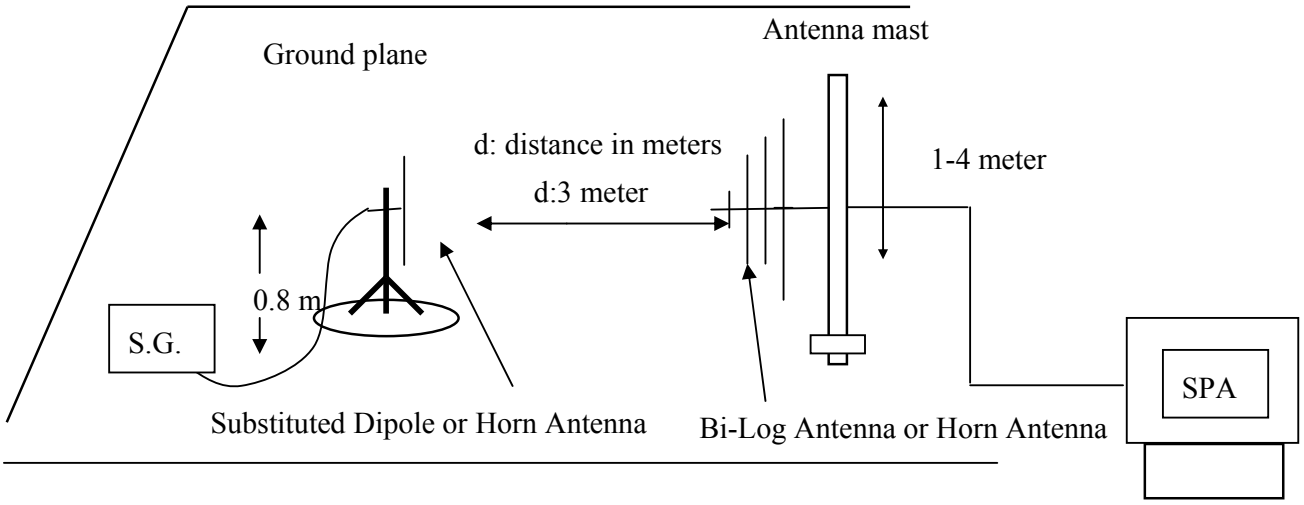
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



9.3 Measurement Procedure

The EUT was placed on a non-conductive, The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

EIRP in frequency band and 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP = S.G. output (dBm) + Antenna Gain(dBd) – Cable Loss (dB)

EIRP = S.G. output (dBm) + Antenna Gain(dBi) – Cable Loss (dB)

9.4 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E7405A	US41160416	07/04/2008	07/03/2010
Bi-log Antenna	SCHWAZBECK	VULB9160	3224	11/29/2008	11/28/2009
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	03/14/2009	03/13/2010
Pre-Amplifier	HP	8447F	3113A06892	01/05/2009	01/04/2010
Pre-Amplifier	HP	8449B	3008A01973	01/05/2009	01/04/2010
Signal Generator	R&S	SMR40	100210	01/22/2009	01/21/2010
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	02/13/2009	02/12/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	02/13/2009	02/12/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	02/13/2009	02/12/2010
Site NSA	SGS	966 chamber	N/A	11/17/2008	11/16/2009
Site NSA	SGS	10m Open-Site	N/A	10/02/2009	10/01/2010
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2009	07/04/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/10/2008	07/10/2010
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/10/2008	07/10/2010

9.5 Measurement Result

Refer to attach tabular data sheets.

Radiated Spurious Emission Measurement Result: CDMA2000 Cellular Mode

Operation Mode	: TX CH 1013 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 824.70 MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
39.70	40.43	V	-61.46	-2.79	0.89	-65.14	-13.00	-52.14
75.59	42.92	V	-68.60	-1.85	1.19	-71.65	-13.00	-58.65
90.14	42.72	V	-60.46	-7.75	1.27	-69.48	-13.00	-56.48
101.78	42.77	V	-58.99	-7.76	1.37	-68.11	-13.00	-55.11
153.19	33.05	V	-64.53	-7.80	1.60	-73.93	-13.00	-60.93
177.44	33.66	V	-66.09	-7.82	1.66	-75.57	-13.00	-62.57
824.00	61.32	V	-25.07	-7.87	3.62	-36.57	-13.00	-23.57
1643.50	56.68	V	-47.91	9.27	5.22	-43.85	-13.00	-30.85
2474.10	---	V		10.08	6.53		-13.00	
3298.80	---	V		12.17	7.72		-13.00	
4123.50	---	V		12.61	8.86		-13.00	
4948.20	---	V		12.65	9.74		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 Cellular Mode

Operation Mode	: TX CH 1013 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 824.70 MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
38.73	44.17	H	-59.02	-3.25	0.90	-63.17	-13.00	-50.17
90.14	44.81	H	-58.92	-7.75	1.27	-67.94	-13.00	-54.94
101.78	44.22	H	-58.59	-7.76	1.37	-67.72	-13.00	-54.72
153.19	31.43	H	-66.59	-7.80	1.60	-75.99	-13.00	-62.99
177.44	34.50	H	-65.40	-7.82	1.66	-74.88	-13.00	-61.88
286.08	32.21	H	-65.88	-7.91	2.12	-75.92	-13.00	-62.92
824.00	72.78	H	-13.49	-7.87	3.62	-24.99	-13.00	-11.99
1643.50	47.20	H	-57.21	9.27	5.22	-53.15	-13.00	-40.15
2474.10	---	H		10.08	6.53		-13.00	
3298.80	---	H		12.17	7.72		-13.00	
4123.50	---	H		12.61	8.86		-13.00	
4948.20	---	H		12.65	9.74		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 Cellular Mode

Operation Mode : TX CH 384 E2 Mode
Fundamental Frequency : 836.52 MHz
Temperature : 25℃
Humidity : 65%
Test Date: Sep. 30, 2009
Test By: Bondi
Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
41.64	45.74	V	-56.91	-2.31	0.93	-60.16	-13.00	-47.16
75.59	49.14	V	-62.38	-1.85	1.19	-65.43	-13.00	-52.43
90.14	31.88	V	-71.30	-7.75	1.27	-80.32	-13.00	-67.32
101.78	32.06	V	-69.70	-7.76	1.37	-78.82	-13.00	-65.82
153.19	31.45	V	-66.13	-7.80	1.60	-75.53	-13.00	-62.53
177.44	31.16	V	-68.59	-7.82	1.66	-78.07	-13.00	-65.07
1663.00	52.24	V	-52.33	9.33	5.25	-48.25	-13.00	-35.25
2509.56	---	V		10.09	6.58		-13.00	
3346.08	---	V		12.27	7.79		-13.00	
4182.60	---	V		12.62	8.93		-13.00	
5019.12	---	V		12.67	9.81		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 Cellular Mode

Operation Mode	: TX CH 384 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 836.52 MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
38.73	61.61	H	-41.58	-3.25	0.90	-45.73	-13.00	-32.73
92.08	58.81	H	-44.78	-7.75	1.29	-53.82	-13.00	-40.82
101.78	47.53	H	-55.28	-7.76	1.37	-64.41	-13.00	-51.41
148.34	47.19	H	-50.75	-7.80	1.58	-60.13	-13.00	-47.13
177.44	39.95	H	-59.95	-7.82	1.66	-69.43	-13.00	-56.43
261.83	32.22	H	-66.63	-7.90	2.03	-76.56	-13.00	-63.56
1663.00	45.18	H	-59.21	9.33	5.25	-55.13	-13.00	-42.13
2509.56	---	H		10.09	6.58		-13.00	
3346.08	---	H		12.27	7.79		-13.00	
4182.60	---	H		12.62	8.93		-13.00	
5019.12	---	H		12.67	9.81		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 Cellular Mode

Operation Mode	: TX CH 777 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 848.31 MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
39.70	40.32	V	-61.57	-2.79	0.89	-65.25	-13.00	-52.25
75.59	43.17	V	-68.35	-1.85	1.19	-71.40	-13.00	-58.40
90.14	43.06	V	-60.12	-7.75	1.27	-69.14	-13.00	-56.14
101.78	42.42	V	-59.34	-7.76	1.37	-68.46	-13.00	-55.46
153.19	33.26	V	-64.32	-7.80	1.60	-73.72	-13.00	-60.72
177.44	34.50	V	-65.25	-7.82	1.66	-74.73	-13.00	-61.73
849.00	62.53	V	-23.59	-7.88	3.68	-35.15	-13.00	-22.15
1695.50	51.68	V	-52.86	9.43	5.30	-48.73	-13.00	-35.73
2544.93	---	V		10.19	6.63		-13.00	
3393.24	---	V		12.38	7.86		-13.00	
4241.55	---	V		12.63	9.00		-13.00	
5089.86	---	V		12.74	9.88		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 Cellular Mode

Operation Mode	: TX CH 777 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 848.31 MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
38.73	42.40	H	-60.79	-3.25	0.90	-64.94	-13.00	-51.94
51.34	45.61	H	-62.04	-0.58	1.12	-63.74	-13.00	-50.74
67.83	42.95	H	-69.11	-0.95	1.14	-71.20	-13.00	-58.20
90.14	32.47	H	-71.26	-7.75	1.27	-80.28	-13.00	-67.28
606.18	31.04	H	-59.54	-7.79	3.05	-70.38	-13.00	-57.38
657.59	34.41	H	-54.99	-7.82	3.18	-65.99	-13.00	-52.99
849.00	72.44	H	-13.75	-7.88	3.68	-25.31	-13.00	-12.31
1695.50	47.14	H	-57.21	9.43	5.30	-53.09	-13.00	-40.09
2544.93	---	H		10.19	6.63		-13.00	
3393.24	---	H		12.38	7.86		-13.00	
4241.55	---	H		12.63	9.00		-13.00	
5089.86	---	H		12.74	9.88		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 PCS Mode

Operation Mode	: TX CH 25 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 1851.25MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
41.64	41.58	V	-61.07	-2.31	0.93	-64.32	-13.00	-51.32
75.59	44.52	V	-67.00	-1.85	1.19	-70.05	-13.00	-57.05
101.78	45.98	V	-55.78	-7.76	1.37	-64.90	-13.00	-51.90
153.19	32.73	V	-64.85	-7.80	1.60	-74.25	-13.00	-61.25
177.44	34.87	V	-64.88	-7.82	1.66	-74.36	-13.00	-61.36
261.83	32.56	V	-66.94	-7.90	2.03	-76.87	-13.00	-63.87
1850.00	63.48	V	-40.91	9.90	5.56	-36.57	-13.00	-23.57
3702.50	---	V		12.61	8.31		-13.00	
5553.75	48.36	V	-42.47	13.23	10.33	-39.57	-13.00	-26.57
7405.00	---	V		11.50	12.09		-13.00	
9256.25	---	V		11.92	13.50		-13.00	
11107.50	---	V		11.67	15.12		-13.00	
12958.75	---	V		13.62	16.61		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 PCS Mode

Operation Mode	: TX CH 25 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 1851.25MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
38.73	42.30	H	-60.89	-3.25	0.90	-65.04	-13.00	-52.04
90.14	45.66	H	-58.07	-7.75	1.27	-67.09	-13.00	-54.09
101.78	47.25	H	-55.56	-7.76	1.37	-64.69	-13.00	-51.69
148.34	31.70	H	-66.24	-7.80	1.58	-75.62	-13.00	-62.62
177.44	34.91	H	-64.99	-7.82	1.66	-74.47	-13.00	-61.47
387.93	32.41	H	-64.21	-7.66	2.47	-74.33	-13.00	-61.33
1850.00	76.92	H	-27.26	9.90	5.56	-22.92	-13.00	-9.92
3702.50	---	H		12.61	8.31		-13.00	
5553.75	45.25	H	-45.79	13.23	10.33	-42.89	-13.00	-29.89
7405.00	---	H		11.50	12.09		-13.00	
9256.25	---	H		11.92	13.50		-13.00	
11107.50	---	H		11.67	15.12		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 PCS Mode

Operation Mode	: TX CH 600 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 1880.00MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
38.73	39.90	V	-62.27	-3.25	0.90	-66.41	-13.00	-53.41
75.59	43.14	V	-68.38	-1.85	1.19	-71.43	-13.00	-58.43
90.14	41.73	V	-61.45	-7.75	1.27	-70.47	-13.00	-57.47
101.78	44.89	V	-56.87	-7.76	1.37	-65.99	-13.00	-52.99
153.19	32.59	V	-64.99	-7.80	1.60	-74.39	-13.00	-61.39
177.44	33.42	V	-66.33	-7.82	1.66	-75.81	-13.00	-62.81
3760.00	---	V		12.60	8.39		-13.00	
5640.00	45.57	V	-45.01	13.36	10.41	-42.06	-13.00	-29.06
7520.00	---	V		11.45	12.19		-13.00	
9400.00	---	V		11.93	13.61		-13.00	
11280.00	---	V		11.92	15.27		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 PCS Mode

Operation Mode	: TX CH 600 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 1880.00MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
38.73	41.85	H	-61.34	-3.25	0.90	-65.49	-13.00	-52.49
90.14	44.35	H	-59.38	-7.75	1.27	-68.40	-13.00	-55.40
101.78	46.66	H	-56.15	-7.76	1.37	-65.28	-13.00	-52.28
155.13	31.27	H	-66.90	-7.80	1.60	-76.30	-13.00	-63.30
177.44	33.74	H	-66.16	-7.82	1.66	-75.64	-13.00	-62.64
284.14	32.35	H	-65.80	-7.91	2.11	-75.83	-13.00	-62.83
3760.00	---	H		12.60	8.39		-13.00	
5640.00	45.09	H	-45.66	13.36	10.41	-42.71	-13.00	-29.71
7520.00	---	H		11.45	12.19		-13.00	
9400.00	---	H		11.93	13.61		-13.00	
11280.00	---	H		11.92	15.27		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 PCS Mode

Operation Mode	: TX CH 1175 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 1908.75MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
38.73	39.54	V	-62.63	-3.25	0.90	-66.77	-13.00	-53.77
75.59	44.22	V	-67.30	-1.85	1.19	-70.35	-13.00	-57.35
90.14	42.35	V	-60.83	-7.75	1.27	-69.85	-13.00	-56.85
101.78	44.12	V	-57.64	-7.76	1.37	-66.76	-13.00	-53.76
177.44	33.61	V	-66.14	-7.82	1.66	-75.62	-13.00	-62.62
256.98	31.38	V	-68.28	-7.89	2.02	-78.19	-13.00	-65.19
1910.00	62.77	V	-41.56	10.08	5.66	-37.14	-13.00	-24.14
3817.50	---	V		12.60	8.47		-13.00	
5726.25	46.40	V	-43.92	13.49	10.50	-40.93	-13.00	-27.93
7635.00	---	V		11.41	12.27		-13.00	
9543.75	---	V		11.95	13.73		-13.00	
11452.50	---	V		12.16	15.43		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: CDMA2000 PCS Mode

Operation Mode	: TX CH 1175 E2 Mode	Test Date:	Sep. 30, 2009
Fundamental Frequency	: 1908.75MHz	Test By:	Bondi
Temperature	: 25℃	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
38.73	42.59	H	-60.60	-3.25	0.90	-64.75	-13.00	-51.75
90.14	45.24	H	-58.49	-7.75	1.27	-67.51	-13.00	-54.51
101.78	45.73	H	-57.08	-7.76	1.37	-66.21	-13.00	-53.21
153.19	30.90	H	-67.12	-7.80	1.60	-76.52	-13.00	-63.52
177.44	33.38	H	-66.52	-7.82	1.66	-76.00	-13.00	-63.00
288.99	31.89	H	-66.11	-7.91	2.13	-76.16	-13.00	-63.16
1910.00	71.39	H	-32.72	10.08	5.66	-28.30	-13.00	-15.30
3817.50	---	H		12.60	8.47		-13.00	
5726.25	43.78	H	-46.68	13.49	10.50	-43.69	-13.00	-30.69
7635.00	---	H		11.41	12.27		-13.00	
9543.75	---	H		11.95	13.73		-13.00	
11452.50	---	H		12.16	15.43		-13.00	

Measurement uncertainty	30MHz - 80MHz: 5.04dB
	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

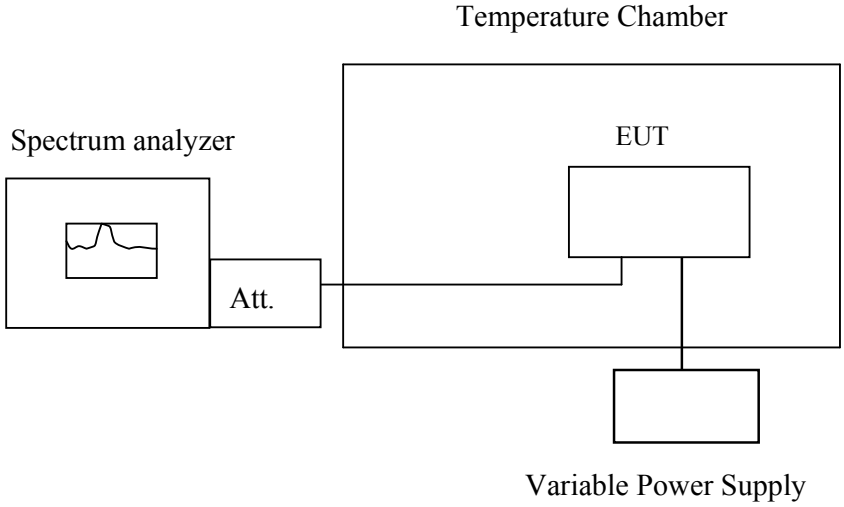
10. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

10.1 Standard Applicable

According to FCC §2.1055(a)(1)

Frequency Tolerance: +/- 2.5 ppm

10.2 Test Set-up:



Note : Measurement setup for testing on Antenna connector

10.3 Measurement Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

10.4 Measurement Uncertainty

Frequency Tolerance : ±290Hz.

10.5 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2009	07/03/2011
Power Sensor	Anritsu	MA2490A	31431	07/07/2009	07/06/2011
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2009	02/12/2010
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2009	07/04/2010
Splitter	Agilent	11636B	51818 / 51820	07/05/2009	07/04/2010
Signal Generator	R&S	SMR40	100210	01/22/2009	01/21/2010
DC Power Supply	Agilent	6038A	2929A-07548	06/27/2009	06/26/2011

10.6 Measurement Result

Reference Frequency: CDMA2000 Cellular Band Mid Channel 836.52 MHz @ 25℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.7	-30	836.519987	8.00	2091
3.7	-20	836.519986	9.00	2091
3.7	-10	836.519988	7.00	2091
3.7	0	836.51999	5.00	2091
3.7	10	836.519989	6.00	2091
3.7	20	836.519995	0.00	2091
3.7	30	836.519991	4.00	2091
3.7	40	836.519992	3.00	2091
3.7	50	836.519996	-1.00	2091

Reference Frequency: CDMA2000 PCS Band Mid Channel 1880.00 MHz @ 25℃				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.7	-30	1879.999987	2.00	4700
3.7	-20	1879.999980	9.00	4700
3.7	-10	1879.999983	6.00	4700
3.7	0	1879.999982	7.00	4700
3.7	10	1879.999981	8.00	4700
3.7	20	1879.999989	0.00	4700
3.7	30	1879.999982	7.00	4700
3.7	40	1879.999985	4.00	4700
3.7	50	1879.999989	0.00	4700

Note: The battery is rated 3.7V dc.

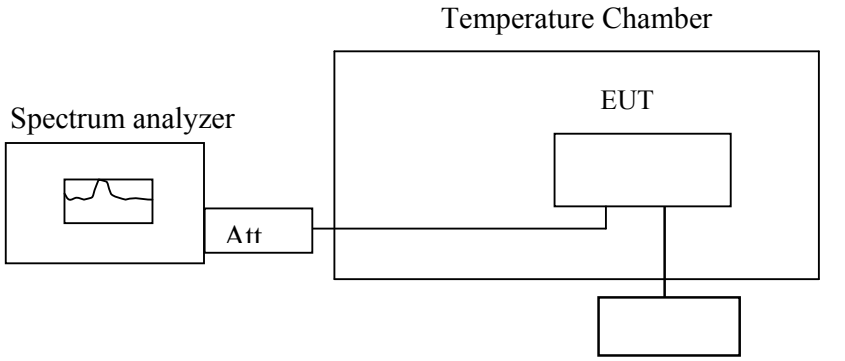
11. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

11.1 Standard Applicable

According to FCC §2.1055(d)(2)

Frequency Tolerance: +/- 2.5 ppm

11.2 Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

11.3 Measurement Procedure

Set chamber temperature to 25℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

11.4 Measurement Uncertainty

Frequency Tolerance : ±290Hz.

11.5 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	7405A	US41160416	07/04/2009	07/03/2010
Power Sensor	Anritsu	MA2490A	31431	07/07/2009	07/06/2010
Power Meter	Anritsu	ML2487A	6K00002070	05/28/2008	05/27/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	02/13/2009	02/12/2010
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2009	07/04/2010
Splitter	Agilent	11636B	51818 / 51820	07/05/2009	07/04/2010
Signal Generator	R&S	SMR40	100210	01/22/2009	01/21/2010
DC Power Supply	Agilent	6038A	2929A-07548	06/27/2009	06/26/2010

11.6 Measurement Result

Reference Frequency: CDMA2000 Cellular Band Mid Channel 836.52 MHz @ 25℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
4.30	25.00	836.519996	2.00	2091.00
3.8	25.00	836.519998	0.00	2091.00
3.40	25.00	836.519999	-1.00	2091.00
3.2 (End Point)	25.00	836.519998	0.00	2091.00

Reference Frequency: CDMA2000 PCS Band Mid Channel 1880.00 MHz @ 25℃				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
4.30	25	1879.999991	-2.00	4700
3.7	25	1879.999989	0.00	4700
3.40	25	1879.999995	-6.00	4700
3.2 (End Point)	25	1879.999985	4.00	4700