

# FCC Part 22H & 24E

## Measurement and Test Report

### For

**DDC TRADING INC**

**2480 NW 20th Street #D Miami, Floriad 33142, USA.**

**FCC ID: 2AGF3-E5**

**FCC Rules:** FCC Part 22H, FCC Part 24E

**Product Description:** Mobile phone

**Tested Model:** E5

**Report No.:** STR16068113I-1

**Tested Date:** 2016-06-10 to 2016-07-06

**Issued Date:** 2016-07-09

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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 Shenzhen SEM. Test Technology Co., Ltd.

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## 1. GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Applicant: DDC TRADING INC  
Address of applicant: 2480 NW 20th Street #D Miami, Floriad 33142, USA.

Manufacturer: DDC TRADING INC  
Address of manufacturer: 2480 NW 20th Street #D Miami, Floriad 33142, USA.

General Description of EUT:	
Product Name:	Mobile phone
Brand Name:	DDC
Model No.:	E5
Hardware version:	H103B
Software version:	1490D.K600.DDC.160505.ALPS.L1.MP6.V2_BIRD6580. WEG.A.L.MV88.B125
IMEI:	35359083042863194/359083042863202
Rated Voltage:	DC 3.7V Li-ion Battery
Battery:	2300mAh
Device Category:	Portable Device
<i>The EUT Main board support GSM850/PCS1900, WCDMA Band 1/2/5, function. It is intended for speech, Multimedia Message Service (MMS) transmission. It is equipped with GPRS class 12 for GSM850/PCS1900, GPS, FM, Bluetooth and Wi-Fi functions. For more information see the following datasheet</i>	
<i>Note: The test data is gathered from a production sample provided by the manufacturer.</i>	

<b>Technical Characteristics of EUT:</b>	
<b>2G</b>	
Support Networks:	GSM, GPRS
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS 850: 824~849MHz GSM/GPRS 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS 850: 869~894MHz GSM/GPRS 1900: 1930~1990MHz
Max RF Output Power:	GSM850: 32.17dBm, GSM1900: 28.24dBm
Type of Emission:	GSM850: 258KGXW, GSM1900: 258KGXW
Type of Modulation:	GMSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -2.5dBi; GSM1900: -2dBi
GPRS Class:	Class 12
<b>3G</b>	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 22.21dBm, WCDMA Band 5: 22.33dBm
Type of Emission:	WCDMA Band 2: 4M15F9W WCDMA Band 5: 4M26F9W
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: -2dBi, WCDMA Band 5: -2.5dBi

## 1.2 Test Standards

The following report is prepared on behalf of the DDC TRADING INC 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 ANSI/TIA-603-D: 2010 and ANSI C63.4-2014, 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 measurement guide KDB 971168 D01 Power Meas License Digital Systems v02r02 shall be performed also.

## 1.4 Test Facility

- **FCC – Registration No.: 934118**

Shenzhen SEM.Test Technology 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 934118.

- **Industry Canada (IC) Registration No.: 11464A**

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Technology 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 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101)

## 1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	GSM 850	Low, Middle, High Channels
TM2	GPRS 850	Low, Middle, High Channels
TM3	GSM 1900	Low, Middle, High Channels
TM4	GPRS 1900	Low, Middle, High Channels
TM5	WCDMA Band 5	Low, Middle, High Channels
TM6	HSDPA Band 5	Low, Middle, High Channels
TM7	HSUPA Band 5	Low, Middle, High Channels
TM8	WCDMA Band 2	Low, Middle, High Channels
TM9	HSDPA Band 2	Low, Middle, High Channels
TM10	HSUPA Band 2	Low, Middle, High Channels

Testing Configure			
Support Band	Support Standard	Channel Frequency	Channel Number
GSM 850	GSM/GPRS	824.2 MHz	128
		836.4 MHz	190
		848.8 MHz	251
PCS 1900	GSM/GPRS	1850.2 MHz	512
		1880.0 MHz	661
		1909.8 MHz	810
WCDMA Band 5	WCDMA/HSDPA/HSUPA	826.4 MHz	4132
		836.4 MHz	4183
		846.6 MHz	4233
WCDMA Band 2	WCDMA/HSDPA/HSUPA	1852.4 MHz	9262
		1880.0 MHz	9400
		1907.6 MHz	9538
Note: the transmitter has been tested on the communications mode of GSM, GPRS, WCDMA, HSDPA, HSUPA compliance test and record the worst case.			

### EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Shielded	Without Ferrite
Earphone	1.2	Unshielded	Without Ferrite

#### Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

#### Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

### 1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	$\pm 0.42\text{dB}$
Occupied Bandwidth	Conducted	$\pm 1.5\%$
Frequency Stability	Conducted	2.3%
Transmitter Spurious Emissions	Radiated	$\pm 5.1\text{dB}$
Transmitter Spurious Emissions	Conducted	$\pm 0.42\text{dB}$

### 1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
SEMT-1075	Communication Tester	Rohde & Schwarz	CMW500	148650	2015-06-17	2016-06-16
SEMT-1034	GSM Tester	Rohde & Schwarz	CMU200	104036	2015-06-17	2016-06-16
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2015-06-17	2016-06-16
SEMT-1079	Spectrum Analyzer	Agilent	N9020A	US47140102	2015-06-17	2016-06-16
SEMT-1080	Signal Generator	Agilent	83752A	3610A01453	2015-06-17	2016-06-16
SEMT-1081	Vector Signal Generator	Agilent	N5182A	MY47070202	2015-06-17	2016-06-16
SEMT-1028	Power Divider	Weinschel	1506A	PM204	2015-06-17	2016-06-16
SEMT-1082	Power Divider	RF-Lambda	RFLT4W5M18G	14110400027	2015-06-17	2016-06-16
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2015-06-17	2016-06-16
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2015-06-17	2016-06-16
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2015-06-17	2016-06-16
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2015-06-17	2016-06-16
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2015-06-17	2016-06-16
SEMT-1068	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2015-06-17	2016-06-16
SEMT-1042	Horn Antenna	ETS	3117	00086197	2015-06-17	2016-06-16
SEMT-1121	Horn Antenna	ETS	3116B	00088203	2015-06-17	2016-06-16

## 2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 1.1307, § 2.1093	RF Exposure	Compliant
§ 22.913 (a), § 24.232 (c)	RF Output Power	Compliant
§ 24.51	Peak-to-average Ratio (PAR) of Transmitter	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**

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#### **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 complied with the requirement of the RF exposure, please see the SAR report.

## 4. RF Output Power

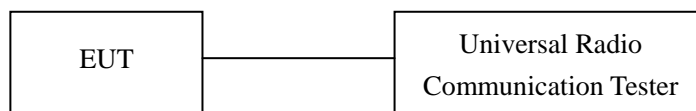
### 4.1 Standard Applicable

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

According to §24.232 (c), Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

### 4.2 Test Procedure

Conducted output power test method:



Radiated power test method:

- 1.The setup of EUT is according with per ANSI/TIA Standard 603D and ANSI C63.4-2014 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.

### 4.3 Environmental Conditions

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

## 4.4 Summary of Test Results/Plots

### Max. Radiated Power

ERP For GSM Mode GSM850

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	28.92	1.5	0	H	1.5	0	27.42	38.45
824.2	32.13	1.5	0	V	1.5	0	30.63	38.45
Middle Channel								
836.4	28.73	1.5	0	H	1.5	0	27.23	38.45
836.4	31.73	1.5	0	V	1.5	0	30.23	38.45
High Channel								
848.8	28.68	1.5	0	H	1.5	0	27.18	38.45
848.8	31.61	1.5	0	V	1.5	0	30.11	38.45

EIRP For GSM Mode PCS1900

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1850.2	20.64	1.5	0	H	1.9	7.7	26.44	33.00
1850.2	21.61	1.5	0	V	1.9	7.7	27.41	33.00
Middle Channel								
1880.0	19.72	1.5	0	H	1.9	7.7	25.52	33.00
1880.0	21.39	1.5	0	V	1.9	7.7	27.19	33.00
High Channel								
1909.8	19.75	1.5	0	H	1.9	7.7	25.55	33.00
1909.8	21.54	1.5	0	V	1.9	7.7	27.34	33.00

## ERP For GPRS Mode GSM850

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
824.2	28.93	1.5	0	H	1.5	0	27.43	38.45
824.2	31.94	1.5	0	V	1.5	0	30.44	38.45
Middle Channel								
836.4	29.05	1.5	0	H	1.5	0	27.55	38.45
836.4	31.35	1.5	0	V	1.5	0	29.85	38.45
High Channel								
848.8	28.94	1.5	0	H	1.5	0	27.44	38.45
848.8	31.52	1.5	0	V	1.5	0	30.02	38.45

## EIRP For GPRS Mode PCS1900

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1850.2	20.23	1.5	0	H	1.9	7.7	26.03	33.00
1850.2	21.64	1.5	0	V	1.9	7.7	27.44	33.00
Middle Channel								
1880.0	20.13	1.5	0	H	1.9	7.7	25.93	33.00
1880.0	21.53	1.5	0	V	1.9	7.7	27.33	33.00
High Channel								
1909.8	20.09	1.5	0	H	1.9	7.7	25.89	33.00
1909.8	21.62	1.5	0	V	1.9	7.7	27.42	33.00

## ERP For WCDMA Mode Band 5

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	21.93	1.5	0	H	1.5	0	20.43	38.45
826.4	23.02	1.5	0	V	1.5	0	21.52	38.45
Middle Channel								
836.4	21.94	1.5	0	H	1.5	0	20.44	38.45
836.4	23.05	1.5	0	V	1.5	0	21.55	38.45
High Channel								
846.6	21.39	1.5	0	H	1.5	0	19.89	38.45
846.6	22.52	1.5	0	V	1.5	0	21.02	38.45

## ERP For HSDPA Mode Band 5

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	21.02	1.5	0	H	1.5	0	19.52	38.45
826.4	21.83	1.5	0	V	1.5	0	20.33	38.45
Middle Channel								
836.4	21.14	1.5	0	H	1.5	0	19.64	38.45
836.4	21.91	1.5	0	V	1.5	0	20.41	38.45
High Channel								
846.6	20.51	1.5	0	H	1.5	0	19.01	38.45
846.6	21.81	1.5	0	V	1.5	0	20.31	38.45

## ERP For HSUPA Mode Band 5

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 22H Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
826.4	20.95	1.5	0	H	1.5	0	19.45	38.45
826.4	21.81	1.5	0	V	1.5	0	20.31	38.45
Middle Channel								
836.4	20.83	1.5	0	H	1.5	0	19.33	38.45
836.4	22.01	1.5	0	V	1.5	0	20.51	38.45
High Channel								
846.6	20.49	1.5	0	H	1.5	0	18.99	38.45
846.6	21.94	1.5	0	V	1.5	0	20.44	38.45

## EIRP For WCDMA Mode Band 2

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1852.4	14.19	1.5	0	H	1.9	7.7	19.99	33
1852.4	15.30	1.5	0	V	1.9	7.7	21.10	33
Middle Channel								
1880.0	13.97	1.5	0	H	1.9	7.7	19.77	33
1880.0	15.28	1.5	0	V	1.9	7.7	21.08	33
High Channel								
1907.6	14.28	1.5	0	H	1.9	7.7	20.08	33
1907.6	16.02	1.5	0	V	1.9	7.7	21.82	33

## EIRP For HSDPA Mode Band 2

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1852.4	12.96	1.5	0	H	1.9	7.7	18.92	33
1852.4	14.68	1.5	0	V	1.9	7.7	20.41	33
Middle Channel								
1880.0	12.86	1.5	0	H	1.9	7.7	18.86	33
1880.0	15.07	1.5	0	V	1.9	7.7	20.94	33
High Channel								
1907.6	13.33	1.5	0	H	1.9	7.7	19.33	33
1907.6	15.07	1.5	0	V	1.9	7.7	20.96	33

## EIRP For HSUPA Mode Band 2

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 24E Limit
MHz	dBm	Meter	Degree	H / V	dB	dB	dBm	dBm
Low Channel								
1852.4	13.17	1.5	0	H	1.9	7.7	18.97	33
1852.4	14.63	1.5	0	V	1.9	7.7	20.43	33
Middle Channel								
1880.0	12.88	1.5	0	H	1.9	7.7	18.68	33
1880.0	14.86	1.5	0	V	1.9	7.7	20.66	33
High Channel								
1907.6	13.72	1.5	0	H	1.9	7.7	19.52	33
1907.6	15.14	1.5	0	V	1.9	7.7	20.94	33

Note: Result = Substitute - Cable loss + Antenna Gain

## Max. Conducted Output Power

For Cellular Band (GSM850)

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 22.913 Limit (dBm)
GSM	Low Channel	824.2	31.49	38.45
	Middle Channel	836.4	31.90	38.45
	High Channel	848.8	32.31	38.45
GPRS(1 Slot)	Low Channel	824.2	31.43	38.45
	Middle Channel	836.4	31.89	38.45
	High Channel	848.8	32.27	38.45

For PCS Band (GSM1900)

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 24.232 Limit (dBm)
GSM	Low Channel	1850.2	28.55	33.0
	Middle Channel	1880.0	28.48	33.0
	High Channel	1909.8	28.36	33.0
GPRS(1 Slot)	Low Channel	1850.2	29.59	33.0
	Middle Channel	1880.0	28.92	33.0
	High Channel	1909.8	28.39	33.0



For WCDMA Band 5

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 22.913 Limit (dBm)
WCDMA	Low Channel	826.4	22.04	38.45
	Middle Channel	836.4	22.43	38.45
	High Channel	846.6	22.22	38.45
HSDPA	Low Channel	826.4	21.06	38.45
	Middle Channel	836.4	21.15	38.45
	High Channel	846.6	21.03	38.45
HSUPA	Low Channel	826.4	20.96	38.45
	Middle Channel	836.4	21.05	38.45
	High Channel	846.6	21.03	38.45

For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 24.232 Limit (dBm)
WCDMA	Low Channel	1852.4	23.86	33.00
	Middle Channel	1880.0	23.70	33.00
	High Channel	1907.6	22.19	33.00
HSDPA	Low Channel	1852.4	21.93	33.00
	Middle Channel	1880.0	21.54	33.00
	High Channel	1907.6	22.19	33.00
HSUPA	Low Channel	1852.4	21.04	33.00
	Middle Channel	1880.0	20.99	33.00
	High Channel	1907.6	21.05	33.00

## 5. Peak-to-average Ratio (PAR) of Transmitter

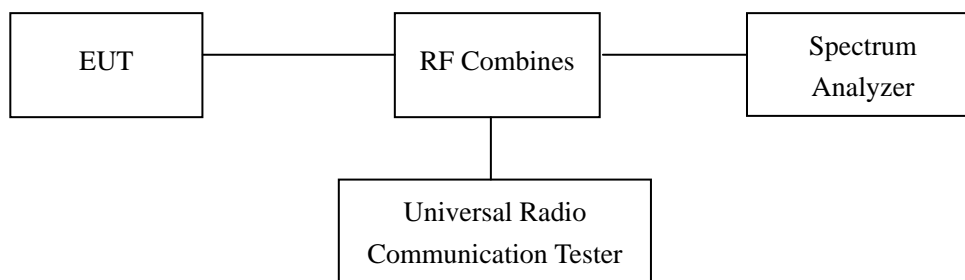
### 5.1 Standard Applicable

According to §24.232(d), Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

### 5.2 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 peak-to-average ratio (PAR) of the transmission was recorded. Record the maximum PAPR level associated with a probability of 0.1%.

Test Configuration for the emission bandwidth testing:



### 5.3 Environmental Conditions

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

## 5.4 Summary of Test Results

Only the worst case was selected to record

For PCS Band

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GSM	512	1850.2	9.37	13
GPRS(1 Slot)	512	1850.2	9.72	13

For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	3.06	13
HSDPA	9400	1880.0	3.00	13
HSUPA	9400	1880.0	2.95	13

## 6. Emission Bandwidth

### 6.1 Standard Applicable

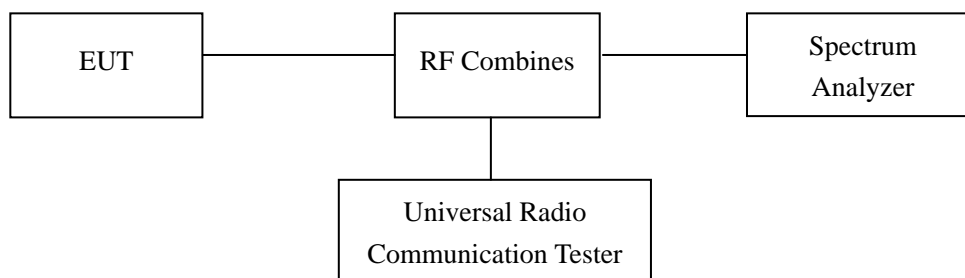
According to §22.917(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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.

### 6.2 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 10kHz for GSM mode and 100kHz for WCDMA mode, VBW shall be at least 3 times the RBW, and the 26dB bandwidth was recorded.

Test Configuration for the emission bandwidth testing:



### 6.3 Environmental Conditions

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

## 6.4 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	256.1305	342.592
	190	836.4	257.4109	336.673
	251	848.8	254.5979	338.481
GPRS	128	824.2	257.6007	341.142
	190	836.4	256.5153	336.989
	251	848.8	257.3812	341.412

For PCS Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM	512	1850.2	256.6405	340.941
	661	1880.0	256.6038	338.914
	810	1909.8	258.2940	340.081
GPRS	512	1850.2	253.3876	338.146
	661	1880.0	254.6688	337.719
	810	1909.8	255.5171	339.662

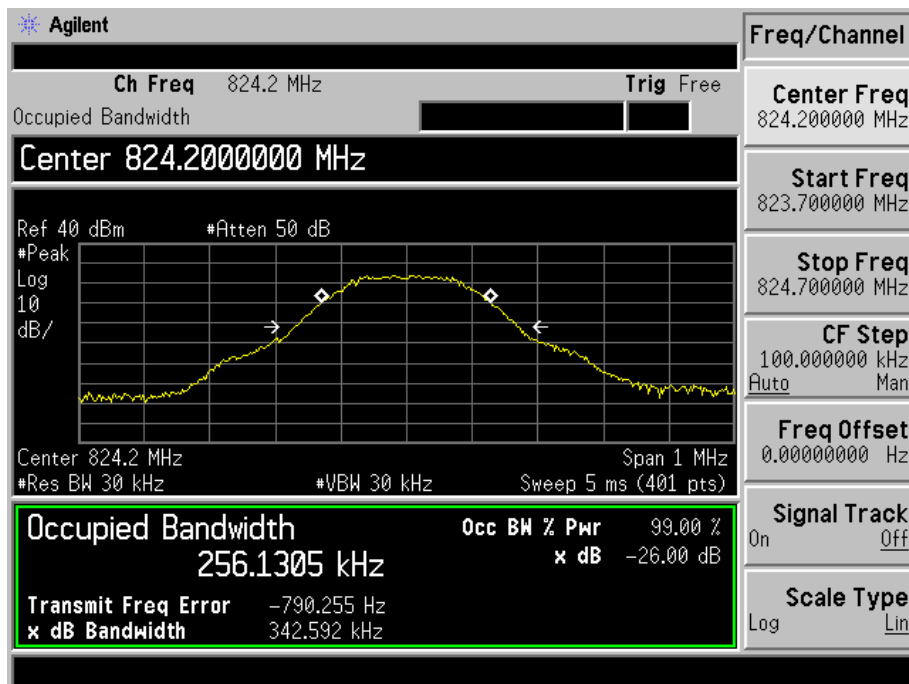
## For Band V

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	4132	826.4	4.2126	4.816
	4182	836.4	4.2107	4.745
	4233	846.6	4.1575	4.696
HSDPA	4132	826.4	4.2626	4.616
	4182	836.4	4.1571	4.694
	4233	846.6	4.1515	4.692
HSUPA	4132	826.4	4.1450	4.642
	4182	836.4	4.1384	4.635
	4233	846.6	4.1550	4.639

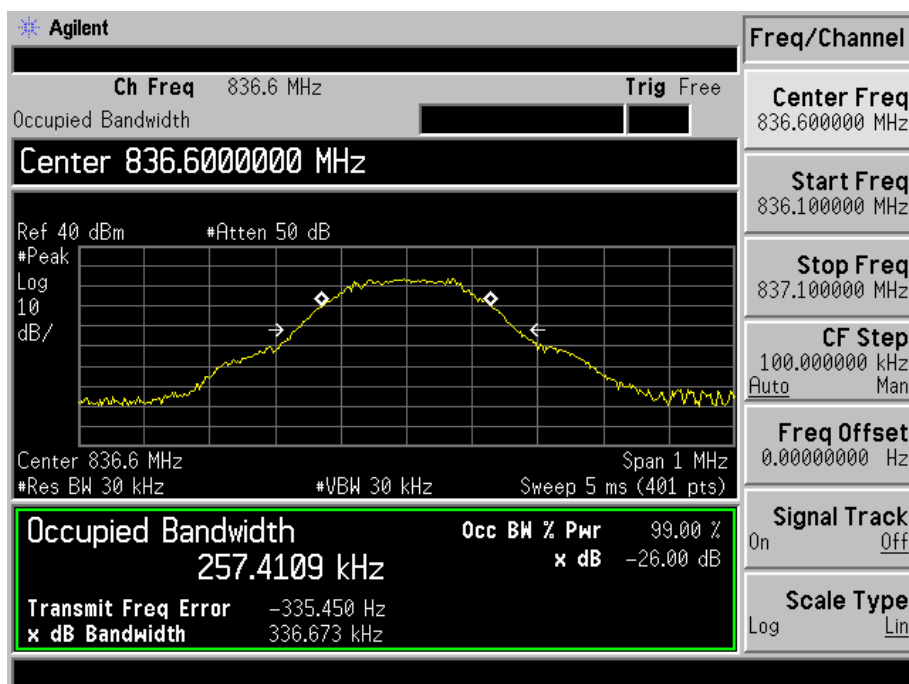
## For Band II

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	9262	1852.4	4.1411	4.660
	9400	1880.0	4.1498	4.655
	9538	1907.6	4.1494	4.654
HSDPA	9262	1852.4	4.1441	4.634
	9400	1880.0	4.1499	4.656
	9538	1907.6	4.1497	4.655
HSUPA	9262	1852.4	4.1414	4.639
	9400	1880.0	4.1481	4.647
	9538	1907.6	4.1334	4.623

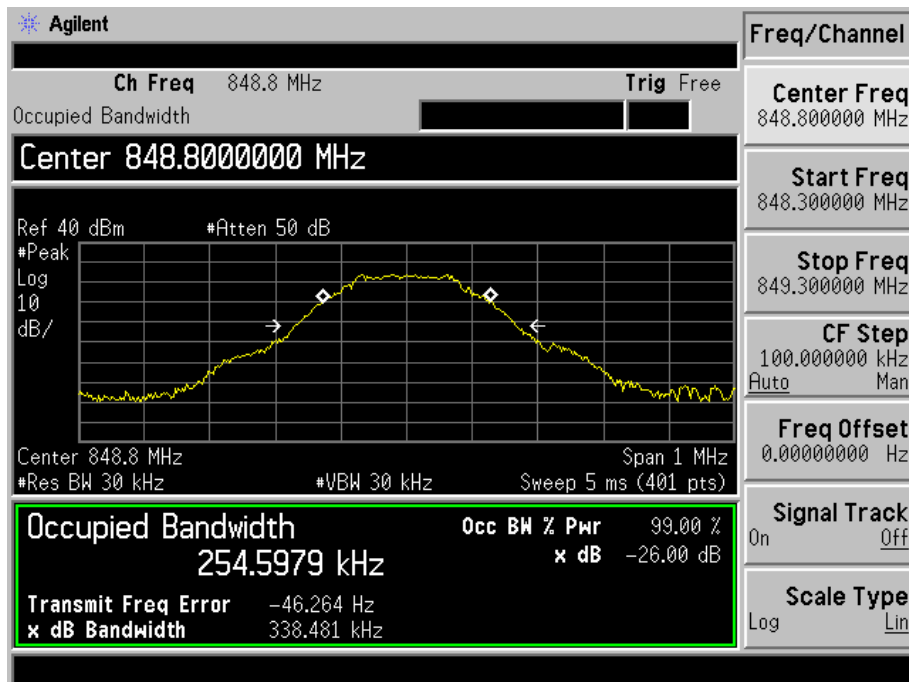
For Cellular Band  
GSM Low Channel



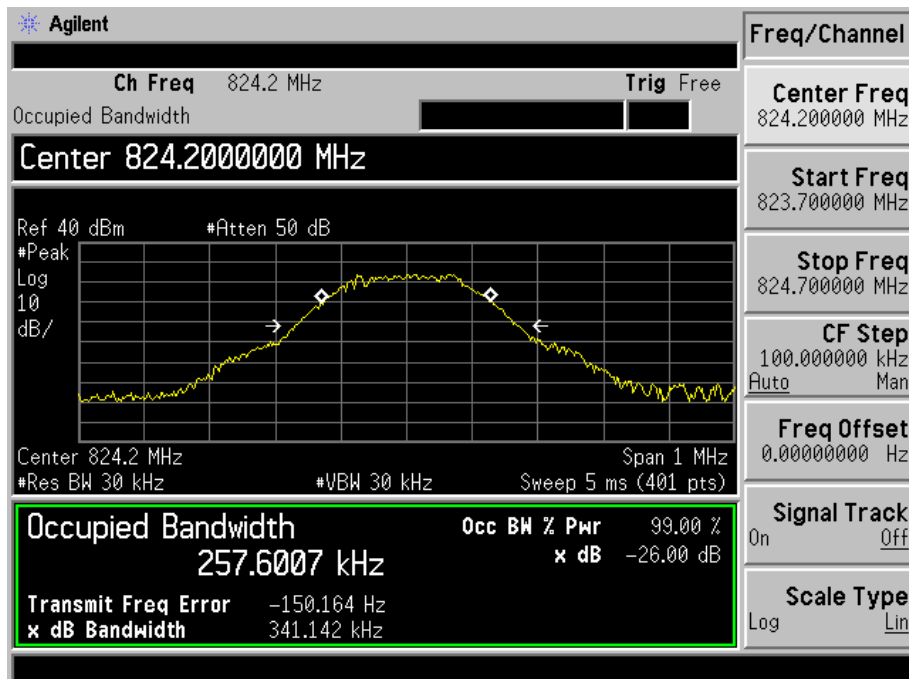
GSM Middle Channel



### GSM High channel

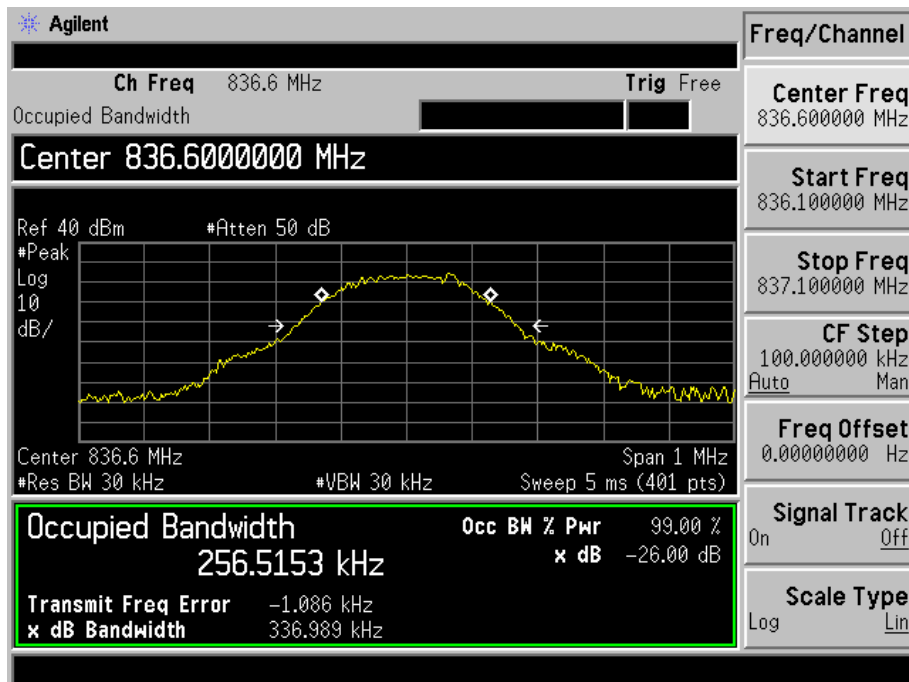


### GPRS Low Channel

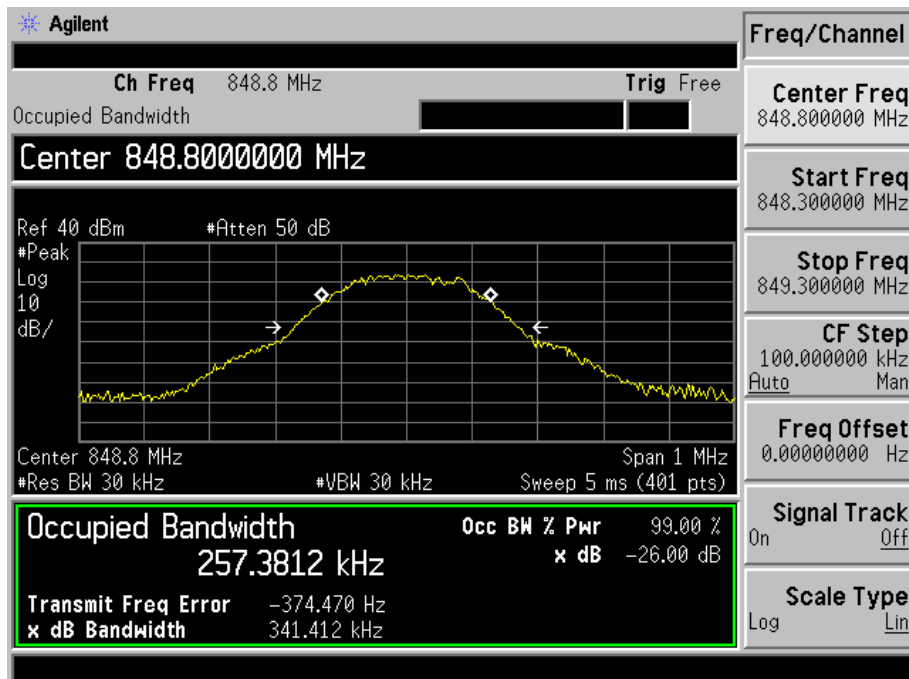




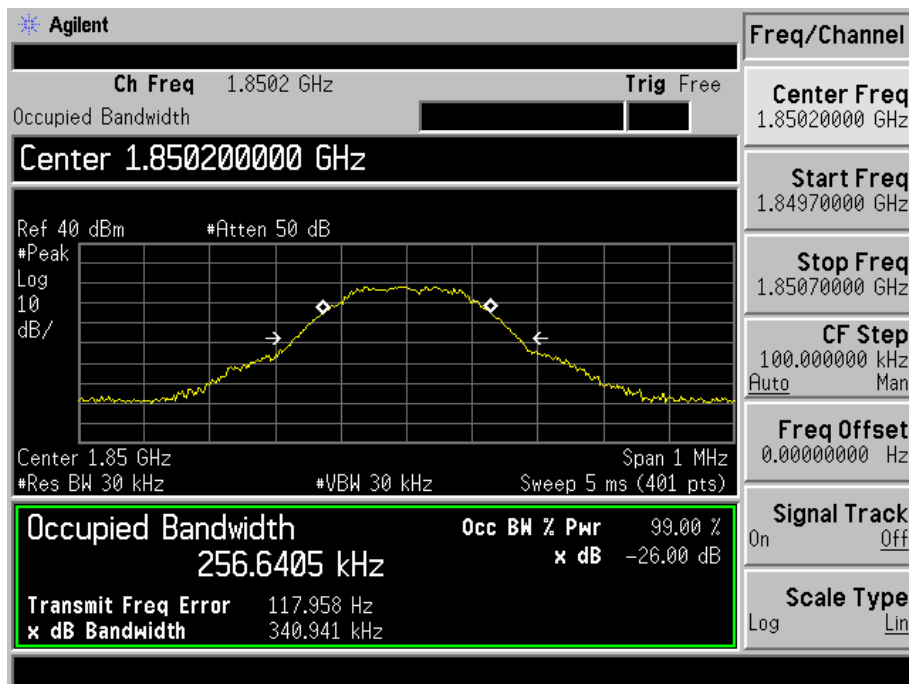
## GPRS Middle Channel



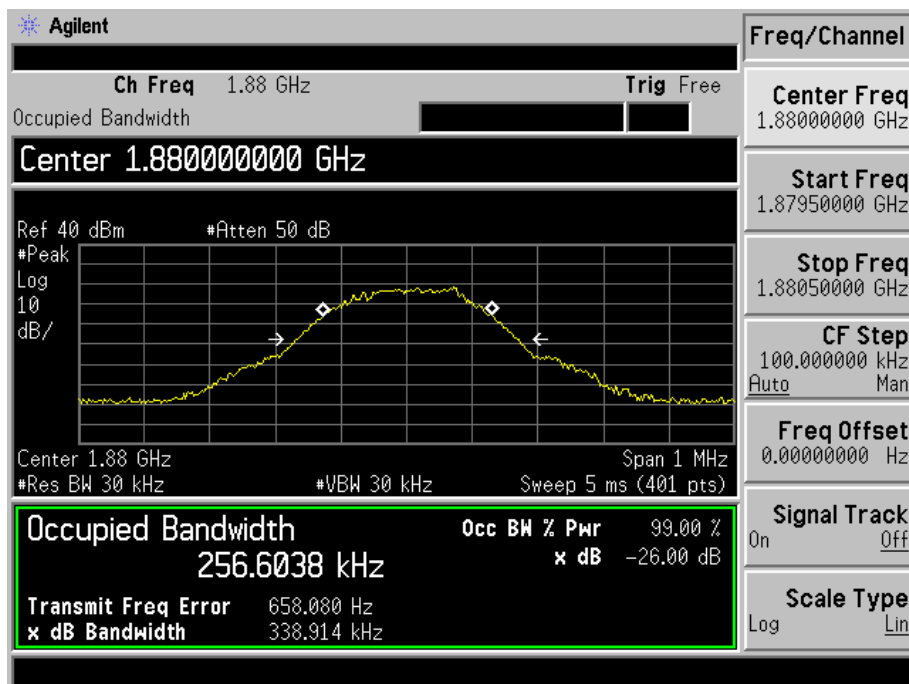
## GPRS High Channel



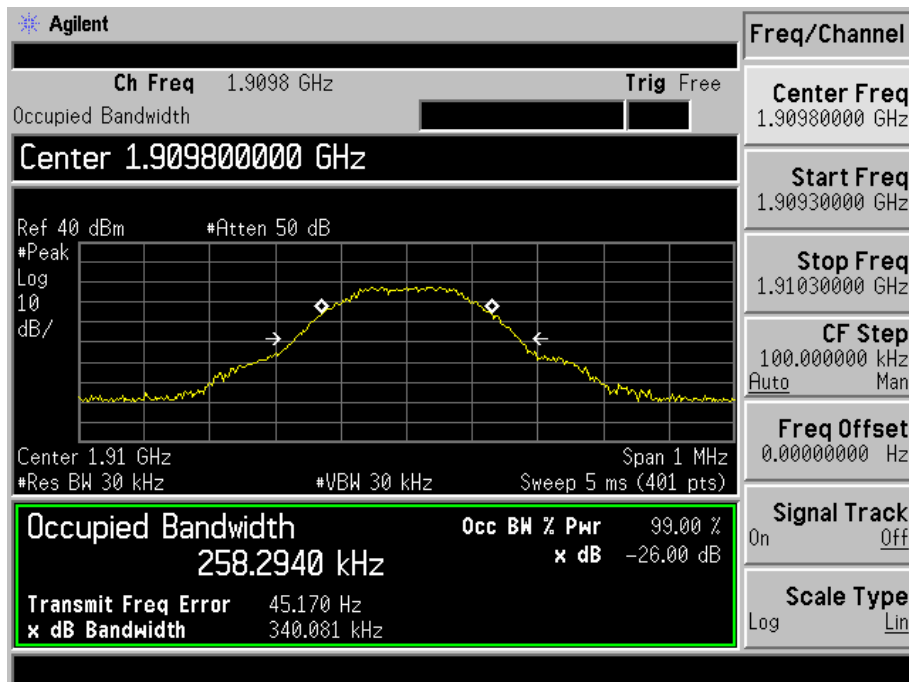
For PCS Band  
GSM Low Channel



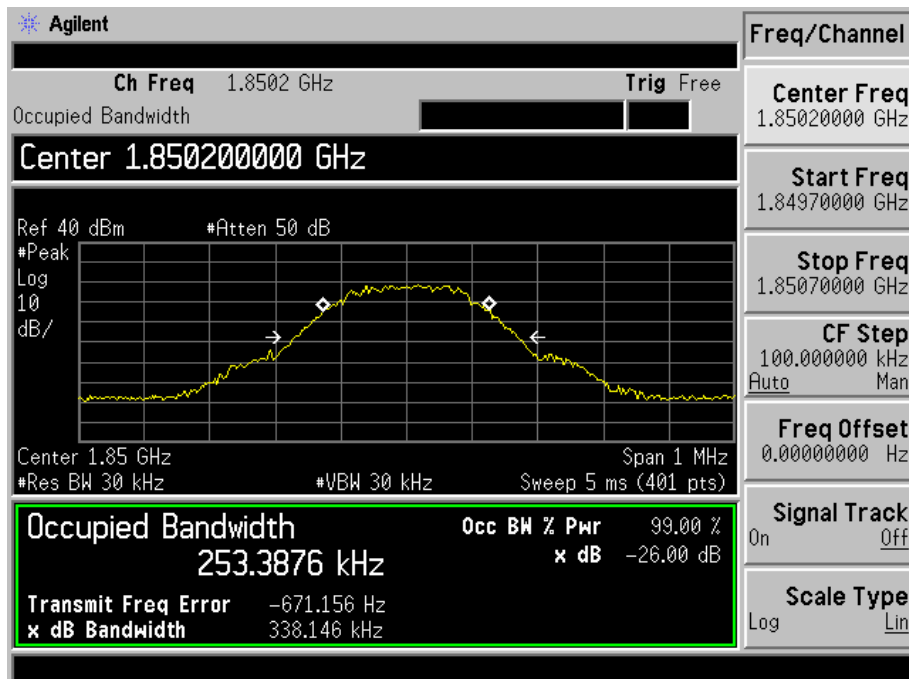
GSM Middle Channel



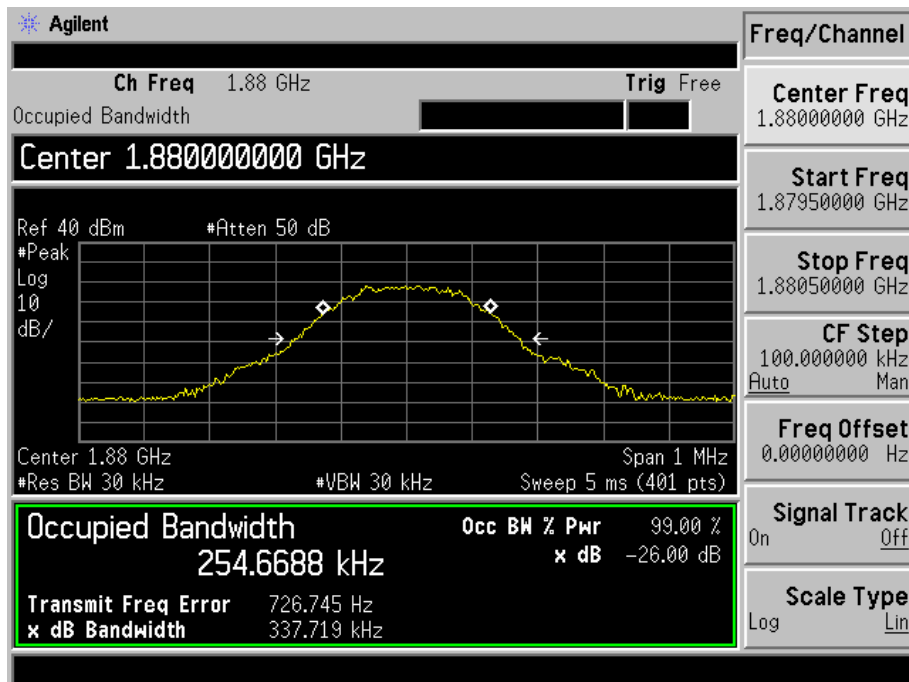
### GSM High channel



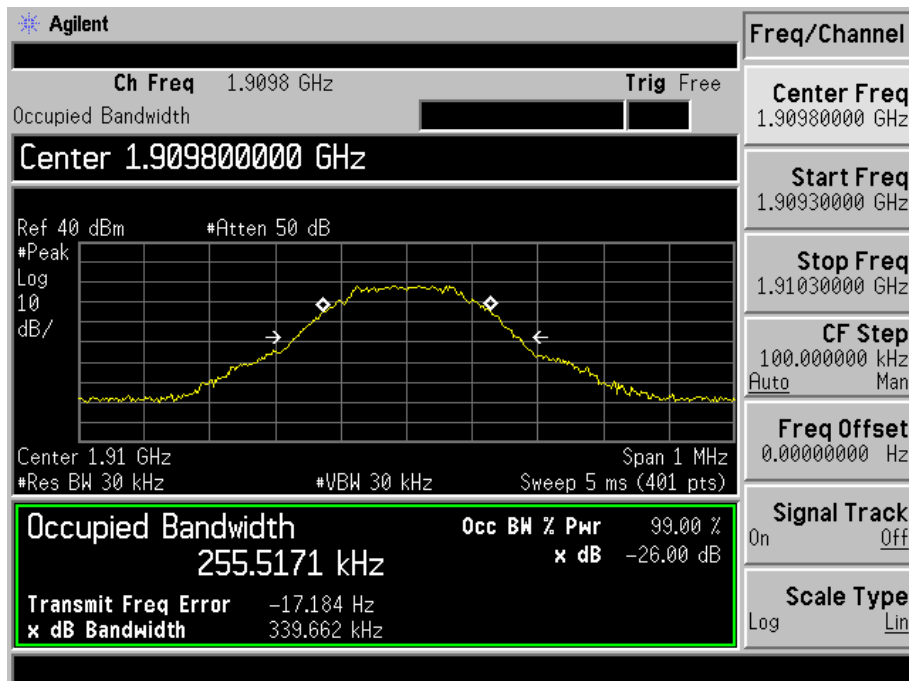
### GPRS Low Channel



## GPRS Middle Channel

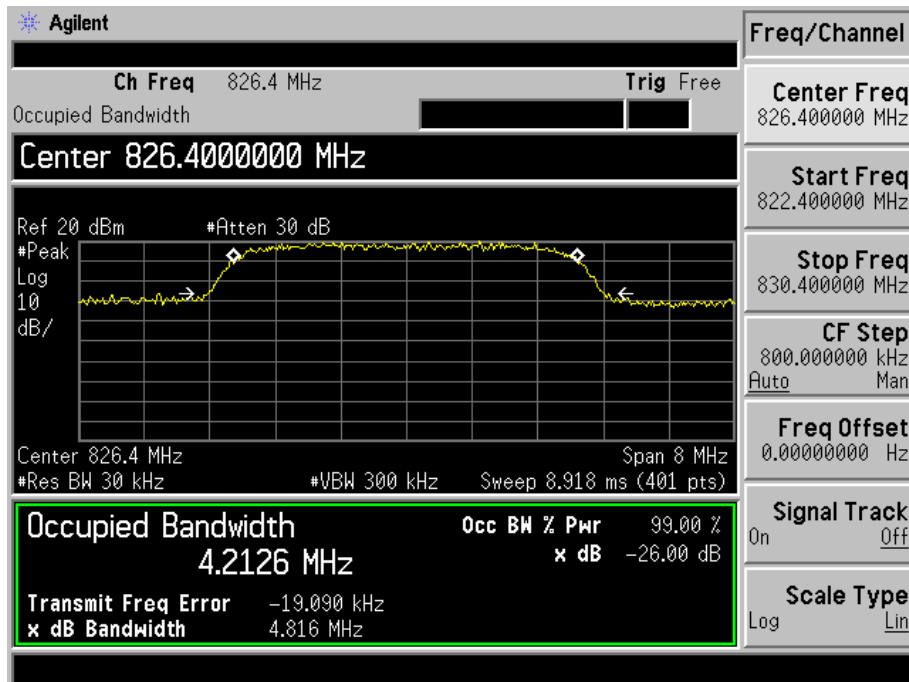


## GPRS High Channel

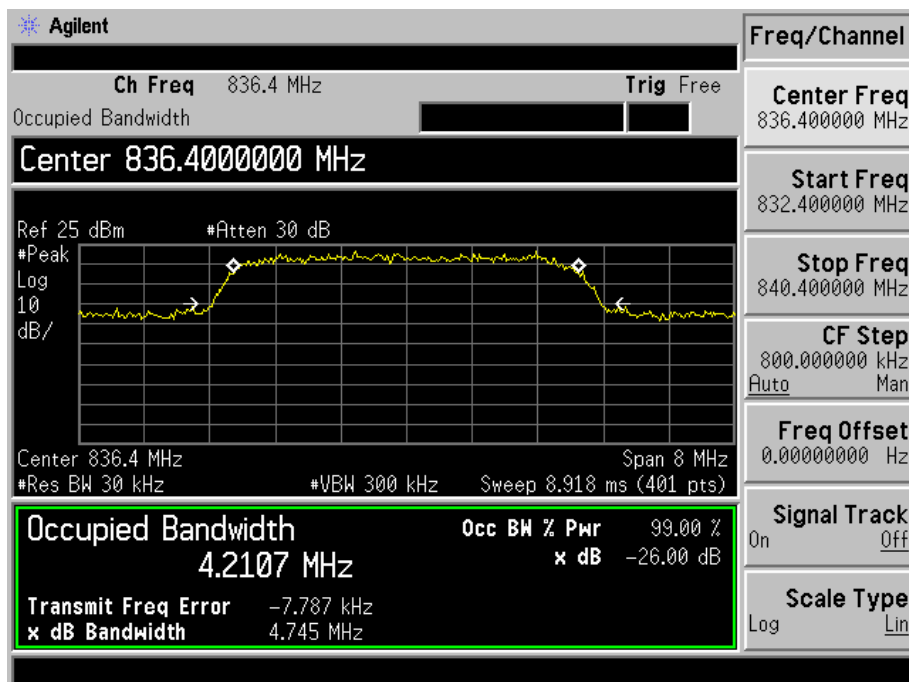


For Band V

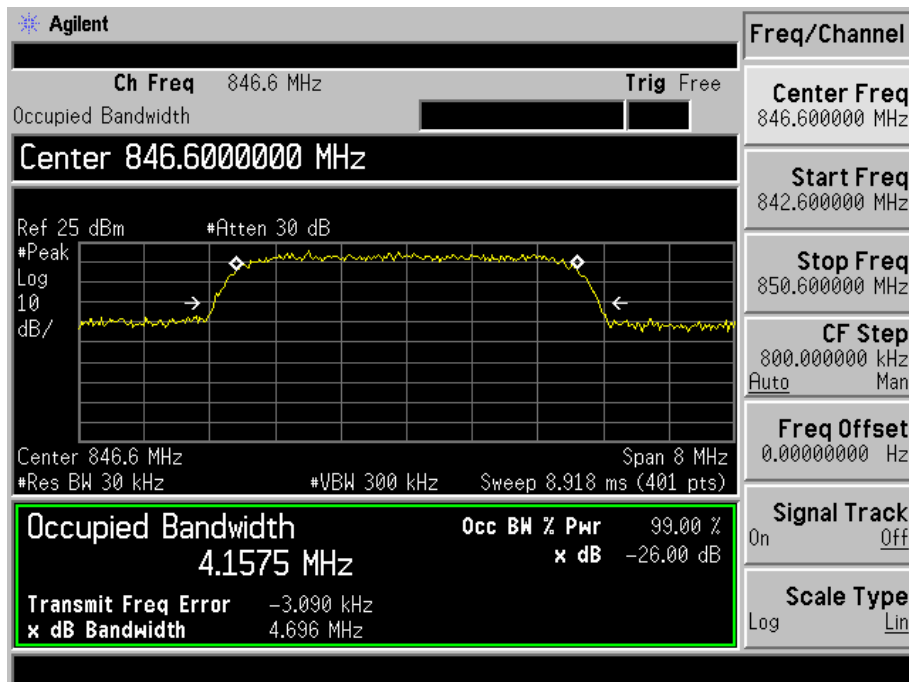
WCDMA Low Channel



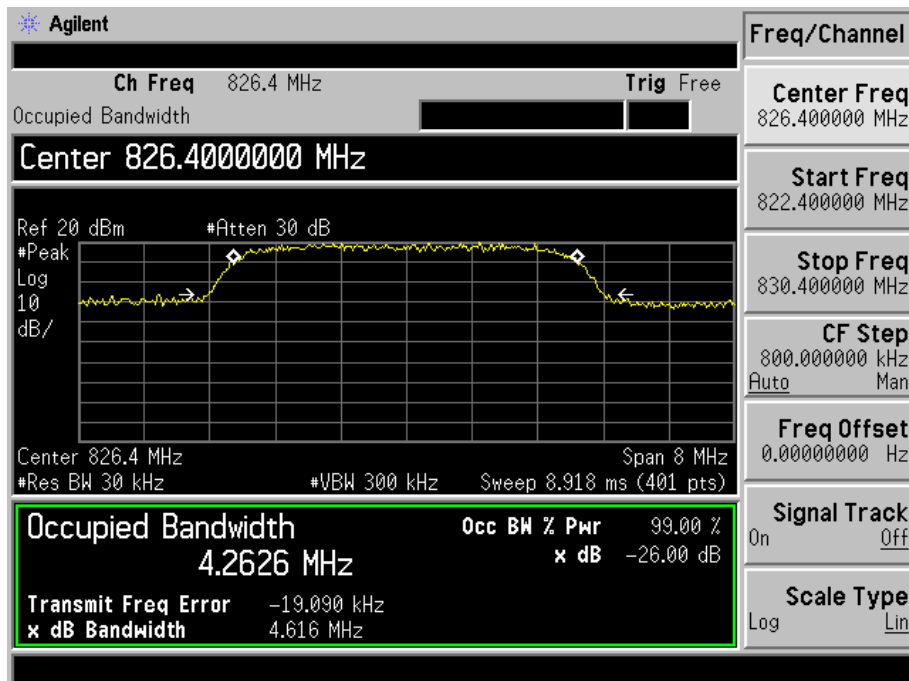
WCDMA Middle Channel



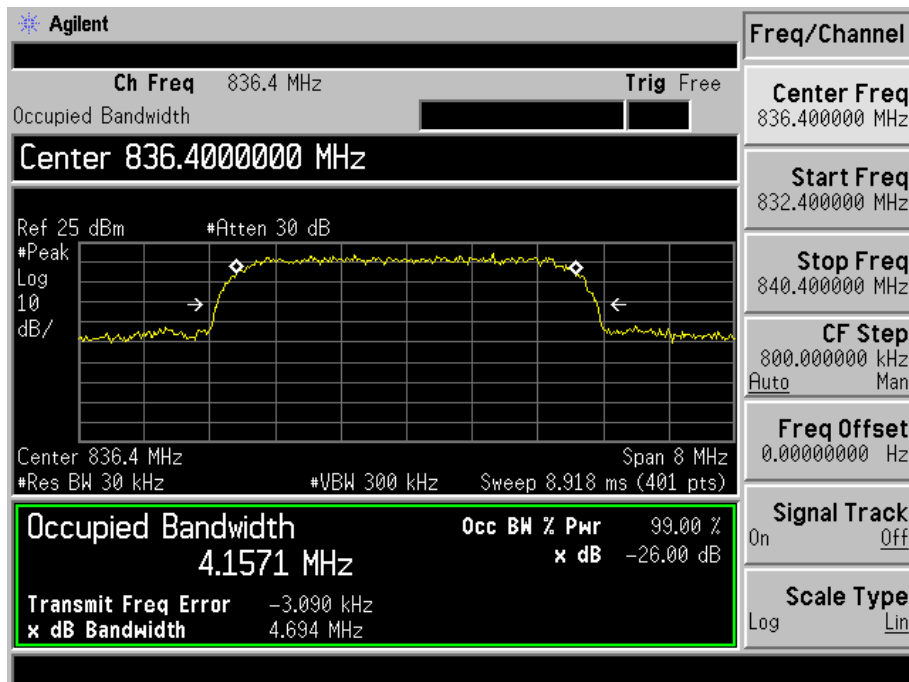
## WCDMA High Channel



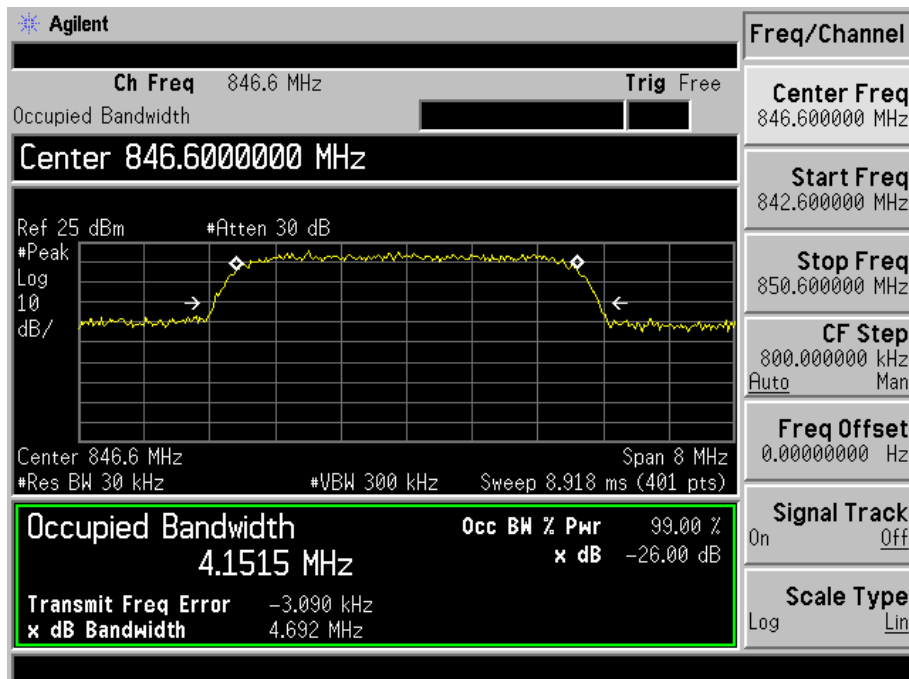
## HSDPA Low Channel



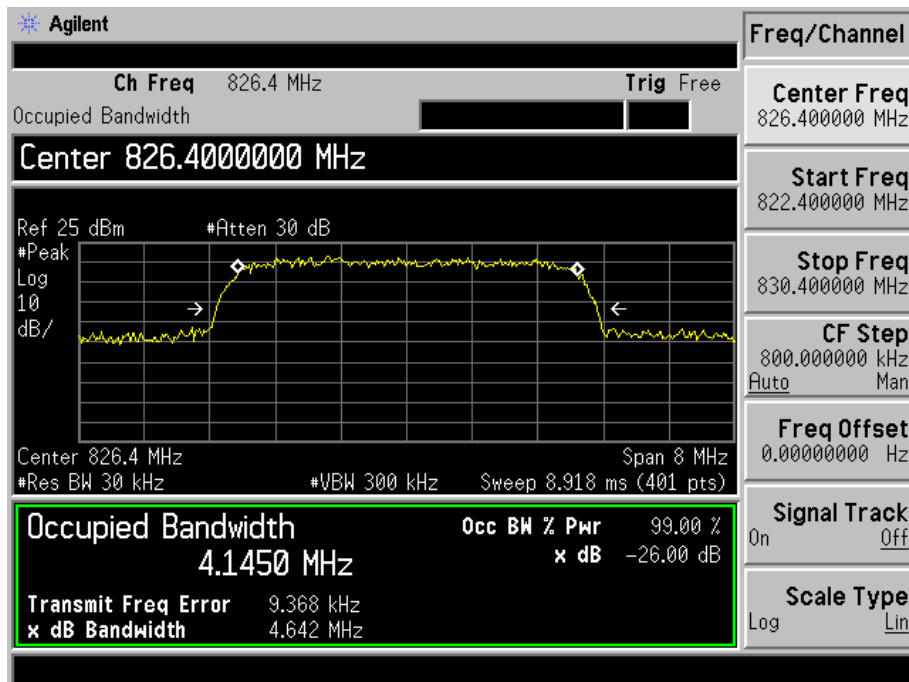
## HSDPA Middle Channel



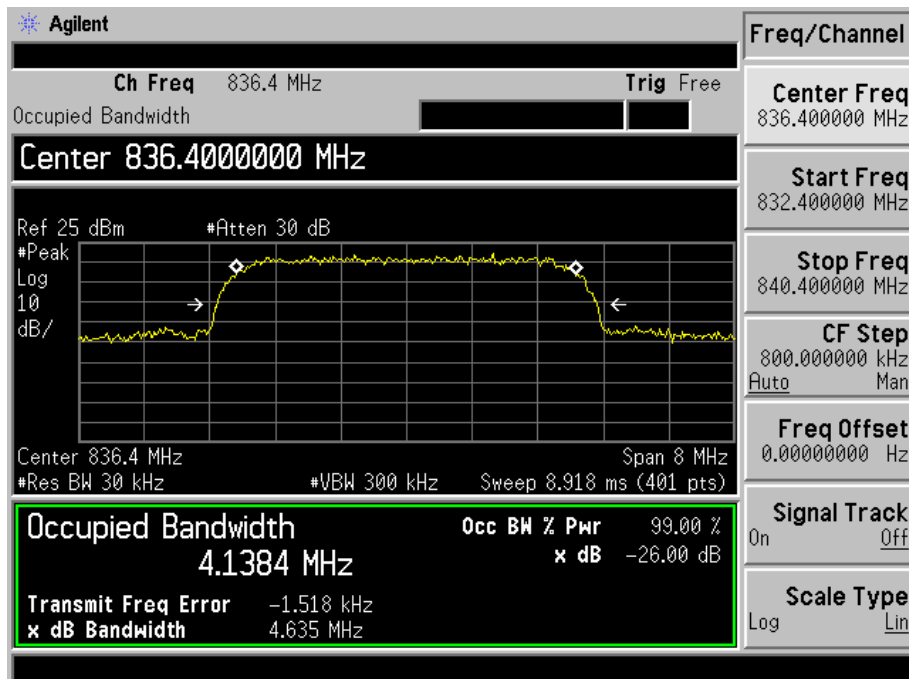
## HSDPA High Channel



### HSUPA Low Channel

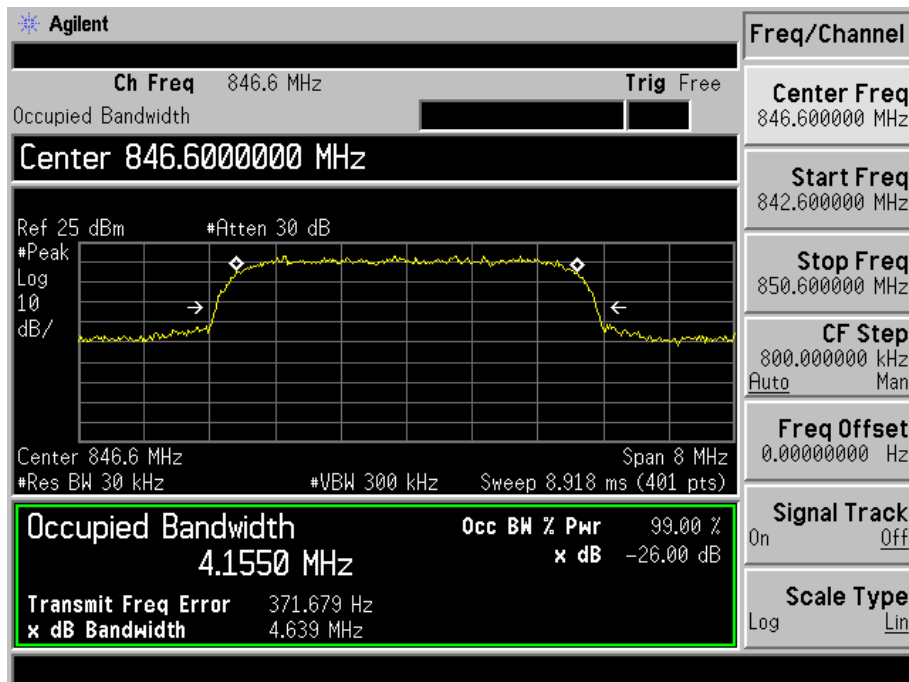


### HSUPA Middle Channel

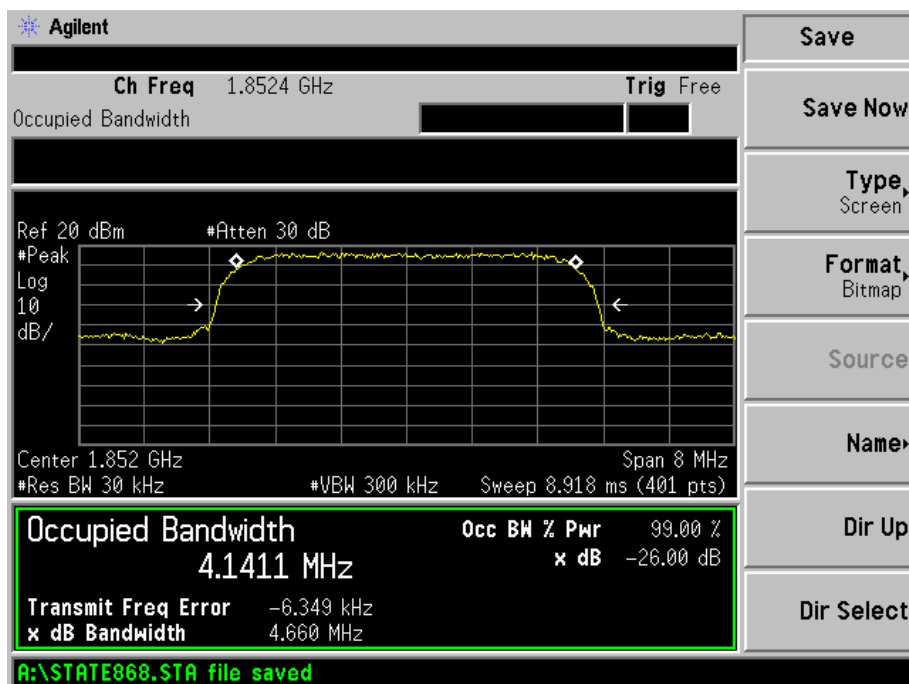




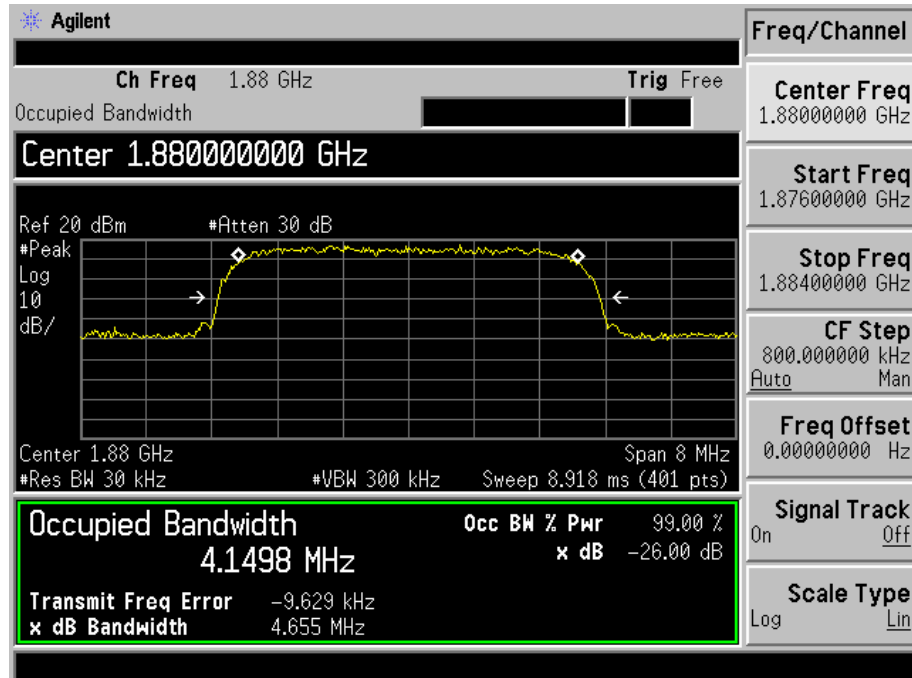
## HSUPA High Channel



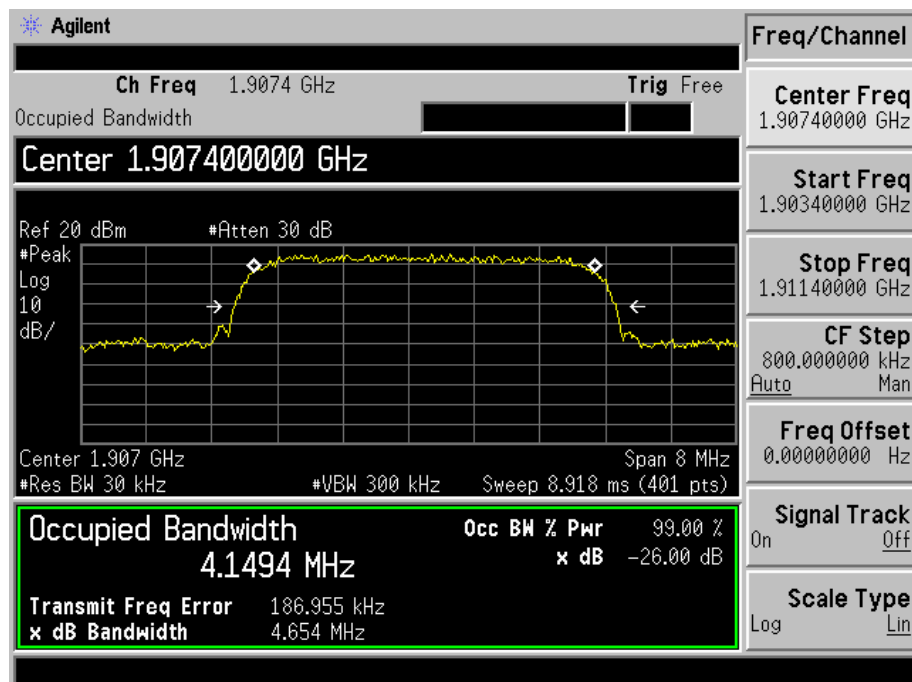
## For Band II WCDMA Low Channel



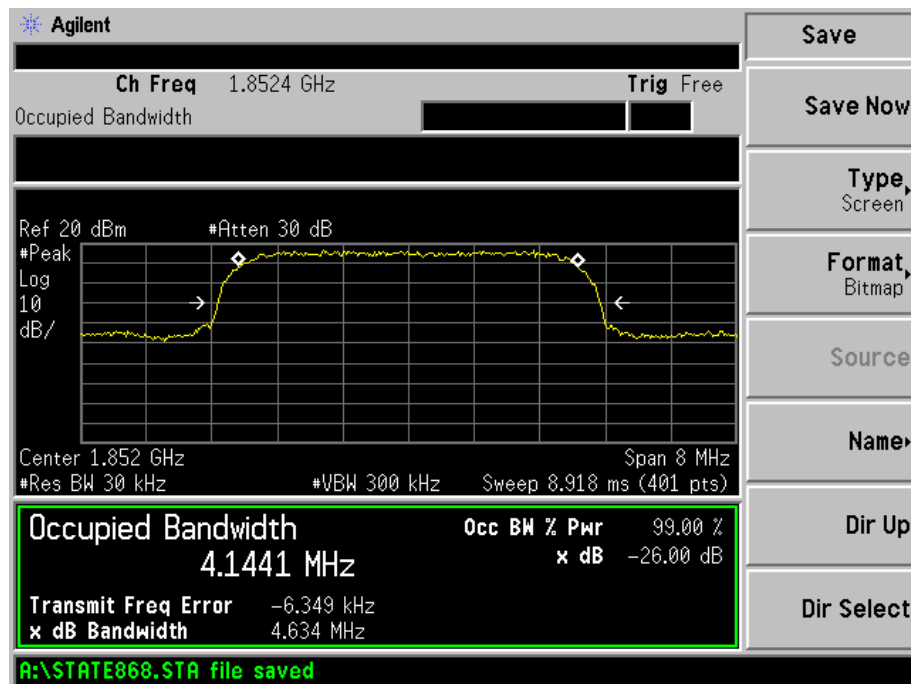
### WCDMA Middle Channel



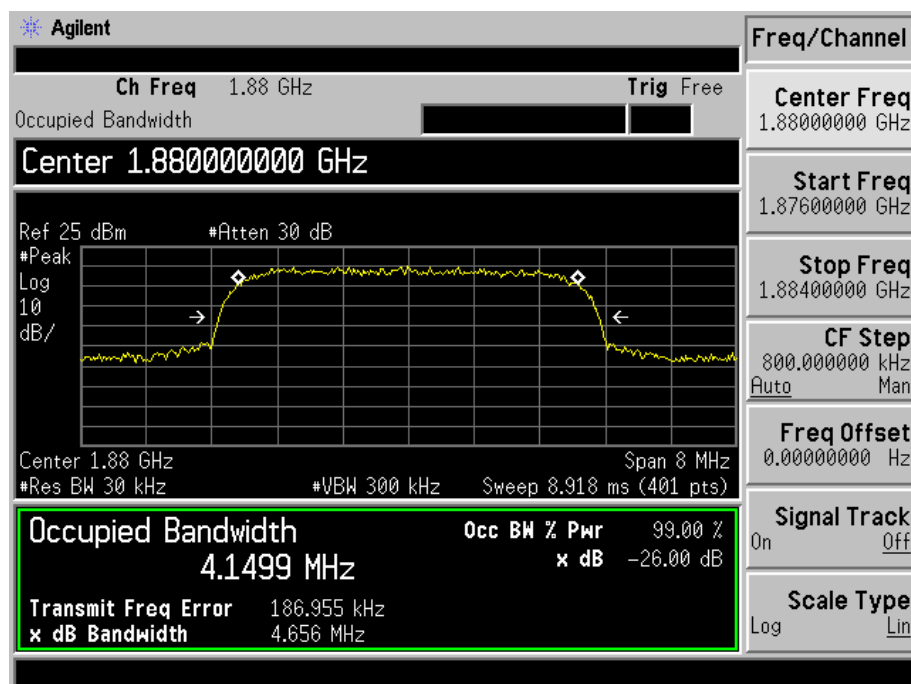
### WCDMA High Channel



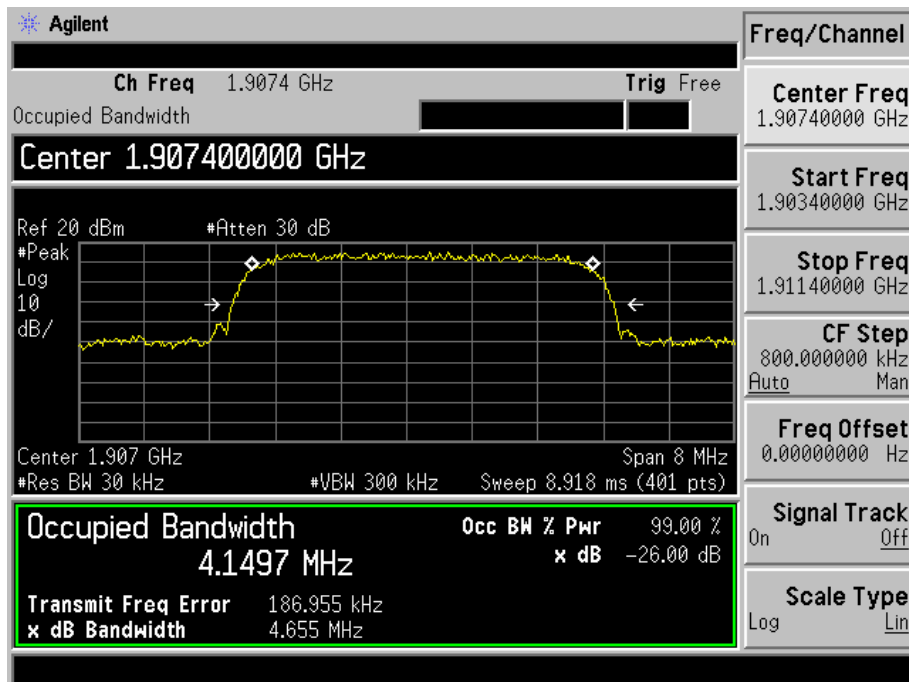
## HSDPA Low Channel



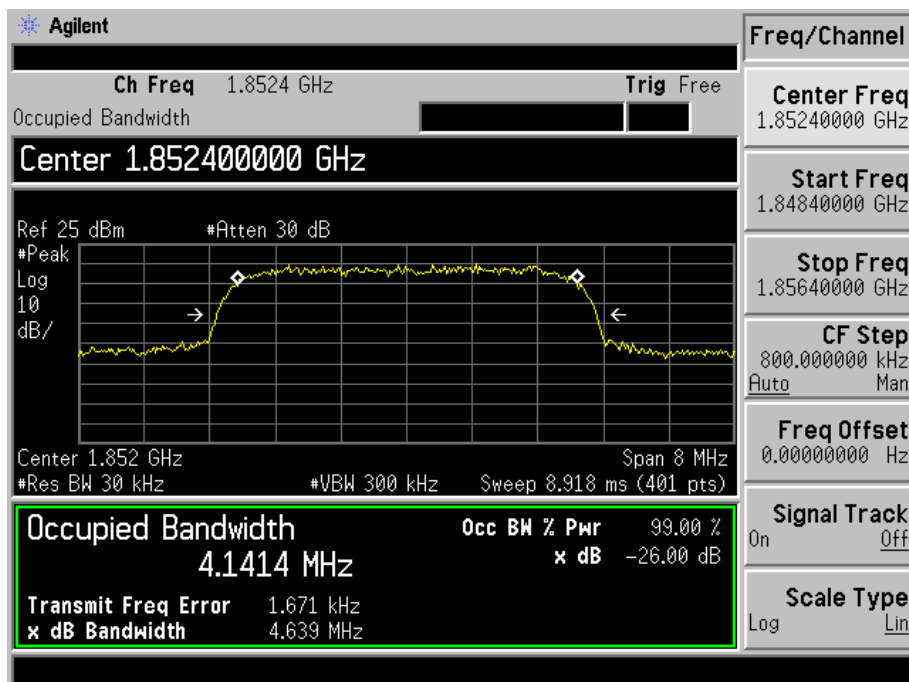
## HSDPA Middle Channel



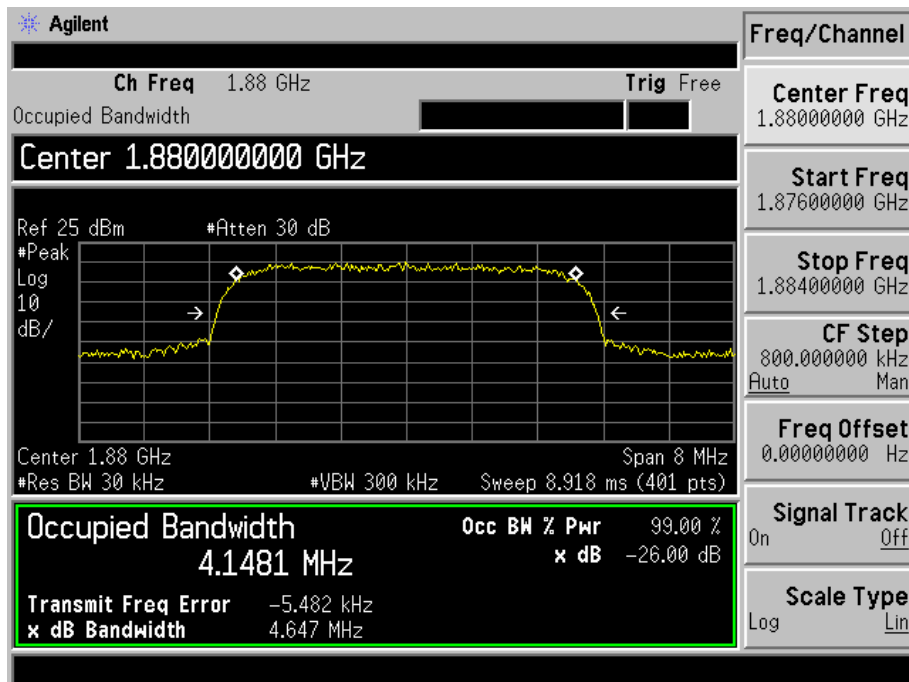
## HSDPA High Channel



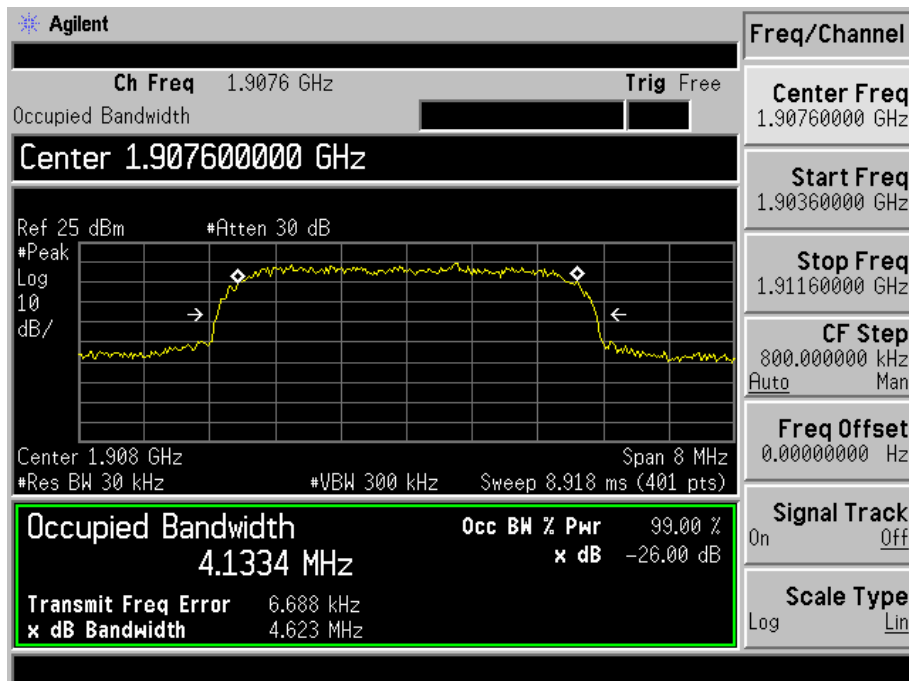
## HSUPA Low Channel



### HSUPA Middle Channel



### HSUPA High Channel



## 7. Out of Band Emissions at Antenna Terminal

### 7.1 Standard Applicable

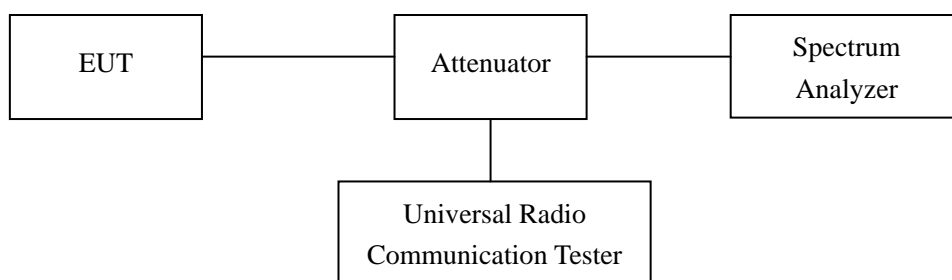
According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

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.

### 7.2 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<sup>th</sup> harmonic.

Test Configuration for the out of band emissions testing:



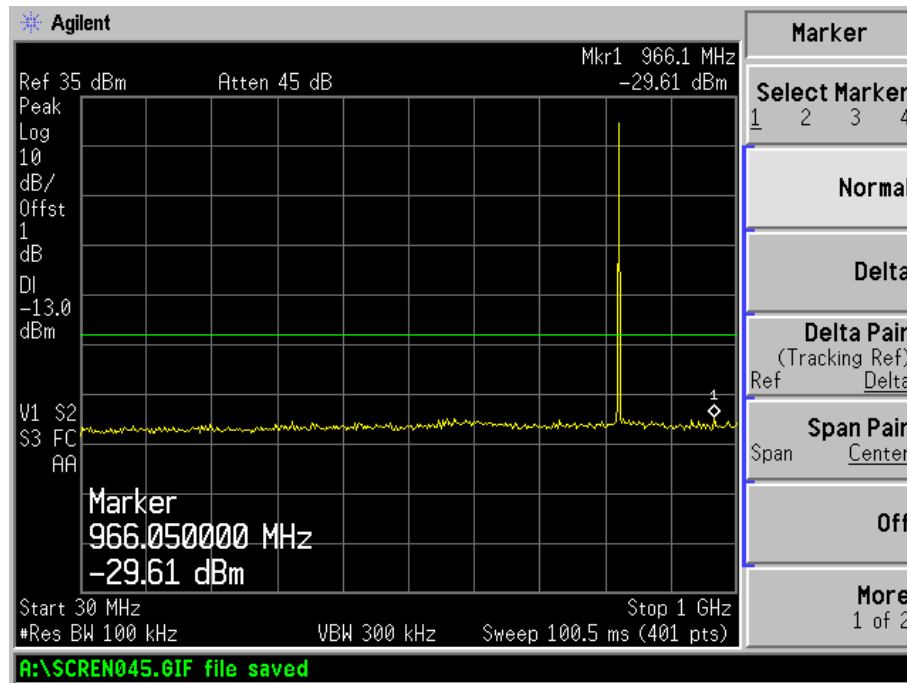
### 7.3 Environmental Conditions

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

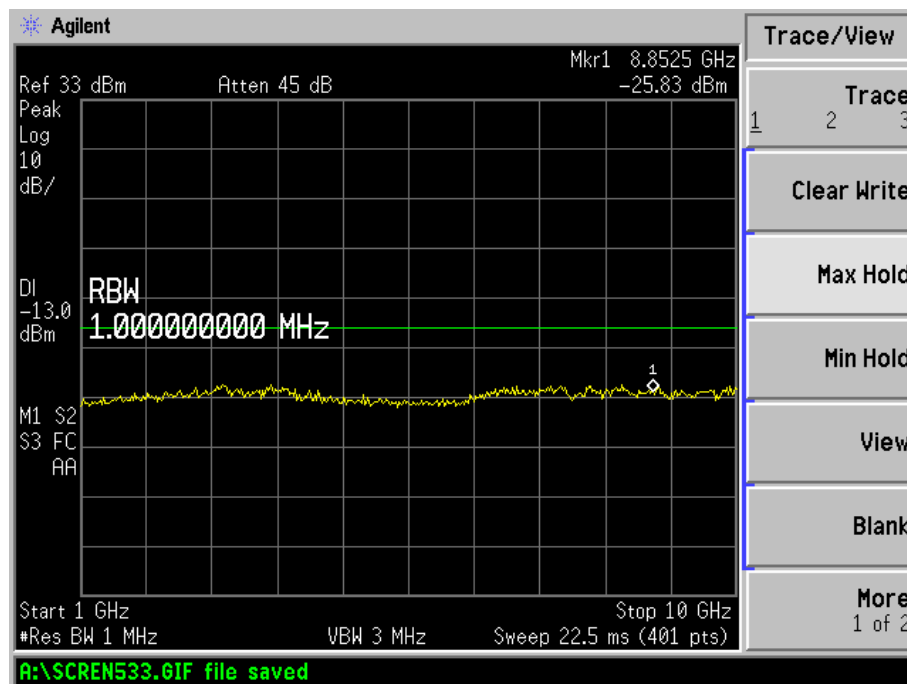
## 7.4 Summary of Test Results/Plots

Please refer to the following test plots For Cellular Band

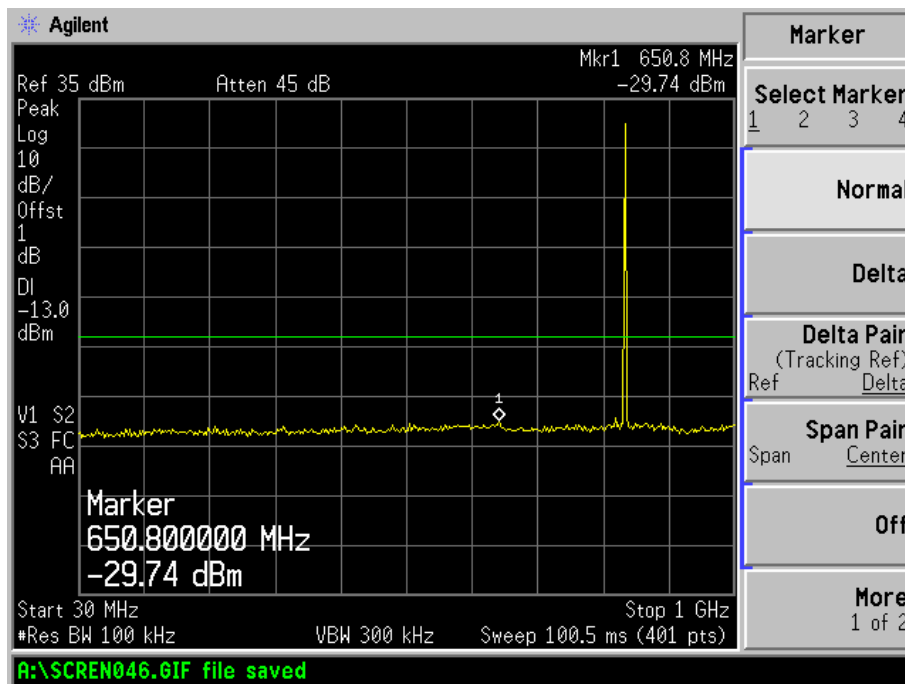
GSM Low Channel 30MHz to 1GHz



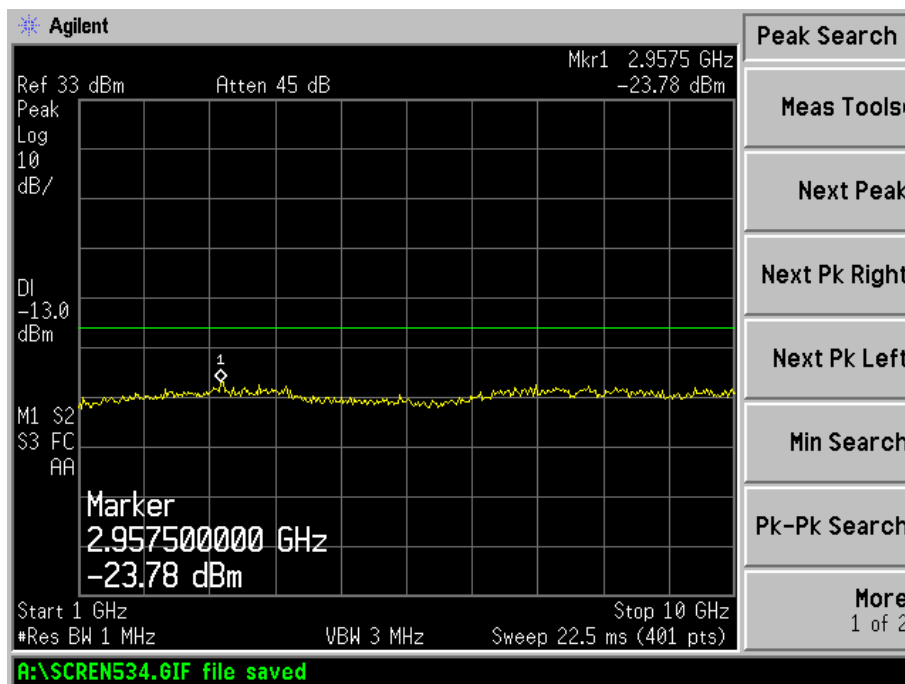
Above 1GHz



GSM Middle Channel  
30MHz to 1GHz

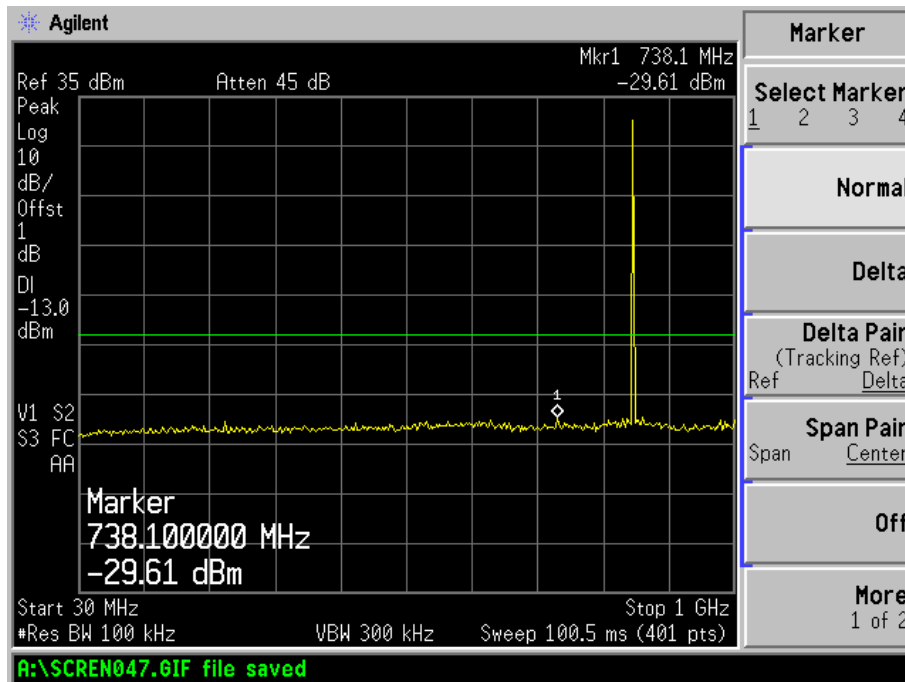


Above 1GHz

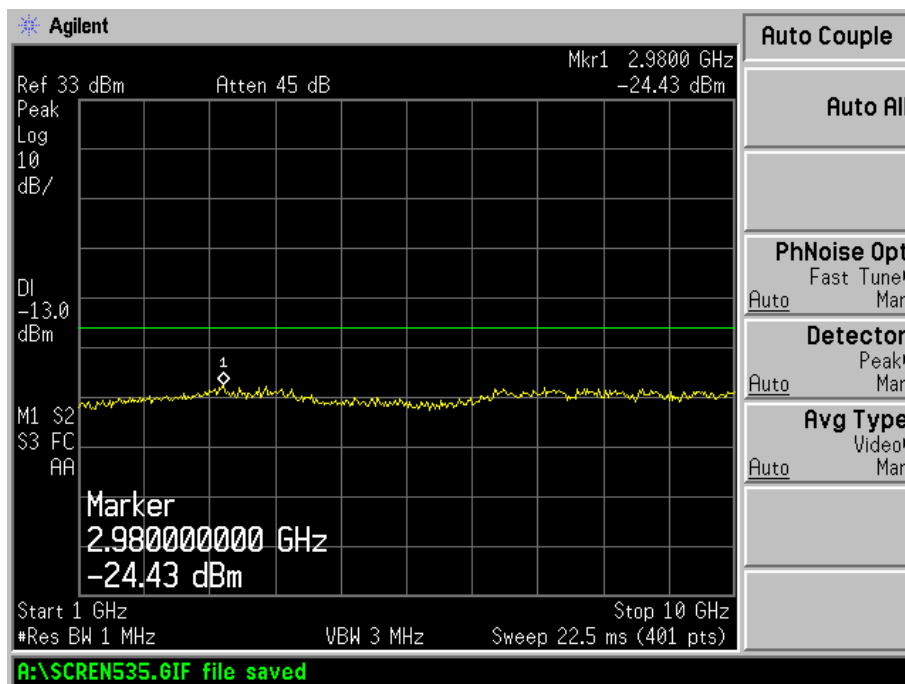




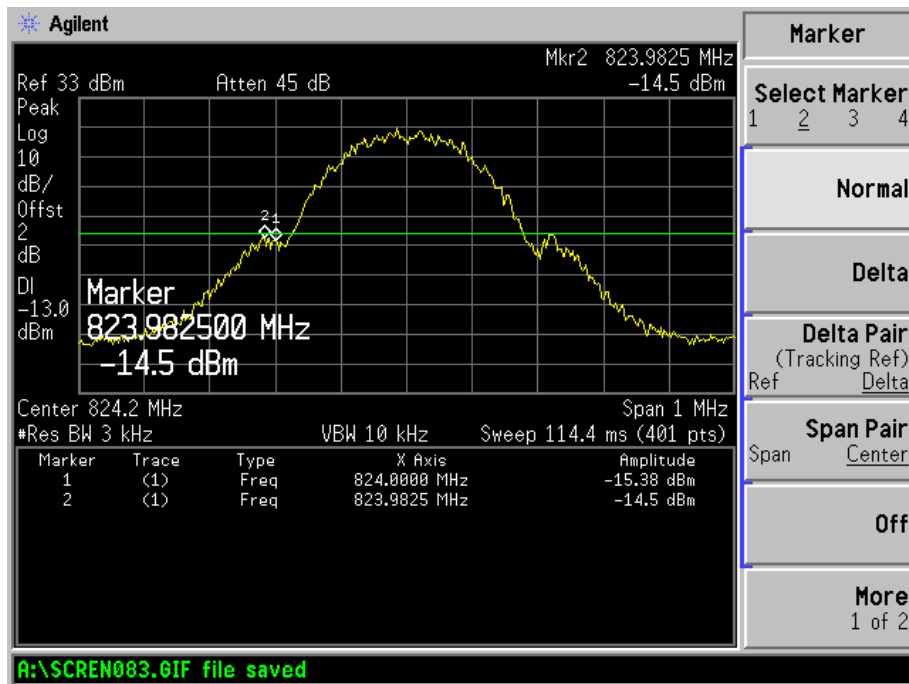
GSM High Channel  
30MHz to 1GHz



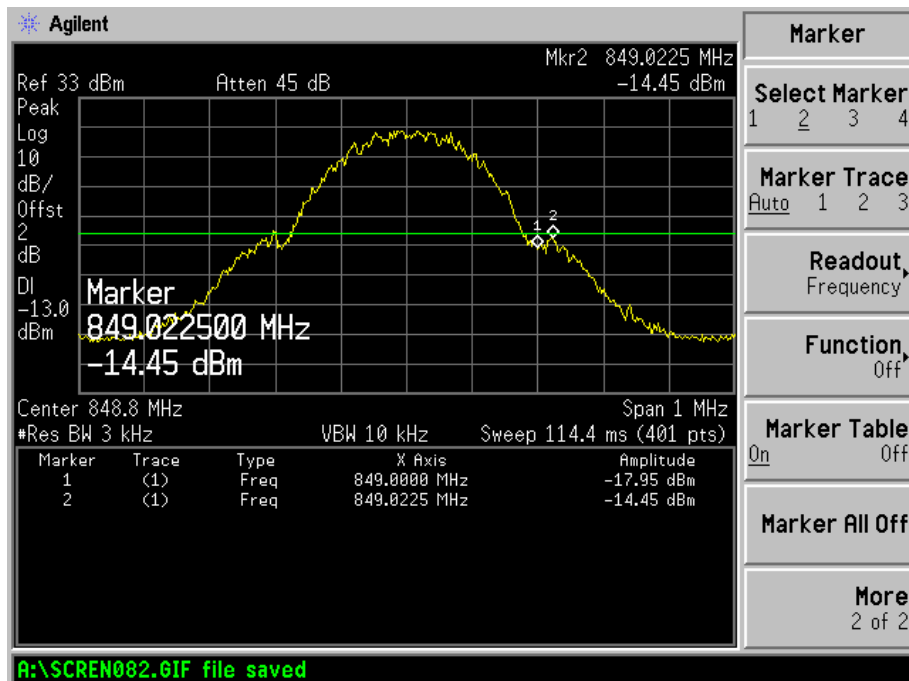
Above 1GHz



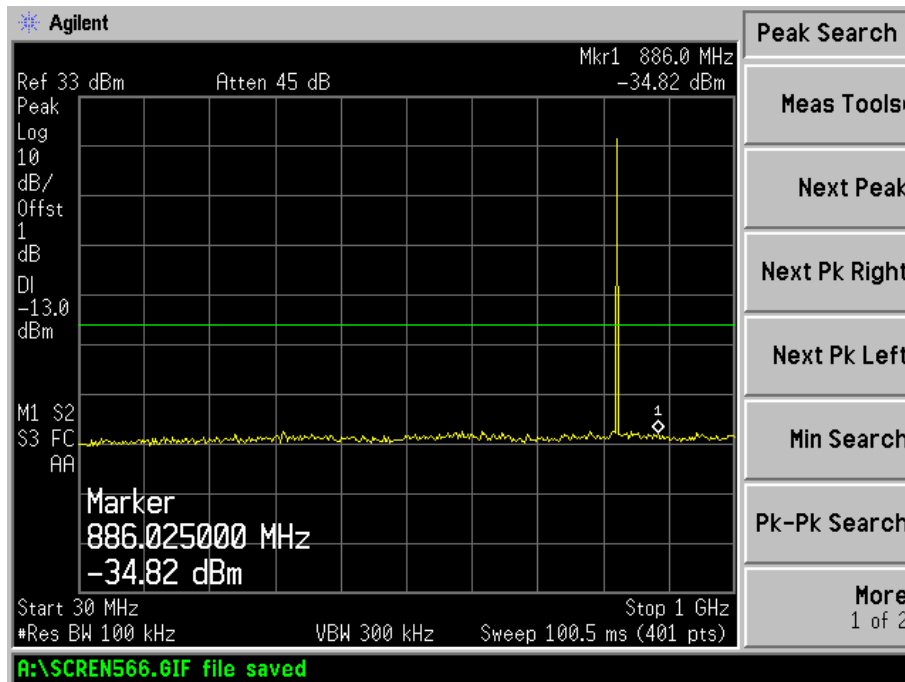
### GSM Low Band Emission



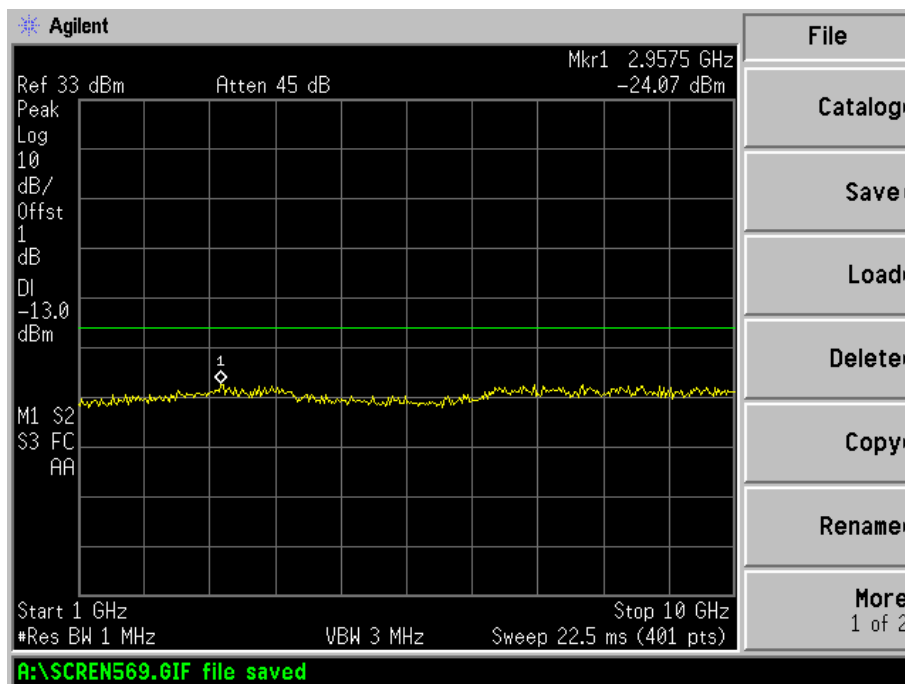
### GSM High Band Emission



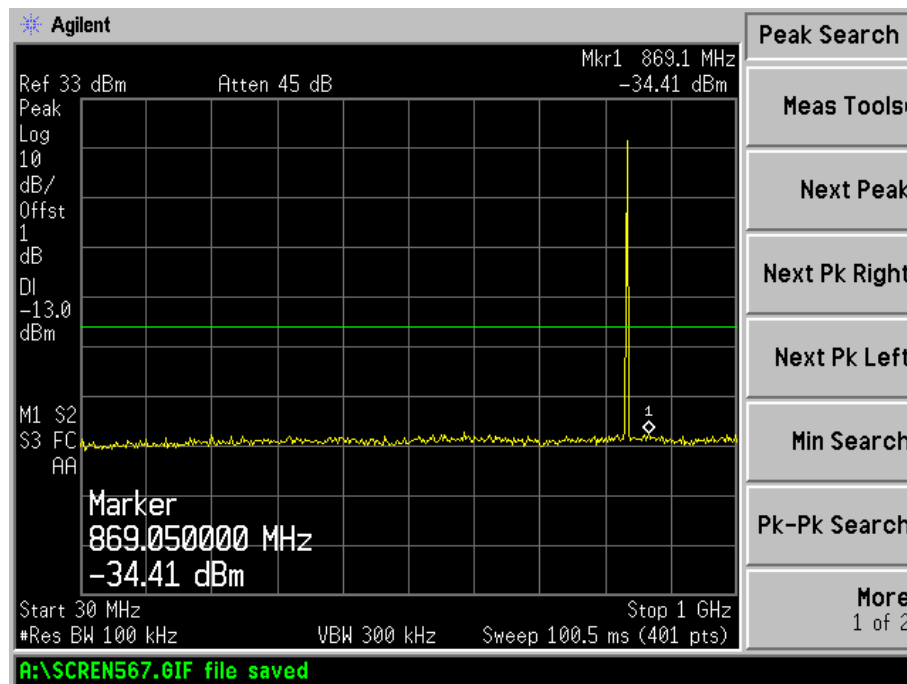
GPRS Low Channel  
30MHz to 1GHz



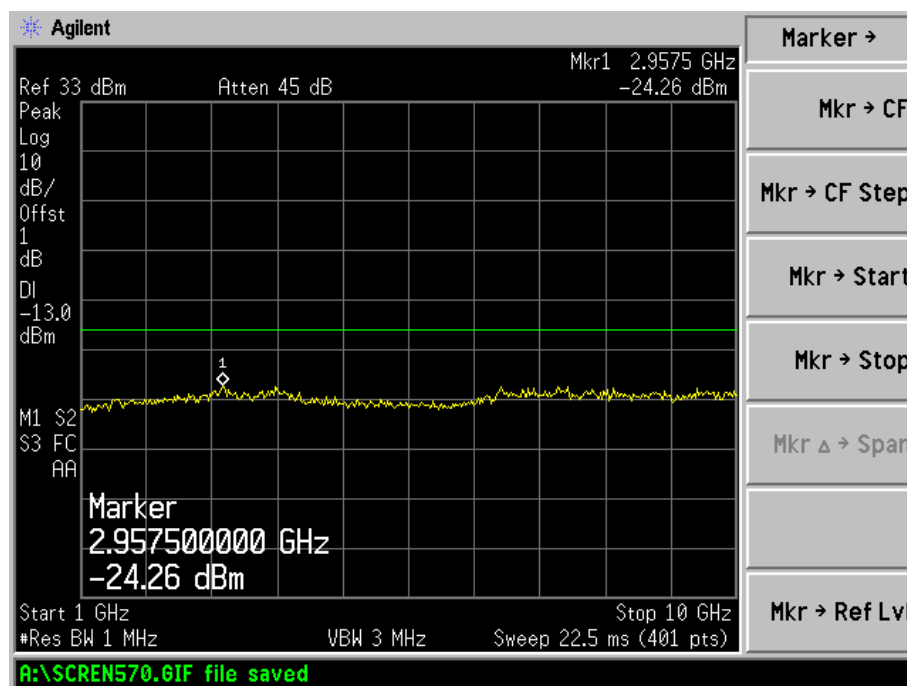
Above 1GHz



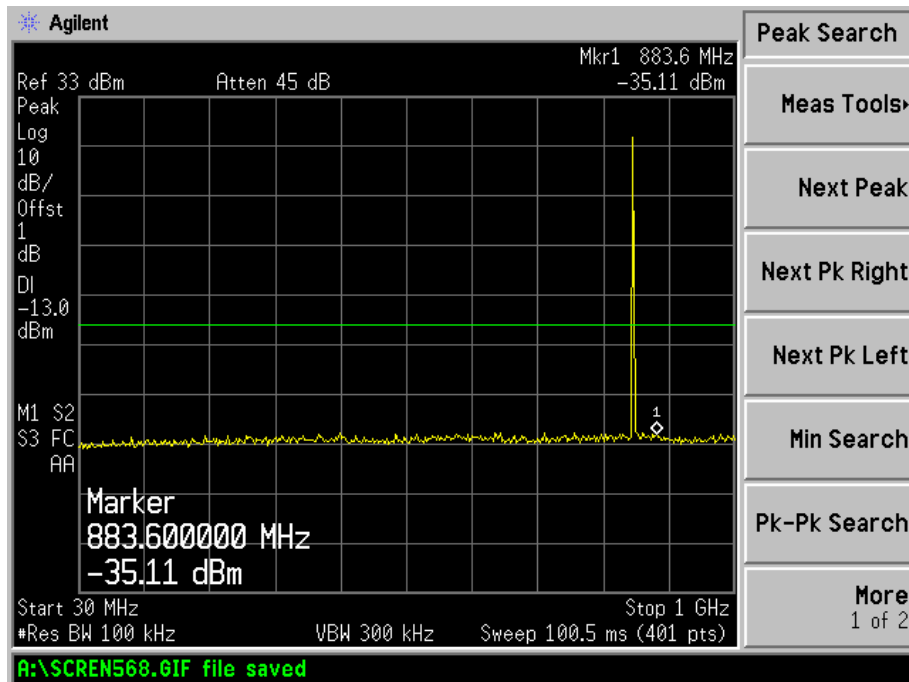
# GPRS Middle Channel 30MHz to 1GHz



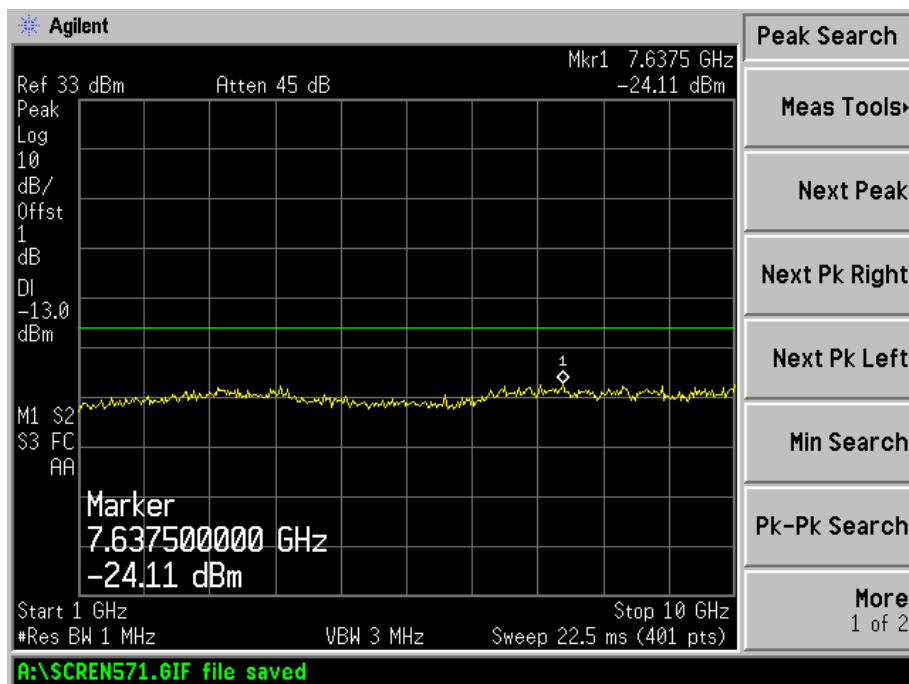
## Above 1GHz



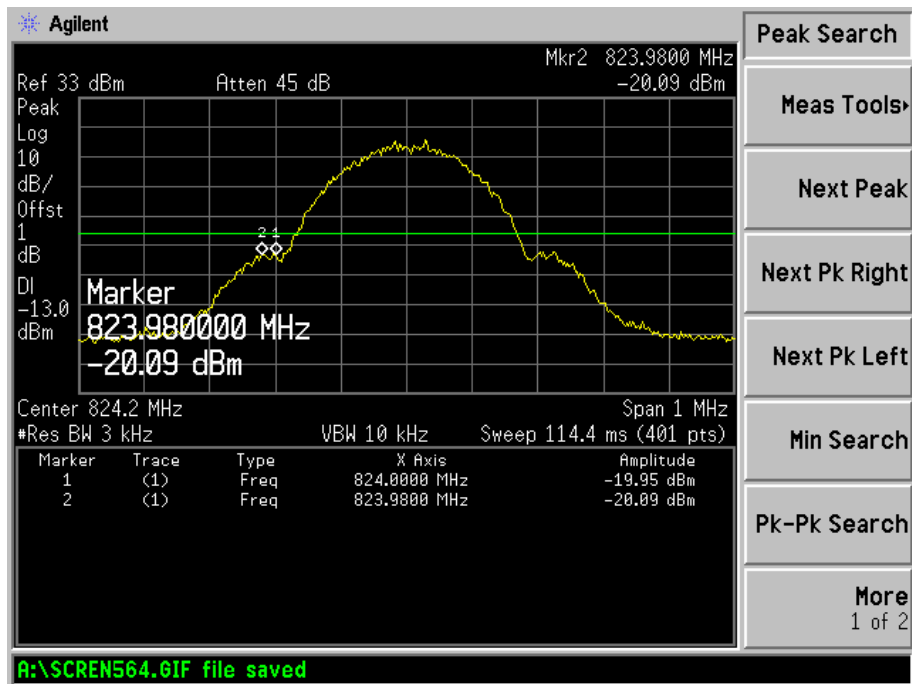
GPRS High Channel  
30MHz to 1GHz



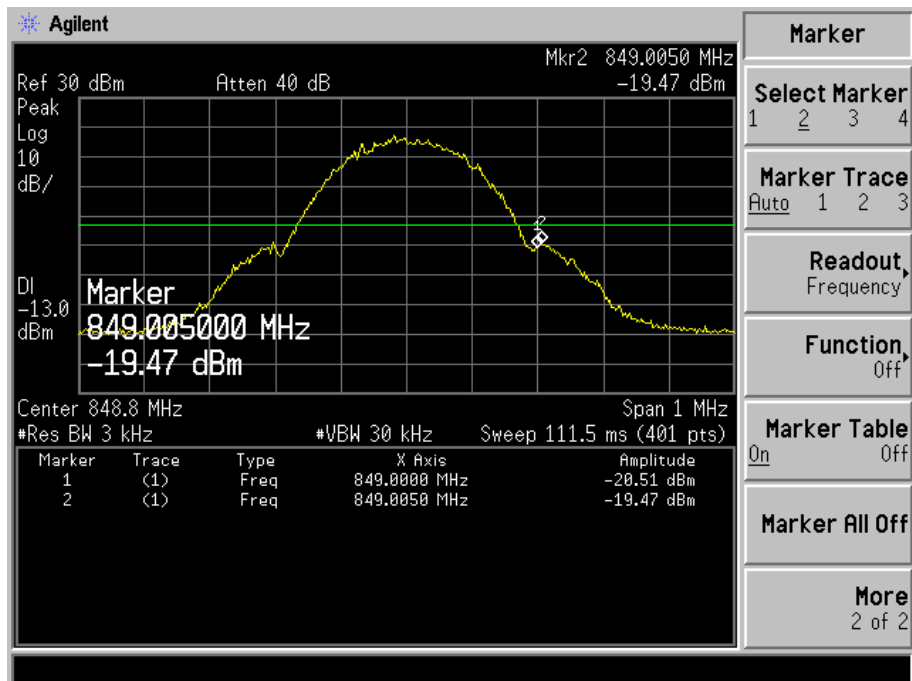
Above 1GHz



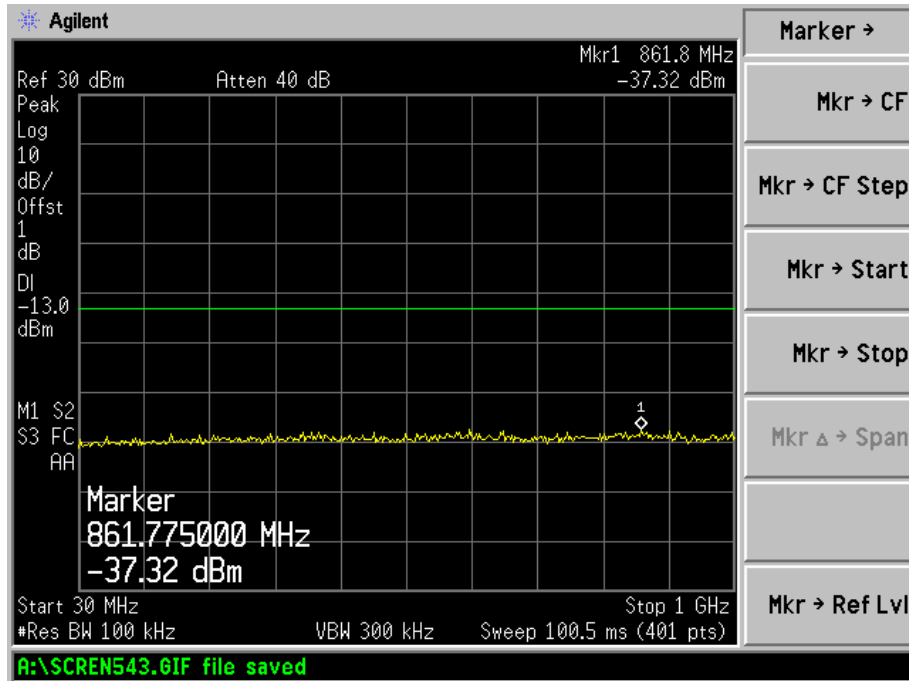
### GPRS Low Band Emission



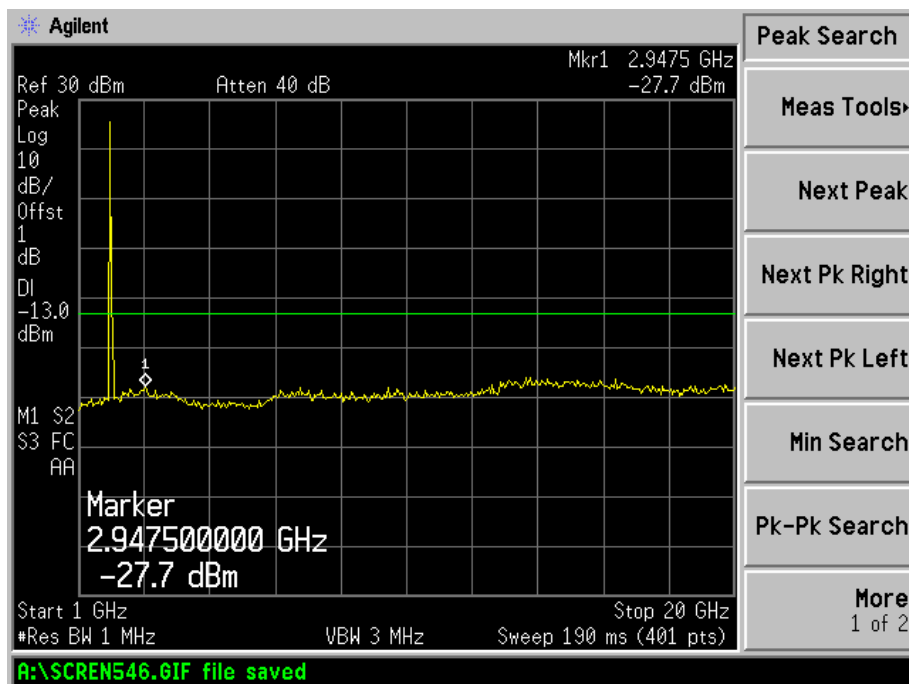
### GPRS High Band Emission



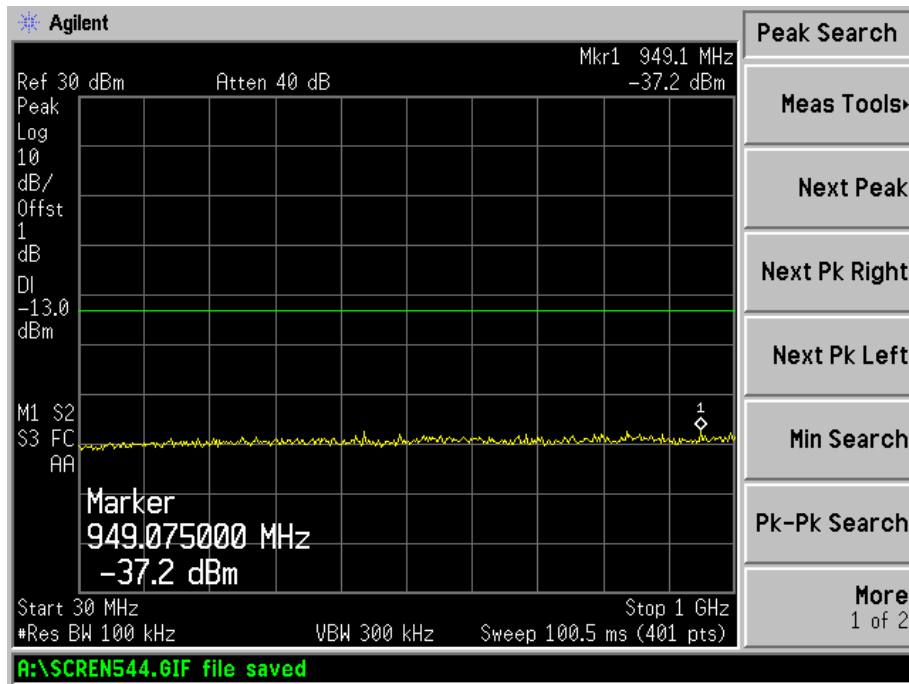
For PCS Band  
GSM Low Channel  
30MHz to 1GHz



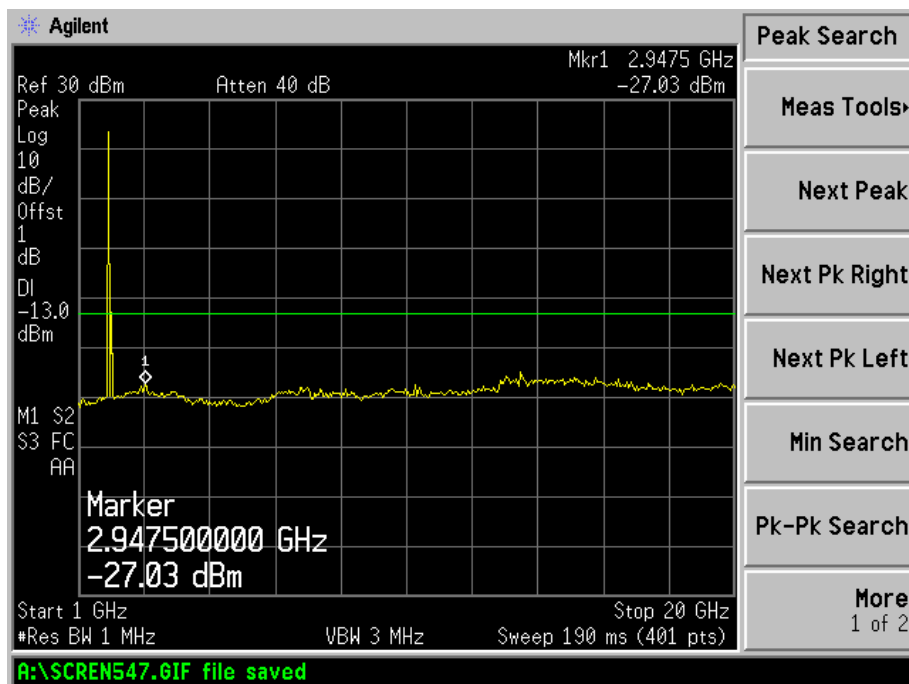
Above 1GHz



GSM Middle Channel  
30MHz to 1GHz

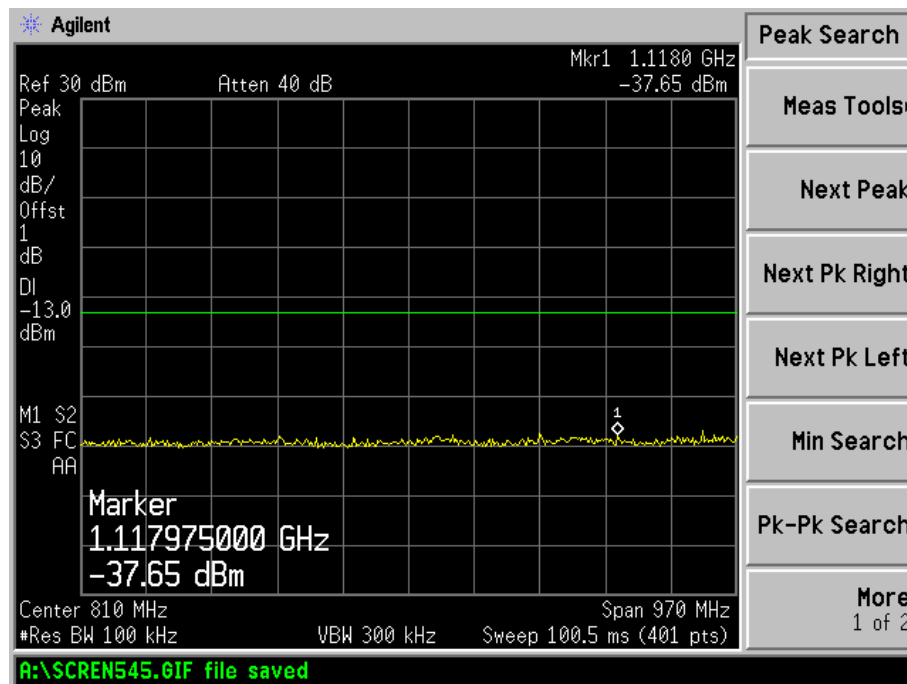


Above 1GHz

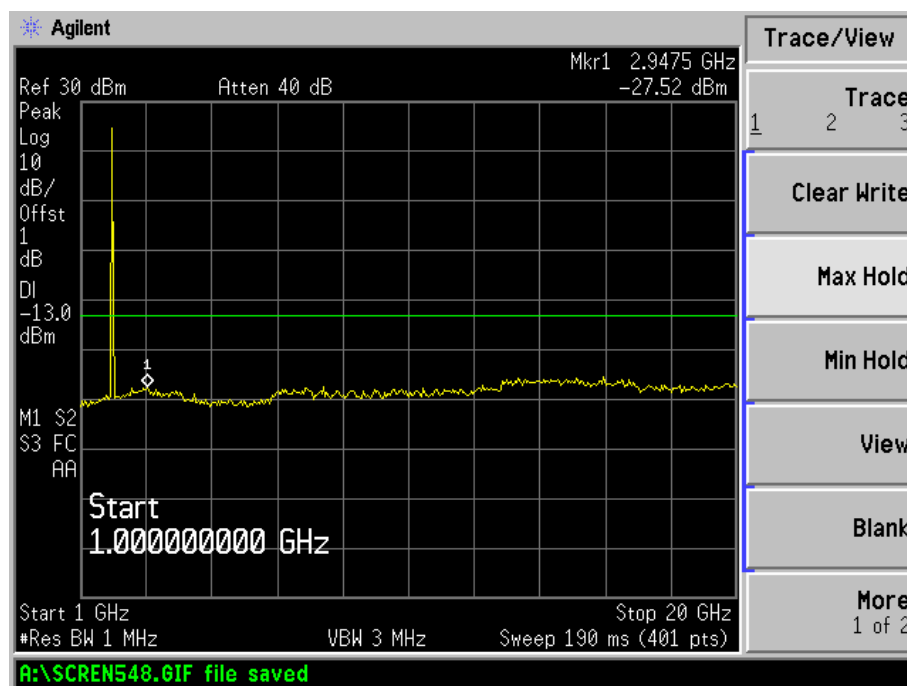




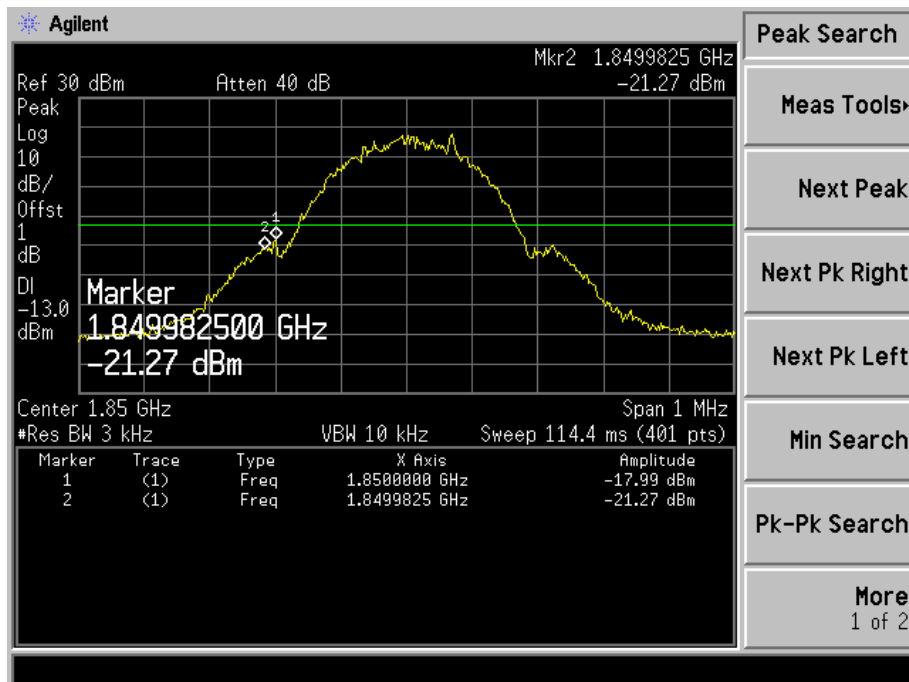
# GSM High Channel 30MHz to 1GHz



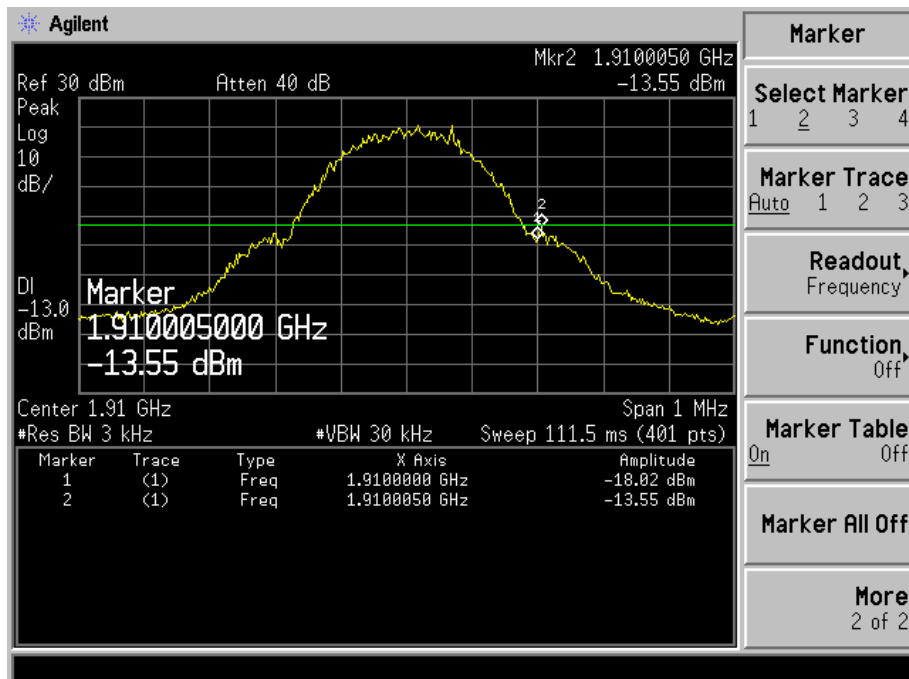
## Above 1GHz



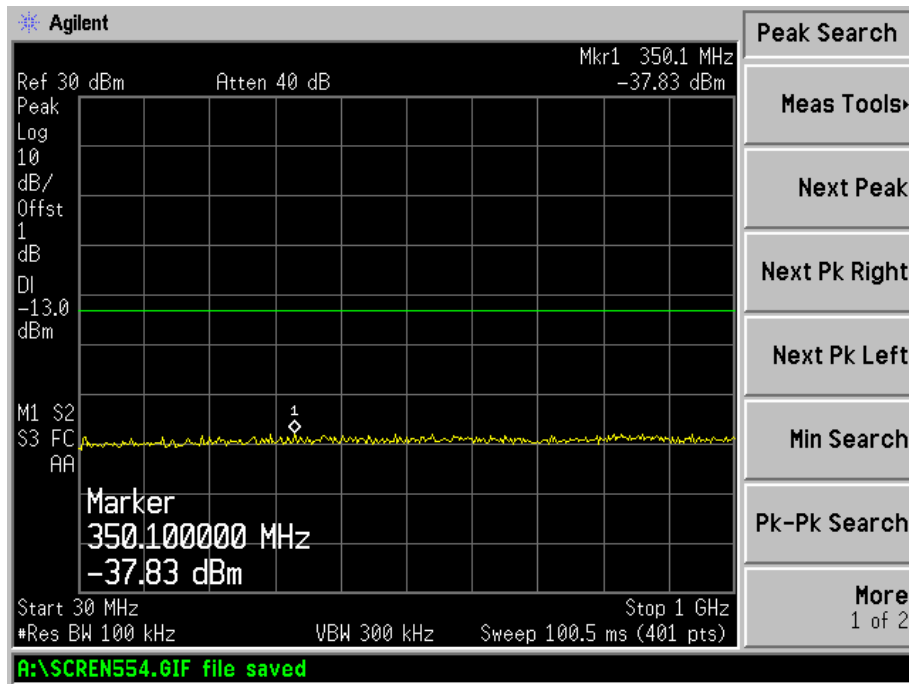
### GSM Low Band Emission



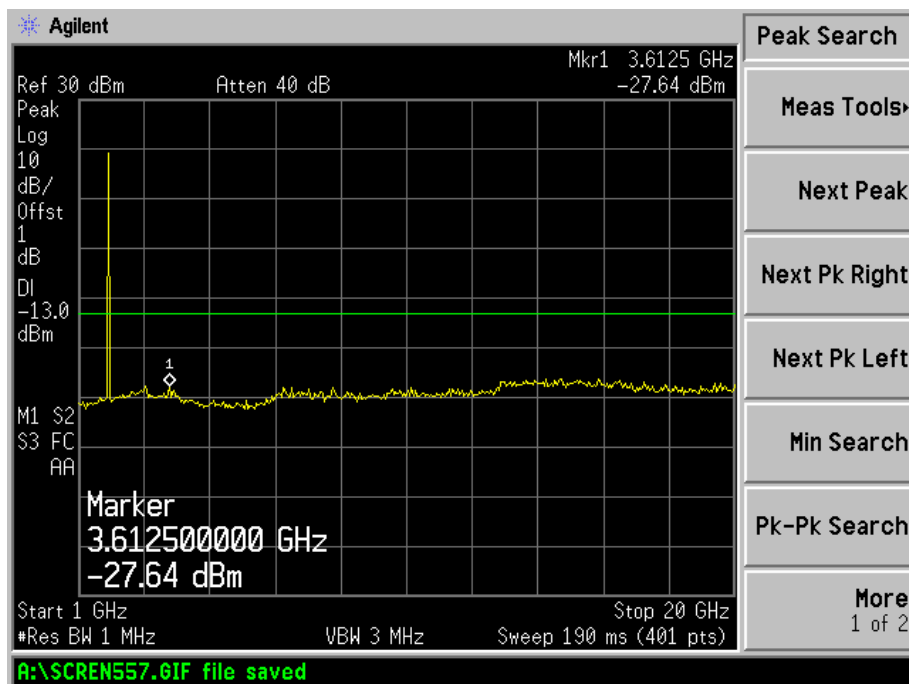
### GSM High Band Emission



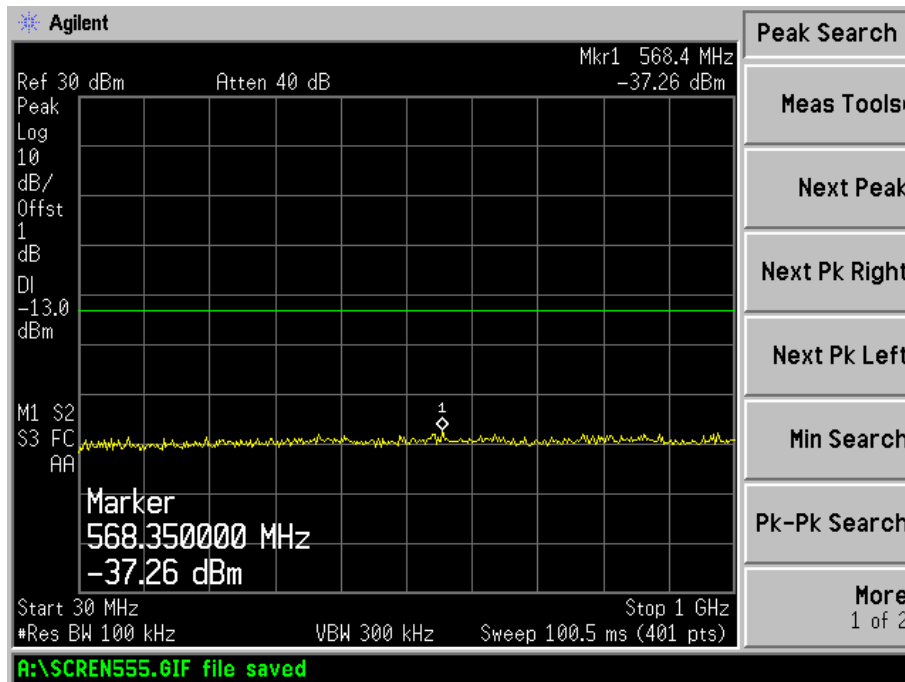
GPRS Low Channel  
30MHz to 1GHz



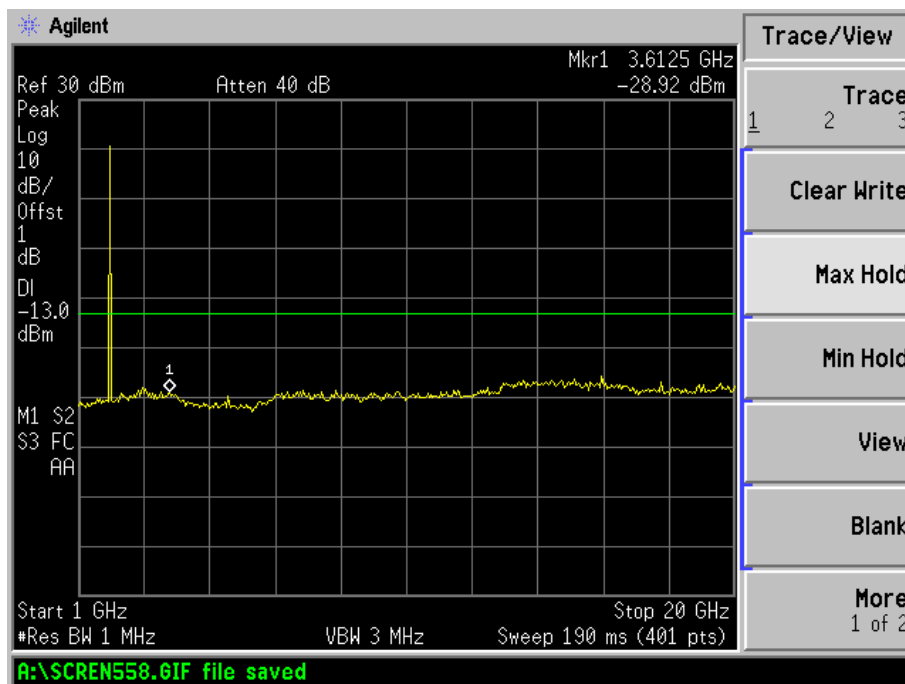
Above 1GHz



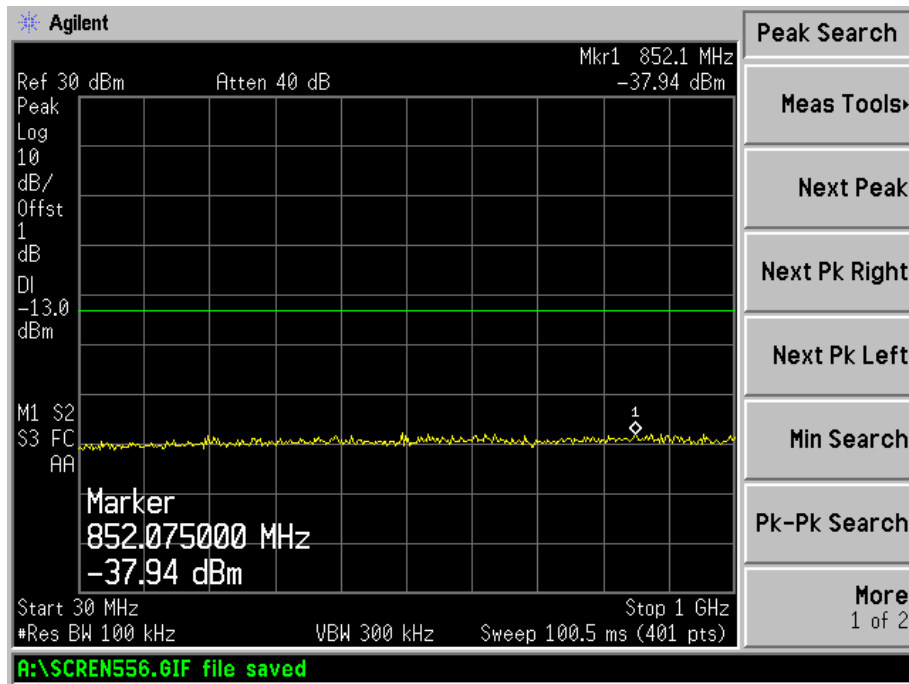
GPRS Middle Channel  
30MHz to 1GHz



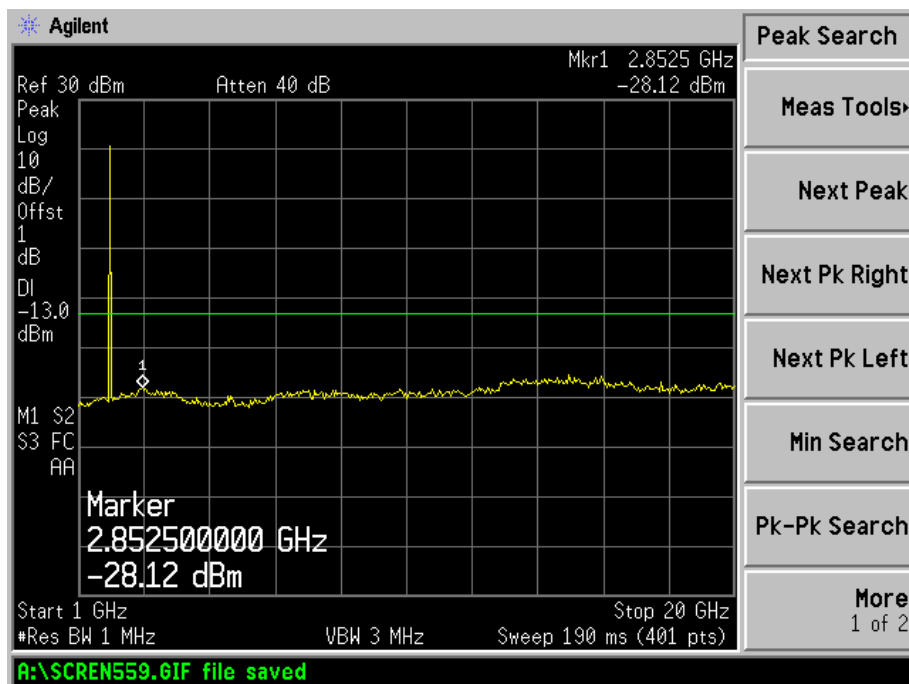
Above 1GHz



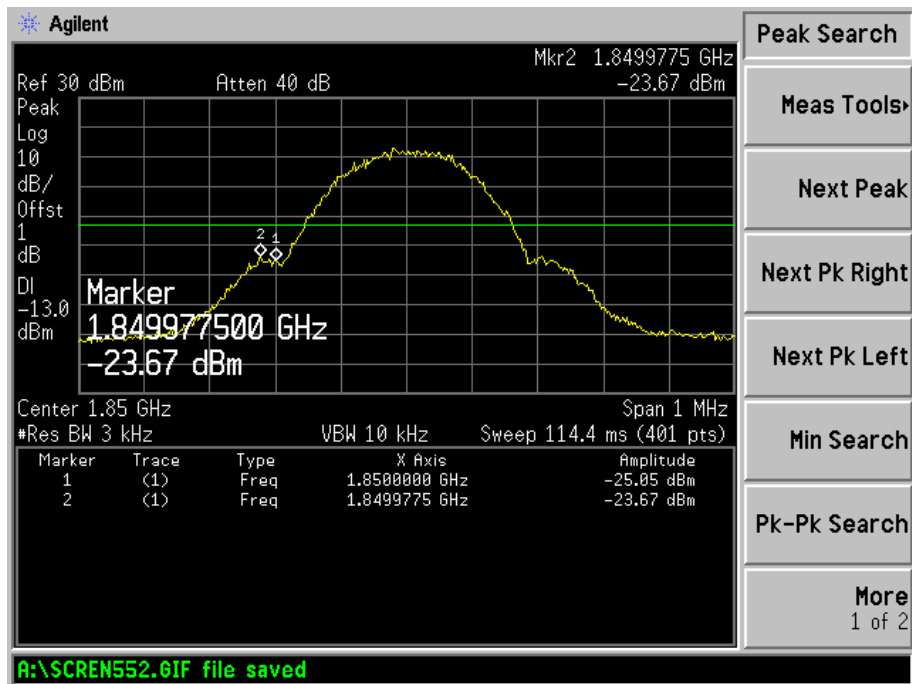
GPRS High Channel  
30MHz to 1GHz



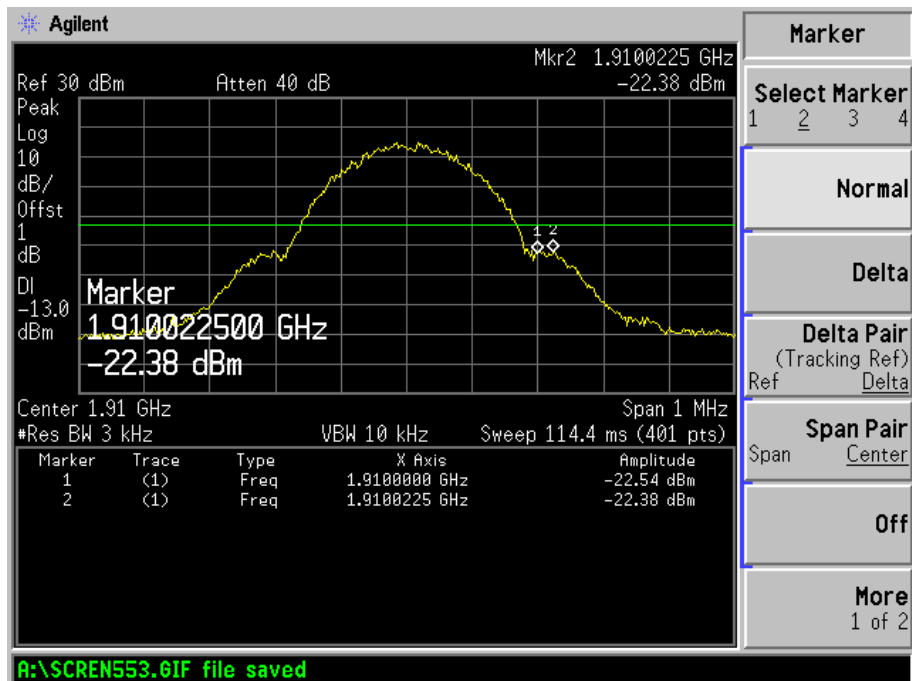
Above 1GHz



## GPRS Low Band Emission



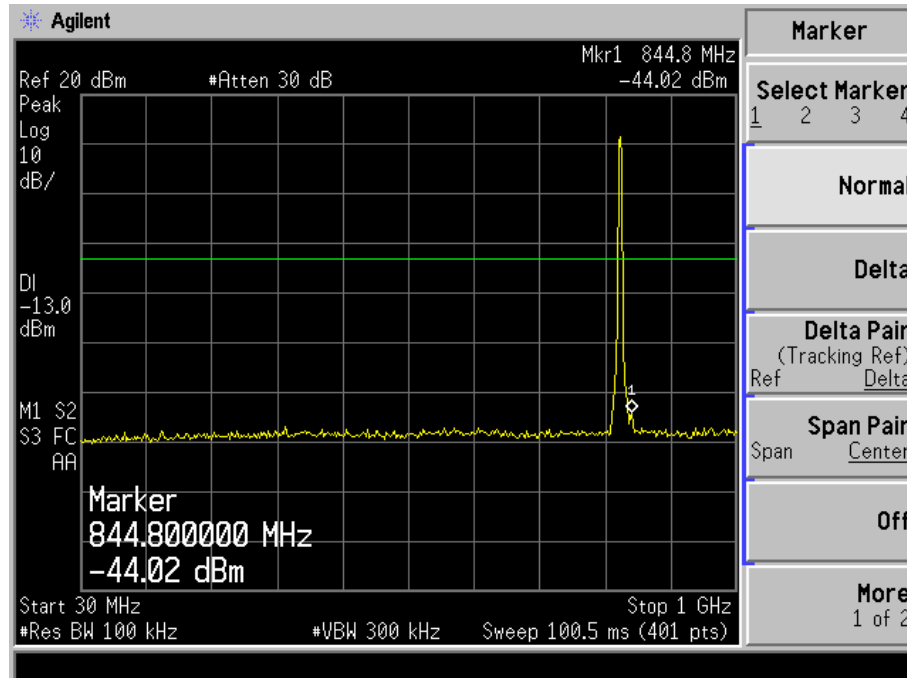
## GPRS High Band Emission



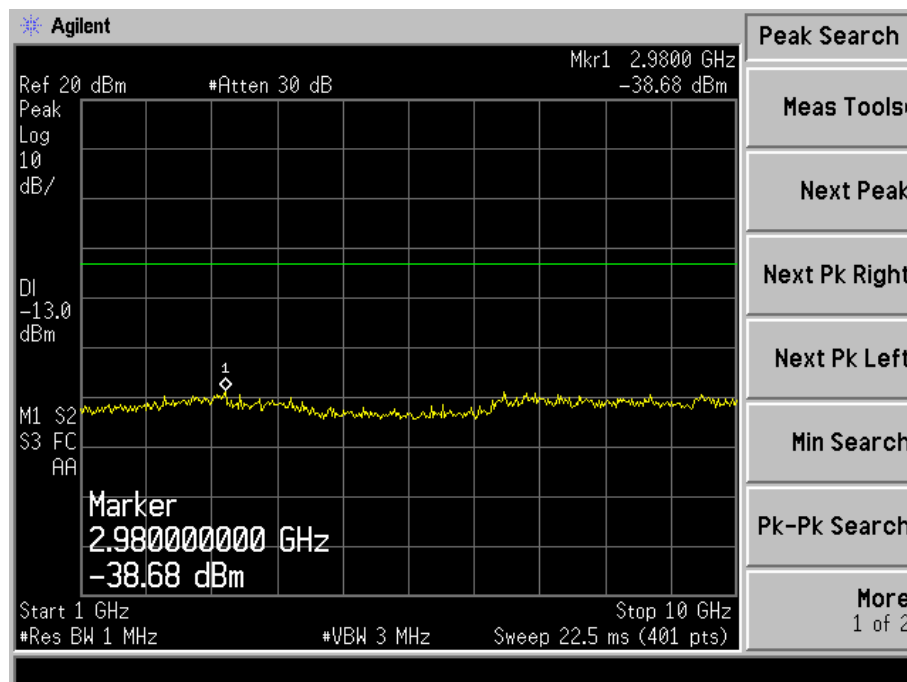
### For Band V

WCDMA Low Channel

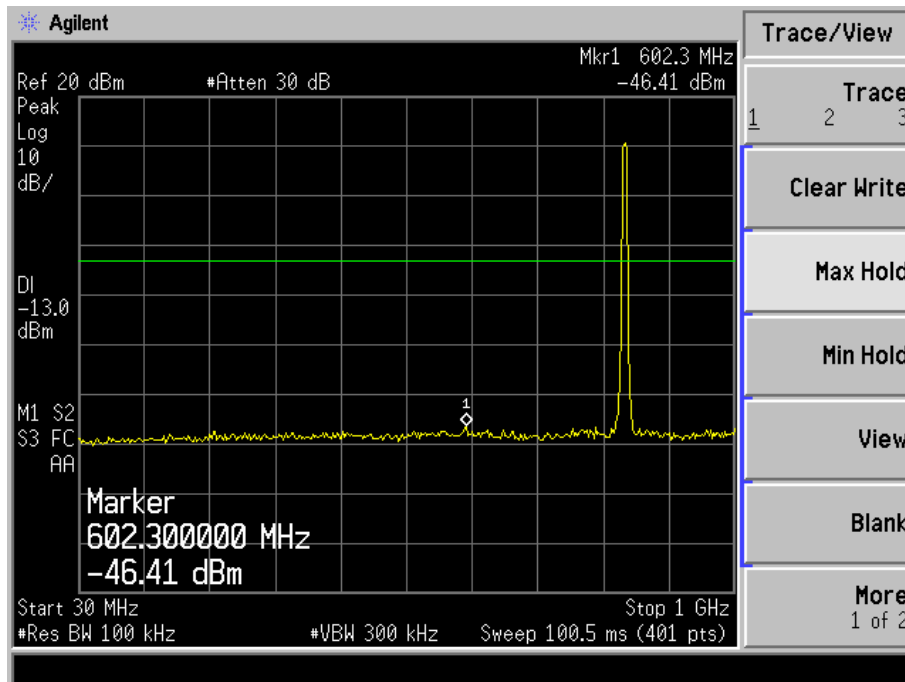
30MHz to 1GHz



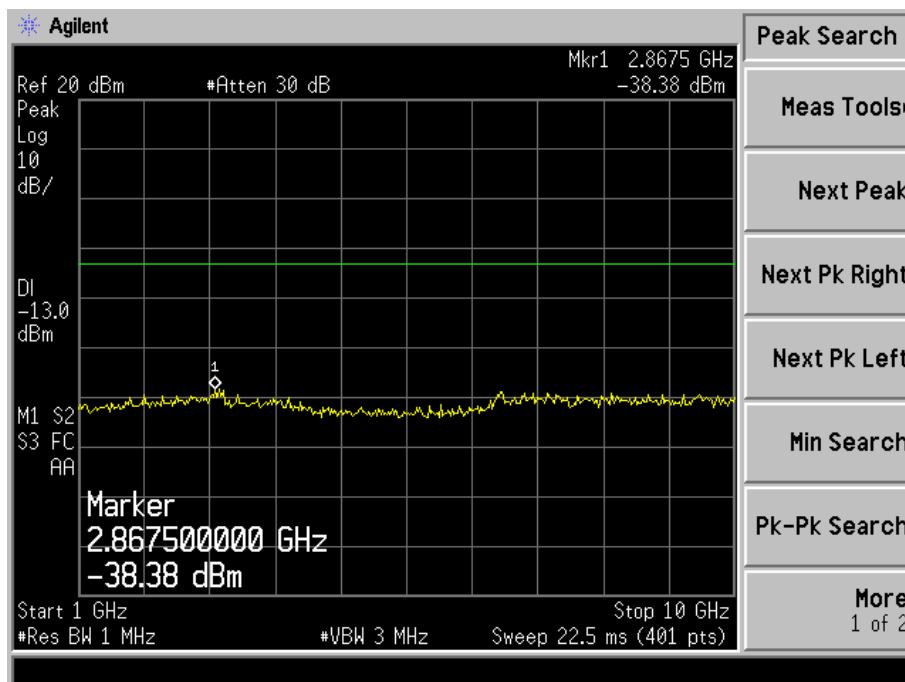
Above 1GHz



# WCDMA Middle Channel 30MHz to 1GHz

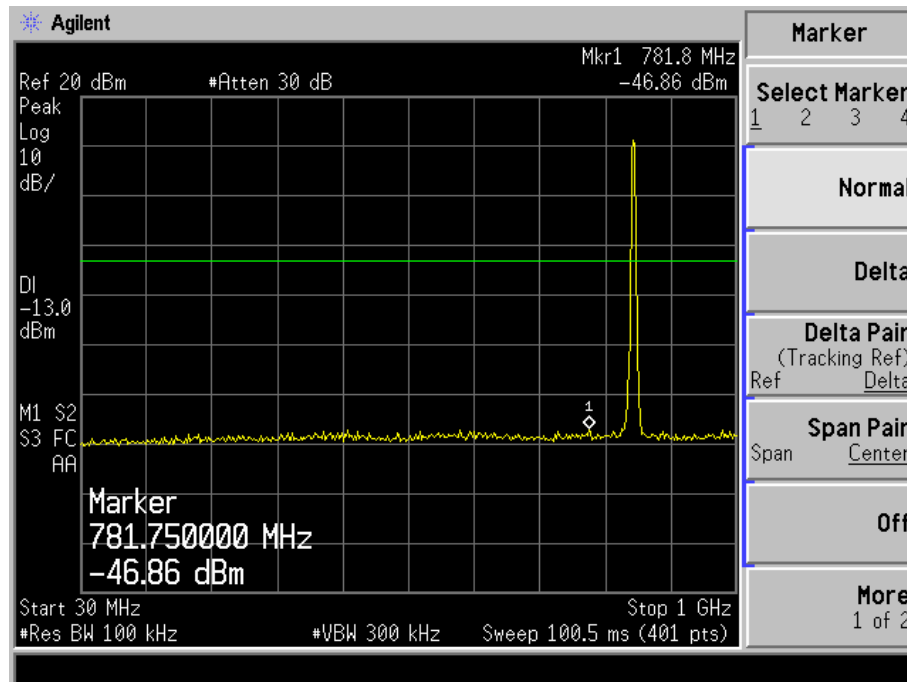


## Above 1GHz

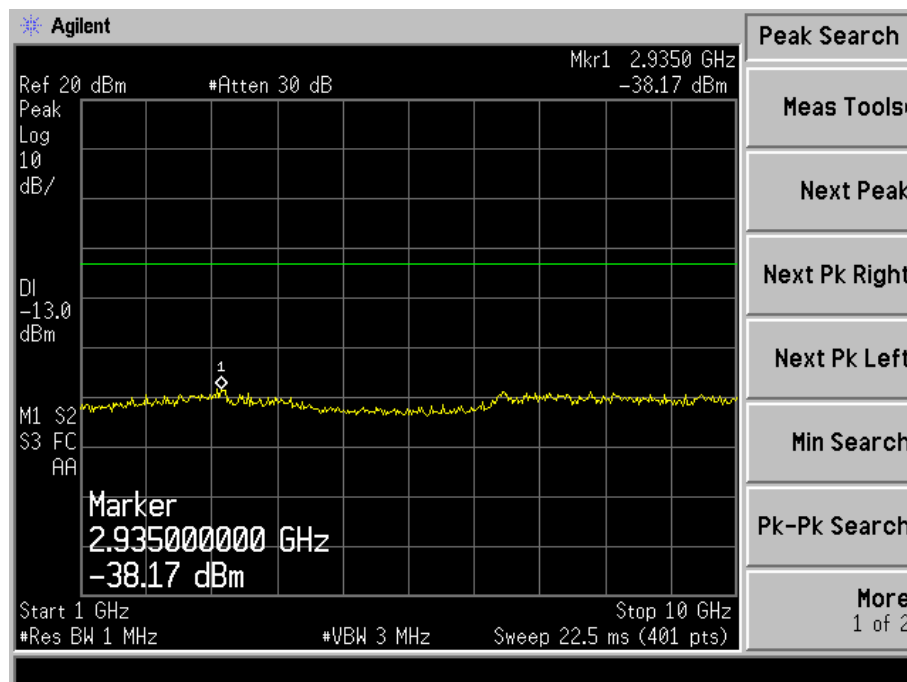




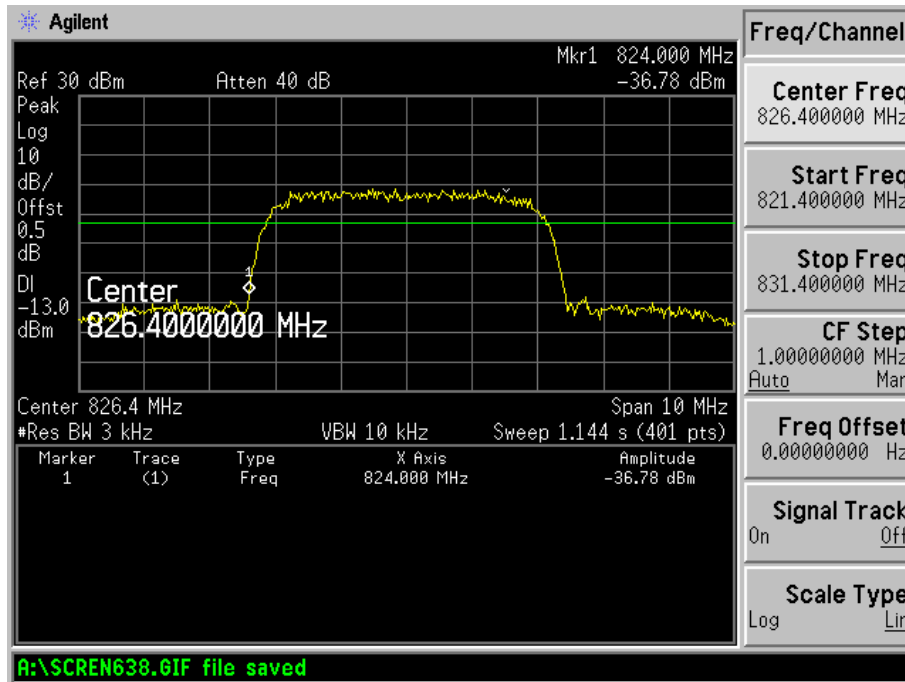
# WCDMA High Channel 30MHz to 1GHz



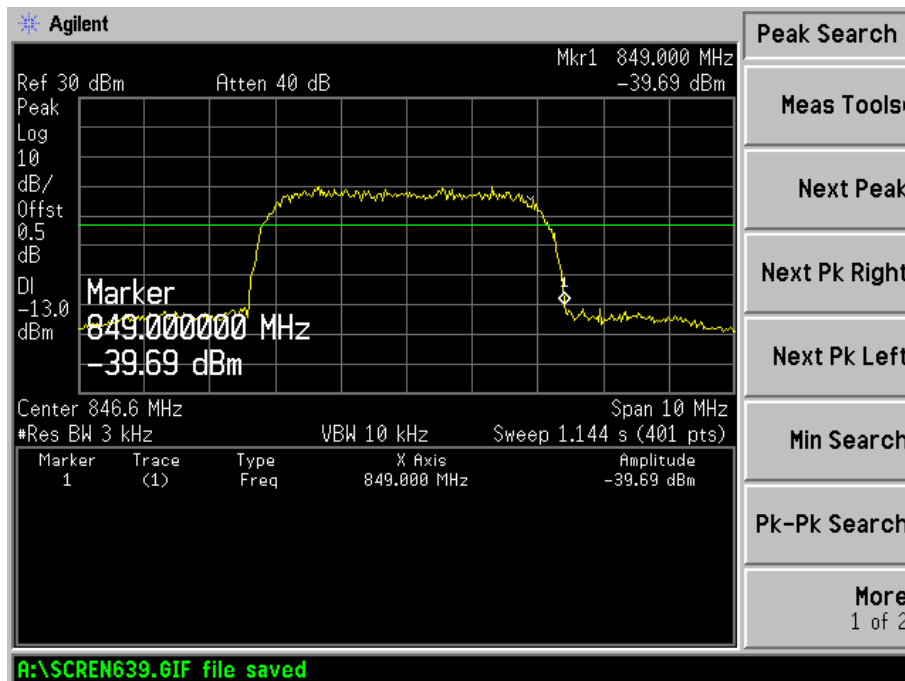
## Above 1GHz



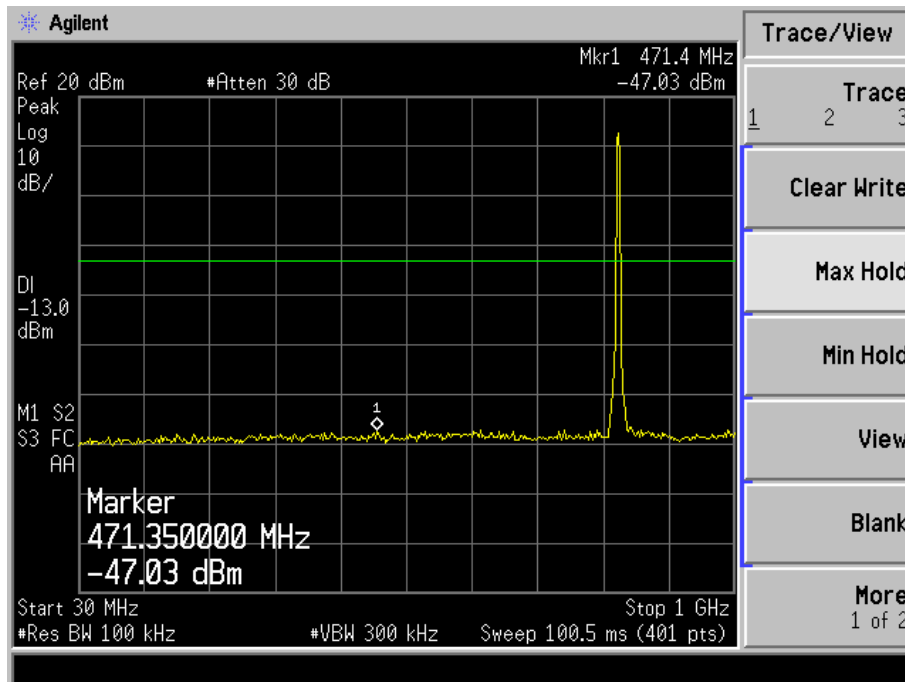
### WCDMA Low Band Spurious Emission



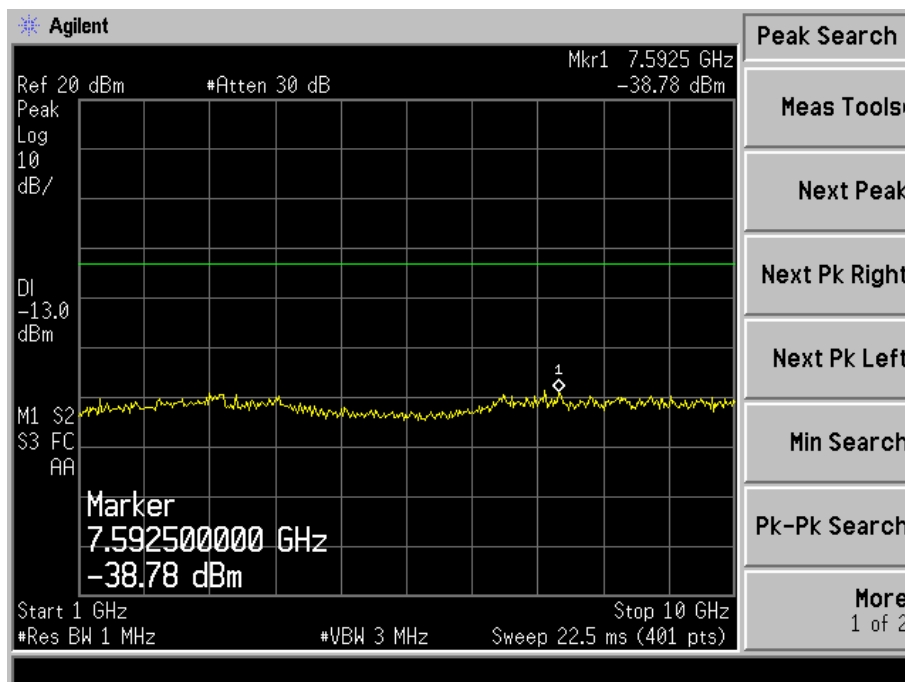
### WCDMA High Band Spurious Emission



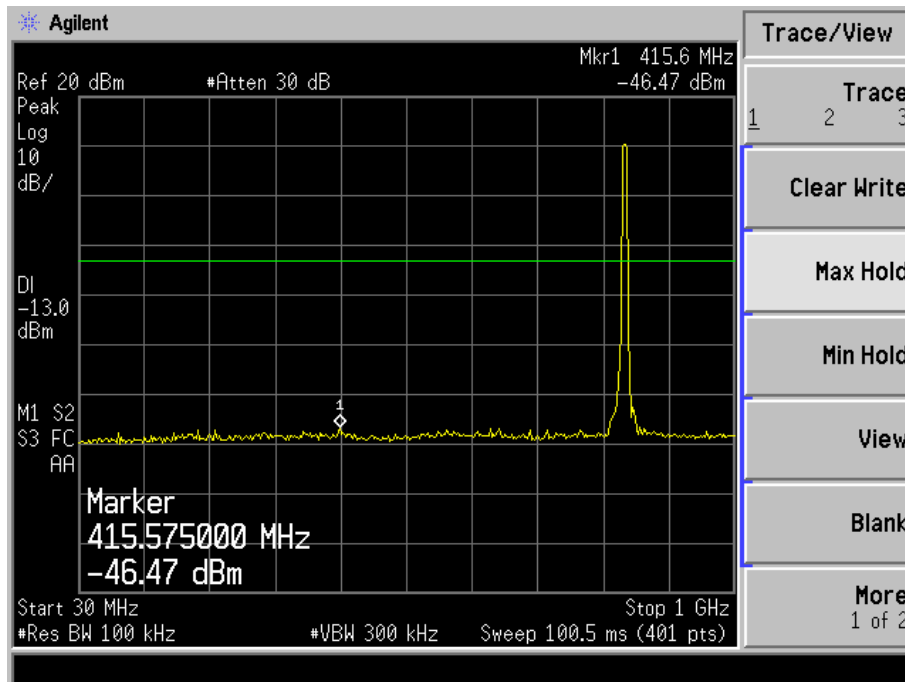
## HSDPA Low Channel 30MHz to 1GHz



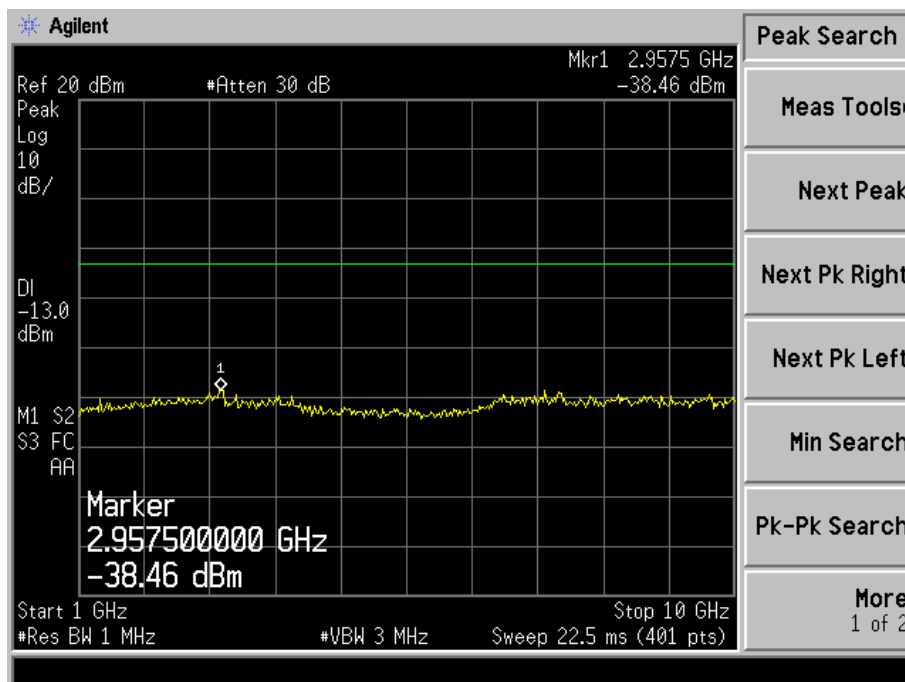
## Above 1GHz



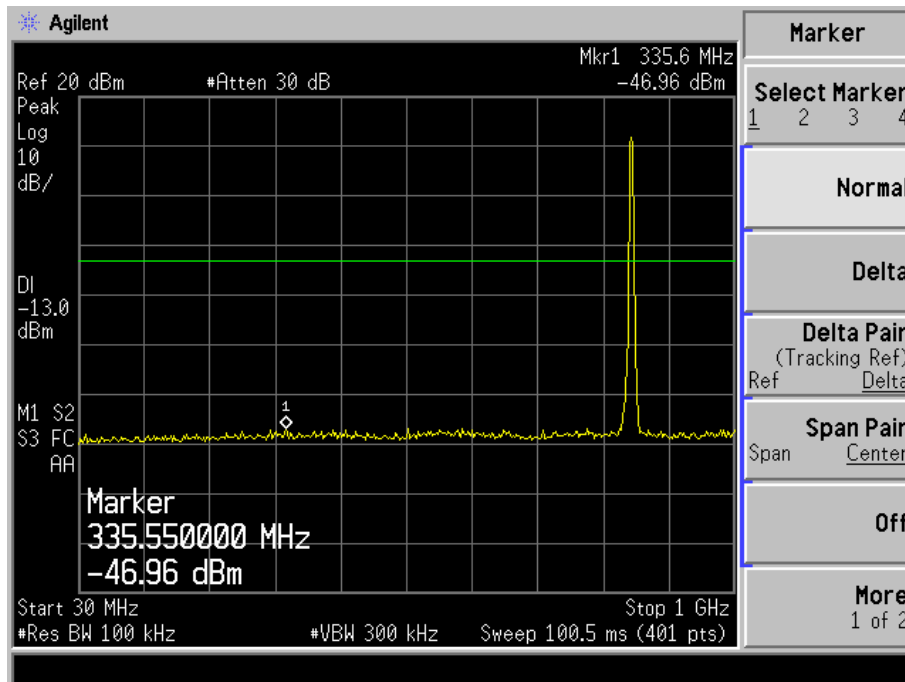
## HSDPA Middle Channel 30MHz to 1GHz



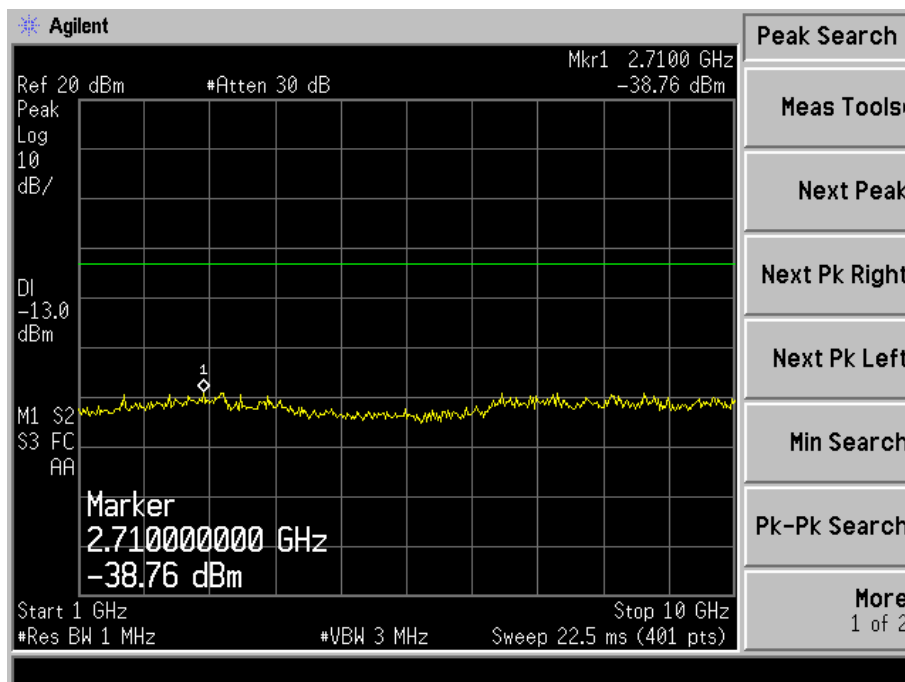
## Above 1GHz



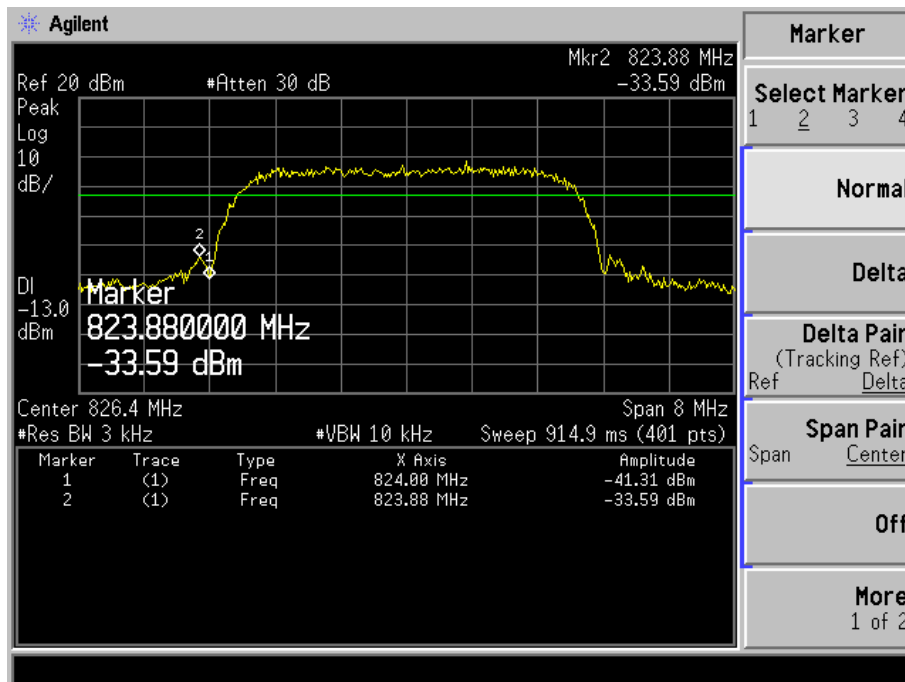
## HSDPA High Channel 30MHz to 1GHz



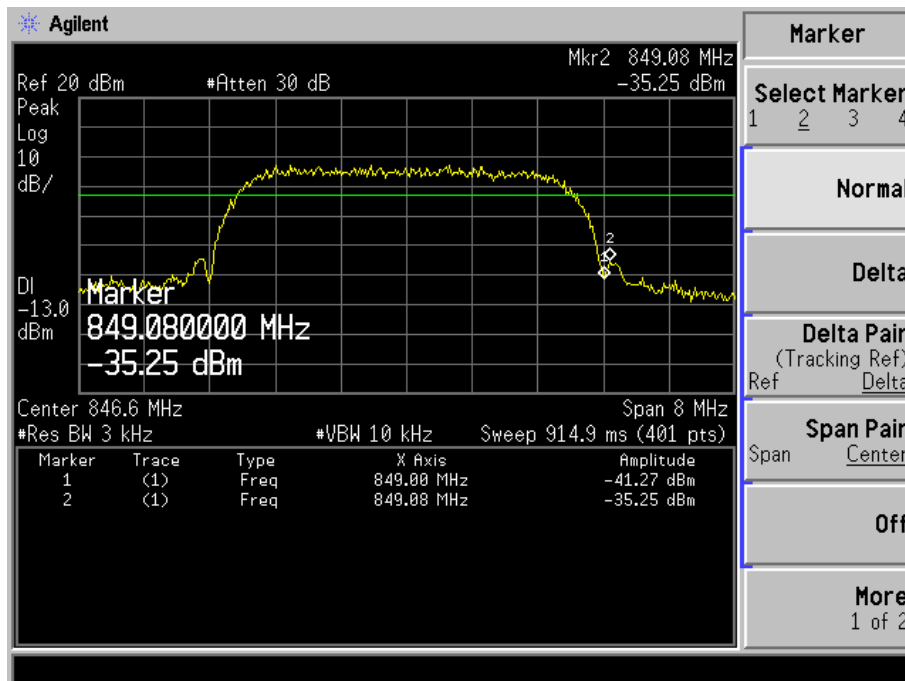
## Above 1GHz



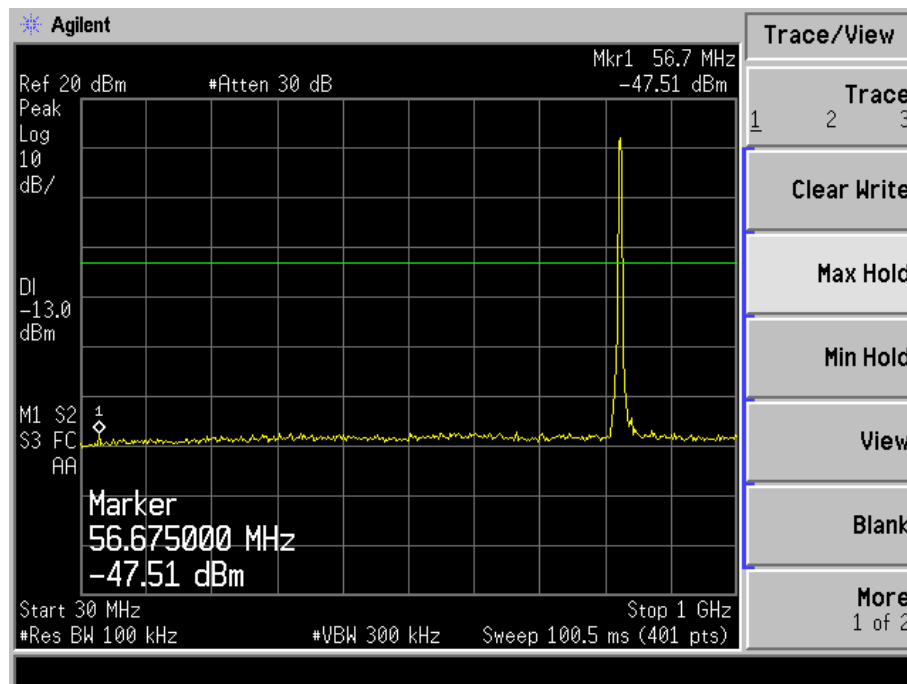
## HSDPA Low Band Spurious Emission



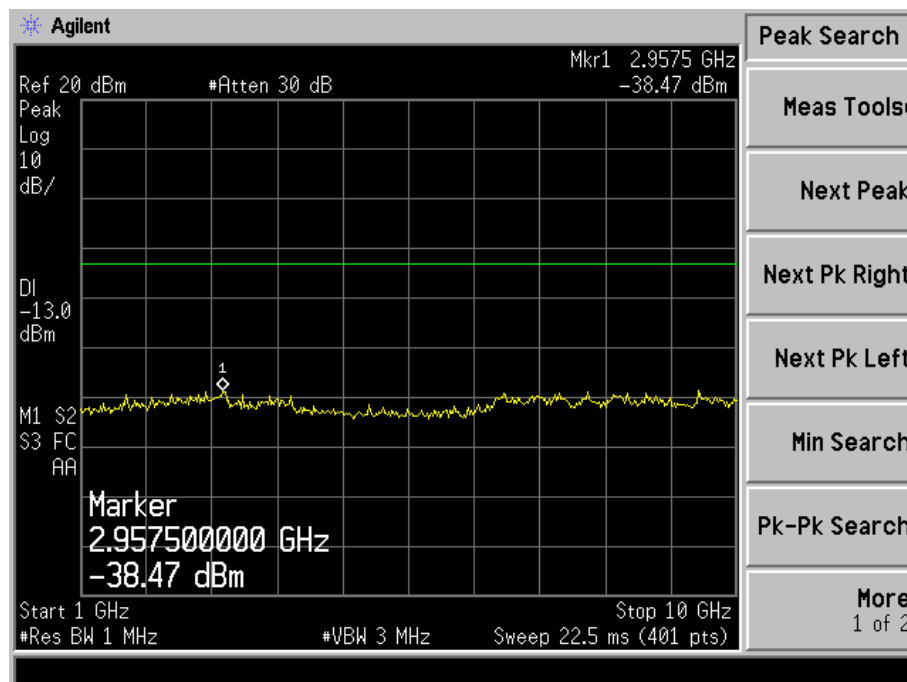
## HSDPA High Band Spurious Emission



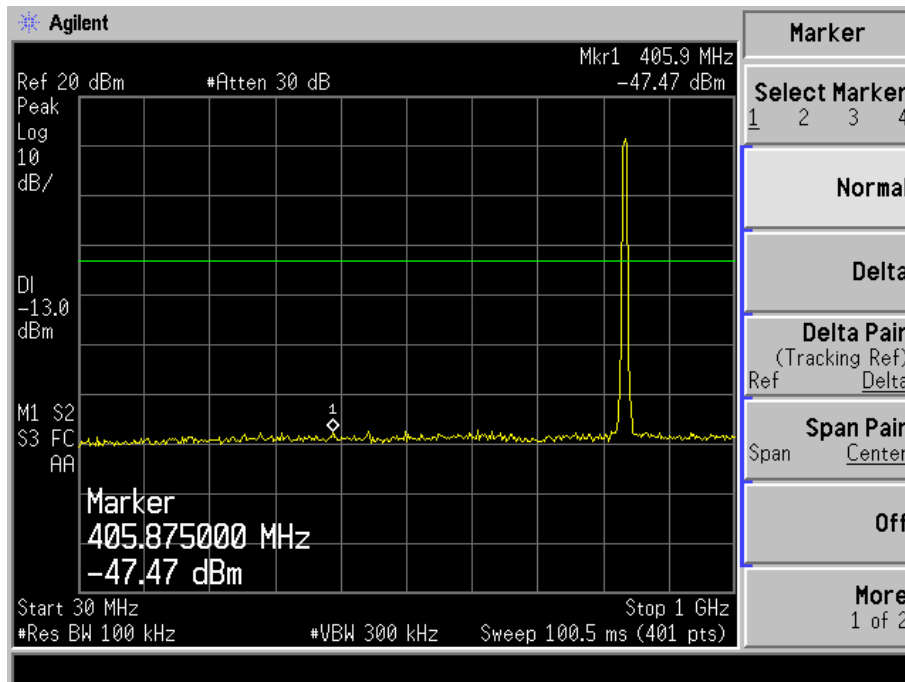
# HSUPA Low Channel 30MHz to 1GHz



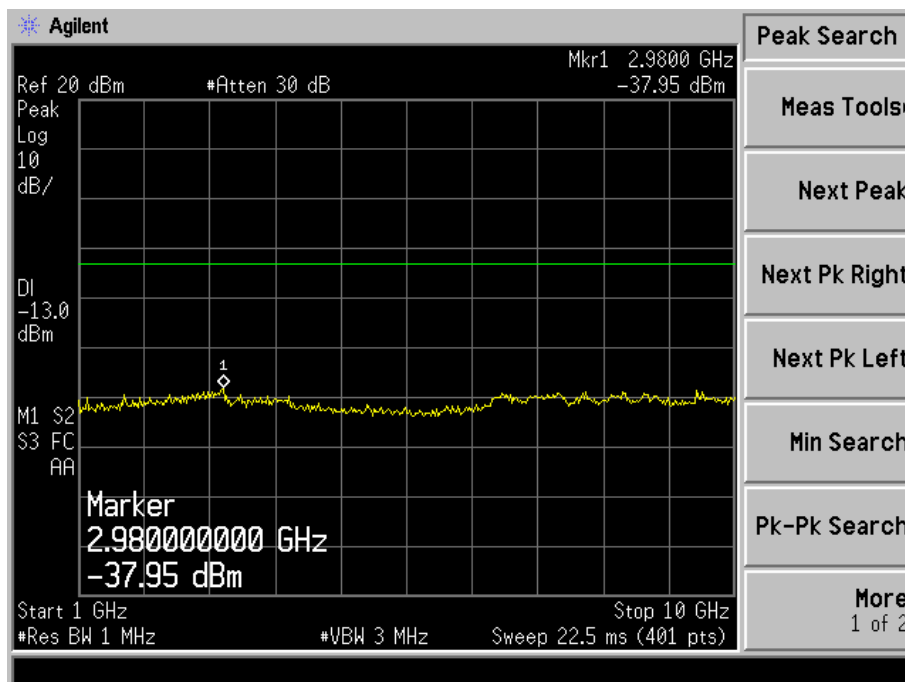
## Above 1GHz



# HSUPA Middle Channel 30MHz to 1GHz

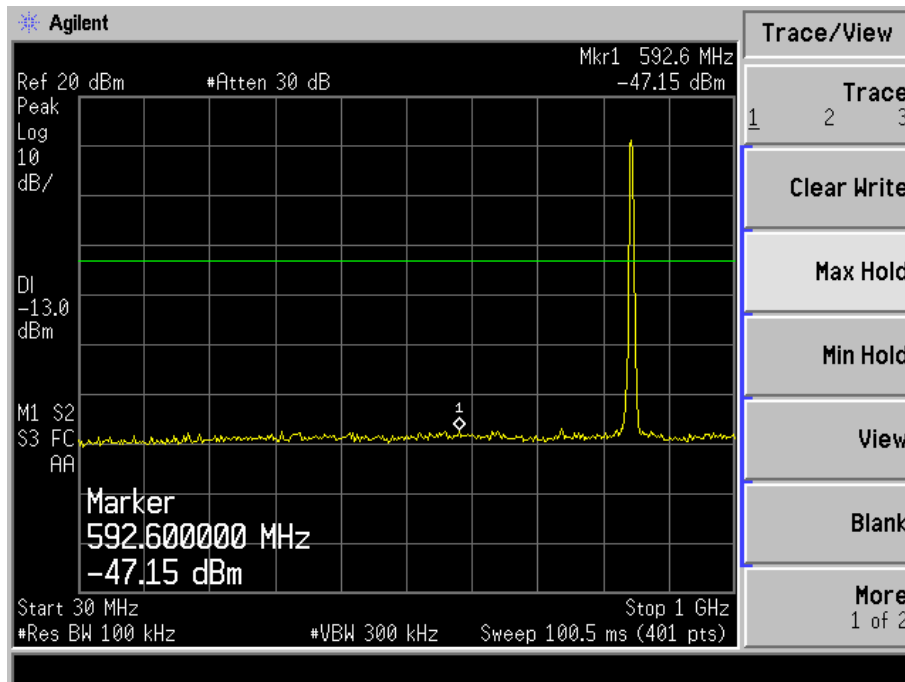


## Above 1GHz

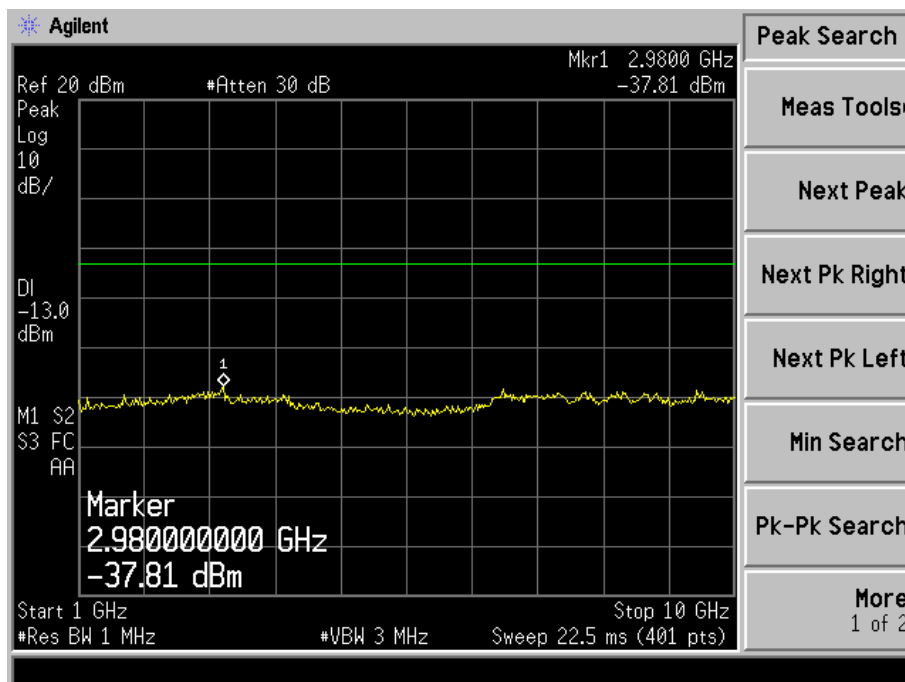




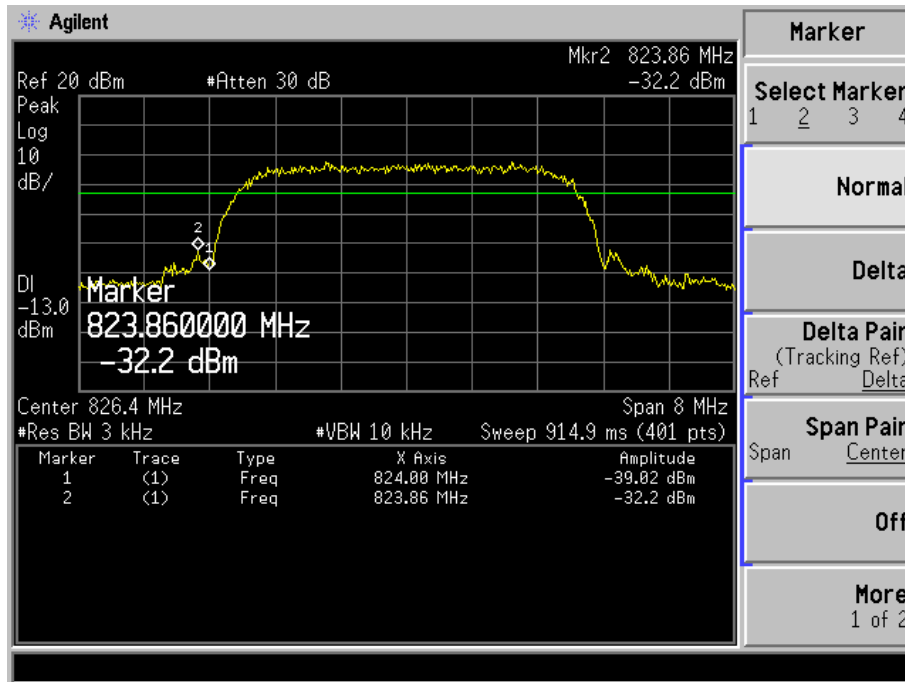
## HSUPA High Channel 30MHz to 1GHz



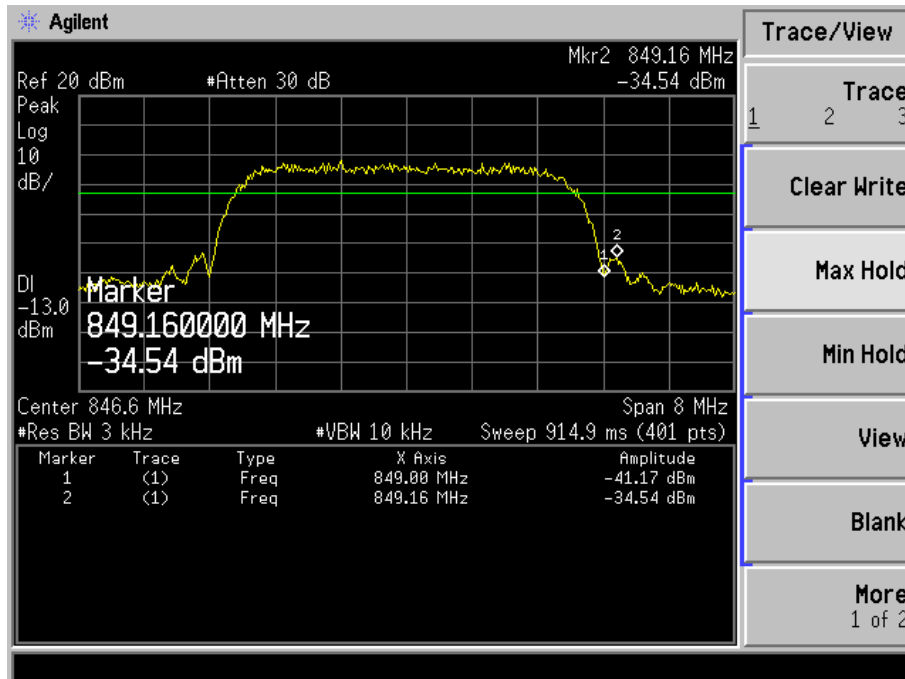
## Above 1GHz



### HSUPA Low Band Spurious Emission



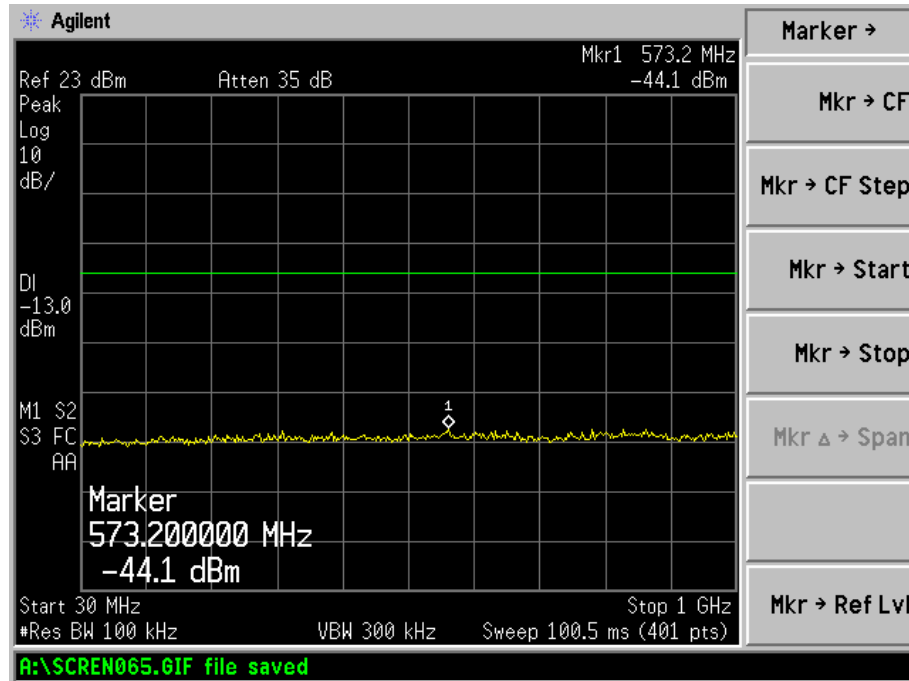
### HSUPA High Band Spurious Emission



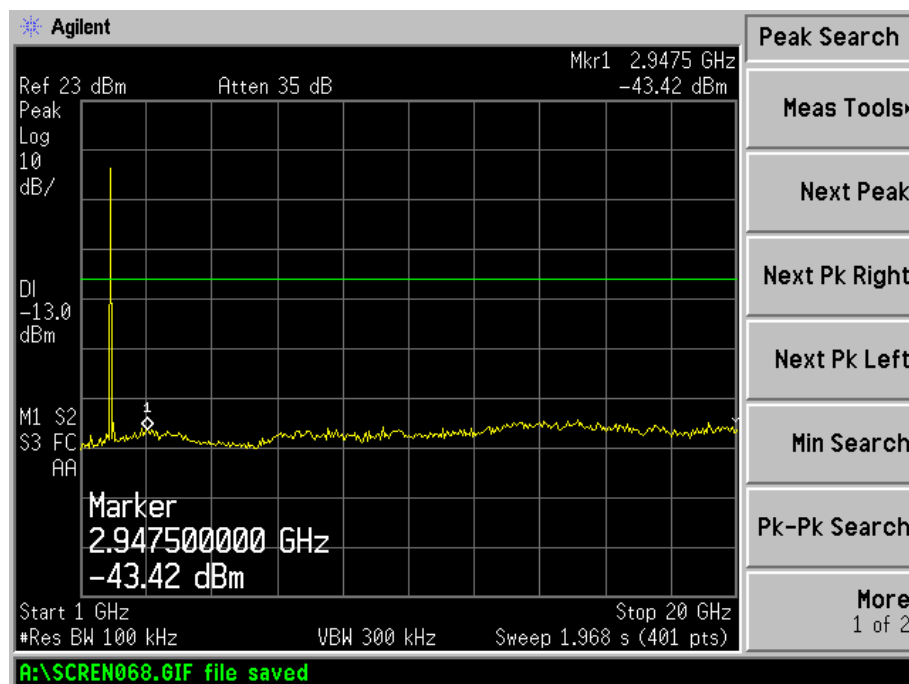
## For Band II

WCDMA Low Channel

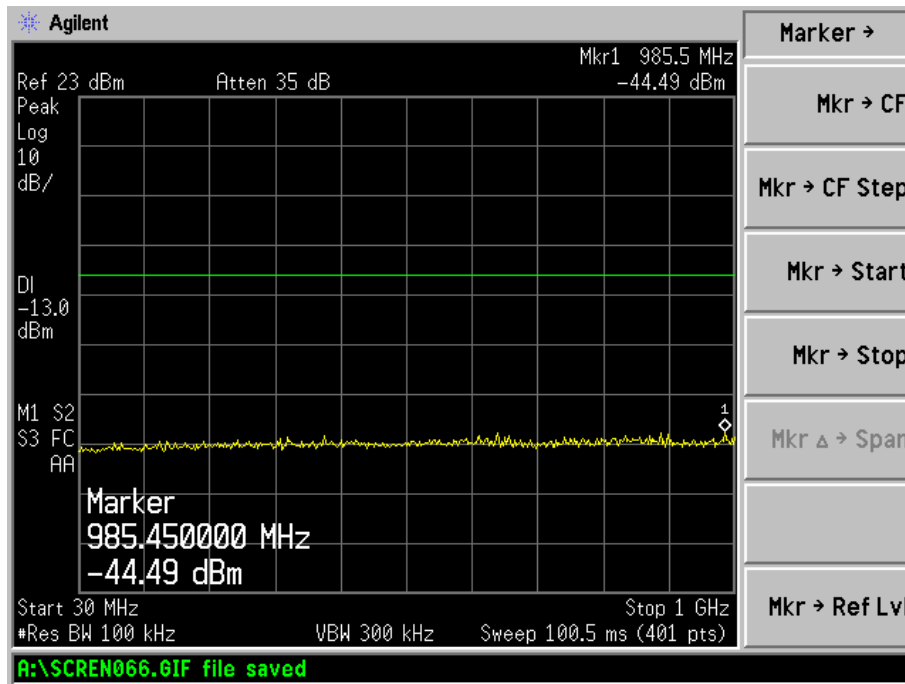
30MHz to 1GHz



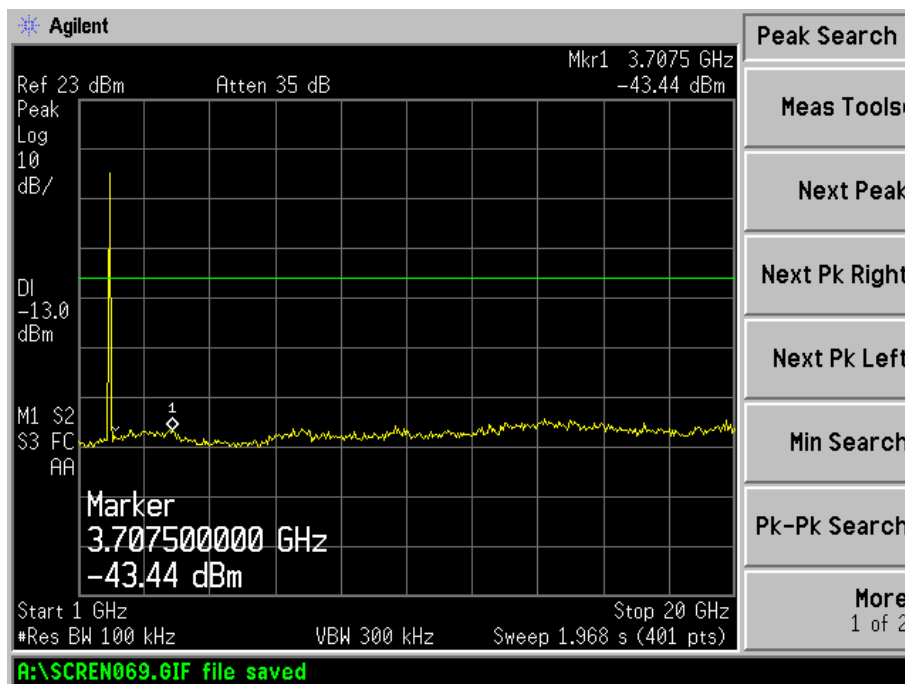
Above 1GHz



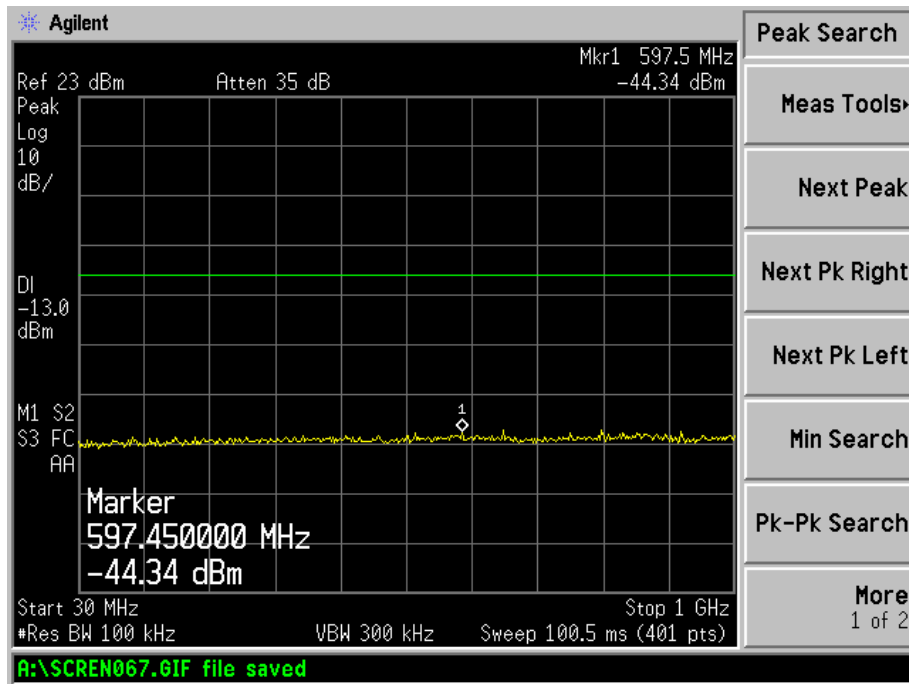
# WCDMA Middle Channel 30MHz to 1GHz



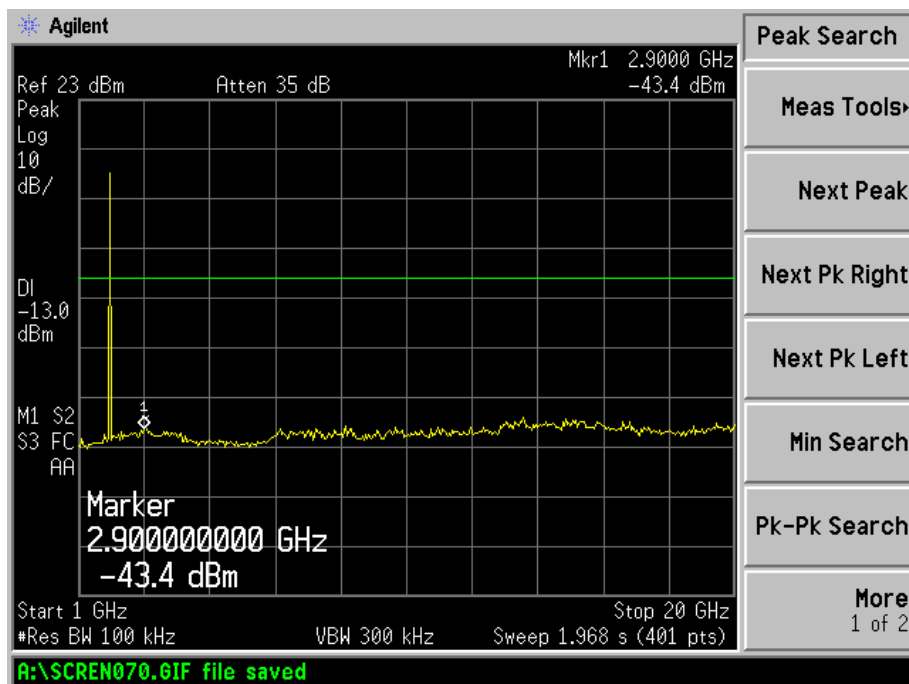
## Above 1GHz



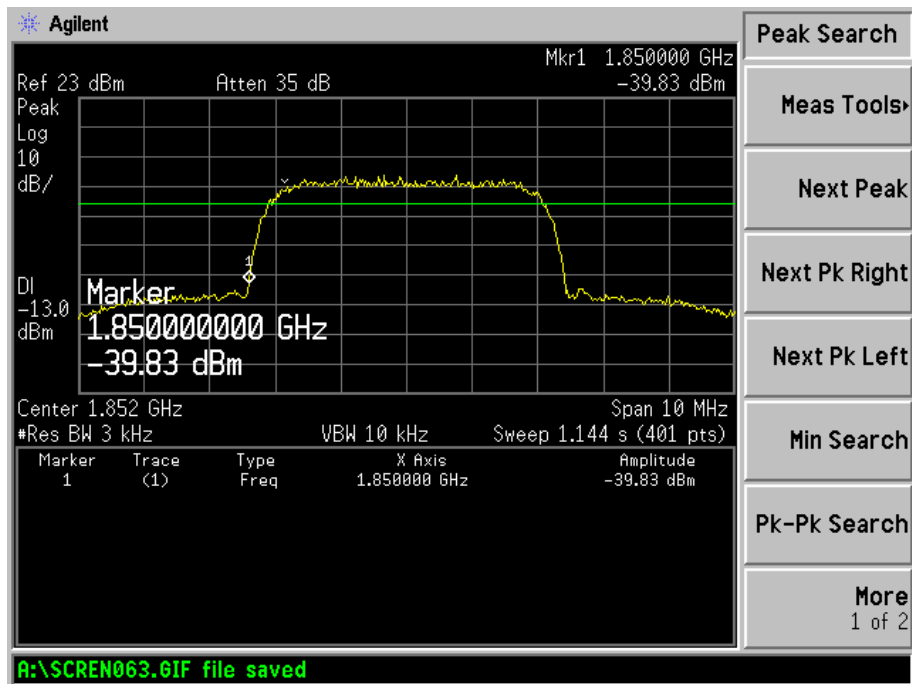
WCDMA High Channel  
30MHz to 1GHz



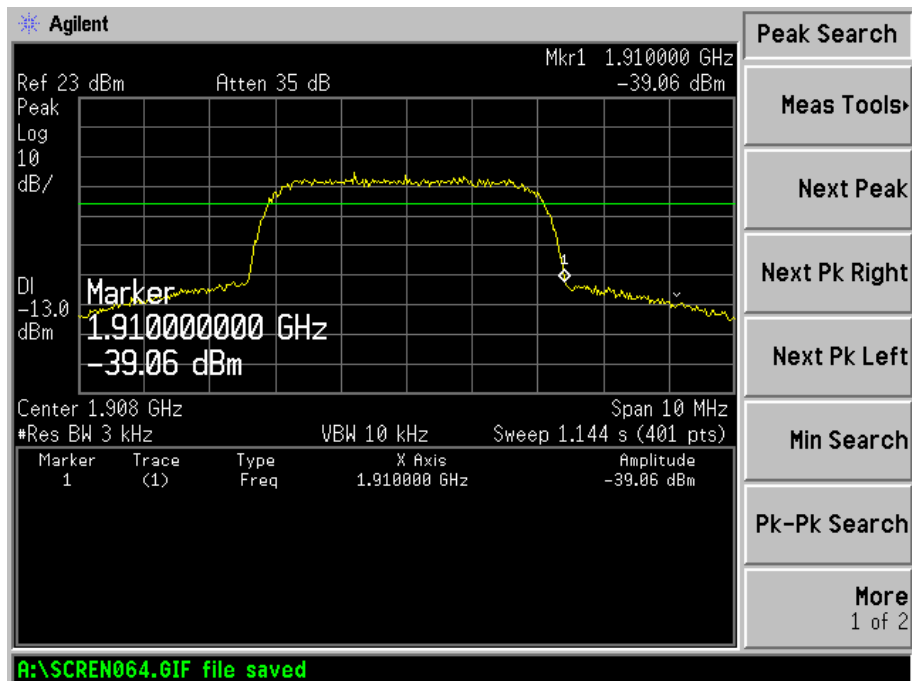
Above 1GHz



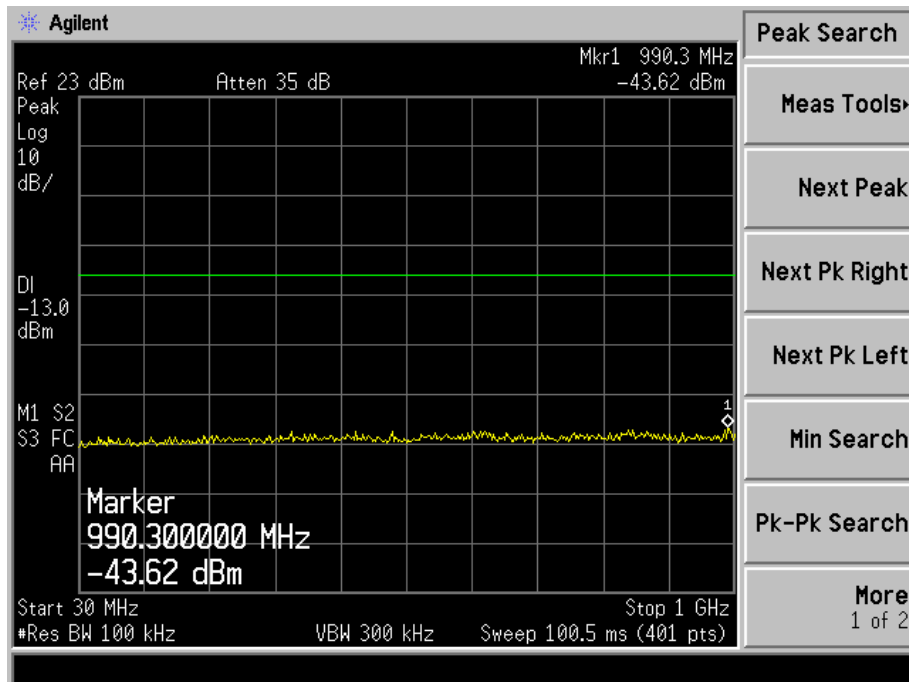
### WCDMA Low Band Spurious Emission



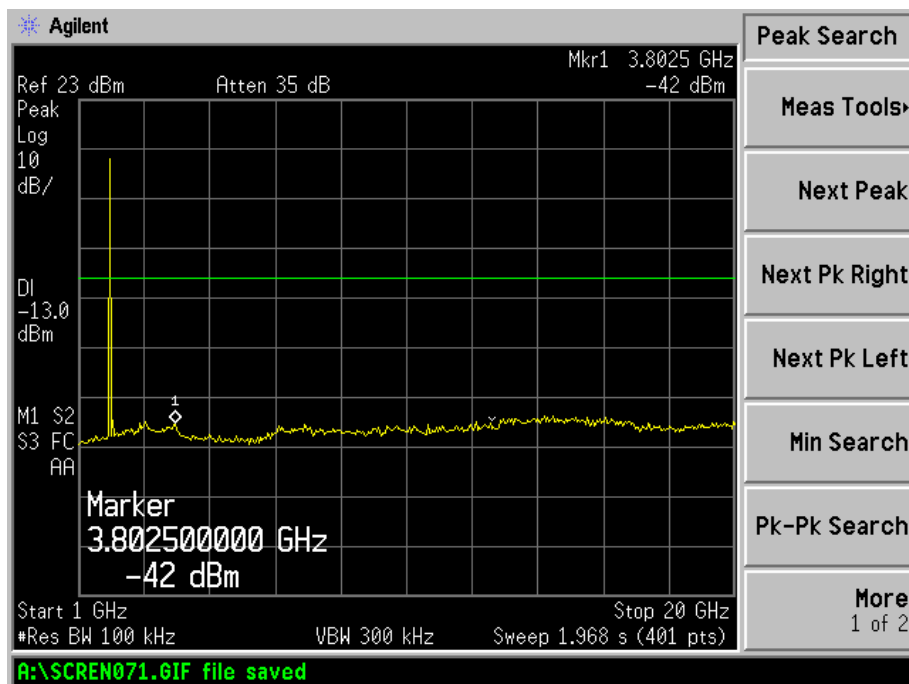
### WCDMA High Band Spurious Emission



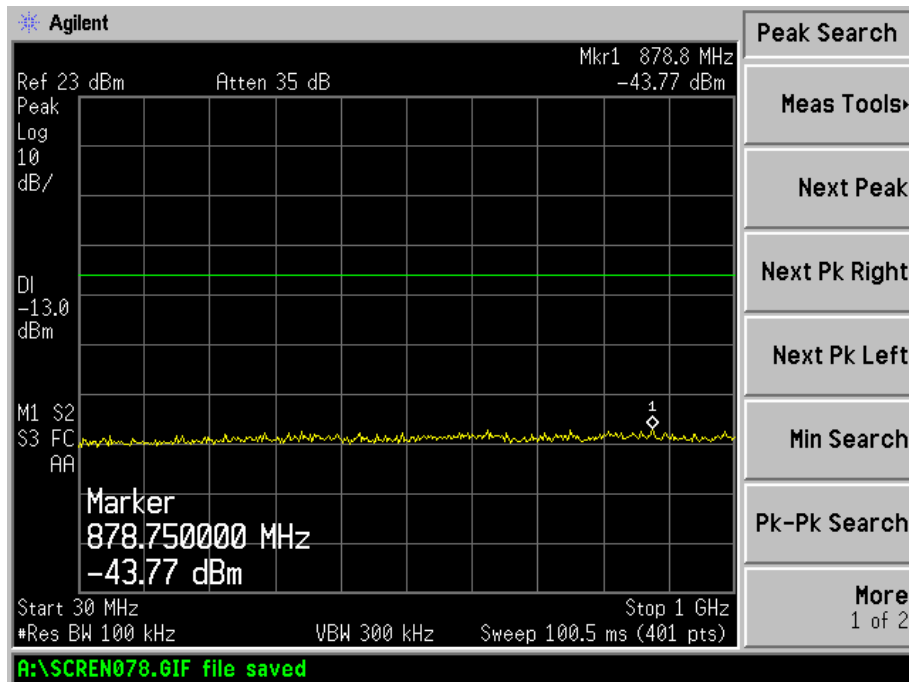
HSDPA Low Channel  
30MHz to 1GHz



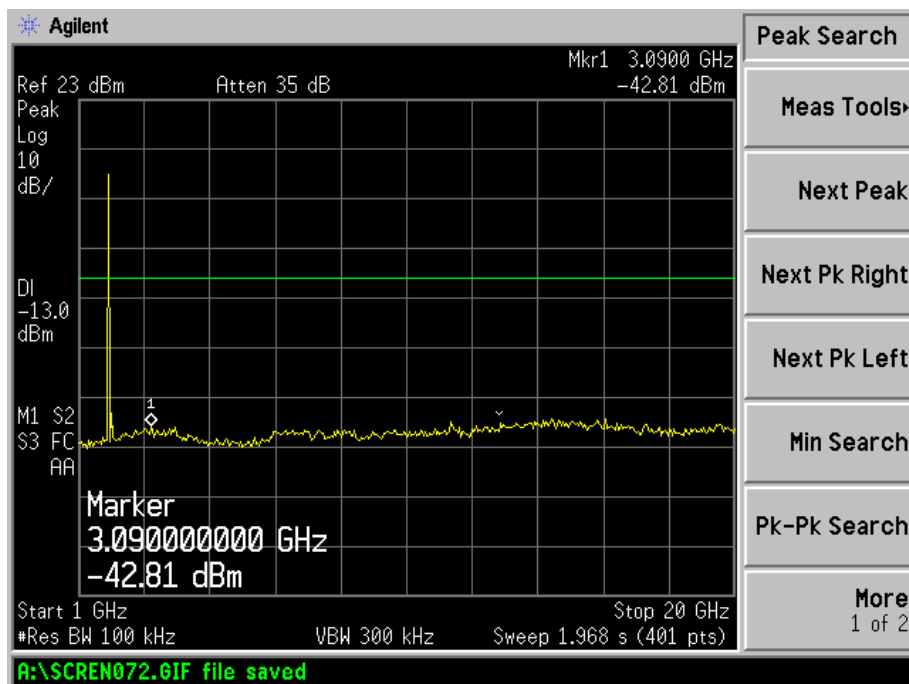
Above 1GHz



## HSDPA Middle Channel 30MHz to 1GHz

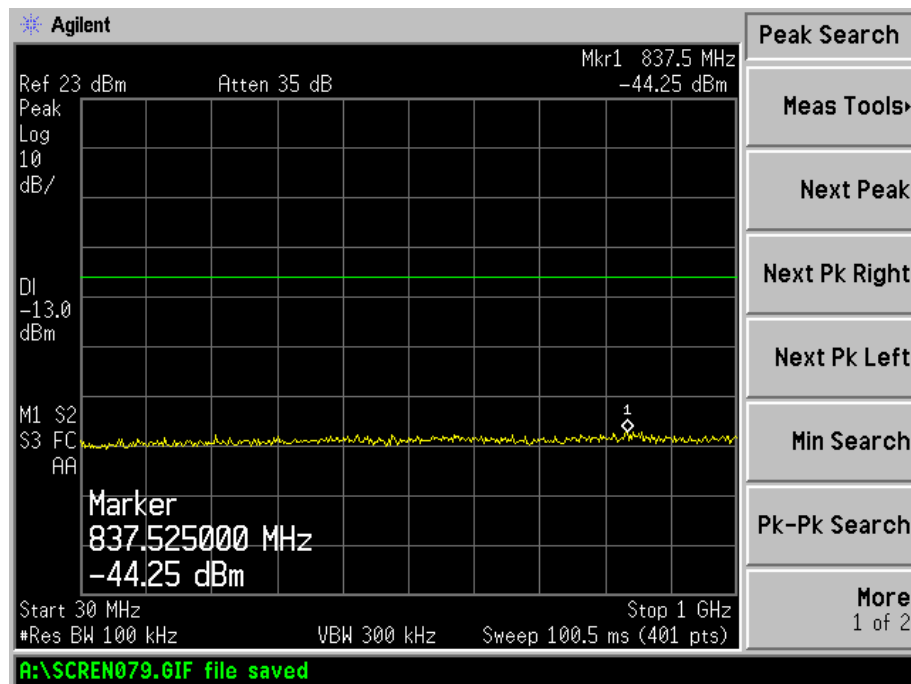


## Above 1GHz

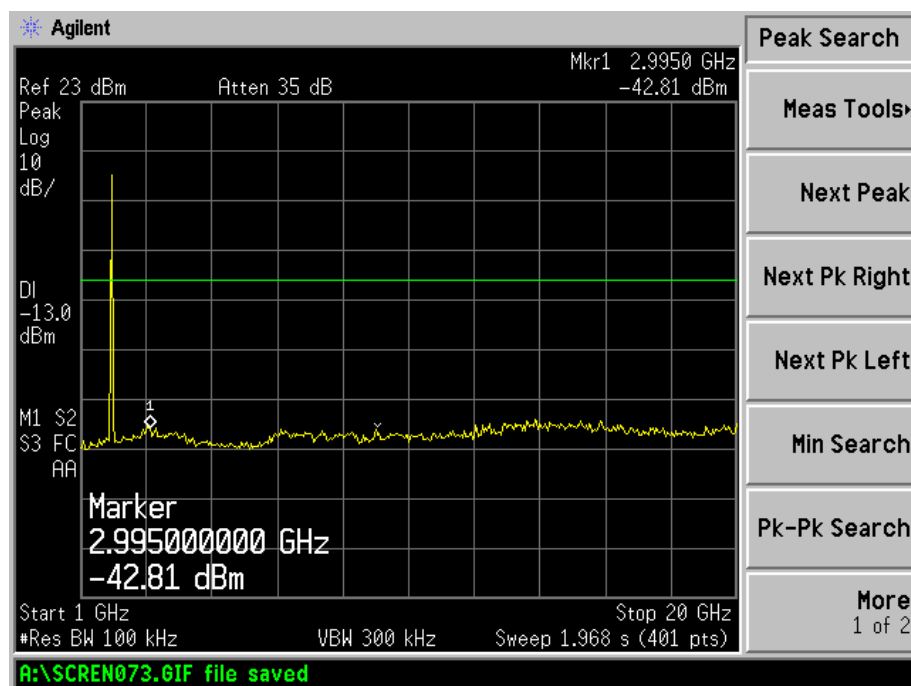




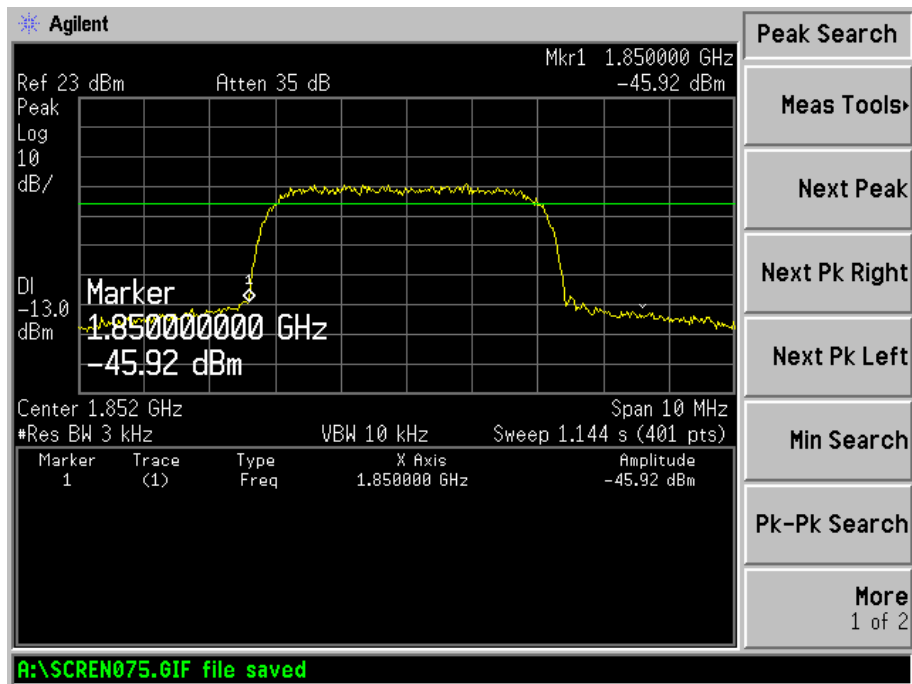
## HSDPA High Channel 30MHz to 1GHz



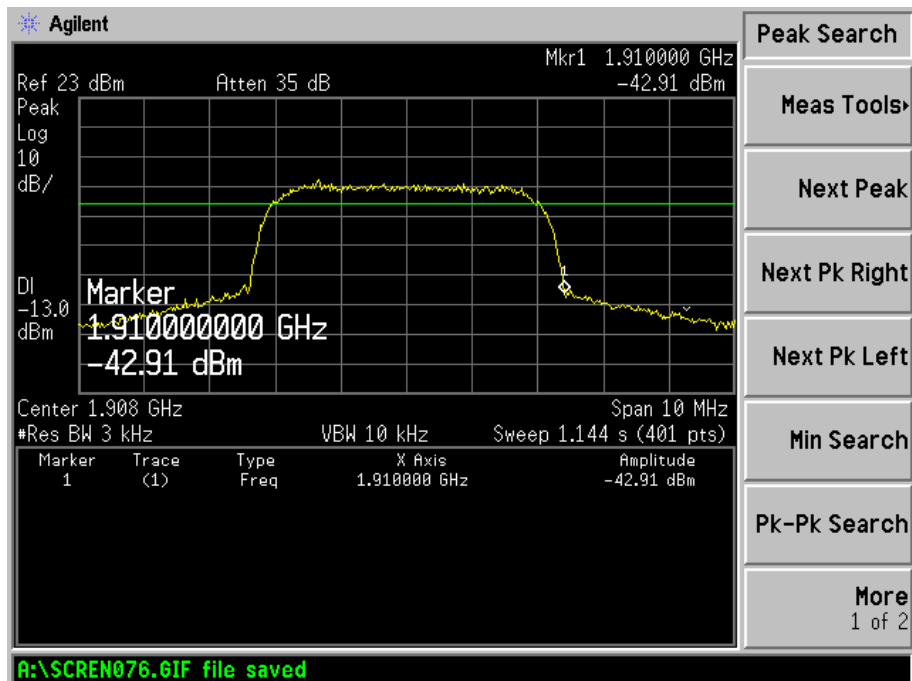
## Above 1GHz



## HSDPA Low Band Spurious Emission



## HSDPA High Band Spurious Emission



## 8. Spurious Radiated Emissions

### 8.1 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.

### 8.2 Test Procedure

1. The setup of EUT is according with per ANSI/TIA Standard 603D and ANSI C63.4-2014 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)

### 8.3 Environmental Conditions

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

### 8.4 Summary of Test Results/Plots

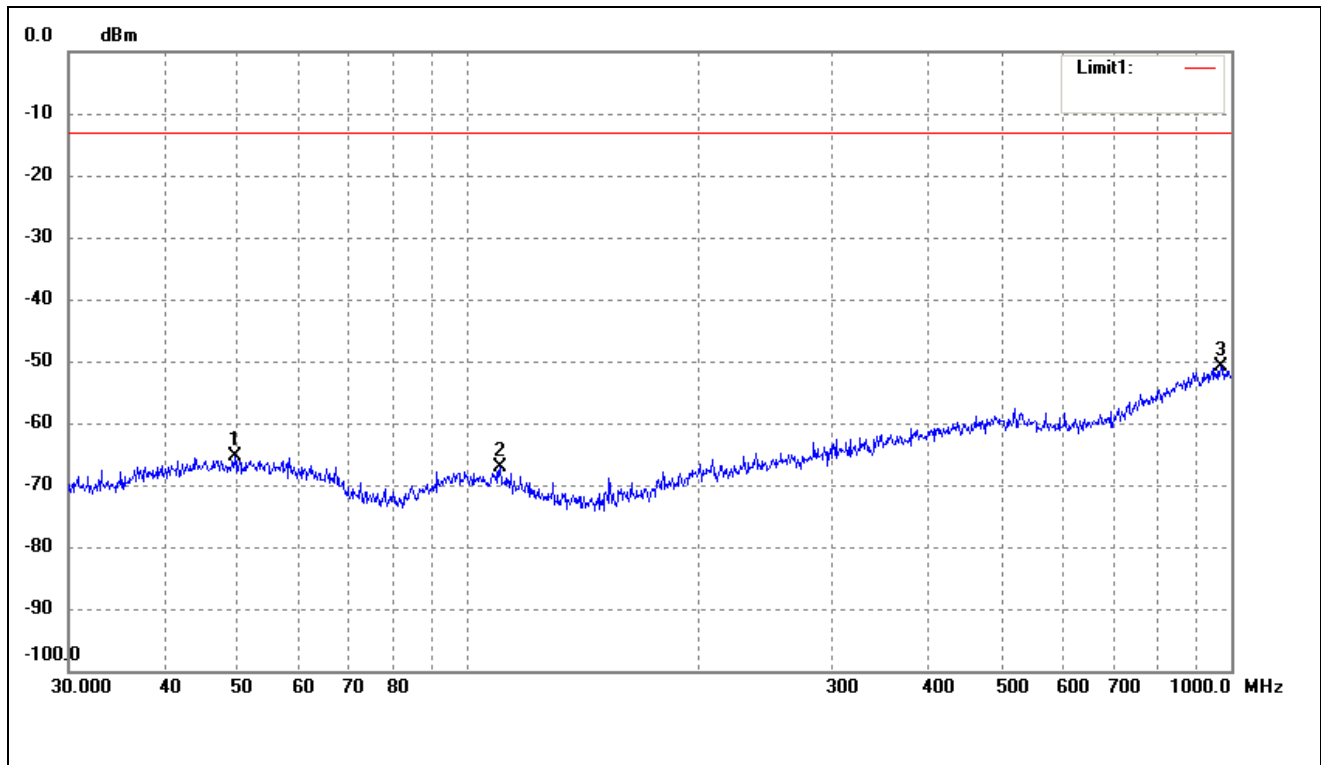
According to the data below, the FCC Part 22.917 and 24.238 standards, and had the worst margin of:

*Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.*

Spurious Emission From 30MHz to 1GHz

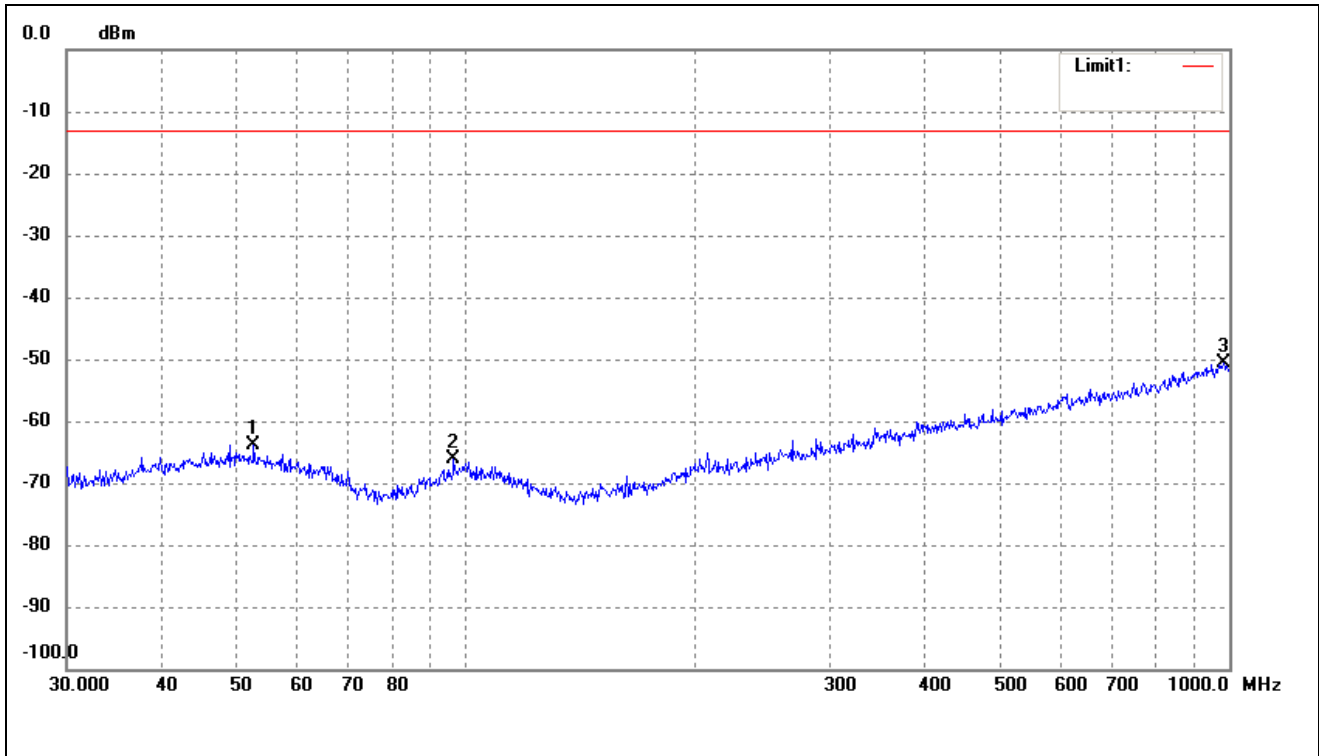
For Cellular Band\_ GSM850 Mode

Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	49.5328	-69.71	4.35	-65.36	-13.00	-52.36	ERP
2	110.1816	-69.27	2.17	-67.10	-13.00	-54.10	ERP
3	968.9338	-68.86	18.01	-50.85	-13.00	-37.85	ERP

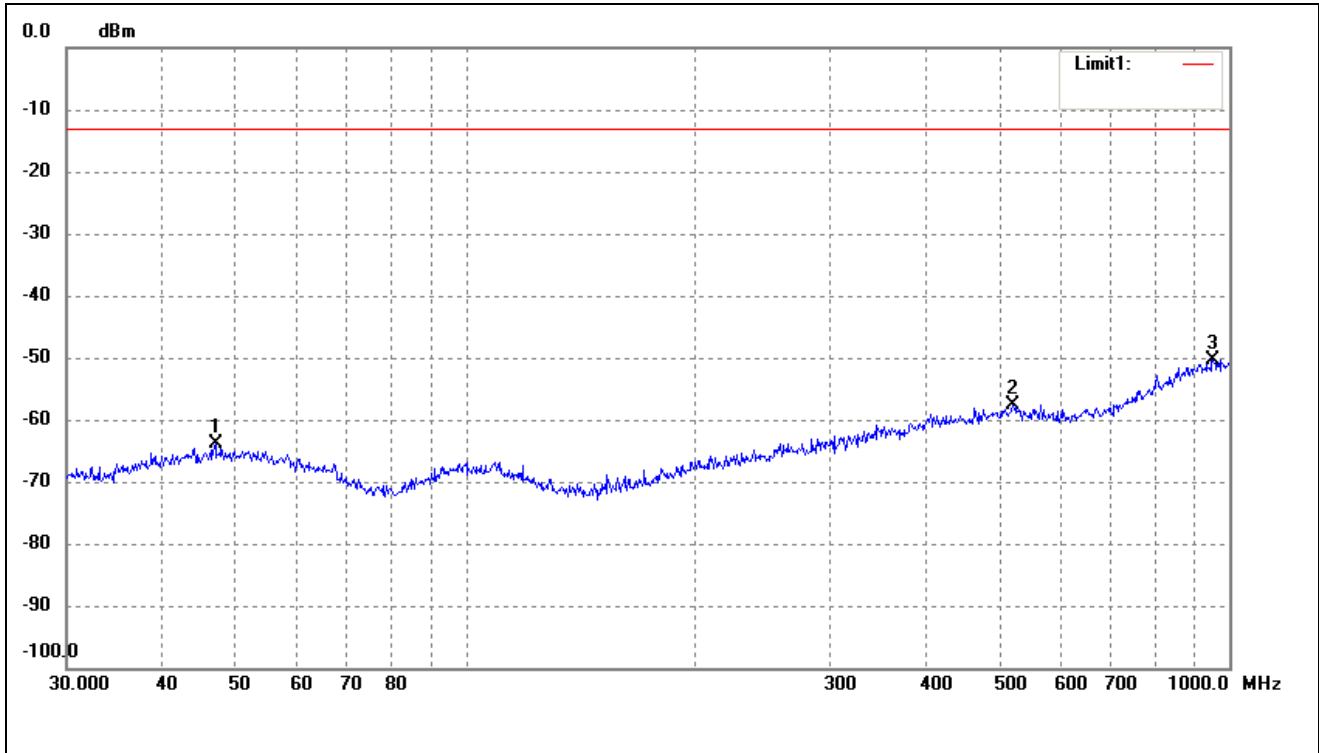
Vertical:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	52.7600	-67.91	4.07	-63.84	-13.00	-50.84	ERP
2	96.4362	-67.90	1.81	-66.09	-13.00	-53.09	ERP
3	982.6200	-68.92	18.22	-50.70	-13.00	-37.70	ERP

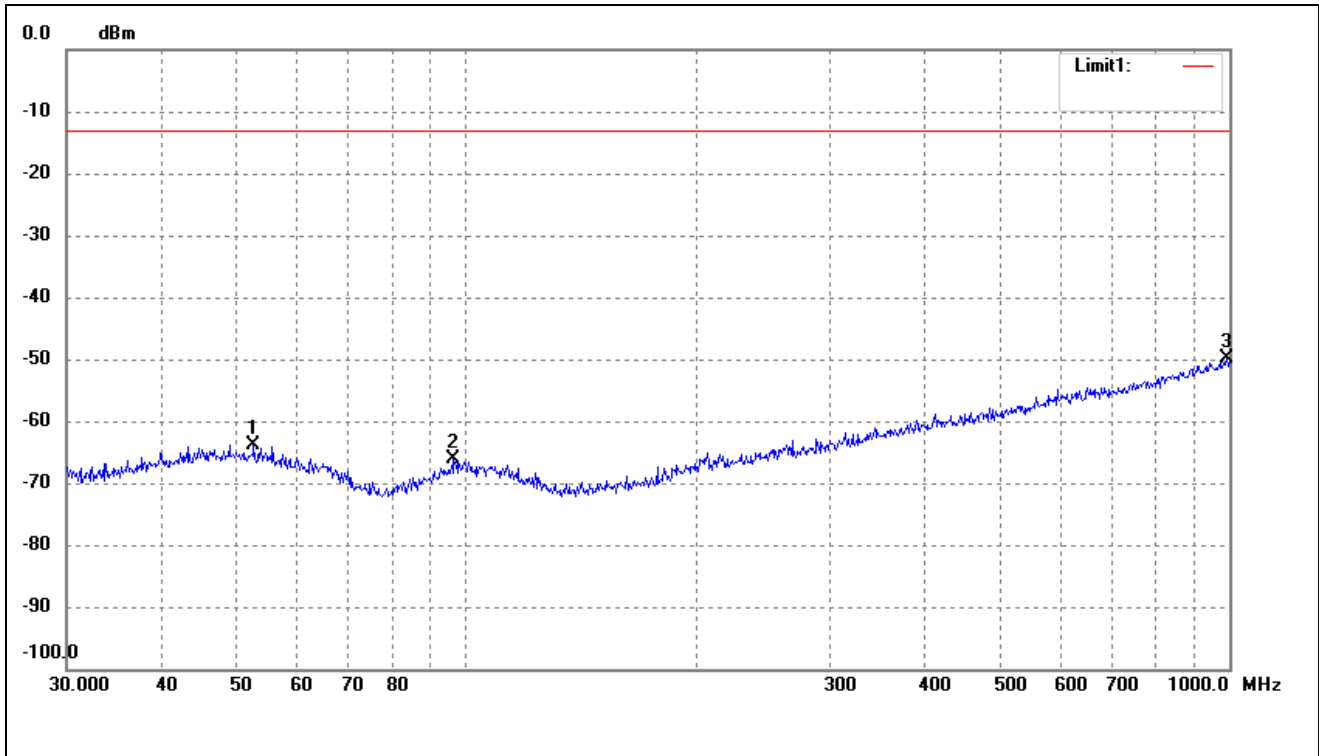
For Cellular Band\_ GSM1900 Mode

Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	46.9948	-68.28	4.35	-63.93	-13.00	-50.93	ERP
2	520.8882	-68.29	10.57	-57.72	-13.00	-44.72	ERP
3	952.0937	-68.14	17.76	-50.38	-13.00	-37.38	ERP

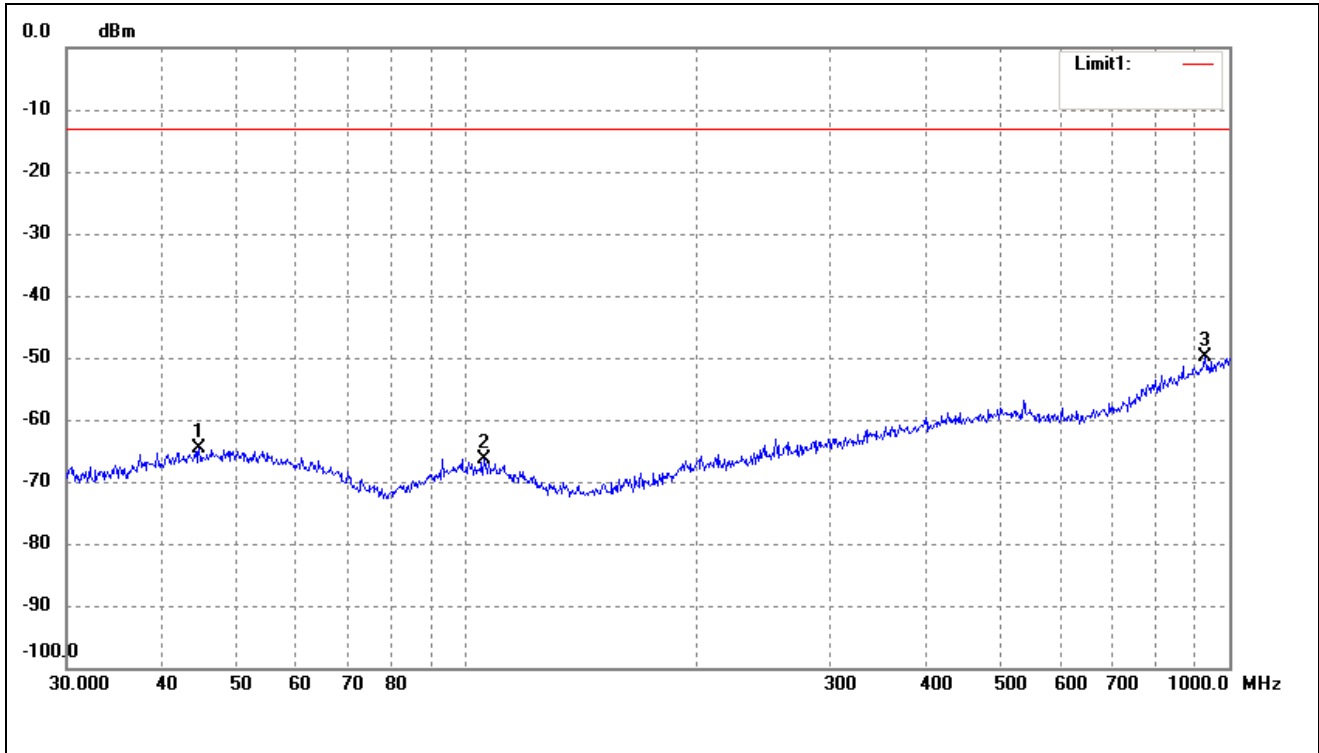
Vertical:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	52.7600	-67.91	4.07	-63.84	-13.00	-50.84	ERP
2	96.4362	-67.90	1.81	-66.09	-13.00	-53.09	ERP
3	993.0114	-68.26	18.38	-49.88	-13.00	-36.88	ERP

For band V Mode

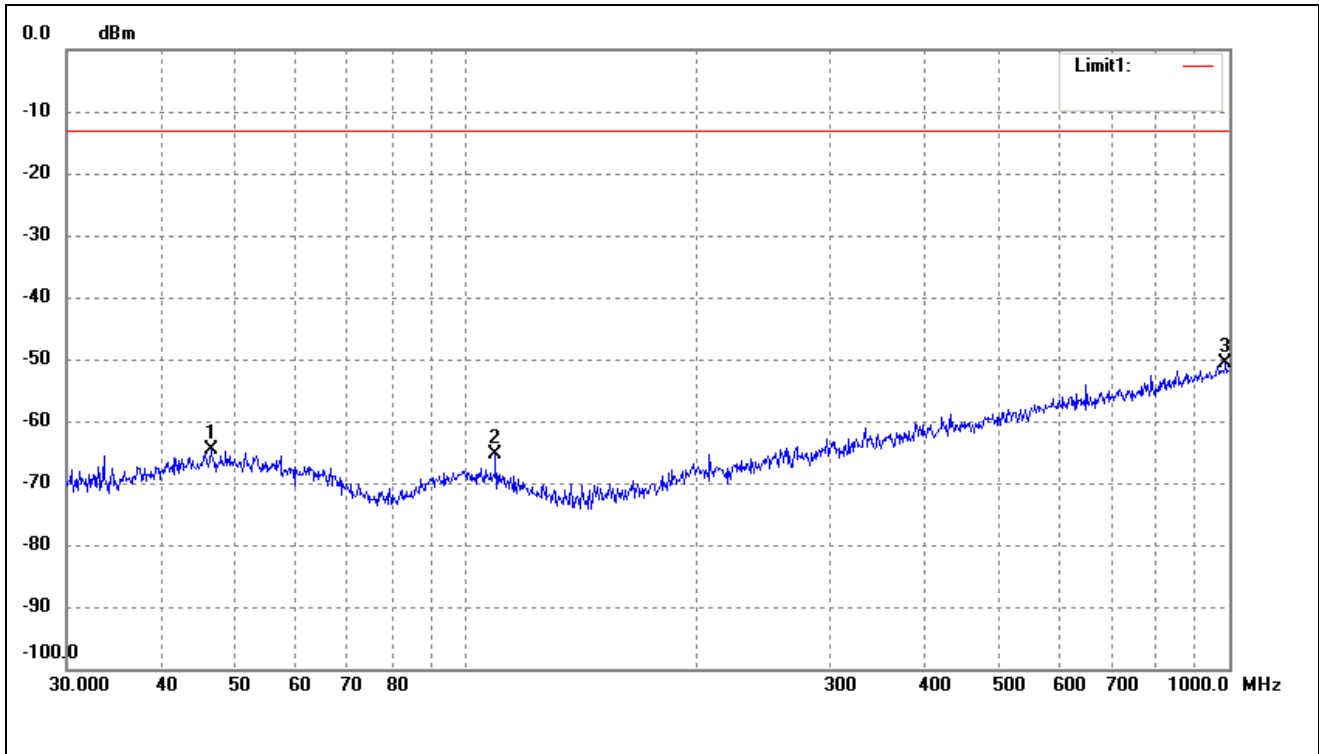
Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.7434	-68.86	4.28	-64.58	-13.00	-51.58	ERP
2	105.6415	-68.50	2.22	-66.28	-13.00	-53.28	ERP
3	929.0082	-67.31	17.50	-49.81	-13.00	-36.81	ERP



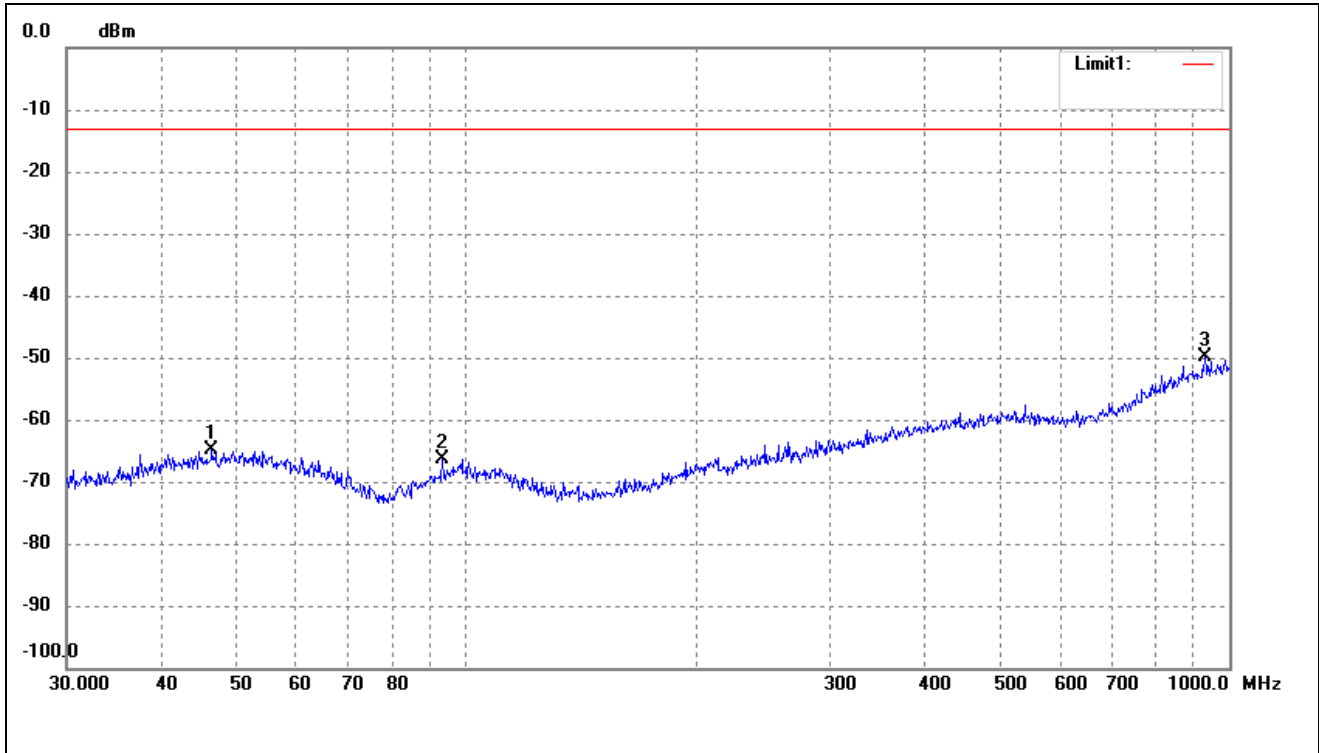
Vertical:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	46.3402	-69.04	4.34	-64.70	-13.00	-51.70	ERP
2	109.4116	-67.57	2.21	-65.36	-13.00	-52.36	ERP
3	989.5355	-68.85	18.32	-50.53	-13.00	-37.53	ERP

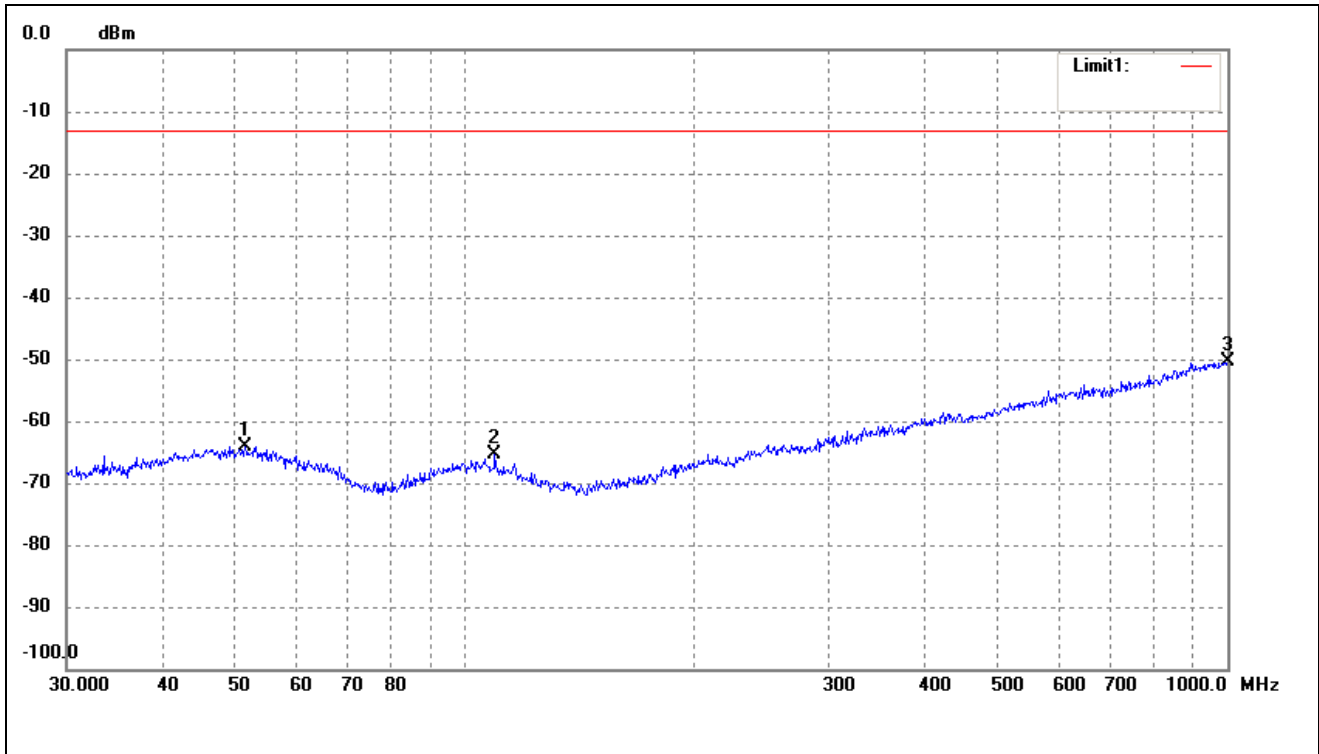
For band II Mode

Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	46.5030	-69.18	4.34	-64.84	-13.00	-51.84	ERP
2	93.1132	-67.56	1.23	-66.33	-13.00	-53.33	ERP
3	929.0082	-67.31	17.50	-49.81	-13.00	-36.81	ERP

Vertical:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	51.4807	-68.27	4.21	-64.06	-13.00	-51.06	ERP
2	109.4116	-67.57	2.21	-65.36	-13.00	-52.36	ERP
3	1000.0000	-68.87	18.48	-50.39	-13.00	-37.39	ERP

Note: Margin= (Reading+ Correct)- Limit

*Spurious Emissions Above 1GHz*  
*For Cellular Band\_GSM850 Mode*

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (824.2MHz)						
1648.4	-55.45	4.94	-50.51	-13	-37.51	H
2472.6	-52.73	8.46	-44.27	-13	-31.27	H
1648.4	-42.73	4.94	-37.79	-13	-24.79	V
2472.6	-50.91	8.46	-42.45	-13	-29.45	V
Middle Channel (836.4MHz)						
1673.2	-44.55	5.11	-39.44	-13	-26.44	H
2509.8	-45.45	8.54	-36.91	-13	-23.91	H
1673.2	-43.64	5.11	-38.53	-13	-25.53	V
2509.8	-50.00	8.54	-41.46	-13	-28.46	V
High Channel (848.8MHz)						
1697.6	-52.73	5.29	-47.44	-13	-34.44	H
2546.4	-52.73	8.59	-44.14	-13	-31.14	H
1697.6	-49.09	5.29	-43.80	-13	-30.80	V
2546.4	-50.91	8.59	-42.32	-13	-29.32	V

*For PCS Band\_GSM1900 Mode*

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (1850.2MHz)						
3700.4	-52.73	10.54	-42.19	-13	-29.19	H
5550.6	-50.91	13.37	-37.54	-13	-24.54	H
3700.4	-50.91	10.54	-40.37	-13	-27.37	V
5550.6	-48.18	13.37	-34.81	-13	-21.81	V
Middle Channel (1880MHz)						
3760.0	-50.91	10.64	-40.27	-13	-27.27	H
5640.0	-44.55	13.54	-31.01	-13	-18.01	H
3760.0	-43.64	10.64	-33.00	-13	-20.00	V
5640.0	-46.36	13.54	-32.82	-13	-19.82	V
High Channel (1909.8MHz)						
3819.6	-54.55	10.74	-43.81	-13	-30.81	H
5729.4	-50.00	13.71	-36.29	-13	-23.29	H
3819.6	-50.00	10.74	-39.26	-13	-26.26	V
5729.4	-47.27	13.71	-33.56	-13	-20.56	V

## For Band 5 Mode

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (826.4MHz)						
1652.8	-50.00	4.94	-45.06	-13	-32.06	H
2479.2	-46.36	8.46	-37.90	-13	-24.90	H
1652.8	-42.73	4.94	-37.79	-13	-24.79	V
2479.2	-47.27	8.46	-38.81	-13	-25.81	V
Middle Channel (836.4MHz)						
1672.8	-48.18	5.11	-43.07	-13	-30.07	H
2509.2	-45.45	8.54	-36.91	-13	-23.91	H
1672.8	-44.55	5.11	-39.44	-13	-26.44	V
2509.2	-50.91	8.54	-42.37	-13	-29.37	V
High Channel (846.6MHz)						
1693.2	-47.27	5.29	-41.98	-13	-28.98	H
2539.8	-49.09	8.59	-40.50	-13	-27.50	H
1693.2	-42.73	5.29	-37.44	-13	-24.44	V
2539.8	-51.82	8.59	-43.23	-13	-30.23	V

## For Band 2 Mode

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (1852.4MHz)						
3704.8	-43.64	10.54	-33.10	-13	-20.10	H
5557.2	-42.73	13.37	-29.36	-13	-16.36	H
3704.8	-44.55	10.54	-34.01	-13	-21.01	V
5557.2	-51.82	13.37	-38.45	-13	-25.45	V
Middle Channel (1880MHz)						
3760.8	-45.45	10.64	-34.81	-13	-21.81	H
5640.0	-44.55	13.54	-31.01	-13	-18.01	H
3760.8	-55.45	10.64	-44.81	-13	-31.81	V
5640.0	-45.45	13.54	-31.91	-13	-18.91	V
High Channel (1907.6MHz)						
3815.2	-45.45	10.74	-34.71	-13	-21.71	H
5722.8	-50.91	13.71	-37.20	-13	-24.20	H
3815.2	-46.36	10.74	-35.62	-13	-22.62	V
5722.8	-53.64	13.71	-39.93	-13	-26.93	H

Note: Result=Reading+ Correct, Margin= Result- Limit

Testing is carried out with frequency rang 9kHz to 20GHz, which above 3<sup>th</sup> Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so the data is not display.

## 9. Frequency Stability

### 9.1 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.

### 9.2 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	DC 3.3-4.2V of nominal voltage declared by manufacturer
-30°C to +50°C	Normal

### 9.3 Environmental Conditions

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

## 9.4 Summary of Test Results/Plots

For Cellular Band GSM Mode

Reference Frequency(Middle Channel): 836.4 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	58	0.0693
40	3.7	54	0.0645
30	3.7	49	0.0586
20	3.7	47	0.0562
10	3.7	52	0.0622
0	3.7	46	0.0550
-10	3.7	-9	-0.0108
-20	3.7	-20	-0.0239
-30	3.7	-24	-0.0287

For PCS Band GSM Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	64	0.0340
40	3.7	61	0.0324
30	3.7	57	0.0303
20	3.7	66	0.0351
10	3.7	62	0.0330
0	3.7	66	0.0351
-10	3.7	77	0.0410
-20	3.7	72	0.0383
-30	3.7	79	0.0420

## For Cellular Band GPRS Mode

Reference Frequency(Middle Channel): 836.4 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	62	0.0741
40	3.7	58	0.0693
30	3.7	53	0.0634
20	3.7	51	0.0610
10	3.7	56	0.0669
0	3.7	50	0.0598
-10	3.7	-5	-0.0060
-20	3.7	-16	-0.0191
-30	3.7	-20	-0.0239

## For PCS Band GPRS Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	58	0.0309
40	3.7	55	0.0293
30	3.7	51	0.0271
20	3.7	60	0.0319
10	3.7	56	0.0298
0	3.7	60	0.0319
-10	3.7	71	0.0378
-20	3.7	66	0.0351
-30	3.7	73	0.0388



For WCDMA Band V Mode

Reference Frequency(Middle Channel): 836.4 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	-46	-0.0550
40	3.7	-39	-0.0466
30	3.7	-36	-0.0430
20	3.7	-50	-0.0598
10	3.7	-31	-0.0371
0	3.7	-26	-0.0311
-10	3.7	-37	-0.0442
-20	3.7	-41	-0.0490
-30	3.7	-20	-0.0239

For WCDMA Band II Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	53	0.0282
40	3.7	50	0.0266
30	3.7	46	0.0245
20	3.7	55	0.0293
10	3.7	51	0.0271
0	3.7	55	0.0293
-10	3.7	66	0.0351
-20	3.7	61	0.0324
-30	3.7	68	0.0362

## For HSUPA Band V Mode

Reference Frequency(Middle Channel): 836.4 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	-54	-0.0646
40	3.7	-47	-0.0562
30	3.7	-44	-0.0526
20	3.7	-58	-0.0693
10	3.7	-39	-0.0466
0	3.7	-34	-0.0407
-10	3.7	-45	-0.0538
-20	3.7	-49	-0.0586
-30	3.7	-28	-0.0335

## For HSUPA Band II Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	61	0.0324
40	3.7	58	0.0309
30	3.7	54	0.0287
20	3.7	63	0.0335
10	3.7	59	0.0314
0	3.7	63	0.0335
-10	3.7	74	0.0394
-20	3.7	69	0.0367
-30	3.7	76	0.0404

## For HSDPA Band V Mode

Reference Frequency(Middle Channel): 836.4 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	-68	-0.0813
40	3.7	-61	-0.0729
30	3.7	-58	-0.0693
20	3.7	-72	-0.0861
10	3.7	-53	-0.0634
0	3.7	-48	-0.0574
-10	3.7	-59	-0.0705
-20	3.7	-63	-0.0753
-30	3.7	-42	-0.0502

## For HSDPA Band II Mode

Reference Frequency(Middle Channel): 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	68	0.0362
40	3.7	59	0.0314
30	3.7	54	0.0287
20	3.7	68	0.0362
10	3.7	62	0.0330
0	3.7	57	0.0303
-10	3.7	53	0.0282
-20	3.7	61	0.0324
-30	3.7	69	0.0367

So, Frequency Stability Versus Input Voltage is:

Reference Frequency(Middle Channel): GSM 836.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	52	0.0622
	3.7	47	0.0562
	4.2	49	0.0586
Reference Frequency(Middle Channel): GSM 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	64	0.0340
	3.7	66	0.0351
	4.2	79	0.0420
Reference Frequency(Middle Channel): GPRS 836.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	50	0.0598
	3.7	51	0.0610
	4.2	56	0.0669
Reference Frequency(Middle Channel): GPRS 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	69	0.0367
	3.7	60	0.0319
	4.2	74	0.0394

Reference Frequency(Middle Channel): WCDMA 836.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	-55	-0.0658
	3.7	-50	-0.0598
	4.2	-45	-0.0538
Reference Frequency(Middle Channel): WCDMA 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	46	0.0245
	3.7	55	0.0293
	4.2	51	0.0271
Reference Frequency(Middle Channel): HSUPA 836.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	-45	-0.0538
	3.7	-58	-0.0693
	4.2	-40	-0.0478
Reference Frequency(Middle Channel): HSUPA1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	51	0.0271
	3.7	63	0.0335
	4.2	51	0.0271

Reference Frequency(Middle Channel): HSDPA 836.4MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	-59	-0.0705
	3.7	-72	-0.0861
	4.2	-35	-0.0418
Reference Frequency(Middle Channel): HSDPA 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	64	0.0340
	3.7	68	0.0362
	4.2	65	0.0346

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