HCT CO., LTD.
Product Compliance Division
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CERTIFICATE OF COMPLIANCE

FCC Part 24 & 22 Certification

Applicant Name:
LG Electronics, Inc.

Address:
60-39, Kasan-Dong, Kumchon-Gu, Seoul 153-801, Korea

Date of Testing:
August 25, 2008

Test Site/Location:
HCT.CO., LTD., San 136-1 Ami-ri, Bubal-eup, Icheon-si, Kyoungki-do, Korea

Test Report No.: HCT-R08-143

HCT FRN: 0005866421

FCC ID : BEJKP330

APPLICANT : LG Electronics, Inc.

Application Type:	Certification
FCC Classification:	Licensed Portable Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§22, §24, §2
EUT Type:	Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth
Model(s):	KP330
Tx Frequency:	824.20 - 848.80 MHz (GSM850) 826.40 - 846.60 MHz (WCDMA850) 1 850.20 - 1 909.80 MHz (GSM1900)
Rx Frequency:	869.20 - 893.80 MHz (GSM850) 871.40 - 891.60 (WCDMA850) 1 930.20 - 1 989.80 MHz (GSM1900)
Max. RF Output Power:	0.181 W ERP GSM850 (22.58 dBm) / 0.998 W EIRP GSM1900 (29.99 dBm) 0.113 W ERP EDGE850 (20.54 dBm) / 0.705 W EIRP EDGE1900 (28.48 dBm) 0.037 W ERP WCDMA850(15.72 dBm)
Emission Designator(s):	245KGXW (GSM850) 247KGXW (GSM1900) 246KG7W (GSM850EDGE) 246KG7W (GSM1900EDGE) 4M20F9W (WCDMA850)

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT.CO., LTD. Certifies that no party to this application has been denied FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Jong Seok Lee
Report prepared by
: Jong Seok Lee
Test engineer of RF Part

Sang Jun Lee
Approved by
: Sang Jun Lee
Manager of RF Part

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	LG Electronics, Inc.
Address:	60-39, Kasan-Dong, Kumchon-Gu, Seoul 153-801, Korea
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Max. RF Output Power:	0.181 W ERP GSM850 (22.58 dBm) / 0.998 W EIRP GSM1900 (29.99 dBm) 0.113 W ERP EDGE850 (20.54 dBm) / 0.705 W EIRP EDGE1900 (28.48 dBm) 0.037 W ERP WCDMA850(15.72 dBm)
Emission Designator(s):	245KGXW (GSM850) 247KGXW (GSM1900) 246KG7W (GSM850EDGE) 246KG7W (GSM1900EDGE) 4M20F9W (WCDMA850)
Antenna Specification	Manufacturer: E.M.W Antenna Co., Ltd. Antenna type: Internal Antenna Peak Gain : 0.2 dBi
Date(s) of Tests:	August 25, 2008
Place of Tests:	HCT.CO., LTD. San 136-1 Ami-ri, Bubal-eup, Icheon-si,
Report Serial No	HCT-R08-143

2. INTRODUCTION

2.1. EUT DESCRIPTION

The LG Electronics, Inc. KP330 Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth and WLAN consists of GSM850, GSM1900, GPRS Class12, EDGE and WCDMA850.

2.2. MEASURING INSTRUMENT CALIBRATION

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

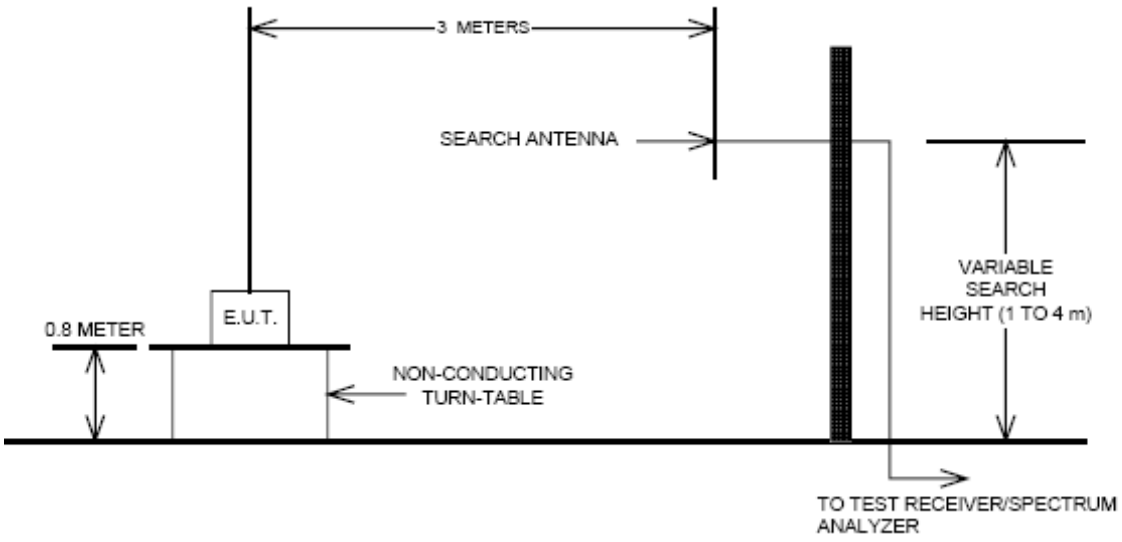
2.3. TEST FACILITY

The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1, Maekok-Ri, Hobup-Myun, Ichon-Si, Kyoungki-Do, 467-701, KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated July 6, 2006(Registration Number: 90661)

3. DESCRIPTION OF TESTS

3.1 Effective Radiated Power/Equivalent Isotropic Radiated Power

Test Set-up



Test Procedure

Radiated emission measurements were performed at an open Site.

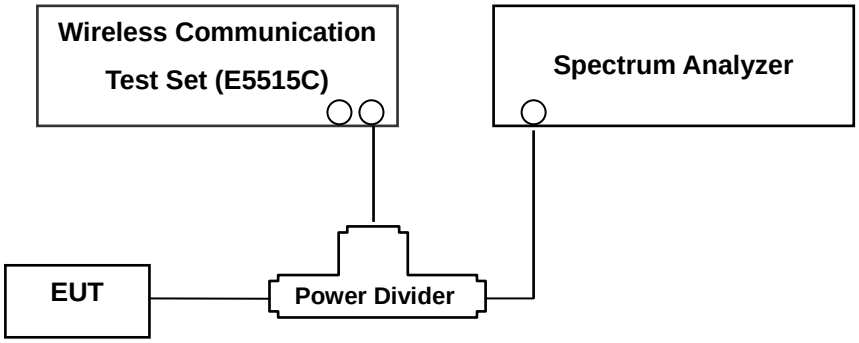
The equipment under test is placed on a wooden turntable 3-meters from the receive antenna.

A wooden turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

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

3.2 Occupied bandwidth.

Test set-up



(Configuration of conducted Emission measurement)
Test Procedure

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

3.3 Spurious and Harmonic Emissions at Antenna Terminal.

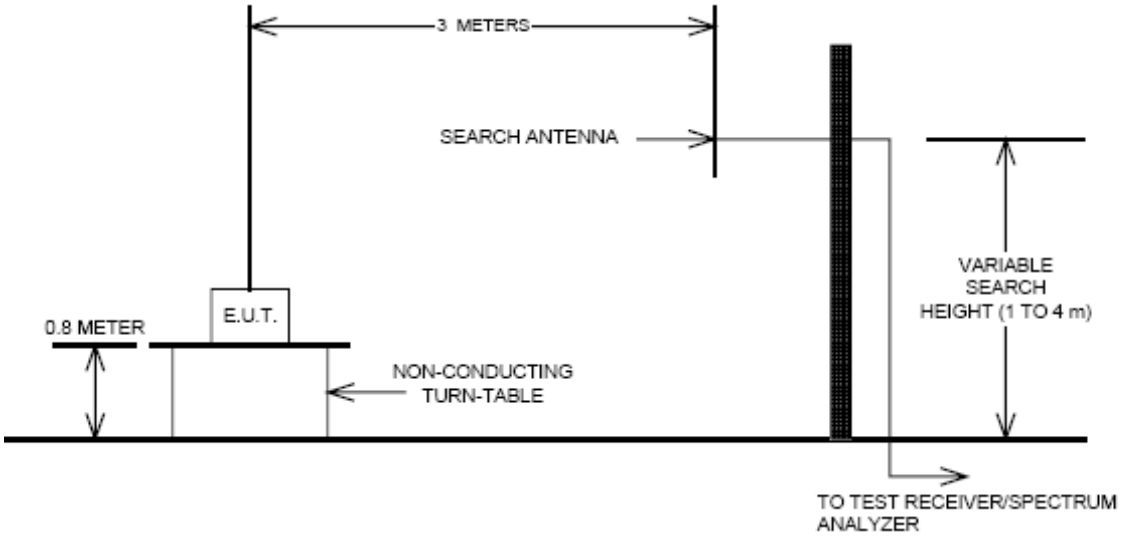
Test Procedure

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

The EUT was setup to maximum output power at its lowest channel. The Resolution BW of the analyzer is set to 1 % of the emission bandwidth to show compliance with the – 13 dBm limit, in the 1 MHz bands immediately outside and adjacent to the edge of the frequency block. The 1 MHz RBW was used to scan from 10 MHz to 10 GHz. (GSM1900 Mode: 10 MHz to 20 GHz). A display line was placed at – 13 dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

3.4 Radiated Spurious and Harmonic Emissions

Test Set-up



The measurement facilities used for this test have been documented in previous filings with the commission pursuant to section § 2.948. The open field test site is situated in open field with ground screen whose site attenuation characteristics meet ANSI C63.4 –2003. A mast capable of lifting the receiving antenna from a height of one to four meters is used together with a rotatable wooden platform mounted at three from the antenna mast.

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

Test Procedure

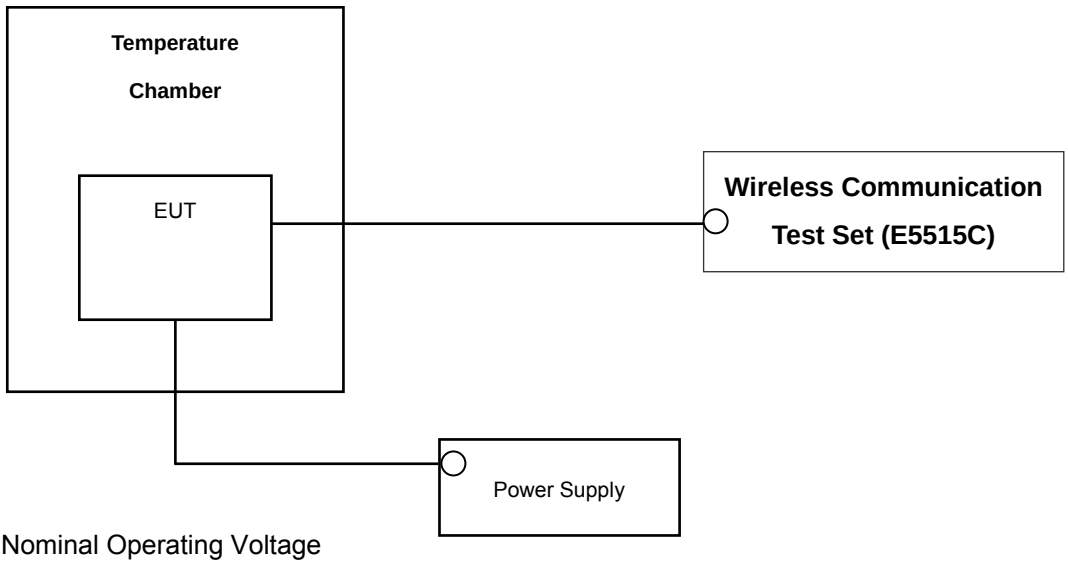
The equipment under test is placed on a wooden turntable 3-meters from the receive antenna.

A wooden turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

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

3.5 Frequency stability / variation of ambient temperature

Test Set-up



* Nominal Operating Voltage

Test Procedure

The frequency stability of the transmitter is measured by:
a.) **Temperature:** The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.

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

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

Time Period and Procedure:

The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
1. The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

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

4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Interval	Calibration Due
R&S	ESI40/ Spectrum Analyzer	831564/003	Annual	11/06/2008
Agilent	E4419B/ Power Meter	MY41291386	Annual	11/05/2008
Agilent	8481A/ Power Sensor	MY41090870	Annual	11/05/2008
Agilent	8960 (E5515C)/ Base Station	GB444400269	Annual	02/11/2009
Tescom	TC-3000/ Bluetooth Simulator	3000A4900112	Annual	01/11/2009
MITEQ	AMF-60-0010 1800-35-20P / AMP	1200937	Annual	01/15/2009
Wainwright	WHK1.2/15G-10EF/H.P.F	2	Annual	06/28/2009
Wainwright	WHK3.3/18G-10EF/H.P.F	1	Annual	06/28/2009
Agilent	778D/ Dual Directional Coupler	16072	Annual	11/09/2008
Agilent	1506A/ Power Divider	99441	Annual	11/10/2008
Digital	EP-3010/ Power Supply	3110117	Annual	12/29/2008
Schwarzbeck	UHAP/ Dipole Antenna	630	Annual	11/13/2008
Schwarzbeck	UHAP/ Dipole Antenna	605	Annual	11/13/2008
R&S	HFH2-Z2/ Loop Antenna	881056/070	Annual	12/11/2008
Korea Engineering	KR-1005L / Chamber	KRAB07063-2CH	Annual	01/05/2009
Schwarzbeck	VULB9160/ TRILOG Antenna	3150	Biennial	04/20/2009
Schwarzbeck	VULB9160/ TRILOG Antenna	3125	Biennial	05/16/2009
Schwarzbeck	BBHA 9120D/ Horn Antenna	147	Biennial	03/26/2010
Schwarzbeck	BBHA 9120D/ Horn Antenna	1201	Biennial	05/02/2009
Agilent	E4440A/Spectrum Analyzer	US45303008	Annual	01/08/2009

5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result
2.1049, 22.917(a), 24.238(a)	Occupied Bandwidth	N/A	CONDUCTED	PASS
2.1051, 22.917(a), 24.238(a)	Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	< 43 + $\log_{10}$ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS
2.1046	Conducted Output Power	N/A		PASS
2.1055, 22.355, 24.235	Frequency stability / variation of ambient temperature	< 2.5 ppm		PASS
22.913(a)(2) 24.232(c)	Effective Radiated Power	< 7 Watts max. ERP	RADIATED	PASS
	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		PASS
2.1053, 22.917(a), 24.238(a)	Radiated Spurious and Harmonic Emissions	< 43 + $\log_{10}$ (P[Watts]) for all out-of band emissions		PASS

6. SAMPLE CALCULATION

A. ERP Sample Calculation

Mode	Ch./ Freq.		Measured Level(dBm)	Substitude LEVEL(dBm)	Ant. Gain	C.L	Pol.	ERP	
	channel	Freq.(MHz)						W	dBm
GSM850	128	824.20	-11.56	34.28	-8.32	1.17	H	0.30	24.79

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

1) The EUT mounted on a wooden tripod is 0.8 meter above test site ground level.
2) During the test , the turn table is rotated and the antenna height is also varied from 1 to 4 meters until the maximum signal is found.
3) Record the field strength meter's level.
4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power (**ERP**).

B. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

F = Frequency Modulation

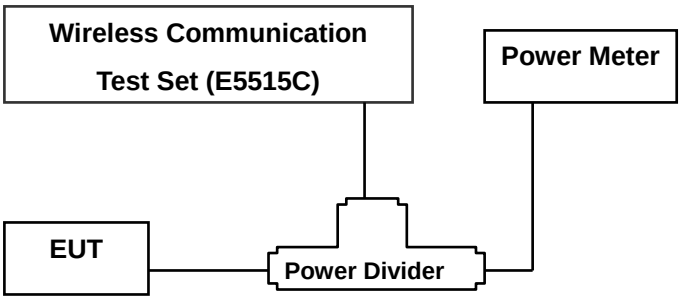
9 = Composite Digital Info

W = Combination (Audio/Data)

7. TEST DATA

7.1 Conducted Output Power

A base station simulator was used to establish communication with the Pantech Dual-Band Dual-Mode GSM/WCDMA Phone with Bluetooth. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported. Conducted Output Powers of EUT are reported below.



Test Result

Band	Channel	Voice	GPRS Data			
		GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)
GSM 850	128	32.47	32.47	32.41	32.40	32.29
	190	32.49	32.49	32.40	32.40	32.31
	251	32.40	32.40	32.36	32.31	32.26
GSM 1900	512	29.94	29.95	29.87	29.75	29.66
	661	29.95	29.96	29.87	29.77	29.65
	810	29.90	29.90	29.81	29.73	29.57

(GSM Conducted Output Powers)

Band	Channel	EDGE Data			
		EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)	EDGE 3 TX Slot (dBm)	EDGE 4 TX Slot (dBm)
GSM 850	128	26.99	26.96	26.94	26.91
	190	27.02	27.00	26.97	26.94
	251	26.92	26.88	26.86	26.84
GSM 1900	512	24.98	24.95	24.90	24.86
	661	24.98	24.94	24.89	24.87
	810	24.94	24.92	24.87	24.83

(GSM EDGE Conducted Output Powers)

Band	Channel	HSDPA INACTIVE	
		12.2kbps RMC (dBm)	12.2kbps AMR (dBm)
WCDMA 850	4132	22.32	22.34
	4183	22.40	22.48
	24.05	22.36	22.38

(WCDMA Conducted Output Powers)

7.2 Effective Radiated Power Output (GSM / WCDMA)

(GSM850 Mode)

Ch./ Freq.		Measured	Substitude	Ant. Gain	C.L	Pol.	ERP	
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)				**W**	**dBm**
128	824.20	-15.16	30.68	-8.32	1.17	H	0.13	21.19
190	836.60	-15.01	31.48	-8.22	1.19	H	0.16	22.07
251	848.80	-15.22	31.90	-8.12	1.20	H	0.18	22.58
EDGE 190	836.60	-16.54	29.95	-8.22	1.19	H	0.11	20.54

(WCDMA850 Mode)

Ch./ Freq.		Measured	Substitude	Ant. Gain	C.L	Pol.	ERP	
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)				**W**	**dBm**
4132	826.40	-22.32	13.09	2.24	1.17	H	0.03	14.16
4175	836.40	-22.43	13.33	2.51	1.19	H	0.03	14.65
4233	846.60	-21.95	14.15	2.77	1.20	H	0.04	15.72

Note: Standard batteries are the only options for this phone

NOTES:

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

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps AMR and TPC bits all set to “1” and in GSM mode and using a Power Control Level of “0” in the PCS Band and “5” in the Cellular Band. This unit was tested with its standard battery.

7.3 Equivalent Isotropic Radiated Power (E.I.R.P.) (GSM)

(GSM1900 Mode)

Ch./ Freq.		Measured Level(dBm)	Substitude LEVEL (dBm)	Ant. Gain	C.L	Pol.	EIRP	
channel	Freq.(MHz)						**W**	**dBm**
512	1,850.20	-11.36	20.25	10.05	1.91	H	0.69	28.38
661	1,880.00	-10.87	20.95	10.05	1.95	H	0.80	29.05
810	1,909.80	-10.00	21.90	10.06	1.97	H	1.00	29.99
EDGE 810	1,909.80	-11.51	20.39	10.06	1.97	H	0.70	28.48

Note: Standard batteries are the only options for this phone

NOTES:

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

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps AMR and TPC bits all set to “1” and in GSM mode and using a Power Control Level of “0” in the PCS Band and “5” in the Cellular Band. This unit was tested with its standard battery.

7.4 Radiated Spurious Emissions(GSM850 Mode)

▣ MEASURED OUTPUT POWER: 22.58dBm = 0.181 W

▣ MODULATION SIGNAL: GSM850

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 lo_{g10} (W)) = -35.58 dBc

Ch.	Freq.(MHz)	Measured Level [dBm]	Ant. Gain	Substitute Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
128	1,648.40	-34.08	7.09	-44.61	1.73	H	-39.25	-61.83
	2,472.60	-36.08	8.12	-43.19	2.28	H	-37.35	-59.93
	3,296.80	-52.46	9.72	-60.04	2.57	H	-52.89	-75.47
190	1,673.20	-35.22	7.23	-45.98	1.79	H	-40.54	-63.12
	2,509.80	-42.86	8.14	-49.99	2.33	H	-44.18	-66.76
	3,346.40	-51.85	9.99	-59.88	2.66	H	-52.55	-75.13
251	1,699.60	-36.88	7.41	-47.49	1.83	H	-41.91	-64.49
	2,549.40	-50.77	8.21	-58.05	2.34	H	-52.18	-74.76
	3,399.20	-51.42	9.91	-59.05	2.85	H	-51.99	-74.57

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

7.5 Radiated Spurious Emissions(GSM1900 Mode)

▣ MEASURED OUTPUT POWER: 29.99 dBm =0.998 W

▣ MODULATION SIGNAL: GSM1900

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 lo_{g10} (W)) = - 42.99 dBc

Ch.	Freq.(MHz)	Measured Level [dBm]	Ant. Gain	Substitute Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
512	3,700.40	-48.47	10.31	-54.74	2.73	H	-47.16	-77.15
	5,550.60	-47.39	10.55	-48.97	3.60	H	-42.02	-72.01
	7,400.80	-55.57	9.21	-46.69	3.88	H	-41.36	-71.35
661	3,760.00	-49.82	10.32	-55.79	2.73	H	-48.20	-78.19
	5,640.00	-42.84	10.60	-44.49	3.60	H	-37.49	-67.48
	7,520.00	-55.48	9.18	-46.38	3.88	H	-41.08	-71.07
810	3,819.60	-52.38	10.34	-58.26	2.73	H	-50.65	-80.64
	5,729.40	-43.81	10.65	-45.12	3.60	H	-38.07	-68.06
	7,639.20	-55.89	9.15	-46.56	3.88	H	-41.29	-71.28

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

7.6 Radiated Spurious Emissions(WCDMA850 Mode)

▣ MEASURED OUTPUT POWER: 15.72 dBm = 0.037 W

▣ MODULATION SIGNAL: WCDMA850

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 log_{10} (W)) = - 28.72 dBc

Ch.	Freq.(MHz)	Measured Level [dBm]	Ant. Gain	Substitute Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
4132	1,652.80	-36.80	7.09	-47.36	1.73	H	-42.00	-57.72
	2,479.20	-43.31	8.12	-50.43	2.28	H	-44.59	-60.31
	3,305.60	-49.96	9.72	-57.52	2.57	H	-50.37	-66.09
4175	1,672.80	-44.99	7.23	-55.75	1.79	H	-50.31	-66.03
	2,509.20	-45.90	8.14	-53.03	2.33	H	-47.22	-62.94
	3,345.60	-50.03	9.99	-58.06	2.66	V	-50.73	-66.45
4233	1,693.20	-46.79	7.41	-57.45	1.83	H	-51.87	-67.59
	2,539.80	-48.59	8.21	-55.85	2.34	H	-49.98	-65.70
	3,386.40	-54.11	9.91	-61.76	2.85	V	-54.70	-70.42

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

7.7 Frequency stability / variation of ambient temperature

7.7.1 FREQUENCY STABILITY (GSM850)

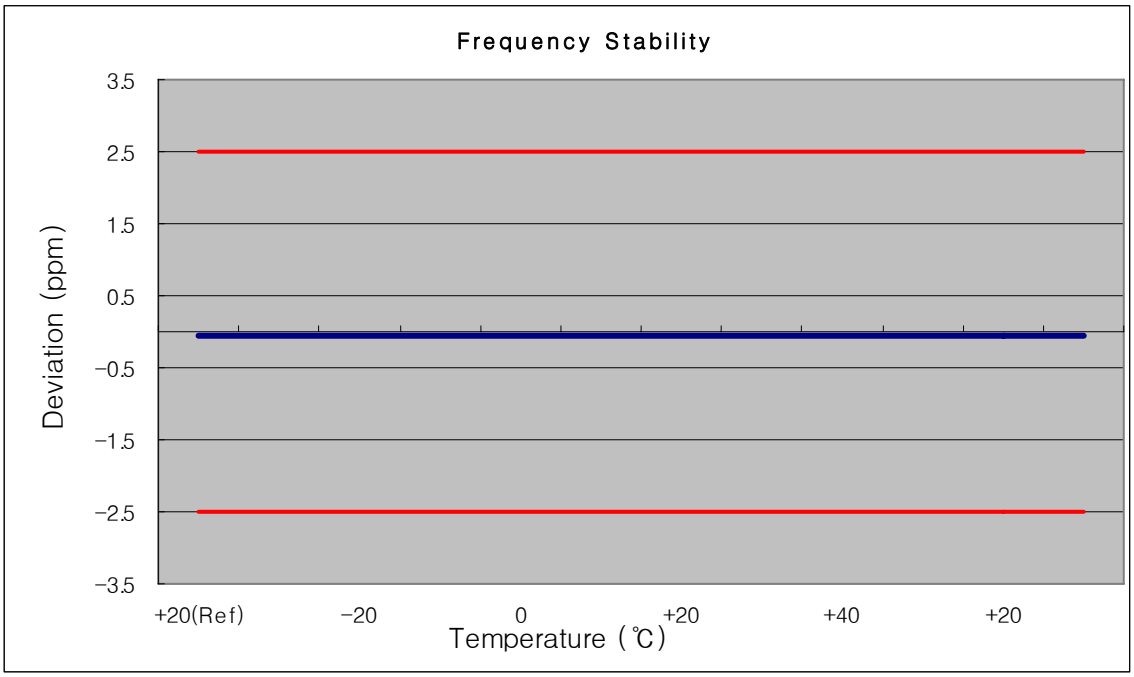
OPERATING FREQUENCY: 836,600,000 Hz

CHANNEL: 190

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIM IT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.700	+20(Ref)	836 599 945	−54.63	−0.000 007	−0.065
100%		−30	836 599 944	−56.28	−0.000 007	−0.067
100%		−20	836 599 944	−55.59	−0.000 007	−0.066
100%		−10	836 599 952	−48.26	−0.000 006	−0.058
100%		0	836 599 953	−47.43	−0.000 006	−0.057
100%		+10	836 599 949	−51.39	−0.000 006	−0.061
100%		+20	836 599 957	−42.8	−0.000 005	−0.051
100%		+30	836 599 955	−44.55	−0.000 005	−0.053
100%		+40	836 599 956	−44.31	−0.000 005	−0.053
100%		+50	836 599 957	−43.16	−0.000 005	−0.052
115%	4.255	+20	836 599 957	−42.83	−0.000 005	−0.051
Batt. Endpoint	3.400	+20	836 599 957	−43.46	−0.000 005	−0.052



7.7.2 FREQUENCY STABILITY (GSM1900)

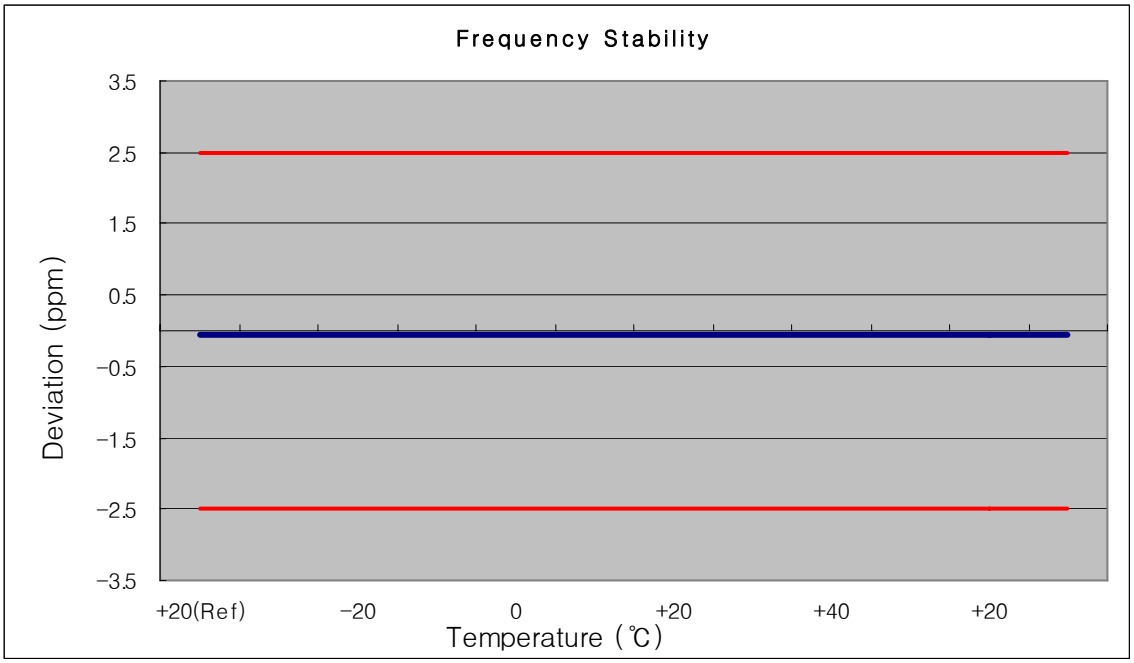
OPERATING FREQUENCY: 1880,000,000 Hz

CHANNEL: 661

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIM IT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.700	+20(Ref)	1879 999 898	-102.41	-0.000 005	-0.054
100%		-30	1879 999 885	-114.94	-0.000 006	-0.061
100%		-20	1879 999 895	-104.56	-0.000 006	-0.056
100%		-10	1879 999 898	-102.25	-0.000 005	-0.054
100%		0	1879 999 896	-104.12	-0.000 006	-0.055
100%		+10	1879 999 888	-112.18	-0.000 006	-0.060
100%		+20	1879 999 889	-111.03	-0.000 006	-0.059
100%		+30	1879 999 896	-103.73	-0.000 006	-0.055
100%		+40	1879 999 894	-105.62	-0.000 006	-0.056
100%		+50	1879 999 896	-103.86	-0.000 006	-0.055
115%	4.255	+20	1879 999 898	-102.28	-0.000 005	-0.054
Batt. Endpoint	3.400	+20	1879 999 893	-106.75	-0.000 006	-0.057



7.7.3 FREQUENCY STABILITY (WCDMA850)

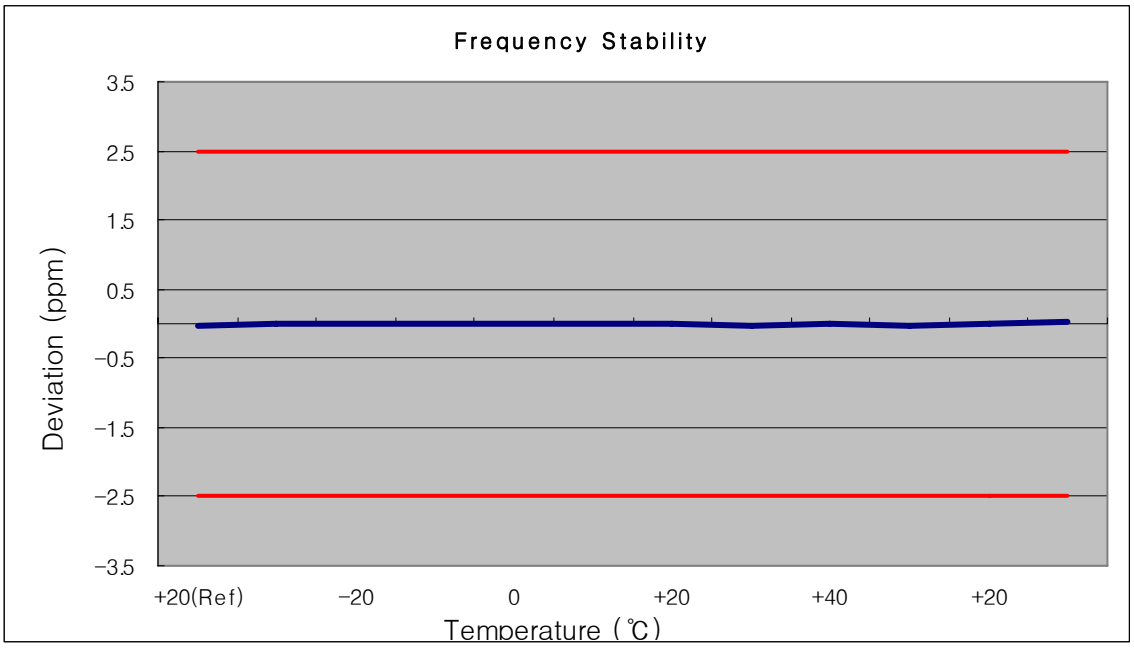
OPERATING FREQUENCY: 836,600,000 Hz

CHANNEL: 4183

REFERENCE VOLTAGE: 3.7 VDC

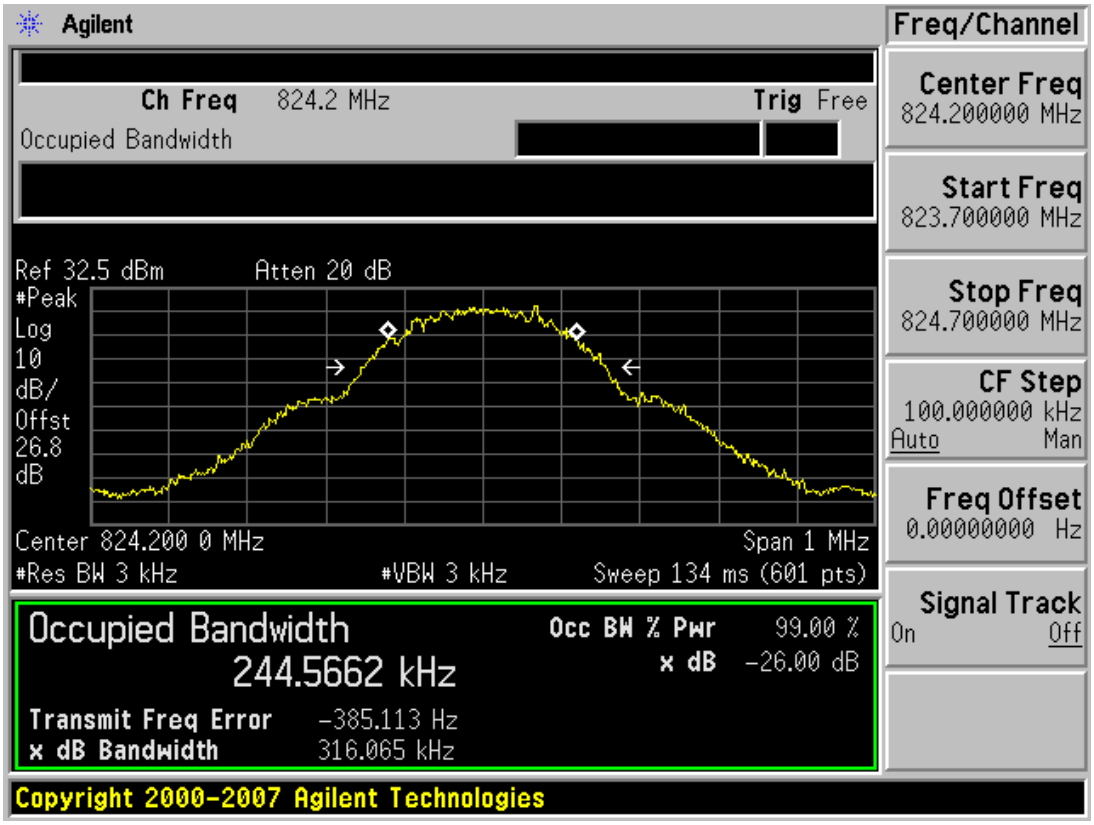
DEVIATION LIM IT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.700	+20(Ref)	836 599 985	-14.54	-0.000 017	-0.017
100%		-30	836 599 992	-8.14	-0.000 010	-0.010
100%		-20	836 599 989	-11.02	-0.000 013	-0.013
100%		-10	836 599 993	-6.92	-0.000 008	-0.008
100%		0	836 599 989	-10.51	-0.000 013	-0.013
100%		+10	836 599 993	-6.94	-0.000 008	-0.008
100%		+20	836 599 996	-3.73	-0.000 004	-0.004
100%		+30	836 599 979	-20.73	-0.000 025	-0.025
100%		+40	836 600 011	11.46	0.000 014	0.014
100%		+50	836 599 985	-14.85	-0.000 018	-0.018
115%	4.255	+20	836 600 011	11.08	0.000 013	0.013
Batt. Endpoint	3.400	+20	836 600 020	20.03	0.000 024	0.024

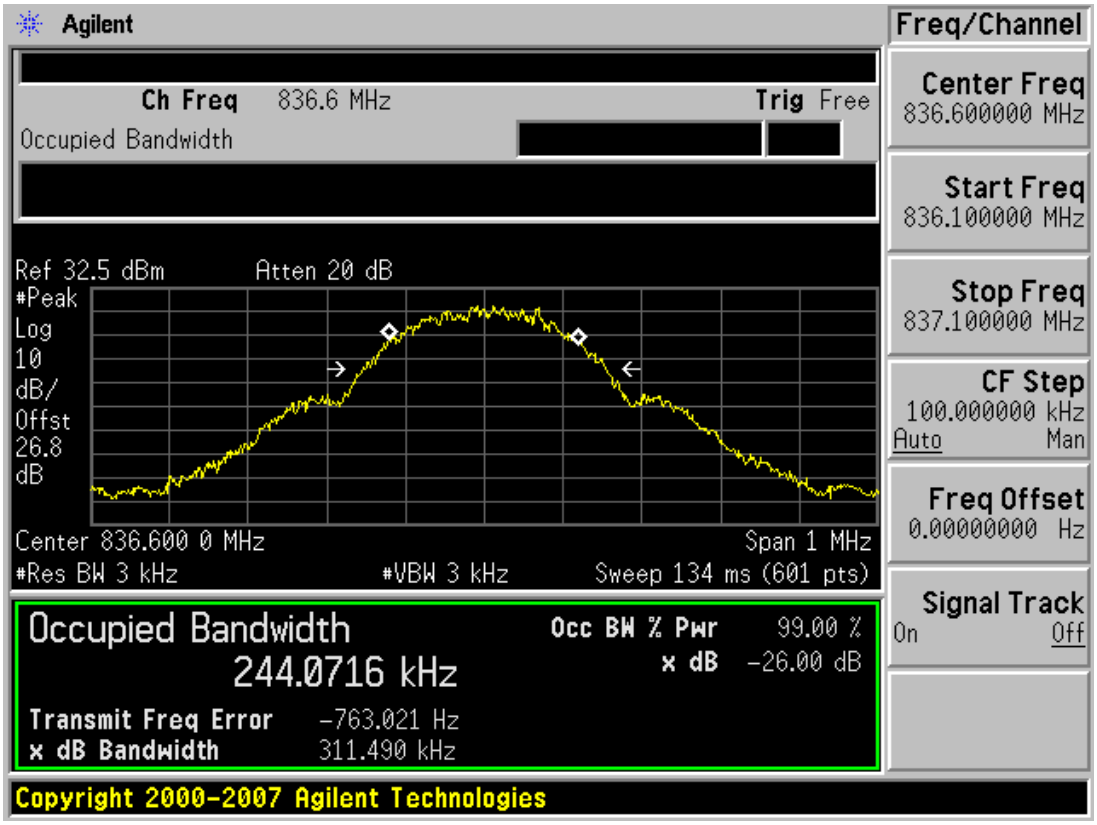


8. TEST PLOTS

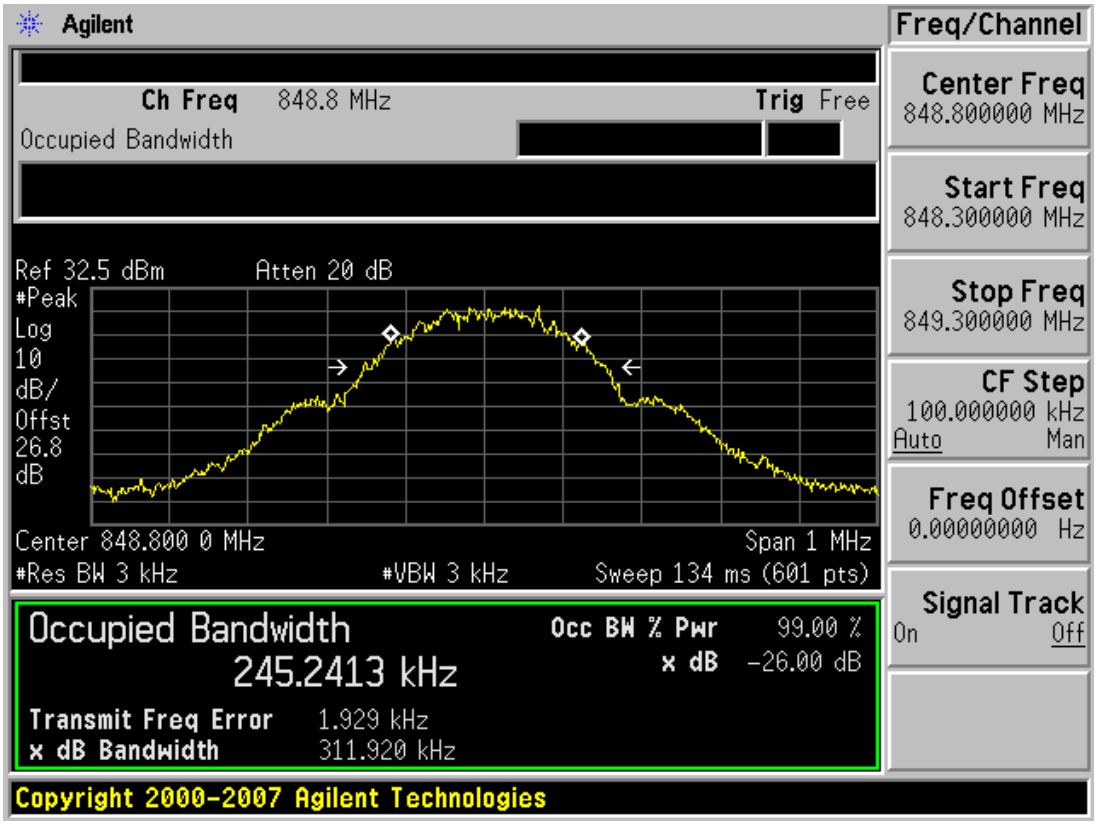
■ GSM850 MODE (128 CH.) Occupied Bandwidth



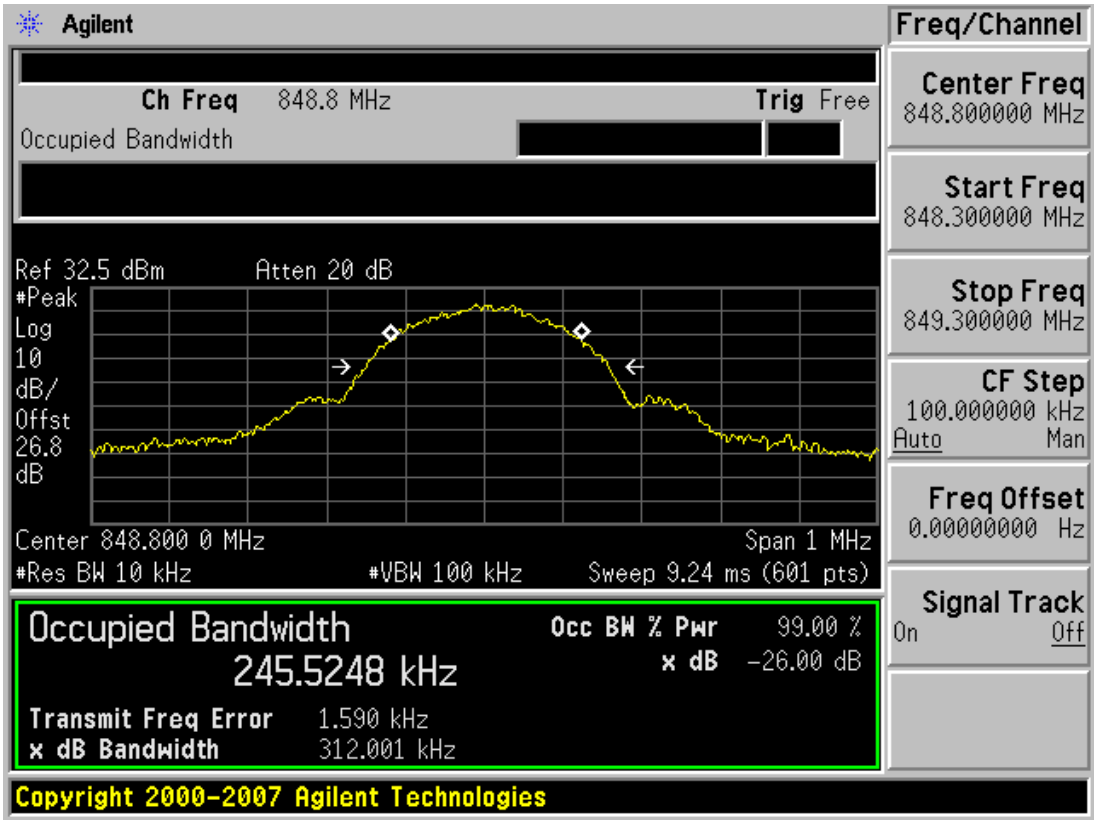
■ GSM850 MODE (190 CH.) Occupied Bandwidth



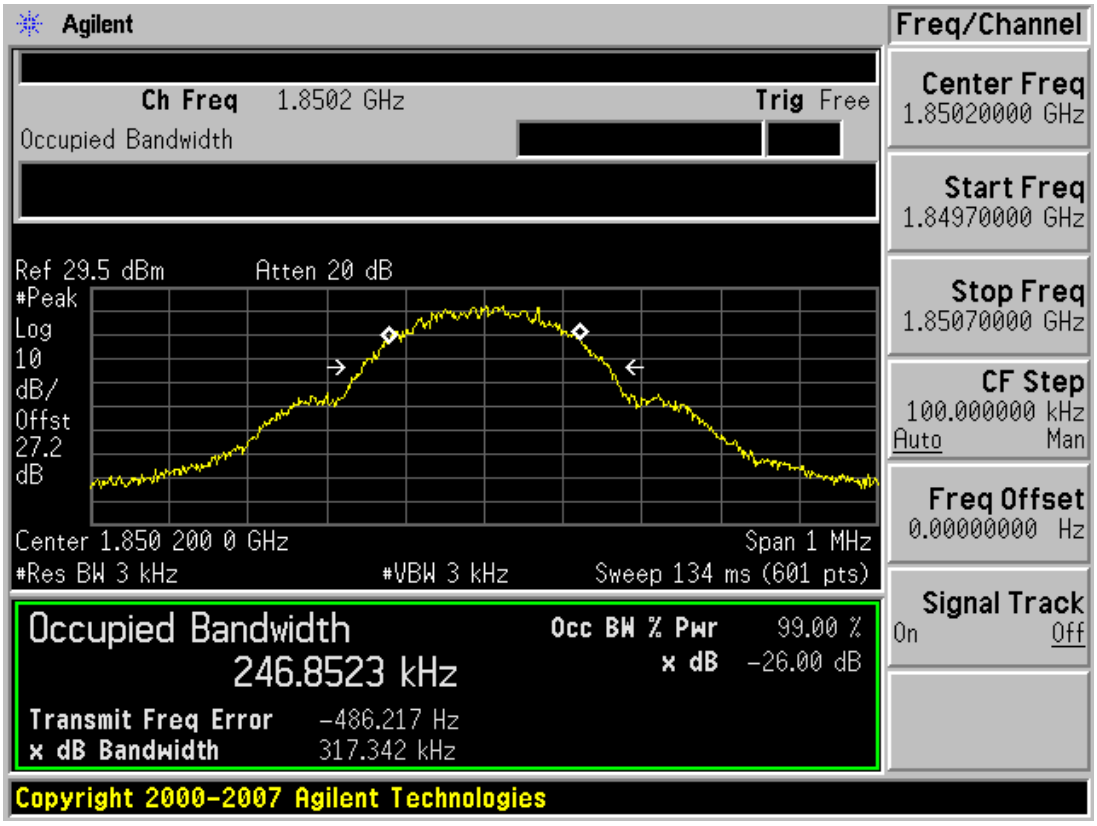
■ GSM850 MODE (251 CH.) Occupied Bandwidth



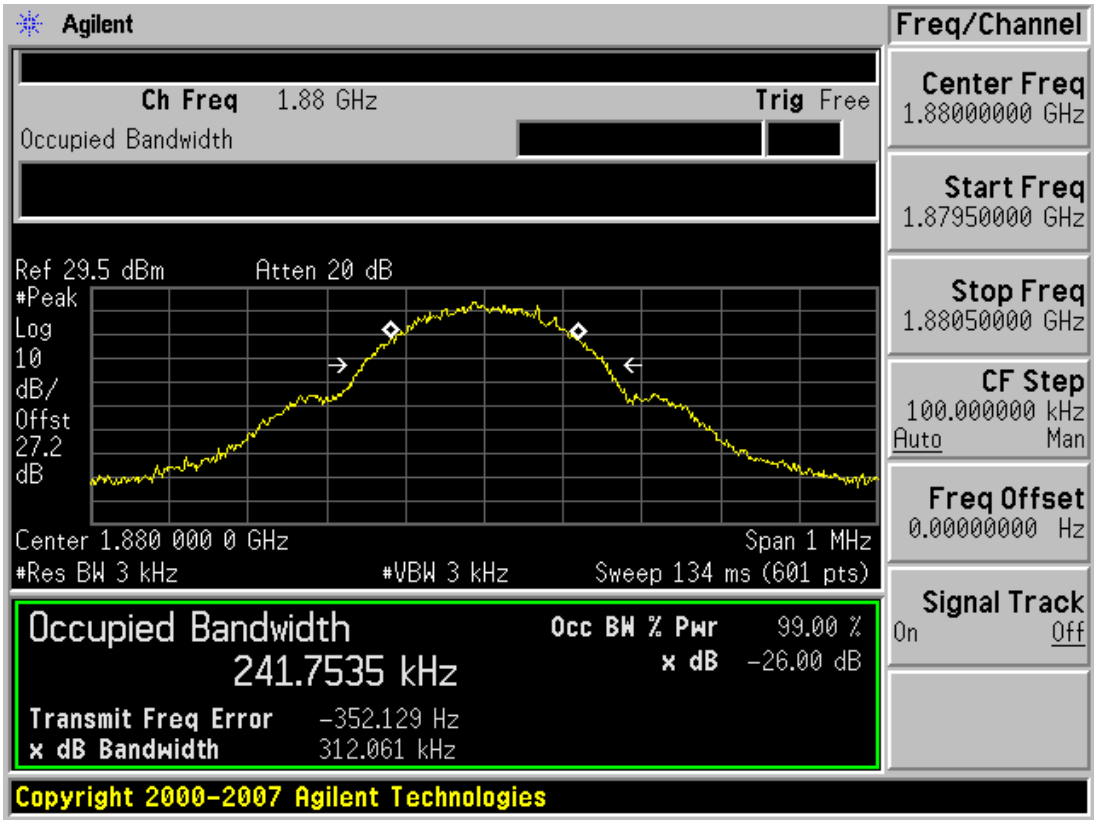
■ GSM850 EDGE (251 CH.) Occupied Bandwidth



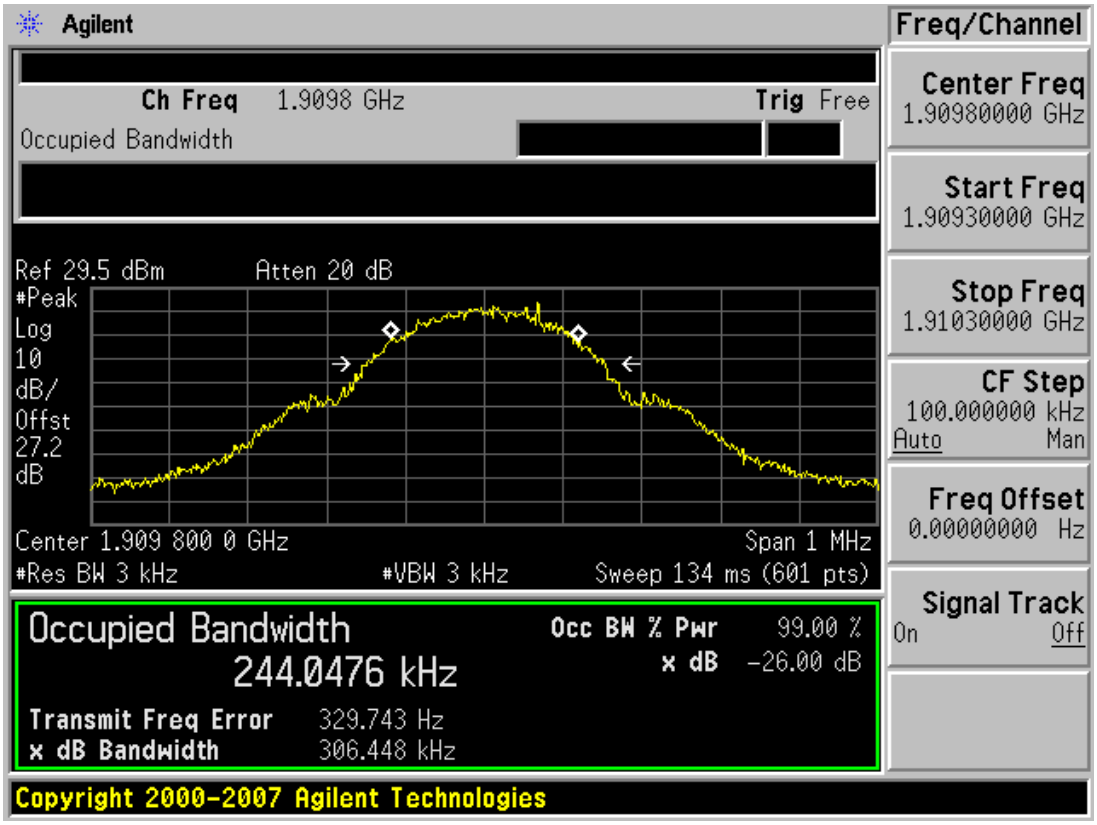
■ GSM1900 MODE (512 CH.) Occupied Bandwidth



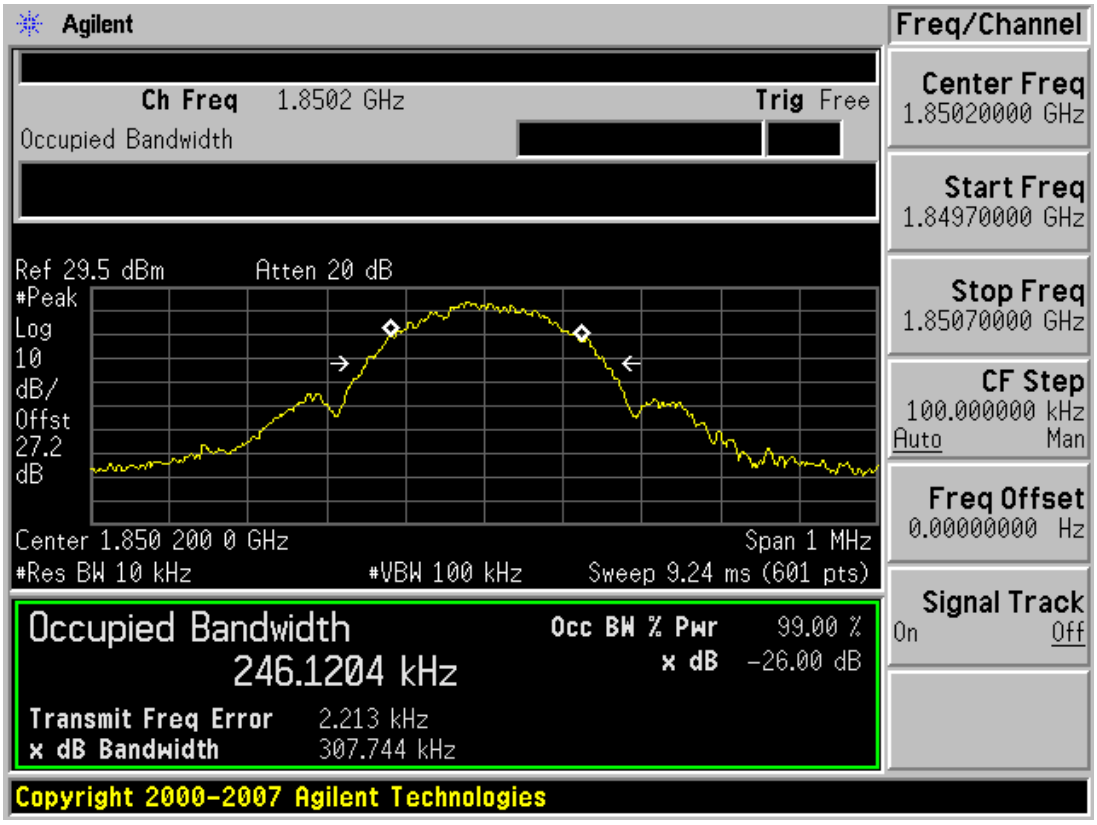
■ GSM1900 MODE (661 CH.) Occupied Bandwidth



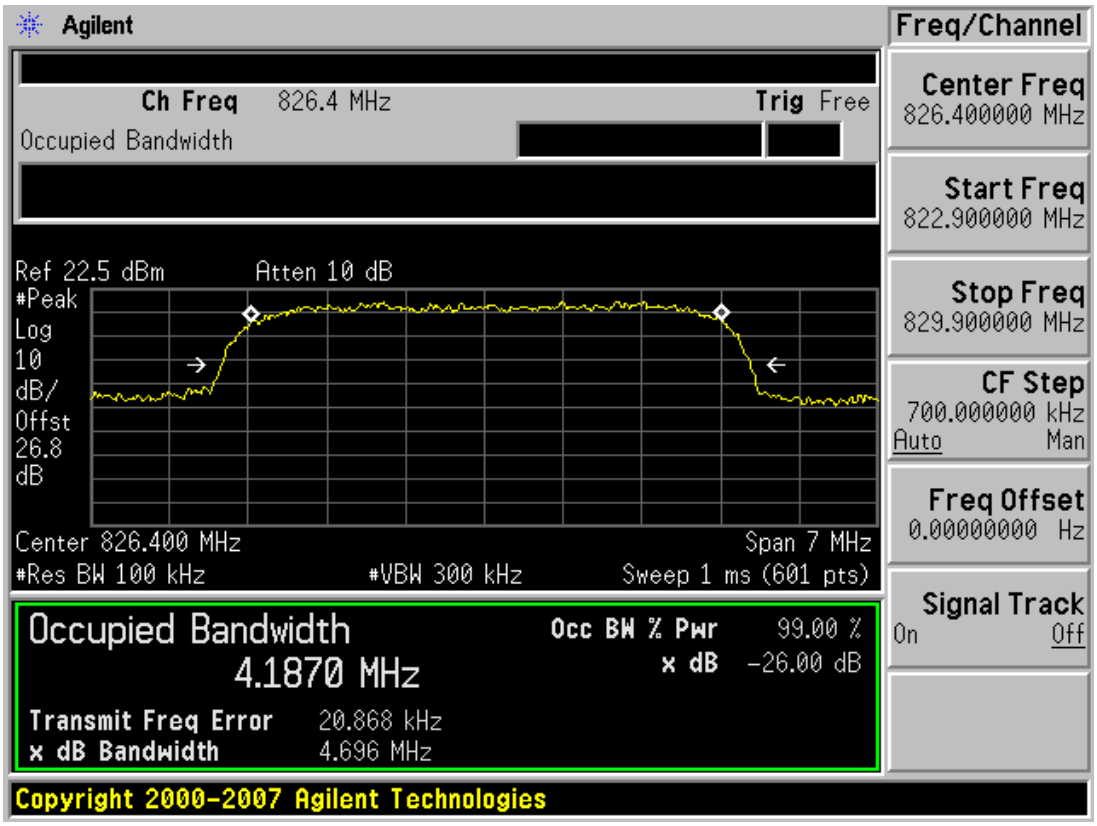
■ GSM1900 MODE (810 CH.) Occupied Bandwidth



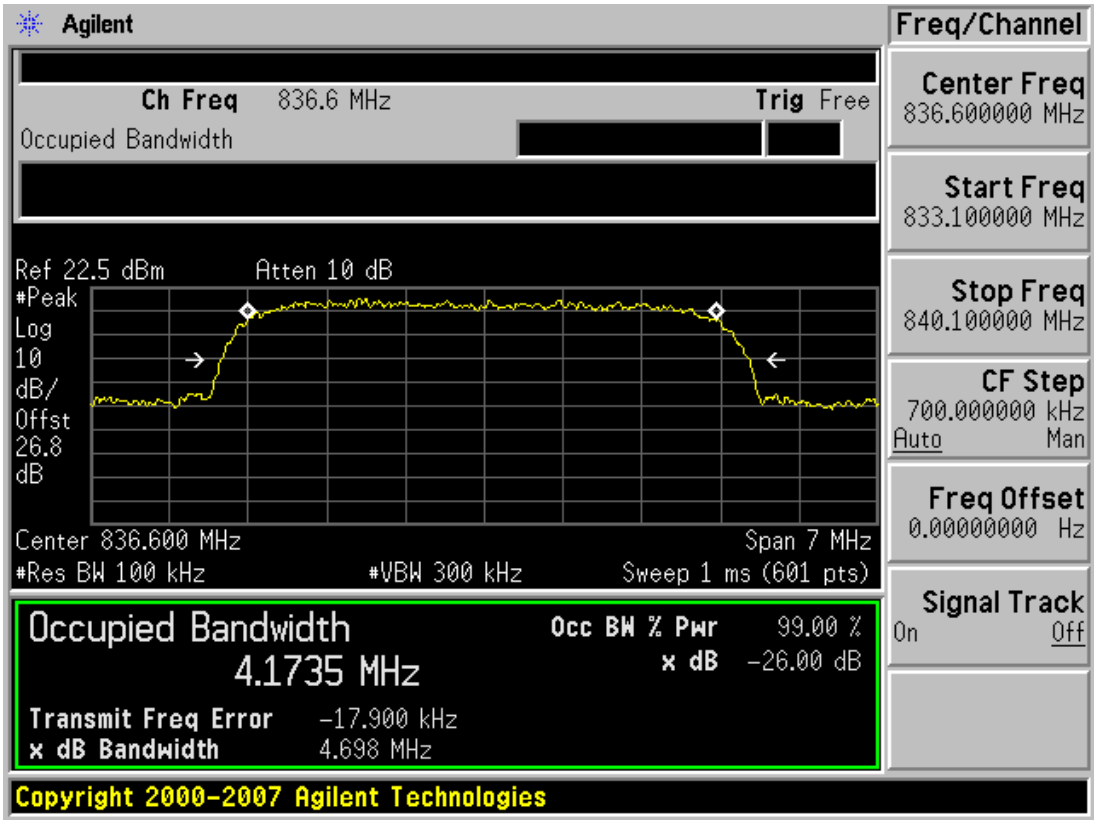
■ GSM1900 EDGE (512 CH.) Occupied Bandwidth



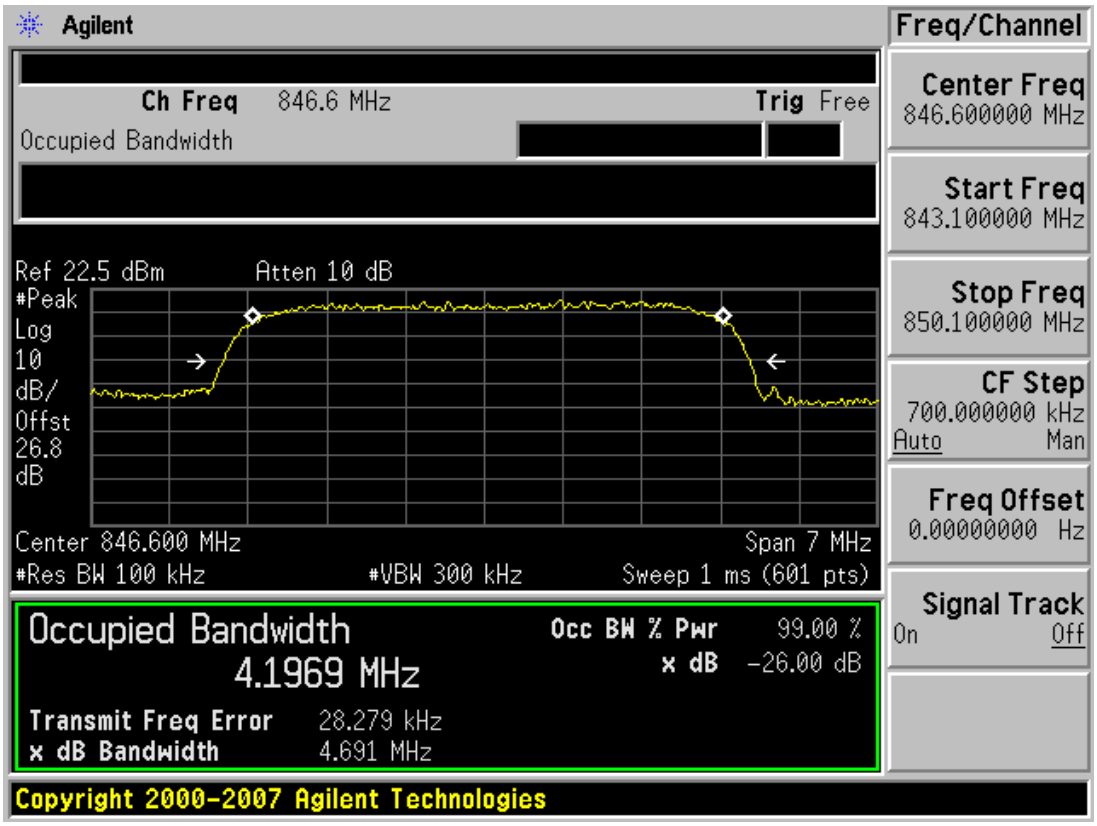
■ WCDMA850 MODE (4132 CH.) Occupied Bandwidth



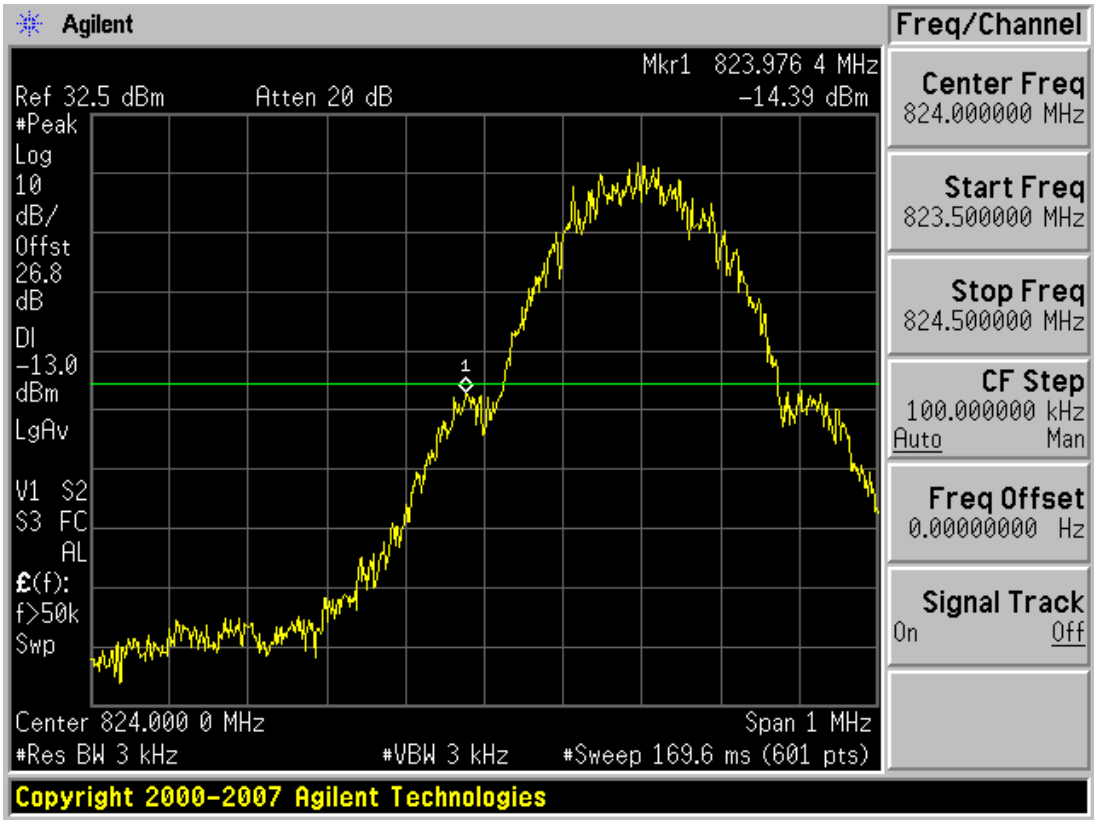
■ WCDMA850 MODE (4183 CH.) Occupied Bandwidth



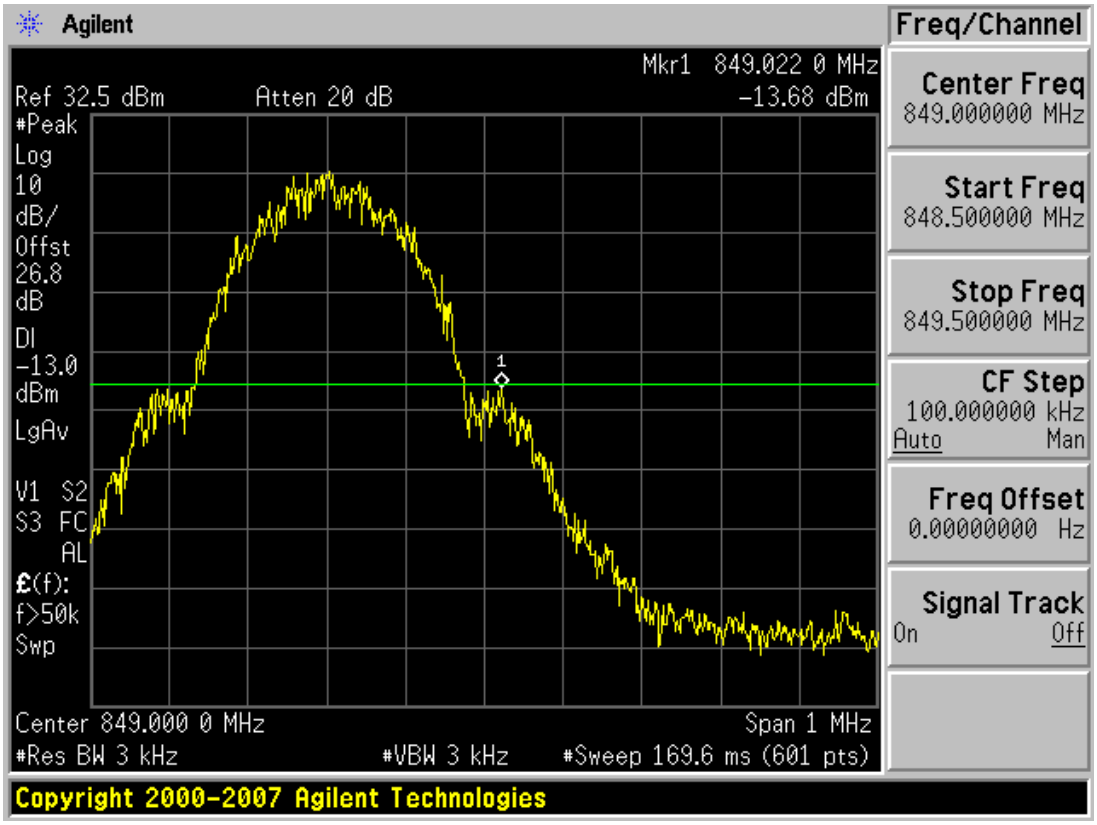
■ WCDMA850MODE (4233 CH.) Occupied Bandwidth



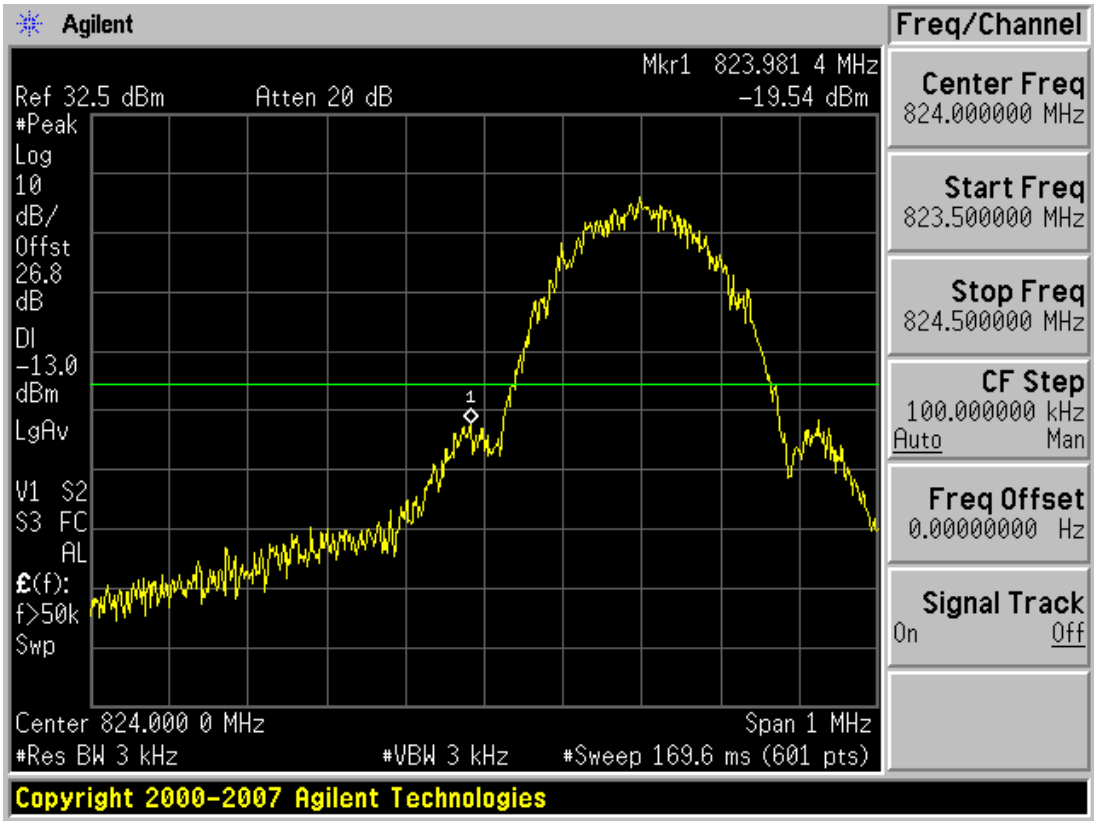
■ GSM850 MODE (128 CH.) Block Edge



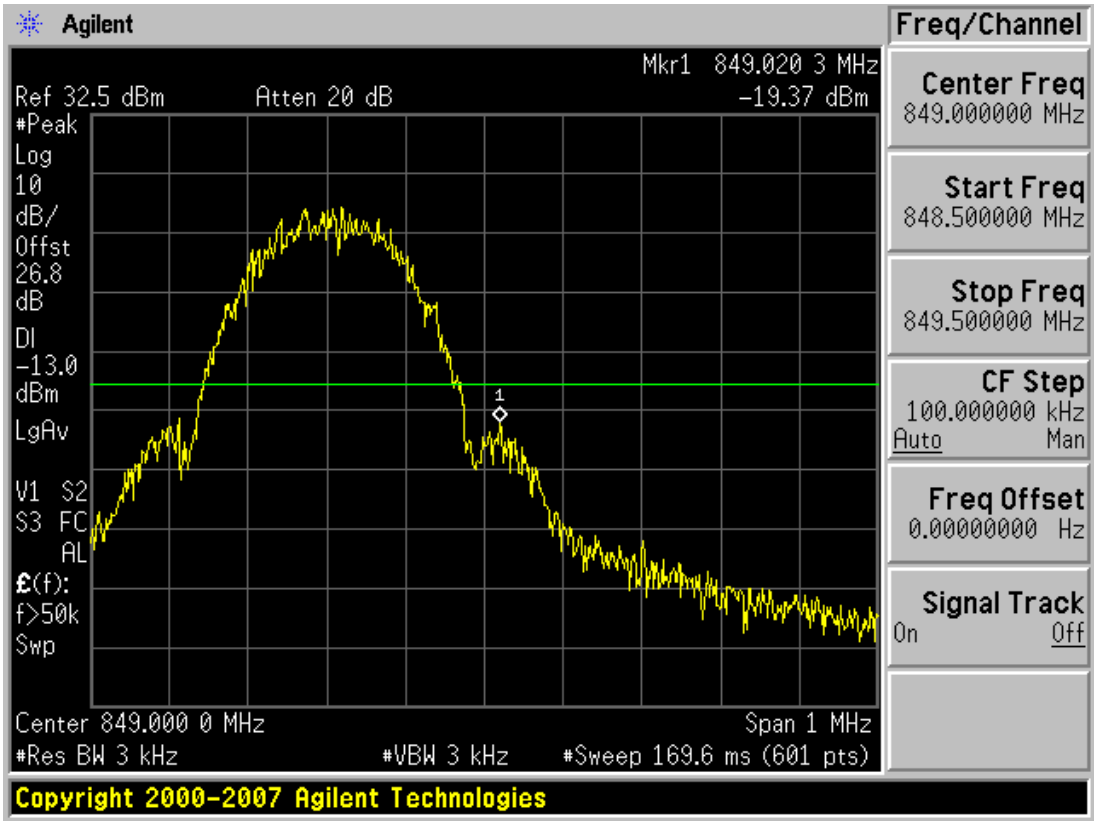
■ GSM850 MODE (251 CH.) Block Edge



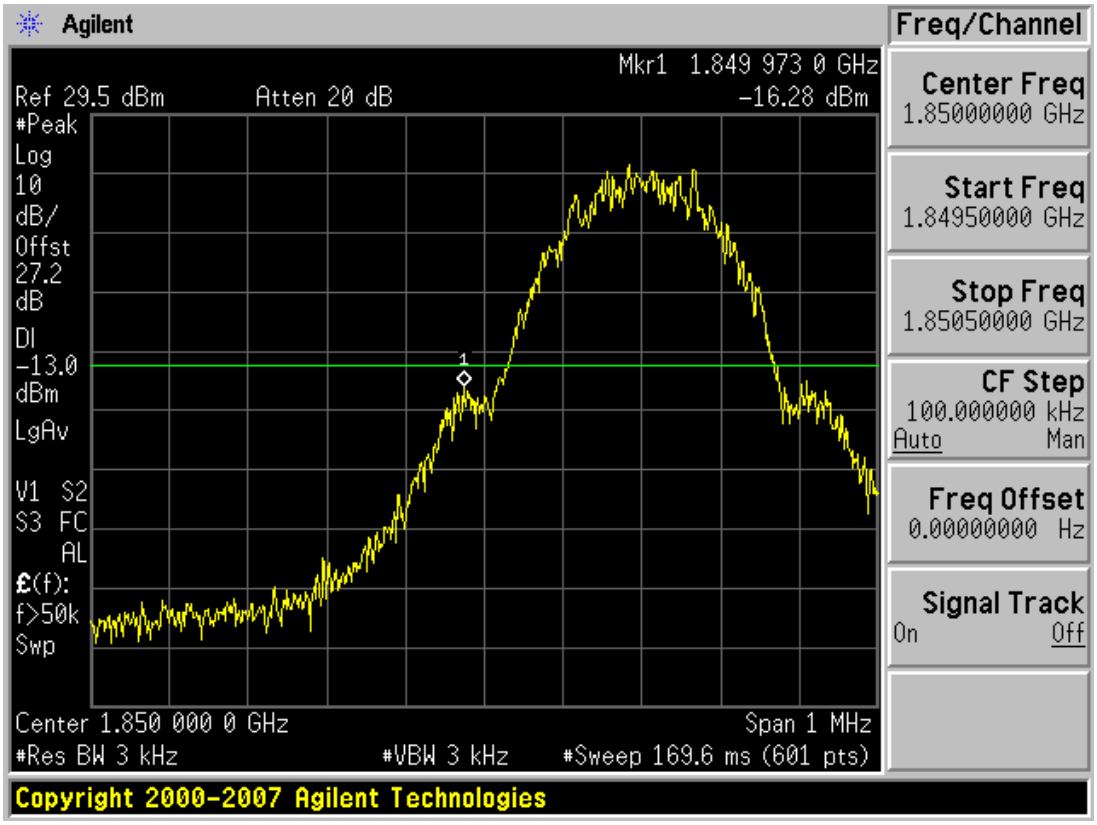
■ EDGE MODE (128 CH.) Block Edge



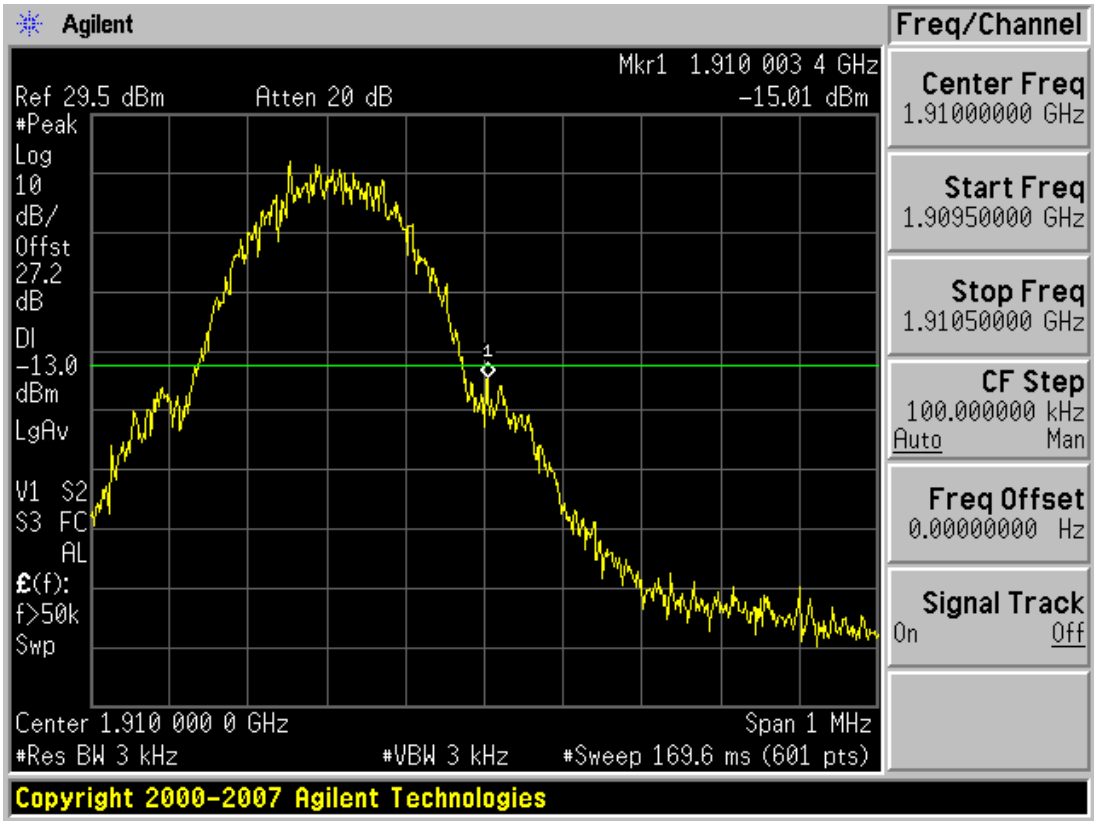
■ EDGE MODE (251 CH.) Block Edge



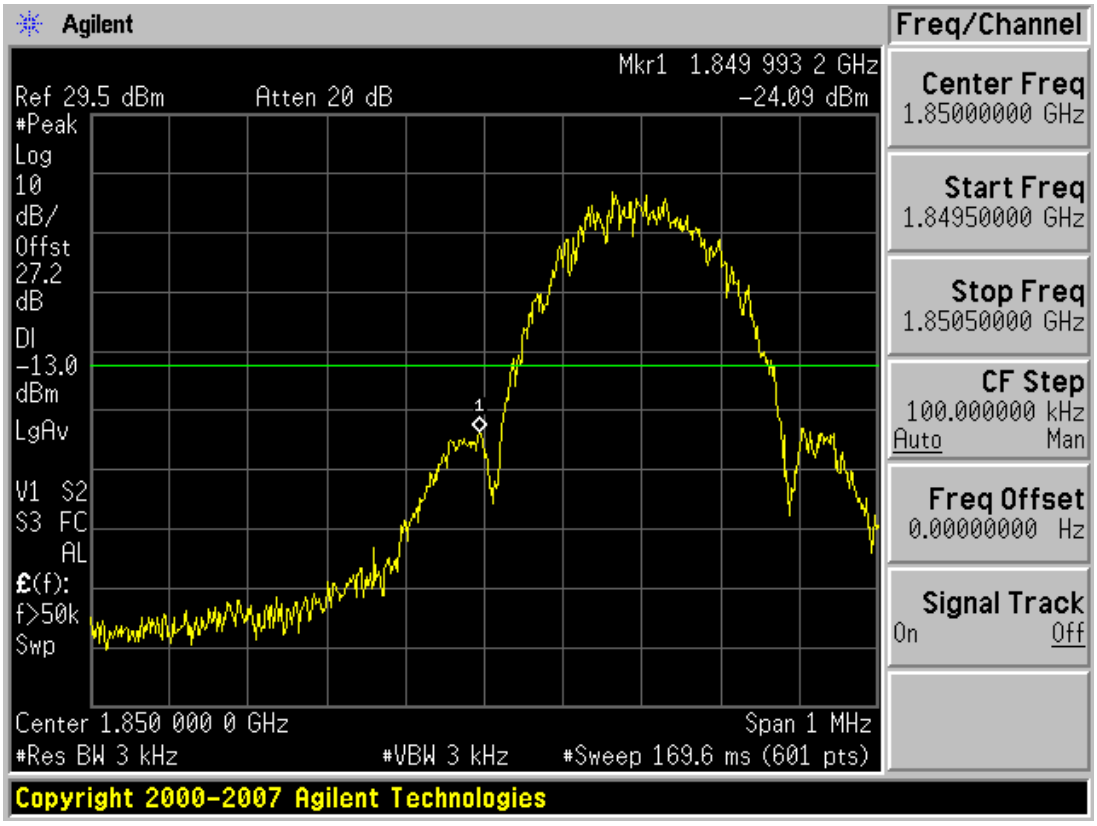
■ GSM1900 MODE (512 CH.) Block Edge



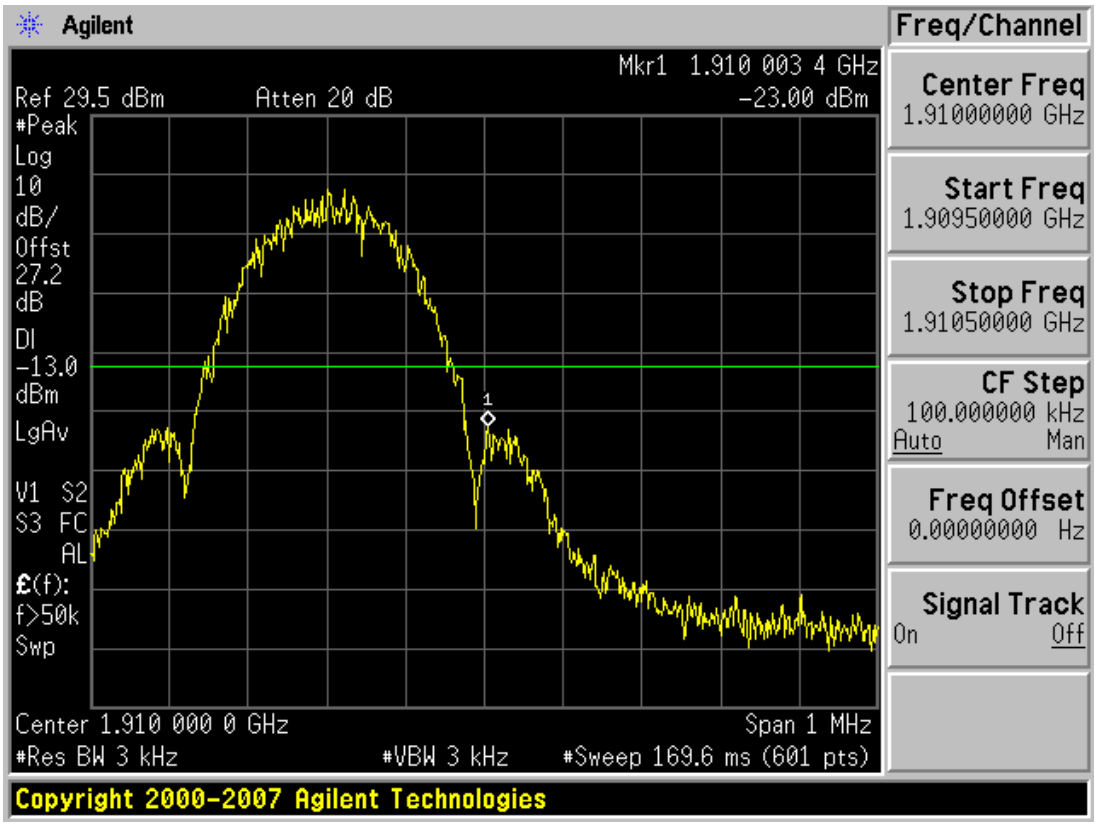
■ GSM1900 MODE (810 CH.) Block Edge



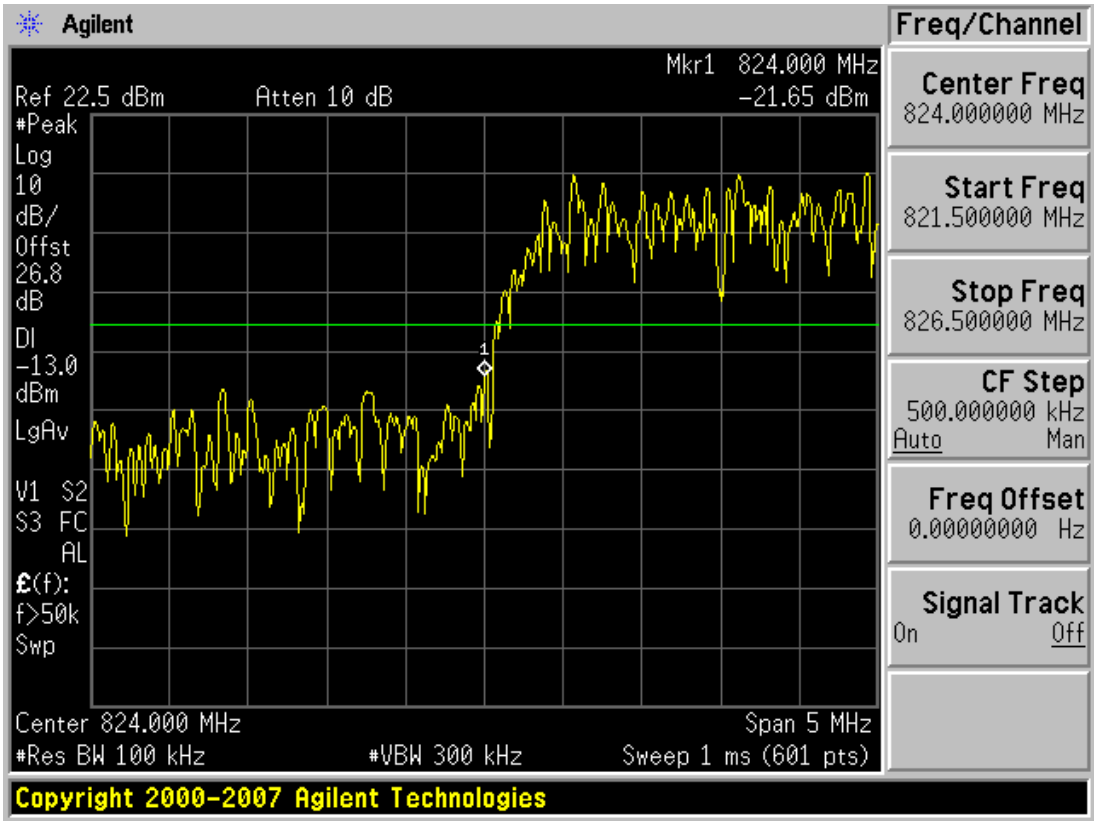
■ EDGE MODE (512 CH.) Block Edge



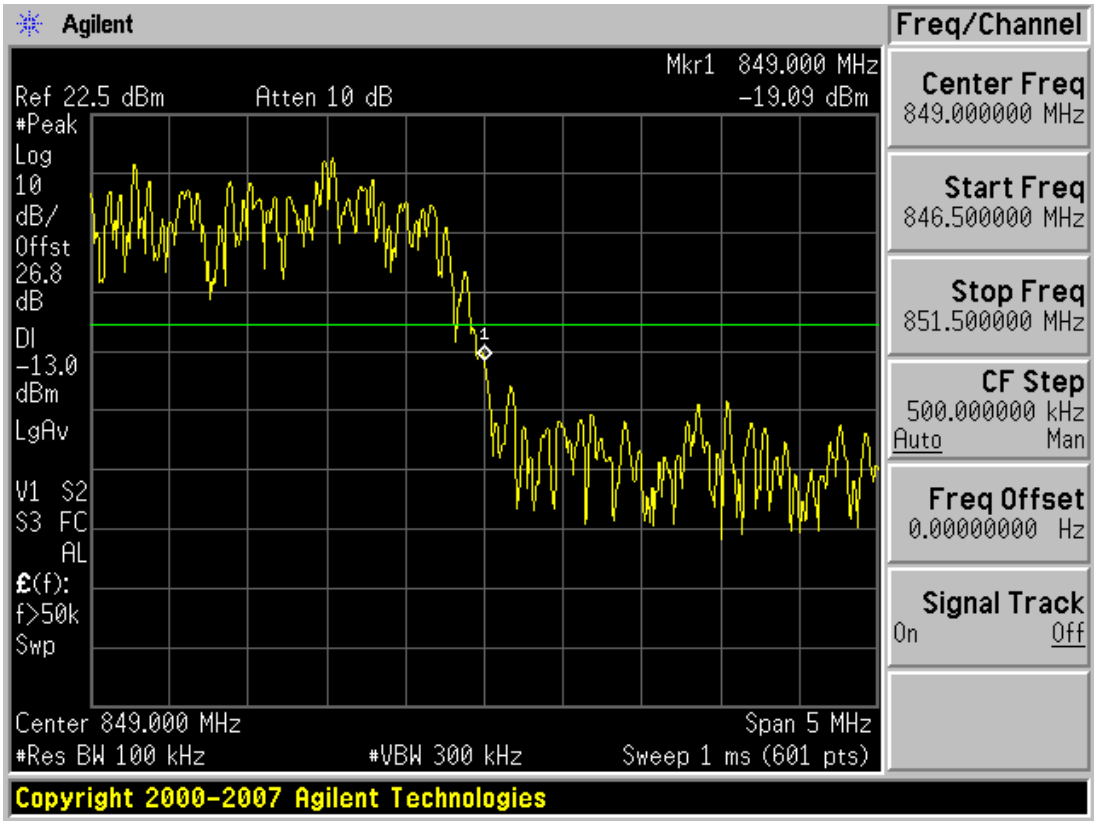
■ EDGE MODE (810 CH.) Block Edge



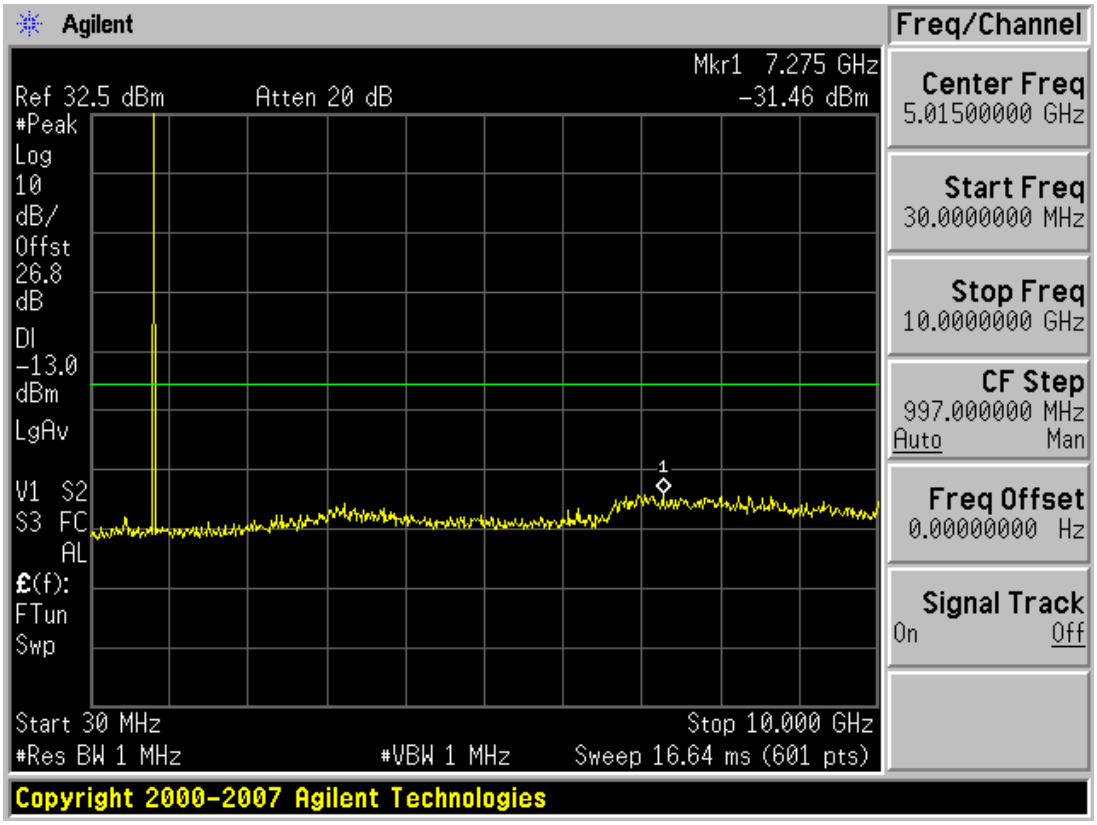
■ WCDMA850 MODE (4132 CH.) Block Edge



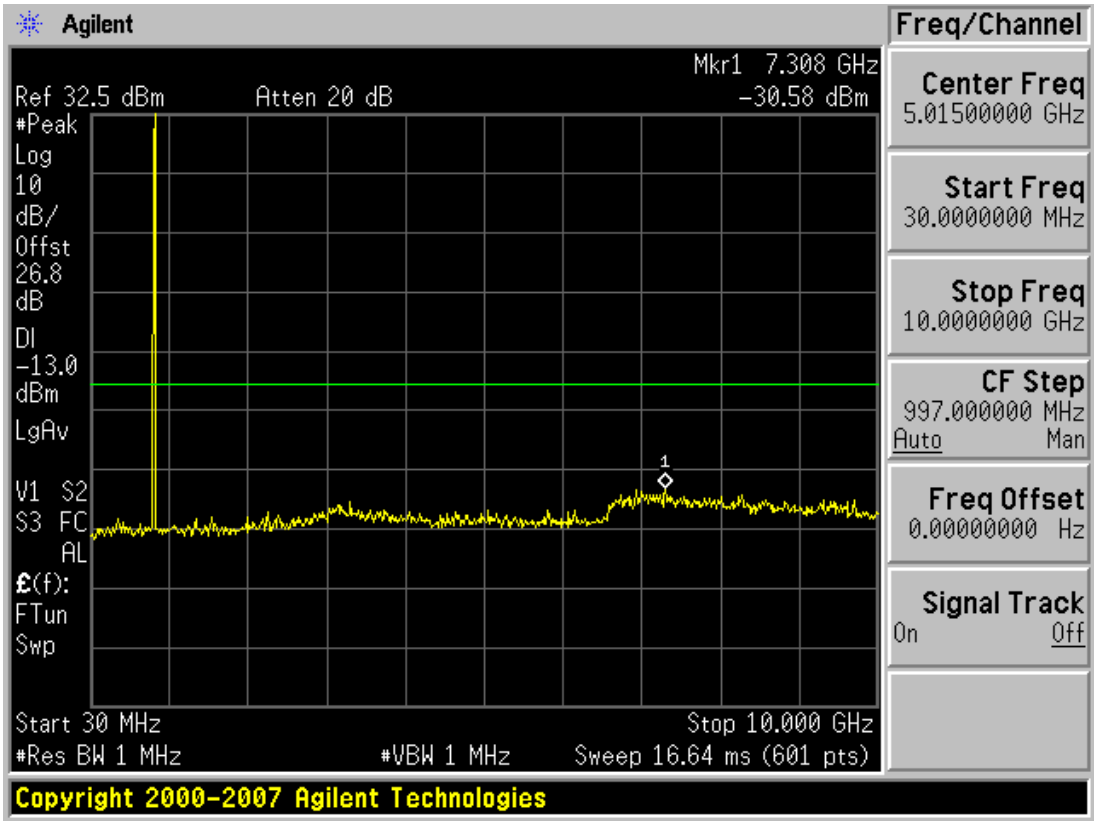
■ WCDMA850MODE (4233 CH.) Block Edge



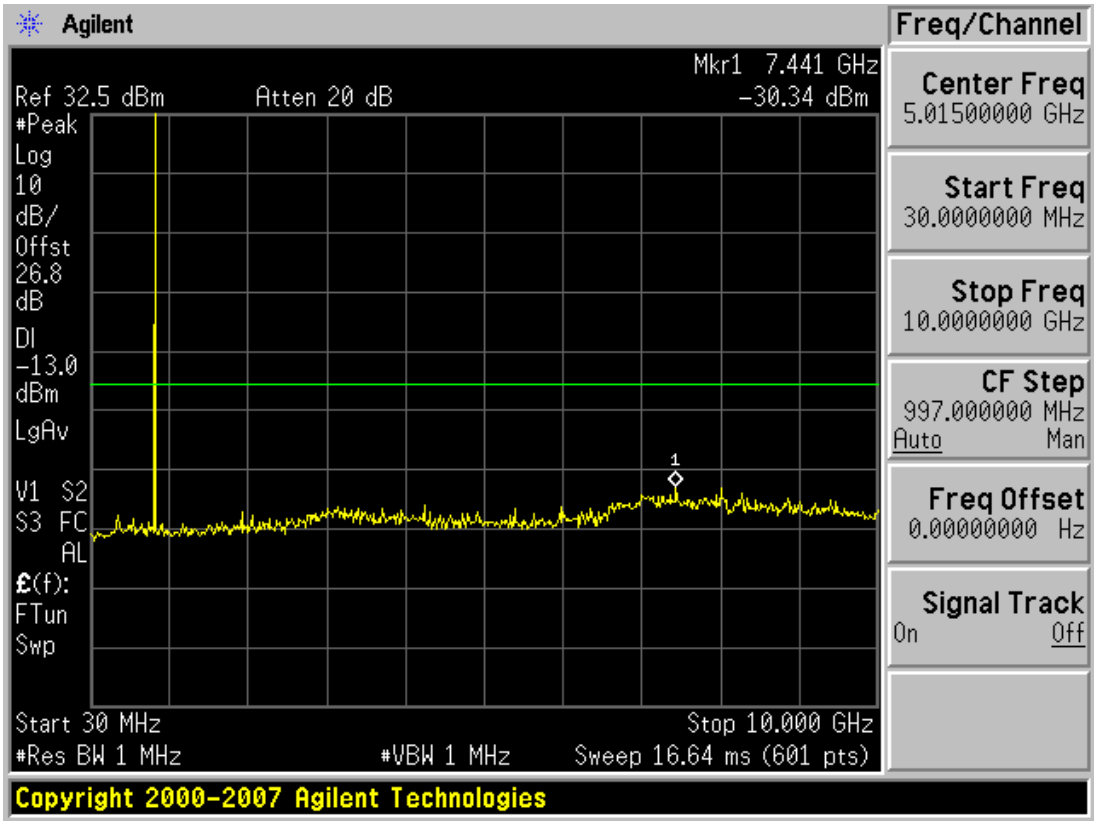
■ GSM850 MODE (128 CH.) Conducted Spurious Emissions



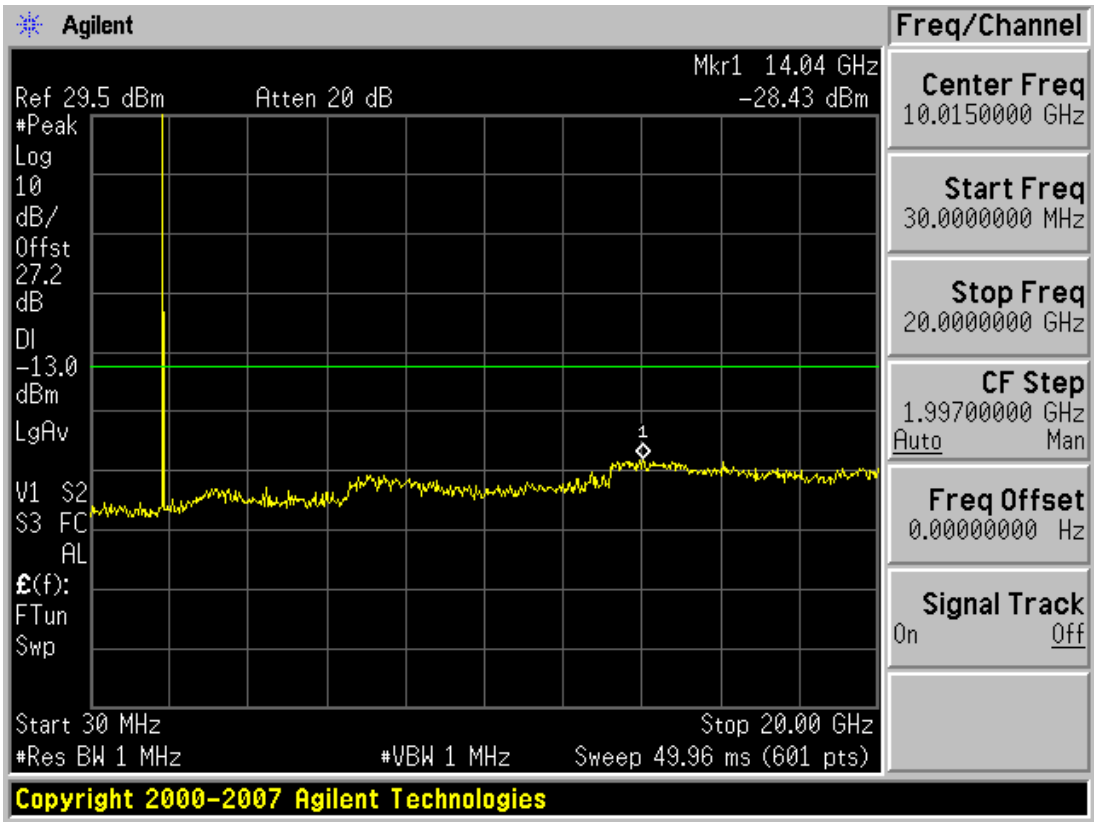
■ GSM850 MODE (190 CH.) Conducted Spurious Emissions



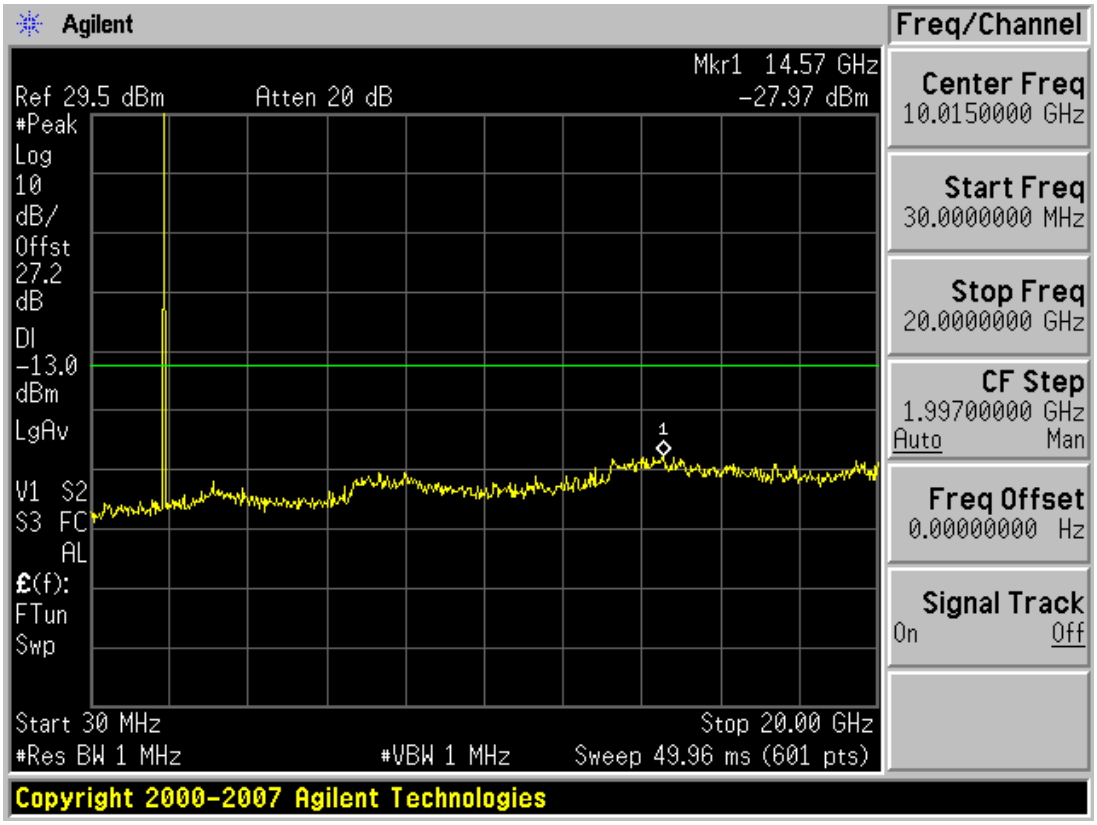
■ GSM850 MODE (251 CH.) Conducted Spurious Emissions



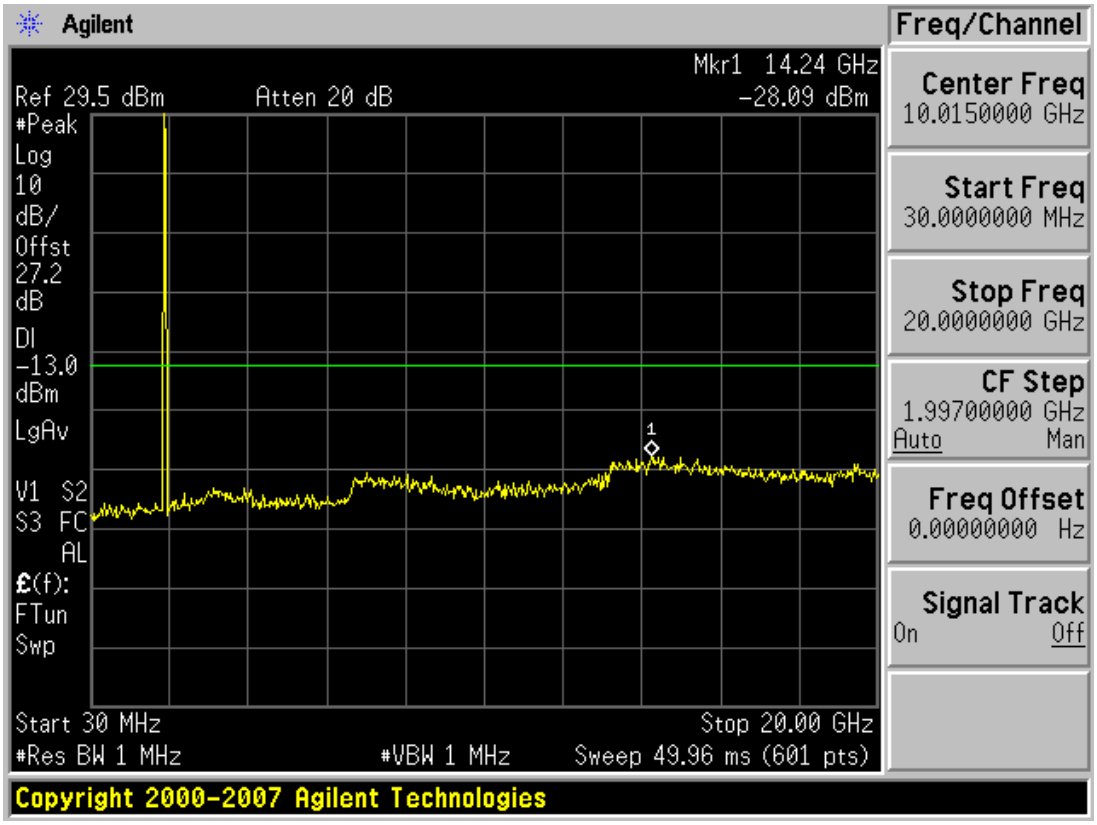
■ GSM1900 MODE (512 CH.) Conducted Spurious Emissions



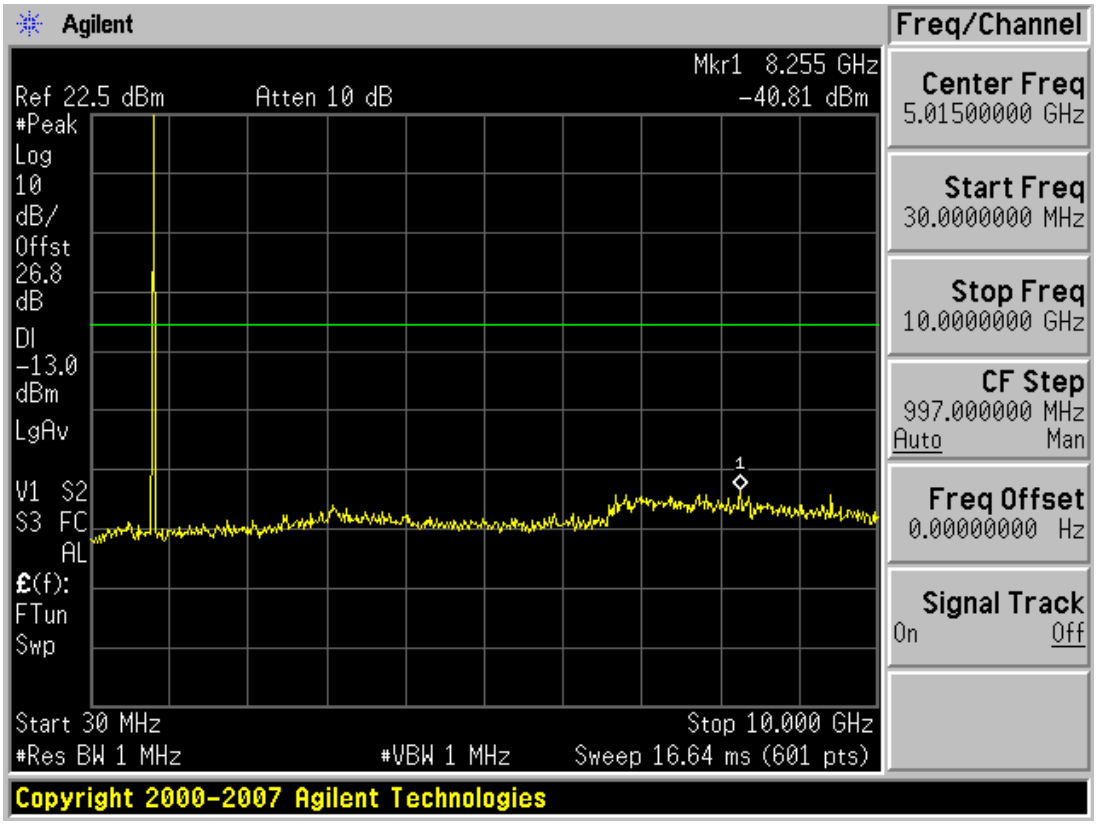
■ GSM1900 MODE (661 CH.) Conducted Spurious Emissions



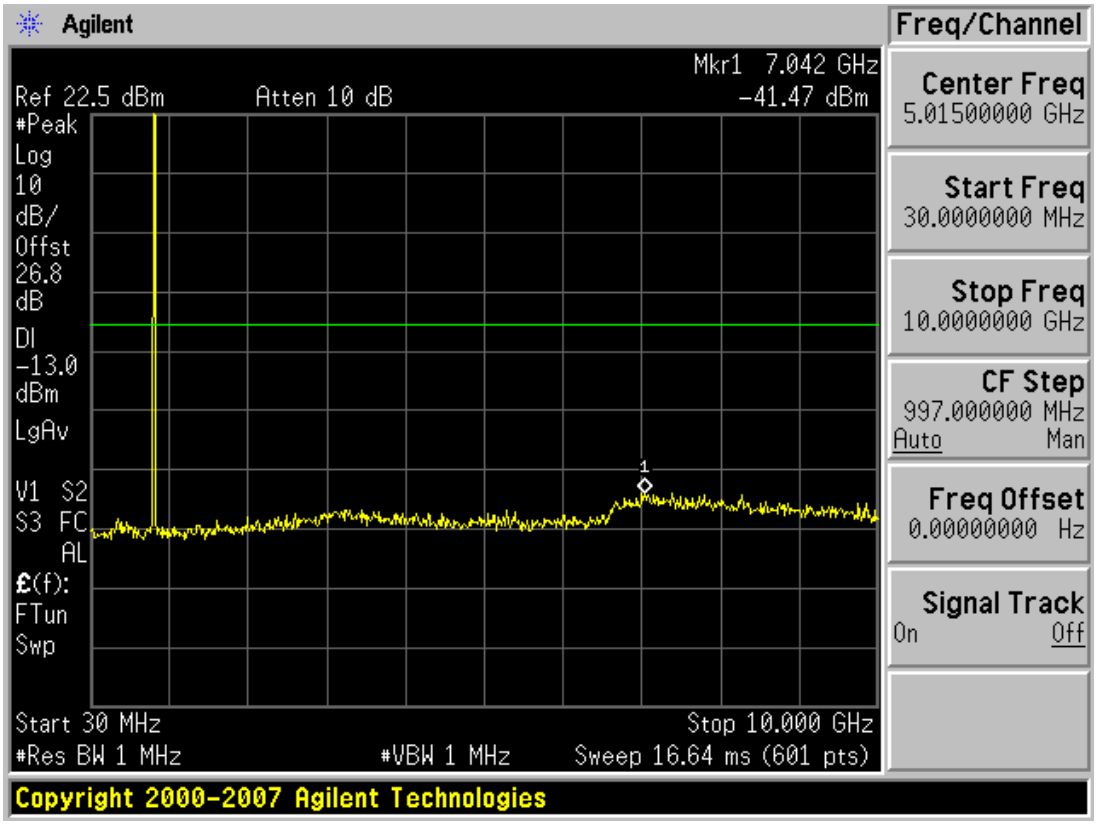
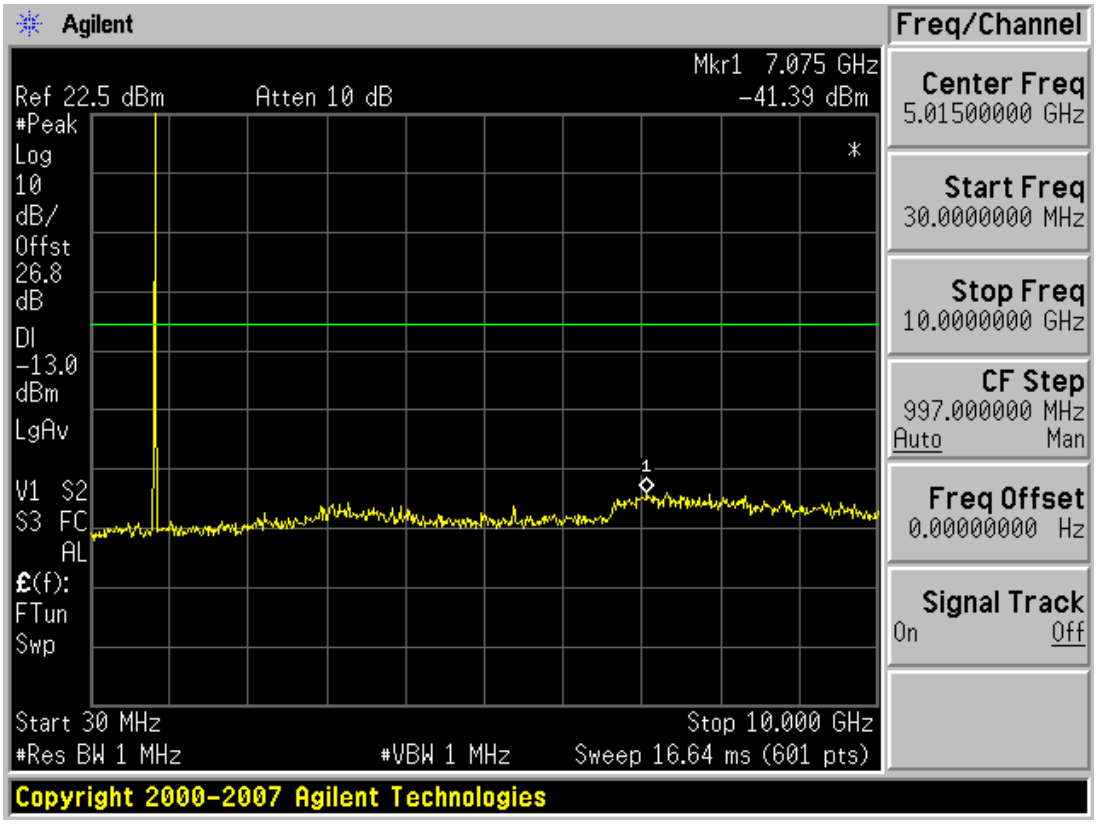
■ GSM1900 MODE (810 CH.) Conducted Spurious Emissions



■ WCDMA850 MODE (4132 CH.) Conducted Spurious Emissions



■ WCDMA850 MODE (4183 CH.) Conducted Spurious Emissions



■ WCDMA850MODE (4233 CH.) Conducted Spurious Emissions