



FCC Part 22H & 24E

Measurement and Test Report

For

My Palmo Limited

Product Name:	Palmo 1
Model :	PALMO 1
Series Model:	MELROSE S8, MELROSE S9
FCC ID:	2AMMJ-PALMO
Prepared By :	Shenzhen BST Technology Co., Ltd. Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou,Nanshan District,Shenzhen,Guangdong,China
Test Date:	June 05-30, 2017
Date of Report :	June30, 2017
Test Result	pass
Report No.:	BST17066918A0001Y-ER-2



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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: My Palmo Limited

Address

of

applicant: UNITA032/FBLOCKAMAHING INDUSTRIAL BLDG, 16-18 HING YIP STREET, KWUNTONG, KOWLOON, HONG KONG

Manufacturer: MELROSE TECHNOLOGY LTD

Address of manufacturer: Room 910, Tower A, Xiandaizhichuang, Huaqiangbei Road, FUTIAN SHENZHEN CHINA

General Description of EUT:	
Product Name:	Palmo 1
Brand Name:	PALMO\MELROSE
Model No. :	PALMO 1, MELROSE S8, MELROSE S9
Hardware version:	AL_T15_MB_V20_20160506
Software version:	MELROSE-V1.2_palmo_it_20161222
Rated Voltage:	DC 5V 1A
Battery:	720mAh
Device Category:	Class 12
<i>The EUT Main board support GSM850/900/DCS1800/PCS1900, WCDMA Band 2/5, function. It is intended for speech, Multimedia Message Service (MMS) transmission. It is equipped with GPRS/EDGE class 12 for GSM850/900/DCS1800/PCS1900, GPS, 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 test data is gathered from a production sample provided by the manufacturer. The appearance of other model listed in the report is different from main-test model PALMO 1, 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: 33.37dBm, GSM1900: 29.96dBm EDGE850: 28.68dBm, EDGE1900: 26.84dBm
Type of Emission:	GSM850: 253KGXW, GSM1900: 250KGXW EDGE850: 253KG7W, EDGE1900: 257KG7W
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	0.5dBi
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 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 23.56dBm, WCDMA Band 5: 24.57dBm
Type of Emission:	WCDMA Band 2: 4M22F9W WCDMA Band 5: 4M22F9W
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	2.1dBi



1.2 Test Standards

The following report is prepared on behalf of the Michley Electronics 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

Shenzhen Asia Test Technology Co.,Ltd..

Add. : 7 / F, Xinwei Building, Gushu Village, Xixiang Town, Baoan

District, Shenzhen, China

FCC Registration No.: 348715



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 2	Low, Middle, High Channels
TM11	HSDPA Band 2	Low, Middle, High Channels
TM12	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 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	1.0	Unshielded	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

Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
Communication Tester	Rohde & Schwarz	CMW500	148650	2017-06-04	2018-06-03
GSM Tester	Rohde & Schwarz	CMU200	104036	2017-06-04	2018-06-03
Spectrum Analyzer	Agilent	E4407B	MY41440400	2017-06-04	2018-06-03
Spectrum Analyzer	Agilent	N9020A	US47140102	2017-06-04	2018-06-03
Signal Generator	Agilent	83752A	3610A01453	2017-06-04	2018-06-03
Vector Signal Generator	Agilent	N5182A	MY47070202	2017-06-04	2018-06-03
Power Divider	Weinschel	1506A	PM204	2017-06-04	2018-06-03
Power Divider	RF-Lambda	RFLT4W5M18G	14110400027	2017-06-04	2018-06-03
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2017-06-04	2018-06-03
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2017-06-04	2018-06-03
Amplifier	Agilent	8447F	3113A06717	2017-06-04	2018-06-03
Amplifier	C&D	PAP-1G18	2002	2017-06-04	2018-06-03
Loop Antenna	Schwarz beck	FMZB 1516	9773	2017-06-04	2018-06-03
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2017-06-04	2018-06-03
Horn Antenna	ETS	3117	00086197	2017-06-04	2018-06-03
Horn Antenna	ETS	3116B	00088203	2017-06-04	2018-06-03



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

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

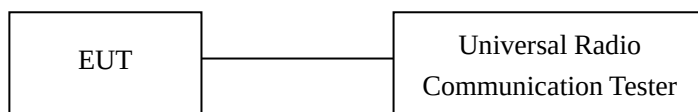
According to §22.913(a)(2), The ERP of mobile and portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

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	34.87	1.5	0	V	1.5	0	33.37	38.45
Middle Channel								
836.4	31.02	1.5	0	H	1.5	0	29.52	38.45
836.4	33.00	1.5	0	V	1.5	0	31.50	38.45
High Channel								
848.8	31.02	1.5	0	H	1.5	0	29.52	38.45
848.8	33.03	1.5	0	V	1.5	0	31.53	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	20.21	1.5	0	H	1.9	7.7	26.01	33.00
1850.2	22.18	1.5	0	V	1.9	7.7	27.98	33.00
Middle Channel								
1880.0	20.07	1.5	0	H	1.9	7.7	25.87	33.00
1880.0	22.09	1.5	0	V	1.9	7.7	27.89	33.00
High Channel								
1909.8	19.98	1.5	0	H	1.9	7.7	25.78	33.00
1909.8	24.16	1.5	0	V	1.9	7.7	29.96	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	30.84	1.5	0	H	1.5	0	29.34	38.45
824.2	32.83	1.5	0	V	1.5	0	31.33	38.45
Middle Channel								
836.6	30.96	1.5	0	H	1.5	0	29.46	38.45
836.6	32.94	1.5	0	V	1.5	0	31.44	38.45
High Channel								
848.8	30.98	1.5	0	H	1.5	0	29.48	38.45
848.8	32.99	1.5	0	V	1.5	0	31.49	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	20.19	1.5	0	H	1.9	7.7	25.99	33.00
1850.2	22.16	1.5	0	V	1.9	7.7	27.96	33.00
Middle Channel								
1880.0	20.03	1.5	0	H	1.9	7.7	25.83	33.00
1880.0	22.05	1.5	0	V	1.9	7.7	27.85	33.00
High Channel								
1909.8	19.97	1.5	0	H	1.9	7.7	25.77	33.00
1909.8	22.02	1.5	0	V	1.9	7.7	27.82	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	24.61	1.5	0	H	1.5	0	23.11	38.45
824.2	26.60	1.5	0	V	1.5	0	25.10	38.45
Middle Channel								
836.6	24.95	1.5	0	H	1.5	0	23.45	38.45
836.6	30.18	1.5	0	V	1.5	0	28.68	38.45
High Channel								
848.8	24.98	1.5	0	H	1.5	0	23.48	38.45
848.8	26.99	1.5	0	V	1.5	0	25.49	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	15.88	1.5	0	H	1.9	7.7	21.68	33.00
1850.2	21.04	1.5	0	V	1.9	7.7	26.84	33.00
Middle Channel								
1880.0	15.53	1.5	0	H	1.9	7.7	21.33	33.00
1880.0	17.55	1.5	0	V	1.9	7.7	23.35	33.00
High Channel								
1909.8	15.58	1.5	0	H	1.9	7.7	21.38	33.00
1909.8	17.63	1.5	0	V	1.9	7.7	23.43	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	22.02	1.5	0	H	1.5	0	20.52	38.45
826.4	22.88	1.5	0	V	1.5	0	21.38	38.45
Middle Channel								
836.6	21.65	1.5	0	H	1.5	0	20.15	38.45
836.6	26.07	1.5	0	V	1.5	0	24.57	38.45
High Channel								
846.6	21.43	1.5	0	H	1.5	0	19.93	38.45
846.6	22.82	1.5	0	V	1.5	0	21.32	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	21.01	1.5	0	H	1.5	0	19.51	38.45
826.4	21.87	1.5	0	V	1.5	0	20.37	38.45
Middle Channel								
836.6	20.59	1.5	0	H	1.5	0	19.09	38.45
836.6	22.01	1.5	0	V	1.5	0	20.51	38.45
High Channel								
846.6	20.44	1.5	0	H	1.5	0	18.94	38.45
846.6	21.83	1.5	0	V	1.5	0	20.33	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	21.01	1.5	0	H	1.5	0	19.51	38.45
826.4	21.87	1.5	0	V	1.5	0	20.37	38.45
Middle Channel								
836.6	20.65	1.5	0	H	1.5	0	19.15	38.45
836.6	22.07	1.5	0	V	1.5	0	20.57	38.45
High Channel								
846.6	20.46	1.5	0	H	1.5	0	18.96	38.45
846.6	21.85	1.5	0	V	1.5	0	20.35	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	14.04	1.5	0	H	1.9	7.7	19.84	33
1852.4	17.76	1.5	0	V	1.9	7.7	23.56	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	32.37	38.45
	Middle Channel	836.6	32.27	38.45
	High Channel	848.8	32.1	38.45
GPRS(1 Slot)	Low Channel	824.2	32.29	38.45
	Middle Channel	836.6	32.2	38.45
	High Channel	848.8	32.09	38.45
EDGE(1 Slot)	Low Channel	824.2	27.18	38.45
	Middle Channel	836.6	27.58	38.45
	High Channel	848.8	27.71	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	28.87	33.0
	Middle Channel	1880.0	28.61	33.0
	High Channel	1909.8	28.45	33.0
GPRS(1 Slot)	Low Channel	1850.2	28.61	33.0
	Middle Channel	1880.0	28.53	33.0
	High Channel	1909.8	28.25	33.0
EDGE(1 Slot)	Low Channel	1850.2	25.53	33.0
	Middle Channel	1880.0	25.78	33.0
	High Channel	1909.8	25.71	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	22.81	38.45
	Middle Channel	836.6	22.39	38.45
	High Channel	846.6	22.16	38.45
HSDPA	Low Channel	826.4	21.93	38.45
	Middle Channel	836.6	21.41	38.45
	High Channel	846.6	21.31	38.45
HSUPA	Low Channel	826.4	21.94	38.45
	Middle Channel	836.6	21.47	38.45
	High Channel	846.6	21.34	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	22.05	33.00
	Middle Channel	1880.0	21.8	33.00
	High Channel	1907.6	21.83	33.00
HSDPA	Low Channel	1852.4	21.2	33.00
	Middle Channel	1880.0	21.02	33.00
	High Channel	1907.6	21.21	33.00
HSUPA	Low Channel	1852.4	21.2	33.00
	Middle Channel	1880.0	21.03	33.00
	High Channel	1907.6	21.23	33.00



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

5.1 Standard Applicable

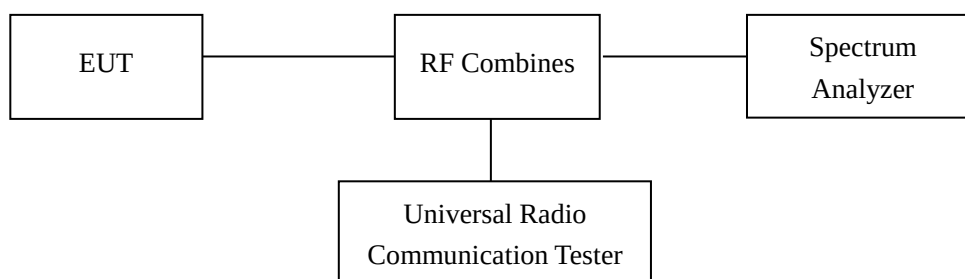
According to §24.232(d), Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in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

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	512	1850.2	1.25	13
GPRS(1 Slot)	512	1850.2	1.54	13
EDGE(1 Slot)	512	1850.2	1.30	13

For WCDMA Band 2

Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	3.27	13
HSDPA	9400	1880.0	4.46	13
HSUPA	9400	1880.0	4.46	13

GPRS Low Channel:





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.

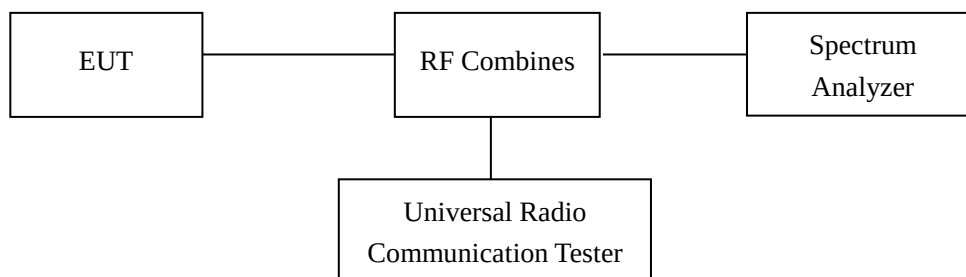
According to §24.238(b), The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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	249.41	335.4
	190	836.6	249.23	335.9
	251	848.8	248.57	332.8
GPRS	128	824.2	252.86	339.0
	190	836.6	250.41	333.6
	251	848.8	250.63	334.0
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	248.37	332.1
	661	1880.0	248.04	332.0
	810	1909.8	245.62	329.2
GPRS	512	1850.2	249.34	333.2
	661	1880.0	249.90	330.7
	810	1909.8	250.10	330.3
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

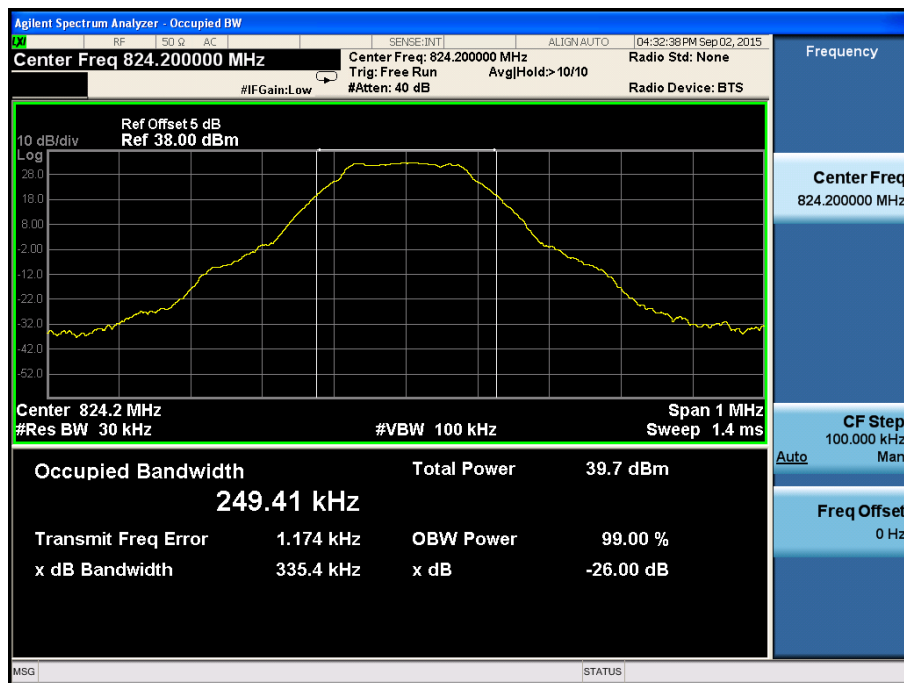
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	4132	826.4	4.2165	4.858
	4183	836.6	4.2106	4.849
	4233	846.6	4.2022	4.834
HSDPA	4132	826.4	4.2136	4.881
	4183	836.6	4.2239	4.842
	4233	846.6	4.1970	4.816
HSUPA	4132	826.4	4.2102	4.849
	4183	836.6	4.2117	4.837
	4233	846.6	4.2241	4.824

For Band 2

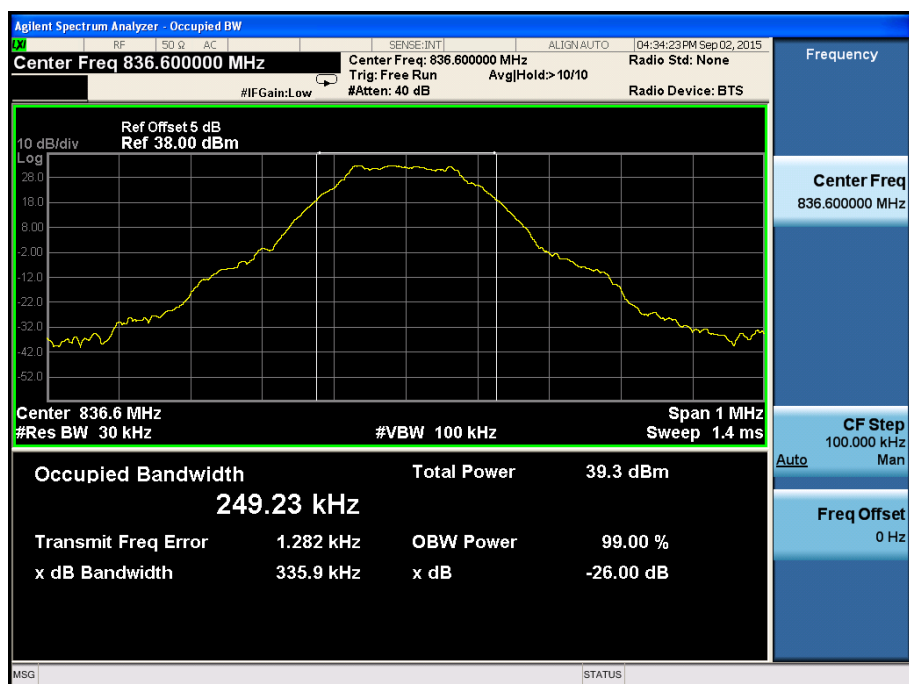
Test Mode	Channel	Frequency (MHz)	99% Emission Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
WCDMA	9262	1852.4	4.2214	4.839
	9400	1880.0	4.2022	4.811
	9538	1907.6	4.2101	4.819
HSDPA	9262	1852.4	4.2233	4.822
	9400	1880.0	4.2095	4.847
	9538	1907.6	4.2044	4.827
HSUPA	9262	1852.4	4.2118	4.807
	9400	1880.0	4.2198	4.829
	9538	1907.6	4.2095	4.839



For Cellular Band
GSM Low Channel

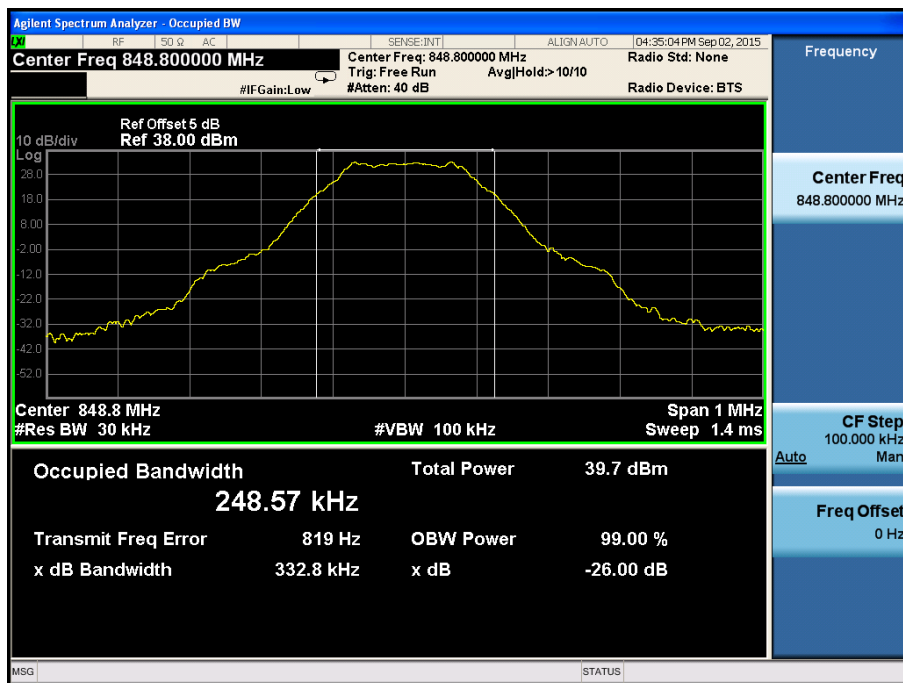


GSM Middle Channel

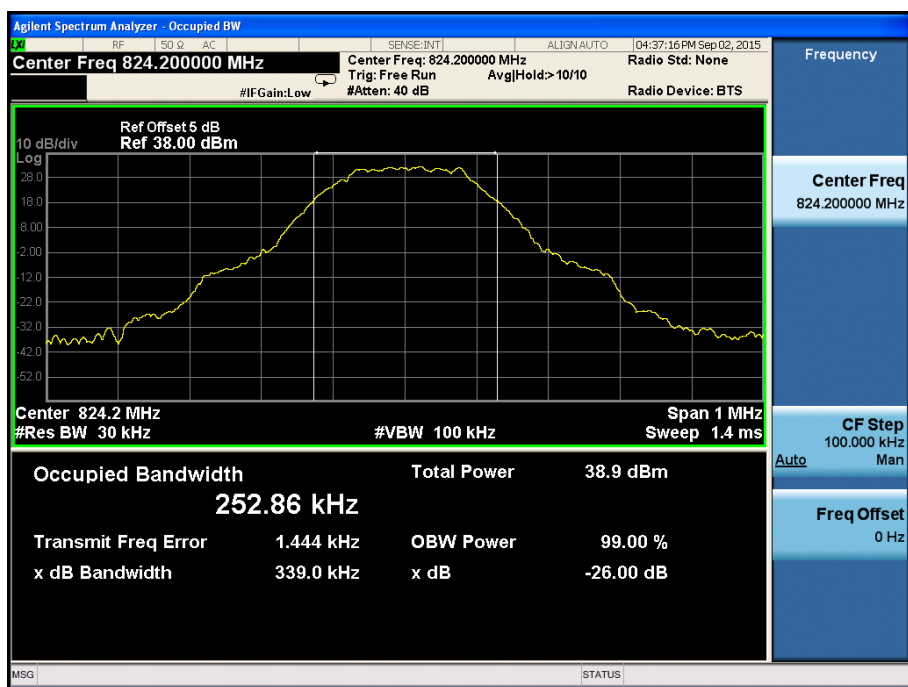




GSM High channel



GPRS Low Channel



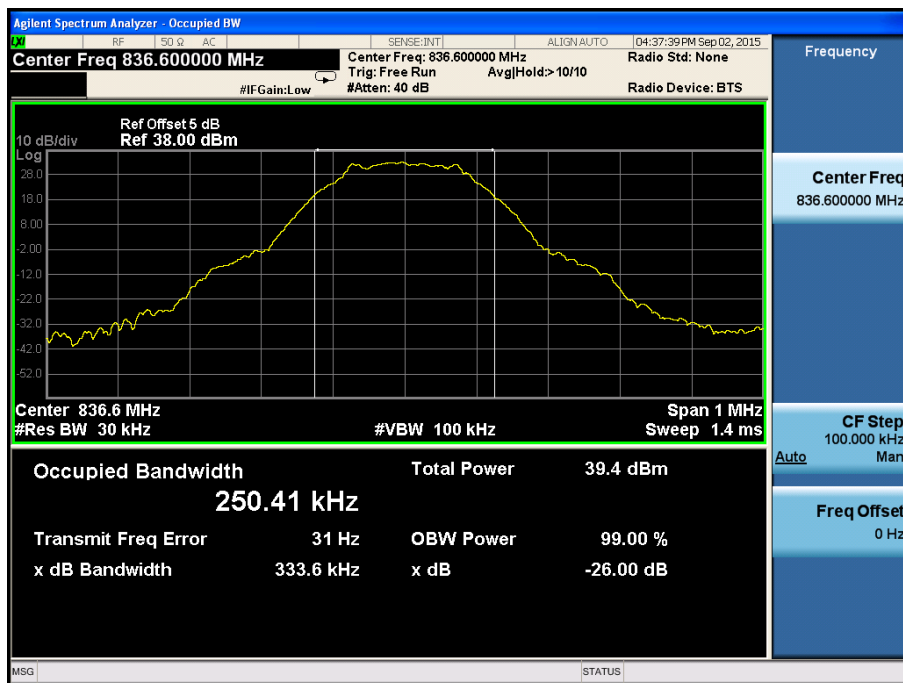


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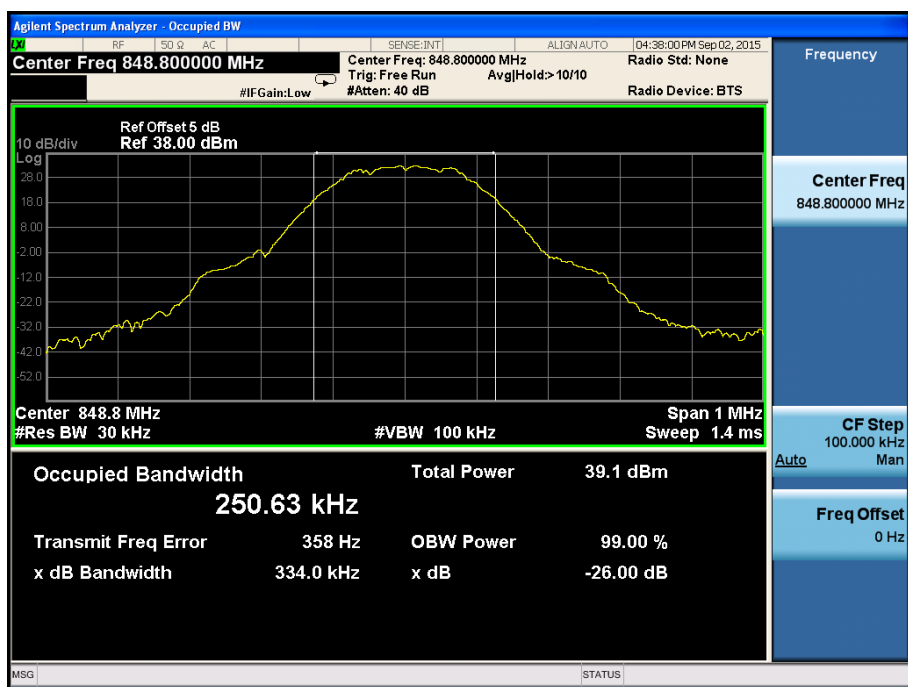
BST17066918A0001Y-ER-2



GPRS Middle Channel



GPRS High Channel



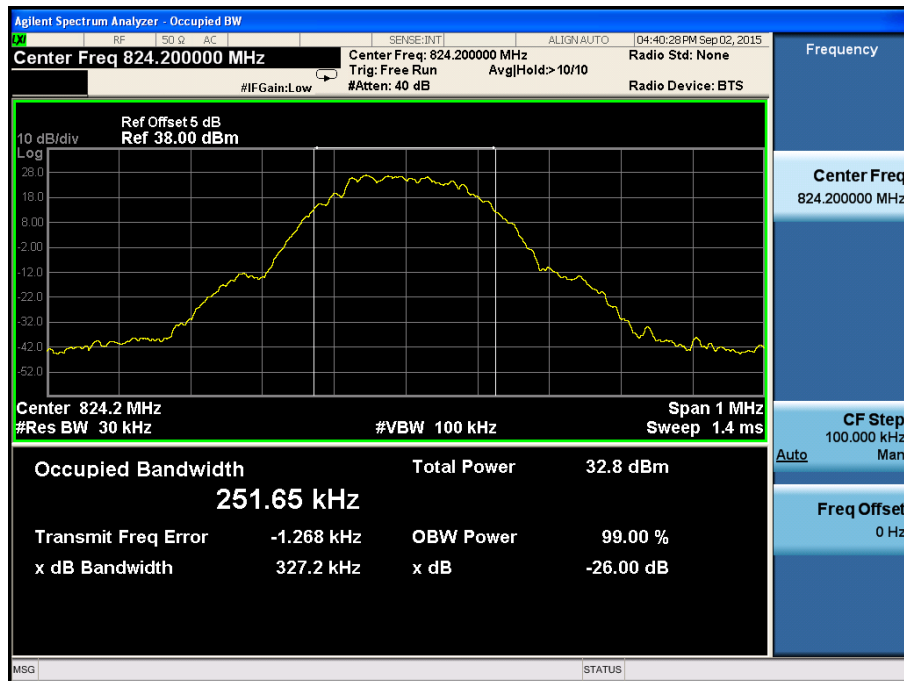


Shenzhen BST Technology Co., Ltd.

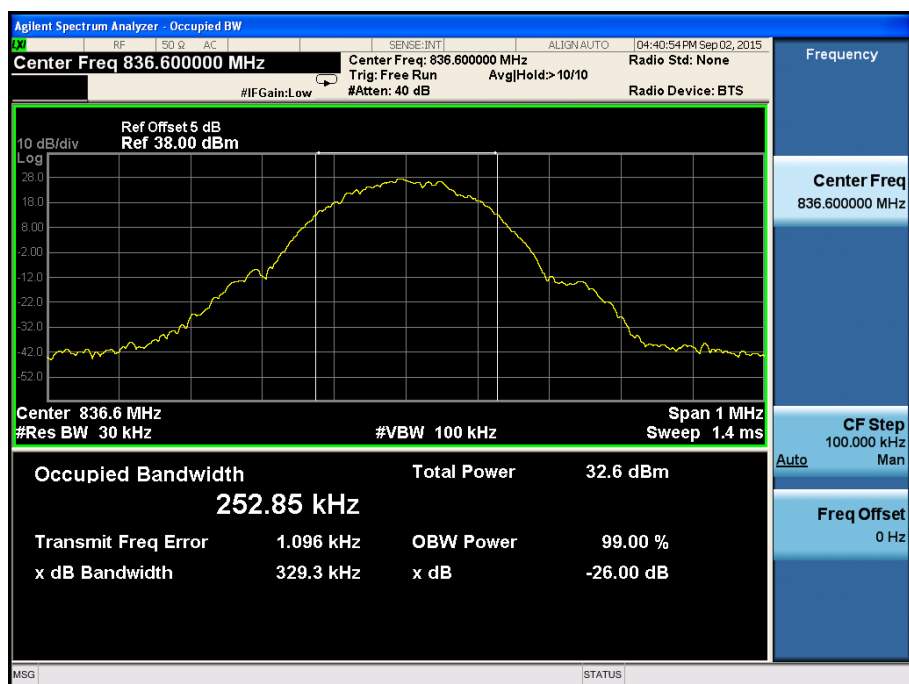
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EDGE Low Channel



EDGE Middle Channel



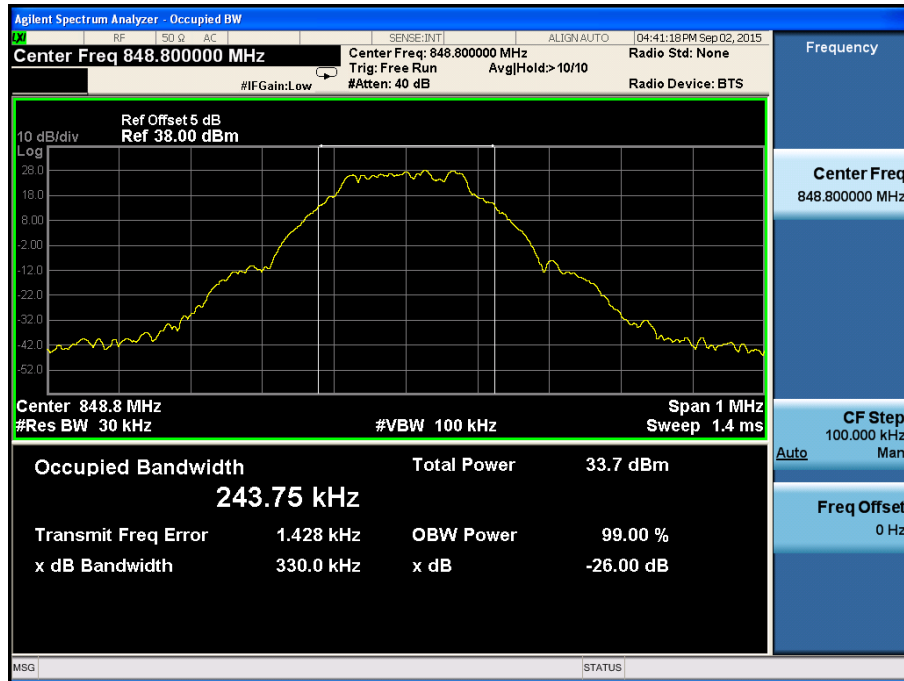
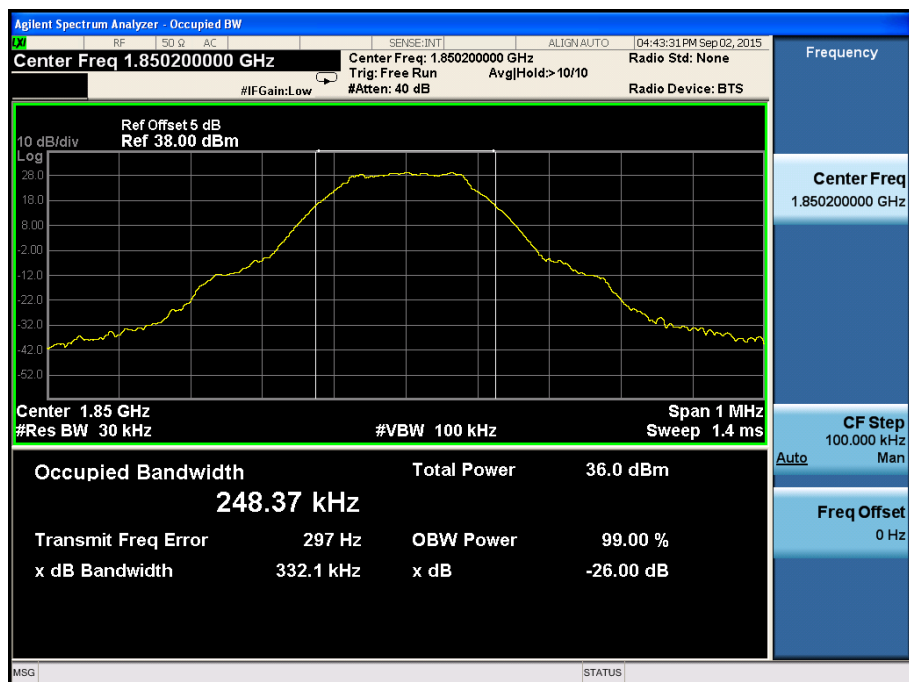


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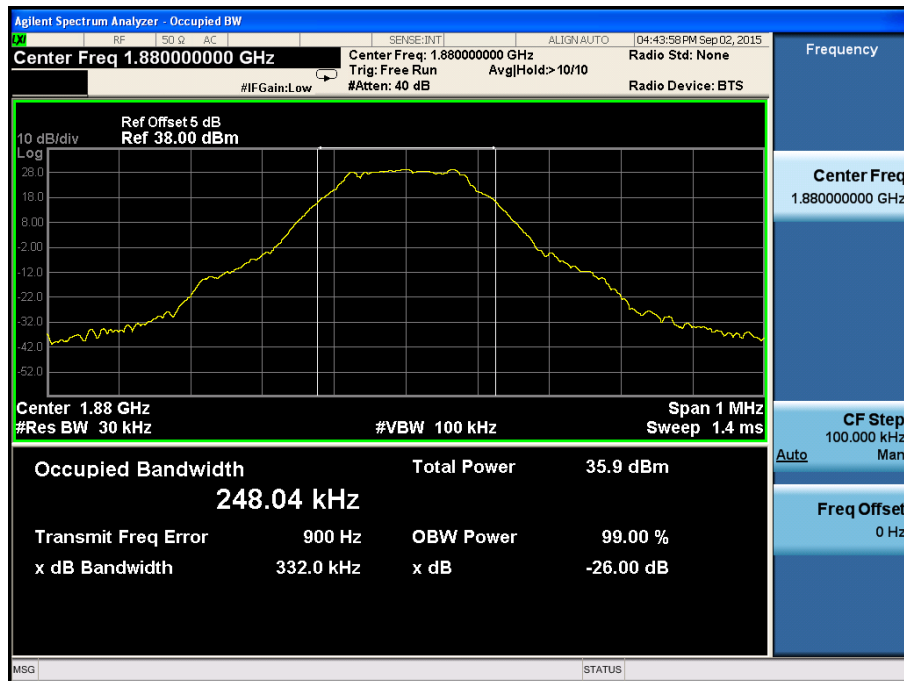
EDGE High Channel

For PCS Band
GSM Low Channel

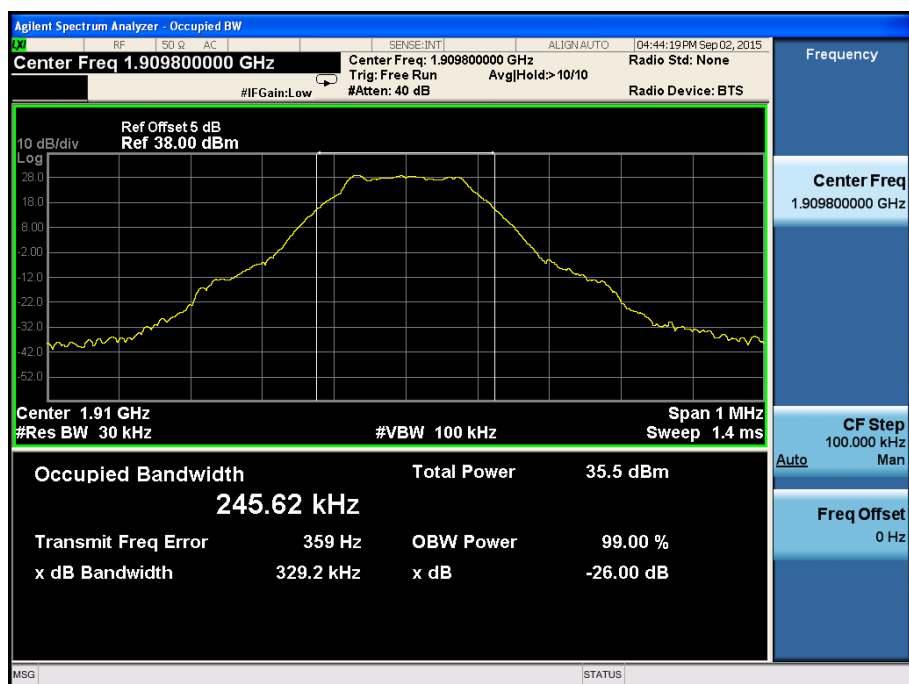




GSM Middle Channel



GSM High channel



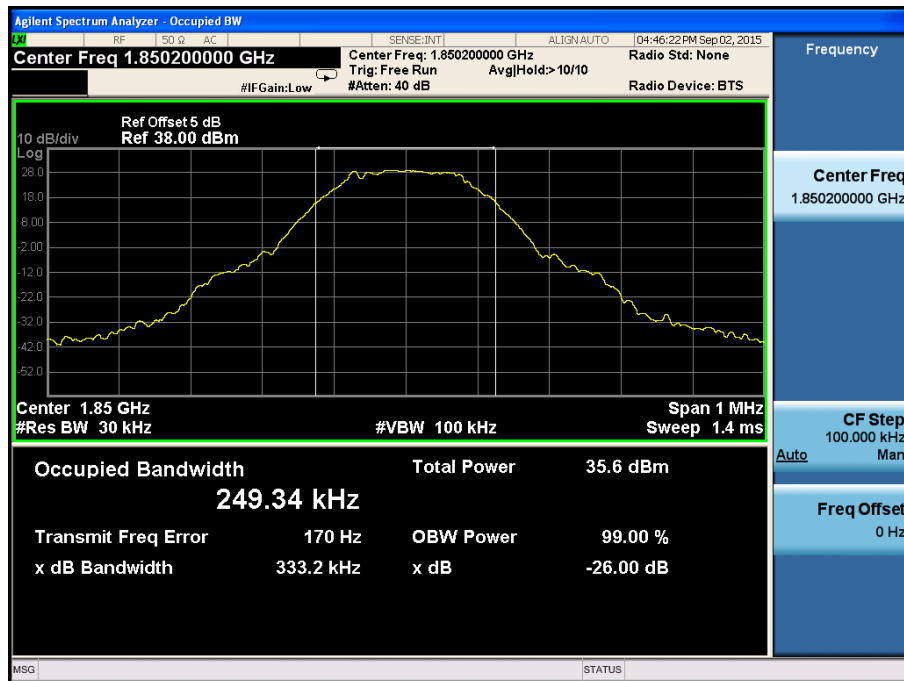


Shenzhen BST Technology Co., Ltd.

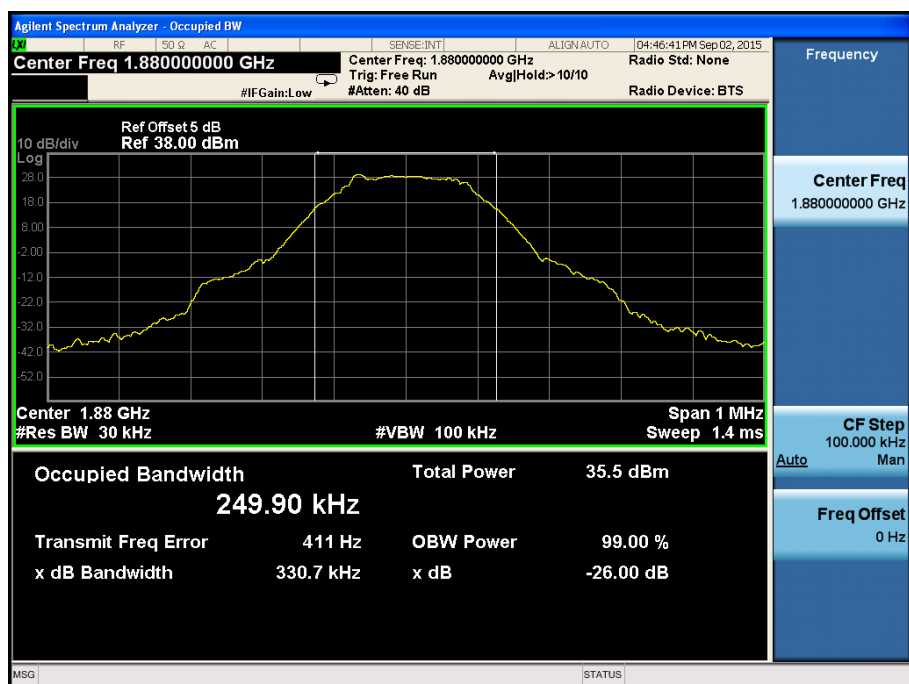
BST17066918A0001Y-ER-2



GPRS Low Channel



GPRS Middle Channel



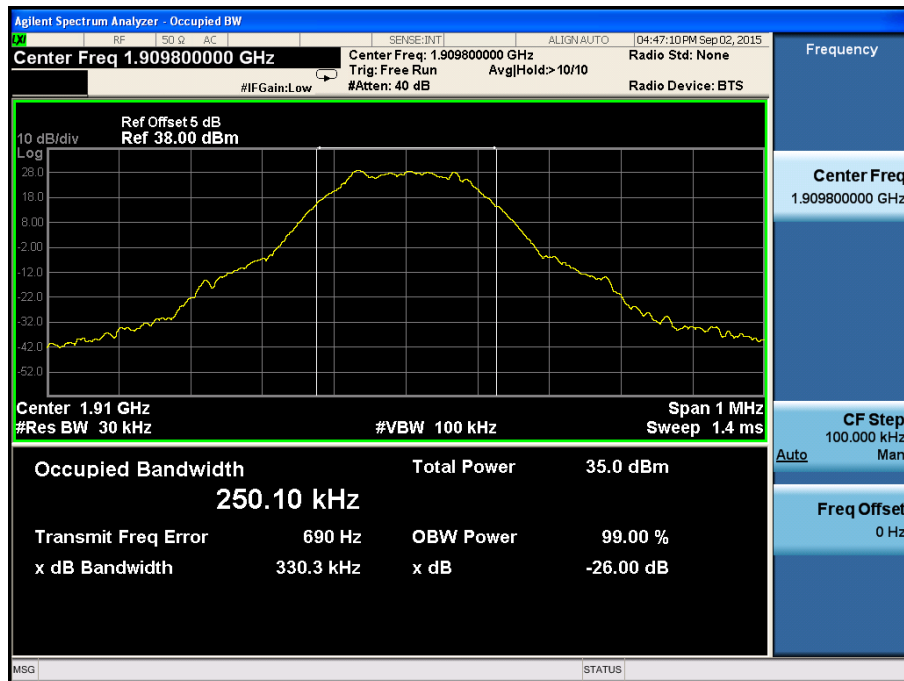


Shenzhen BST Technology Co., Ltd.

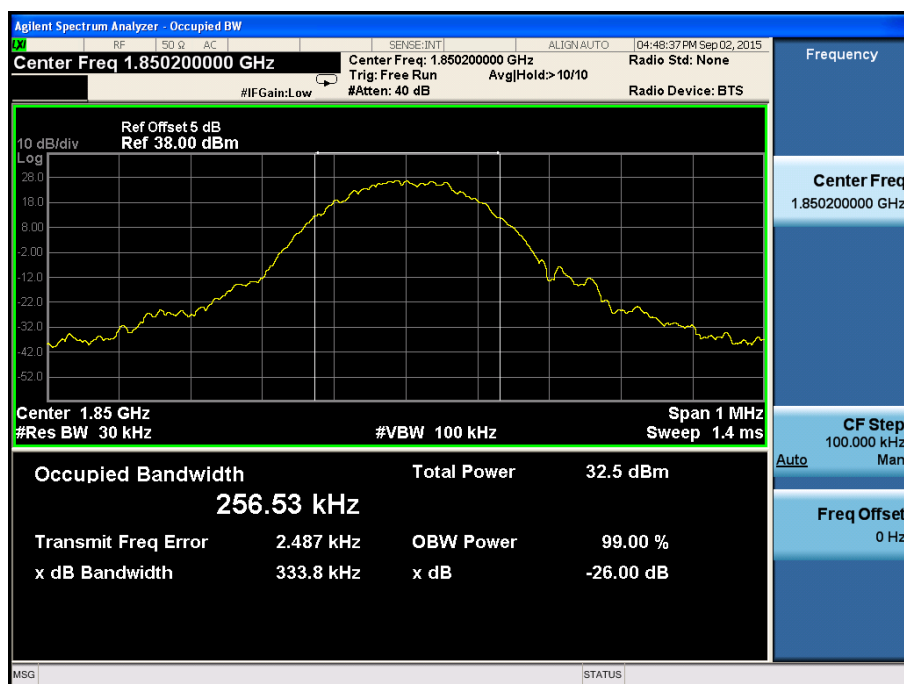
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GPRS High Channel

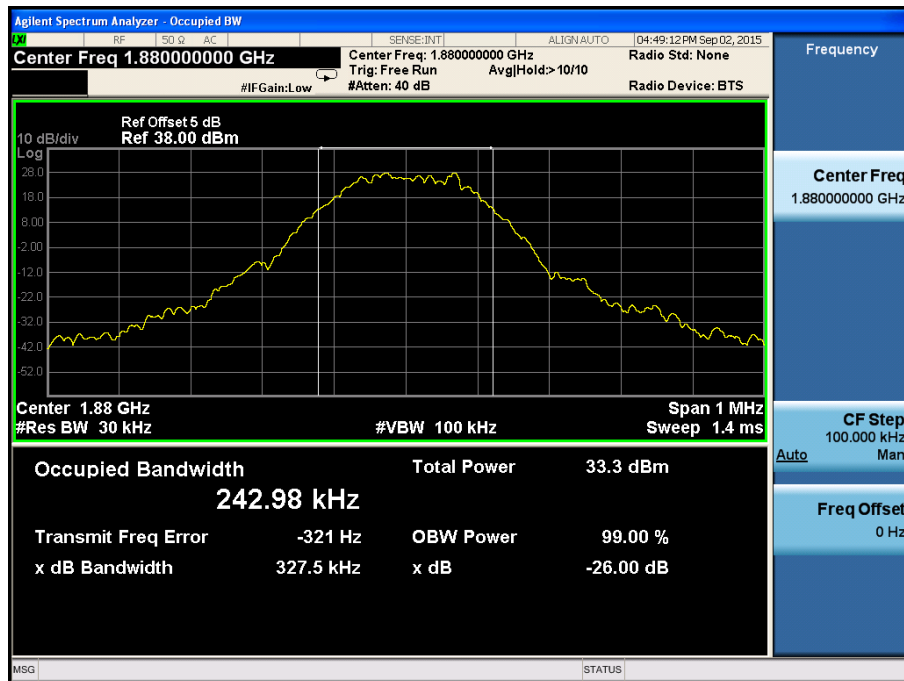


EDGE Low Channel

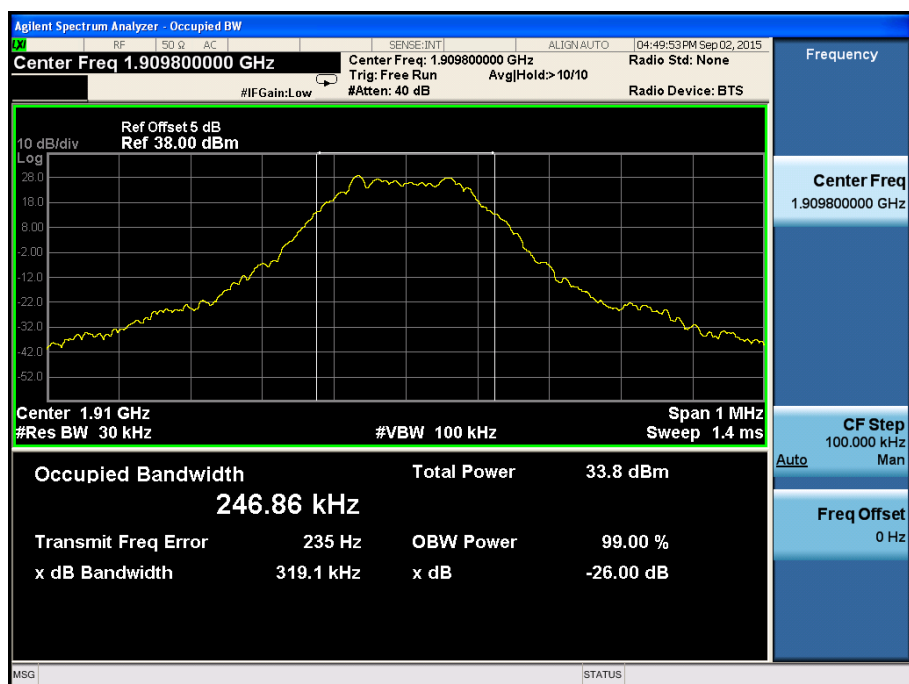




EDGE Middle Channel



EDGE High Channel



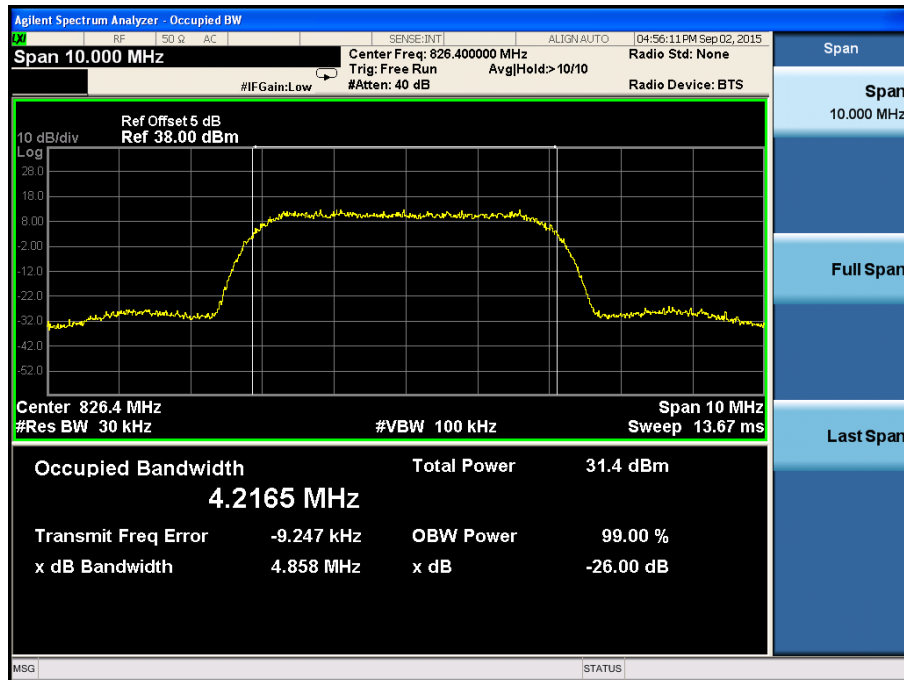


Shenzhen BST Technology Co., Ltd.

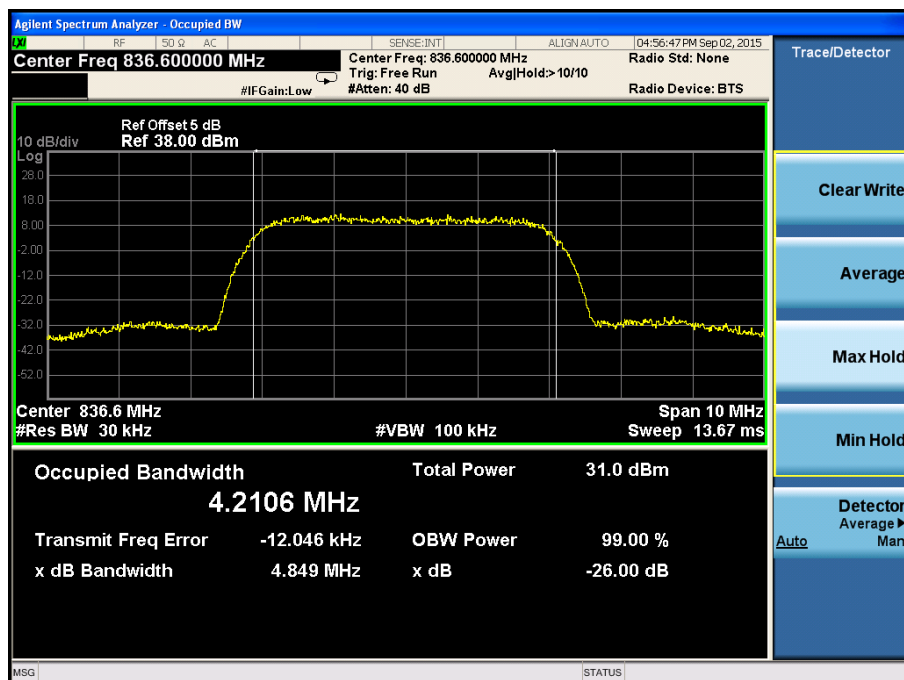
BST17066918A0001Y-ER-2



For Band V
WCDMA Low Channel



WCDMA Middle Channel



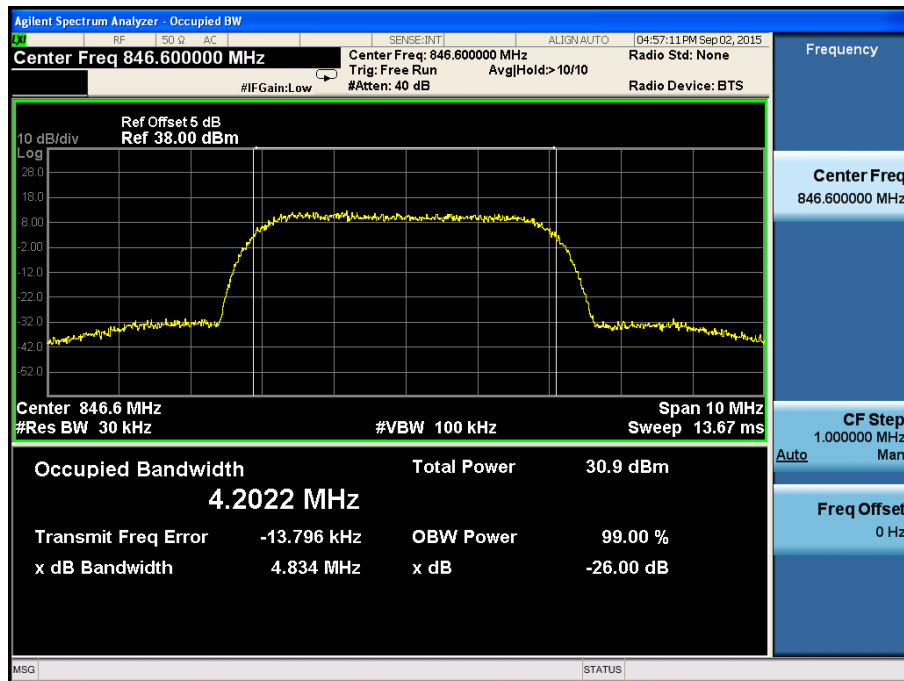


Shenzhen BST Technology Co., Ltd.

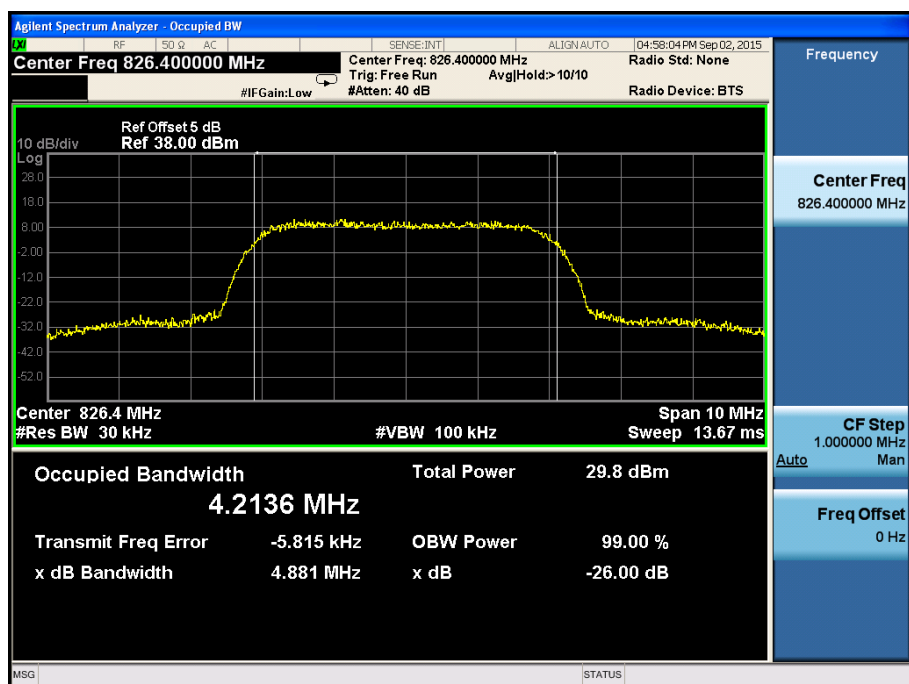
BST17066918A0001Y-ER-2



WCDMA High Channel

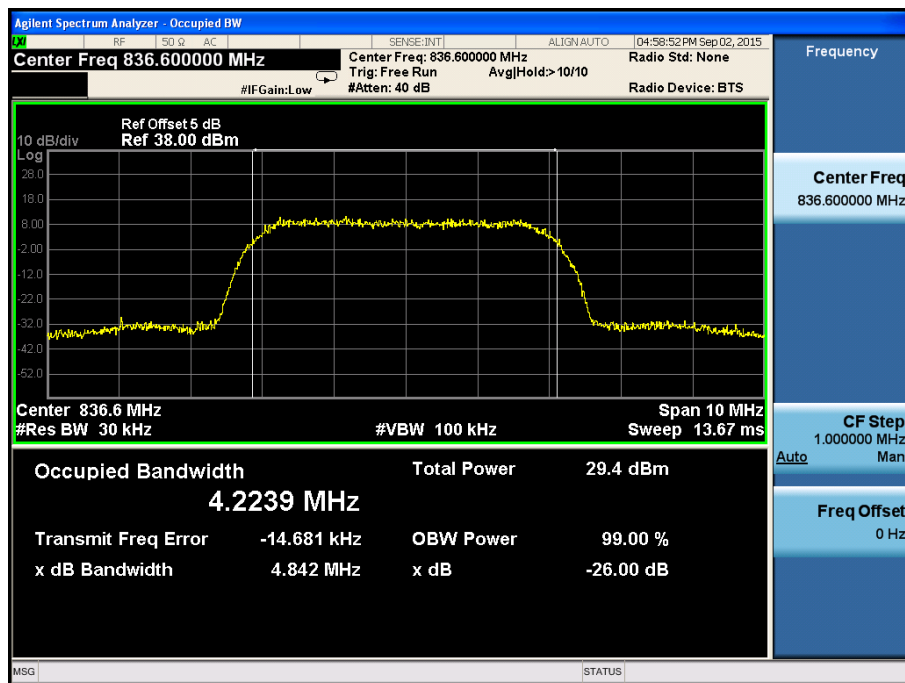


HSDPA Low Channel

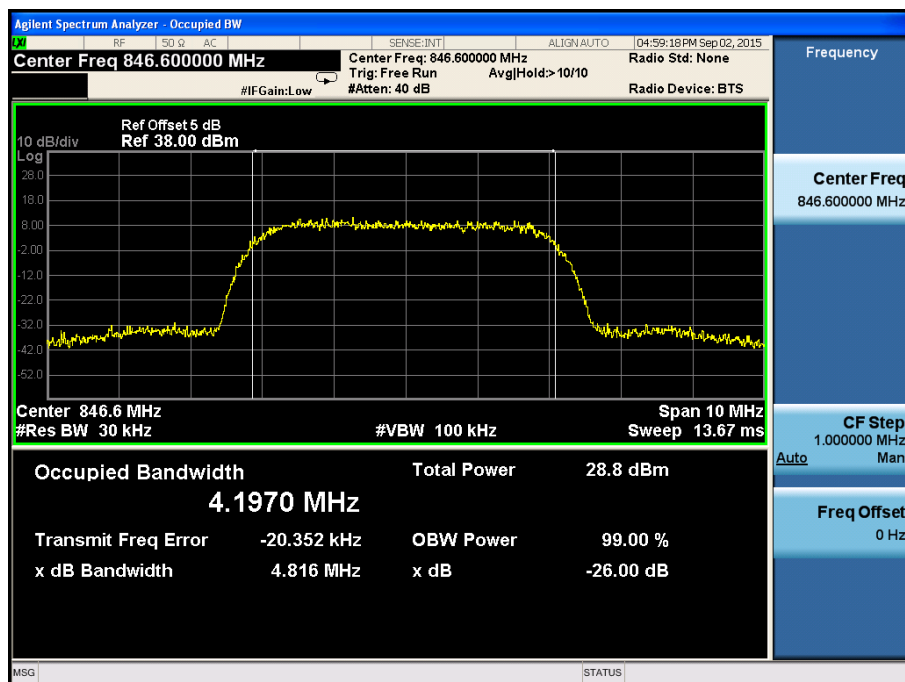




HSDPA Middle Channel



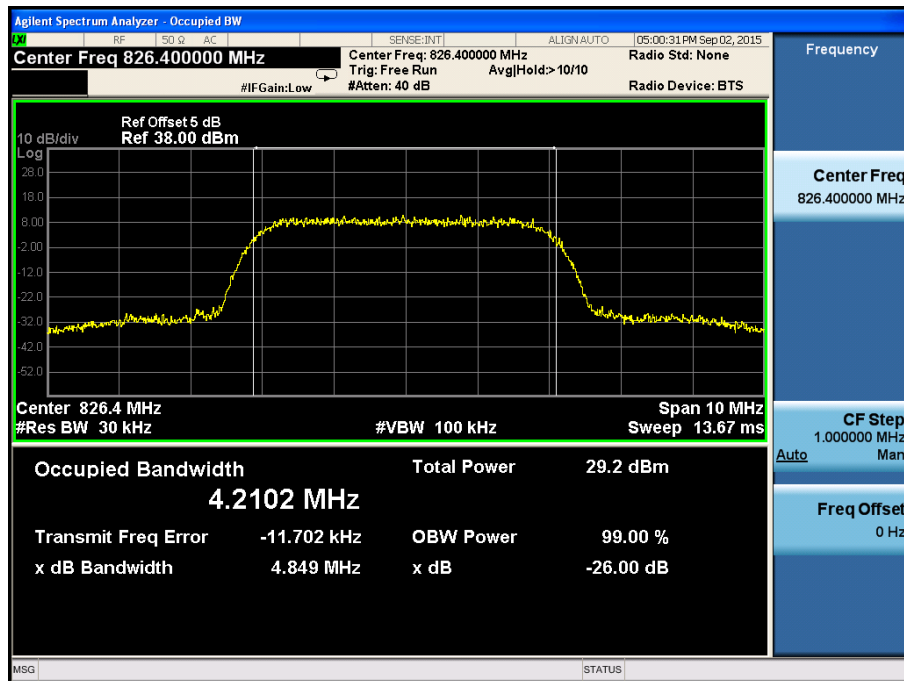
HSDPA High Channel



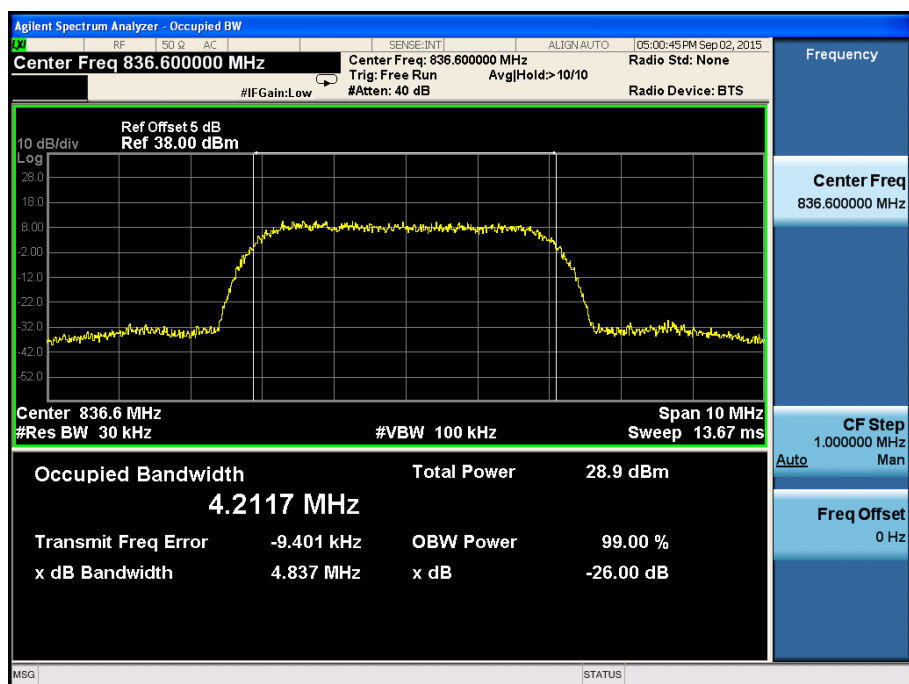




HSUPA Low Channel

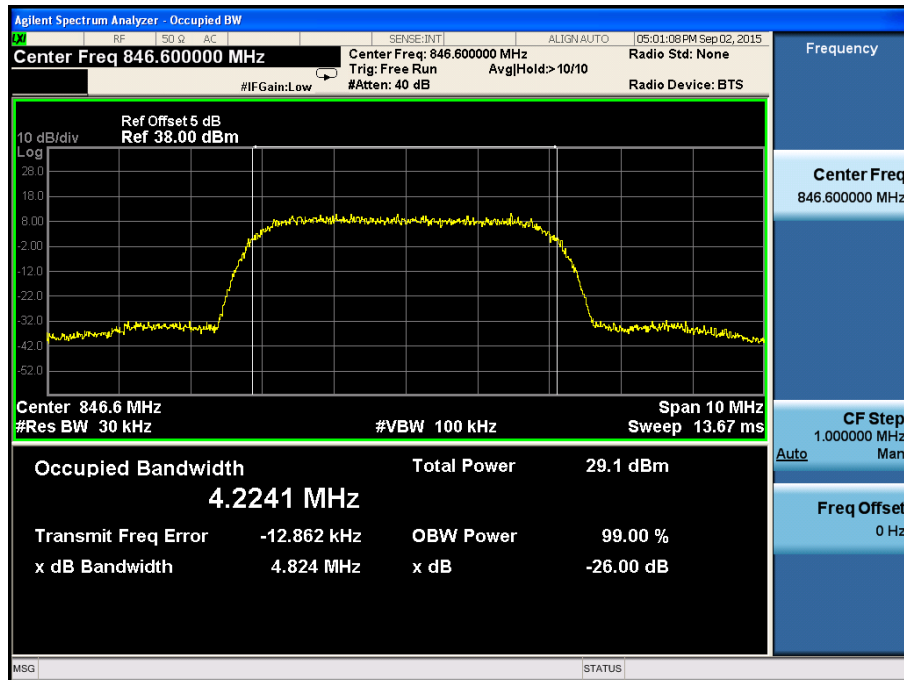


HSUPA Middle Channel



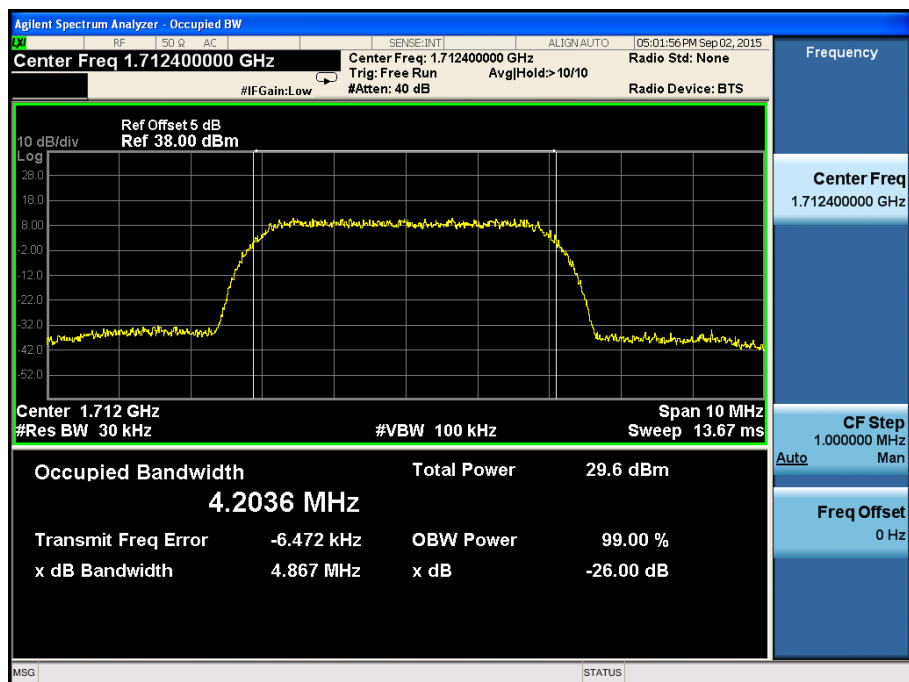


HSUPA High Channel



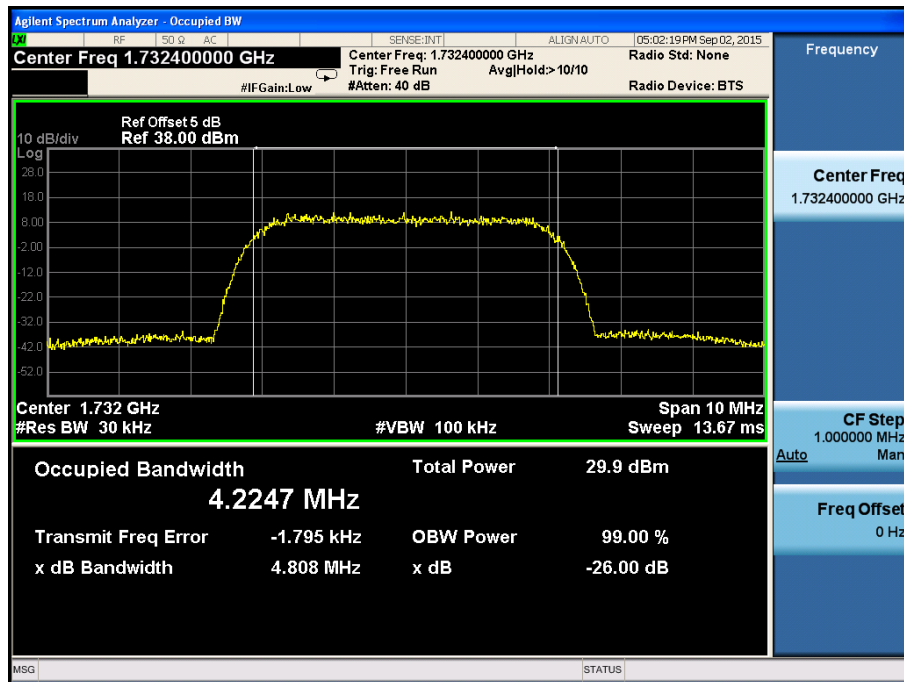
For Band IV

WCDMA Low Channel

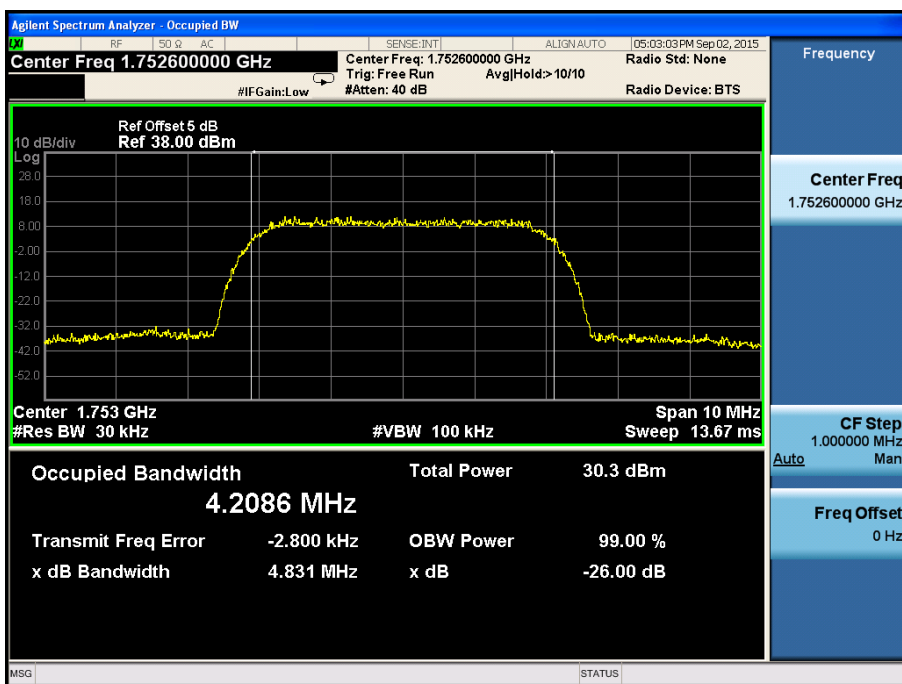




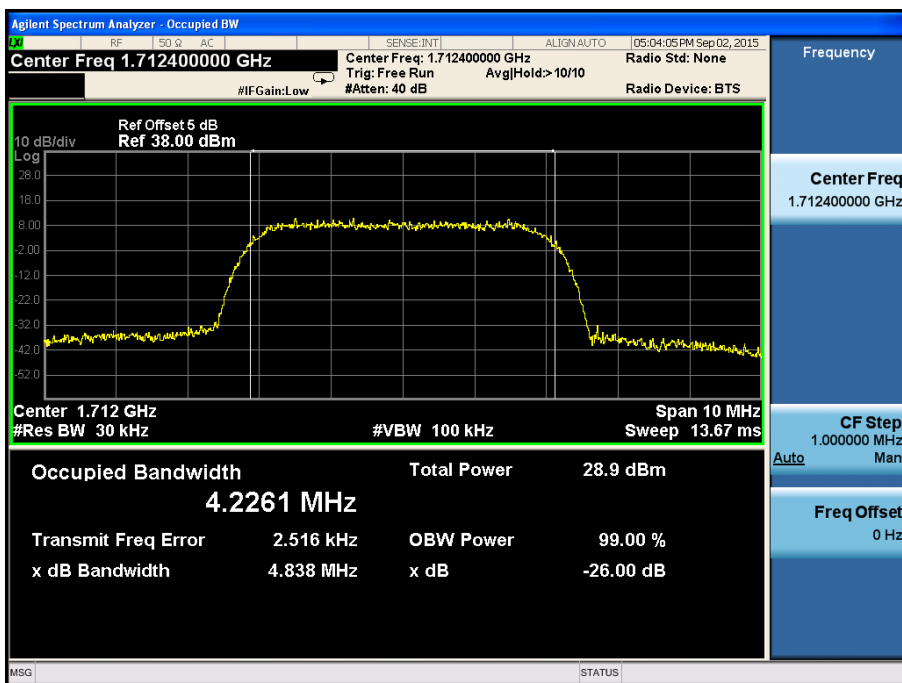
WCDMA Middle Channel



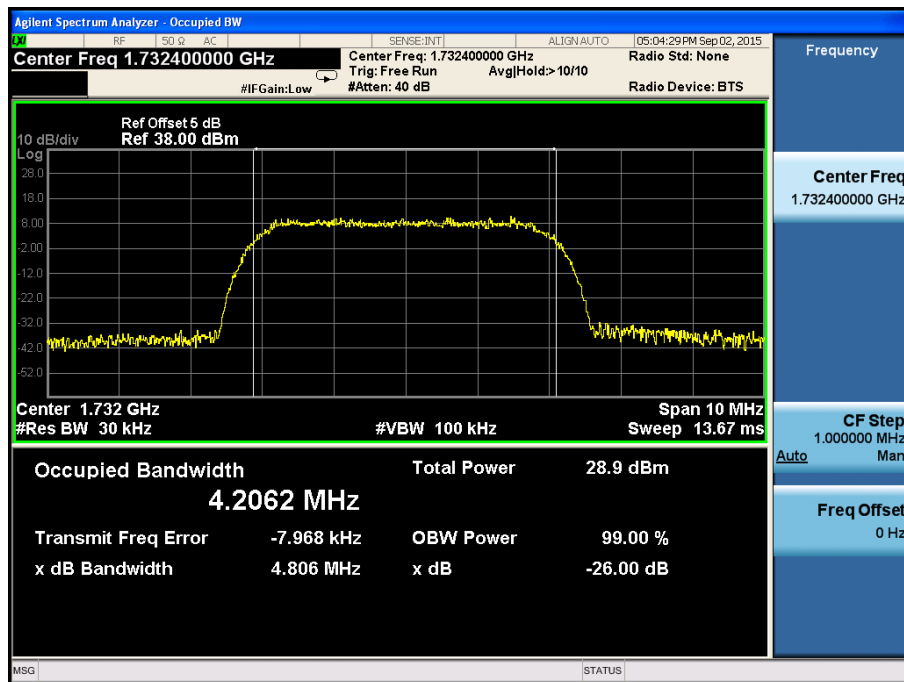
WCDMA High Channel



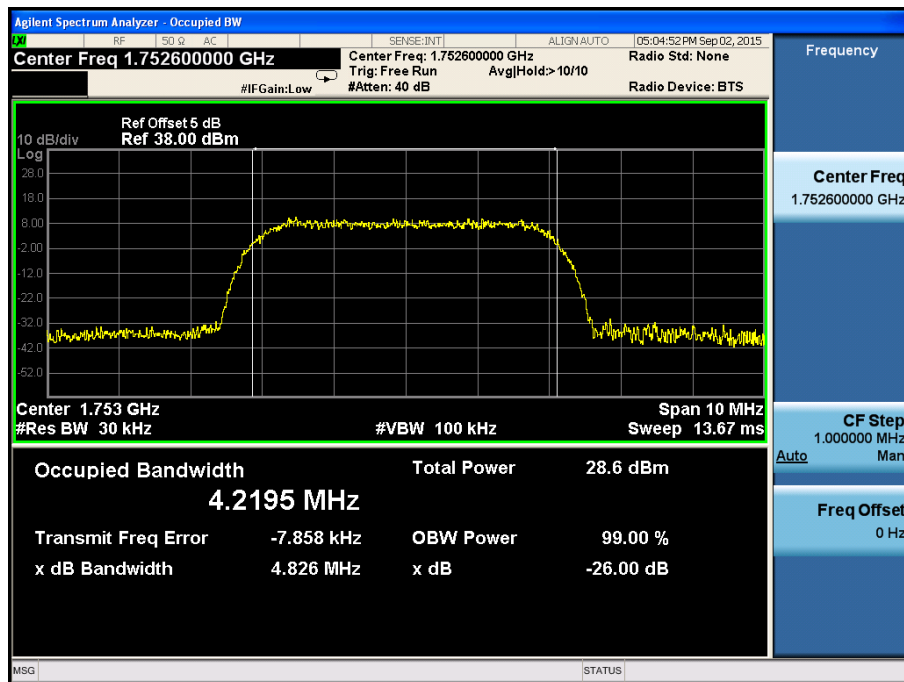
HSDPA Low Channel



HSDPA Middle Channel

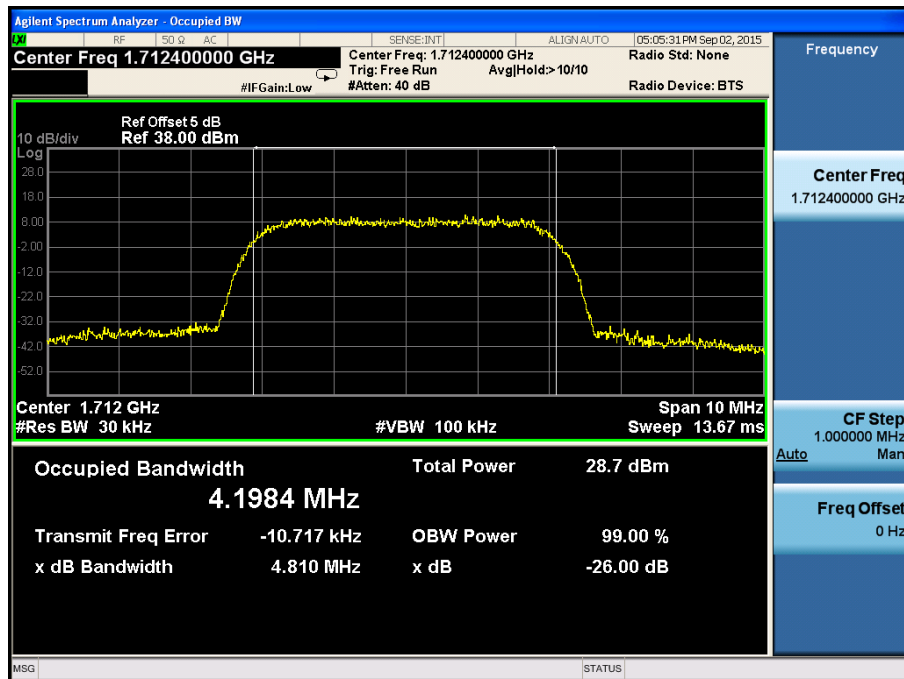


HSDPA High Channel

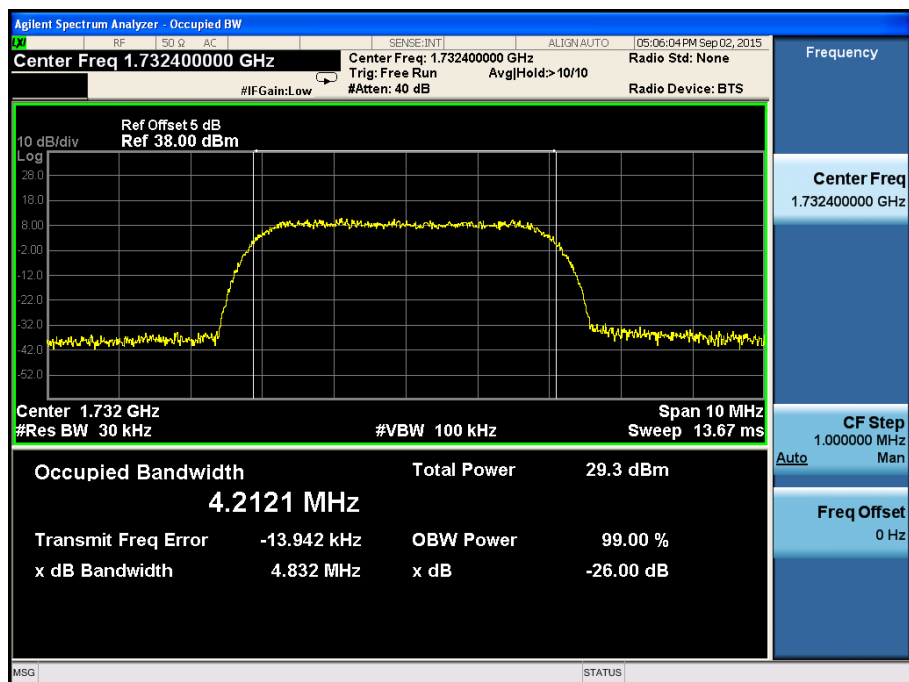




HSUPA Low Channel

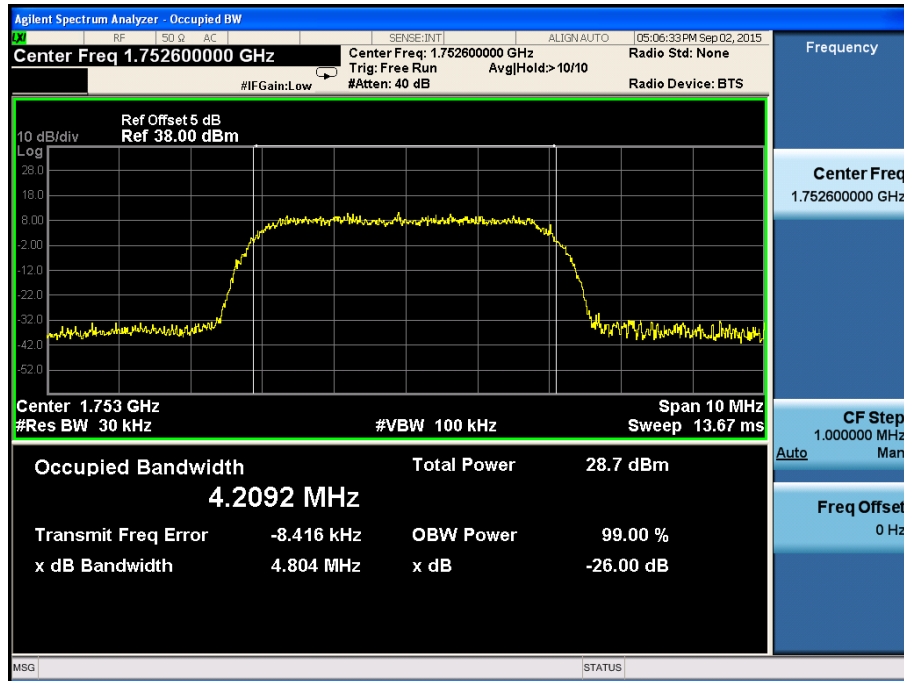


HSUPA Middle Channel



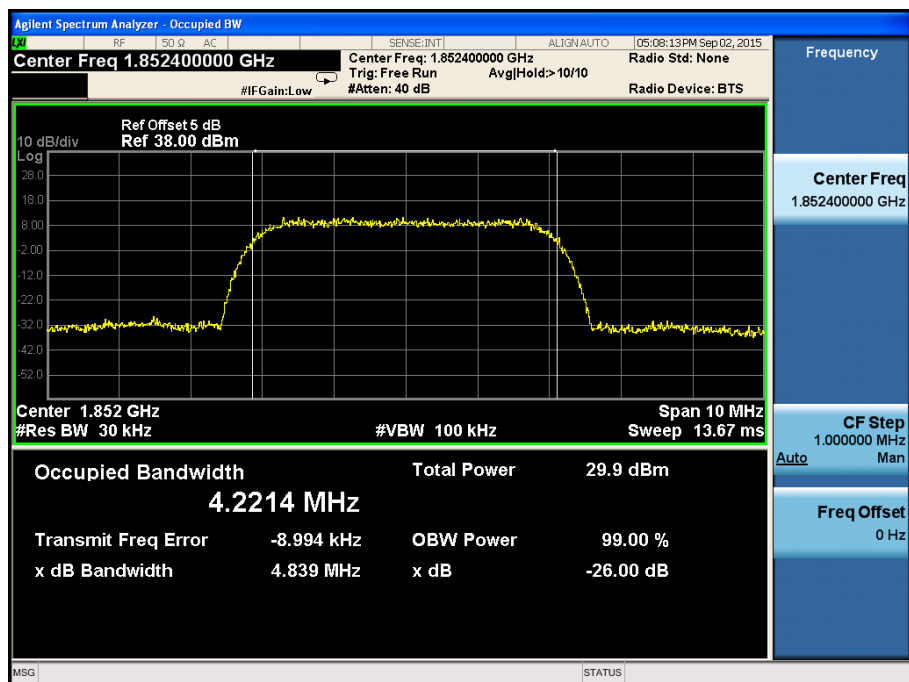


HSUPA High Channel



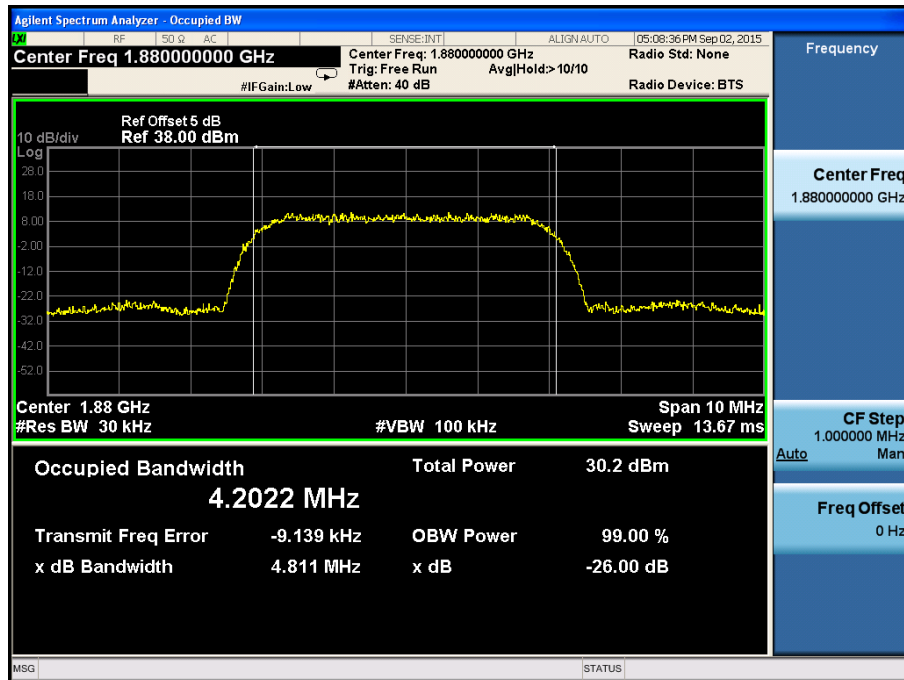
For Band II

WCDMA Low Channel



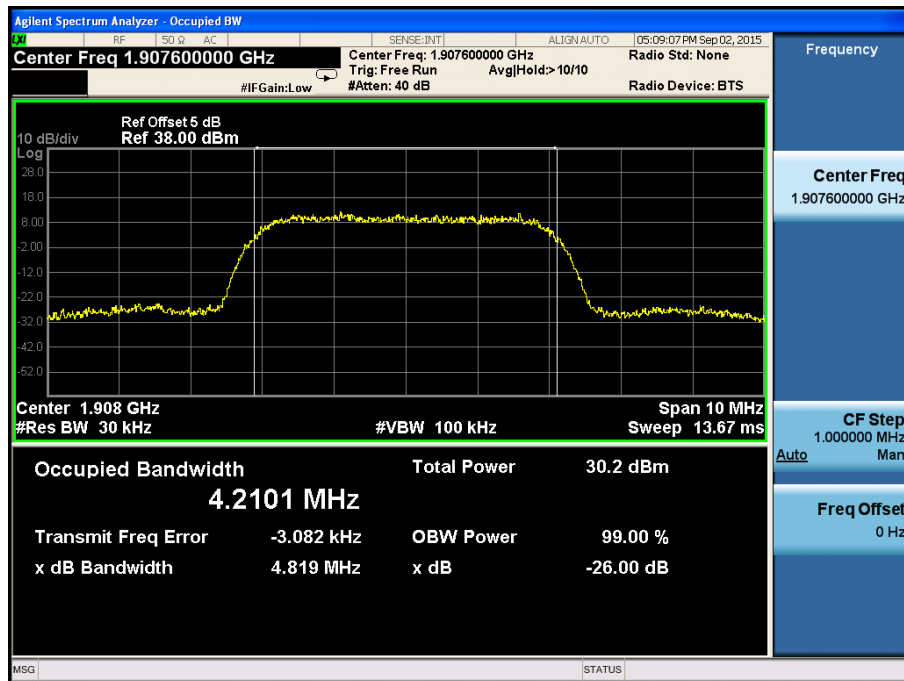


WCDMA Middle Channel

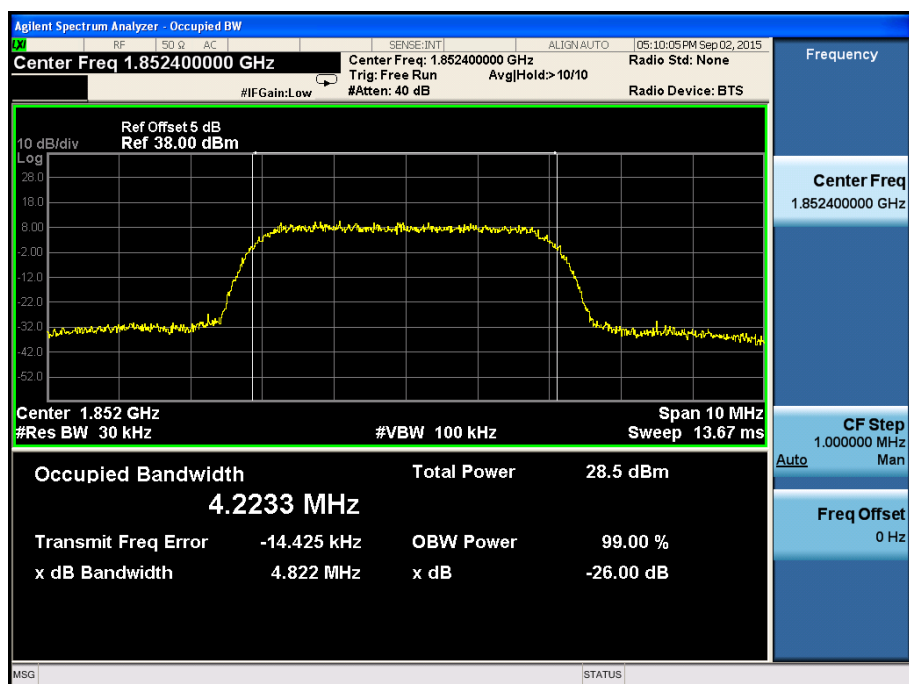




WCDMA High Channel

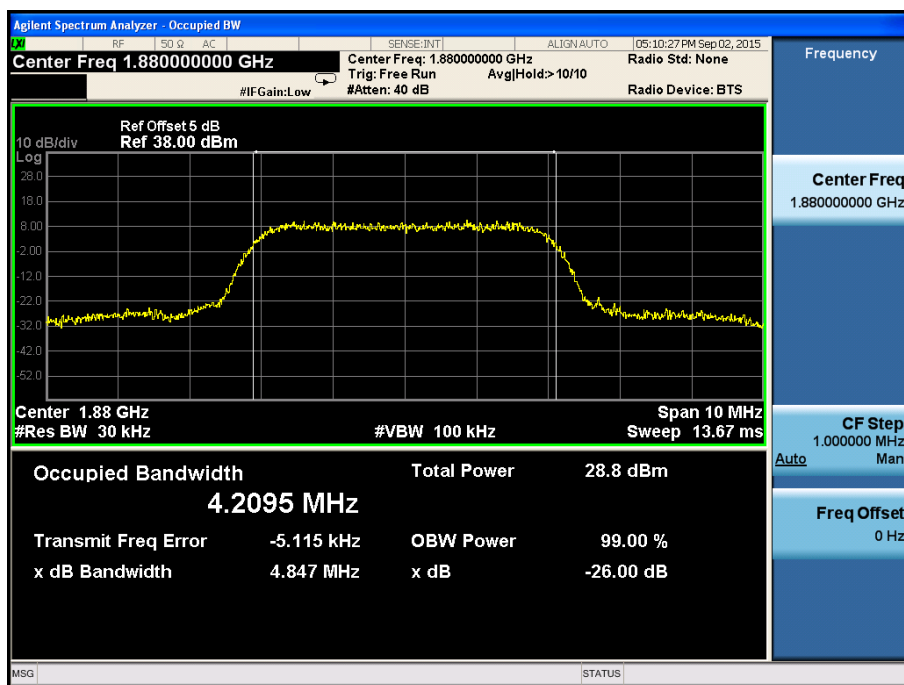


HSDPA Low Channel

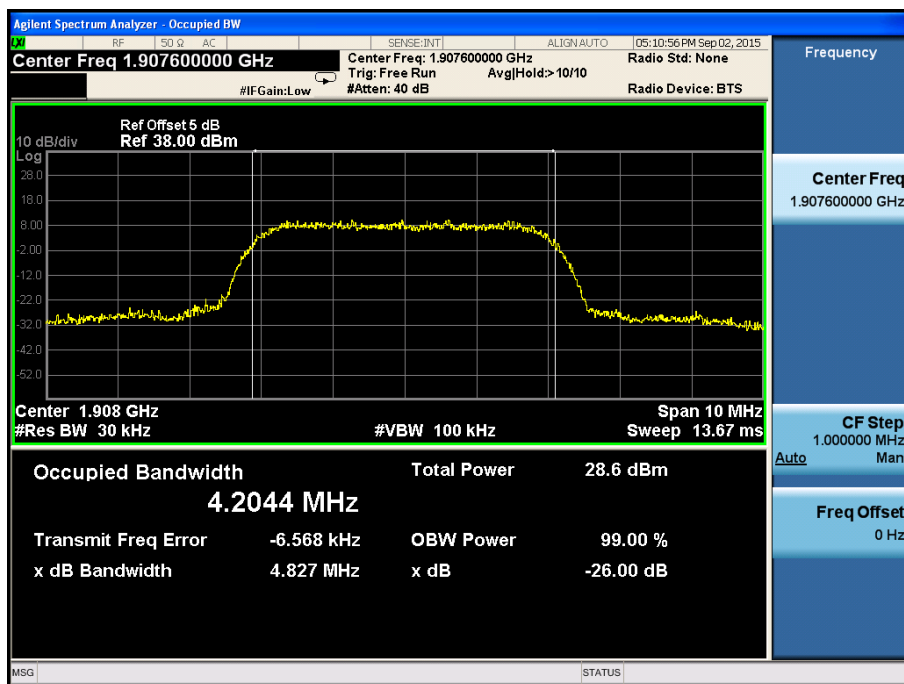




HSDPA Middle Channel

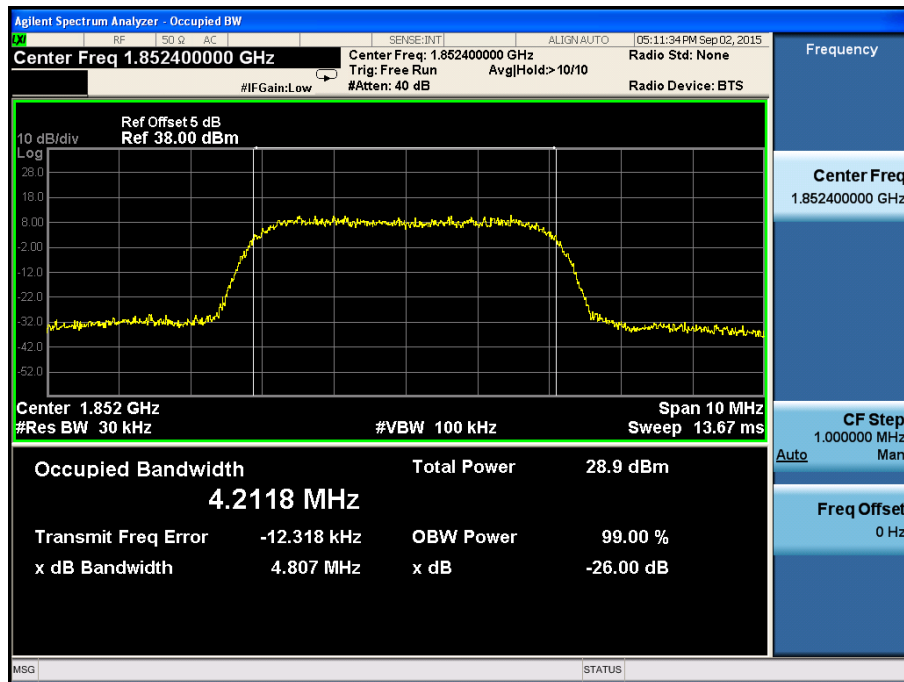


HSDPA High Channel

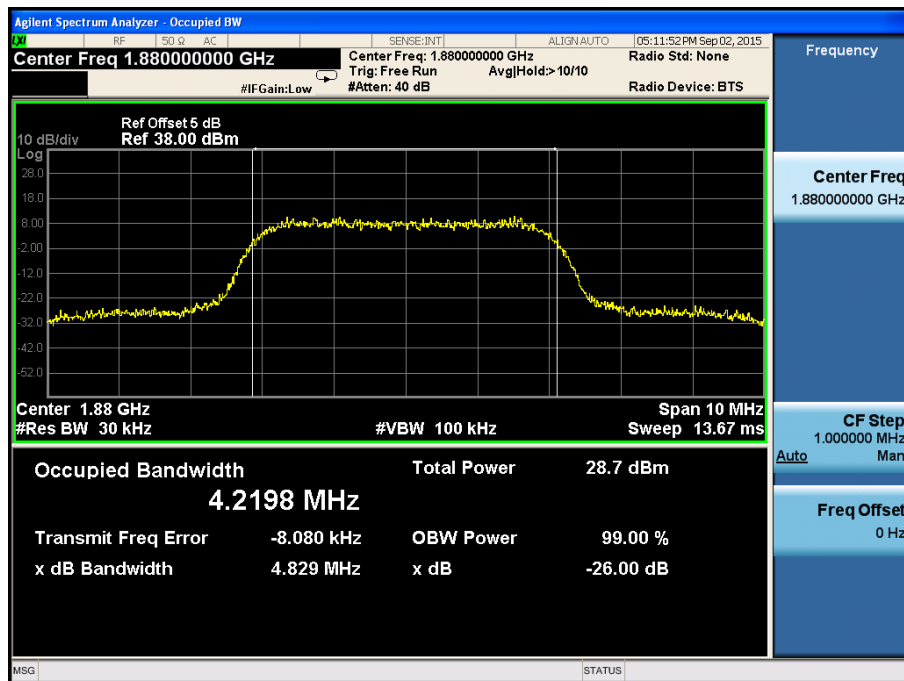




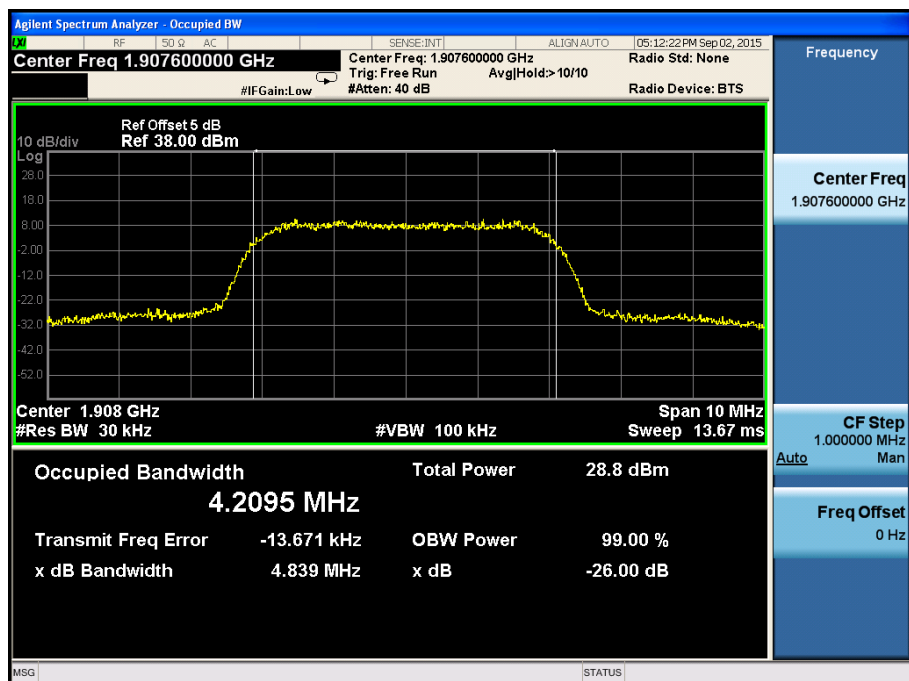
HSUPA Low Channel



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.

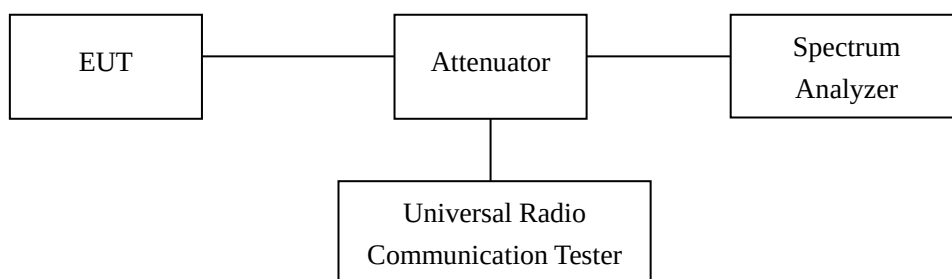
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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

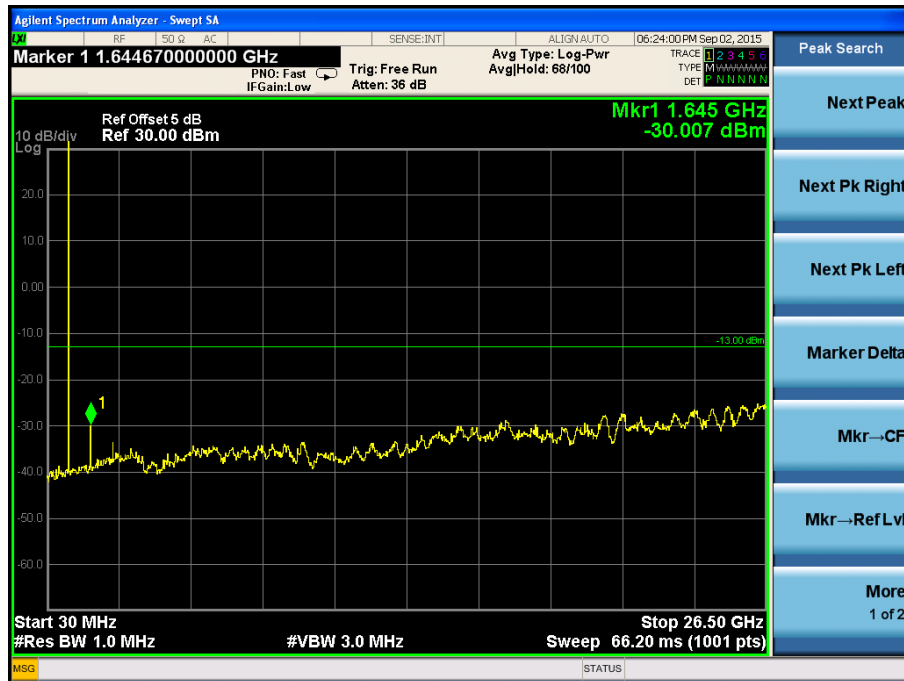
Temperature:	25 °C
Relative Humidity:	53%
ATM Pressure:	1018 mbar



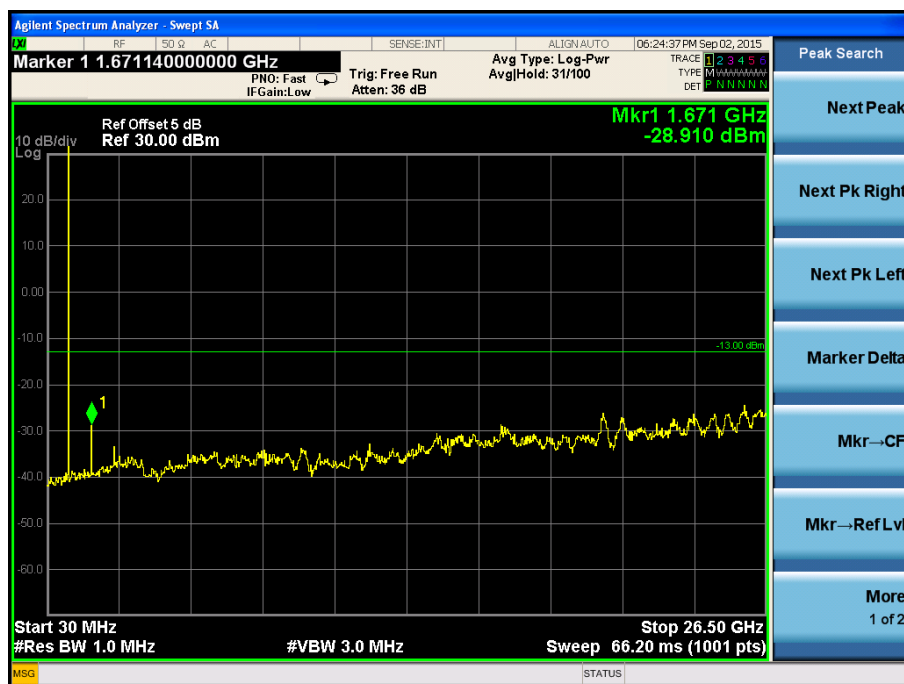
7.4 Summary of Test Results/Plots

Please refer to the following test plots For Cellular Band

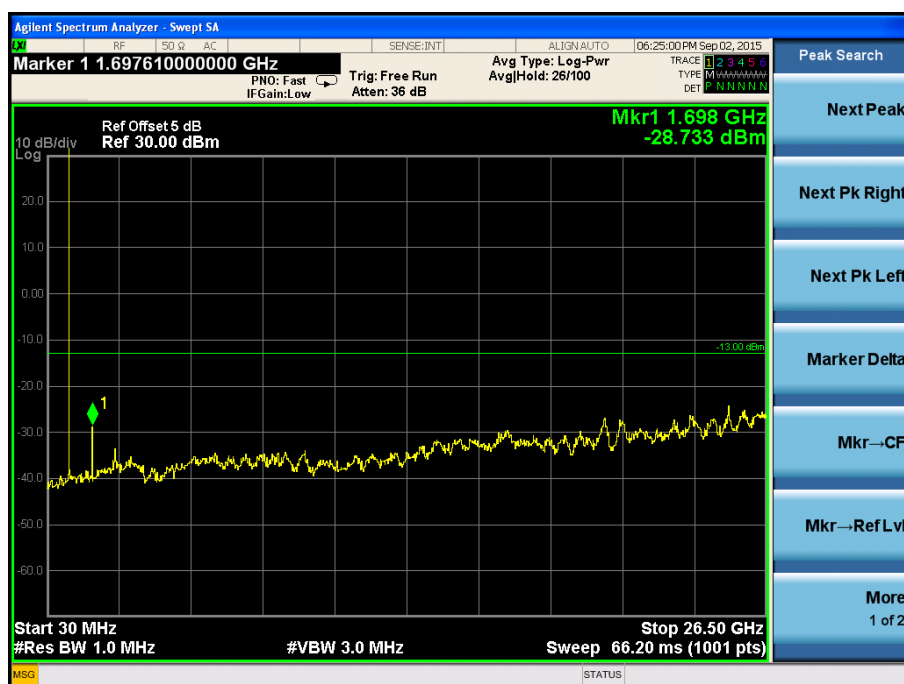
GSM Low Channel



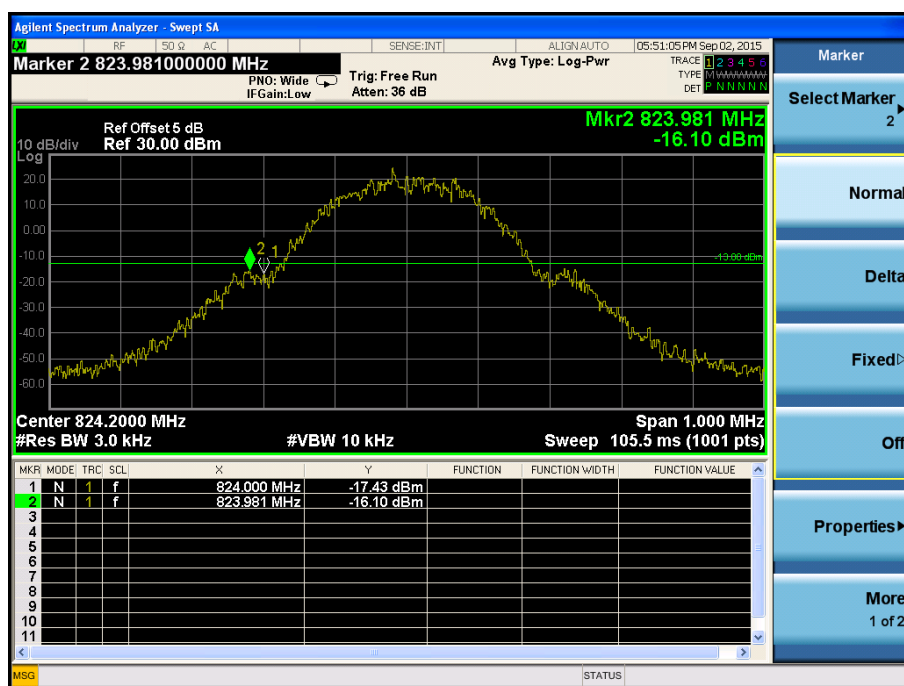
GSM Middle Channel



GSM High Channel

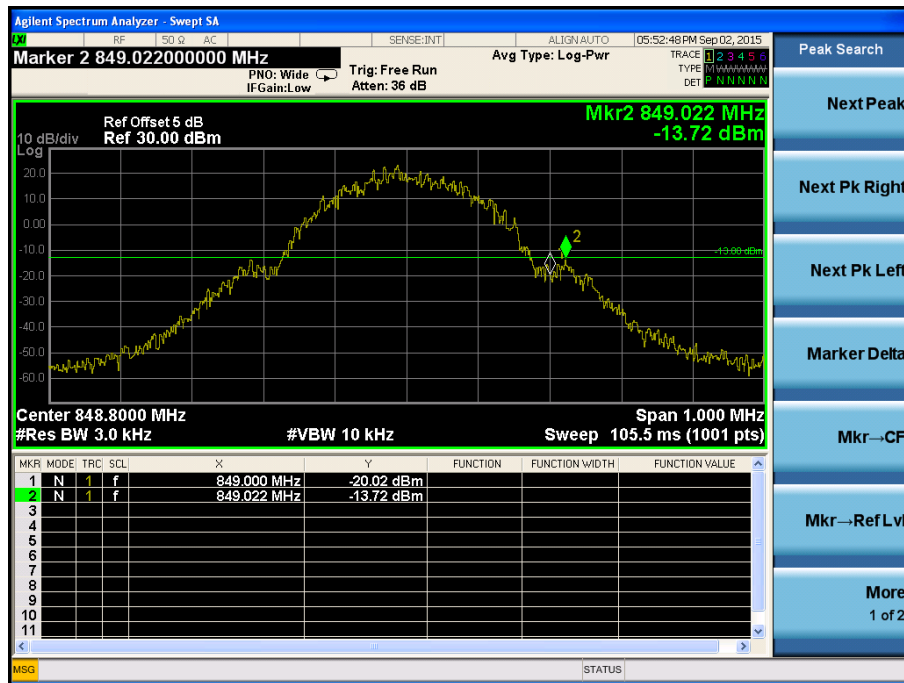


GSM Low Band Emission

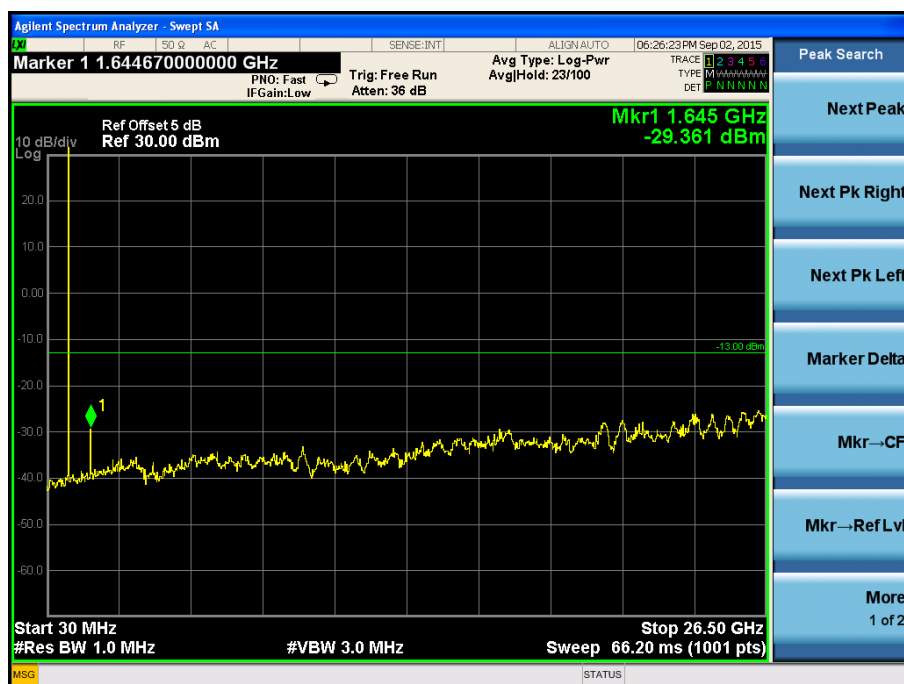




GSM High Band Emission



GPRS Low Channel



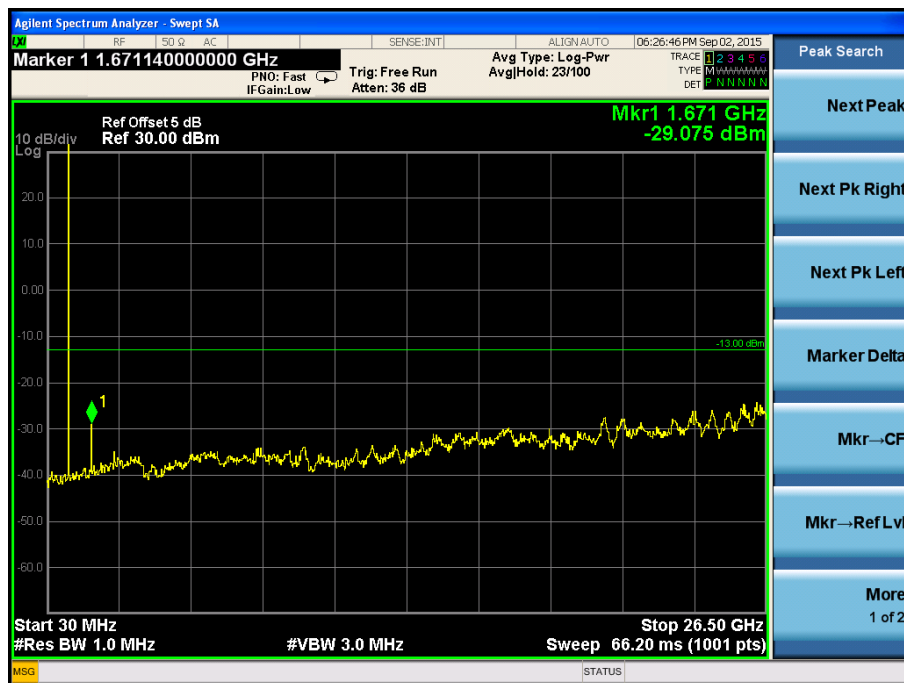


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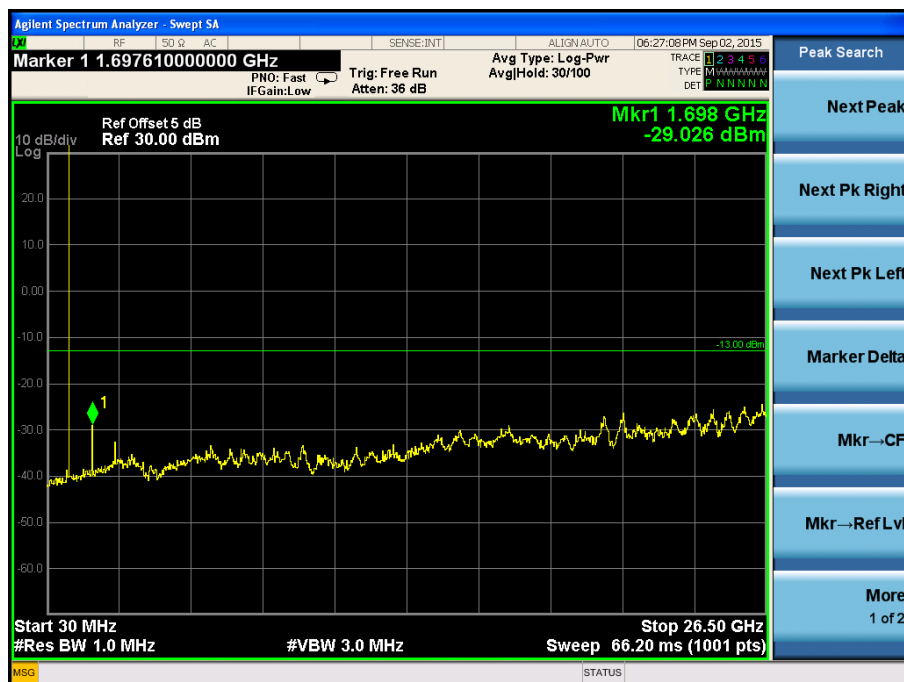
BST17066918A0001Y-ER-2



GPRS Middle Channel

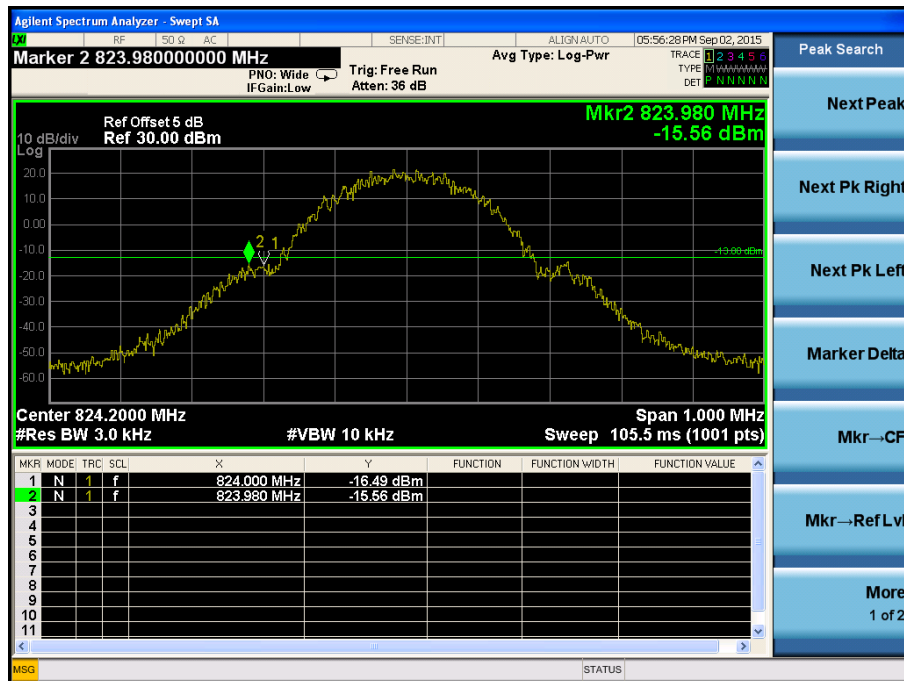


GPRS High Channel

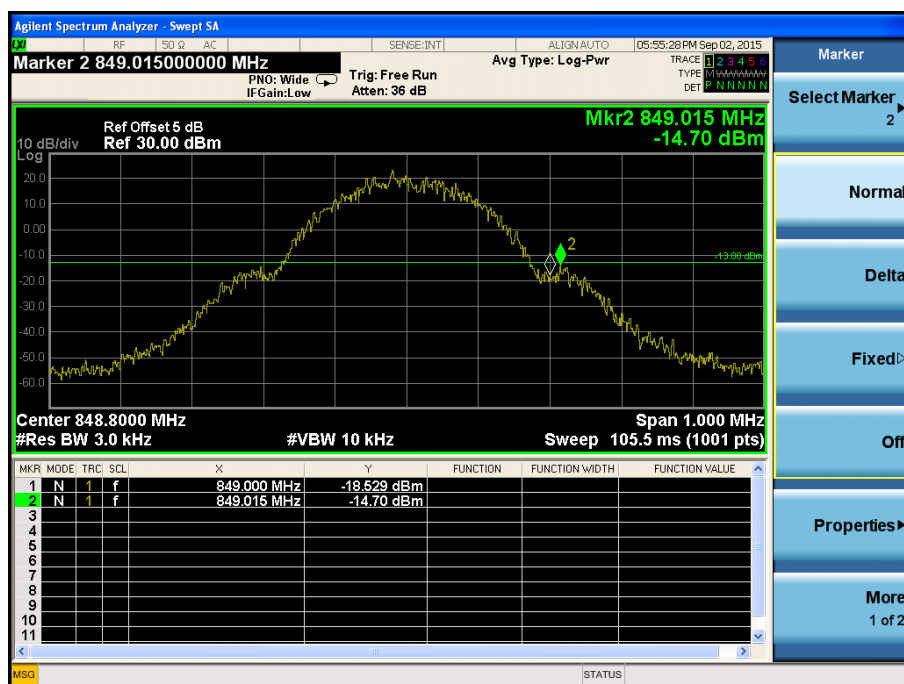




GPRS Low Band Emission



GPRS High Band Emission

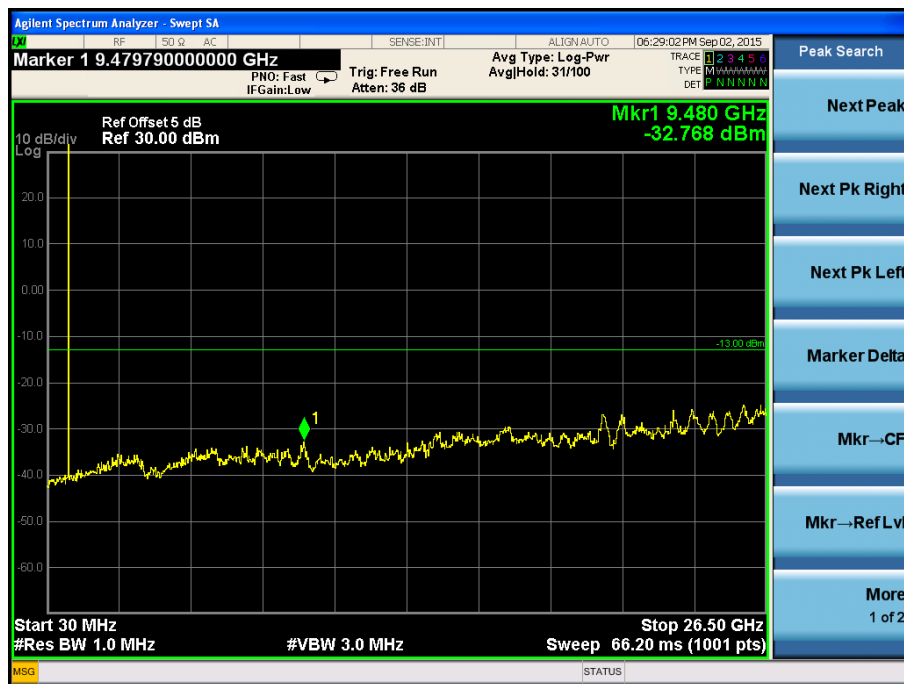




EDGE Low Channel



EDGE Middle Channel



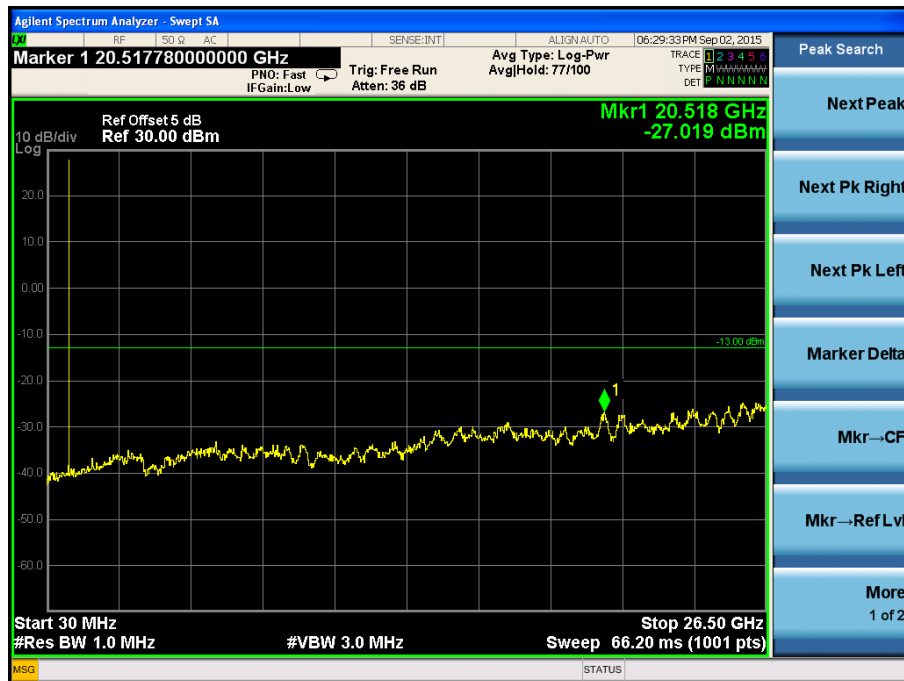


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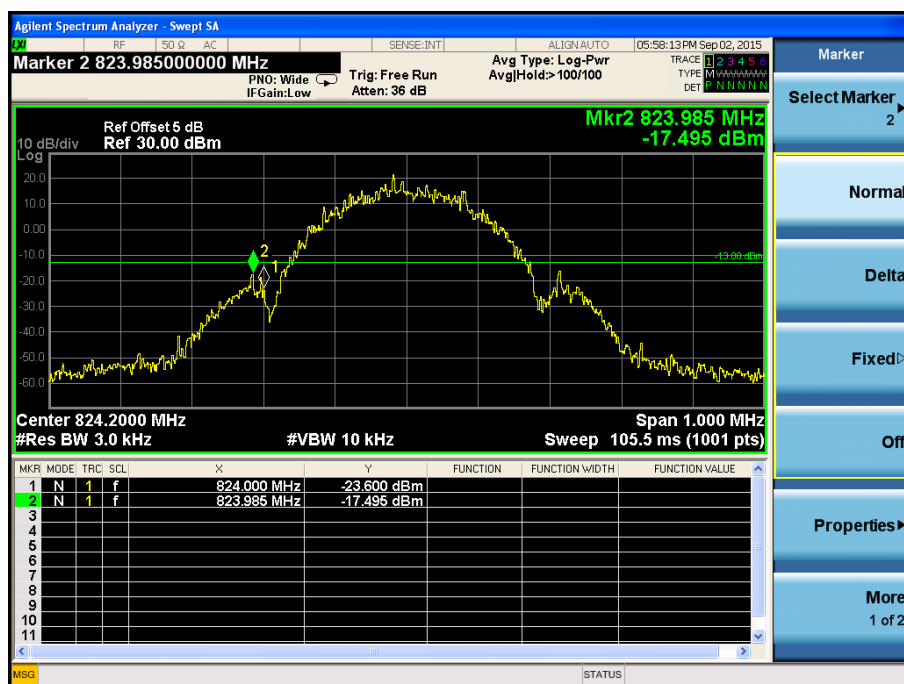
BST17066918A0001Y-ER-2



EDGE High Channel



EDGE Low Band Emission



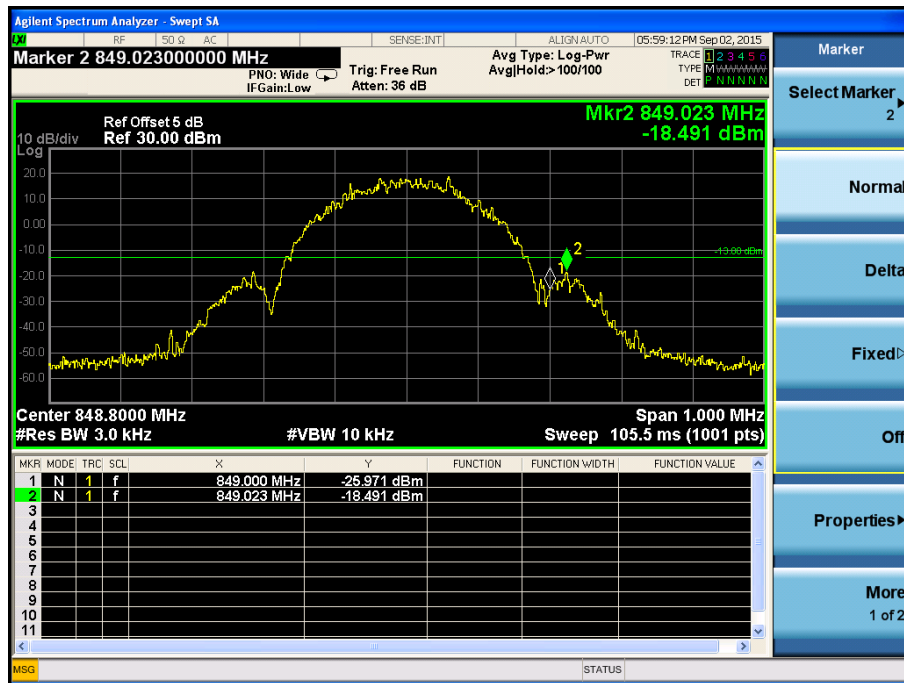
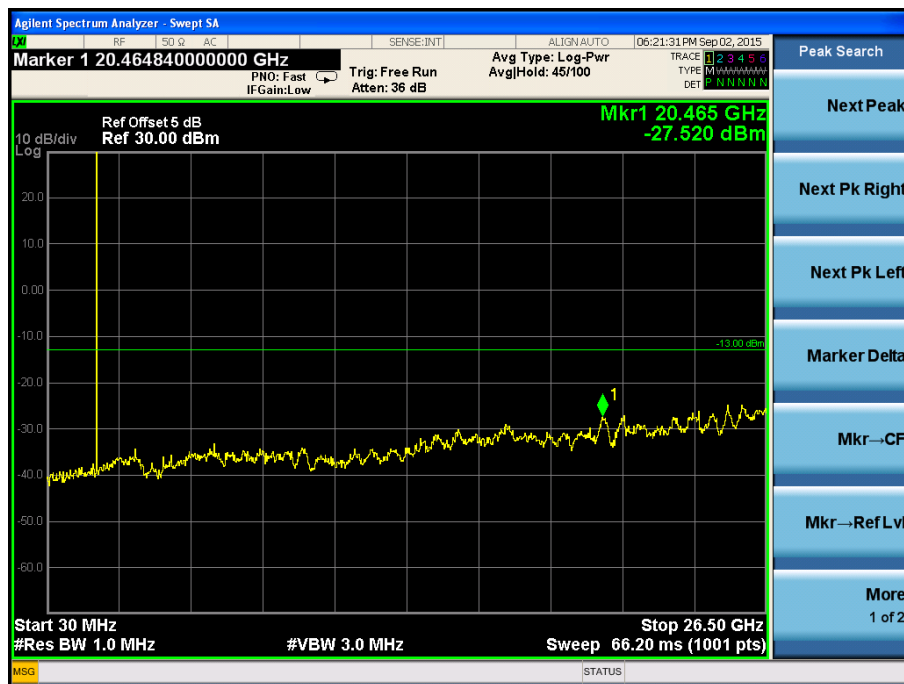


Shenzhen BST Technology Co., Ltd.

BST17066918A0001Y-ER-2



EDGE High Band Emission

For PCS Band
GSM Low Channel

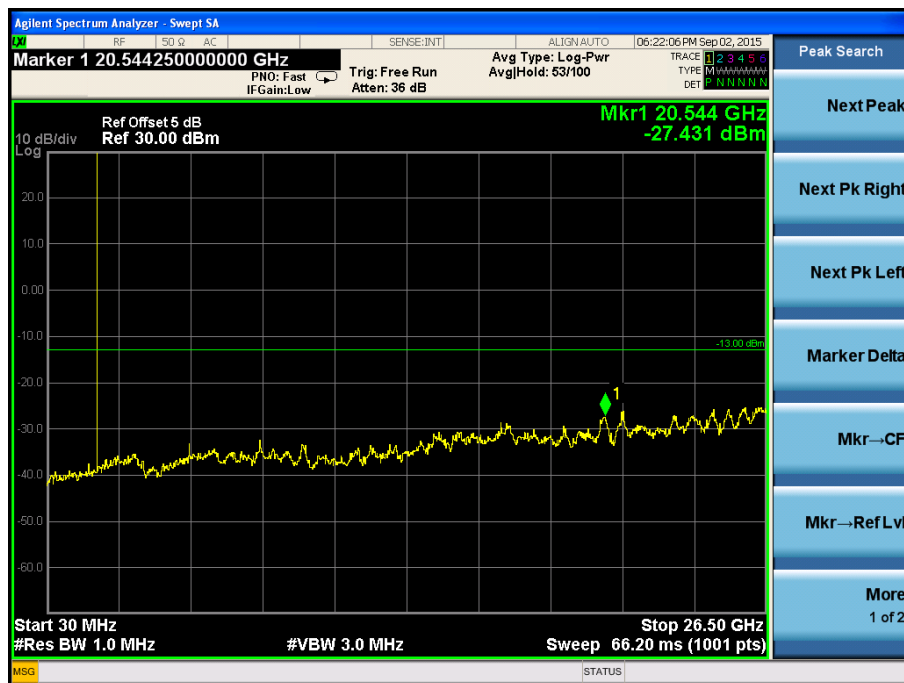


Shenzhen BST Technology Co., Ltd.

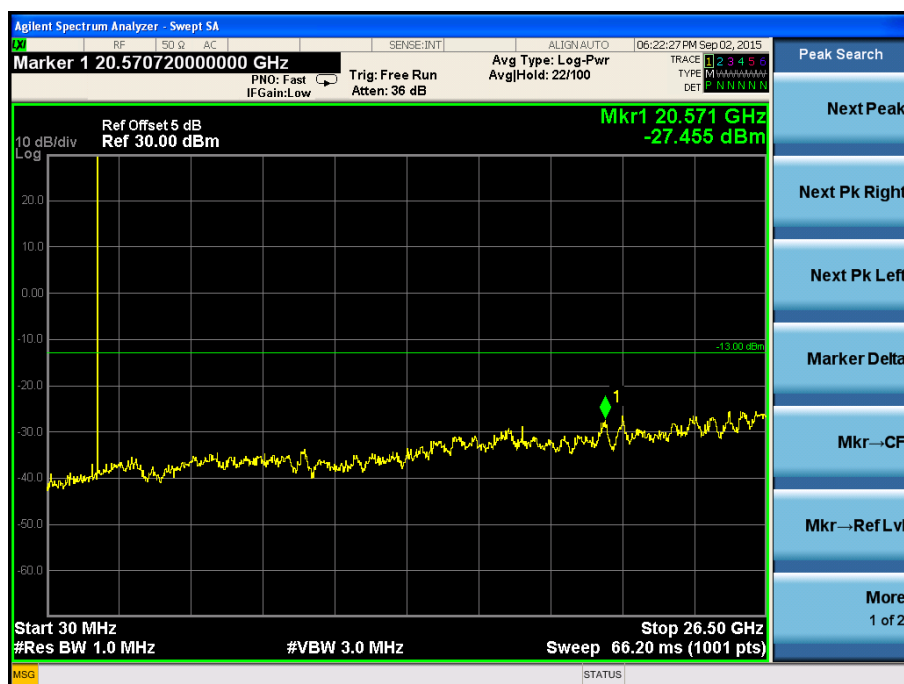
BST17066918A0001Y-ER-2



GSM Middle Channel



GSM High Channel





BST17066918A0001Y-ER-2

Agilent Spectrum Analyzer - Swept SA

Marker 2 1.849997000000 GHz

Ref Offset 5 dB
Ref 30.00 dBm

Center 1.8502000 GHz
#Res BW 3.0 kHz

Span 1.000 MHz
Sweep 105.5 ms (1001 pts)

Trig: Free Run
Atten: 36 dB

Avg Type: Log-Pwr
Avg/Hold: >100/100

Trace 1 2 3 4 5 6
Type M
Det N N N N N

Marker	Mode	TRC	SCL	X	Y	Function	Function Width	Function Value
1	N	1	f	1.850 000 GHz	-17.636 dBm			
2	N	1	f	1.849 997 GHz	-13.749 dBm			

[illegible]

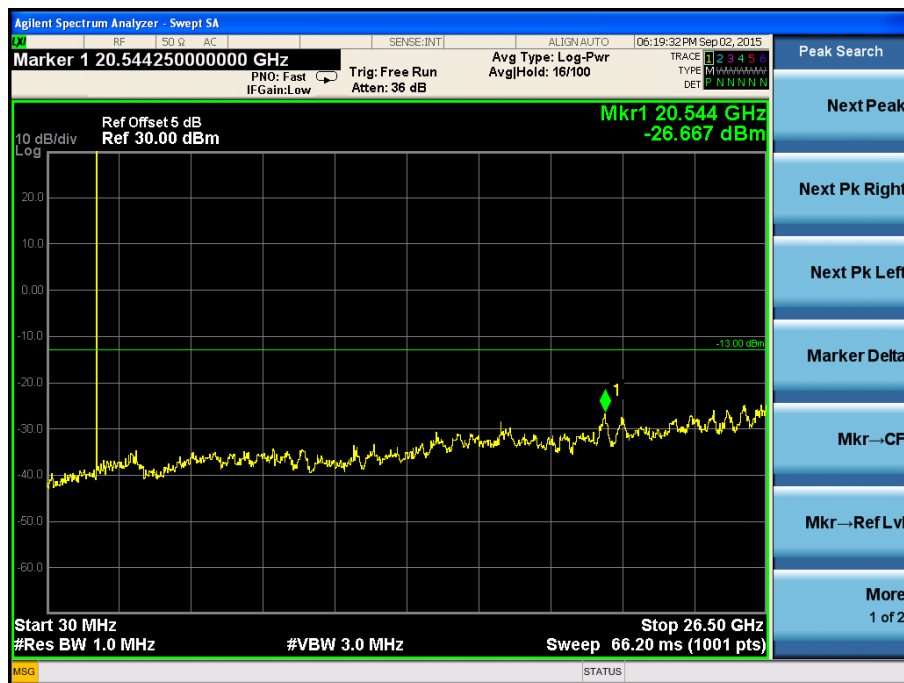


Shenzhen BST Technology Co., Ltd.

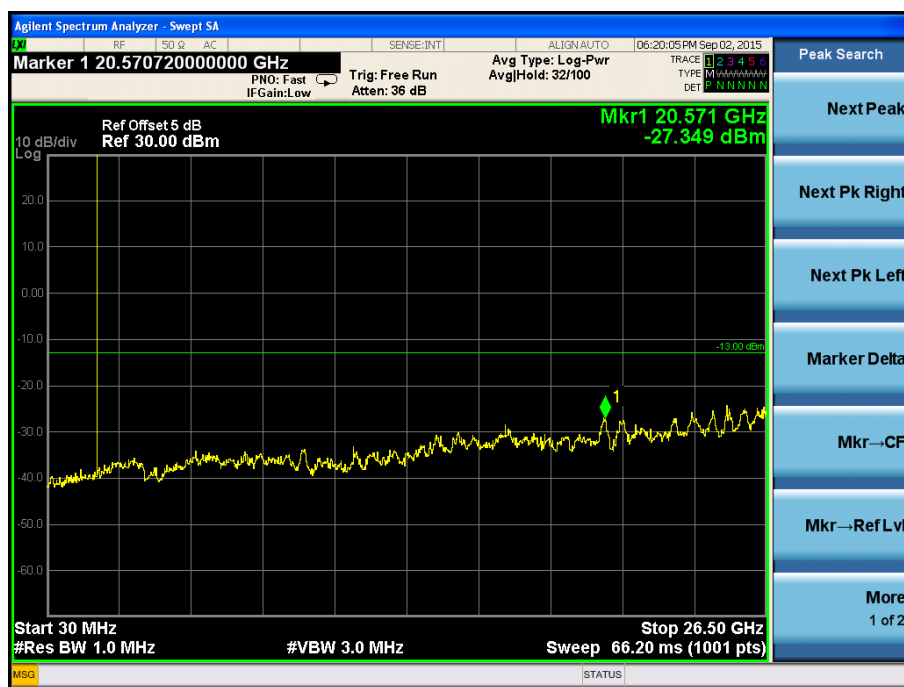
BST17066918A0001Y-ER-2



GPRS Low Channel



GPRS Middle Channel



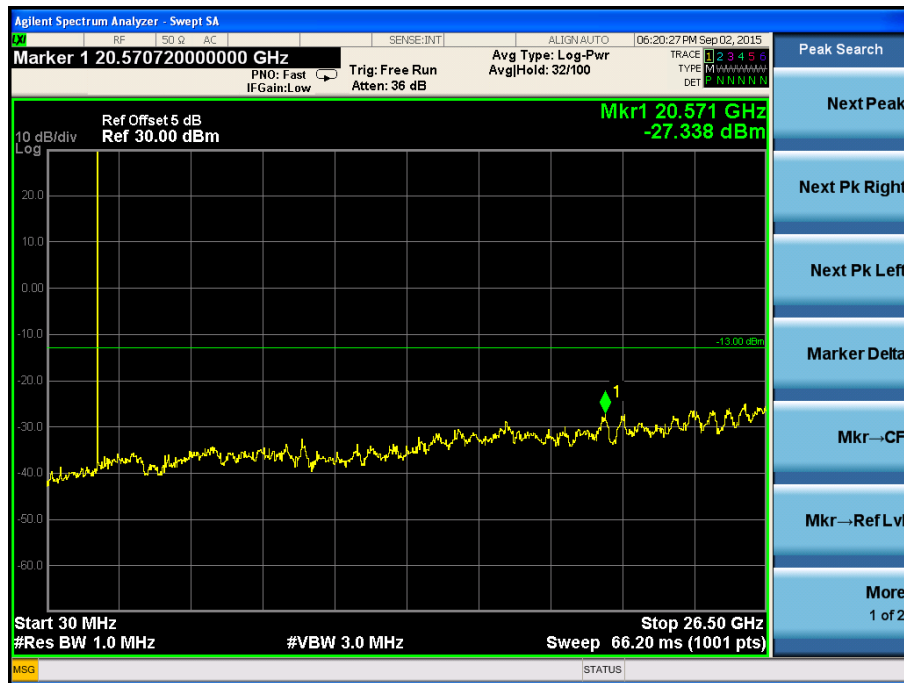


Shenzhen BST Technology Co., Ltd.

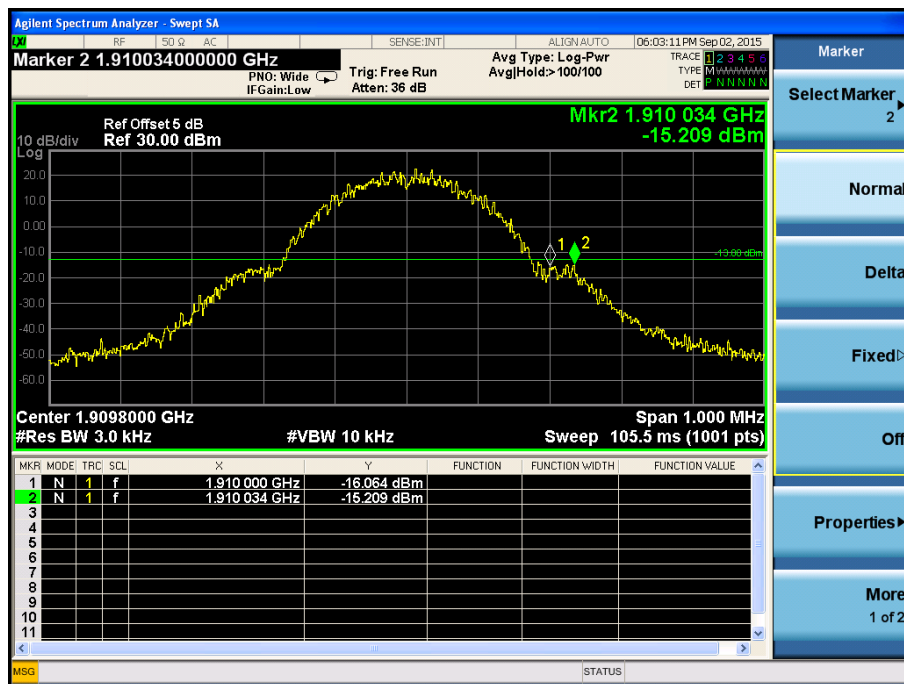
BST17066918A0001Y-ER-2



GPRS High Channel



GPRS Low Band Emission



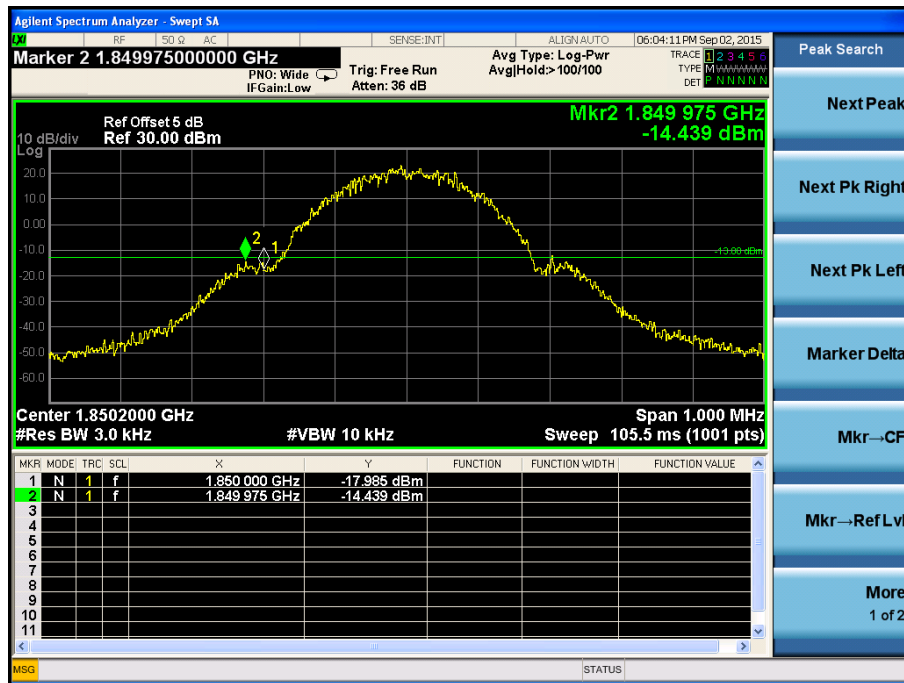


Shenzhen BST Technology Co., Ltd.

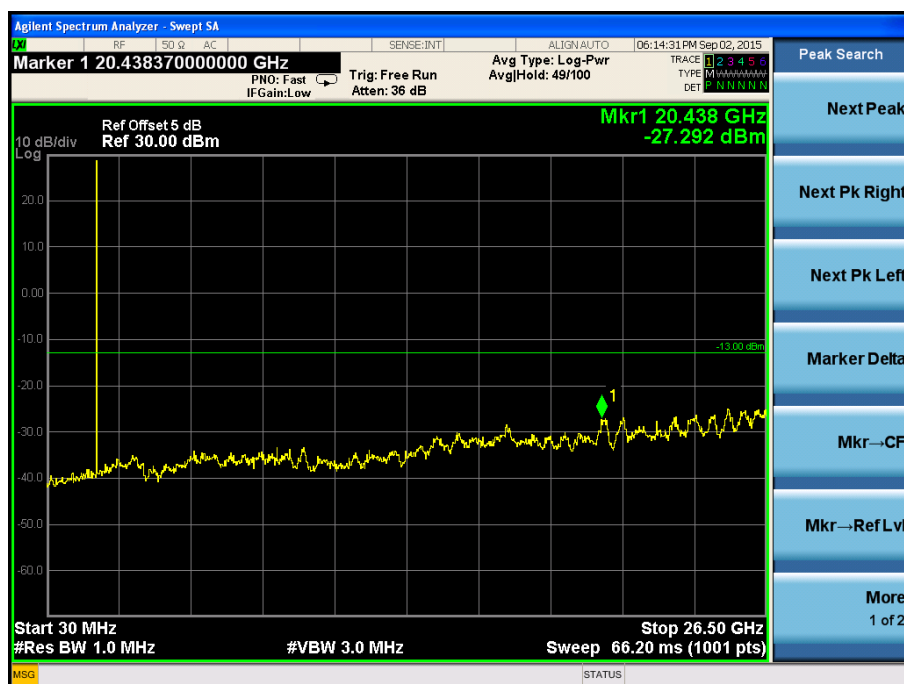
BST17066918A0001Y-ER-2



GPRS High Band Emission



EDGE Low Channel



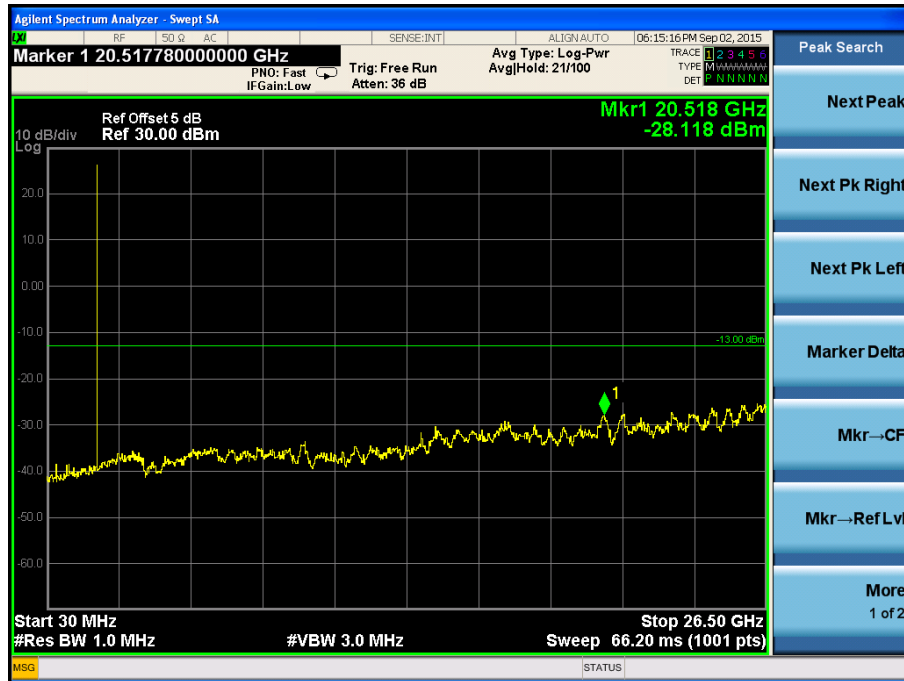


Shenzhen BST Technology Co., Ltd.

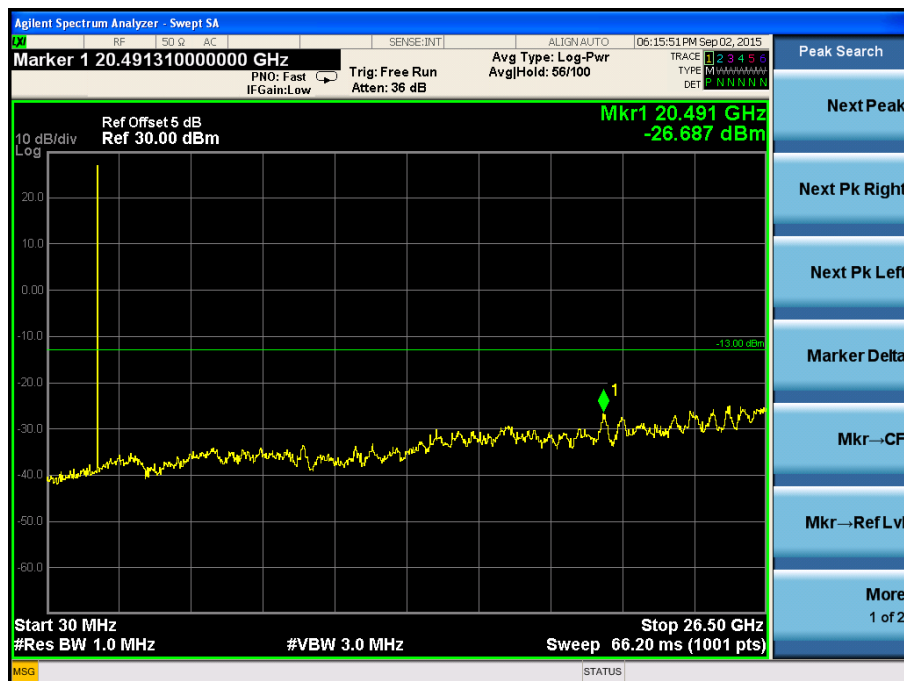
BST17066918A0001Y-ER-2



EDGE Middle Channel



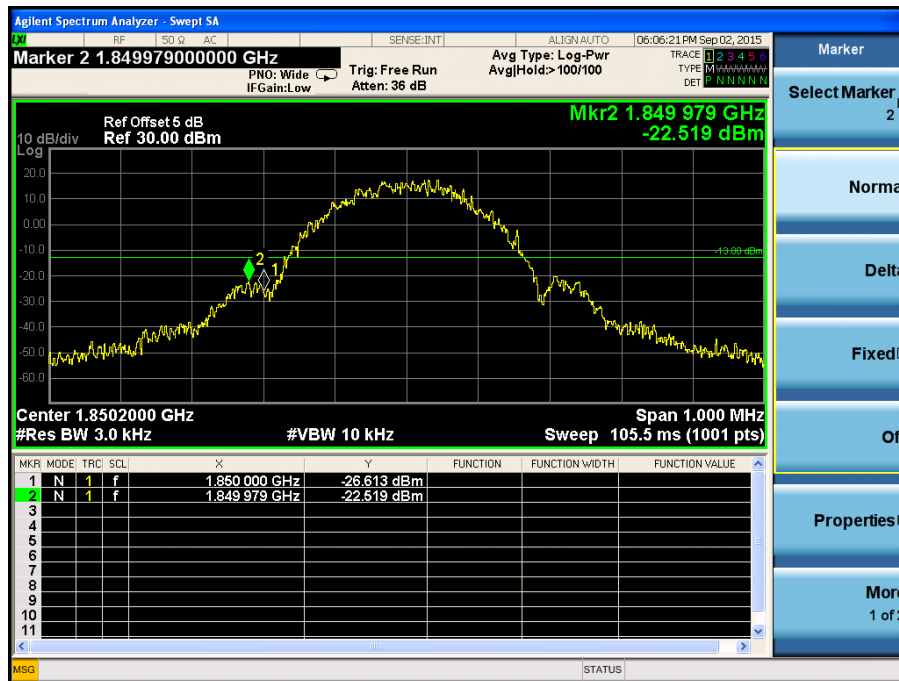
EDGE High Channel



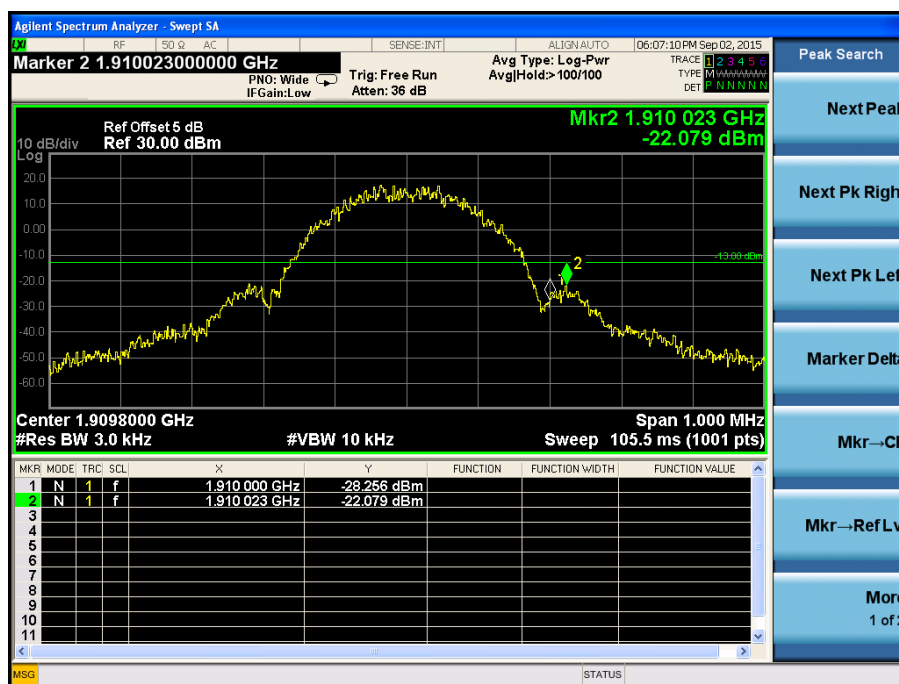




EDGE Low Band Emission



EDGE High Band Emission



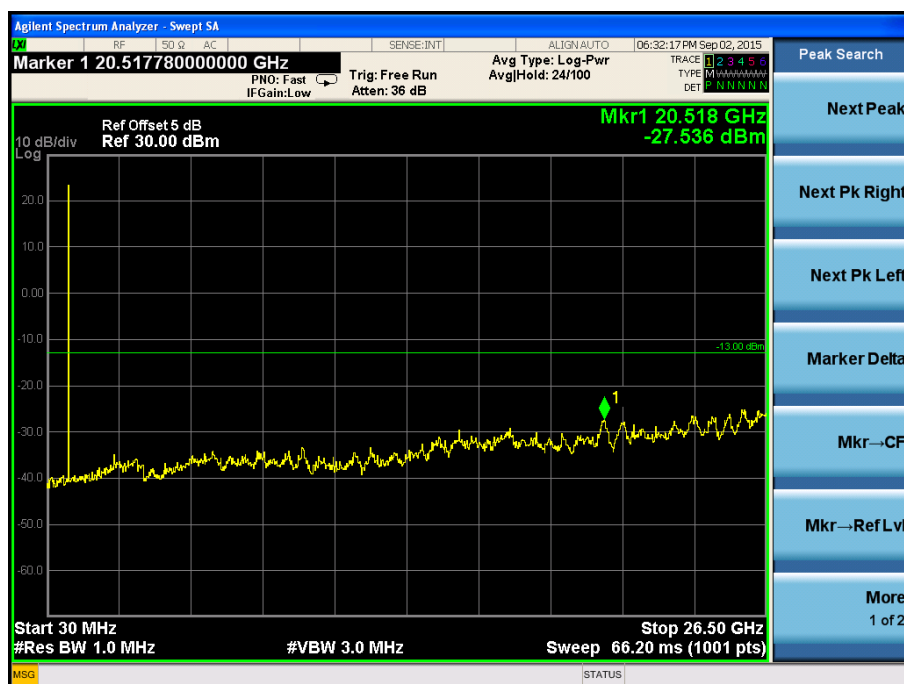


For Band V

WCDMA Low Channel

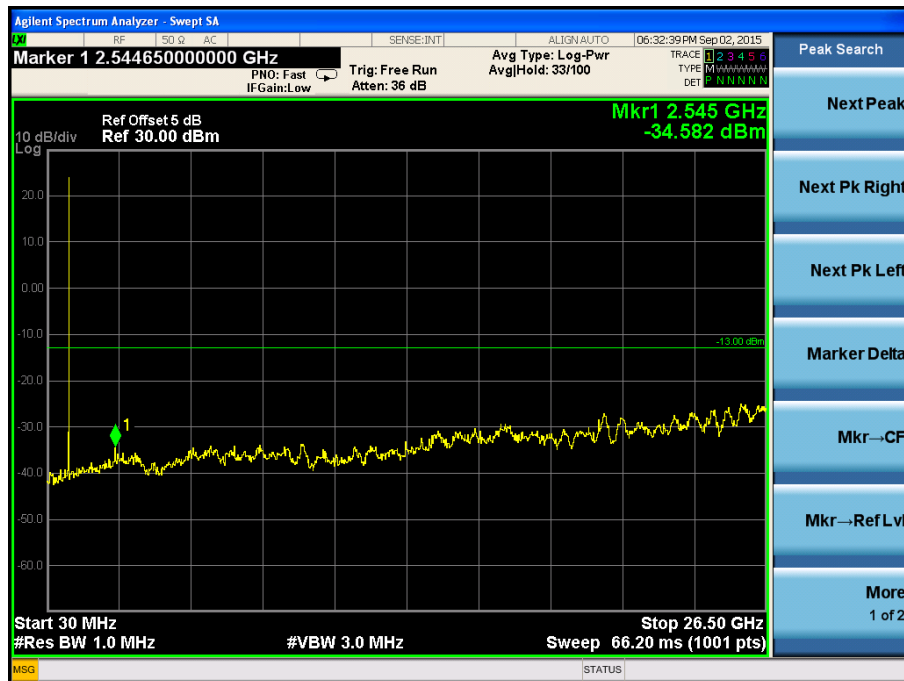


WCDMA Middle Channel

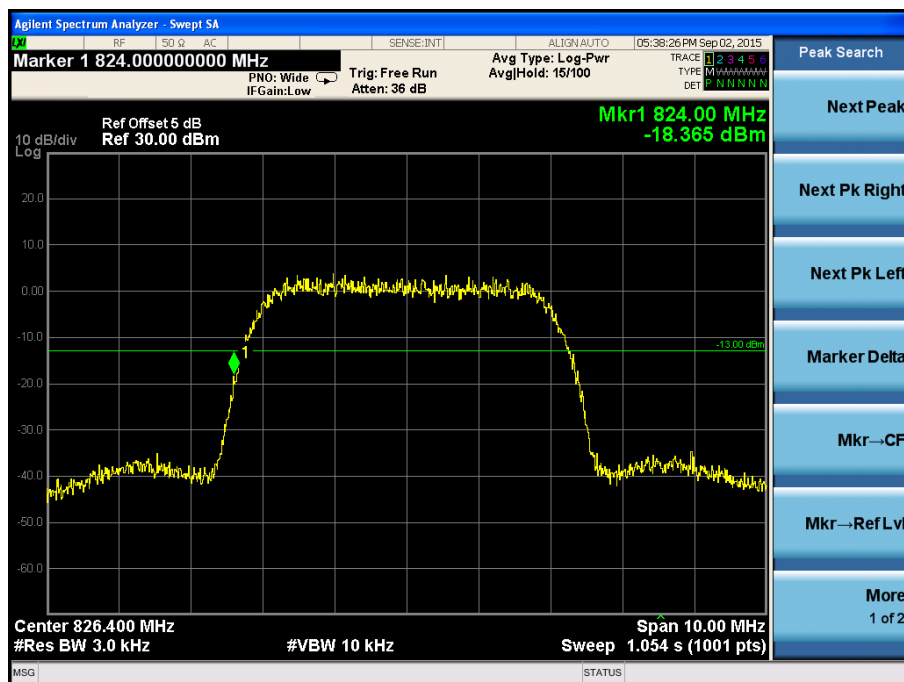




WCDMA High Channel

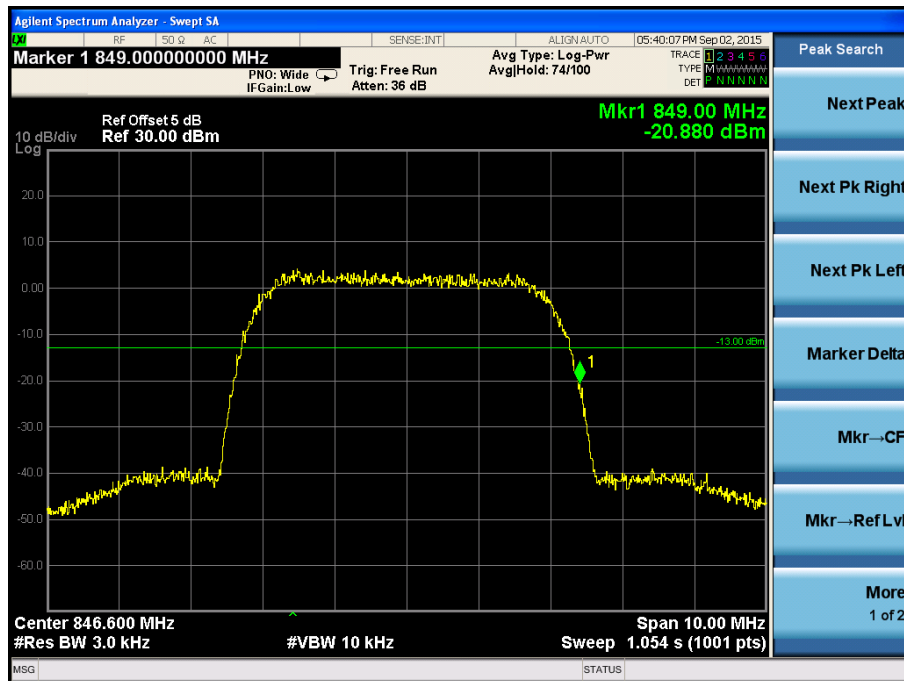


WCDMA Low Band Spurious Emission

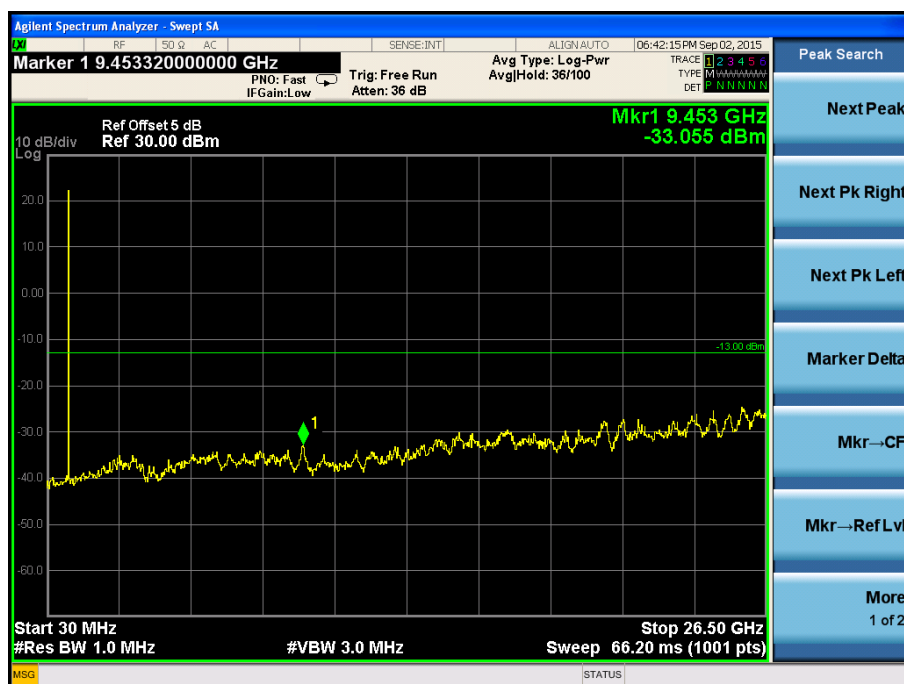




WCDMA High Band Spurious Emission

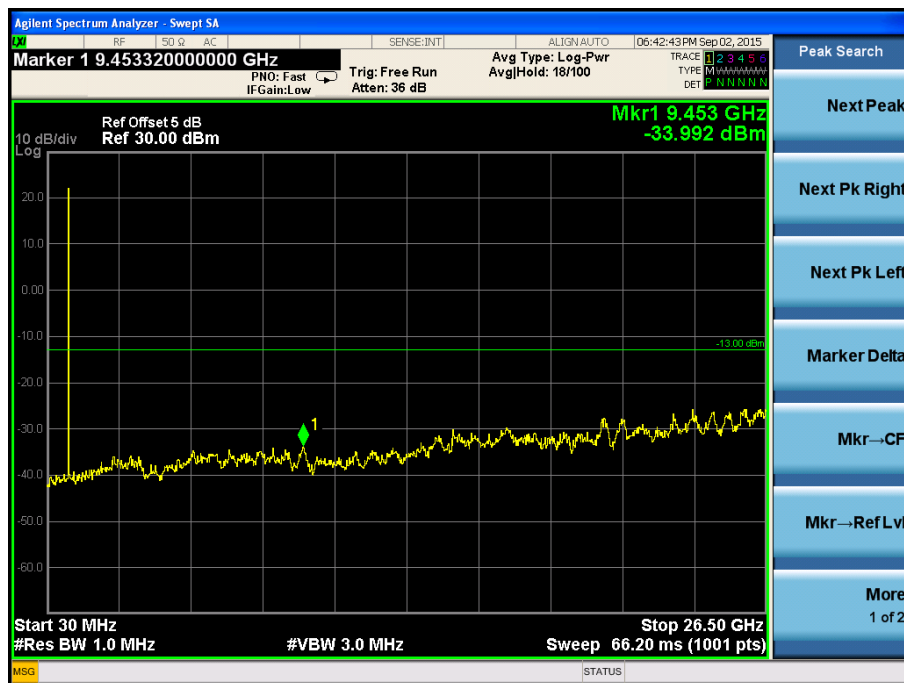


HSDPA Low Channel

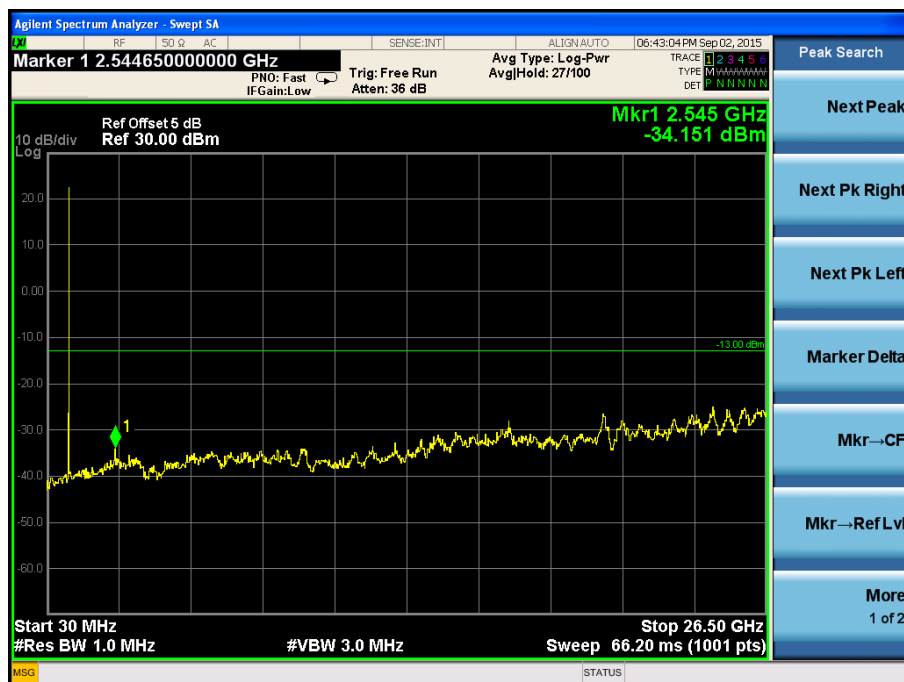




HSDPA Middle Channel

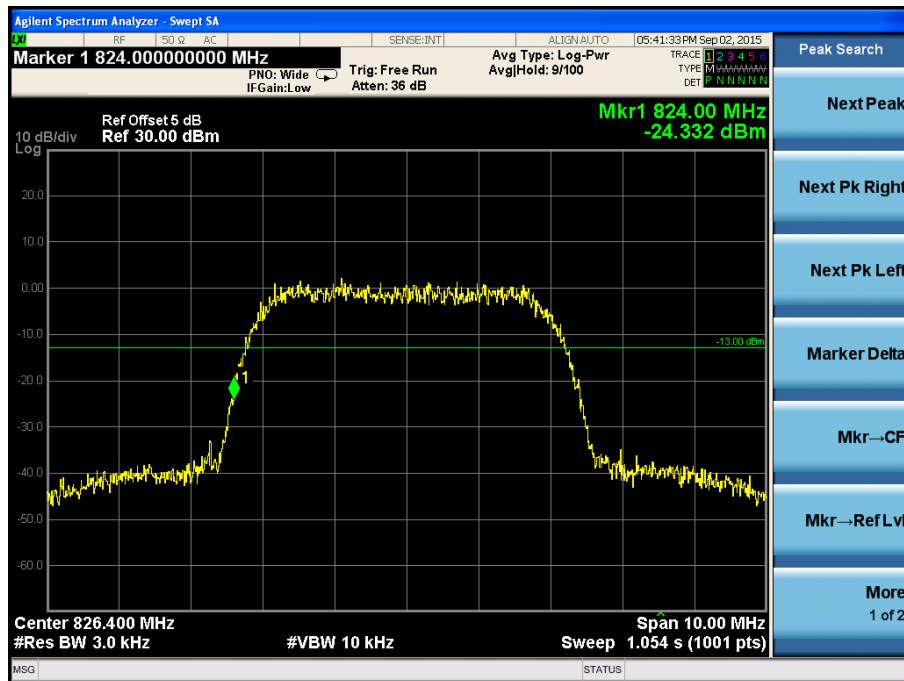


HSDPA High Channel

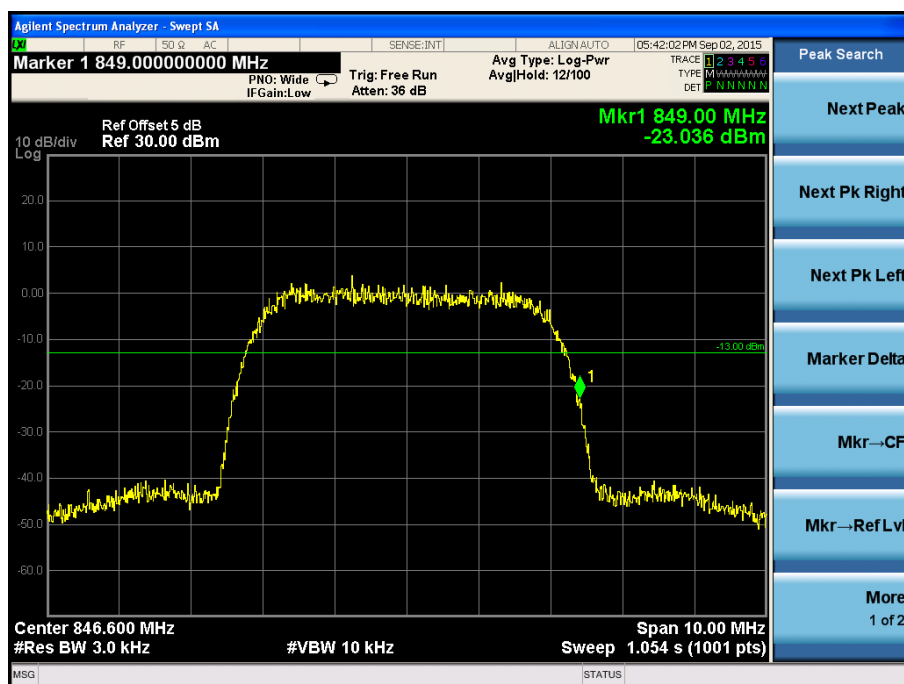




HSDPA Low Band Spurious Emission



HSDPA High Band Spurious Emission

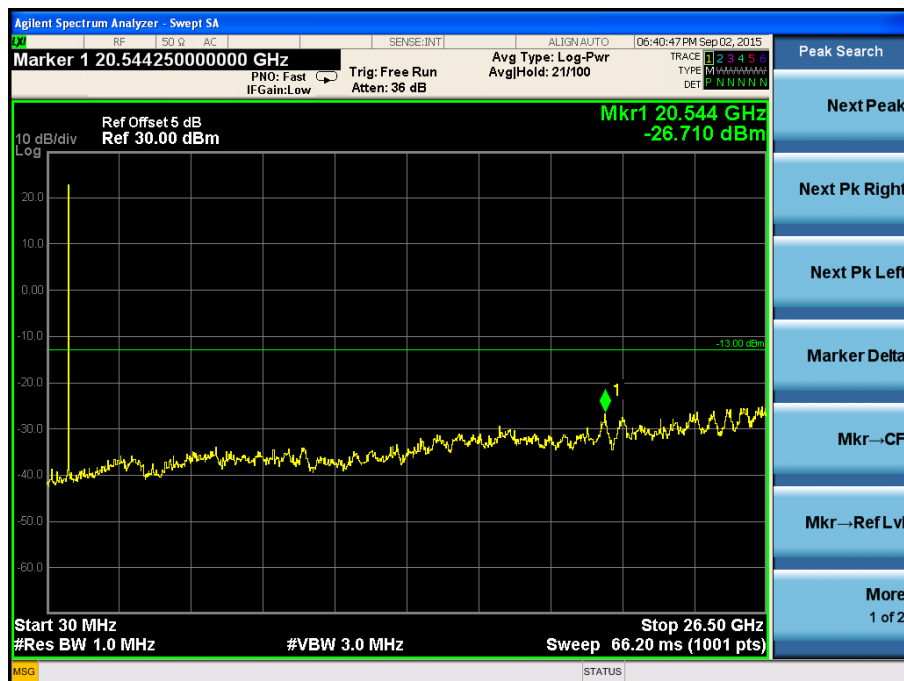




HSUPA Low Channel

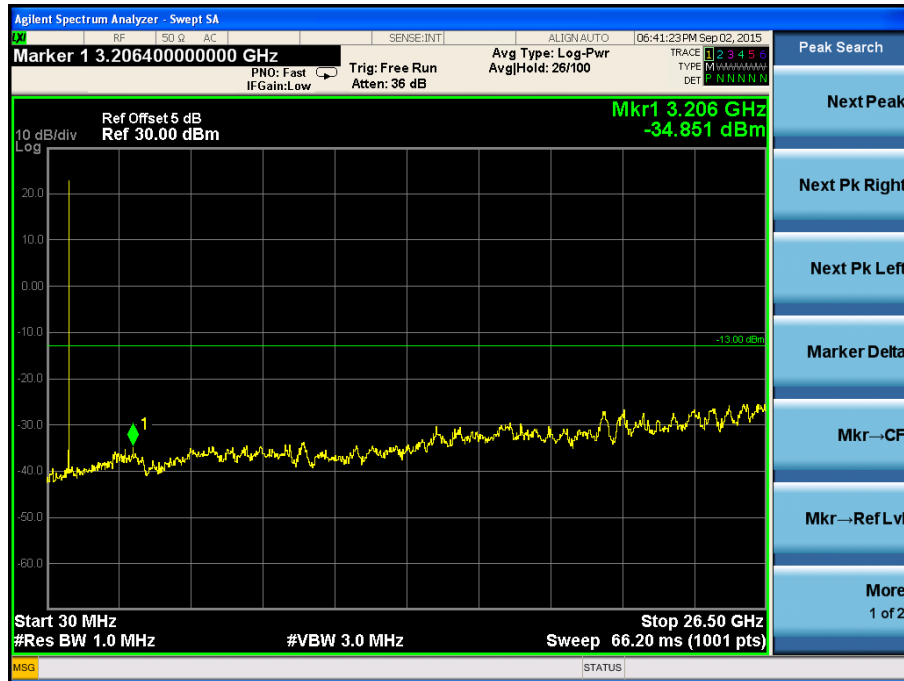


HSUPA Middle Channel

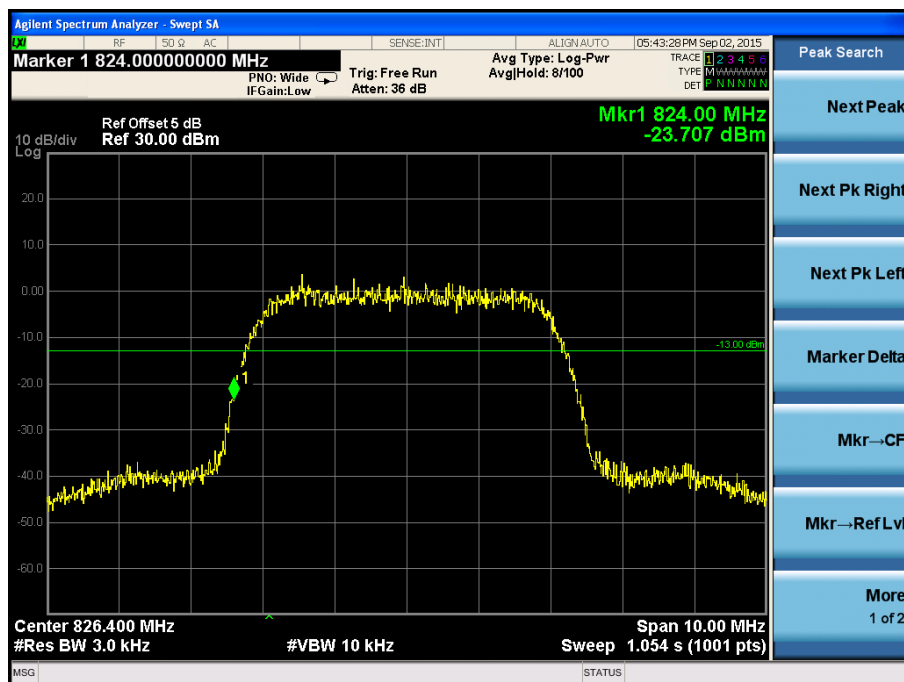




HSUPA High Channel

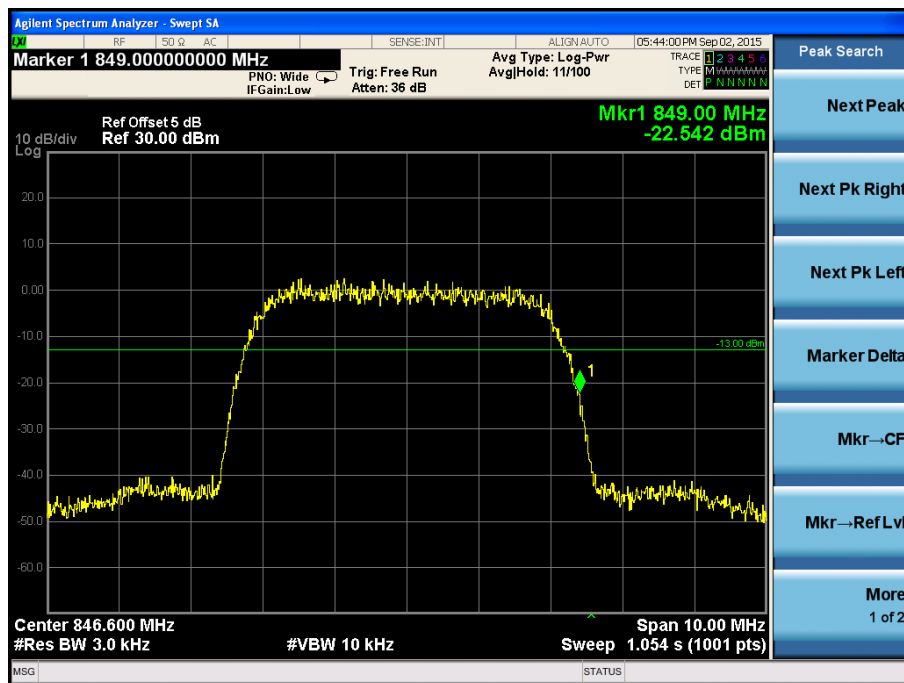


HSUPA Low Band Spurious Emission



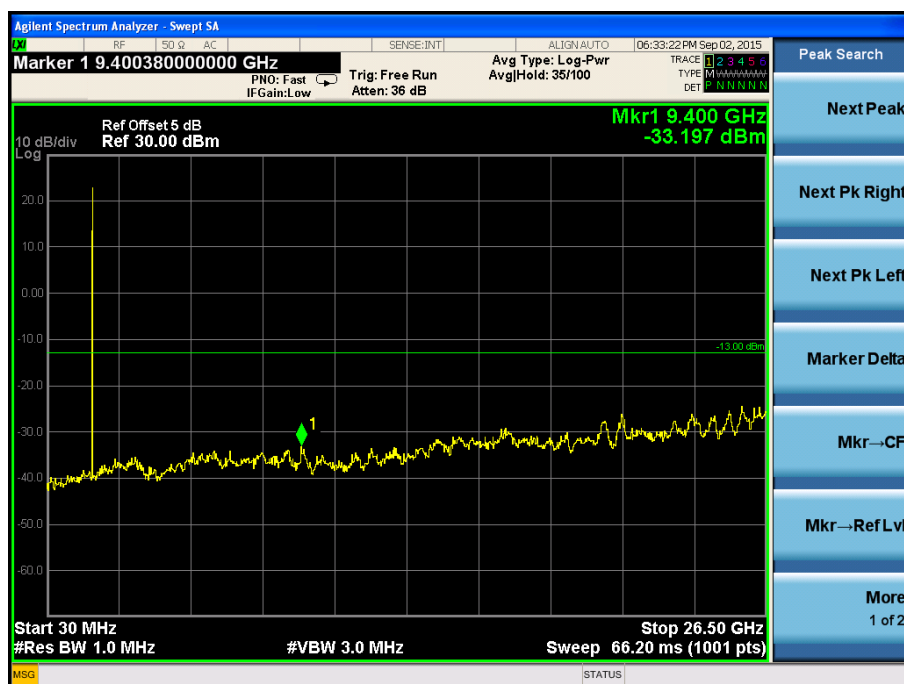


HSUPA High Band Spurious Emission



For Band IV

WCDMA Low Channel



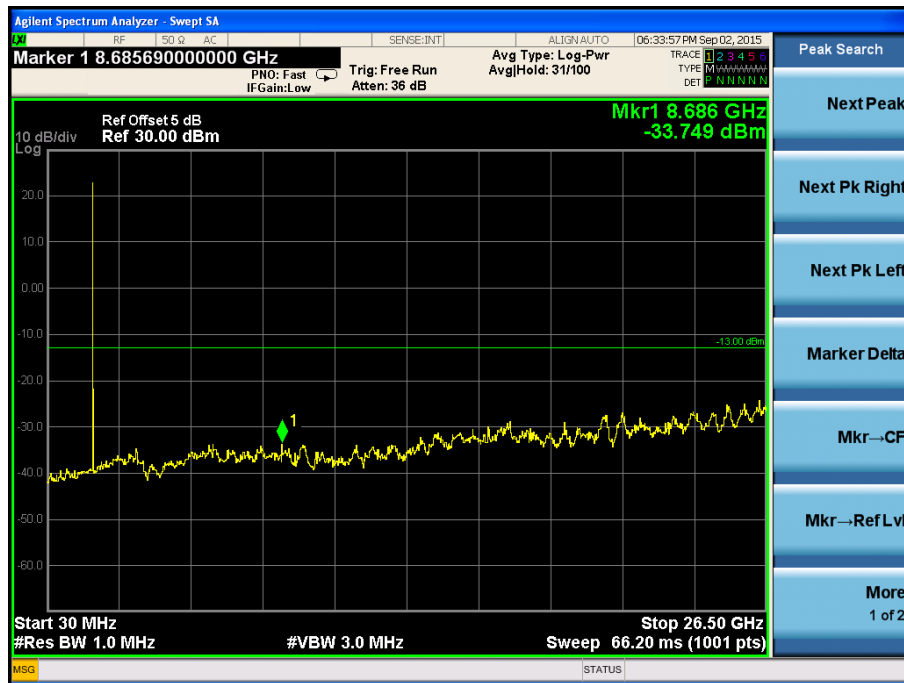


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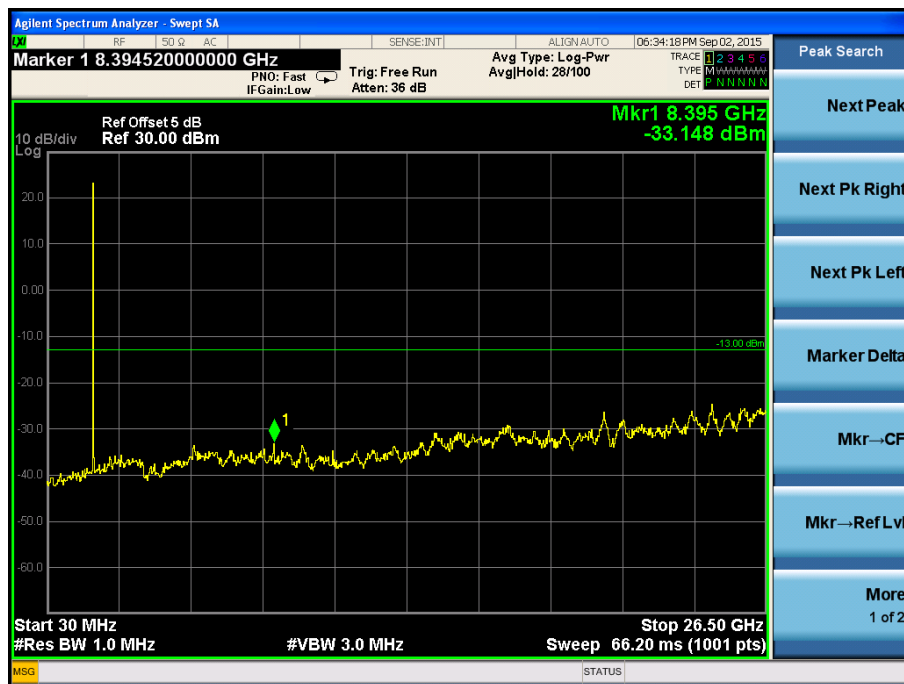
BST17066918A0001Y-ER-2



WCDMA Middle Channel

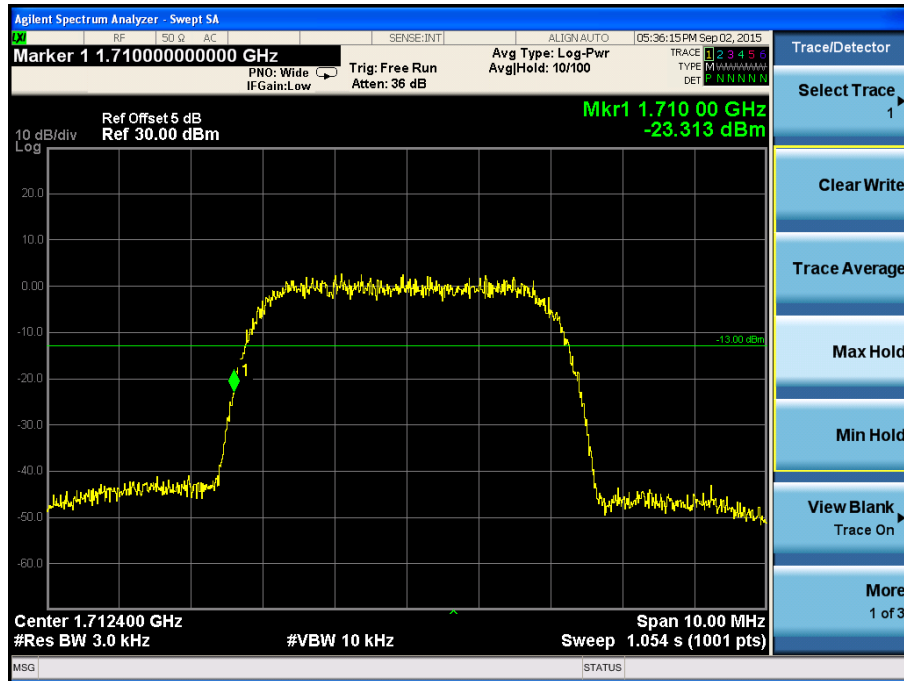


WCDMA High Channel

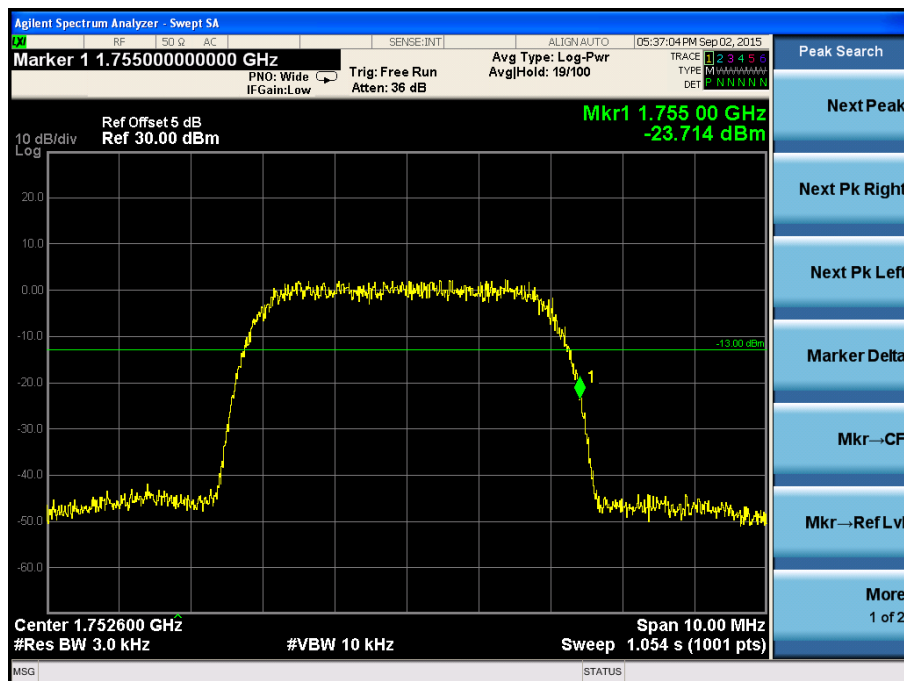




WCDMA Low Band Spurious Emission

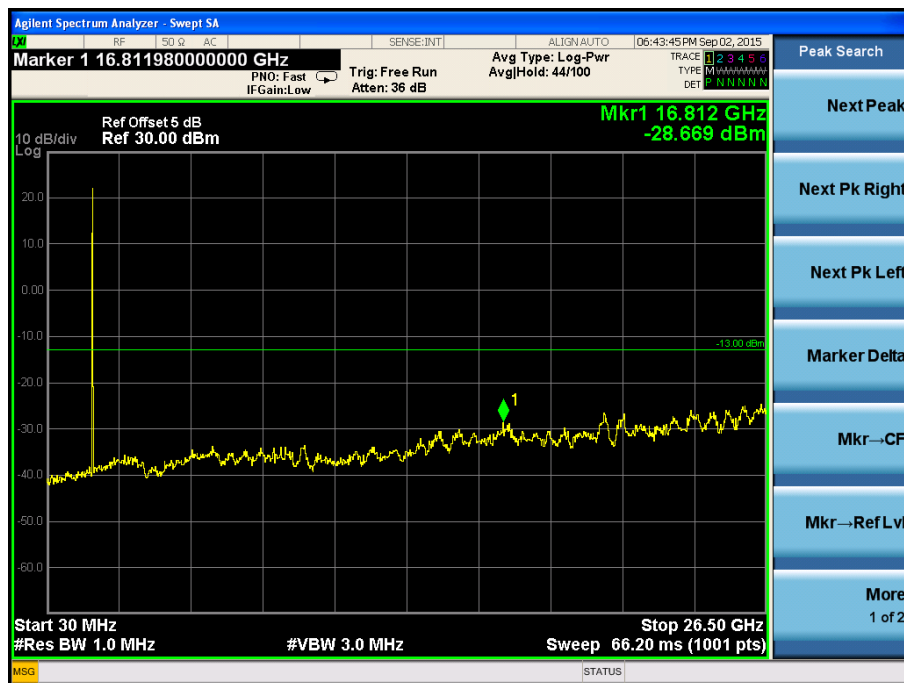


WCDMA High Band Spurious Emission

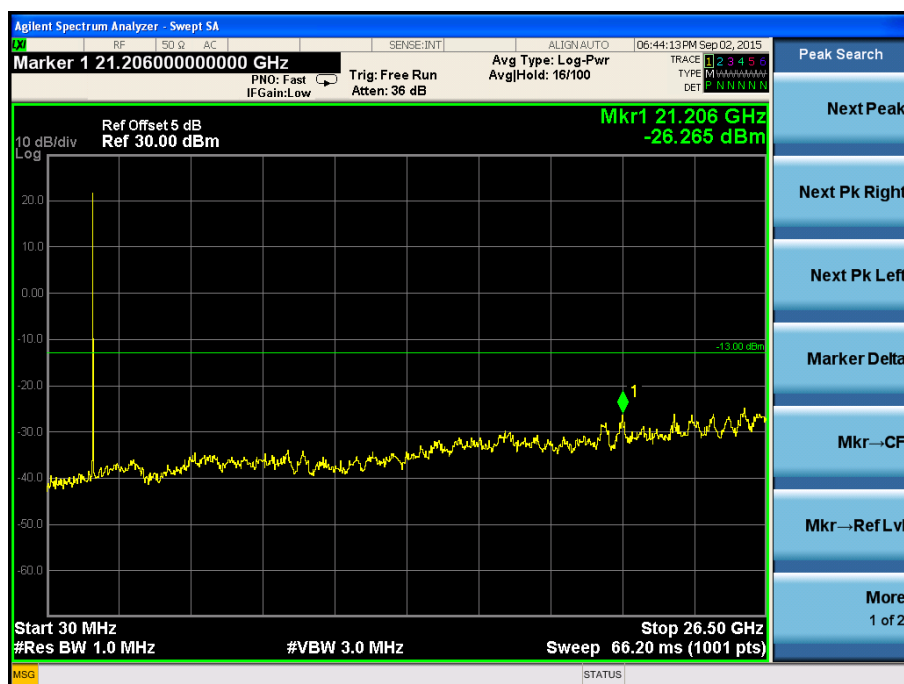




HSDPA Low Channel

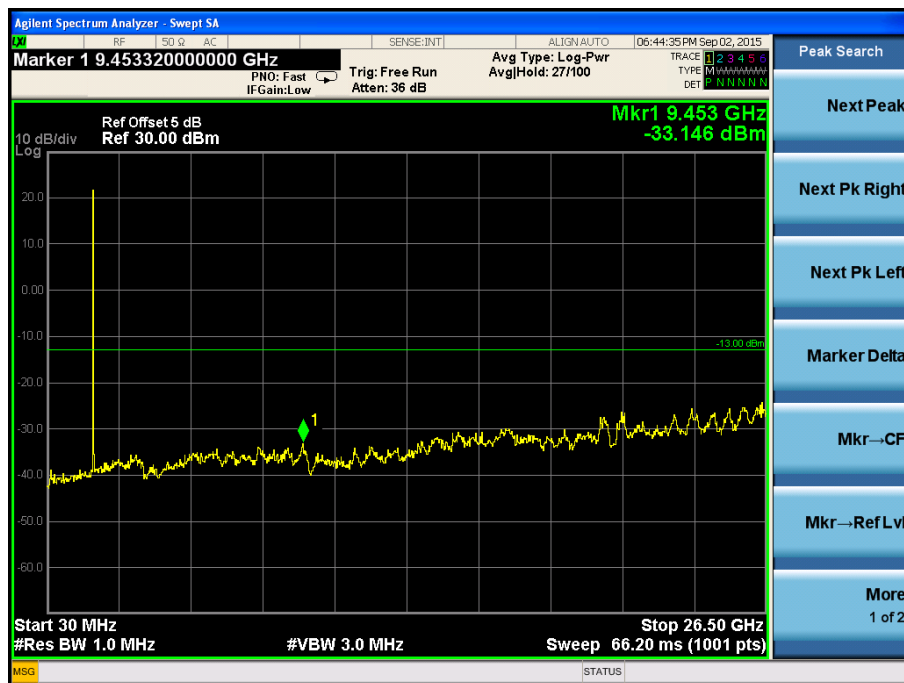


HSDPA Middle Channel

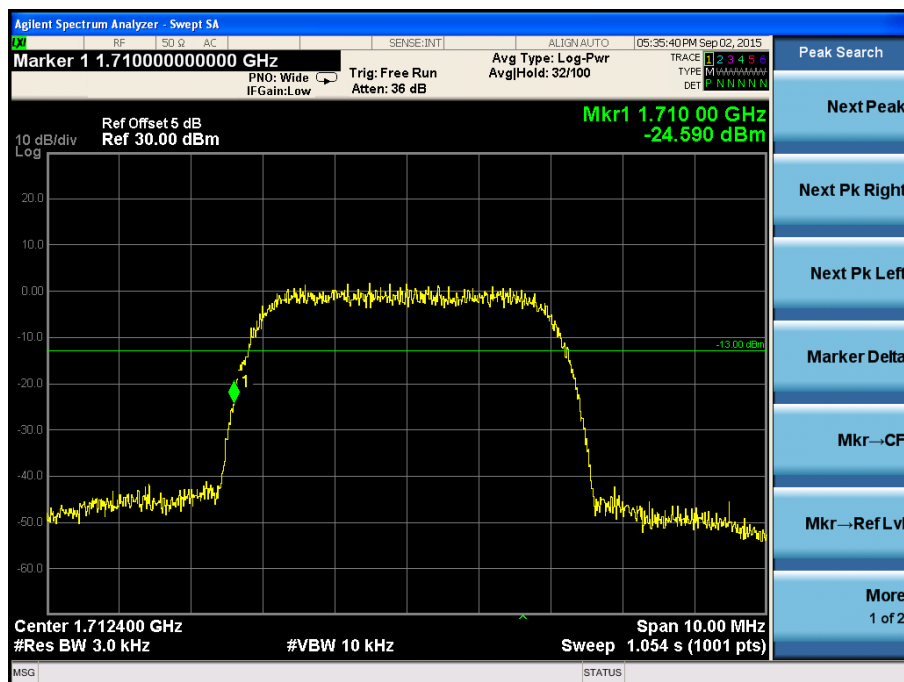




HSDPA High Channel

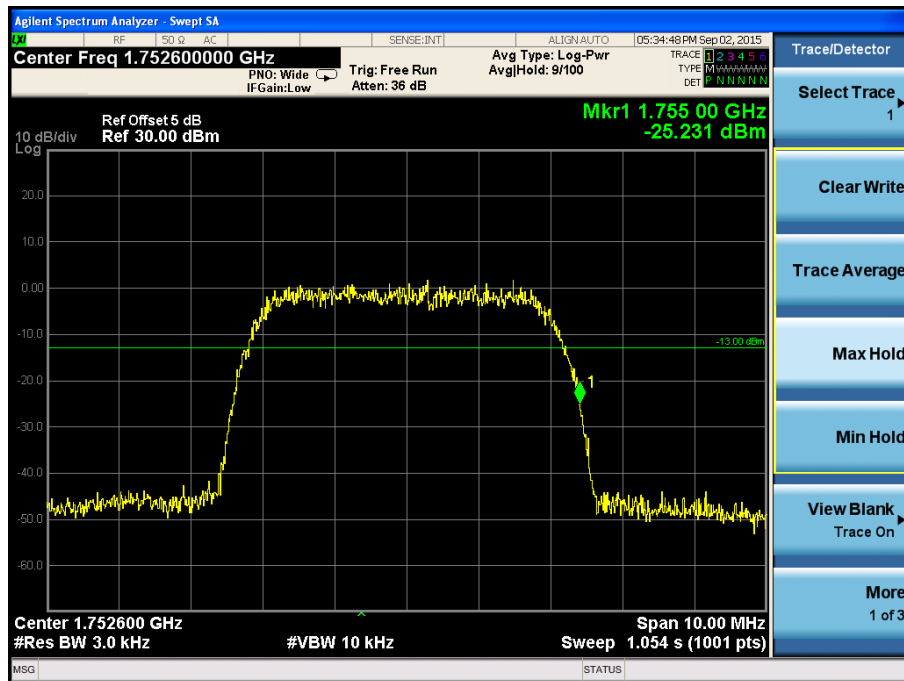


HSDPA Low Band Spurious Emission

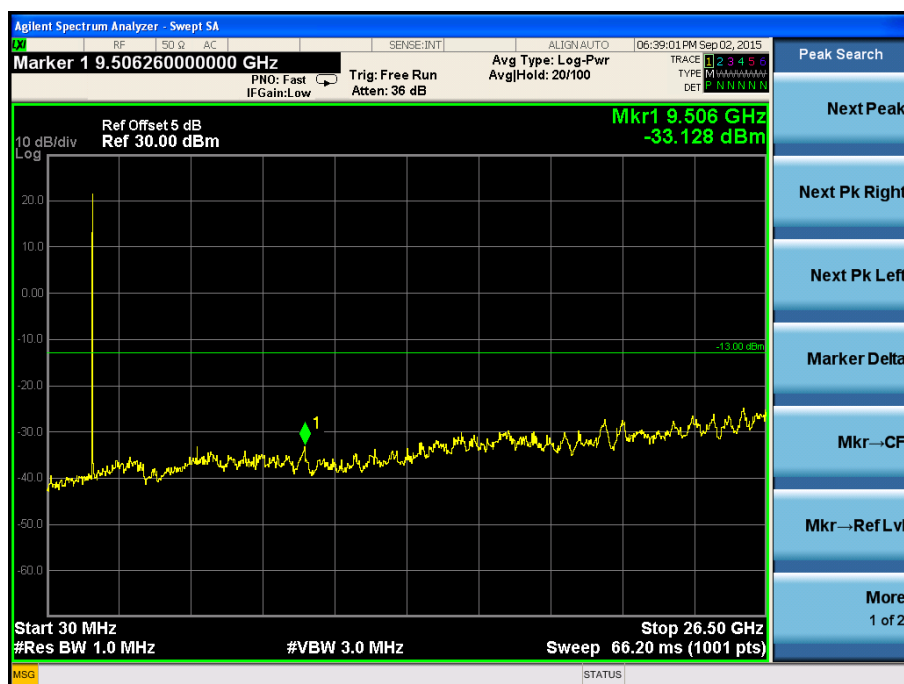




HSDPA High Band Spurious Emission



HSUPA Low Channel



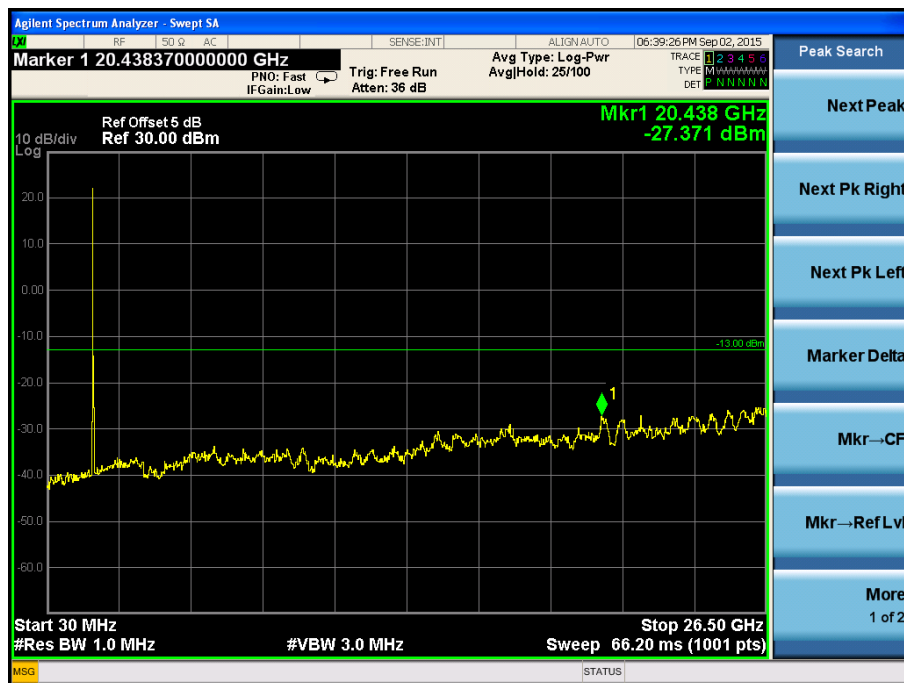


Shenzhen BST Technology Co., Ltd.

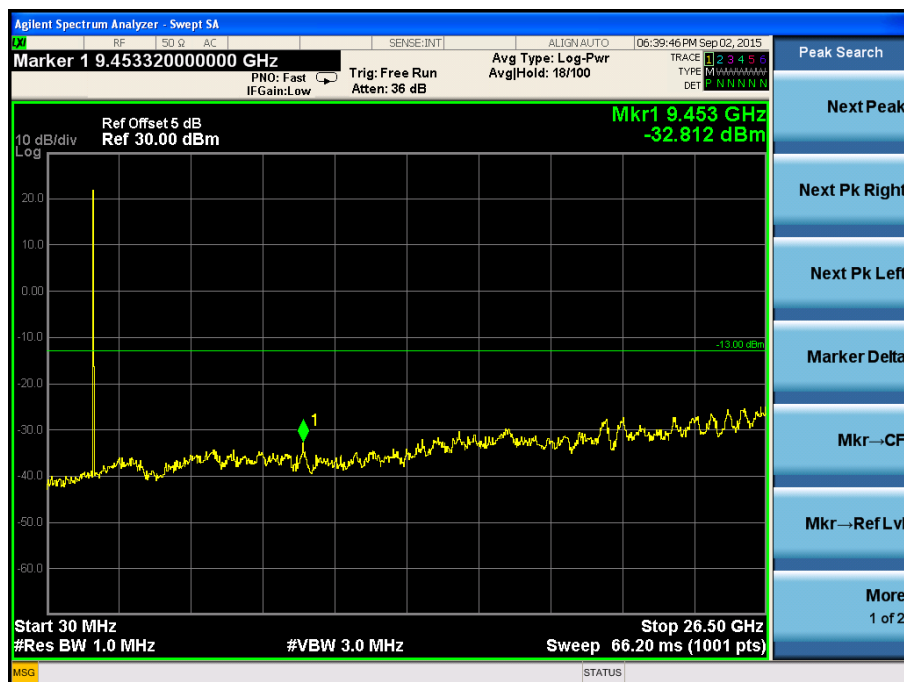
BST17066918A0001Y-ER-2



HSUPA Middle Channel

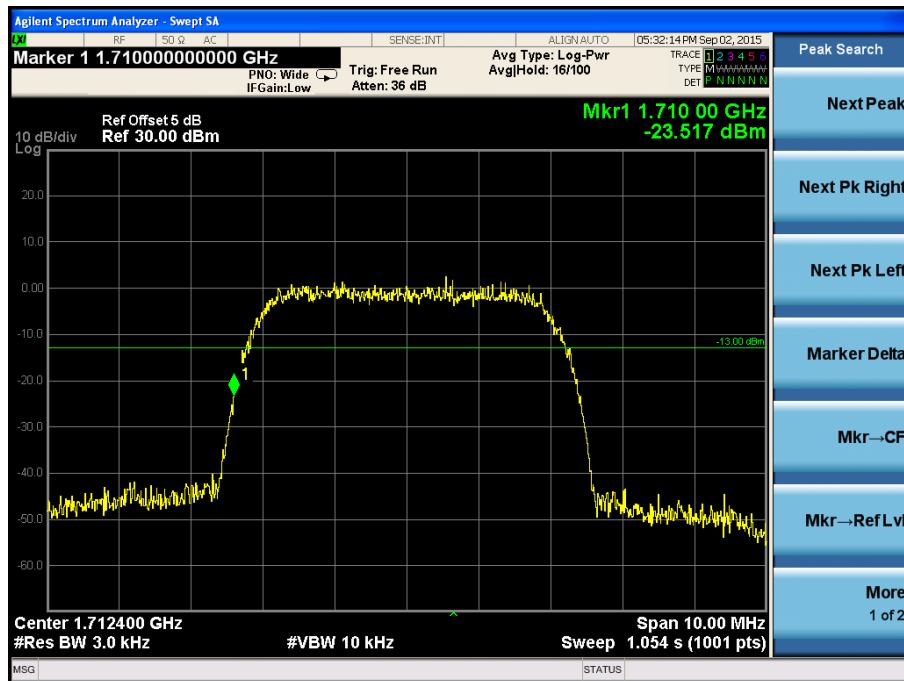


HSUPA High Channel

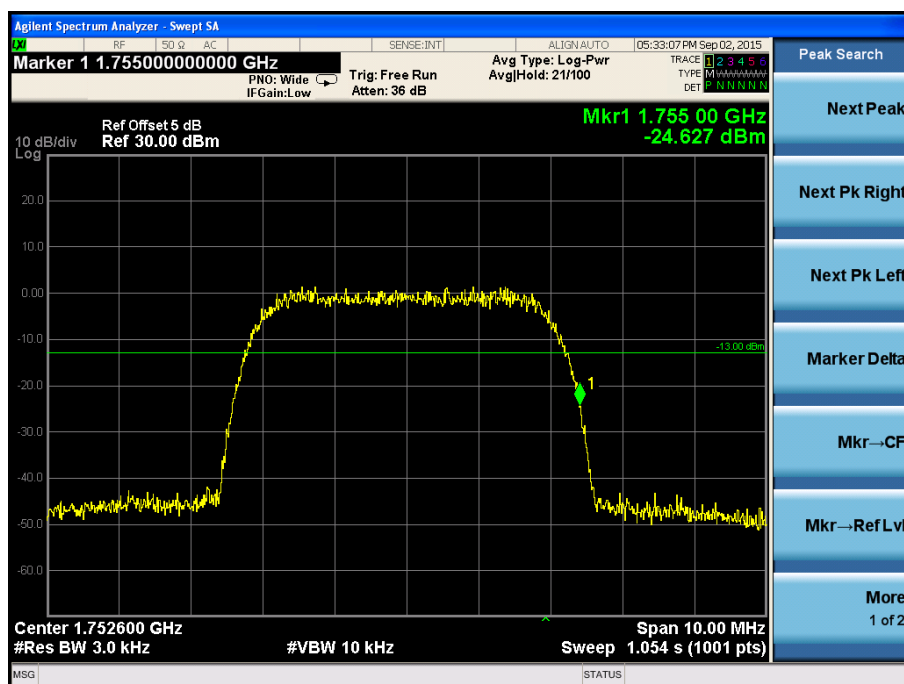




HSUPA Low Band Spurious Emission



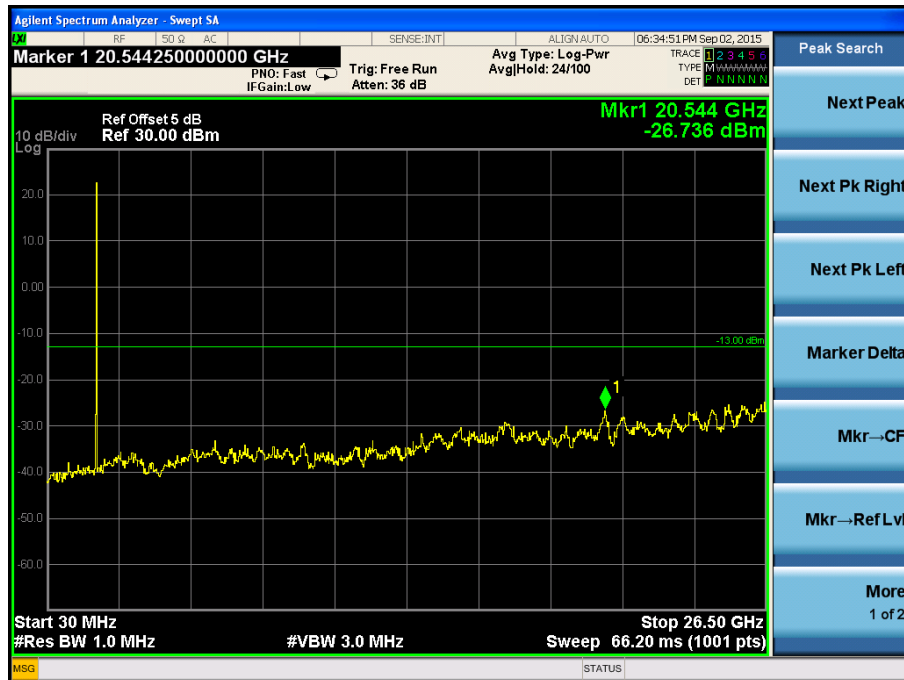
HSUPA High Band Spurious Emission



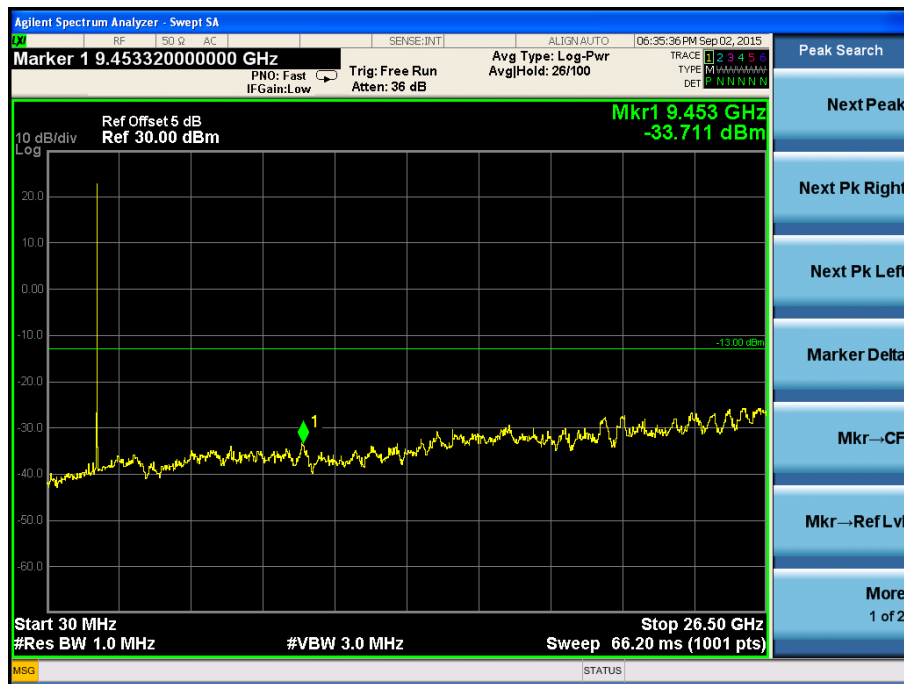


For Band II

WCDMA Low Channel



WCDMA Middle Channel

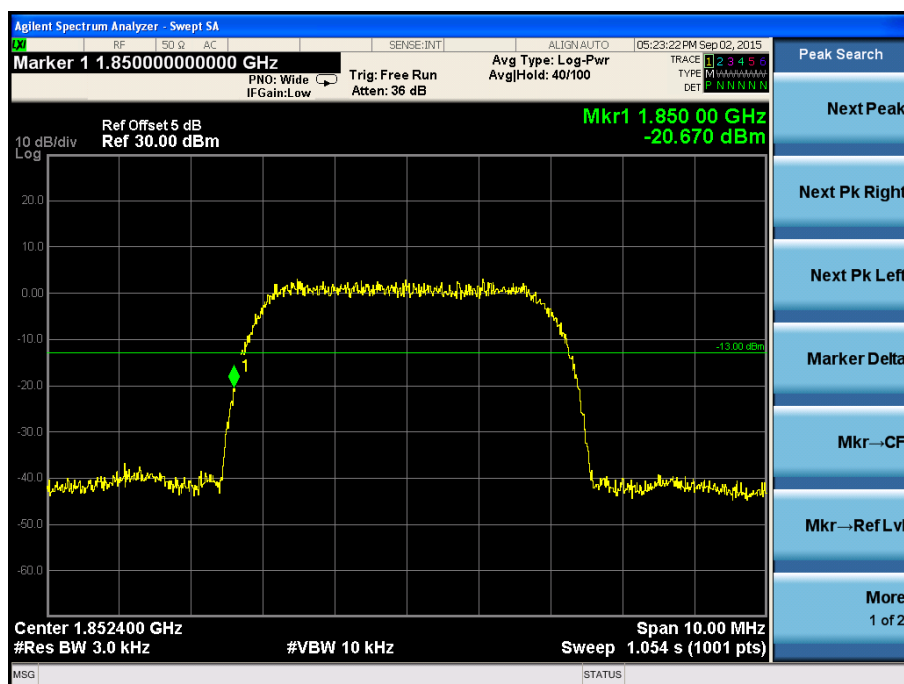




WCDMA High Channel

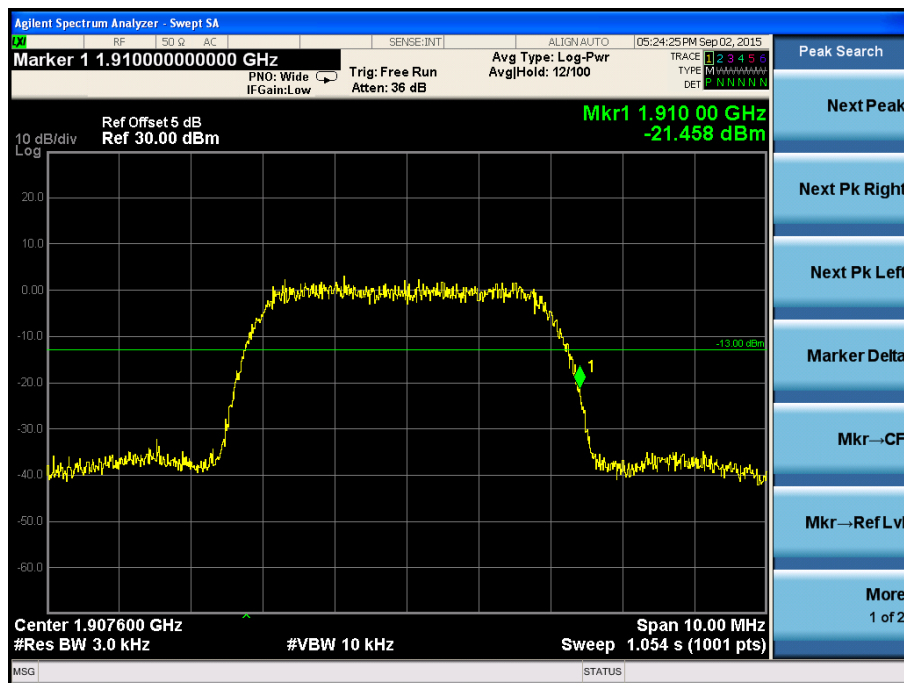


WCDMA Low Band Spurious Emission

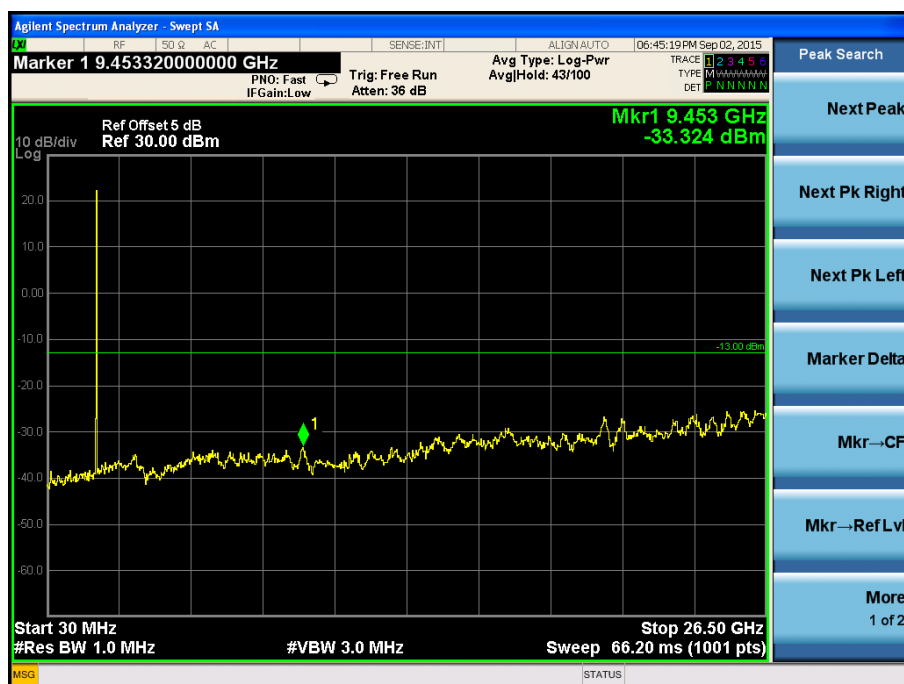




WCDMA High Band Spurious Emission

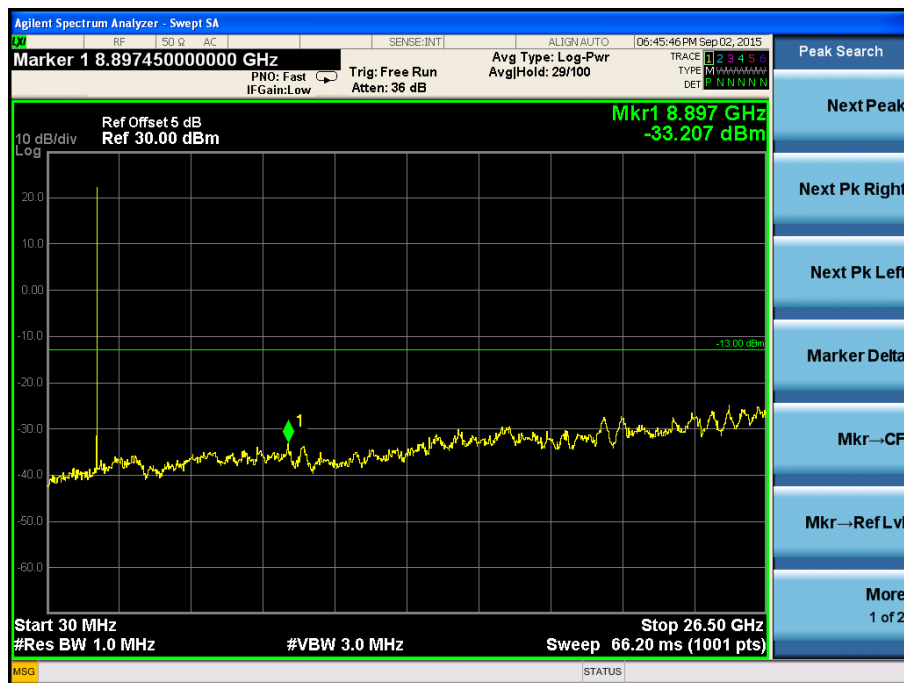


HSDPA Low Channel

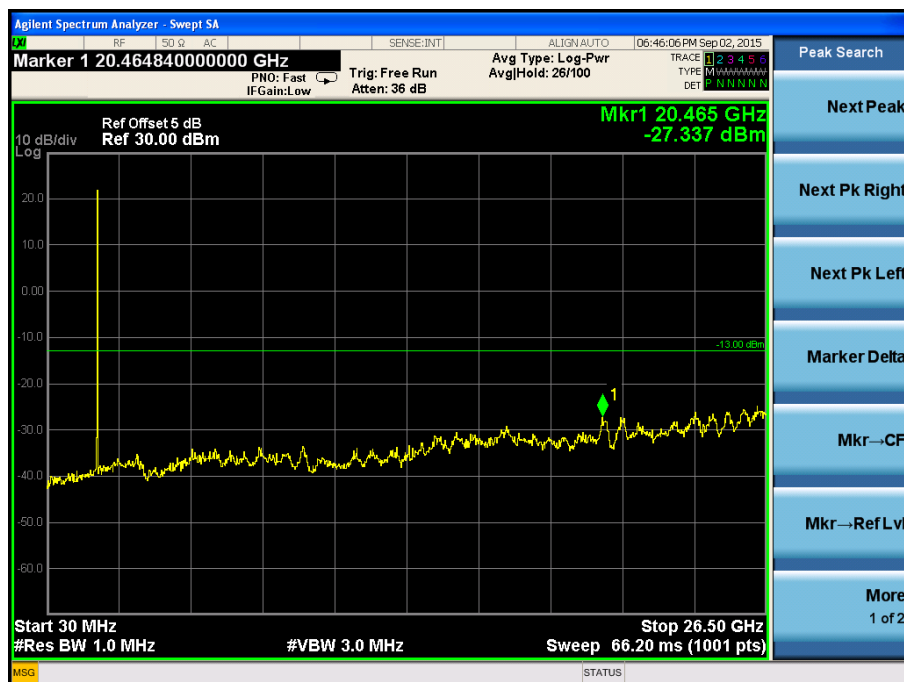




HSDPA Middle Channel

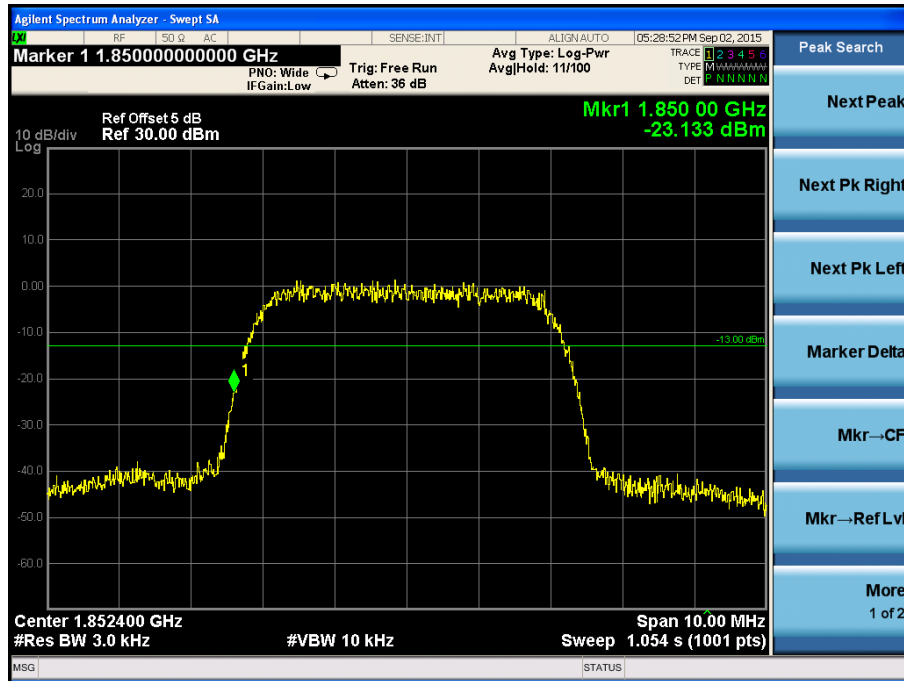


HSDPA High Channel

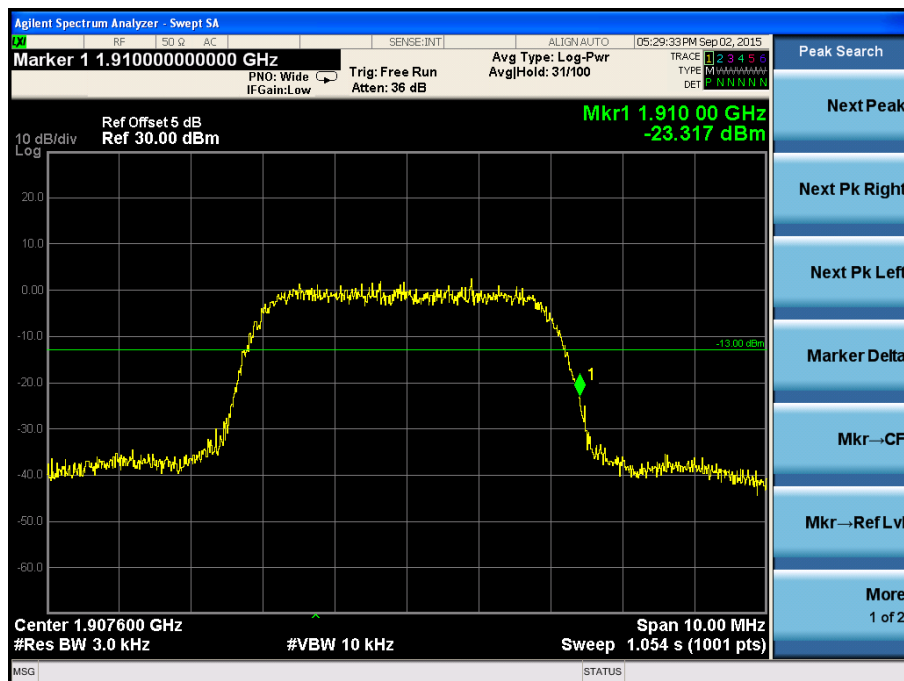




HSDPA Low Band Spurious Emission



HSDPA High Band Spurious Emission

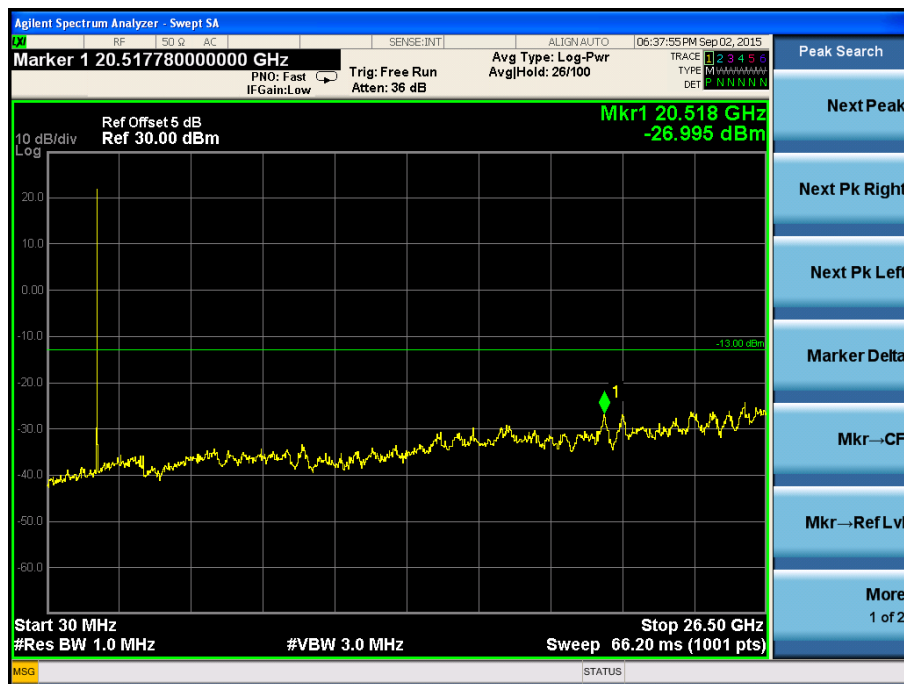




HSUPA Low Channel

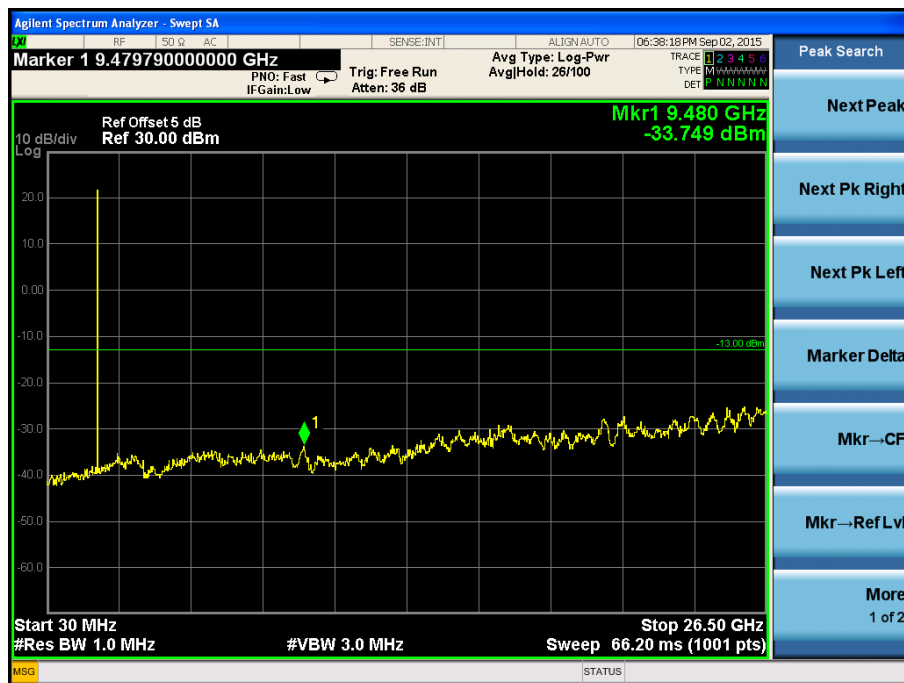


HSUPA Middle Channel

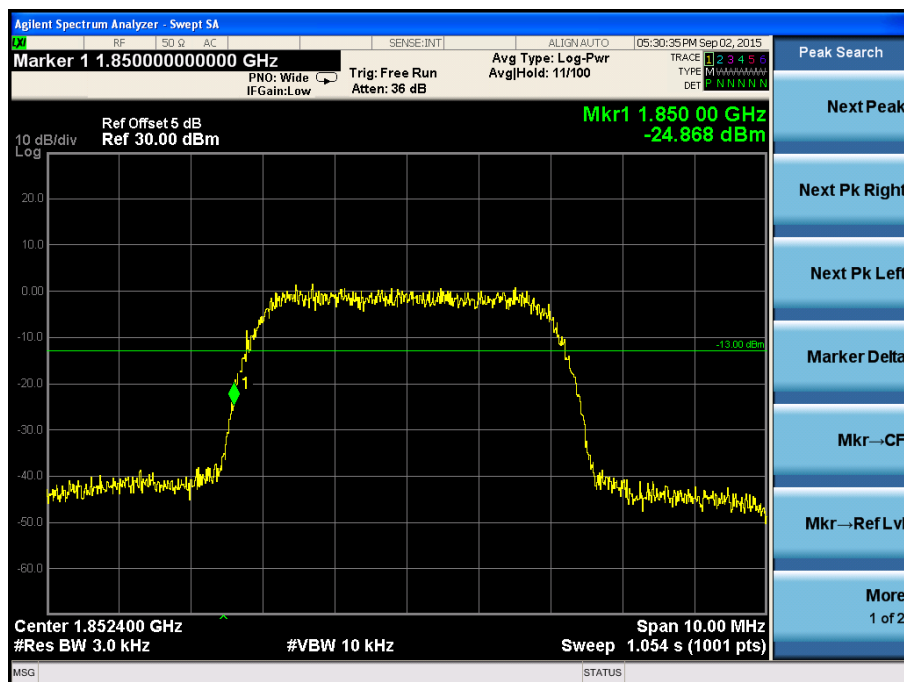




HSUPA High Channel

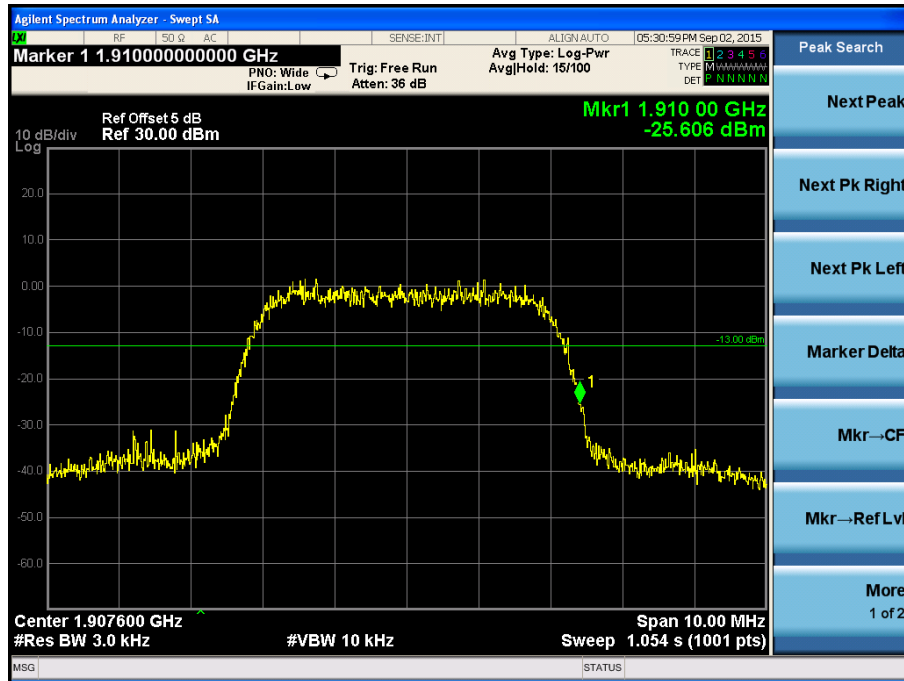


HSUPA Low Band Spurious Emission





HSUPA 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.

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.

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 = $43 + 10 \log_{10}(\text{power out in Watts})$

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:

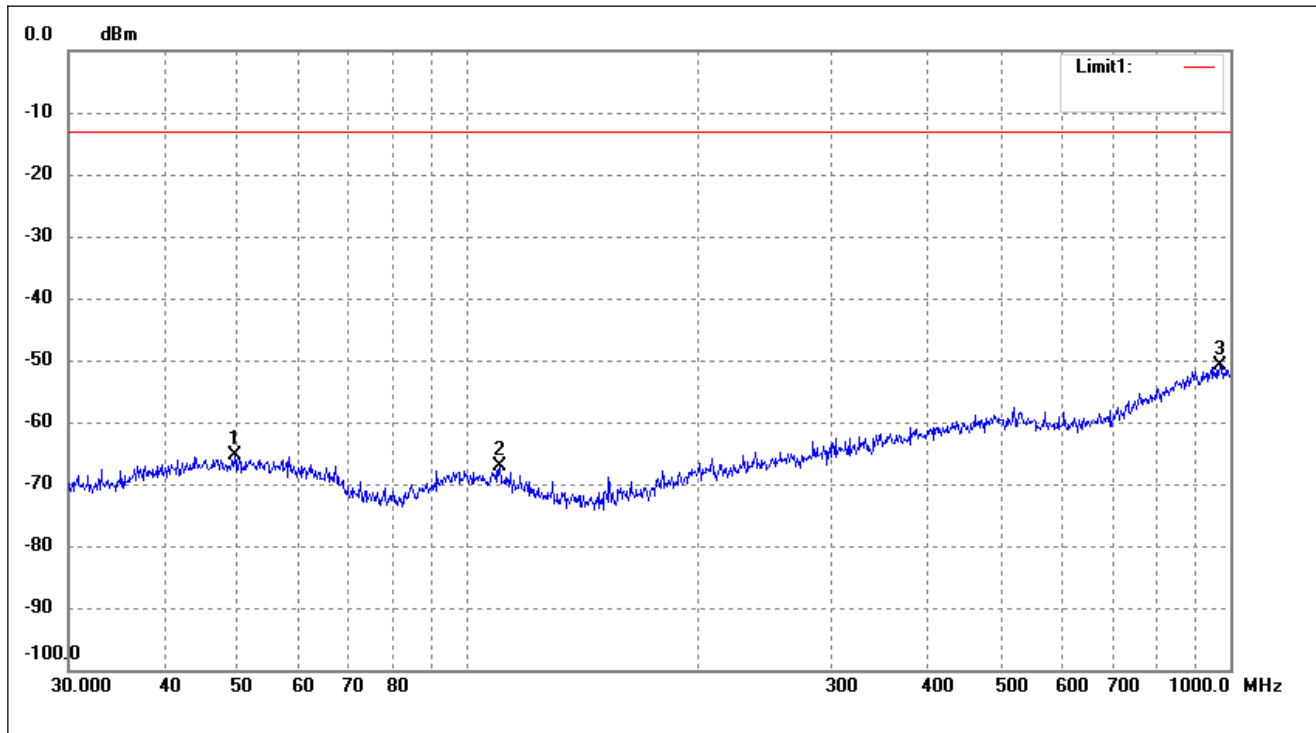
Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.



Spurious Emission From 30MHz to 1GHz

For Cellular Band_ GSM850 Mode

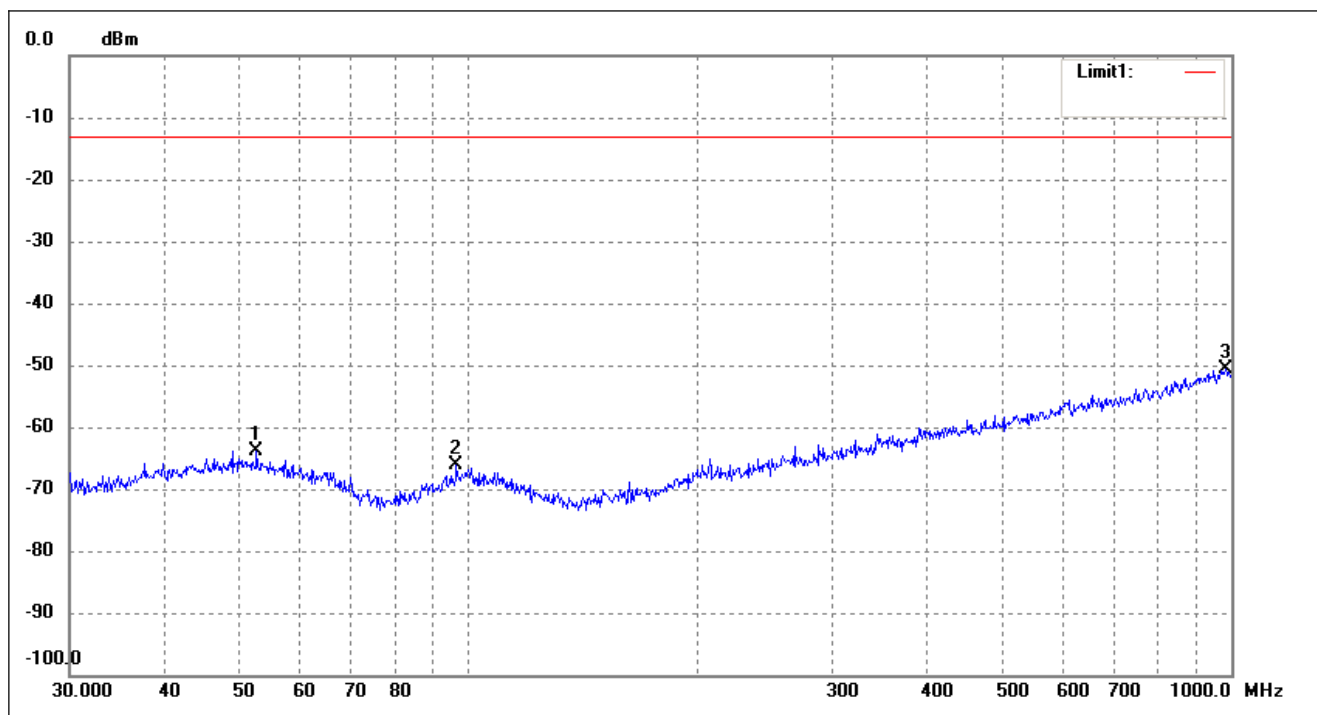
Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	Factor(dB)	(dBm)	(dBm)	(dB)	
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:

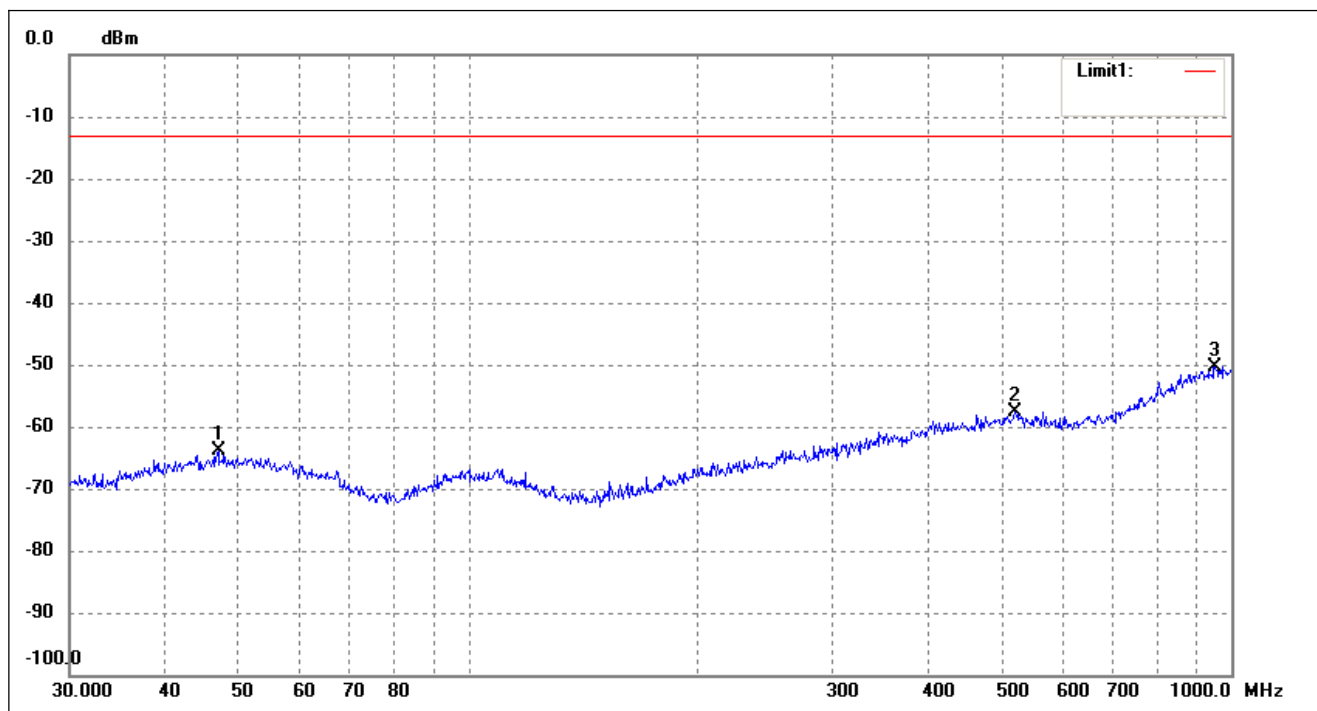


No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	52.7600	-67.91	4.07	-63.84	-13.00	-50.84	ERP
2	96.4362	-67.90	1.81	-66.09	-13.00	-53.09	ERP
3	982.6200	-68.92	18.22	-50.70	-13.00	-37.70	ERP



For Cellular Band_ GSM1900 Mode

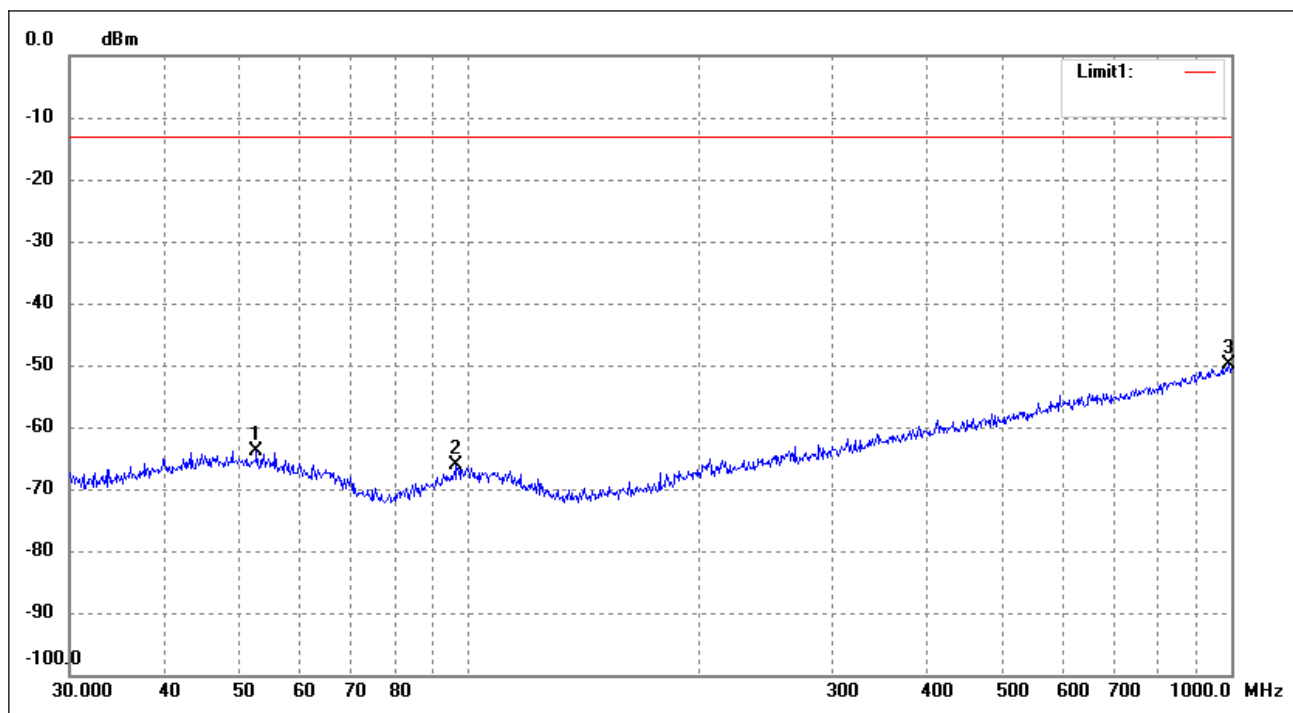
Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct Factor(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:



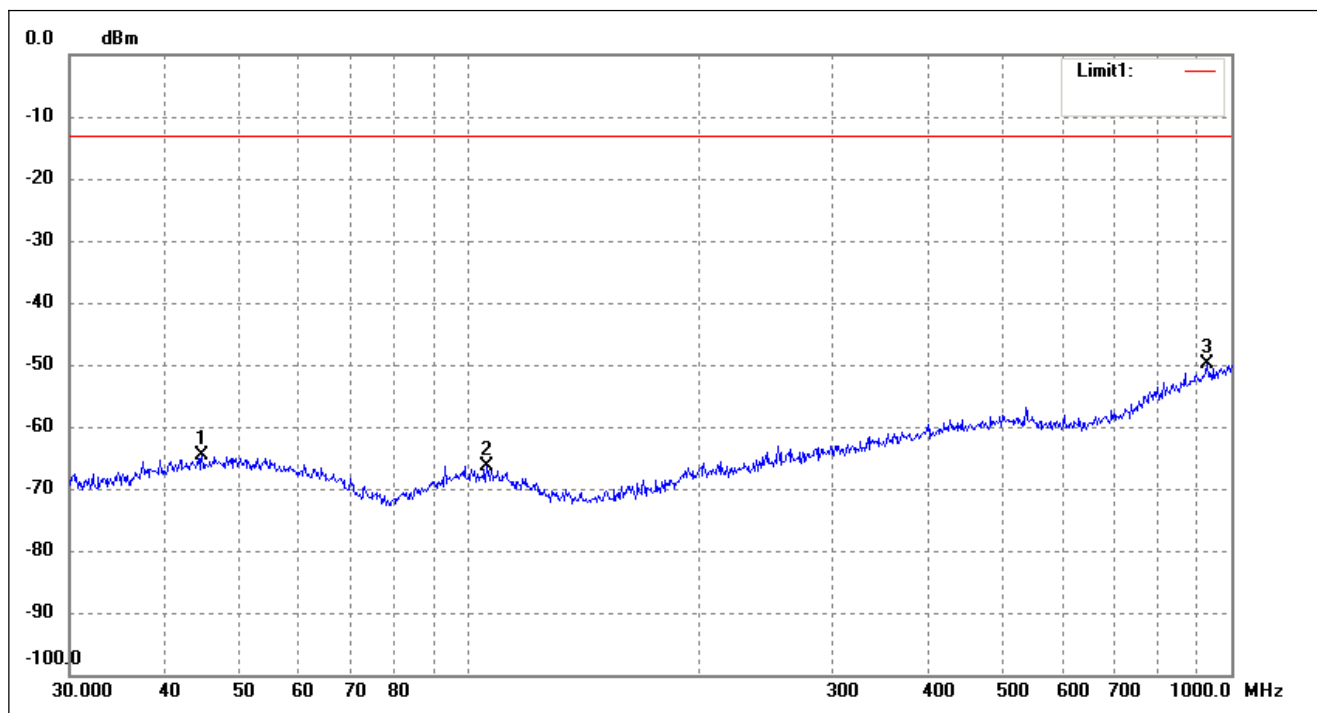
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	52.7600	-67.91	4.07	-63.84	-13.00	-50.84	ERP
2	96.4362	-67.90	1.81	-66.09	-13.00	-53.09	ERP
3	993.0114	-68.26	18.38	-49.88	-13.00	-36.88	ERP

Note: $\text{Margin} = (\text{Reading} + \text{Correct}) - \text{Limit}$



For band 5 Mode

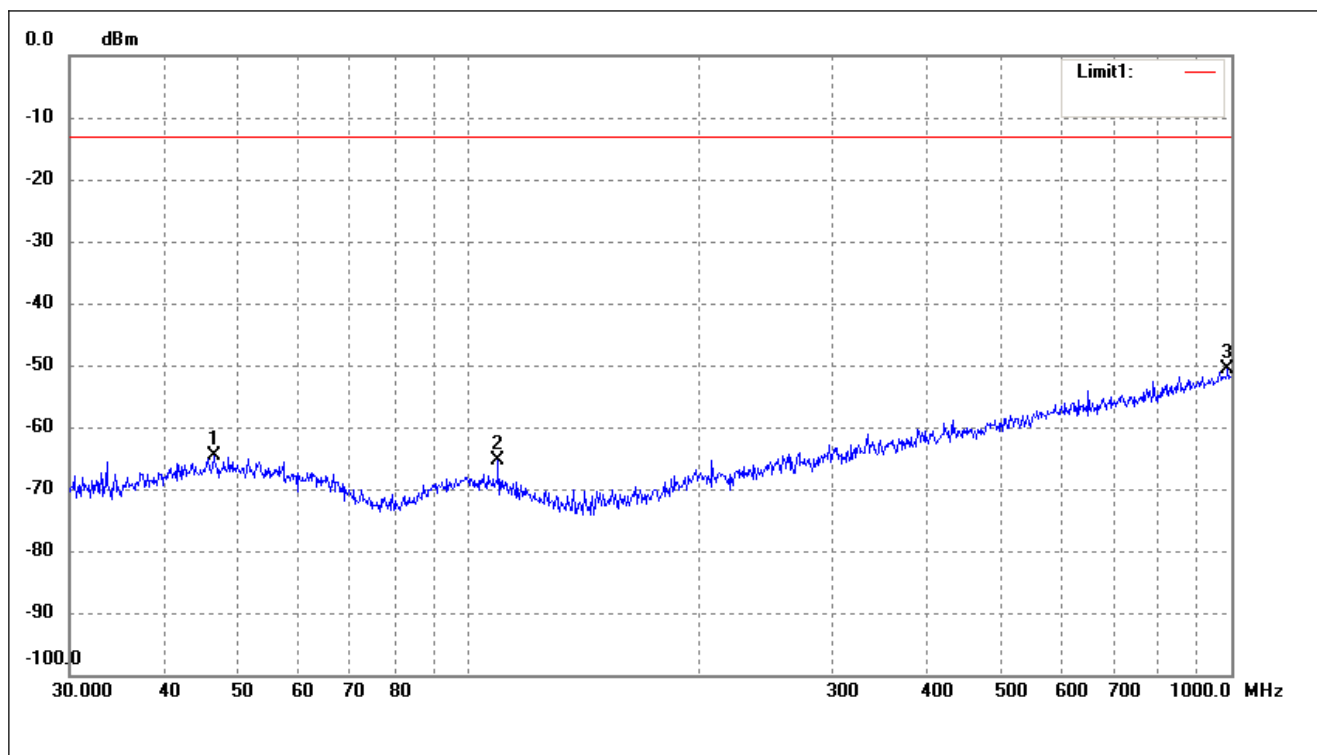
Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	Factor(dB)	(dBm)	(dBm)	(dB)	
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:

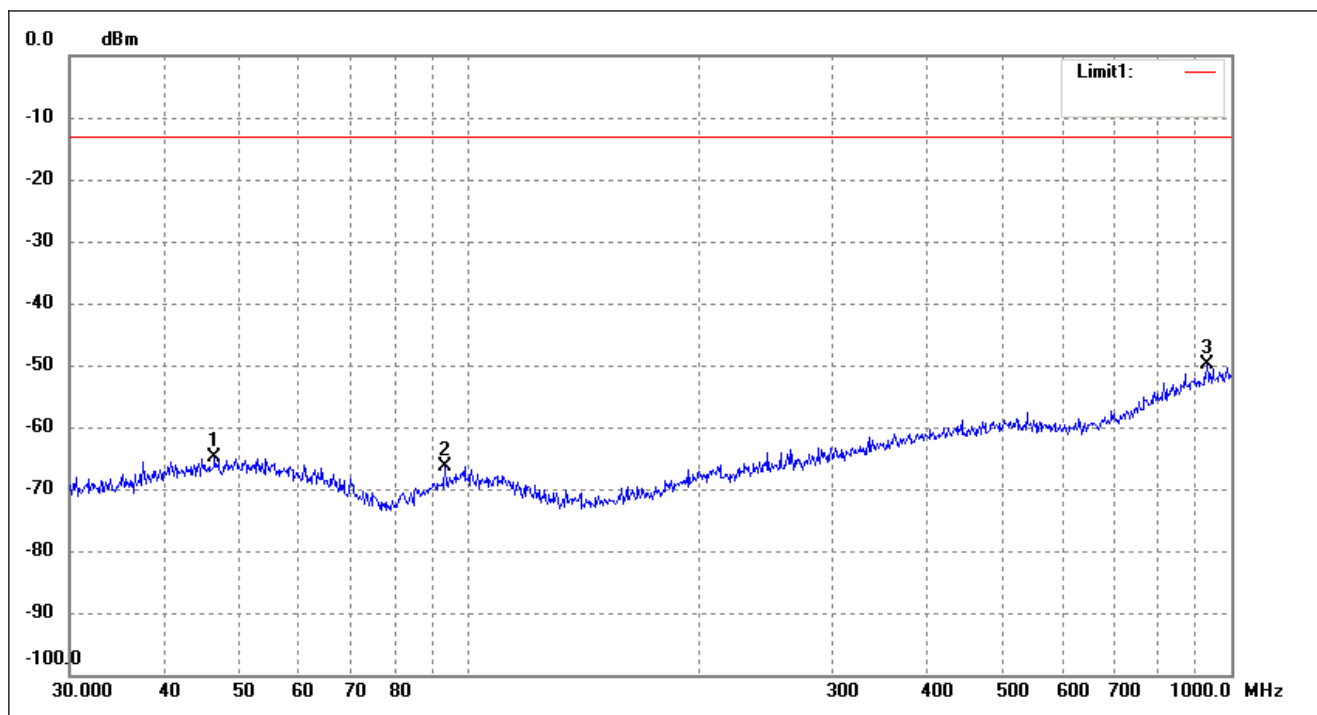


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	46.3402	-69.04	4.34	-64.70	-13.00	-51.70	ERP
2	109.4116	-67.57	2.21	-65.36	-13.00	-52.36	ERP
3	989.5355	-68.85	18.32	-50.53	-13.00	-37.53	ERP



For band 4 Mode

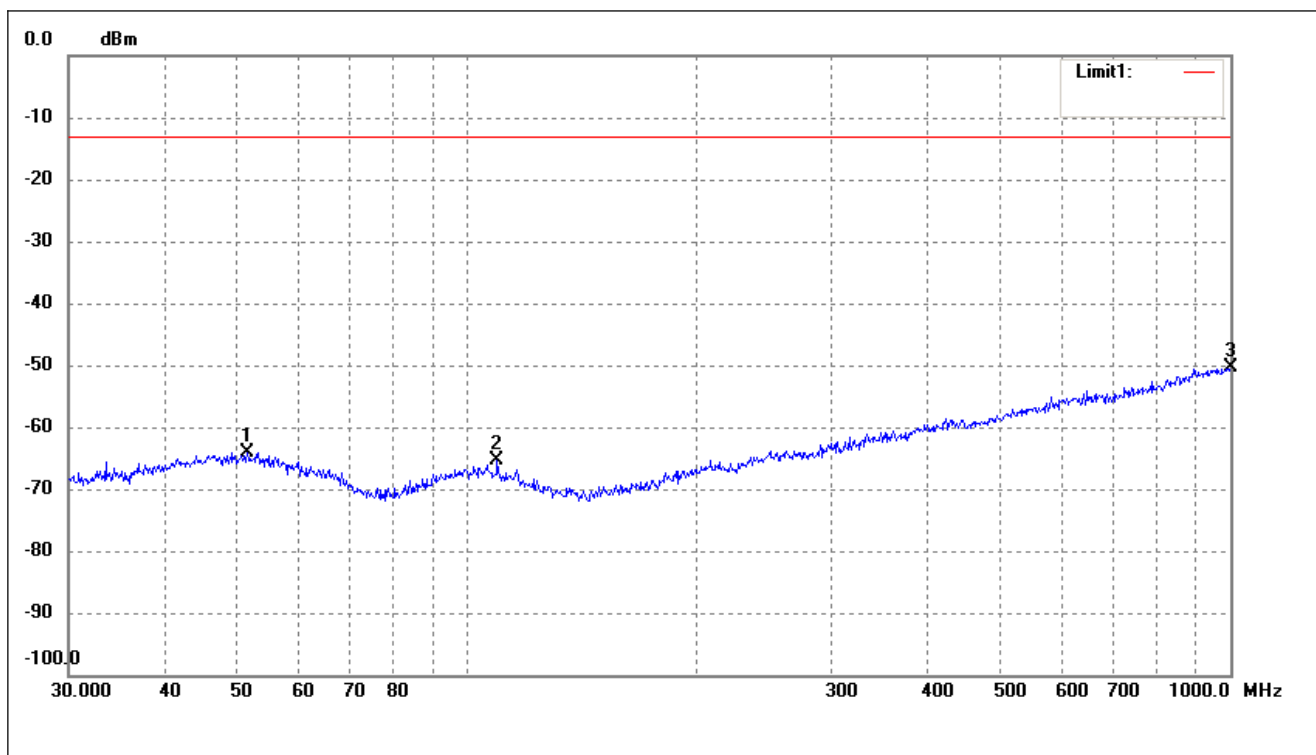
Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	Factor(dB)	(dBm)	(dBm)	(dB)	
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:

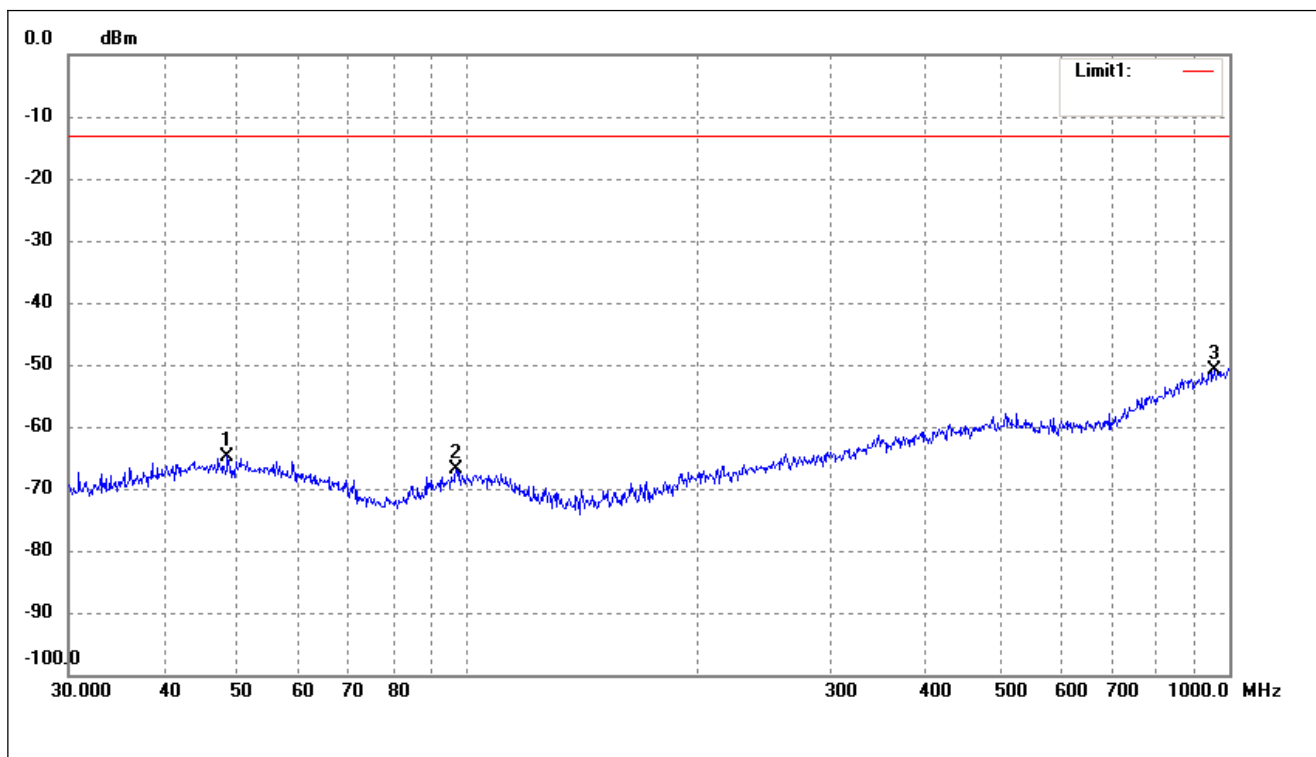


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	
1	51.4807	-68.27	4.21	-64.06	-13.00	-51.06	ERP
2	109.4116	-67.57	2.21	-65.36	-13.00	-52.36	ERP
3	1000.0000	-68.87	18.48	-50.39	-13.00	-37.39	ERP



For band 2 Mode

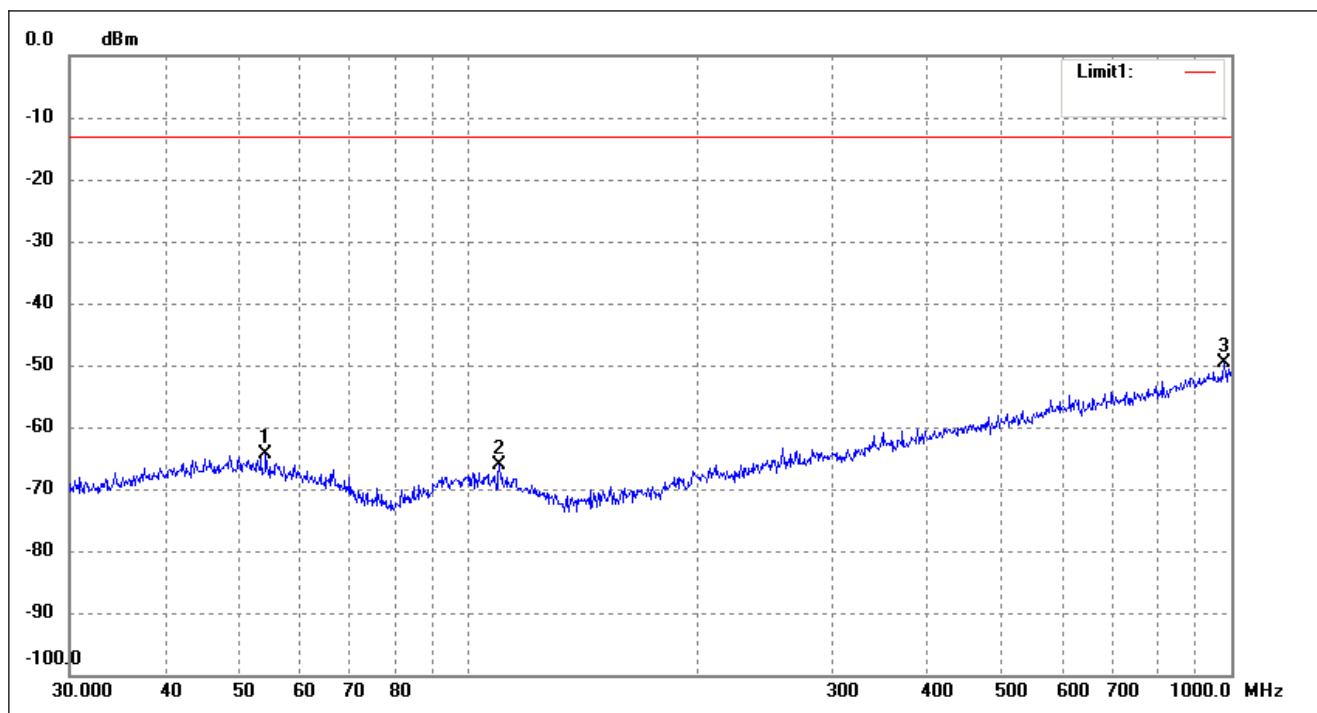
Horizontal:



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	48.5016	-69.10	4.35	-64.75	-13.00	-51.75	ERP
2	96.7749	-68.65	1.85	-66.80	-13.00	-53.80	ERP
3	955.4381	-68.75	17.81	-50.94	-13.00	-37.94	ERP



Vertical:



No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	54.2610	-68.33	3.92	-64.41	-13.00	-51.41	ERP
2	109.7960	-68.29	2.20	-66.09	-13.00	-53.09	ERP
3	979.1804	-67.81	18.17	-49.64	-13.00	-36.64	ERP

Note: $\text{Margin} = (\text{Reading} + \text{Correct}) - \text{Limit}$

*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	-54.14	4.94	-49.20	-13.00	-36.20	H
2472.6	-52.99	8.46	-44.53	-13.00	-31.53	H
1648.4	-50.36	4.94	-45.42	-13.00	-32.42	V
2472.6	-50.92	8.46	-42.46	-13.00	-29.46	V
Middle Channel (836.6MHz)						
1673.2	-54.14	5.11	-49.03	-13.00	-36.03	H
2509.8	-52.99	8.54	-44.45	-13.00	-31.45	H
1673.2	-50.36	5.11	-45.25	-13.00	-32.25	V
2509.8	-50.92	8.54	-42.38	-13.00	-29.38	V
High Channel (848.8MHz)						
1697.6	-49.16	5.29	-43.87	-13.00	-30.87	H
2546.4	-51.53	8.59	-42.94	-13.00	-29.94	H
1697.6	-49.03	5.29	-43.74	-13.00	-30.74	V
2546.4	-51.46	8.59	-42.87	-13.00	-29.87	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	-53.66	10.54	-43.12	-13.00	-30.12	H
5550.6	-56.38	13.37	-43.01	-13.00	-30.01	H
3700.4	-52.66	10.54	-42.12	-13.00	-29.12	V
5550.6	-56.38	13.37	-43.01	-13.00	-30.01	V
Middle Channel (1880MHz)						
3760.0	-51.76	10.64	-41.12	-13.00	-28.12	H
5640.0	-56.55	13.54	-43.01	-13.00	-30.01	H
3760.0	-51.76	10.64	-41.12	-13.00	-28.12	V
5640.0	-56.55	13.54	-43.01	-13.00	-30.01	V
High Channel (1909.8MHz)						
3819.6	-53.16	10.74	-42.42	-13.00	-29.42	H
5729.4	-56.69	13.71	-42.98	-13.00	-29.98	H
3819.6	-53.86	10.74	-43.12	-13.00	-30.12	V
5729.4	-56.19	13.71	-42.48	-13.00	-29.48	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	-58.21	4.94	-53.27	-13.00	-40.27	H
2479.2	-58.73	8.46	-50.27	-13.00	-37.27	H
1652.8	-57.18	4.94	-52.24	-13.00	-39.24	V
2479.2	-58.41	8.46	-49.95	-13.00	-36.95	V
Middle Channel (836.6MHz)						
1672.8	-57.44	5.11	-52.33	-13.00	-39.33	H
2509.2	-57.93	8.54	-49.39	-13.00	-36.39	H
1672.8	-58.39	5.11	-53.28	-13.00	-40.28	V
2509.2	-59.42	8.54	-50.88	-13.00	-37.88	V
High Channel (846.6MHz)						
1693.2	-56.52	5.29	-51.23	-13.00	-38.23	H
2539.8	-59.54	8.59	-50.95	-13.00	-37.95	H
1693.2	-57.02	5.29	-51.73	-13.00	-38.73	V
2539.8	-58.46	8.59	-49.87	-13.00	-36.87	V

For Band 4 Mode

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (1712.4MHz)						
3424.8	-58.21	9.87	-48.34	-13.00	-35.34	H
5137.2	-58.73	13.02	-45.71	-13.00	-32.71	H
3424.8	-57.18	9.87	-47.31	-13.00	-34.31	V
5137.2	-58.41	13.02	-45.39	-13.00	-32.39	V
Middle Channel (1732.4MHz)						
3464.8	-57.44	9.96	-47.48	-13.00	-34.48	H
5197.2	-57.93	13.32	-44.61	-13.00	-31.61	H
3464.8	-58.39	9.96	-48.43	-13.00	-35.43	V
5197.2	-59.42	13.32	-46.10	-13.00	-33.10	V
High Channel (1752.6MHz)						
3505.2	-56.52	10.03	-46.49	-13.00	-33.49	H
5257.8	-59.54	14.03	-45.51	-13.00	-32.51	H
3505.2	-57.02	10.03	-46.99	-13.00	-33.99	V
5257.8	-58.46	14.03	-44.43	-13.00	-31.43	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	-57.57	10.17	-47.40	-13.00	-34.40	H
5557.2	-58.13	14.69	-43.44	-13.00	-30.44	H
3704.8	-58.63	10.17	-48.46	-13.00	-35.46	V
5557.2	-58.86	14.69	-44.17	-13.00	-31.17	V
Middle Channel (1880MHz)						
3760.8	-58.05	10.26	-47.79	-13.00	-34.79	H
5640.0	-57.90	14.78	-43.12	-13.00	-30.12	H
3760.8	-57.62	10.26	-47.36	-13.00	-34.36	V
5640.0	-58.17	14.78	-43.39	-13.00	-30.39	V
High Channel (1907.6MHz)						
3815.2	-58.06	10.59	-47.47	-13.00	-34.47	H
5722.8	-58.1	15.03	-43.07	-13.00	-30.07	H
3815.2	-58.36	10.59	-47.77	-13.00	-34.77	V
5722.8	-57.69	15.03	-42.66	-13.00	-29.66	H

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

Testing is carried out with frequency rang 9kHz to 20GHz, which above 3th 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.

According to §27.54 The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

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 declared by manufacturer
-30°C to +50°C	Normal

9.3 Environmental Conditions

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



Shenzhen BST Technology Co., Ltd.

BST17066918A0001Y-ER-2



9.4 Summary of Test Results/Plots

For Cellular Band GSM Mode

Reference Frequency(Middle Channel): 836.6 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.8	77	0.0920
40	3.8	73	0.0873
30	3.8	68	0.0813
20	3.8	66	0.0789
10	3.8	71	0.0849
0	3.8	65	0.0777
-10	3.8	50	0.0598
-20	3.8	61	0.0729
-30	3.8	58	0.0693

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	3.8	48	0.0255
40	3.8	45	0.0239
30	3.8	41	0.0218
20	3.8	50	0.0266
10	3.8	46	0.0245
0	3.8	50	0.0266
-10	3.8	61	0.0324
-20	3.8	56	0.0298
-30	3.8	63	0.0335



For Cellular Band GPRS Mode

Reference Frequency(Middle Channel): 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	63	0.0753
40	3.7	59	0.0705
30	3.7	54	0.0645
20	3.7	52	0.0622
10	3.7	57	0.0681
0	3.7	51	0.0610
-10	3.7	36	0.0430
-20	3.7	47	0.0562
-30	3.7	44	0.0526

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	72	0.0383
40	3.7	69	0.0367
30	3.7	65	0.0346
20	3.7	74	0.0394
10	3.7	70	0.0372
0	3.7	74	0.0394
-10	3.7	75	0.0399
-20	3.7	60	0.0319
-30	3.7	64	0.0340



For Cellular Band EDGE Mode

Reference Frequency(Middle Channel): 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	65	0.0777
40	3.7	61	0.0729
30	3.7	56	0.0669
20	3.7	54	0.0645
10	3.7	59	0.0705
0	3.7	53	0.0634
-10	3.7	38	0.0454
-20	3.7	49	0.0586
-30	3.7	46	0.0550

For PCS Band EDGE 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	67	0.0356
40	3.7	64	0.0340
30	3.7	60	0.0319
20	3.7	69	0.0367
10	3.7	65	0.0346
0	3.7	69	0.0367
-10	3.7	70	0.0372
-20	3.7	55	0.0293
-30	3.7	59	0.0314



For WCDMA Band 5 Mode

Reference Frequency(Middle Channel): 836.6 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	69	0.0825
40	3.7	65	0.0777
30	3.7	60	0.0717
20	3.7	58	0.0693
10	3.7	63	0.0753
0	3.7	57	0.0681
-10	3.7	42	0.0502
-20	3.7	53	0.0634
-30	3.7	50	0.0598

For WCDMA Band 2 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	51	0.0271
30	3.7	47	0.0250
20	3.7	56	0.0298
10	3.7	42	0.0223
0	3.7	31	0.0165
-10	3.7	77	0.0410
-20	3.7	60	0.0319
-30	3.7	50	0.0266



For HSDPA Band 5 Mode

Reference Frequency(Middle Channel): 836.6 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	67	0.0801
40	3.7	63	0.0753
30	3.7	58	0.0693
20	3.7	56	0.0669
10	3.7	61	0.0729
0	3.7	55	0.0657
-10	3.7	40	0.0478
-20	3.7	51	0.0610
-30	3.7	48	0.0574

For HSDPA Band 2 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	59	0.0314
40	3.7	46	0.0245
30	3.7	42	0.0223
20	3.7	51	0.0271
10	3.7	37	0.0197
0	3.7	26	0.0138
-10	3.7	72	0.0383
-20	3.7	55	0.0293
-30	3.7	42	0.0223



For HSUPA Band 5 Mode

Reference Frequency(Middle Channel): 836.6 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		MCF (Hz)	Error (ppm)
50	3.7	75	0.0896
40	3.7	71	0.0849
30	3.7	66	0.0789
20	3.7	64	0.0765
10	3.7	69	0.0825
0	3.7	63	0.0753
-10	3.7	48	0.0574
-20	3.7	59	0.0705
-30	3.7	56	0.0669

For HSUPA Band 2 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	71	0.0378
40	3.7	58	0.0309
30	3.7	54	0.0287
20	3.7	63	0.0335
10	3.7	49	0.0261
0	3.7	38	0.0202
-10	3.7	84	0.0447
-20	3.7	67	0.0356
-30	3.7	54	0.0287



So, Frequency Stability Versus Input Voltage is:

Reference Frequency(Middle Channel): GSM 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	69	0.0825
	3.7	66	0.0789
	4.3	67	0.0800
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	51	0.0271
	3.7	50	0.0266
	4.3	52	0.0277
Reference Frequency(Middle Channel): GPRS 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	47	0.0562
	3.7	52	0.0622
	4.3	53	0.0634
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	73	0.0388
	3.7	74	0.0394
	4.3	74	0.0394



Reference Frequency(Middle Channel): EDGE 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	52	0.0621
	3.7	54	0.0645
	4.2	53	0.0634
Reference Frequency(Middle Channel): EDGE 1880 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	66	0.0351
	3.7	69	0.0367
	4.3	71	0.0378
Reference Frequency(Middle Channel): WCDMA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	51	0.0610
	3.7	58	0.0693
	4.3	59	0.0705
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	54	0.0287
	3.7	56	0.0298
	4.3	58	0.0309
Reference Frequency(Middle Channel): HSDPA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	54	0.0645
	3.7	56	0.0669
	4.3	57	0.0681



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	53	0.0282
	3.7	51	0.0271
	4.3	48	0.0255
Reference Frequency(Middle Channel): HSUPA 836.6MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency (Hz)	Error (ppm)
20	3.3	65	0.0777
	3.7	64	0.0765
	4.3	66	0.0789
Reference Frequency(Middle Channel): HSUPA 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	63	0.0335
	4.3	65	0.0346

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