FCC PART 22H&24E

Measurement and Test Report

For

Matsunichi Digital Development (Shenzhen) Co., Ltd

F/22, Matsunichi Building, No.9996, Shennan Boulevard, Nanshan District,

Shenzhen, China

FCC ID: ZDRMP436

Report Concerns: Original Report	**Equipment Type:** WCDMA Smart Phone

Model:	MP436
Report No.:	STR12038238I-1
Test Date:	2012-03-29 to 2012-04-23
Issue Date:	2012-04-24
Tested By:	Silin Chen / Engineer
Reviewed By:	Lahm Peng / EMC Manager
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Prepared By:

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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Matsunichi Digital Development (Shenzhen) Co., Ltd
Address of applicant: F/22, Matsunichi Building, No.9996, Shennan Boulevard, Nanshan District, Shenzhen, China

Manufacturer 1: Matsunichi Digital Development (Shenzhen) Co., Ltd
Address of manufacturer: No.5, KeJi Road, PingShan Industrial Estate, PinShan New District, Shenzhen, China

Manufacturer 2: Guangzhou Singulargold Electronics Co., Ltd
Address of manufacturer: No.6, Lianhua yan Road, Science City, Guangzhou Hi-Tech Industrial Development Zone, Guangzhou, China

General Description of E.U.T

Items	Description
EUT Description:	WCDMA Smart Phone
Trade Name:	Matsunichi / Le Pan
Model No.:	MP436
IMEI:	866601000026342
Power Supply:	Input 100-240V/50/60Hz Output 5V DC Adaptor DC 3.7V Battery Inside
Adaptor Model:	KSAS0060500120VUU
Rated Voltage:	DC 3.7V
Battery Capacity:	1530mAh（5.66Wh）
Hardware Version:	R004
Software Version:	4833
Support Band:	GSM850/PCS1900, WCDMA Band II, Band V
GPRS Class:	Class 12
Frequency range:	GSM/GPRS/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz WCDMA/HSUPA/HSDPA Band V: 824~849MHz WCDMA/HSUPA/HSDPA Band II: 1850~1910MHz
Max. RF Power(Conducted):	GSM850: 33.42dBm GSM1900: 30.22dBm WCDMA Band II: 23.62dBm WCDMA Band V: 23.45dBm
Max. RF Power(ERP/EIRP):	GSM850: 32.09dBm GSM1900: 25.79dBm WCDMA Band II: 21.55dBm

	WCDMA Band V: 19.26dBm
Network Protocol:	GSM/GPRS/EDGE/UMTS/HSUPA/HSDPA
Modulation:	GMSK for GSM/GPRS; 8PSK for EDGE; QPSK for WCDMA
Type of Emission:	GMSK: 257KGXW 8PSK: 267G7W QPSK: 4M15F9W
Antenna Gain:	-4.1dBi for 824~849MHz -4.6dBi for 1850~1910MHz
Type of Antenna:	Integral Antenna

Note: The test data is gathered from a production sample, provided by the manufacture.

1.2 Test Standards

The following report is prepared on behalf of the Matsunichi Digital Development (Shenzhen) Co., Ltd in accordance with FCC Part 2 subpart J, FCC Part 22 subpart H and FCC Part 24 subpart E of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 2 subpart J, FCC Part 22 subpart H and FCC Part 24 subpart E of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with TIA/EIA 603-C: 2004 and ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted with Low Channel, Middle Channel and High Channel, accordingly in reference to the Operating Instructions.

1.4 Test Facility

- **FCC – Registration No.: 994117**
  SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**
  The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**
  Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components.

1.6 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
N/A	N/A	N/A	N/A

1.7 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Shielded	With Core
Earphone Cable	1.4	Unshielded	Without Core

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 1.1307 § 2.1093	RF Exposure	Compliant
§ 15.207	Conducted Emission	Compliant
§ 22.913 (a), § 24.232 (c)	RF Output Power	Compliant
§ 22.917 (b), § 24.238 (b)	Emission Bandwidth	Compliant
§ 22.917 (a), § 24.238 (a)	Spurious Emissions at Antenna Terminal	Compliant
§ 22.917 (a), § 24.238 (a)	Spurious Radiation Emissions	Compliant
§ 22.917 (a), § 24.238 (a)	Out of Band Emissions	Compliant
§ 22.355, § 24.235	Frequency Stability	Compliant

3. RF EXPOSURE

3.1 Standard Applicable

According to § 1.1307 and § 2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complies with the requirement of the RF exposure, please see the SAR test report.

4. RF OUTPUT POWER

4.1 Standard Applicable

According to §22.913(a)(2), The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

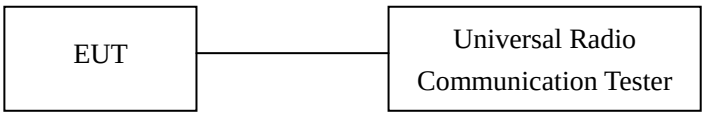
According to §24.232 (c), no any case may the peak output power of mobile or portable station transmitter exceed 2 Watt EIRP.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2012-03-28	2013-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-02-25	2013-02-24
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	112012	2012-03-28	2013-03-27
Signal Generator	R&S	SMR20	100047	2012-03-28	2013-03-27

4.3 Test Procedure

Conducted output power test method:



Radiated power test method:

1.The setup of EUT is according with per TIA/EIA Standard 603C and ANSI C63.4-2003 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

4.4 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

4.5 Summary of Test Results/Plots

Radiated Power

ERP For GSM Mode GSM850

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	32.83	1.5	0	H	1.5	0	30.73	38.45
824.2	32.06	1.5	0	V	1.5	0	31.55	38.45
Middle Channel								
836.6	32.47	1.5	0	H	1.5	0	30.97	38.45
836.6	31.71	1.5	0	V	1.5	0	31.86	38.45
High Channel								
848.8	32.38	1.5	0	H	1.5	0	30.88	38.45
848.8	31.24	1.5	0	V	1.5	0	32.09	38.45

EIRP For GSM Mode PCS1900

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1850.2	13.28	1.5	0	H	1.9	7.7	24.49	33
1850.2	20.32	1.5	0	V	1.9	7.7	25.49	33
Middle Channel								
1880.0	12.78	1.5	0	H	1.9	7.7	22.94	33
1880.0	20.13	1.5	0	V	1.9	7.7	24.43	33
High Channel								
1909.8	12.53	1.5	0	H	1.9	7.7	22.50	33
1909.8	19.19	1.5	0	V	1.9	7.7	25.79	33

ERP For GPRS Mode GSM850

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	32.95	1.5	0	H	1.5	0	30.26	38.45
824.2	32.16	1.5	0	V	1.5	0	31.24	38.45
Middle Channel								
836.6	32.74	1.5	0	H	1.5	0	30.64	38.45
836.6	31.38	1.5	0	V	1.5	0	31.20	38.45
High Channel								
848.8	32.68	1.5	0	H	1.5	0	30.10	38.45
848.8	32.17	1.5	0	V	1.5	0	31.31	38.45

EIRP For GPRS Mode PCS1900

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1850.2	12.85	1.5	0	H	1.9	7.7	20.12	33
1850.2	19.93	1.5	0	V	1.9	7.7	25.12	33
Middle Channel								
1880.0	12.13	1.5	0	H	1.9	7.7	18.26	33
1880.0	19.38	1.5	0	V	1.9	7.7	24.89	33
High Channel								
1909.8	12.86	1.5	0	H	1.9	7.7	18.01	33
1909.8	19.82	1.5	0	V	1.9	7.7	25.32	33

ERP For EDGE Mode GSM850

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	27.27	1.5	0	H	1.5	0	25.45	38.45
824.2	26.84	1.5	0	V	1.5	0	28.96	38.45
Middle Channel								
836.6	27.53	1.5	0	H	1.5	0	26.10	38.45
836.6	27.28	1.5	0	V	1.5	0	28.56	38.45
High Channel								
848.8	27.14	1.5	0	H	1.5	0	25.95	38.45
848.8	26.55	1.5	0	V	1.5	0	29.58	38.45

EIRP For EDGE Mode PCS1900

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1850.2	9.63	1.5	0	H	1.9	7.7	22.35	33
1850.2	15.89	1.5	0	V	1.9	7.7	24.36	33
Middle Channel								
1880.0	10.32	1.5	0	H	1.9	7.7	21.21	33
1880.0	15.53	1.5	0	V	1.9	7.7	23.62	33
High Channel								
1909.8	10.05	1.5	0	H	1.9	7.7	20.93	33
1909.8	15.77	1.5	0	V	1.9	7.7	23.75	33

ERP For WCDMA Mode Band V

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	10.40	1.5	0	H	2.56	-0.02	7.82	38.45
826.4	21.00	1.5	0	V	2.56	-0.02	18.42	38.45
Middle Channel								
836.4	10.33	1.5	0	H	2.59	0.10	7.84	38.45
836.4	20.91	1.5	0	V	2.59	0.10	18.42	38.45
High Channel								
846.6	10.94	1.5	0	H	2.54	0.13	8.53	38.45
846.6	21.67	1.5	0	V	2.54	0.13	19.26	38.45

EIRP For WCDMA Mode Band II

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dBi	dBm	dBm
Low Channel								
1852.4	12.93	1.5	0	H	3.55	10.40	19.78	33
1852.4	14.70	1.5	0	V	3.55	10.40	21.55	33
Middle Channel								
1880.0	12.89	1.5	0	H	3.53	10.43	19.79	33
1880.0	12.17	1.5	0	V	3.53	10.43	19.07	33
High Channel								
1907.6	13.82	1.5	0	H	3.56	10.44	20.70	33
1907.6	13.21	1.5	0	V	3.56	10.44	20.09	33

ERP For HSUPA Mode Band V

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	10.06	1.5	0	H	2.56	-0.02	7.48	38.45
826.4	20.92	1.5	0	V	2.56	-0.02	18.34	38.45
Middle Channel								
836.4	9.99	1.5	0	H	2.59	0.10	7.50	38.45
836.4	20.84	1.5	0	V	2.59	0.10	18.35	38.45
High Channel								
846.6	10.94	1.5	0	H	2.54	0.13	8.53	38.45
846.6	21.65	1.5	0	V	2.54	0.13	19.24	38.45

EIRP For HSUPA Mode Band II

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dBi	dBm	dBm
Low Channel								
1852.4	12.68	1.5	0	H	3.55	10.40	19.53	33
1852.4	14.52	1.5	0	V	3.55	10.40	21.37	33
Middle Channel								
1880.0	12.65	1.5	0	H	3.53	10.43	19.55	33
1880.0	11.86	1.5	0	V	3.53	10.43	18.76	33
High Channel								
1907.6	13.68	1.5	0	H	3.56	10.44	20.56	33
1907.6	13.05	1.5	0	V	3.56	10.44	19.93	33

ERP For HSDPA Mode Band V

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	10.15	1.5	0	H	2.56	-0.02	7.57	38.45
826.4	20.90	1.5	0	V	2.56	-0.02	18.32	38.45
Middle Channel								
836.4	10.29	1.5	0	H	2.59	0.10	7.80	38.45
836.4	20.90	1.5	0	V	2.59	0.10	18.41	38.45
High Channel								
846.6	10.87	1.5	0	H	2.54	0.13	8.46	38.45
846.6	21.64	1.5	0	V	2.54	0.13	19.23	38.45

EIRP For HSDPA Mode Band II

Frequency	Substitude SG	Height	Table	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dBi	dBm	dBm
Low Channel								
1852.4	12.76	1.5	0	H	3.55	10.40	19.61	33
1852.4	14.61	1.5	0	V	3.55	10.40	21.46	33
Middle Channel								
1880.0	12.84	1.5	0	H	3.53	10.43	19.74	33
1880.0	12.12	1.5	0	V	3.53	10.43	19.02	33
High Channel								
1907.6	13.70	1.5	0	H	3.56	10.44	20.58	33
1907.6	13.07	1.5	0	V	3.56	10.44	19.95	33

Max. Conducted Output Power

For Cellular Band (GSM850)

Test Mode	Channel	Frequency (MHz)	Output Power (dBm)	FCC Part 22.913 Limit (dBm)
GSM	Low Channel	824.2	33.40	38.45
	Middle Channel	836.6	33.40	38.45
	High Channel	848.8	33.42	38.45
GPRS	Low Channel	824.2	33.40	38.45
	Middle Channel	836.6	33.39	38.45
	High Channel	848.8	33.41	38.45
EDGE	Low Channel	824.2	27.95	38.45
	Middle Channel	836.6	27.88	38.45
	High Channel	848.8	27.90	38.45

For PCS Band (GSM1900)

Test Mode	Channel	Frequency (MHz)	Output Power (dBm)	FCC Part 24.232 Limit (dBm)
GSM	Low Channel	1850.2	30.03	33
	Middle Channel	1880.0	30.14	33
	High Channel	1909.8	30.22	33
GPRS	Low Channel	1850.2	30.01	33
	Middle Channel	1880.0	30.13	33
	High Channel	1909.8	30.20	33
EDGE	Low Channel	1850.2	26.39	33
	Middle Channel	1880.0	26.53	33
	High Channel	1909.8	26.59	33

For WCDMA Band V

Test Mode	Channel	Frequency (MHz)	Output Power (dBm)	FCC Part 22.913 Limit (dBm)
WCDMA	Low Channel	826.4	23.35	38.45
	Middle Channel	836.4	23.45	38.45
	High Channel	846.6	23.37	38.45
HSUPA	Low Channel	826.4	23.19	38.45
	Middle Channel	836.4	23.30	38.45
	High Channel	846.6	23.22	38.45
HSDPA	Low Channel	826.4	23.30	38.45
	Middle Channel	836.4	23.41	38.45
	High Channel	846.6	23.30	38.45

For WCDMA Band II

Test Mode	Channel	Frequency (MHz)	Output Power (dBm)	FCC Part 24.232 Limit (dBm)
WCDMA	Low Channel	1852.4	23.62	33
	Middle Channel	1880.0	23.58	33
	High Channel	1907.6	23.49	33
HSUPA	Low Channel	1852.4	23.43	33
	Middle Channel	1880.0	23.30	33
	High Channel	1907.6	23.20	33
HSDPA	Low Channel	1852.4	23.61	33
	Middle Channel	1880.0	23.51	33
	High Channel	1907.6	23.41	33

5. EMISSION BANDWIDTH

5.1 Standard Applicable

According to §22.917(b), 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 emissions are attenuated at least 26 dB below the transmitter power.

According to §24.238(b), 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 emissions are attenuated at least 26 dB below the transmitter power.

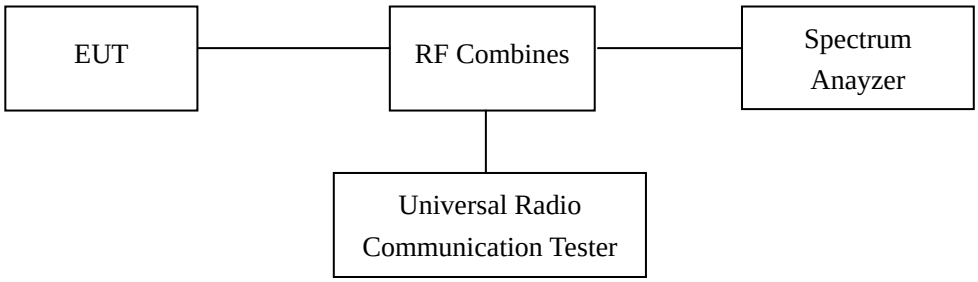
5.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Aglient	Spectrum Analyzer	E4402B	US41192821	2012-03-28	2013-03-27
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	112012	2012-03-28	2013-03-27

5.3 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 30kHz and the 26dB bandwidth was recorded.

Test Configuration for the emission bandwidth testing:



5.4 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.5 Summary of Test Results/Plots

For Cellular Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM	128	824.2	249.6574	332.771
	190	836.6	246.1923	326.882
	251	848.8	251.8066	338.879
GPRS	128	824.2	254.2981	339.372
	190	836.6	252.4783	335.697
	251	848.8	253.4956	329.854
EDGE	128	824.2	260.7789	333.666
	190	836.6	267.5004	336.624
	251	848.8	263.4721	324.895

For PCS Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM	512	1850.2	246.3872	326.207
	661	1880.0	257.8357	321.790
	810	1909.8	257.0390	331.109
GPRS	512	1850.2	252.8599	335.362
	661	1880.0	255.3794	335.448
	810	1909.8	250.2971	327.241
EDGE	512	1850.2	249.8062	313.842
	661	1880.0	255.0958	325.431
	810	1909.8	266.4900	332.757

For Band II

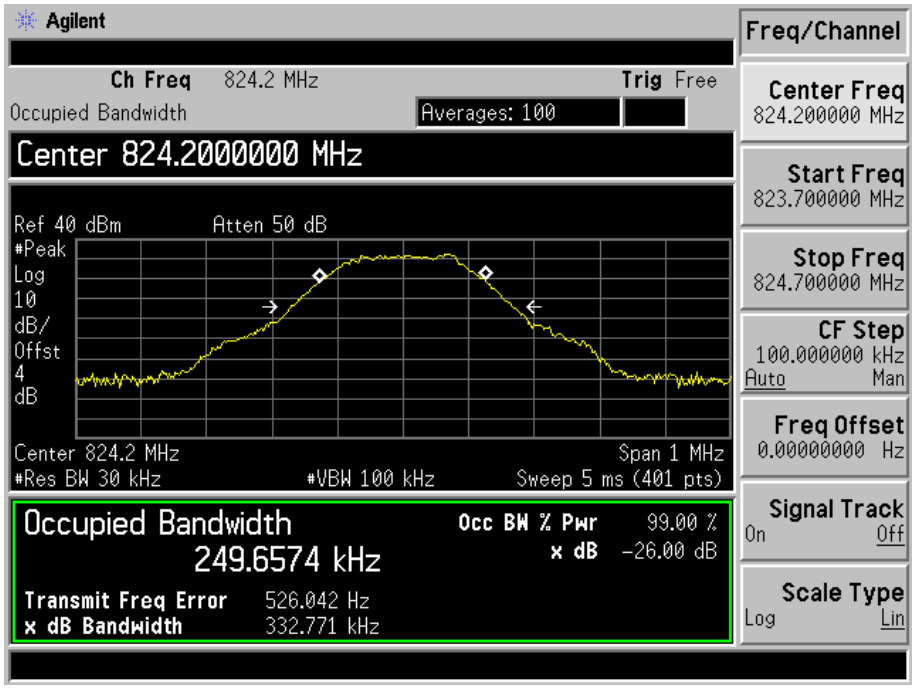
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	9262	1852.4	4151.30	4622.00
	9400	1880.0	4147.10	4641.00
	9538	1907.6	4133.20	4632.00
HSUPA	9262	1852.4	4155.70	4622.00
	9400	1880.0	4144.60	4632.00
	9538	1907.6	4126.10	4631.00
HSDPA	9262	1852.4	4144.60	4620.00
	9400	1880.0	4144.40	4622.00
	9538	1907.6	4137.00	4620.00

For Band V

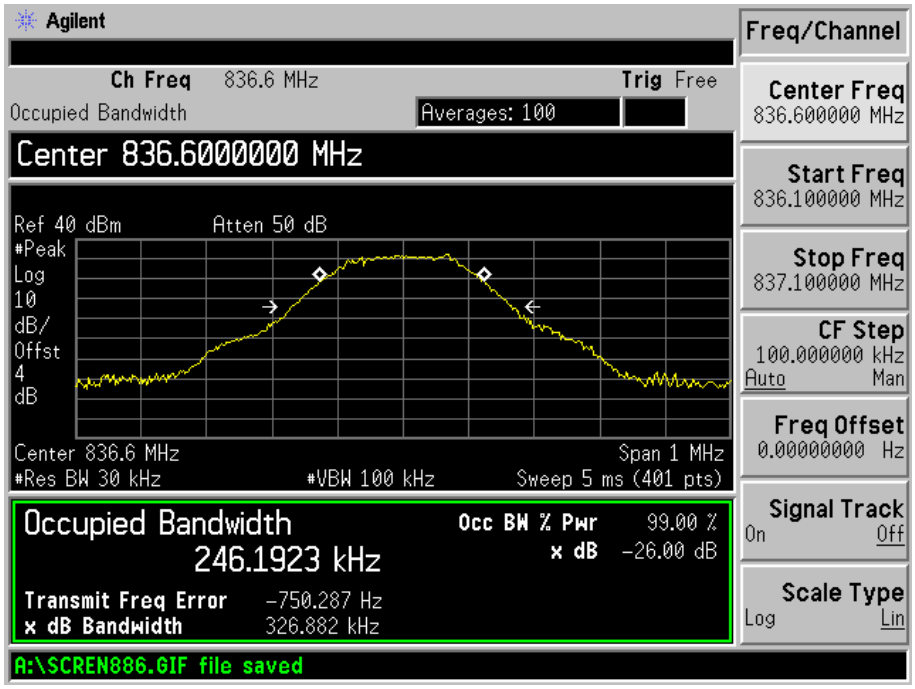
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	4132	826.4	4131.30	4622.00
	4182	836.4	4134.30	4622.00
	4233	846.6	4146.40	4611.00
HSUPA	4132	826.4	4133.60	4629.00
	4182	836.4	4138.30	4626.00
	4233	846.6	4132.80	4619.00
HSDPA	4132	826.4	4136.30	4626.00
	4182	836.4	4144.40	4624.00
	4233	846.6	4118.40	4641.00

Please refer to the following test plots:

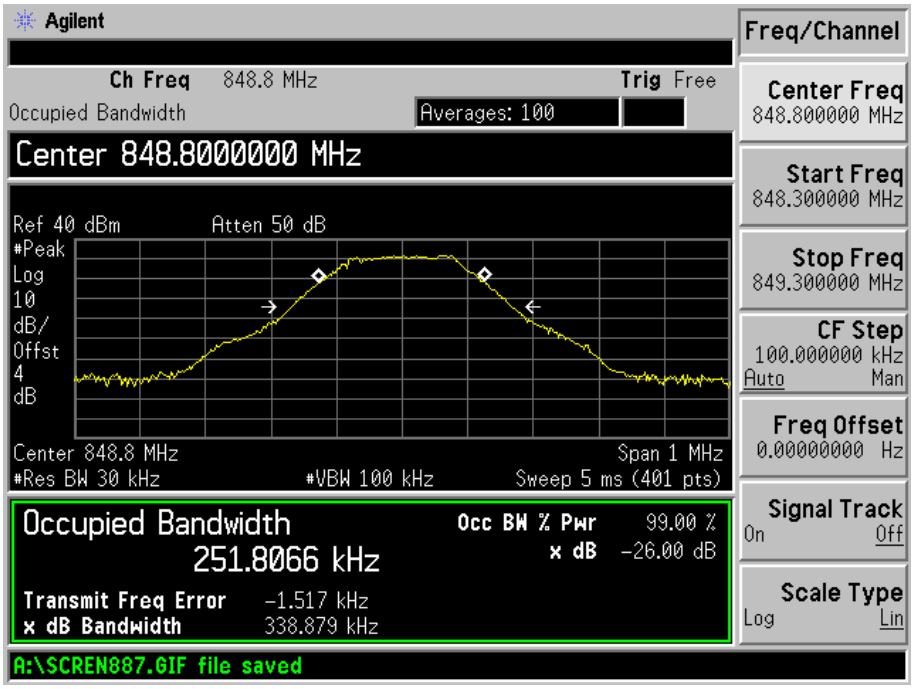
For Cellular Band
GSM Low Channel



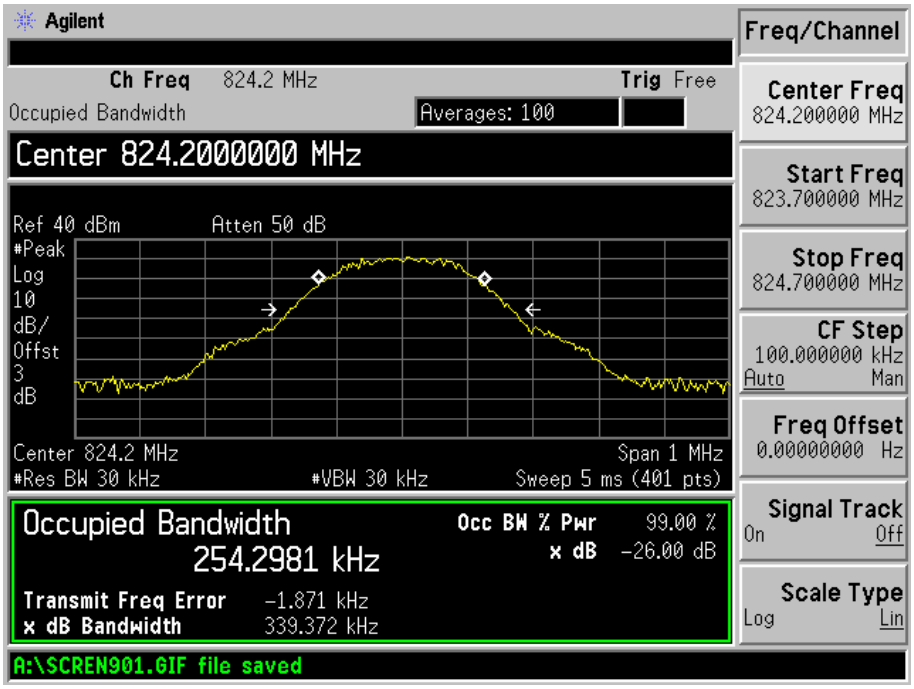
GSM Middle Channel



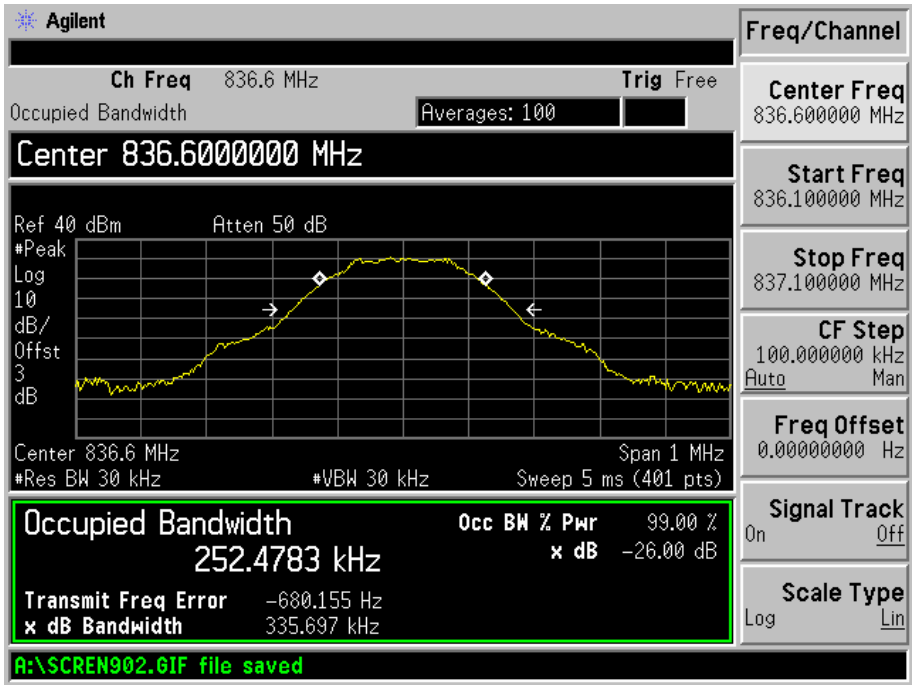
GSM High channel



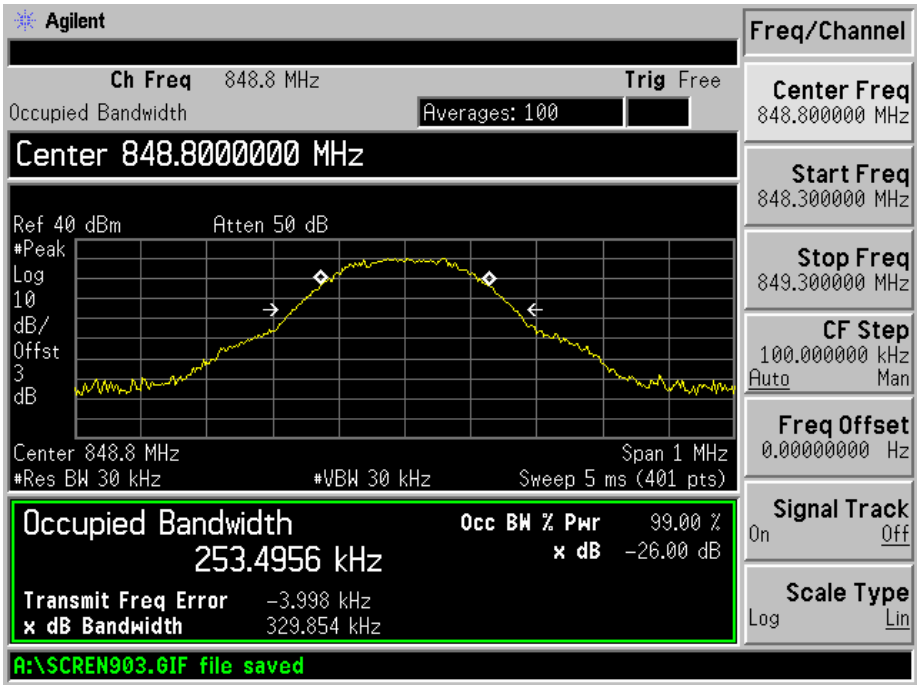
GPRS Low Channel



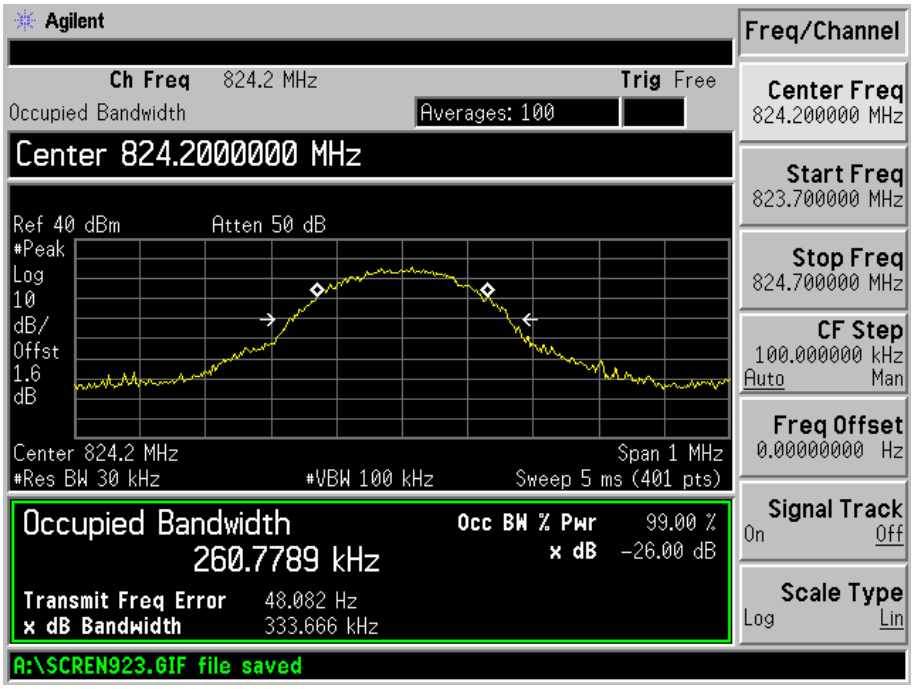
GPRS Middle Channel



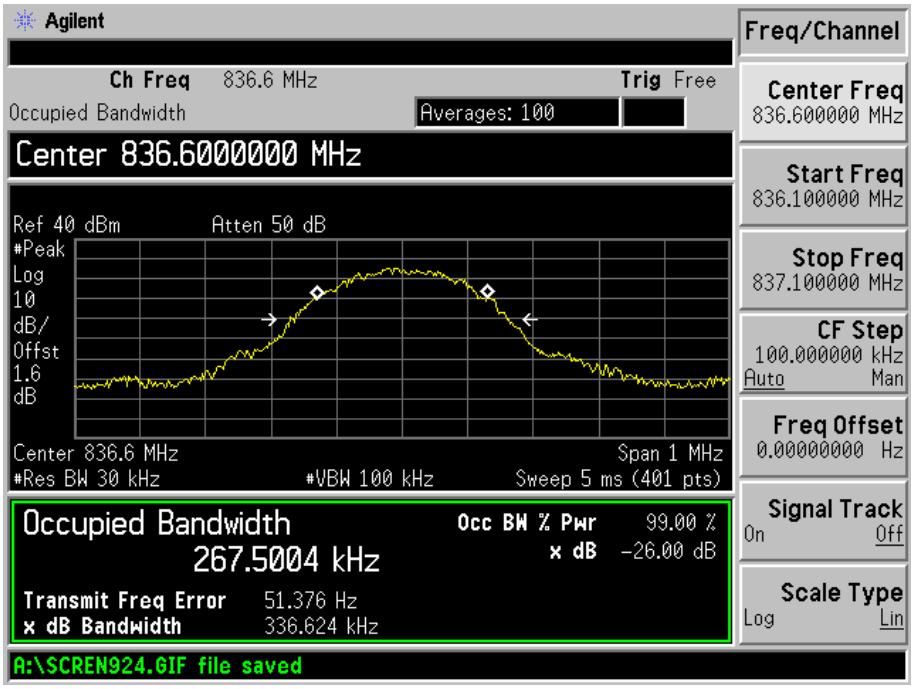
GPRS High Channel



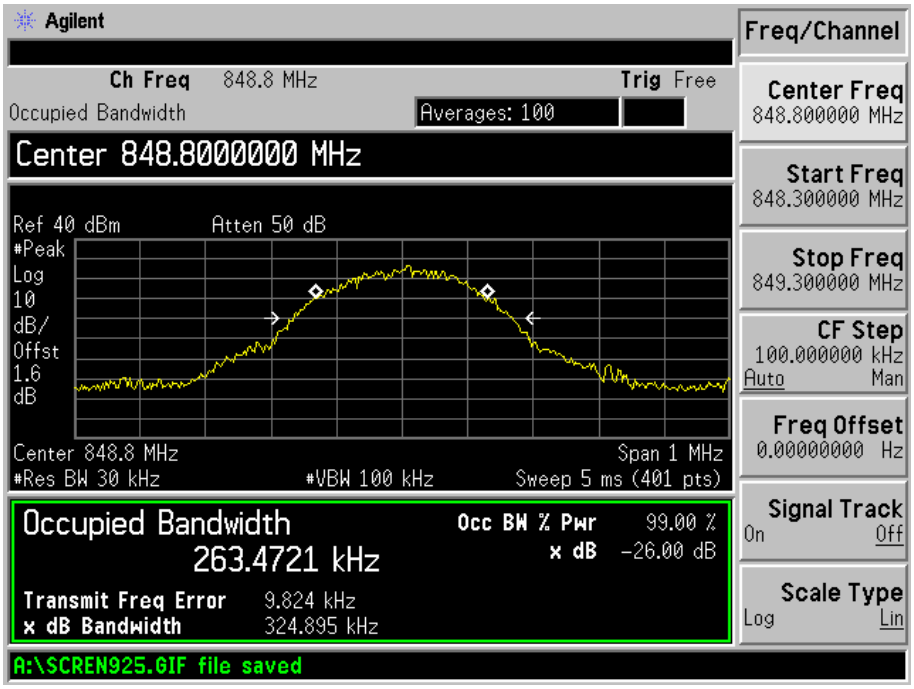
EDGE Low Channel



EDGE Middle Channel

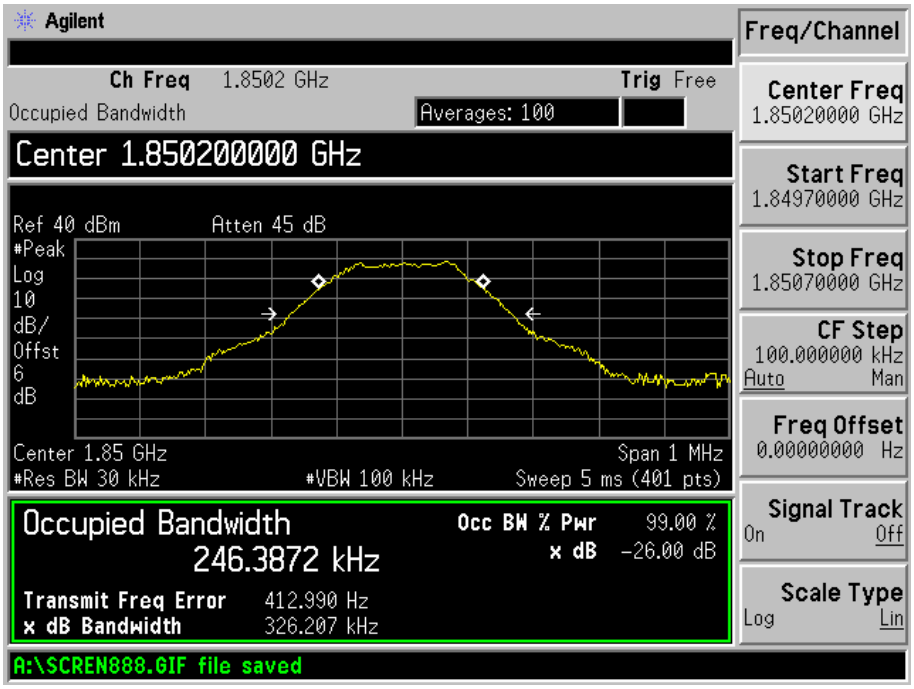


EDGE High channel

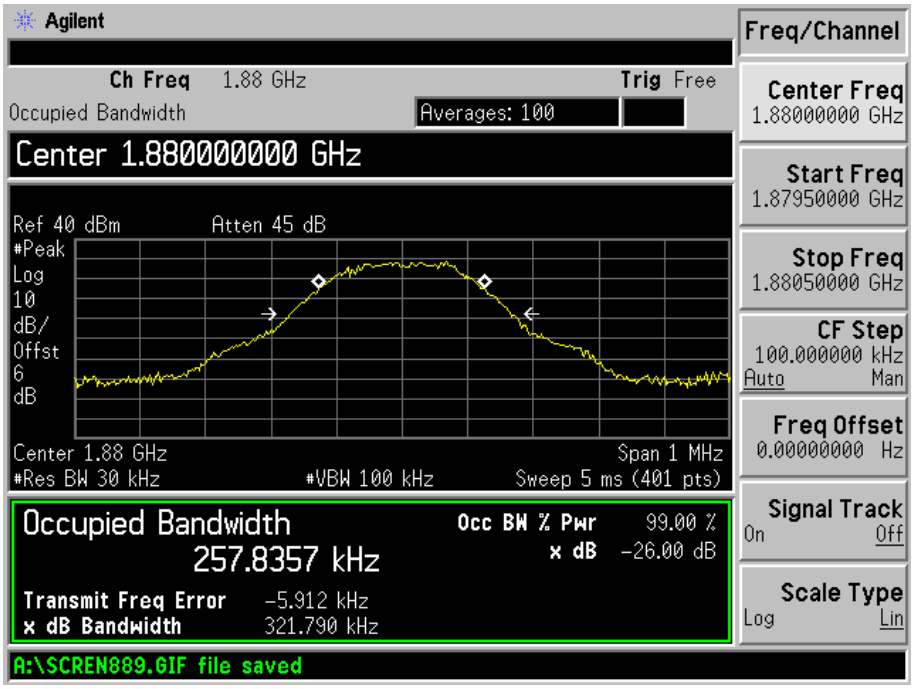


For PCS Band

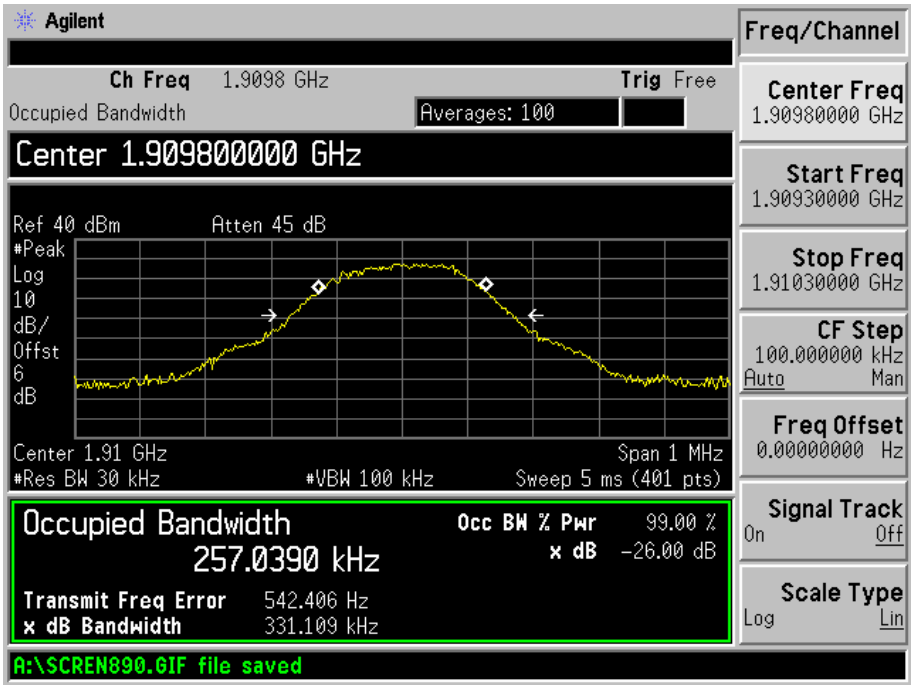
GSM Low Channel



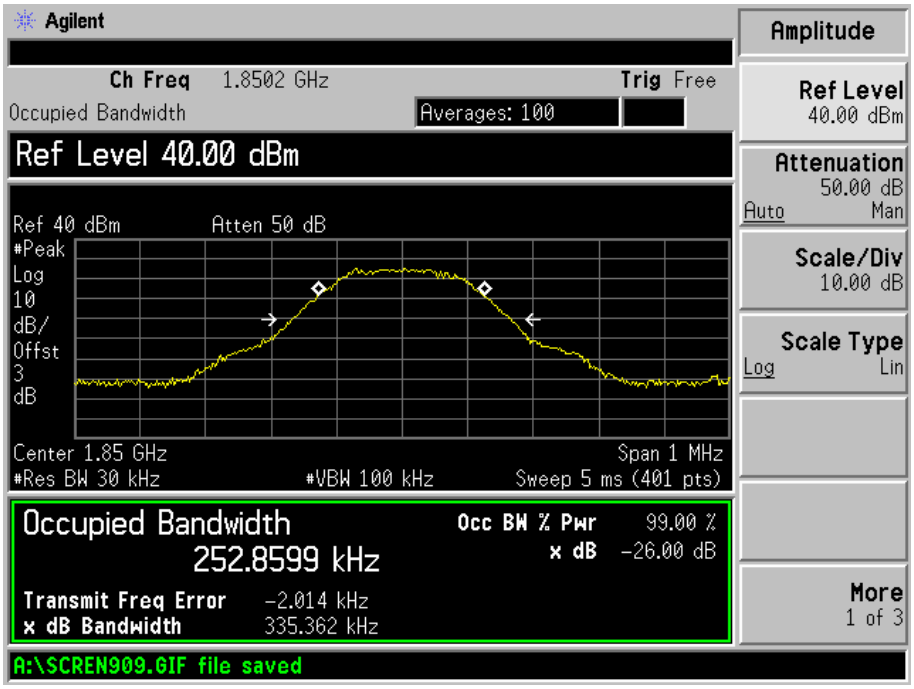
GSM Middle Channel



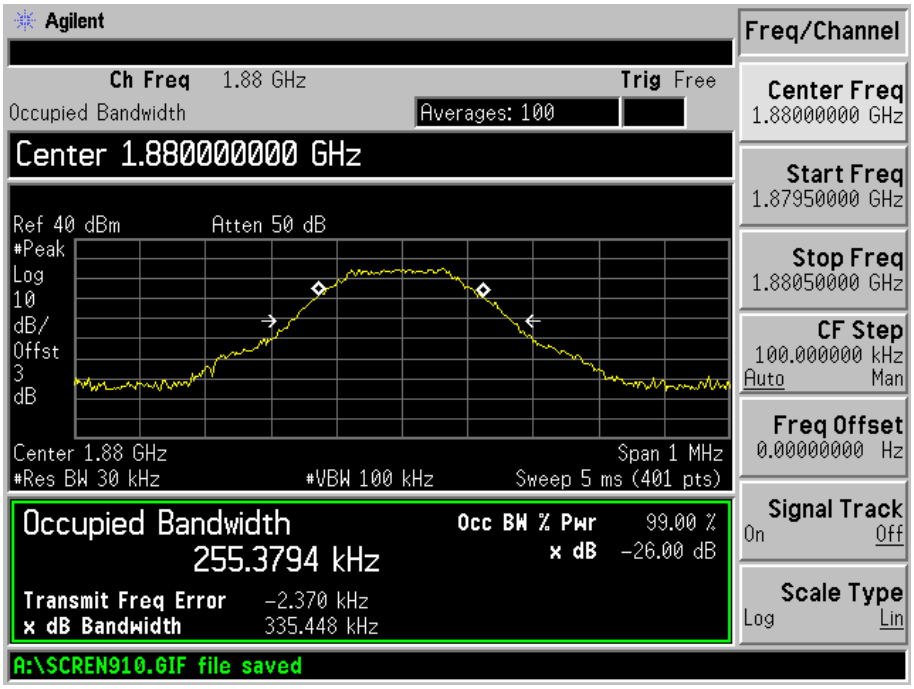
GSM High channel



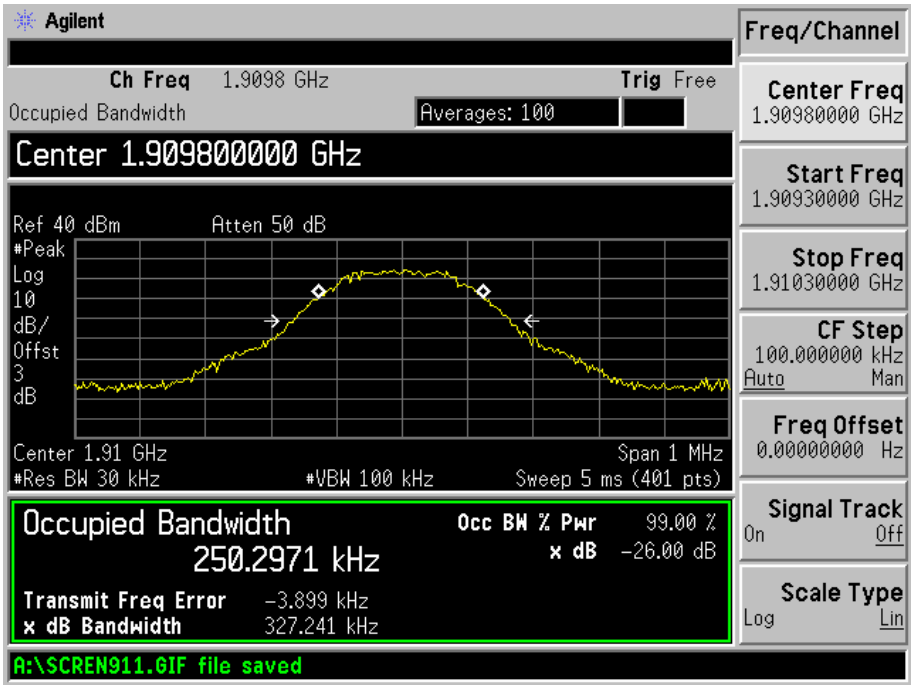
GPRS Low Channel



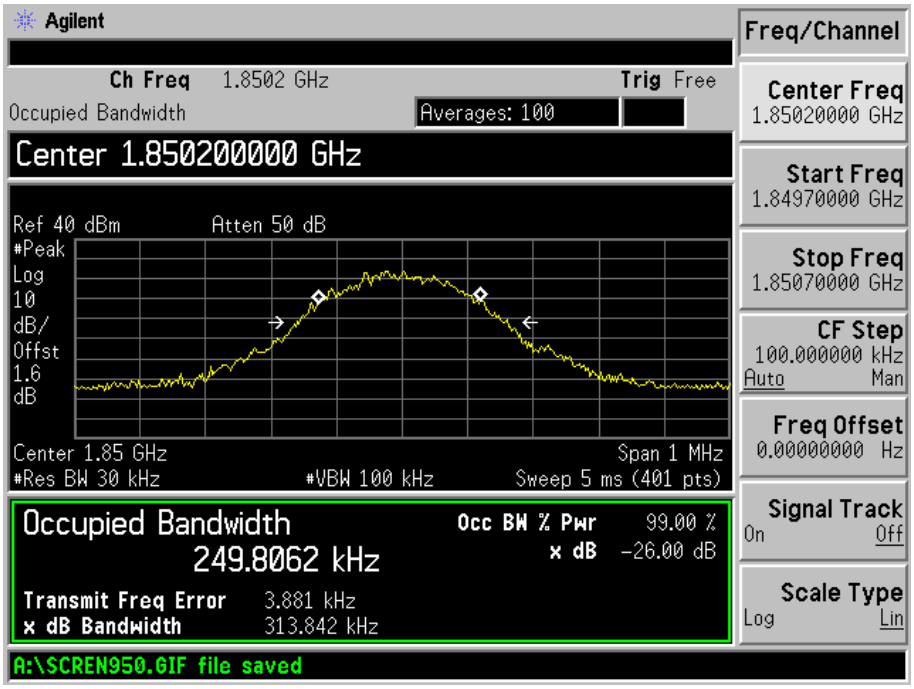
GPRS Middle Channel



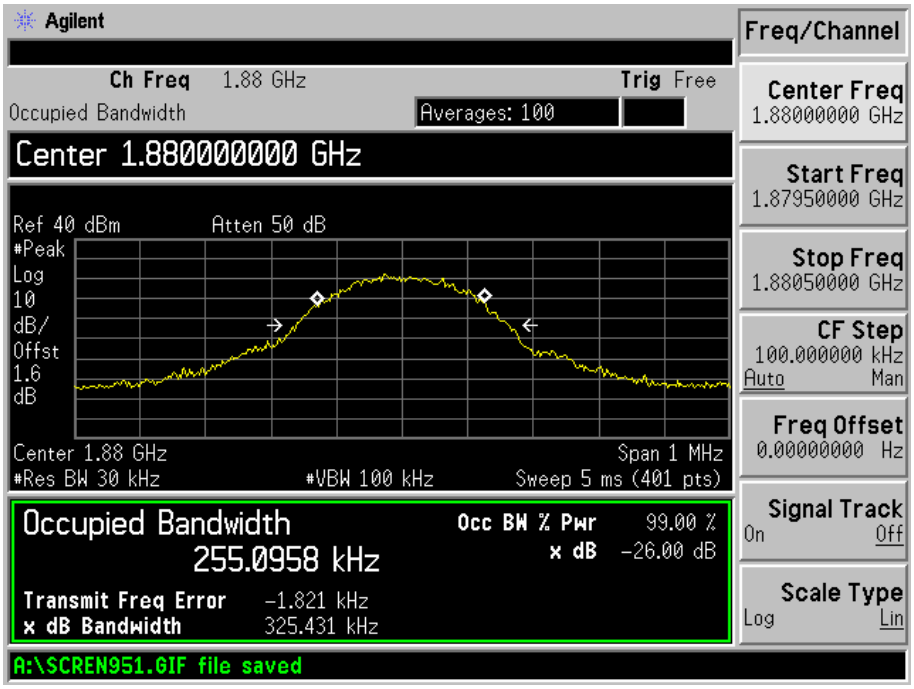
GPRS High Channel



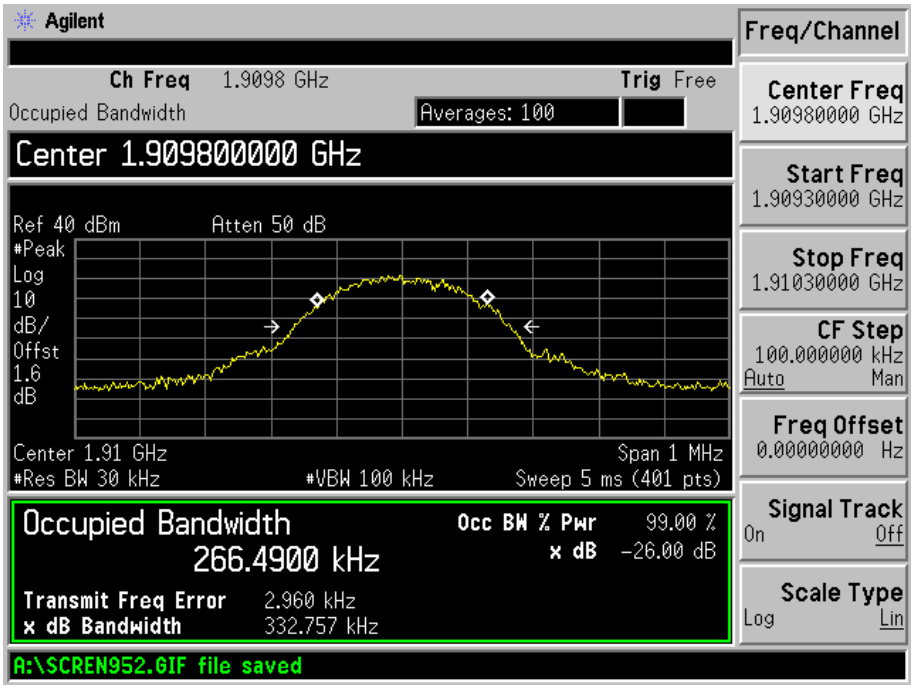
EDGE Low Channel



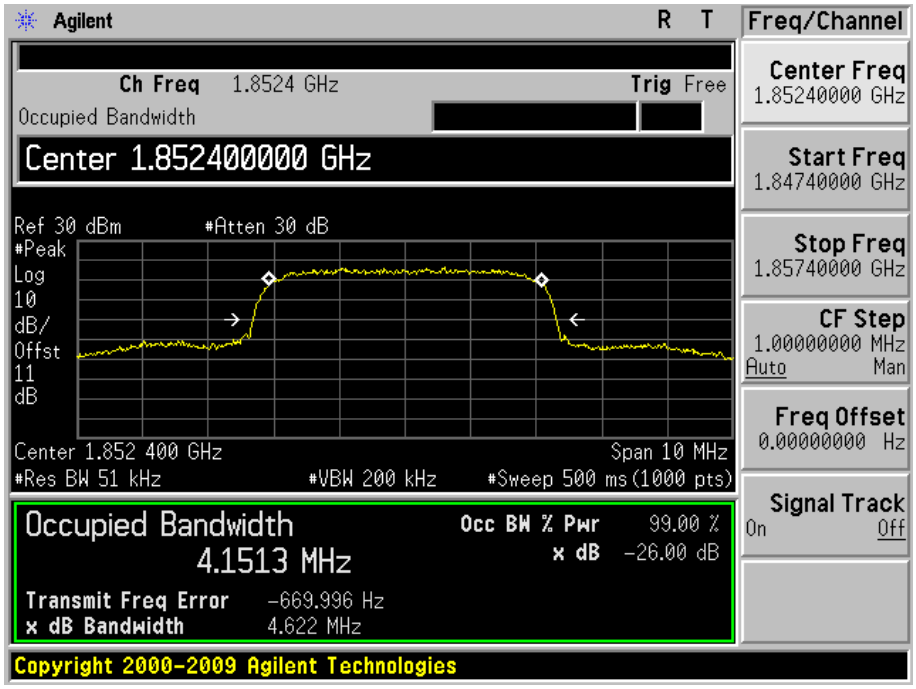
EDGE Middle Channel



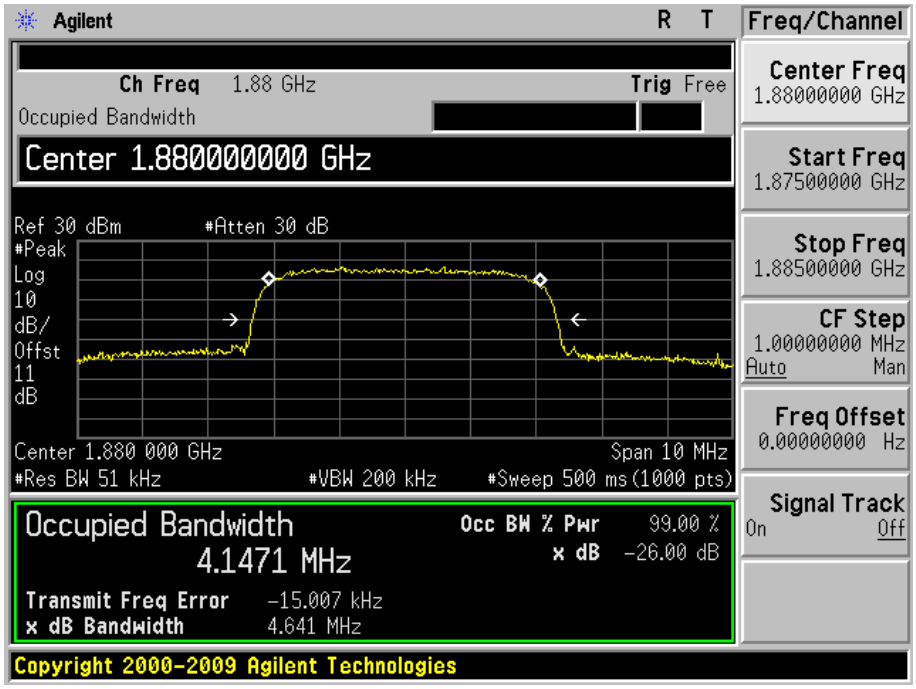
EDGE High channel



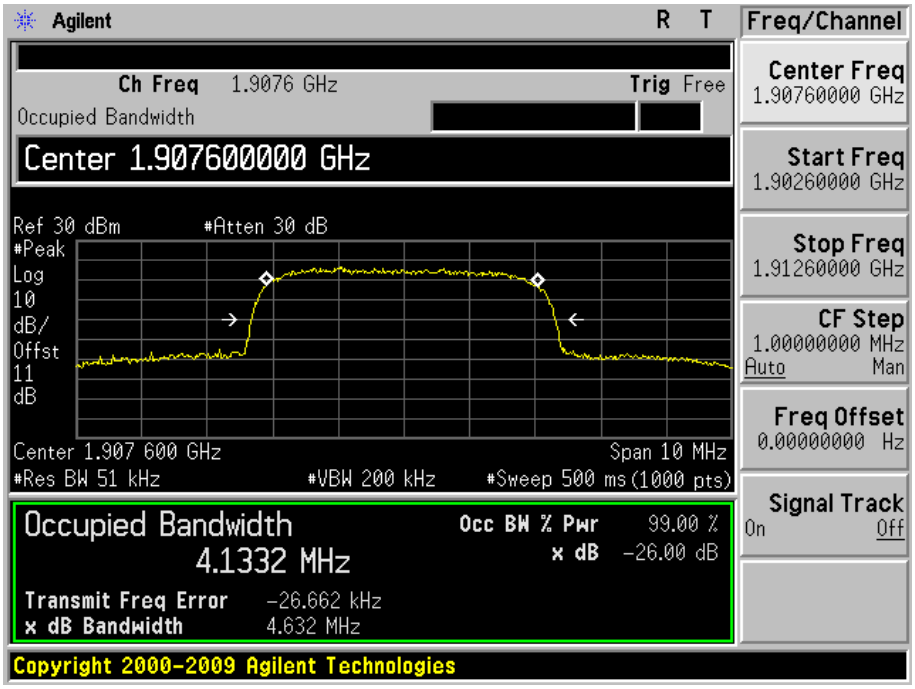
For Band II
WCDMA Low Channel



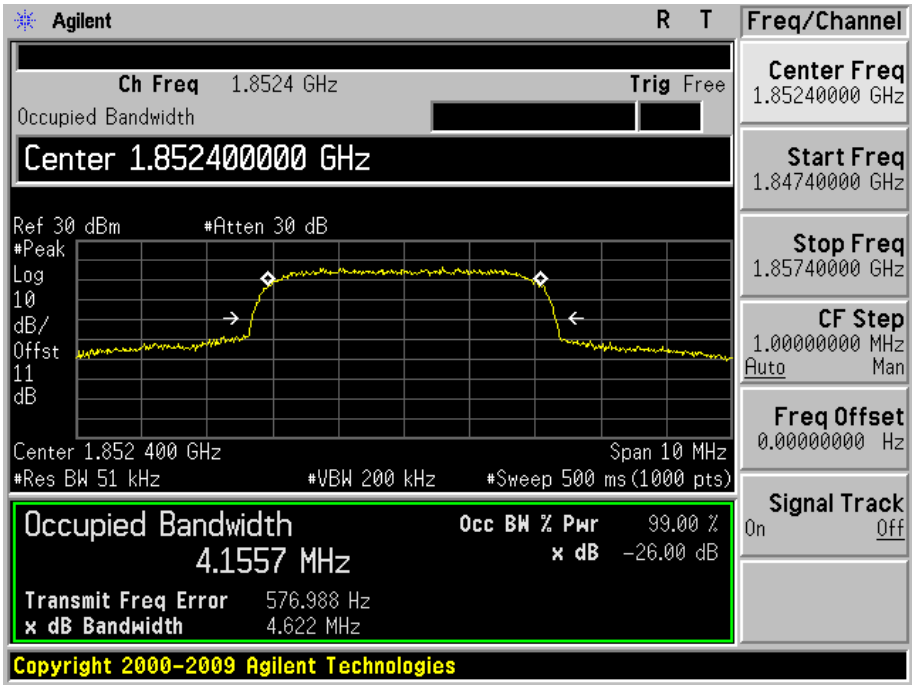
WCDMA Middle Channel



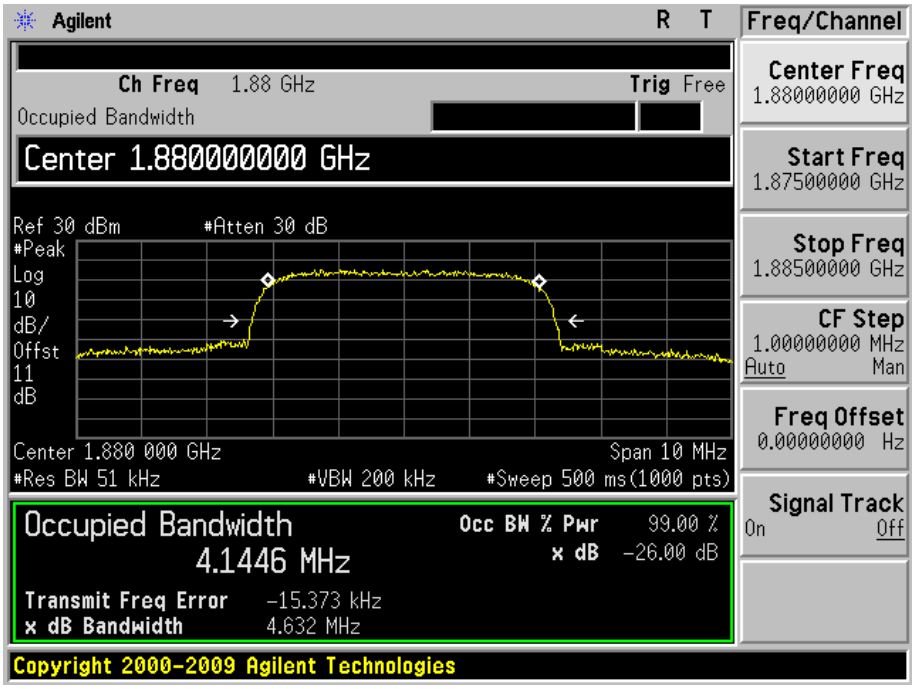
WCDMA High channel



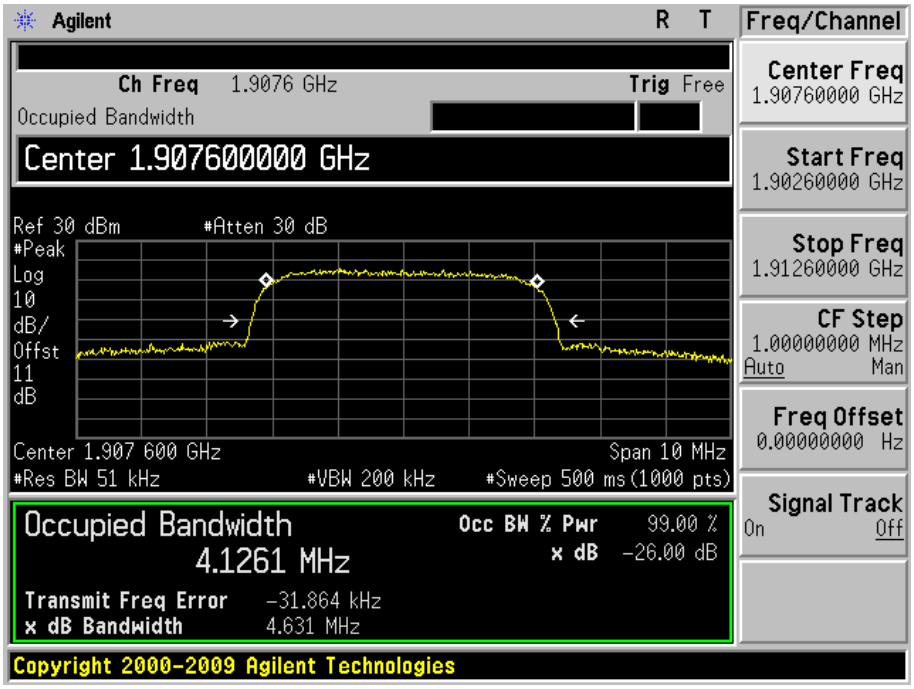
HSUPA Low Channel



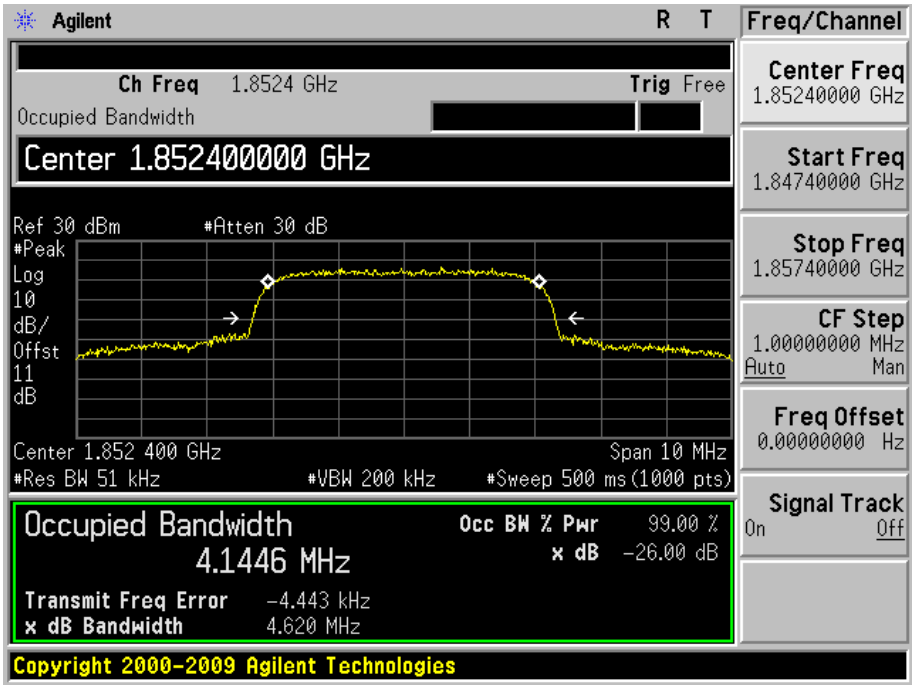
HSUPA Middle Channel



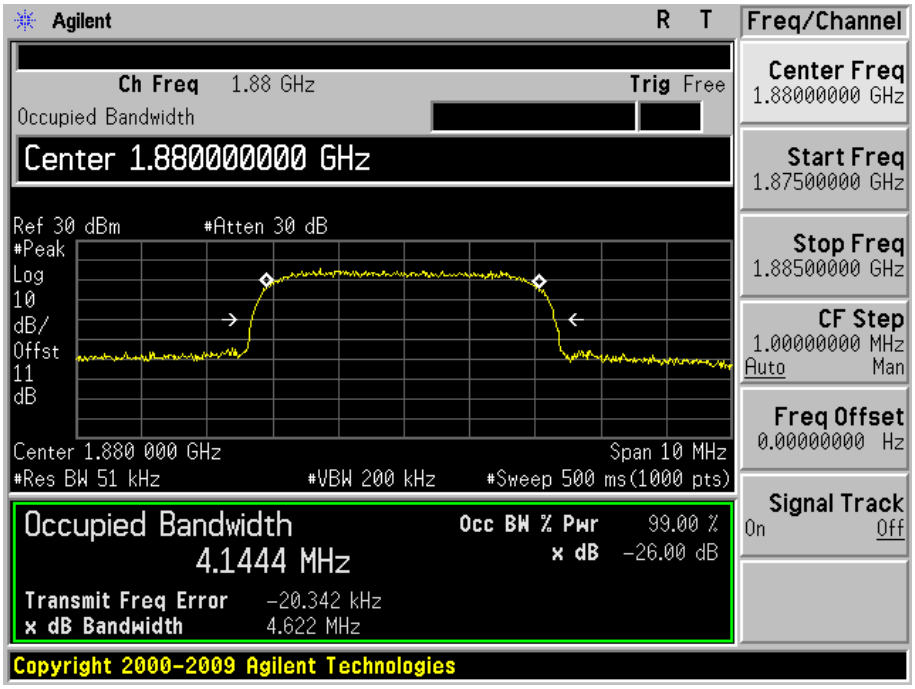
HSUPA High Channel



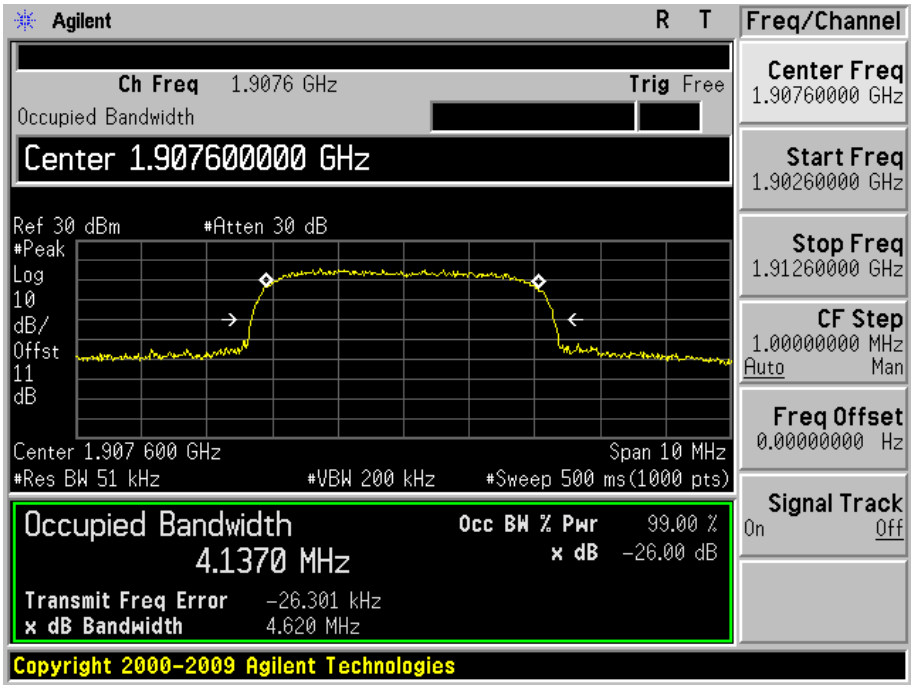
HSDPA Low Channel



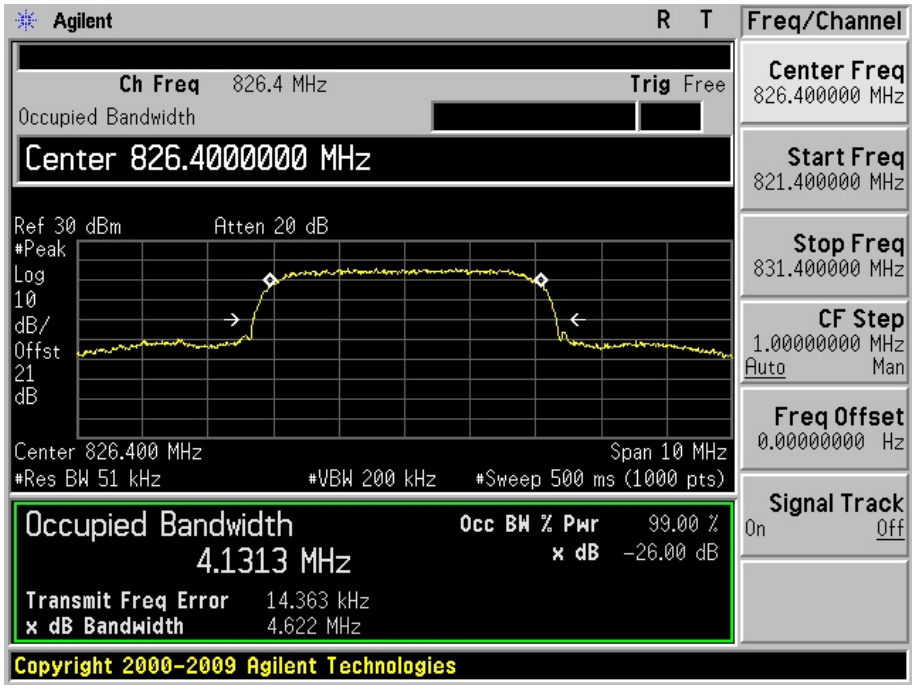
HSDPA Middle Channel



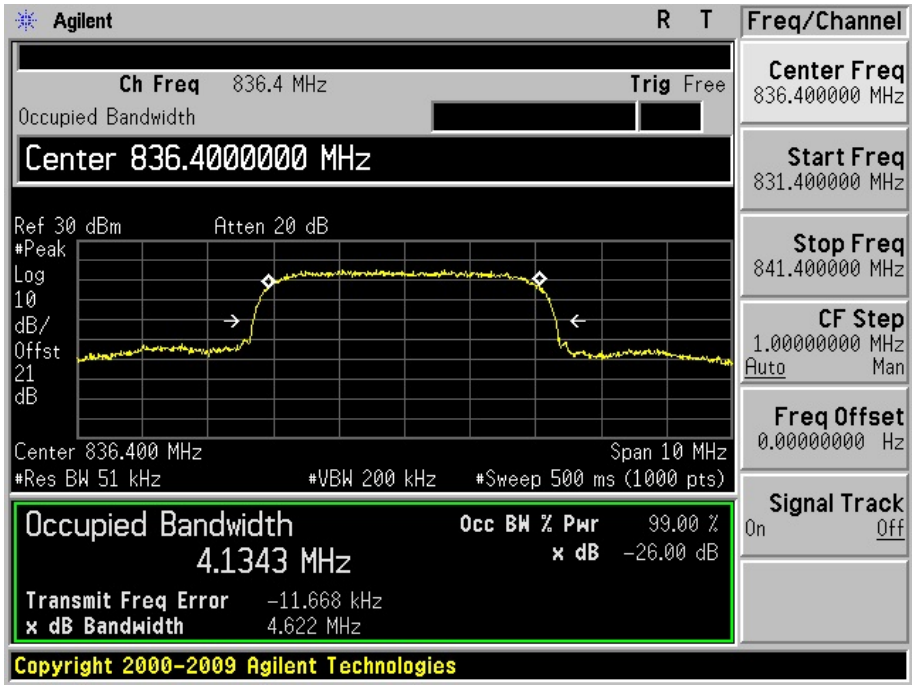
HSDPA High channel



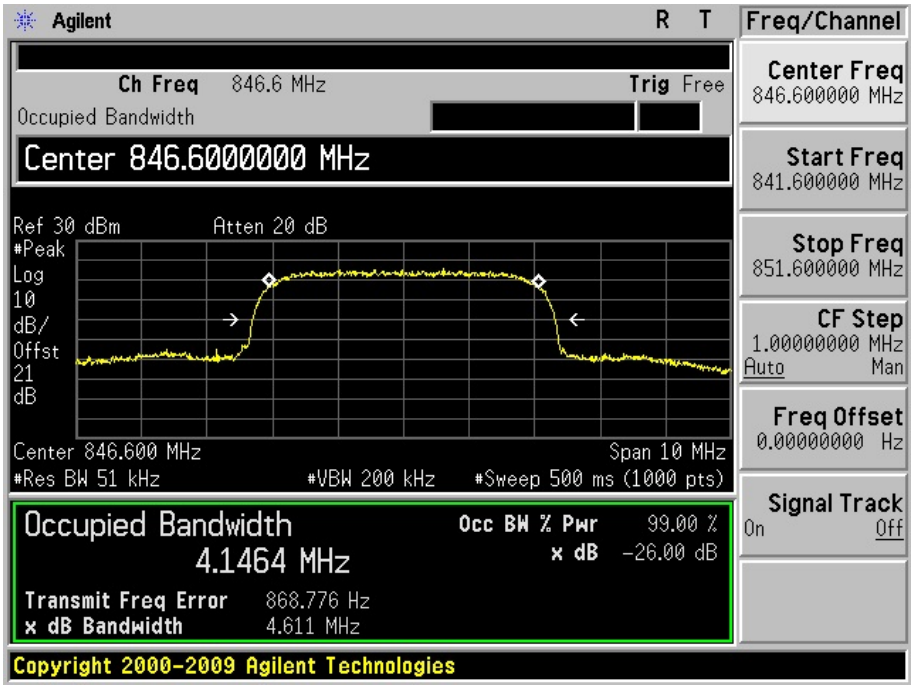
For Band V
WCDMA Low Channel



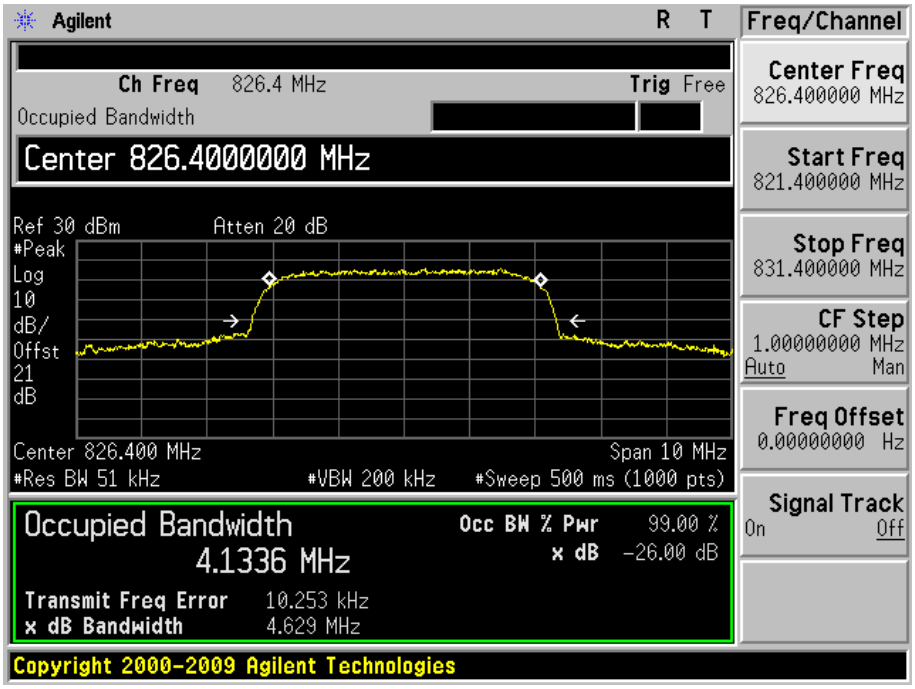
WCDMA Middle Channel



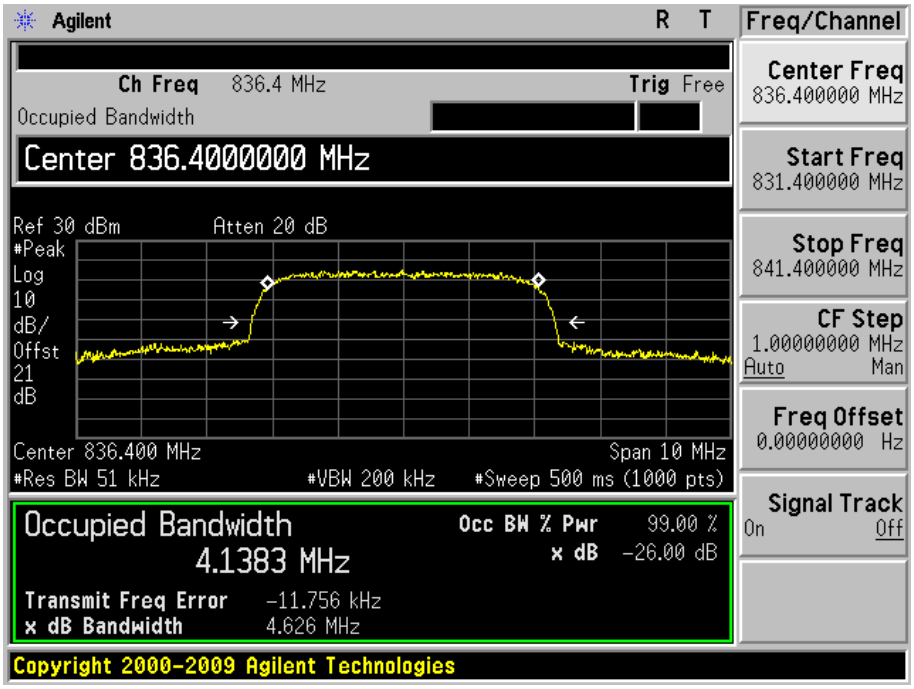
WCDMA High channel



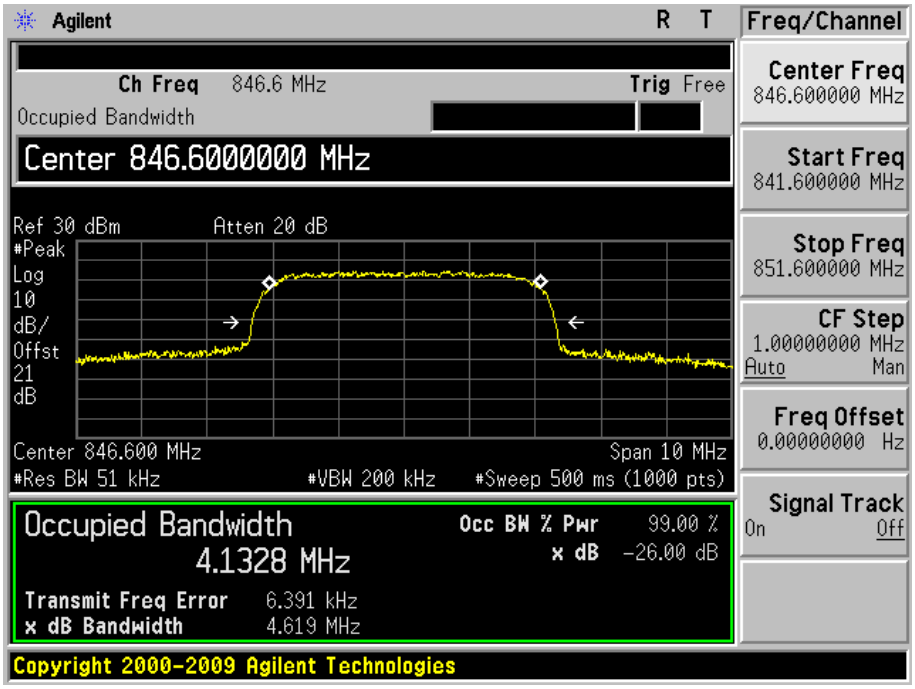
HSUPA Low Channel



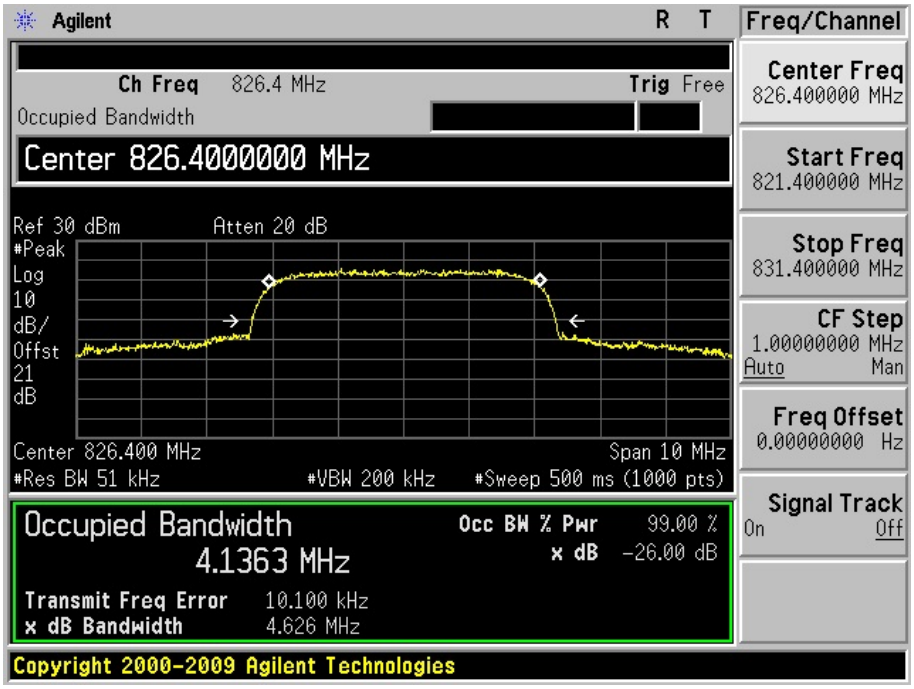
HSUPA Middle Channel



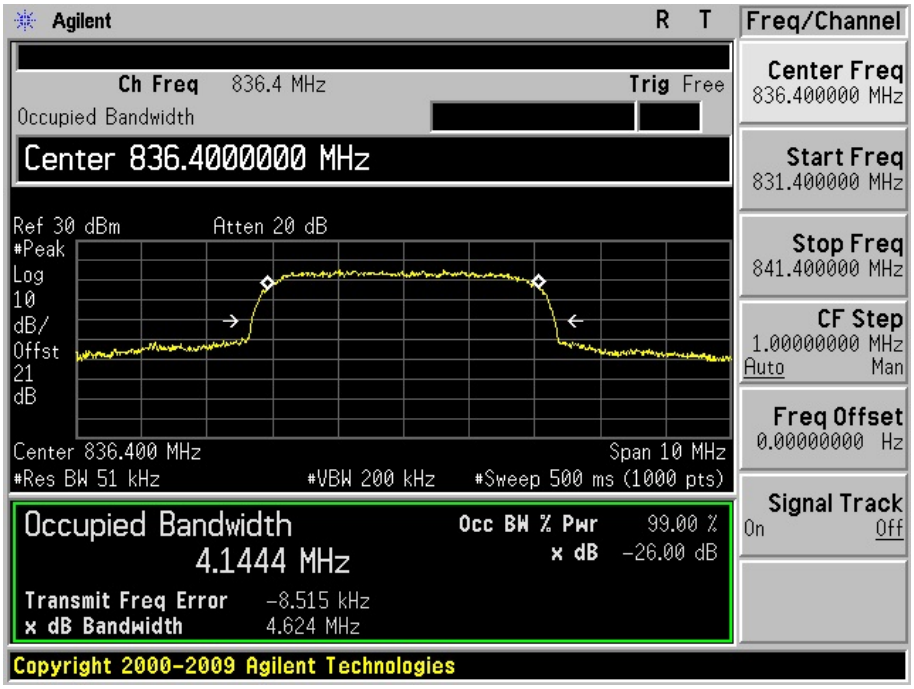
HSUPA High Channel



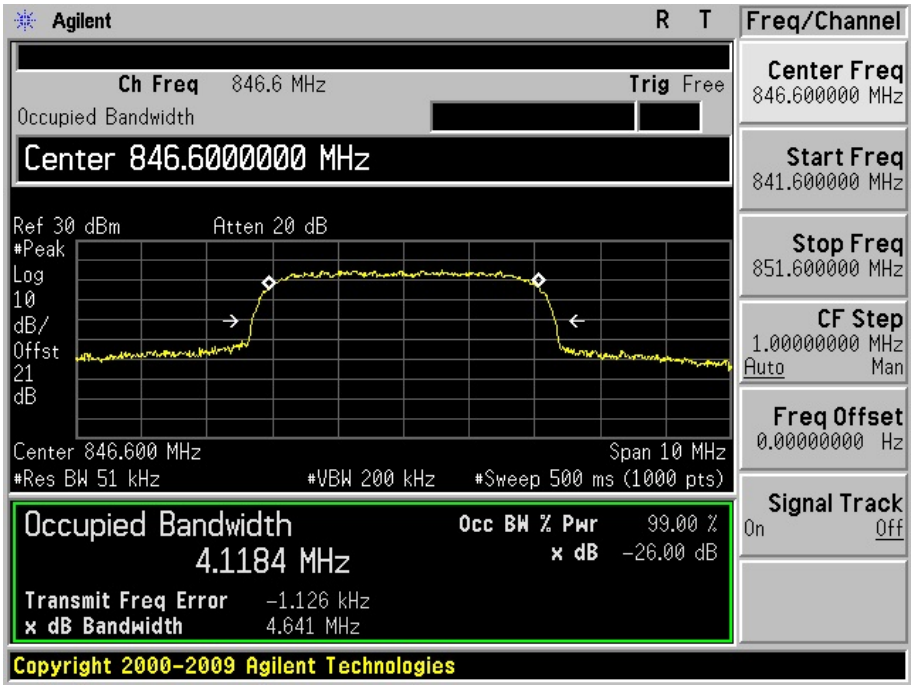
HSDPA Low Channel



HSDPA Middle Channel



HSDPA High channel



6. OUT OF BAND EMISSION AT ANTENNA TERMINAL

6.1 Standard Applicable

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

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

6.2 Test Equipment List and Details

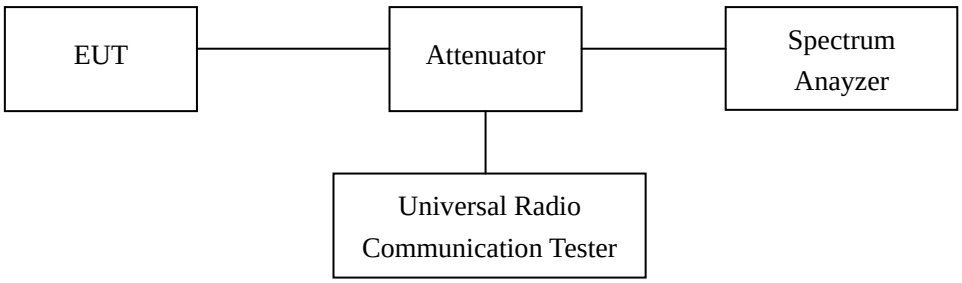
Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Aglient	Spectrum Analyzer	E4402B	US41192821	2012-03-28	2013-03-27
Rohde & Schwarz	Spectrum Analyzer	FSP	836079/035	2012-03-28	2013-03-27
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	112012	2012-03-28	2013-03-27

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

6.3 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 100kHz and 1MHz for the scan frequency from 30MHz to 1GHz and the scan frequency from 1GHz to up to 10^{th} harmonic.

Test Configuration for the out of band emissions testing:



6.4 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

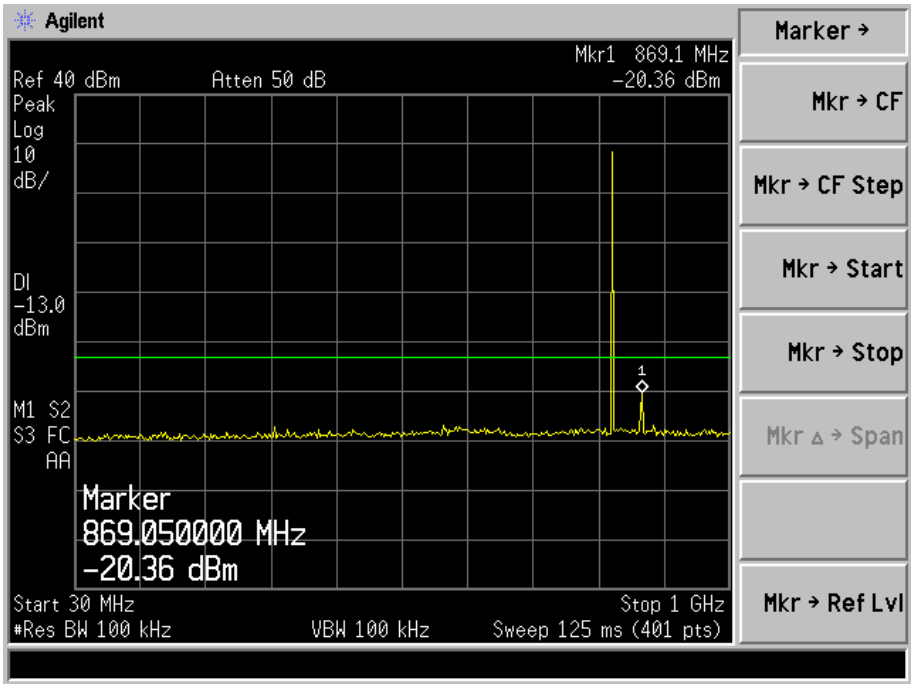
6.5 Summary of Test Results/Plots

Please refer to the following test plots

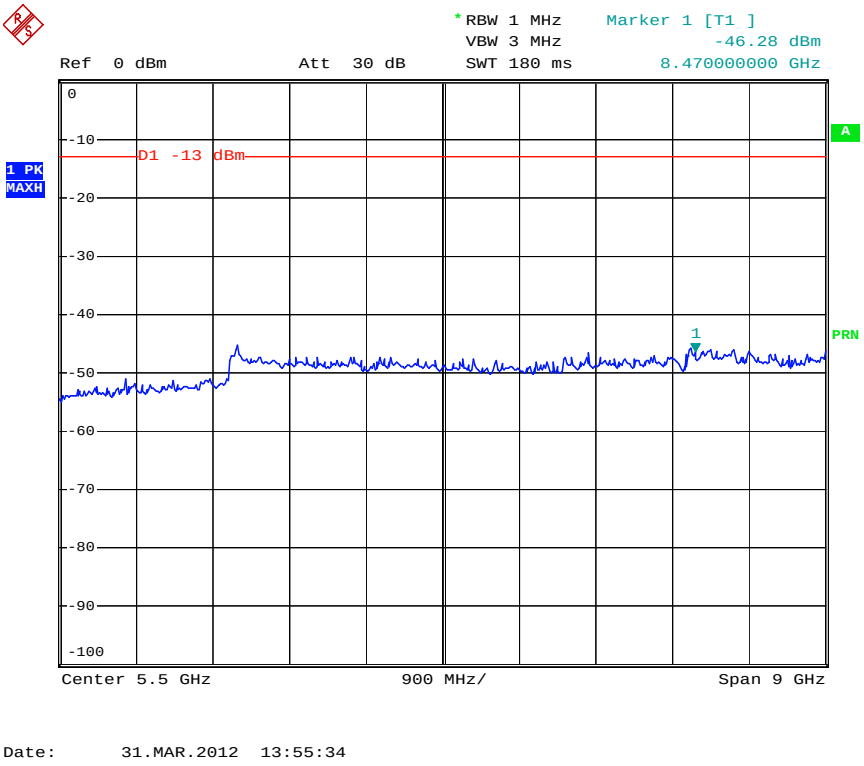
For Cellular Band

GSM Low Channel

30MHz to 1GHz

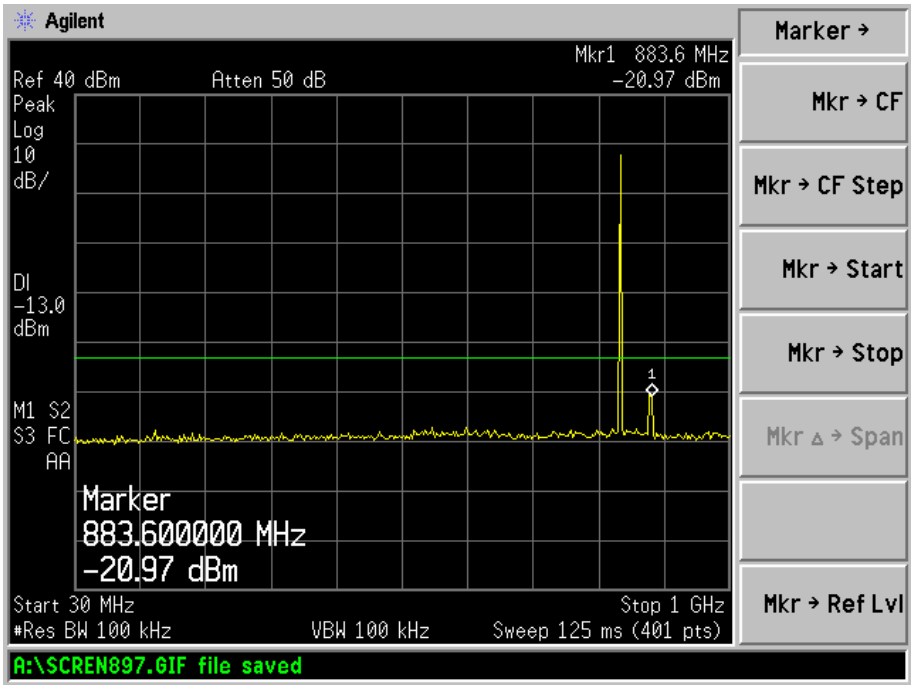


Above 1GHz

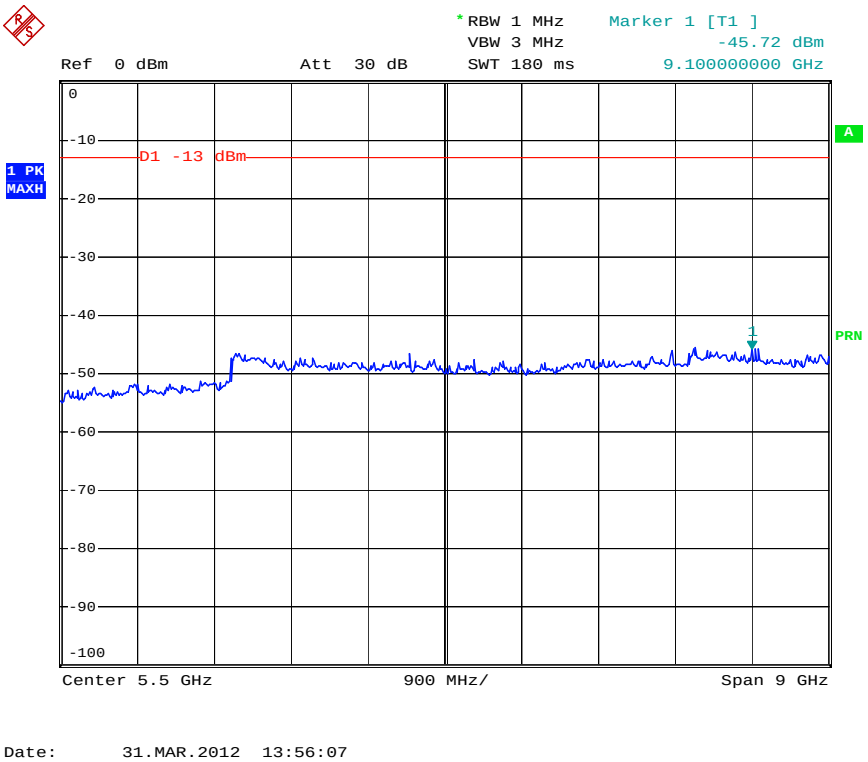


GSM Middle Channel

30MHz to 1GHz

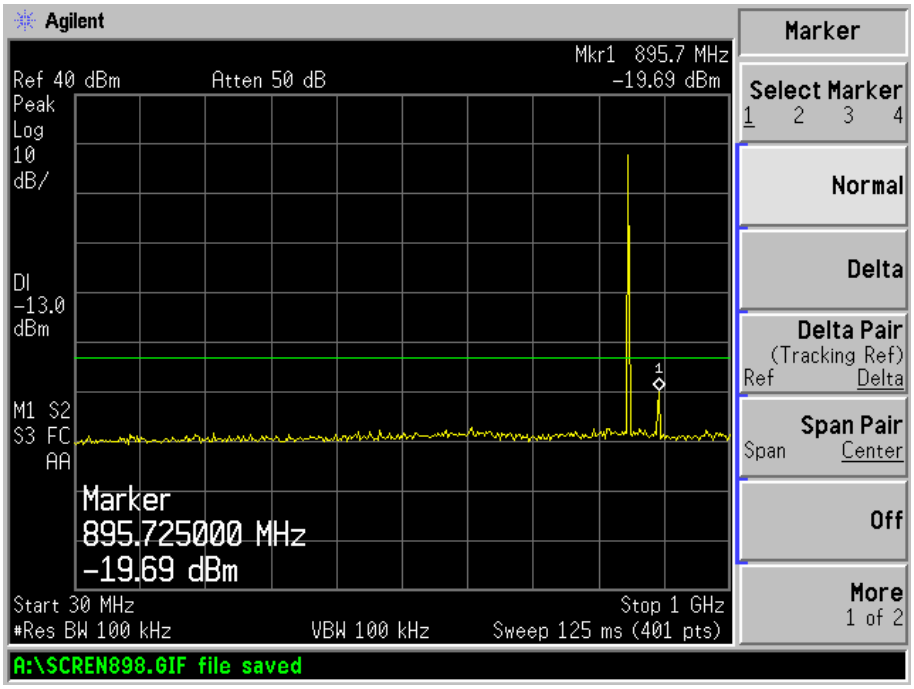


Above 1GHz

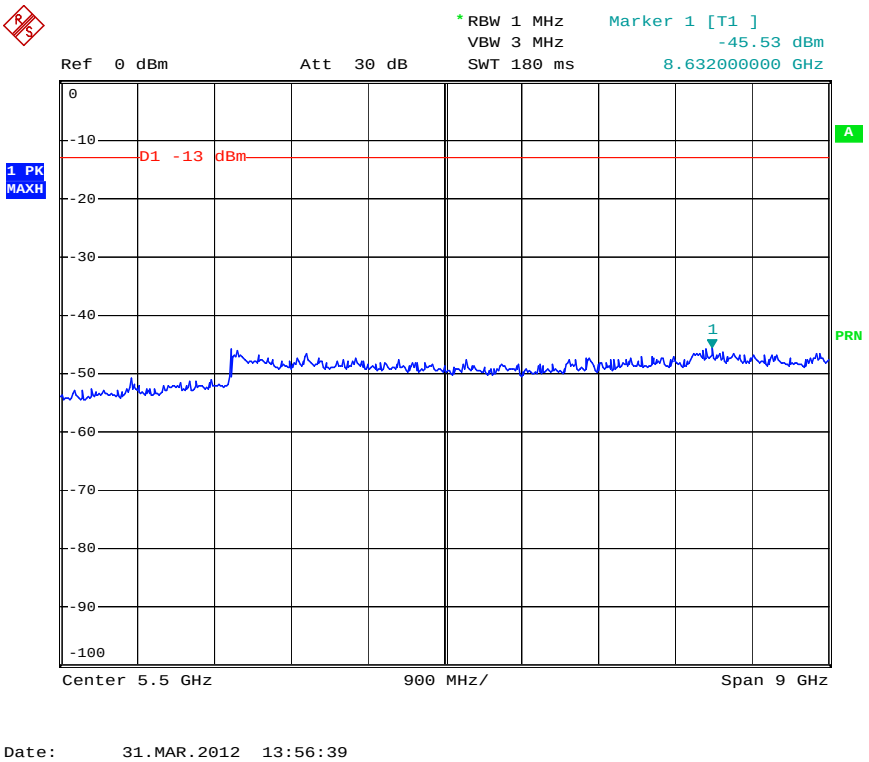


GSM High Channel

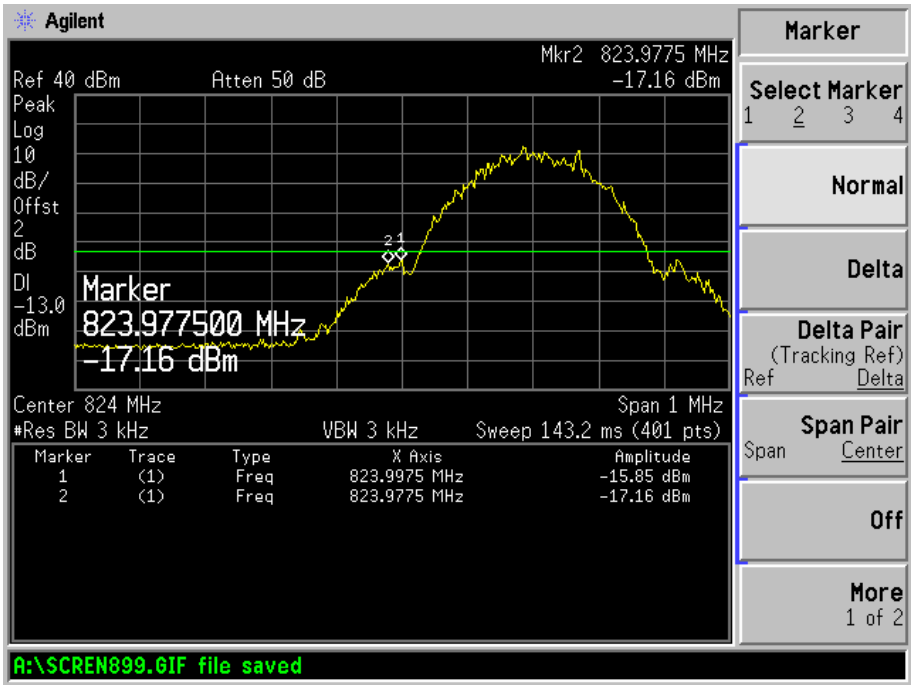
30MHz to 1GHz



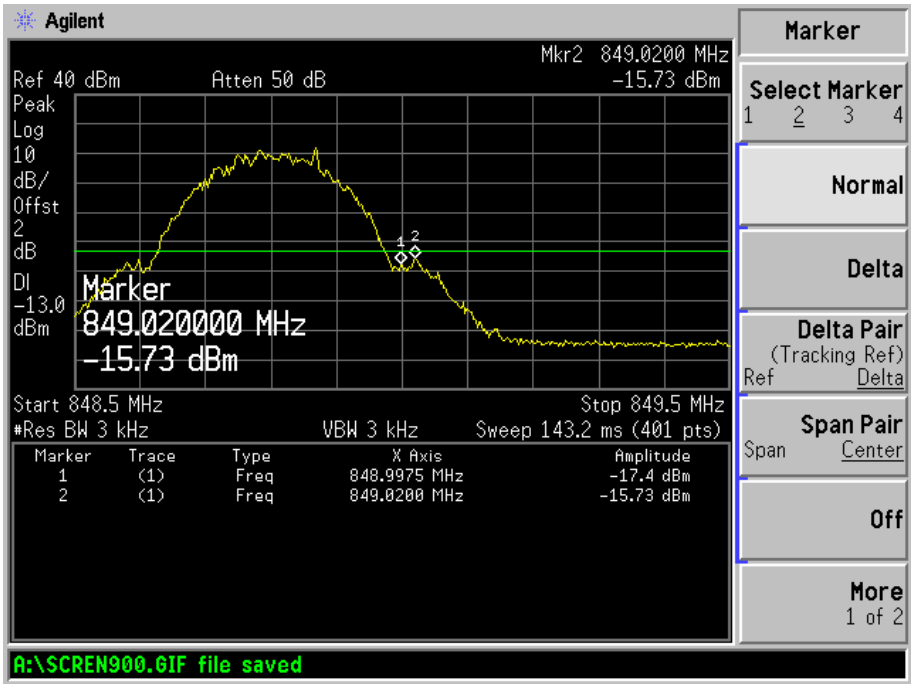
Above 1GHz



GSM Low Band Emission

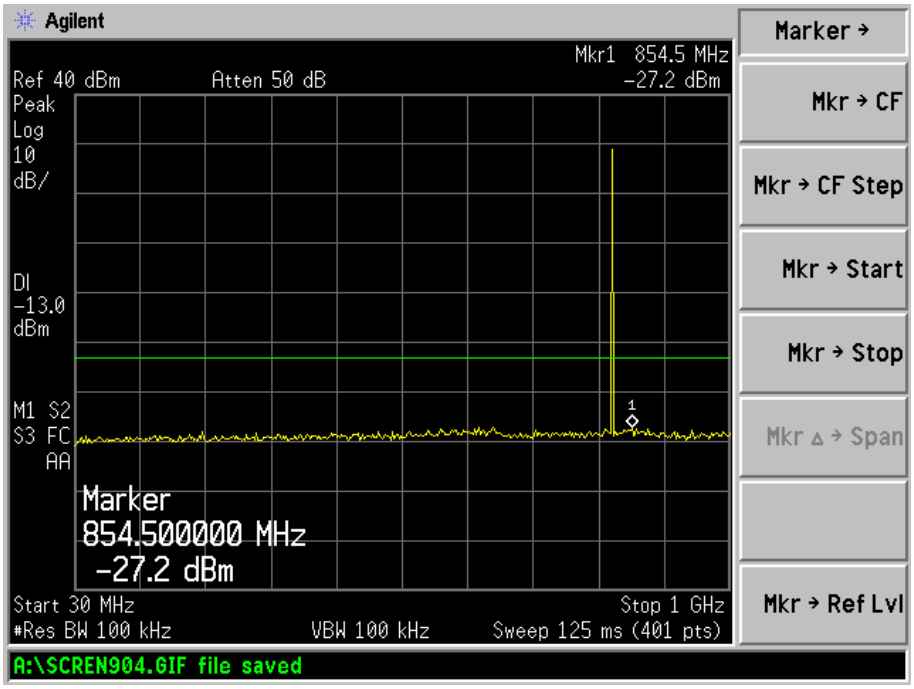


GSM High Band Emission

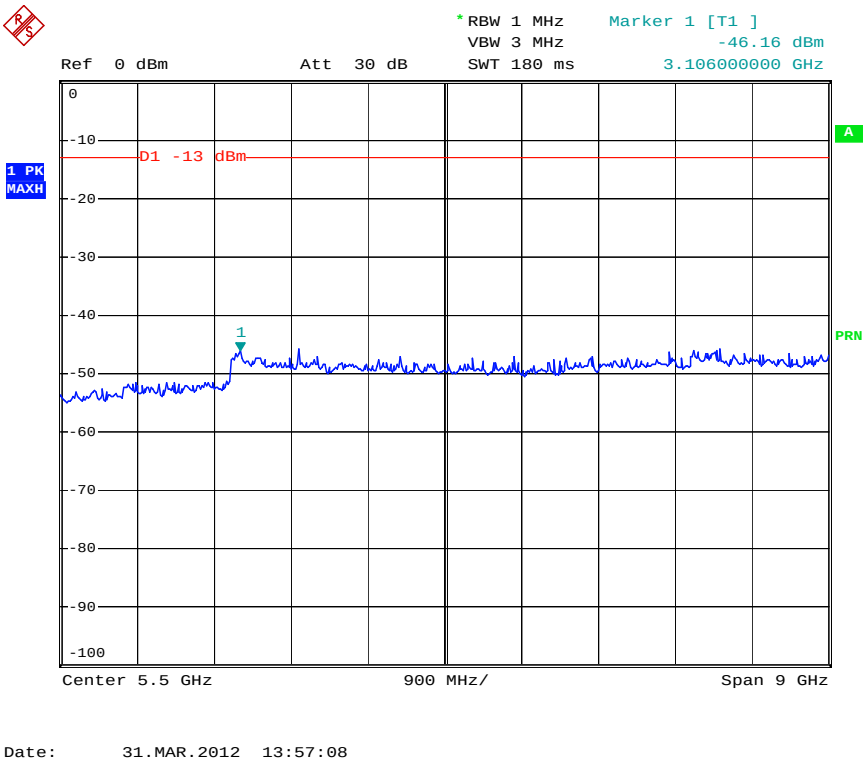


GPRS Low Channel

30MHz to 1GHz

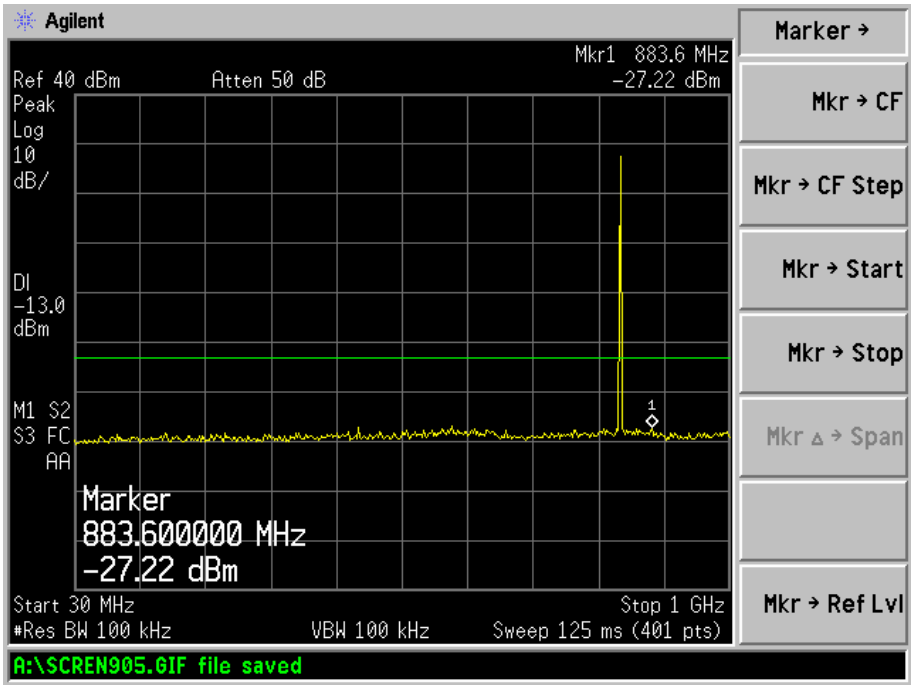


Above 1GHz

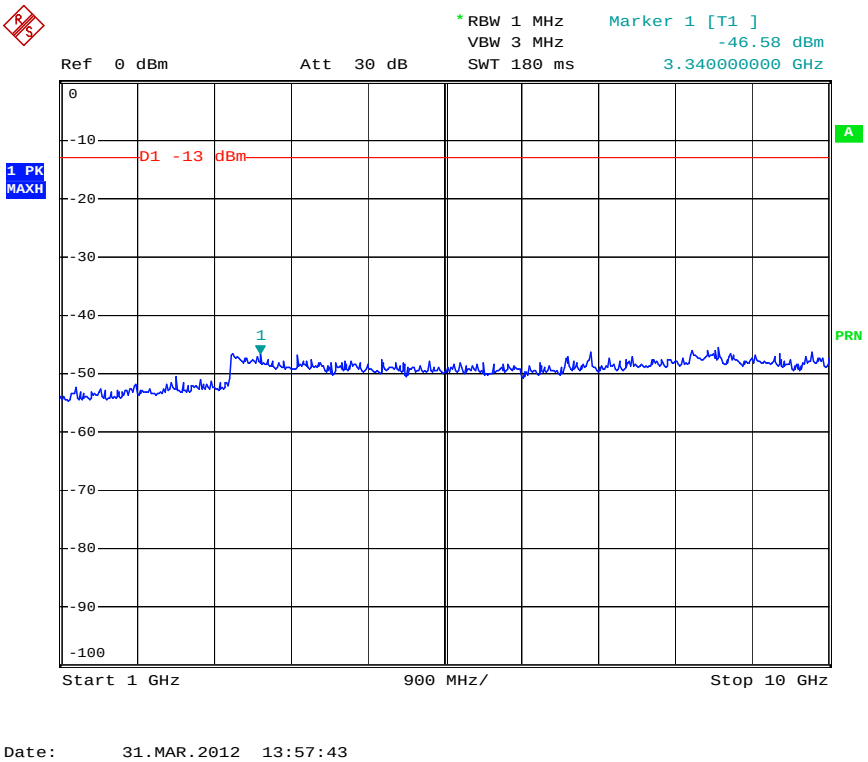


GPRS Middle Channel

30MHz to 1GHz

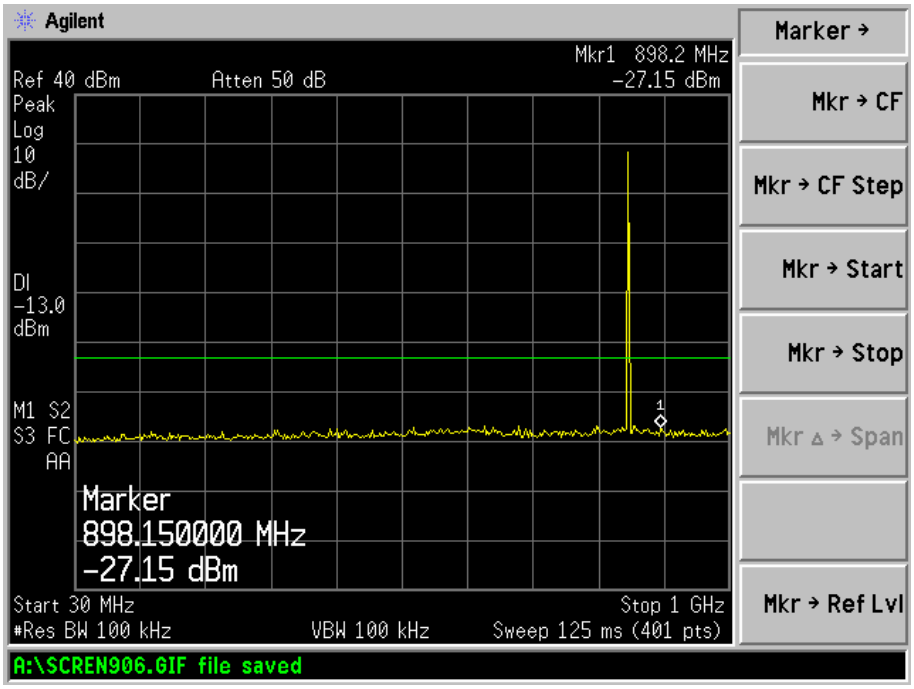


Above 1GHz

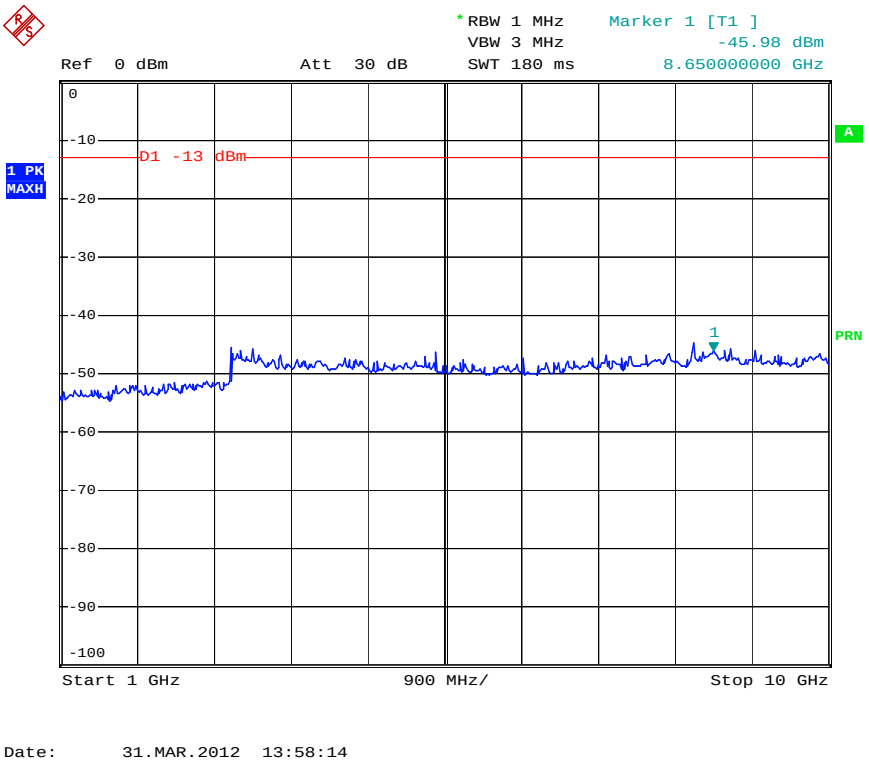


GPRS High Channel

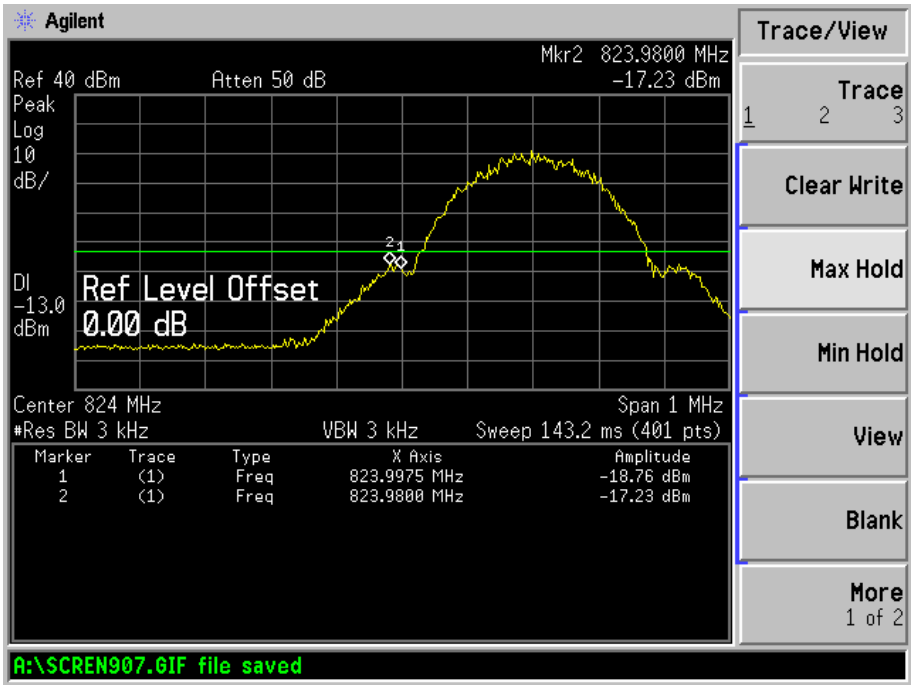
30MHz to 1GHz



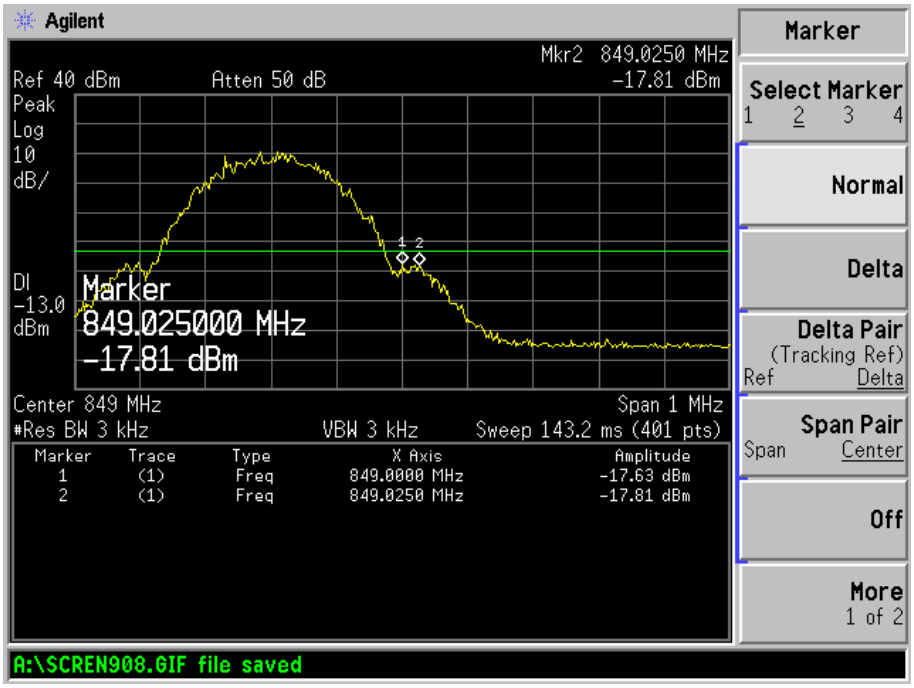
Above 1GHz



GPRS Low Band Emission

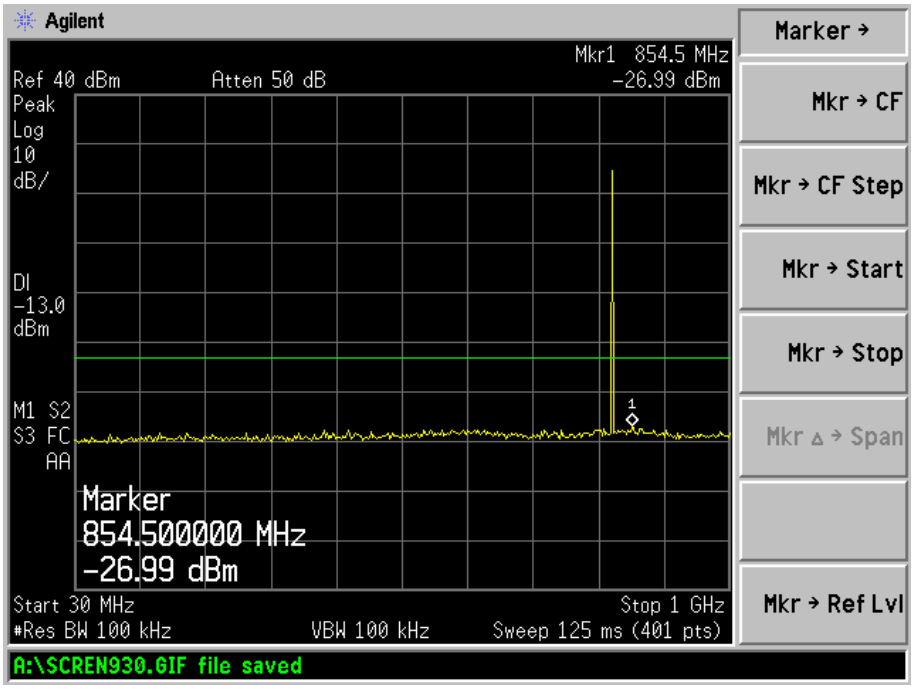


GPRS High Band Emission

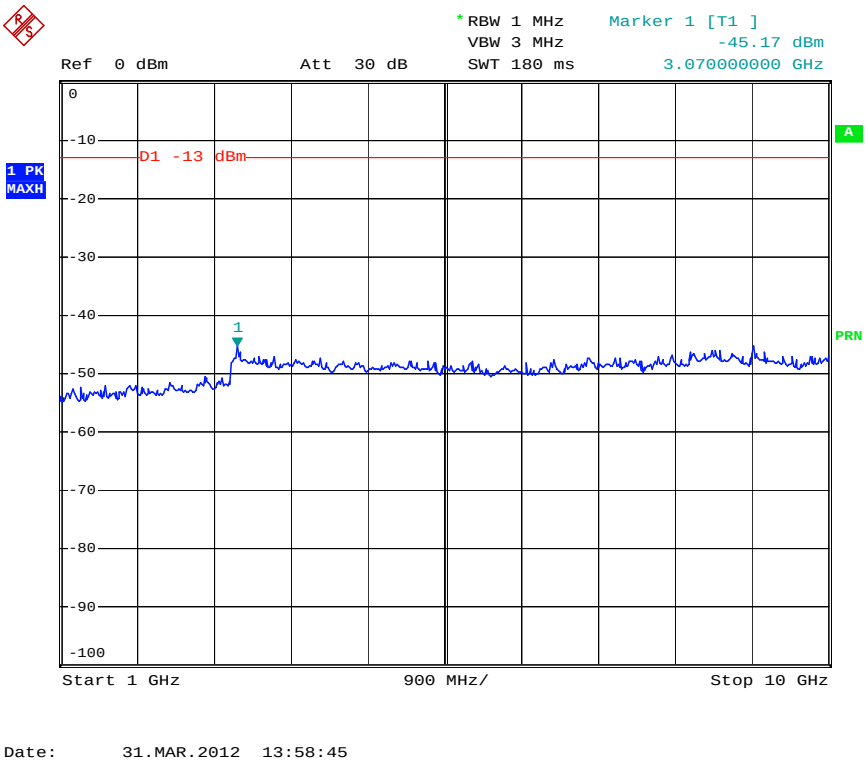


EDGE Low Channel

30MHz to 1GHz

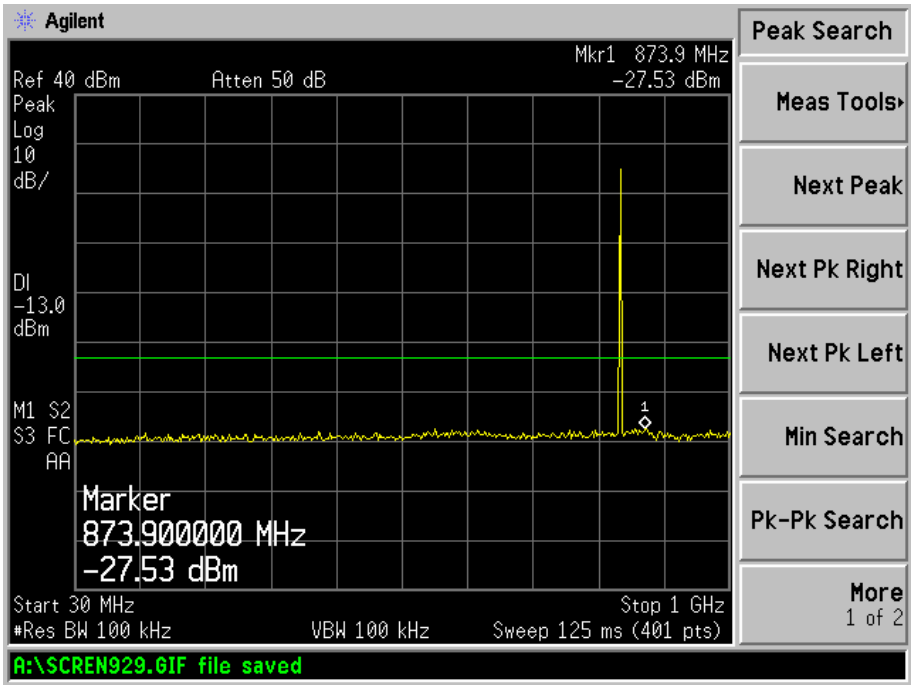


Above 1GHz

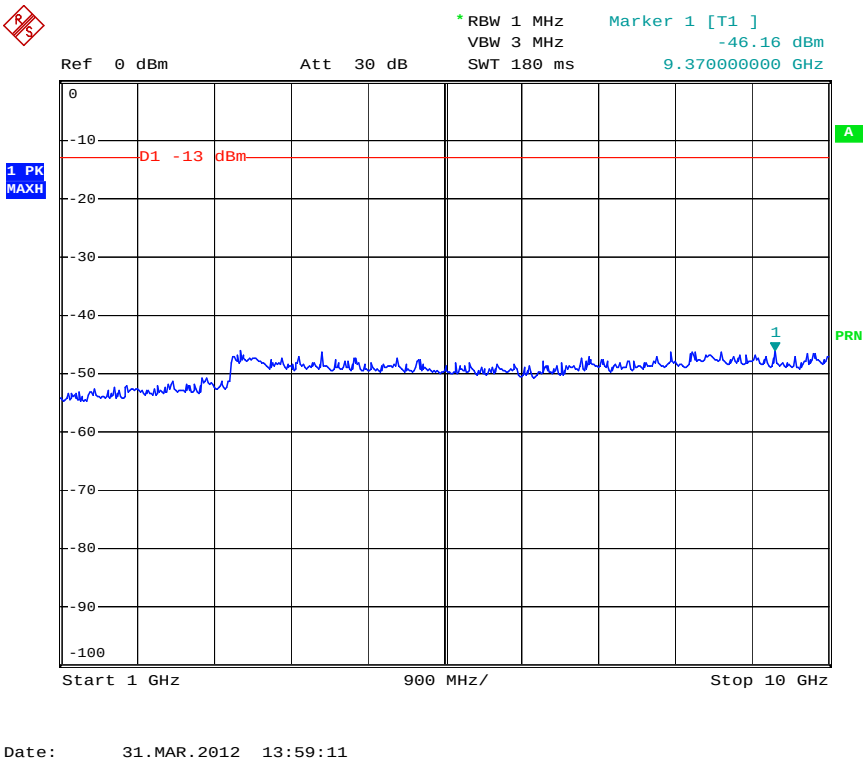


EDGE Middle Channel

30MHz to 1GHz

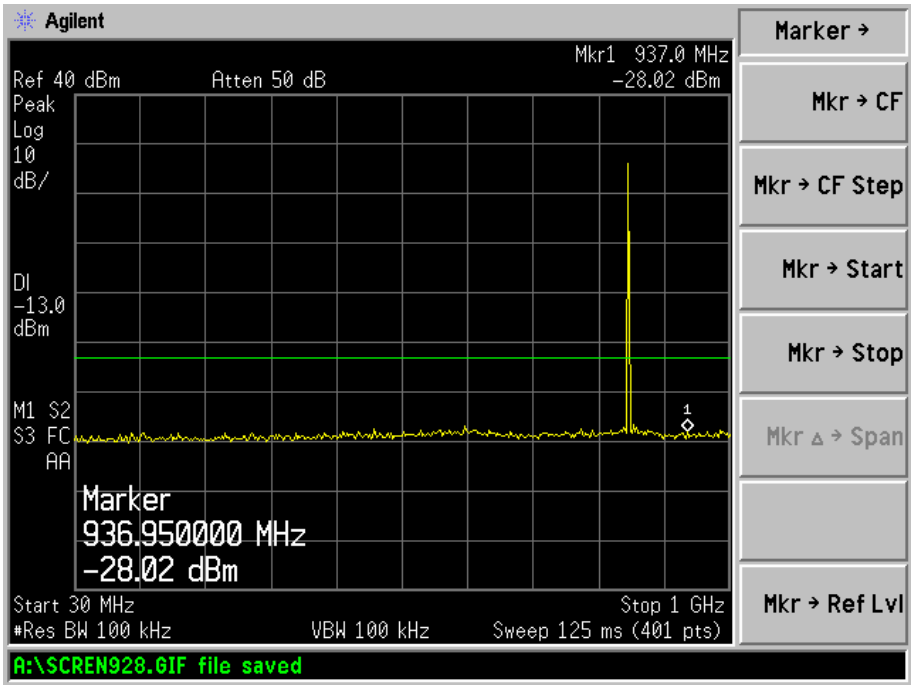


Above 1GHz

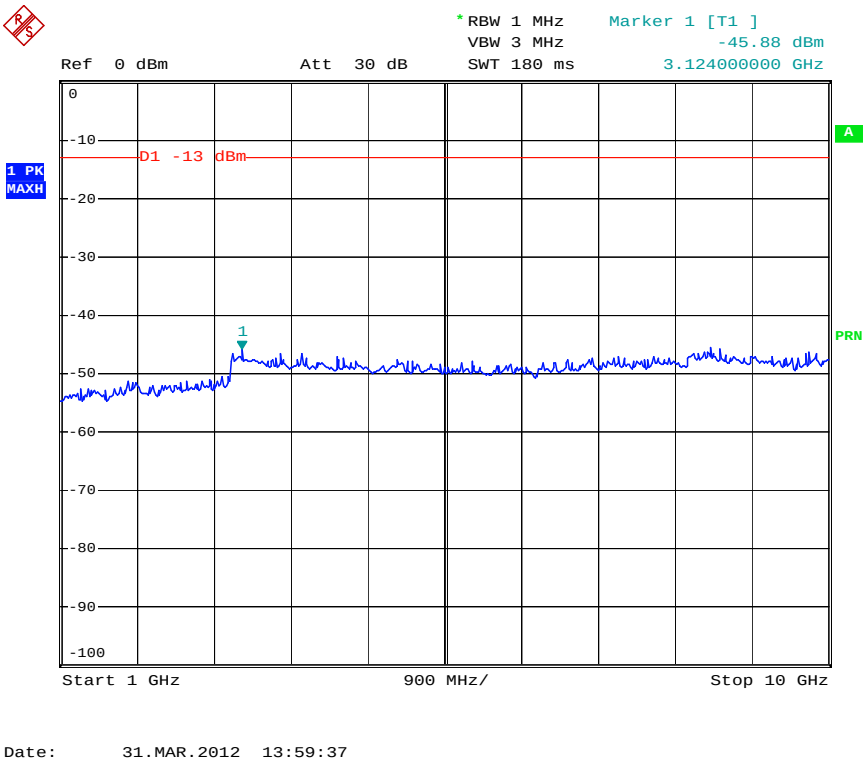


EDGE High Channel

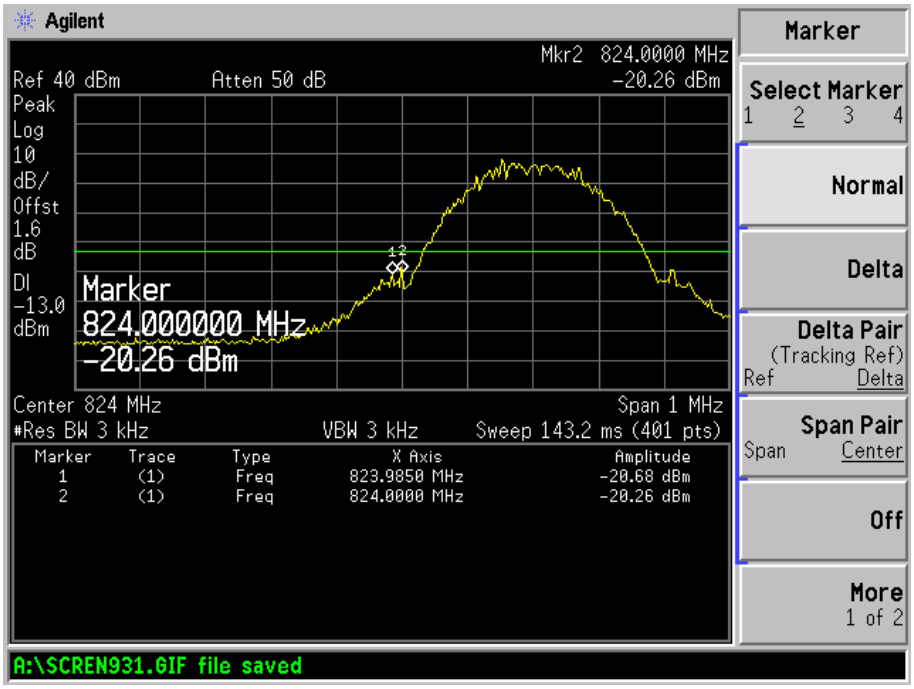
30MHz to 1GHz



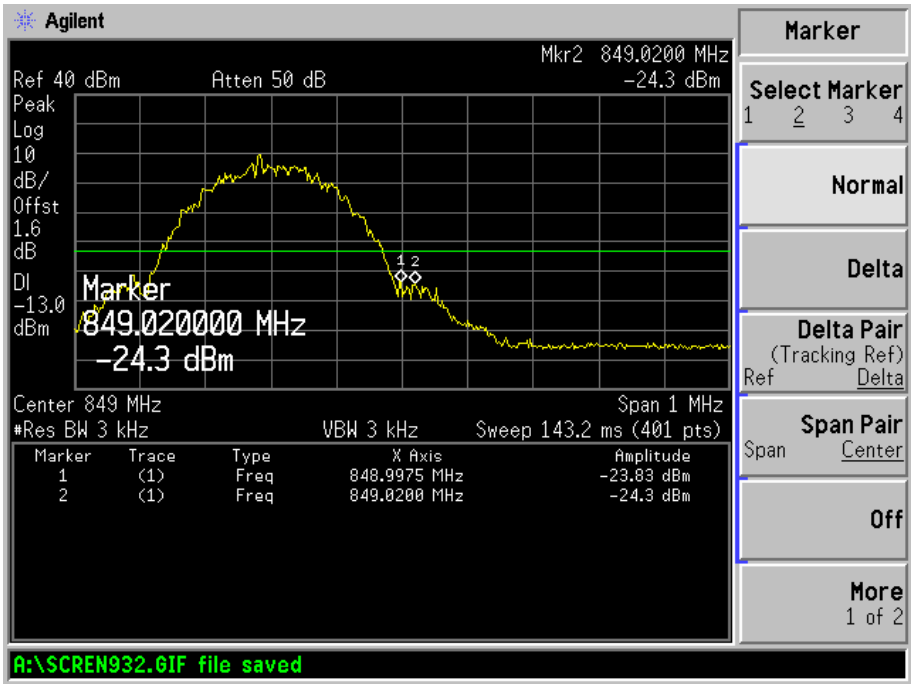
Above 1GHz



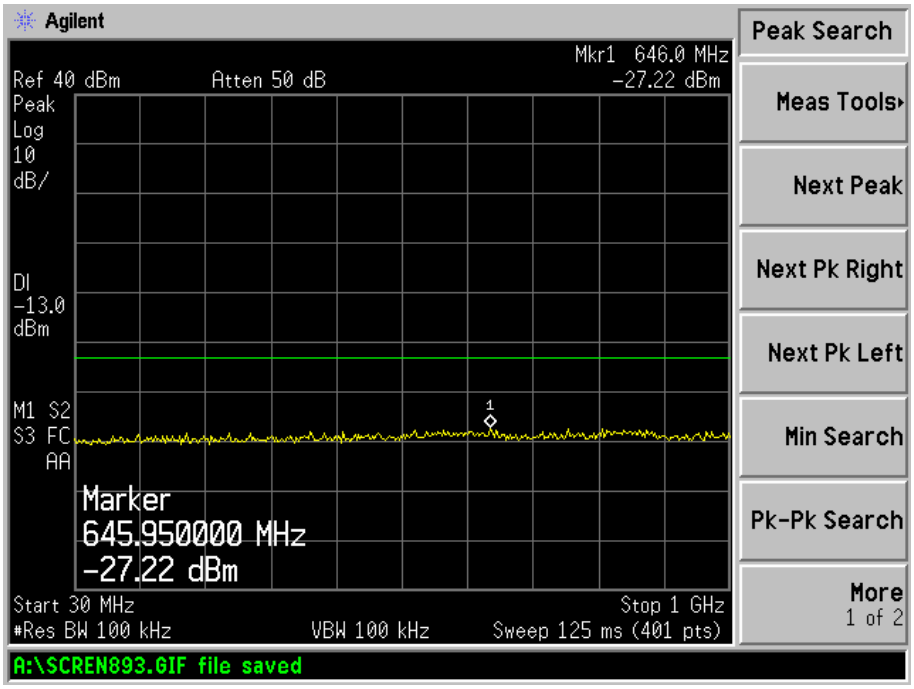
EDGE Low Band Emission



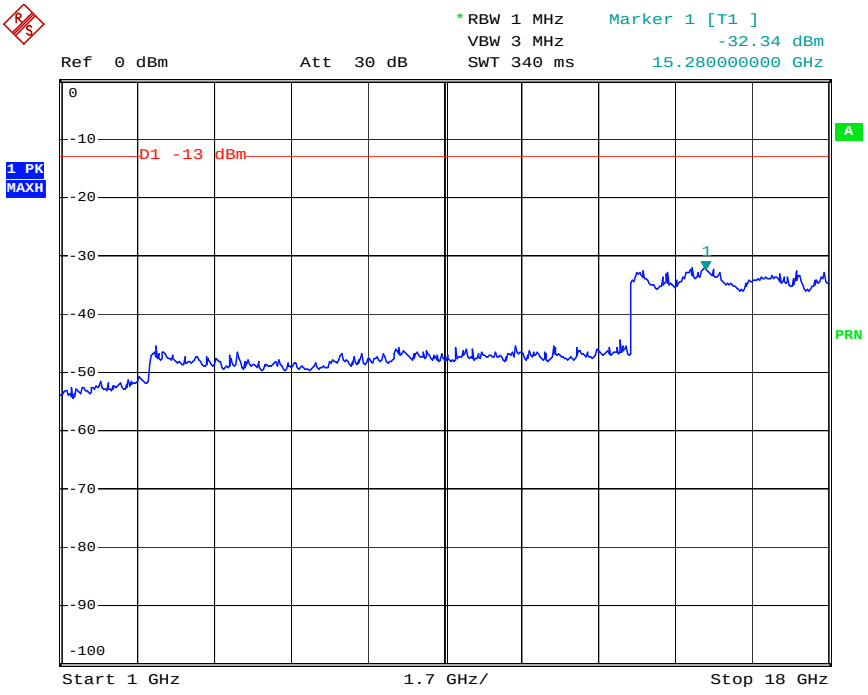
EDGE High Band Emission



For PCS Band
GSM Low Channel
30MHz to 1GHz

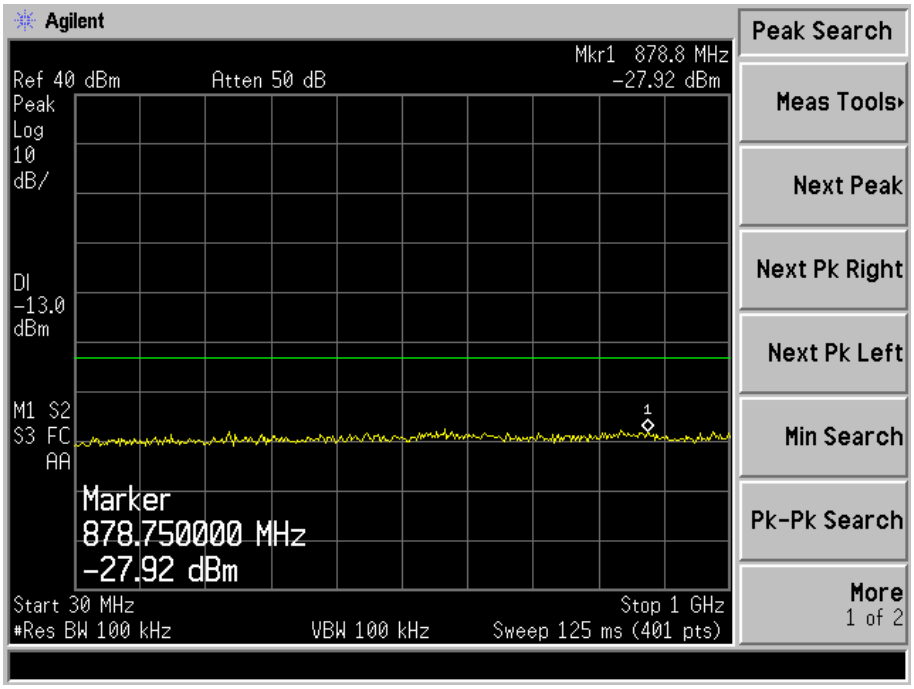


Above 1GHz

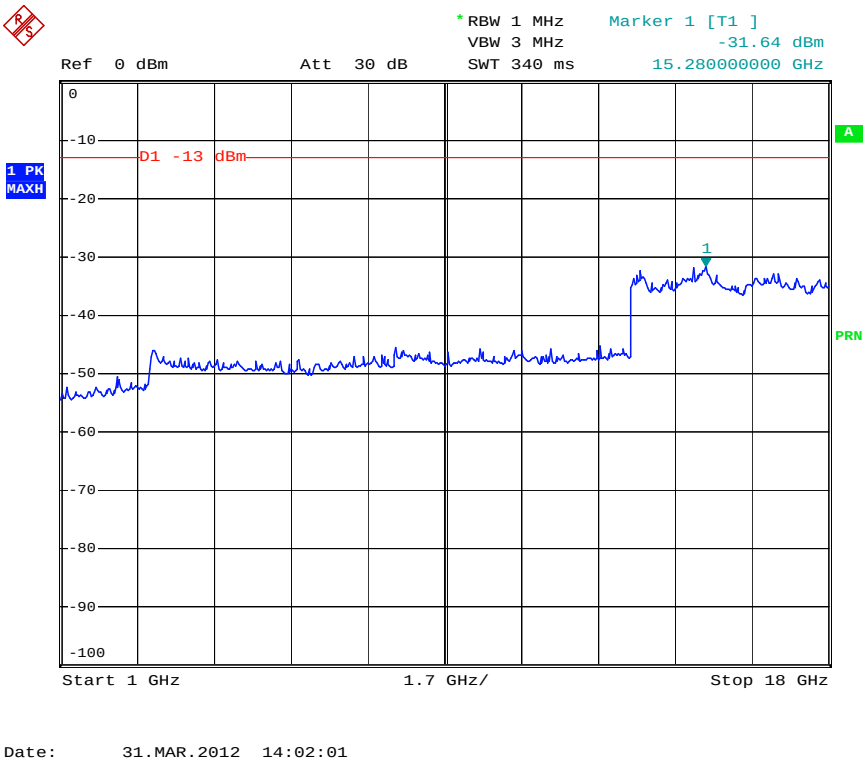


GSM Middle Channel

30MHz to 1GHz

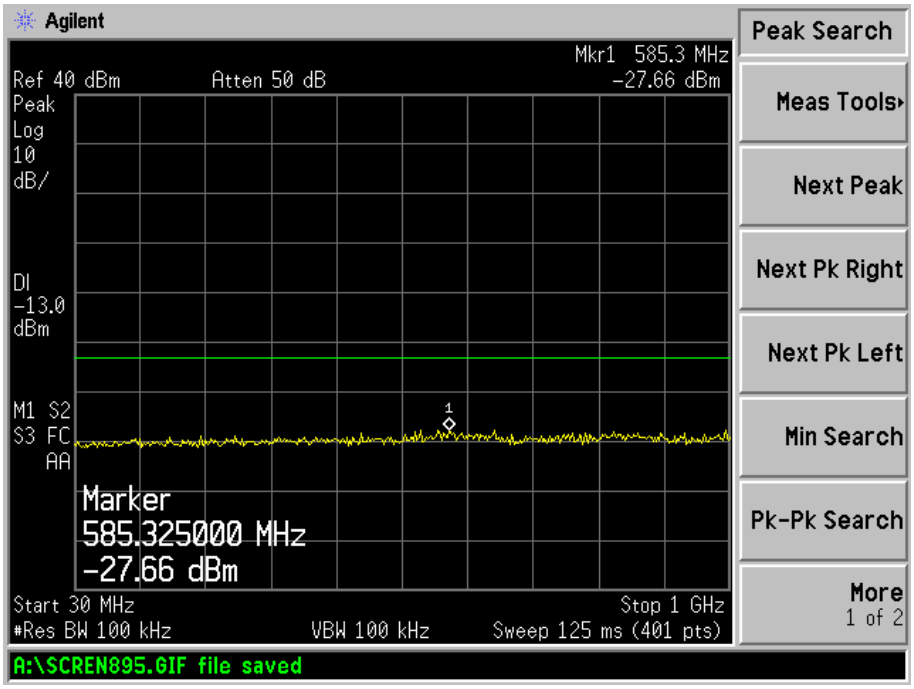


Above 1GHz

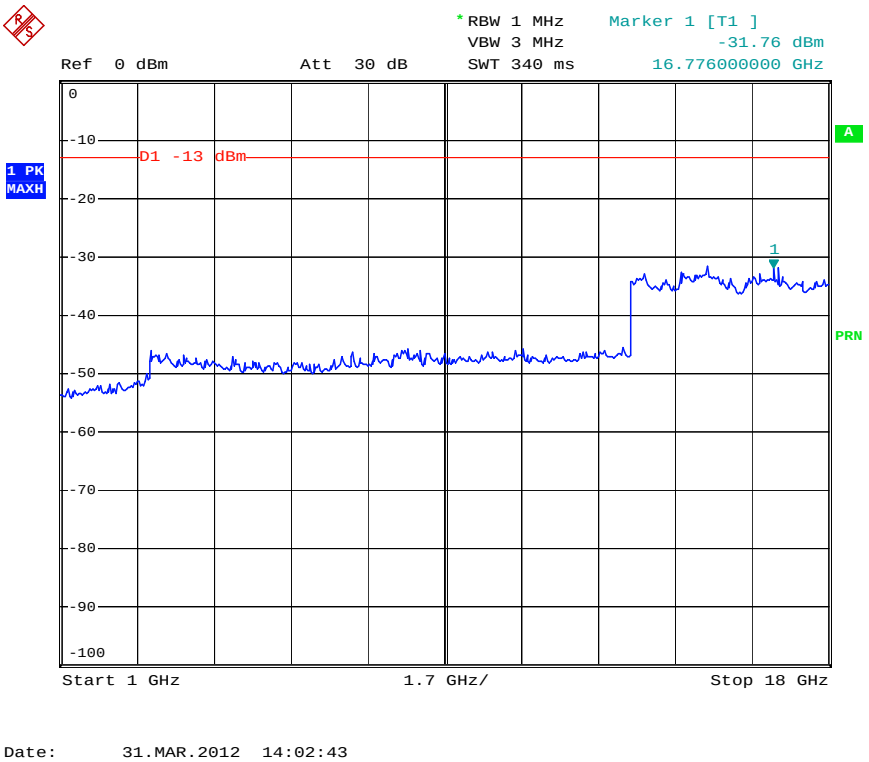


GSM High Channel

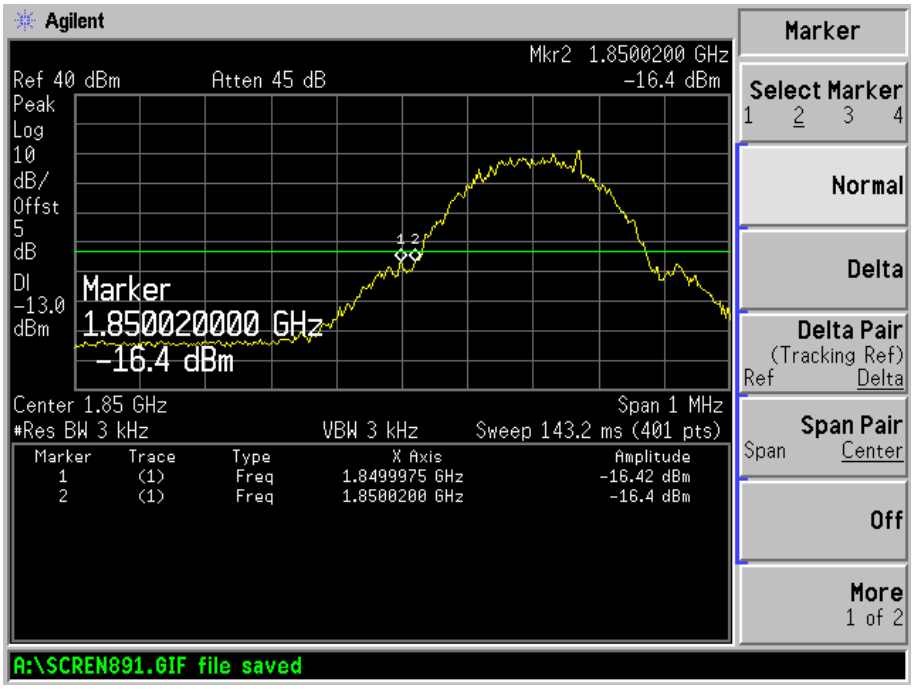
30MHz to 1GHz



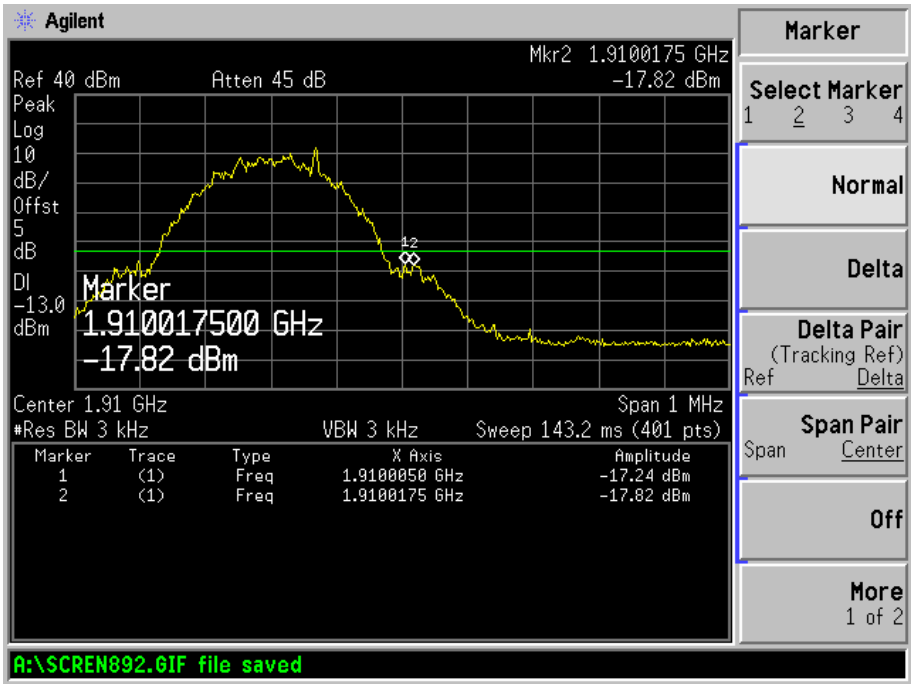
Above 1GHz



GSM Low Band Emission

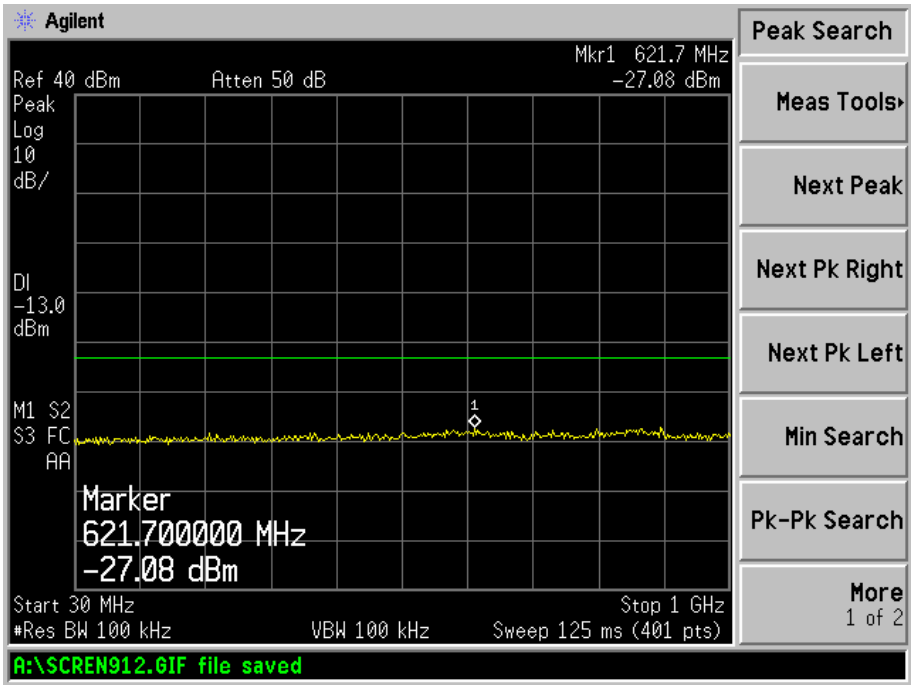


GSM High Band Emission

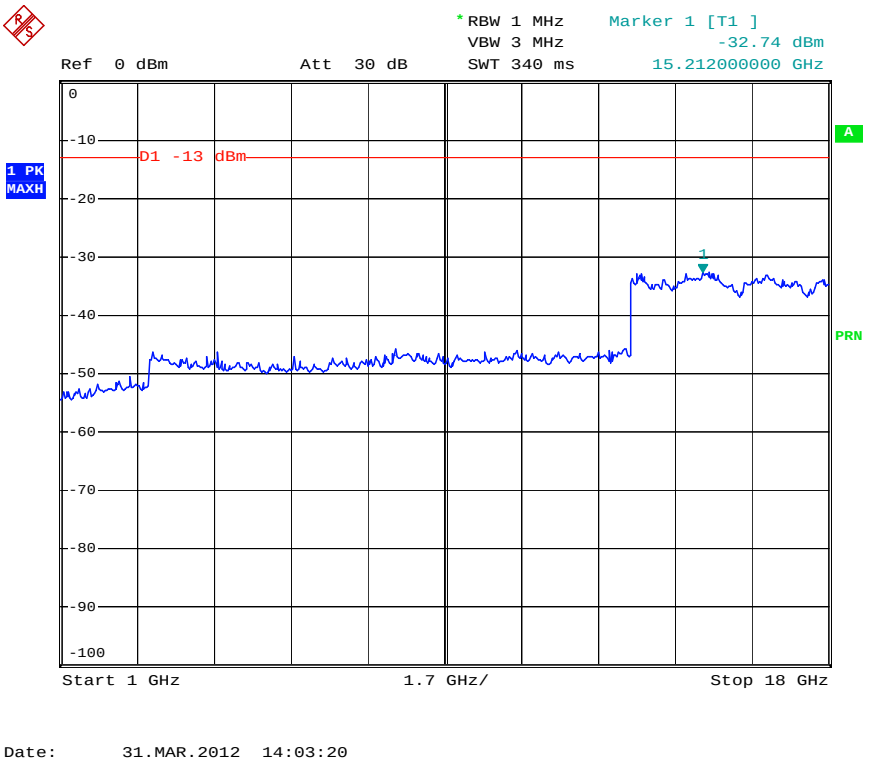


GPRS Low Channel

30MHz to 1GHz

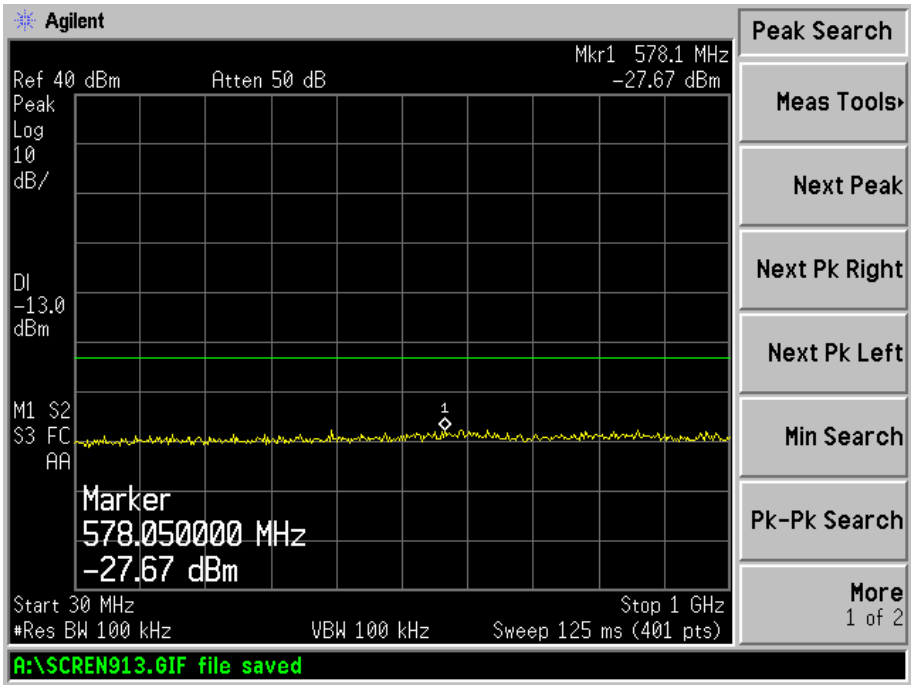


Above 1GHz

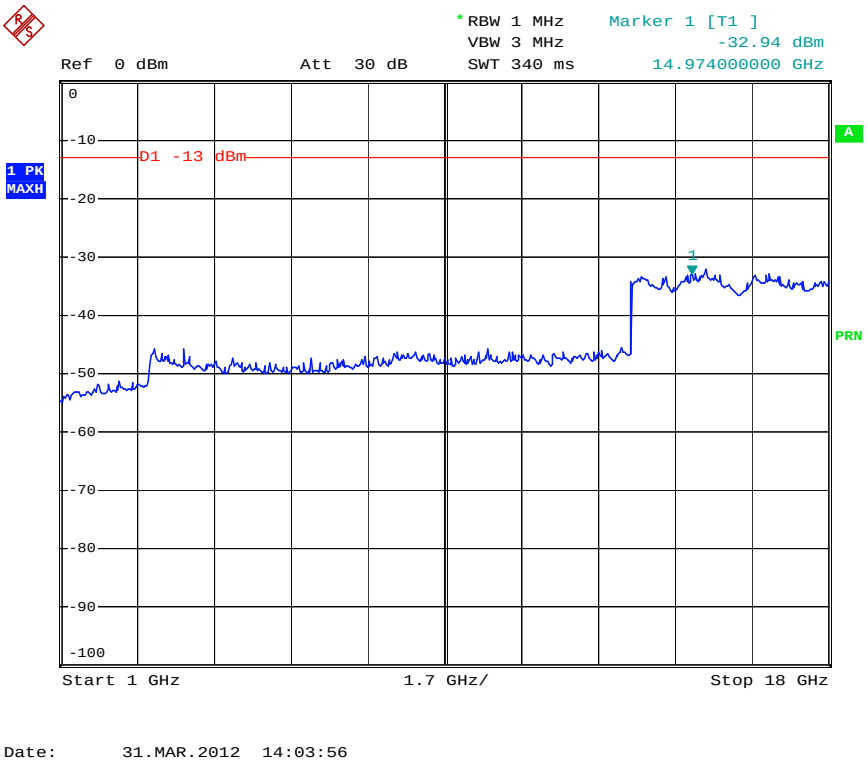


GPRS Middle Channel

30MHz to 1GHz

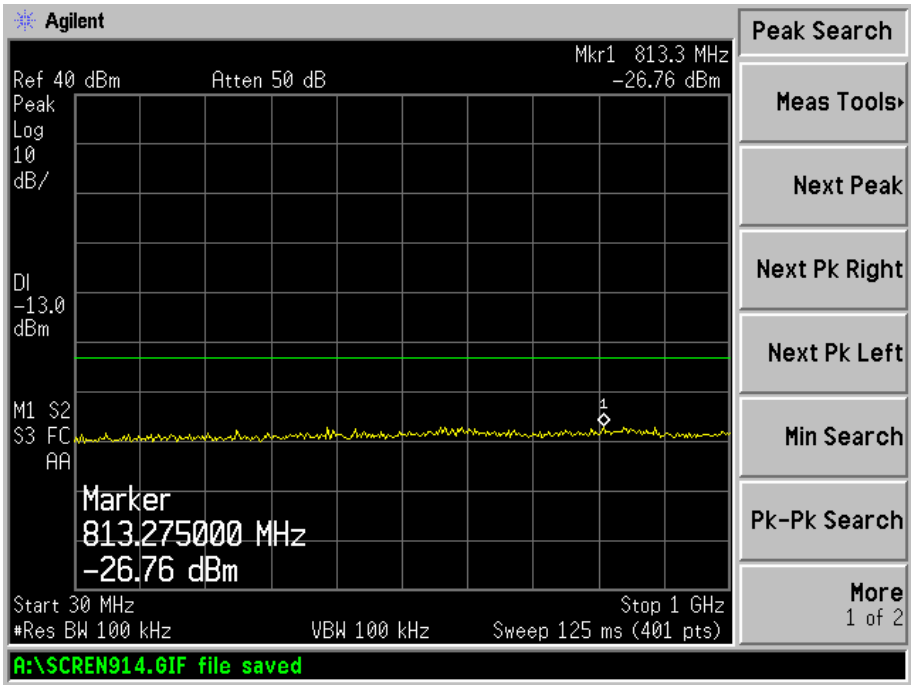


Above 1GHz

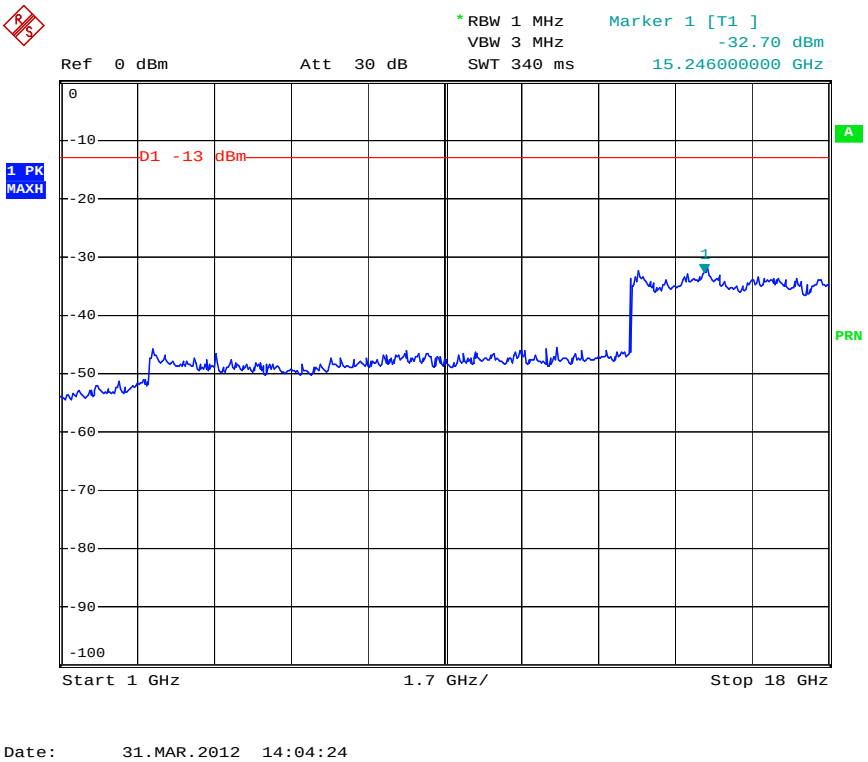


GPRS High Channel

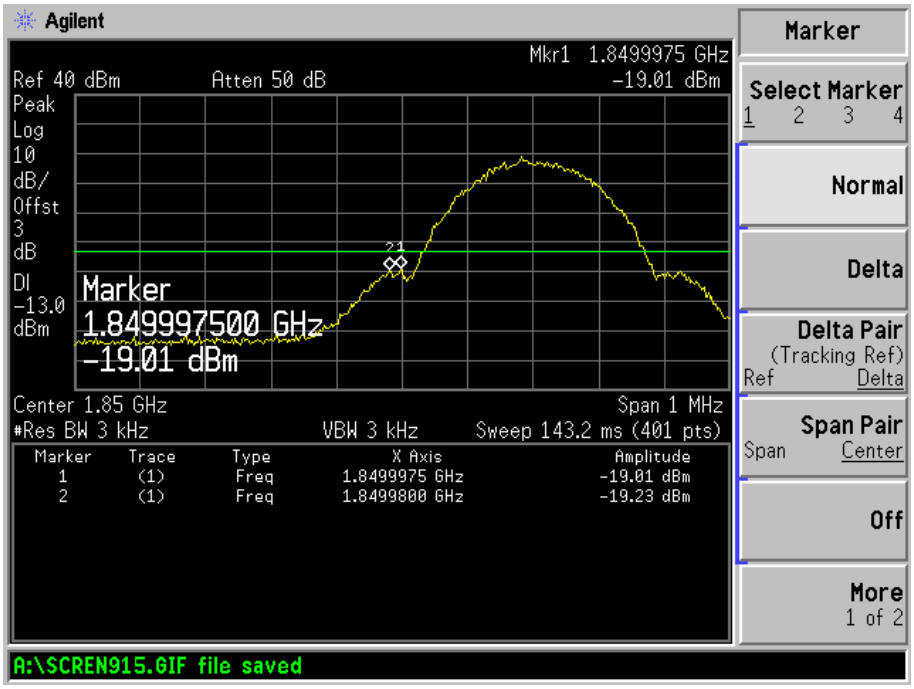
30MHz to 1GHz



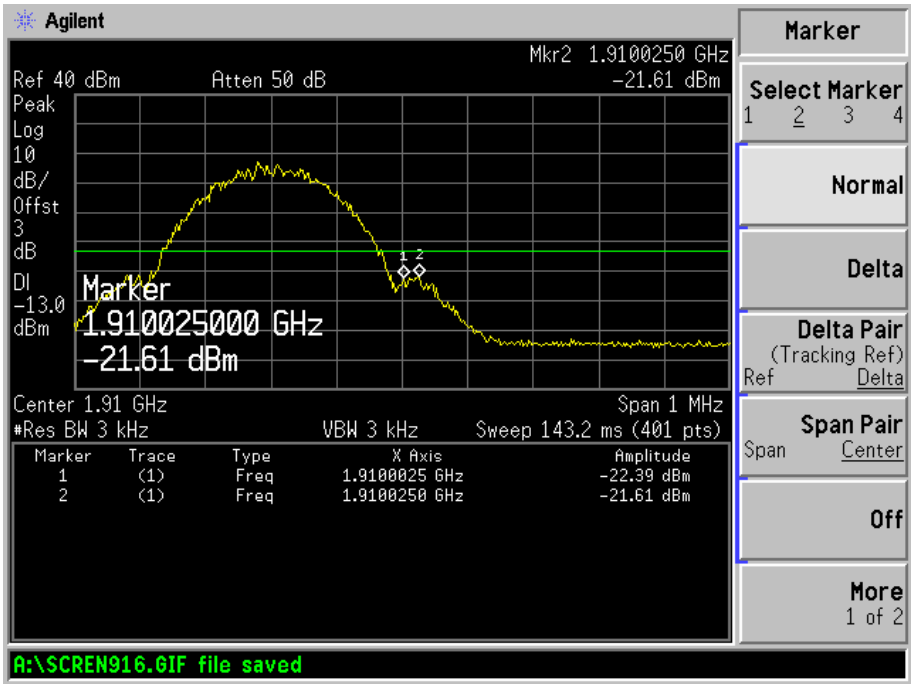
Above 1GHz



GPRS Low Band Emission

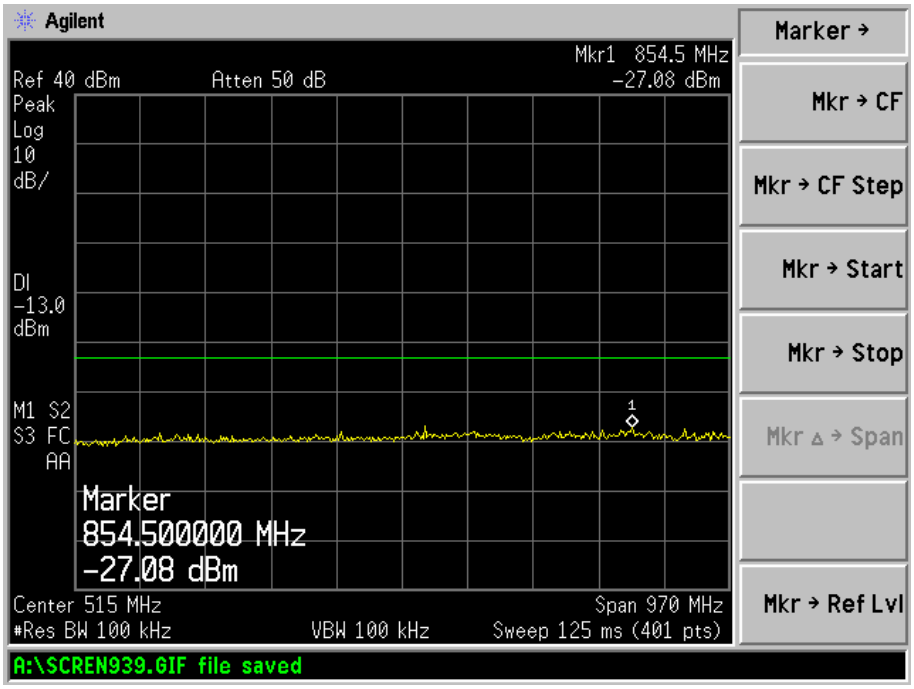


GPRS High Band Emission

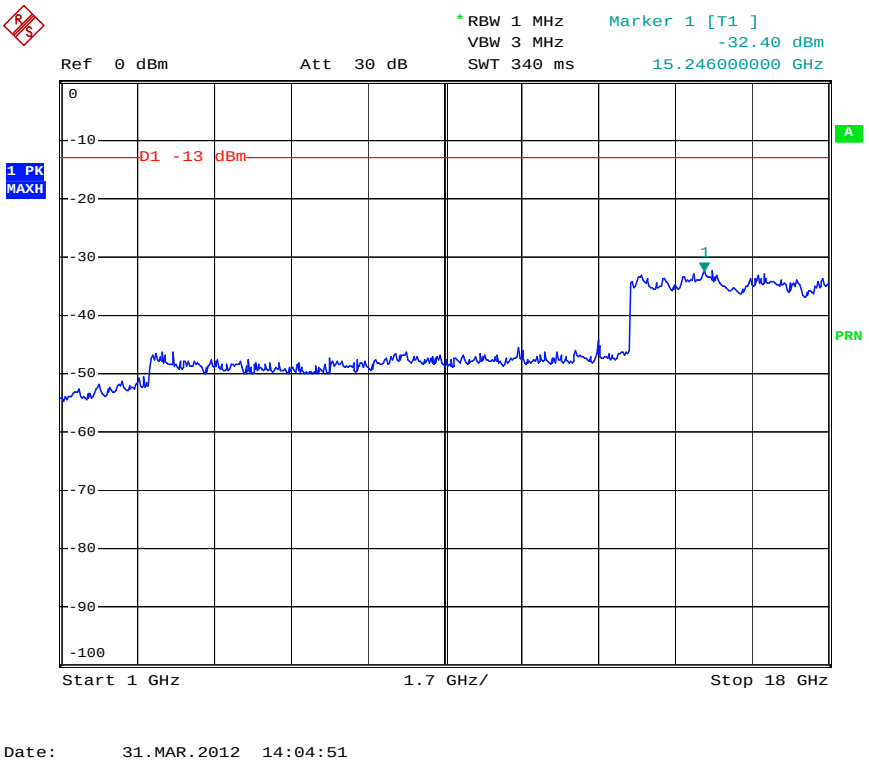


EDGE Low Channel

30MHz to 1GHz

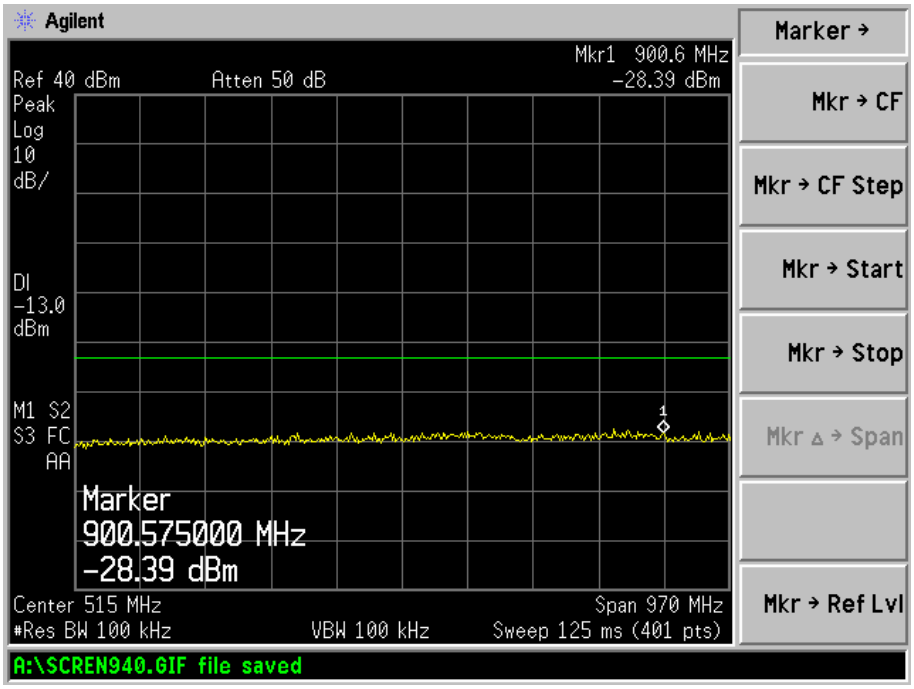


Above 1GHz

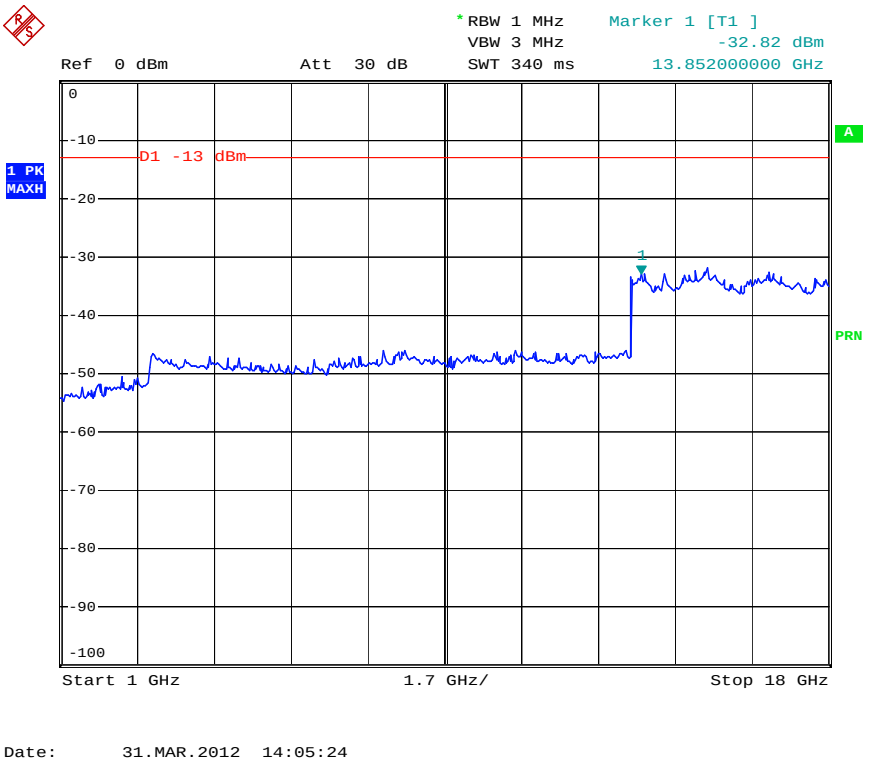


EDGE Middle Channel

30MHz to 1GHz

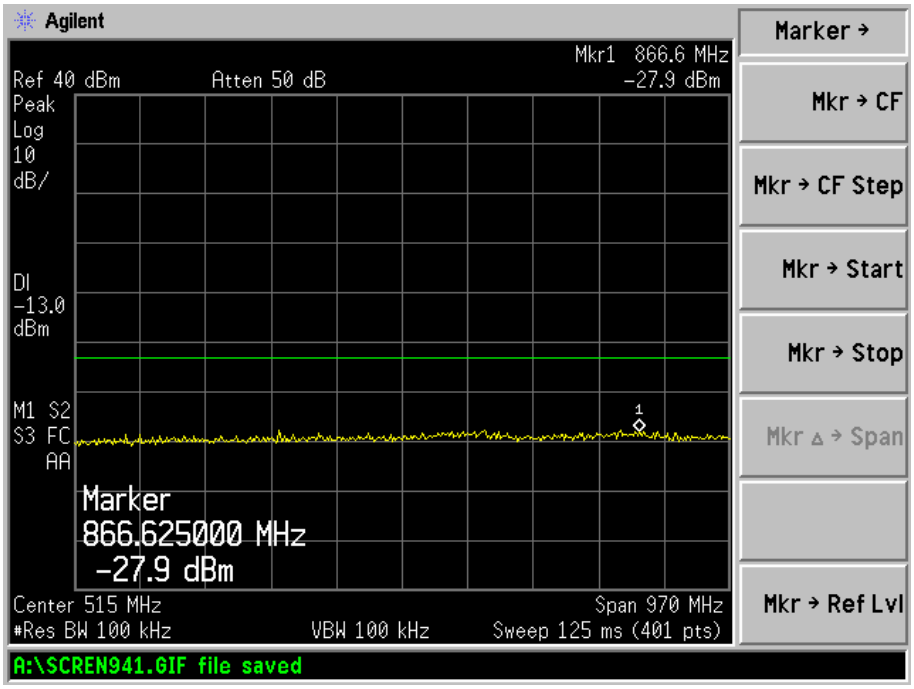


Above 1GHz

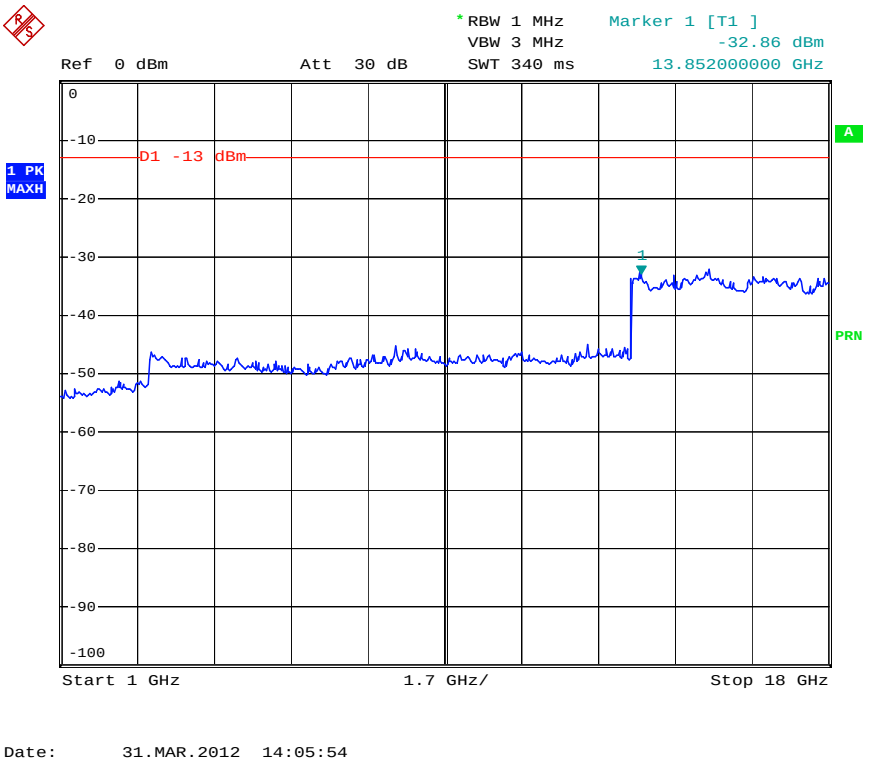


EDGE High Channel

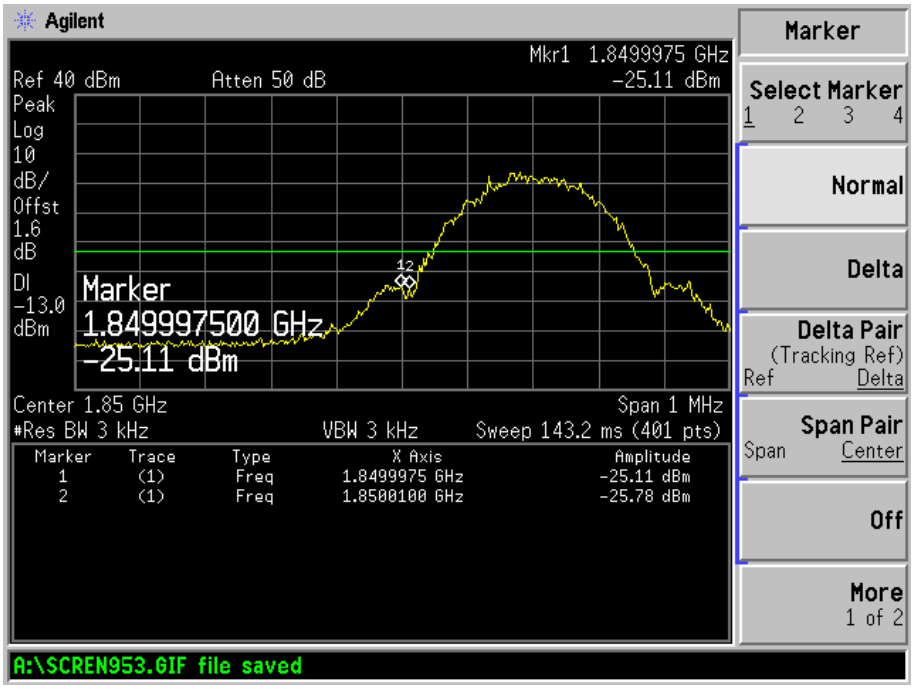
30MHz to 1GHz



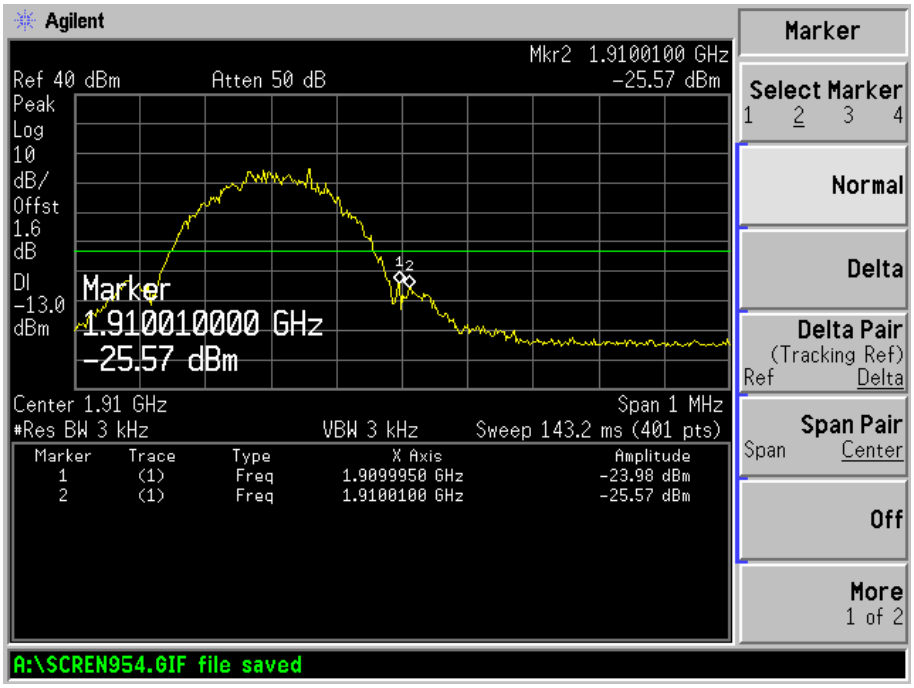
Above 1GHz



EDGE Low Band Emission

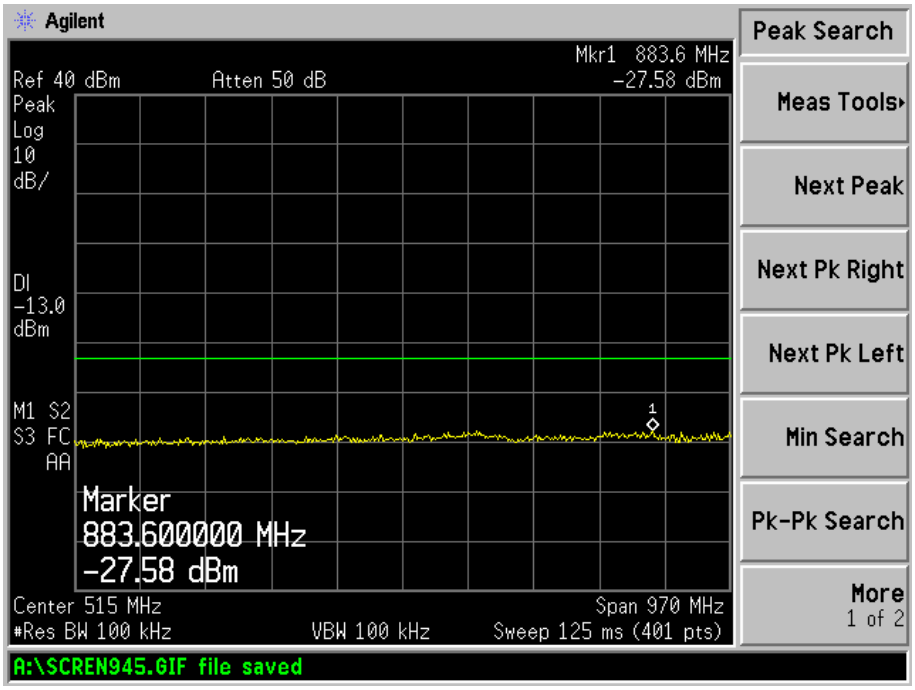


EDGE High Band Emission

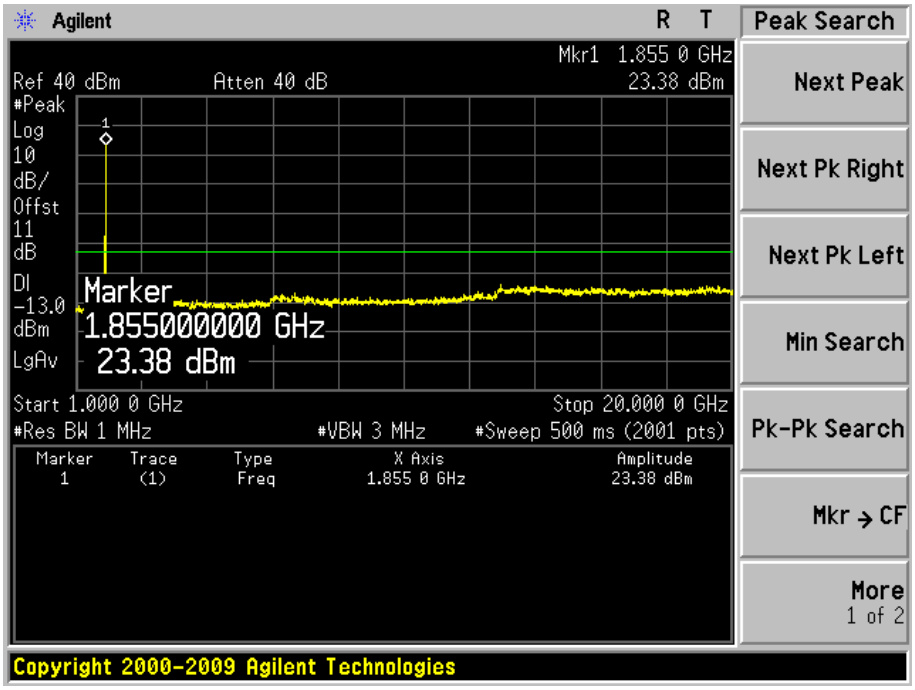


For Band II

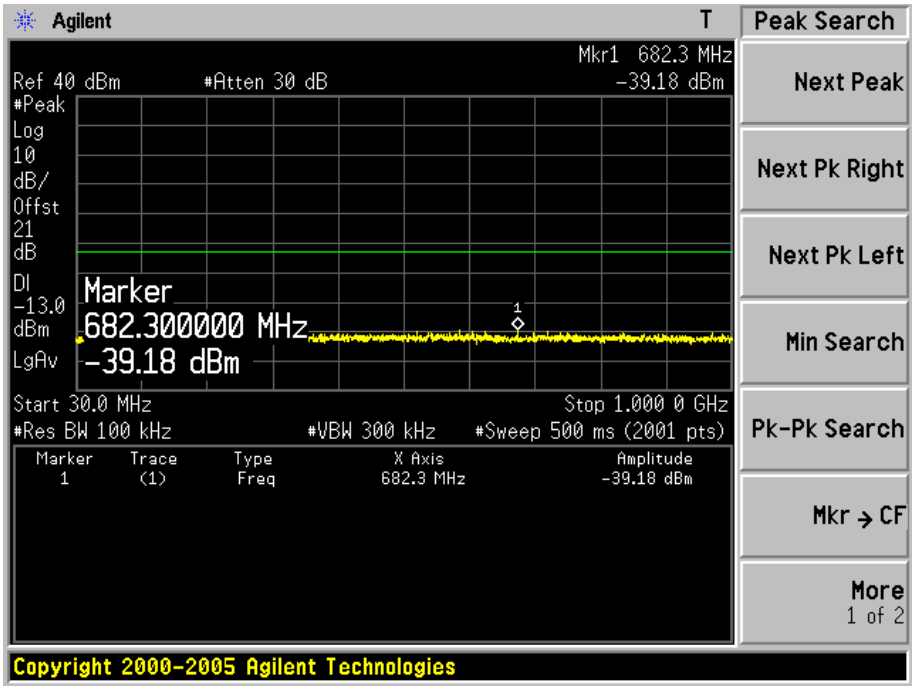
WCDMA Low Channel
30MHz to 1GHz



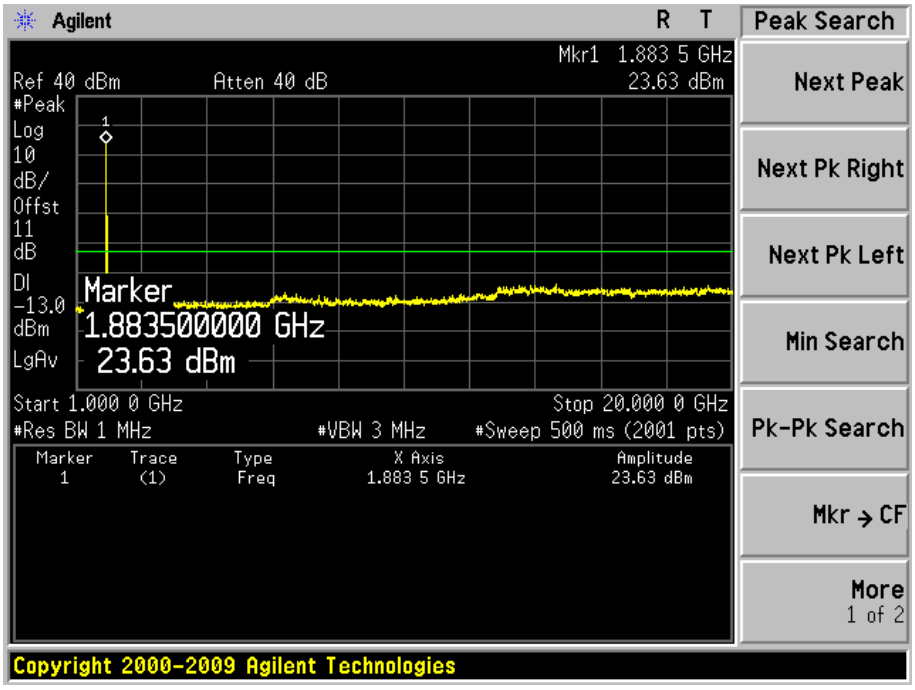
Above 1GHz



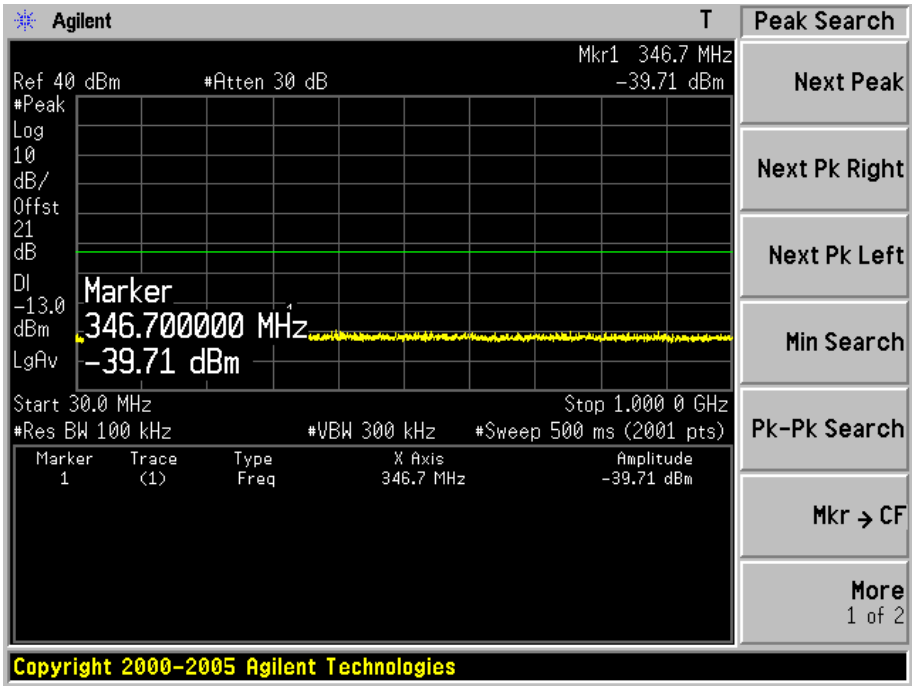
WCDMA Middle Channel
30MHz to 1GHz



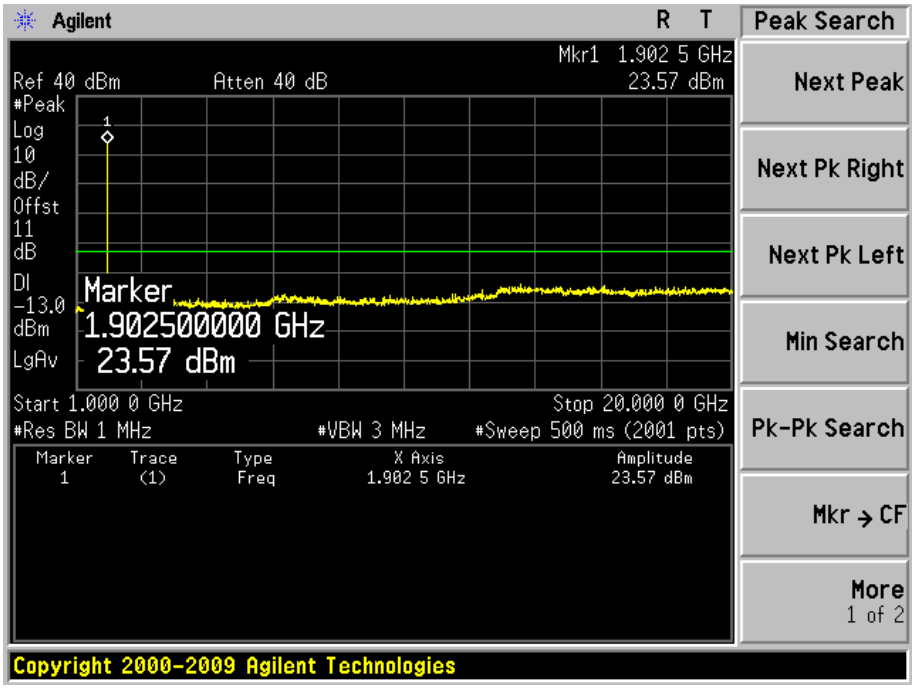
Above 1GHz



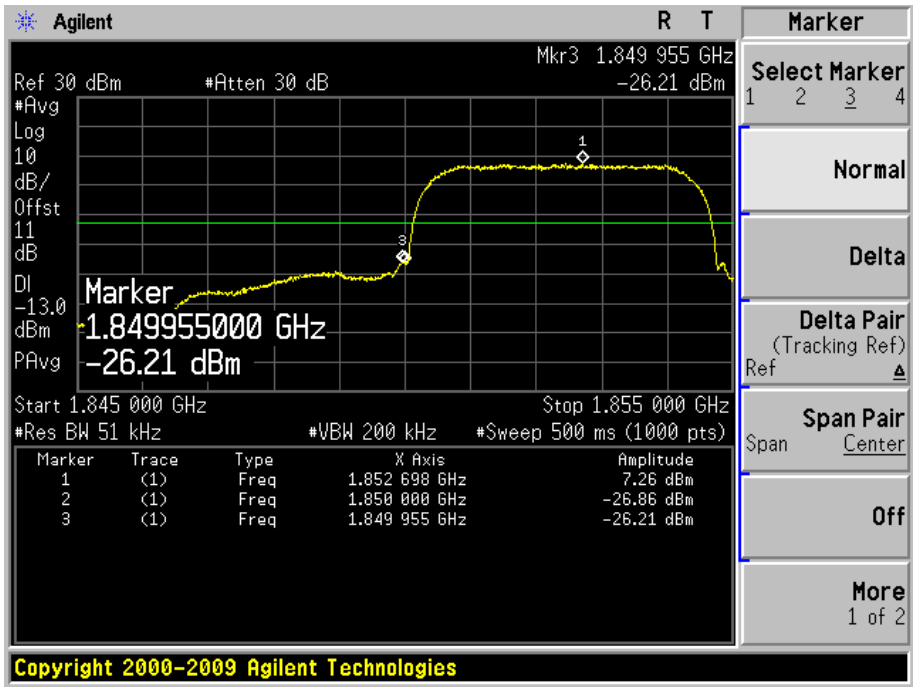
WCDMA High Channel
30MHz to 1GHz



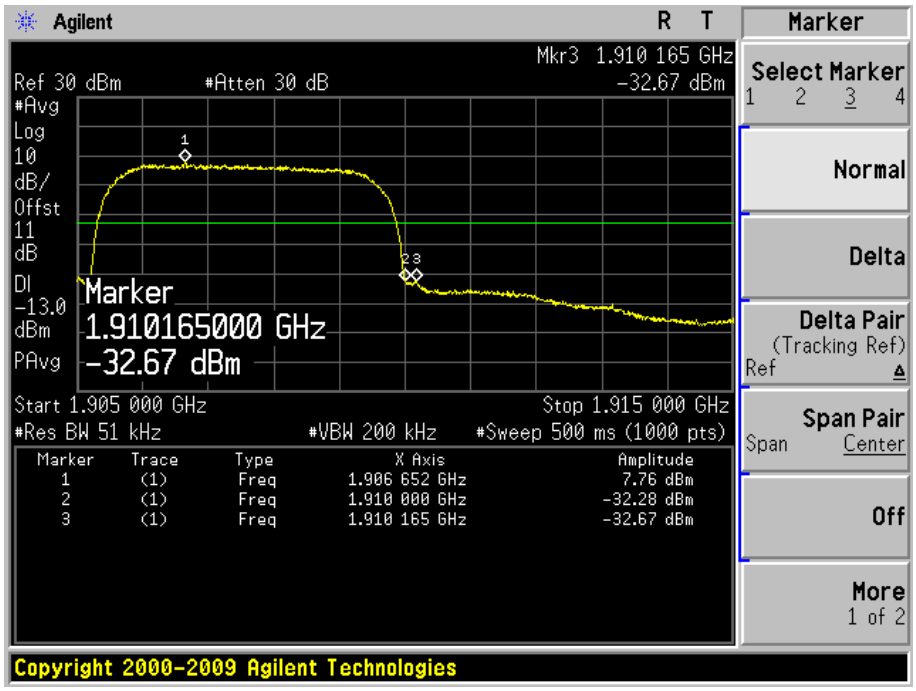
Above 1GHz



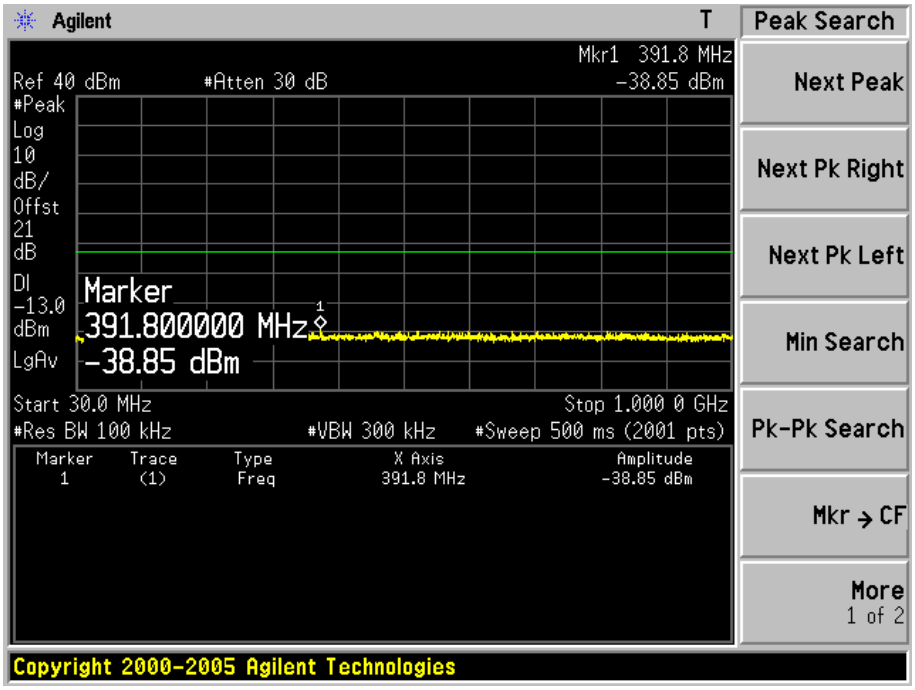
WCDMA Low Band Spurious Emission



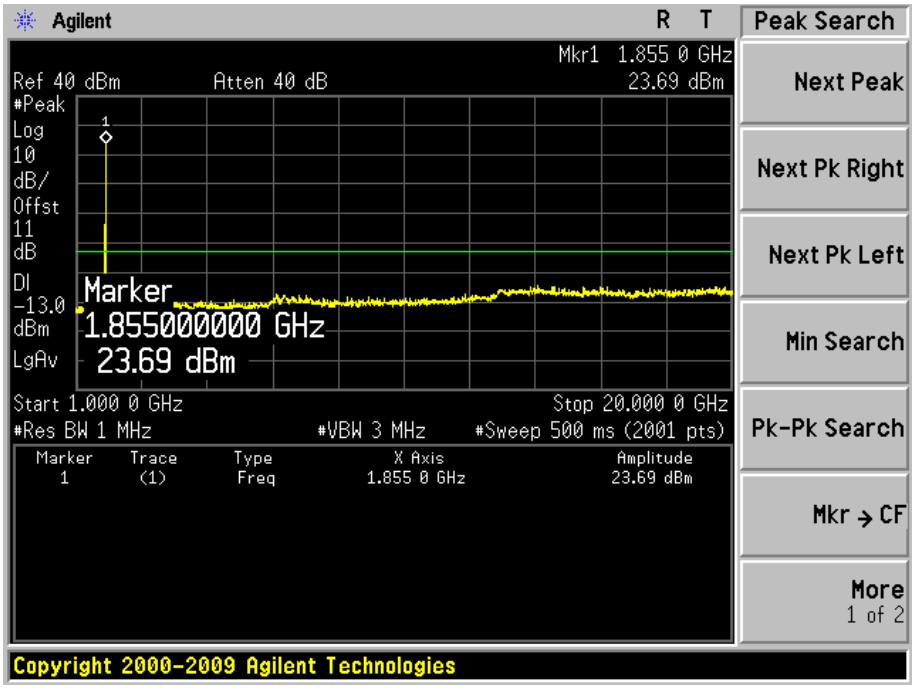
WCDMA High Band Spurious Emission



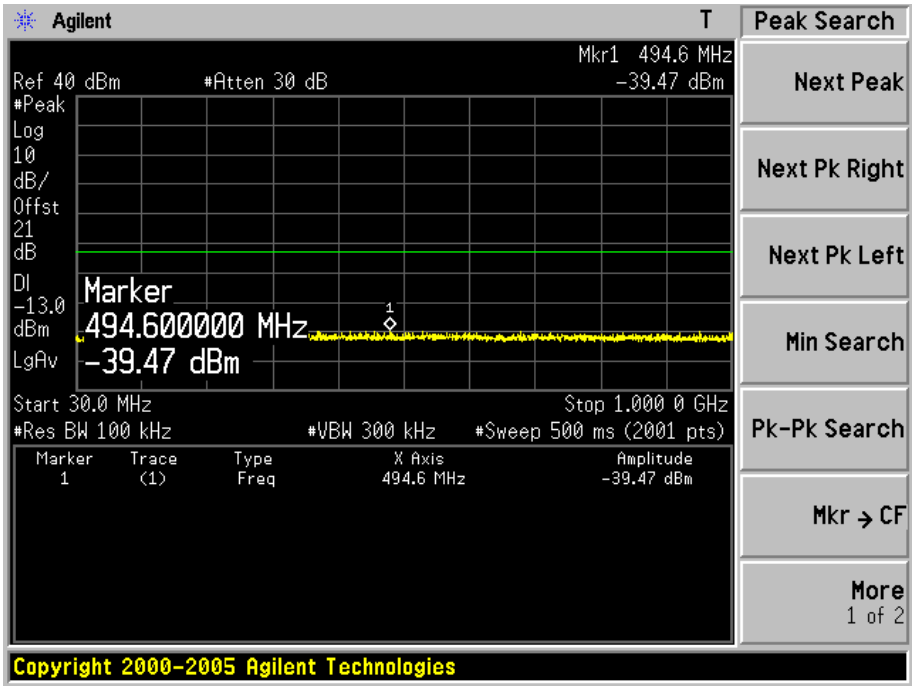
HSUPA Low Channel
30MHz to 1GHz



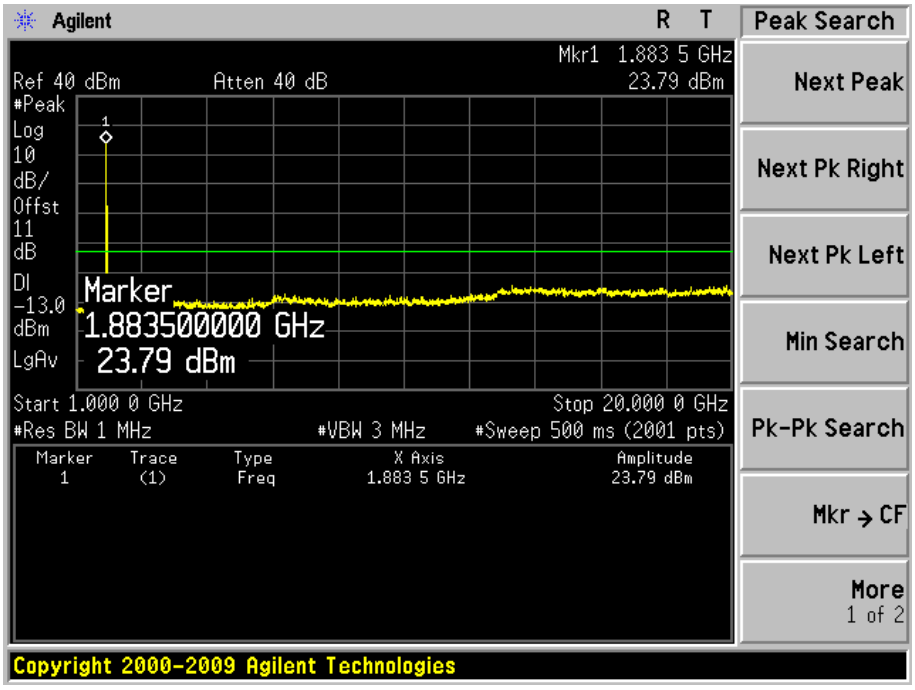
Above 1GHz



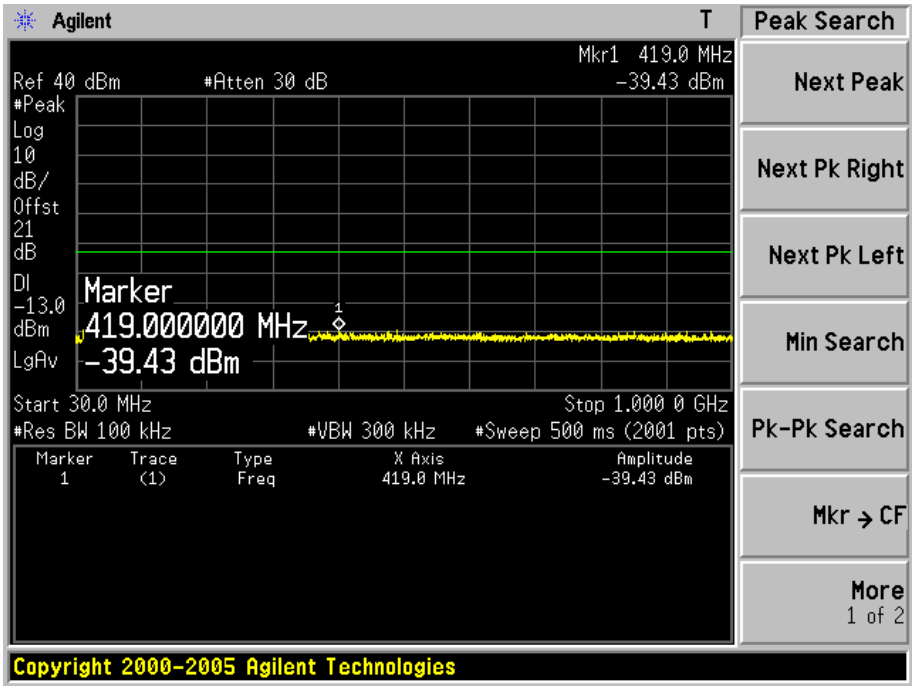
HSUPA Middle Channel
30MHz to 1GHz



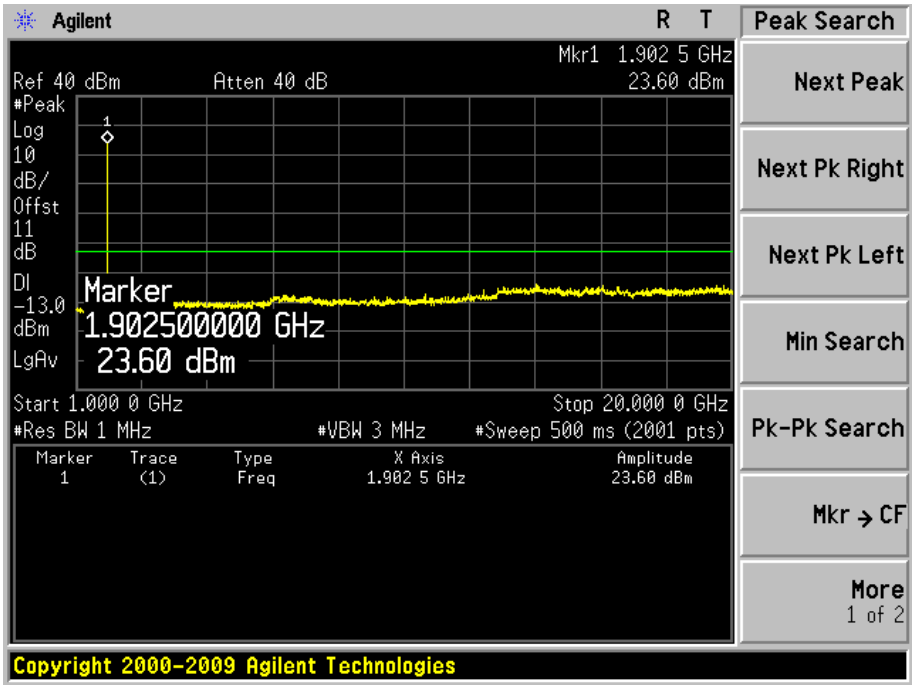
Above 1GHz



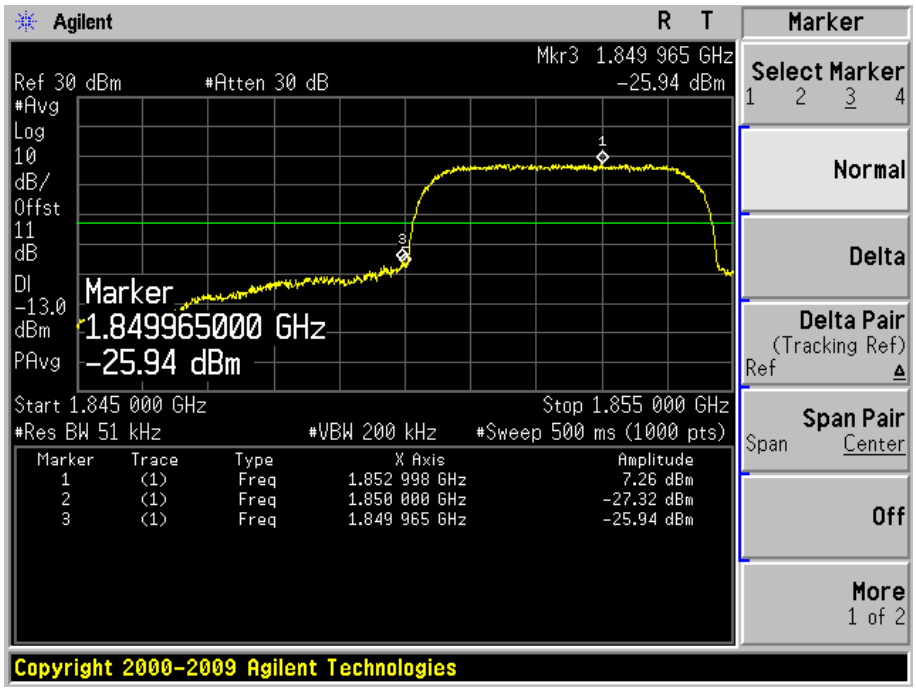
HSUPA High Channel
30MHz to 1GHz



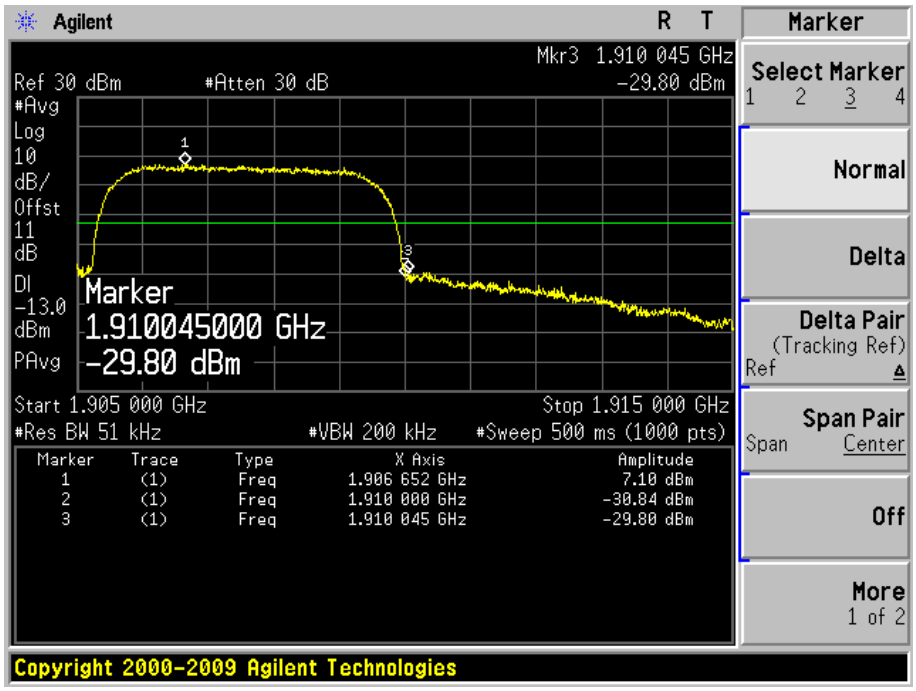
Above 1GHz



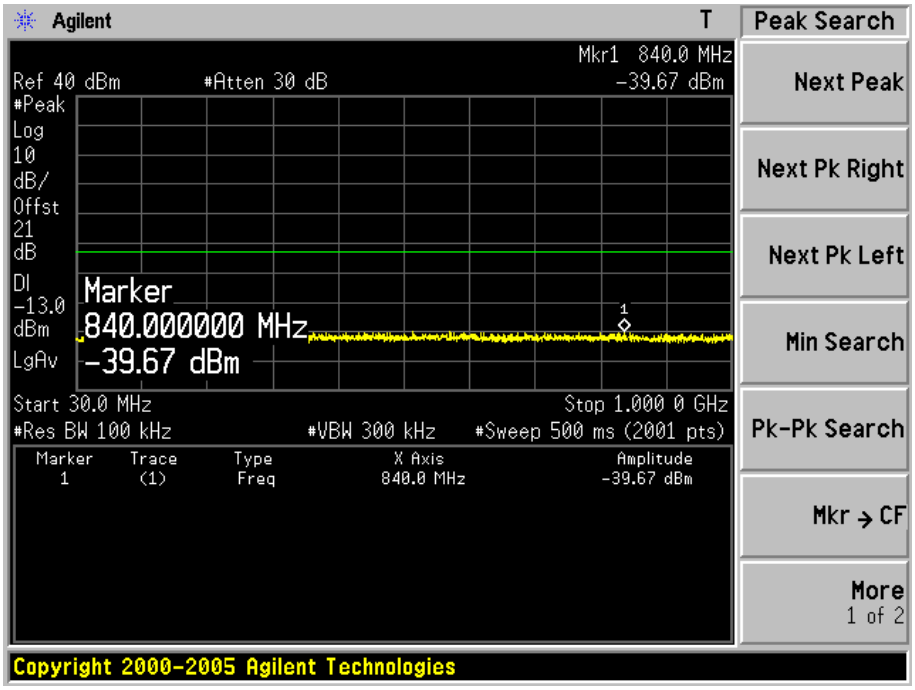
HSUPA Low Band Spurious Emission



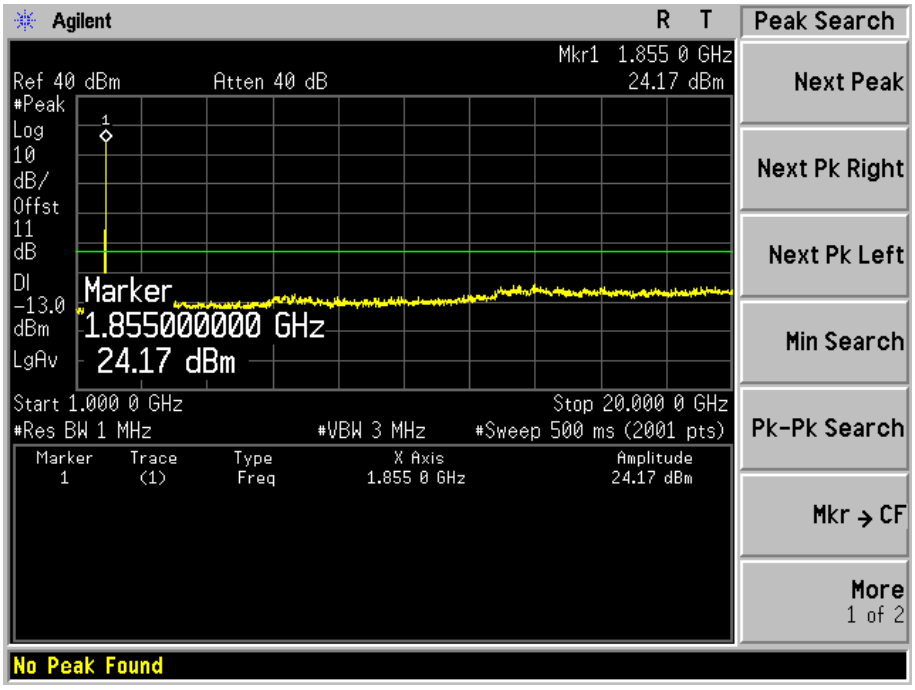
HSUPA High Band Spurious Emission



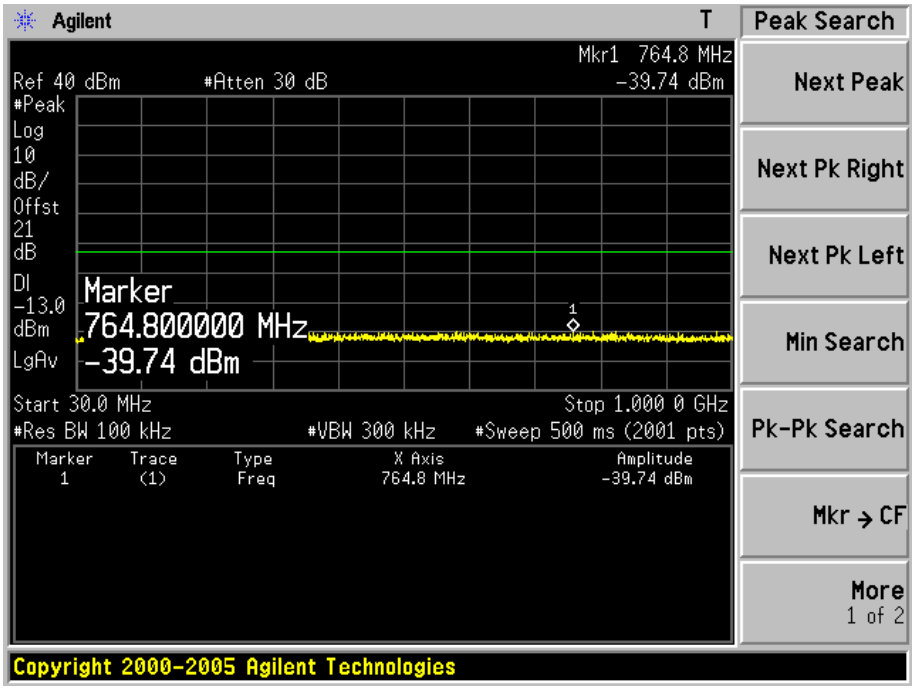
HSDPA Low Channel
30MHz to 1GHz



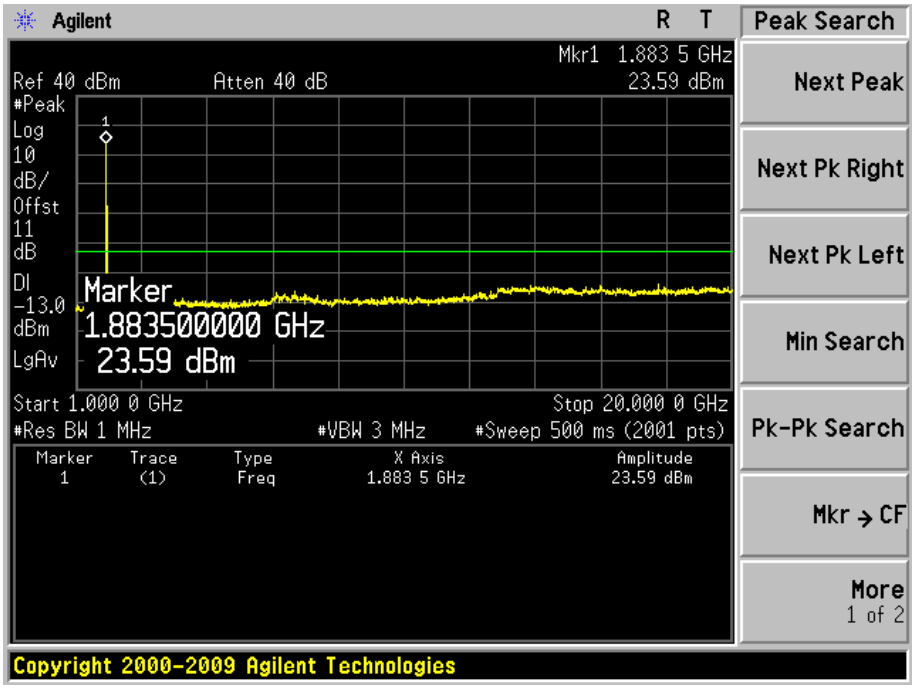
Above 1GHz



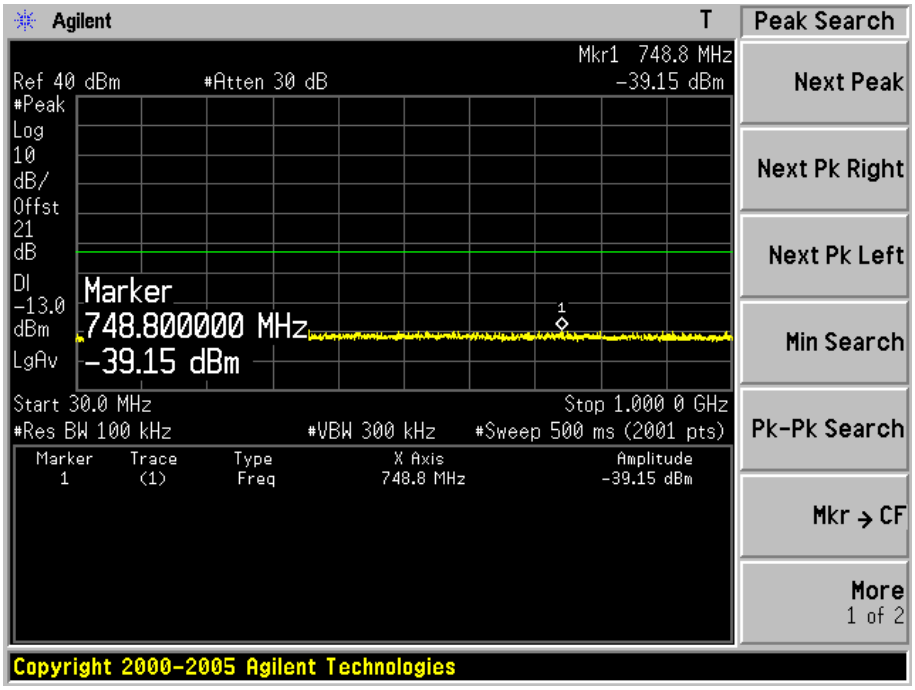
HSDPA Middle Channel
30MHz to 1GHz



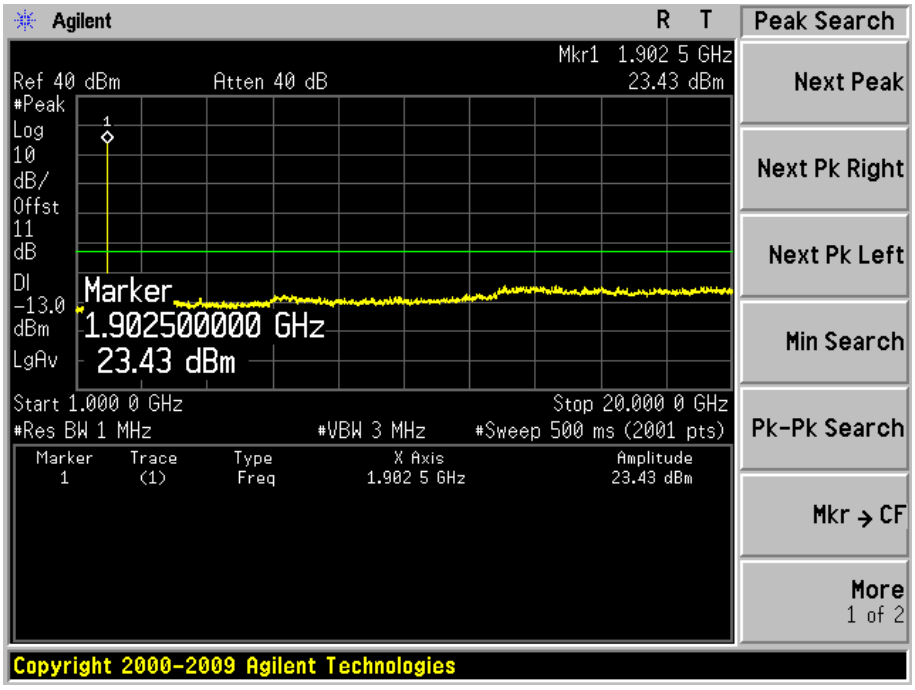
Above 1GHz



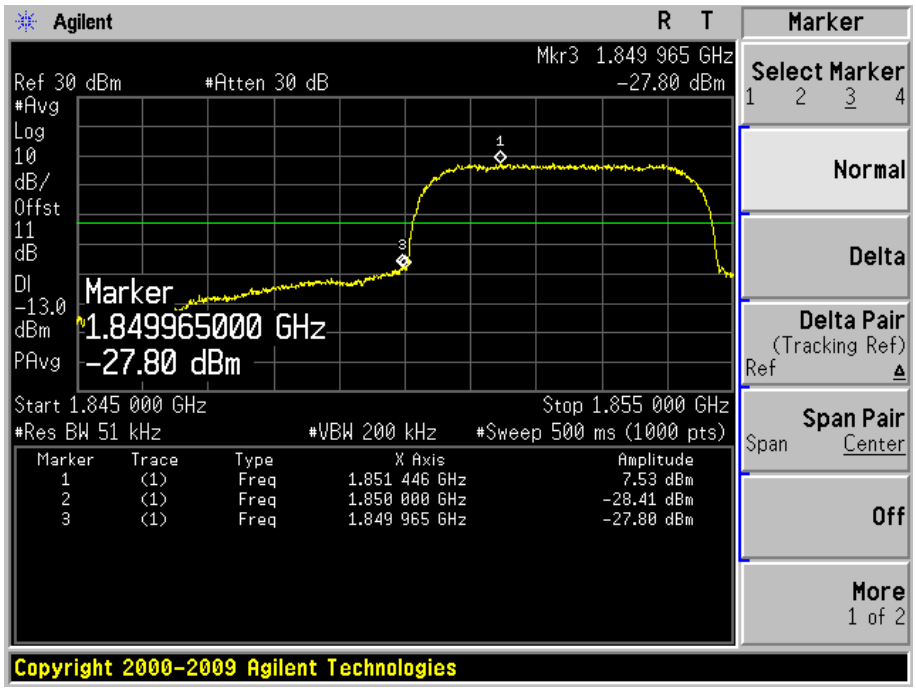
HSDPA High Channel
30MHz to 1GHz



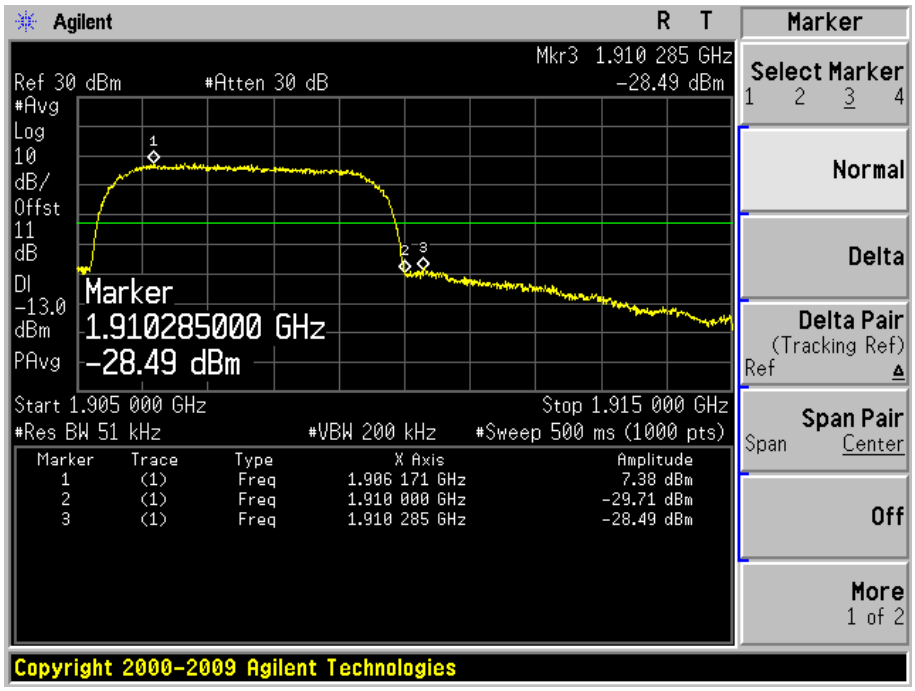
Above 1GHz



HSDPA Low Band Spurious Emission

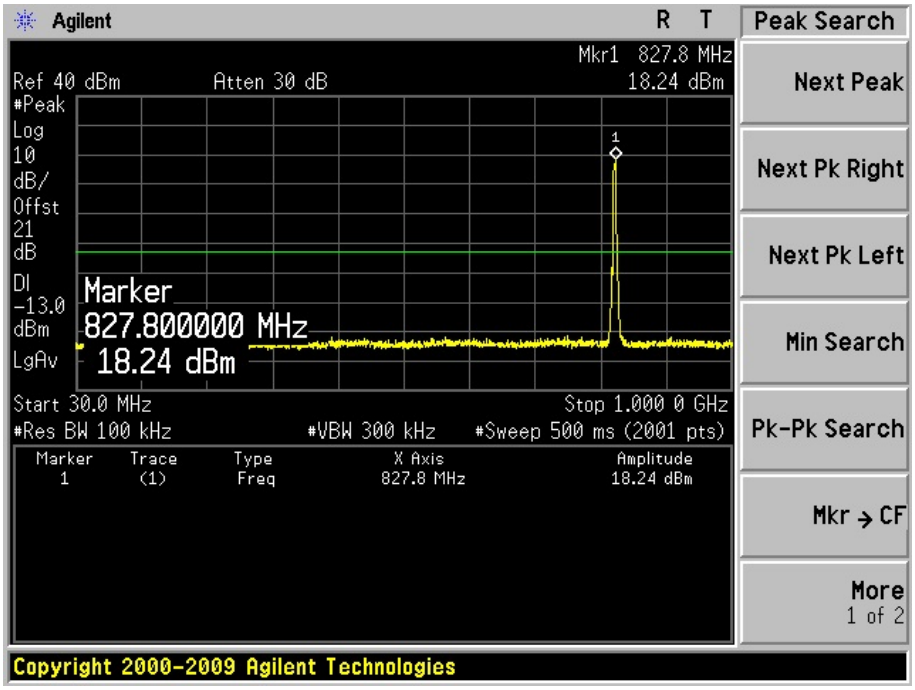


HSDPA High Band Spurious Emission

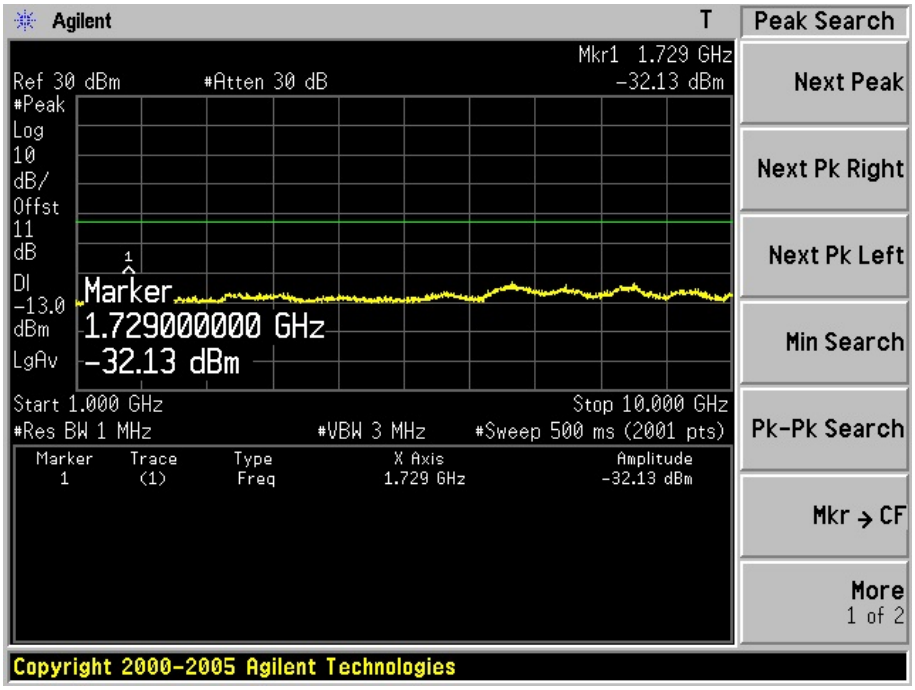


For Band V

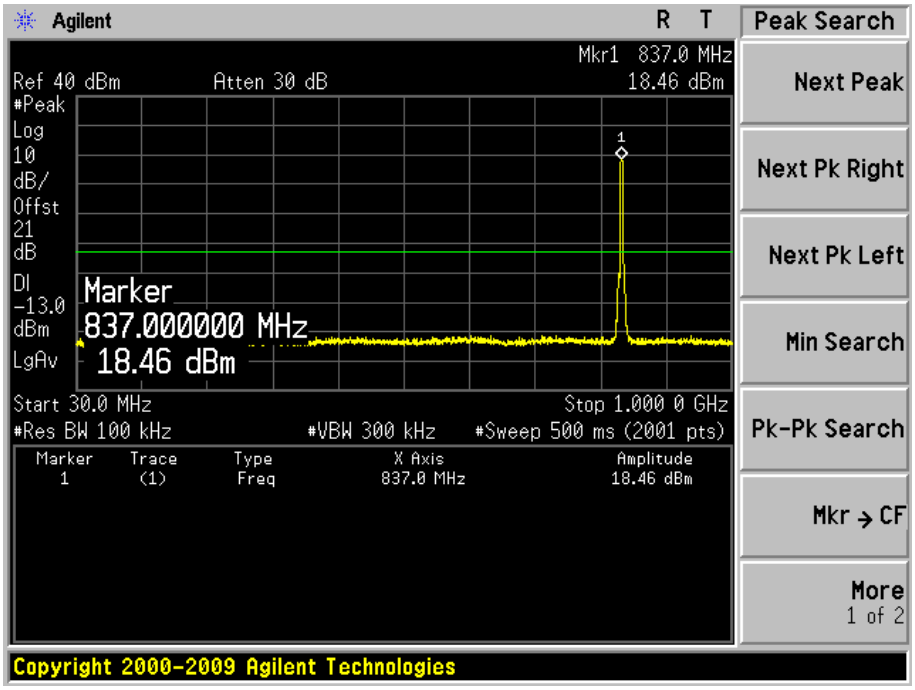
WCDMA Low Channel
30MHz to 1GHz



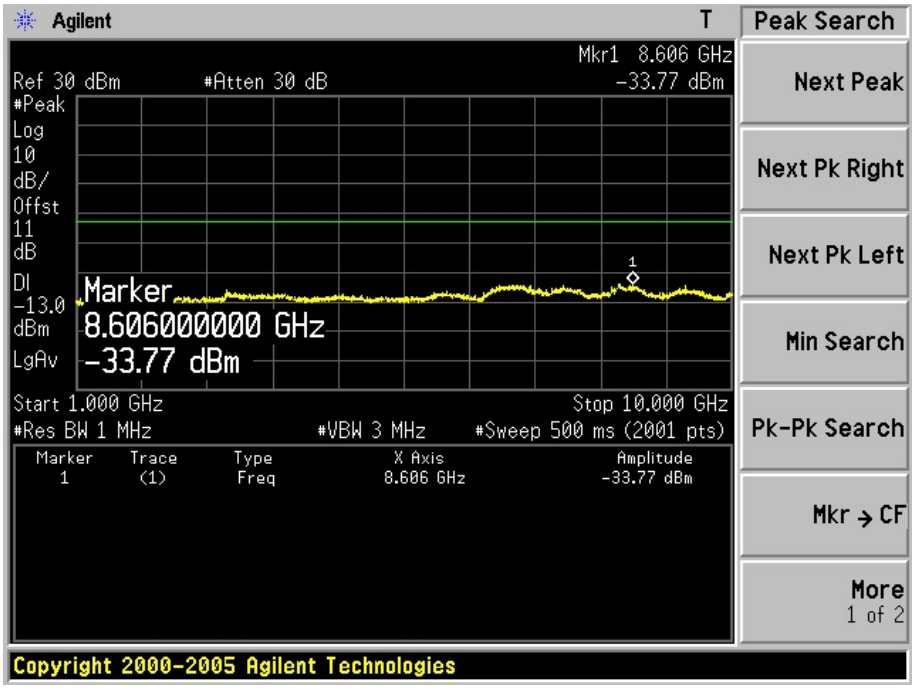
Above 1GHz



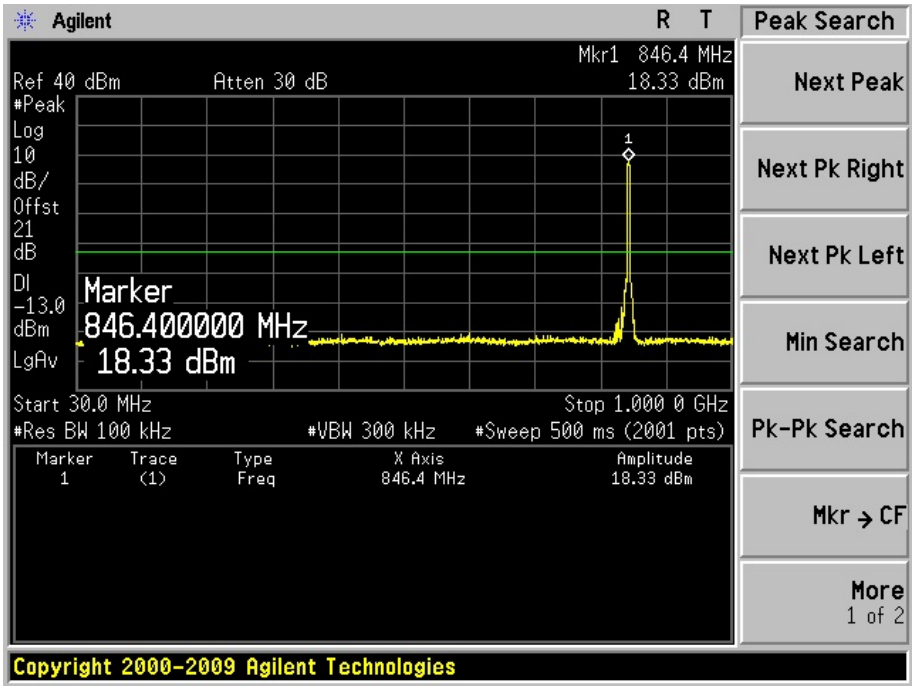
WCDMA Middle Channel
30MHz to 1GHz



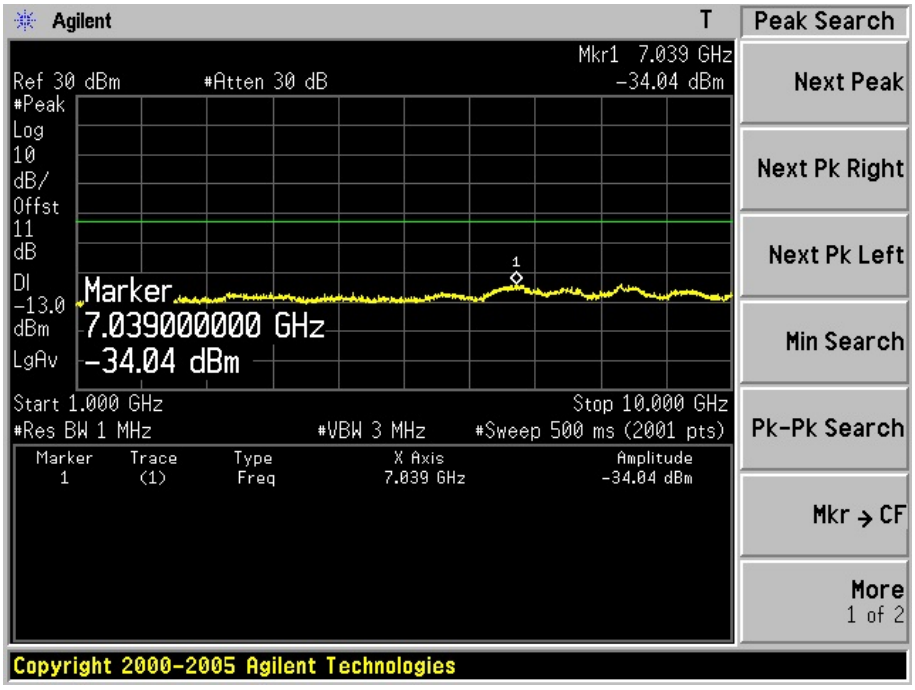
Above 1GHz



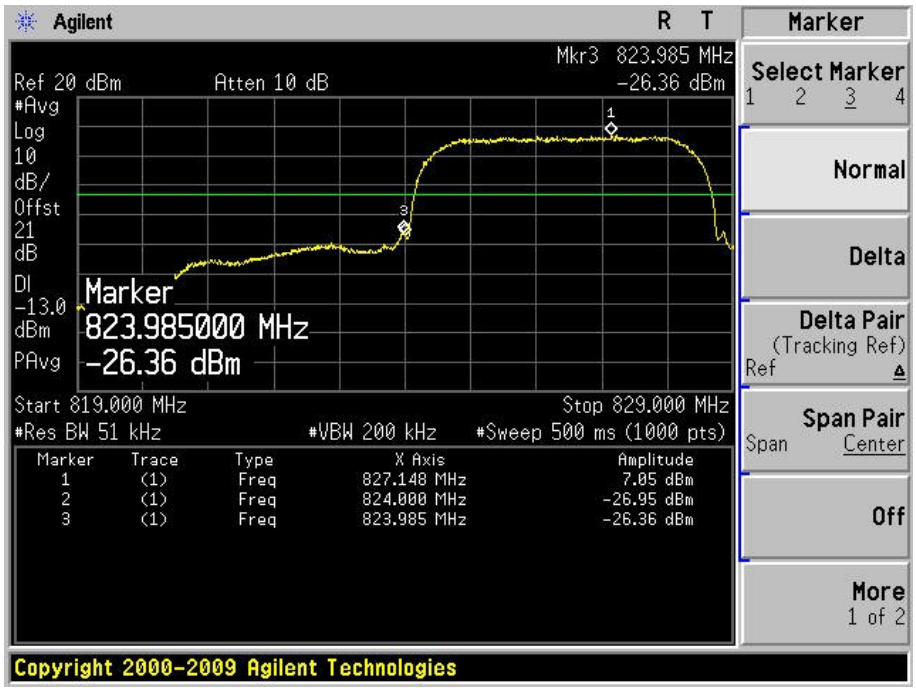
WCDMA High Channel
30MHz to 1GHz



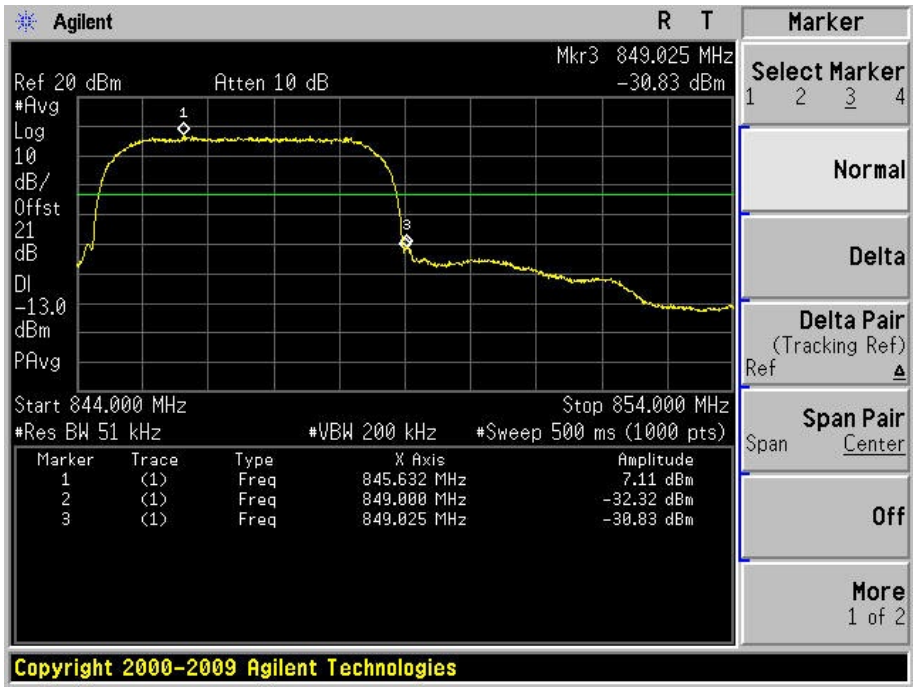
Above 1GHz



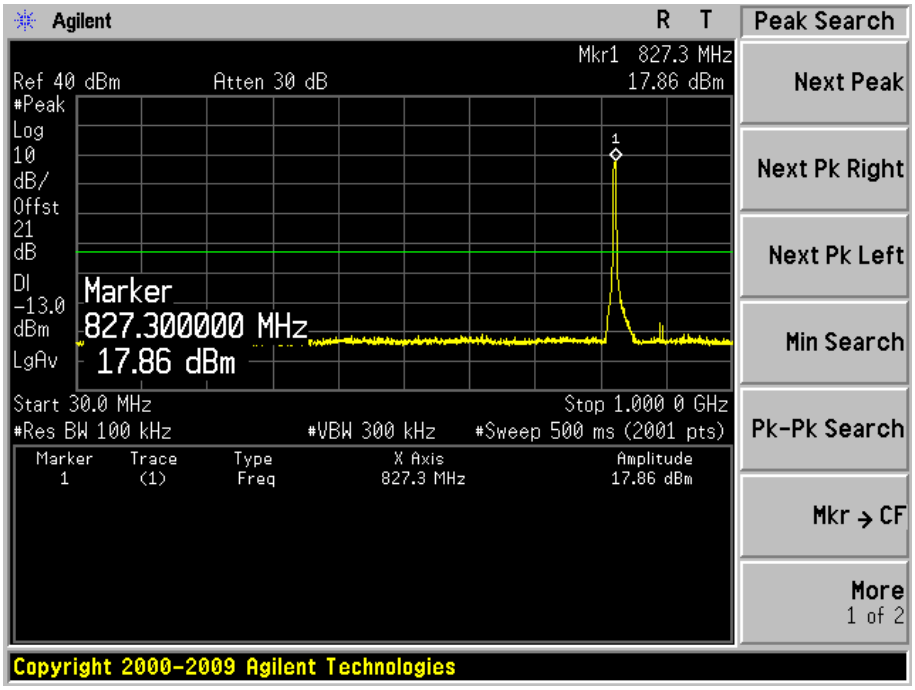
WCDMA Low Band Spurious Emission



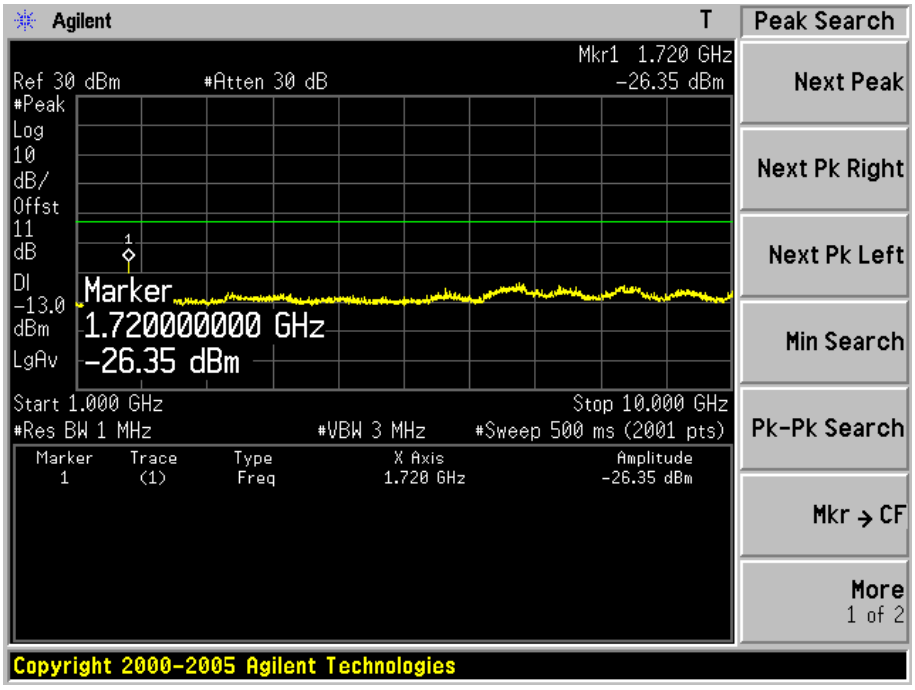
WCDMA High Band Spurious Emission



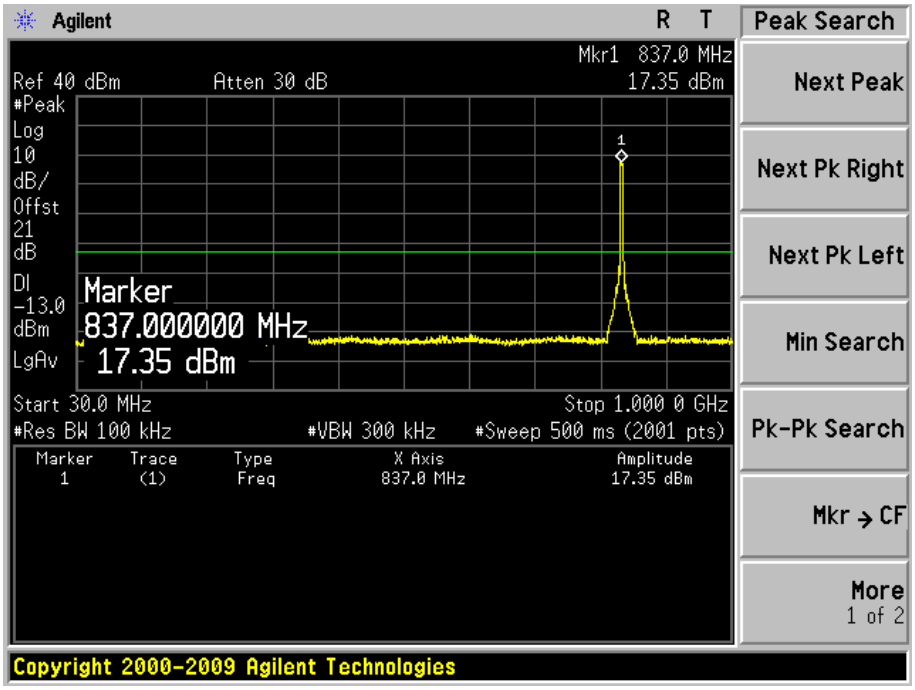
HSUPA Low Channel
30MHz to 1GHz



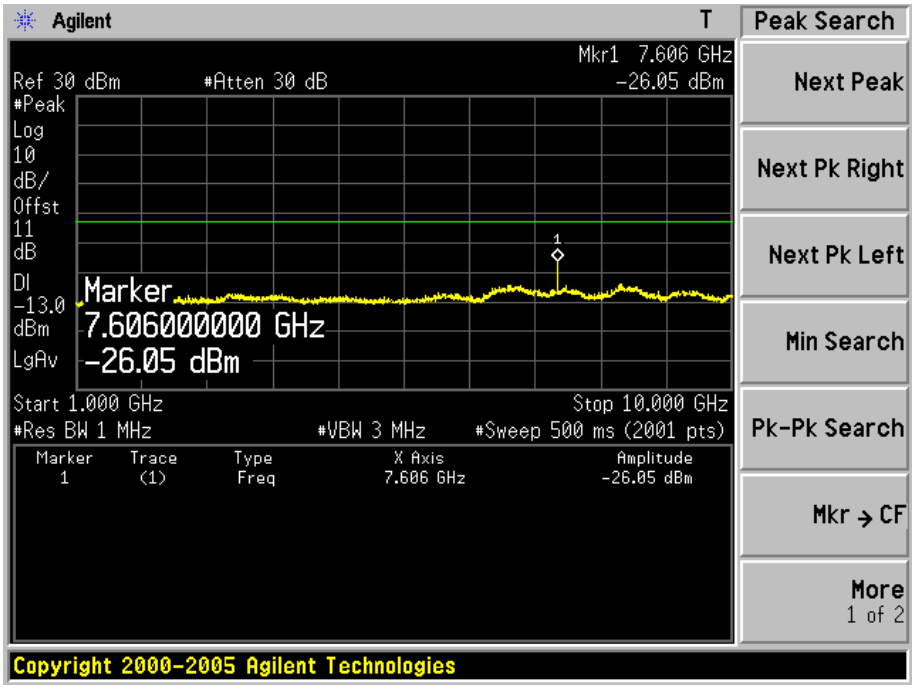
Above 1GHz



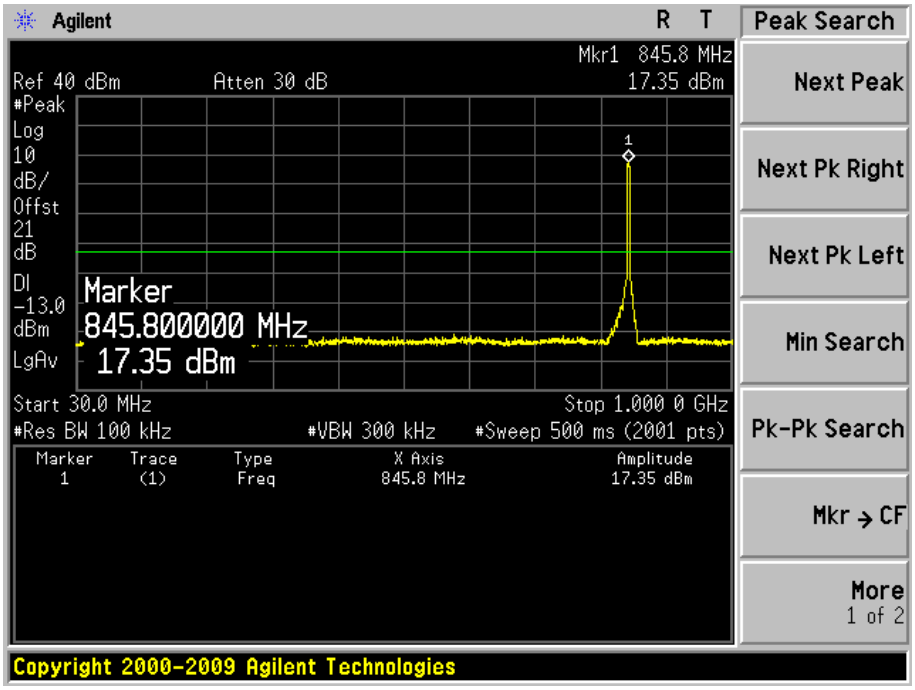
HSUPA Middle Channel
30MHz to 1GHz



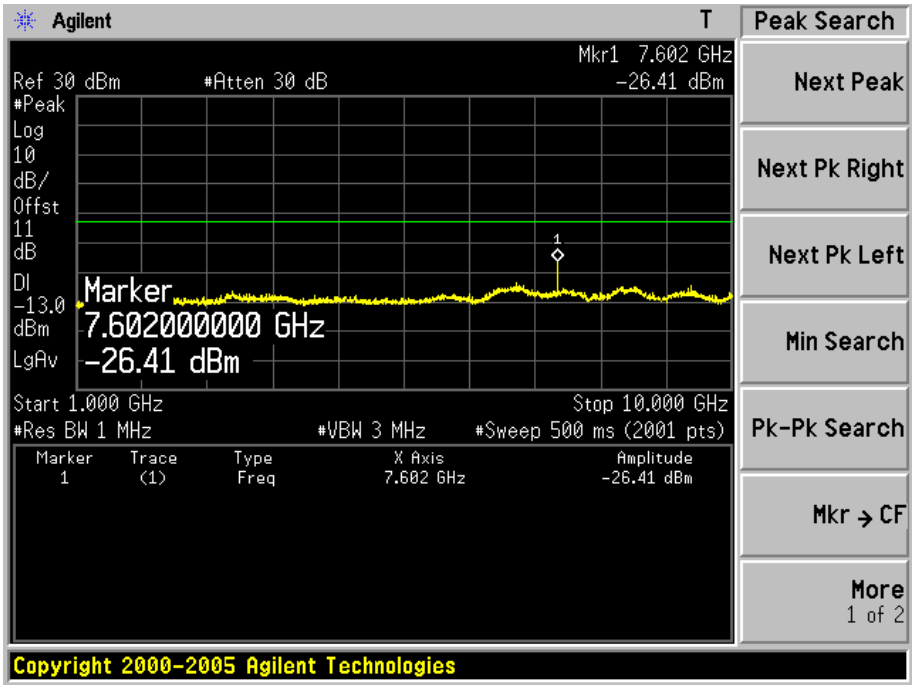
Above 1GHz



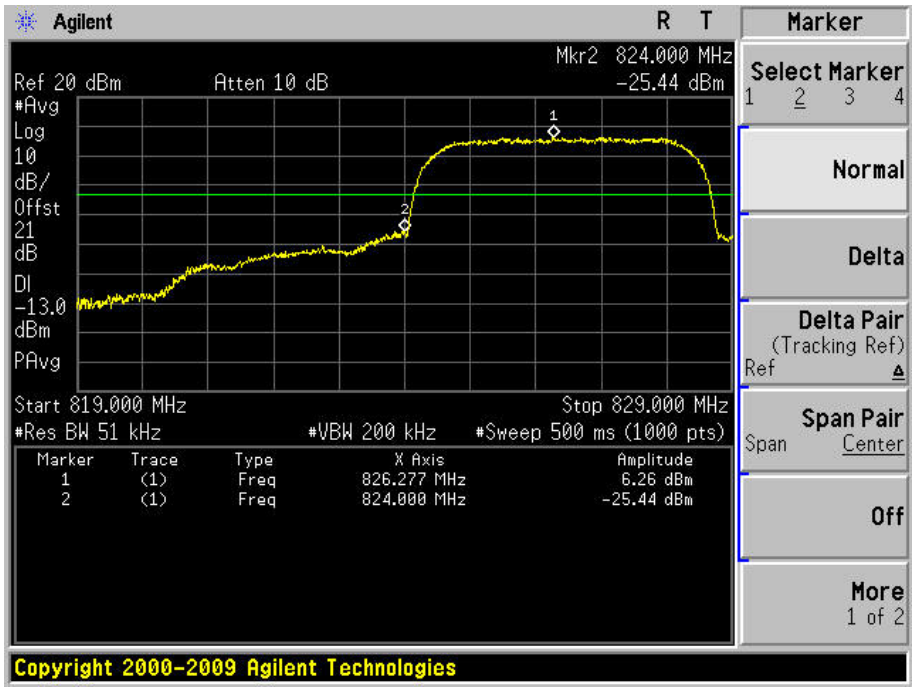
HSUPA High Channel
30MHz to 1GHz



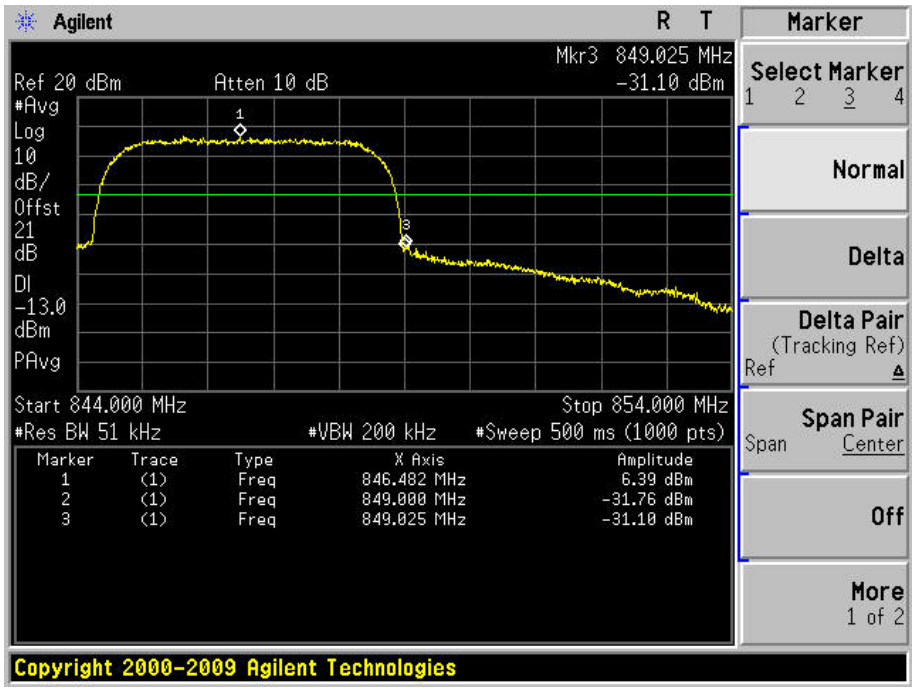
Above 1GHz



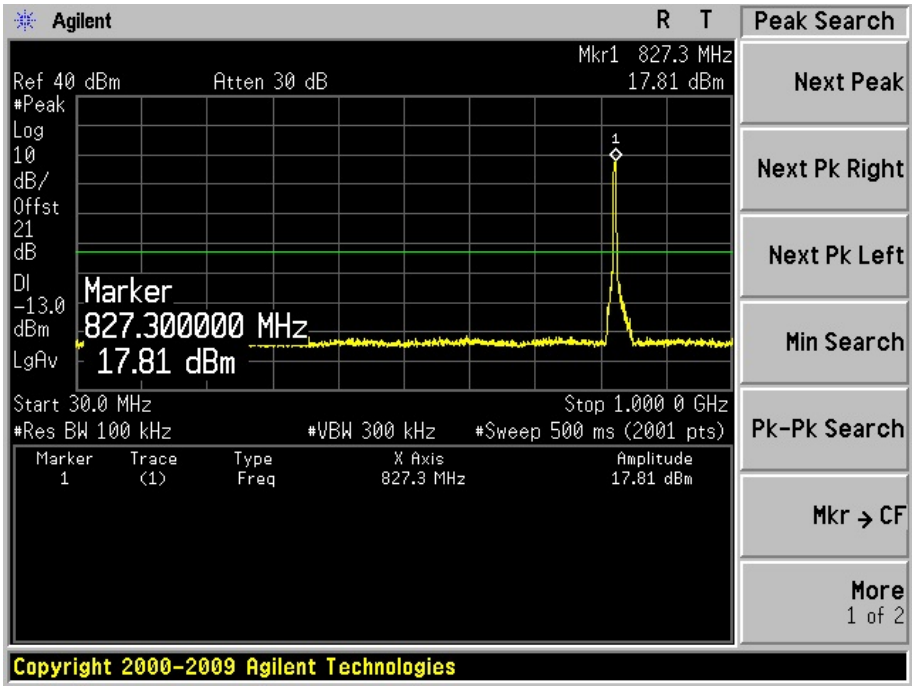
HSUPA Low Band Spurious Emission



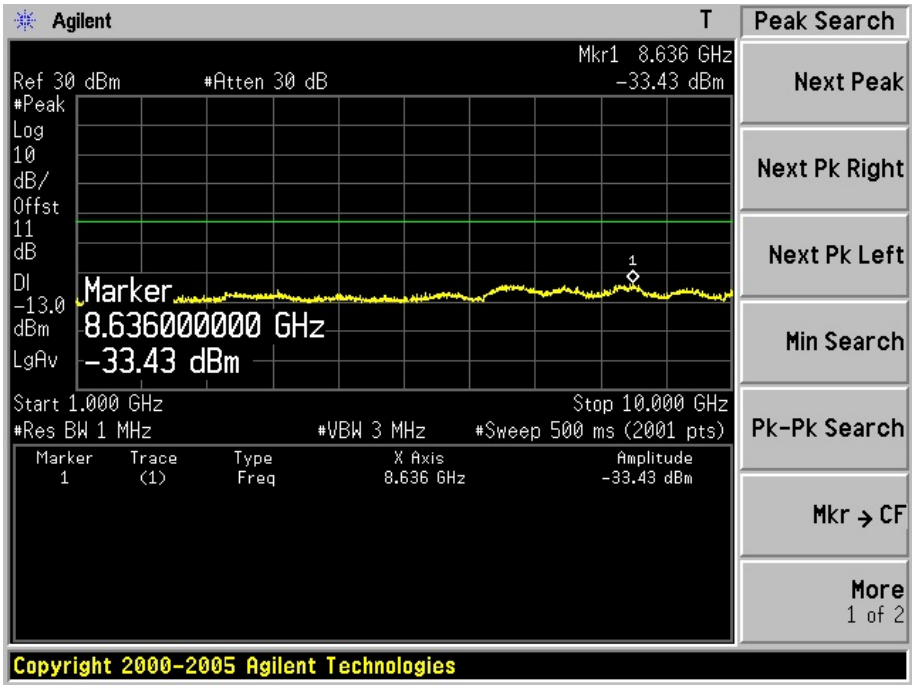
HSUPA High Band Spurious Emission



HSDPA Low Channel
30MHz to 1GHz

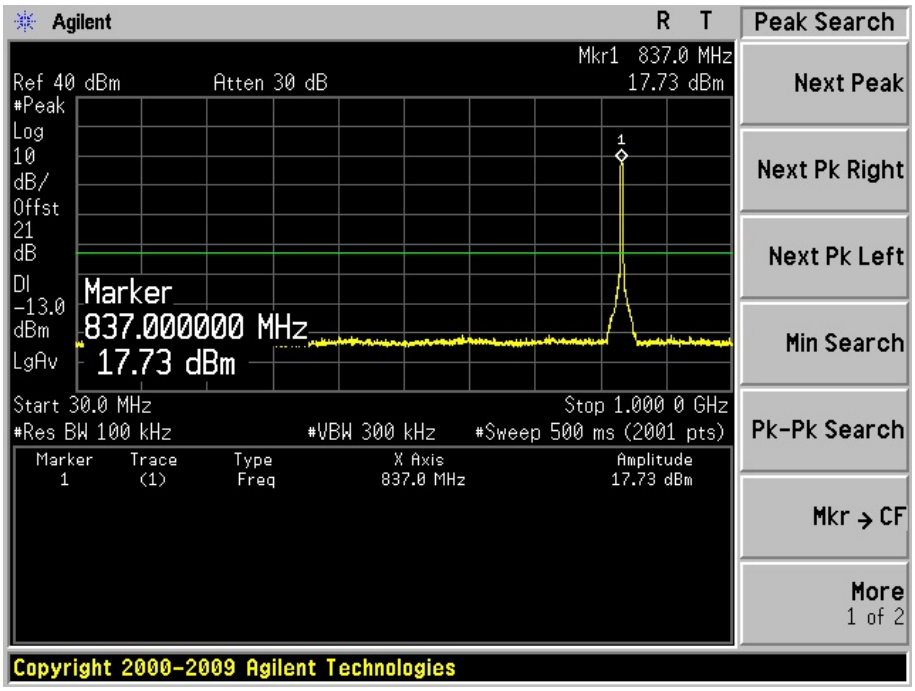


Above 1GHz

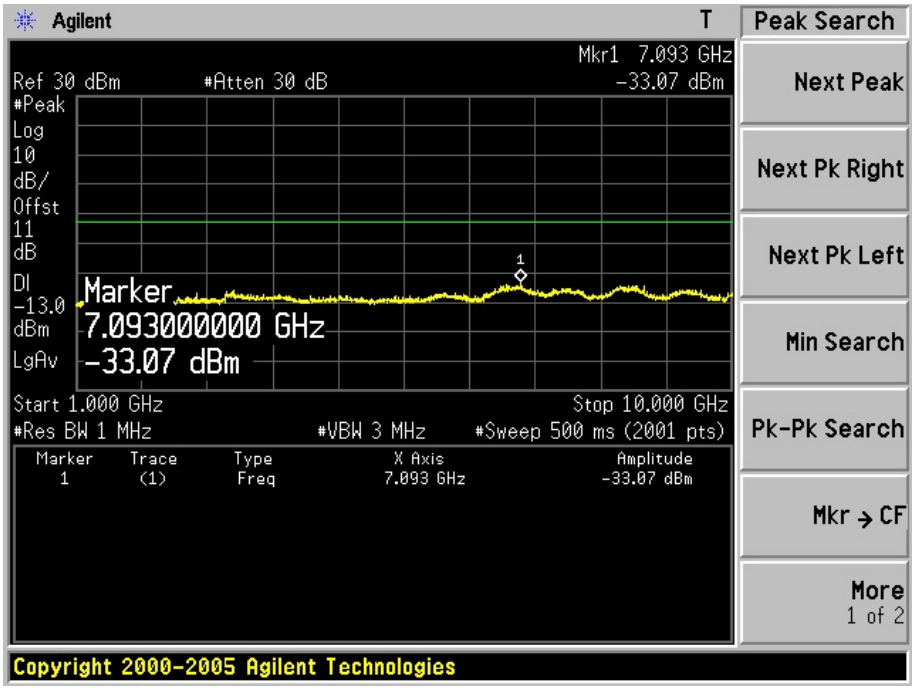


HSDPA Middle Channel

30MHz to 1GHz

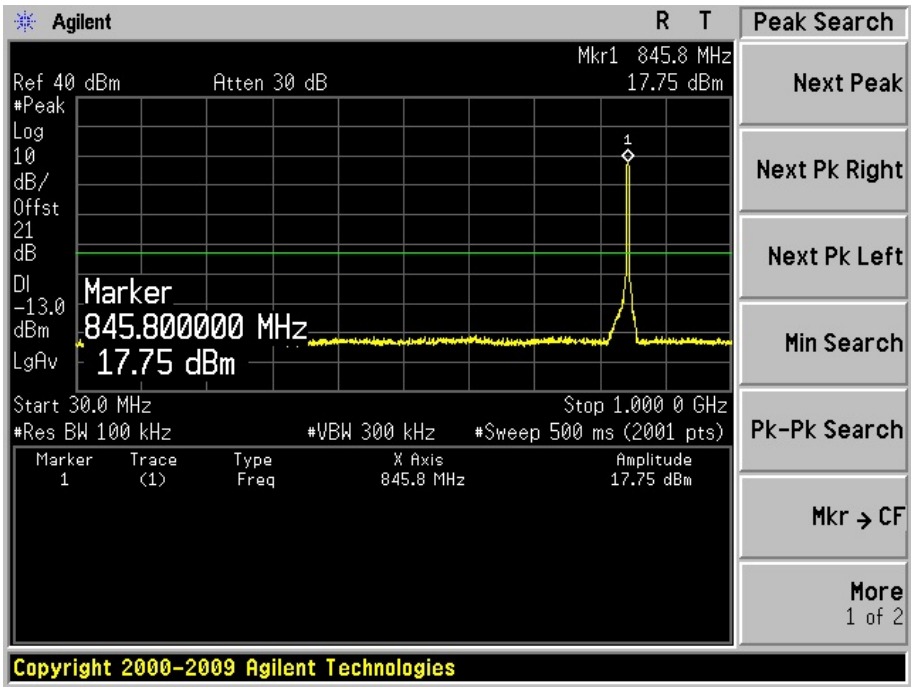


Above 1GHz

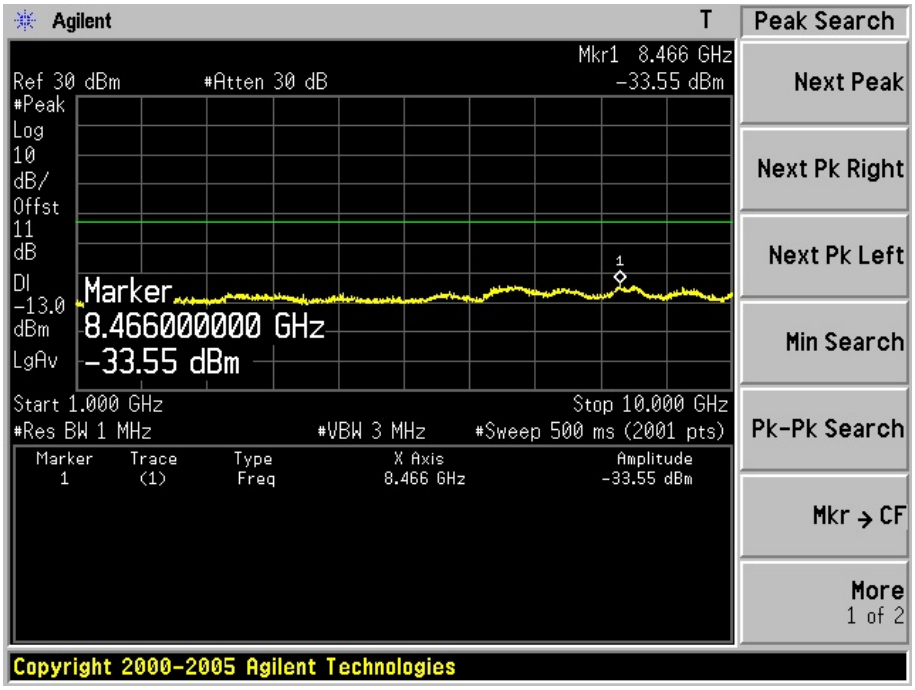


HSDPA High Channel

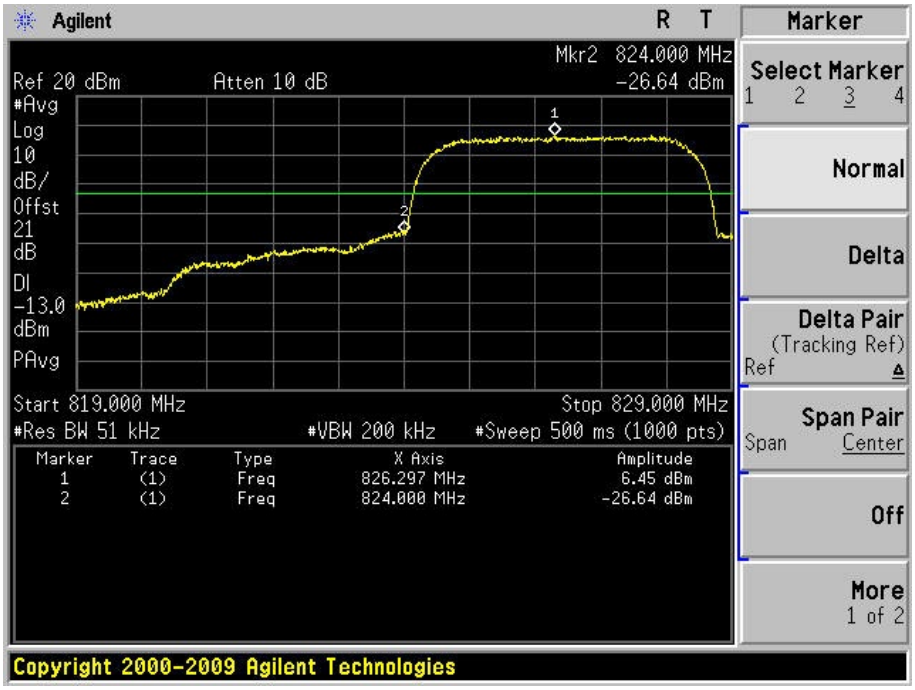
30MHz to 1GHz



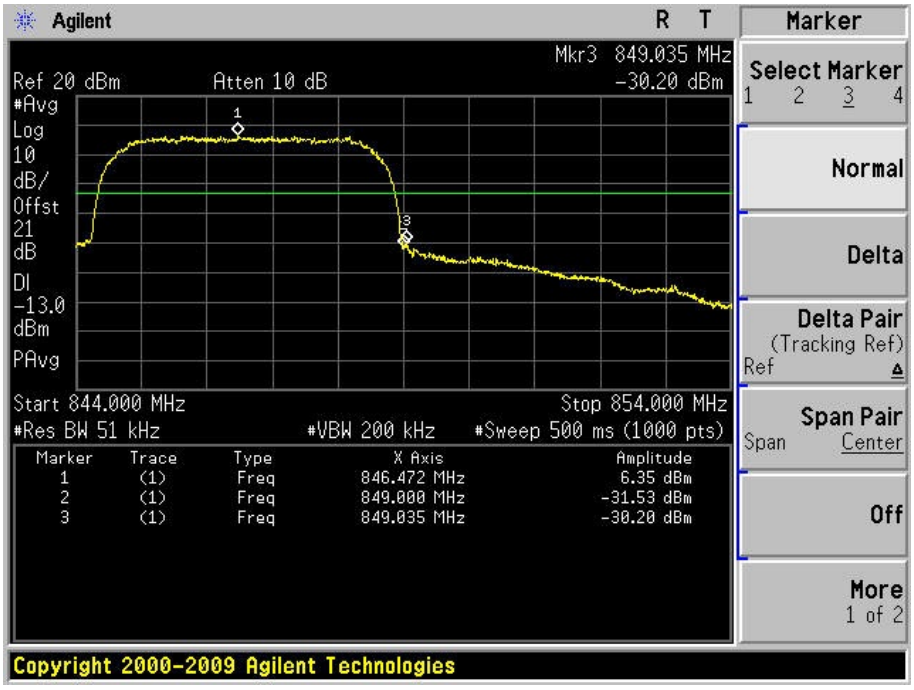
Above 1GHz



HSDPA Low Band Spurious Emission



HSDPA High Band Spurious Emission



7. SPURIOUS RADIATION EMISSIONS

7.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±5.20 dB.

7.2 Standard Applicable

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

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

7.3 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2012-03-28	2013-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-02-25	2013-02-24
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	112012	2012-03-28	2013-03-27
Signal Generator	R&S	SMR20	100047	2012-03-28	2013-03-27

7.4 Test Procedure

1. The setup of EUT is according with per TIA/EIA Standard 603C and ANSI C63.4-2003 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

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

7.5 Environmental Conditions

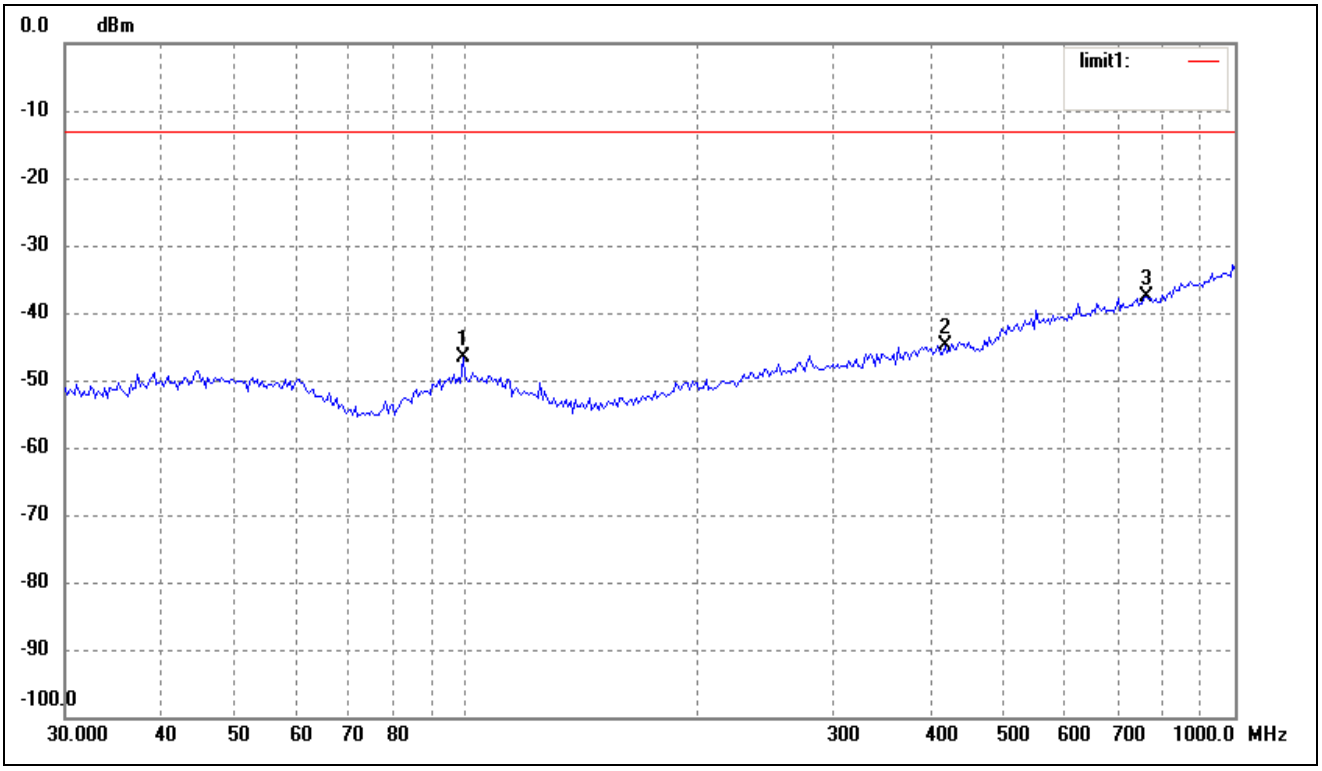
Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

7.6 Summary of Test Results/Plots

According to the data below, the FCC Part 22.917 and 24.238 standards, and had the worst margin of:

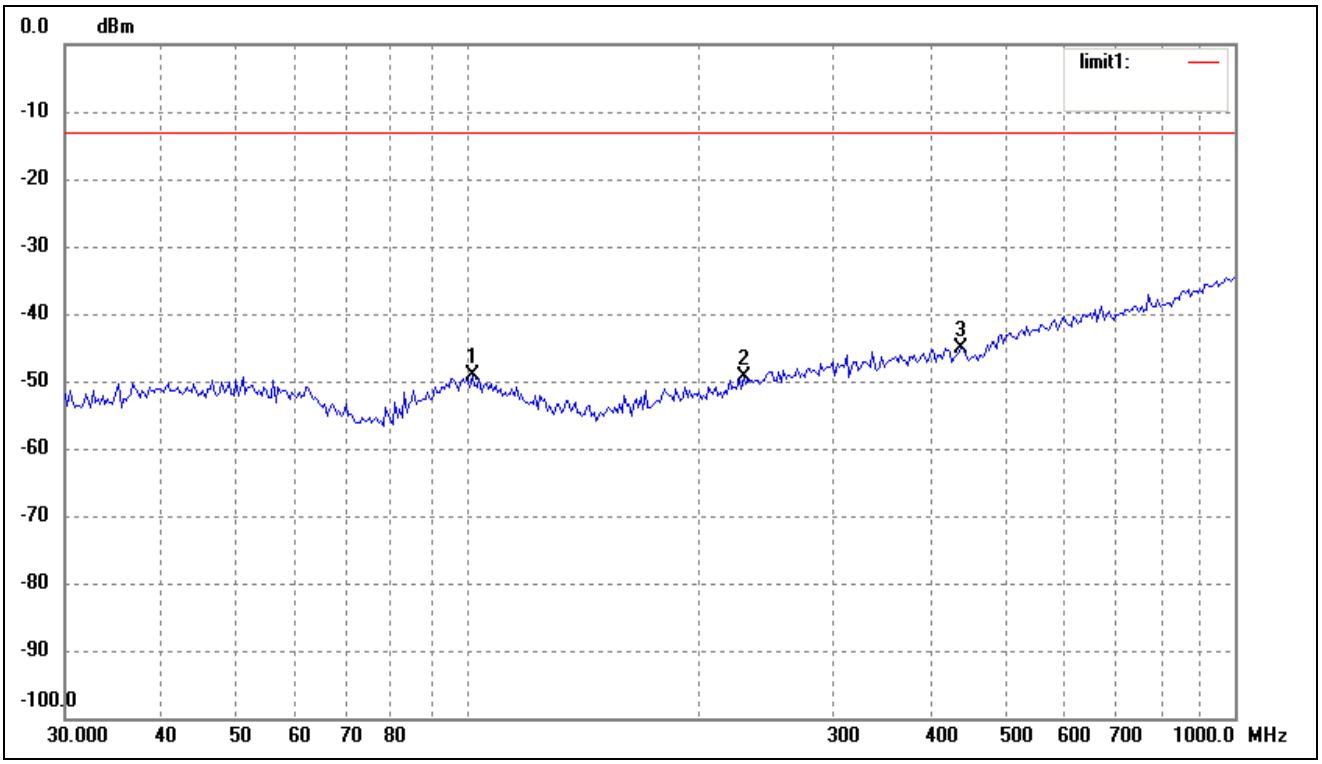
-13.6 dBm at **1673.2 MHz** in the **Vertical** polarization for **GSM Band**, **30 MHz to 1 GHz.**

Spurious Emission From 30MHz to 1GHz
For Cellular Band_GSM Mode
Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	98.8326	-66.81	20.14	-46.67	-13.00	-33.67	ERP
2	419.1081	-68.03	23.16	-44.87	-13.00	-31.87	ERP
3	766.0572	-67.98	30.31	-37.67	-13.00	-24.67	ERP

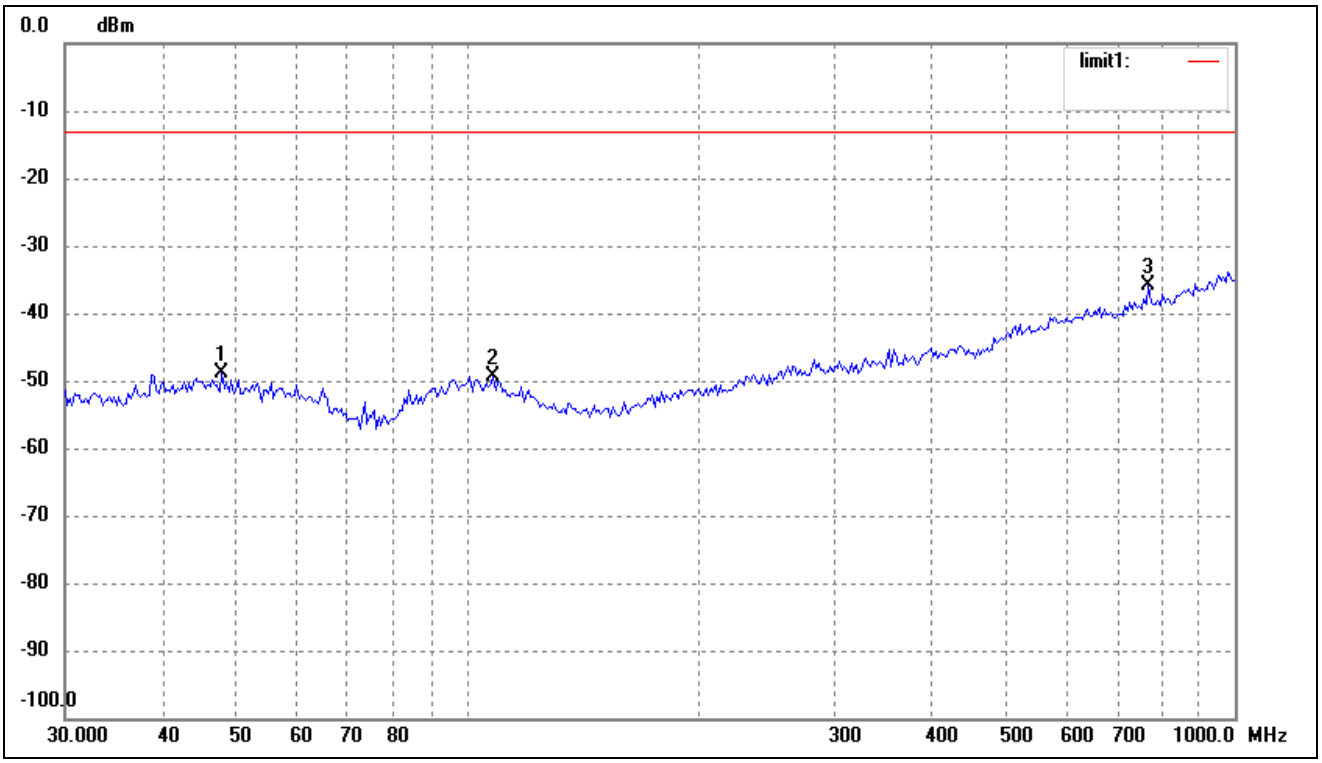
Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	101.6443	-69.26	20.09	-49.17	-13.00	-36.17	ERP
2	229.2931	-68.92	19.62	-49.30	-13.00	-36.30	ERP
3	440.1963	-69.08	23.98	-45.10	-13.00	-32.10	ERP

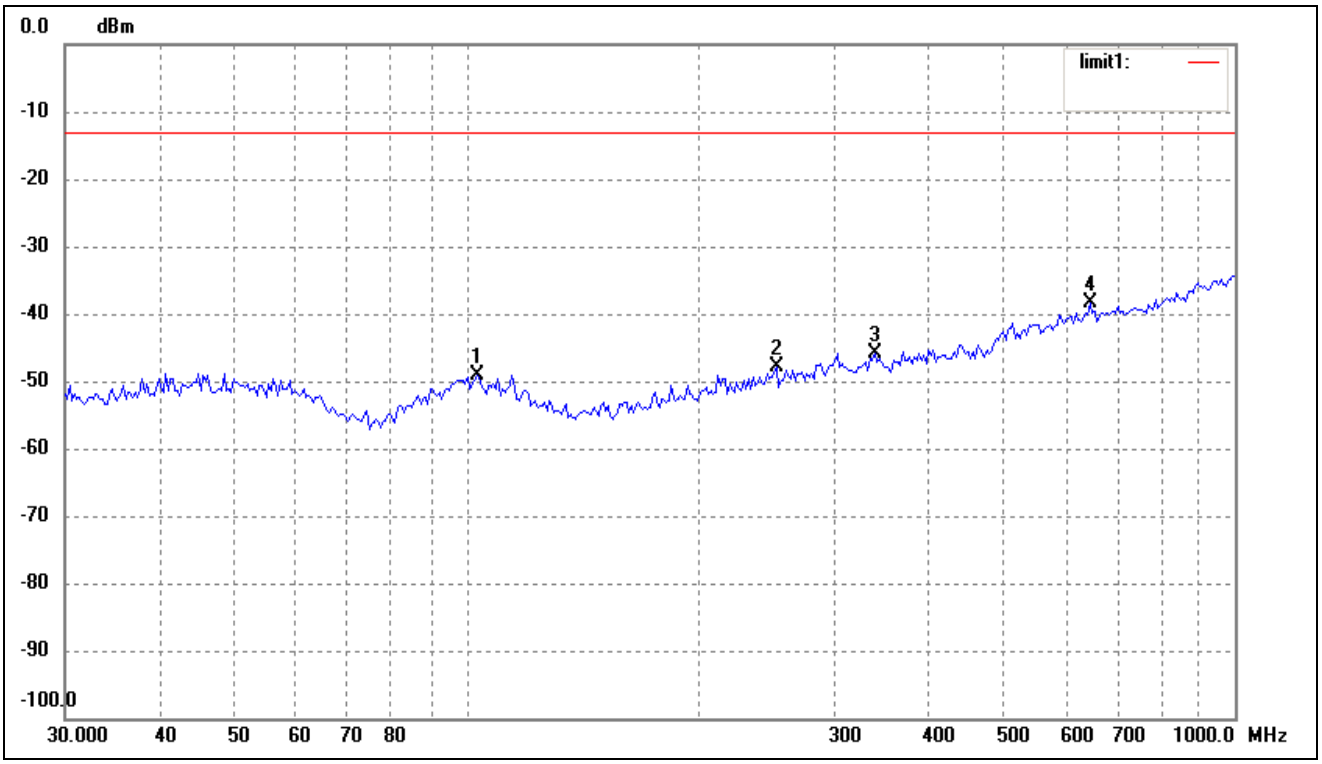
For Cellular Band_GPRS Mode

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	47.9940	-68.75	19.87	-48.88	-13.00	-35.88	ERP
2	108.2667	-68.95	19.53	-49.42	-13.00	-36.42	ERP
3	771.4486	-66.21	30.37	-35.84	-13.00	-22.84	ERP

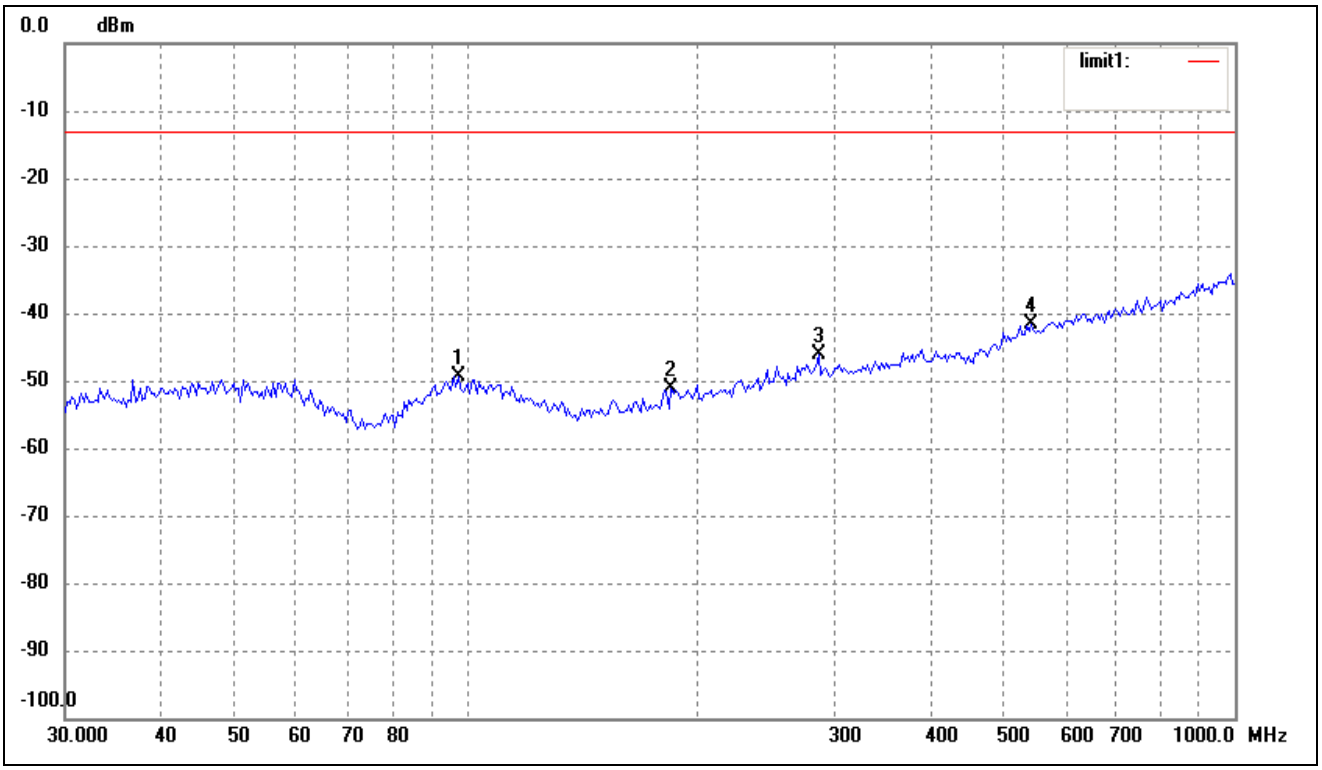
Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	103.0800	-69.03	19.98	-49.05	-13.00	-36.05	ERP
2	252.9482	-68.53	20.57	-47.96	-13.00	-34.96	ERP
3	339.5888	-67.97	22.22	-45.75	-13.00	-32.75	ERP
4	647.3856	-67.22	28.87	-38.35	-13.00	-25.35	ERP

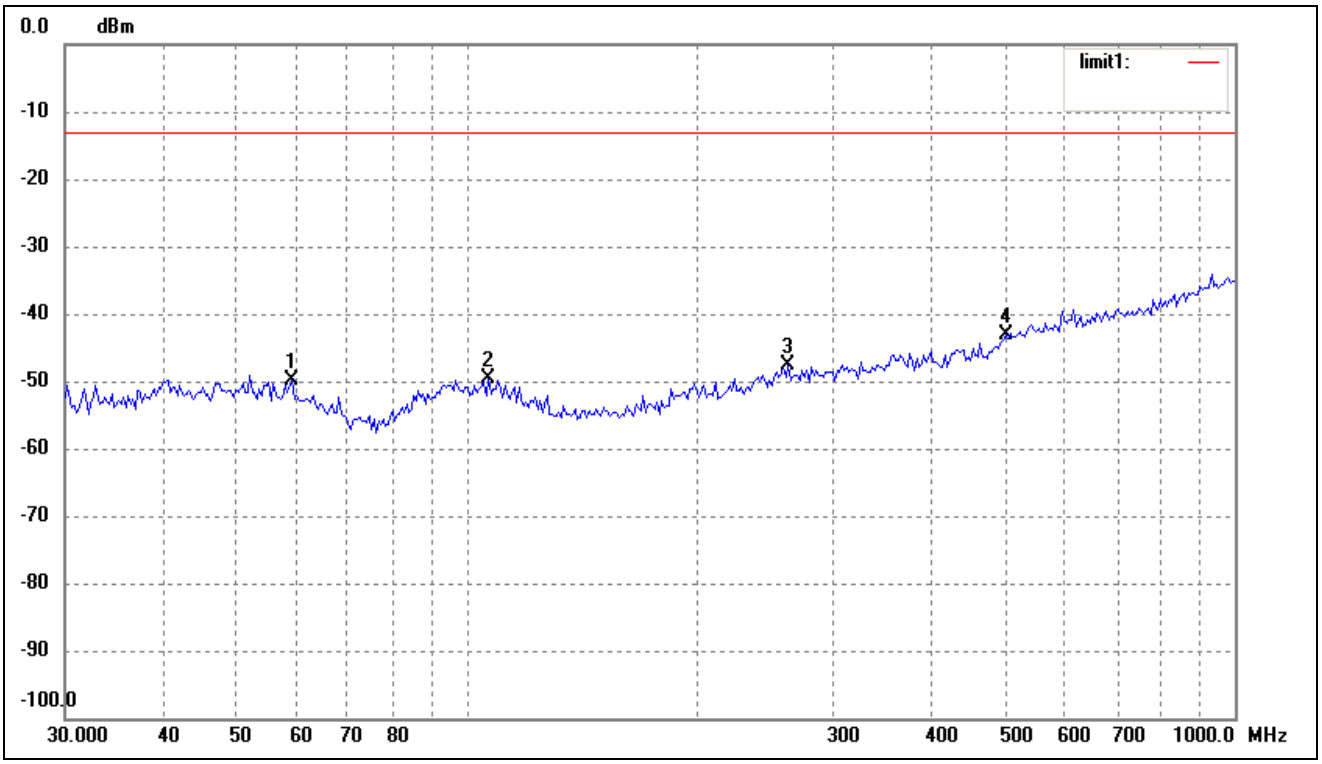
For Cellular Band_EDGE Mode

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	97.4560	-69.41	20.03	-49.38	-13.00	-36.38	ERP
2	184.4898	-68.91	17.85	-51.06	-13.00	-38.06	ERP
3	286.9823	-67.56	21.41	-46.15	-13.00	-33.15	ERP
4	543.2742	-68.76	27.18	-41.58	-13.00	-28.58	ERP

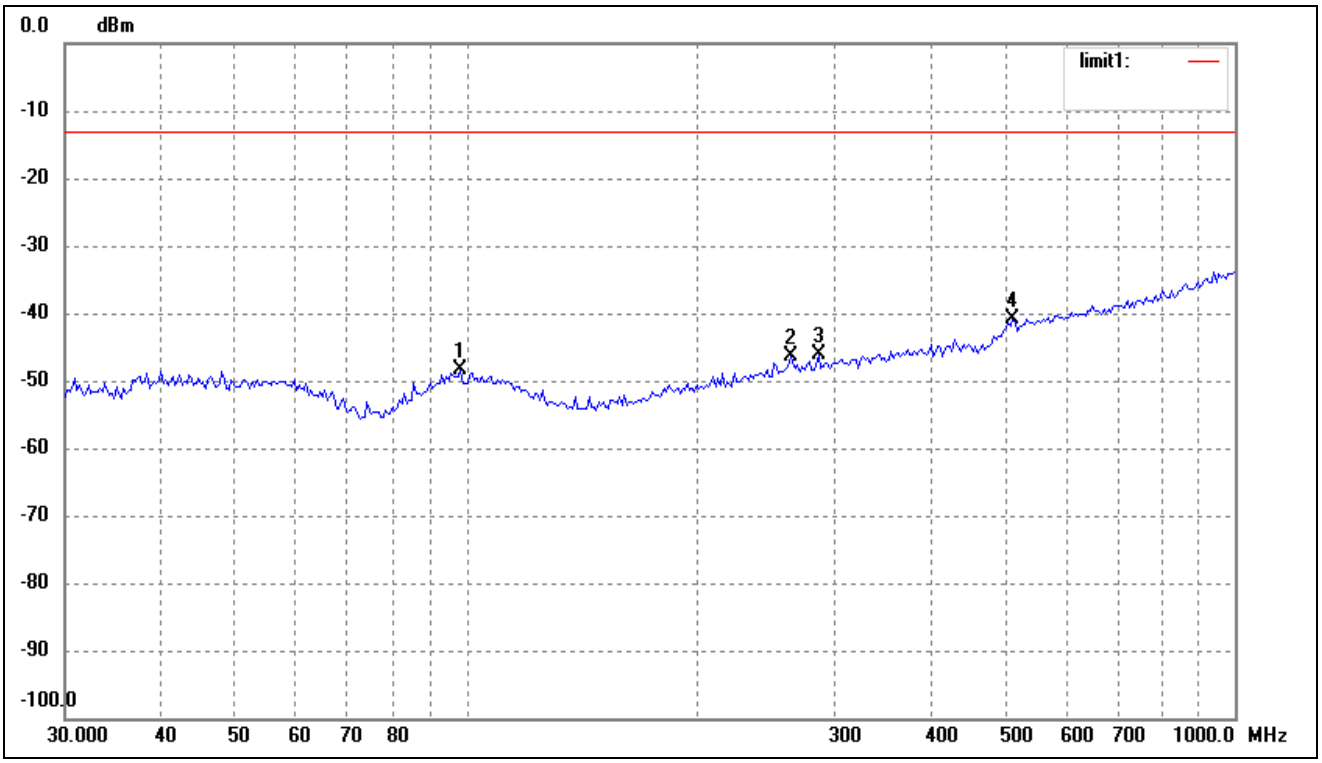
Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	59.2325	-69.26	19.37	-49.89	-13.00	-36.89	ERP
2	106.7587	-69.31	19.66	-49.65	-13.00	-36.65	ERP
3	261.9753	-68.50	20.80	-47.70	-13.00	-34.70	ERP
4	502.9395	-69.40	26.27	-43.13	-13.00	-30.13	ERP

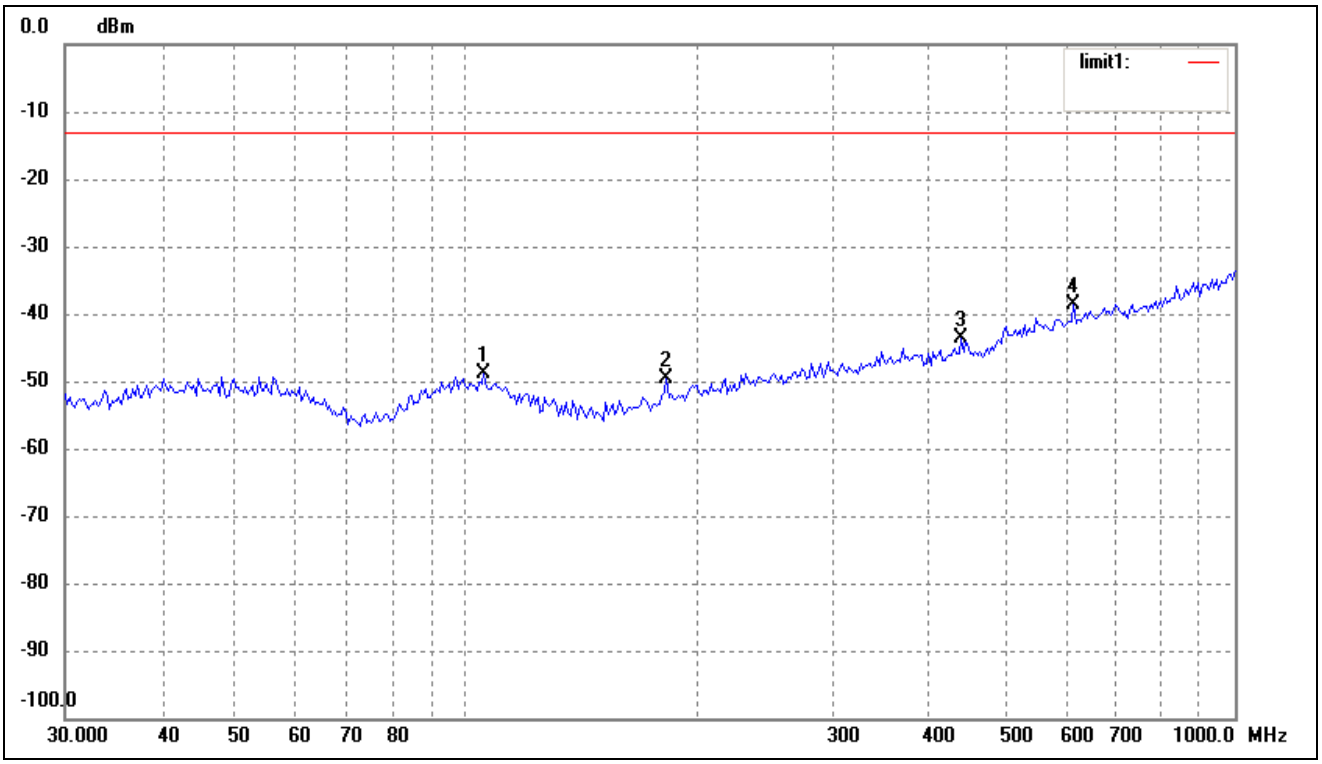
For PCS Band_GSM Mode

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	98.1419	-68.56	20.10	-48.46	-13.00	-35.46	ERP
2	263.8190	-67.29	20.86	-46.43	-13.00	-33.43	ERP
3	286.9823	-67.56	21.41	-46.15	-13.00	-33.15	ERP
4	513.6331	-67.34	26.52	-40.82	-13.00	-27.82	ERP

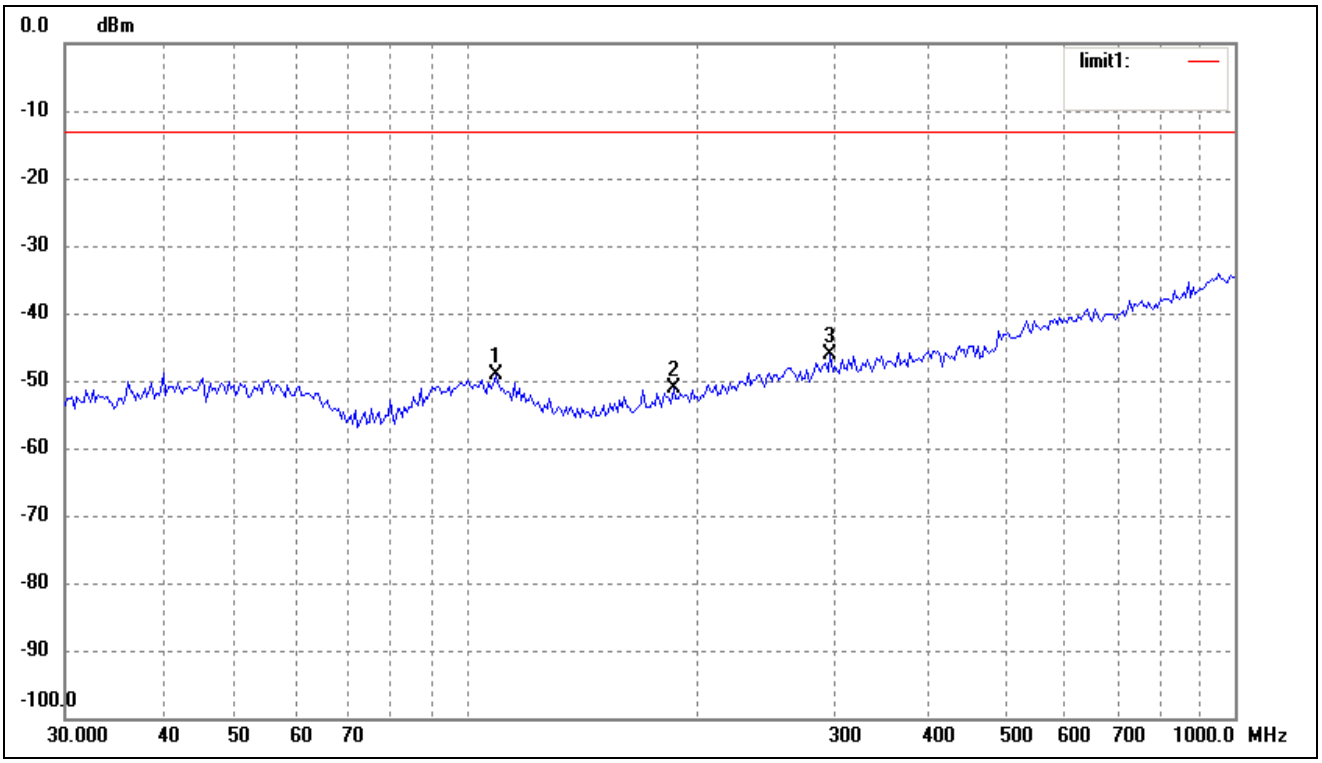
Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	105.2718	-68.64	19.79	-48.85	-13.00	-35.85	ERP
2	181.9202	-67.12	17.61	-49.51	-13.00	-36.51	ERP
3	440.1963	-67.71	23.98	-43.73	-13.00	-30.73	ERP
4	616.3718	-67.34	28.60	-38.74	-13.00	-25.74	ERP

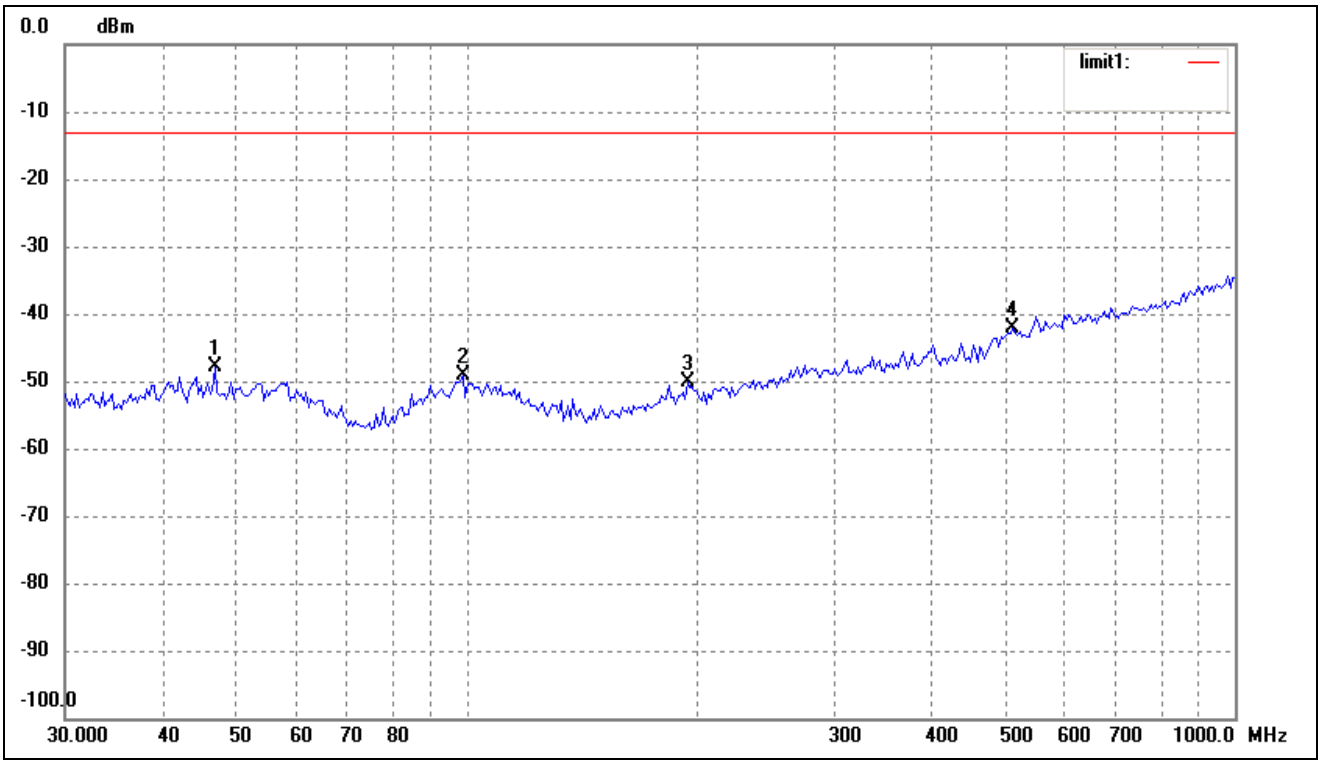
For PCS Band_GPRS Mode

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	109.0286	-68.69	19.48	-49.21	-13.00	-36.21	ERP
2	185.7882	-69.11	17.96	-51.15	-13.00	-38.15	ERP
3	297.2241	-67.59	21.53	-46.06	-13.00	-33.06	ERP

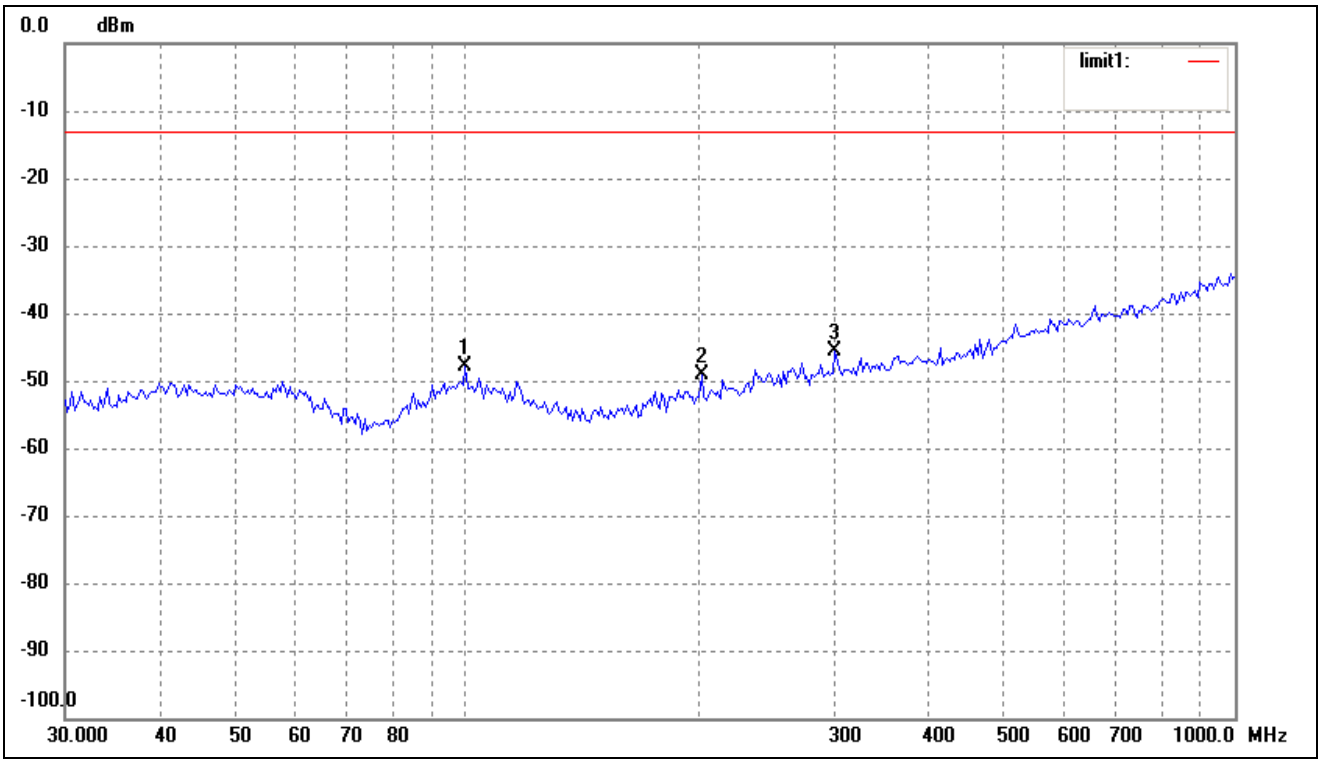
Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	46.9948	-67.81	19.93	-47.88	-13.00	-34.88	ERP
2	98.8326	-69.31	20.14	-49.17	-13.00	-36.17	ERP
3	193.7728	-68.36	18.36	-50.00	-13.00	-37.00	ERP
4	513.6331	-68.66	26.52	-42.14	-13.00	-29.14	ERP

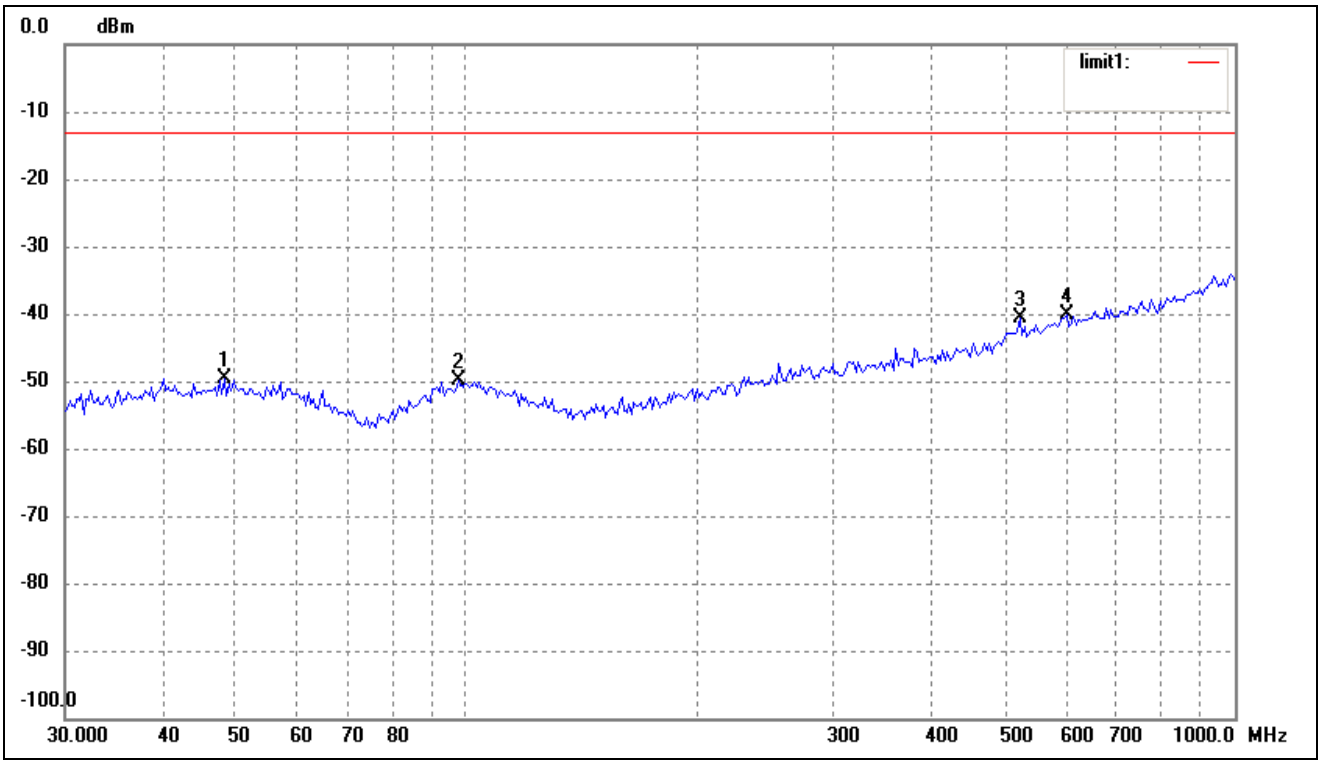
For PCS Band_EDGE Mode

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	99.5281	-68.11	20.20	-47.91	-13.00	-34.91	
2	202.1005	-67.70	18.46	-49.24	-13.00	-36.24	ERP
3	301.4224	-67.14	21.58	-45.56	-13.00	-32.56	ERP

Vertical:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	48.3318	-69.55	19.86	-49.69	-13.00	-36.69	ERP
2	97.4560	-70.01	20.03	-49.98	-13.00	-36.98	ERP
3	524.5541	-67.45	26.77	-40.68	-13.00	-27.68	ERP
4	603.5392	-68.66	28.50	-40.16	-13.00	-27.16	ERP

Spurious Emissions Above 1GHz

For Cellular Band_GSM Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (824.2MHz)								
1648.4	-40.75	1.5	V	1.8	7.6	-34.95	-13.00	-21.95
2472.6	-40.81	1.5	V	2.4	7.9	-35.31	-13.00	-22.31
1648.4	-45.05	1.5	H	1.8	7.6	-39.25	-13.00	-26.25
2472.6	-47.86	1.5	H	2.4	7.9	-42.36	-13.00	-29.36
Middle Channel (836.6MHz)								
1673.2	-40.91	1.5	V	1.9	7.6	-35.21	-13.00	-22.21
2509.8	-41.63	1.5	V	2.5	7.9	-36.23	-13.00	-23.23
1673.2	-45.95	1.5	H	1.9	7.6	-40.25	-13.00	-27.25
2509.8	-48.61	1.5	H	2.5	7.9	-43.21	-13.00	-30.21
High Channel (848.8MHz)								
1697.6	-40.96	1.5	V	2.0	7.6	-35.36	-13.00	-22.36
2546.4	-41.66	1.5	V	2.6	7.9	-36.36	-13.00	-23.36
1697.6	-45.62	1.5	H	2.0	7.6	-40.02	-13.00	-27.02
2546.4	-48.32	1.5	H	2.6	7.9	-43.02	-13.00	-30.02

For PCS Band_GSM Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (1850.2MHz)								
3700.4	-40.66	1.5	V	2.9	8.3	-35.26	-13.00	-22.26
5550.6	-39.16	1.5	V	3.7	8.6	-34.26	-13.00	-21.26
3700.4	-49.75	1.5	H	2.9	8.3	-44.35	-13.00	-31.35
5550.6	-47.21	1.5	H	3.7	8.6	-42.31	-13.00	-29.31
Middle Channel (1880MHz)								
3760	-40.84	1.5	V	2.9	8.4	-35.34	-13.00	-22.34
5640	-37.23	1.5	V	3.7	8.7	-32.23	-13.00	-19.23
3760	-47.81	1.5	H	2.9	8.4	-42.31	-13.00	-29.31
5640	-45.26	1.5	H	3.7	8.7	-40.26	-13.00	-27.26
High Channel (1909.8MHz)								
3819.6	-41.11	1.5	V	2.9	8.4	-35.61	-13.00	-22.61
5729.4	-41.31	1.5	V	3.7	8.7	-36.31	-13.00	-23.31
3819.6	-45.75	1.5	H	2.9	8.4	-40.25	-13.00	-27.25
5729.4	-48.31	1.5	H	3.7	8.7	-43.31	-13.00	-30.31

For Cellular Band_GPRS Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (824.2MHz)								
1648.4	-41.03	1.5	V	1.8	7.6	-35.23	-13.00	-22.23
2472.6	-41.82	1.5	V	2.4	7.9	-36.32	-13.00	-23.32
1648.4	-46.01	1.5	H	1.8	7.6	-40.21	-13.00	-27.21
2472.6	-47.82	1.5	H	2.4	7.9	-42.32	-13.00	-29.32
Middle Channel (836.6MHz)								
1673.2	-40.26	1.5	V	1.9	7.6	-34.56	-13.00	-21.56
2509.8	-40.50	1.5	V	2.5	7.9	-35.10	-13.00	-22.10
1673.2	-44.70	1.5	H	1.9	7.6	-39.00	-13.00	-26.00
2509.8	-48.76	1.5	H	2.5	7.9	-43.36	-13.00	-30.36
High Channel (848.8MHz)								
1697.6	-40.55	1.5	V	2.0	7.6	-34.95	-13.00	-21.95
2546.4	-43.66	1.5	V	2.6	7.9	-38.36	-13.00	-25.36
1697.6	-45.29	1.5	H	2.0	7.6	-39.69	-13.00	-26.69
2546.4	-48.66	1.5	H	2.6	7.9	-43.36	-13.00	-30.36

For PCS Band_GPRS Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (1850.2MHz)								
3700.4	-39.92	1.5	V	2.9	8.3	-34.52	-13.00	-21.52
5550.6	-41.53	1.5	V	3.7	8.6	-36.63	-13.00	-23.63
3700.4	-44.79	1.5	H	2.9	8.3	-39.39	-13.00	-26.39
5550.6	-48.10	1.5	H	3.7	8.6	-43.20	-13.00	-30.20
Middle Channel (1880MHz)								
3760	-39.50	1.5	V	2.9	8.4	-34.00	-13.00	-21.00
5640	-40.23	1.5	V	3.7	8.7	-35.23	-13.00	-22.23
3760	-45.62	1.5	H	2.9	8.4	-40.12	-13.00	-27.12
5640	-47.32	1.5	H	3.7	8.7	-42.32	-13.00	-29.32
High Channel (1909.8MHz)								
3819.6	-40.44	1.5	V	2.9	8.4	-34.94	-13.00	-21.94
5729.4	-40.36	1.5	V	3.7	8.7	-35.36	-13.00	-22.36
3819.6	-44.63	1.5	H	2.9	8.4	-39.13	-13.00	-26.13
5729.4	-47.11	1.5	H	3.7	8.7	-42.11	-13.00	-29.11

For Cellular Band_EDGE Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (824.2MHz)								
1648.4	-41.38	1.5	V	1.8	7.6	-35.58	-13.00	-22.58
2472.6	-40.65	1.5	V	2.4	7.9	-35.15	-13.00	-22.15
1648.4	-44.81	1.5	H	1.8	7.6	-39.01	-13.00	-26.01
2472.6	-47.79	1.5	H	2.4	7.9	-42.29	-13.00	-29.29
Middle Channel (836.6MHz)								
1673.2	-40.02	1.5	V	1.9	7.6	-34.32	-13.00	-21.32
2509.8	-40.70	1.5	V	2.5	7.9	-35.30	-13.00	-22.30
1673.2	-44.91	1.5	H	1.9	7.6	-39.21	-13.00	-26.21
2509.8	-47.96	1.5	H	2.5	7.9	-42.56	-13.00	-29.56
High Channel (848.8MHz)								
1697.6	-40.83	1.5	V	2.0	7.6	-35.23	-13.00	-22.23
2546.4	-40.60	1.5	V	2.6	7.9	-35.30	-13.00	-22.30
1697.6	-44.71	1.5	H	2.0	7.6	-39.11	-13.00	-26.11
2546.4	-47.52	1.5	H	2.6	7.9	-42.22	-13.00	-29.22

For PCS Band_EDGE Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (1850.2MHz)								
3700.4	-41.76	1.5	V	2.9	8.3	-36.36	-13.00	-23.36
5550.6	-42.13	1.5	V	3.7	8.6	-37.23	-13.00	-24.23
3700.4	-46.61	1.5	H	2.9	8.3	-41.21	-13.00	-28.21
5550.6	-47.59	1.5	H	3.7	8.6	-42.69	-13.00	-29.69
Middle Channel (1880MHz)								
3760	-43.55	1.5	V	2.9	8.4	-38.05	-13.00	-25.05
5640	-45.36	1.5	V	3.7	8.7	-40.36	-13.00	-27.36
3760	-46.75	1.5	H	2.9	8.4	-41.25	-13.00	-28.25
5640	-47.96	1.5	H	3.7	8.7	-42.96	-13.00	-29.96
High Channel (1909.8MHz)								
3819.6	-40.41	1.5	V	2.9	8.4	-34.91	-13.00	-21.91
5729.4	-40.41	1.5	V	3.7	8.7	-35.41	-13.00	-22.41
3819.6	-44.64	1.5	H	2.9	8.4	-39.14	-13.00	-26.14
5729.4	-47.15	1.5	H	3.7	8.7	-42.15	-13.00	-29.15

Spurious Emission Test Data for WCDMA/HSUPA/HSDPA

For Band V_WCDMA Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (826.4MHz)								
1652.80	-59.05	1.5	V	1.8	7.6	-53.25	-13.00	-40.25
3312.00	-45.43	1.5	V	2.4	7.9	-39.93	-13.00	-26.93
1652.80	-60.61	1.5	H	1.8	7.6	-54.81	-13.00	-41.81
3312.00	-44.81	1.5	H	2.4	7.9	-39.31	-13.00	-26.31
Middle Channel (836.4MHz)								
1672.80	-61.34	1.5	V	1.9	7.6	-55.64	-13.00	-42.64
3346.00	-46.64	1.5	V	2.5	7.9	-41.24	-13.00	-28.24
1672.80	-61.76	1.5	H	1.9	7.6	-56.06	-13.00	-43.06
3346.00	-45.49	1.5	H	2.5	7.9	-40.09	-13.00	-27.09
High Channel (846.6MHz)								
-60.46	-59.35	1.5	V	2.0	7.6	-53.75	-13.00	-40.75
-43.45	-42.33	1.5	V	2.6	7.9	-37.03	-13.00	-24.03
-51.81	-50.92	1.5	H	2.0	7.6	-45.32	-13.00	-32.32
3388.50	-39.86	1.5	H	2.6	7.9	-34.56	-13.00	-21.56

For Band II_WCDMA Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (1852.4MHz)								
3704.80	-51.42	1.5	V	2.9	8.3	-46.02	-13.00	-33.02
5557.20	-53.33	1.5	V	3.7	8.6	-48.43	-13.00	-35.43
3704.80	-51.71	1.5	H	2.9	8.3	-46.31	-13.00	-33.31
5557.20	-54.27	1.5	H	3.7	8.6	-49.37	-13.00	-36.37
Middle Channel (1880MHz)								
3760	-56.52	1.5	V	2.9	8.4	-51.02	-13.00	-38.02
5640	-54.76	1.5	V	3.7	8.7	-49.76	-13.00	-36.76
3760	-57.91	1.5	H	2.9	8.4	-52.41	-13.00	-39.41
5640	-54.69	1.5	H	3.7	8.7	-49.69	-13.00	-36.69
High Channel (1907.6MHz)								
3815.2	-55.12	1.5	V	2.9	8.4	-49.62	-13.00	-36.62
5722.8	-53.11	1.5	V	3.7	8.7	-48.11	-13.00	-35.11
3815.2	-55.05	1.5	H	2.9	8.4	-49.55	-13.00	-36.55
5722.8	-53.92	1.5	H	3.7	8.7	-48.92	-13.00	-35.92

For Band V_HSUPA Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (826.4MHz)								
1652.80	-60.38	1.5	V	1.8	7.6	-54.58	-13.00	-41.58
3312.00	-43.83	1.5	V	2.4	7.9	-38.33	-13.00	-25.33
1652.80	-61.86	1.5	H	1.8	7.6	-56.06	-13.00	-43.06
3312.00	-43.22	1.5	H	2.4	7.9	-37.72	-13.00	-24.72
Middle Channel (836.4MHz)								
1672.80	-61.24	1.5	V	1.9	7.6	-55.54	-13.00	-42.54
3346.00	-43.98	1.5	V	2.5	7.9	-38.58	-13.00	-25.58
1672.80	-59.86	1.5	H	1.9	7.6	-54.16	-13.00	-41.16
3346.00	-43.05	1.5	H	2.5	7.9	-37.65	-13.00	-24.65
High Channel (846.6MHz)								
2538.50	-53.72	1.5	V	2.0	7.6	-48.12	-13.00	-35.12
3380.00	-41.70	1.5	V	2.6	7.9	-36.40	-13.00	-23.40
2538.50	-49.33	1.5	H	2.0	7.6	-43.73	-13.00	-30.73
3380.00	-38.24	1.5	H	2.6	7.9	-32.94	-13.00	-19.94

For Band II_HSUPA Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (1852.4MHz)								
3704.8	-51.61	1.5	V	2.9	8.3	-46.21	-13.00	-33.21
5557.2	-52.53	1.5	V	3.7	8.6	-47.63	-13.00	-34.63
3704.8	-52.85	1.5	H	2.9	8.3	-47.45	-13.00	-34.45
5557.2	-53.18	1.5	H	3.7	8.6	-48.28	-13.00	-35.28
Middle Channel (1880MHz)								
3760	-55.85	1.5	V	2.9	8.4	-50.35	-13.00	-37.35
5640	-52.97	1.5	V	3.7	8.7	-47.97	-13.00	-34.97
3760	-57.04	1.5	H	2.9	8.4	-51.54	-13.00	-38.54
5640	-55.41	1.5	H	3.7	8.7	-50.41	-13.00	-37.41
High Channel (1907.6MHz)								
3815.2	-55.04	1.5	V	2.9	8.4	-49.54	-13.00	-36.54
5722.8	-54.73	1.5	V	3.7	8.7	-49.73	-13.00	-36.73
3815.2	-54.69	1.5	H	2.9	8.4	-49.19	-13.00	-36.19
5722.8	-54.26	1.5	H	3.7	8.7	-49.26	-13.00	-36.26

For Band V_HSDPA Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 22H	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (826.4MHz)								
1652.80	-60.25	1.5	V	1.8	7.6	-54.45	-13.00	-41.45
3312.00	-46.11	1.5	V	2.4	7.9	-40.61	-13.00	-27.61
1652.80	-60.83	1.5	H	1.8	7.6	-55.03	-13.00	-42.03
3312.00	-45.78	1.5	H	2.4	7.9	-40.28	-13.00	-27.28
Middle Channel (836.4MHz)								
1672.80	-60.60	1.5	V	1.9	7.6	-54.9	-13.00	-41.9
3346.00	-45.40	1.5	V	2.5	7.9	-40.00	-13.00	-27.00
1672.80	-61.84	1.5	H	1.9	7.6	-56.14	-13.00	-43.14
3346.00	-43.26	1.5	H	2.5	7.9	-37.86	-13.00	-24.86
High Channel (846.6MHz)								
2538.50	-53.33	1.5	V	2.0	7.6	-47.73	-13.00	-34.73
3380.00	-41.47	1.5	V	2.6	7.9	-36.17	-13.00	-23.17
2538.50	-49.06	1.5	H	2.0	7.6	-43.46	-13.00	-30.46
3380.00	-37.99	1.5	H	2.6	7.9	-32.69	-13.00	-19.69

For Band II_HSDPA Mode

Frequency	SG Reading	Height	Polar	Cable loss	Antenna Gain	Corrected Ampl.	FCC Part 24E	
							Limit	Margin
MHz	dBm	Meter	H / V	dB	dB	dBm	dBm	dB
Low Channel (1852.4MHz)								
3704.8	-51.61	1.5	V	2.9	8.3	-46.21	-13.00	-33.21
5557.2	-52.53	1.5	V	3.7	8.6	-47.63	-13.00	-34.63
3704.8	-52.85	1.5	H	2.9	8.3	-47.45	-13.00	-34.45
5557.2	-53.18	1.5	H	3.7	8.6	-48.28	-13.00	-35.28
Middle Channel (1880MHz)								
3760	-55.85	1.5	V	2.9	8.4	-50.35	-13.00	-37.35
5640	-52.97	1.5	V	3.7	8.7	-47.97	-13.00	-34.97
3760	-57.04	1.5	H	2.9	8.4	-51.54	-13.00	-38.54
5640	-55.41	1.5	H	3.7	8.7	-50.41	-13.00	-37.41
High Channel (1907.6MHz)								
3815.2	-55.04	1.5	V	2.9	8.4	-49.54	-13.00	-36.54
5722.8	-54.73	1.5	V	3.7	8.7	-49.73	-13.00	-36.73
3815.2	-54.69	1.5	H	2.9	8.4	-49.19	-13.00	-36.19
5722.8	-54.26	1.5	H	3.7	8.7	-49.26	-13.00	-36.26

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 10^{h} Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

8. FREQUENCY STABILITY

8.1 Standard Applicable

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Cellular Band

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

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

8.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
Aglient	Spectrum Analyzer	E4402B-ESA	US41192821	2012-03-28	2013-03-27
Rohde & Schwarz	Universal Radio Communication	CMU200	112012	2012-03-28	2013-03-27
GONGWEN	Moisture Test Chamber	GDS-150	SEMT-0013	2012-03-28	2013-03-27

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

8.3 Test Procedure

According to §2.1055, the following test procedure was performed.
The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.
The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode

Temperature:	Supply Voltage
20°C	85-115% of declared nominal voltage
-30°C to +50°C	Normal

8.4 Environmental Conditions

Temperature:	20°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

8.5 Summary of Test Results/Plots

For Cellular Band

Reference Frequency(Middle Channel): 836.6 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	-41	-0.0490
40	120	-33	-0.0394
30	120	-32	-0.0382
20	120	-36	-0.0430
10	120	-30	-0.0358
0	120	-24	-0.0286
-10	120	-32	-0.0382
-20	120	-36	-0.0430
-30	120	-40	-0.0478

For PCS Band

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	120	-66	-0.0351
40	120	-60	-0.0335
30	120	-58	-0.0308
20	120	-62	-0.0330
10	120	-61	-0.0324
0	120	-63	-0.0335
-10	120	-59	-0.0314
-20	120	-64	-0.0340
-30	120	-73	-0.0388

So, Frequency Stability Versus Input Voltage is:

Reference Frequency(Middle Channel): 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	-30	-0.0358
	120	-10	-0.0119
	138	-32	-0.0170
Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VAC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	102	-46	-0.0245
	120	-26	-0.0138
	138	-59	-0.0314

******* END OF REPORT *******