Lab Code: 200167-0

FCC PART 22H AND 24E
TEST AND MEASUREMENT REPORT

For

SKY WIRELESS S.A. de C.V.

Av. Minas Palacio No. 42 B.8 Col. San Antonio Zomeyucan C.P. 53750 Naucalpan,

Estado de Mexico, Mexico

FCC ID: WUT-SW-1000
Model: SW-1000

Report Type:	**Product Type:**
Original Report	GSM Fixed Wireless Phone

Test Engineer:	Victor Zhang
Report Number:	R0810275-2224
Report Date:	2008-11-05
Reviewed By:	Boni Baniqued Sr. RF Engineer
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TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R0810275-2224	Original Report	2008-11-05

1 GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

This measurement and test report has been compiled on behalf of *Sky Wireless S.A. de C.V.* and their product model: *SW-1000, FCC ID: WUT-SW-1000* which is a GSM Fixed Wireless Phone.

Technical specification:

Frequency Band: GSM850/EGSM900/DCS1800/PCS1900
RF Output Power: GSM850/EGSM900: 2 Watts
DCS1800/PCS1900: 1 Watt
Antenna: SMA, 2.5 dBi

1.2 EUT Photo

Additional Photos in Exhibit C

1.3 Mechanical Description

The *Sky Wireless S.A. de C.V.* Product model: *SW-1000,* FCC ID: *WUT-SW-1000 or* the "EUT" as referred to in this report is a mobile phone. The EUT measures approximately 170 mm (L) x 210 mm (W) x 71 mm (H), and weighs approximately 665 g.

** The test data gathered are from typical production sample, serial number: B2010, Sample ID: 72181 provided by BACL.*

1.4 Objective

This type approval report is prepared on behalf of *Sky Wireless S.A. de C.V.* in accordance with Part 2, Subpart J, Part 22 Subpart H, and Part 24 Subpart E of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for RF output power, modulation characteristic, occupied bandwidth, spurious emissions at antenna terminal, field strength of spurious radiation, frequency stability, band edge, and conducted and radiated margin.

This measurement and test report only pertains to the GSM 850/1900 portion of the EUT.

1.5 Related Submittal(s)/Grant(s)

No Related Submittals

1.6 Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Cellular Radiotelephone Service
Part 24 Subpart E - PCS

Applicable Standards: TIA/EIA603-C, ANSI C63.4-2003.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

1.7 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the values ranging from $\pm$2.0 dB for Conducted Emissions tests and $\pm$4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL Corp.

Detailed instrumentation measurement uncertainties can be found in BACL Corp. report QAP-018.

1.8 Test Facility

The test site used by BACL Corp. to collect radiated and conducted emissions measurement data is located at its facility in Sunnyvale, California, USA.

The test sites at BACL have been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February

11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission, Industry Canada, and Voluntary Control Council for Interference has the reports on file and is listed under FCC registration number: 90464, IC registration number: 3062A, and VCCI Registration Number: C-2463 and R-2698. The test site has been approved by the FCC, IC, and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations can be found at http://ts.nist.gov/ts/htdocs/210/214/scopes/2001670.htm

2 SYSTEM TEST CONFIGURATION

2.1 Justification

The EUT was configured for testing according to TIA/EIA 603-C.

The final qualification test was performed with the EUT operating at normal mode.

2.2 EUT Exercise Software

An RFID simulation program was provided by the customer.

2.3 Special Accessories

N/A

2.4 Equipment Modifications

No modifications were made to the EUT

2.5 Remote Support Equipment

N/A

2.6 Local Support Equipment

Manufacturer	Description	Model	Serial Number
-	-	-	-

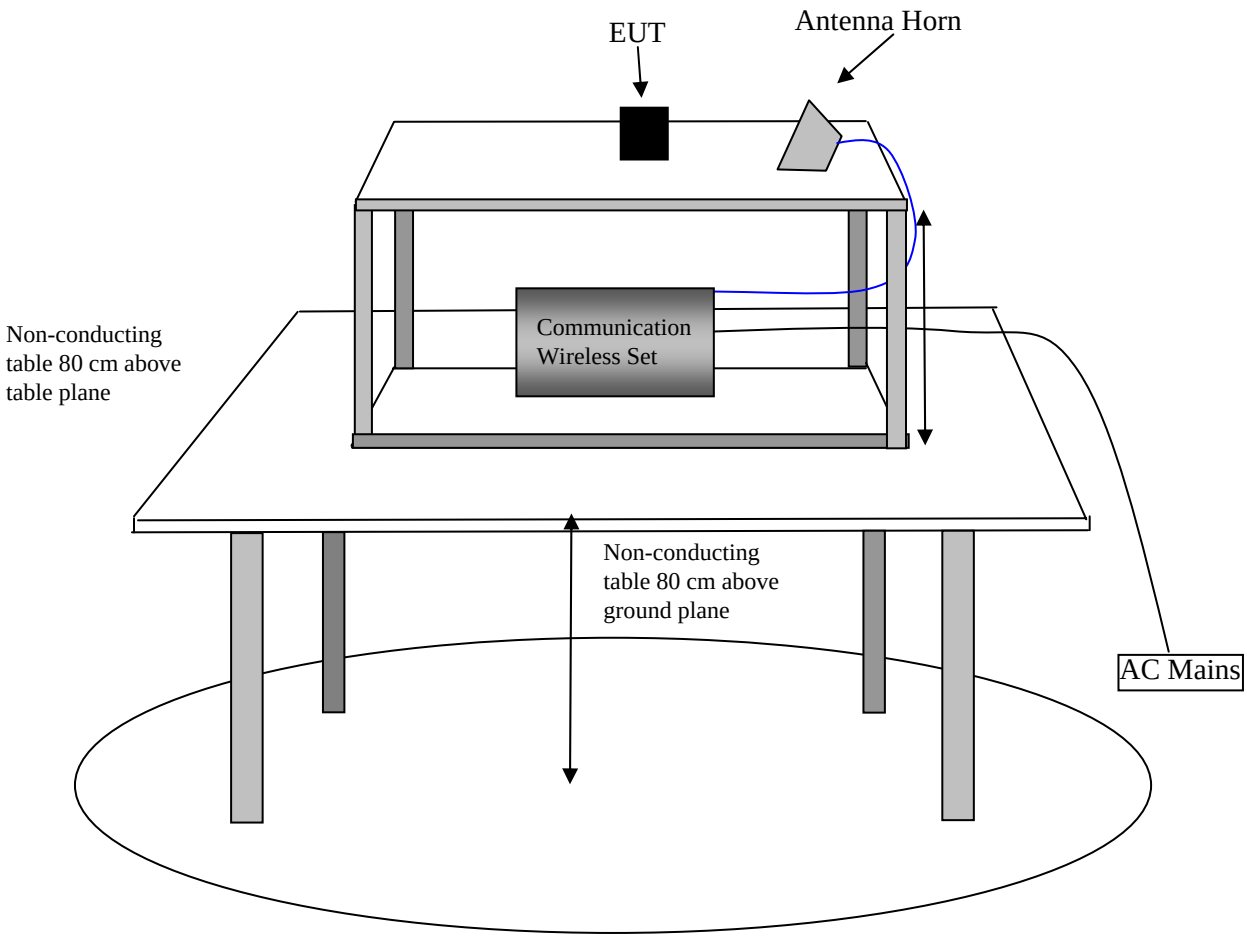
2.7 Power Supply and Line Filters

Manufacturer	Description	Model	Serial Number
Sky Wireless	AC/DC Adapter	SW-0972	B2010

2.8 Interface Ports and Cabling

Cable Description	From	To
-	-	-

2.9 Test setup Block Diagram for radiated emissions tests



3 SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§ 2.1047	Modulation Characteristics	N/A
§ 2.1053 & § 22.917 (a) § 24.238 (a)	Field Strength of Spurious Radiation	Compliant
§2.1091	RF Exposure	Compliant
§ 2.1046, § 22.913 § 24.232	RF Output Power	Compliant
§ 2.1049 § 22.917 § 24.238	Out of Band Emissions, Occupied Bandwidth	Compliant
§ 2.1051, § 22.917 § 24.238(a)	Spurious Emissions at Antenna Terminals	Compliant
§ 2.1055 (a) § 2.1055 (d) § 22.355 § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliant
§ 22.917 §24.238	Band Edge	Compliant

4 §2.1047 - MODULATION CHARACTERISTIC

4.1 Applicable Standard

According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

5 §1.1307(b) (1) & §2.1091 - RF EXPOSURE

5.1 Applicable Standard

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (Minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

5.2 MPE Prediction

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Cellular Band

Maximum peak output power at antenna input terminal (dBm):	32.75
Maximum peak output power at antenna input terminal (mW):	1883.6
Prediction distance (cm):	25
Prediction frequency (MHz):	836.6
Antenna Gain, typical (dBi):	2.5
Maximum Antenna Gain (numeric):	1.778
Power density at predication frequency and distance (mW/cm^2):	0.4264
MPE limit for uncontrolled exposure at predication frequency (mW/cm^2):	0.5577

PCS Band

Maximum peak output power at antenna input terminal (dBm):	29.67
Maximum peak output power at antenna input terminal (mW):	926.8
Prediction distance (cm):	25
Prediction frequency (MHz):	1880.0
Antenna Gain, typical (dBi):	2.5
Maximum Antenna Gain (numeric):	1.778
Power density at predication frequency and distance (mW/cm^2):	0.2098
MPE limit for uncontrolled exposure at predication frequency (mW/cm^2):	1.000

5.3 Test Result

The device is compliant with the requirement MPE limit for uncontrolled. The maximum power density at the distance of 25 cm was 0.4264mW/cm^2. Thus, the requirement of at least 25 cm required by the manufacturer is in compliance with the MPE requirement. The distance has been addressed on the user manual.

6 §2.1053 - SPURIOUS RADIATED EMISSIONS

6.1 Applicable Standard

Requirements: CFR 47, § 2.1053, § 22.917, § 24.238.

6.2 Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 log (TX Power in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (power out in Watts)

6.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Wireless Communication Test Set	8960 Series 10	GB44051221	2007-08-08*
Agilent	Spectrum Analyzer	E4440A	MY44303352	2008-04-28
Sunol Sciences	Antenna	JB1	A103105-3	2008-3-25
A.R.A	Horn Antenna	DRG-118/A	1132	2008-07-28
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2008-07-01
HP	Pre-Amplifier	8449B	3008A01978	2007-11-02
HP	Pre-Amplifier	8447D	2944A06639	2007-12-19

* 2-year calibration cycle
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

6.4 Environmental Conditions

Temperature:	21 °C
Relative Humidity:	40 %
ATM Pressure:	101.1 kPa

** Testing performed by Victor Zhang on 2008-11-04.*

6.5 Summary of Test Results

Worst case reading as follows:

Cellular band/ PCS bands

Mode: GSM		
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**
-7.73	1673.2	Horizontal

Test Data

Run # 1: 30 MHz -10 GHz Cellular Band, Middle Channel (836.6 MHz)

Indicated		Azimuth (degree)	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amplitude (dBuV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant Cord. (dBi)	Cable Loss (dB)			
1673.2	80.02	111	100	H	1673.2	-19.68	9.2	1.05	-20.73	-13	-7.73
1673.2	77.65	40	126	V	1673.2	-22.52	9.2	1.05	-23.57	-13	-10.57
2509.8	58.37	88	100	V	2509.8	-32.64	9.4	1.37	-34.01	-13	-21.01
2509.8	58.35	80	100	H	2509.8	-33.4	9.4	1.37	-34.77	-13	-21.77
55.9	80.53	0	1.5	V	55.9	-39.19	0	0.27	-39.46	-13	-26.46

Run # 2: 30 MHz -20 GHz PCS Band, Middle Channel (1880 MHz)

Indicated		Azimuth (degree)	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amplitude (dBuV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant Cord. (dBi)	Cable Loss (dB)			
3760	64.02	200	100	V	3760	-36.32	10.6	1.8	-27.52	-13	-14.52
3760	59.81	270	100	H	3760	-40.03	10.6	1.8	-31.23	-13	-18.23
101.1	78.62	0	1.5	H	101.1	-37.64	0	0.27	-37.91	-13	-24.91

7 §2.1046, §22.913(a), & §24.232 – RF OUTPUT POWER

7.1 Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (a), in no case may the peak output power of a base station transmitter exceed 2 watt.

7.2 Test Procedure

Conducted:

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

Radiated:

TIA 603-C Section 2.2.17

7.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
R & S	Communication, Radio Universal	CMU200	103492	2007-05-24*
Agilent	Wireless Communication Test Set	8960 Series 10	GB44051221	2007-08-08*
Agilent	Spectrum Analyzer	E4440A	MY44303352	2008-04-28
Sunol Sciences	Antenna	JB1	A103105-3	2008-03-25
A.R.A	Horn Antenna	DRG-118/A	1132	2008-07-28
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2008-07-01
HP	Pre-Amplifier	8449B	3008A01978	2007-11-02
HP	Pre-Amplifier	8447D	2944A06639	2007-12-19

* 2-year calibration cycle
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

7.4 Environmental Conditions

Temperature:	21 °C
Relative Humidity:	40 %
ATM Pressure:	101.1 kPa

** Testing performed by Victor Zhang on 2008-11-04.*

7.5 Summary of Test Results

Conducted Output Power

Cellular Band

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (dBm)
Low	824.2	31.91	1552.4	38.45
Middle	836.6	32.36	1721.9	38.45
High	848.8	32.75	1883.6	38.45

PCS Band

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (dBm)
Low	1850.2	29.67	926.8	33
Middle	1880.0	28.97	788.9	33
High	1909.8	28.10	645.7	33

Radiated Power (ERP/EIRP)

Cellular Band

Indicated		Azimuth (degree)	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amplitude (dBuV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Cord. (dBd)	Cable Loss (dB)			
824.2	106.70	106	107	V	824.2	34.35	0	0.65	33.70	38.45	-4.75
848.8	106.85	106	109	V	848.8	34.27	0	0.65	33.62	38.45	-4.83
836.6	106.83	108	108	V	836.6	34.18	0	0.65	33.53	38.45	-4.92
836.6	107.49	156	100	H	836.6	33.97	0	0.65	33.32	38.45	-5.13
824.2	107.44	156	100	H	824.2	33.49	0	0.65	32.84	38.45	-5.61
848.8	106.70	158	100	H	848.8	33.14	0	0.65	32.49	38.45	-5.96

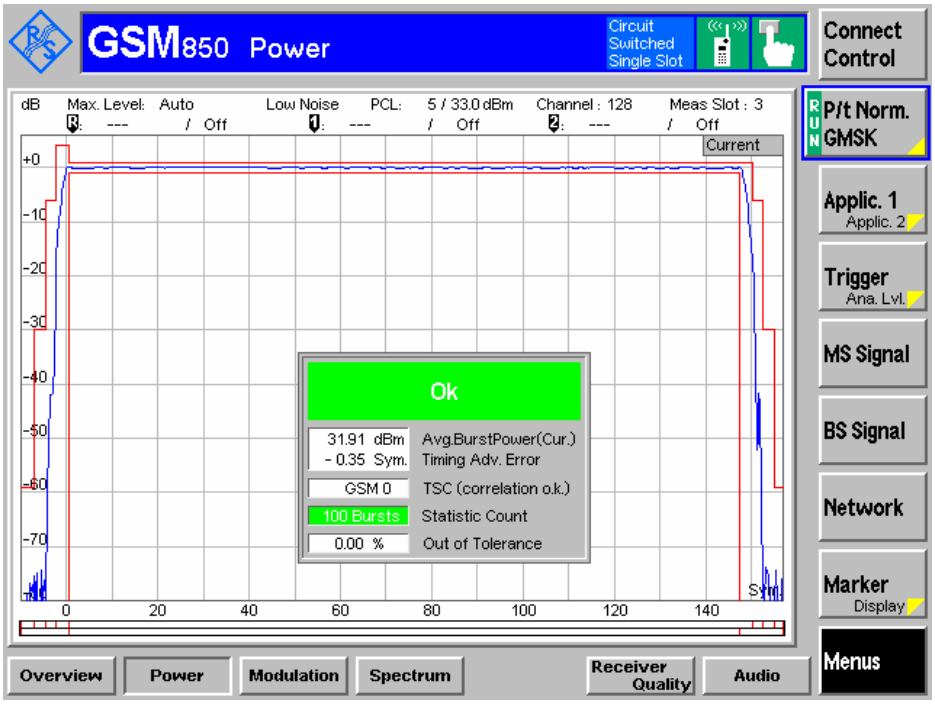
PCS Band

Indicated		Azimuth (degree)	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amplitude (dBuV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Cord. (dBi)	Cable Loss (dB)			
1909.8	88.70	300	100	V	1909.8	18.24	9.0	1.14	26.10	33	-6.90
1880.0	87.54	300	100	V	1880	16.59	9.0	1.14	24.45	33	-8.55
1880.0	85.91	62	120	H	1880	15.71	9.0	1.14	23.57	33	-9.43
1850.2	86.56	300	100	V	1850.2	14.95	9.5	1.09	23.36	33	-9.64
1850.2	85.49	62	120	H	1850.2	14.84	9.5	1.09	23.25	33	-9.75
1909.8	85.28	59	120	H	1909.8	15.22	9.0	1.14	23.08	33	-9.92

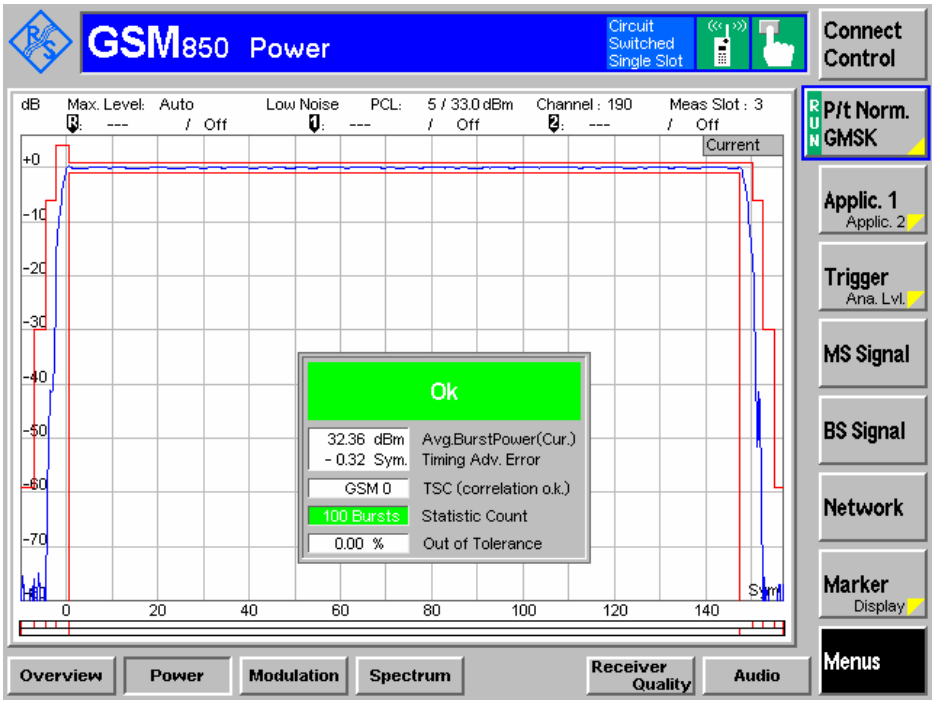
7.6 Test Plots

Conducted Output Power of Cellular Band

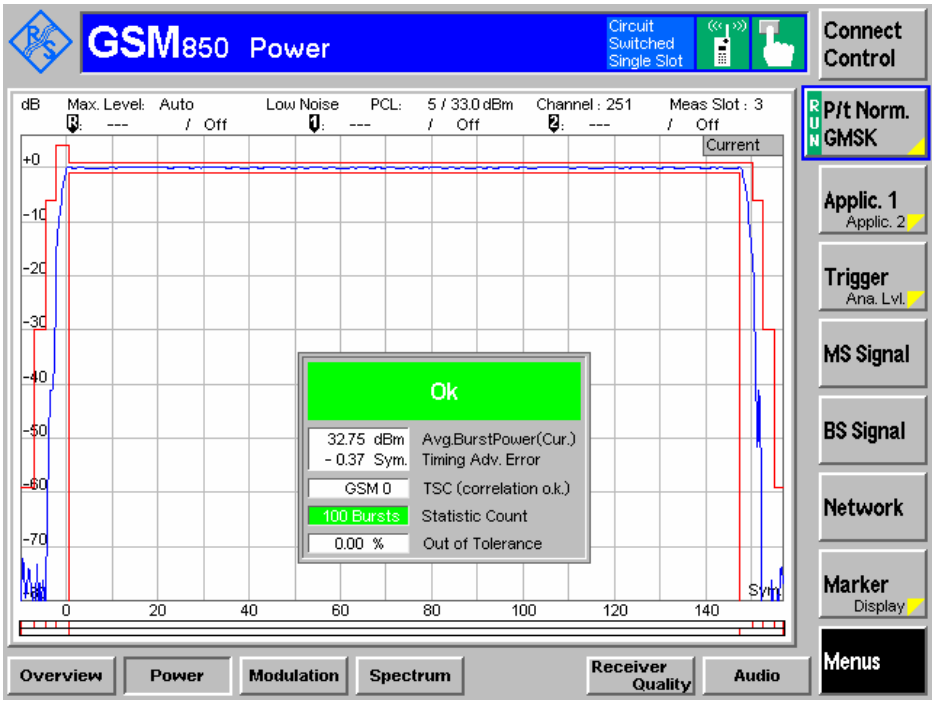
Low Channel



Middle Channel

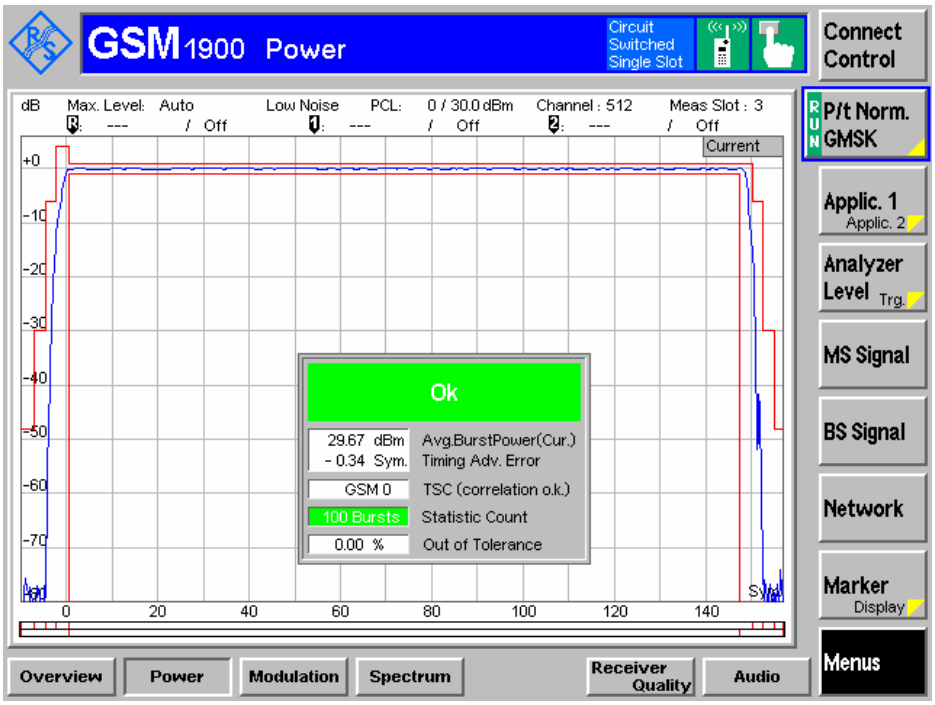


High Channel

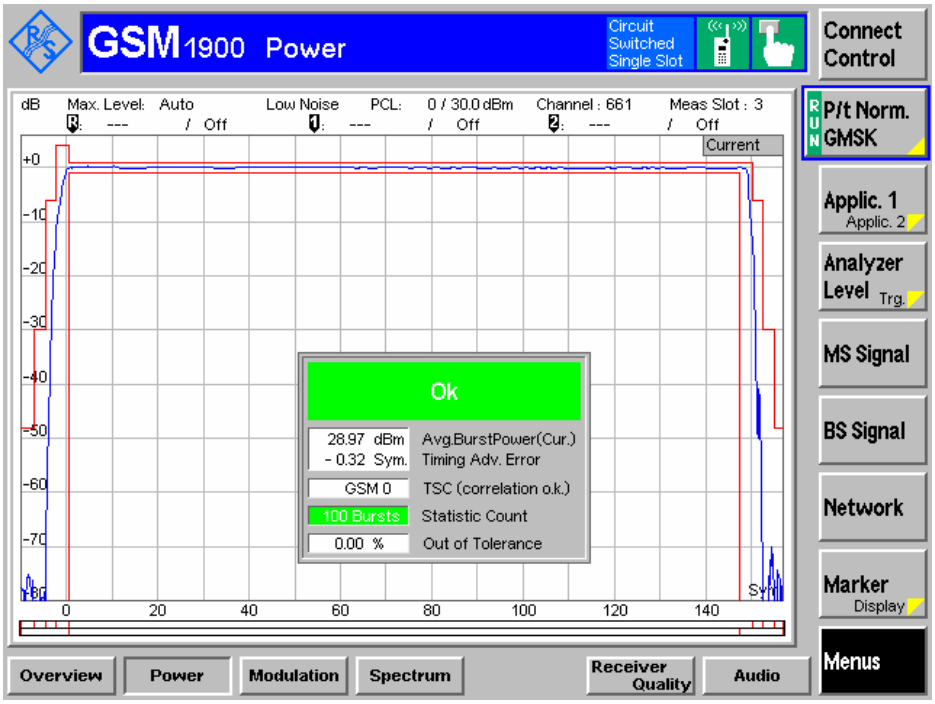


Conducted Output Power of PCS Band

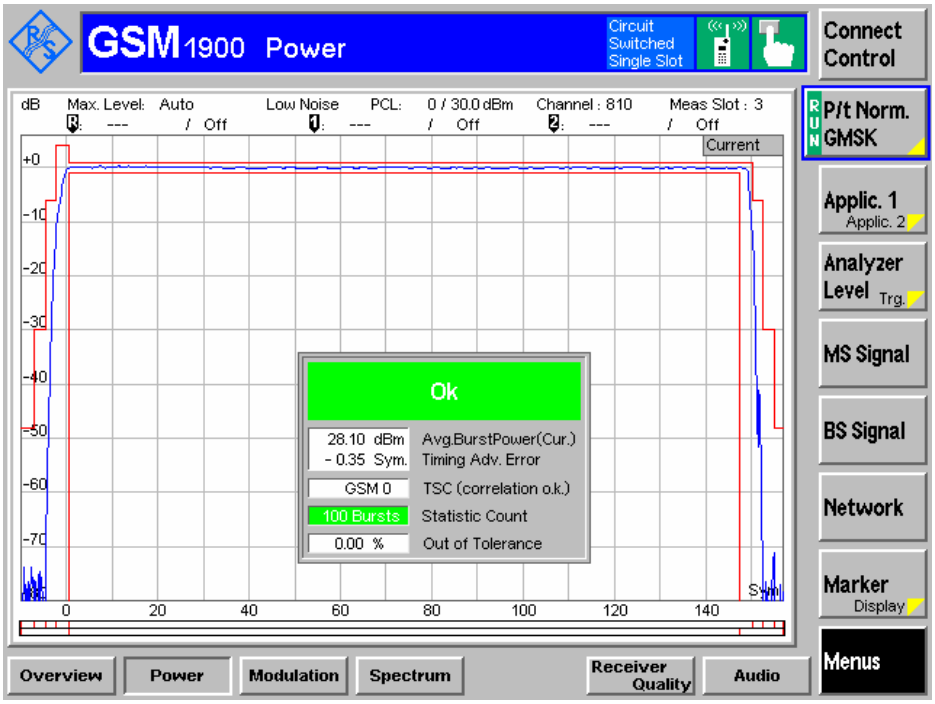
Low Channel



Middle Channel



High Channel



8 §2.1049, §22.917, §22.905, & §24.238 - OCCUPIED BANDWIDTH

8.1 Applicable Standard

Requirements: CFR 47, Section 2.1049, Section 22.901, Section 22.917 and Section 24.238.

8.2 Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 3 kHz (Cellular /PCS) and the -26 dB bandwidth was recorded.

8.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
R & S	Communication, Radio Universal	CMU200	103492	2007-05-24*
Agilent	Spectrum Analyzer	E4440A	MY44303352	2008-04-28

* 2-year calibration cycle
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

8.4 Environmental Conditions

Temperature:	23°C
Relative Humidity:	55 %
ATM Pressure:	101.6 kPa

** Testing performed by Victor Zhang on 2008-11-05*

8.5 Test Data and Plots

Cellular Band:

Channel	Frequency (MHz)	26 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	824.2	316.035	248.5139
Middle	836.6	313.347	246.9290
High	848.8	312.512	244.9128

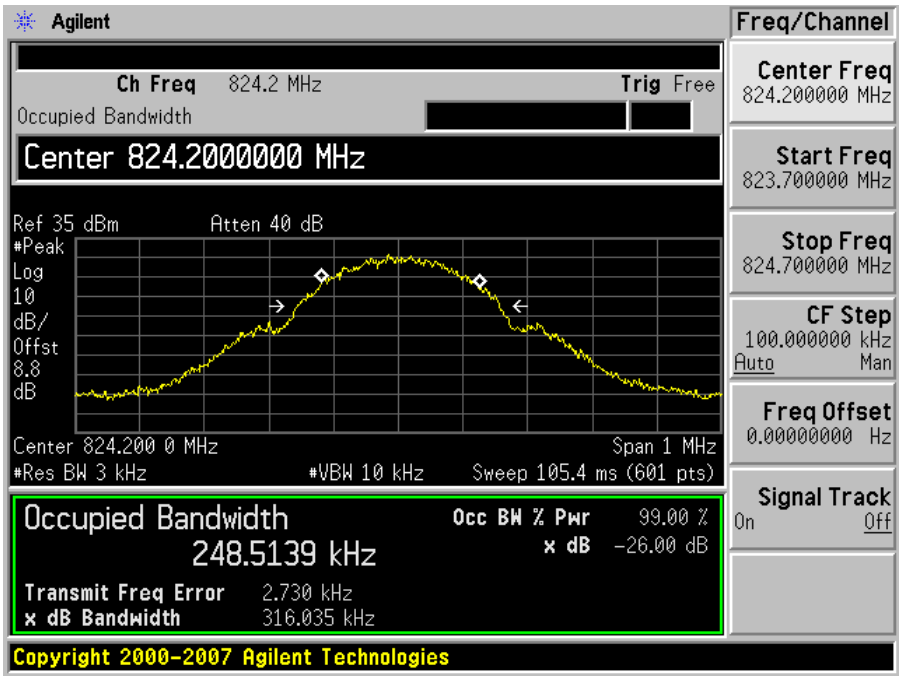
PCS Band:

Channel	Frequency (MHz)	26 dB Bandwidth (kHz)	99% Bandwidth (kHz)
Low	1850.2	316.510	243.2417
Middle	1880.0	315.923	249.4206
High	1909.8	315.411	244.5987

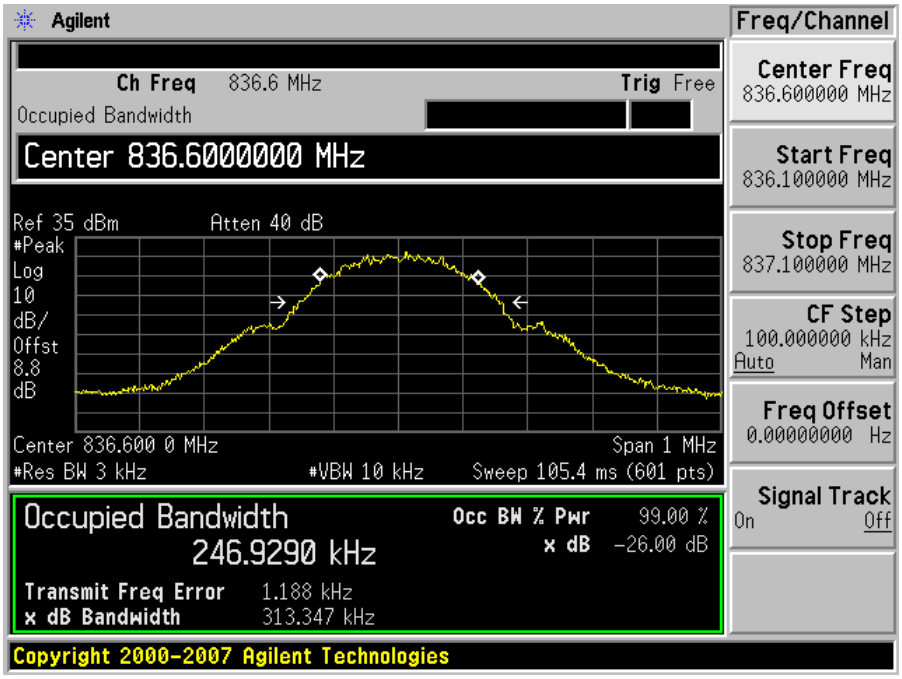
Please refer to the following plots.

Occupied Bandwidth of Cellular Band:

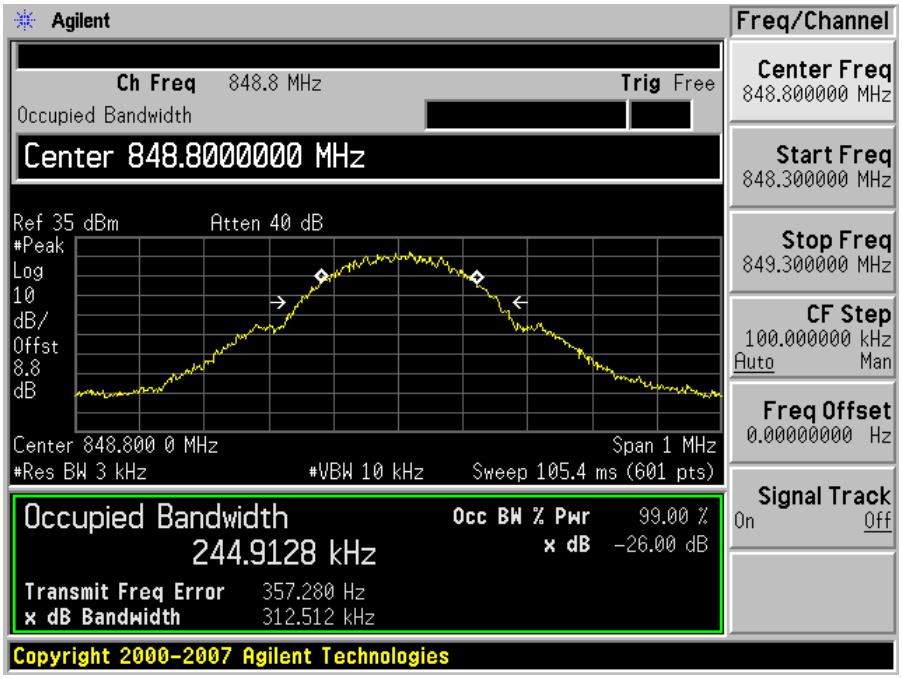
Low Channel



Middle Channel

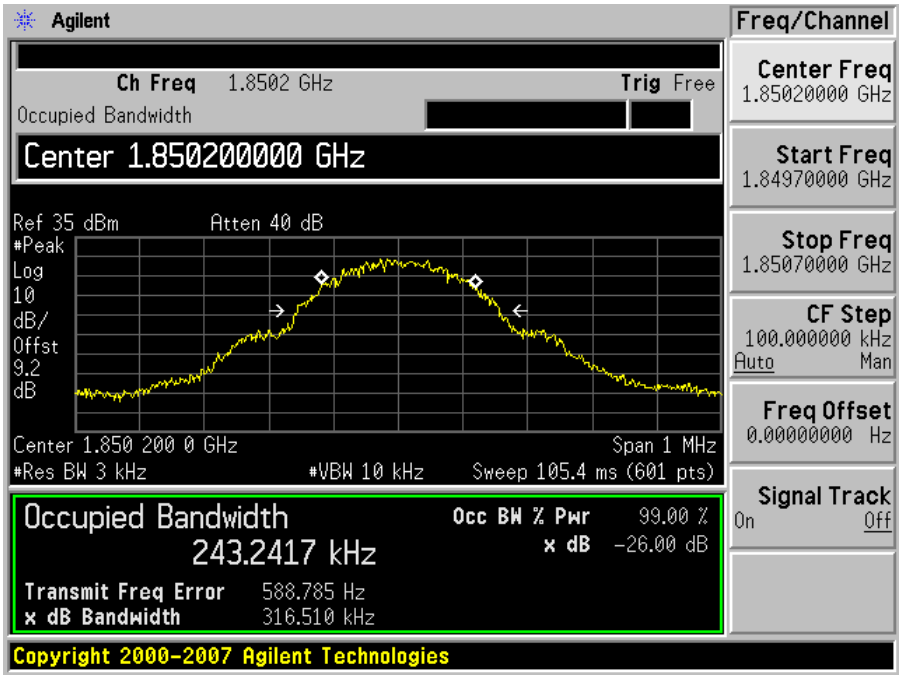


High Channel

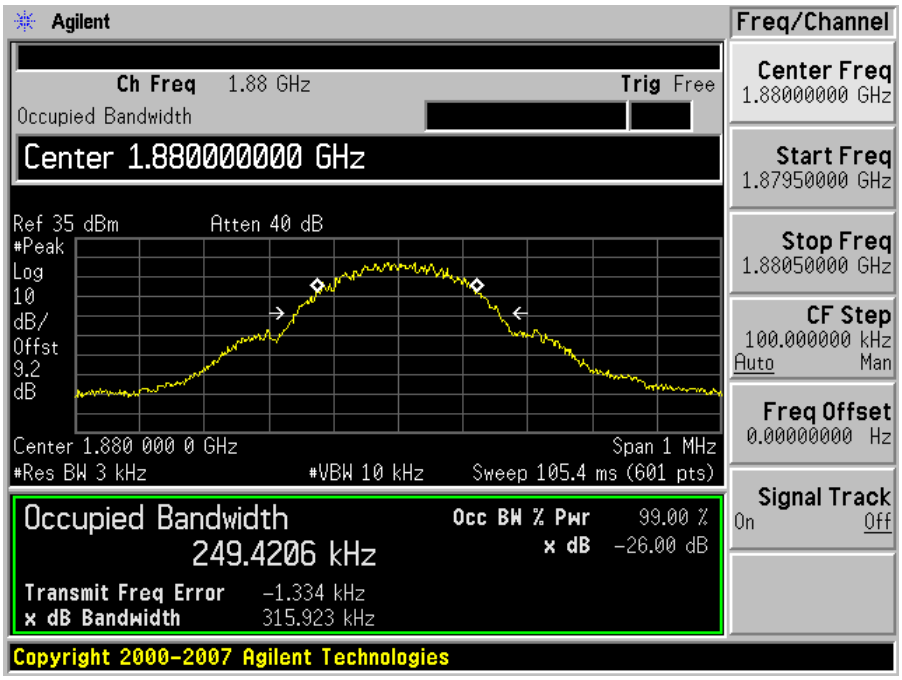


Occupied Bandwidth of PCS Band:

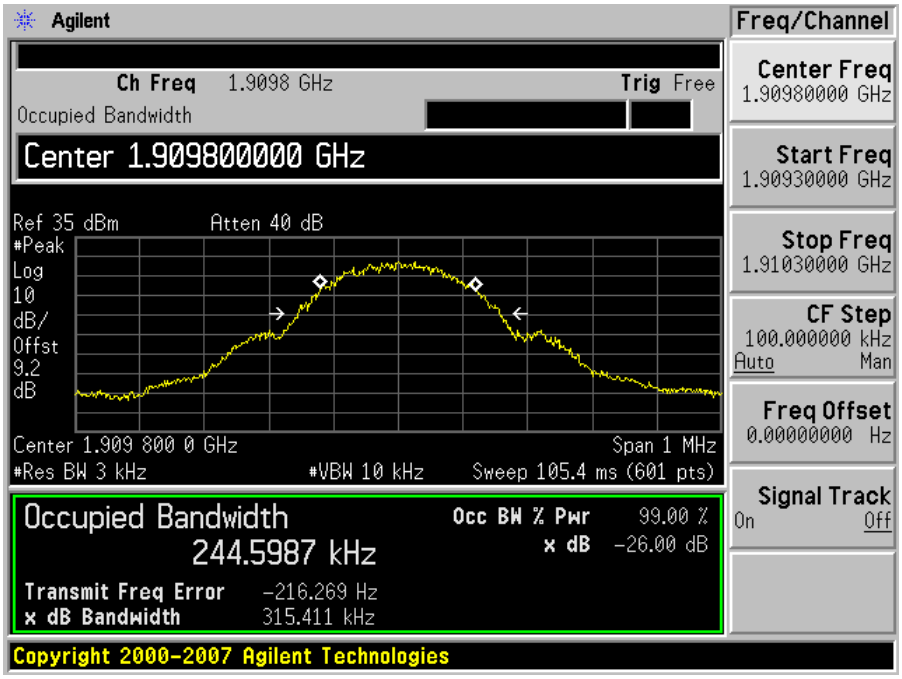
Low Channel



Middle Channel



High Channel



9 §2.1051, §22.917, & §24.238(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

9.1 Applicable Standard

Requirements: CFR 47, § 2.1051. § 22.917 & §24.238(a).

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1057.

9.2 Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

9.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
R & S	Communication, Radio Universal	CMU200	103492	2007-05-24*
Agilent	Spectrum Analyzer	E4440A	MY44303352	2008-04-28

* 2-year calibration cycle
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

9.4 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	101.6 kPa

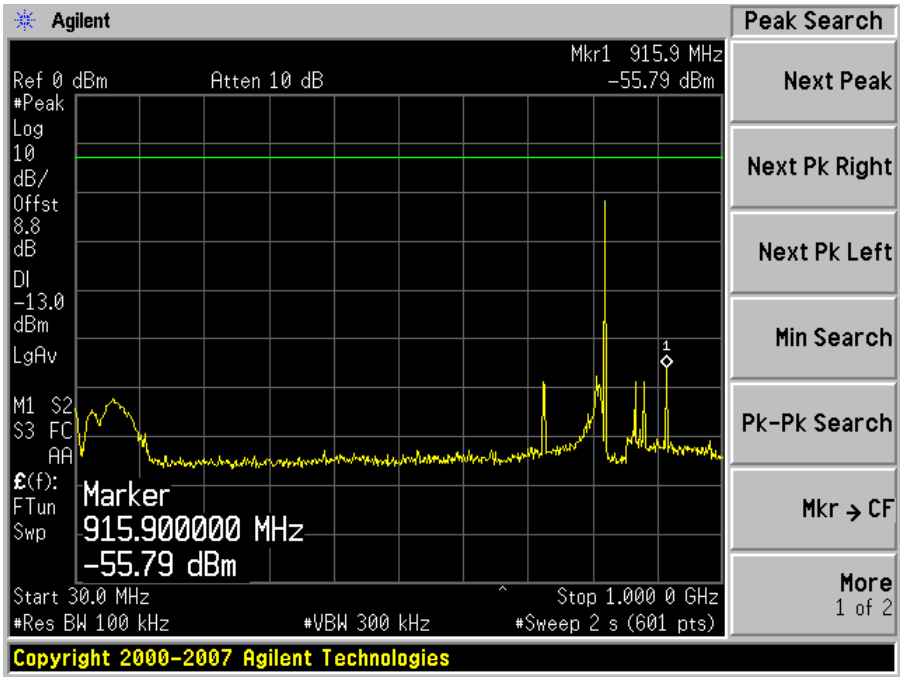
** Testing performed by Victor Zhang on 2008-11-05*

9.5 Test Data and Plots

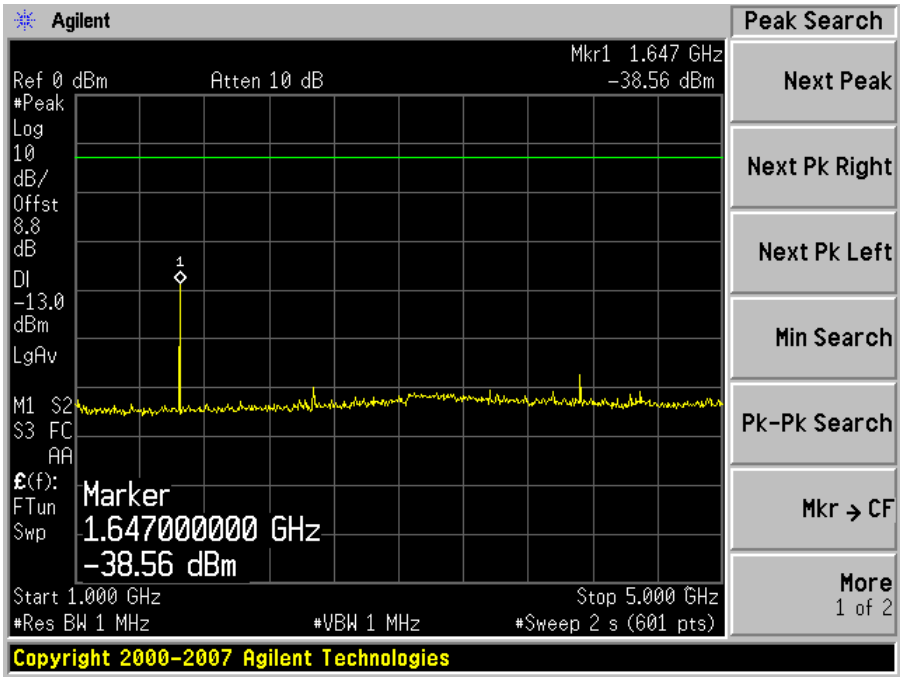
Please refer to the following plots.

Plots of Antenna Port Spurious Emissions for Cellular Band:

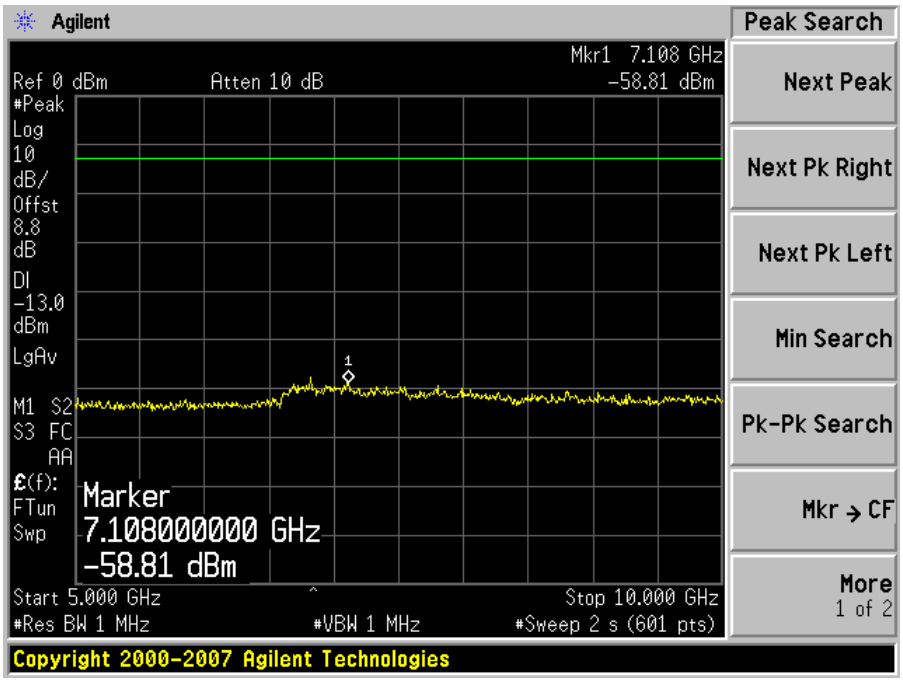
Low Channel (f = 824.2 MHz)



30 MHz – 1 GHz

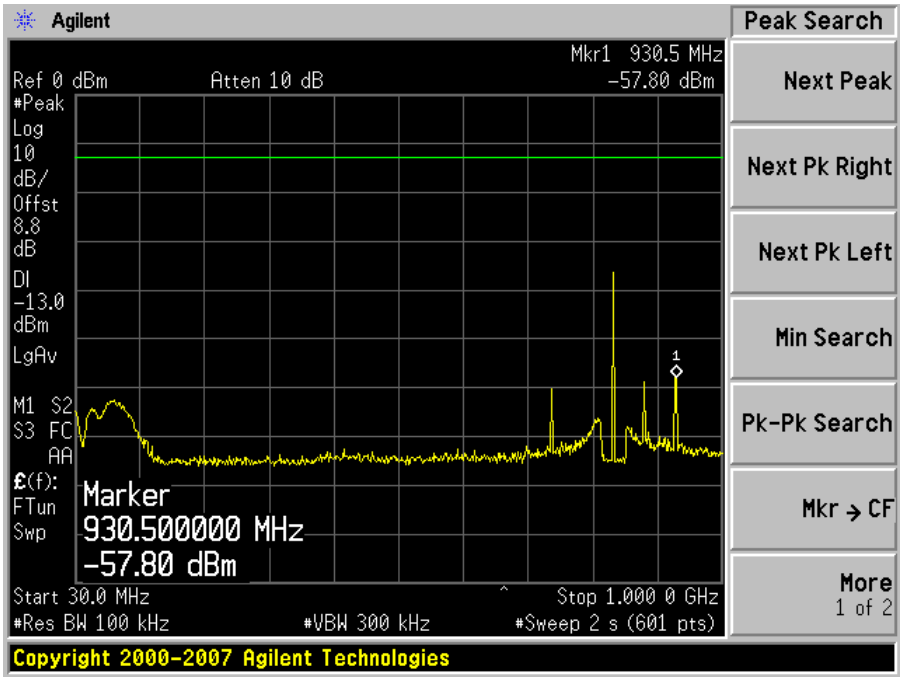


1 – 5 GHz

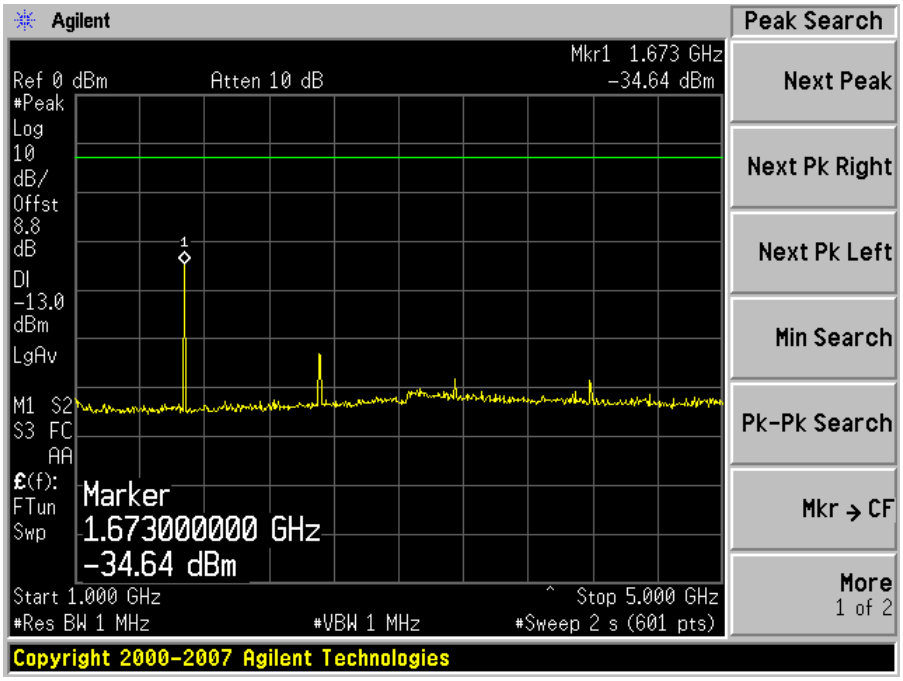


5 – 10 GHz

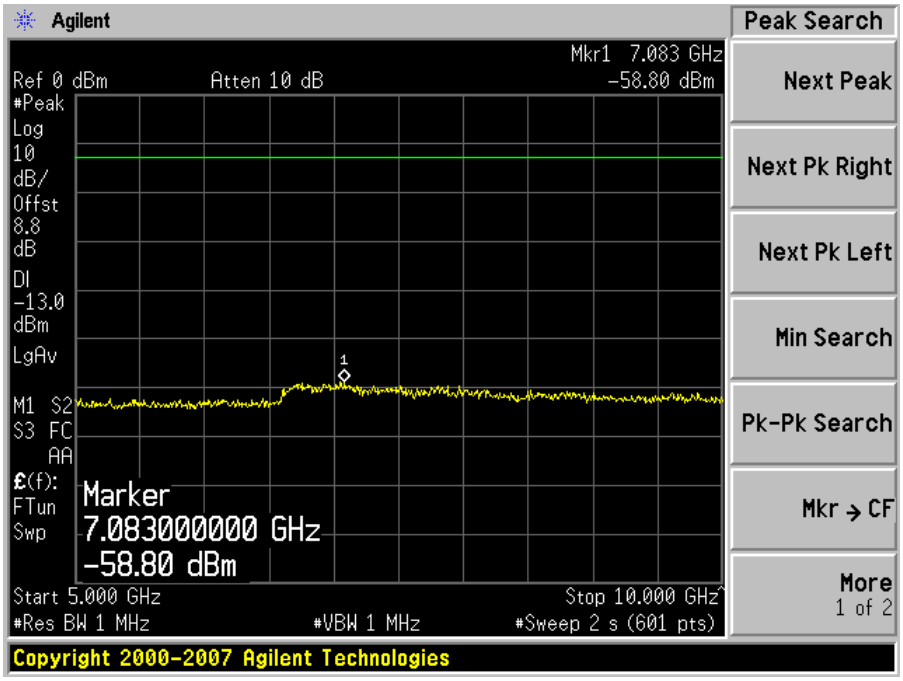
Middle Channel (f = 836.6 MHz)



30 MHz – 1 GHz

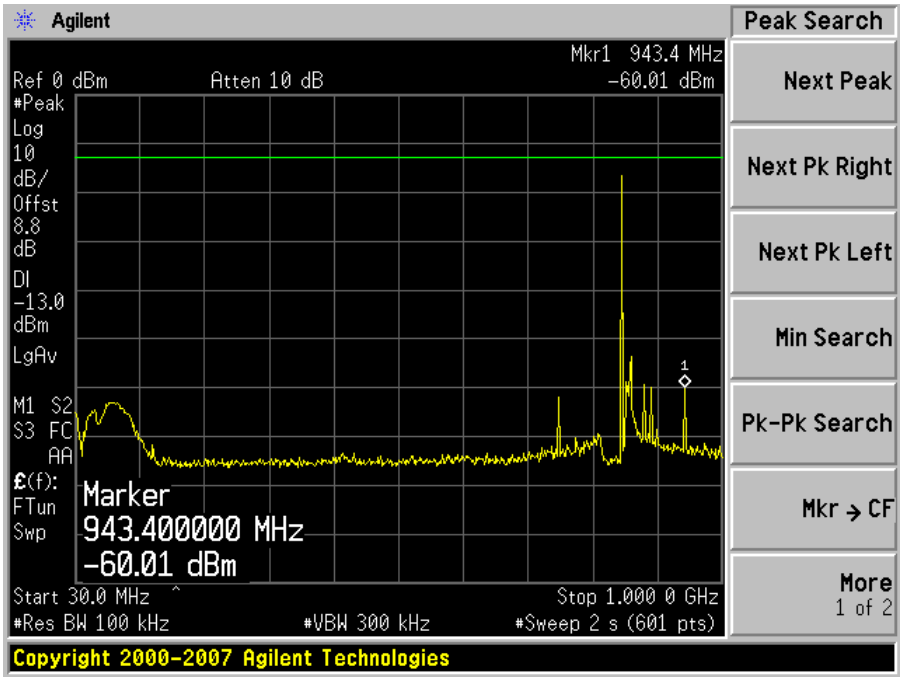


1 – 5 GHz

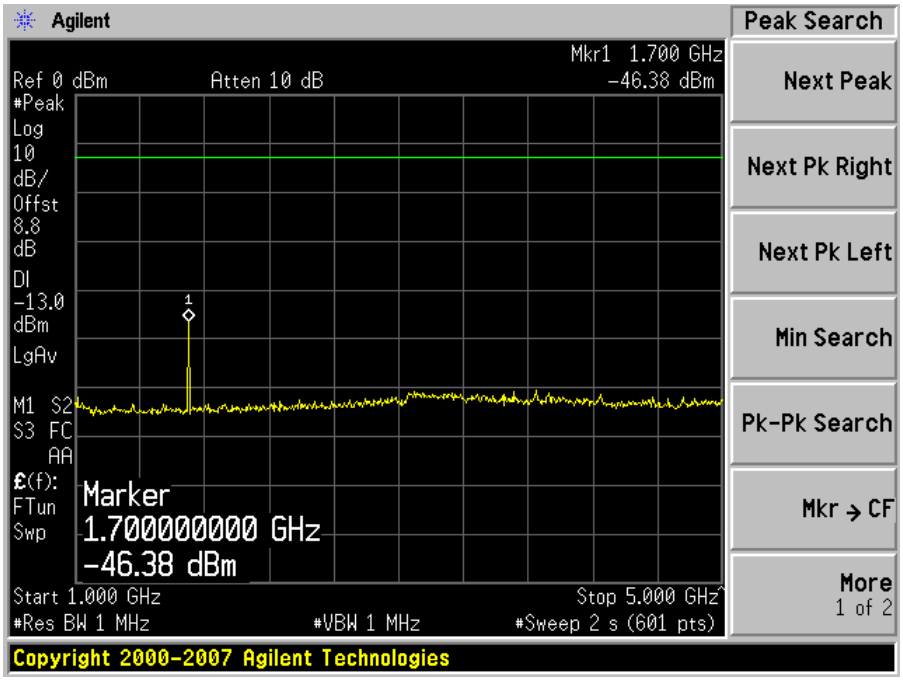


5 – 10 GHz

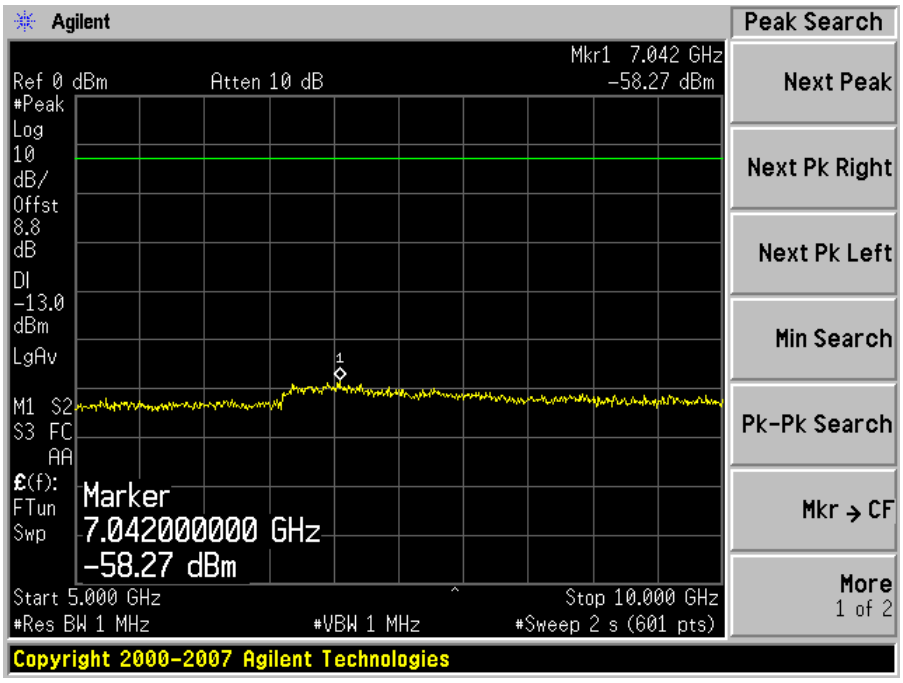
High Channel (f = 848.8 MHz)



30 MHz– 1 GHz



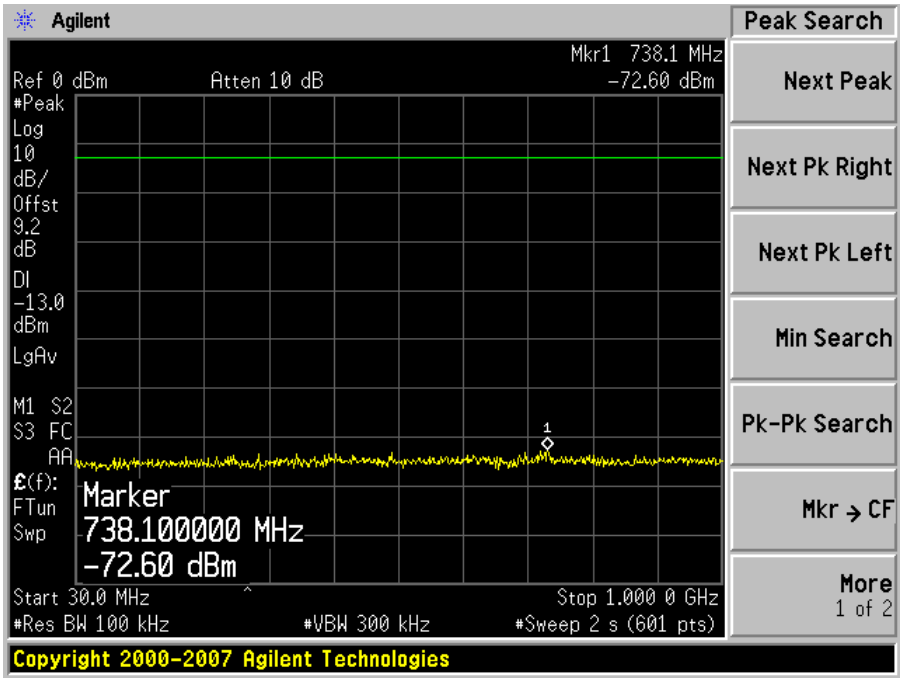
1 – 5 GHz



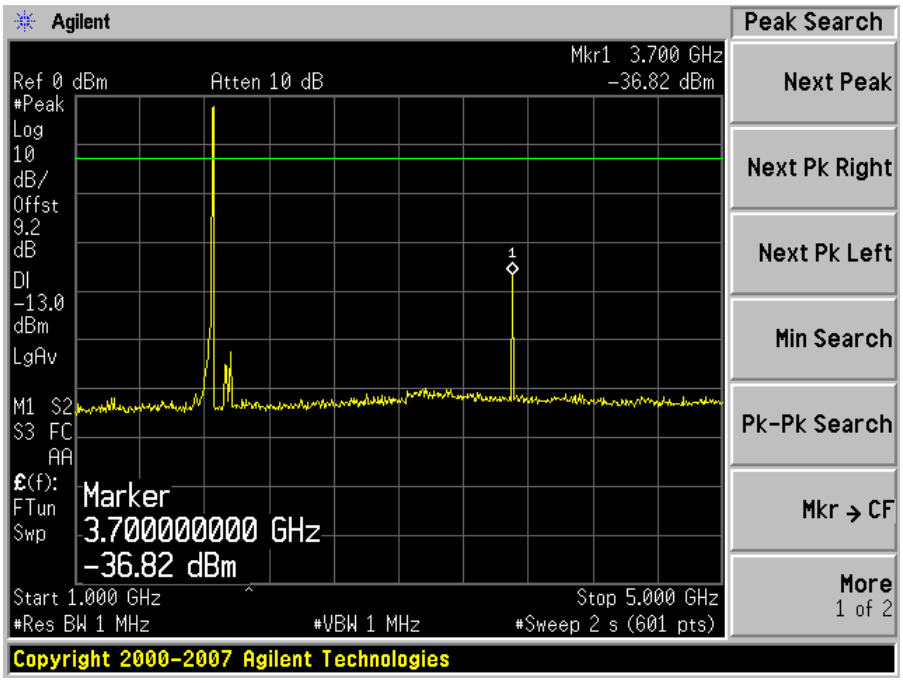
5 – 10 GHz

Plots of Antenna Port Spurious Emissions for PCS Band:

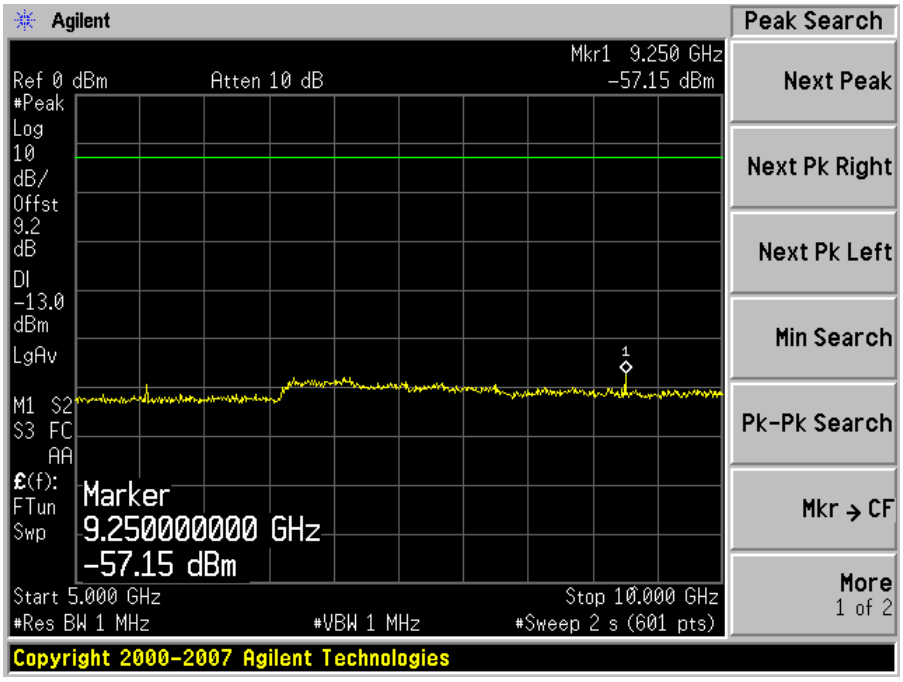
Low Channel (f = 1850.2 MHz)



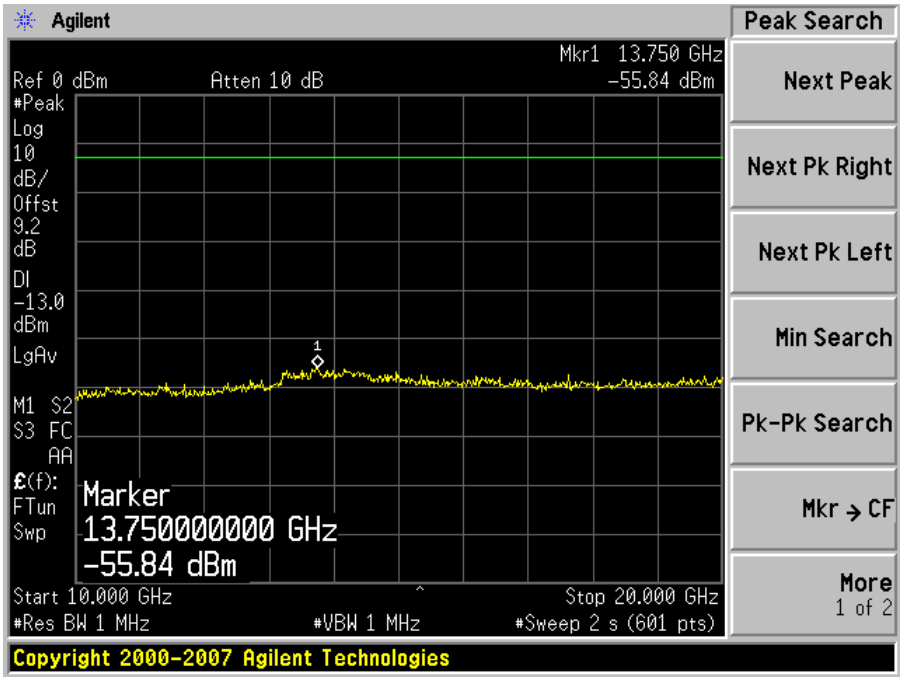
30 MHz – 1 GHz



1 – 5 GHz

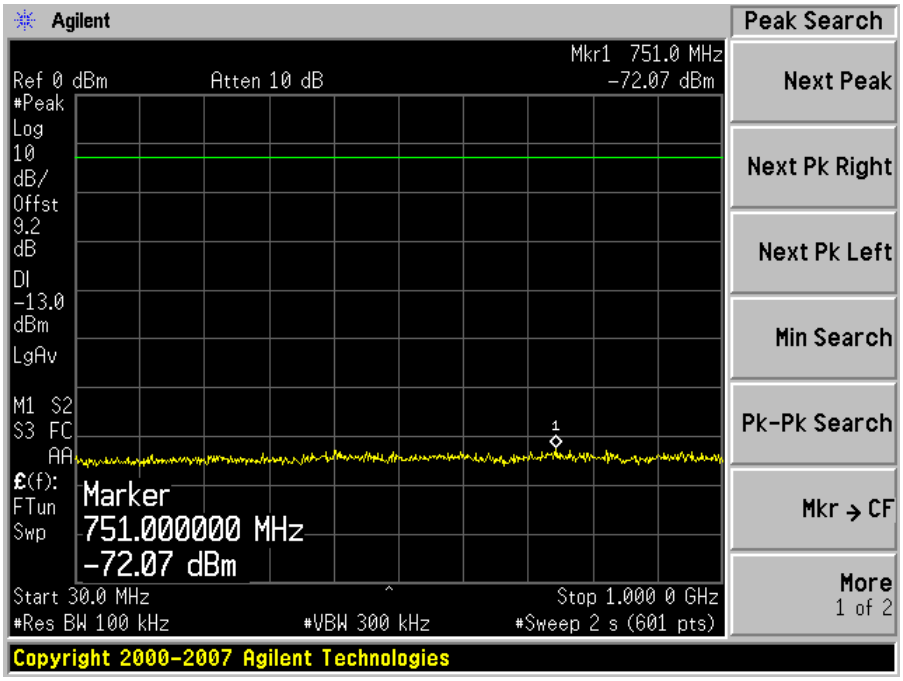


5 – 10 GHz

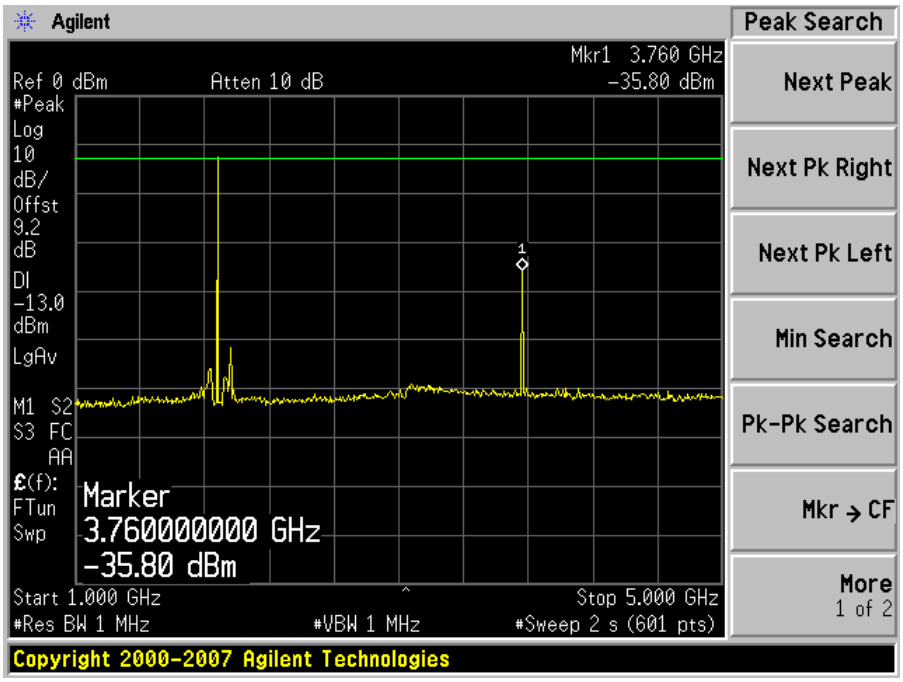


10 – 20 GHz

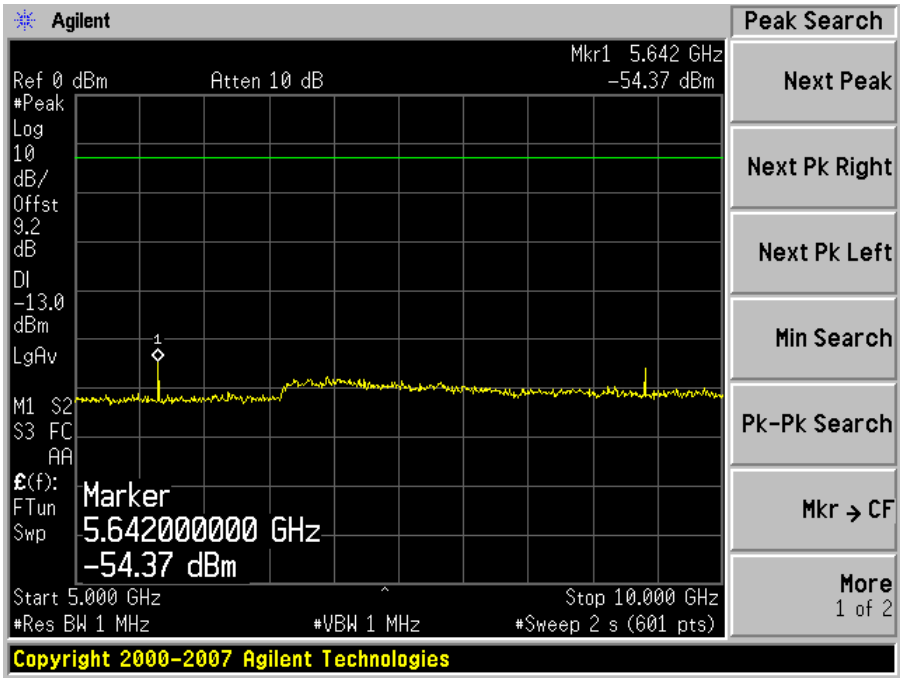
Middle Channel (f = 1880 MHz)



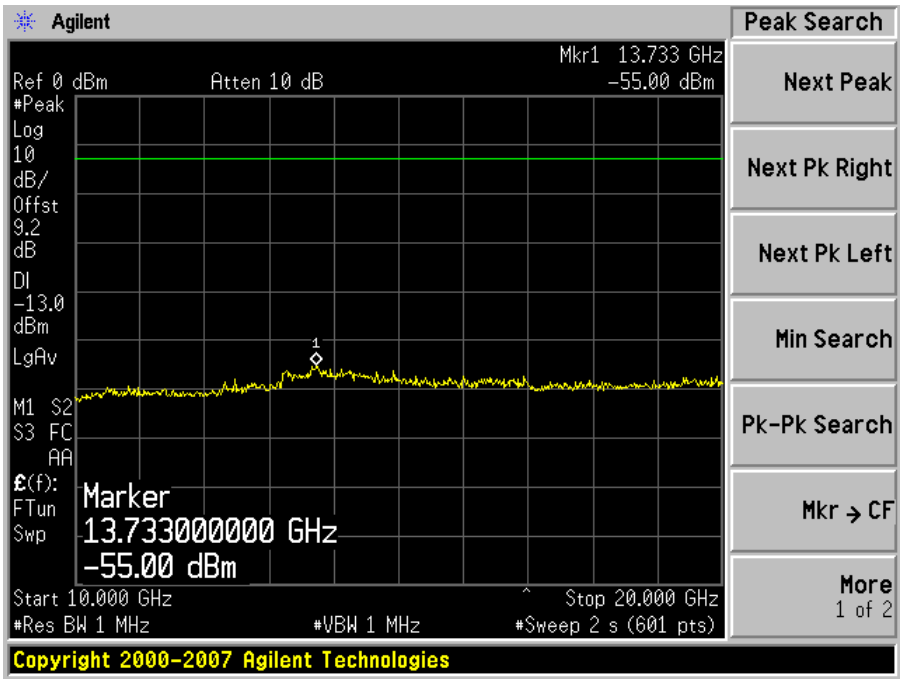
30 MHz – 1 GHz



1 – 5 GHz

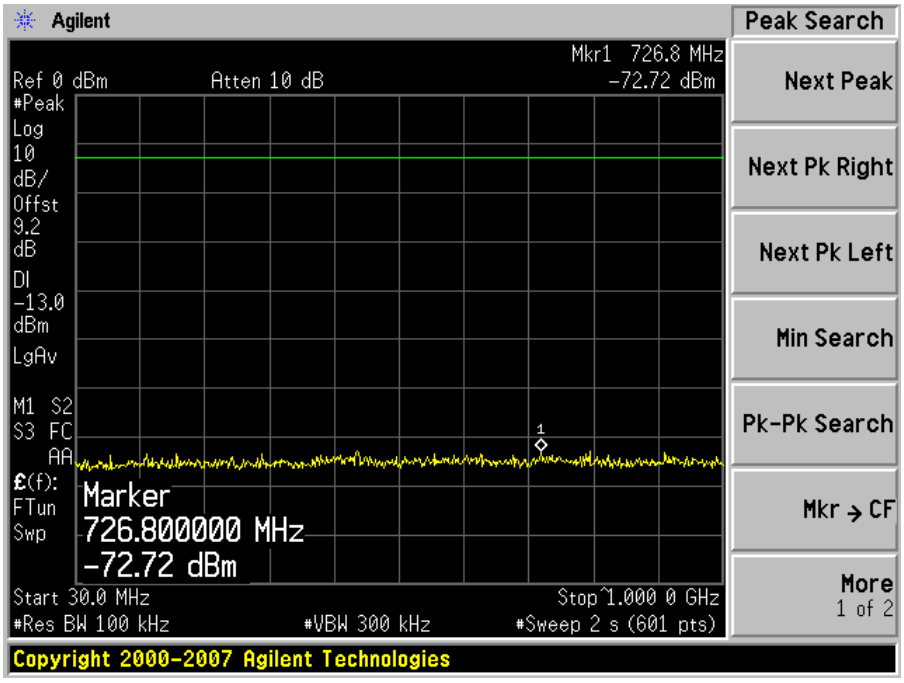


5 – 10 GHz

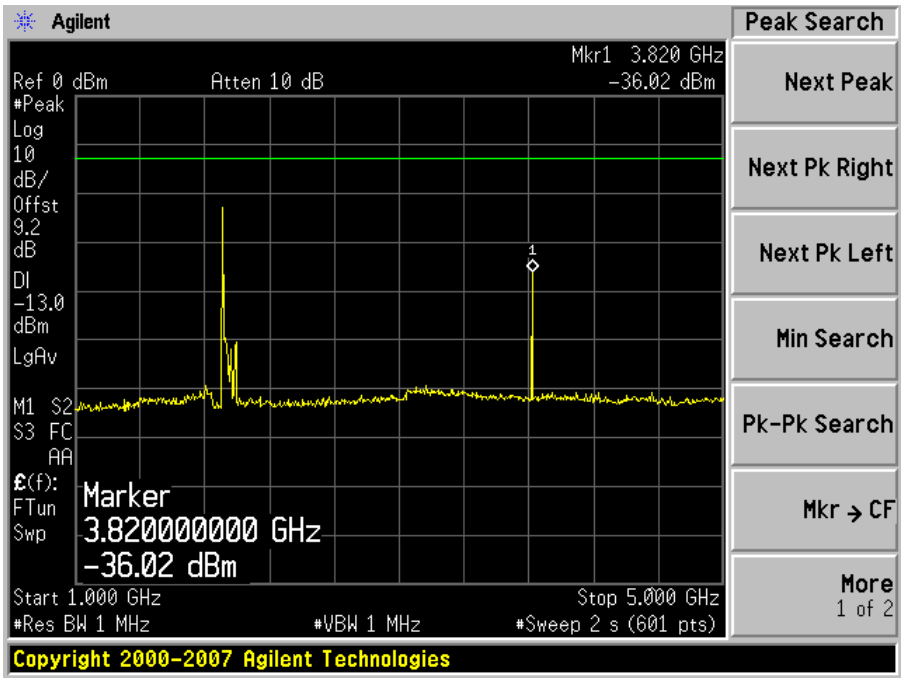


10 – 20 GHz

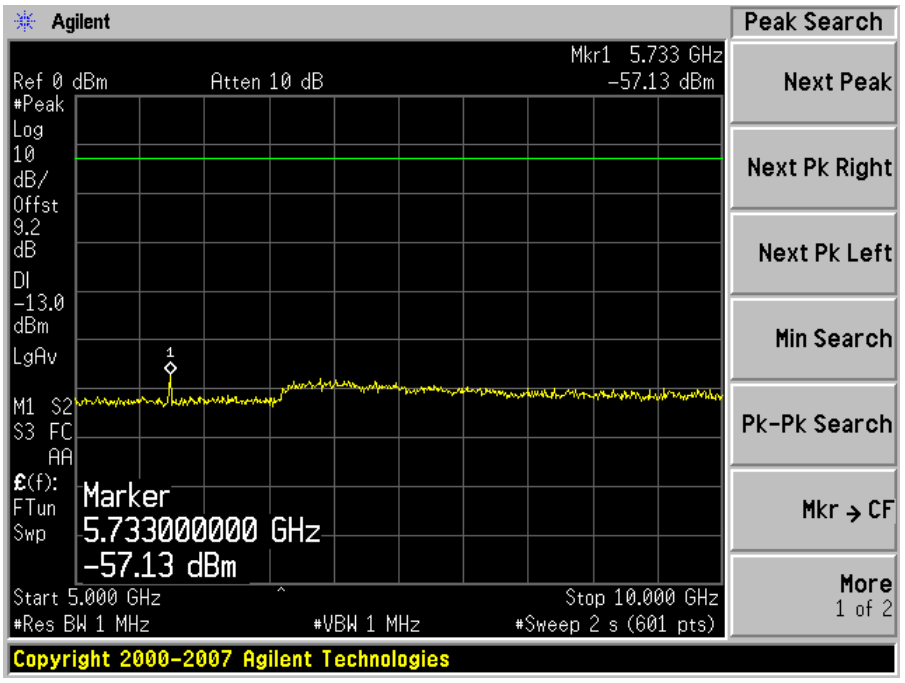
High Channel (f = 1909.8 MHz)



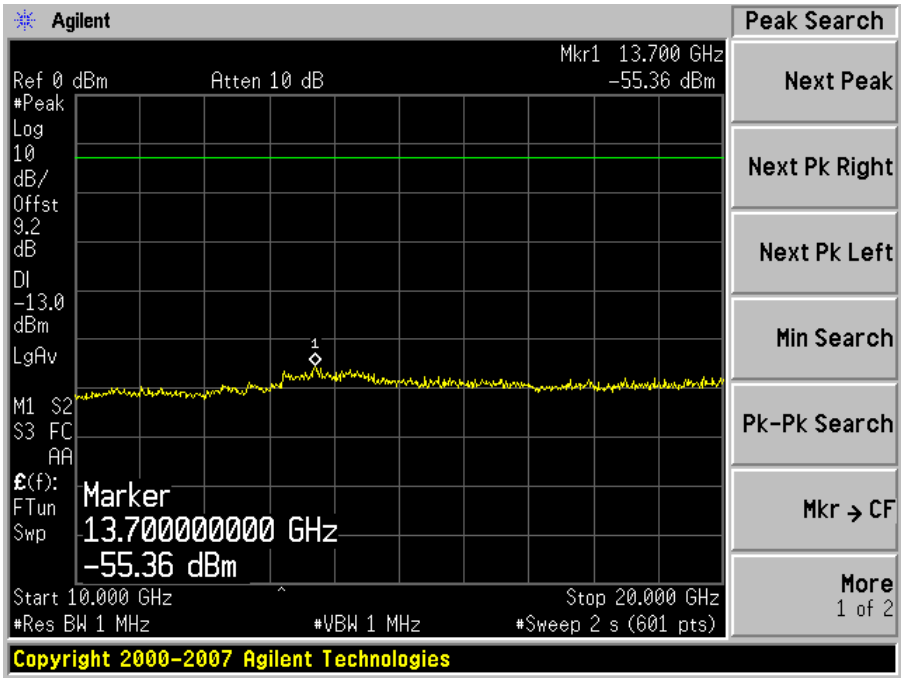
30 MHz – 1 GHz



1 – 5 GHz



5 – 10 GHz


Agilent
Peak Search
Mkr1 13.700 GHz
Ref 0 dBm
Atten 10 dB
-55.36 dBm
#Peak
Log
10
dB/
Offst
9.2
dB
Dl
-13.0
dBm
LgAv
M1 S2
S3 FC
AA
£(f):
FTun
Swp
Marker
13.700000000 GHz
-55.36 dBm
Start 10.000 GHz
Stop 20.000 GHz
#Res BW 1 MHz
#VBW 1 MHz
#Sweep 2 s (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2007 Agilent Technologies

10 – 20 GHz

10 §2.1055 (a), §2.1055 (d), §22.355, & §24.235 - FREQUENCY STABILITY

10.1 Applicable Standard

Requirements: FCC § 2.1055 (a), § 2.1055 (d) & following:

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.

Table C-1_Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency range (MHz)	Base, fixed (ppm)	Mobile ≤3 watts (ppm)	Mobile ≤3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929	5.0	n/a	n/a
929 to 960	1.5	n/a	n/a
2110 to 2220	10.0	n/a	n/a

According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

10.2 Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external AC/DC power adapter and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The AC/DC power adapter leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable AC power supply was connected to the AC/DC power adapter of the equipment under test. The voltage was set to 115% and 85% of the nominal value. The output frequency was recorded for both AC voltages.

10.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
ESPEC	Temp/ Humidity chamber	ESL-4CA	018010	2007-12-12
R & S	Communication, Radio Universal	CMU200	103492	2007-05-24*
Agilent	Spectrum Analyzer	E4440A	MY44303352	2008-04-28

* 2-year calibration cycle
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

10.4 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	101.6 kPa

* *Testing performed by Victor Zhang on 2008-11-05*

10.5 Test Results

Cellular Band:

Frequency Stability versus Temperature

Reference Frequency: 836.6 MHz, Limit: 2.5ppm				
Test Environment		**Frequency Measure with Time Elapsed**		
Temperature (°C)	**Power Supplied (Vac)**	**Measured Frequency (Hz)**	**Frequency Error (Hz)**	**Error (ppm)**
50	110	836.59998	-20	-0.02391
40	110	836.59998	-20	-0.02391
30	110	836.599982	-18	-0.02152
20	110	836.599982	-18	-0.02152
10	110	836.599984	-16	-0.01913
0	110	836.599984	-16	-0.01913
-10	110	836.599982	-18	-0.02152
-20	110	836.599978	-22	-0.02630
-30	110	836.599978	-22	-0.02630

Frequency Stability versus Voltage

Reference Frequency: 836.6 MHz, Limit: 2.5ppm				
Test Environment		**Frequency Measure with Time Elapsed**		
Temperature (°C)	**Power Supplied (Vac)**	**Measured Frequency (Hz)**	**Frequency Error (Hz)**	**Error (ppm)**
20	93.5	836.599977	-23	-0.02749
20	126.5	836.59997	-30	-0.03586

PCS Band:

Frequency Stability versus Temperature

Reference Frequency: 1880.0 MHz				
Test Environment		Frequency Measure with Time Elapsed		
Temperature (°C)	Power Supplied (Vac)	Measured Frequency (Hz)	Frequency Error (Hz)	Error (ppm)
50	110	1879.999975	-25	-0.0133
40	110	1879.99998	-20	-0.01064
30	110	1879.999971	-29	-0.01543
20	110	1879.999984	-16	-0.00851
10	110	1879.999979	-21	-0.01117
0	110	1879.999977	-23	-0.01223
-10	110	1879.999974	-26	-0.01383
-20	110	1879.999968	-32	-0.01702
-30	110	1879.999963	-37	-0.01968

Frequency Stability versus Voltage

Reference Frequency: 1880.0 MHz				
Test Environment		Frequency Measure with Time Elapsed		
Temperature (°C)	Power Supplied (Vac)	Measured Frequency (Hz)	Frequency Error (Hz)	Error (ppm)
20	93.5	1879.99997	-30	-0.01596
20	126.5	1879.999976	-24	-0.01277

11 §22.917 & §24.238 – BAND EDGE

11.1 Applicable Standard

According to § 22.917, the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §24.238, the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

11.2 Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency, RBW set to 10 kHz.

11.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
R & S	Communication, Radio Universal	CMU200	103492	2007-05-24*
Agilent	Spectrum Analyzer	E4440A	MY44303352	2008-04-28

* 2-year calibration cycle
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

11.4 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	101.6 kPa

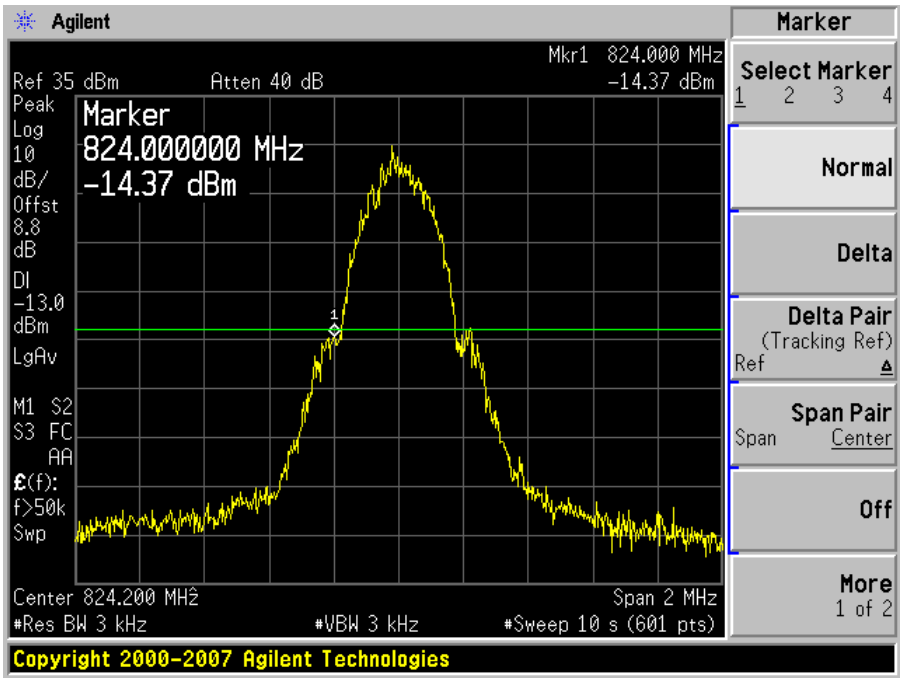
** Testing performed by Victor Zhang on 2008-11-05*

11.5 Test Data and Plots

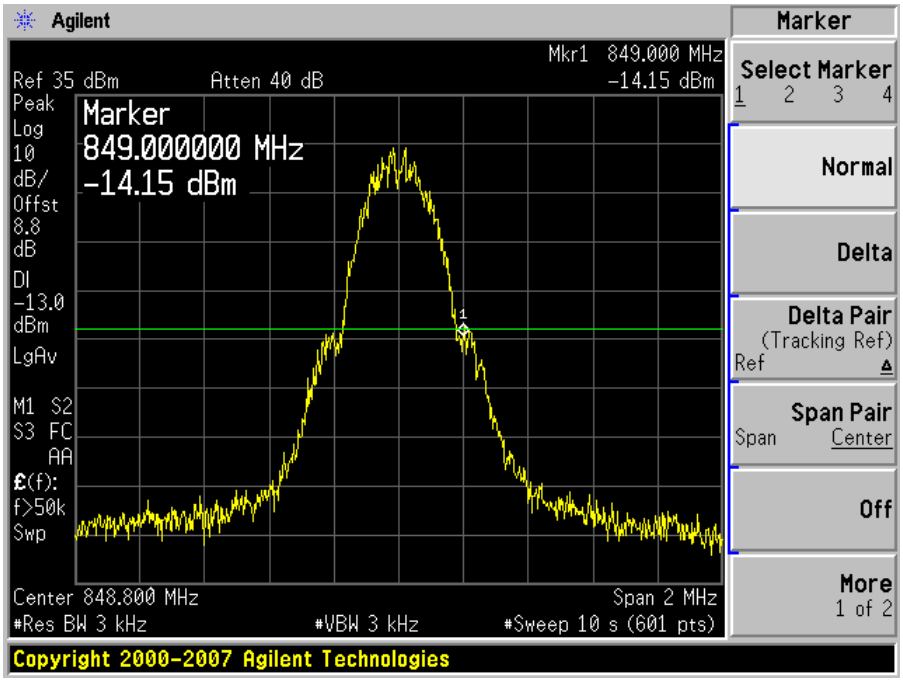
Please refer to the following plots.

Plots of Band Edge for Cellular Band:

Lowest Channel

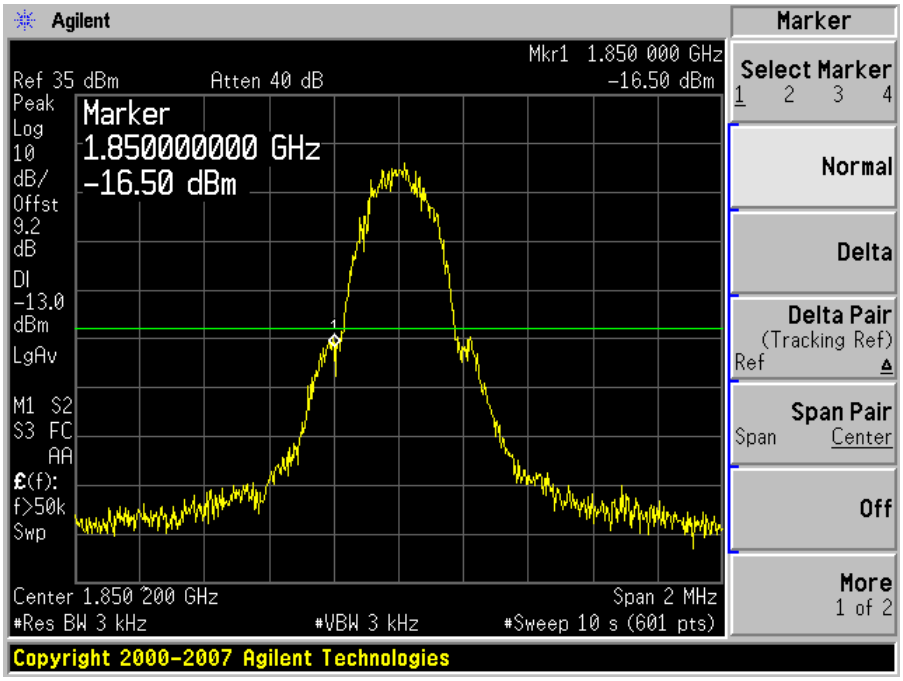


Highest Channel



Plots of Band Edge for PCS Band:

Lowest Channel



Highest Channel