

FCC Part 22H & 24E & 27 Measurement and Test Report

For

Sky Phone LLC

1348 Washington Av.Suite 350 Miami Beach, FL 33139

FCC ID: 2ABOSSKYELITE70

FCC Rules: FCC Part 22H, FCC Part 24E, FCC Part 27

Product Description: 4G Tablet

Tested Model: Elite 7.0L

Report No.: STR16018007I-6

Tested Date: 2016-01-11 to 2016-01-22

Issued Date: 2016-01-22

Tested By: Lucy Wei / Engineer

Lucy Wei

Reviewed By: Silin Chen / EMC Manager

Silin Chen

Approved & Authorized By: Jandy So / PSQ Manager

Jandy So

Prepared By:

Shenzhen SEM.Test Technology Co., Ltd.

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

Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

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.

TABLE OF CONTENTS

1. GENERAL INFORMATION.....	3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
1.2 TEST STANDARDS.....	5
1.3 TEST METHODOLOGY.....	5
1.4 TEST FACILITY.....	5
1.5 EUT SETUP AND TEST MODE.....	6
1.6 MEASUREMENT UNCERTAINTY.....	7
1.7 TEST EQUIPMENT LIST AND DETAILS.....	8
2. SUMMARY OF TEST RESULTS.....	9
3. RF EXPOSURE.....	10
3.1 STANDARD APPLICABLE.....	10
3.2 TEST RESULT.....	10
4. RF OUTPUT POWER.....	11
4.1 STANDARD APPLICABLE.....	11
4.2 TEST PROCEDURE.....	11
4.3 ENVIRONMENTAL CONDITIONS.....	11
4.4 SUMMARY OF TEST RESULTS/PLOTS.....	12
5. PEAK-TO-AVERAGE RADIO (PAR) OF TRANSMITTER.....	23
5.1 STANDARD APPLICABLE.....	23
5.2 TEST PROCEDURE.....	23
5.3 ENVIRONMENTAL CONDITIONS.....	23
5.4 SUMMARY OF TEST RESULTS.....	24
6. EMISSION BANDWIDTH.....	30
6.1 STANDARD APPLICABLE.....	30
6.2 TEST PROCEDURE.....	30
6.3 ENVIRONMENTAL CONDITIONS.....	30
6.4 SUMMARY OF TEST RESULTS/PLOTS.....	31
7. OUT OF BAND EMISSIONS AT ANTENNA TERMINAL.....	57
7.1 STANDARD APPLICABLE.....	57
7.2 TEST PROCEDURE.....	57
7.3 ENVIRONMENTAL CONDITIONS.....	57
7.4 SUMMARY OF TEST RESULTS/PLOTS.....	58
8. SPURIOUS RADIATED EMISSIONS.....	118
8.1 STANDARD APPLICABLE.....	118
8.2 TEST PROCEDURE.....	118
8.3 ENVIRONMENTAL CONDITIONS.....	118
8.4 SUMMARY OF TEST RESULTS/PLOTS.....	118
9. FREQUENCY STABILITY.....	132
9.1 STANDARD APPLICABLE.....	132
9.2 TEST PROCEDURE.....	132
9.3 ENVIRONMENTAL CONDITIONS.....	132
9.4 SUMMARY OF TEST RESULTS/PLOTS.....	133

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Sky Phone LLC
Address of applicant: 1348 Washington Av.Suite 350 Miami Beach, FL 33139

Manufacturer: Shenzhen Tablet Electronics Limited
Address of manufacturer: 2F, B5b Building, Yingzhan Industrial Zone, Longtian Community, Kengzi Street, Longgang, Shenzhen, China

General Description of EUT:	
Product Name:	4G Tablet
Brand Name:	SKY
Model No.:	Elite 7.0L
Adding Model:	LQ70, PLATINUM7.0, SKYPLA70
Hardware version:	S88D_MB_V1.1
Software version:	Elite_7.0L_20151202
IMEI:	358732055465047/358732055464966
Rated Voltage:	DC 3.7V Li-polymer Battery
Battery:	2800mAh
Device Category:	Portable Device
<i>The EUT Main board support GSM850/900/DCS1800/PCS1900, WCDMA Band 1/2/4/5, LTE Band 2/4/7/17 function. It is intended for speech, Multimedia Message Service (MMS) transmission and Elite 7.0L. It is equipped with GPRS/EDGE class 12 for GSM850/900/DCS1800/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. The appearance of others models listed in the report is different from main-test model Elite 7.0L, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT:	
2G	
Support Networks:	GSM, GPRS, EDGE
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS/EDGE 850: 869~894MHz GSM/GPRS/EDGE 1900: 1930~1990MHz
Max RF Output Power:	GSM850: 32.17dBm, GSM1900: 30.02dBm EDGE850: 25.89dBm, EDGE1900: 24.97dBm
Type of Emission:	GSM850: 250KGXW, GSM1900: 249KGXW EDGE850: 253KG7W, EDGE1900: 257KG7W
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -4.32dBi; GSM1900: -4.56dBi
GPRS/EDGE Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 4, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 4: 1710~1755MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 4: 2110~2155MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 22.90dBm, WCDMA Band 4: 22.77dBm WCDMA Band 5: 22.80dBm
Type of Emission:	WCDMA Band 2: 4M23F9W WCDMA Band 4: 4M23F9W WCDMA Band 5: 4M23F9W
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: -3.72dBi, WCDMA Band 4: -4.06dBi, WCDMA Band 5: -3.55dBi

1.2 Test Standards

The following report is prepared on behalf of the Sky Phone LLC in accordance with FCC Part 2 subpart J, FCC Part 22 subpart H and FCC Part 24 subpart E and FCC Part 27 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 and FCC Part 27 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	EDGE 850	Low, Middle, High Channels
TM4	GSM 1900	Low, Middle, High Channels
TM5	GPRS 1900	Low, Middle, High Channels
TM6	EDGE 1900	Low, Middle, High Channels
TM7	WCDMA Band 5	Low, Middle, High Channels
TM8	HSDPA Band 5	Low, Middle, High Channels
TM9	HSUPA Band 5	Low, Middle, High Channels
TM10	WCDMA Band 4	Low, Middle, High Channels
TM11	HSDPA Band 4	Low, Middle, High Channels
TM12	HSUPA Band 4	Low, Middle, High Channels
TM13	WCDMA Band 2	Low, Middle, High Channels
TM14	HSDPA Band 2	Low, Middle, High Channels
TM15	HSUPA Band 2	Low, Middle, High Channels

Testing Configure			
Support Band	Support Standard	Channel Frequency	Channel Number
GSM 850	GSM/GPRS/EDGE	824.2 MHz	128
		836.6 MHz	190
		848.8 MHz	251
PCS 1900	GSM/GPRS/EDGE	1850.2 MHz	512
		1880.0 MHz	661
		1909.8 MHz	810
WCDMA Band 5	WCDMA/HSDPA/HSUPA	826.4 MHz	4132
		836.6 MHz	4183
		846.6 MHz	4233
WCDMA Band 4	WCDMA/HSDPA/HSUPA	1712.4 MHz	1312
		1732.4 MHz	1412
		1752.6 MHz	1513
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, EDGE, 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	0.86	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
Earphone	1.2	Unshielded	Without Ferrite

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	$\pm 5.1\text{dB}$

1.7 Test Equipment List and Details

Kind of Equipment	Manufacturer	Type	S/N	Cal Date	Due Date
Equipment list of < Shenzhen SEM.Test Technology Co., Ltd.>					
Test SIM card	-		-	N/A	
GSM Tester	Rohde & Schwarz	CMU200	104036	2015-06-17	2016-06-16
Spectrum Analyzer	Agilent	E4407B	MY41440400	2015-06-17	2016-06-16
Spectrum Analyzer	Agilent	N9020A	US47140102	2015-06-17	2016-06-16
Signal Generator	Agilent	83752A	3610A01453	2015-06-17	2016-06-16
Vector Signal Generator	Agilent	N5182A	MY47070202	2015-06-17	2016-06-16
Power Divider	Weinschel	1506A	PM204	2015-06-17	2016-06-16
Power Divider	RF-Lambda	RFLT4W5M18G	14110400027	2015-06-17	2016-06-16
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2015-06-17	2016-06-16
Amplifier	Agilent	8447F	3113A06717	2015-06-17	2016-06-16
Amplifier	C&D	PAP-1G18	2002	2015-06-17	2016-06-16
Loop Antenna	Schwarz beck	FMZB 1516	9773	2015-06-17	2016-06-16
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2015-06-17	2016-06-16
Broadband Antenna	Schwarz beck	VULB9163	9163-332	2015-06-17	2016-06-16
Horn Antenna	ETS	3117	00086197	2015-06-17	2016-06-16
Horn Antenna	ETS	3117	00086168	2015-06-17	2016-06-16
Horn Antenna	ETS	3116B	00088203	2015-06-17	2016-06-16
Horn Antenna	ETS	3116B	00088221	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), §27.50(d)	RF Output Power	Compliant
§ 24.51, § 27.50	Peak-to-average Radio (PAR) of Transmitter	Compliant
§ 22.917 (b), § 24.238 (b), § 27.53	Emission Bandwidth	Compliant
§ 22.917 (a), § 24.238 (a), § 27.53(h)	Spurious Emissions at Antenna Terminal	Compliant
§ 22.917 (a), § 24.238 (a), § 27.53(h)	Spurious Radiation Emissions	Compliant
§ 22.917 (a), § 24.238 (a), § 27.53(h)	Out of Band Emissions	Compliant
§ 22.355, § 24.235, § 27.54	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 complied with the requirement of the RF exposure, please see the SAR report.

4. RF Output Power

4.1 Standard Applicable

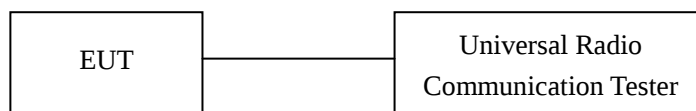
According to §22.913(a)(2), The ERP of mobile and portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

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.

According to §27.50(d)(4), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

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	30.88	1.5	0	H	1.5	0	29.38	38.45
824.2	32.87	1.5	0	V	1.5	0	31.37	38.45
Middle Channel								
836.4	30.98	1.5	0	H	1.5	0	29.48	38.45
836.4	32.96	1.5	0	V	1.5	0	31.46	38.45
High Channel								
848.8	30.99	1.5	0	H	1.5	0	29.49	38.45
848.8	33.00	1.5	0	V	1.5	0	31.50	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	21.66	1.5	0	H	1.9	7.7	27.46	33.00
1850.2	23.63	1.5	0	V	1.9	7.7	29.43	33.00
Middle Channel								
1880.0	21.72	1.5	0	H	1.9	7.7	27.52	33.00
1880.0	23.74	1.5	0	V	1.9	7.7	29.54	33.00
High Channel								
1909.8	21.64	1.5	0	H	1.9	7.7	27.44	33.00
1909.8	23.69	1.5	0	V	1.9	7.7	29.49	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	30.86	1.5	0	H	1.5	0	29.36	38.45
824.2	32.87	1.5	0	V	1.5	0	31.37	38.45
Middle Channel								
836.6	30.95	1.5	0	H	1.5	0	29.45	38.45
836.6	32.93	1.5	0	V	1.5	0	31.43	38.45
High Channel								
848.8	31.03	1.5	0	H	1.5	0	29.53	38.45
848.8	33.04	1.5	0	V	1.5	0	31.54	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	21.6	1.5	0	H	1.9	7.7	27.4	33.00
1850.2	23.57	1.5	0	V	1.9	7.7	29.37	33.00
Middle Channel								
1880.0	21.85	1.5	0	H	1.9	7.7	27.65	33.00
1880.0	23.67	1.5	0	V	1.9	7.7	29.47	33.00
High Channel								
1909.8	21.75	1.5	0	H	1.9	7.7	27.55	33.00
1909.8	23.8	1.5	0	V	1.9	7.7	29.6	33.00

ERP For EDGE 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	24.63	1.5	0	H	1.5	0	23.13	38.45
824.2	26.64	1.5	0	V	1.5	0	25.14	38.45
Middle Channel								
836.6	24.67	1.5	0	H	1.5	0	23.17	38.45
836.6	26.65	1.5	0	V	1.5	0	25.15	38.45
High Channel								
848.8	24.51	1.5	0	H	1.5	0	23.01	38.45
848.8	26.52	1.5	0	V	1.5	0	25.02	38.45

EIRP For EDGE 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	16.88	1.5	0	H	1.9	7.7	22.68	33.00
1850.2	18.85	1.5	0	V	1.9	7.7	24.65	33.00
Middle Channel								
1880.0	16.74	1.5	0	H	1.9	7.7	22.54	33.00
1880.0	18.56	1.5	0	V	1.9	7.7	24.36	33.00
High Channel								
1909.8	16.8	1.5	0	H	1.9	7.7	22.6	33.00
1909.8	18.85	1.5	0	V	1.9	7.7	24.65	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	22.54	1.5	0	H	1.5	0	21.04	38.45
826.4	23.4	1.5	0	V	1.5	0	21.9	38.45
Middle Channel								
836.6	22.12	1.5	0	H	1.5	0	20.62	38.45
836.6	23.54	1.5	0	V	1.5	0	22.04	38.45
High Channel								
846.6	21.84	1.5	0	H	1.5	0	20.34	38.45
846.6	23.23	1.5	0	V	1.5	0	21.73	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	21.59	1.5	0	H	1.5	0	20.09	38.45
826.4	22.45	1.5	0	V	1.5	0	20.95	38.45
Middle Channel								
836.6	21.13	1.5	0	H	1.5	0	19.63	38.45
836.6	22.55	1.5	0	V	1.5	0	21.05	38.45
High Channel								
846.6	20.9	1.5	0	H	1.5	0	19.4	38.45
846.6	22.29	1.5	0	V	1.5	0	20.79	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	21.79	1.5	0	H	1.5	0	20.29	38.45
826.4	22.65	1.5	0	V	1.5	0	21.15	38.45
Middle Channel								
836.6	21.38	1.5	0	H	1.5	0	19.88	38.45
836.6	22.8	1.5	0	V	1.5	0	21.3	38.45
High Channel								
846.6	21.24	1.5	0	H	1.5	0	19.74	38.45
846.6	22.63	1.5	0	V	1.5	0	21.13	38.45

ERP For WCDMA Mode Band 4

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 27 Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
1712.4	14.66	1.5	0	H	1.8	7.7	20.56	30.00
1712.4	15.74	1.5	0	V	1.8	7.7	21.64	30.00
Middle Channel								
1732.4	14.52	1.5	0	H	1.8	7.7	20.42	30.00
1732.4	15.44	1.5	0	V	1.8	7.7	21.34	30.00
High Channel								
1752.6	14.15	1.5	0	H	1.8	7.7	20.05	30.00
1752.6	15.19	1.5	0	V	1.8	7.7	21.09	30.00

ERP For HSDPA Mode Band 4

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 27 Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
1712.4	13.99	1.5	0	H	1.8	7.7	19.89	30.00
1712.4	15.07	1.5	0	V	1.8	7.7	20.97	30.00
Middle Channel								
1732.4	13.89	1.5	0	H	1.8	7.7	19.79	30.00
1732.4	14.81	1.5	0	V	1.8	7.7	20.71	30.00
High Channel								
1752.6	13.62	1.5	0	H	1.8	7.7	19.52	30.00
1752.6	14.66	1.5	0	V	1.8	7.7	20.56	30.00

ERP For HSUPA Mode Band 4

Frequency	Substitute SG	Height	Table	Polar	Cable loss	Antenna Gain	Result	FCC Part 27 Limit
MHz	dBm	Meter	Degree	H / V	dB	dBd	dBm	dBm
Low Channel								
1712.4	13.96	1.5	0	H	1.8	7.7	19.86	30.00
1712.4	15.04	1.5	0	V	1.8	7.7	20.94	30.00
Middle Channel								
1732.4	13.86	1.5	0	H	1.8	7.7	19.76	30.00
1732.4	14.78	1.5	0	V	1.8	7.7	20.68	30.00
High Channel								
1752.6	13.61	1.5	0	H	1.8	7.7	19.51	30.00
1752.6	14.65	1.5	0	V	1.8	7.7	20.55	30.00

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	14.04	1.5	0	H	1.9	7.7	19.84	33
1852.4	15.76	1.5	0	V	1.9	7.7	21.56	33
Middle Channel								
1880.0	13.82	1.5	0	H	1.9	7.7	19.62	33
1880.0	16.03	1.5	0	V	1.9	7.7	21.83	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	18.76	33
1852.4	14.68	1.5	0	V	1.9	7.7	20.48	33
Middle Channel								
1880.0	12.86	1.5	0	H	1.9	7.7	18.66	33
1880.0	15.07	1.5	0	V	1.9	7.7	20.87	33
High Channel								
1907.6	13.33	1.5	0	H	1.9	7.7	19.13	33
1907.6	15.07	1.5	0	V	1.9	7.7	20.87	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	12.93	1.5	0	H	1.9	7.7	18.73	33
1852.4	14.65	1.5	0	V	1.9	7.7	20.45	33
Middle Channel								
1880.0	12.86	1.5	0	H	1.9	7.7	18.66	33
1880.0	15.07	1.5	0	V	1.9	7.7	20.87	33
High Channel								
1907.6	13.3	1.5	0	H	1.9	7.7	19.1	33
1907.6	15.04	1.5	0	V	1.9	7.7	20.84	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	32.12	38.45
	Middle Channel	836.6	32.13	38.45
	High Channel	848.8	32.13	38.45
GPRS(1 Slot)	Low Channel	824.2	32.12	38.45
	Middle Channel	836.6	32.10	38.45
	High Channel	848.8	32.17	38.45
EDGE(1 Slot)	Low Channel	824.2	25.89	38.45
	Middle Channel	836.6	25.82	38.45
	High Channel	848.8	25.65	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	29.67	33.0
	Middle Channel	1880.0	29.89	33.0
	High Channel	1909.8	29.81	33.0
GPRS(1 Slot)	Low Channel	1850.2	29.61	33.0
	Middle Channel	1880.0	30.02	33.0
	High Channel	1909.8	29.92	33.0
EDGE(1 Slot)	Low Channel	1850.2	24.89	33.0
	Middle Channel	1880.0	24.91	33.0
	High Channel	1909.8	24.97	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	22.76	38.45
	Middle Channel	836.6	22.80	38.45
	High Channel	846.6	22.67	38.45
HSDPA	Low Channel	826.4	21.81	38.45
	Middle Channel	836.6	21.81	38.45
	High Channel	846.6	21.73	38.45
HSUPA	Low Channel	826.4	22.01	38.45
	Middle Channel	836.6	22.06	38.45
	High Channel	846.6	22.07	38.45

For WCDMA Band 4

Test Mode	Channel	Frequency (MHz)	Output Power (dBm)	FCC Part 27.50 Limit (dBm)
WCDMA	Low Channel	1712.4	22.77	30.0
	Middle Channel	1732.4	22.57	30.0
	High Channel	1752.6	22.02	30.0
HSDPA	Low Channel	1712.4	22.10	30.0
	Middle Channel	1732.4	21.94	30.0
	High Channel	1752.6	21.49	30.0
HSUPA	Low Channel	1712.4	22.07	30.0
	Middle Channel	1732.4	21.91	30.0
	High Channel	1752.6	21.48	30.0

For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	Average Power (dBm)	FCC Part 24.232 Limit (dBm)
WCDMA	Low Channel	1852.4	22.58	33.00
	Middle Channel	1880.0	22.66	33.00
	High Channel	1907.6	22.90	33.00
HSDPA	Low Channel	1852.4	21.69	33.00
	Middle Channel	1880.0	21.02	33.00
	High Channel	1907.6	21.16	33.00
HSUPA	Low Channel	1852.4	21.75	33.00
	Middle Channel	1880.0	20.96	33.00
	High Channel	1907.6	21.13	33.00

5. Peak-to-average Radio (PAR) of Transmitter

5.1 Standard Applicable

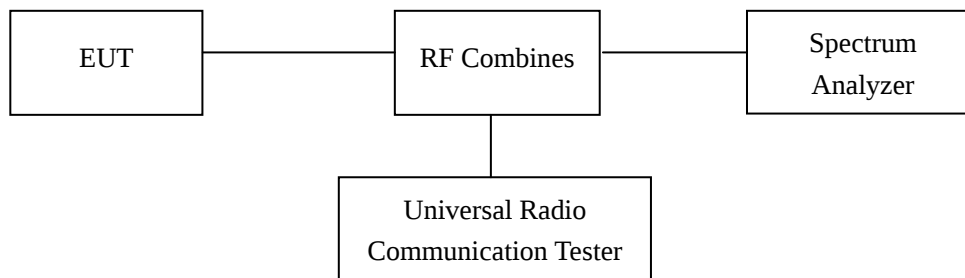
According to §24.232(d), Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in 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.

According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

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	885	1909.8	9.26	13
GPRS(1 Slot)	698	1880.0	8.83	13
EDGE(1 Slot)	512	1850.2	12.08	13

For WCDMA Band 4

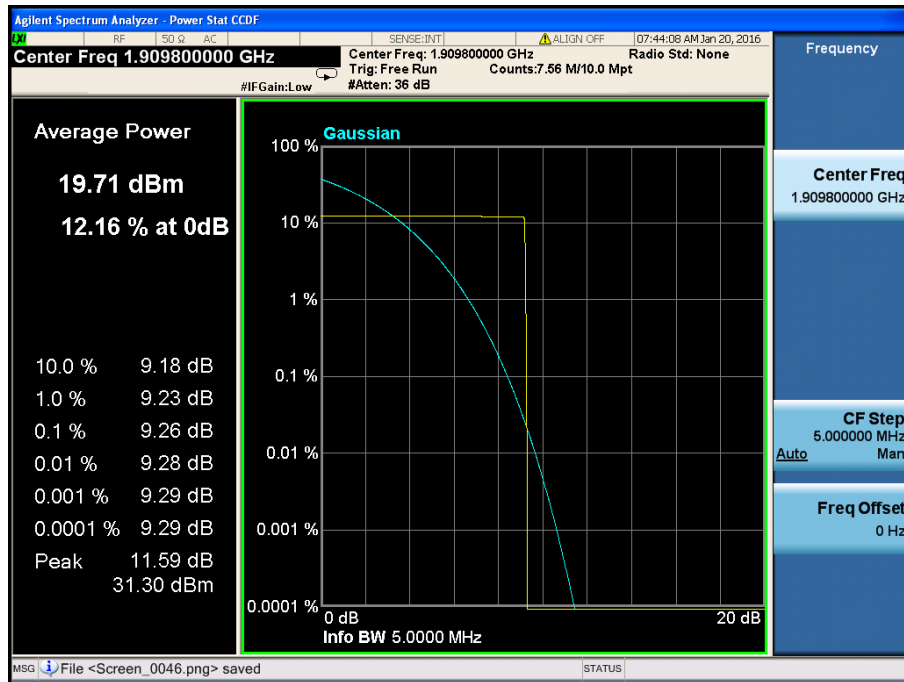
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	1450	1732.4	2.96	13
HSDPA	1512	1752.6	4.01	13
HSUPA	1313	1712.4	3.74	13

For WCDMA Band 2

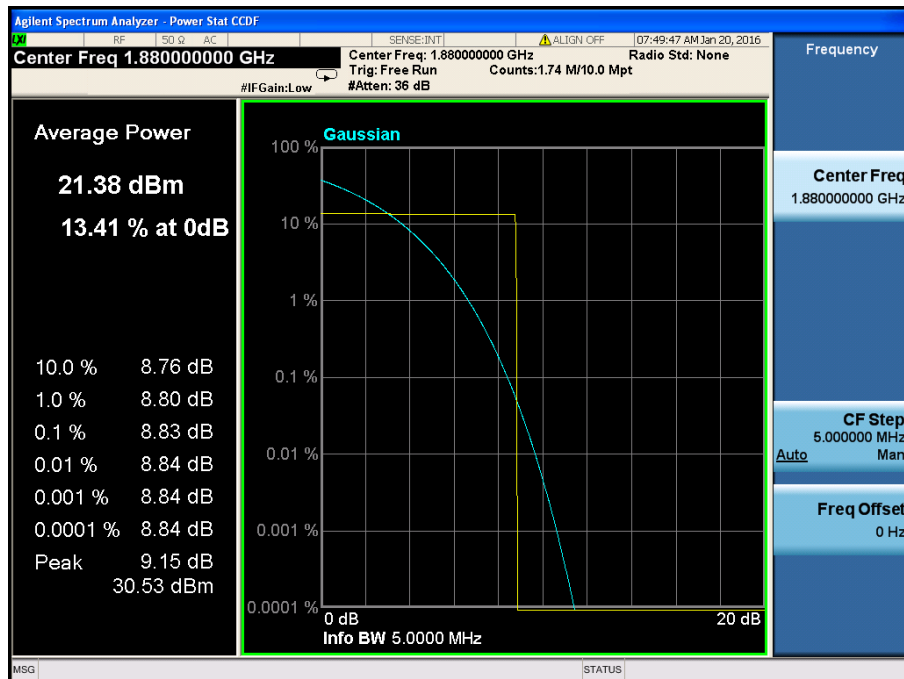
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	2.78	13
HSDPA	9400	1880.0	2.86	13
HSUPA	9400	1880.0	3.57	13

Test plots please refer to below:

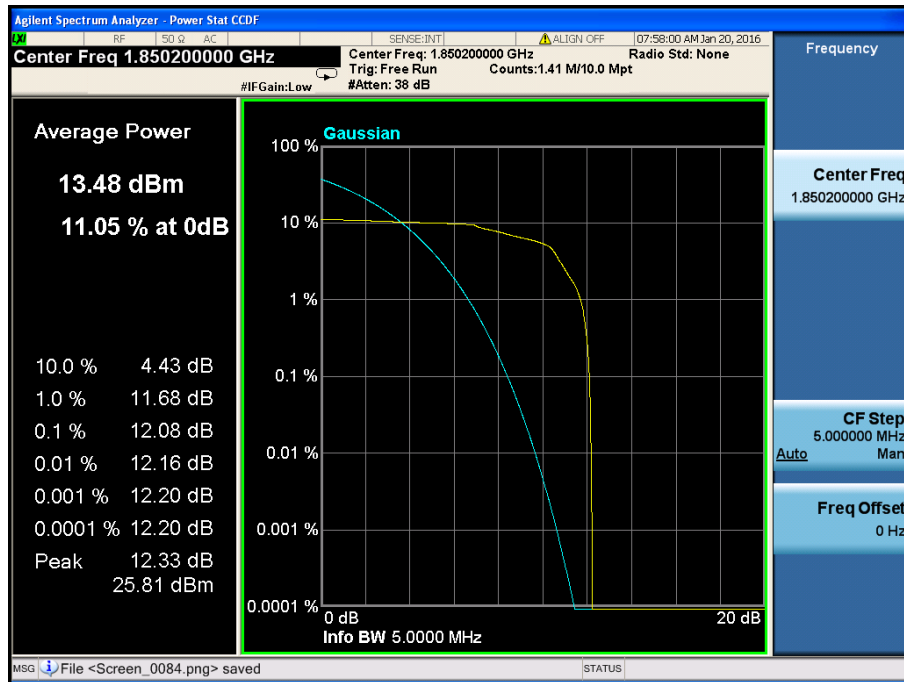
For GSM PCS Band



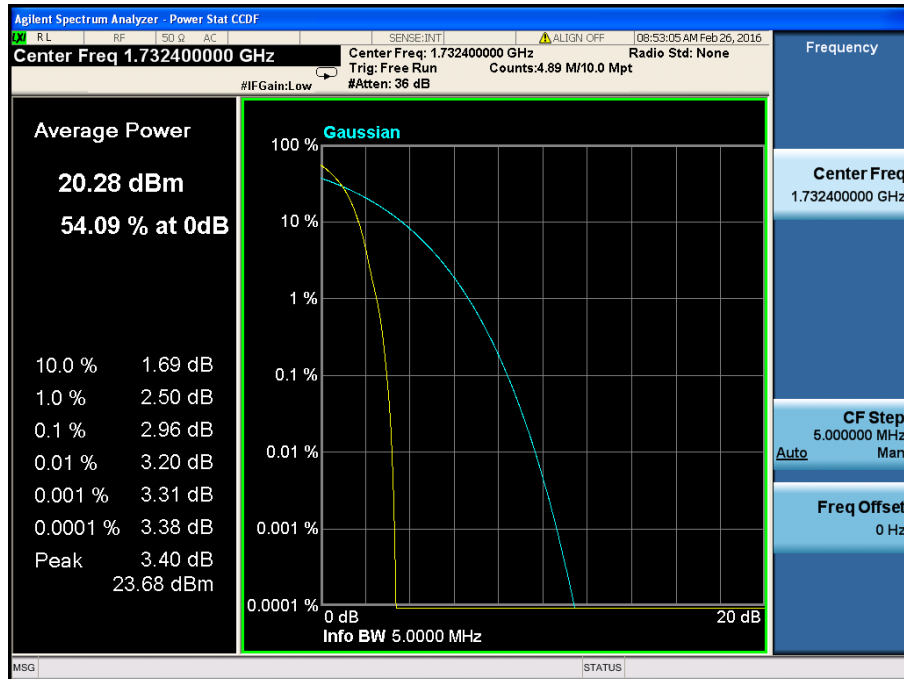
For GPRS PCS Band



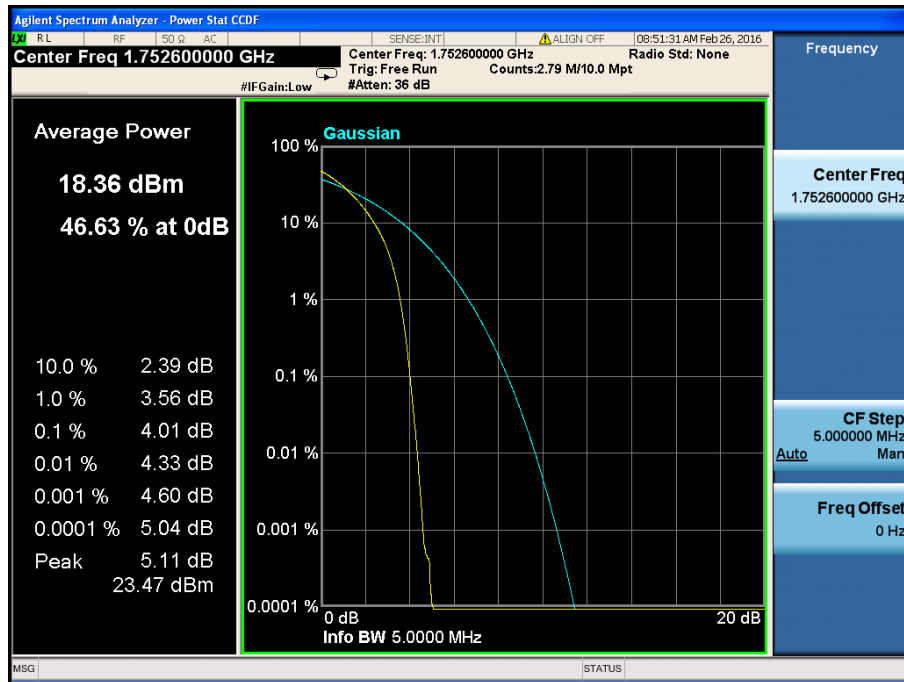
For EDGE PCS Band



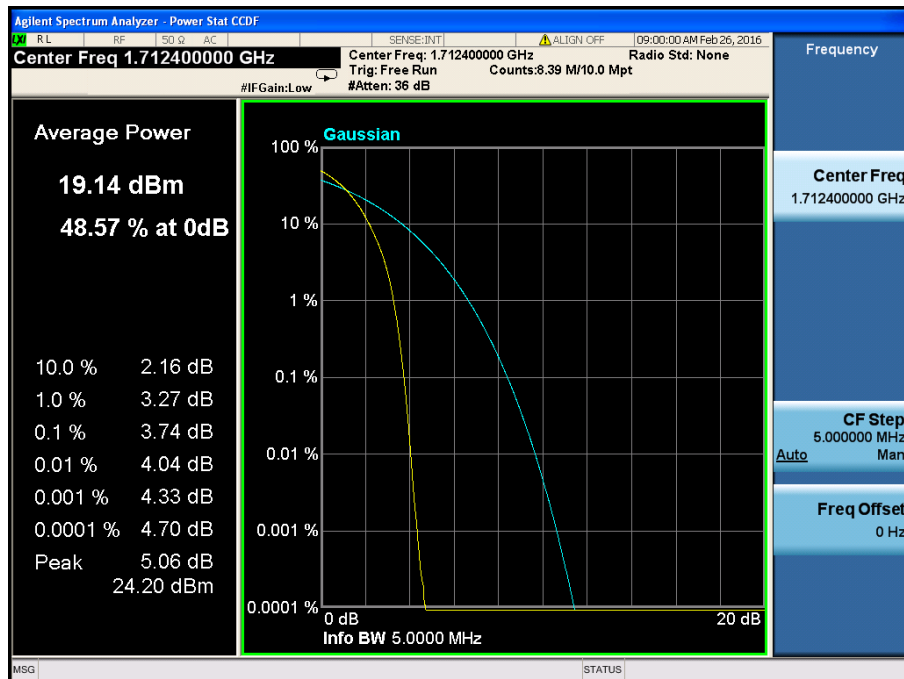
For WCDMA Band 4



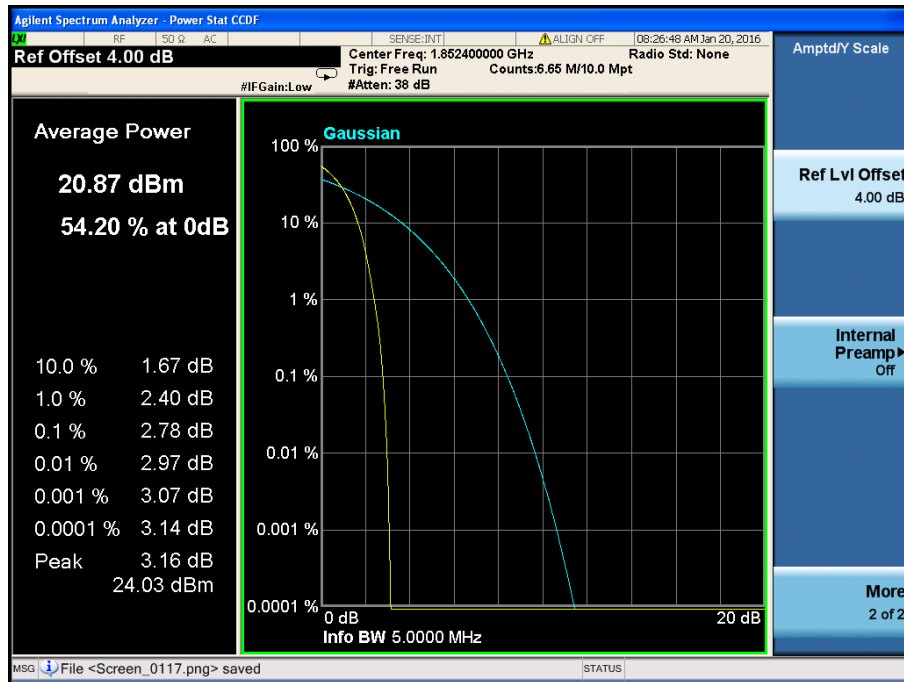
For HSDPA Band 4



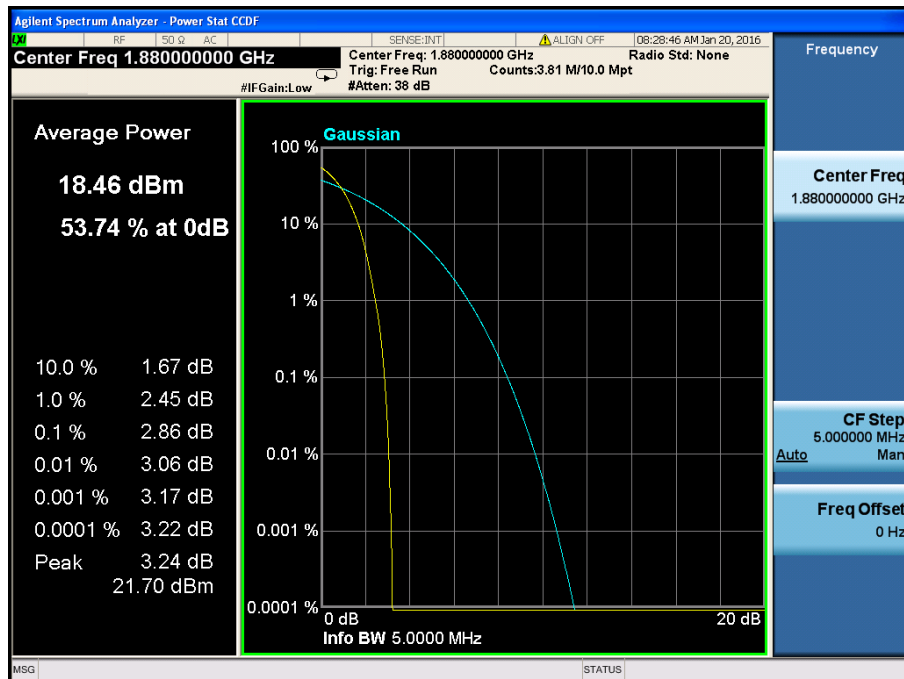
For HSUPA Band 4



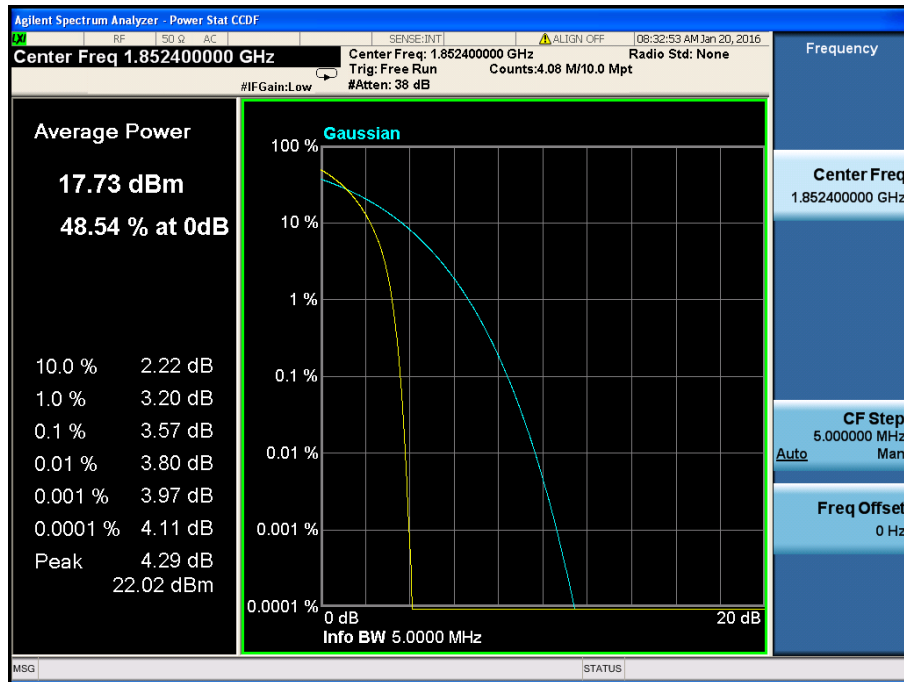
For WCDMA Band 2



For HSDPA Band 2



For HSUPA Band 2



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.

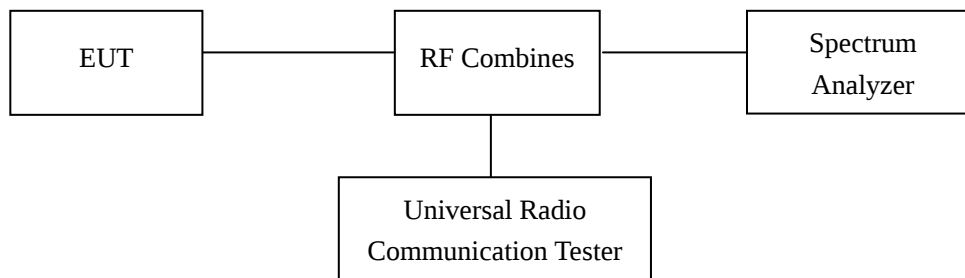
According to §24.238(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

According to §27.53, 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	244.11	316.4
	190	836.6	243.79	316.2
	251	848.8	245.64	316.8
GPRS	128	824.2	247.63	316.3
	190	836.6	250.45	311.9
	251	848.8	244.86	319.8
EDGE	128	824.2	251.65	327.2
	190	836.6	252.85	329.3
	251	848.8	243.75	330.0

For PCS Band

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM	512	1850.2	246.24	319.3
	661	1880.0	243.85	322.0
	810	1909.8	246.79	316.4
GPRS	512	1850.2	244.03	321.6
	661	1880.0	248.77	317.6
	810	1909.8	248.85	321.3
EDGE	512	1850.2	256.53	333.8
	661	1880.0	242.98	327.5
	810	1909.8	246.86	319.1

For Band 5

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	4132	826.4	4.2053	4.885
	4183	836.6	4.2126	4.867
	4233	846.6	4.2150	4.865
HSDPA	4132	826.4	4.2197	4.877
	4183	836.6	4.2139	4.873
	4233	846.6	4.2221	4.857
HSUPA	4132	826.4	4.2338	4.922
	4183	836.6	4.2050	4.886
	4233	846.6	4.2037	4.879

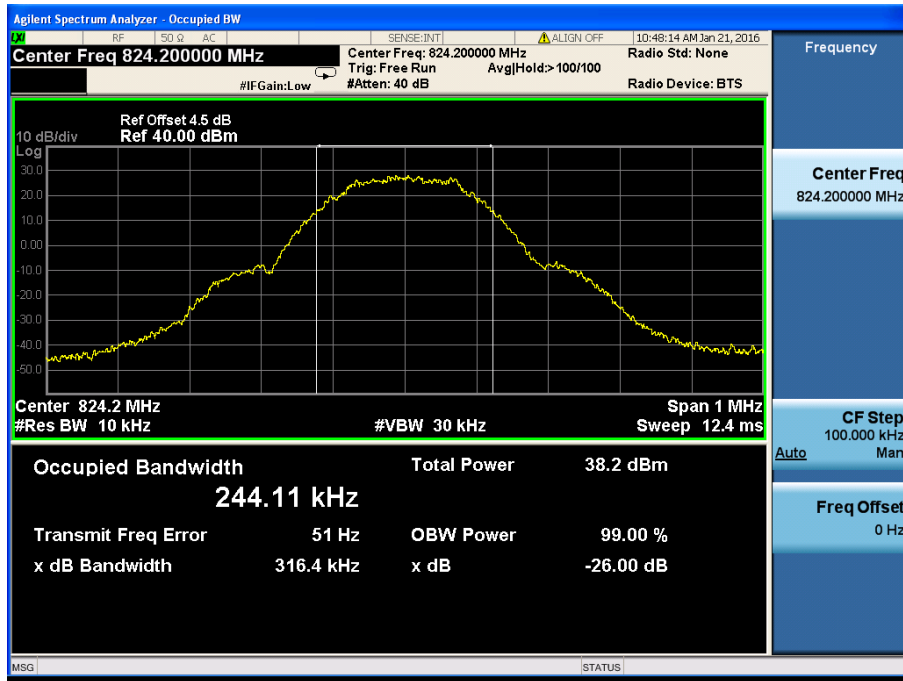
For Band 4

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	1312	1712.4	4.2026	4.871
	1412	1732.4	4.2162	4.852
	1513	1752.6	4.2185	4.876
HSDPA	1312	1712.4	4.2123	4.883
	1412	1732.4	4.2320	4.867
	1513	1752.6	4.2145	4.876
HSUPA	1312	1712.4	4.2116	4.897
	1412	1732.4	4.2039	4.864
	1513	1752.6	4.2286	4.872

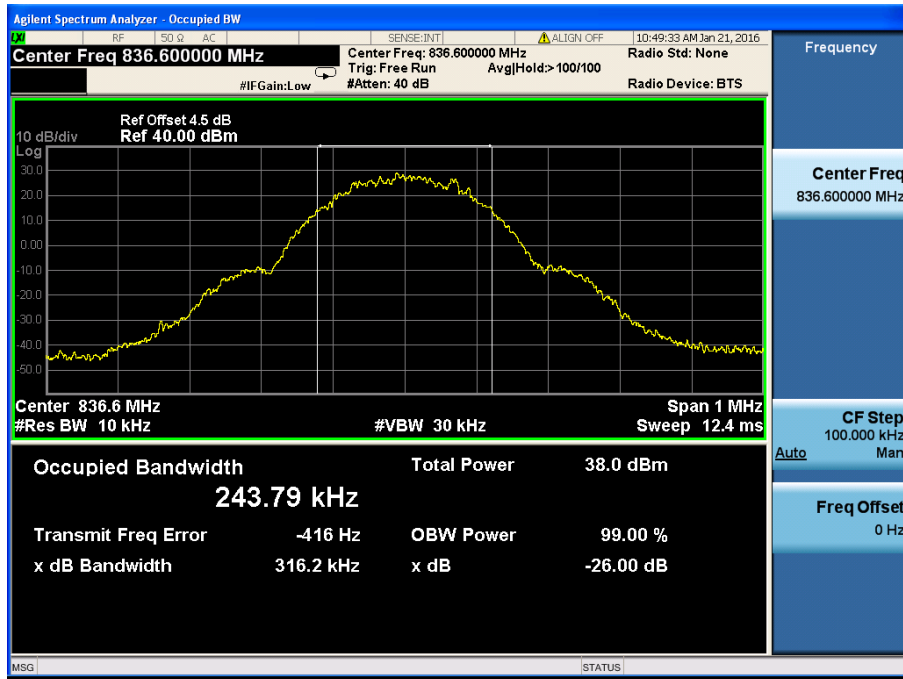
For Band 2

Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	9262	1852.4	4.2228	4.914
	9400	1880.0	4.2199	4.880
	9538	1907.6	4.2301	4.915
HSDPA	9262	1852.4	4.2188	4.887
	9400	1880.0	4.2013	4.868
	9538	1907.6	4.2217	4.835
HSUPA	9262	1852.4	4.2245	4.882
	9400	1880.0	4.2128	4.851
	9538	1907.6	4.2297	4.844

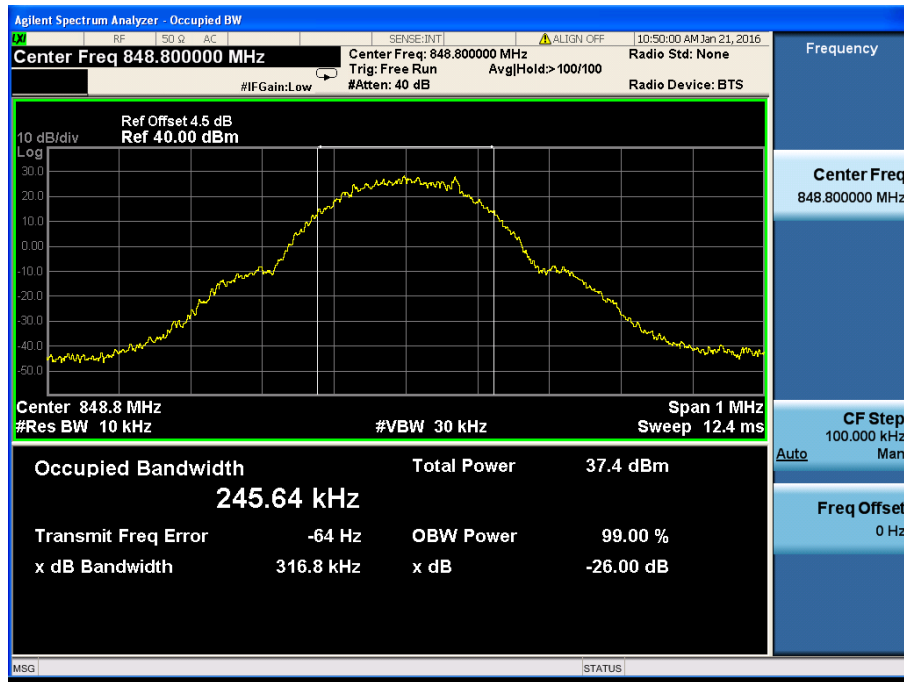
For Cellular Band
GSM Low Channel



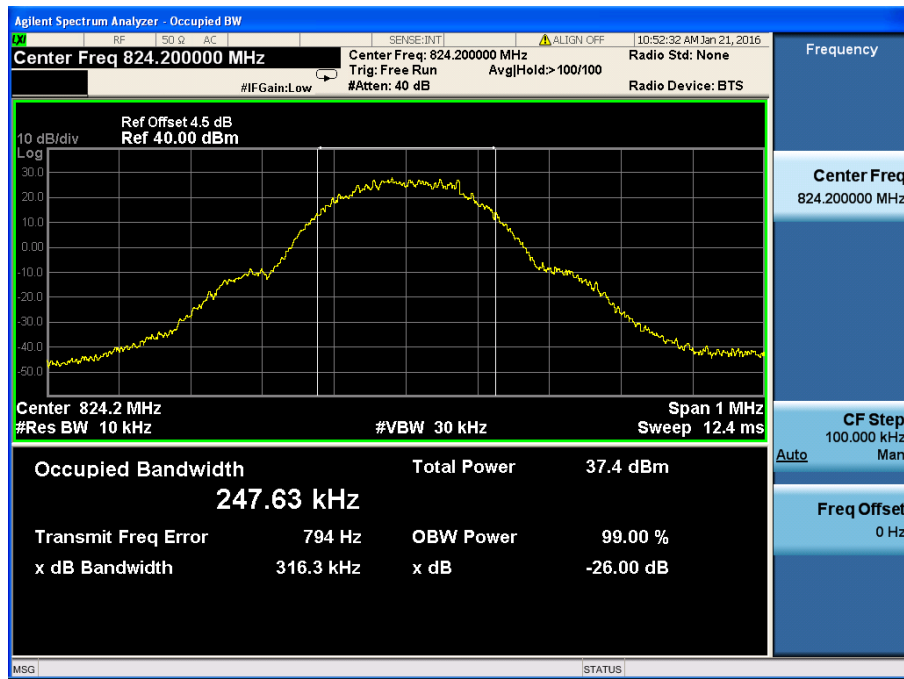
GSM Middle Channel



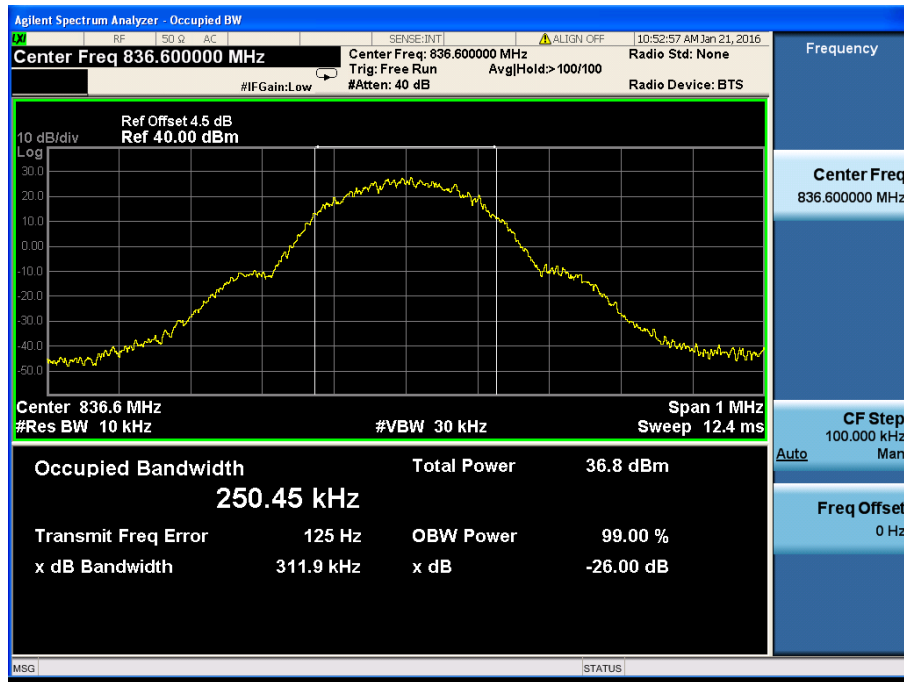
GSM High channel



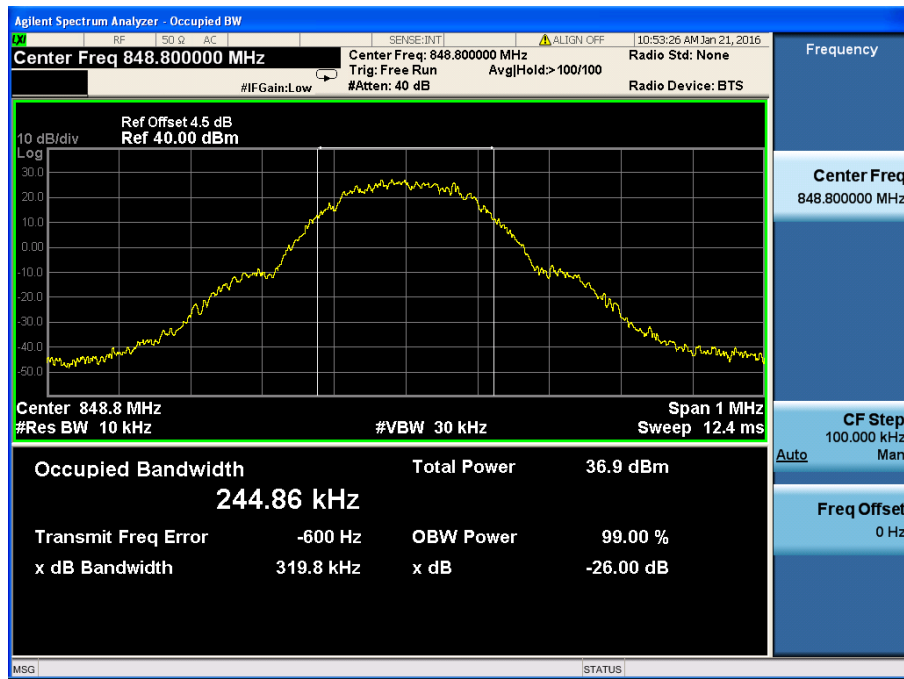
GPRS Low Channel



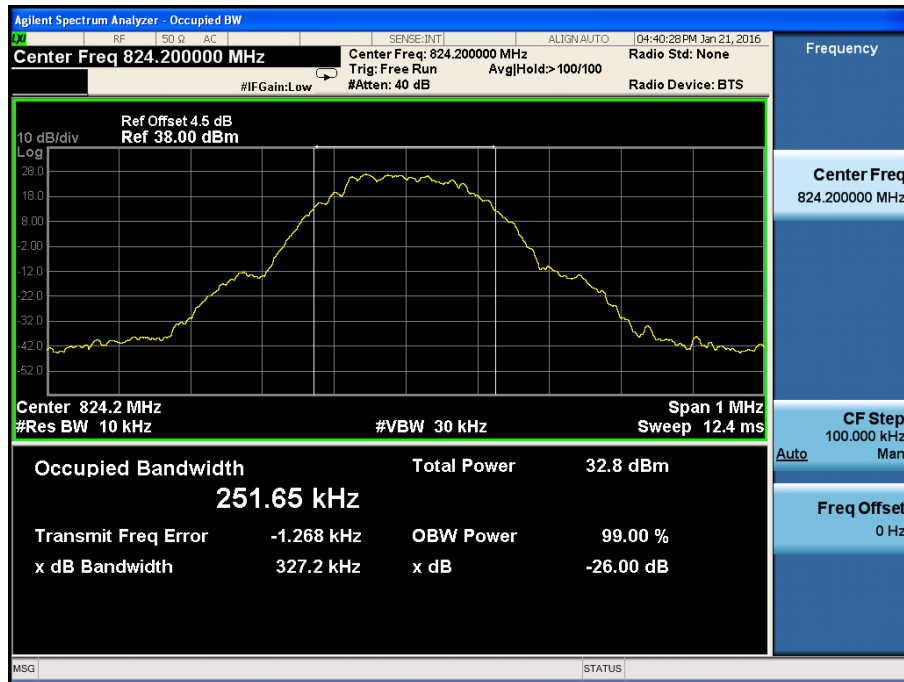
GPRS Middle Channel



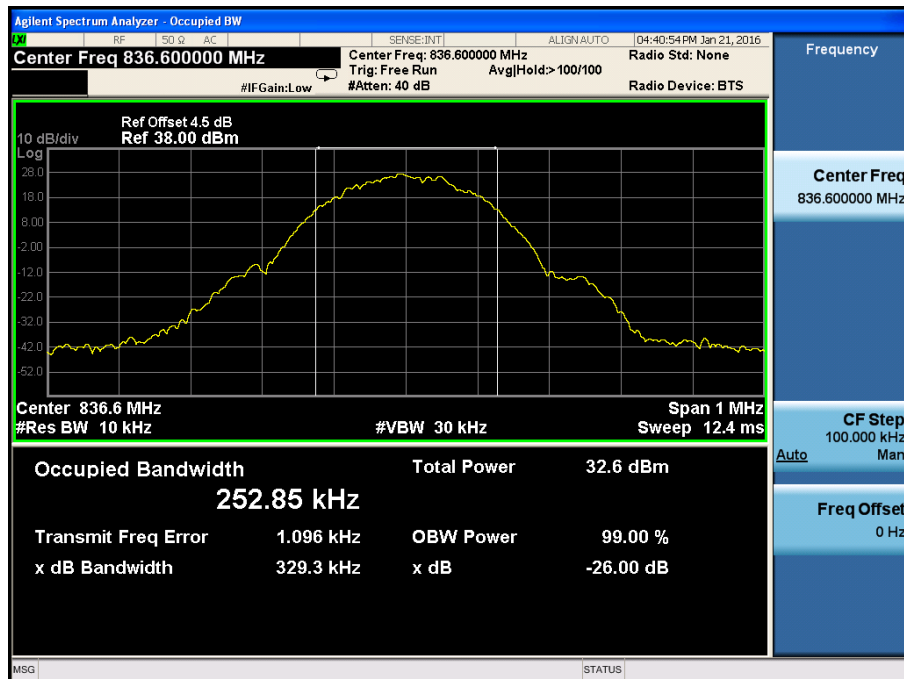
GPRS High Channel



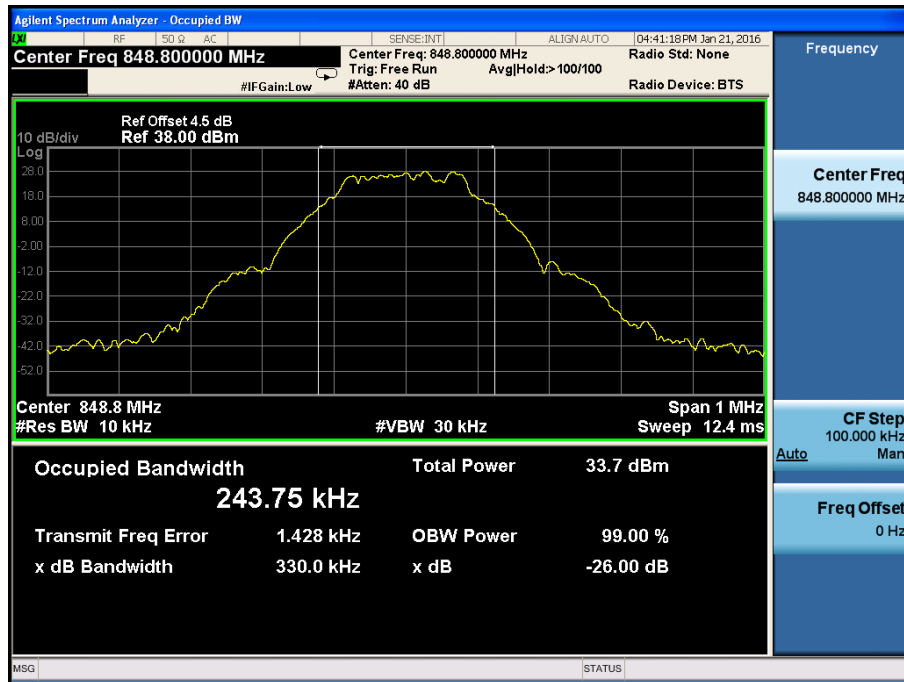
EDGE Low Channel



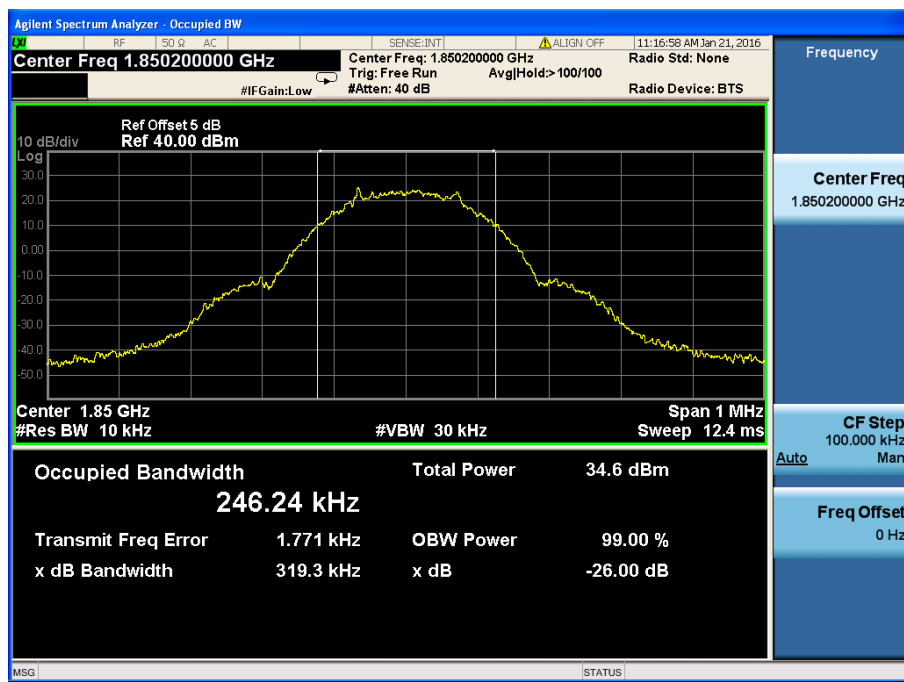
EDGE Middle Channel



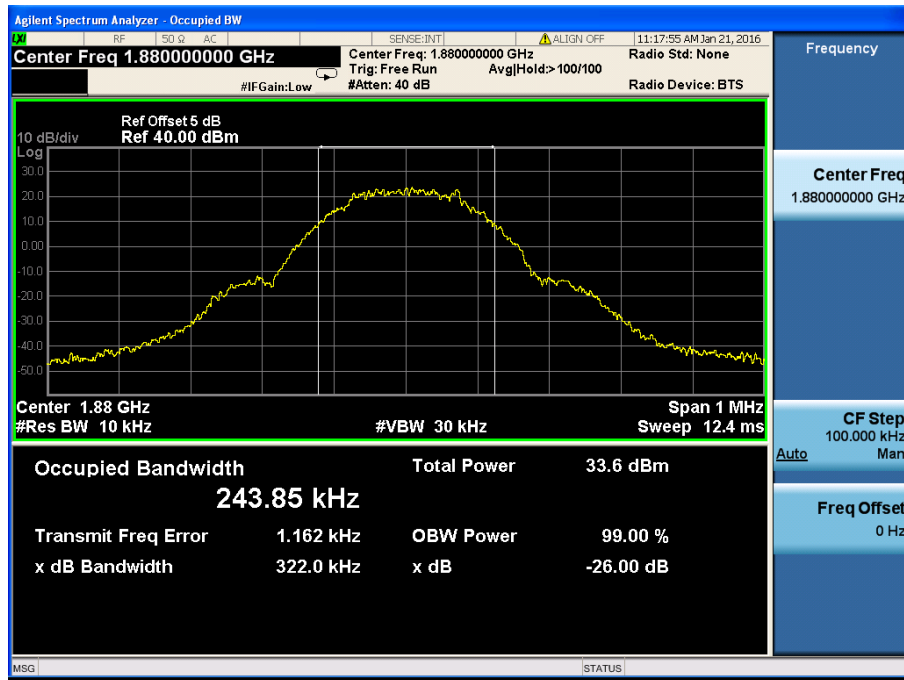
EDGE High Channel



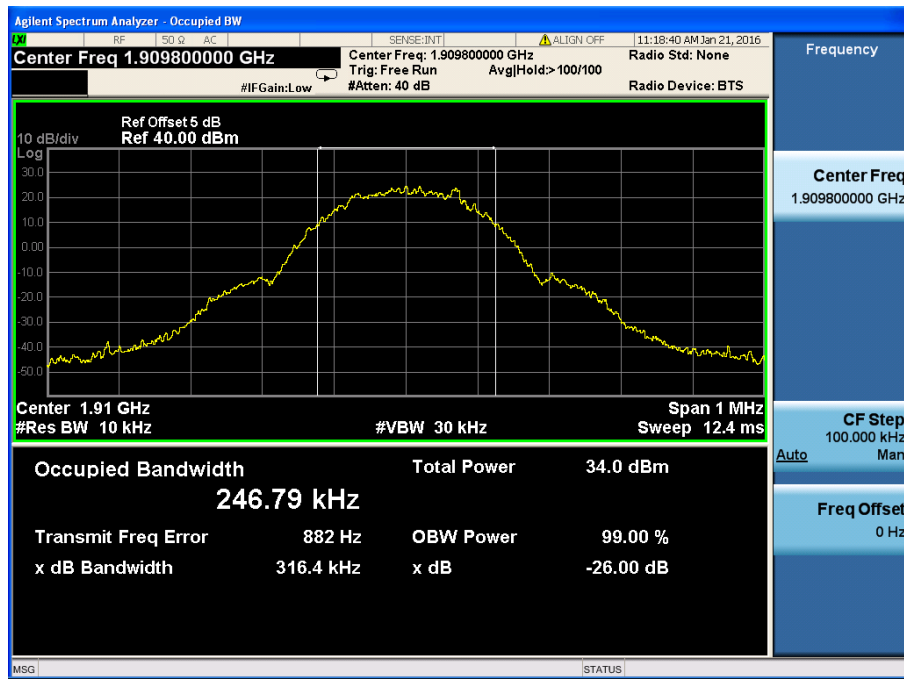
For PCS Band GSM Low Channel



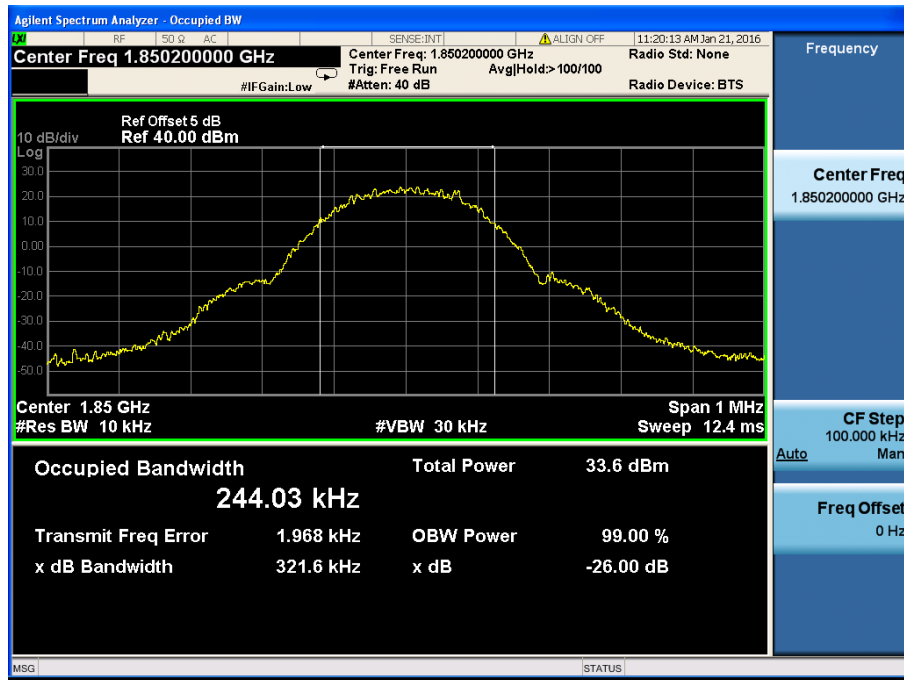
GSM Middle Channel



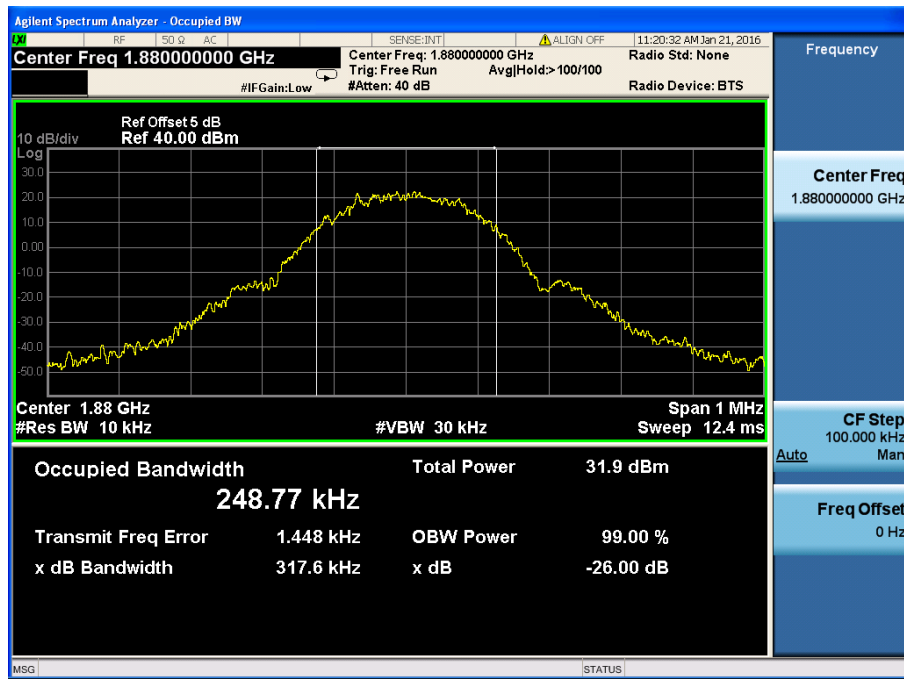
GSM High channel



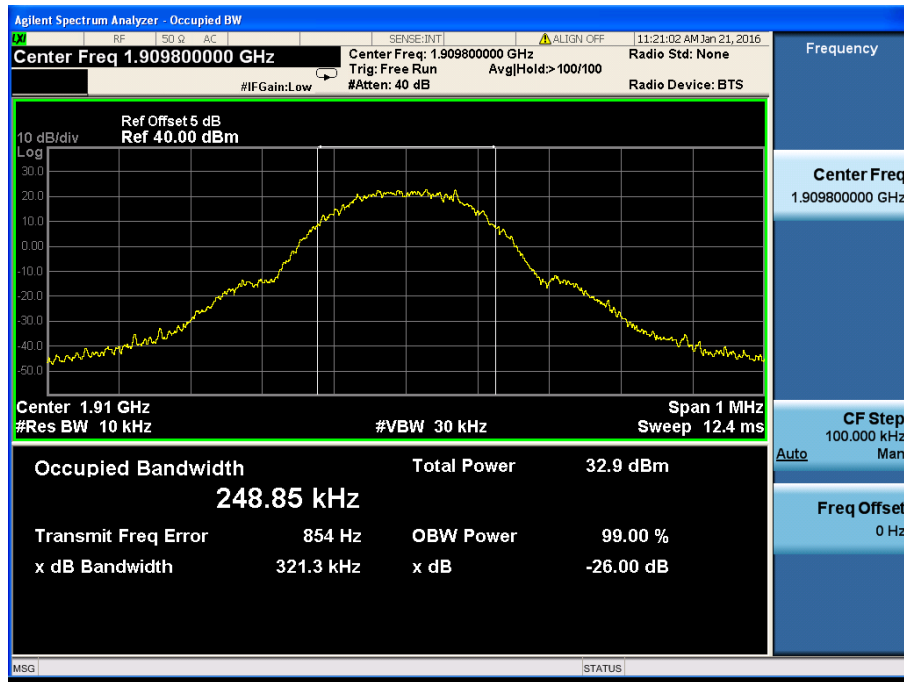
GPRS Low Channel



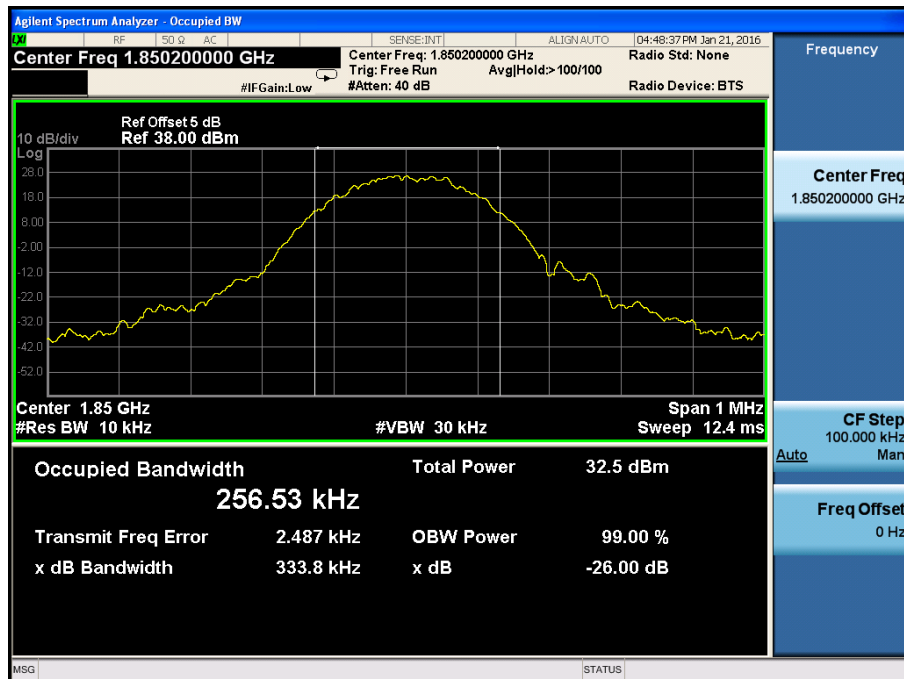
GPRS Middle Channel



GPRS High Channel



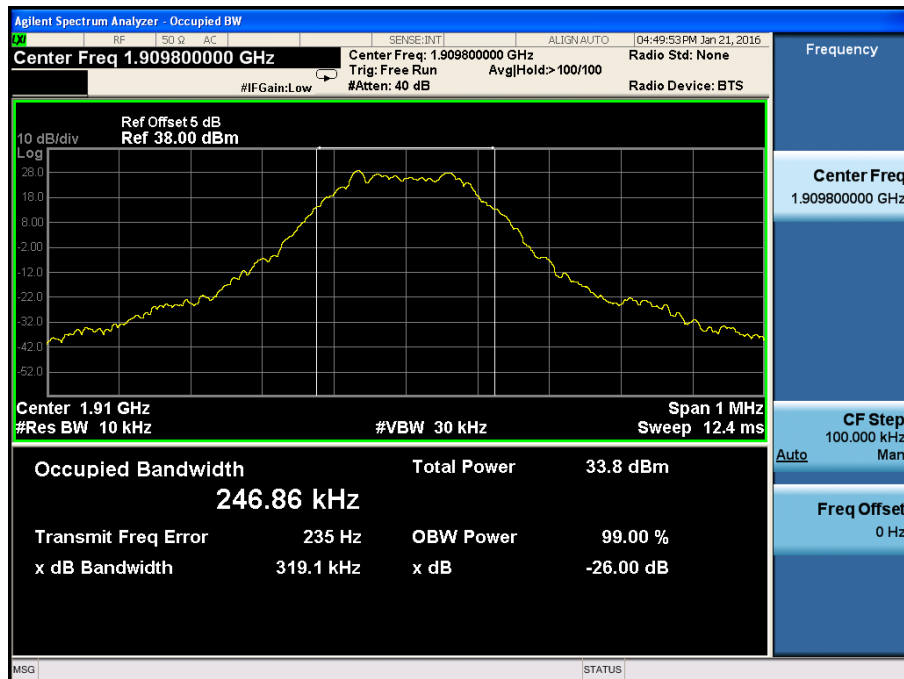
EDGE Low Channel



EDGE Middle Channel

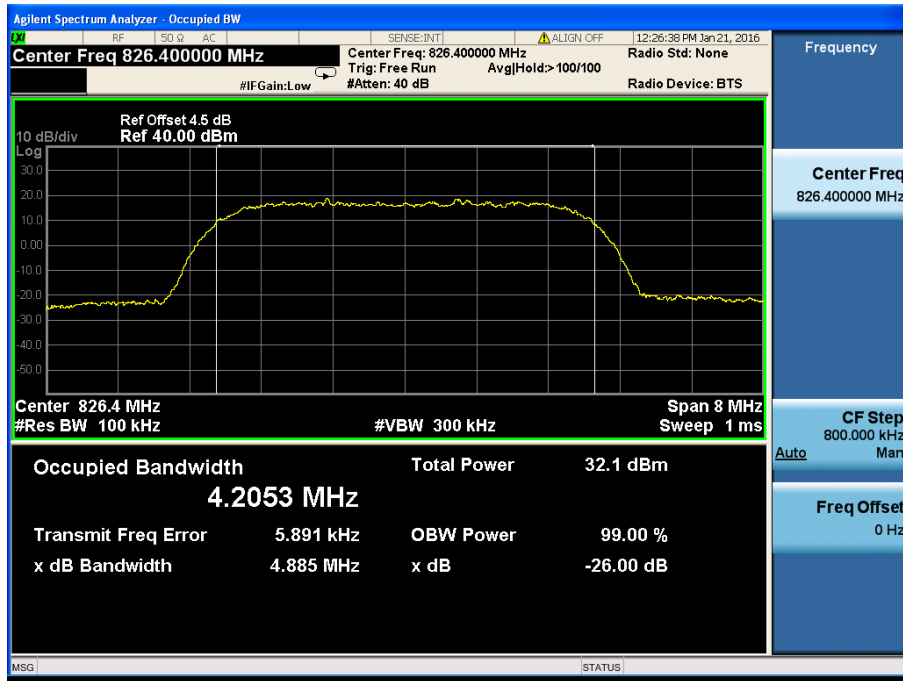


EDGE High Channel

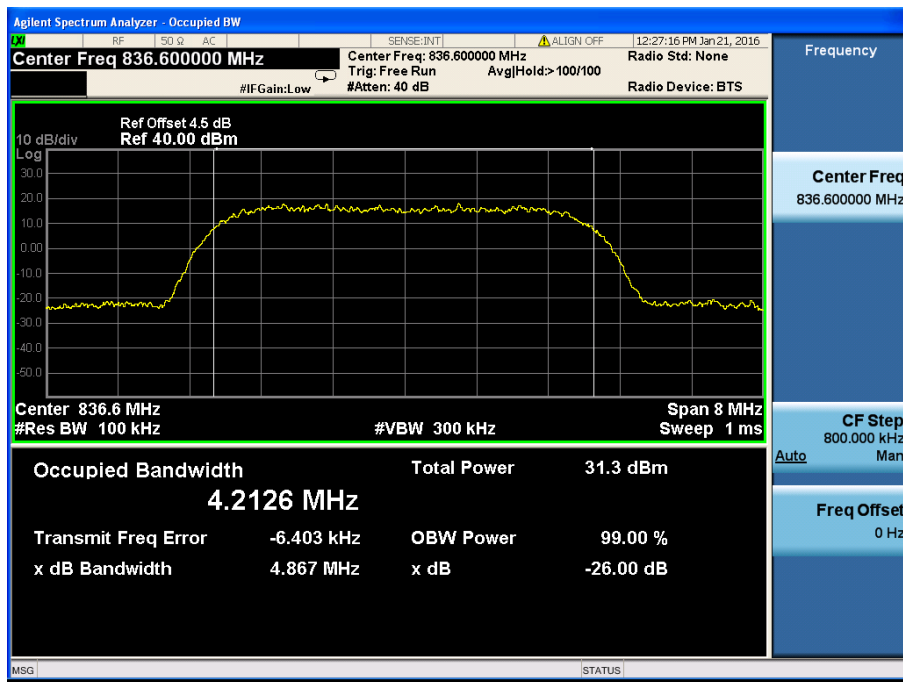


For Band V

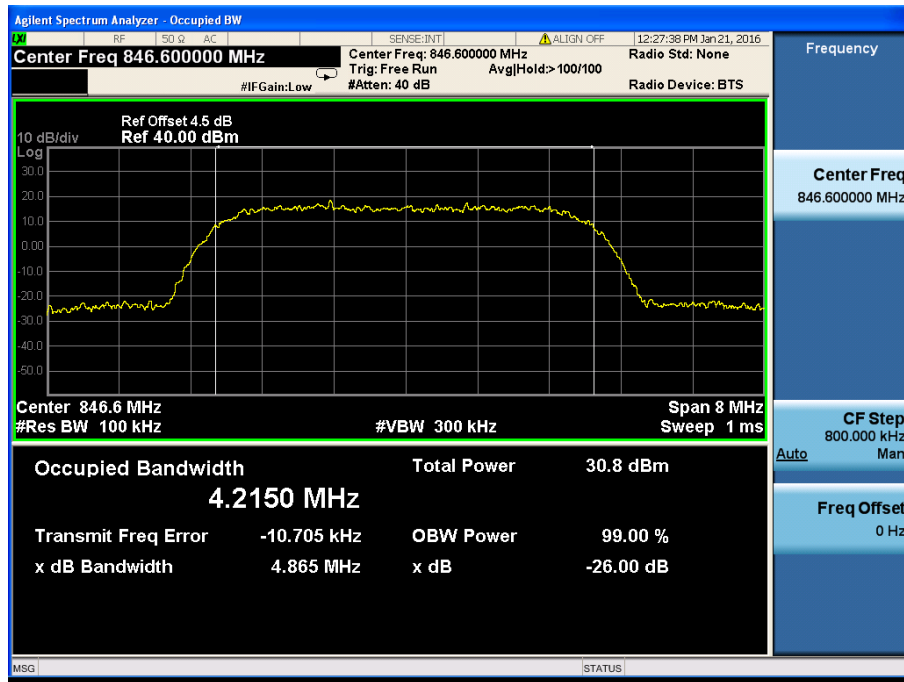
WCDMA Low Channel



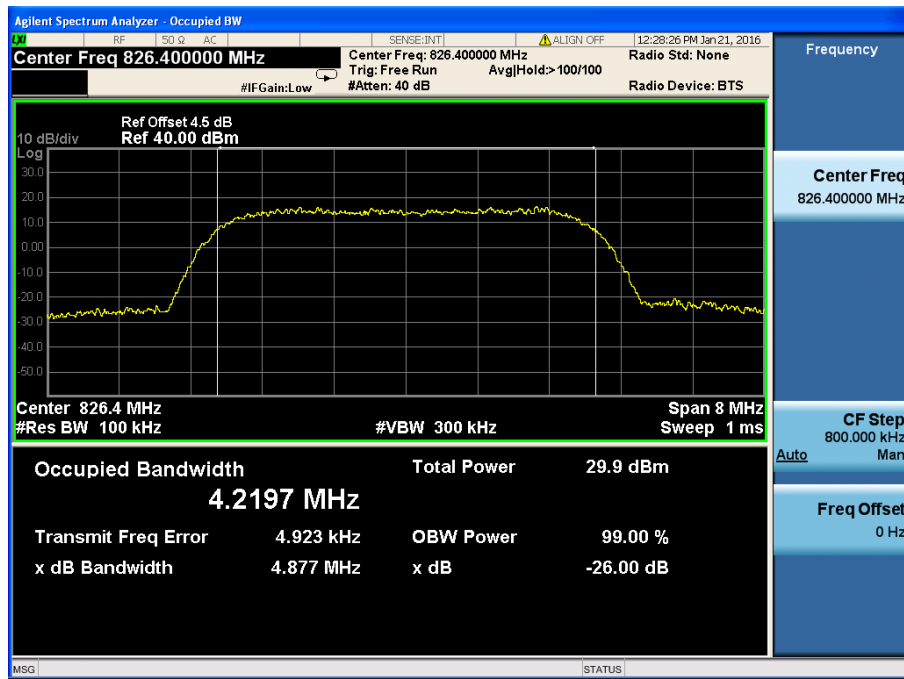
WCDMA Middle Channel



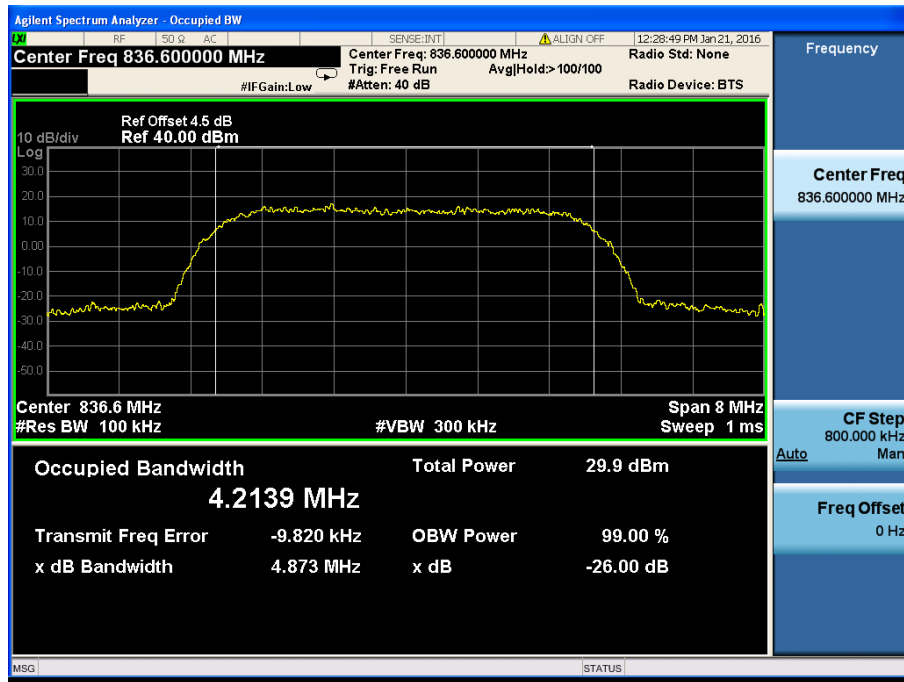
WCDMA High Channel



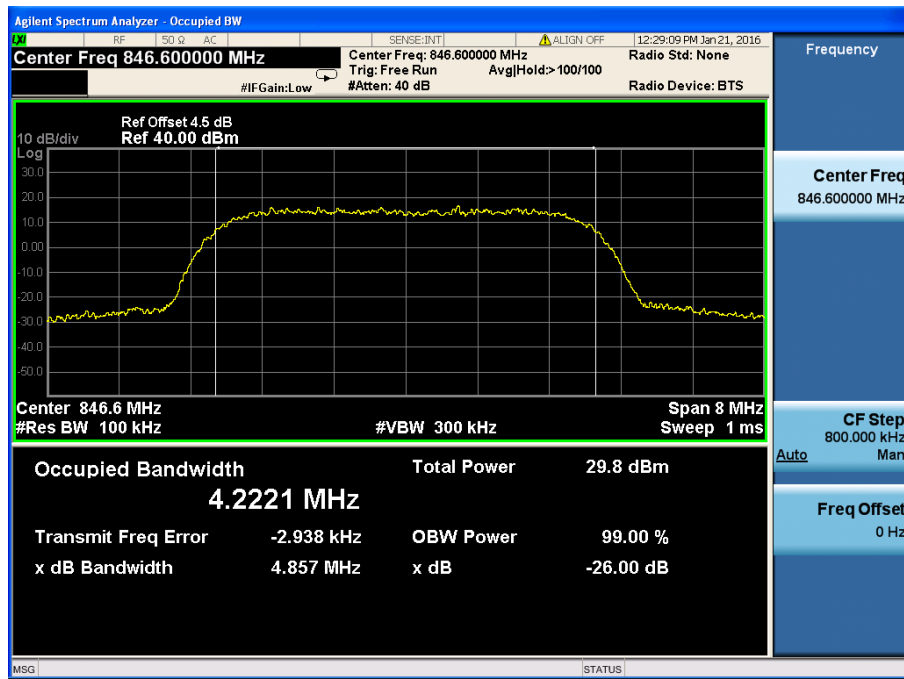
HSDPA Low Channel



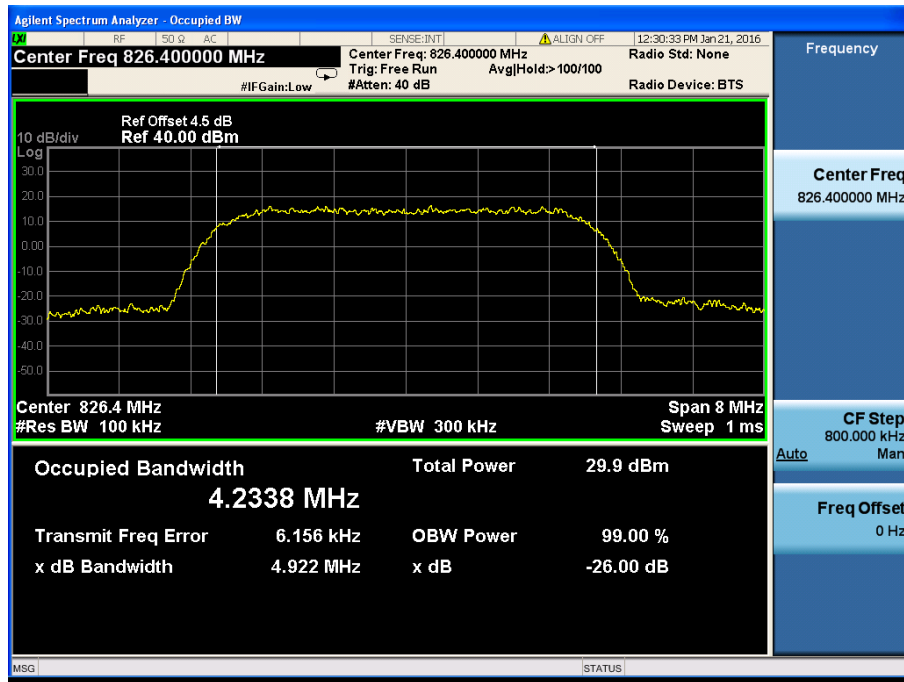
HSDPA Middle Channel



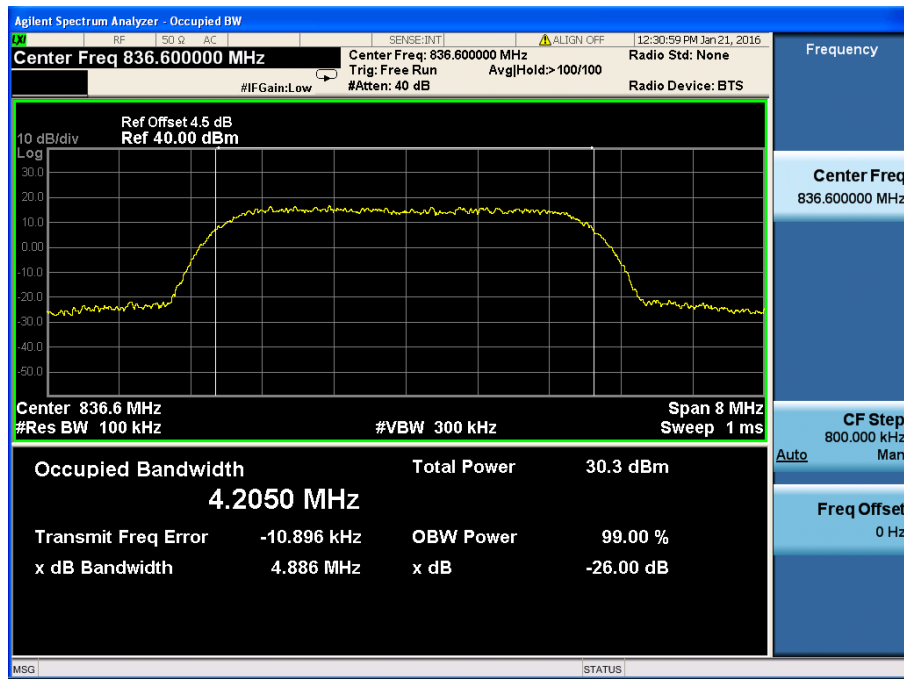
HSDPA High Channel



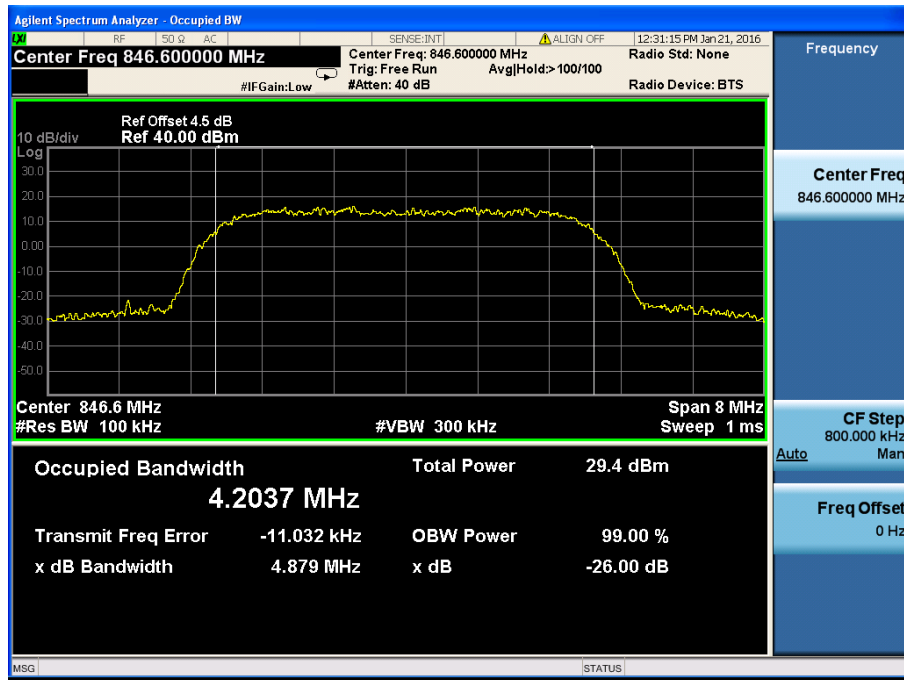
HSUPA Low Channel



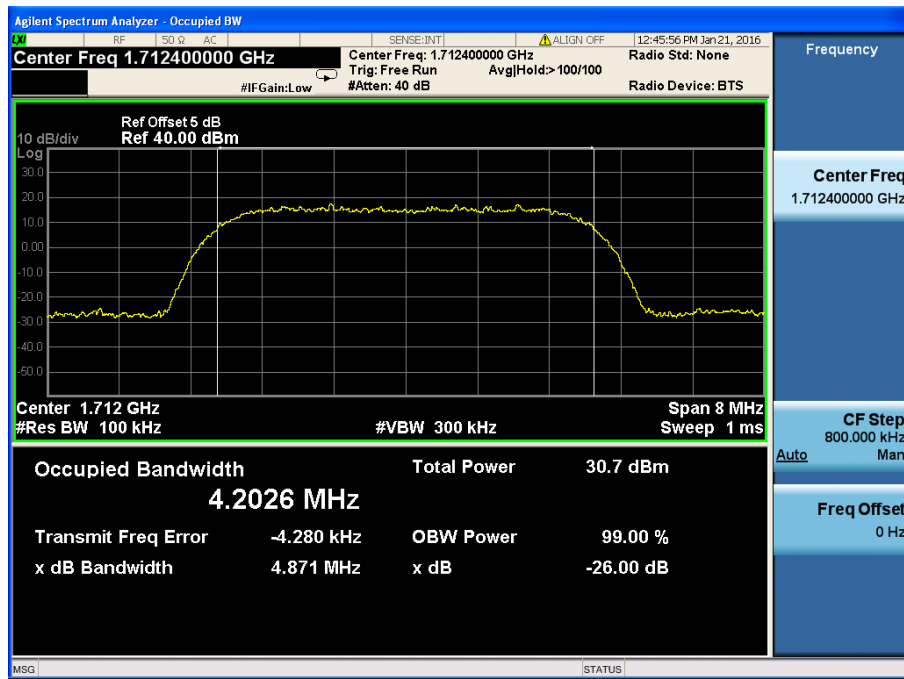
HSUPA Middle Channel



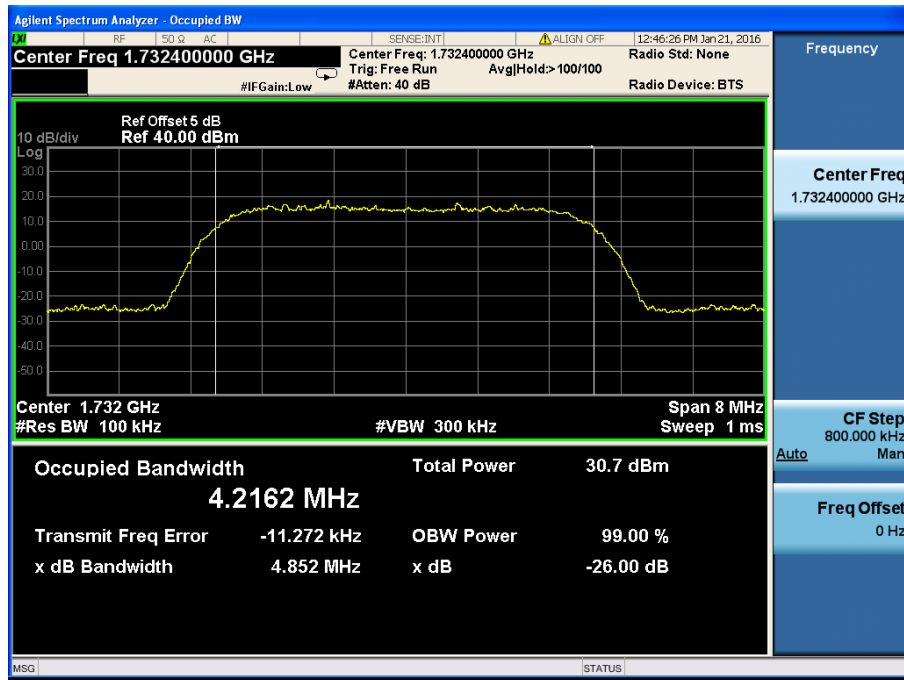
HSUPA High Channel



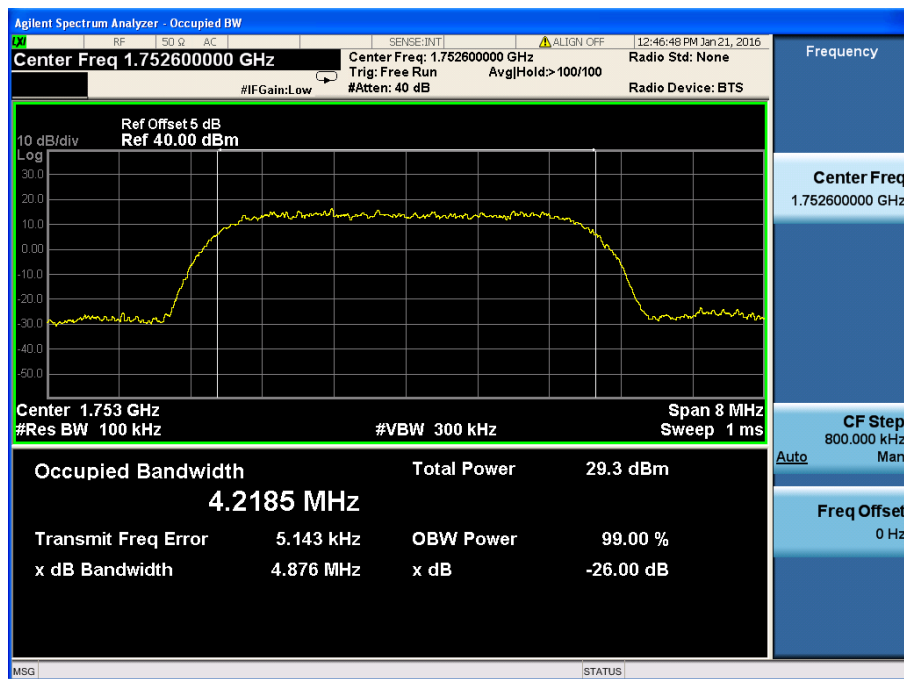
For Band IV WCDMA Low Channel



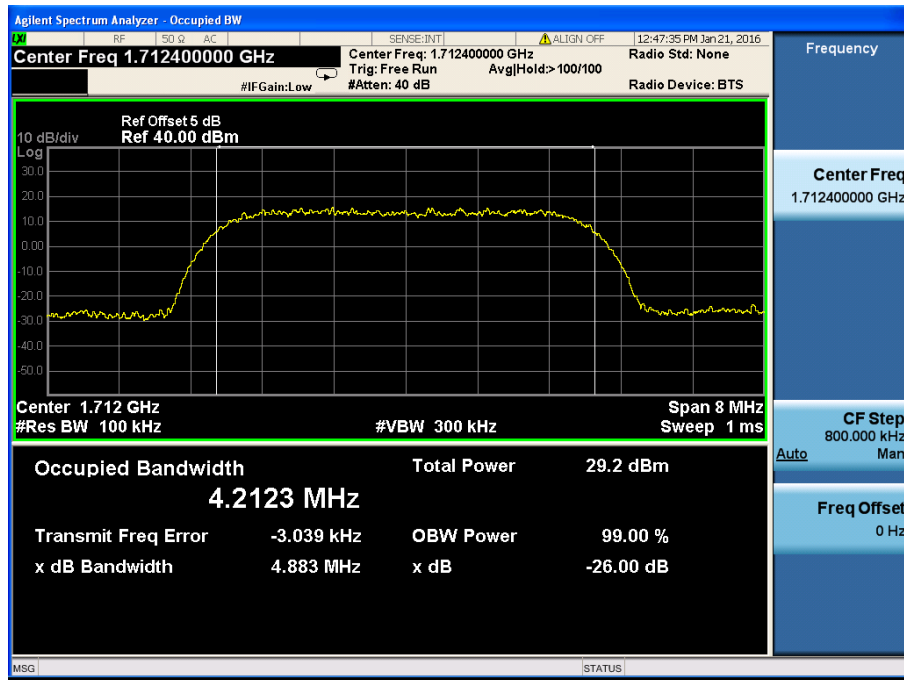
WCDMA Middle Channel



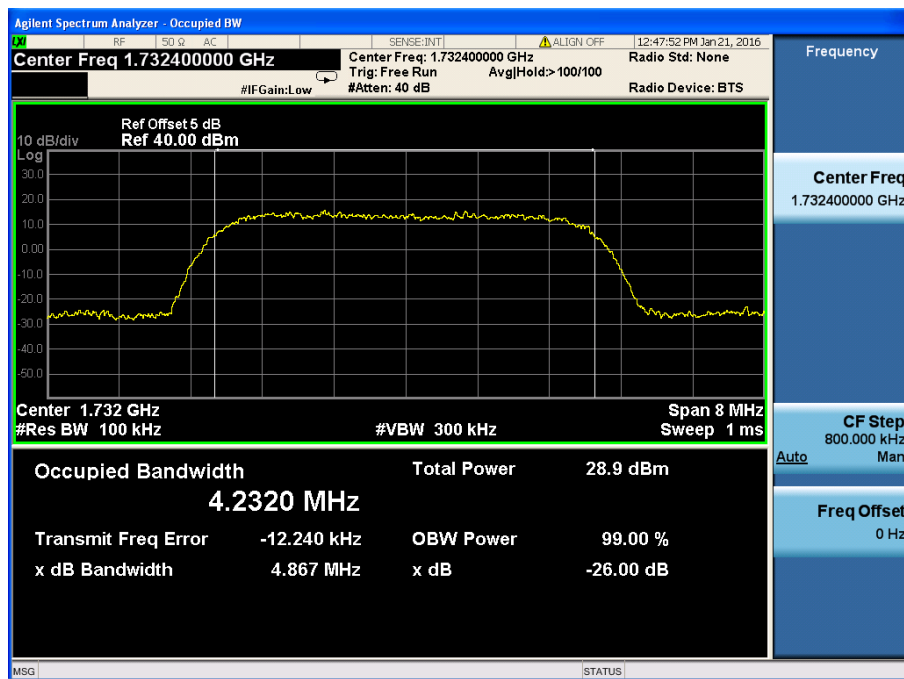
WCDMA High Channel



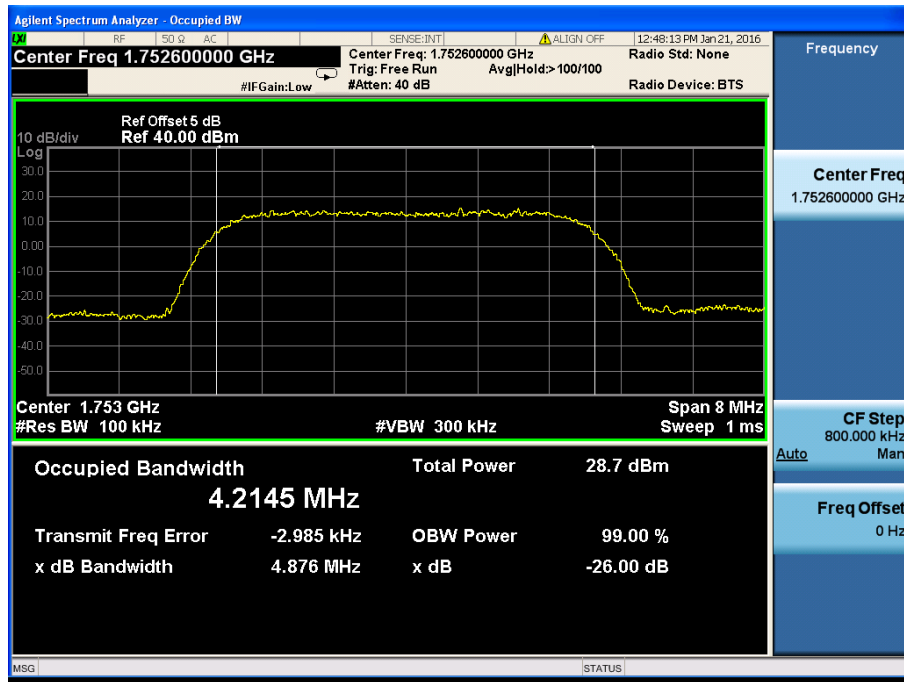
HSDPA Low Channel



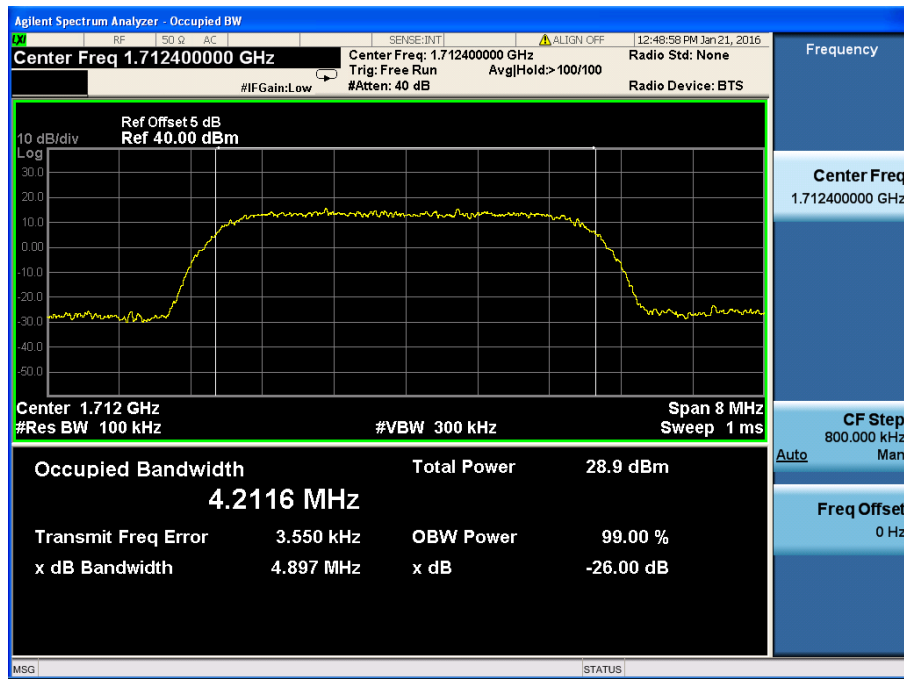
HSDPA Middle Channel



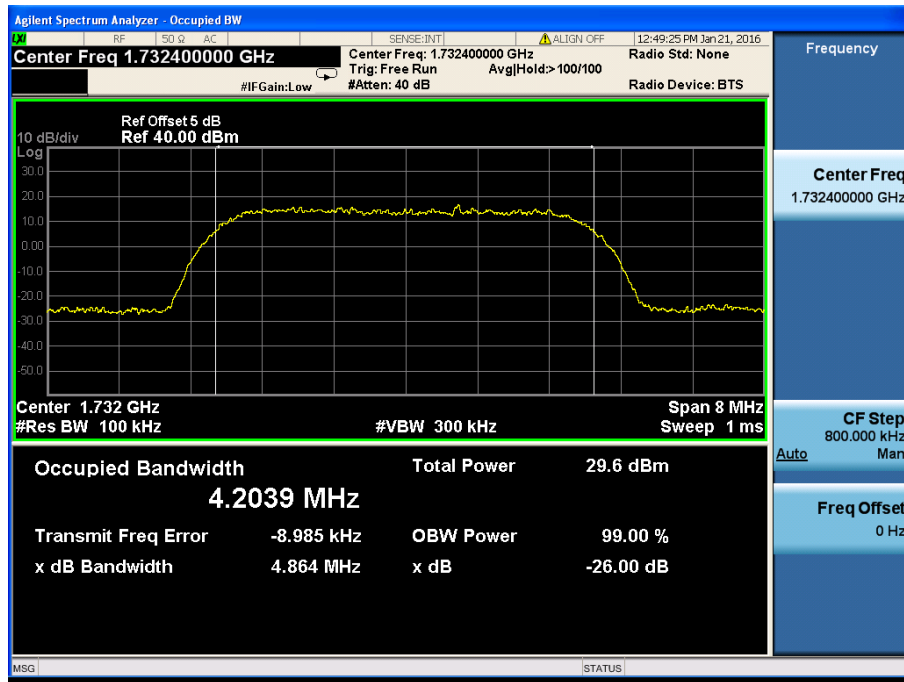
HSDPA High Channel



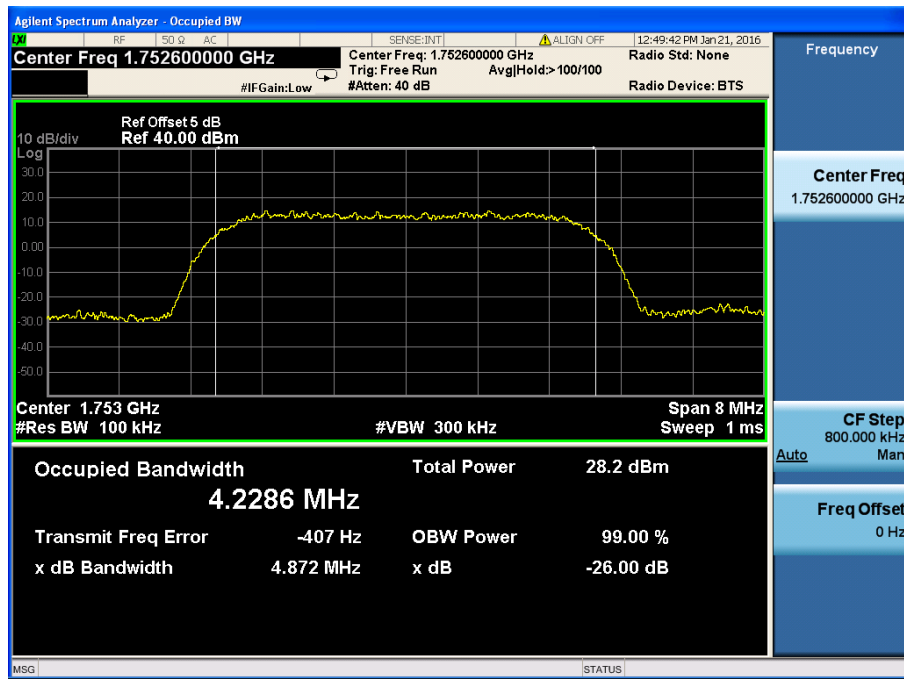
HSUPA Low Channel



HSUPA Middle Channel

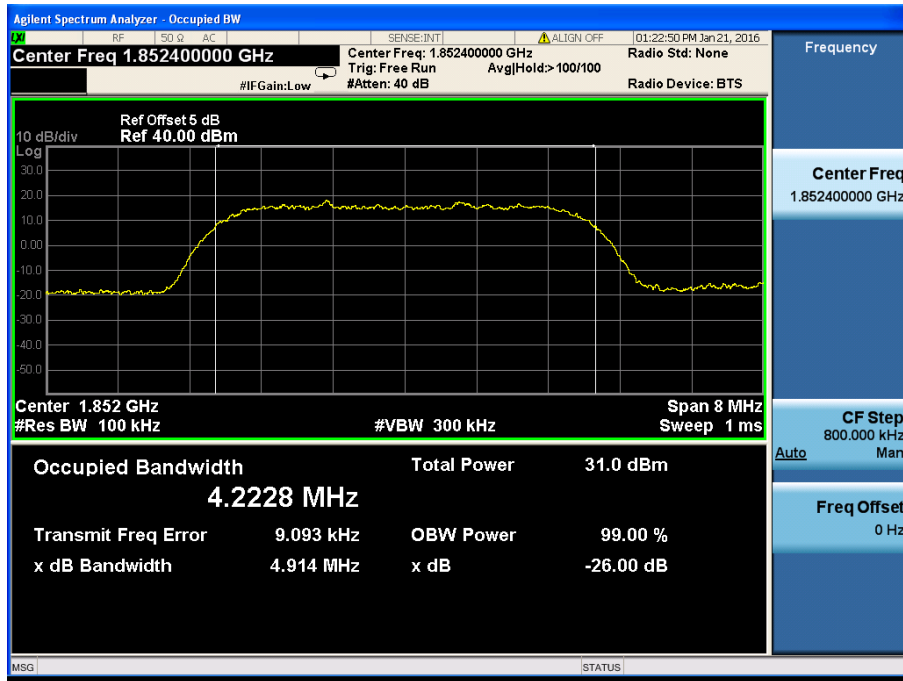


HSUPA High Channel

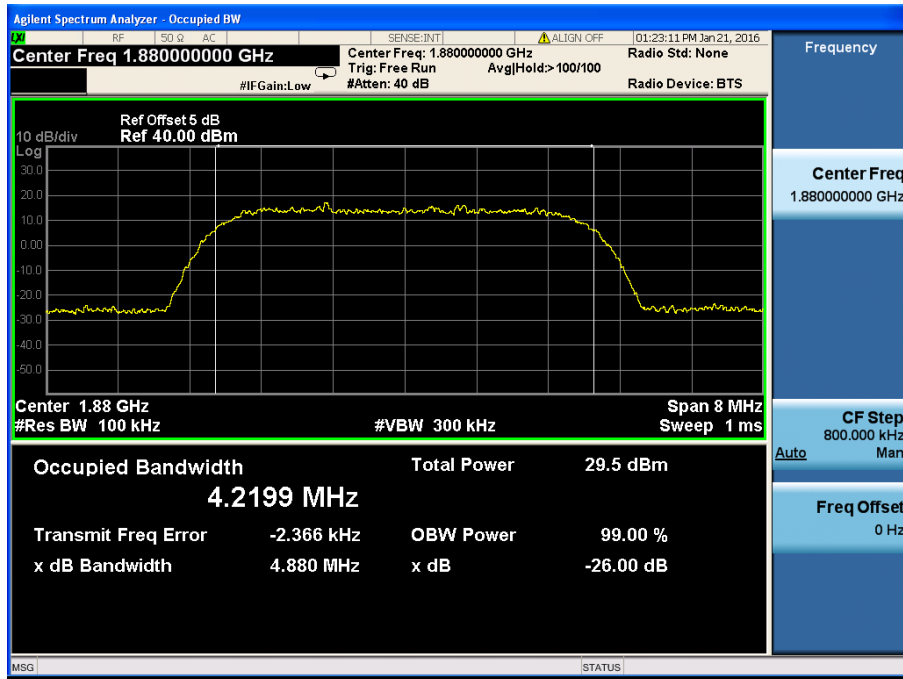


For Band II

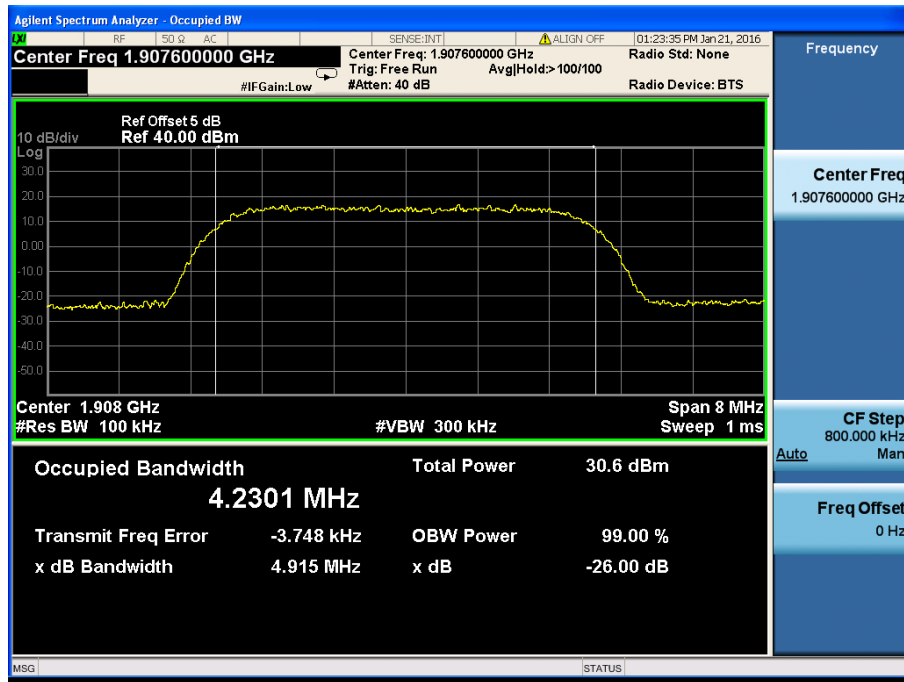
WCDMA Low Channel



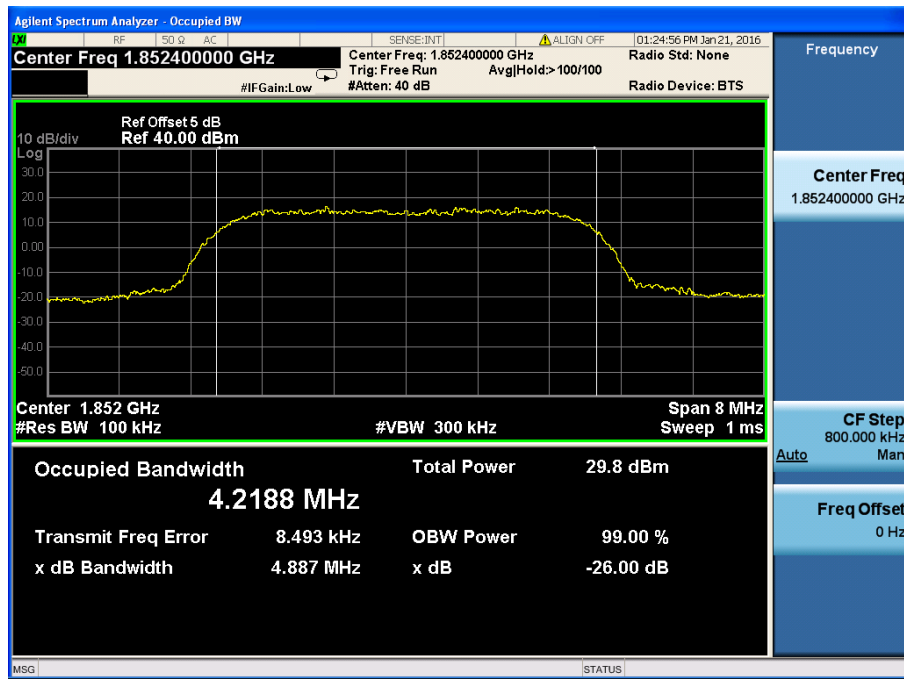
WCDMA Middle Channel



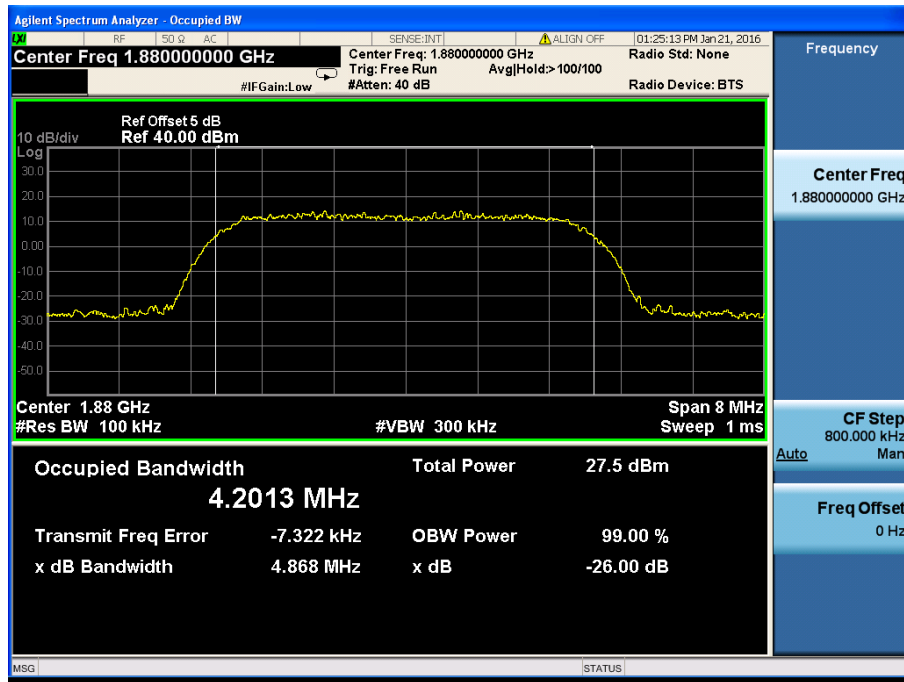
WCDMA High Channel



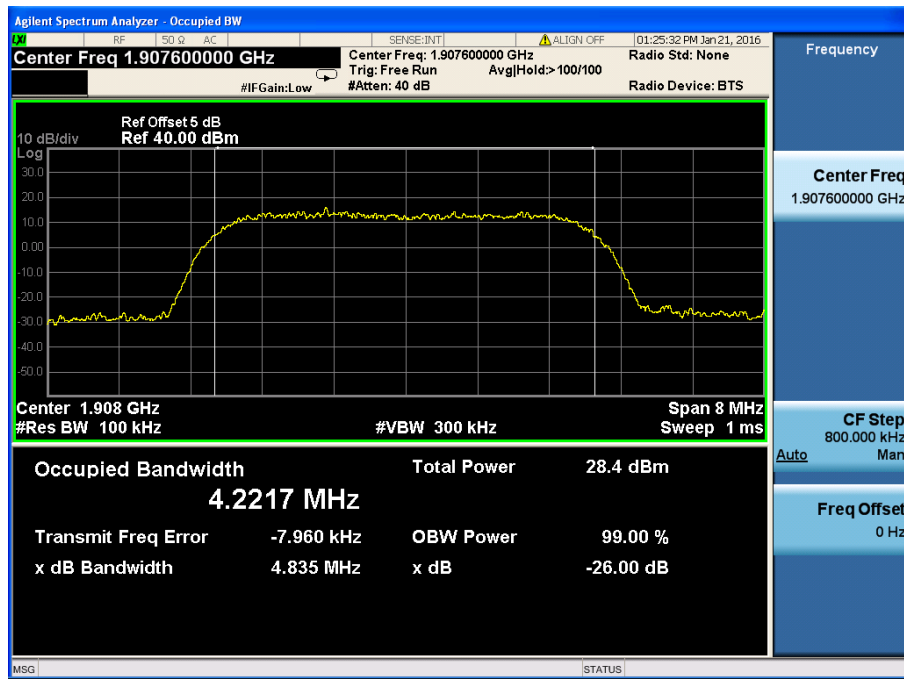
HSDPA Low Channel



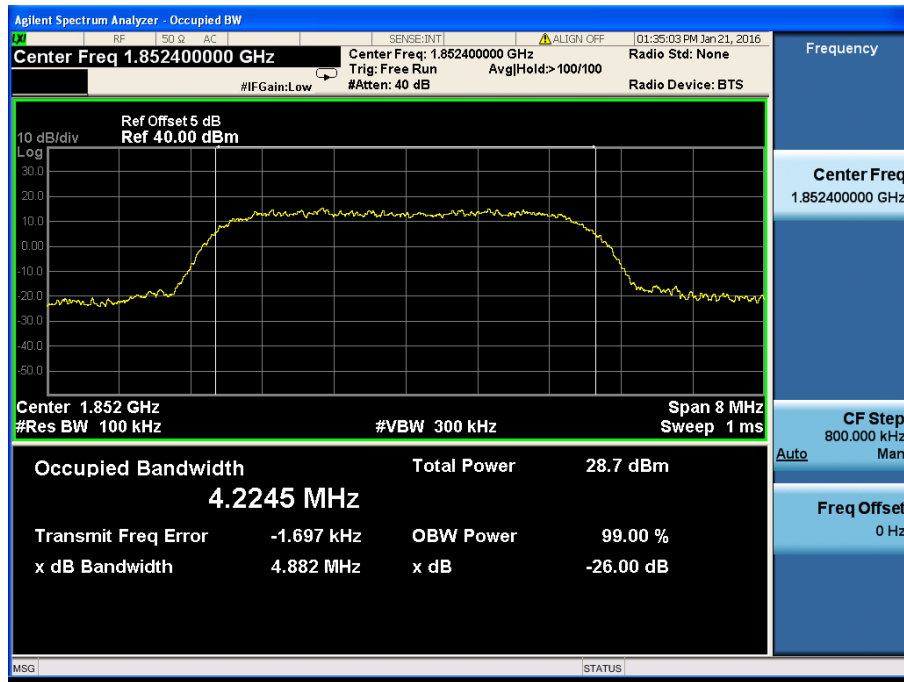
HSDPA Middle Channel



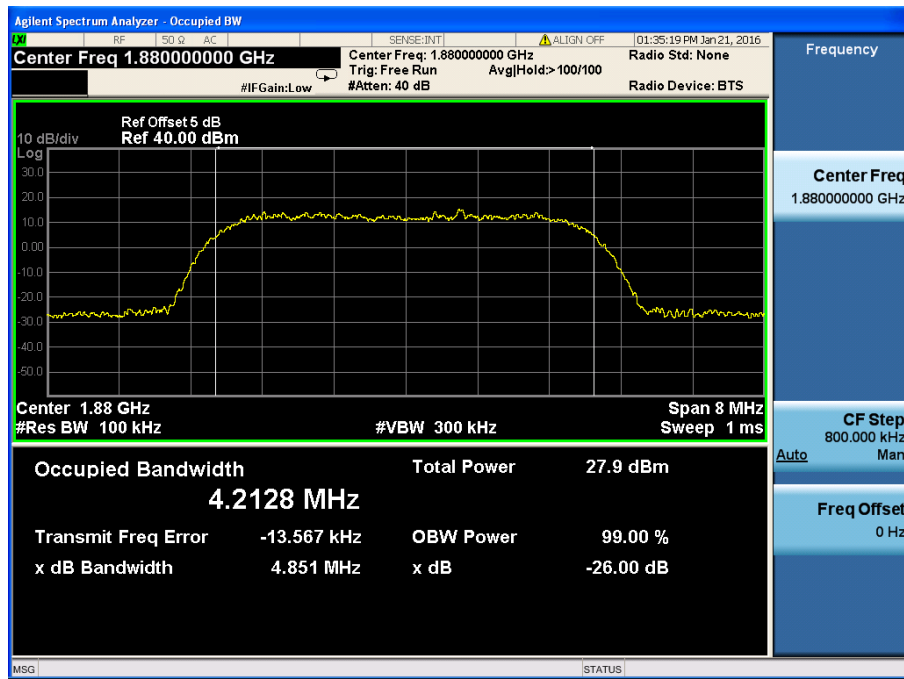
HSDPA High Channel



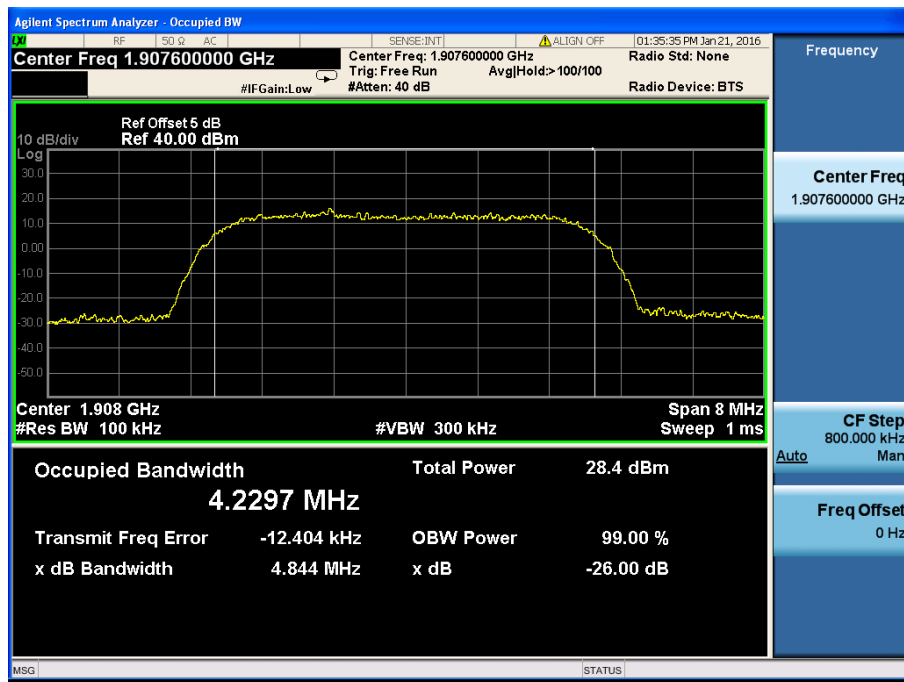
HSUPA Low Channel



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.

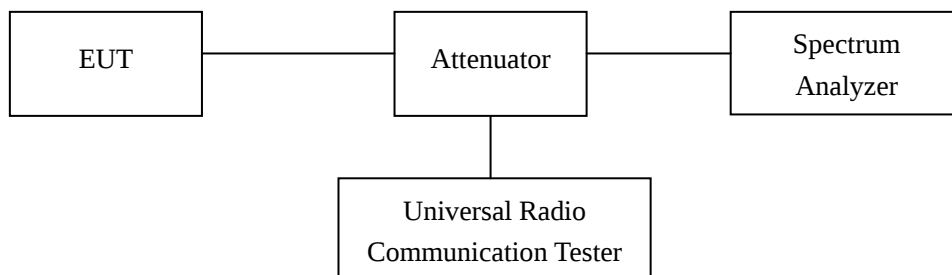
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §27.53 (h), the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ 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 10th harmonic.

Test Configuration for the out of band emissions testing:



7.3 Environmental Conditions

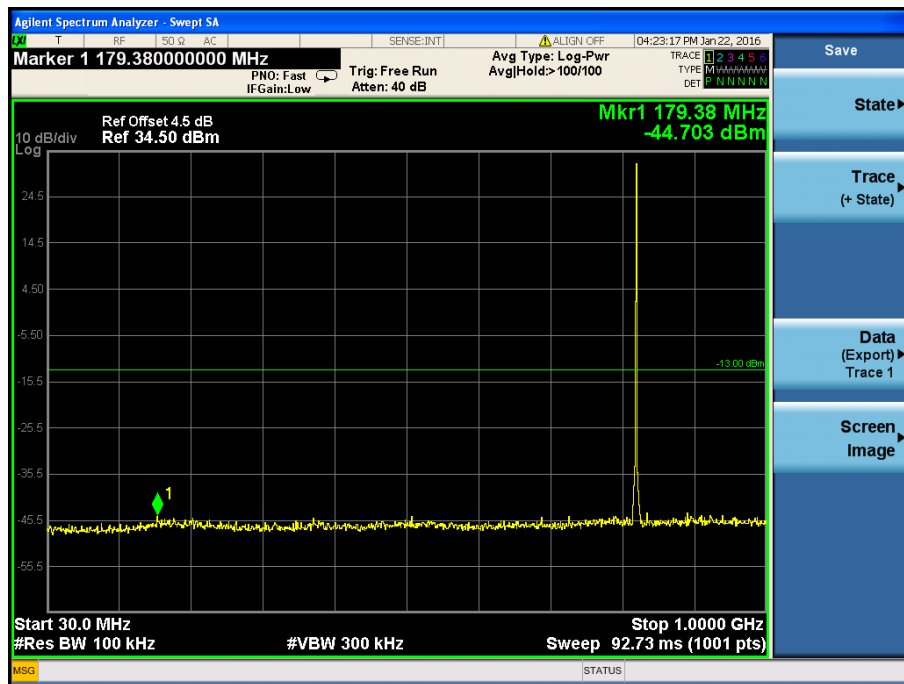
Temperature:	25 °C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

7.4 Summary of Test Results/Plots

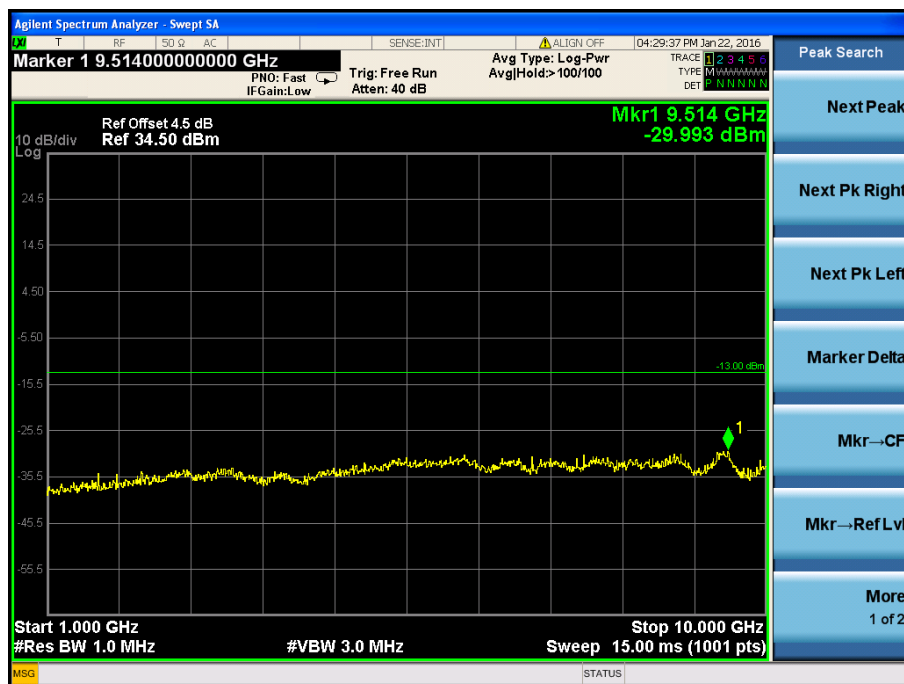
Please refer to the following test plots For Cellular Band

GSM Low Channel

30MHz to 1GHz

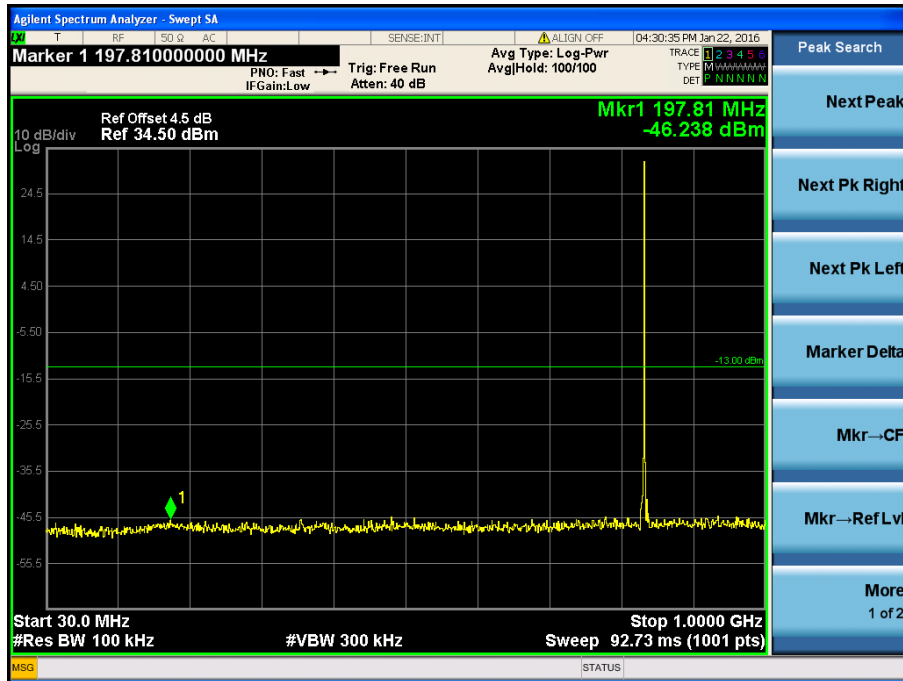


Above 1GHz

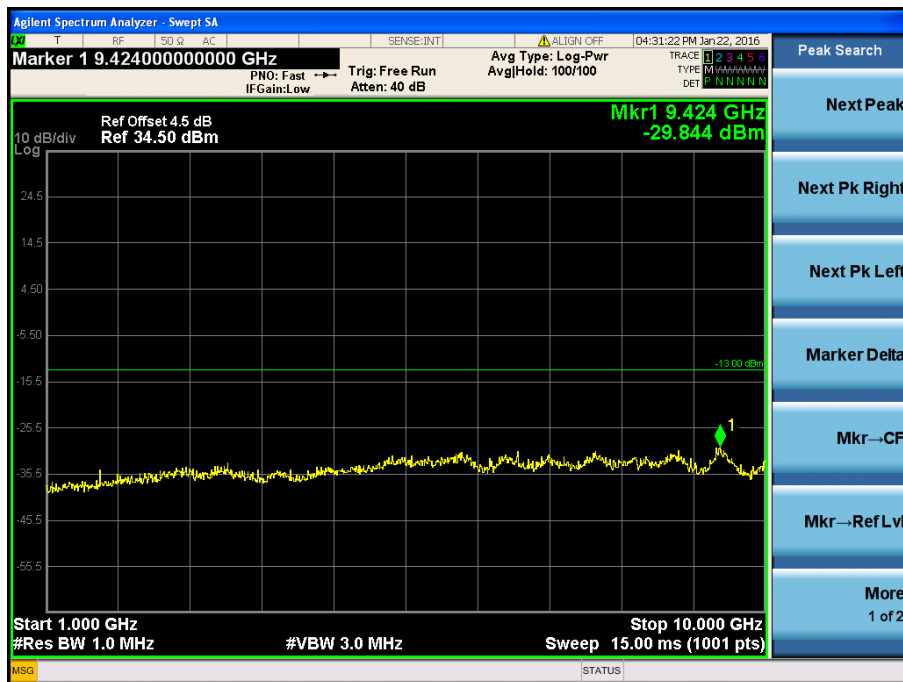


GSM Middle Channel

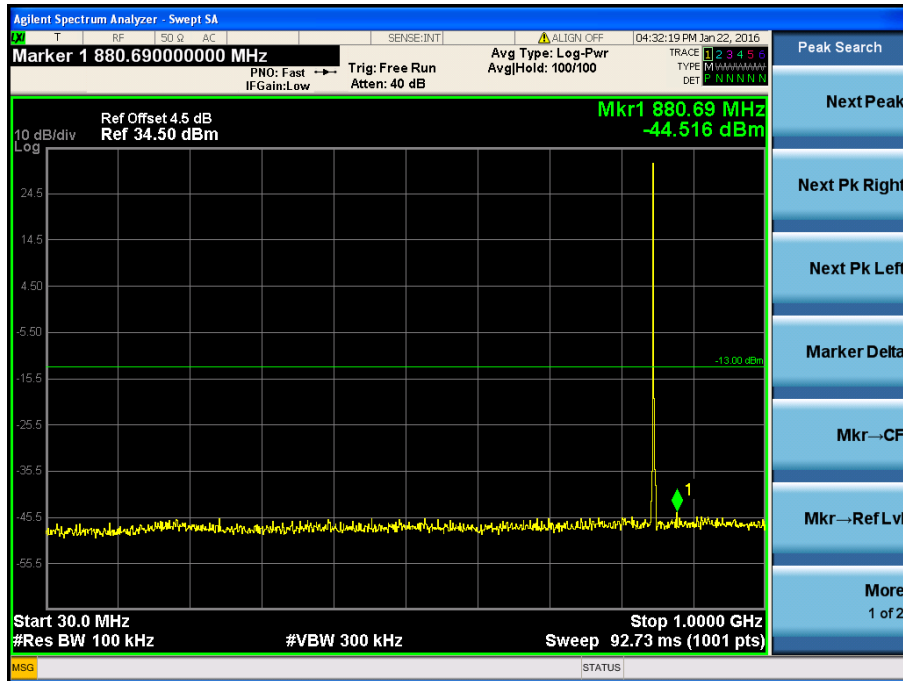
30MHz to 1GHz



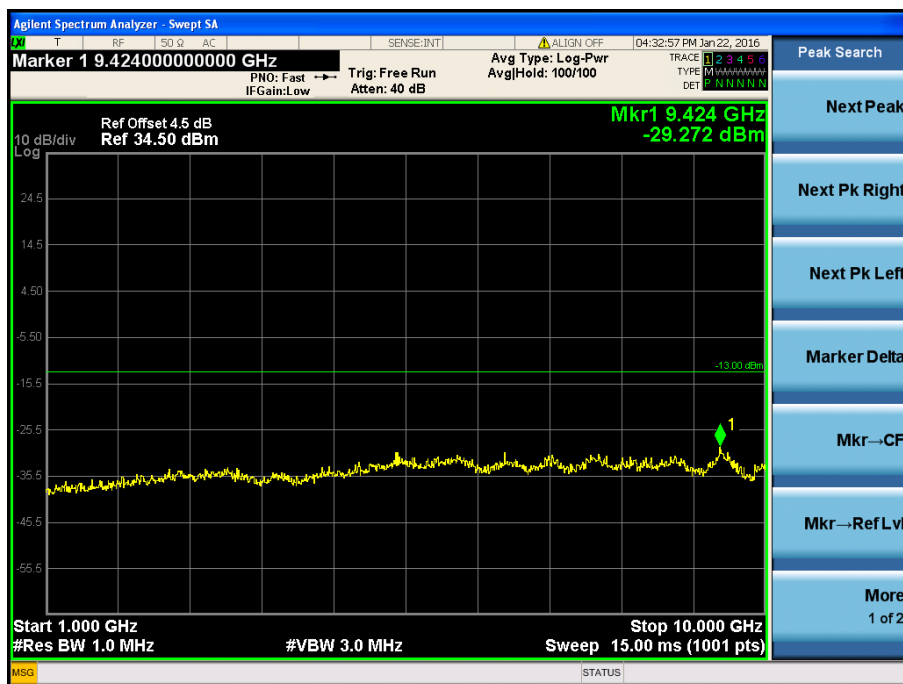
Above 1GHz



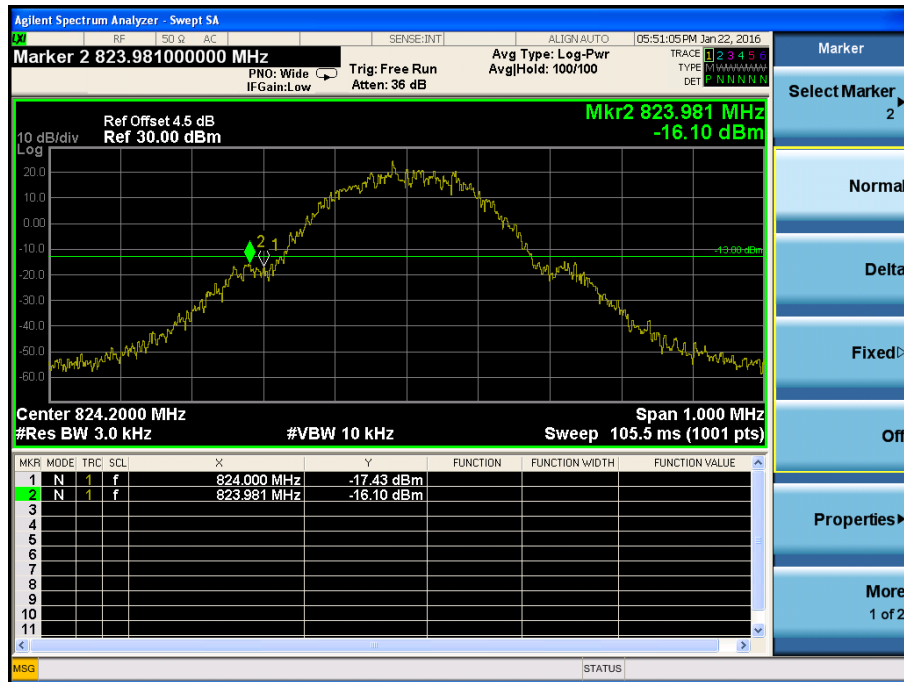
GSM High Channel 30MHz to 1GHz



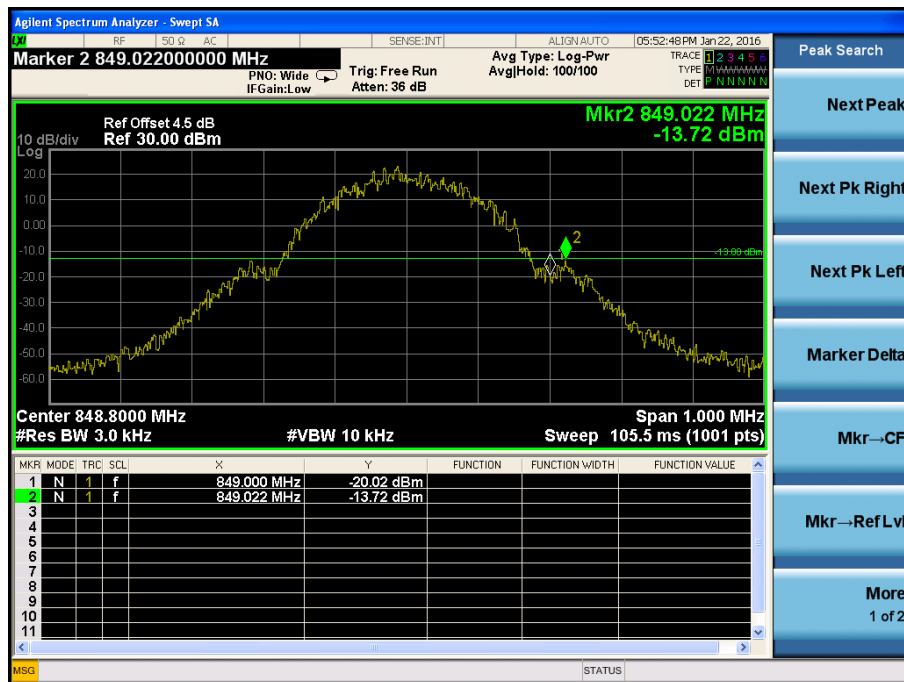
Above 1GHz



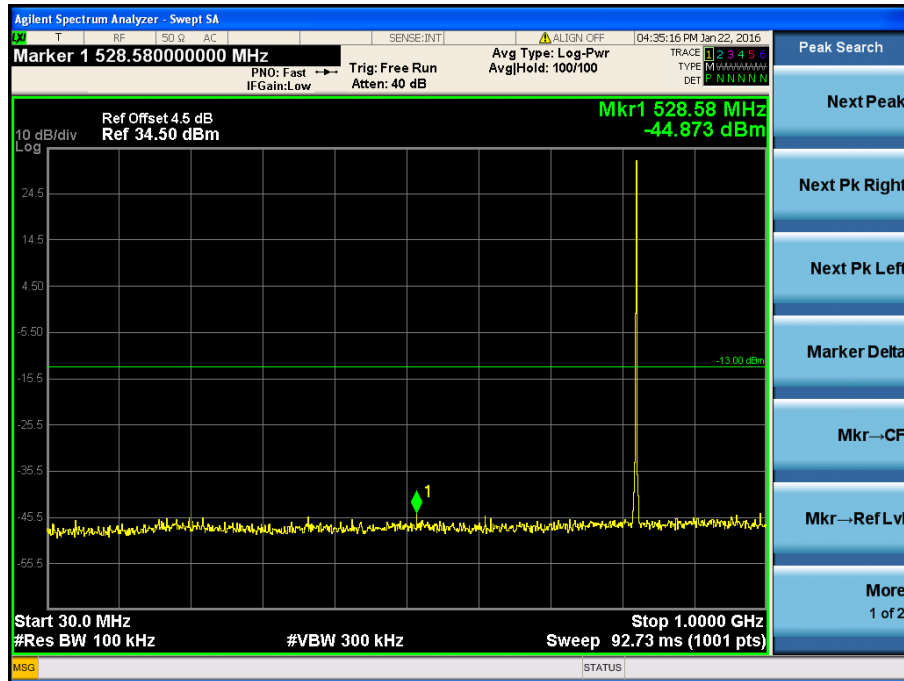
GSM Low Band Emission



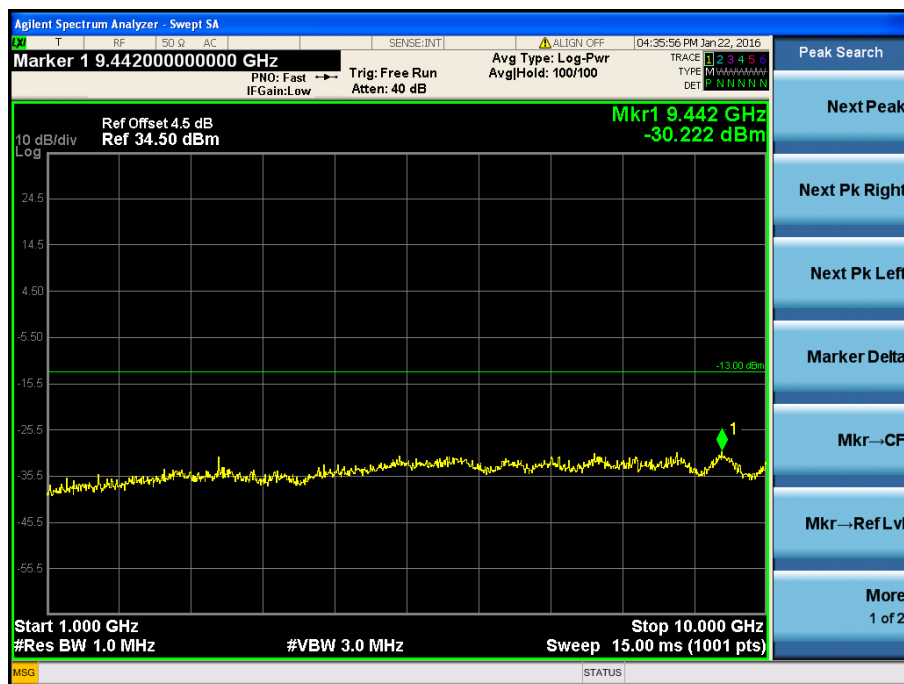
GSM High Band Emission



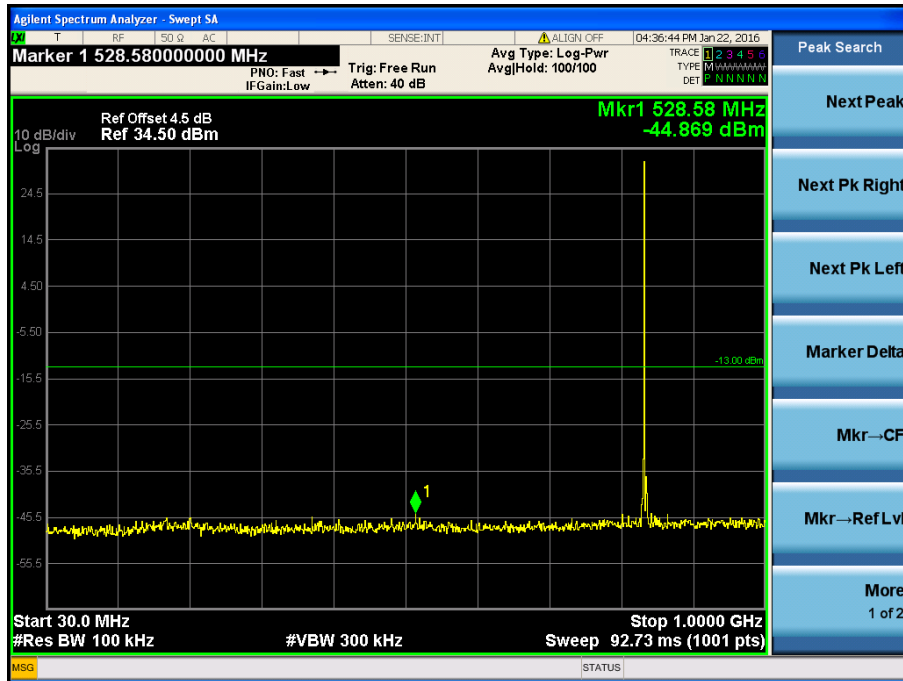
GPRS Low Channel
30MHz to 1GHz



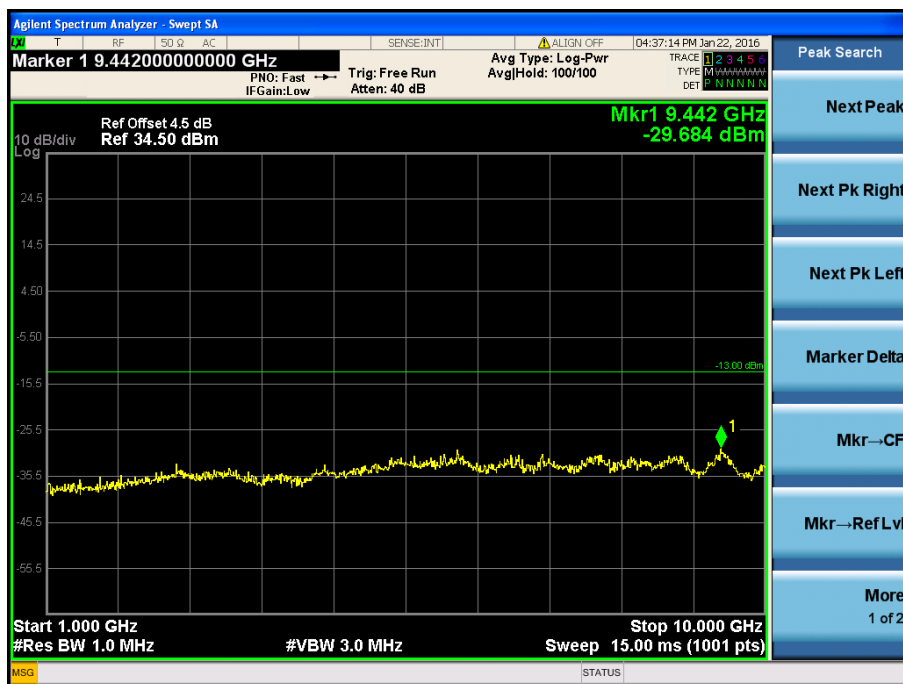
Above 1GHz



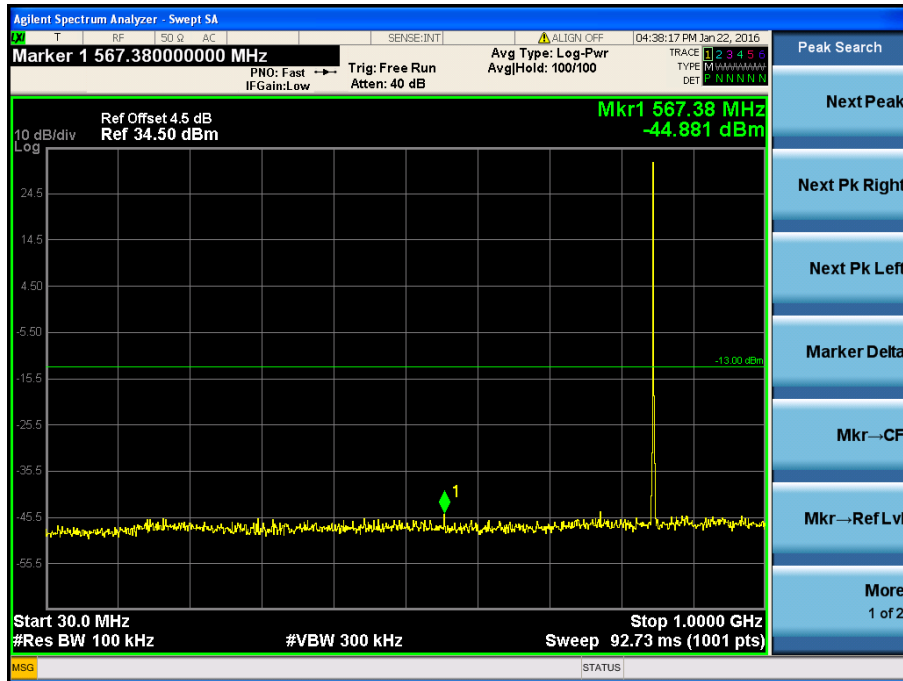
GPRS Middle Channel 30MHz to 1GHz



Above 1GHz



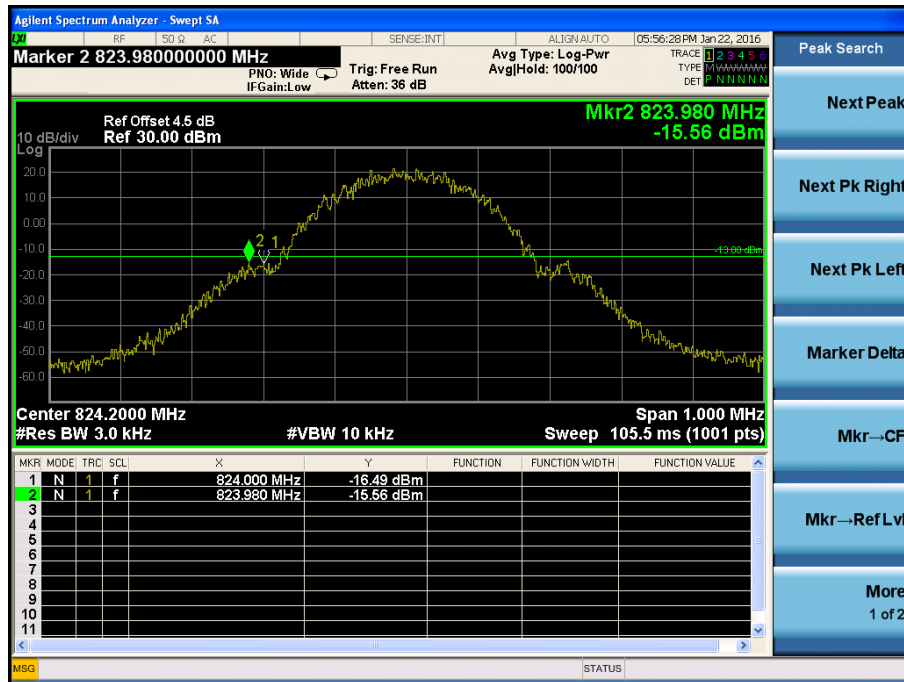
GPRS High Channel 30MHz to 1GHz



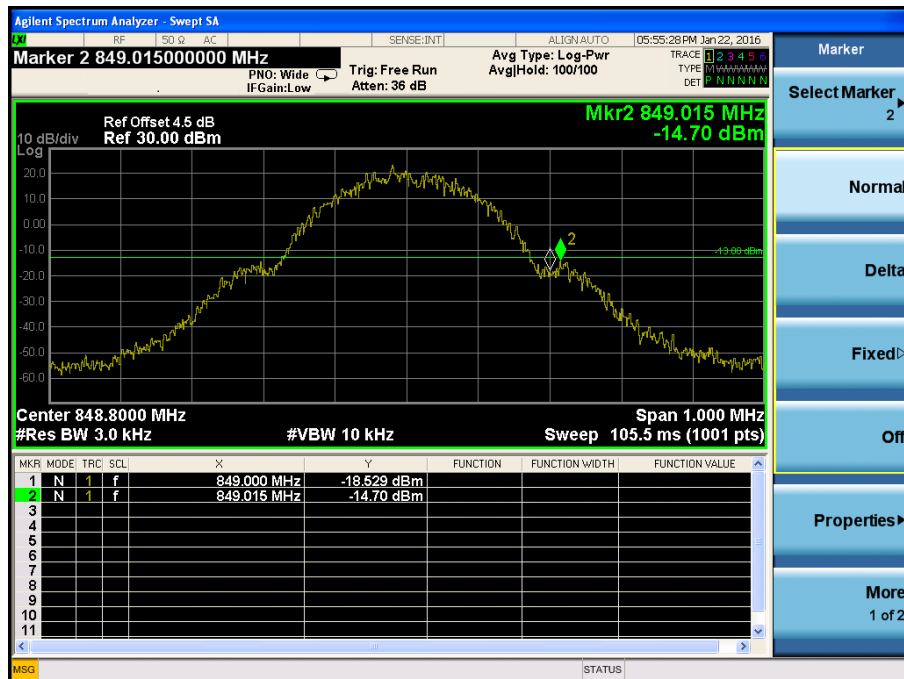
Above 1GHz



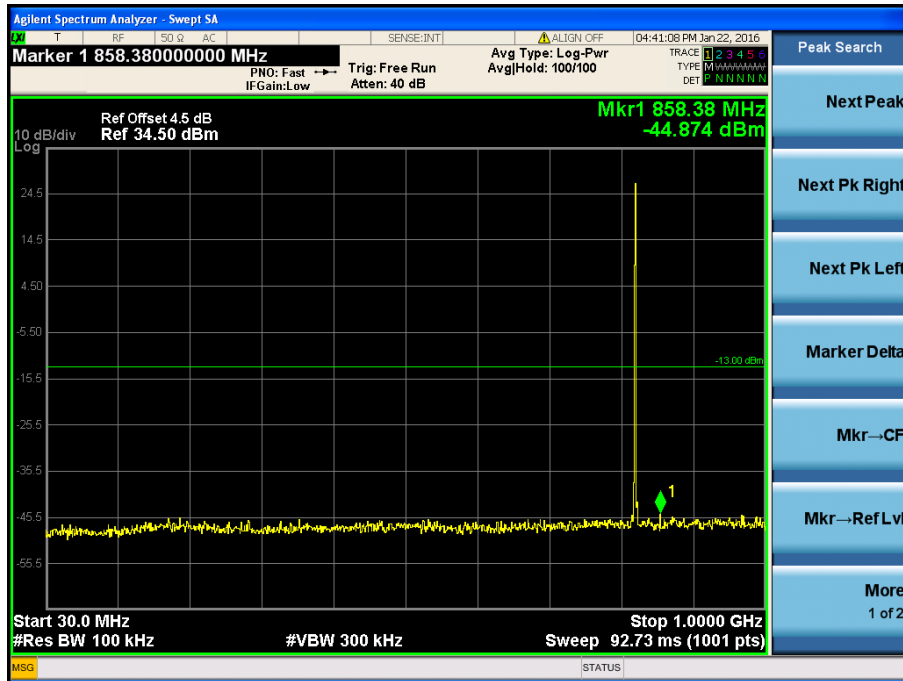
GPRS Low Band Emission



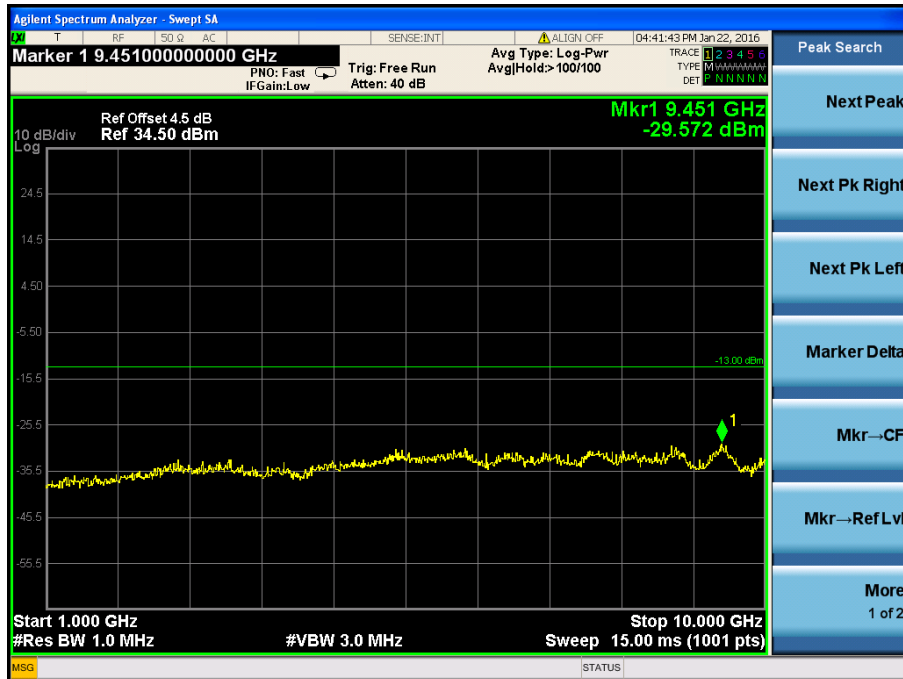
GPRS High Band Emission



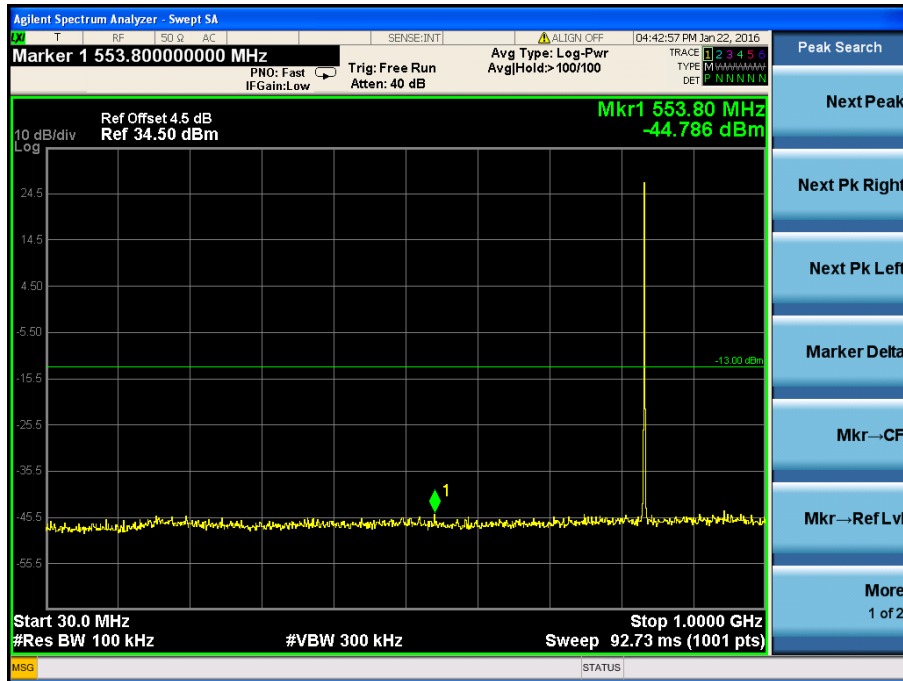
EDGE Low Channel
30MHz to 1GHz



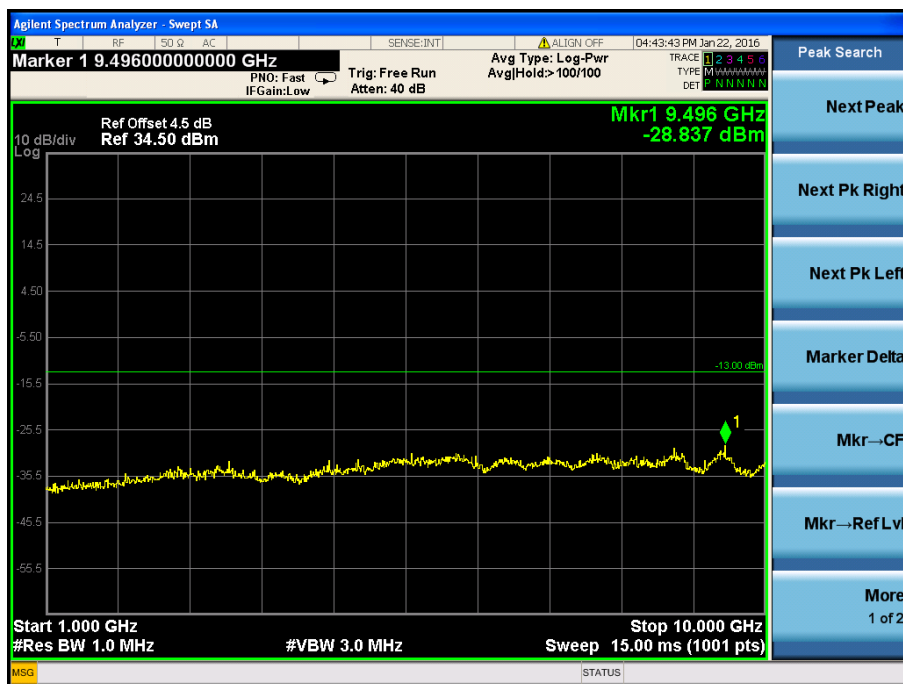
Above 1GHz



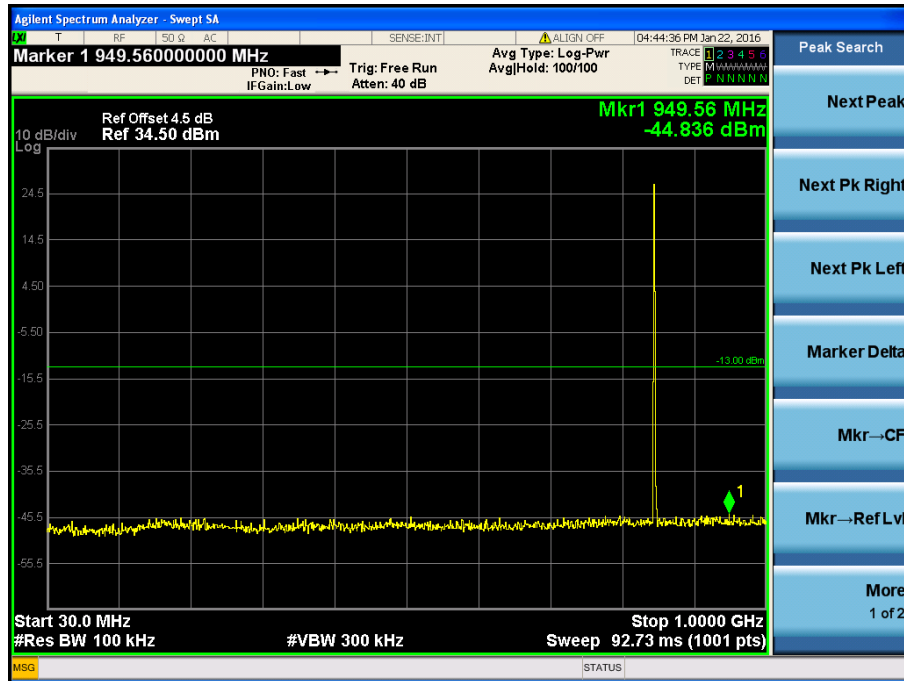
EDGE Middle Channel
30MHz to 1GHz



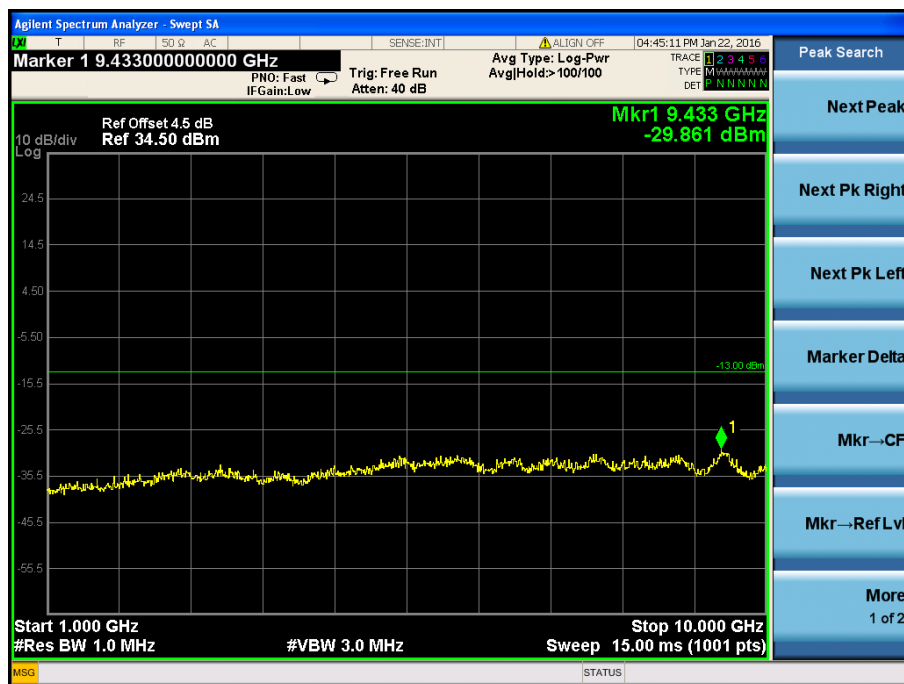
Above 1GHz



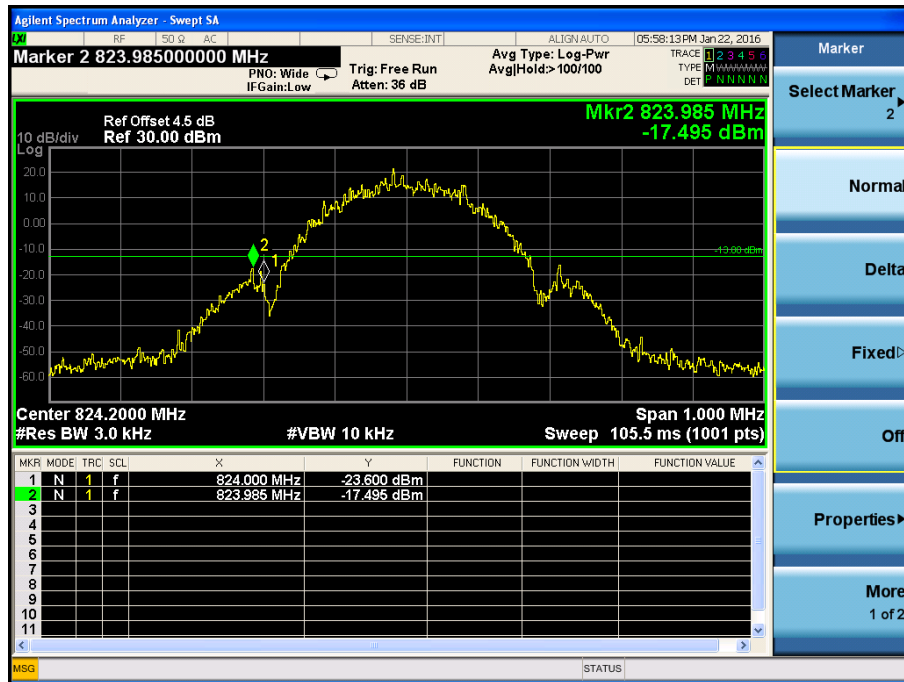
EDGE High Channel
30MHz to 1GHz



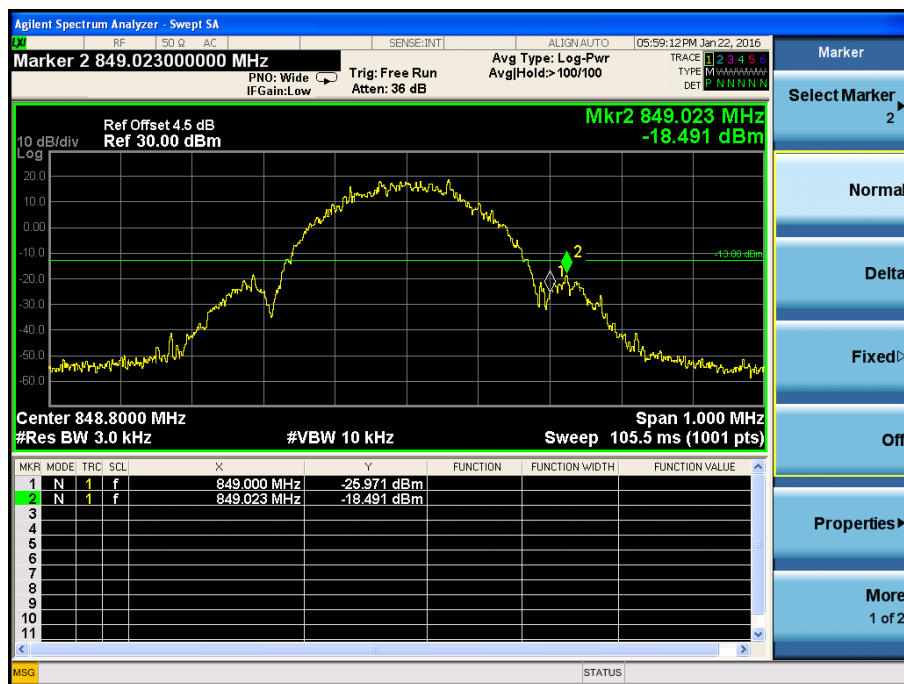
Above 1GHz



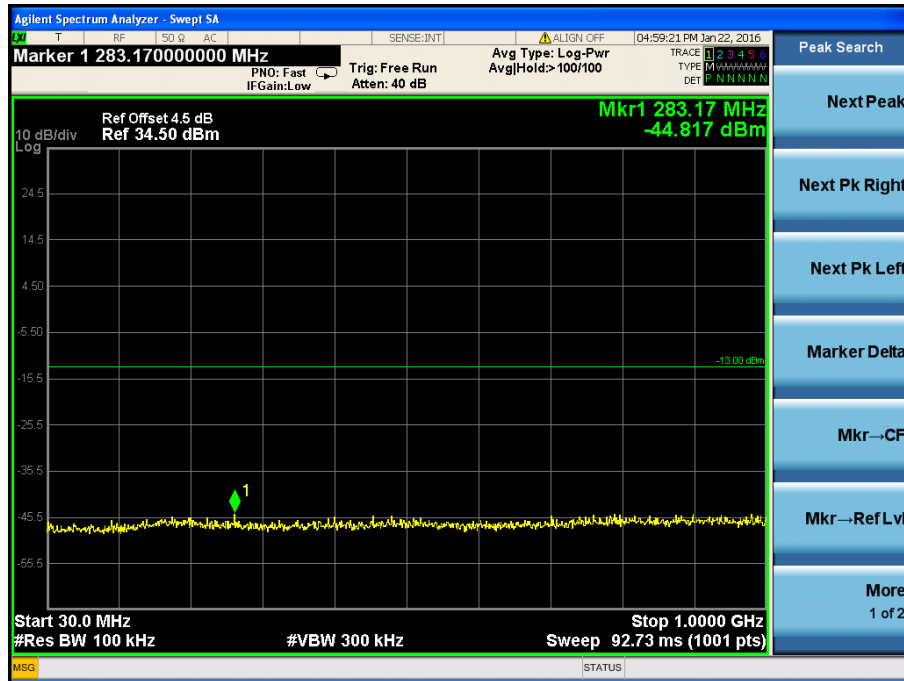
EDGE Low Band Emission



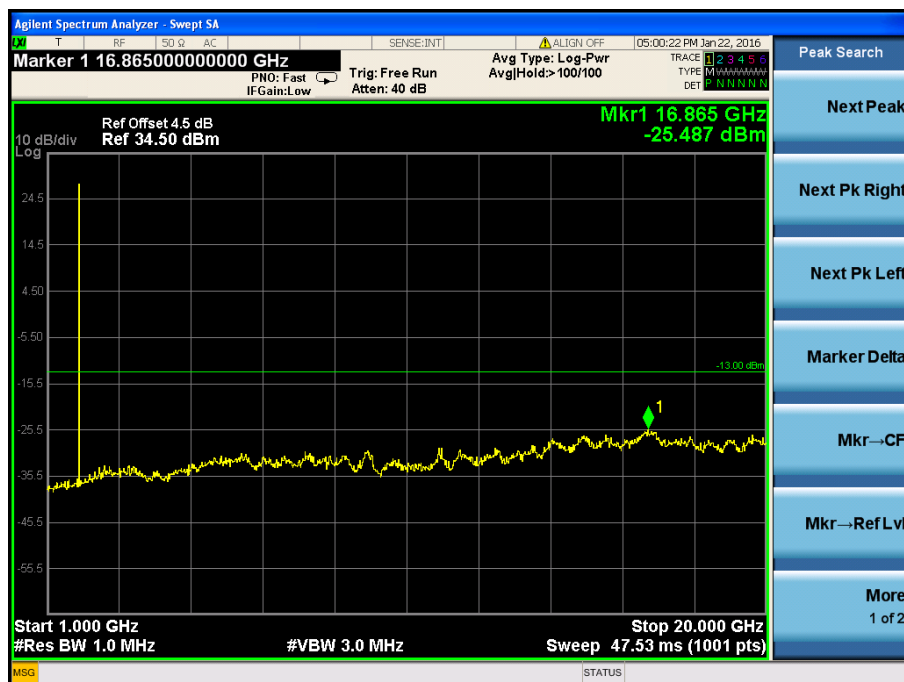
EDGE High Band Emission



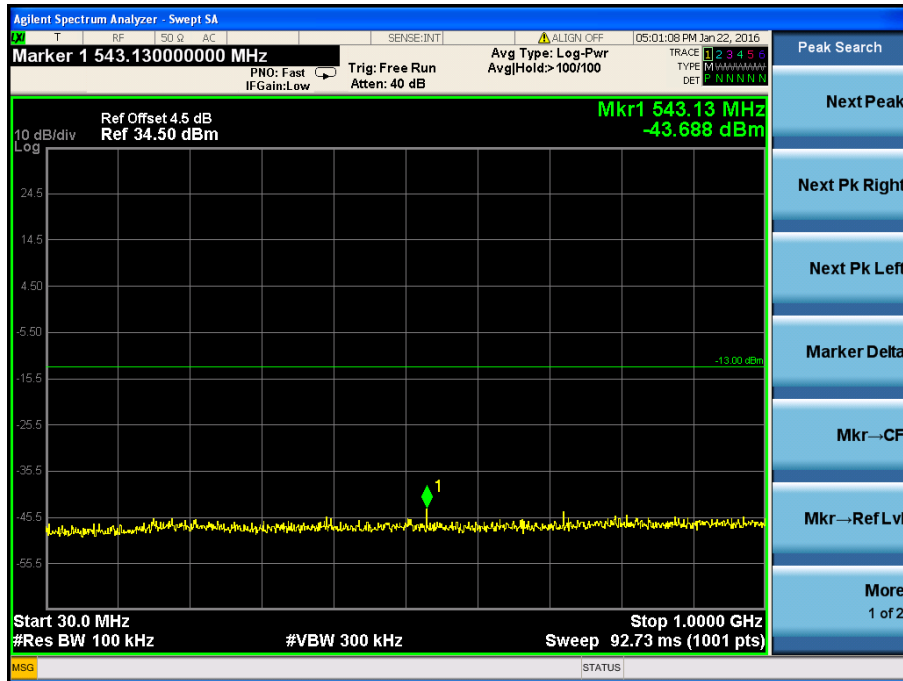
For PCS Band
GSM Low Channel
30MHz to 1GHz



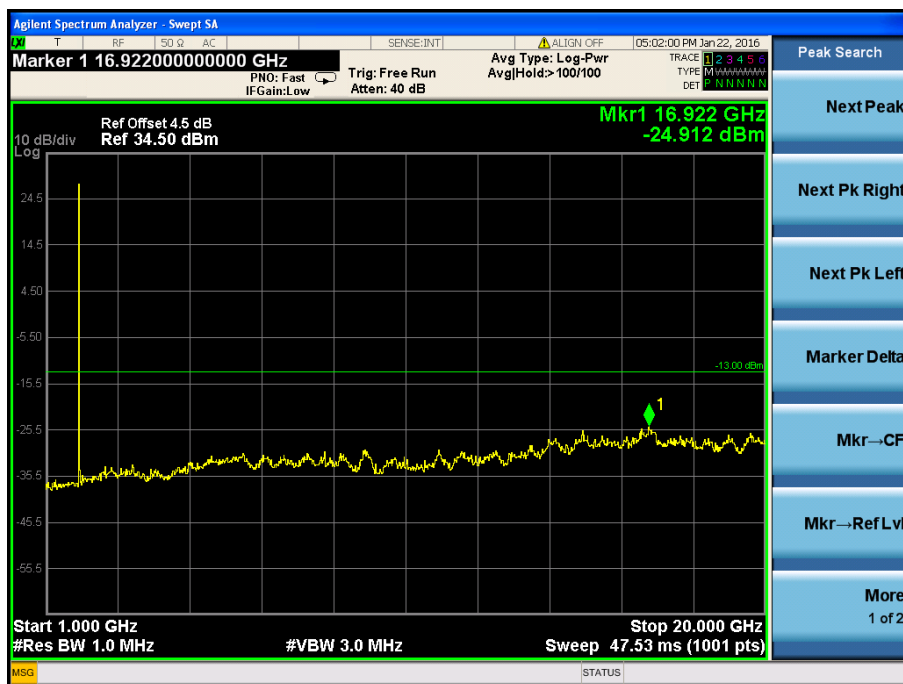
Above 1GHz



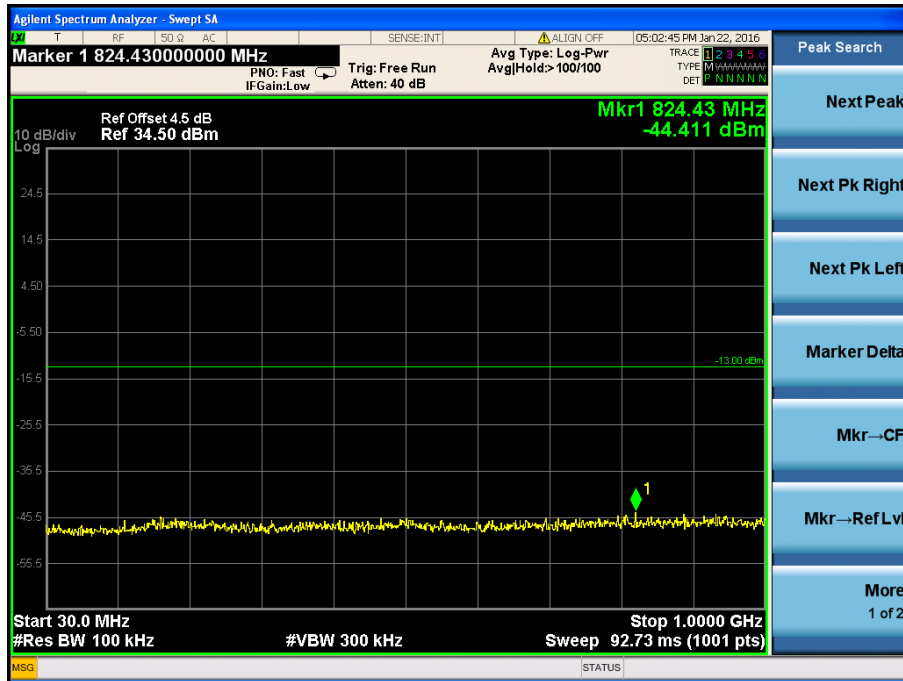
GSM Middle Channel 30MHz to 1GHz



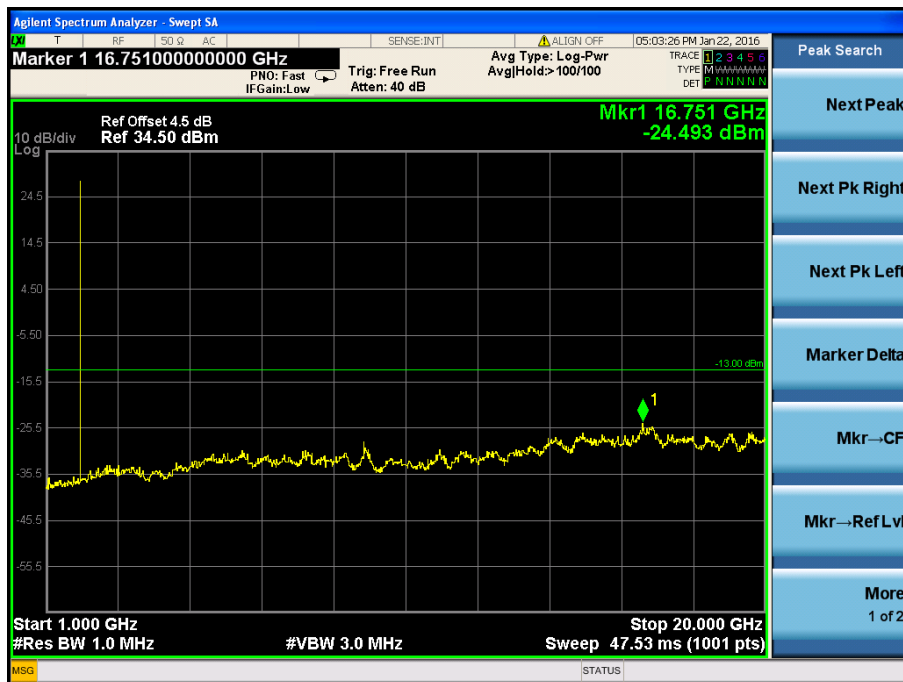
Above 1GHz



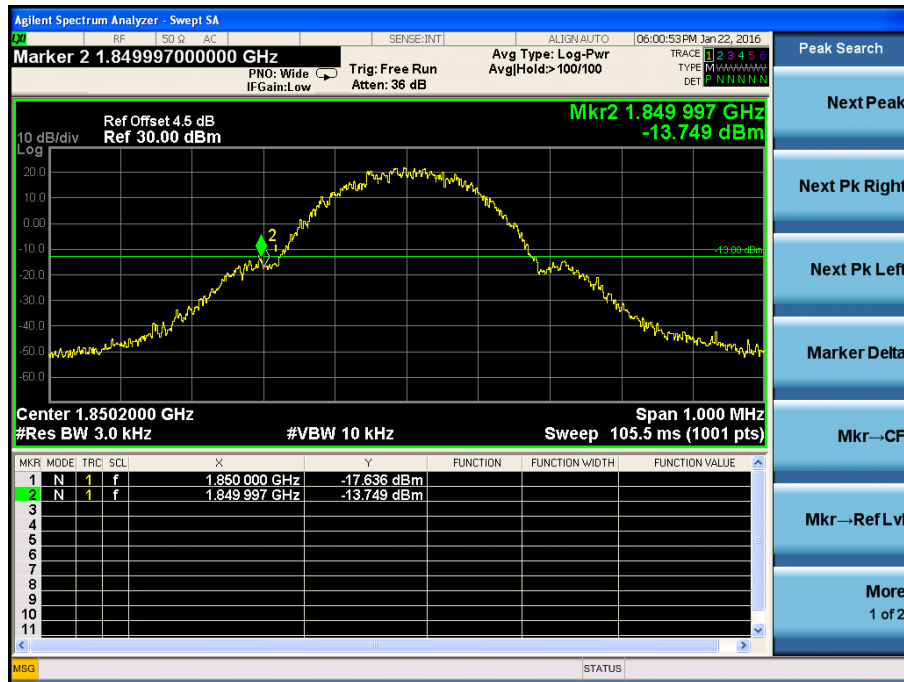
GSM High Channel 30MHz to 1GHz



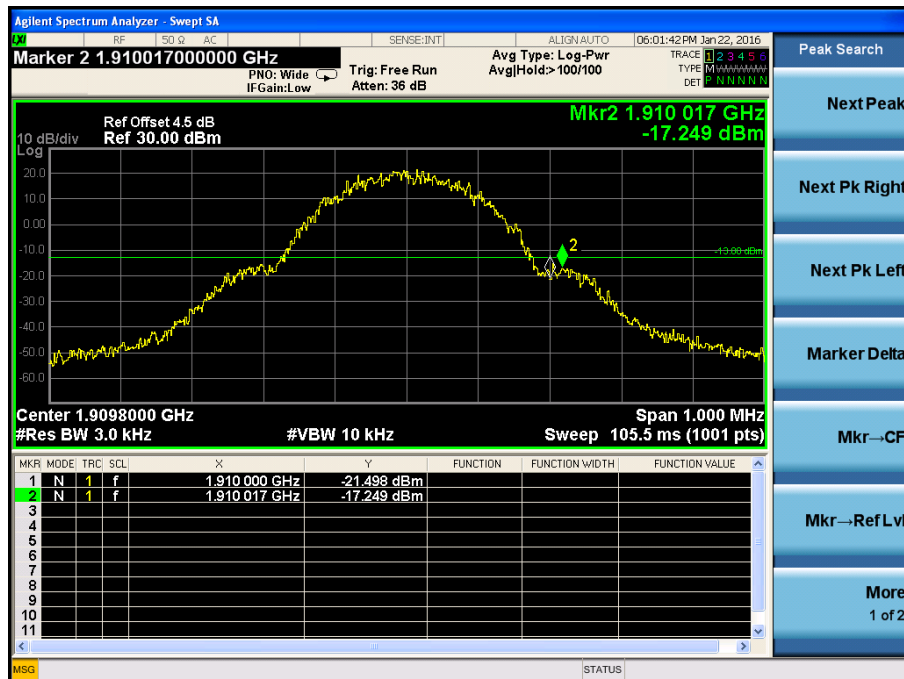
Above 1GHz



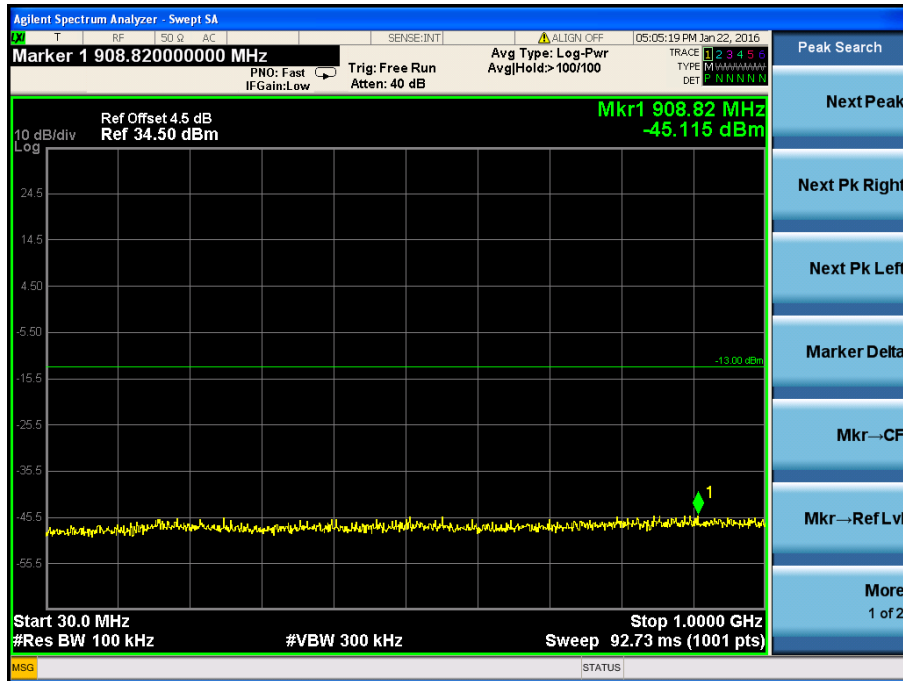
GSM Low Band Emission



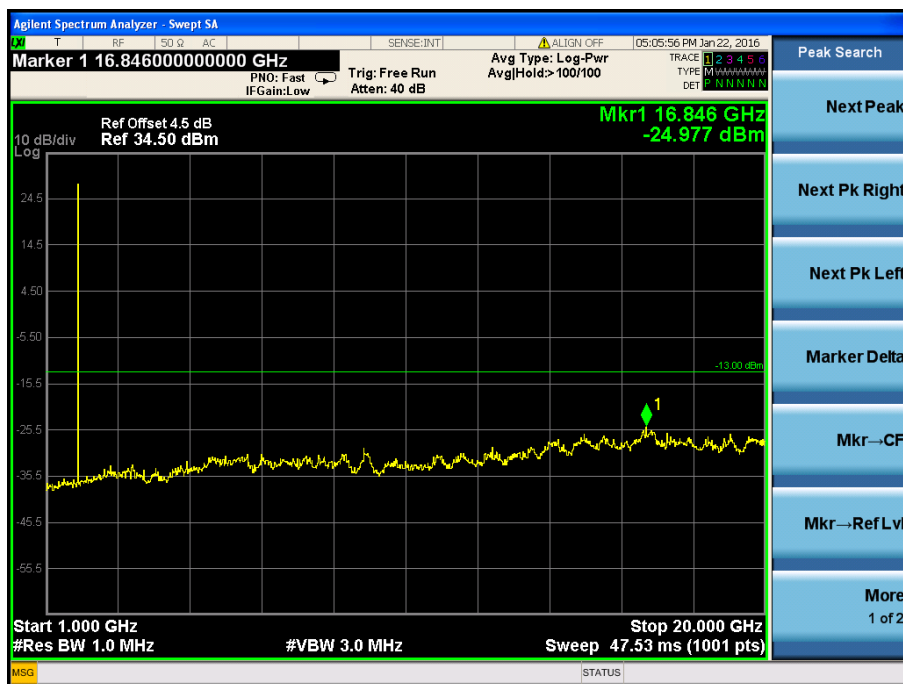
GSM High Band Emission



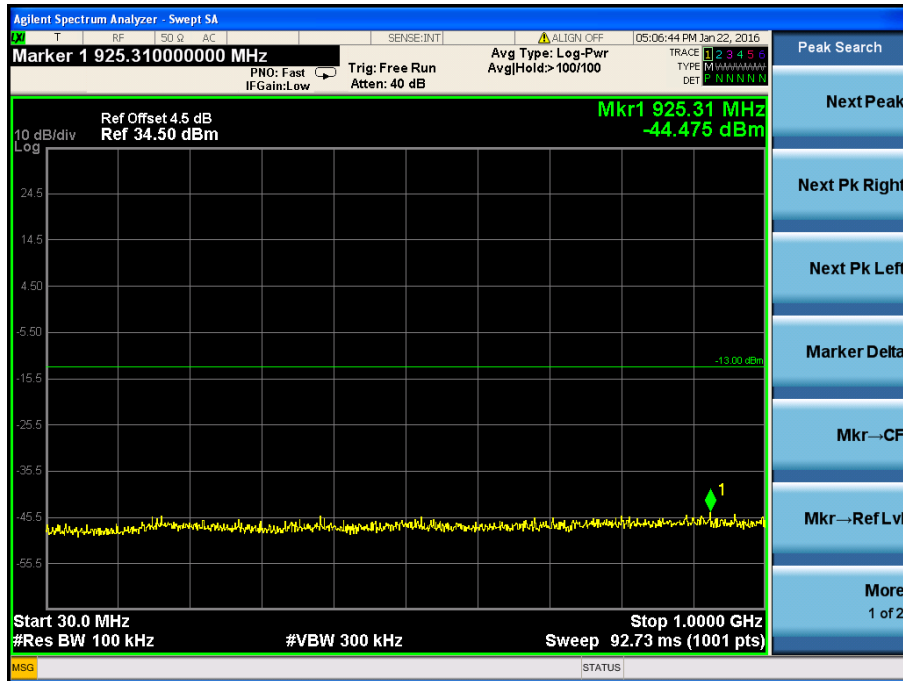
GPRS Low Channel
30MHz to 1GHz



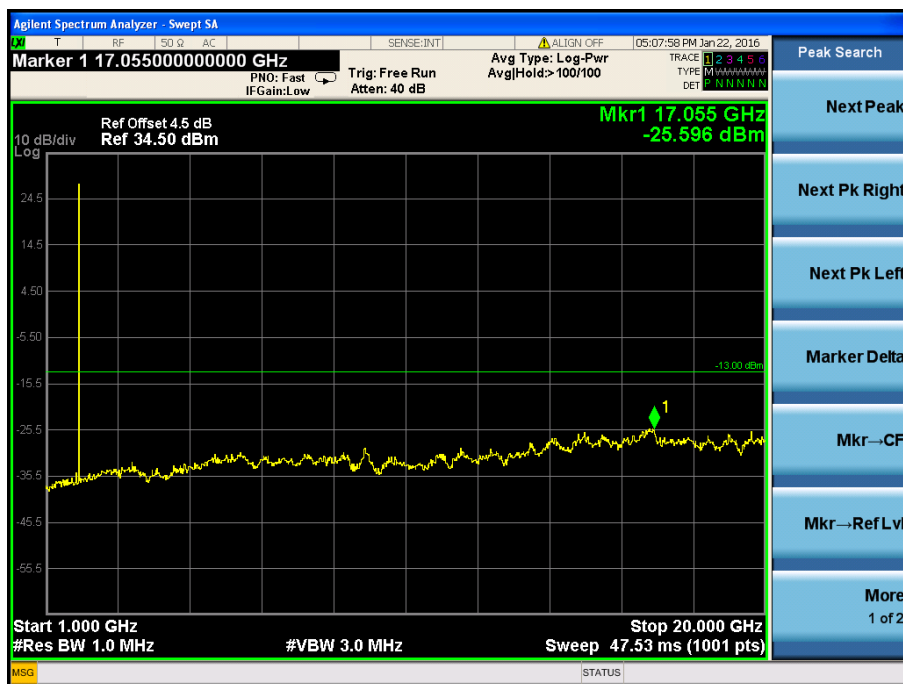
Above 1GHz



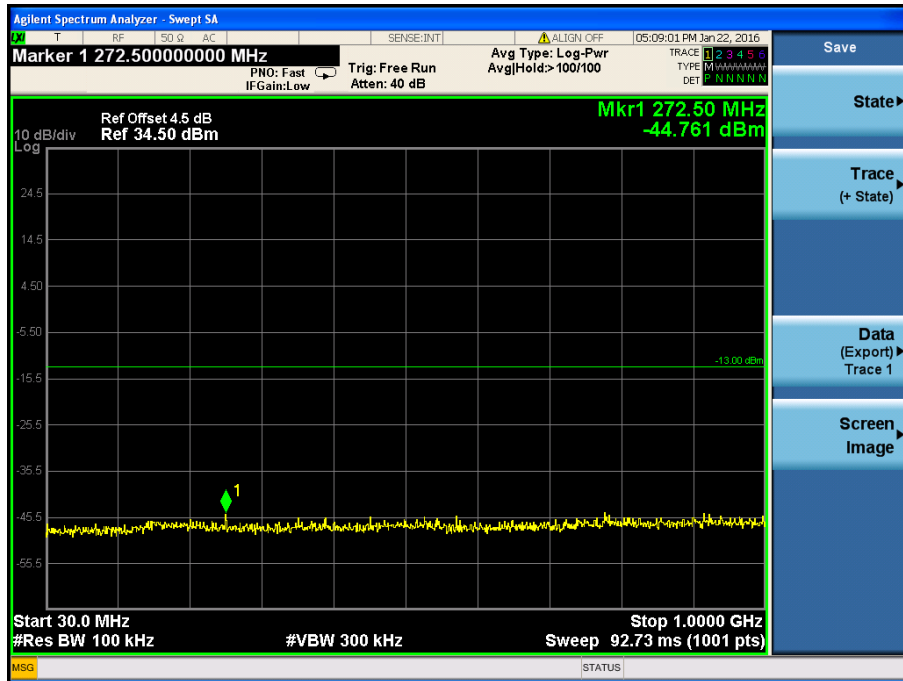
GPRS Middle Channel 30MHz to 1GHz



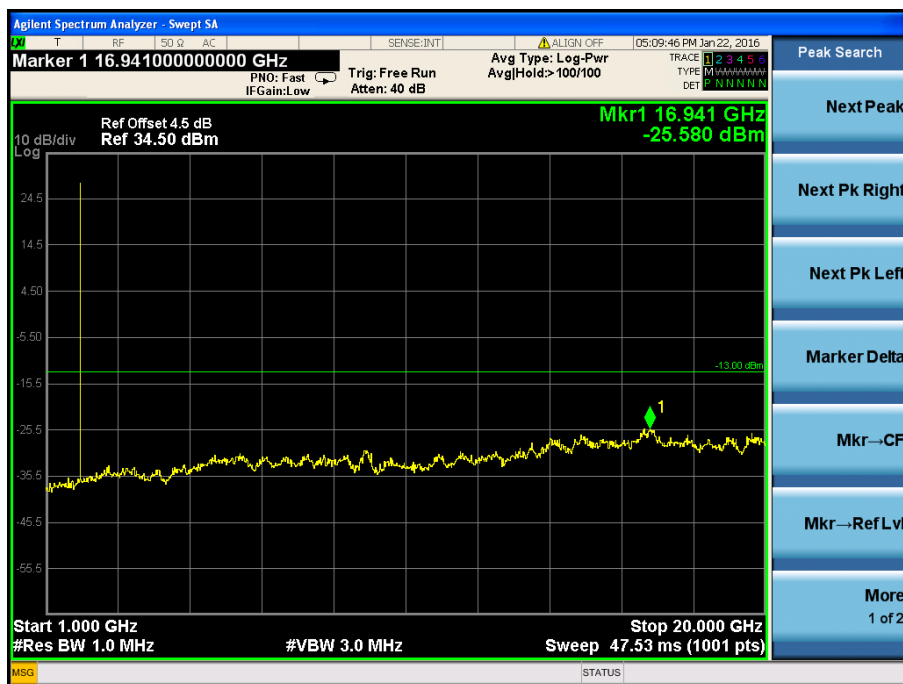
Above 1GHz



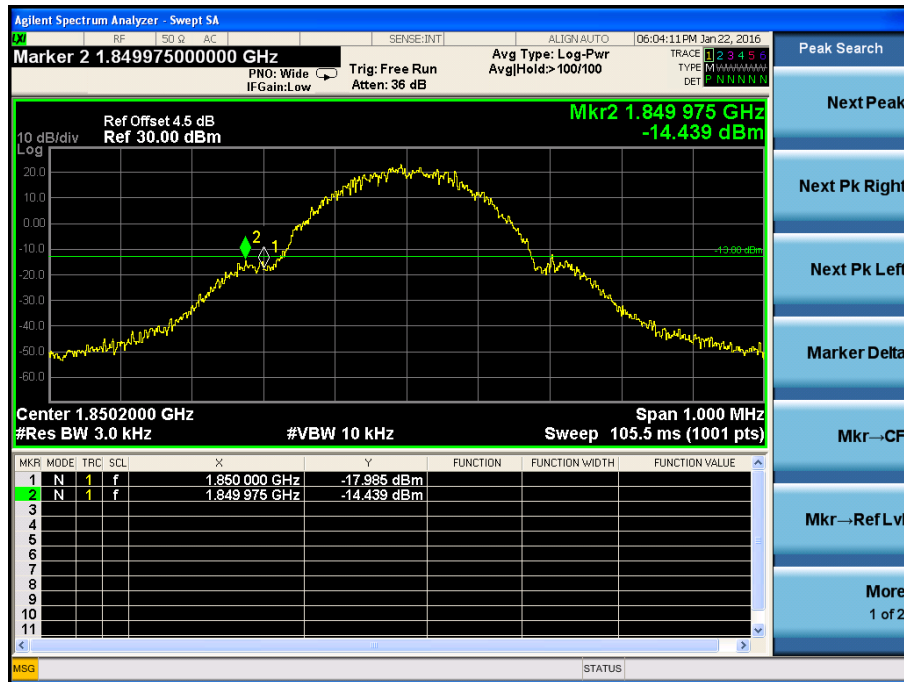
GPRS High Channel 30MHz to 1GHz



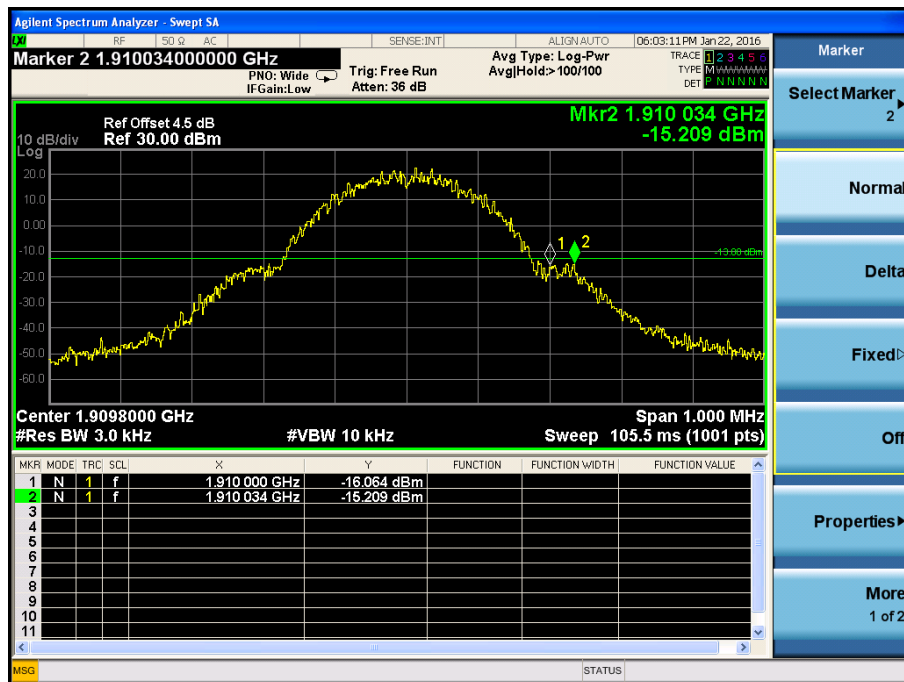
Above 1GHz



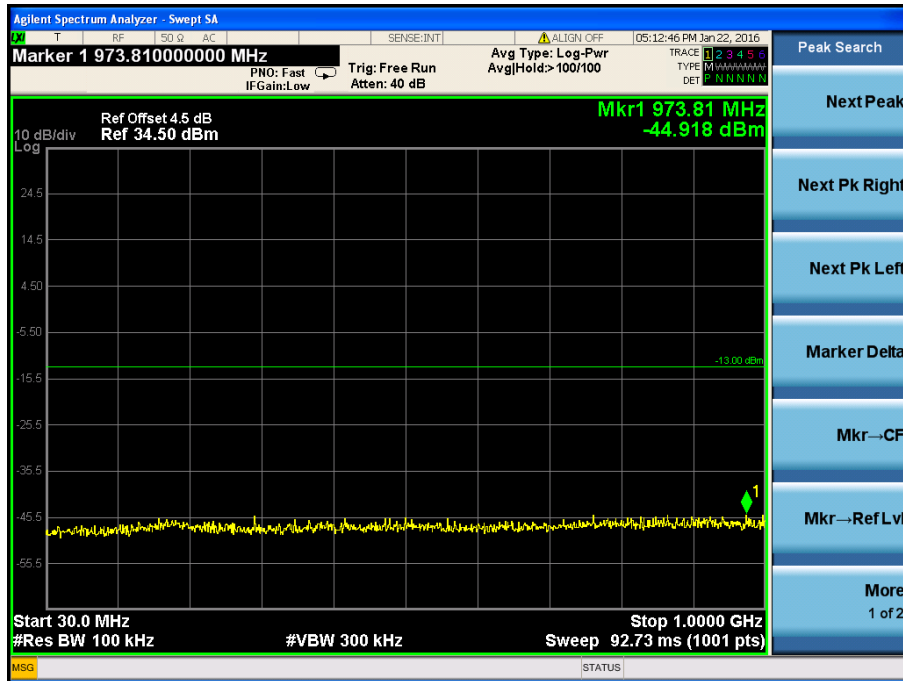
GPRS Low Band Emission



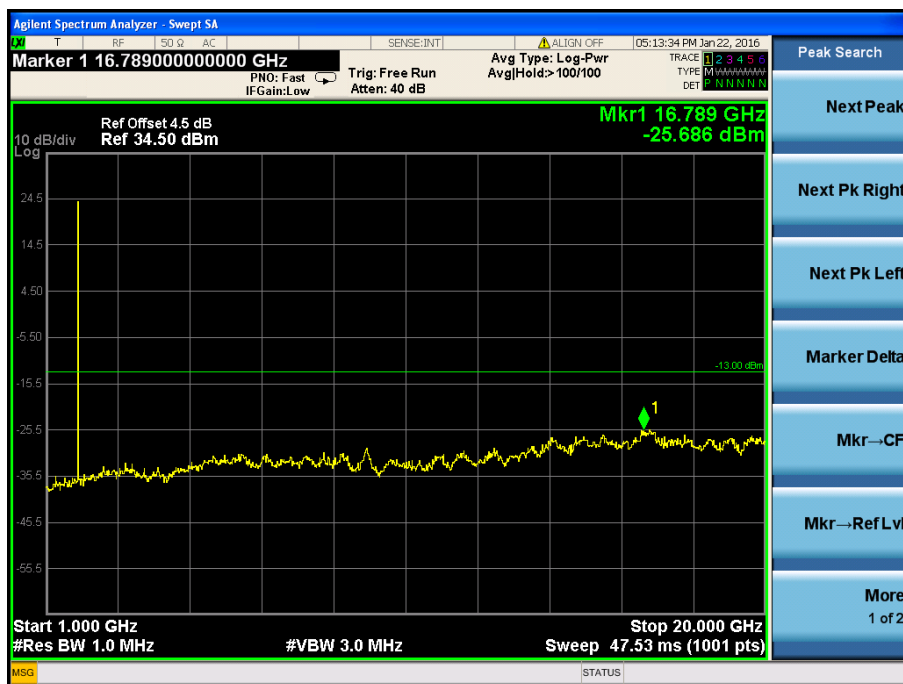
GPRS High Band Emission



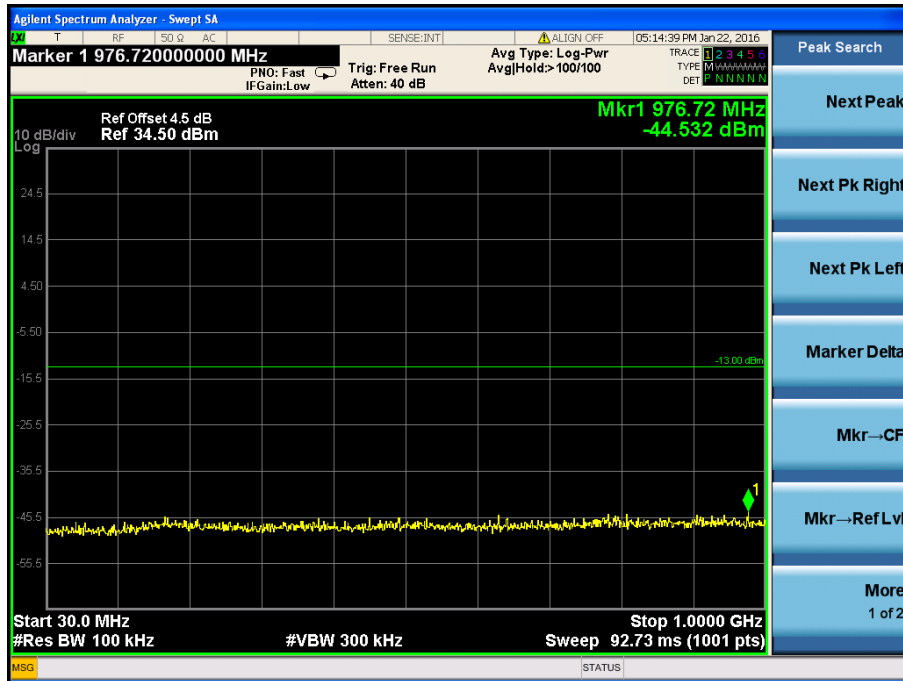
EDGE Low Channel
30MHz to 1GHz



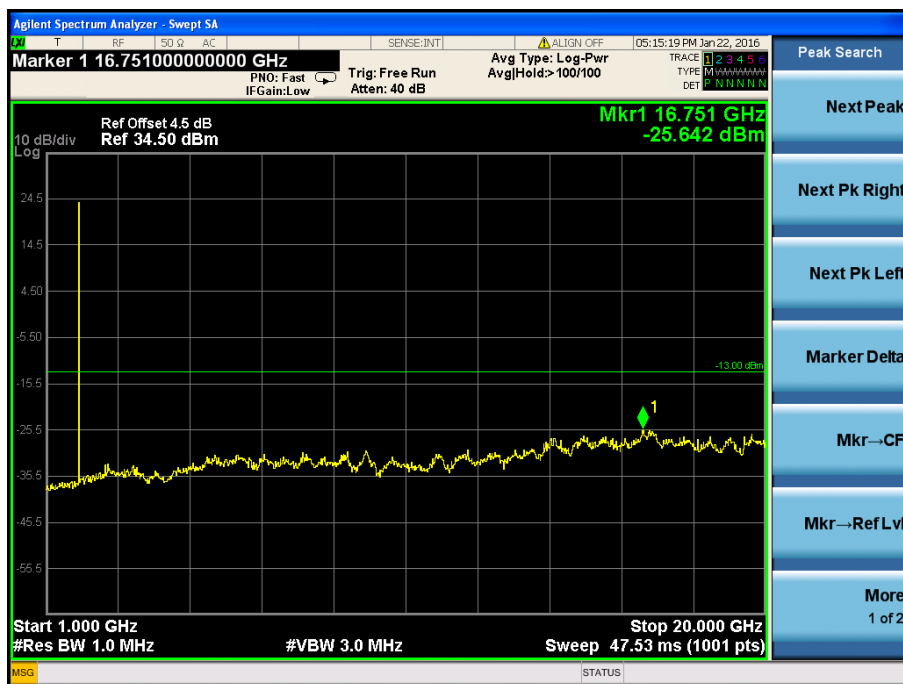
Above 1GHz



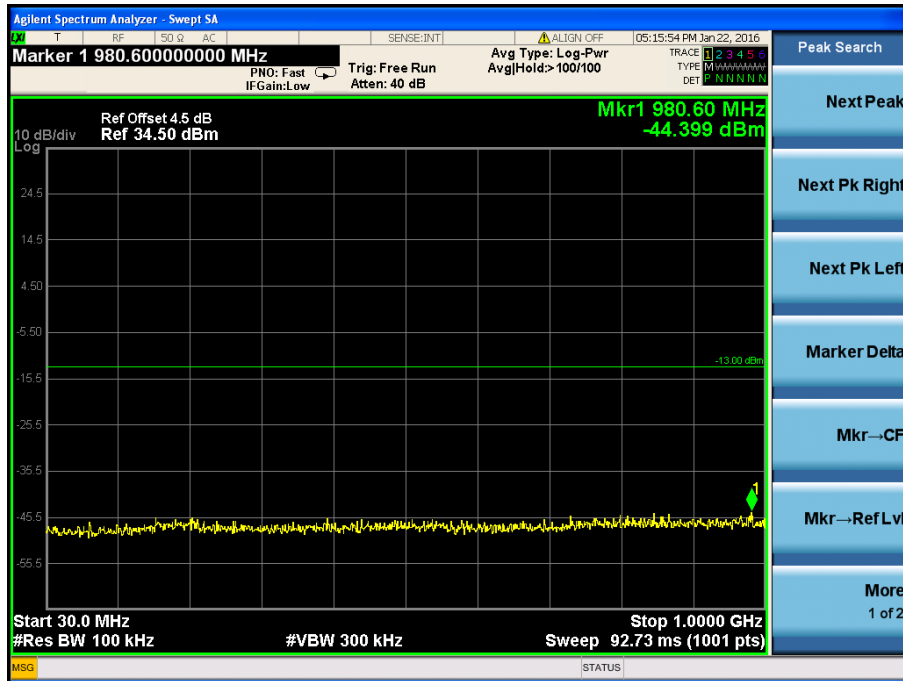
EDGE Middle Channel
30MHz to 1GHz



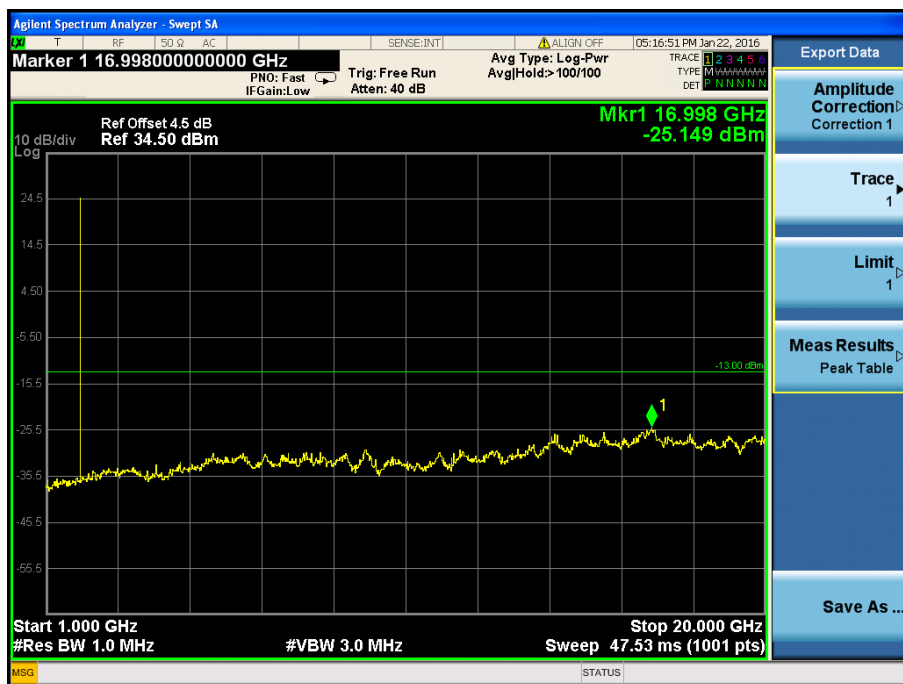
Above 1GHz



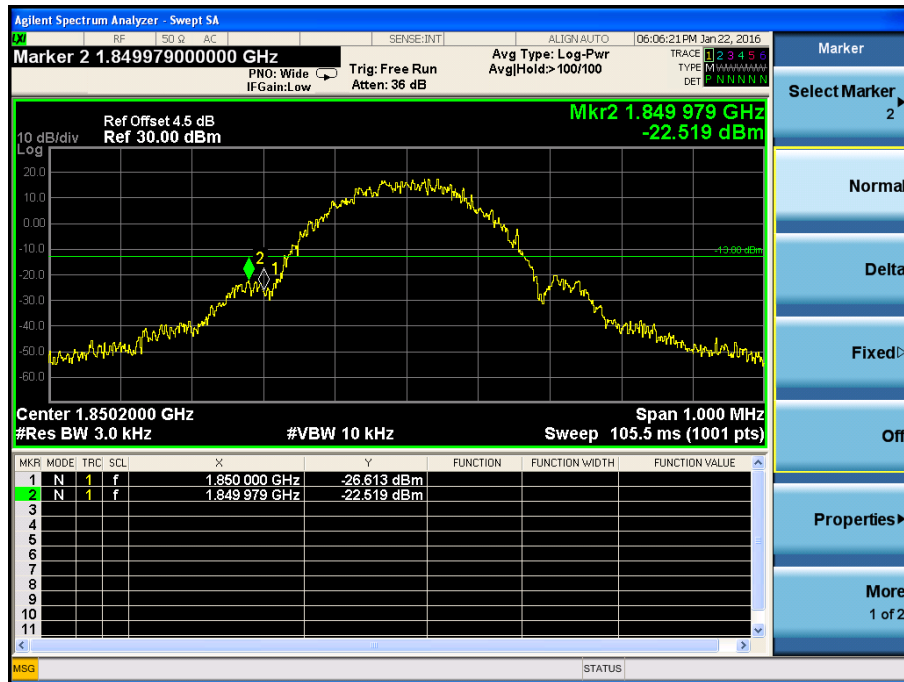
EDGE High Channel
30MHz to 1GHz



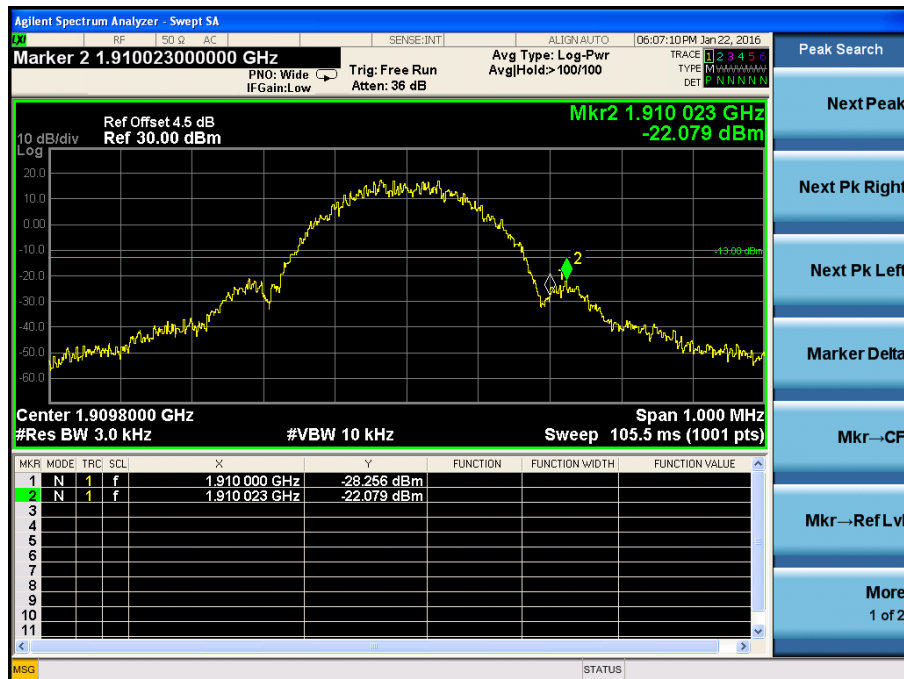
Above 1GHz



EDGE Low Band Emission



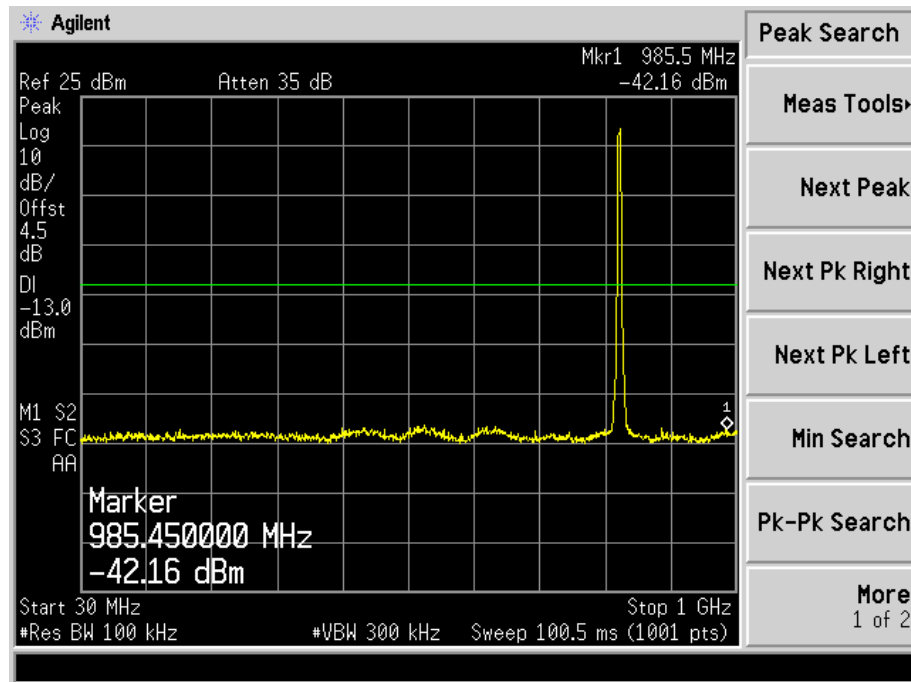
EDGE High Band Emission



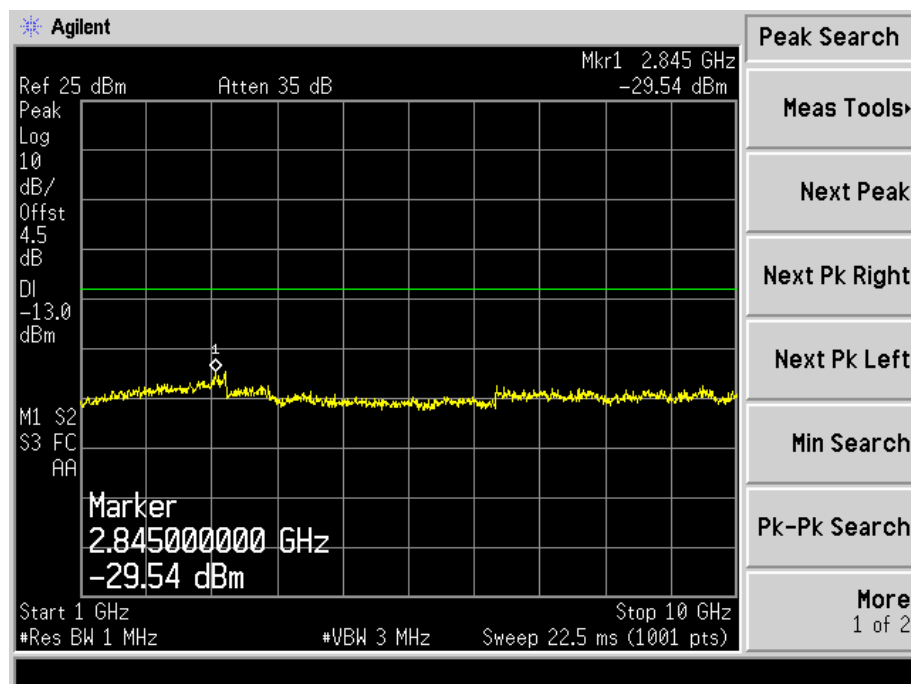
For Band V

WCDMA Low Channel

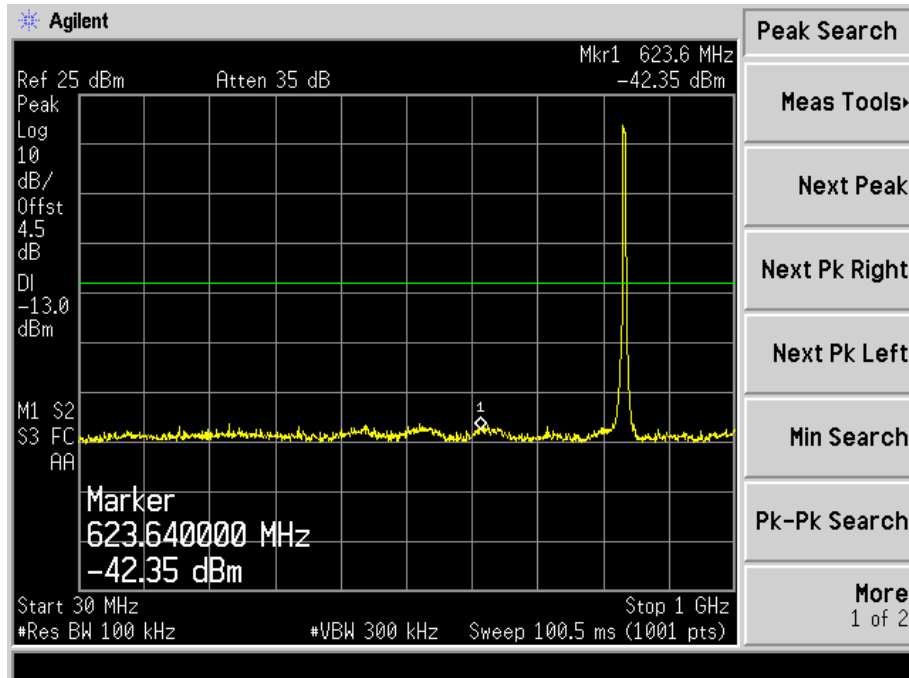
30MHz to 1GHz



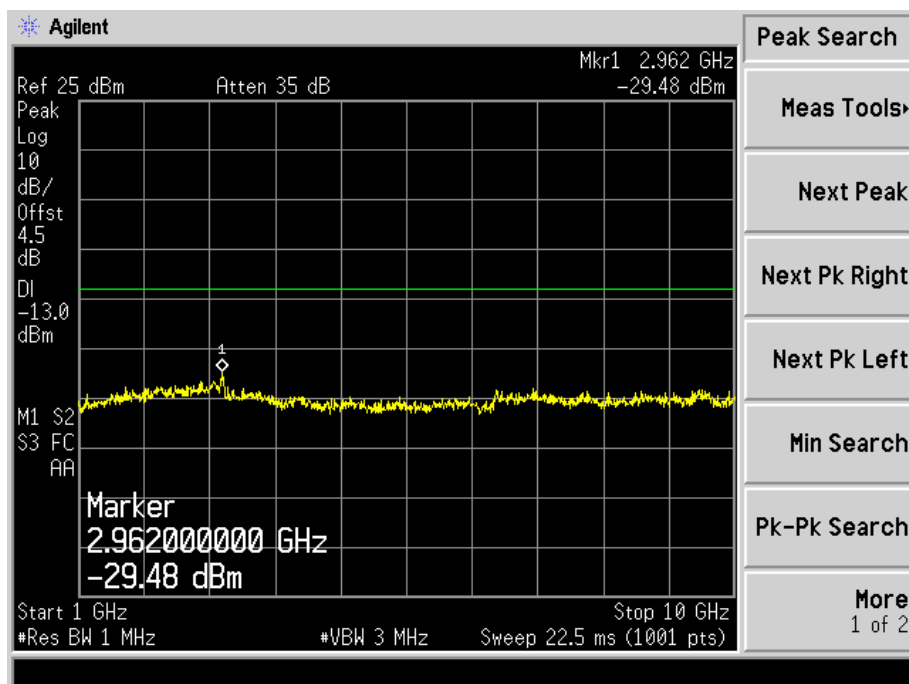
Above 1GHz



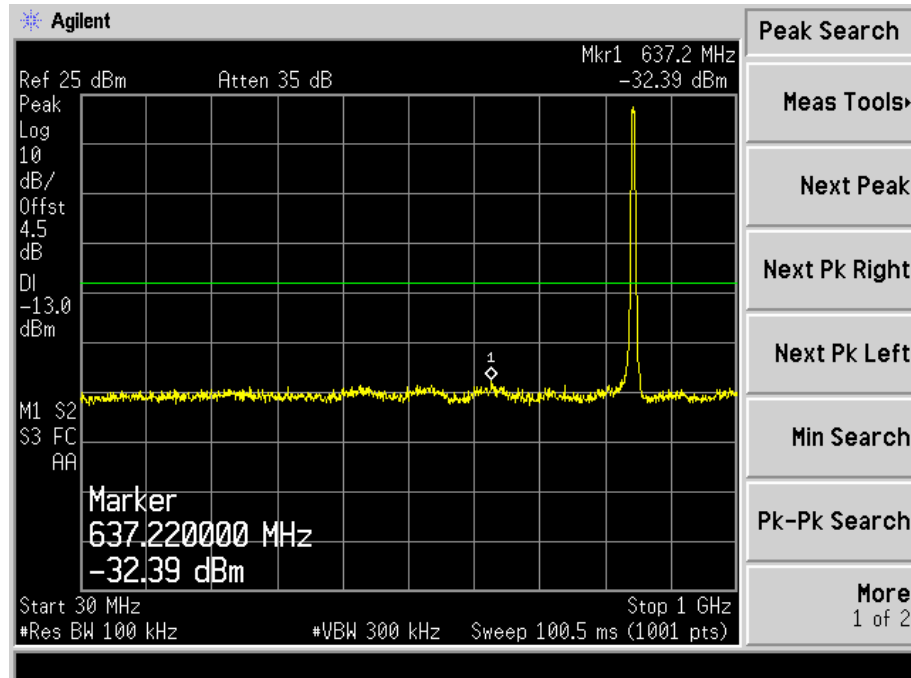
WCDMA Middle Channel 30MHz to 1GHz



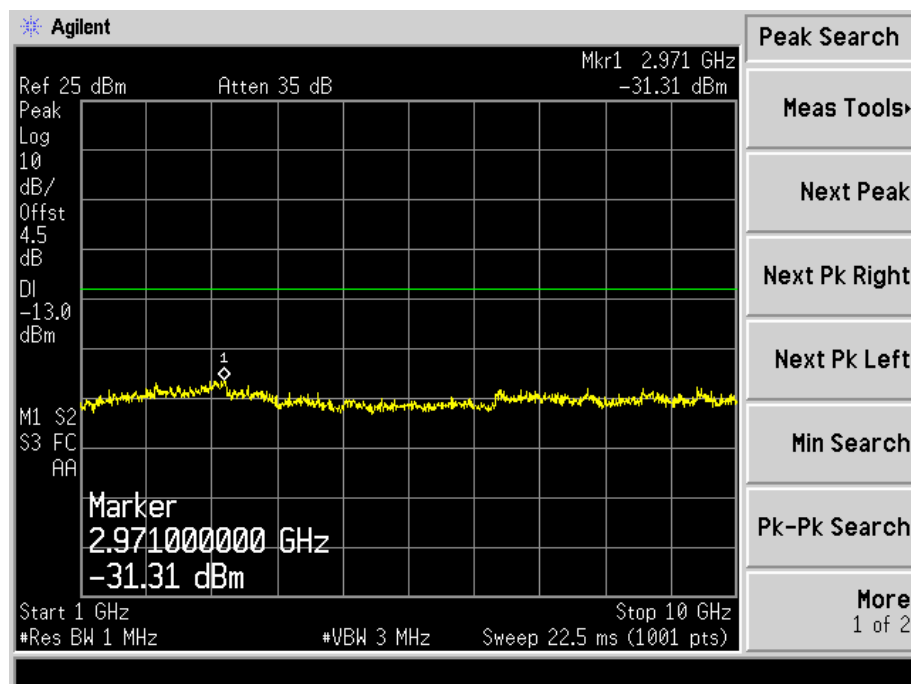
Above 1GHz



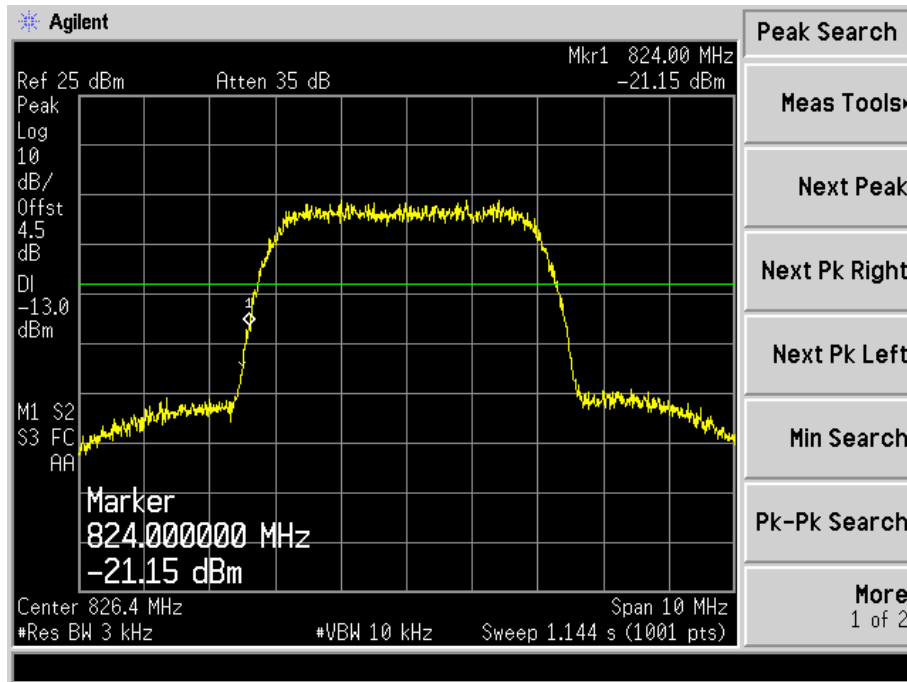
WCDMA High Channel 30MHz to 1GHz



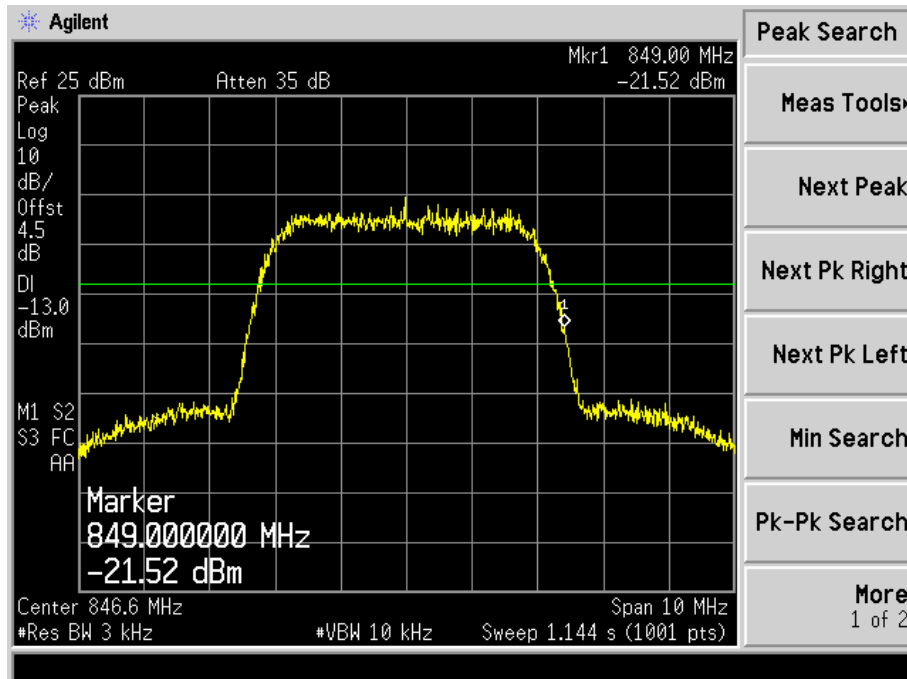
Above 1GHz



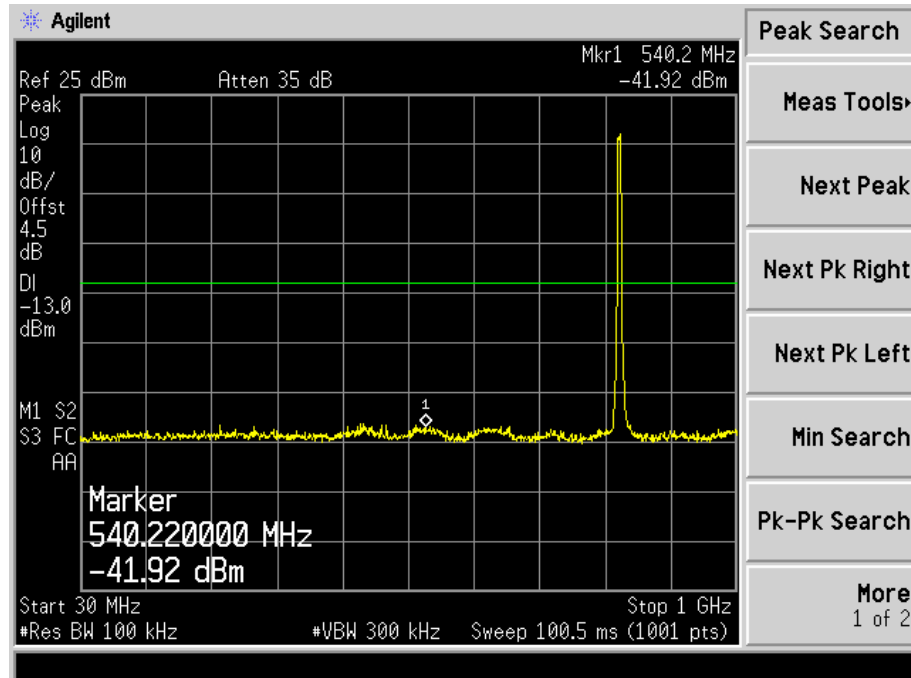
WCDMA Low Band Spurious Emission



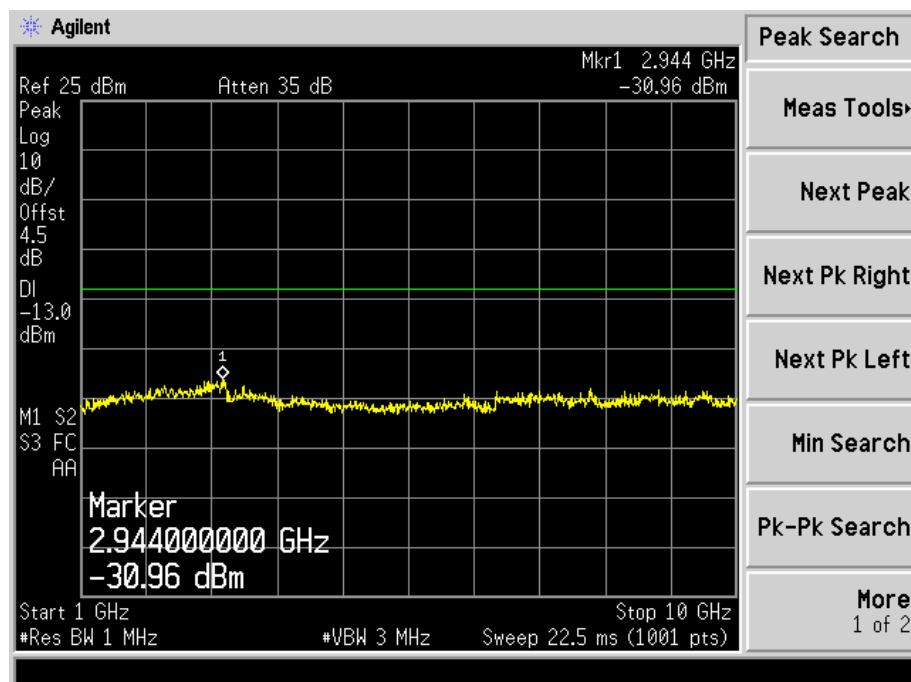
WCDMA High Band Spurious Emission



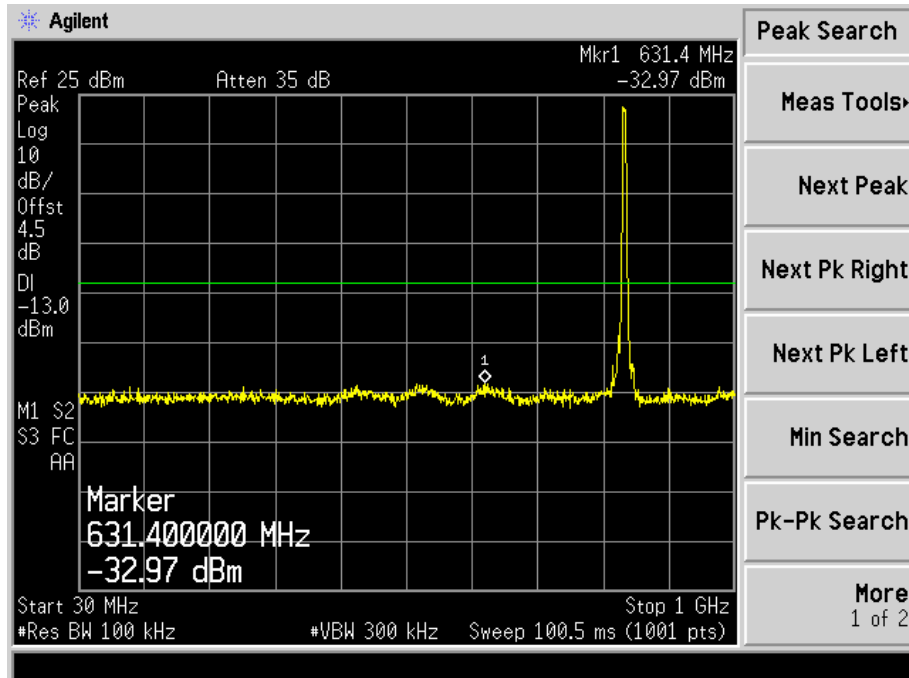
HSDPA Low Channel 30MHz to 1GHz



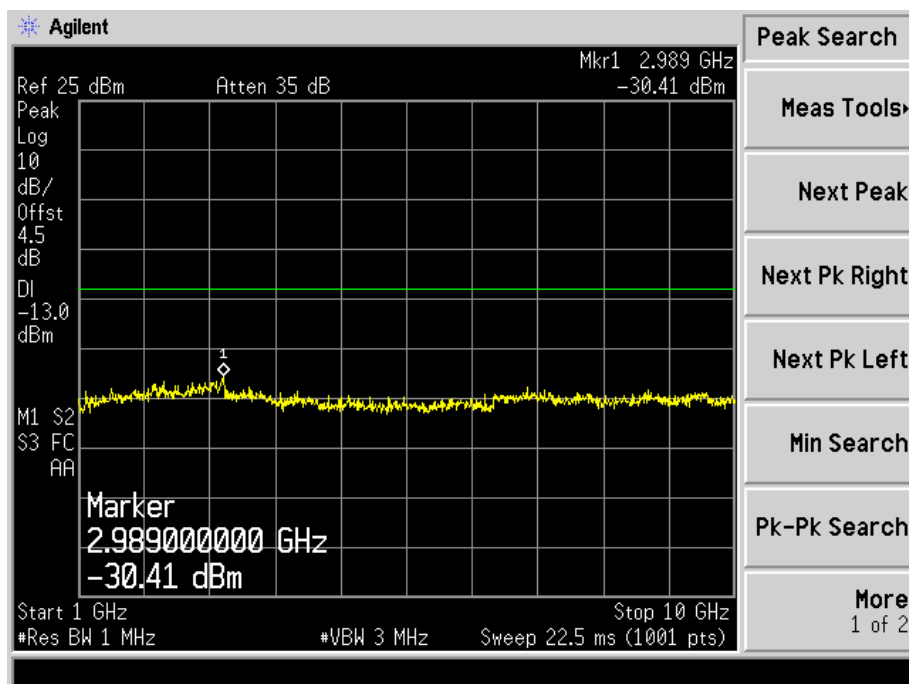
Above 1GHz



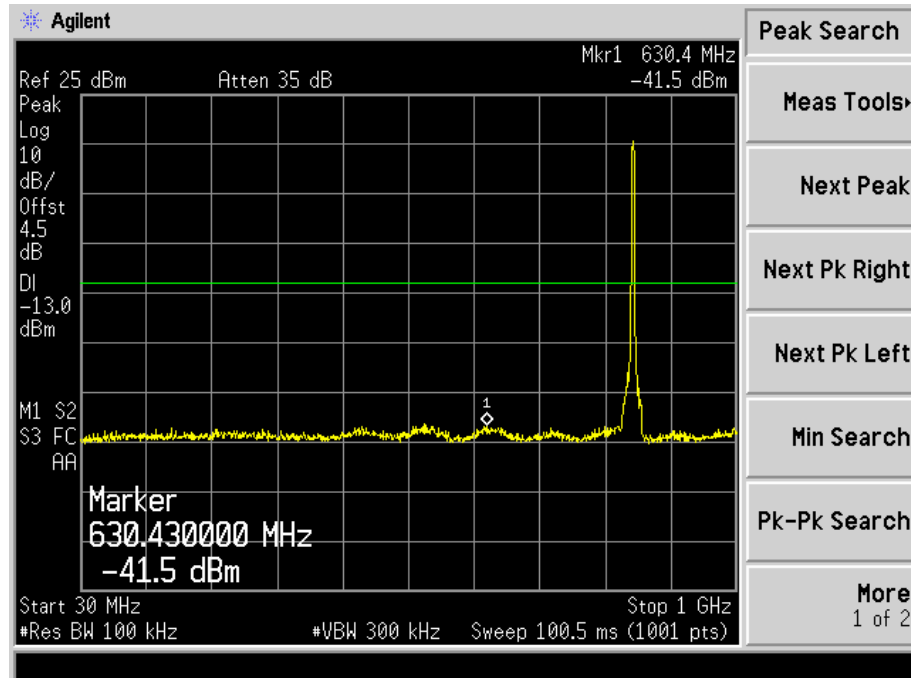
HSDPA Middle Channel 30MHz to 1GHz



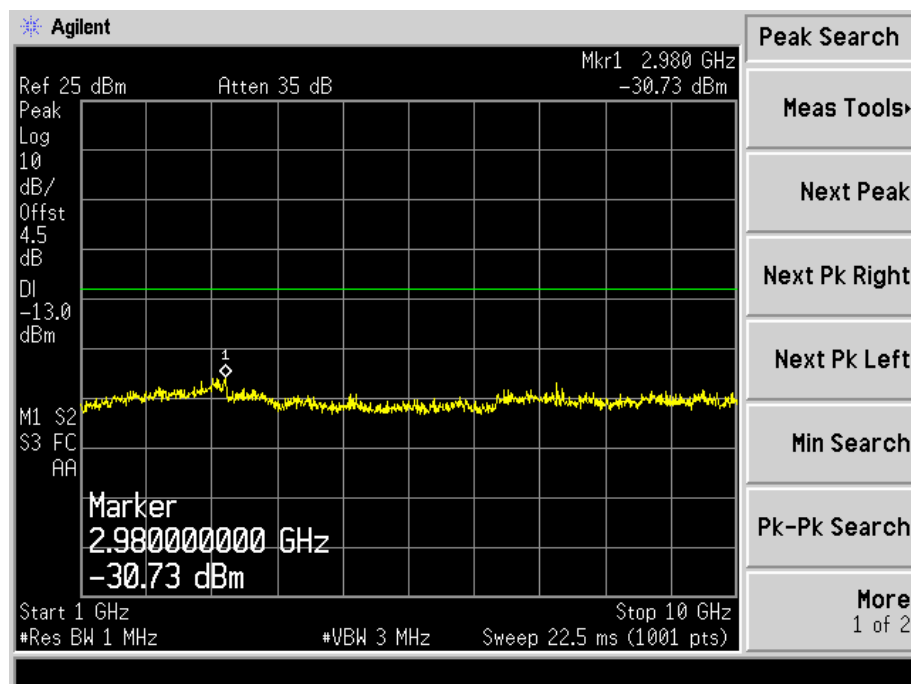
Above 1GHz



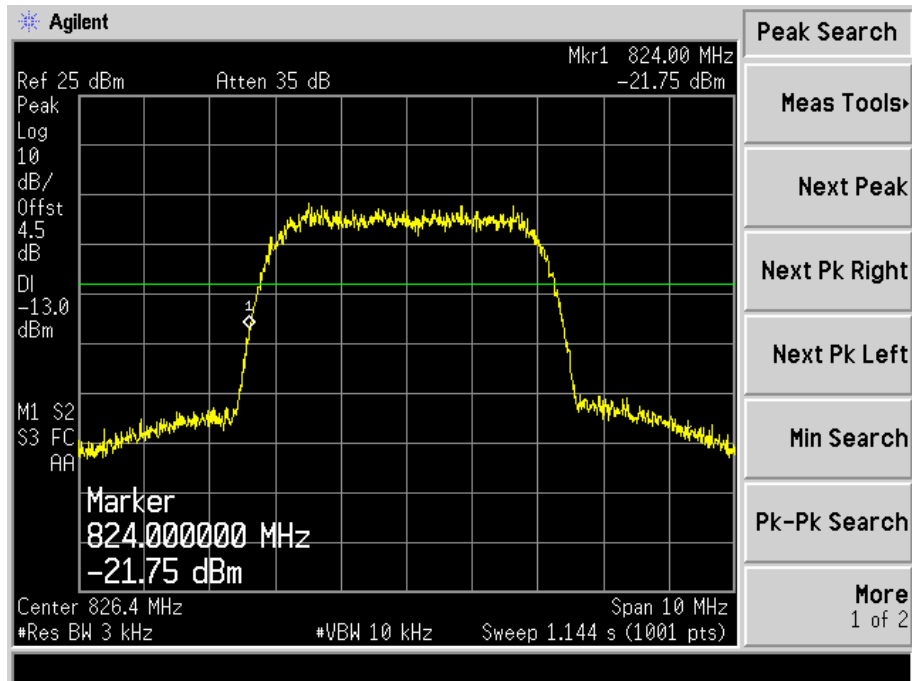
HSDPA High Channel 30MHz to 1GHz



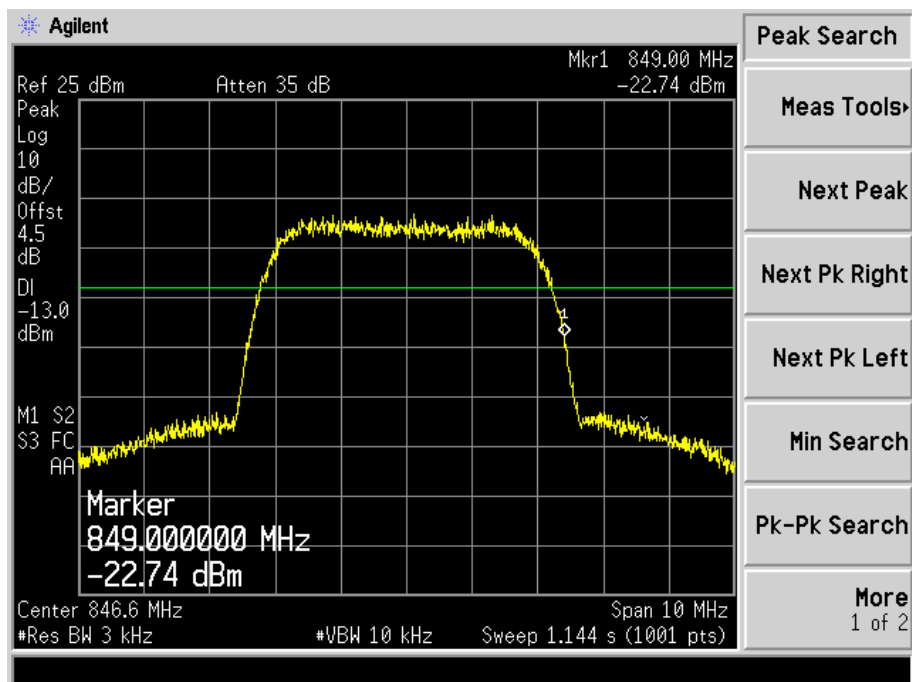
Above 1GHz



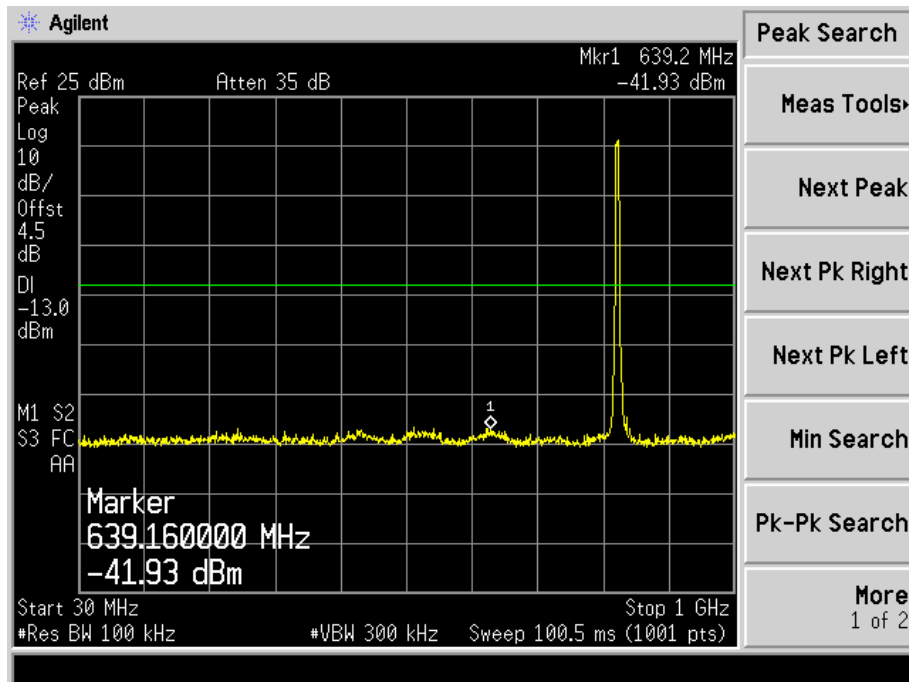
HSDPA Low Band Spurious Emission



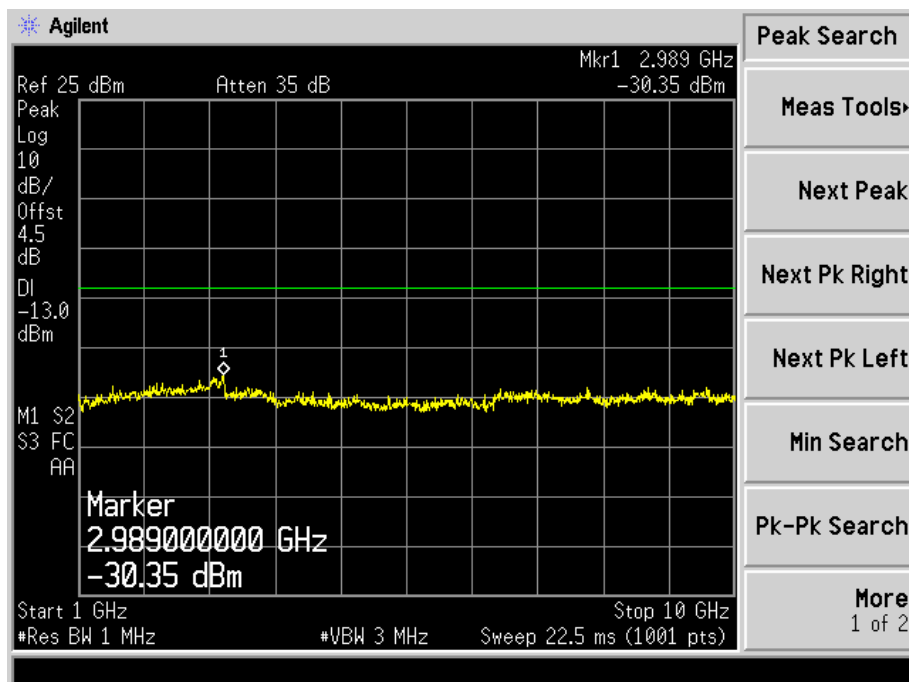
HSDPA High Band Spurious Emission



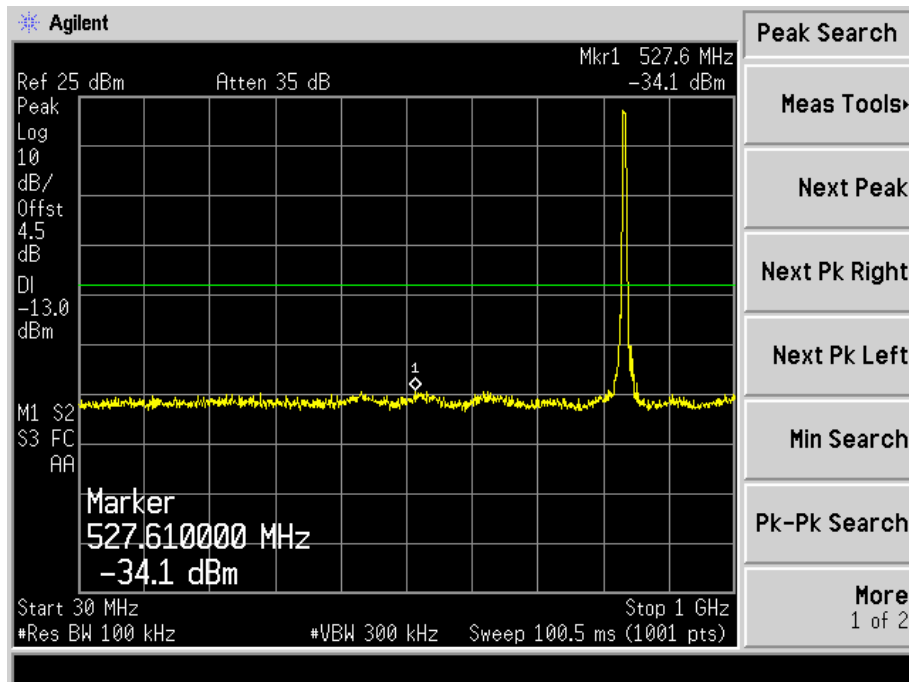
HSUPA Low Channel
30MHz to 1GHz



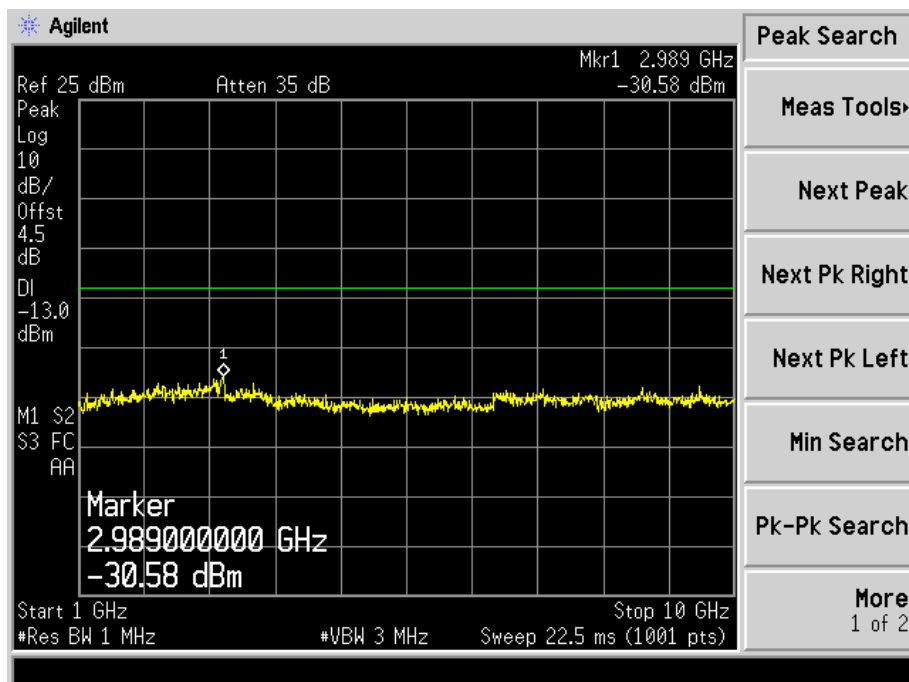
Above 1GHz



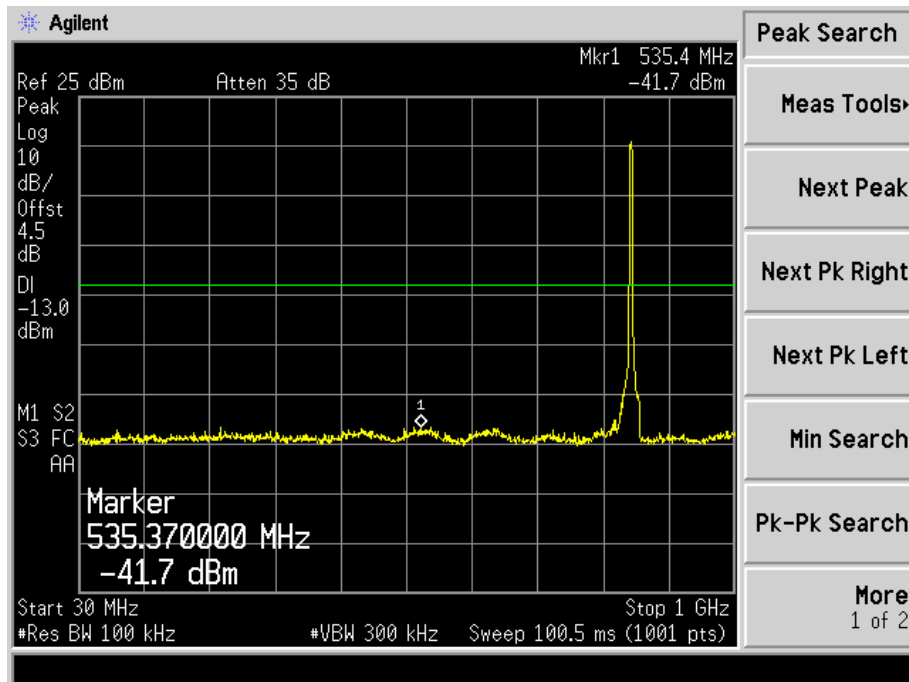
HSUPA Middle Channel
30MHz to 1GHz



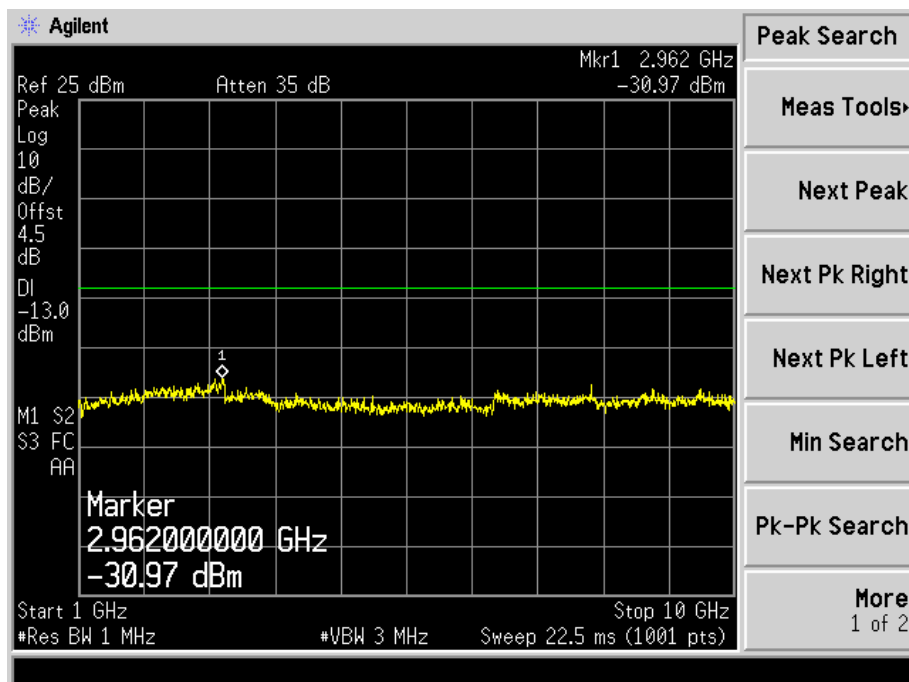
Above 1GHz



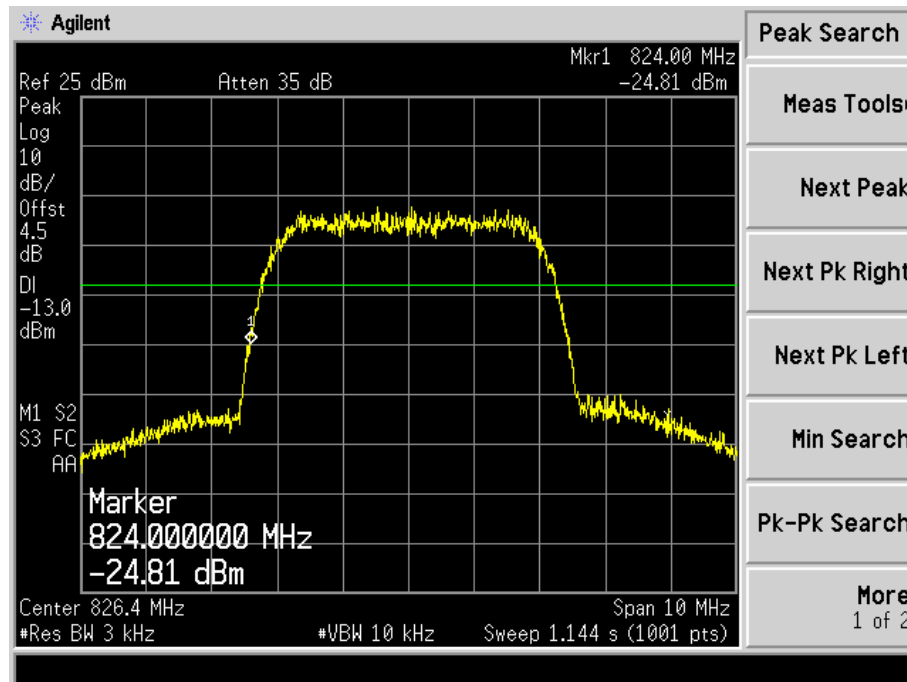
HSUPA High Channel 30MHz to 1GHz



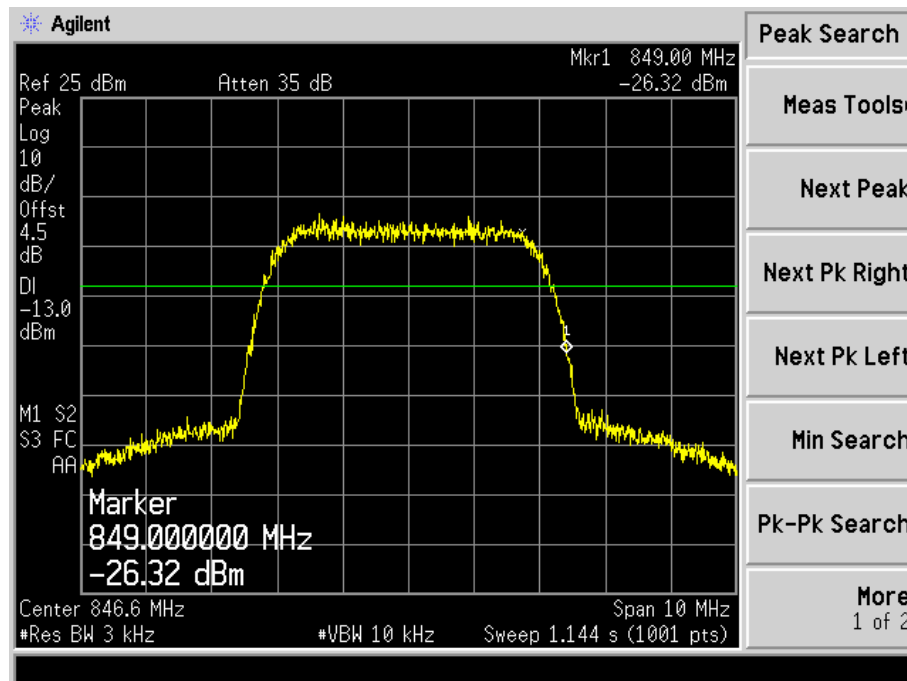
Above 1GHz



HSUPA Low Band Spurious Emission



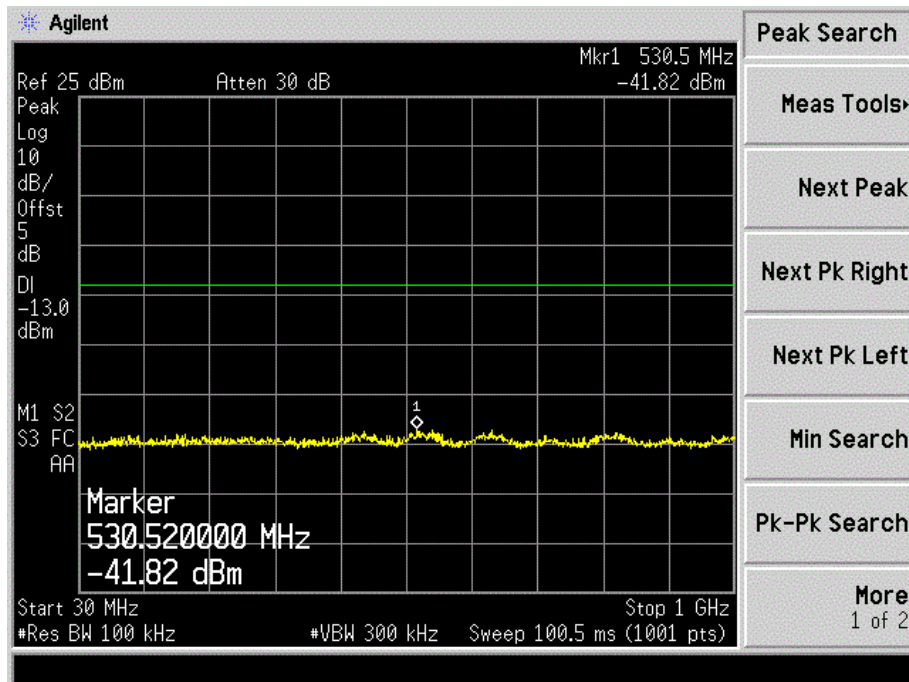
HSUPA High Band Spurious Emission



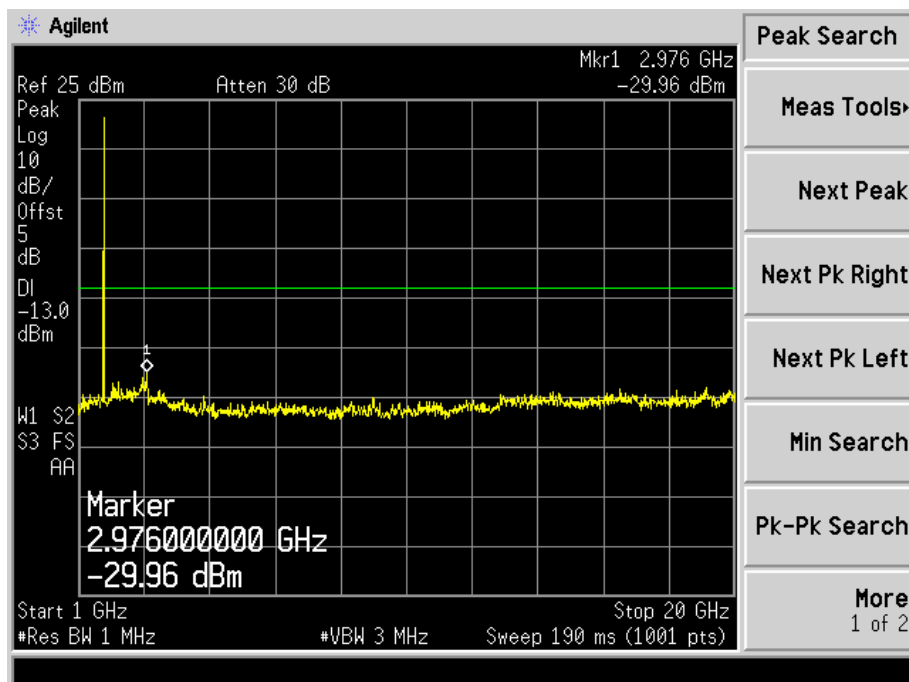
For Band IV

WCDMA Low Channel

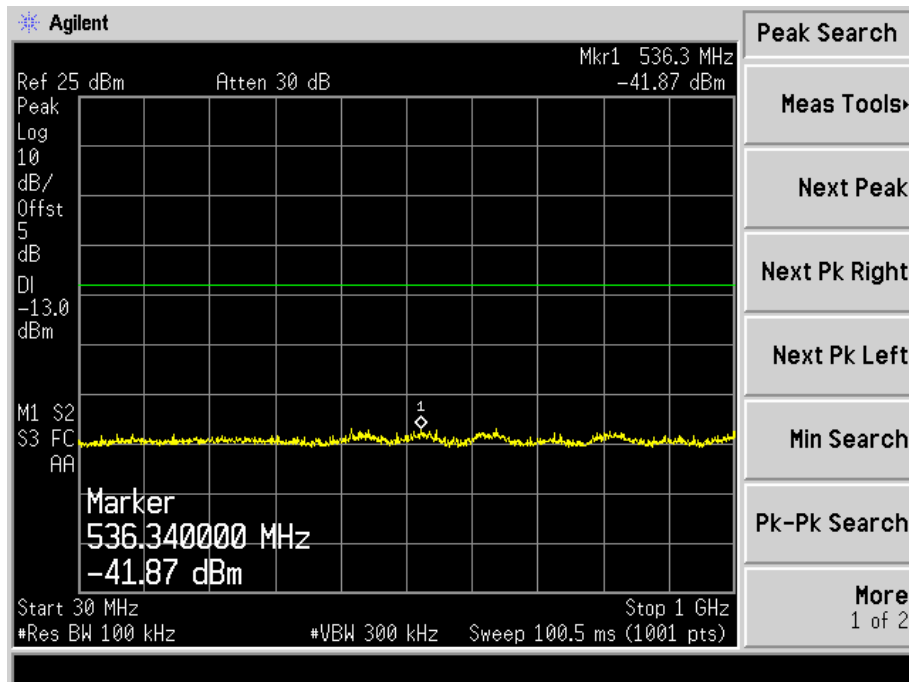
30MHz to 1GHz



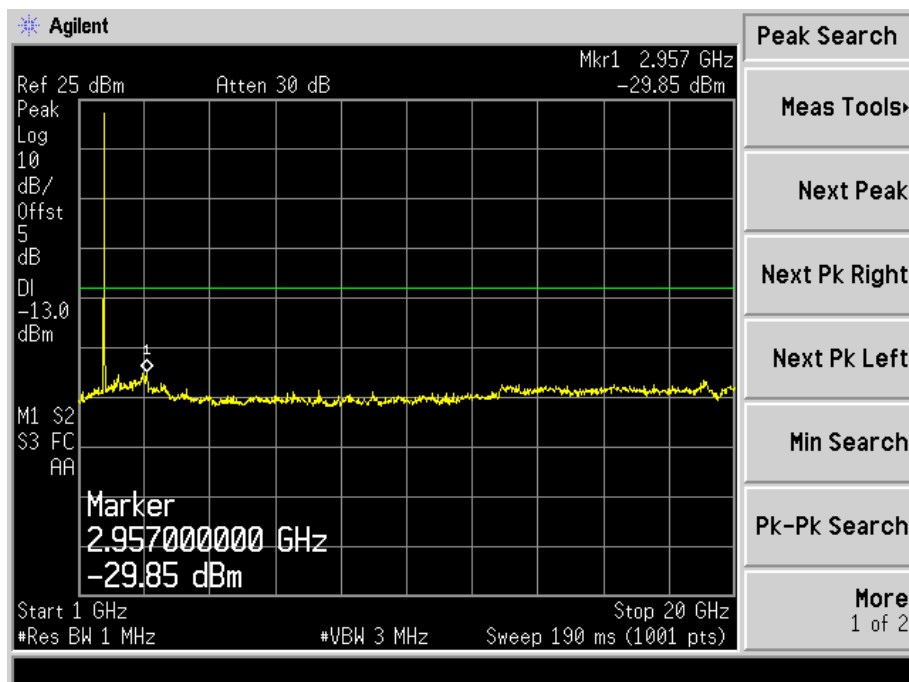
Above 1GHz



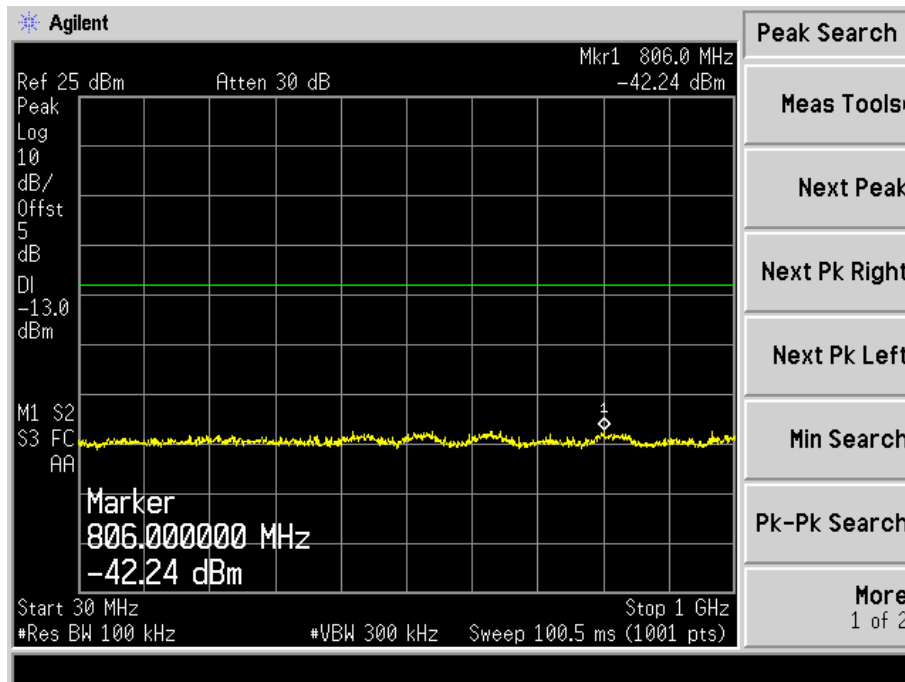
WCDMA Middle Channel 30MHz to 1GHz



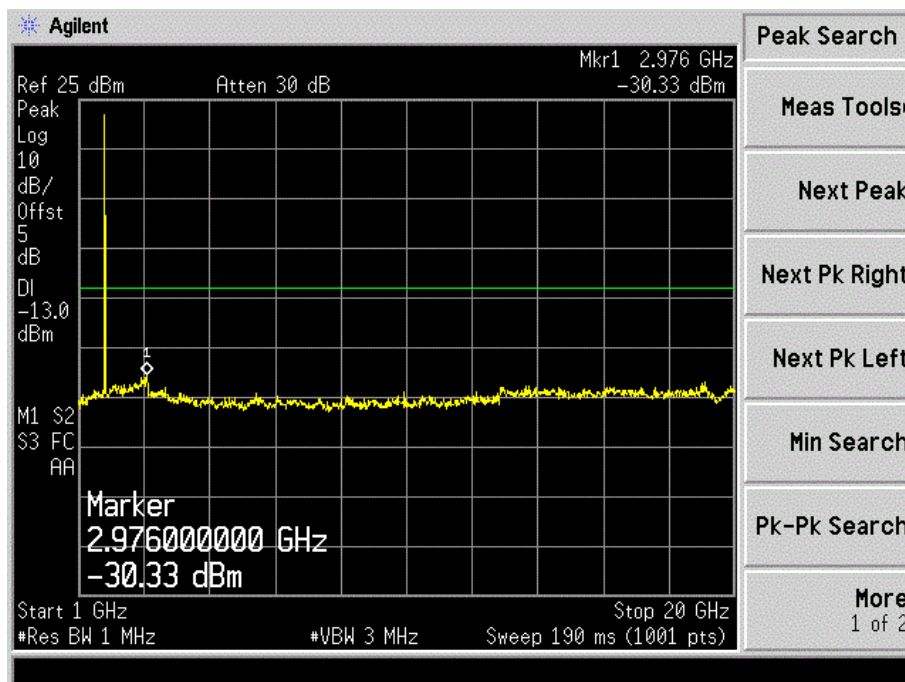
Above 1GHz



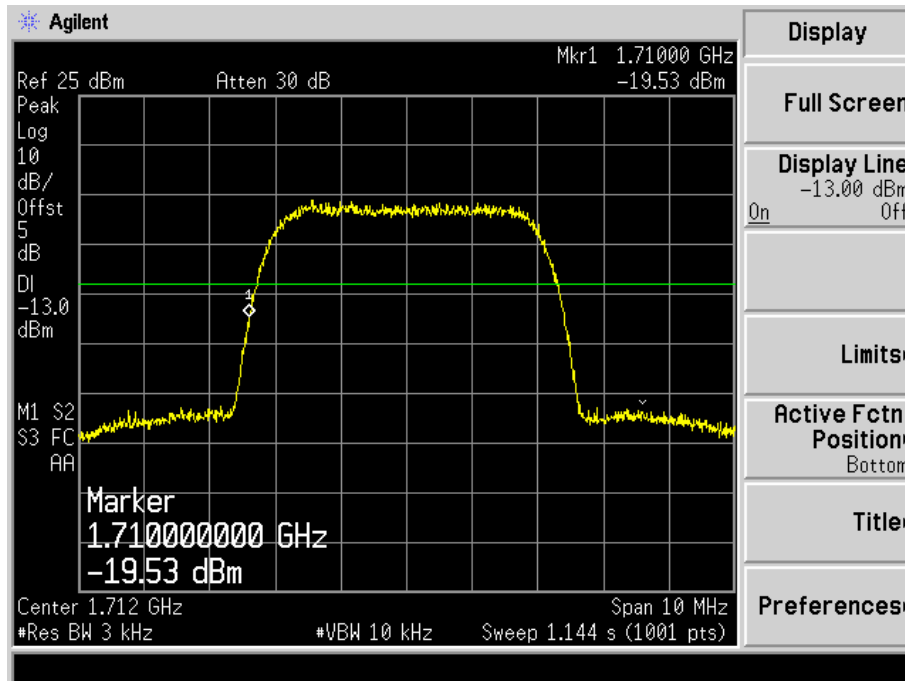
WCDMA High Channel 30MHz to 1GHz



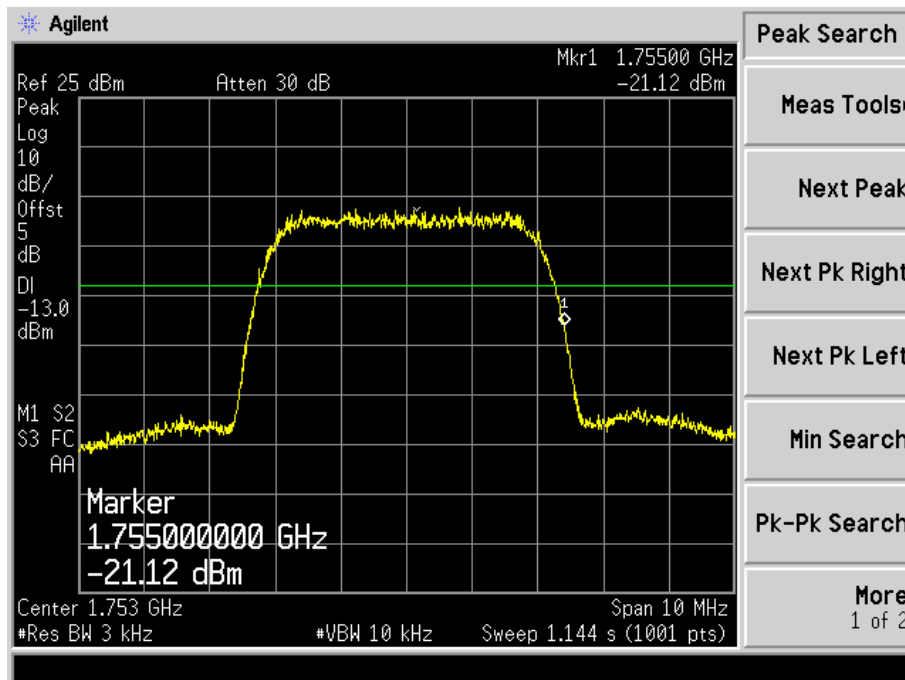
Above 1GHz



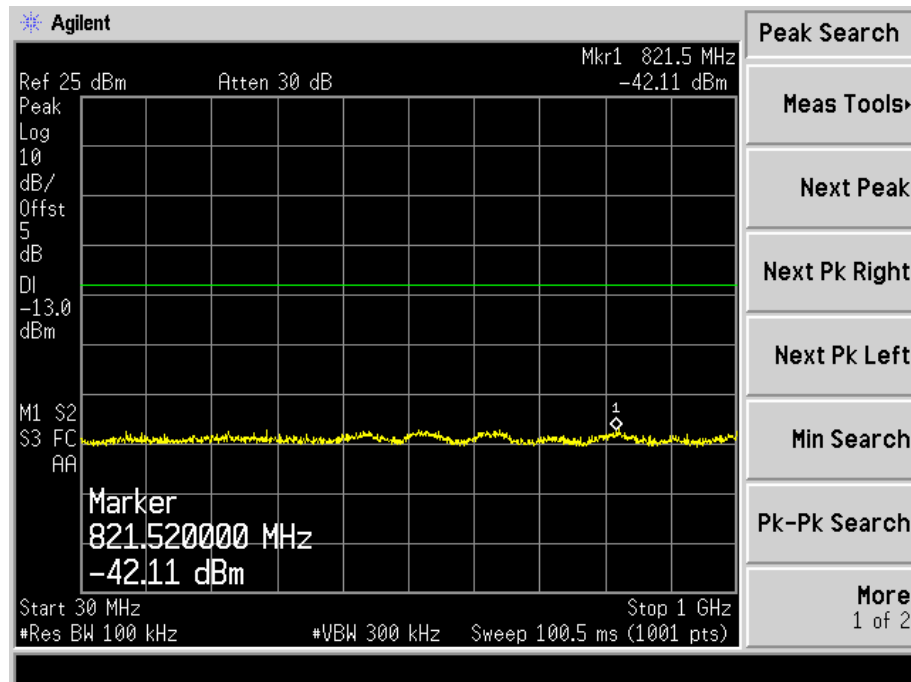
WCDMA Low Band Spurious Emission



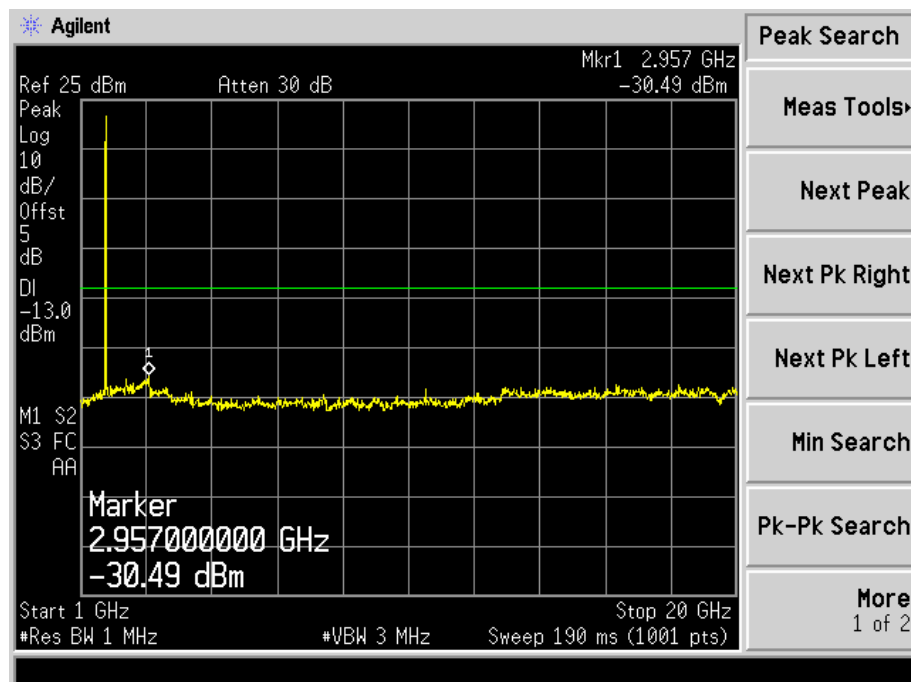
WCDMA High Band Spurious Emission



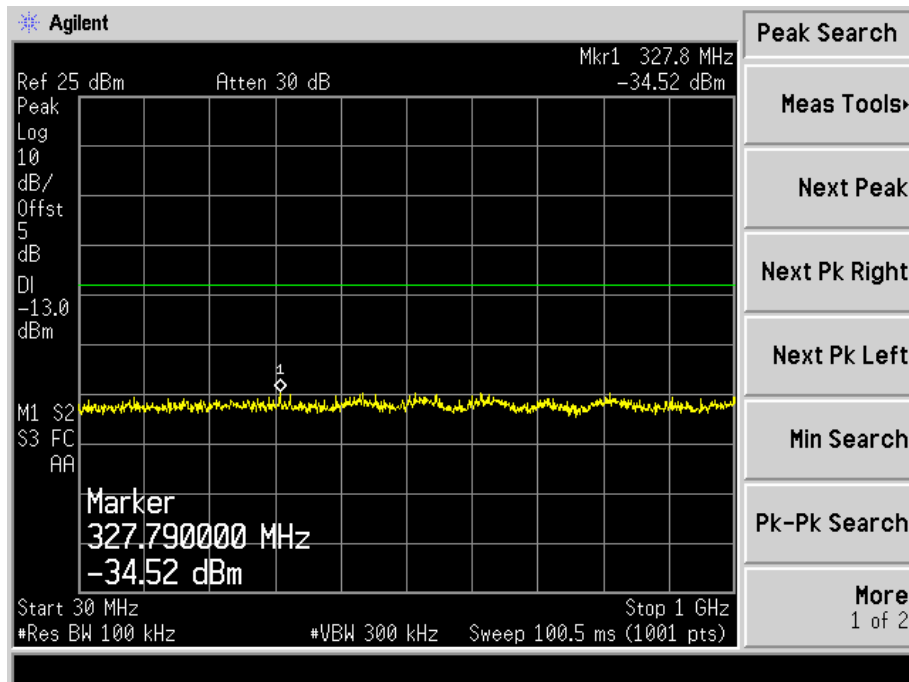
HSDPA Low Channel 30MHz to 1GHz



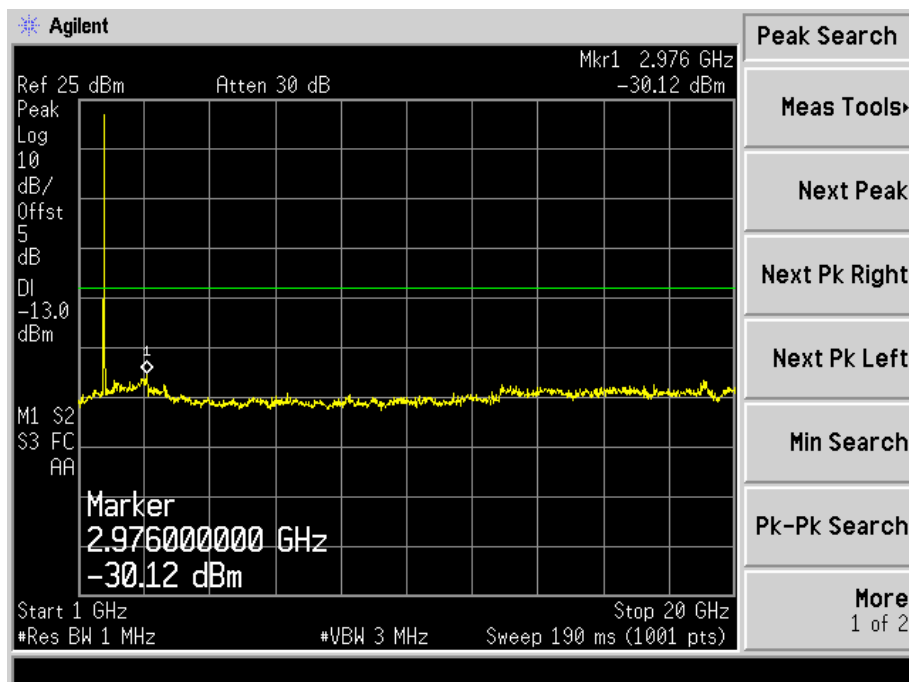
Above 1GHz



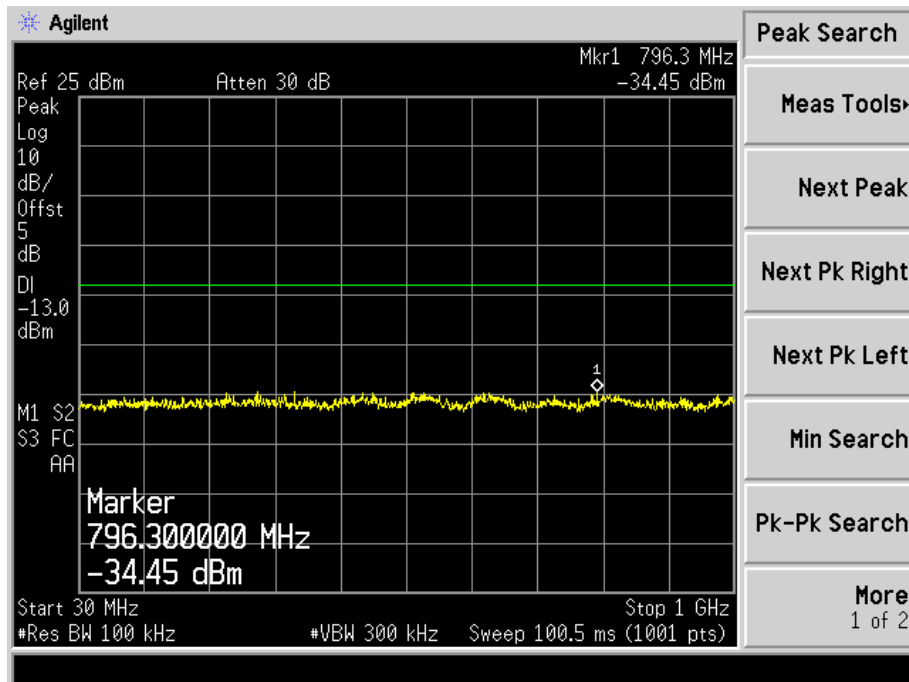
HSDPA Middle Channel 30MHz to 1GHz



Above 1GHz



HSDPA High Channel 30MHz to 1GHz



Above 1GHz

