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MEASUREMENT REPORT
FCC Part 22 & 24 / IC RSS-132/RSS-133

Applicant Name:
Samsung Electronics, Co. Ltd.
18600 Broadwick St.
Rancho Dominguez, CA 90220
United States

Date of Testing:
February 16 - 17, 2011
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0Y1102160295.A3L

FCC ID:	**A3LGTY3400**
APPLICANT:	**SAMSUNG ELECTRONICS, CO. LTD.**

Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§2; §22(H), §24(E)
IC Specification(s):	RSS-132 Issue 2; RSS-133 Issue 5
EUT Type:	850/1900 GSM/GPRS/EDGE/WCDMA/HSPA Module
Model(s):	GT-Y3400
Tx Frequency Range:	824.20 - 848.80MHz (Cell. GSM) / 1850.20 - 1909.80MHz (PCS GSM) 826.40 - 846.60MHz (Cell. WCDMA) / 1852.4 - 1907.6MHz (PCS WCDMA)
Max. RF Output Power:	2.051W (33.12dBm) (Cellular GSM), 0.923W (29.65dBm) (PCS GSM) 0.644W (28.09dBm) (EDGE850), 0.828W (29.18dBm) (EDGE1900) 0.209W (23.21dBm) (Cell. WCDMA), 0.189W (22.76dBm) (PCS WCDMA)
Emission Designator(s):	243KGXW (Cellular GSM), 244KGXW (PCS GSM), 249KG7W (EDGE850), 260KG7W (EDGE1900), 4M15F9W (Cellular WCDMA), 4M14F9W (PCS WCDMA)
Test Device Serial No.:	*identical prototype* [S/N: R2DB143322F]

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Grant Conditions: Power output listed is conducted for Part 22 and Part 24. This device also contains functions that are not operational in U.S. territories. This report is applicable only to U.S. operations.

PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Randy Ortanez
President

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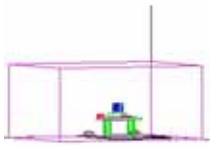

MEASUREMENT REPORT
FCC Part 22 & 24

§2.1033 General Information

APPLICANT:	Samsung Electronics, Co. Ltd.
APPLICANT ADDRESS:	18600 Broadwick St. Rancho Dominguez, CA 90220, United States
TEST SITE:	PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS:	6660-B Dobbin Road, Columbia, MD 21045 USA
FCC RULE PART(S):	§2; §22(H), §24(E)
IC SPECIFICATION(S):	RSS-132 Issue 2; RSS-133 Issue 5
BASE MODEL:	GT-Y3400
FCC ID:	A3LGTY3400
FCC CLASSIFICATION:	PCS Licensed Transmitter (PCB)
EMISSION DESIGNATOR(S):	243KGXW (Cellular GSM), 244KGXW (PCS GSM), 249KG7W (EDGE850), 260KG7W (EDGE1900), 4M15F9W (Cellular WCDMA), 4M14F9W (PCS WCDMA)
MODE:	GSM/EDGE/WCDMA
FREQUENCY TOLERANCE:	±0.00025 % (2.5 ppm)
Test Device Serial No.:	R2DB143322F ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST:	February 16 - 17, 2011
TEST REPORT S/N:	0Y1102160295.A3L

Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21045, U.S.A.

- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451A-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451A-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity are, the Baltimore-Washington Internt'l (BWI) airport, the city of Baltimore and the Washington, DC area. (*See Figure 1-1*).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 28, 2009.

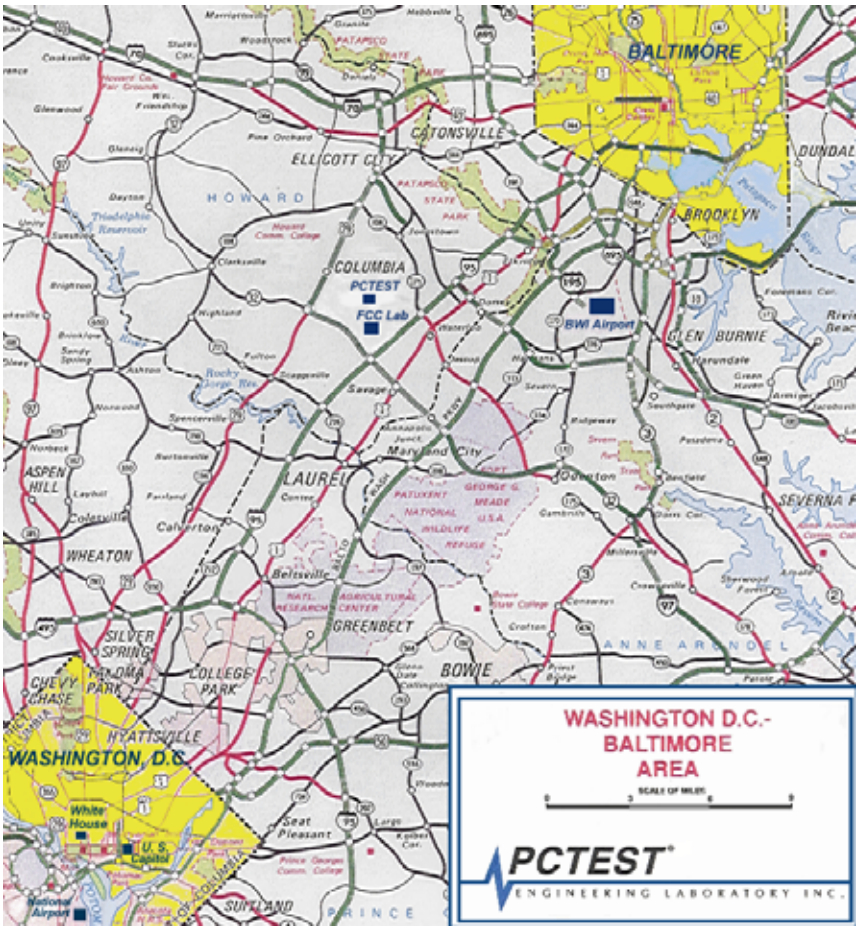

Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung 850/1900 GSM/GPRS/EDGE/WCDMA/HSPA Module FCC ID: A3LGTY3400**. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
Samsung / Model: GT-Y3400	A3LGTY3400	850/1900 GSM/GPRS/EDGE/WCDMA/HSPA Module

Table 2-1. EUT Equipment Description

2.2 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

2.3 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase.

Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (See Figure 3-1). The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This power level was recorded using a broadband average power meter. 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. This level is recorded with the power meter. 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.

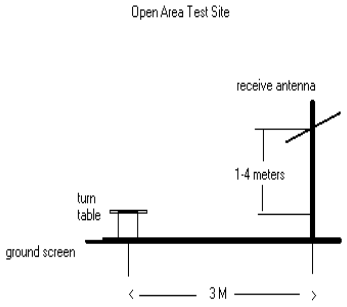


Figure 3-1. Diagram of 3-meter outdoor test range

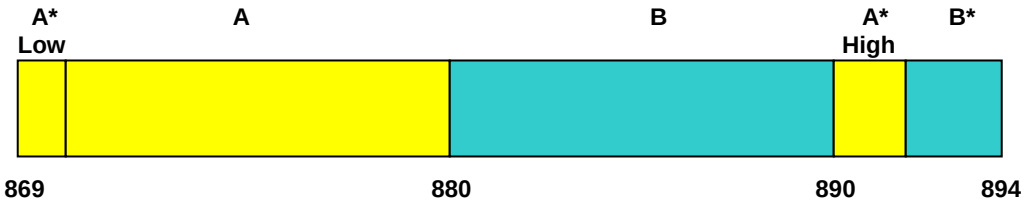
Deviation from Measurement Procedure…….....None

3.2 Occupied Bandwidth

§2.1049, RSS-Gen (4.6.1)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

3.3 Cellular - Base Frequency Blocks



BLOCK 1: 869 – 880 MHz (A* Low + A)

BLOCK 2: 880 – 890 MHz (B)

BLOCK 3: 890 – 891.5 MHz (A* High)

BLOCK 4: 891.5 – 894 MHz (B*)

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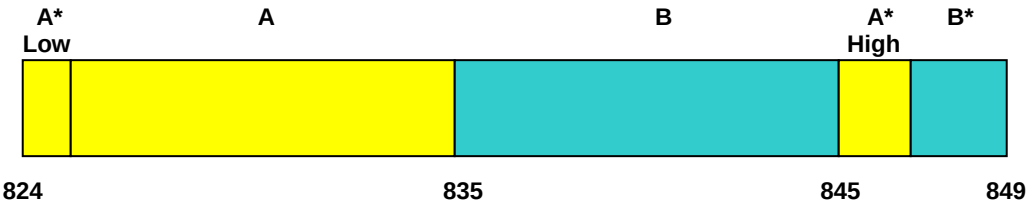
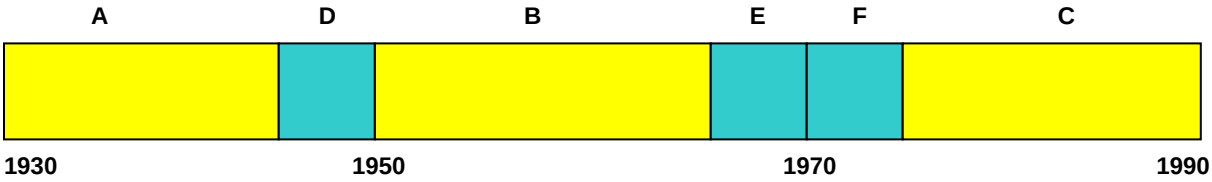
3.4 Cellular - Mobile Frequency Blocks



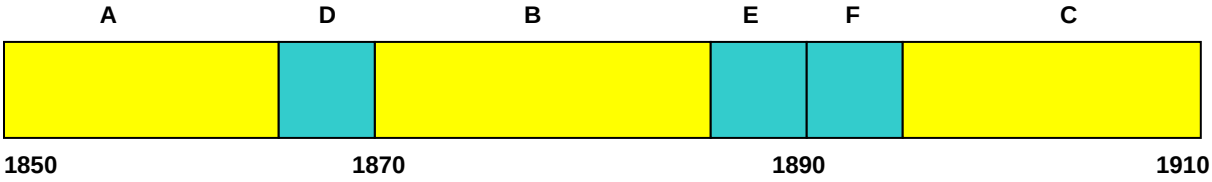
BLOCK 1: 824 – 835 MHz (A* Low + A)
BLOCK 2: 835 – 845 MHz (B)
BLOCK 3: 845 – 846.5 MHz (A* High)
BLOCK 4: 846.5 – 849 MHz (B*)

3.5 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)
BLOCK 2: 1945 – 1950 MHz (D)
BLOCK 3: 1950 – 1965 MHz (B)
BLOCK 4: 1965 – 1970 MHz (E)
BLOCK 5: 1970 – 1975 MHz (F)
BLOCK 6: 1975 – 1990 MHz (C)

3.6 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A)
BLOCK 2: 1865 – 1870 MHz (D)
BLOCK 3: 1870 – 1885 MHz (B)
BLOCK 4: 1885 – 1890 MHz (E)
BLOCK 5: 1890 – 1895 MHz (F)
BLOCK 6: 1895 – 1910 MHz (C)

3.7 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 22.917(a), 24.238(a)(b); RSS-132 (4.5.1), RSS-133 (6.5.1)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

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3.8 Radiated Power and Radiated Spurious Emissions

§2.1053, 22.913(a)(2), 22.917(a), 24.232(c), 24.238(a); RSS-132 (4.5.1), RSS-133 (6.5.1)

Radiated power and radiated spurious emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This level is then measured with a broadband average power meter. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive average power meter reading. This spurious level is recorded with the power meter. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration. This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active.

3.9 Peak-Average Ratio

§24.232(d); RSS-133 (6.4)

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth.

3.10 Frequency Stability / Temperature Variation

§2.1055, 22.355, 24.235; RSS-132 (4.3) / RSS-133 (6.3)

The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

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 ±0.00025% (±2.5 ppm) of the center frequency.

Time Period and Procedure:

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

2. 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.

3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

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4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
-	No.166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No.167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	2/15/2010	Annual	4/15/2011	3008A00985
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/13/2010	Annual	10/13/2011	3613A00315
Agilent	E4407B	ESA Spectrum Analyzer	3/30/2010	Annual	3/30/2011	US39210313
Agilent	N9020A	MXA Signal Analyzer	9/8/2010	Annual	9/8/2011	US46470561
Anritsu	ML2495A	Power Meter	10/13/2010	Annual	10/13/2011	941001
Anritsu	MA2411B	Pulse Sensor	N/A	Annual		1027293
Emco	3115	Horn Antenna (1-18GHz)	4/8/2010	Biennial	4/8/2012	9205-3874
Espec	ESX-2CA	Environmental Chamber	4/1/2010	Annual	4/1/2011	17620
MiniCircuits	VHF-1300+	High Pass Filter	N/A		N/A	30716
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	11/11/2010	Annual	11/11/2011	836371/0079
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Rx	7/17/2009	Biennial	7/17/2011	9105-2404
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Tx	7/17/2009	Biennial	7/17/2011	9105-2403
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	5/14/2009	Biennial	5/14/2011	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/17/2009	Biennial	7/17/2011	A051107

Table 4-1. Test Equipment

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5.0 SAMPLE CALCULATIONS

GSM Emission Designator

Emission Designator = 250KGXW

GSM BW = 250 kHz
G = Phase Modulation
X = Cases not otherwise covered
W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M16F9W

WCDMA BW = 4.16 MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

Spurious Radiated Emission - PCS Band

Example: GSM Channel 512 PCS Mode 2nd Harmonic (3700.40 MHz)

The average receive power meter reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the power meter. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80) = 50.3 dBc.

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6.0 TEST RESULTS

6.1 Summary

Company Name: Samsung Electronics, Co. Ltd.

FCC ID: A3LGTY3400

FCC Classification: PCS Licensed Transmitter (PCB)

Mode(s): GSM/EDGE/WCDMA

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)						
2.1049, 22.917(a), 24.238(a)	RSS-Gen (4.6.1) RSS-133 (2.3)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 22.917(a), 24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Band Edge / Conducted Spurious Emissions	< 43 + $\log_{10}$ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Section 7.0
24.232(d)	RSS-133 (6.4)	Peak-Average Ratio	< 13 dB		PASS	Section 7.0
2.1046	RSS-132 (4.4) RSS-133 (4.1)	Transmitter Conducted Output Power	N/A		PASS	Section 6.2
2.1053, 22.917(a), 24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Undesirable Emissions	< 43 + $\log_{10}$ (P[Watts]) for all out-of-band emissions	RADIATED	PASS	Sections 6.3, 6.4, 6.5, 6.6
2.1055, 22.355, 24.235	RSS-132 (4.3) RSS-133 (6.3)	Frequency Stability	< 2.5 ppm		PASS	Sections 6.7, 6.8, 6.9, 6.10

Table 6-1. Summary of Test Results

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6.2 Transmitter Conducted Output Power Data

§2.1046; RSS-132 (4.4), RSS-133 (4.1)

The **Samsung 850/1900 GSM/GPRS/EDGE/WCDMA/HSPA Module FCC ID: A3LGTY3400** was tested while placed in a circuit board that provided DC power as well as a means to communicate with the module via USB connection. The RF port of the module was connected to a Rohde & Schwarz Base Station Simulator (Model: CMU200) to establish an RF link in GSM/GPRS, EDGE, WCDMA, and HSPA modes. The parameters on the CMU200 were set to achieve maximum power from the module and the conducted powers below were recorded.

		RF Conducted Power Table							
		GPRS Data				*EDGE Data*			
Band	**Channel**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
Cellular	128	32.69	32.26	29.56	28.10	27.56	26.36	23.63	22.67
	190	33.01	32.23	29.43	28.11	27.69	26.07	23.68	22.55
	251	33.12	32.22	29.41	28.11	28.09	26.41	23.89	22.79
PCS	512	29.01	28.11	26.31	25.21	28.87	25.75	23.41	21.73
	661	29.65	28.67	26.82	25.67	29.18	26.50	24.16	22.39
	810	29.37	28.32	26.51	25.31	28.45	25.92	23.53	21.70

Table 6-2. GSM/GPRS/EDGE Conducted Output Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			PCS Band [dBm]		
			4132	4183	4233	9262	9400	9538
99	WCDMA	12.2 kbps RMC	**23.21**	23.03	22.89	22.01	**22.76**	21.84
6	HSDPA	Subtest 1	21.84	22.20	21.96	21.46	21.91	21.05
6		Subtest 2	22.53	22.14	22.05	21.25	21.99	21.02
6		Subtest 3	**22.54**	22.07	22.02	21.29	21.89	20.87
6		Subtest 4	22.43	22.04	22.12	21.37	**22.00**	20.80
6	HSUPA	Subtest 1	20.99	20.47	20.78	20.66	21.58	20.14
6		Subtest 2	21.40	20.86	20.42	20.12	20.88	19.37
6		Subtest 3	21.48	20.71	21.11	20.21	21.66	20.07
6		Subtest 4	20.97	20.90	20.57	20.02	20.56	19.55
6		Subtest 5	**21.66**	21.14	21.39	20.49	**21.71**	20.03

Table 6-3. WCDMA/HSPA Conducted Output Power

Figure 2. Test Setup Diagram

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6.3 Cellular GSM Radiated Measurements

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.20 MHz
CHANNEL: 128
MODULATION SIGNAL: GSM (Internal)
DISTANCE: 3 meters
LIMIT: -13 dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
1648.40	-45.56	6.42	-39.15	V	-26.1
2472.60	-49.49	6.74	-42.75	V	-29.8
3296.80	-60.96	7.55	-53.41	V	-40.4
4121.00	-62.33	7.56	-54.77	V	-41.8
4945.20	-62.34	9.05	-53.29	V	-40.3

Table 6-4. Radiated Spurious Data (Cellular GSM Mode – Ch. 128)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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Cellular GSM Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	836.60	MHz
CHANNEL:	190	
MODULATION SIGNAL:	GSM (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
1673.20	-48.21	6.43	-41.78	V	-28.8
2509.80	-49.43	6.77	-42.66	V	-29.7
3346.40	-62.22	7.55	-54.67	V	-41.7
4183.00	-63.50	7.81	-55.69	V	-42.7
5019.60	-61.64	9.02	-52.62	V	-39.6

Table 6-5. Radiated Spurious Data (Cellular GSM Mode – Ch. 190)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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Cellular GSM Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	848.80	MHz
CHANNEL:	251	
MODULATION SIGNAL:	GSM (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
1697.60	-44.97	6.44	-38.53	V	-25.5
2546.40	-62.46	6.83	-55.63	V	-42.6
3395.20	-55.18	7.55	-47.63	V	-34.6
4244.00	-63.09	8.06	-55.03	V	-42.0
5092.80	-61.80	8.91	-52.89	V	-39.9

Table 6-6. Radiated Spurious Data (Cellular GSM Mode – Ch. 251)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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6.4 Cellular WCDMA Radiated Measurements

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	826.40	MHz
CHANNEL:	4132	
MODULATION SIGNAL:	WCDMA (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
1652.80	-61.76	6.42	-55.34	V	-42.3
2479.20	-67.33	6.74	-60.59	V	-47.6
3305.60	-66.59	7.55	-59.04	V	-46.0
4132.00	-91.17	7.60	-83.56	V	-70.6
4958.40	-90.64	9.05	-81.59	V	-68.6

Table 6-7. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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Cellular WCDMA Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	836.60	MHz
CHANNEL:	4183	
MODULATION SIGNAL:	WCDMA (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
1673.20	-62.72	6.42	-56.30	V	-43.3
2509.80	-68.49	6.76	-61.73	V	-48.7
3346.40	-66.44	7.55	-58.89	V	-45.9
4183.00	-91.34	7.78	-83.57	V	-70.6
5019.60	-90.40	9.04	-81.37	V	-68.4

Table 6-8. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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Cellular WCDMA Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	846.60	MHz
CHANNEL:	4233	
MODULATION SIGNAL:	WCDMA (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
1693.20	-61.97	6.43	-55.54	V	-42.5
2539.80	-68.80	6.82	-61.98	V	-49.0
3386.40	-66.76	7.55	-59.21	V	-46.2
4233.00	-91.58	8.01	-83.57	V	-70.6
5079.60	-89.91	8.93	-80.98	V	-68.0

Table 6-9. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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6.5 PCS GSM Radiated Measurements

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1850.20	MHz
CHANNEL:	512	
MODULATION SIGNAL:	GSM (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
3700.40	-61.34	9.49	-51.85	V	-38.8
5550.60	-57.58	10.41	-47.17	V	-34.2
7400.80	-55.52	11.08	-44.43	V	-31.4
9251.00	-83.22	12.26	-70.96	V	-58.0
11101.20	-80.72	13.19	-67.53	V	-54.5

Table 6-10. Radiated Spurious Data (PCS GSM Mode – Ch. 512)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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PCS GSM Radiated Measurements (Cont'd)
§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1880.00	MHz
CHANNEL:	661	
MODULATION SIGNAL:	GSM (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
3760.00	-57.84	9.43	-48.41	V	-35.4
5640.00	-56.94	10.24	-46.70	V	-33.7
7520.00	-55.61	11.12	-44.50	V	-31.5
9400.00	-83.38	12.32	-71.06	V	-58.1
11280.00	-80.02	13.17	-66.85	V	-53.9

Table 6-11. Radiated Spurious Data (PCS GSM Mode – Ch. 661)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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PCS GSM Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1909.80	MHz
CHANNEL:	810	
MODULATION SIGNAL:	GSM (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
3819.60	-60.49	9.37	-51.11	V	-38.1
5729.40	-47.09	10.08	-37.01	V	-24.0
7639.20	-55.18	11.21	-43.96	V	-31.0
9549.00	-83.39	12.38	-71.01	V	-58.0
11458.80	-79.34	13.15	-66.19	V	-53.2

Table 6-12. Radiated Spurious Data (PCS GSM Mode – Ch. 810)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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6.6 PCS WCDMA Radiated Measurements

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1852.40	MHz
CHANNEL:	9262	
MODULATION SIGNAL:	WCDMA (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
3704.80	-59.28	9.49	-49.79	V	-36.8
5557.20	-55.10	10.39	-44.71	V	-31.7
7409.60	-53.46	11.08	-42.38	V	-29.4
9262.00	-83.23	12.27	-70.96	V	-58.0
11114.40	-80.66	13.19	-67.48	V	-54.5

Table 6-13. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9262)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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PCS WCDMA Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1880.00	MHz
CHANNEL:	9400	
MODULATION SIGNAL:	WCDMA (Internal)	
DISTANCE:	3	meters
LIMIT:	-13	dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
3760.00	-60.77	9.43	-51.34	V	-38.3
5640.00	-54.12	10.24	-43.88	V	-30.9
7520.00	-53.93	11.12	-42.82	V	-29.8
9400.00	-83.38	12.32	-71.06	V	-58.1
11280.00	-80.02	13.17	-66.85	V	-53.9

Table 6-14. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9400)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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PCS WCDMA Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1907.60 MHz
CHANNEL: 9538
MODULATION SIGNAL: WCDMA (Internal)
DISTANCE: 3 meters
LIMIT: -13 dBm

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
3815.20	-58.23	9.38	-48.85	V	-35.9
5722.80	-52.11	10.09	-42.02	V	-29.0
7630.40	-53.90	11.21	-42.69	V	-29.7
9538.00	-83.41	12.37	-71.04	V	-58.0
11445.60	-79.39	13.16	-66.24	V	-53.2

Table 6-15. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9538)

NOTES:

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

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GPRS mode while transmitting with one slot active. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the transmit port of the module connected to a monopole antenna. The data reported in the table above was measured in this test setup.

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6.7 Cellular GSM Frequency Stability Measurements

§2.1055, 22.355; RSS-132 (4.3)

OPERATING FREQUENCY: 836,600,000 Hz

CHANNEL: 190

REFERENCE VOLTAGE: 3.3 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (ºC)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.30	+ 20 (Ref)	836,600,009	9	0.000001
100 %		- 30	836,599,986	-14	-0.000002
100 %		- 20	836,600,010	10	0.000001
100 %		- 10	836,600,027	27	0.000003
100 %		0	836,600,020	20	0.000002
100 %		+ 10	836,600,018	18	0.000002
100 %		+ 20	836,599,990	-10	-0.000001
100 %		+ 30	836,600,015	15	0.000002
100 %		+ 40	836,600,008	8	0.000001
100 %		+ 50	836,600,016	16	0.000002
115 %	3.80	+ 20	836,600,005	5	0.000001
85 %	2.81	+ 20	836,599,984	-16	-0.000002

Table 6-16. Frequency Stability Data (Cellular GSM Mode – Ch. 190)

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Cellular GSM Frequency Stability Measurements (Cont'd)

§2.1055, 22.355; RSS-132 (4.3)

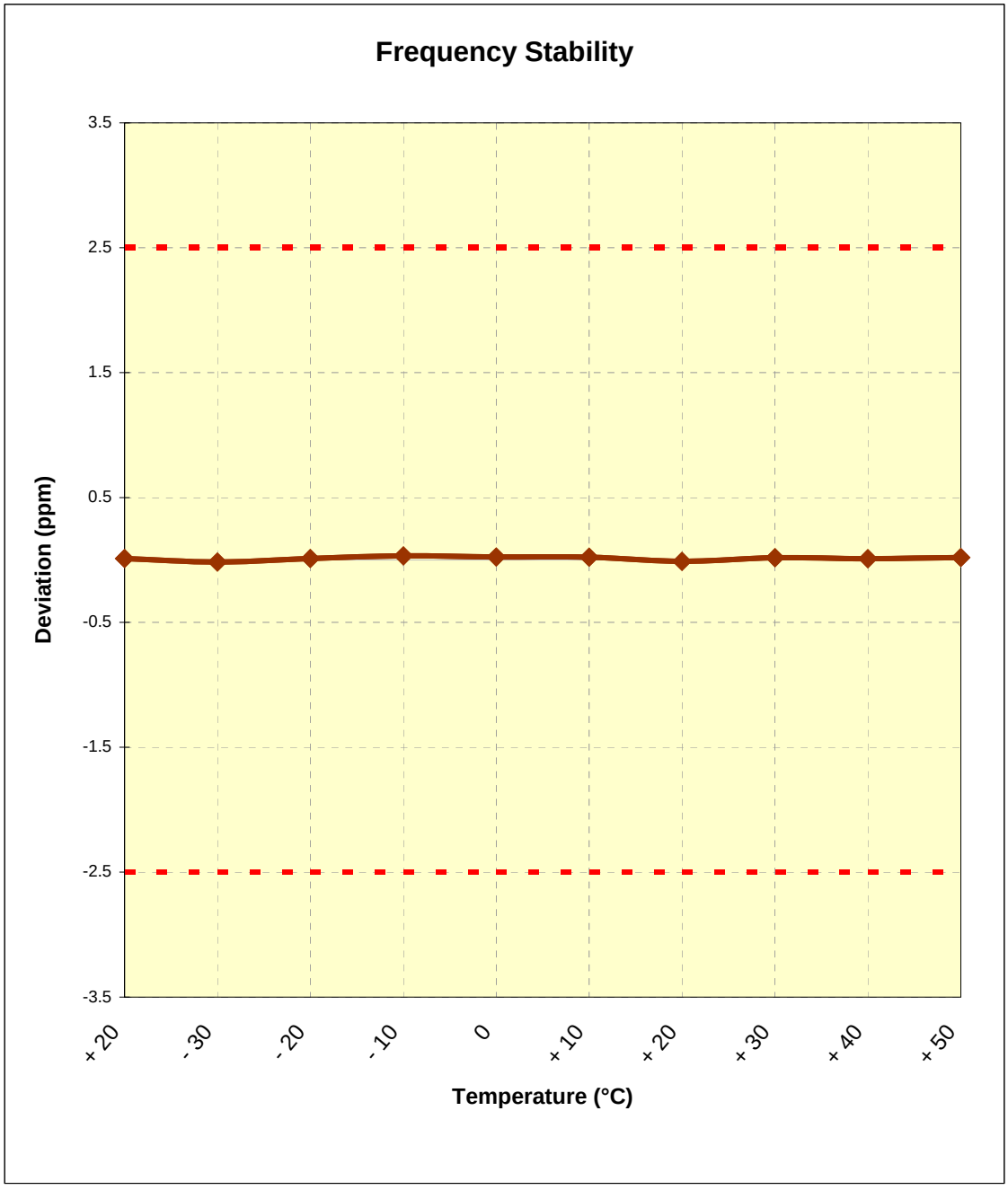

Figure 6-3. Frequency Stability Graph (Cellular GSM Mode – Ch. 190)

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6.8 Cellular WCDMA Frequency Stability Measurements

§2.1055, 22.355; RSS-132 (4.3)

OPERATING FREQUENCY: 836,600,000 Hz

CHANNEL: 4183

REFERENCE VOLTAGE: 3.3 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (ºC)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.30	+ 20 (Ref)	836,600,011	11	0.000001
100 %		- 30	836,600,022	22	0.000003
100 %		- 20	836,599,998	-2	0.000000
100 %		- 10	836,599,991	-9	-0.000001
100 %		0	836,599,981	-19	-0.000002
100 %		+ 10	836,599,987	-13	-0.000002
100 %		+ 20	836,599,980	-20	-0.000002
100 %		+ 30	836,599,994	-6	-0.000001
100 %		+ 40	836,599,997	-3	0.000000
100 %		+ 50	836,600,012	12	0.000001
115 %	3.80	+ 20	836,599,982	-18	-0.000002
85 %	2.81	+ 20	836,600,005	5	0.000001

Table 6-17. Frequency Stability Data (Cellular WCDMA Mode – Ch. 4183)

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Cellular WCDMA Frequency Stability Measurements (Cont'd)

§2.1055, 22.355; RSS-132 (4.3)

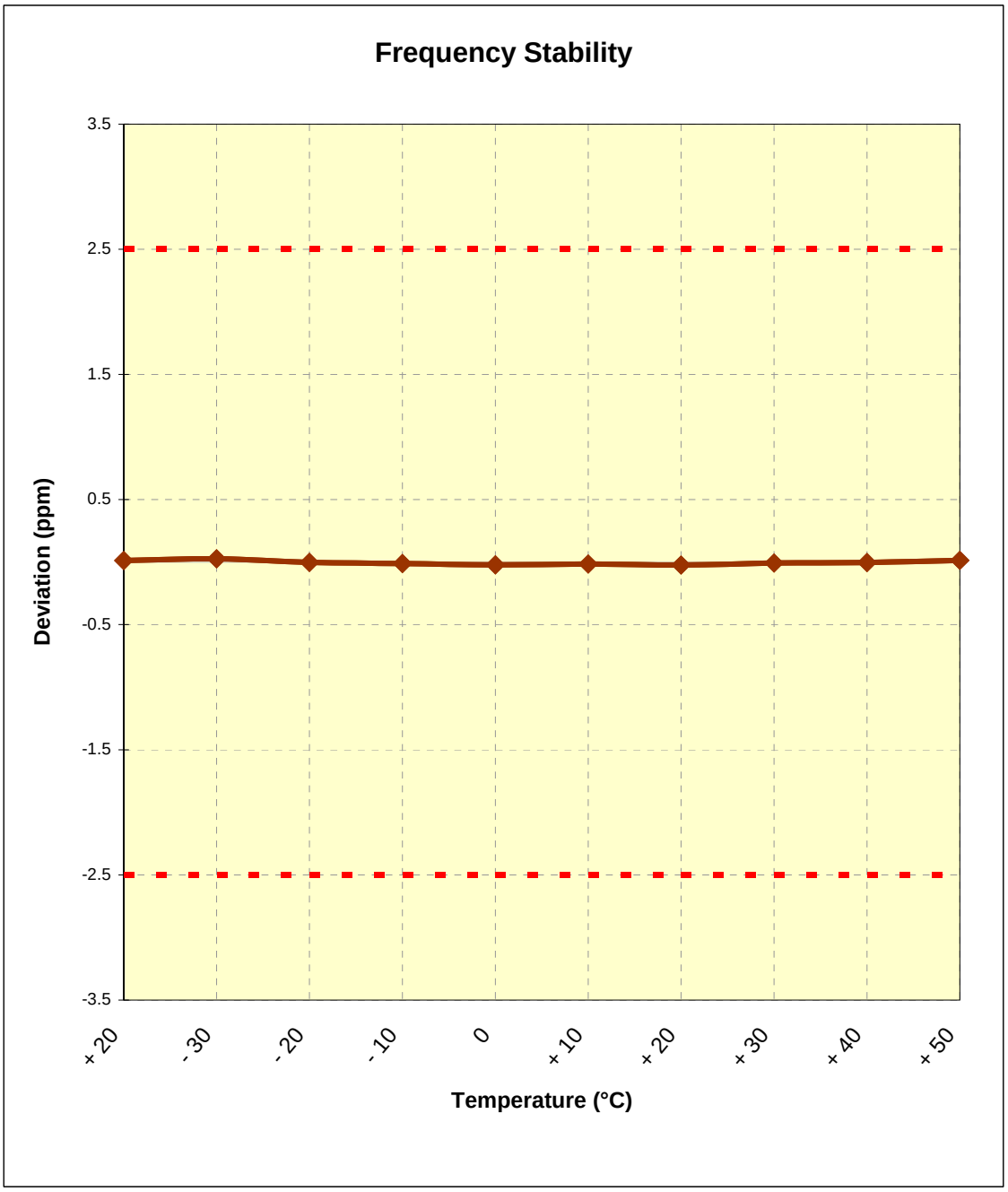

Figure 6-4. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)

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6.9 PCS GSM Frequency Stability Measurements

§2.1055, 24.235; RSS-133 (6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 661

REFERENCE VOLTAGE: 3.3 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (ºC)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.30	+ 20 (Ref)	1,879,999,995	-5	0.000000
100 %		- 30	1,880,000,009	9	0.000000
100 %		- 20	1,879,999,986	-14	-0.000001
100 %		- 10	1,879,999,992	-8	0.000000
100 %		0	1,879,999,991	-9	0.000000
100 %		+ 10	1,880,000,017	17	0.000001
100 %		+ 20	1,880,000,023	23	0.000001
100 %		+ 30	1,879,999,987	-13	-0.000001
100 %		+ 40	1,880,000,011	11	0.000001
100 %		+ 50	1,879,999,982	-18	-0.000001
115 %	3.80	+ 20	1,879,999,992	-8	0.000000
85 %	2.81	+ 20	1,880,000,004	4	0.000000

Table 6-18. Frequency Stability Data (PCS GSM Mode – Ch. 661)

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PCS GSM Frequency Stability Measurements (Cont'd)

§2.1055, 24.235; RSS-133 (6.3)

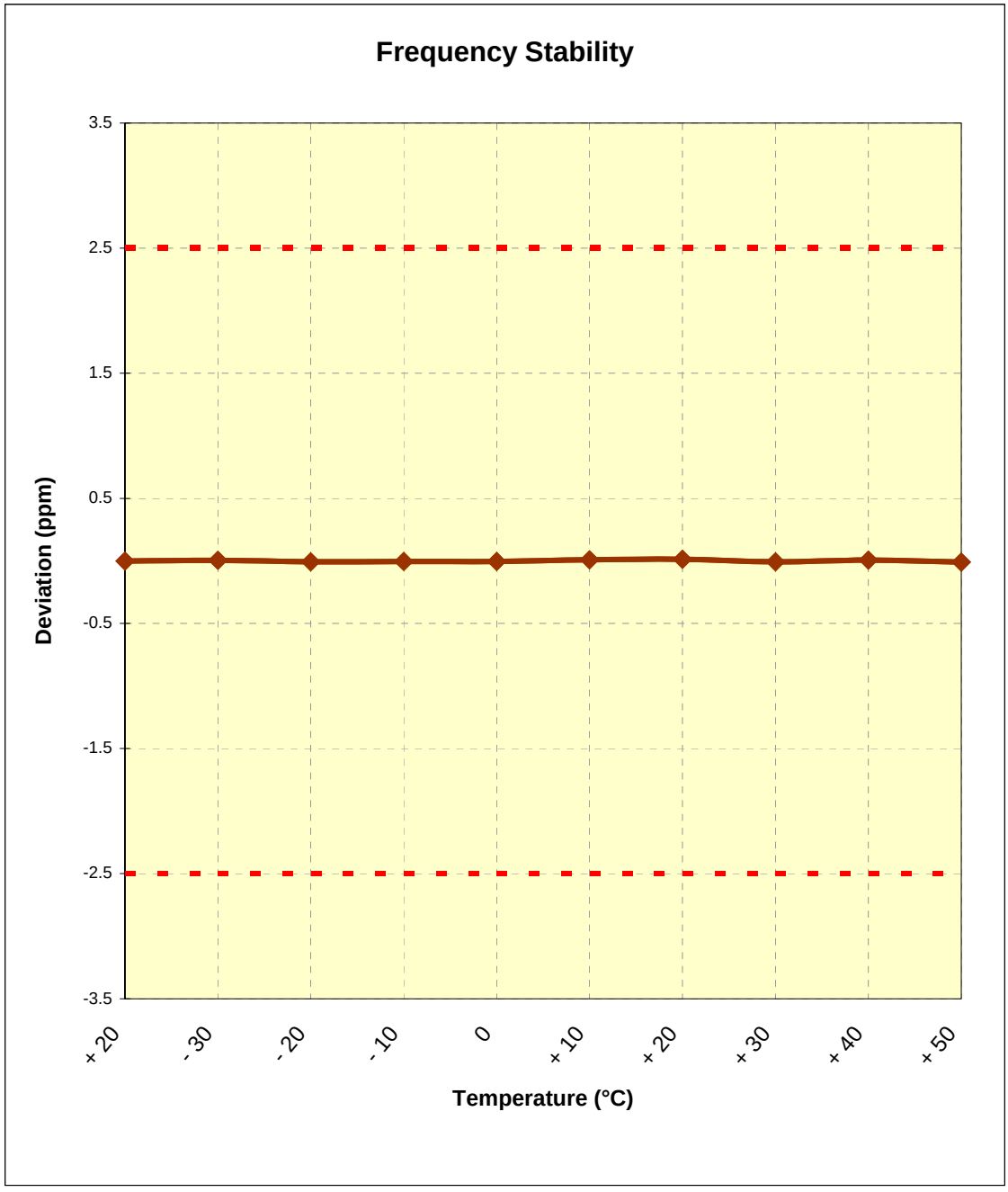

Figure 6-5. Frequency Stability Graph (PCS GSM Mode – Ch. 661)

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6.10 PCS WCDMA Frequency Stability Measurements

§2.1055, 24.235; RSS-133 (6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 9400

REFERENCE VOLTAGE: 3.3 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.30	+ 20 (Ref)	1,880,000,001	1	0.000000
100 %		- 30	1,880,000,019	19	0.000001
100 %		- 20	1,880,000,008	8	0.000000
100 %		- 10	1,880,000,015	15	0.000001
100 %		0	1,880,000,017	17	0.000001
100 %		+ 10	1,879,999,994	-6	0.000000
100 %		+ 20	1,880,000,007	7	0.000000
100 %		+ 30	1,880,000,021	21	0.000001
100 %		+ 40	1,880,000,002	2	0.000000
100 %		+ 50	1,879,999,986	-14	-0.000001
115 %	3.80	+ 20	1,880,000,010	10	0.000001
85 %	2.81	+ 20	1,880,000,011	11	0.000001

Table 6-19. Frequency Stability Data (PCS WCDMA Mode – Ch. 9400)

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PCS WCDMA Frequency Stability Measurements (Cont'd)

§2.1055, 24.235; RSS-133 (6.3)

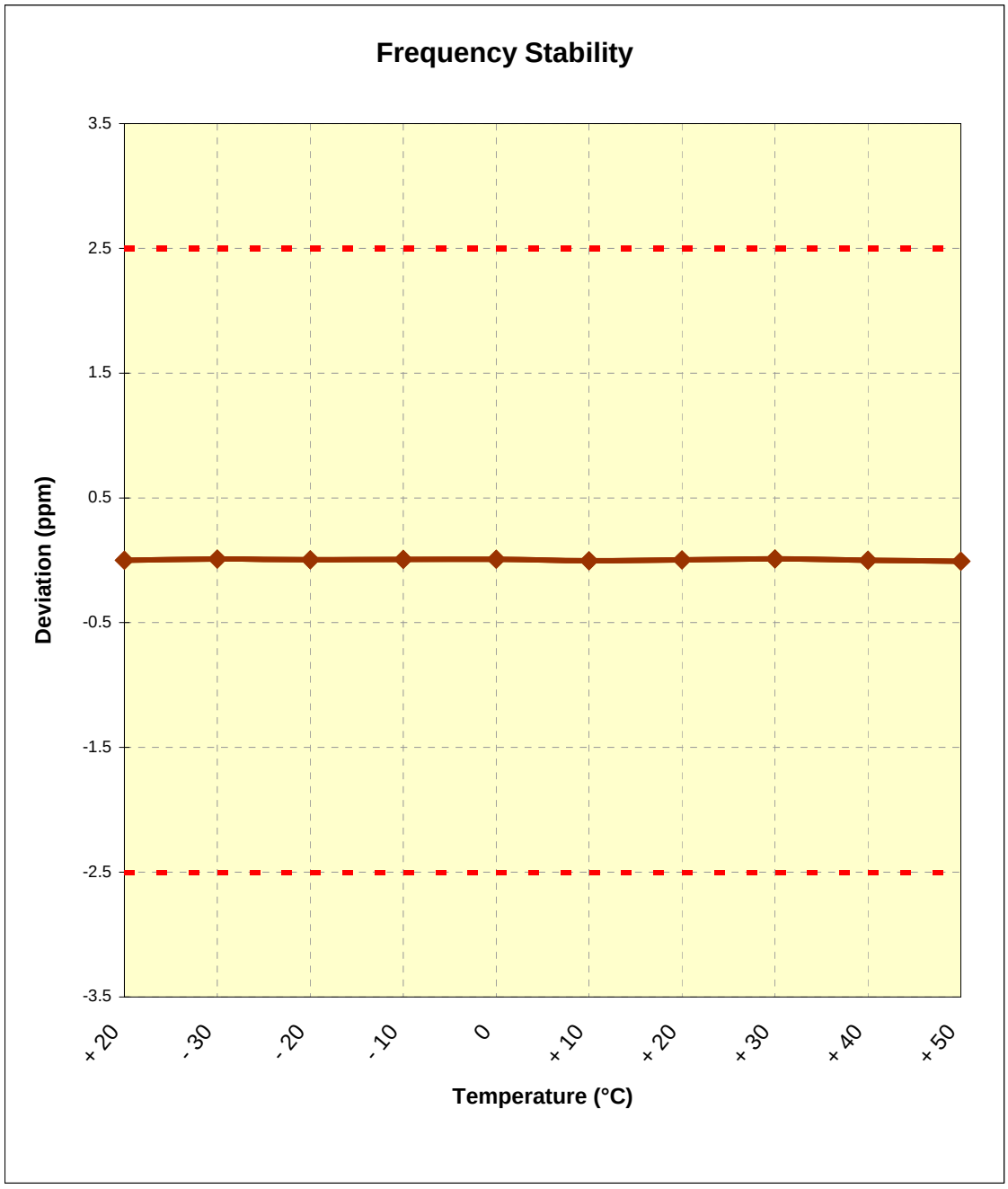

Figure 6-6. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)

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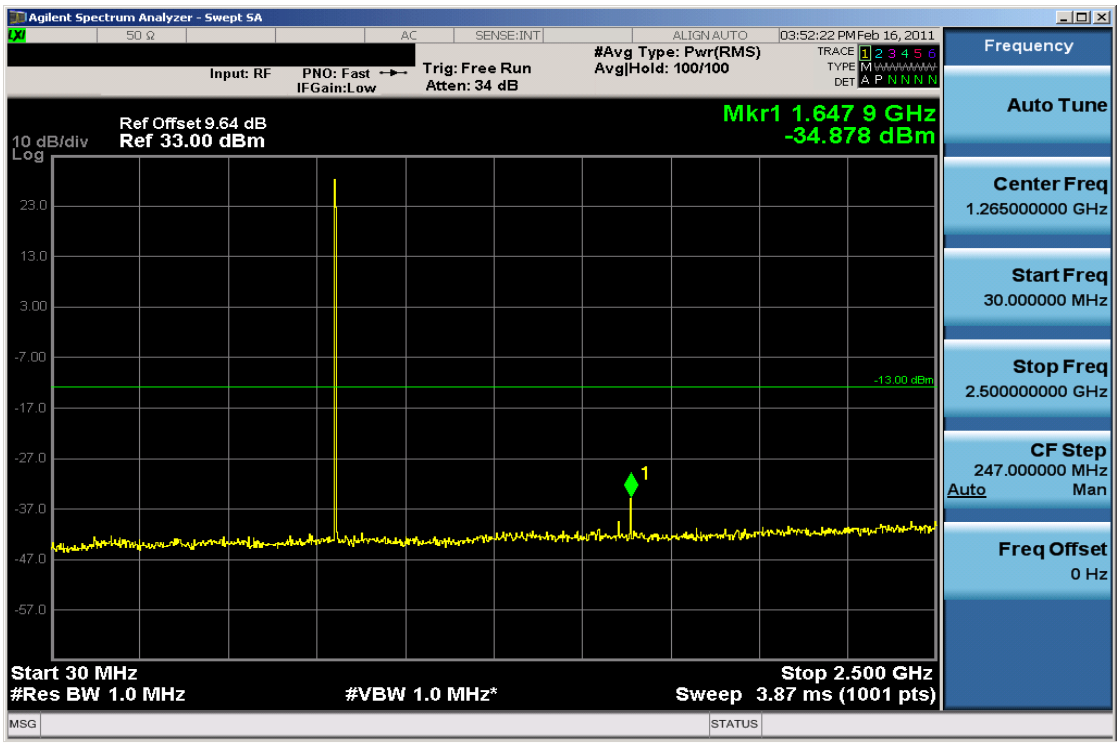
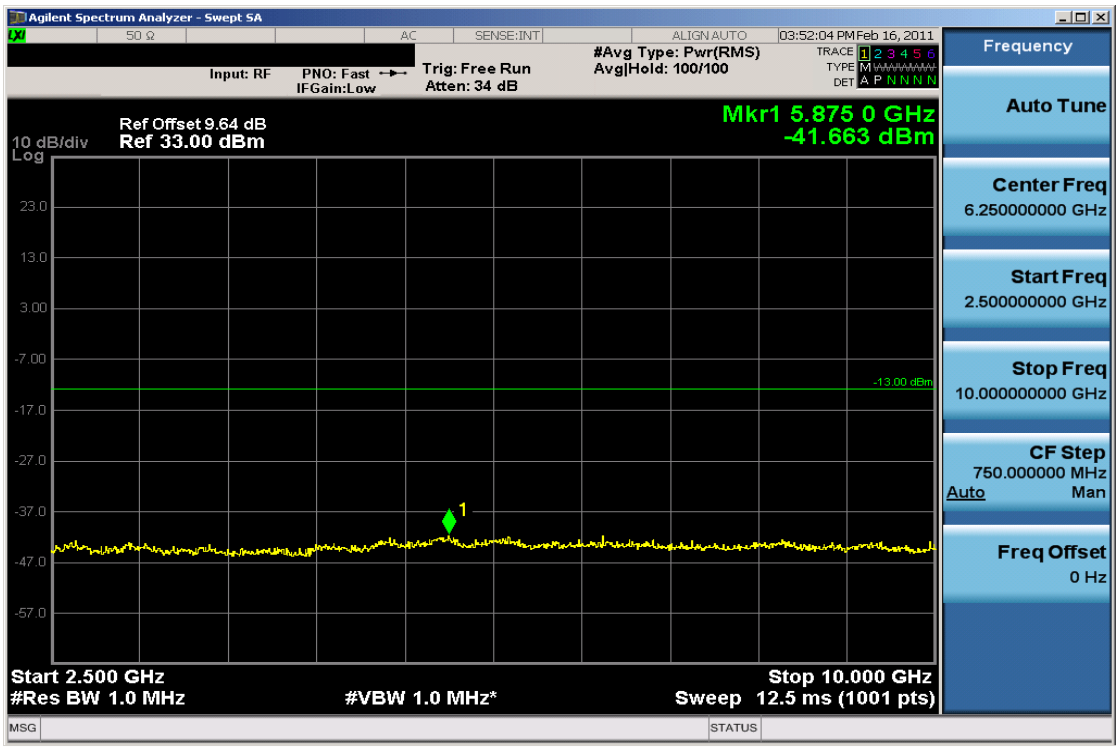
7.0 PLOTS OF EMISSIONS



Plot 7-1. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)



Plot 7-2. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)

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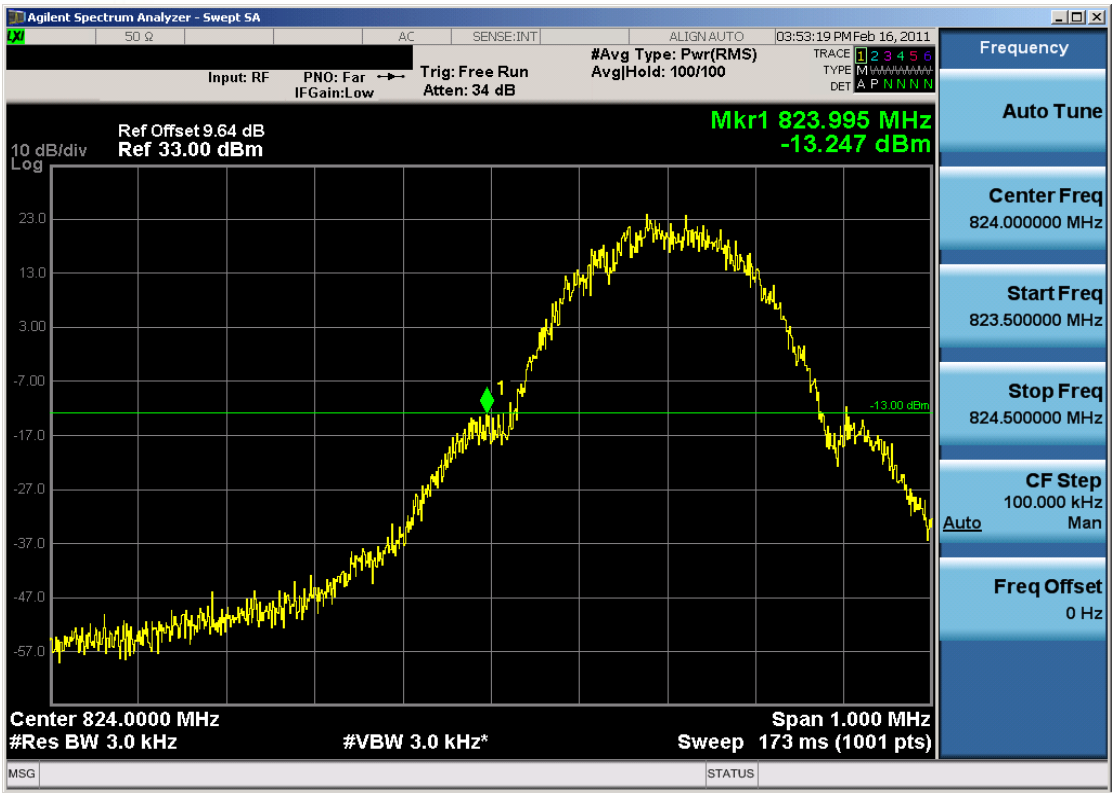
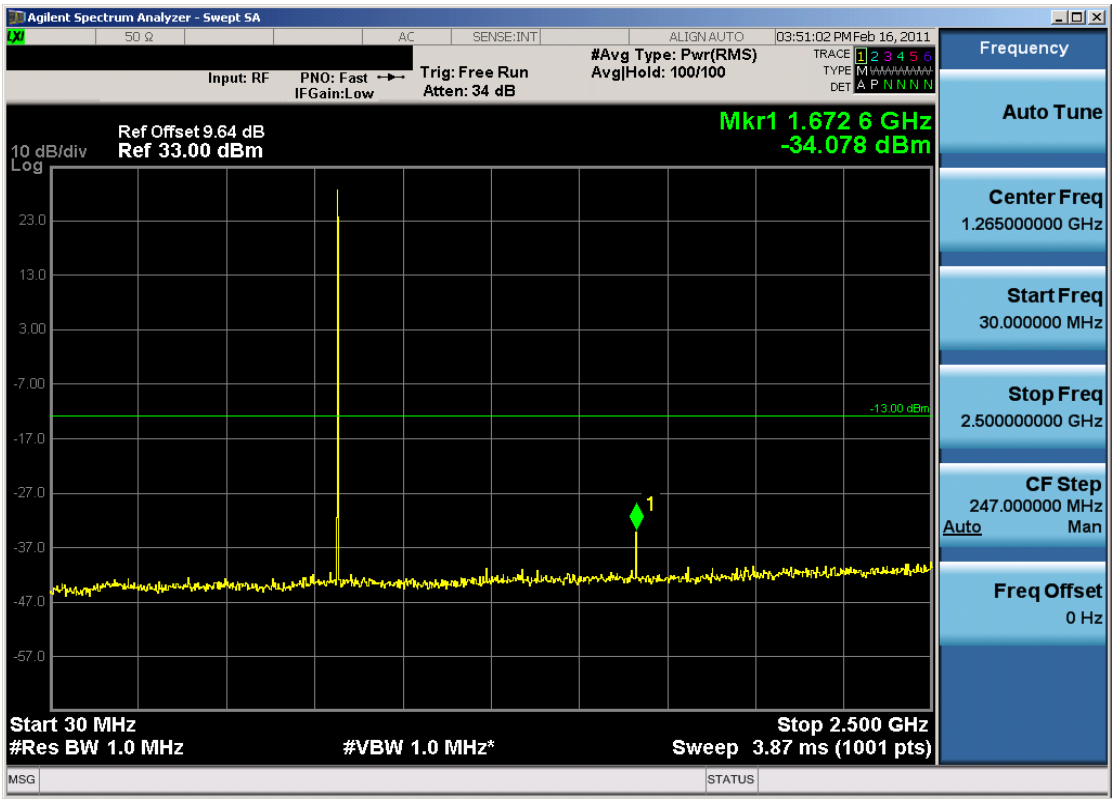


Plot 7-3. Band Edge Plot (Cellular GSM Mode – Ch. 128)



Plot 7-4. Conducted Spurious (Cellular GSM Mode – Ch. 190)

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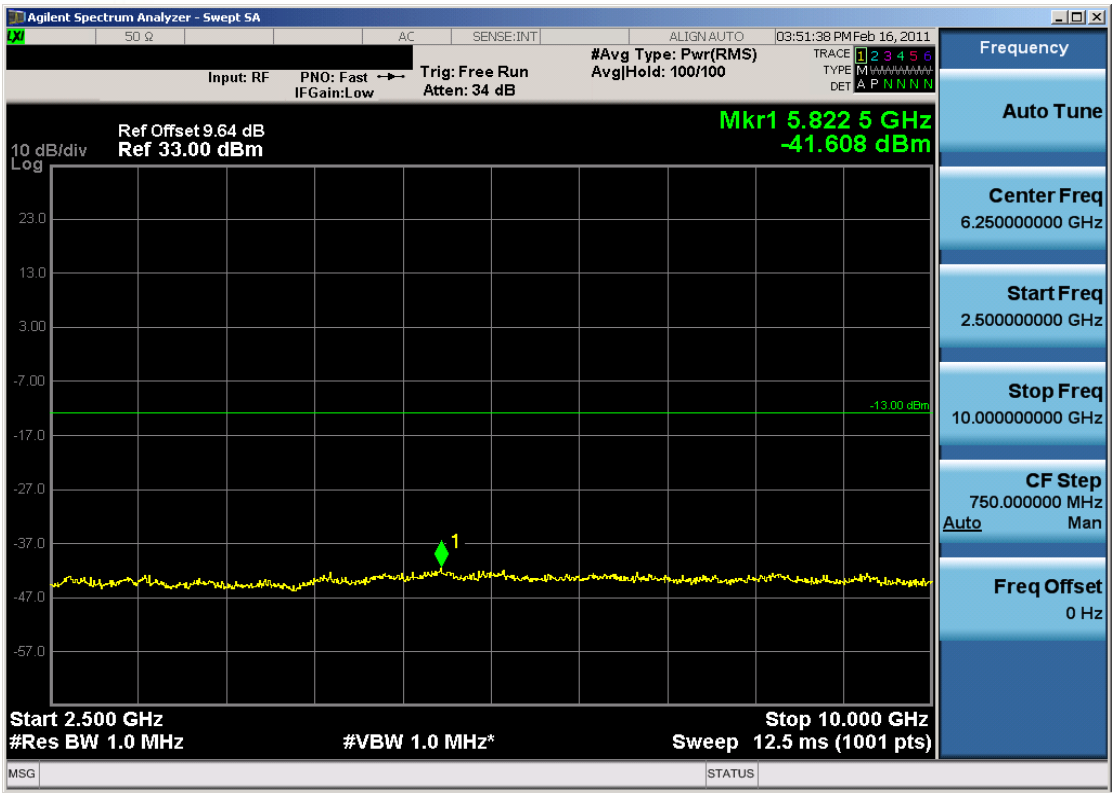
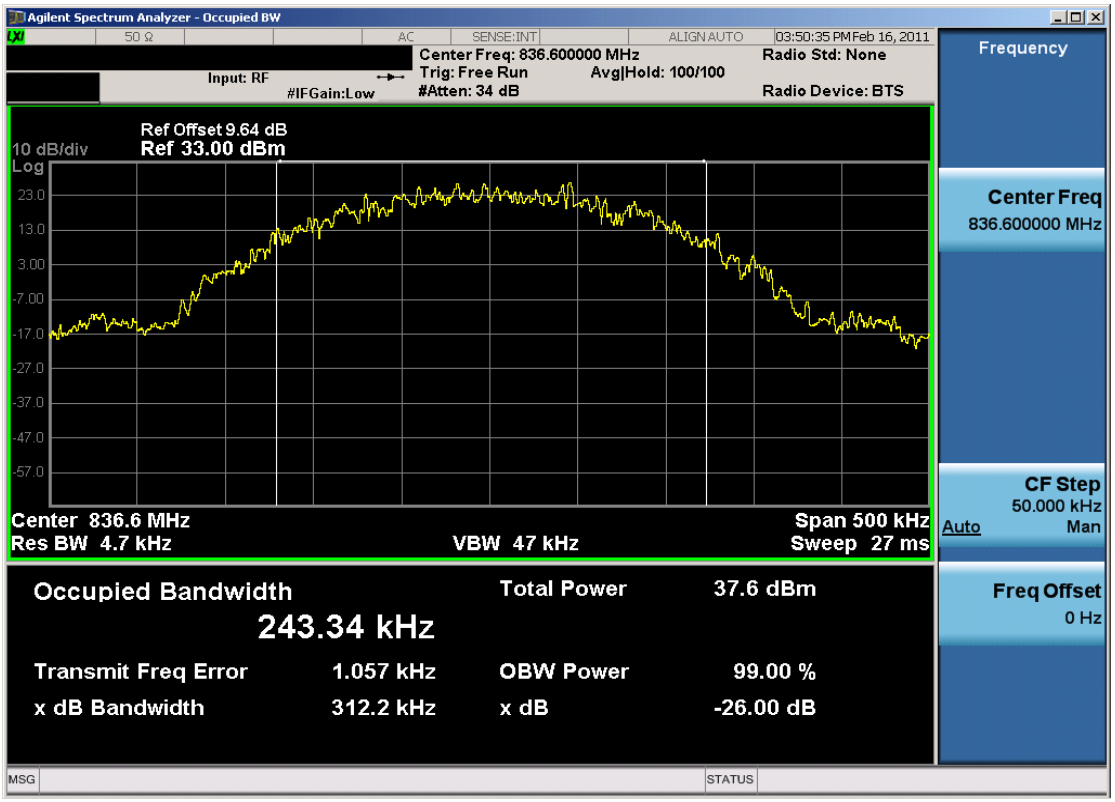


Plot 7-5. Conducted Spurious Plot (Cellular GSM Mode – Ch. 190)



Plot 7-6. Occupied Bandwidth Plot (Cellular GSM Mode – Ch. 190)

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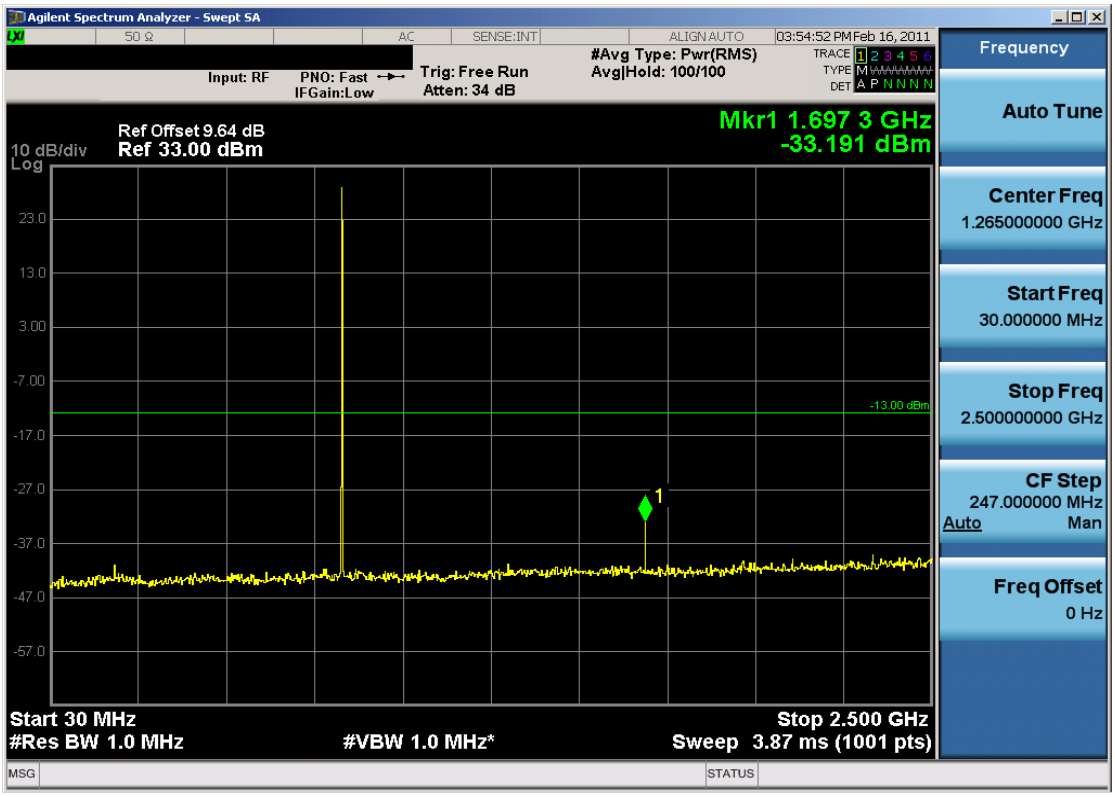
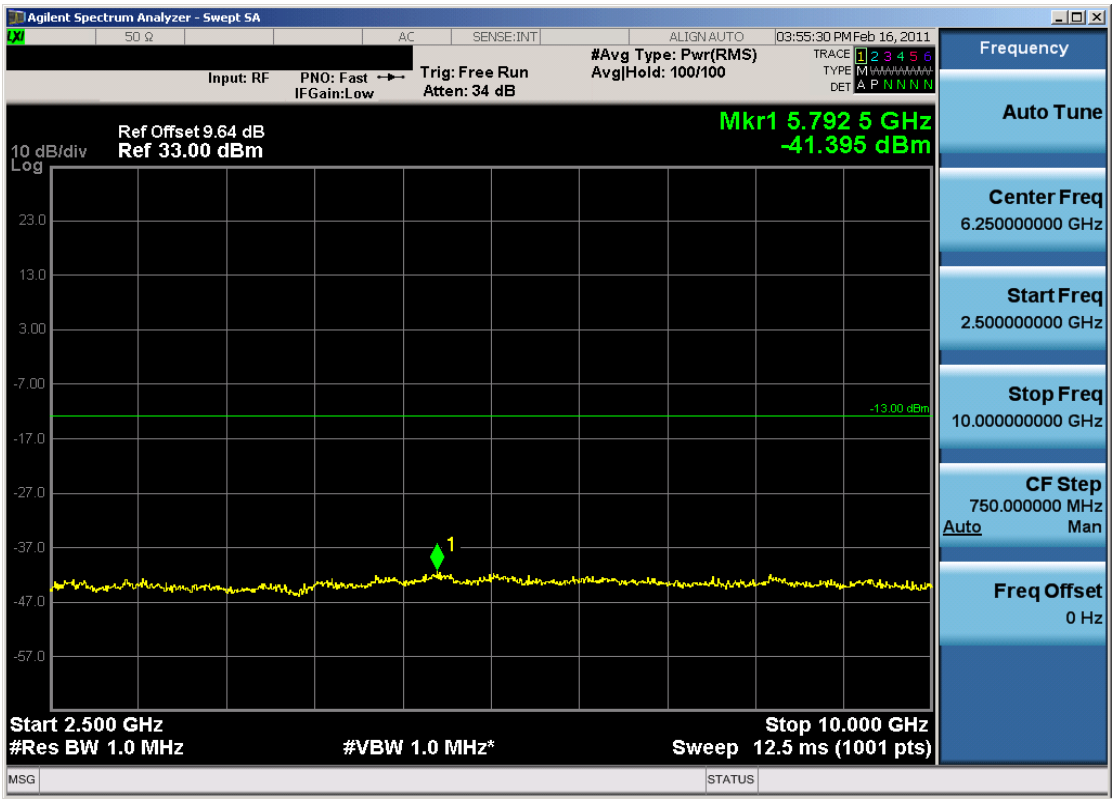


Plot 7-7. Conducted Spurious Plot (Cellular GSM Mode – Ch. 251)



Plot 7-8. Conducted Spurious Plot (Cellular GSM Mode – Ch. 251)

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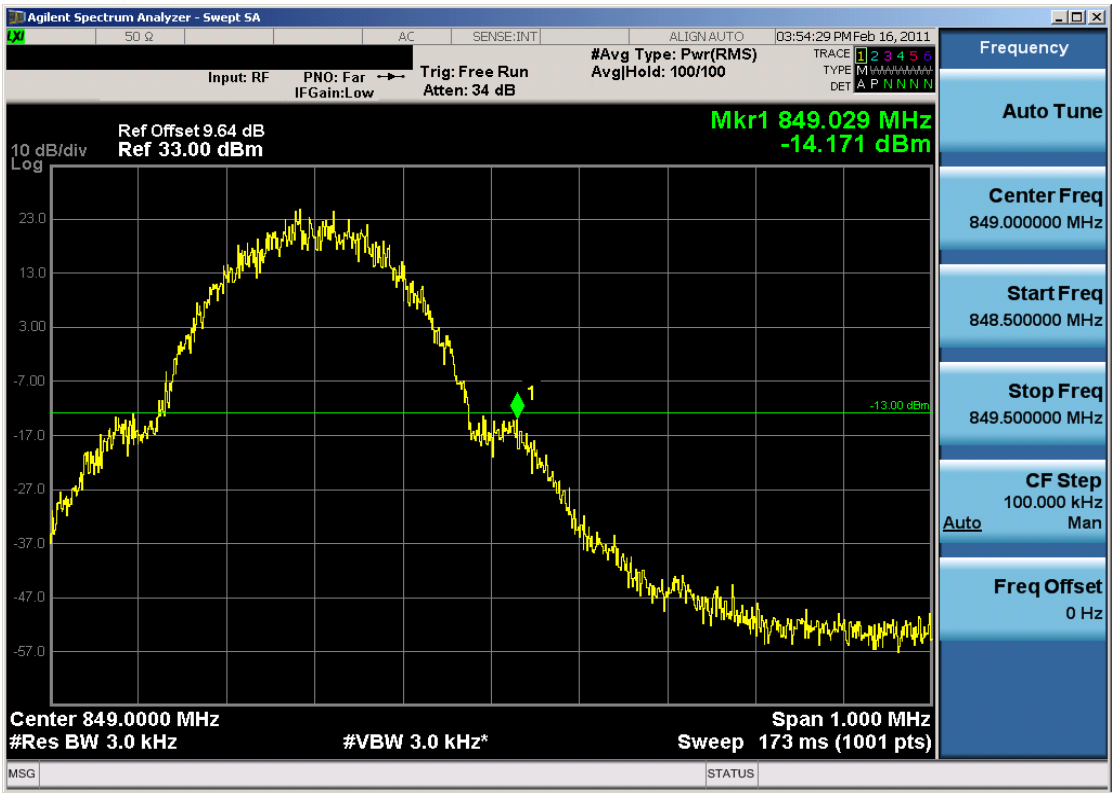
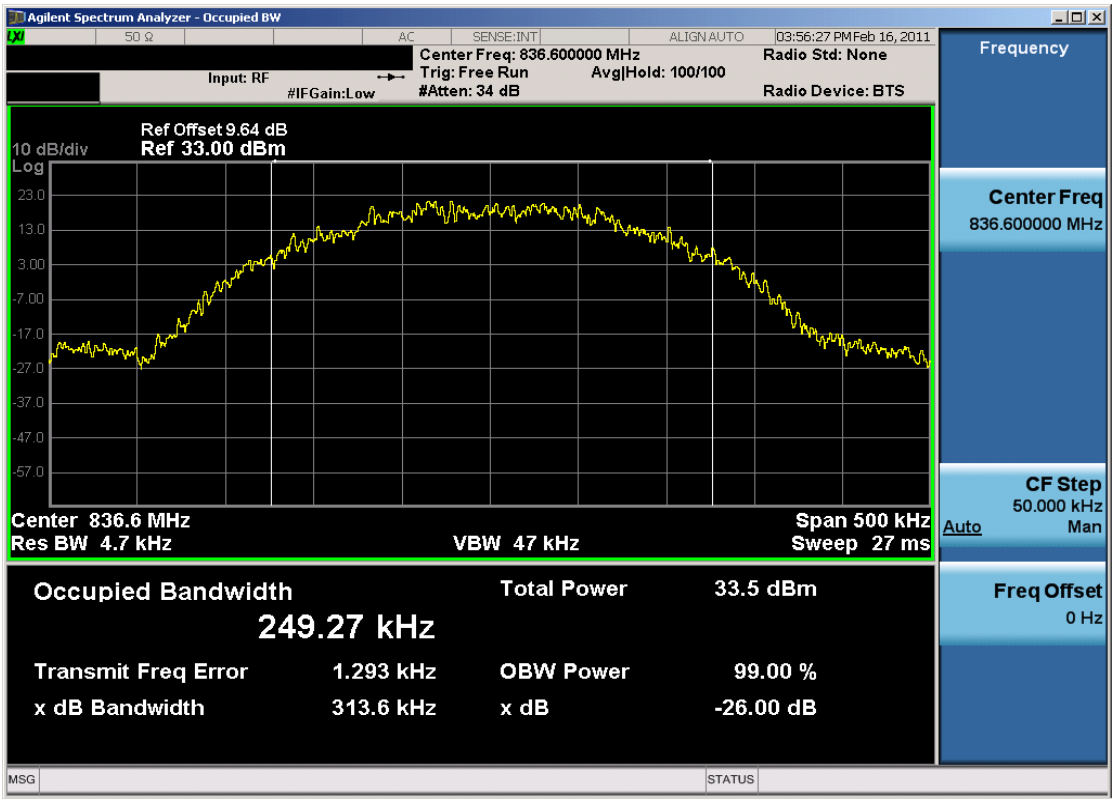


Plot 7-9. Band Edge Plot (Cellular GSM Mode – Ch. 251)



Plot 7-10. Occupied Bandwidth Plot (EDGE850 Mode – Ch. 190)

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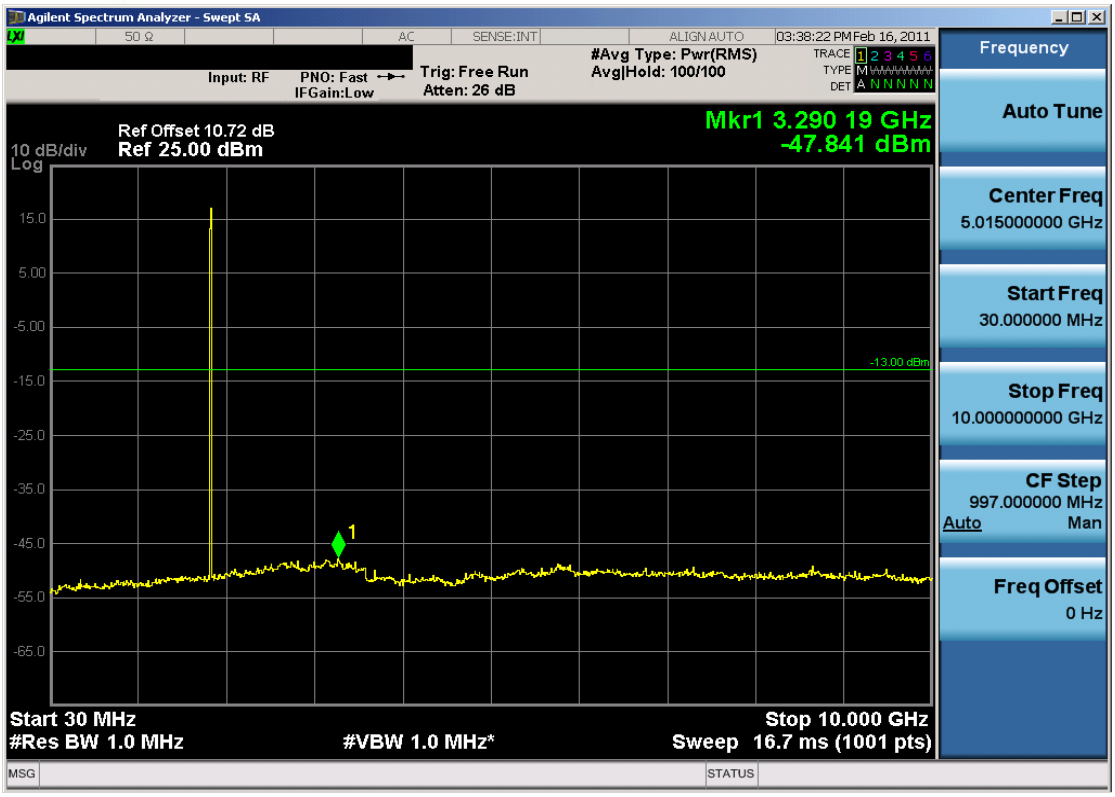
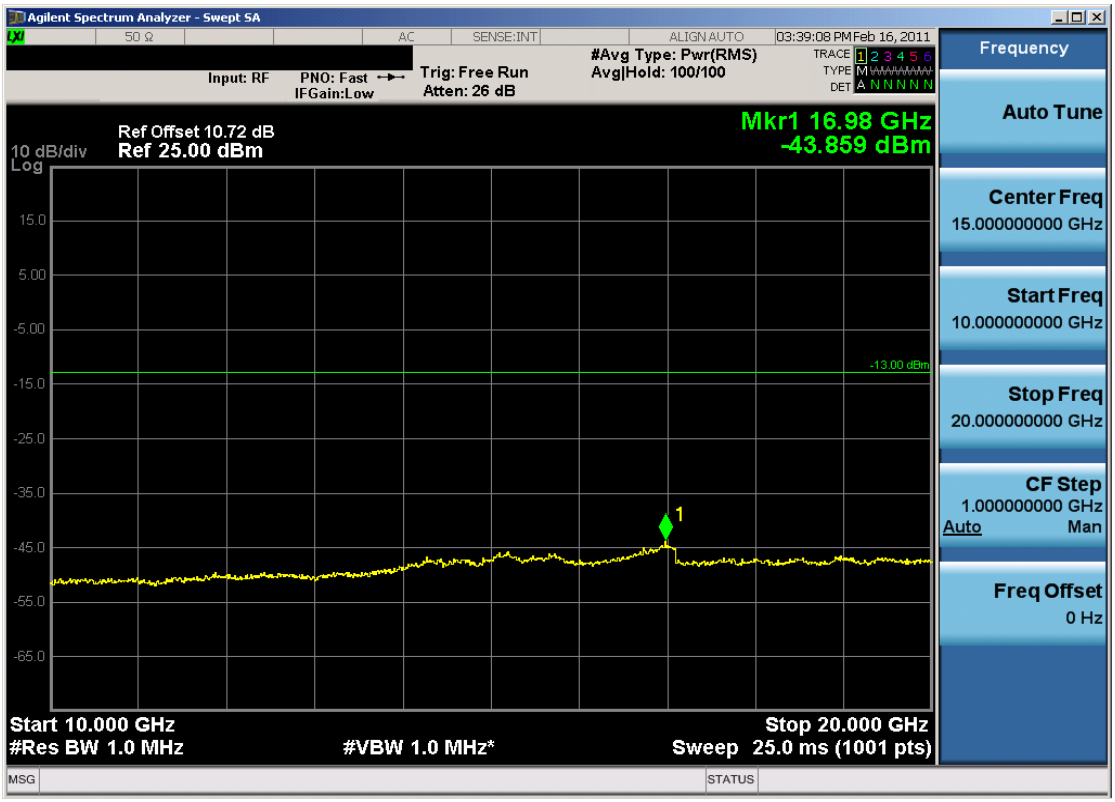


Plot 7-11. Conducted Spurious Plot (PCS GSM Mode – Ch. 512)



Plot 7-12. Conducted Spurious Plot (PCS GSM Mode – Ch. 512)

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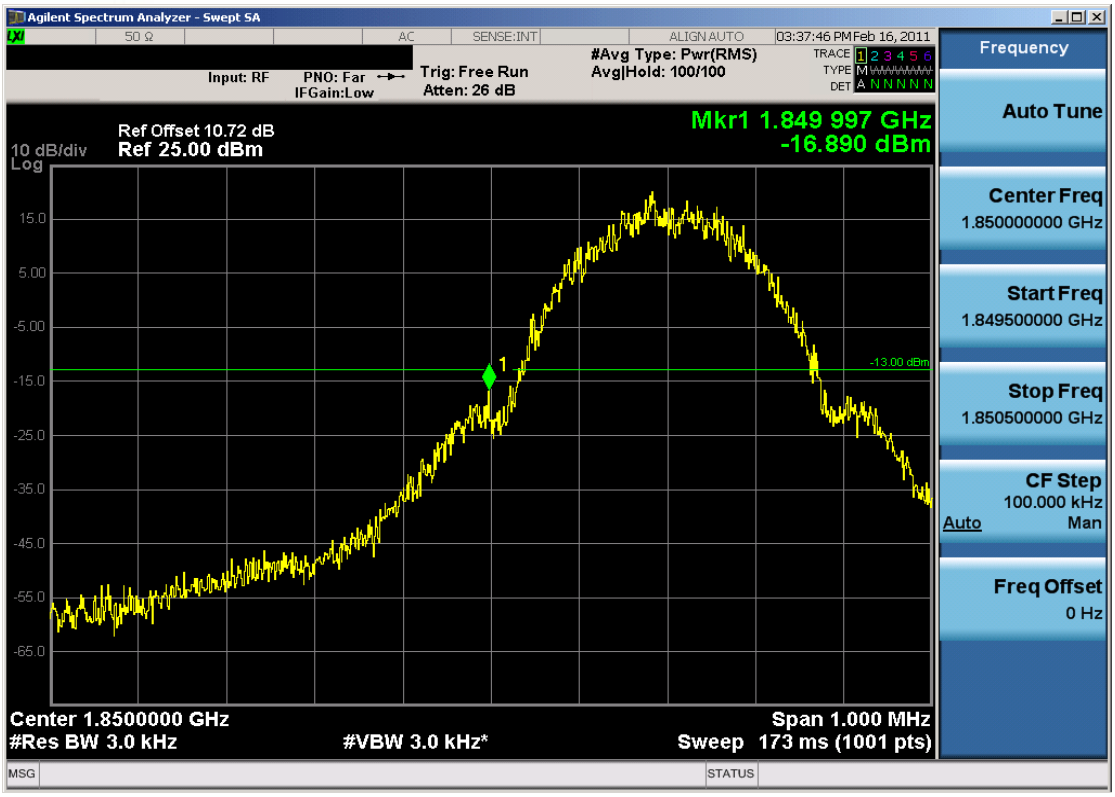
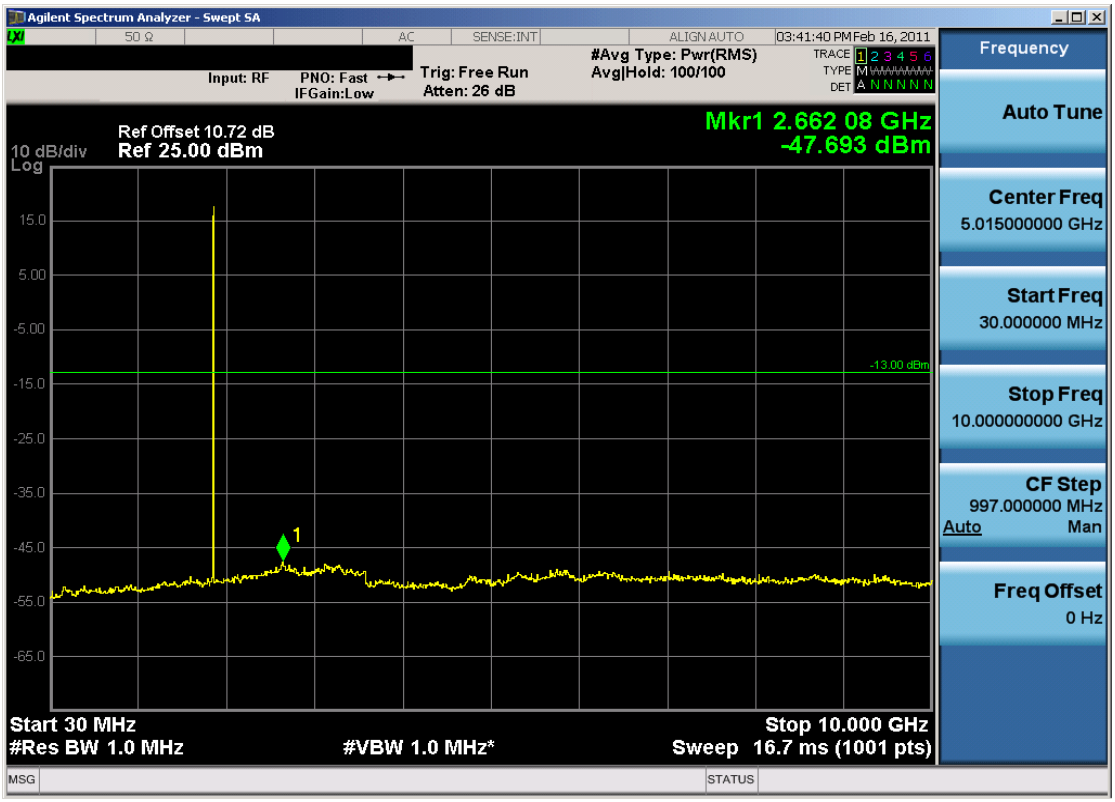


Plot 7-13. Band Edge Plot (PCS GSM Mode – Ch. 512)



Plot 7-14. Conducted Spurious Plot (PCS GSM Mode – Ch. 661)

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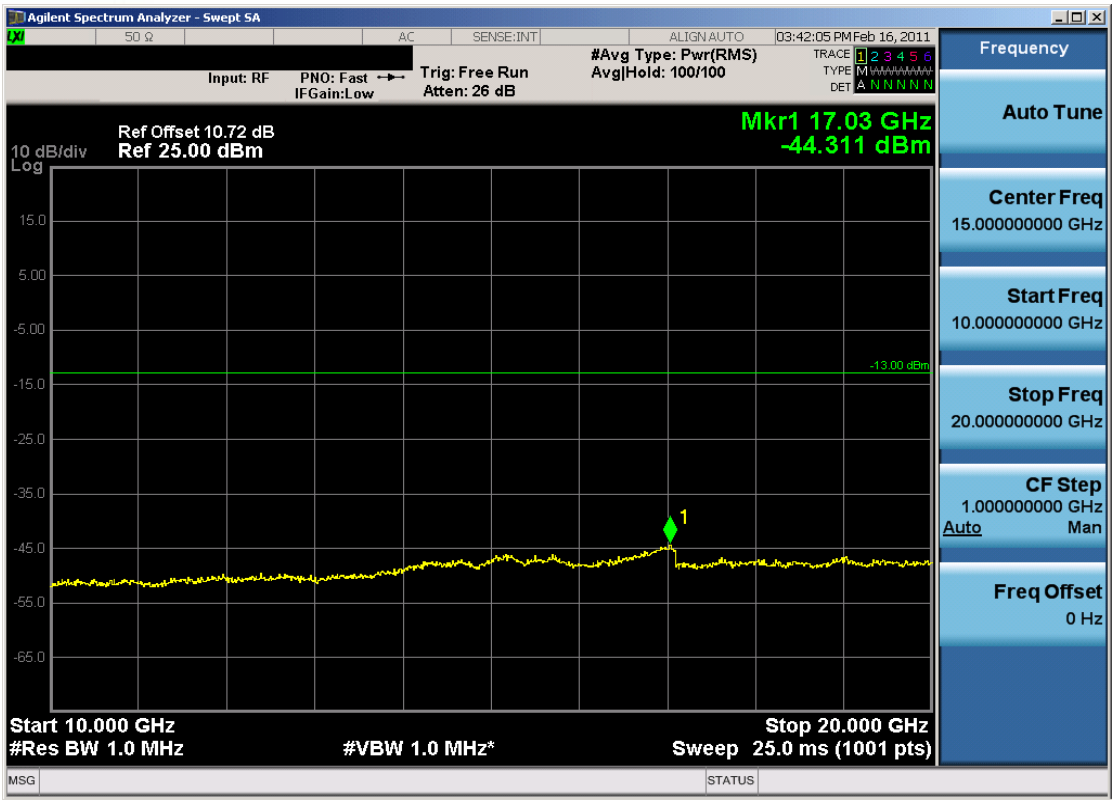
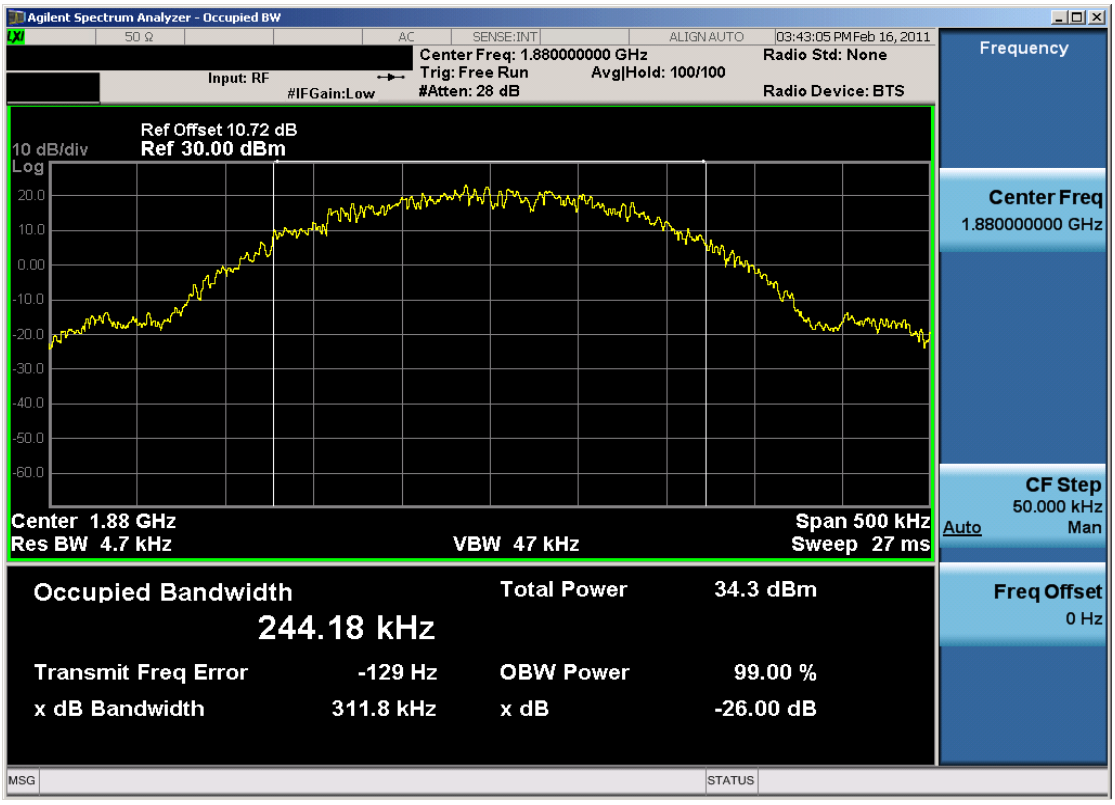


Plot 7-15. Conducted Spurious Plot (PCS GSM Mode – Ch. 661)



Plot 7-16. Occupied Bandwidth Plot (PCS GSM Mode – Ch. 661)

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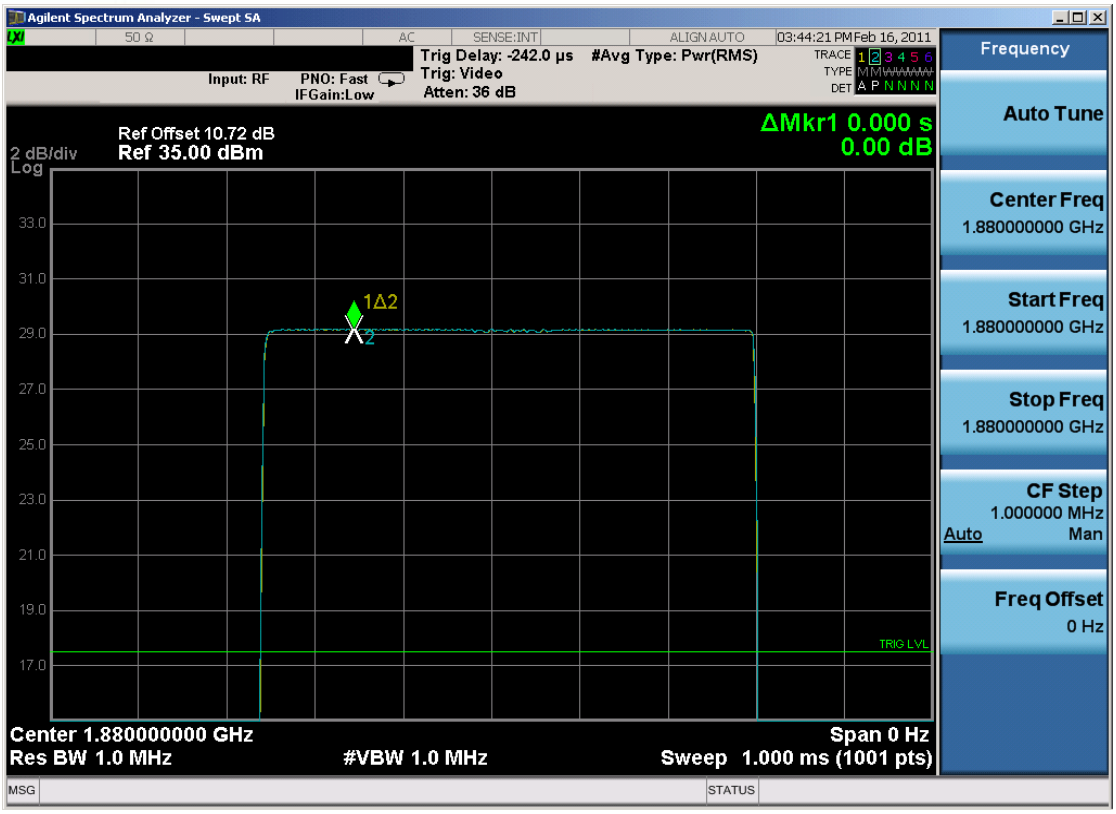
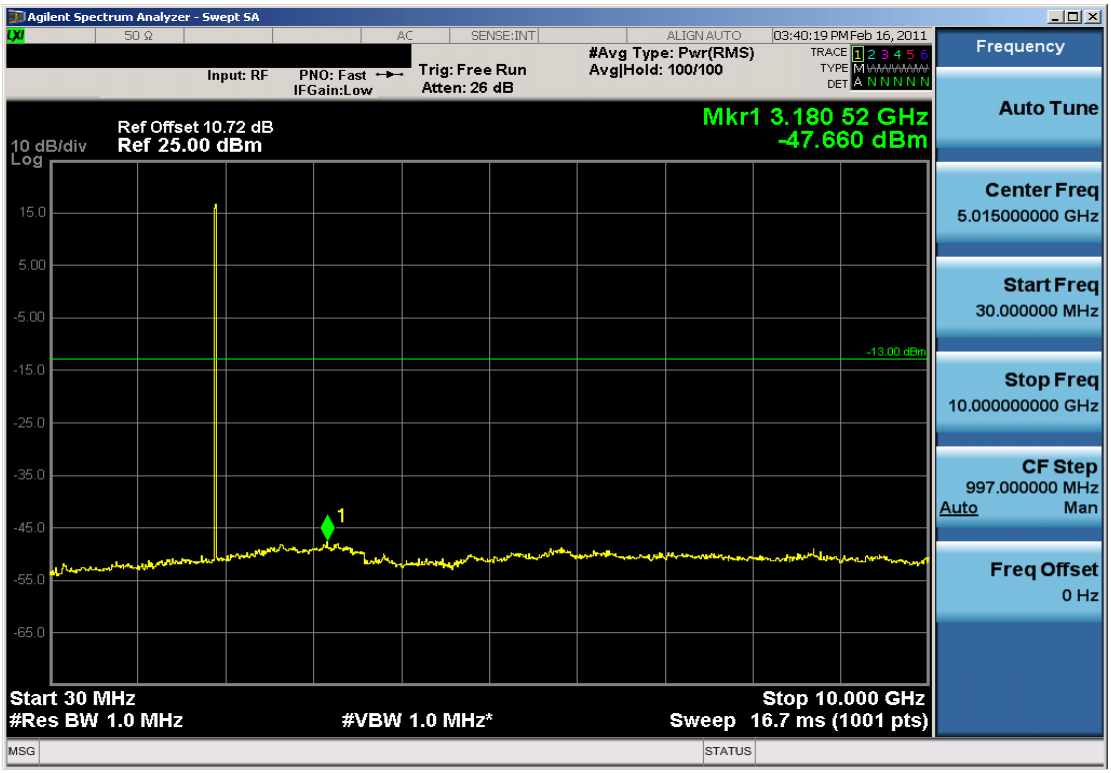


Plot 7-17. Peak-Average Ratio Plot (PCS GSM Mode – Ch. 661)



Plot 7-18. Conducted Spurious Plot (PCS GSM Mode – Ch. 810)

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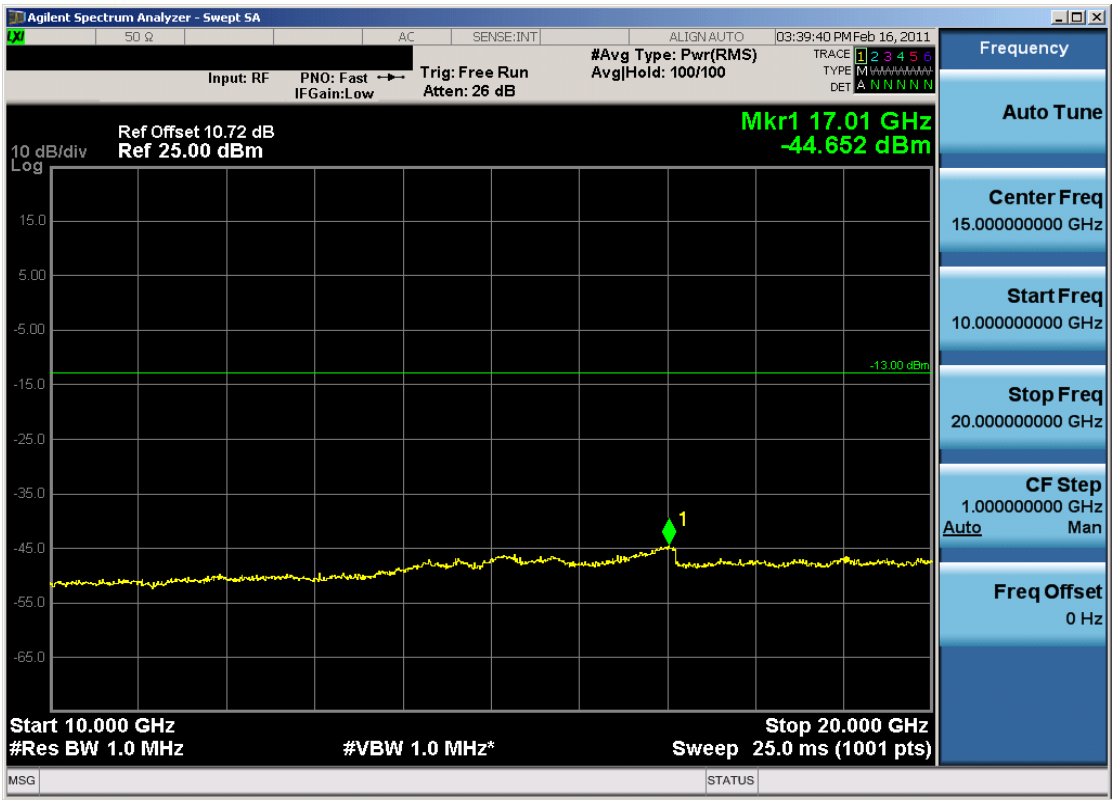
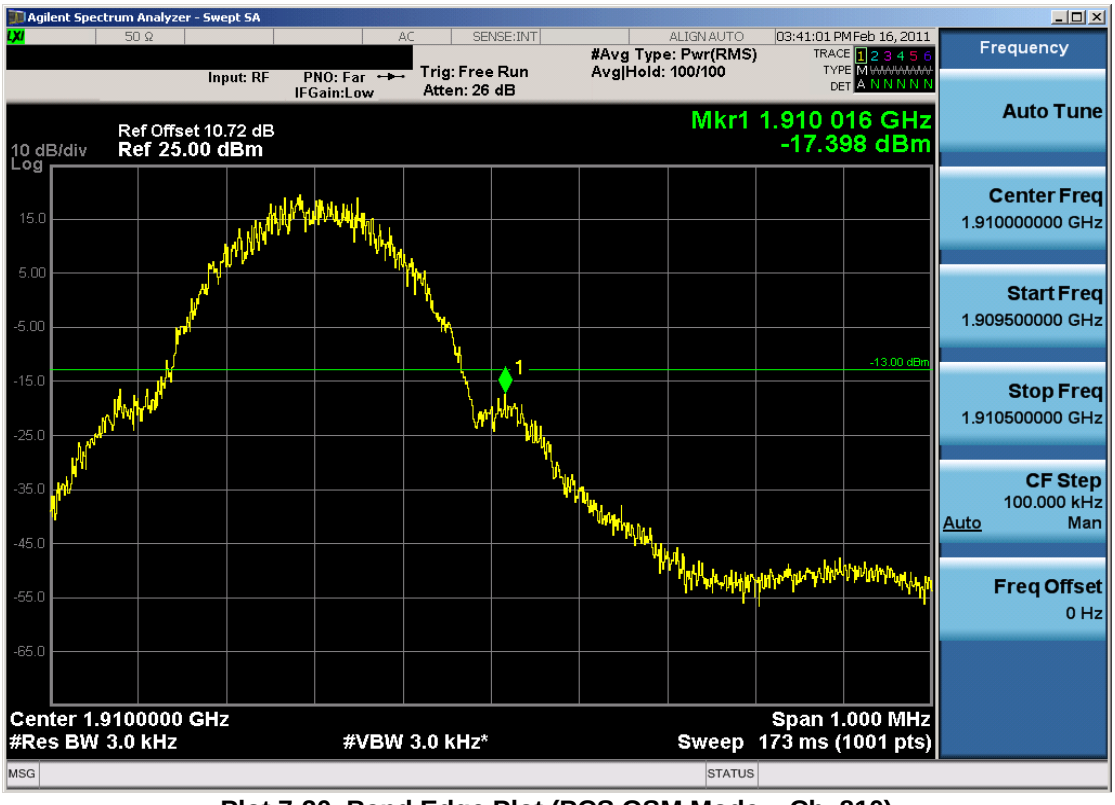


Plot 7-19. Conducted Spurious Plot (PCS GSM Mode – Ch. 810)



Plot 7-20. Band Edge Plot (PCS GSM Mode – Ch. 810)

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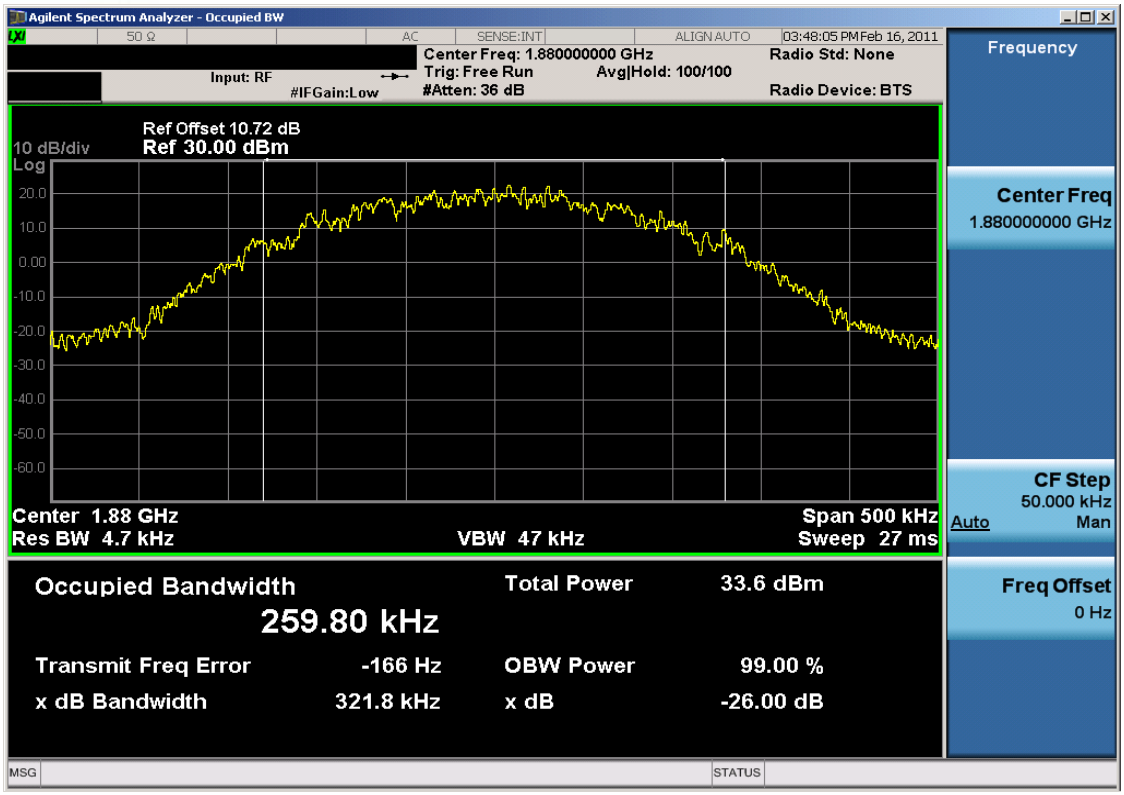
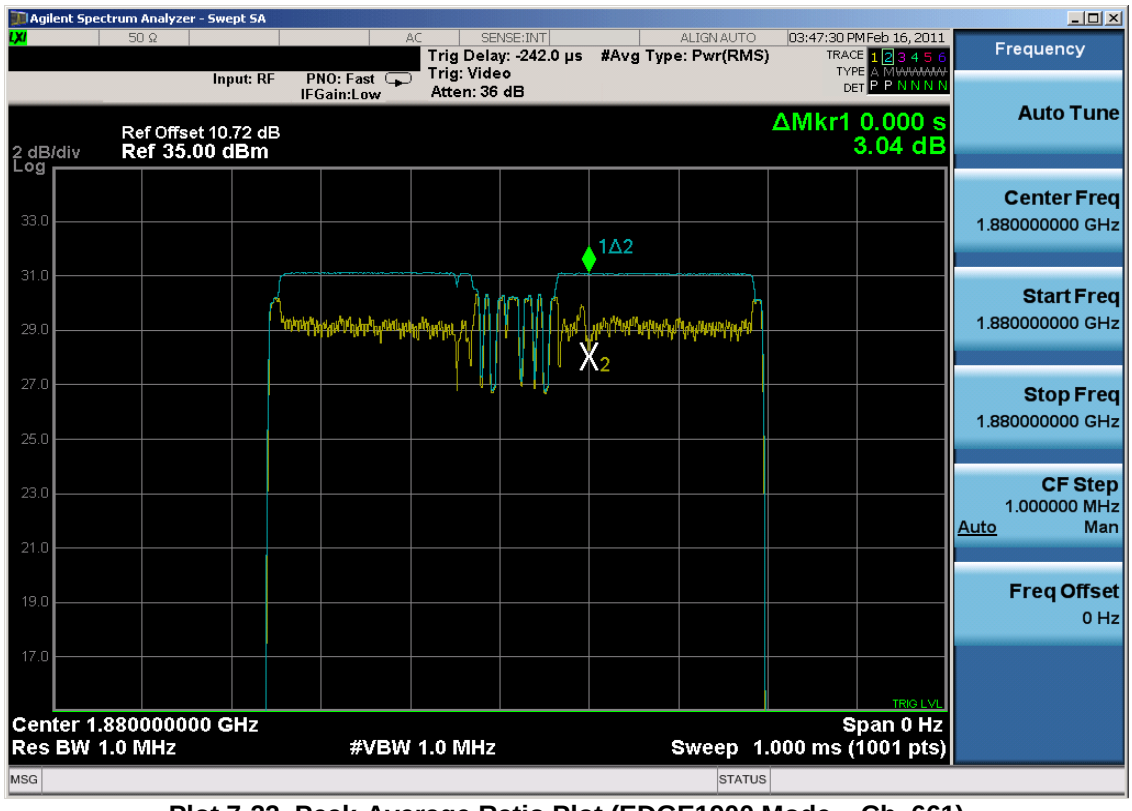


Plot 7-21. Occupied Bandwidth Plot (EDGE1900 Mode – Ch. 661)



Plot 7-22. Peak-Average Ratio Plot (EDGE1900 Mode – Ch. 661)

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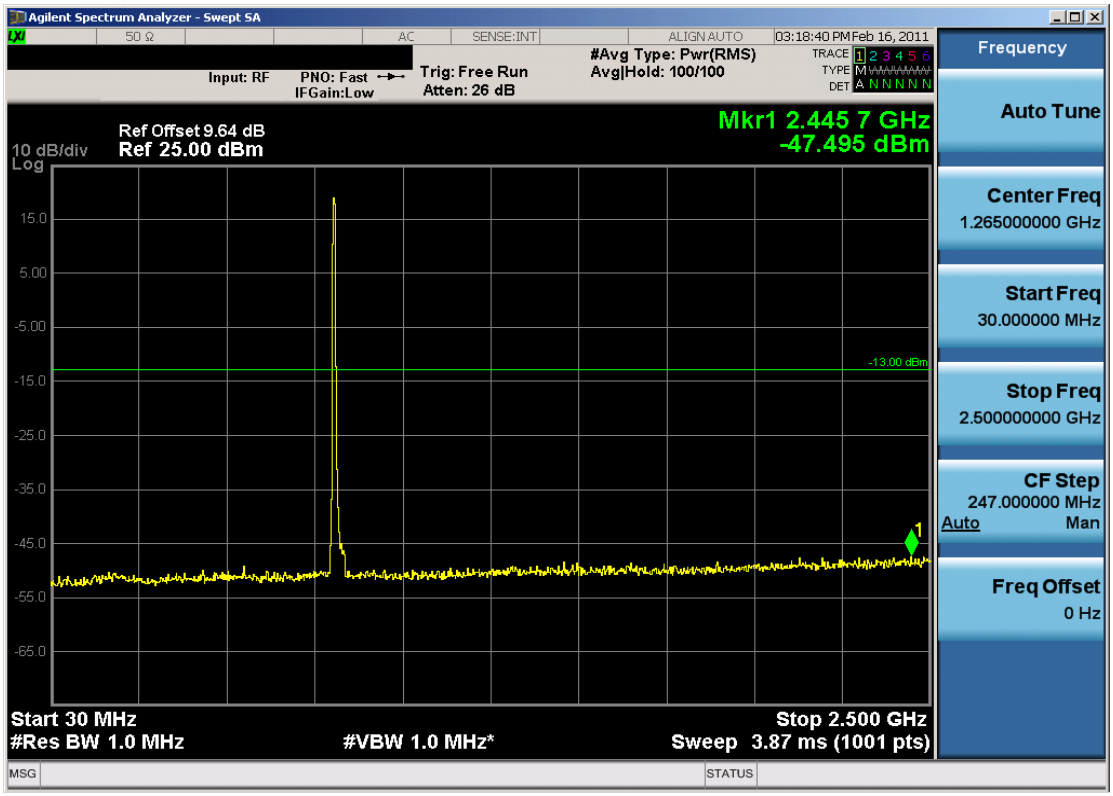
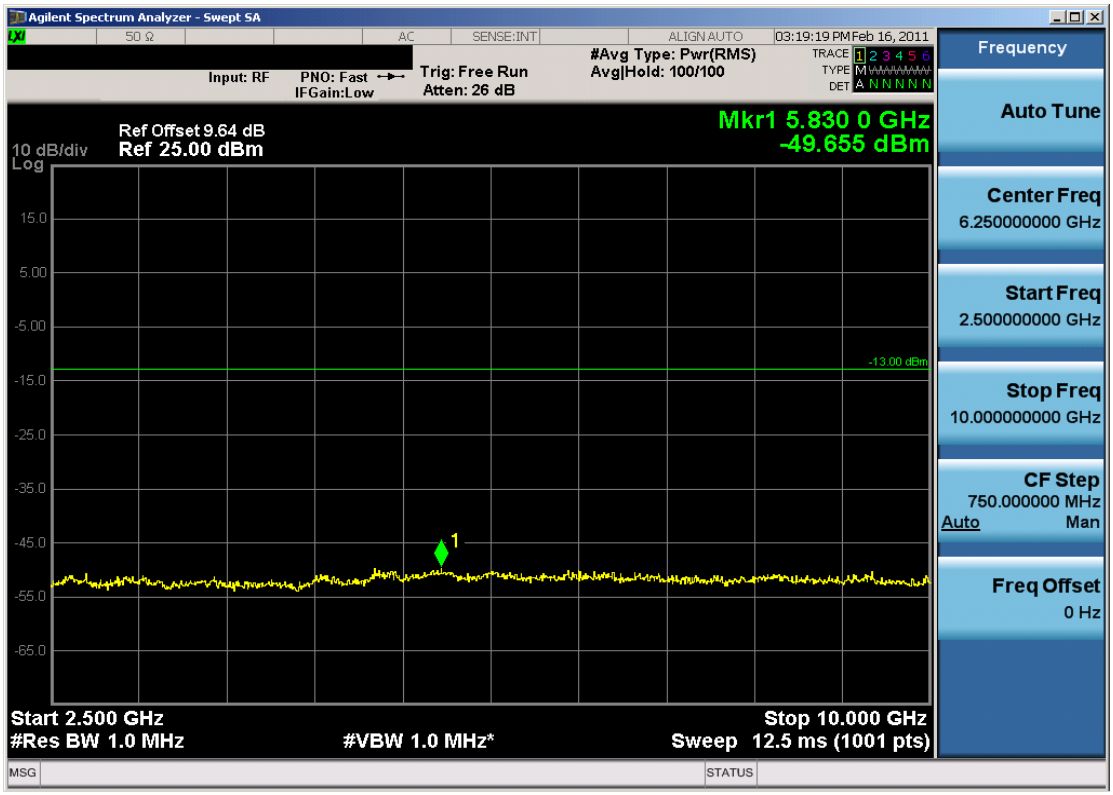


Plot 7-23. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4132)



Plot 7-24. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4132)

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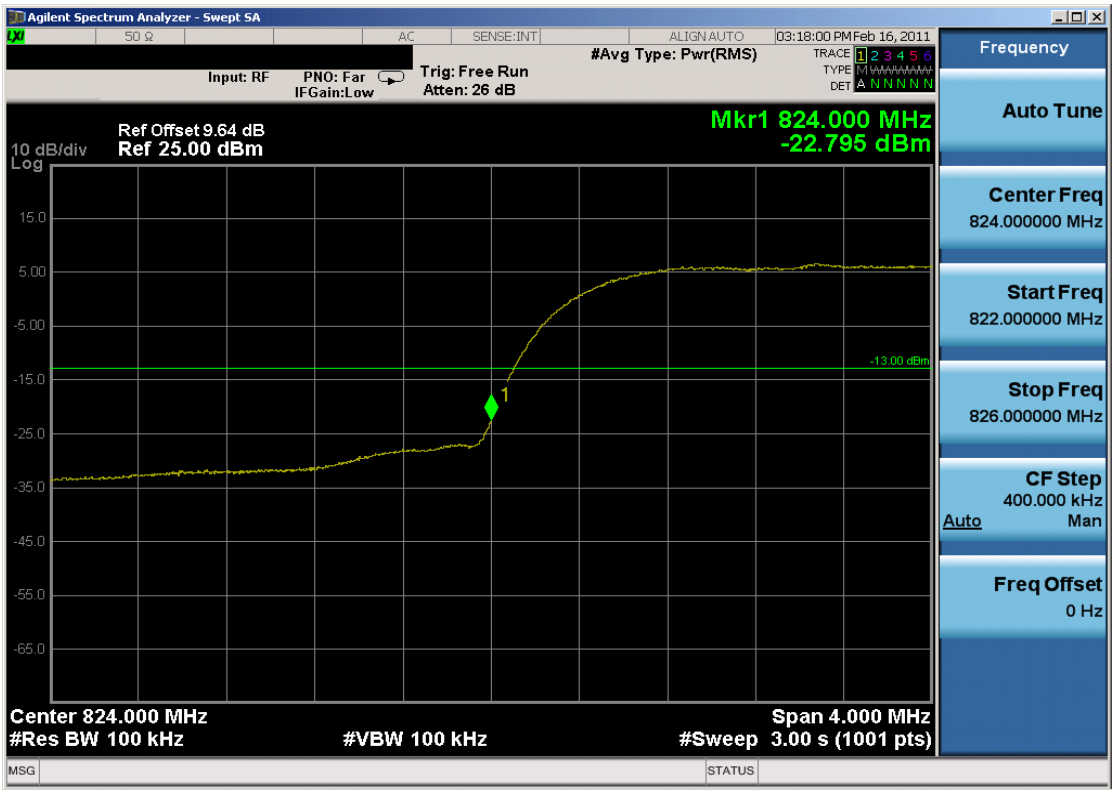
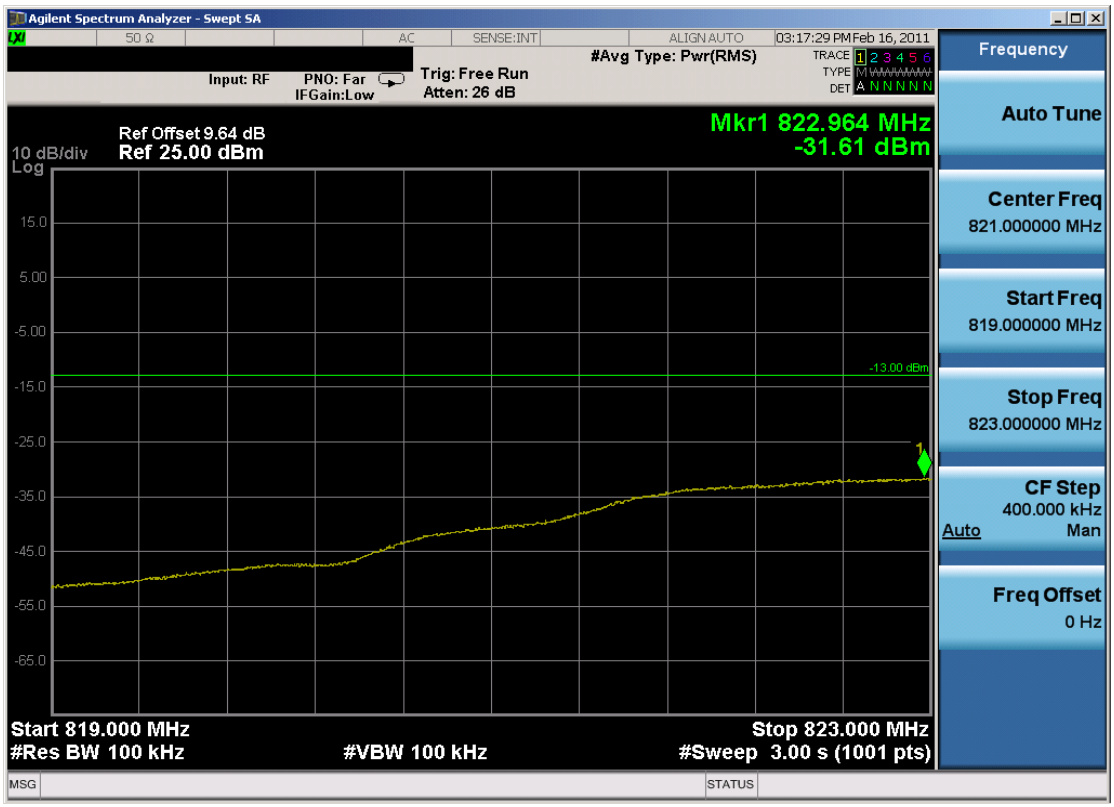


Plot 7-25. Band Edge Plot (Cellular WCDMA Mode – Ch. 4132)



Plot 7-26. 4MHz Span Plot (Cellular WCDMA Mode – Ch. 4132)

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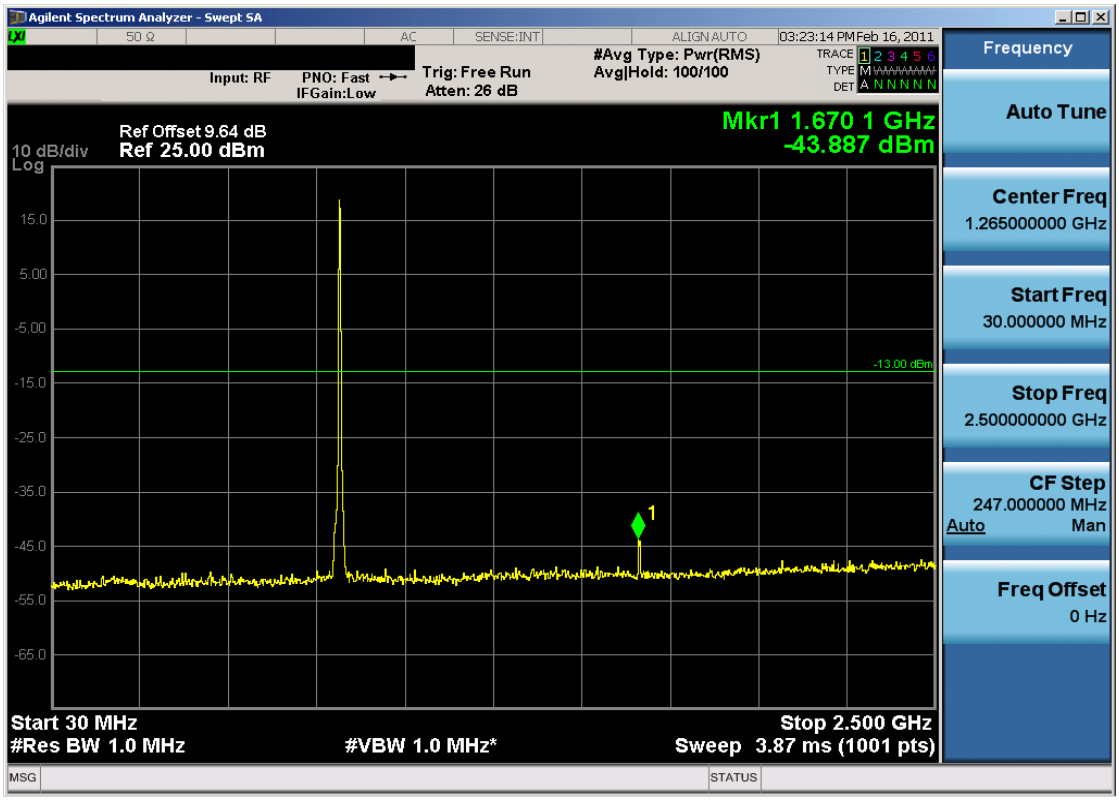
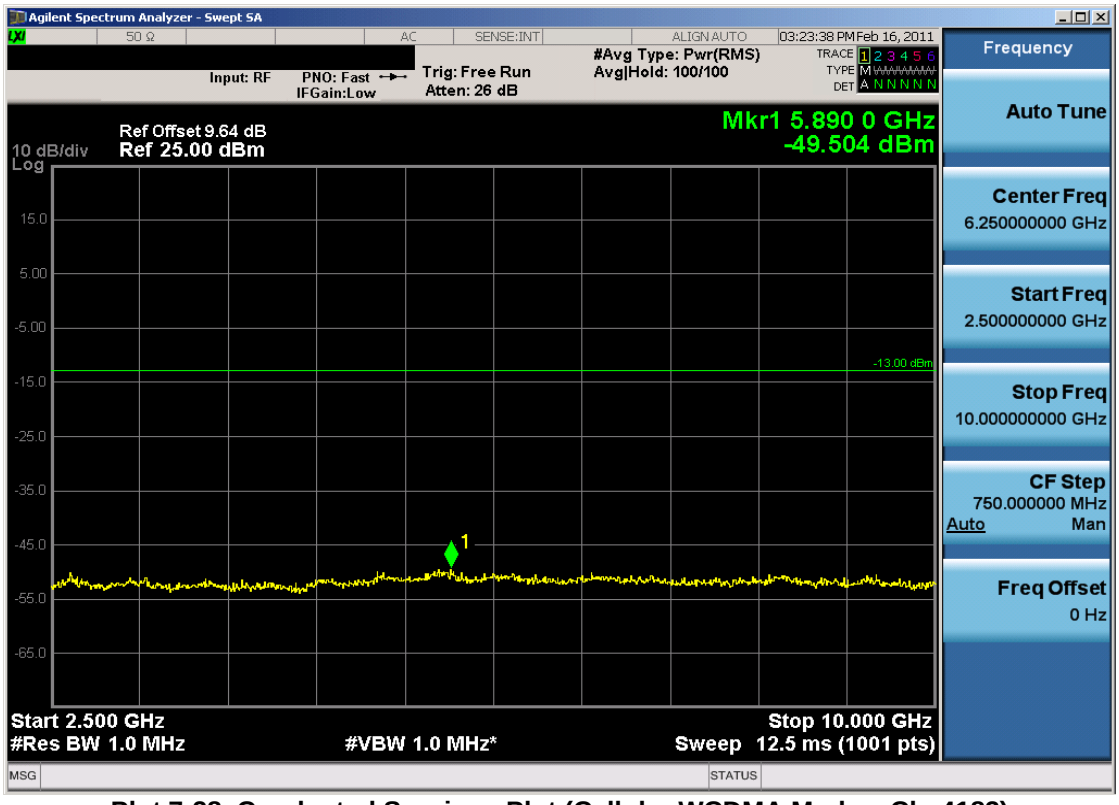


Plot 7-27. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4183)



Plot 7-28. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4183)

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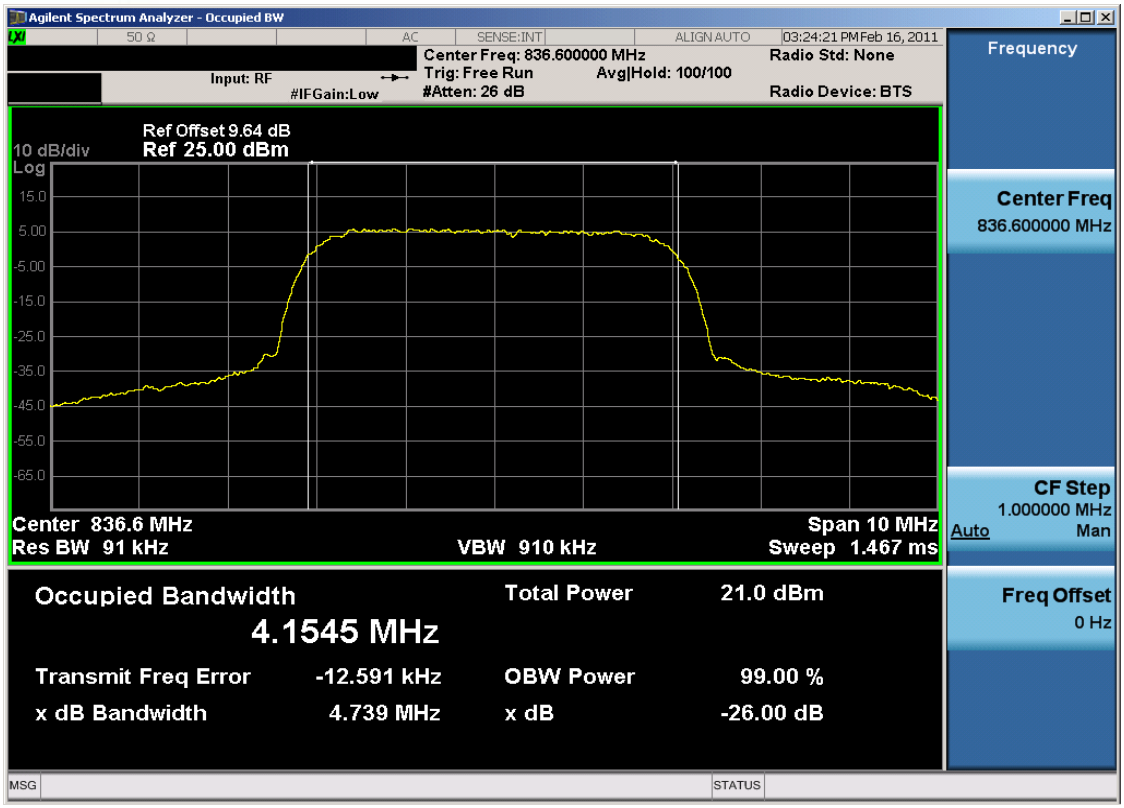
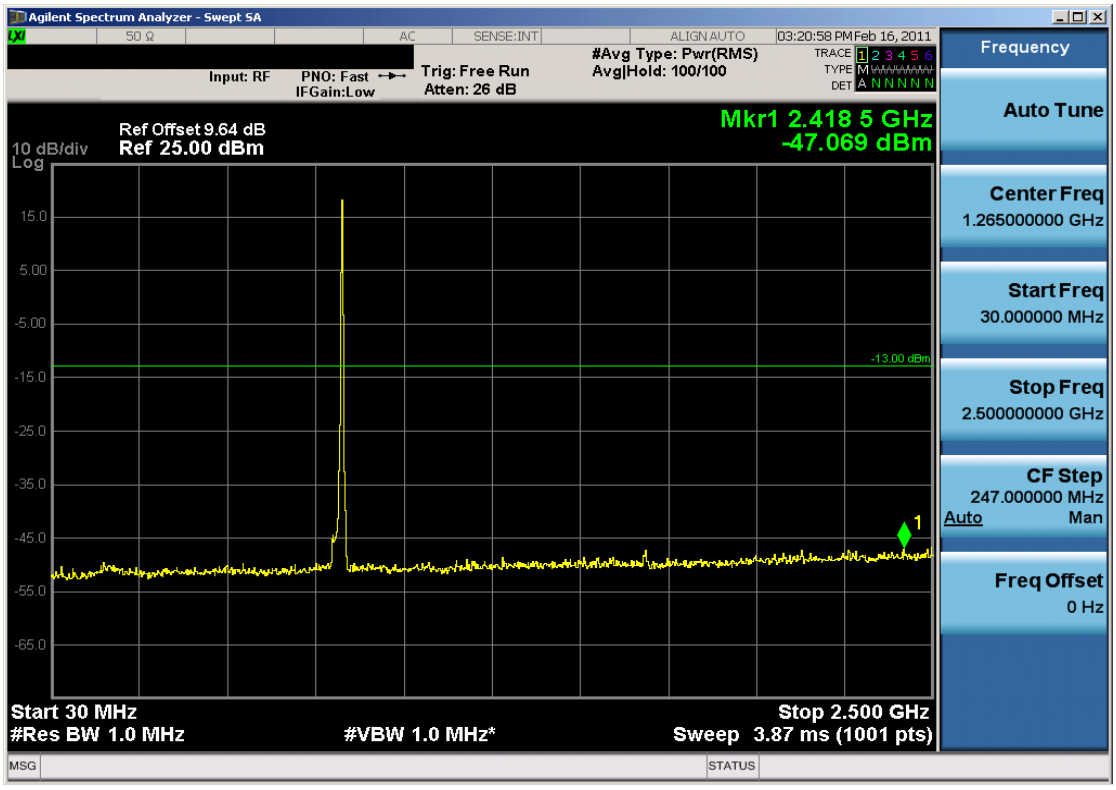


Plot 7-29. Occupied Bandwidth Plot (Cellular WCDMA Mode – Ch. 4183)



Plot 7-30. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4233)

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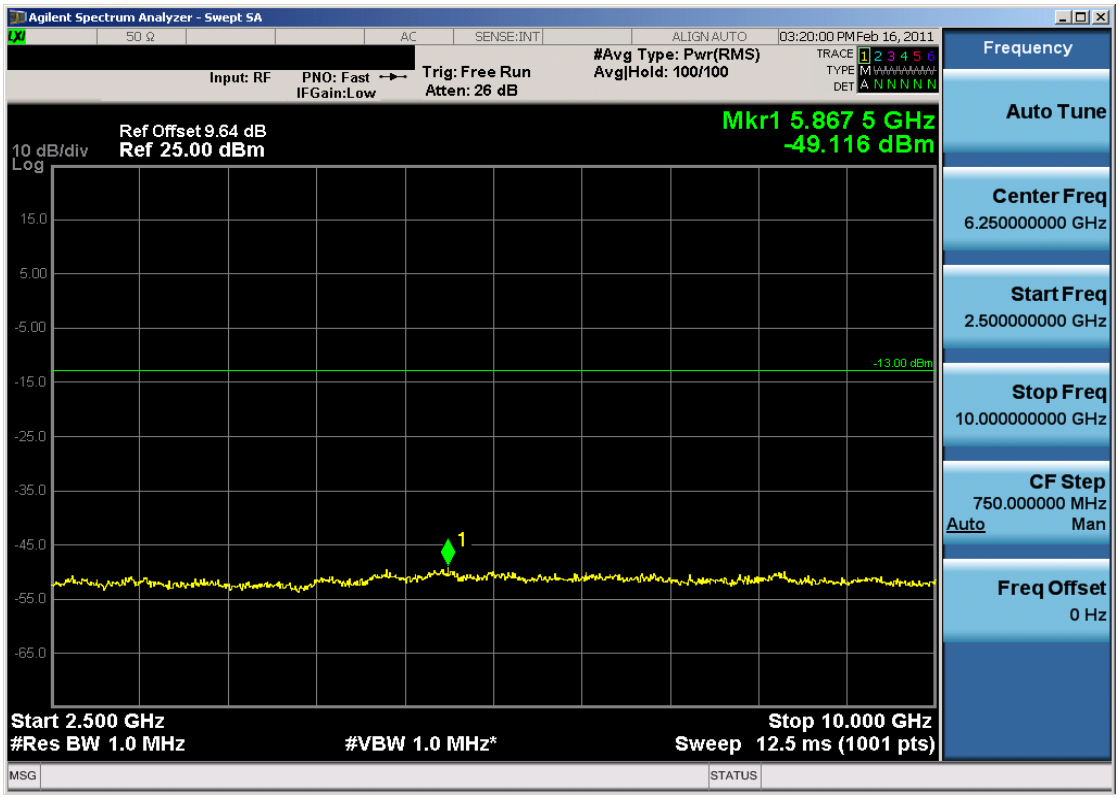
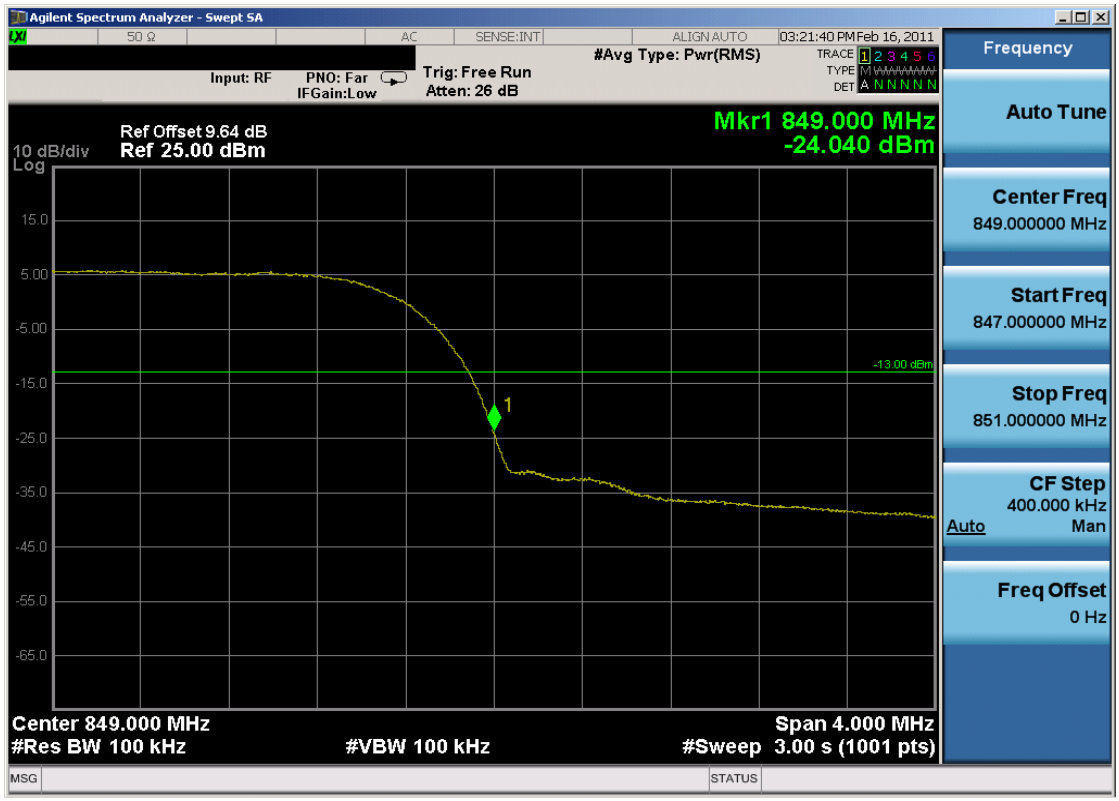


Plot 7-31. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4233)



Plot 7-32. Band Edge Plot (Cellular WCDMA Mode – Ch. 4233)

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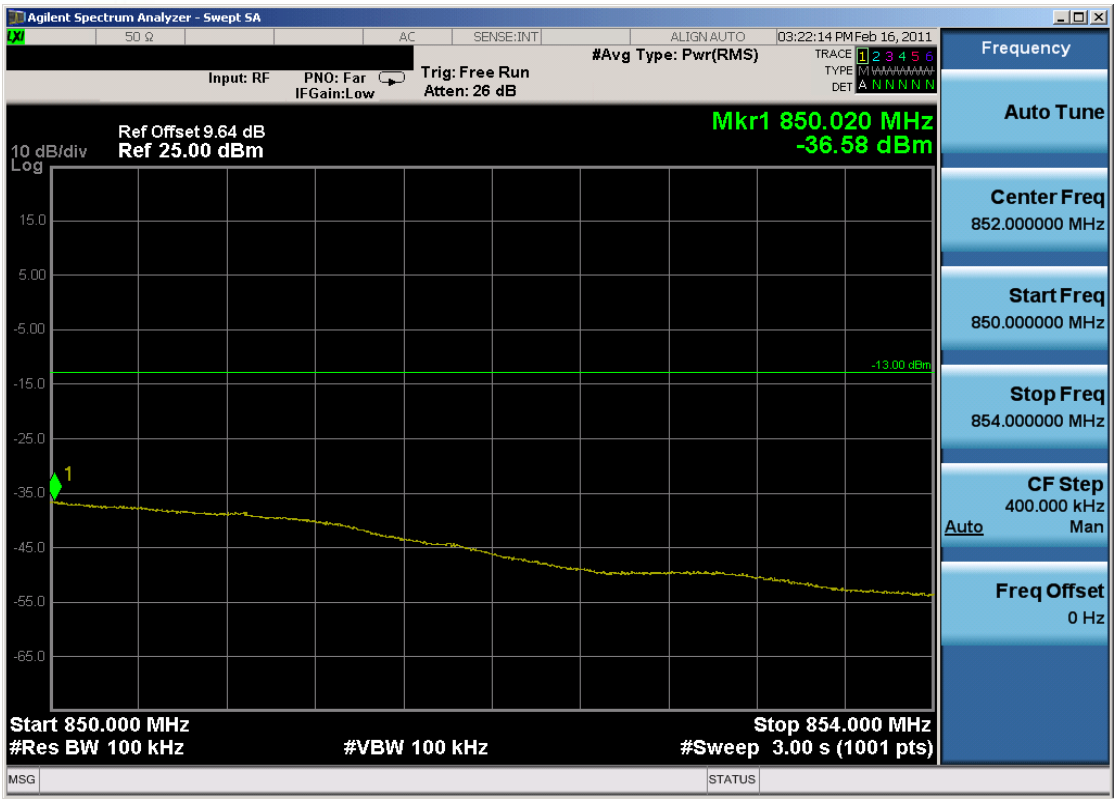
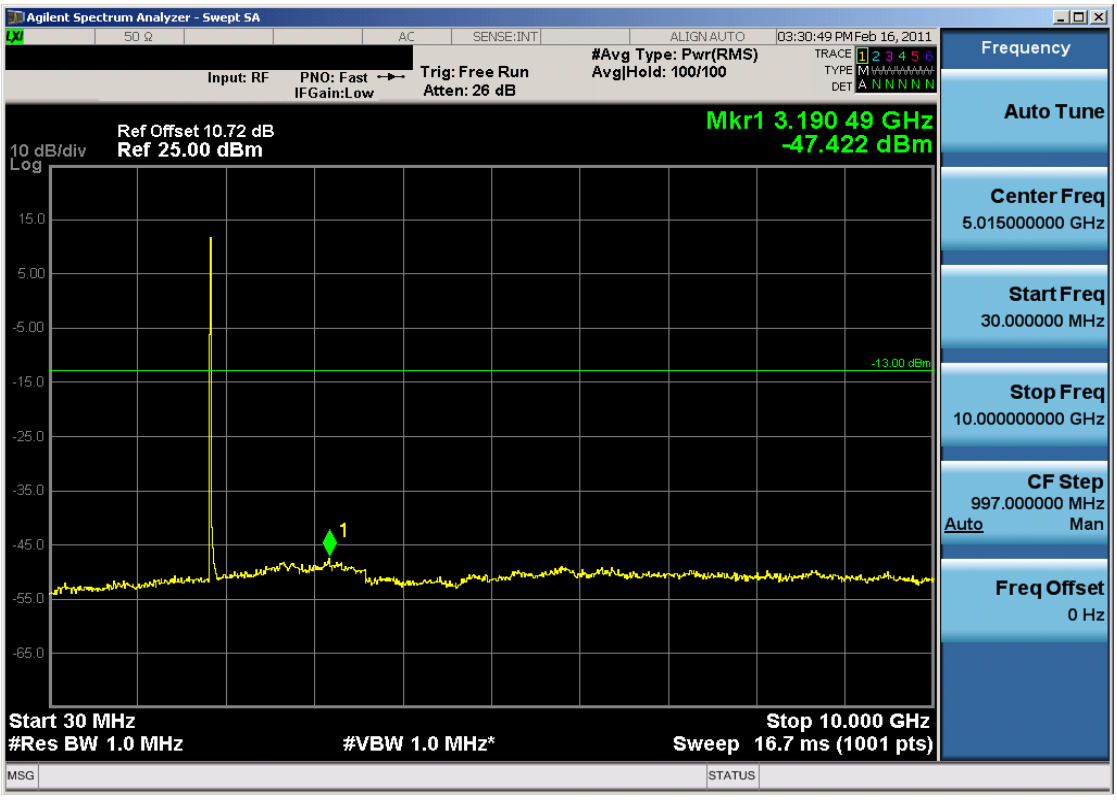


Plot 7-33. 4MHz Span Plot (Cellular WCDMA Mode – Ch. 4233)



Plot 7-34. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9262)

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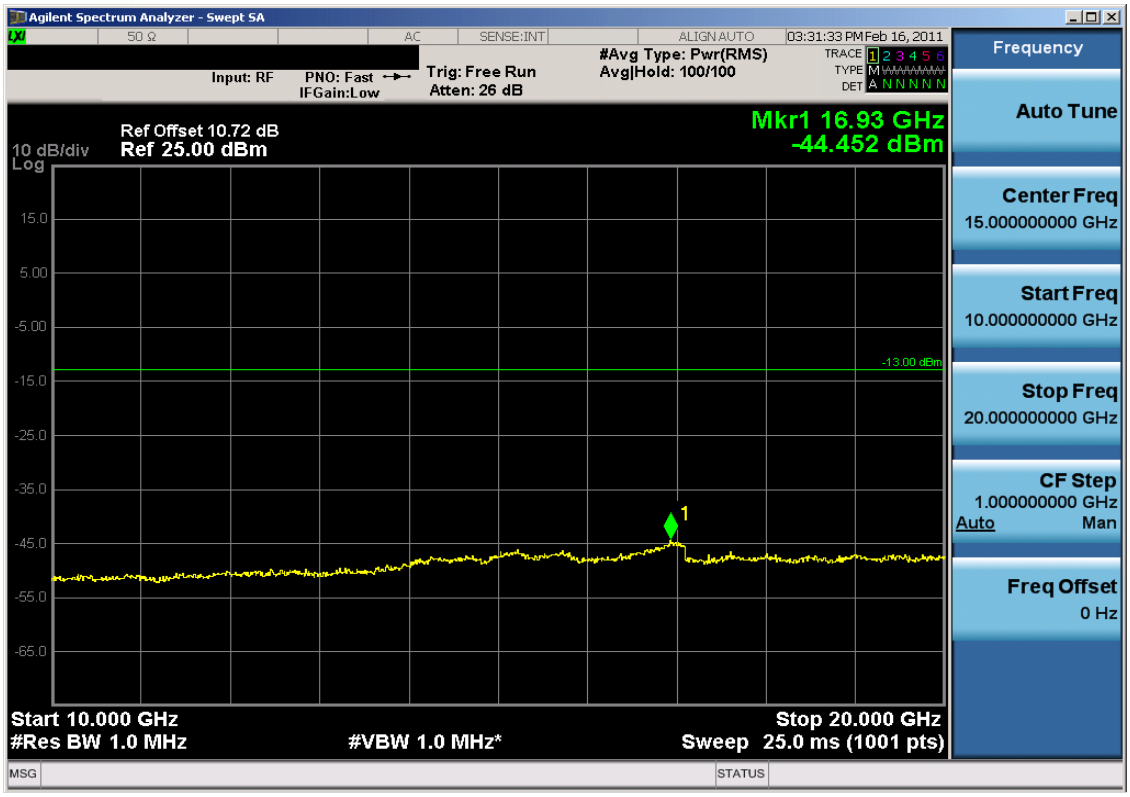
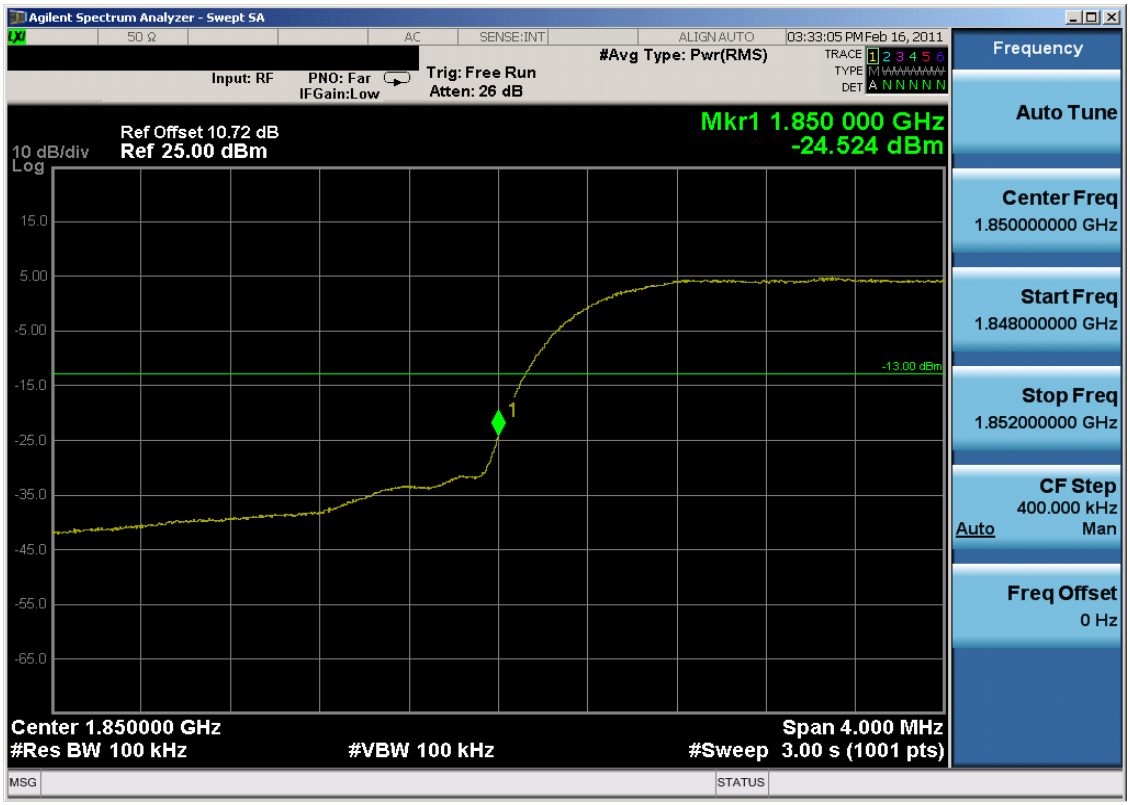


Plot 7-35. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9262)



Plot 7-36. Band Edge Plot (PCS WCDMA Mode – Ch. 9262)

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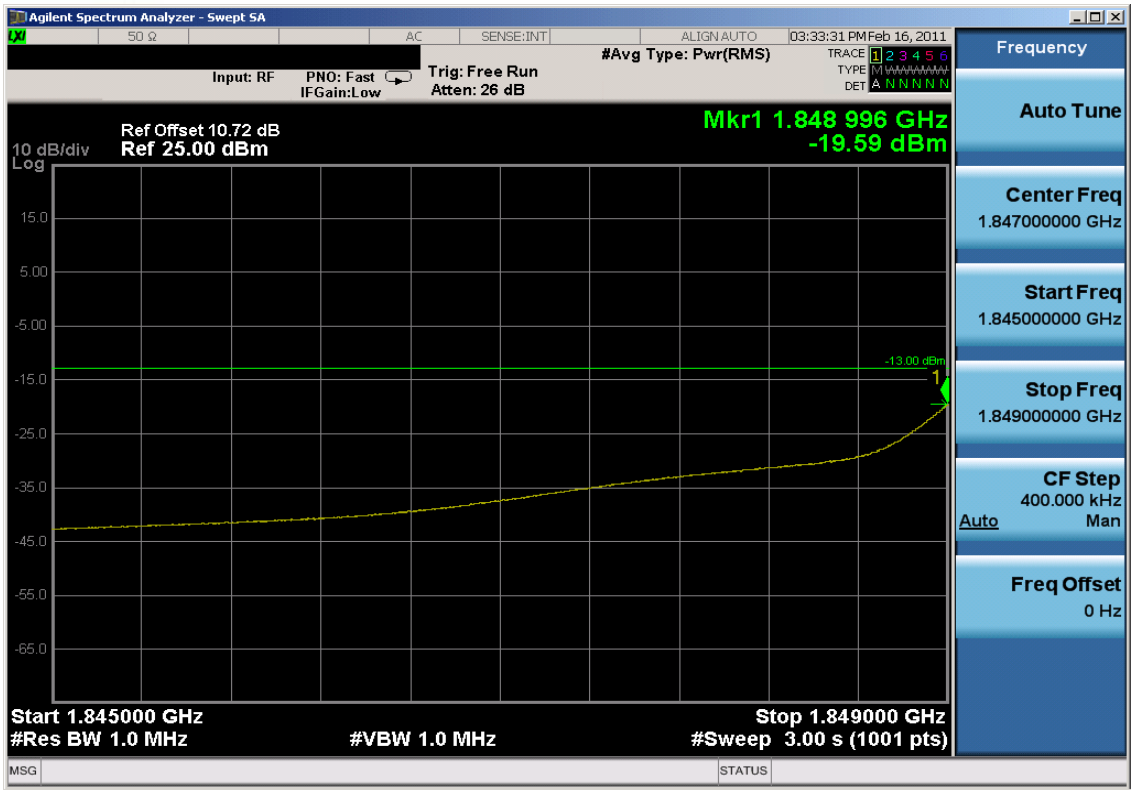
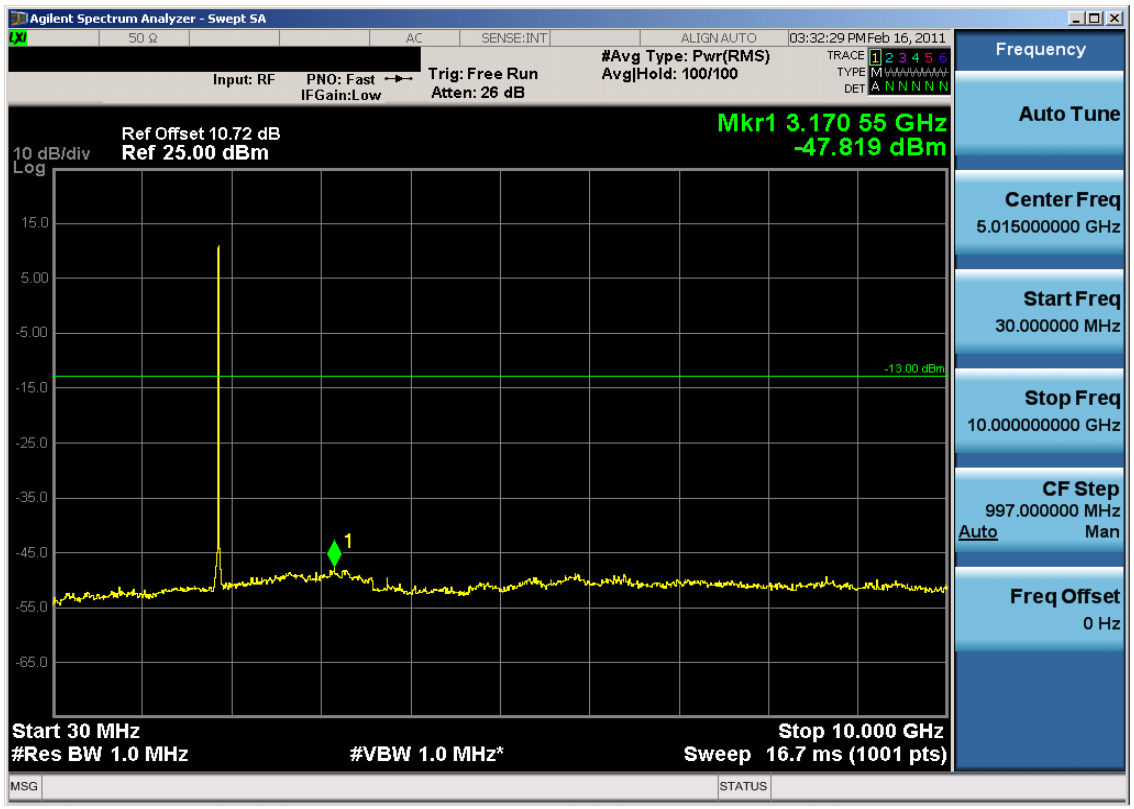


Plot 7-37. 4MHz Span Plot (PCS WCDMA Mode – Ch. 9262)



Plot 7-38. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9400)

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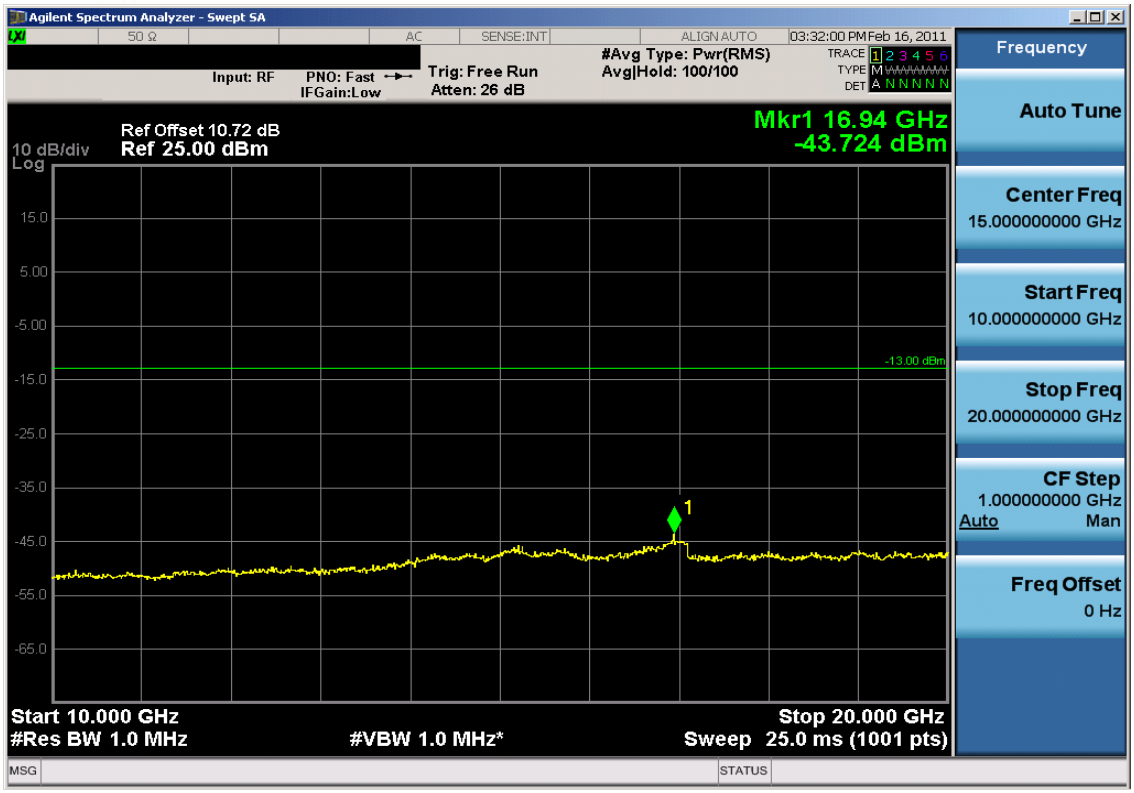
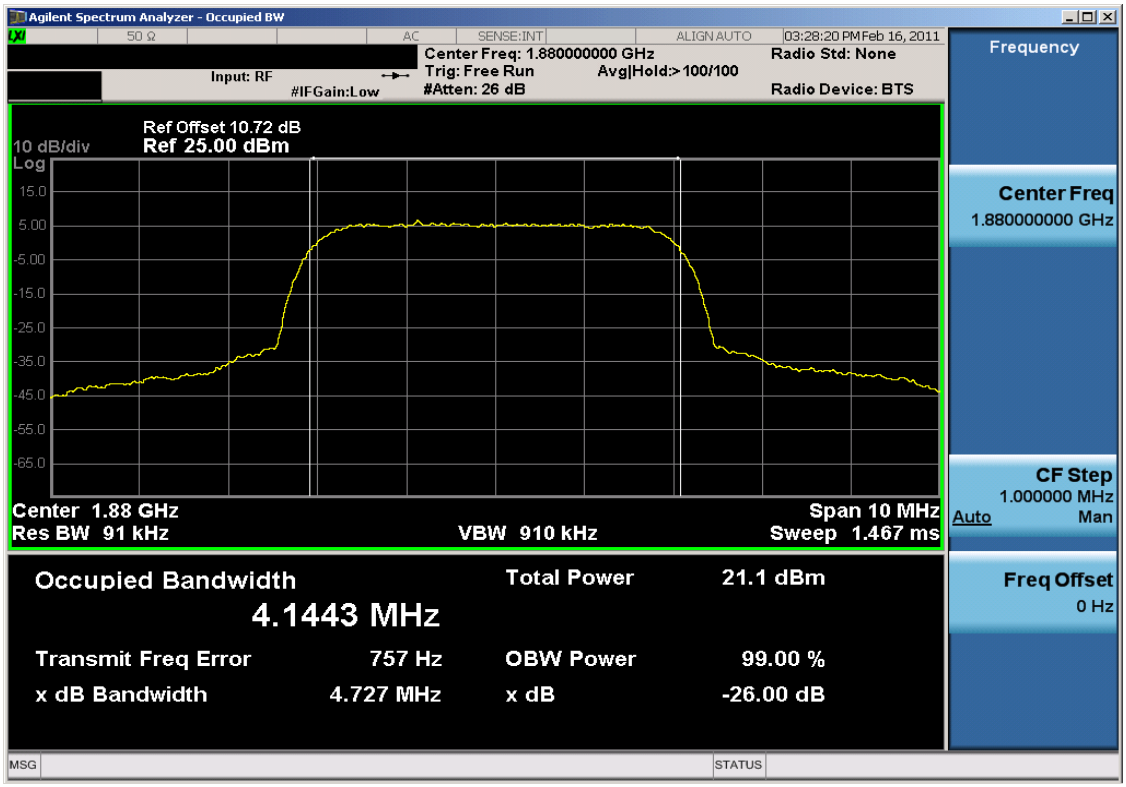


Plot 7-39. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9400)



Plot 7-40. Occupied Bandwidth Plot (PCS WCDMA Mode – Ch. 9400)

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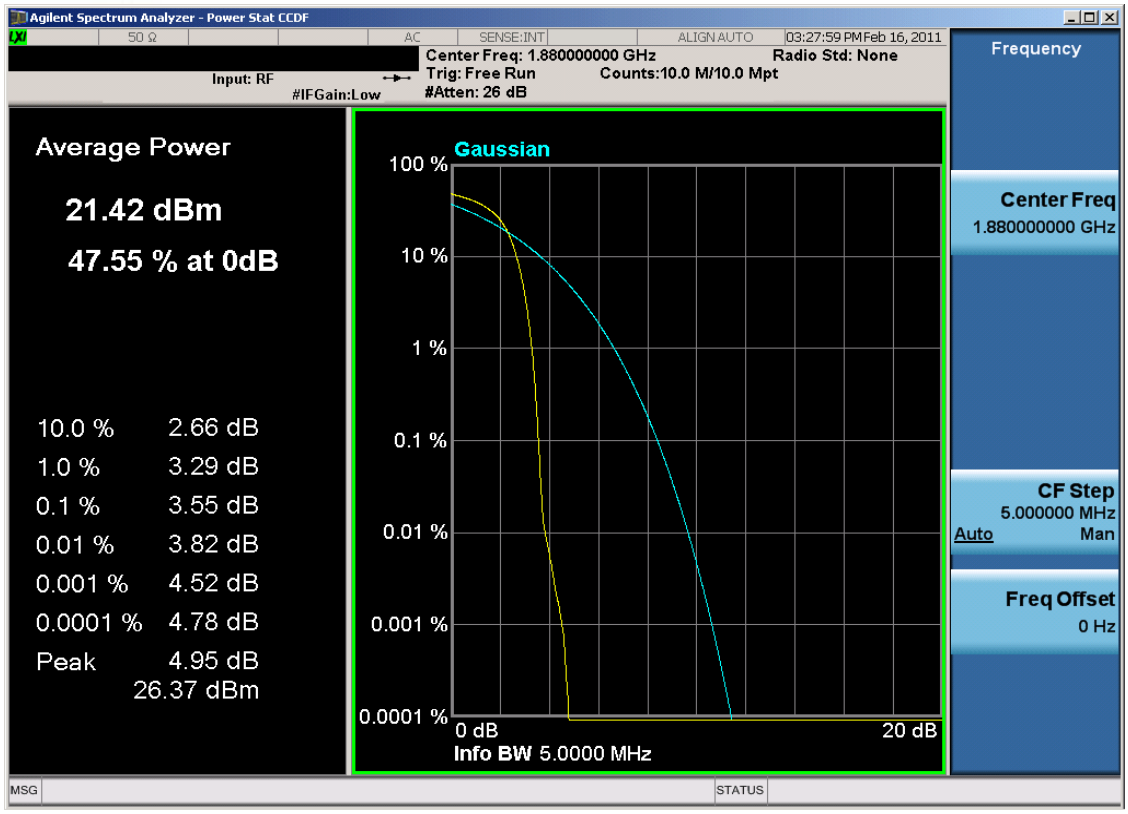
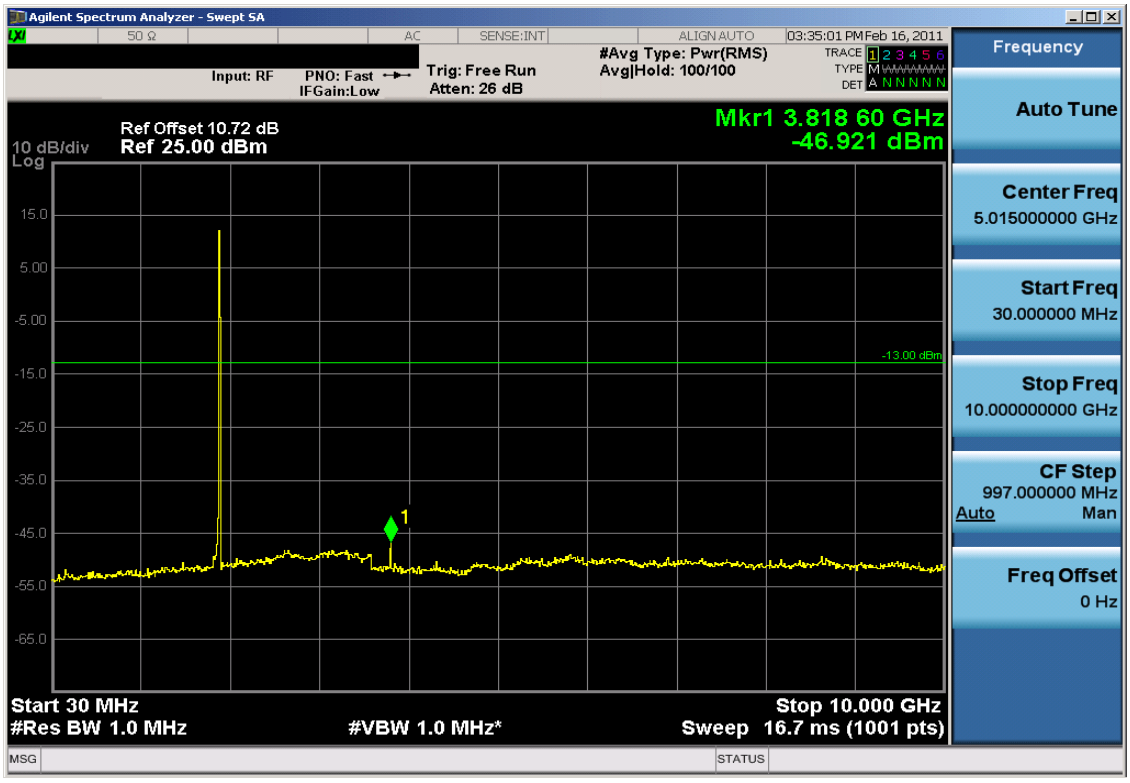


Plot 7-41. Peak-Average Ratio Plot (PCS WCDMA Mode – Ch. 9400)



Plot 7-42. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9538)

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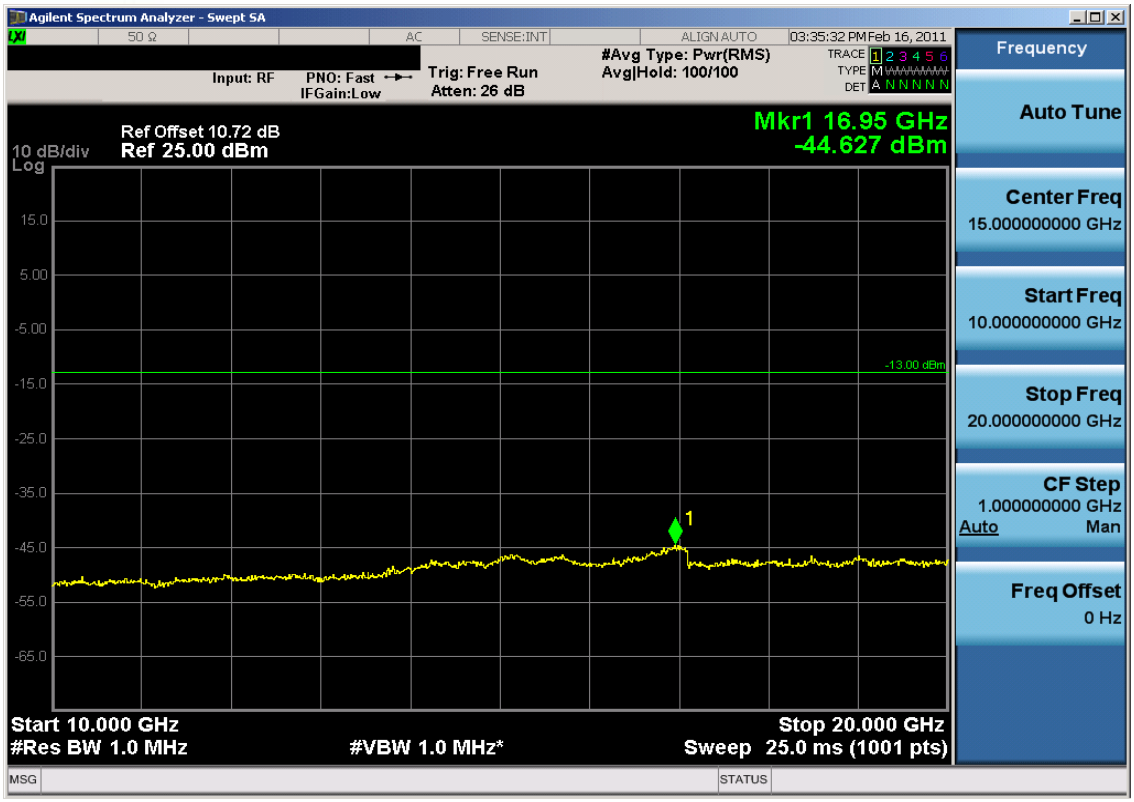
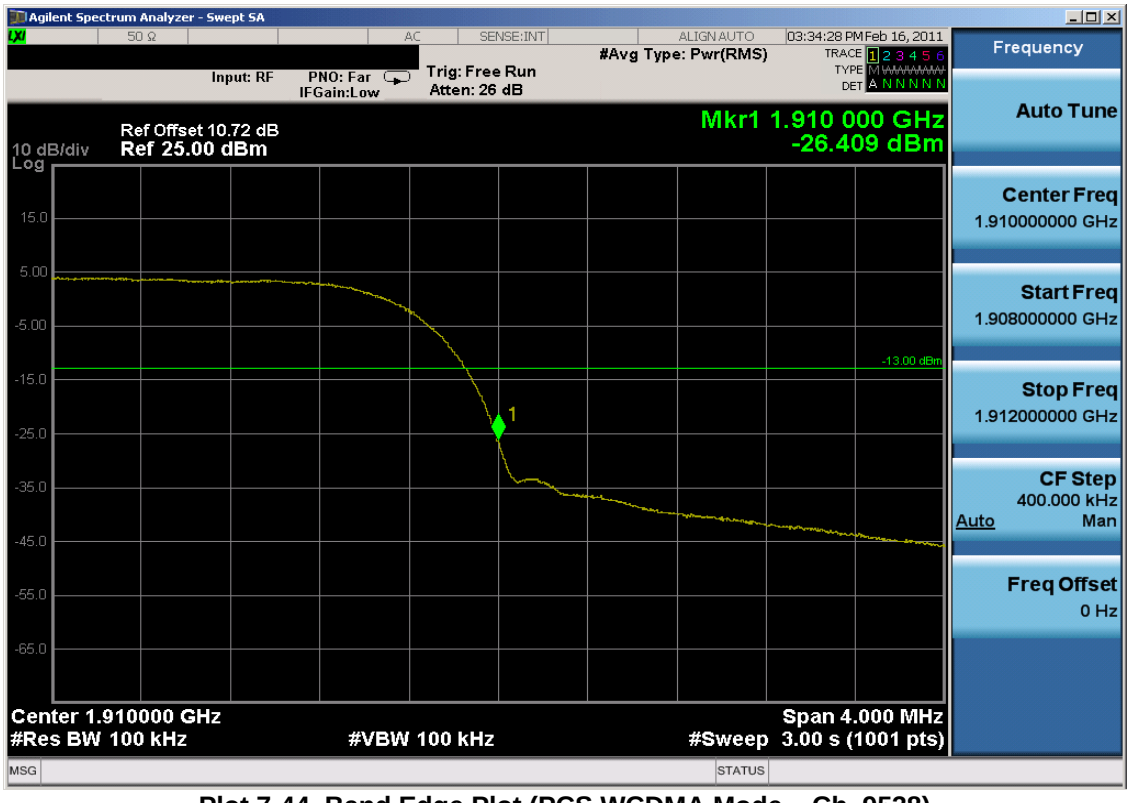


Plot 7-43. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9538)



Plot 7-44. Band Edge Plot (PCS WCDMA Mode – Ch. 9538)

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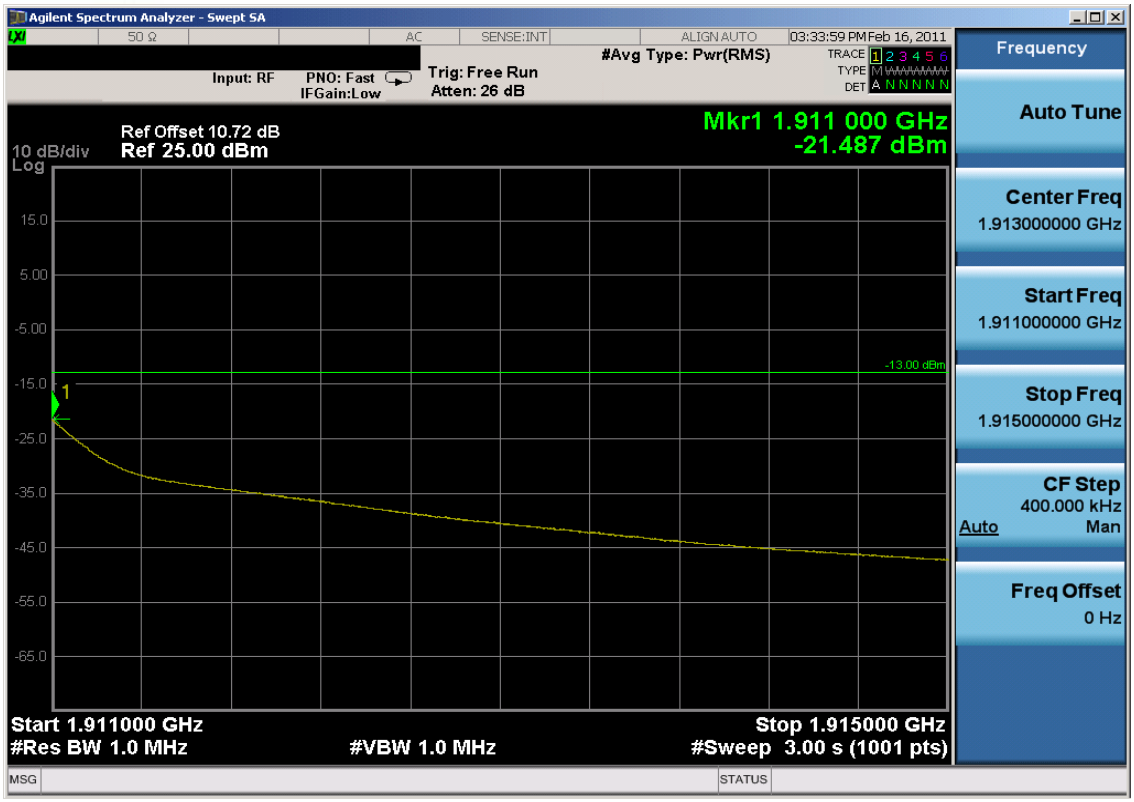

Plot 7-45. 4MHz Span Plot (PCS WCDMA Mode – Ch. 9538)

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung 850/1900 GSM/GPRS/EDGE/WCDMA/HSPA Module FCC ID: A3LGTY3400** complies with all the requirements of Parts 2, 22, and 24 of the FCC rules and RSS-132 and RSS-133 of the Industry Canada rules.

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