

# TEST REPORT

Reference No..... : WTX20X10075770W-1  
FCC ID ..... : 2AVFE-WILDFIREE2  
Applicant ..... : Fortune Ship International Industrial Limited  
Address..... : UNIT C 24/F GOLDEN BEAR INDUSTRIAL CENTRE 66-82 CHAI WAN  
KOK STREET TSUEN WAN NT, HONG KONG  
Product Name ..... : 4G Smart Phone  
Test Model. .... : Wildfire E2  
Standards ..... : FCC Part 22H, FCC Part 24E, FCC Part 27  
Date of Receipt sample .... : Oct.19, 2020  
Date of Test..... : Oct.19, 2020 to Nov.16, 2020  
Date of Issue ..... : Nov.16, 2020  
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

**Prepared By:**

**Waltek Testing Group (Shenzhen) Co., Ltd.**

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road,  
Block 70 Bao'an District, Shenzhen, Guangdong, China

Tel.: +86-755-33663308

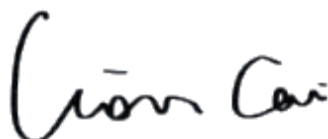
Fax.: +86-755-33663309

Tested by:



Jason Su / Project Engineer

Reviewed By:



Lion Cai / RF Manager

Approved & Authorized By:



Silin Chen / Manager

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**Report version**

Version No.	Date of issue	Description
Rev.00	Nov.16, 2020	Original
/	/	/

## 1. GENERAL INFORMATION

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

#### Client Information

Applicant: Fortune Ship International Industrial Limited  
 Address of applicant: UNIT C 24/F GOLDEN BEAR INDUSTRIAL CENTRE 66-82  
 CHAI WAN KOK STREET TSUEN WAN NT, HONG KONG

Manufacturer: Fortune Ship International Industrial Limited  
 Address of manufacturer: UNIT C 24/F GOLDEN BEAR INDUSTRIAL CENTRE 66-82  
 CHAI WAN KOK STREET TSUEN WAN NT, HONG KONG

General Description of EUT:	
Product Name:	4G Smart Phone
Trade Name:	HTC
Model No.:	Wildfire E2
Adding Model(s):	/
Rated Voltage:	DC3.85V
Battery:	/
Adapter Model:	ES568-U050200XYF INPUT: AC100-240V, 50/60Hz, 0.5A; Output: DC5V, 2000mA
Software Version:	HTC_WILDFIRE_E2
Hardware Version:	YK685-MB-V1.1
<i>Note: The test data is gathered from a production sample provided by the manufacturer.</i>	

<b>Technical Characteristics of EUT:</b>	
<b>2G</b>	
Support Networks:	GSM, GPRS, 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: 32.59dBm, GSM1900: 29.68dBm EDGE850: 26.64dBm, EDGE1900: 26.93dBm
Type of Emission:	GSM850: 251KGXW, GSM1900: 250KGXW EDGE850: 248KG7W, EDGE1900: 248KG7W
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -2.24dBi; GSM1900: 0.32dBi
GPRS/EDGE Class:	Class 12
<b>3G</b>	
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: 23.24dBm, WCDMA Band 4: 23.44dBm WCDMA Band 5: 23.57dBm
Type of Emission:	WCDMA Band 2: 4M20F9W WCDMA Band 4: 4M19F9W WCDMA Band 5: 4M20F9W
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 0.44dBi, WCDMA Band 4: 0.55dBi, WCDMA Band 5: -1.98dBi

## 1.2 Test Standards

The tests were performed according to following standards:

**FCC Rules Part 2:** FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS.

**FCC Rules Part 22:** PRIVATE LAND MOBILE RADIO SERVICES.

**FCC Rules Part 24:** PUBLIC MOBILE SERVICES.

**FCC Rules Part 27:** MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES.

**TIA/EIA 603 E March 2016:** Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

**ANSI C63.26-2015:** American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

**KDB 971168 D01 Power Meas License Digital Systems v03r01:** MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS.

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

## 1.3 Test Methodology

All measurements contained in this report were conducted with TIA/EIA 603 E/ KDB 971168/ ANSI C63.26. The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

## 1.4 Test Facility

### Address of the test laboratory

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

### FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) 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. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

### Industry Canada (IC) Registration No.: 11464A

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

## 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.

<b>Test Conditions</b>	
Temperature:	22~25 °C
Relative Humidity:	40~55 %.
ATM Pressure:	1019 mbar

<b>EUT Cable List and Details</b>			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB-C Cable	0.99	Unshielded	Without Ferrite
Earphone Cable	1.23	Unshielded	Without Ferrite

<b>Special Cable List and Details</b>			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

<b>Auxiliary Equipment List and Details</b>			
Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	TianYi310-14ISK	/

## 1.6 Measurement Uncertainty

<b>Measurement uncertainty</b>		
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	Conducted	$\pm 0.42\text{dB}$
Transmitter Spurious Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$
		6-18GHz $\pm 3.92\text{dB}$



**1.7 Test Equipment List and Details**

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
SEMT-1075	Communication Tester	Rohde & Schwarz	CMW500	148650	2020-04-28	2021-04-27
SEMT-1063	GSM Tester	Rohde & Schwarz	CMU200	114403	2020-04-28	2021-04-27
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2020-04-28	2021-04-27
SEMT-1079	Spectrum Analyzer	Agilent	N9020A	US47140102	2020-04-28	2021-04-27
SEMT-1080	Signal Generator	Agilent	83752A	3610A01453	2020-04-28	2021-04-27
SEMT-1081	Vector Signal Generator	Agilent	N5182A	MY47070202	2020-04-28	2021-04-27
SEMT-1028	Power Divider	Weinschel	1506A	PM204	2020-04-28	2021-04-27
SEMT-1082	Power Divider	RF-Lambda	RFLT4W5M18G	14110400027	2020-04-28	2021-04-27
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2020-04-28	2021-04-27
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2020-04-28	2021-04-27
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2020-04-28	2021-04-27
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2020-04-28	2021-04-27
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
SEMT-1068	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
SEMT-1042	Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2019-05-05	2021-05-04
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2020-04-28	2021-04-27
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2020-04-28	2021-04-27
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2020-04-28	2021-04-27
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2019-05-05	2021-05-04
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2020-04-28	2021-04-27
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2020-04-28	2021-04-27
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2020-04-28	2021-04-27
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2020-03-17	2021-03-16
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2020-03-17	2021-03-16
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2020-03-17	2021-03-16
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2020-03-17	2021-03-16

SEMT-C005	Cable	Zheng DI	1M0RFC	/	2020-03-17	2021-03-16
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2020-03-17	2021-03-16

<b>Software List</b>			
<b>Description</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Version</b>
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1

\*Remark: indicates software version used in the compliance certification testing

## 2. SUMMARY OF TEST RESULTS

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<b>FCC Rules</b>	<b>Description of Test Item</b>	<b>Result</b>
§22.913(a), §24.232(c), §27.50(d)	RF Output Power	Compliant
§24.51, §27.50	Peak-to-average Ratio (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 Output Power

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#### 3.1 Standard Applicable

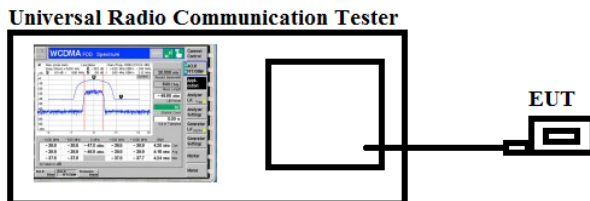
According to §22.913(a)(2), the ERP of mobile and portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

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.

#### 3.2 Test Procedure

- Conducted output power test method:



- Radiated power test method:

1. The setup of EUT is according with per ANSI/TIA Standard 603E and ANSI C63.26 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.

#### 3.3 Summary of Test Results/Plots

➤ **Max. Radiated Power**

Mode	Channel	Antenna Polar	ERP (dBm)	Limit (dBm)	Result
GSM850	128	V	29.49	<38.45	Pass
		H	24.65		
	190	V	29.02		
		H	25.12		
	251	V	29.72		
		H	25.41		
GPRS850	128	V	29.49	<38.45	Pass
		H	24.78		
	190	V	29.36		
		H	24.13		
	251	V	29.49		
		H	24.35		
EGPRS850	128	V	23.19	<38.45	Pass
		H	19.17		
	190	V	23.42		
		H	19.79		
	251	V	23.87		
		H	19.52		

Mode	Channel	Antenna Polar	EIRP (dBm)	Limit (dBm)	Result
PCS1900	512	V	27.61	<33.00	Pass
		H	23.42		
	661	V	27.36		
		H	23.24		
	810	V	27.97		
		H	23.43		
GPRS1900	512	V	27.98	<33.00	Pass
		H	23.49		
	661	V	27.65		
		H	23.57		
	810	V	27.98		
		H	23.14		
EGPRS1900	512	V	23.57	<33.00	Pass
		H	18.46		
	661	V	23.11		
		H	18.45		
	810	V	23.35		
		H	18.97		

Mode	Channel	Antenna Polar	ERP	Limit (dBm)	Result
WCDMA Band V	4132	V	21.01	<38.45	Pass
		H	17.65		
	4183	V	21.53		
		H	17.98		
	4233	V	21.02		
		H	17.39		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band IV	1312	V	20.97	<30.00	Pass
		H	17.31		
	1412	V	20.97		
		H	17.53		
	1513	V	20.87		
		H	17.39		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band II	9262	V	21.23	<33.00	Pass
		H	18.98		
	9400	V	21.46		
		H	18.32		
	9538	V	21.27		
		H	18.97		

➤ **Max. Conducted Power (Average power)**

**Please refer to Appendix A**

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

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### 4.1 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.

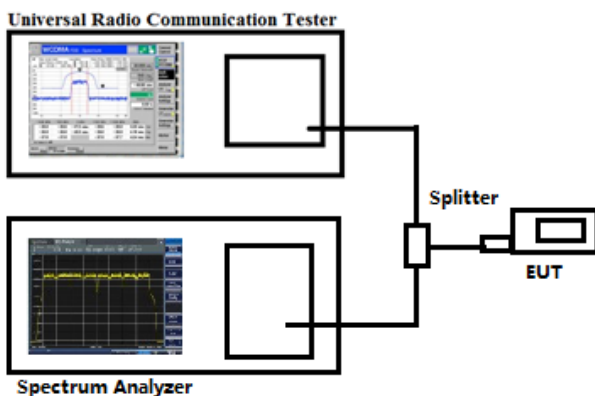
According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for 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.

### 4.2 Test Procedure

According with KDB 971168

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Configuration for the emission bandwidth testing:



### 4.3 Summary of Test Results

Please refer to Appendix B.

Waltek Testing Group (Shenzhen) Co., Ltd.

<http://www.semtest.com.cn>



## 5. Emission Bandwidth

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### 5.1 Standard Applicable

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

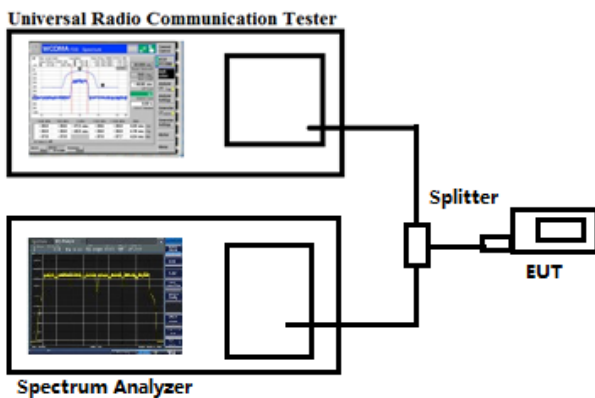
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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.

### 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 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:



### 5.3 Summary of Test Results/Plots

Please refer to Appendix C.

## 6. Out of Band Emissions at Antenna Terminal

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### 6.1 Standard Applicable

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

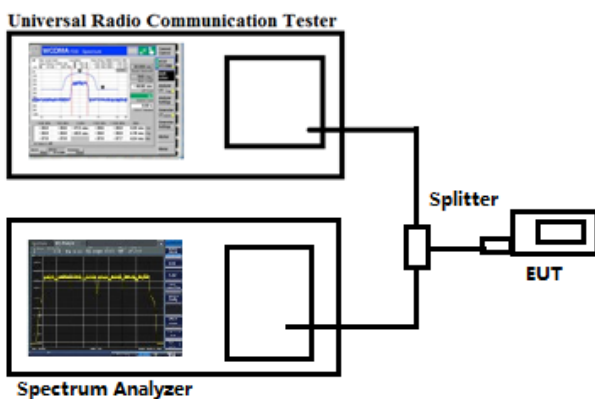
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

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.

### 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 100kHz and 1MHz for the scan frequency from 30MHz to 1GHz and the scan frequency from 1GHz to up to 10<sup>th</sup> harmonic.

Test Configuration for the out of band emissions testing:



### 6.3 Summary of Test Results/Plots

Please refer to Appendix D.

## 7. Spurious Radiated Emissions

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### 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

1. The setup of EUT is according with per ANSI/TIA Standard 603E and ANSI C63.26 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.

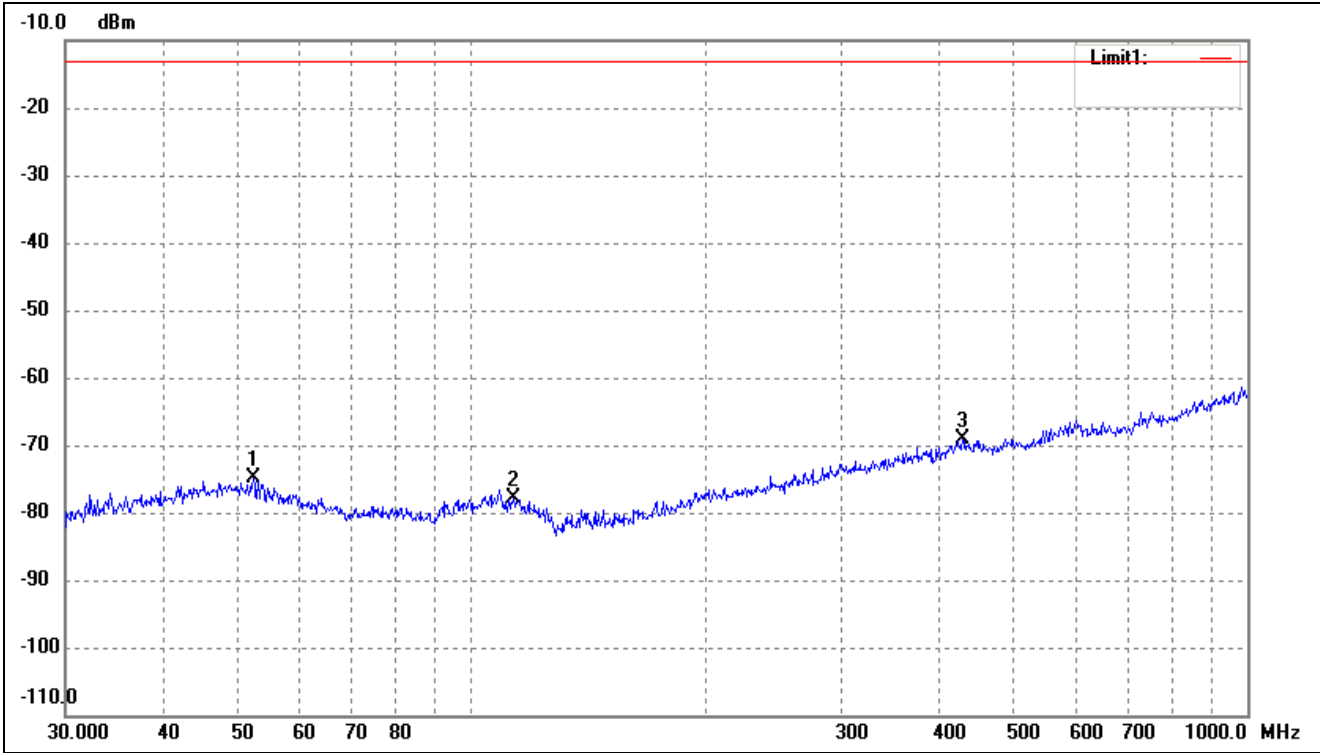
$$\text{Spurious attenuation limit in dB} = 43 + 10 \log_{10}(\text{power out in Watts})$$

### 7.3 Summary of Test Results/Plots

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

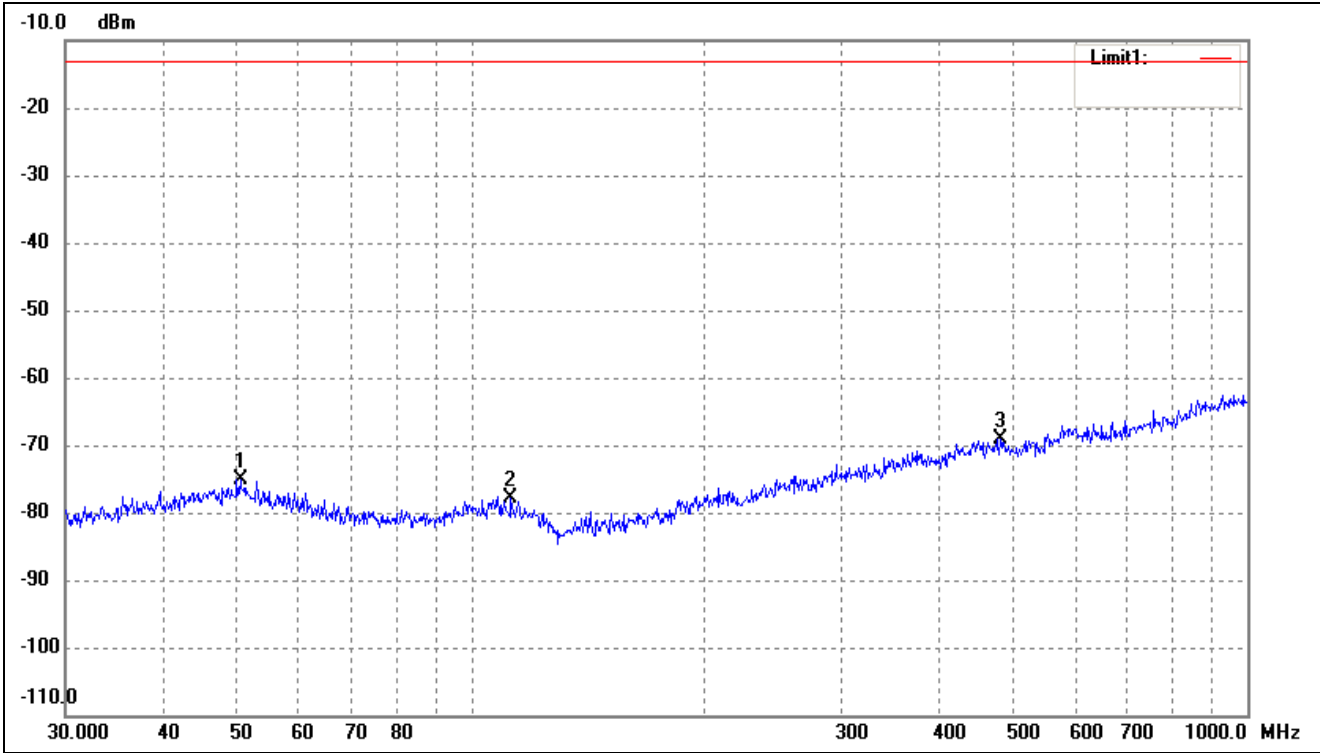
➤ Spurious Emissions Below 1GHz

For Cellular Band			
Test Channel	GSM850	Polarity:	Horizontal



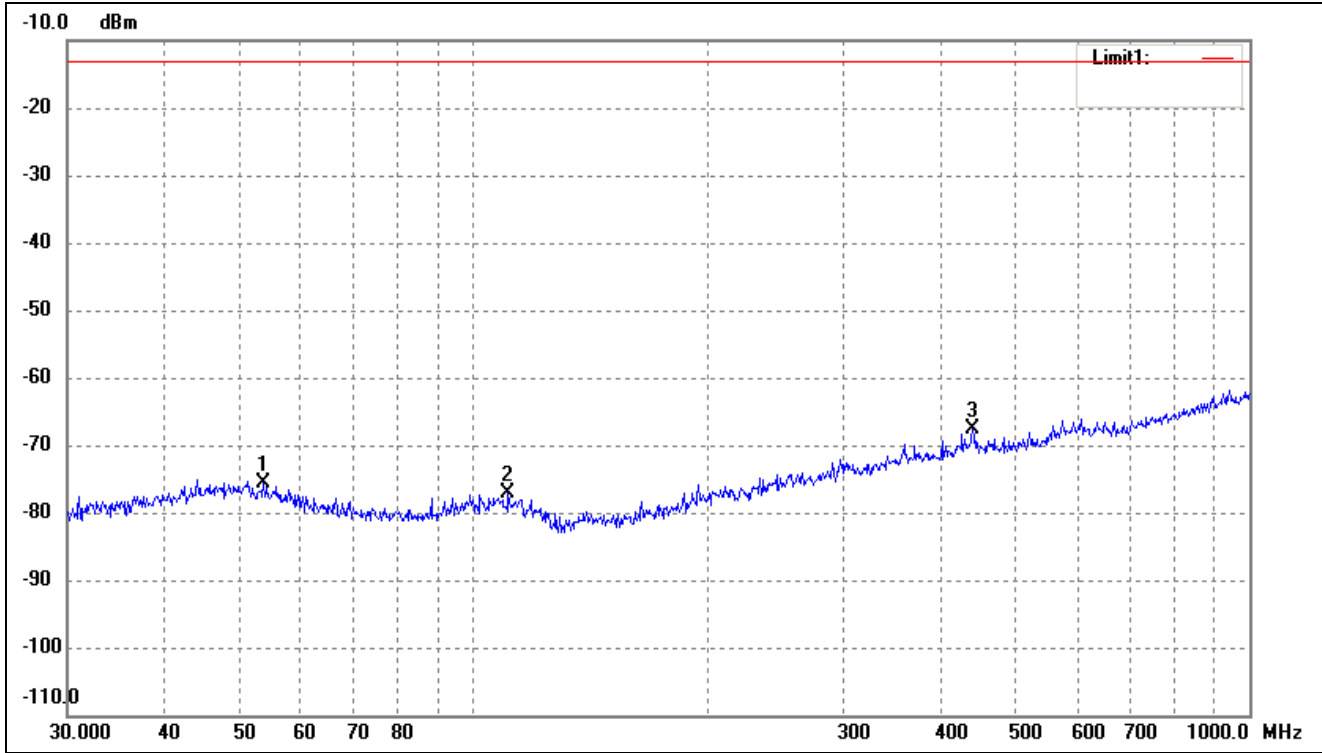
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	52.3913	-76.08	1.10	-74.98	-13.00	-61.98	ERP
2	113.3163	-77.16	-0.71	-77.87	-13.00	-64.87	ERP
3	429.5228	-76.58	7.42	-69.16	-13.00	-56.16	ERP

For Cellular Band			
Test Channel	GSM850	Polarity:	Vertical



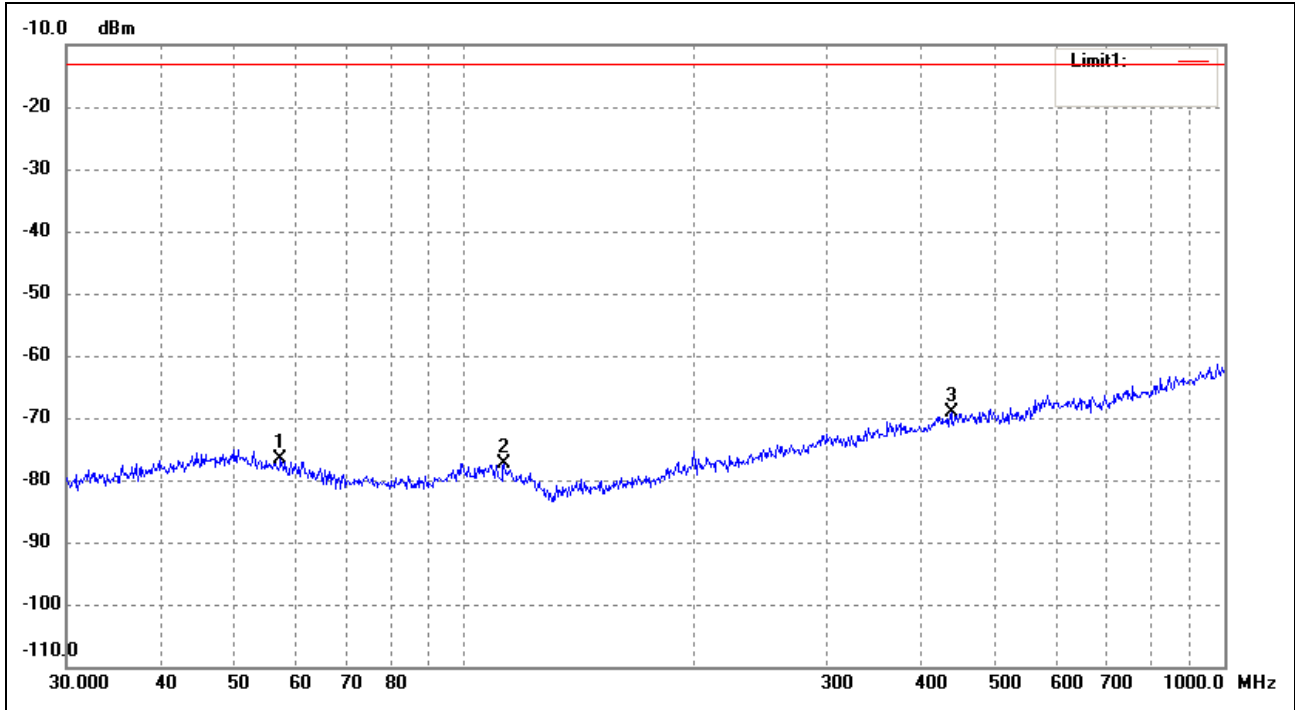
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	50.4089	-76.66	1.52	-75.14	-13.00	-62.14	ERP
2	112.5244	-77.34	-0.63	-77.97	-13.00	-64.97	ERP
3	480.5276	-76.29	7.08	-69.21	-13.00	-56.21	ERP

For Cellular Band			
Test Channel	GSM1900	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	53.6932	-76.39	0.81	-75.58	-13.00	-62.58	ERP
2	110.9571	-76.76	-0.45	-77.21	-13.00	-64.21	ERP
3	440.1963	-75.00	7.39	-67.61	-13.00	-54.61	ERP

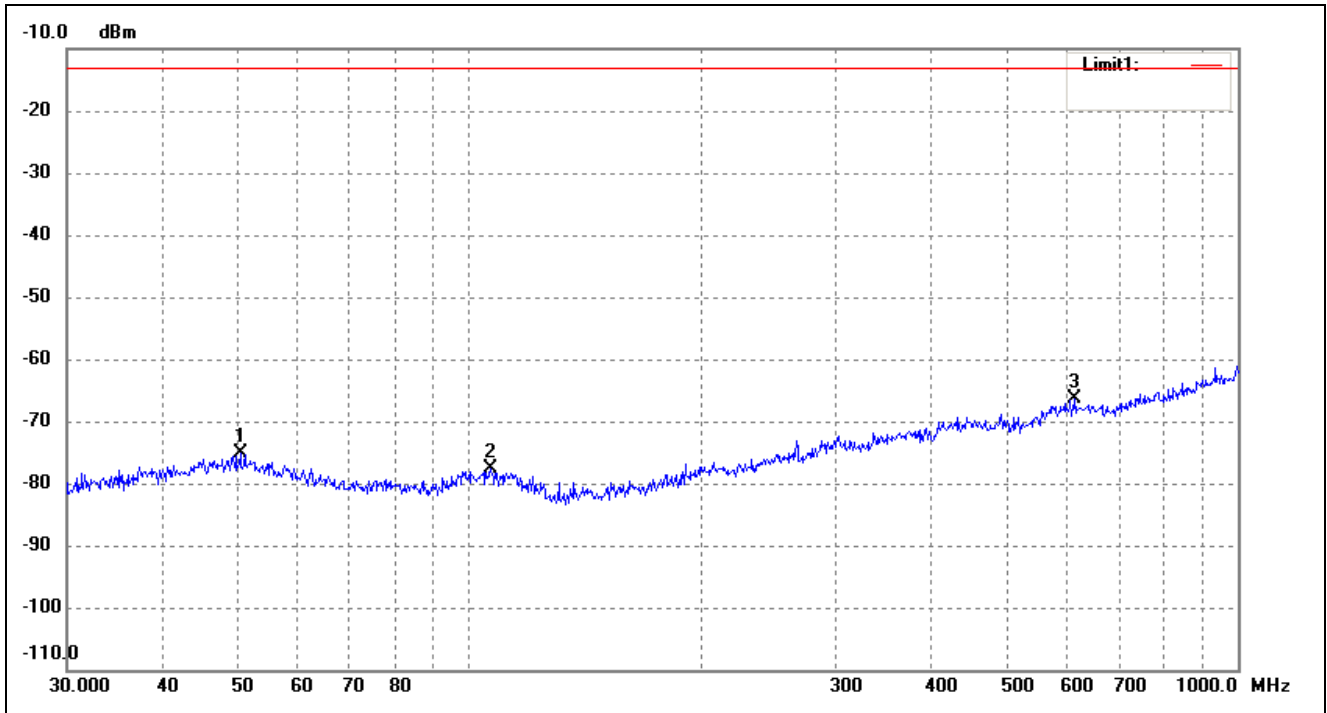
For Cellular Band			
Test Channel	GSM1900	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	57.3923	-76.74	0.01	-76.73	-13.00	-63.73	ERP
2	112.9196	-76.77	-0.66	-77.43	-13.00	-64.43	ERP
3	437.1199	-76.58	7.40	-69.18	-13.00	-56.18	ERP

Note: Margin= (Reading+ Correct)- Limit

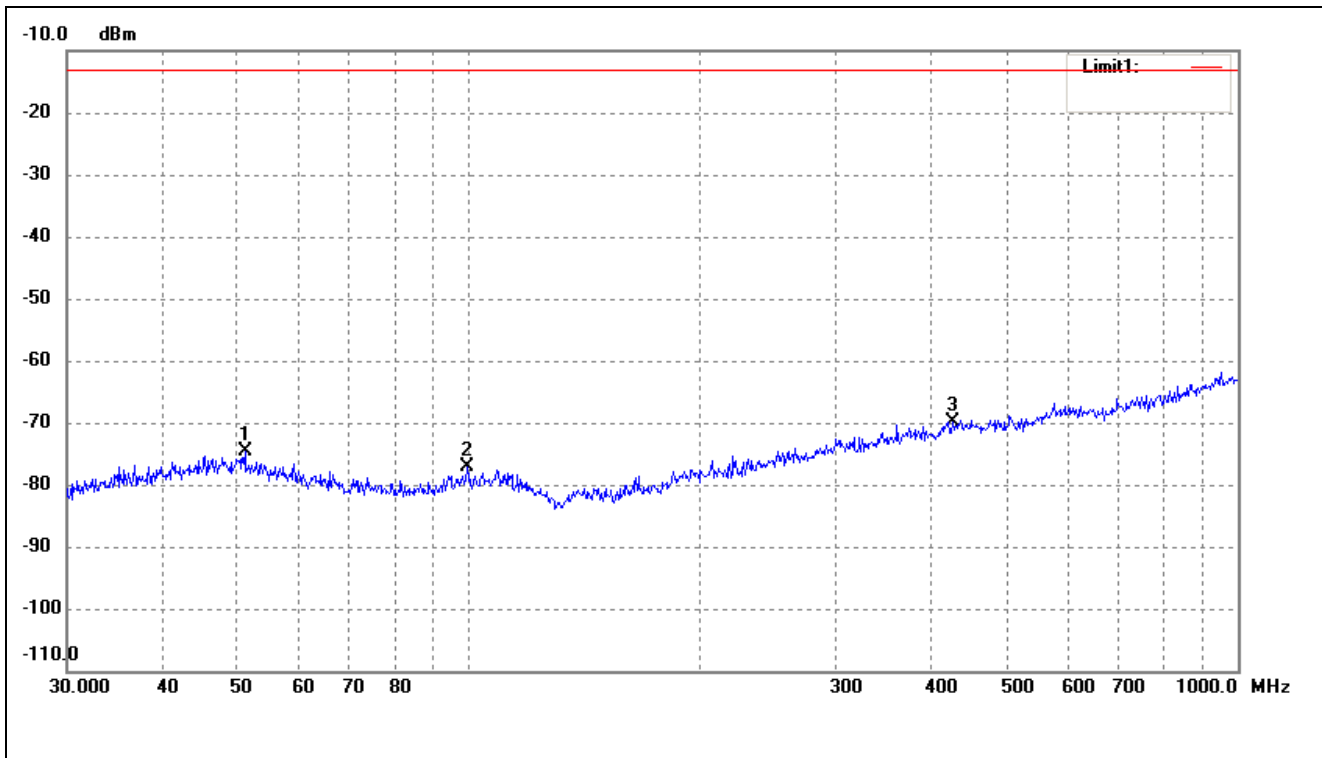
Test Channel	WCDMA Band V	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	50.4089	-76.67	1.52	-75.15	-13.00	-62.15	ERP
2	106.7587	-77.27	-0.43	-77.70	-13.00	-64.70	ERP
3	614.2142	-75.85	9.46	-66.39	-13.00	-53.39	ERP

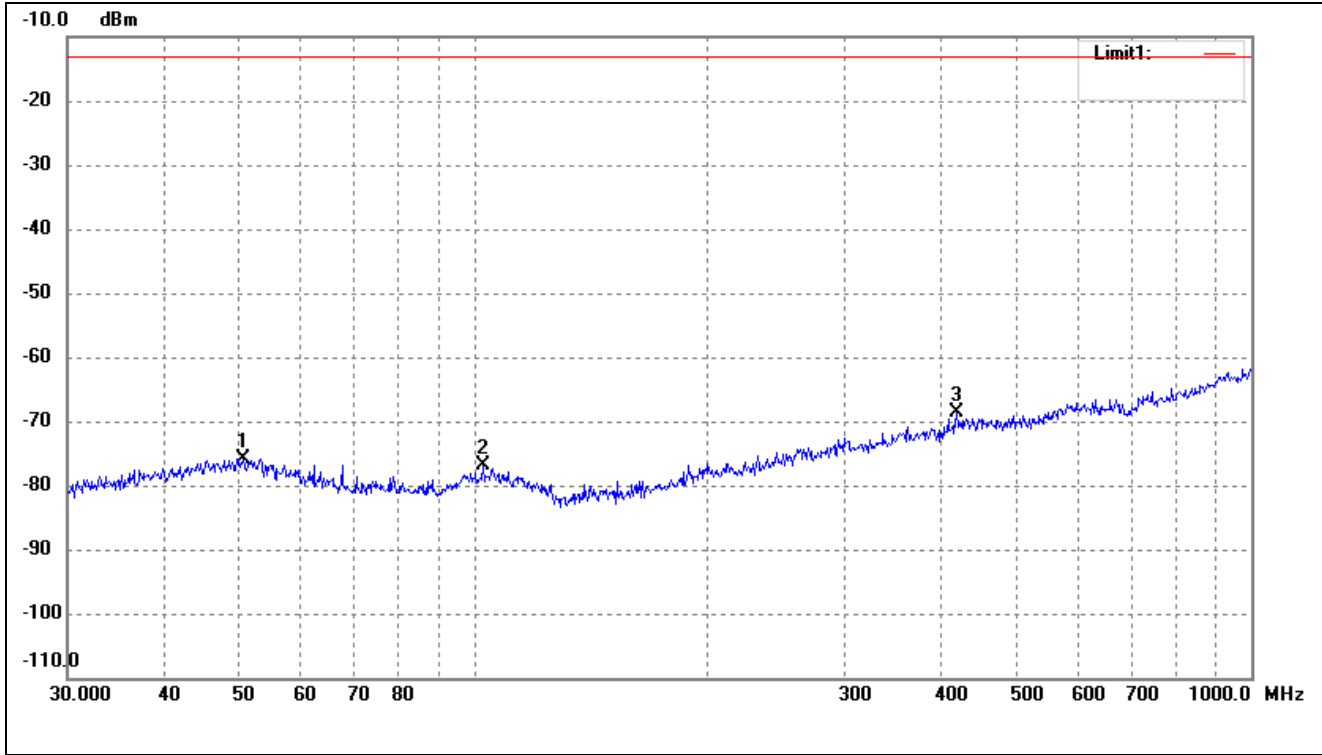


Test Channel	WCDMA Band V	Polarity:	Vertical
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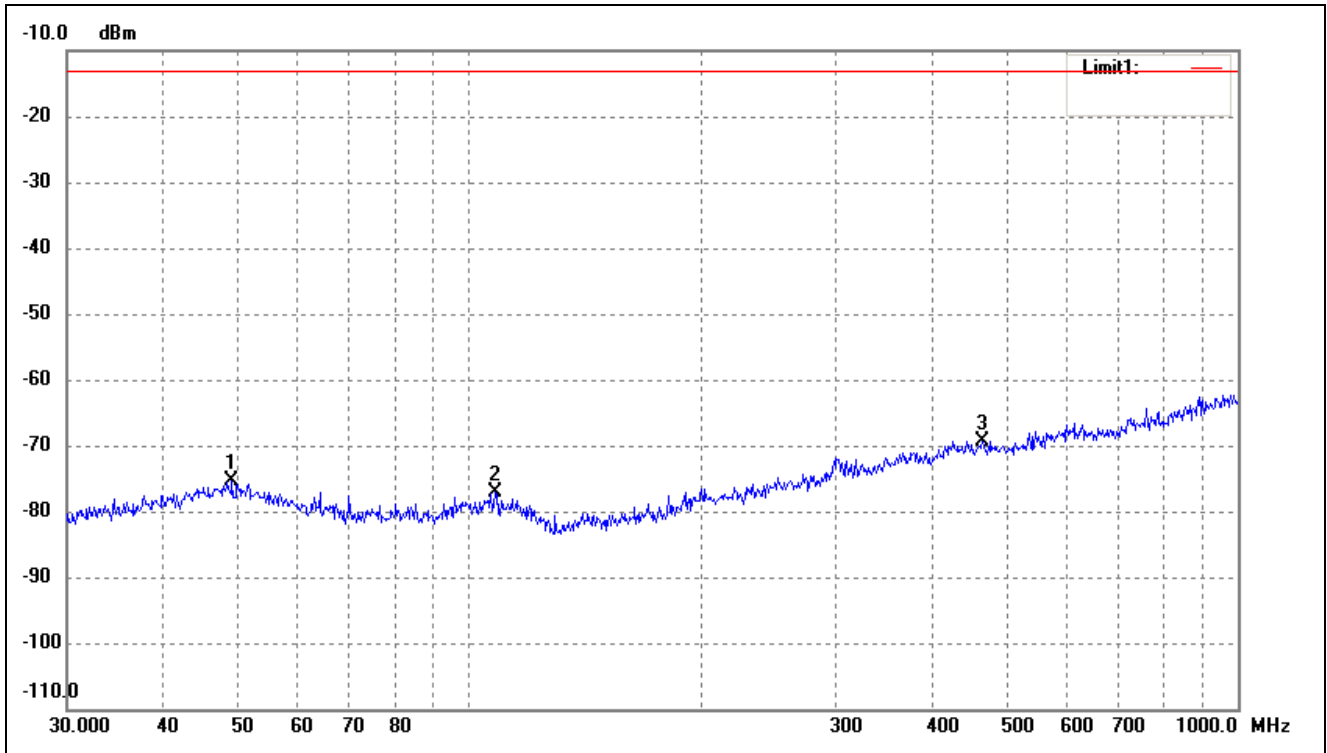
No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	51.1209	-76.01	1.37	-74.64	-13.00	-61.64	ERP
2	99.5281	-76.45	-0.68	-77.13	-13.00	-64.13	ERP
3	426.5210	-77.27	7.42	-69.85	-13.00	-56.85	ERP

Test Channel	WCDMA Band IV	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	50.4089	-77.27	1.52	-75.75	-13.00	-62.75	ERP
2	102.7192	-76.37	-0.52	-76.89	-13.00	-63.89	ERP
3	417.6411	-75.65	7.11	-68.54	-13.00	-55.54	ERP

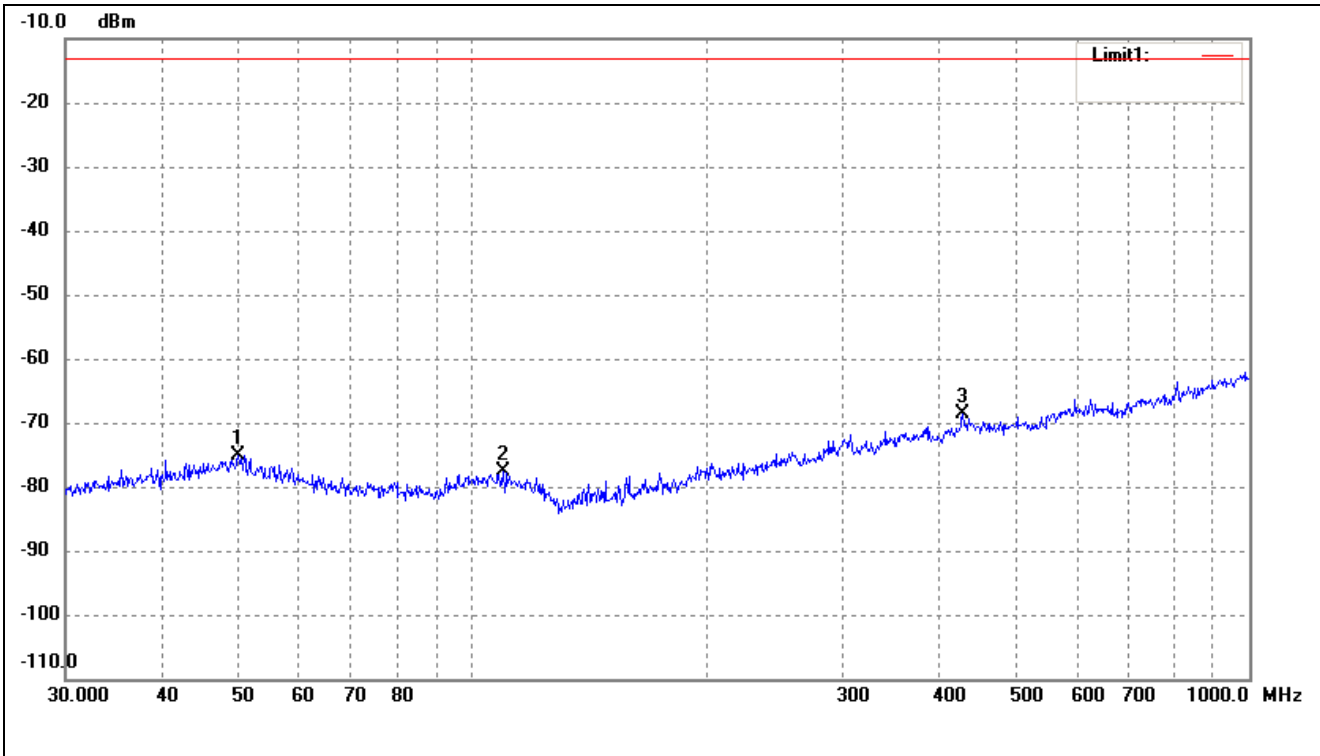
Test Channel	WCDMA Band IV	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	49.1866	-76.97	1.55	-75.42	-13.00	-62.42	ERP
2	108.2667	-76.79	-0.40	-77.19	-13.00	-64.19	ERP
3	465.5994	-76.24	6.95	-69.29	-13.00	-56.29	ERP

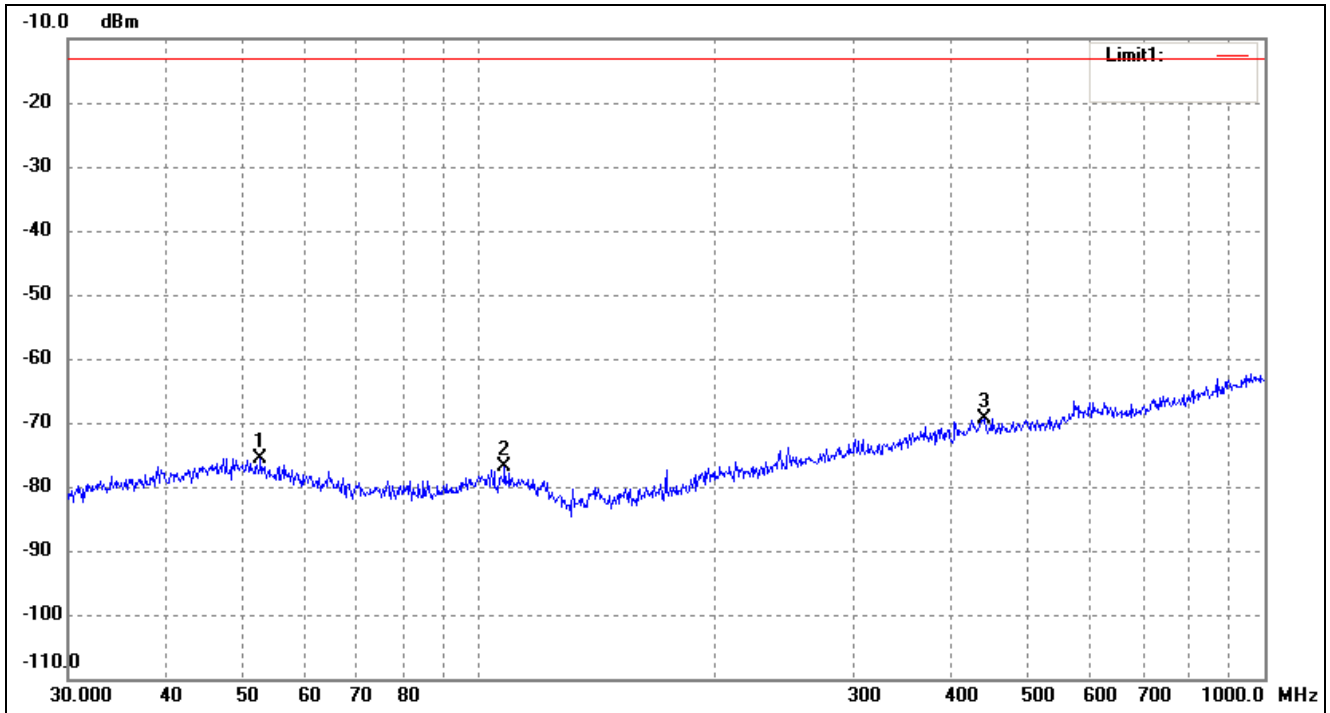
Note: Margin= (Reading+ Correct)- Limit

Test Channel	WCDMA Band II	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	50.0566	-76.66	1.60	-75.06	-13.00	-62.06	ERP
2	109.7960	-77.34	-0.36	-77.70	-13.00	-64.70	ERP
3	428.0193	-76.11	7.41	-68.70	-13.00	-55.70	ERP

Test Channel	WCDMA Band II	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	52.7600	-76.63	1.01	-75.62	-13.00	-62.62	ERP
2	107.8877	-76.50	-0.40	-76.90	-13.00	-63.90	ERP
3	440.1963	-76.81	7.39	-69.42	-13.00	-56.42	ERP

Note: Margin= (Reading+ Correct)- Limit

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

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (824.2MHz)						
1648.4	-35.15	4.94	-30.21	-13	-17.21	H
2472.6	-41.49	8.46	-33.03	-13	-20.03	H
1648.4	-35.5	4.94	-30.56	-13	-17.56	V
2472.6	-43.34	8.46	-34.88	-13	-21.88	V
Middle Channel (836.6MHz)						
1673.2	-36.07	5.11	-30.96	-13	-17.96	H
2509.8	-43.74	8.54	-35.2	-13	-22.2	H
1673.2	-37.43	5.11	-32.32	-13	-19.32	V
2509.8	-43.61	8.54	-35.07	-13	-22.07	V
High Channel (848.8MHz)						
1697.6	-37.97	5.25	-32.72	-13	-19.72	H
2546.4	-41.81	8.57	-33.24	-13	-20.24	H
1697.6	-35	5.25	-29.75	-13	-16.75	V
2546.4	-42.43	8.57	-33.86	-13	-20.86	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	-40.25	10.54	-29.71	-13	-16.71	H
5550.6	-46.48	13.37	-33.11	-13	-20.11	H
3700.4	-40.23	10.54	-29.69	-13	-16.69	V
5550.6	-46.99	13.37	-33.62	-13	-20.62	V
Middle Channel (1880MHz)						
3760.0	-39.03	10.64	-28.39	-13	-15.39	H
5640.0	-49.59	13.54	-36.05	-13	-23.05	H
3760.0	-39.85	10.64	-29.21	-13	-16.21	V
5640.0	-49.32	13.54	-35.78	-13	-22.78	V
High Channel (1909.8MHz)						
3819.6	-40.21	10.74	-29.47	-13	-16.47	H
5729.4	-47.91	13.71	-34.2	-13	-21.20	H
3819.6	-39.88	10.74	-29.14	-13	-16.14	V
5729.4	-48.88	13.71	-35.17	-13	-22.17	V

## ➤ For WCDMA Band V Mode

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (826.4MHz)						
1652.8	-35.38	4.94	-30.44	-13	-17.44	H
2479.2	-43.31	8.46	-34.85	-13	-21.85	H
1652.8	-35.05	4.94	-30.11	-13	-17.11	V
2479.2	-43.58	8.46	-35.12	-13	-22.12	V
Middle Channel (836.6MHz)						
1672.8	-36.39	5.11	-31.28	-13	-18.28	H
2509.2	-44.5	8.54	-35.96	-13	-22.96	H
1672.8	-37.45	5.11	-32.34	-13	-19.34	V
2509.2	-43.6	8.54	-35.06	-13	-22.06	V
High Channel (846.6MHz)						
1693.2	-35.23	5.25	-29.98	-13	-16.98	H
2539.8	-43.88	8.57	-35.31	-13	-22.31	H
1693.2	-34.41	5.25	-29.16	-13	-16.16	V
2539.8	-43.62	8.57	-35.05	-13	-22.05	V

## ➤ For WCDMA Band IV Mode

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (1712.4MHz)						
3424.8	-37.6	8.65	-28.95	-13	-15.95	H
5137.2	-44.36	12.03	-32.33	-13	-19.33	H
3424.8	-36.94	8.65	-28.29	-13	-15.29	V
5137.2	-41.09	12.03	-29.06	-13	-16.06	V
Middle Channel (1732.4MHz)						
3466.8	-35.07	8.91	-26.16	-13	-13.16	H
5200.2	-44.54	12.29	-32.25	-13	-19.25	H
3466.8	-37.34	8.91	-28.43	-13	-15.43	V
5200.2	-43.63	12.29	-31.34	-13	-18.34	V
High Channel (1752.6MHz)						
3505.2	-36.71	9.11	-27.6	-13	-14.6	H
5257.8	-41.11	12.56	-28.55	-13	-15.55	H
3505.2	-34.04	9.11	-24.93	-13	-11.93	V
5257.8	-42.7	12.56	-30.14	-13	-17.14	V

## ➤ For WCDMA Band II Mode

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	dB	(dBm)	(dBm)	(dB)	H/V
Low Channel (1852.4MHz)						
3704.8	-40.69	10.54	-30.15	-13	-17.15	H
5557.2	-46.85	13.37	-33.48	-13	-20.48	H
3704.8	-41.71	10.54	-31.17	-13	-18.17	V
5557.2	-49.35	13.37	-35.98	-13	-22.98	V
Middle Channel (1880MHz)						
3760.8	-41.69	10.64	-31.05	-13	-18.05	H
5640.0	-49.89	13.54	-36.35	-13	-23.35	H
3760.8	-39.85	10.64	-29.21	-13	-16.21	V
5640.0	-47.76	13.54	-34.22	-13	-21.22	V
High Channel (1907.6MHz)						
3815.2	-39.45	10.74	-28.71	-13	-15.71	H
5722.8	-47.79	13.71	-34.08	-13	-21.08	H
3815.2	-42.14	10.74	-31.40	-13	-18.40	V
5722.8	-47.23	13.71	-33.52	-13	-20.52	H

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

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



## 8. Frequency Stability

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### 8.1 Standard Applicable

According to §22.355, §24.235, §27.54 the limit is 2.5ppm.

### 8.2 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.

### 8.3 Summary of Test Results/Plots

Note: 1. Worst case at GSM850/PCS1900/WCDMA B2/B4/B5 middle channel

2. Normal Voltage NV=DC3.85V; Low Voltage LV=DC3.5V; High Voltage HV=DC4.35V

**Please refer to Appendix E**

## 9. Modulation characteristics

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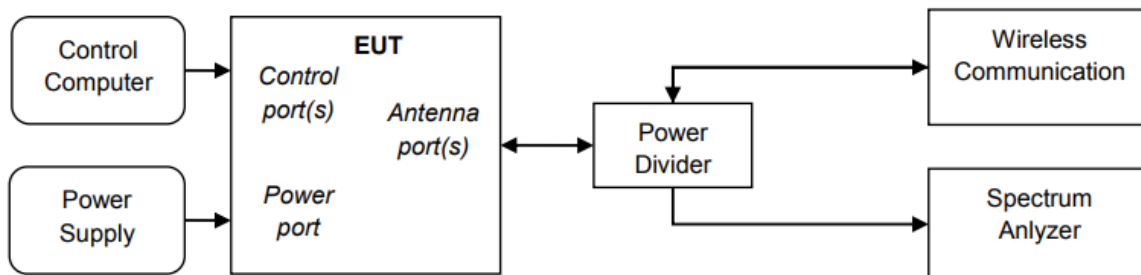
### 9.1 Standard Applicable

According to §2.1047, measurements required: Modulation characteristics is given below:

- (a) Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.
- (b) Equipment which employs modulation limiting. A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed.
- (c) Single sideband and independent sideband radiotelephone transmitters which employ a device or circuit to limit peak envelope power. A curve showing the peak envelope power output versus the modulation input voltage shall be supplied. The modulating signals shall be the same in frequency as specified in paragraph (c) of §2.1049 for the occupied bandwidth tests.
- (d) Other types of equipment. A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

### 9.2 Test Procedure

According to ANSI C63.26-2015 section 5.3.2, the following test setup was performed.



### 9.3 Summary of Test Results/Plots

Please refer to Appendix F

**APPENDIX SUMMARY**

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Project No.	WTX20X10075770W	Test Engineer	Shaw
Start date	2020/11/3	Finish date	2020/11/3
Temperature	23.6°C	Humidity	45%
RF specifications	GSM/WCDMA		

<b>APPENDIX</b>	<b>Description of Test Item</b>	<b>Result</b>
A	RF Output Power	Compliant
B	Peak-to-average Ratio (PAR) of Transmitter	Compliant
C	Emission Bandwidth	Compliant
D	Out of Band Emissions at Antenna Terminal	Compliant
E	Frequency Stability	Compliant
F	Modulation characteristics	Compliant

**APPENDIX A****Conducted Average power**

Conducted Average power (dBm)						
Band	GSM850			PCS1900		
Channel	128	190	251	512	661	810
Frequency(MHz)	824.20	836.60	848.80	1850.20	1880.00	1909.80
GSM	32.56	32.52	32.41	28.68	29.01	29.49
GPRS(1Slot)	32.59	32.55	32.45	29.62	28.97	29.53
EGPRS(1Slot)	26.57	26.64	26.58	26.43	26.79	26.93

Conducted Average power (dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4183	4233	9262	9400	9538
Frequency(MHz)	826.4	836.6	846.6	1852.4	1880.0	1907.6
RMC 12.2k	23.57	23.54	23.49	23.08	23.22	23.24
HSDPA Subtest-1	22.58	22.54	22.52	22.09	22.22	22.34
HSDPA Subtest-2	22.56	22.51	22.49	22.05	22.19	22.31
HSDPA Subtest-3	22.57	22.53	22.48	22.04	22.18	22.31
HSDPA Subtest-4	22.56	22.52	22.49	22.06	22.18	22.32
HSUPA Subtest-1	22.55	22.49	22.50	22.09	22.21	22.27
HSUPA Subtest-2	22.51	22.46	22.48	22.05	22.19	22.26
HSUPA Subtest-3	22.53	22.47	22.47	22.06	22.18	22.25
HSUPA Subtest-4	22.52	22.48	22.46	22.07	22.19	22.24
HSUPA Subtest-5	22.53	22.48	22.47	22.07	22.19	22.25

Conducted Average power (dBm)						
Band	WCDMA Band IV					
Channel	1312	1412	1513			
Frequency(MHz)	1712.4	1733.4	1752.6			
RMC 12.2k	23.44	23.39	23.39			
HSDPA Subtest-1	22.44	22.39	22.38			
HSDPA Subtest-2	22.42	22.35	22.35			
HSDPA Subtest-3	22.43	22.36	22.34			
HSDPA Subtest-4	22.41	22.37	22.37			
HSUPA Subtest-1	22.37	22.32	22.35			
HSUPA Subtest-2	22.31	22.29	22.31			
HSUPA Subtest-3	22.35	22.28	22.32			
HSUPA Subtest-4	22.32	22.29	22.33			
HSUPA Subtest-5	22.35	22.3	22.32			

## APPENDIX B

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

PCS1900				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GSM	661	1850.2	4.98	13
GPRS(1 Slot)	661	1850.2	4.35	13
EDGE(1 Slot)	661	1850.2	5.02	13

WCDMA Band IV				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	1312	1712.4	2.97	13
	1412	1733.4	3.08	13
	1513	1752.6	3.01	13

WCDMA Band II				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	3.35	13
	9400	1880.0	3.25	13
	9538	1907.6	3.01	13

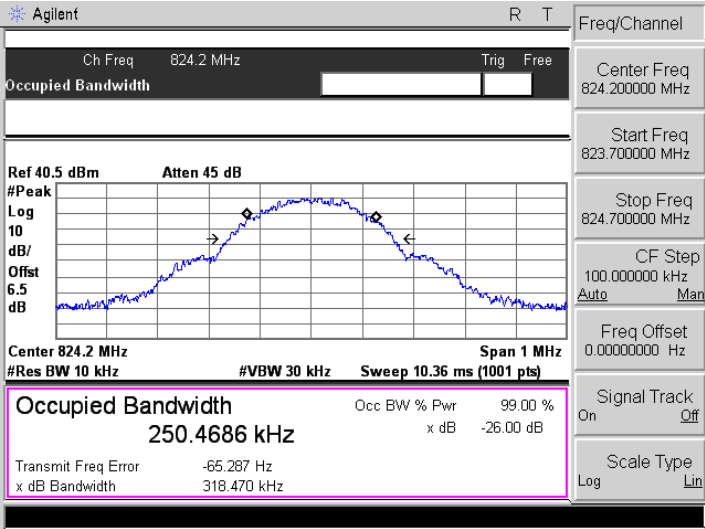
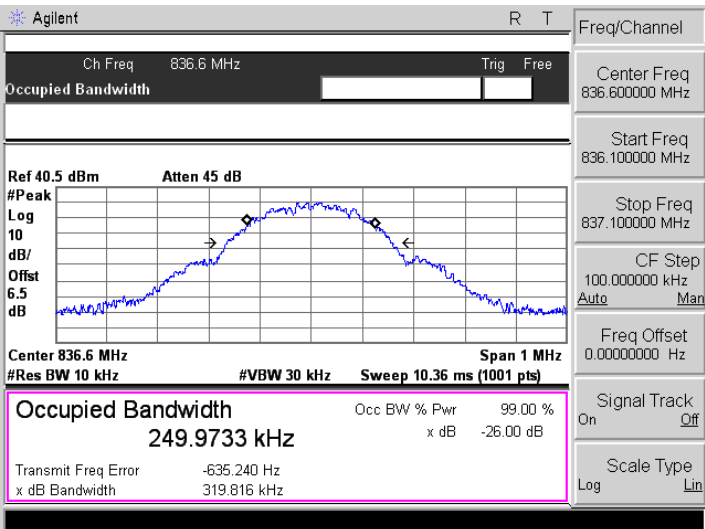
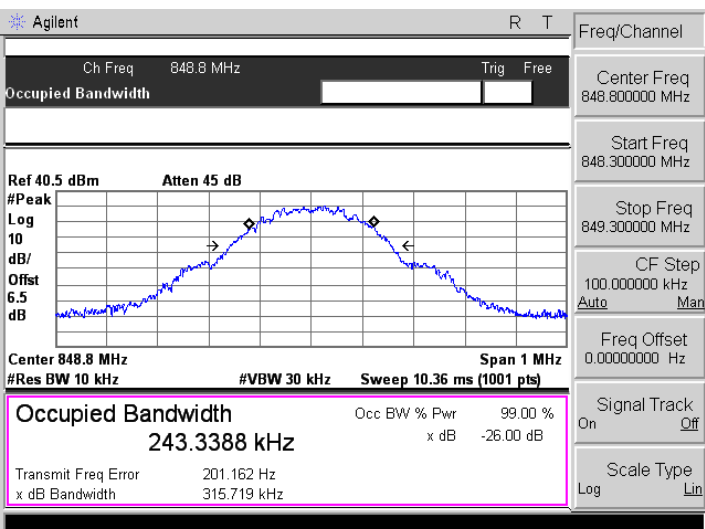
Note: Only the worst case was selected to record.

**APPENDIX C**

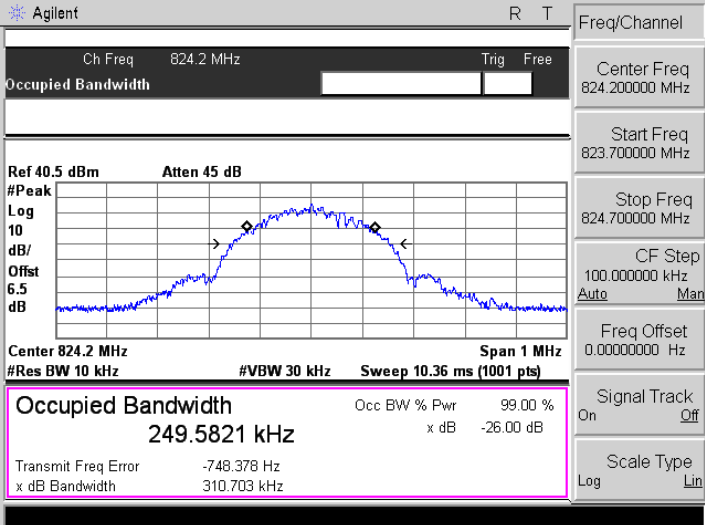
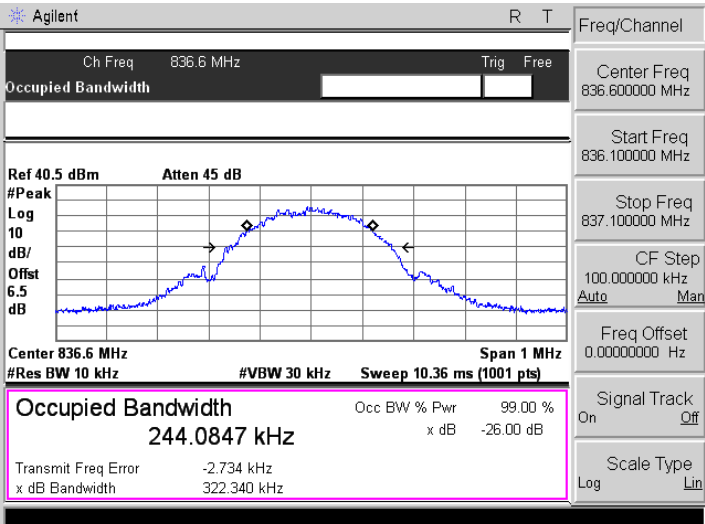
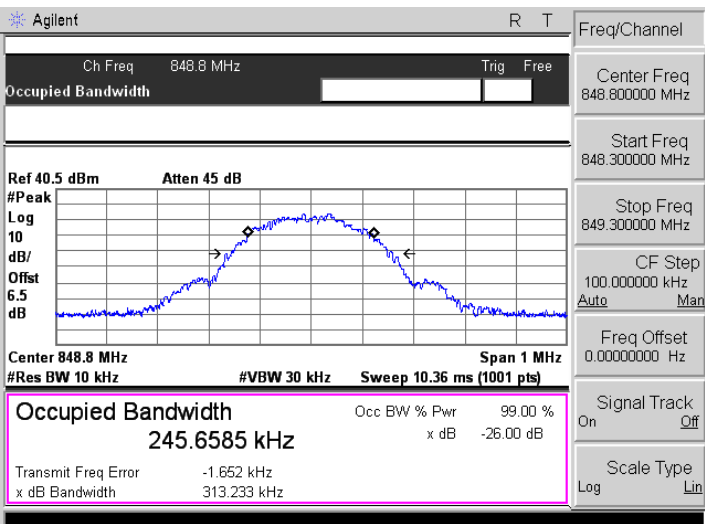
EUT Mode	Channel	Frequency (MHz)	99% Occupancy bandwidth (kHz)	-26dB bandwidth (kHz)
GSM 850 (GMSK)	128	824.20	250.4686	318.4700
	190	836.60	249.9733	319.8160
	251	848.80	243.3388	315.7190
GPRS850 (GMSK,1Slot)	128	824.20	247.7009	308.5980
	190	836.60	244.1854	322.0800
	251	848.80	250.7003	315.0220
EGPRS850 (8PSK,1Slot)	128	824.20	249.5821	310.7030
	190	836.60	244.0847	322.3400
	251	848.80	245.6585	313.2330
PCS1900 (GMSK)	512	1850.20	244.3838	315.9110
	661	1880.00	243.4433	319.7290
	810	1909.80	244.4470	312.3270
GPRS1900 (GMSK,1Slot)	512	1850.20	248.2444	303.3180
	661	1880.00	244.2426	322.7430
	810	1909.80	245.3418	321.8920
EGPRS1900 (8PSK,1Slot)	512	1850.20	243.9056	305.7730
	661	1880.00	248.2299	317.9660
	810	1909.80	245.3313	304.1730

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
WCDMA Band V	4132	826.40	4177.1	4729
	4183	836.60	4180.6	4732
	4233	846.60	4172.5	4703
HSDPA	4132	826.40	4201.0	5143
	4183	836.60	4177.5	4732
	4233	846.60	4187.2	4855
HSUPA	4132	826.40	4193.6	4760
	4183	836.60	4182.7	4717
	4233	846.60	4178.5	4708
WCDMA Band II	9262	1852.40	4182.2	4724
	9400	1880.00	4185.2	4704
	9538	1907.60	4185.3	4741
HSDPA	9262	1852.40	4167.1	4707
	9400	1880.00	4193.6	5203
	9538	1907.60	4170.9	4705
HSUPA	9262	1852.40	4197.4	4927
	9400	1880.00	4167.5	4921
	9538	1907.60	4174.8	4718
WCDMA Band IV	1312	1712.4	4181.9	4745
	1412	1733.4	4179.3	4689
	1513	1752.6	4182.2	4702
HSDPA	1312	1712.4	4187.2	4768
	1412	1733.4	4174.3	4711
	1513	1752.6	4169.8	4673
HSUPA	1312	1712.4	4193.4	4837
	1412	1733.4	4178.4	4813
	1513	1752.6	4175.5	4734



<p>GSM 850 (GMSK)-Low</p>	 <p>Agilent R T</p> <p>Ch Freq 824.2 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 824.2 MHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 250.4686 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -65.287 Hz</p> <p>x dB Bandwidth 318.470 kHz</p> <p>Freq/Channel</p> <p>Center Freq 824.200000 MHz</p> <p>Start Freq 823.700000 MHz</p> <p>Stop Freq 824.700000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>GSM 850 (GMSK)-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 836.6 MHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 249.9733 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -635.240 Hz</p> <p>x dB Bandwidth 319.816 kHz</p> <p>Freq/Channel</p> <p>Center Freq 836.600000 MHz</p> <p>Start Freq 836.100000 MHz</p> <p>Stop Freq 837.100000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>GSM 850 (GMSK)-High</p>	 <p>Agilent R T</p> <p>Ch Freq 848.8 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 848.8 MHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 243.3388 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 201.162 Hz</p> <p>x dB Bandwidth 315.719 kHz</p> <p>Freq/Channel</p> <p>Center Freq 848.800000 MHz</p> <p>Start Freq 848.300000 MHz</p> <p>Stop Freq 849.300000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

<p>GPRS850 (GMSK,1Slot)-Low</p>	
<p>GPRS850 (GMSK,1Slot)-Middle</p>	
<p>GPRS850 (GMSK,1Slot)-High</p>	

<p>EGPRS850 (8PSK,1Slot)-Low</p>	 <p>Agilent R T</p> <p>Ch Freq 824.2 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 6.5 dB</p> <p>Center 824.2 MHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 249.5821 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -748.378 Hz x dB Bandwidth 310.703 kHz</p> <p>Freq/Channel</p> <p>Center Freq 824.200000 MHz</p> <p>Start Freq 823.700000 MHz</p> <p>Stop Freq 824.700000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>EGPRS850 (8PSK,1Slot)-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 6.5 dB</p> <p>Center 836.6 MHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 244.0847 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -2.734 kHz x dB Bandwidth 322.340 kHz</p> <p>Freq/Channel</p> <p>Center Freq 836.600000 MHz</p> <p>Start Freq 836.100000 MHz</p> <p>Stop Freq 837.100000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>EGPRS850 (8PSK,1Slot)-High</p>	 <p>Agilent R T</p> <p>Ch Freq 848.8 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 6.5 dB</p> <p>Center 848.8 MHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 245.6585 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -1.652 kHz x dB Bandwidth 313.233 kHz</p> <p>Freq/Channel</p> <p>Center Freq 848.800000 MHz</p> <p>Start Freq 848.300000 MHz</p> <p>Stop Freq 849.300000 MHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.0000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

<p>PCS1900 (GMSK)-Low</p>	
<p>PCS1900 (GMSK)-Middle</p>	
<p>PCS1900 (GMSK)-High</p>	

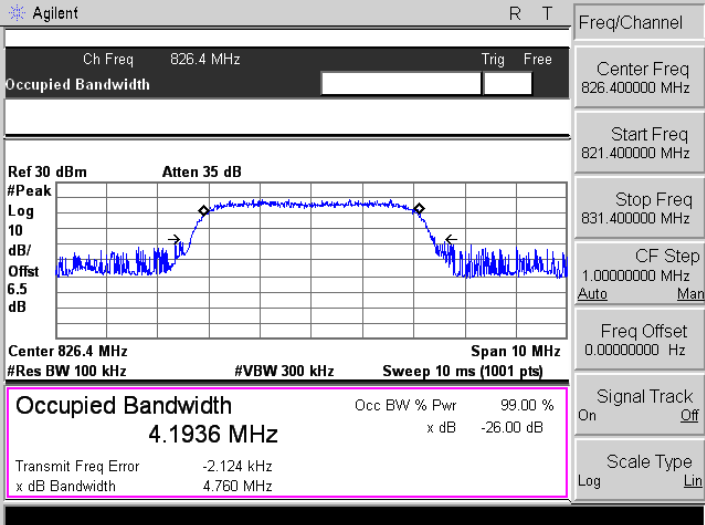
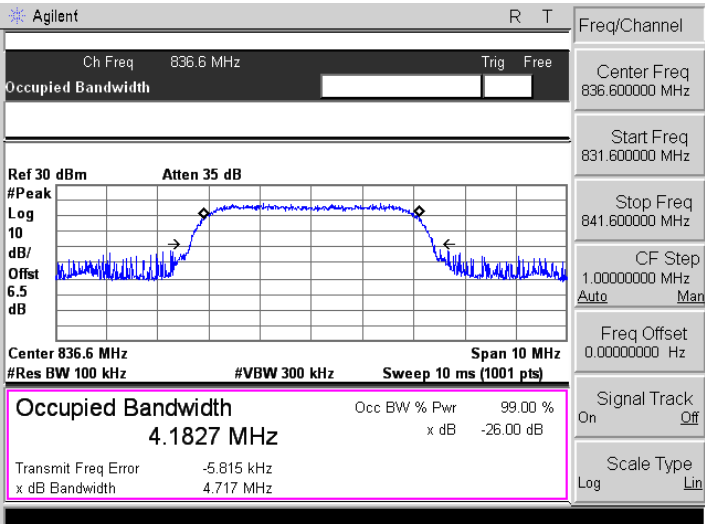
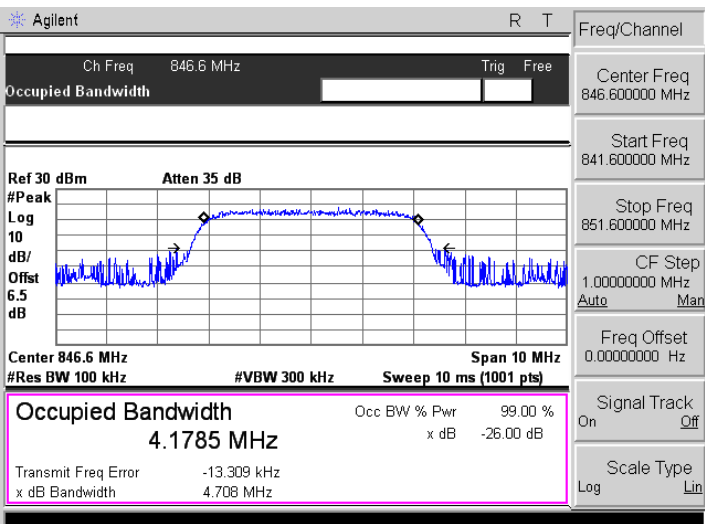
<p>GPRS1900 (GMSK,1Slot)-Low</p>	<p>Agilent R T</p> <p>Ch Freq 1.8502 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.85 GHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth 248.2444 kHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.020 kHz</p> <p>x dB Bandwidth 303.318 kHz</p> <p>Freq/Channel</p> <p>Center Freq 1.85020000 GHz</p> <p>Start Freq 1.84970000 GHz</p> <p>Stop Freq 1.85070000 GHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>GPRS1900 (GMSK,1Slot)-Middle</p>	<p>Agilent R T</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.88 GHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth 244.2426 kHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -421.044 Hz</p> <p>x dB Bandwidth 322.743 kHz</p> <p>Freq/Channel</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.87950000 GHz</p> <p>Stop Freq 1.88050000 GHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>GPRS1900 (GMSK,1Slot)-High</p>	<p>Agilent R T</p> <p>Ch Freq 1.9098 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40.5 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.91 GHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p><b>Occupied Bandwidth 245.3418 kHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.322 kHz</p> <p>x dB Bandwidth 321.892 kHz</p> <p>Freq/Channel</p> <p>Center Freq 1.90980000 GHz</p> <p>Start Freq 1.90930000 GHz</p> <p>Stop Freq 1.91030000 GHz</p> <p>CF Step 100.000000 kHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

<p>EGPRS1900 (8PSK,1Slot)-Low</p>	
<p>EGPRS1900 (8PSK,1Slot)-Middle</p>	
<p>EGPRS1900 (8PSK,1Slot)-High</p>	

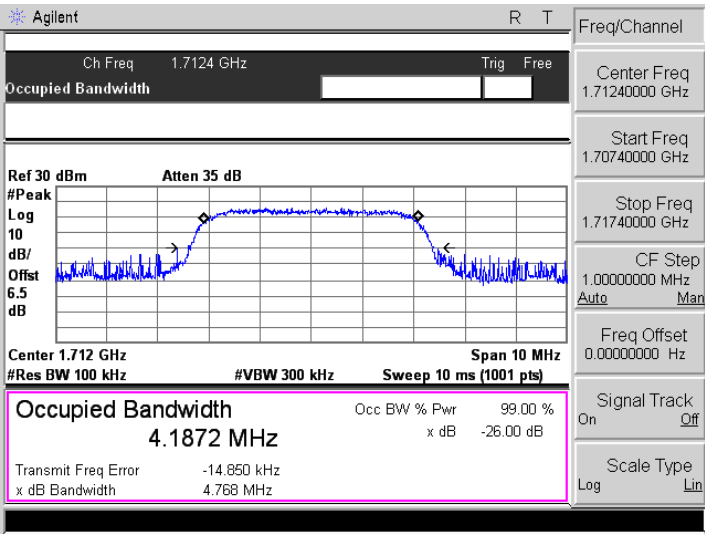
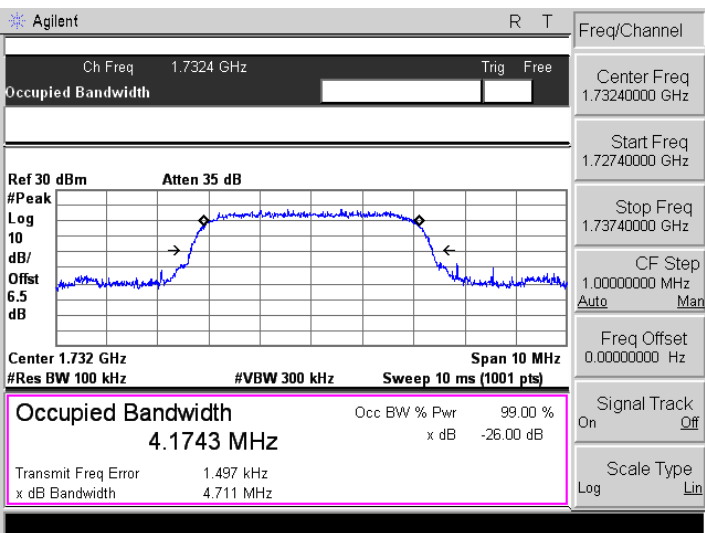
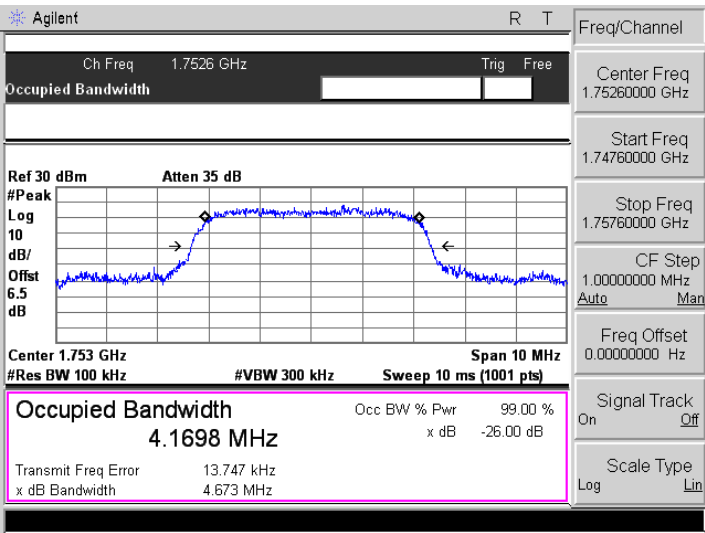
<p>WCDMA Band V-Low</p>	<p>Agilent R T</p> <p>Ch Freq 826.4 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 826.4 MHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1771 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -5.304 kHz x dB Bandwidth 4.729 MHz</p> <p>Freq/Channel</p> <p>Center Freq 826.400000 MHz</p> <p>Start Freq 821.400000 MHz</p> <p>Stop Freq 831.400000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>WCDMA Band V-Middle</p>	<p>Agilent R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 836.6 MHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1806 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -8.895 kHz x dB Bandwidth 4.732 MHz</p> <p>Freq/Channel</p> <p>Center Freq 836.600000 MHz</p> <p>Start Freq 831.600000 MHz</p> <p>Stop Freq 841.600000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>WCDMA Band V-High</p>	<p>Agilent R T</p> <p>Ch Freq 846.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 846.6 MHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1725 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -8.726 kHz x dB Bandwidth 4.703 MHz</p> <p>Trace/View</p> <p>Trace 1 2 3</p> <p>Clear Write</p> <p>Max Hold</p> <p>Min Hold</p> <p>View</p> <p>Blank</p> <p>More 1 of 2</p>

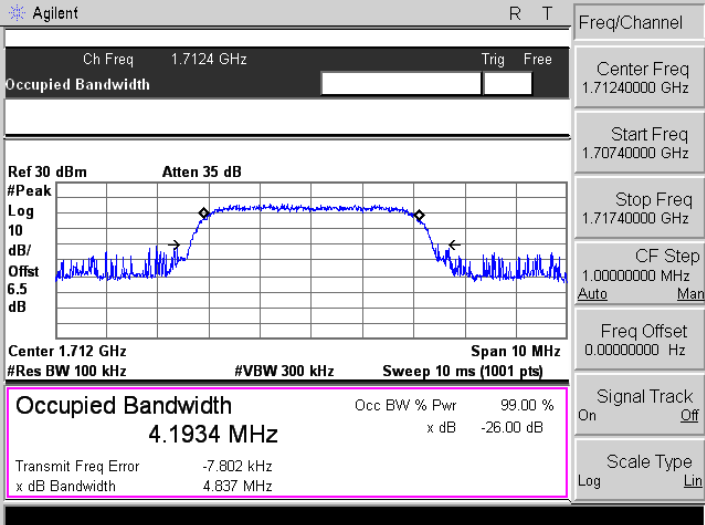
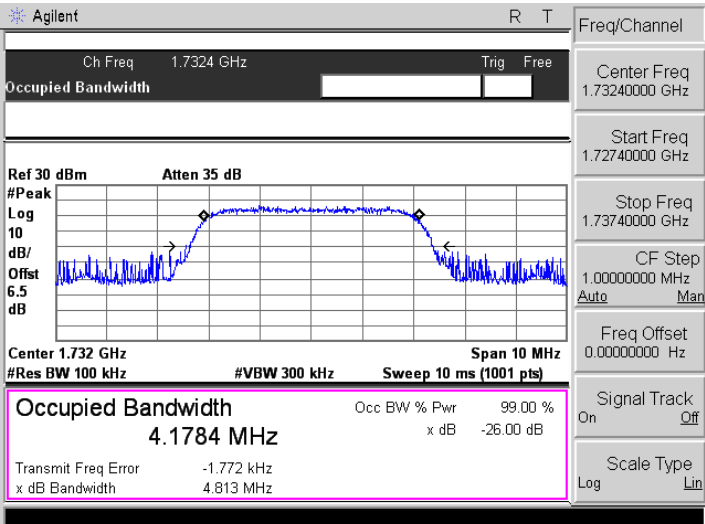
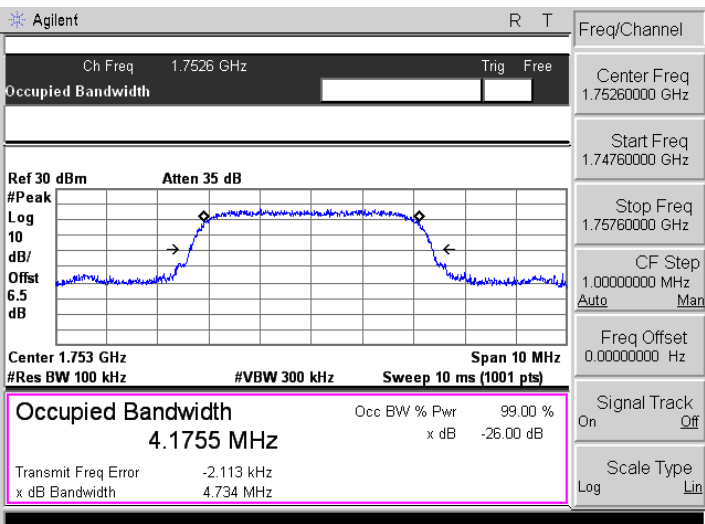
<p>HSDPA-Low</p>	<p>Agilent R T</p> <p>Ch Freq 826.4 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 826.4 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.2010 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -4.938 kHz x dB Bandwidth 5.143 MHz</p> <p>Freq/Channel</p> <p>Center Freq 826.400000 MHz</p> <p>Start Freq 821.400000 MHz</p> <p>Stop Freq 831.400000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>HSDPA-Middle</p>	<p>Agilent R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 836.6 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1775 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -9.651 kHz x dB Bandwidth 4.732 MHz</p> <p>Freq/Channel</p> <p>Center Freq 836.600000 MHz</p> <p>Start Freq 831.600000 MHz</p> <p>Stop Freq 841.600000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>HSDPA-High</p>	<p>Agilent R T</p> <p>Ch Freq 846.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 846.6 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1872 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -7.165 kHz x dB Bandwidth 4.855 MHz</p> <p>Freq/Channel</p> <p>Center Freq 846.600000 MHz</p> <p>Start Freq 841.600000 MHz</p> <p>Stop Freq 851.600000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>



<p>HSUPA-Low</p>	 <p>Agilent R T</p> <p>Ch Freq 826.4 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 826.4 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1936 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -2.124 kHz x dB Bandwidth 4.760 MHz</p> <p>Freq/Channel</p> <p>Center Freq 826.400000 MHz</p> <p>Start Freq 821.400000 MHz</p> <p>Stop Freq 831.400000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>HSUPA-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 836.6 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1827 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -5.815 kHz x dB Bandwidth 4.717 MHz</p> <p>Freq/Channel</p> <p>Center Freq 836.600000 MHz</p> <p>Start Freq 831.600000 MHz</p> <p>Stop Freq 841.600000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>HSUPA-High</p>	 <p>Agilent R T</p> <p>Ch Freq 846.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 846.6 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1785 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -13.309 kHz x dB Bandwidth 4.708 MHz</p> <p>Freq/Channel</p> <p>Center Freq 846.600000 MHz</p> <p>Start Freq 841.600000 MHz</p> <p>Stop Freq 851.600000 MHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

<p>WCDMA Band IV-Low</p>	
<p>WCDMA Band IV-Middle</p>	
<p>WCDMA Band IV-High</p>	

<p>HSDPA-Low</p>	
<p>HSDPA-Middle</p>	
<p>HSDPA-High</p>	

<p>HSUPA-Low</p>	 <p>Agilent R T</p> <p>Ch Freq 1.7124 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.712 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1934 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -7.802 kHz</p> <p>x dB Bandwidth 4.837 MHz</p> <p>Freq/Channel</p> <p>Center Freq 1.71240000 GHz</p> <p>Start Freq 1.70740000 GHz</p> <p>Stop Freq 1.71740000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>HSUPA-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 1.7324 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.732 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1784 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -1.772 kHz</p> <p>x dB Bandwidth 4.813 MHz</p> <p>Freq/Channel</p> <p>Center Freq 1.73240000 GHz</p> <p>Start Freq 1.72740000 GHz</p> <p>Stop Freq 1.73740000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>HSUPA-High</p>	 <p>Agilent R T</p> <p>Ch Freq 1.7526 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.753 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth 4.1755 MHz</b></p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -2.113 kHz</p> <p>x dB Bandwidth 4.734 MHz</p> <p>Freq/Channel</p> <p>Center Freq 1.75260000 GHz</p> <p>Start Freq 1.74760000 GHz</p> <p>Stop Freq 1.75760000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

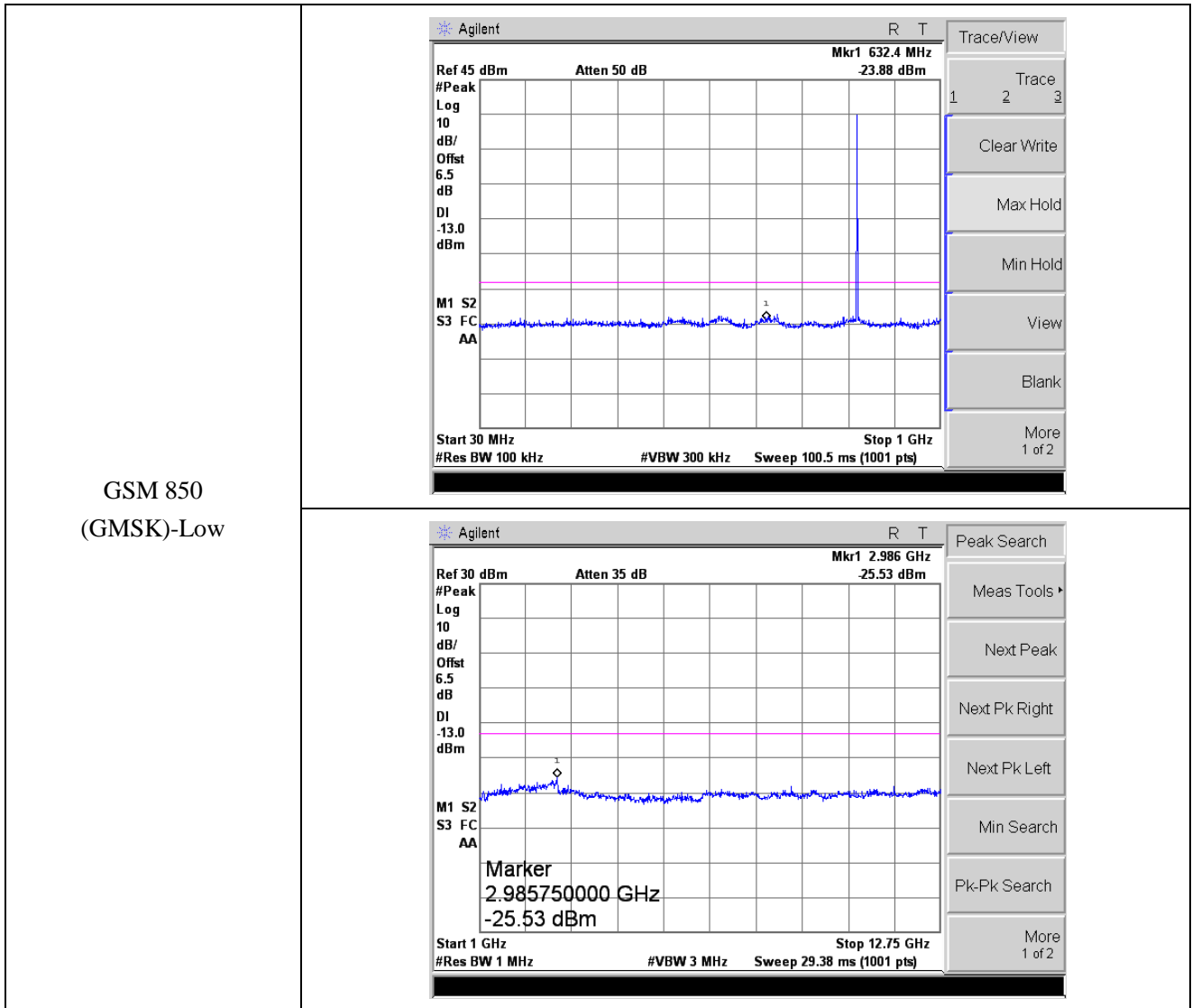
<p>WCDMA Band II-Low</p>	<p>Agilent R T</p> <p>Ch Freq 1.8524 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.852 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 4.1822 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -102.843 Hz x dB Bandwidth 4.724 MHz</p> <p>Freq/Channel</p> <p>Center Freq 1.85240000 GHz</p> <p>Start Freq 1.84740000 GHz</p> <p>Stop Freq 1.85740000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>WCDMA Band II-Middle</p>	<p>Agilent R T</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.88 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 4.1852 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -7.154 kHz x dB Bandwidth 4.704 MHz</p> <p>Freq/Channel</p> <p>Center Freq 1.88000000 GHz</p> <p>Start Freq 1.87500000 GHz</p> <p>Stop Freq 1.88500000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>
<p>WCDMA Band II-High</p>	<p>Agilent R T</p> <p>Ch Freq 1.9076 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offset 6.5 dB</p> <p>Center 1.908 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p><b>Occupied Bandwidth</b> 4.1853 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -14.363 kHz x dB Bandwidth 4.741 MHz</p> <p>Freq/Channel</p> <p>Center Freq 1.90760000 GHz</p> <p>Start Freq 1.90260000 GHz</p> <p>Stop Freq 1.91260000 GHz</p> <p>CF Step 1.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Scale Type Log Lin</p>

<p>HSDPA-Low</p>	
<p>HSDPA-Middle</p>	
<p>HSDPA-High</p>	

<p>HSUPA-Low</p>	
<p>HSUPA-Middle</p>	
<p>HSUPA-High</p>	

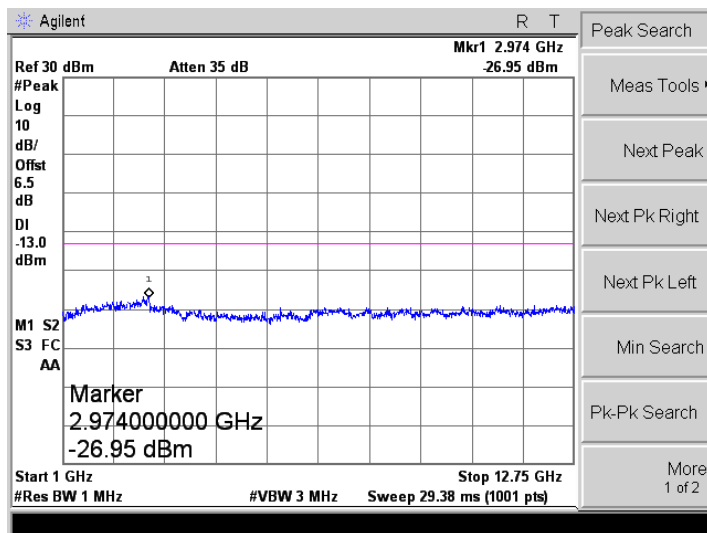
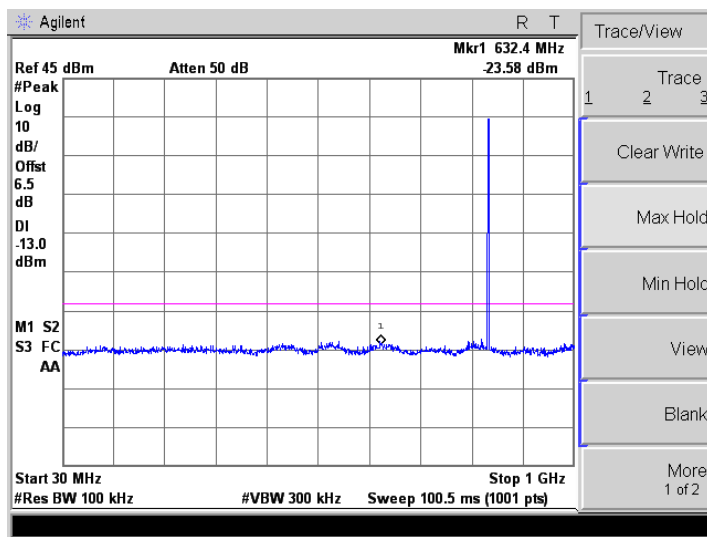
## APPENDIX D

### Out of Band Emissions at Antenna Terminal

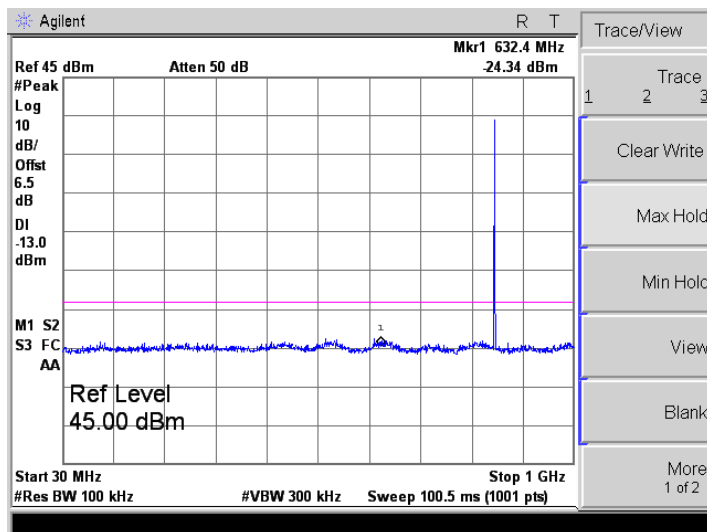


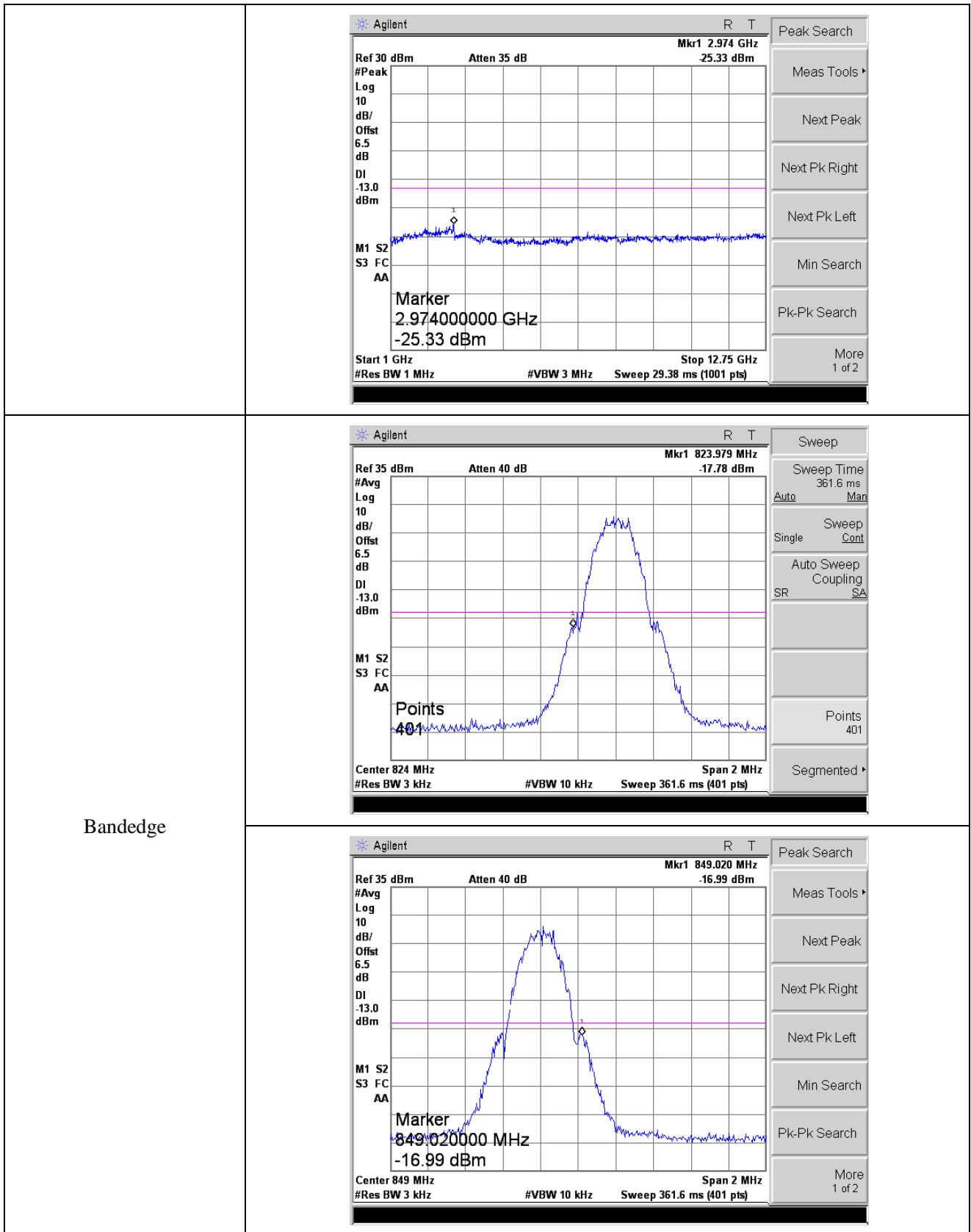


GSM 850  
(GMSK)-Middle

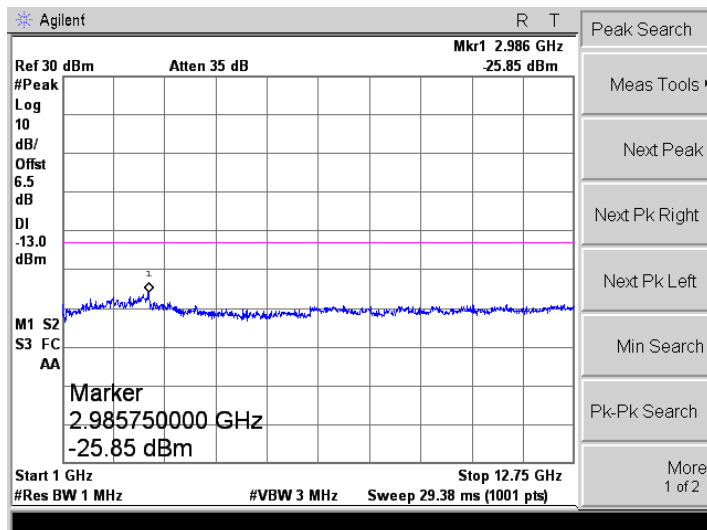
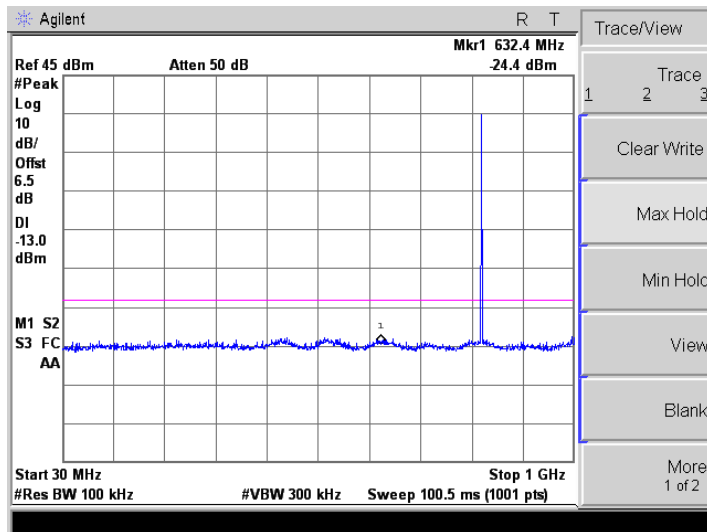


GSM 850  
(GMSK)-High

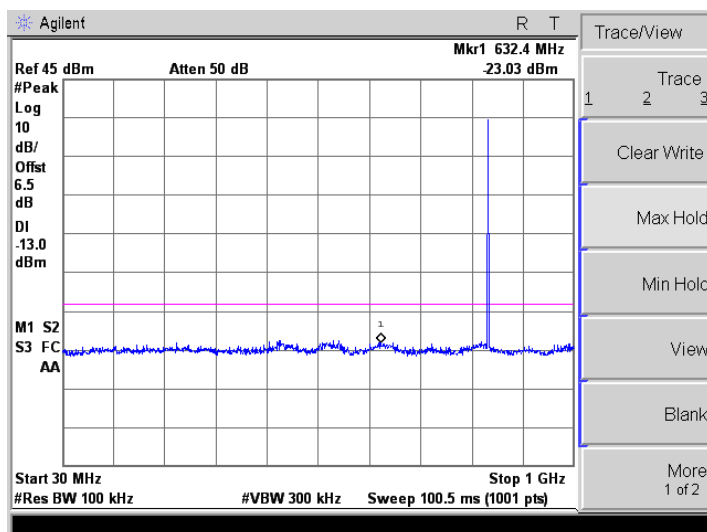


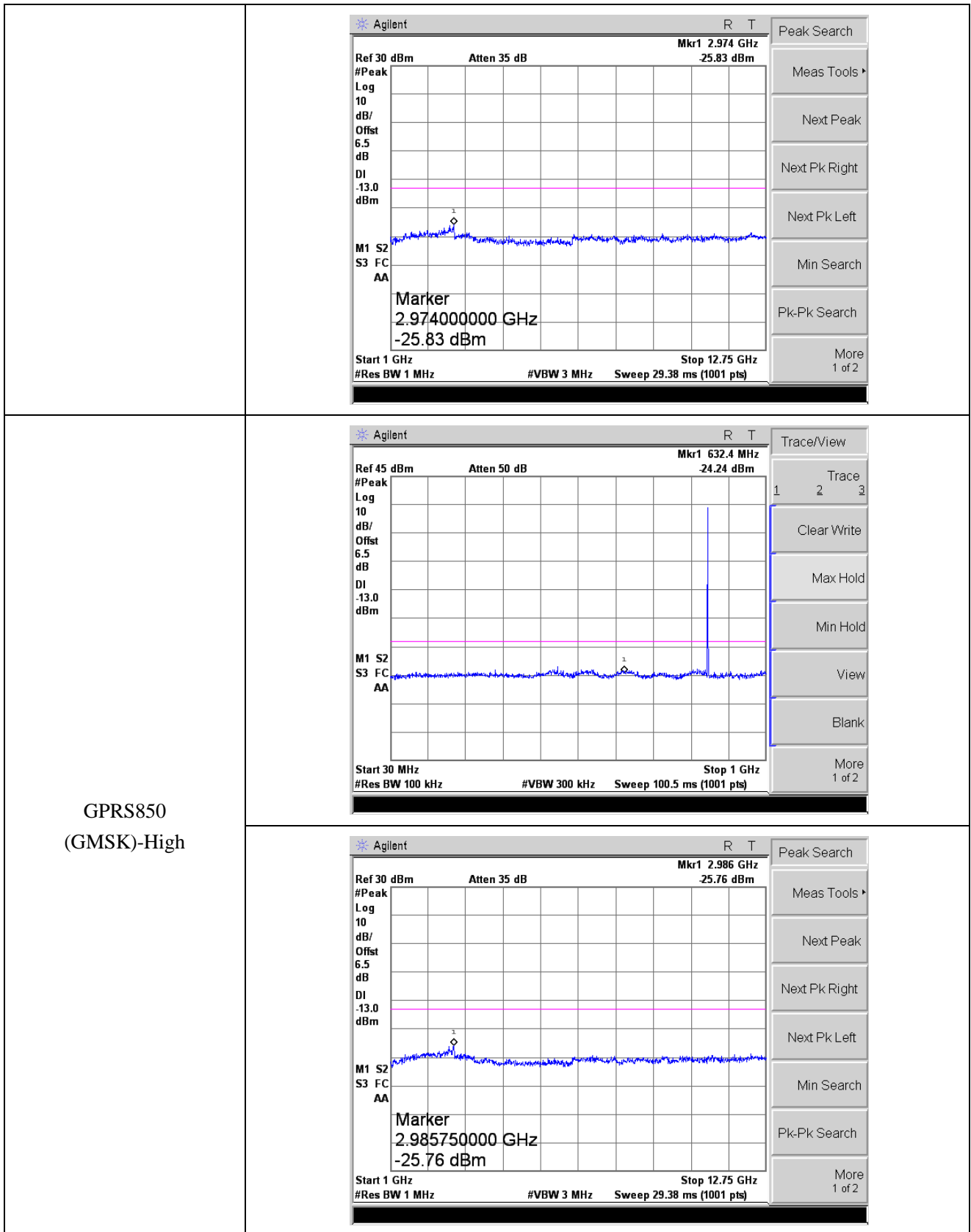


GPRS850  
(GMSK,1Slot)-Low

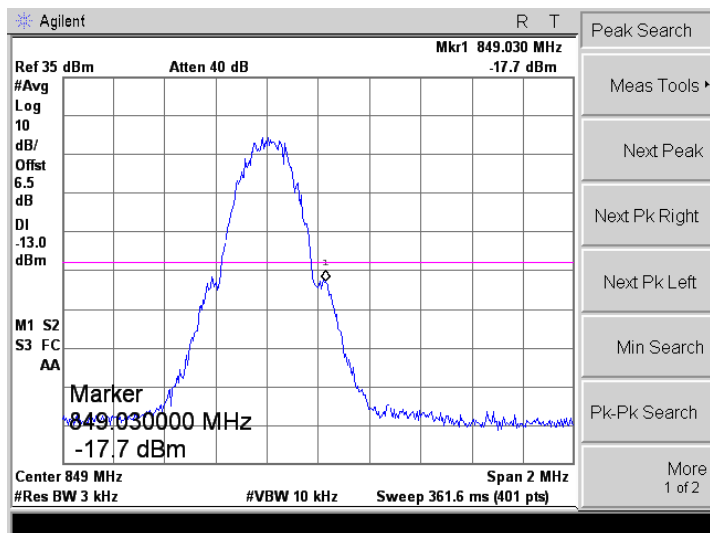
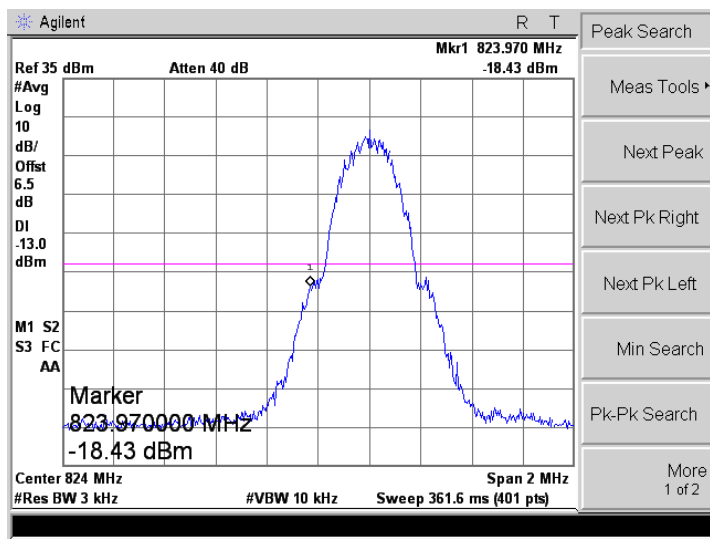


GPRS850  
(GMSK,1Slot)-Middle

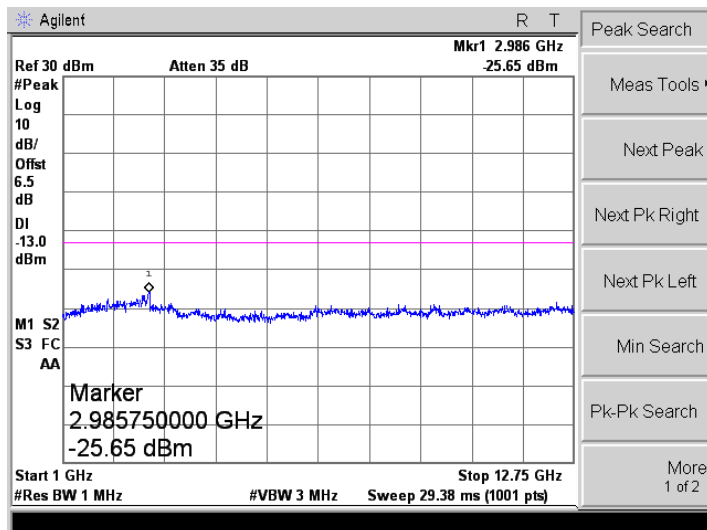
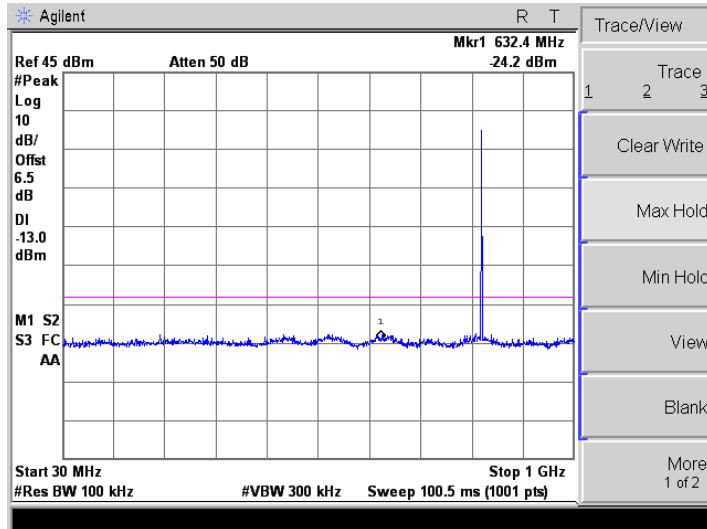




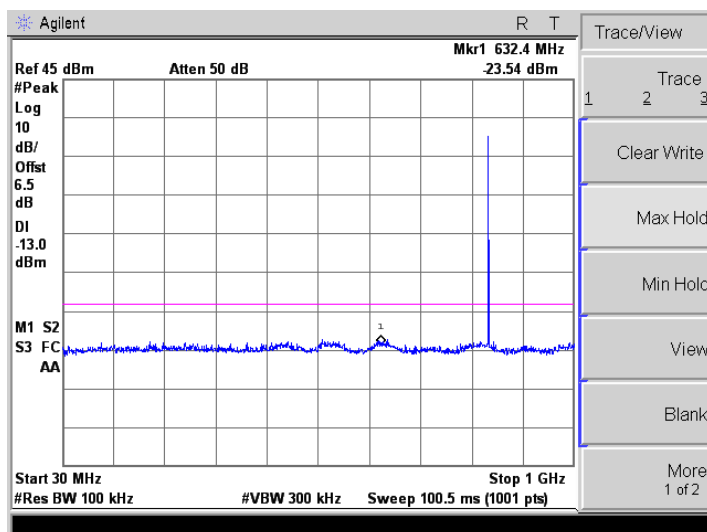
Bandedge

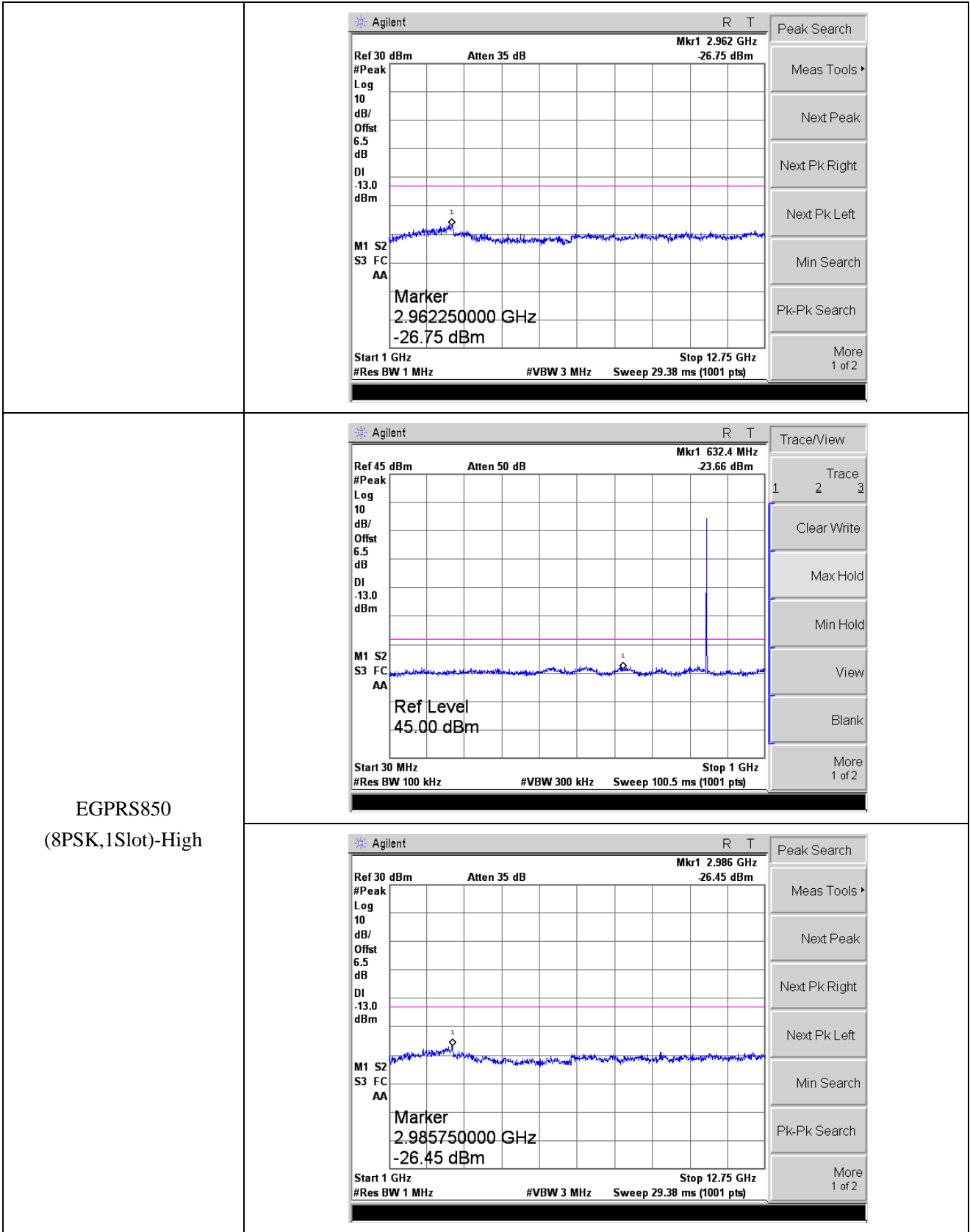


EGPRS850  
(8PSK,1Slot)-Low

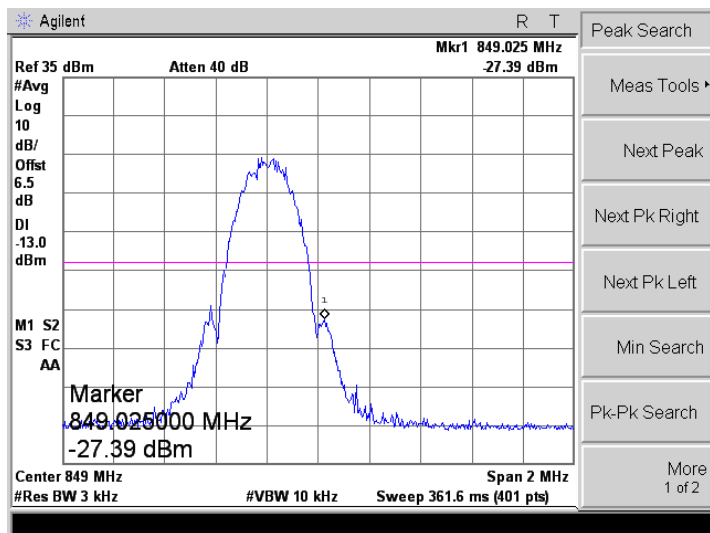
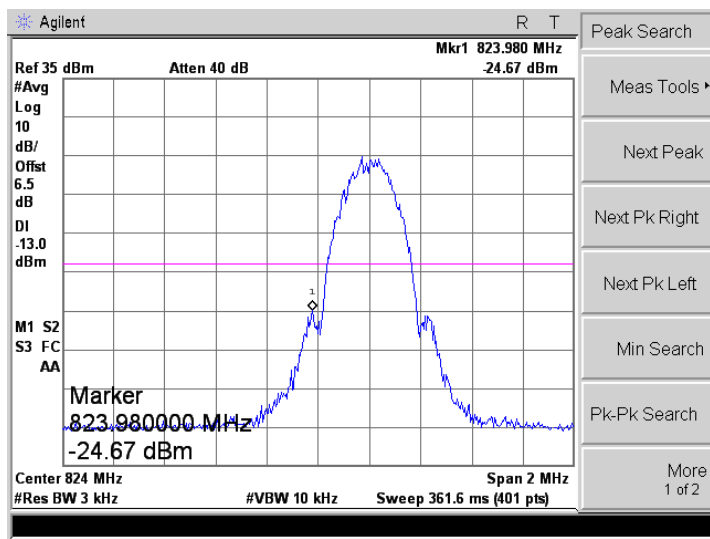


EGPRS850  
(8PSK,1Slot)-Middle



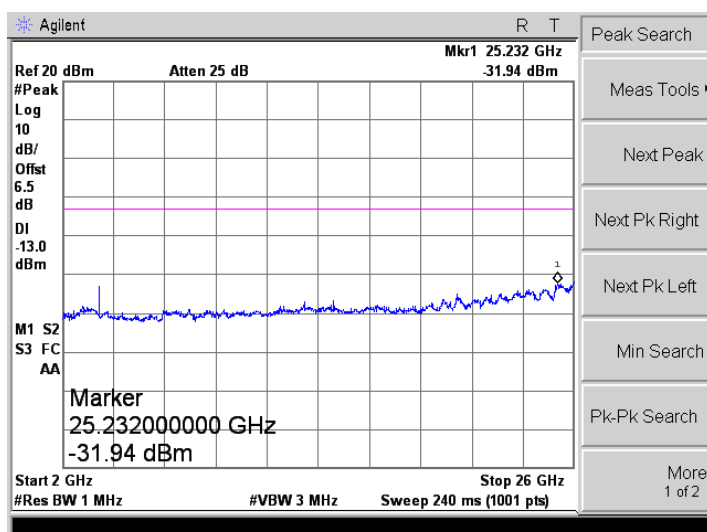
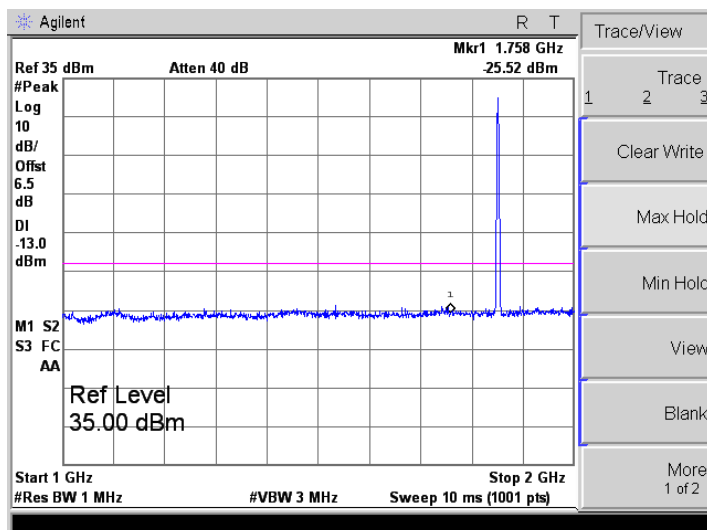
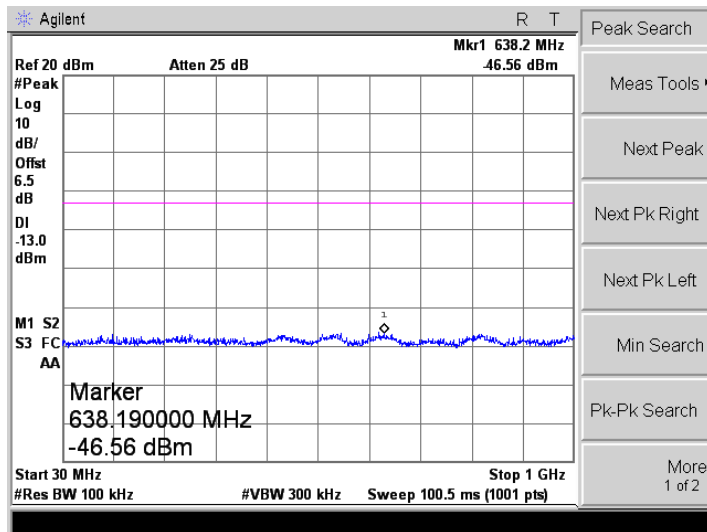


Bandedge

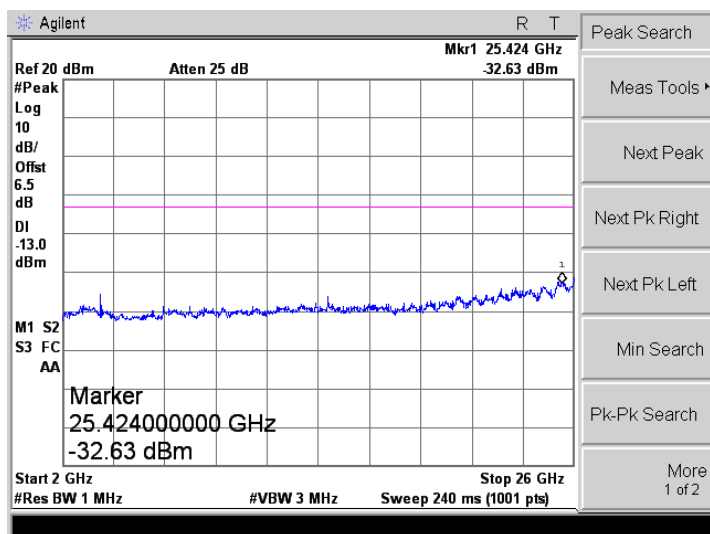
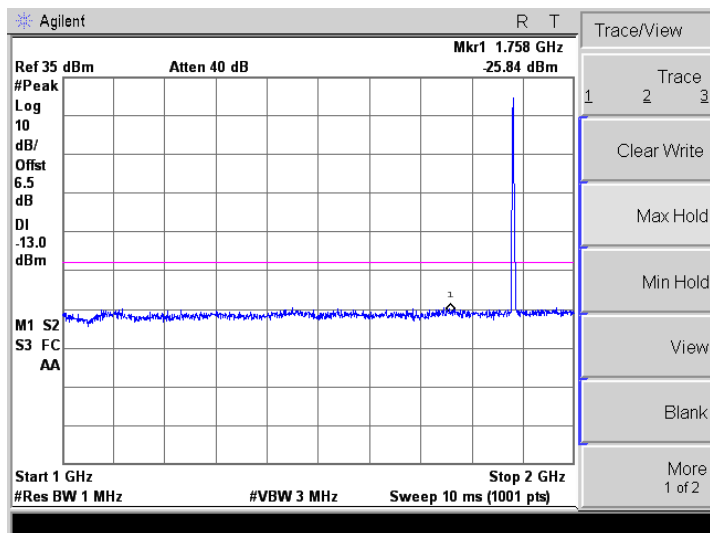
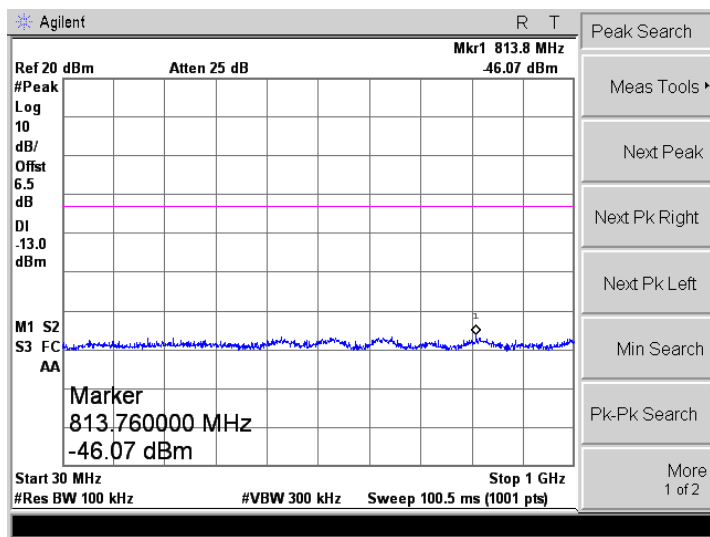




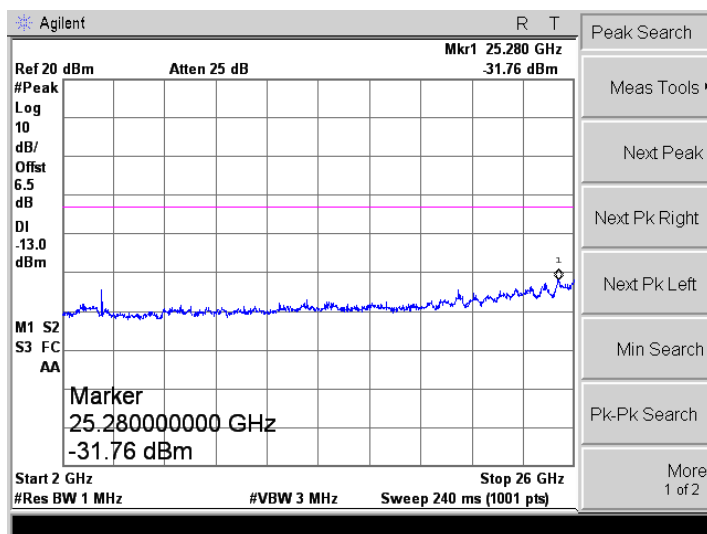
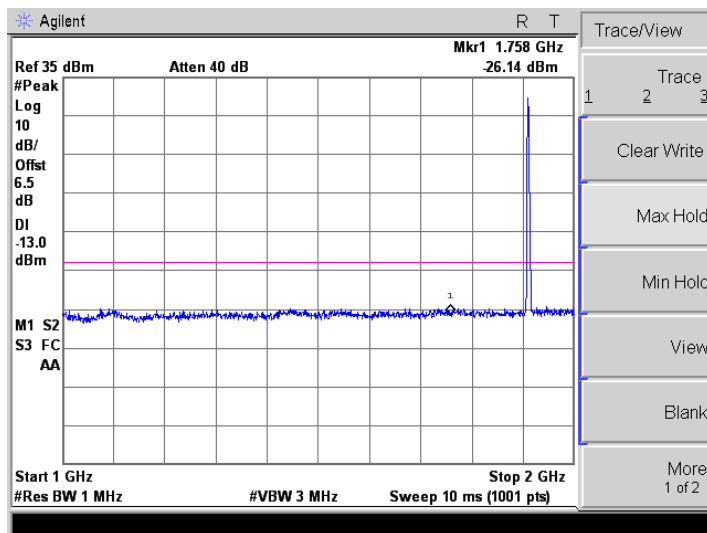
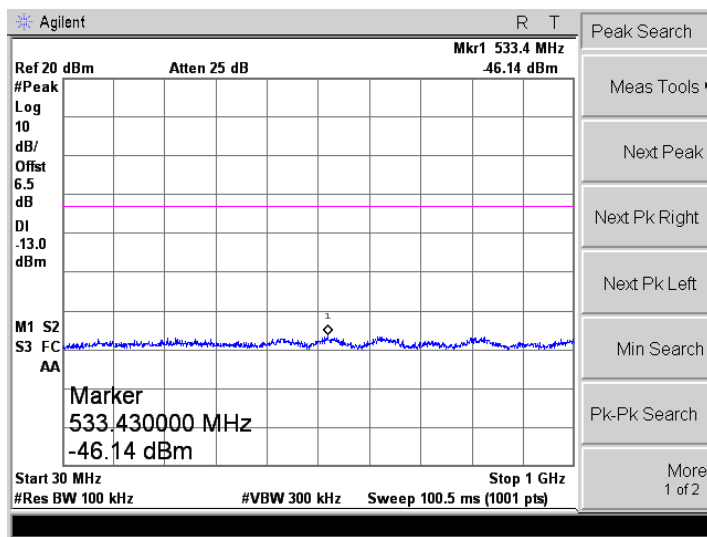
PCS1900  
(GMSK)-Low



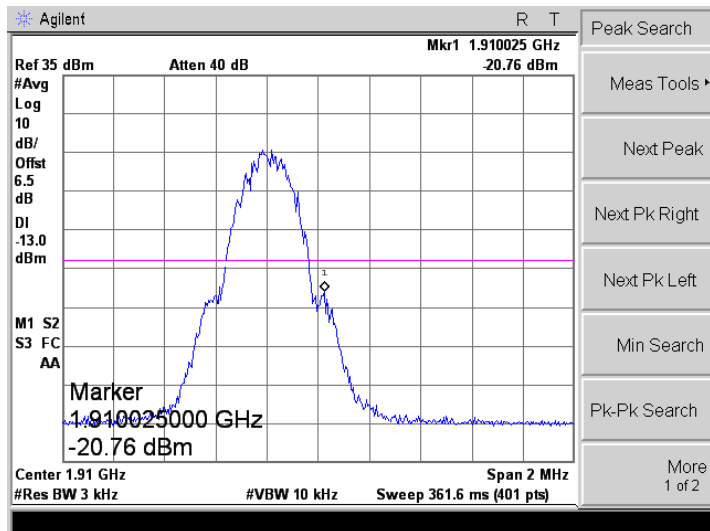
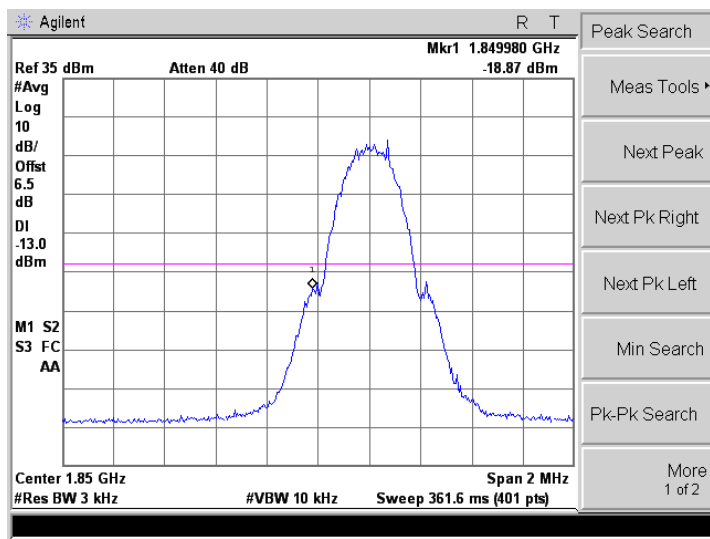
PCS1900  
(GMSK)-Middle



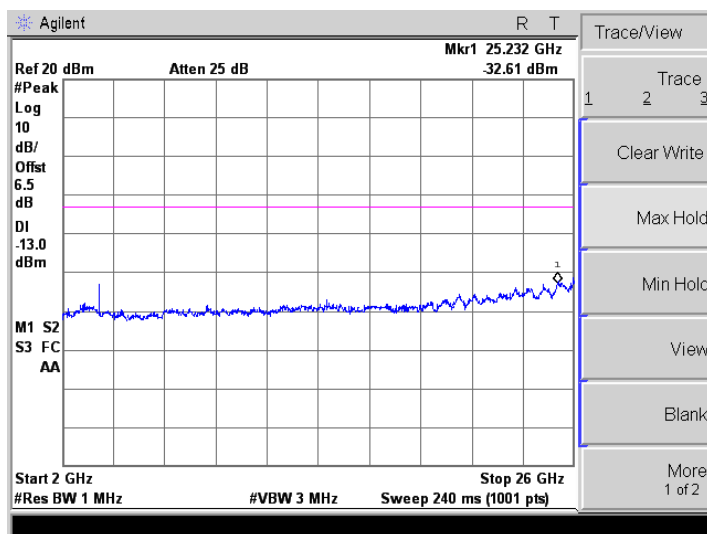
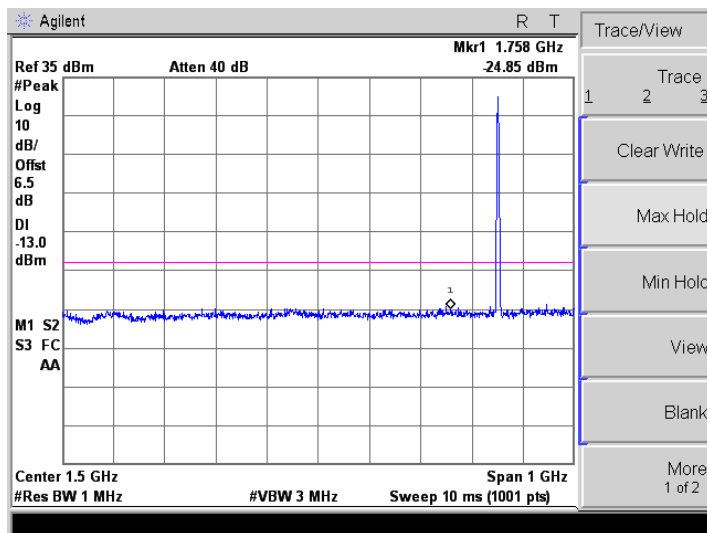
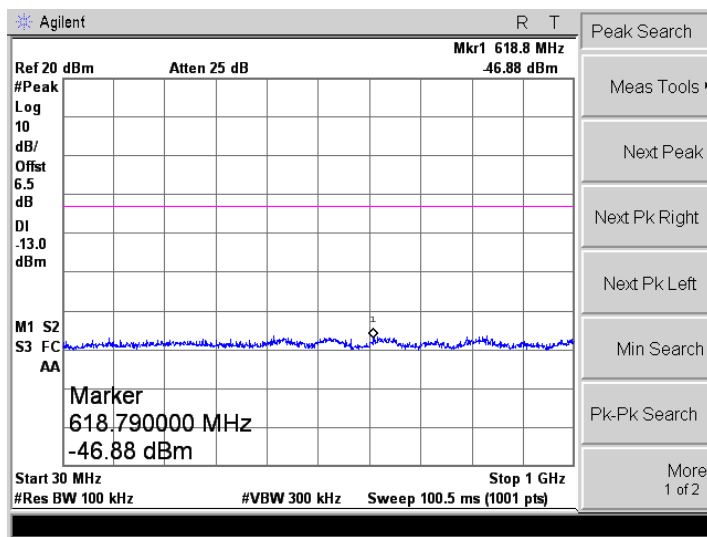
PCS1900  
(GMSK)-High



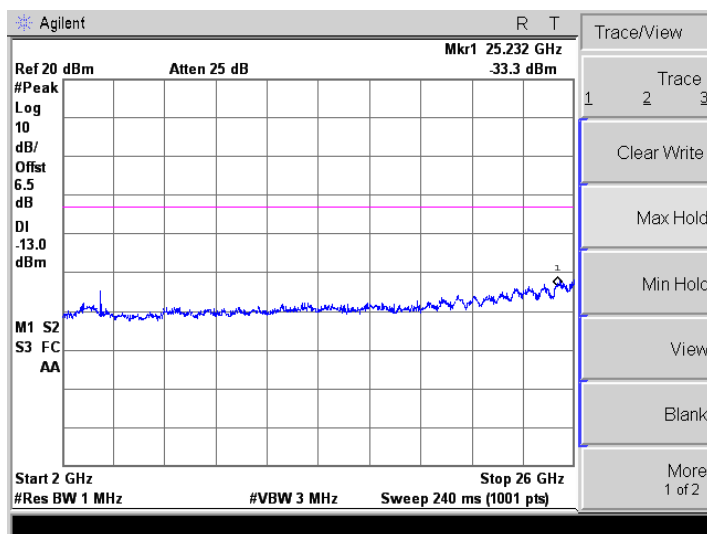
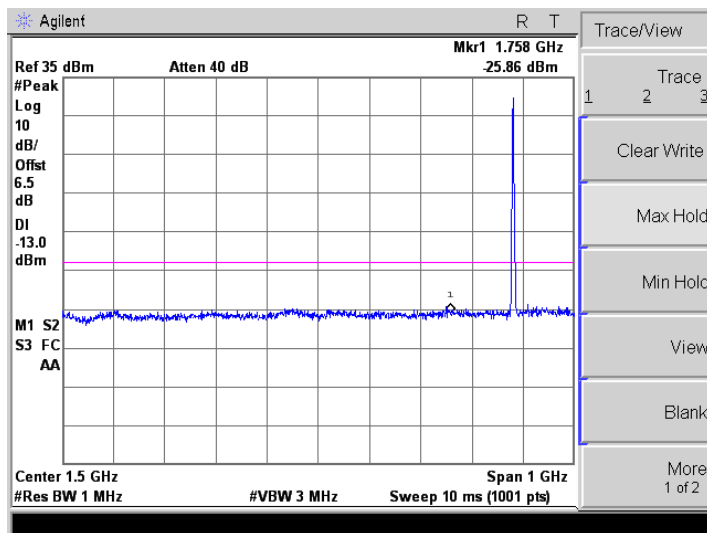
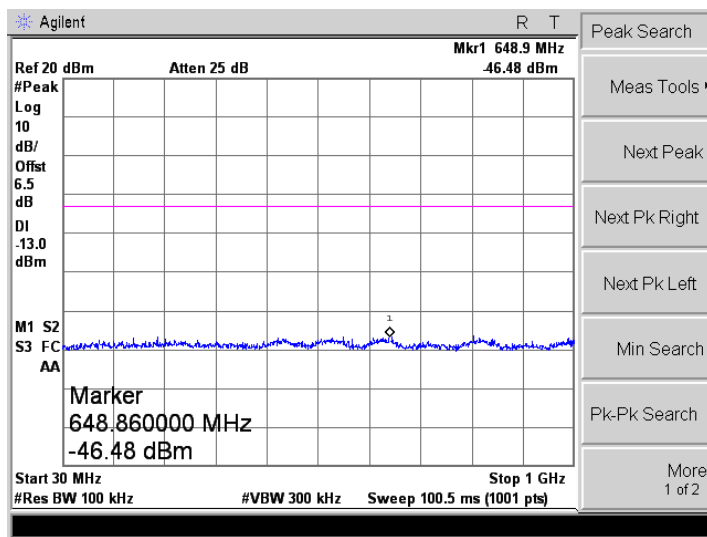
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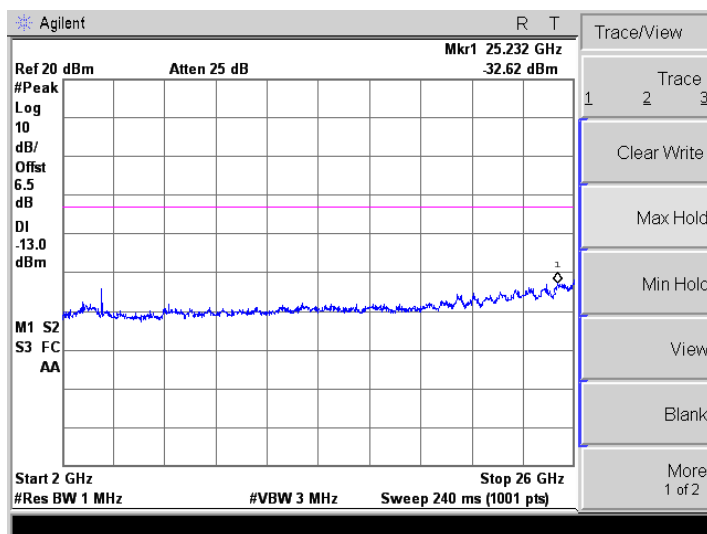
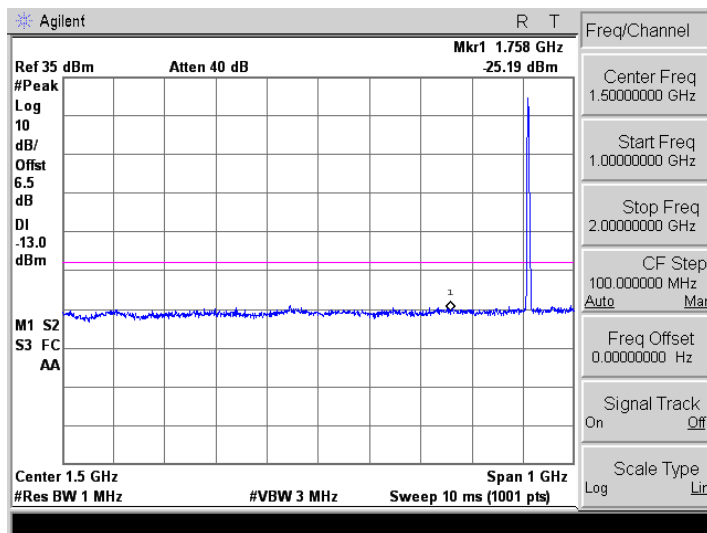
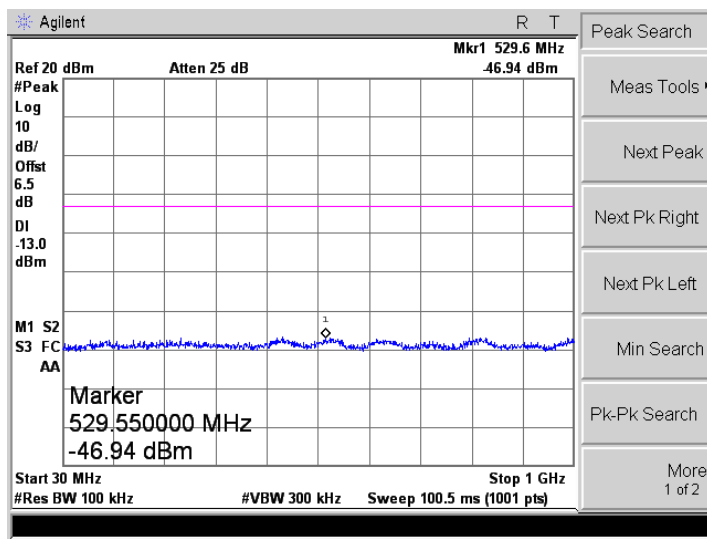
GPRS1900  
(GMSK,1Slot)-Low



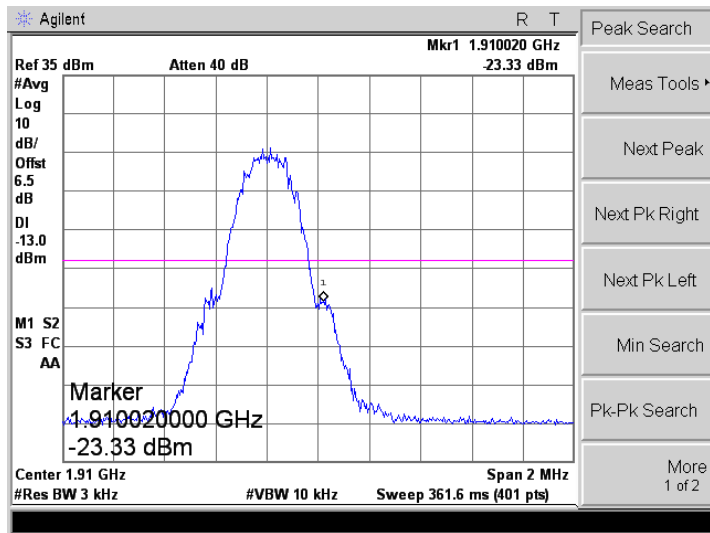
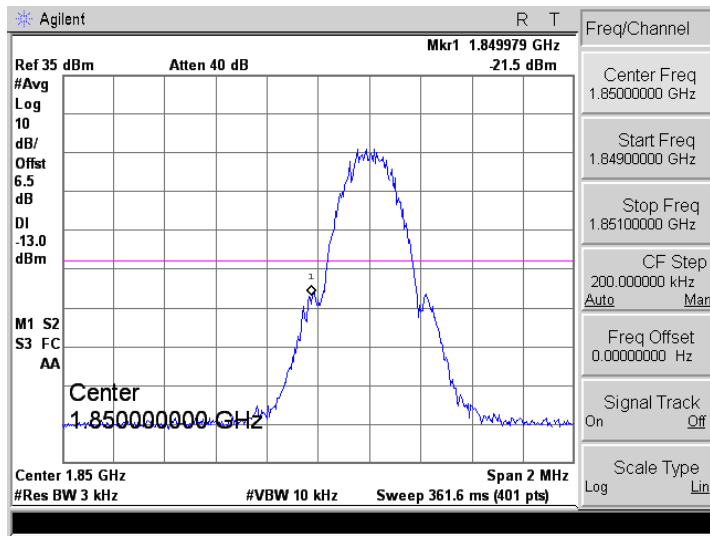
GPRS1900  
(GMSK,1Slot)-Middle



GPRS1900  
(GMSK, 1Slot)-High

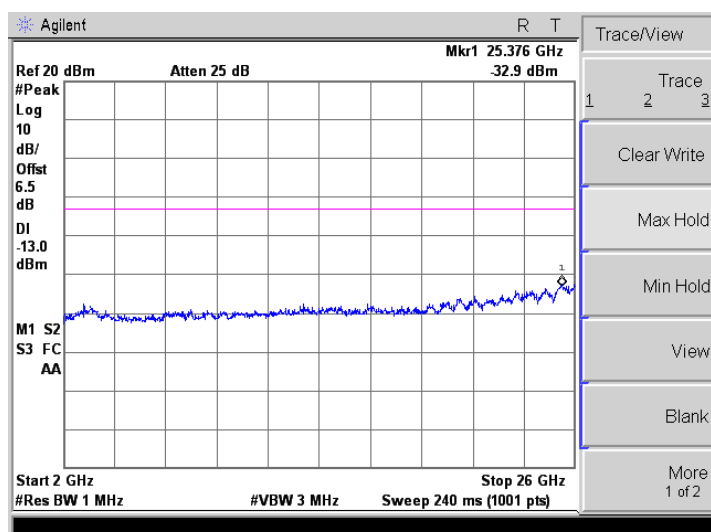
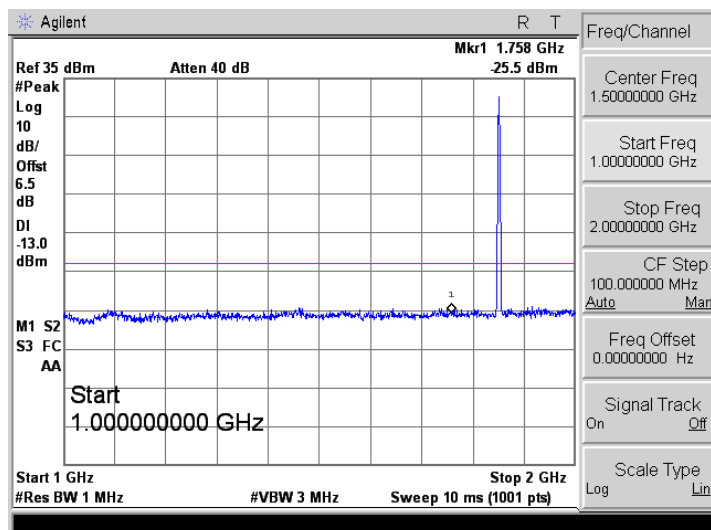
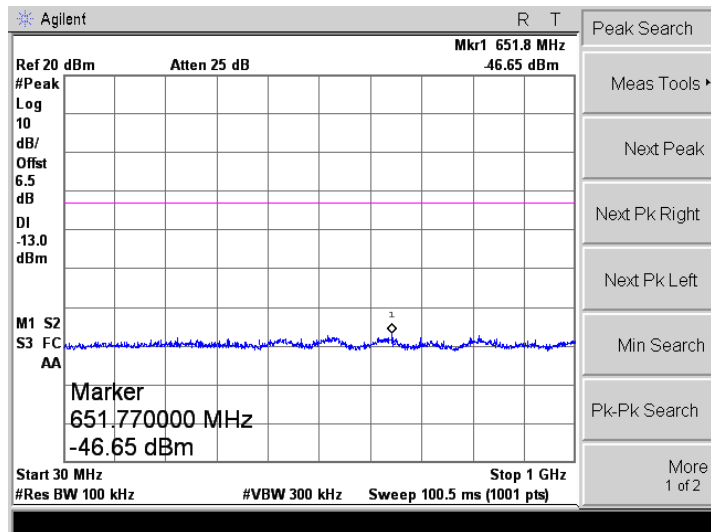


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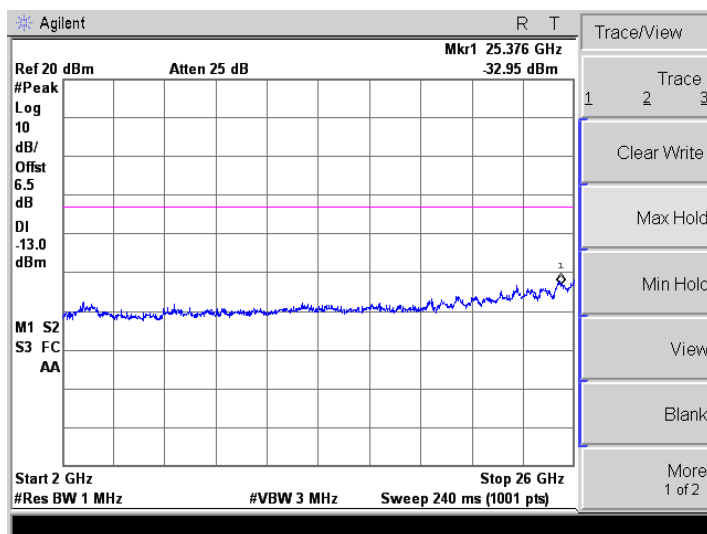
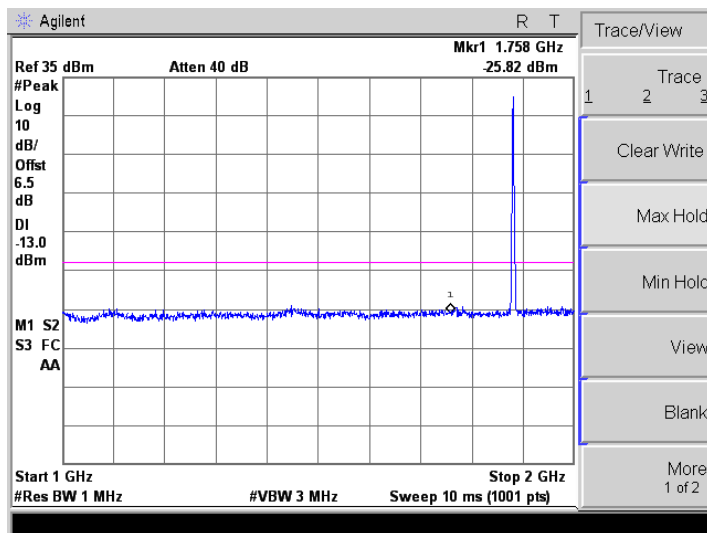
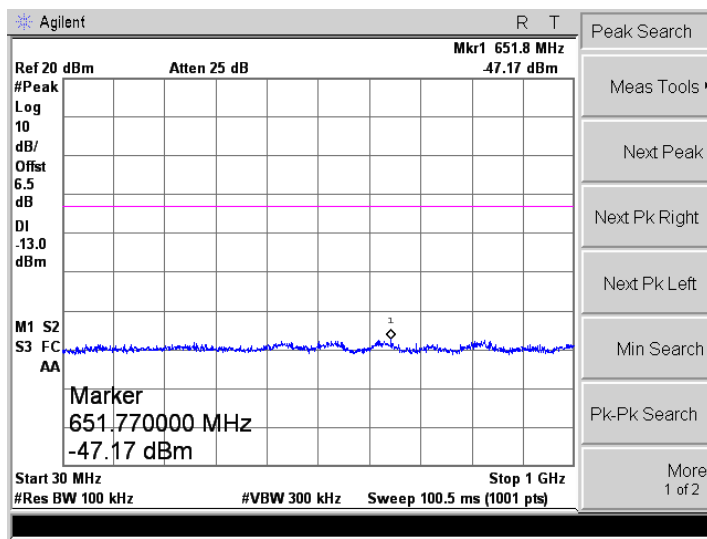




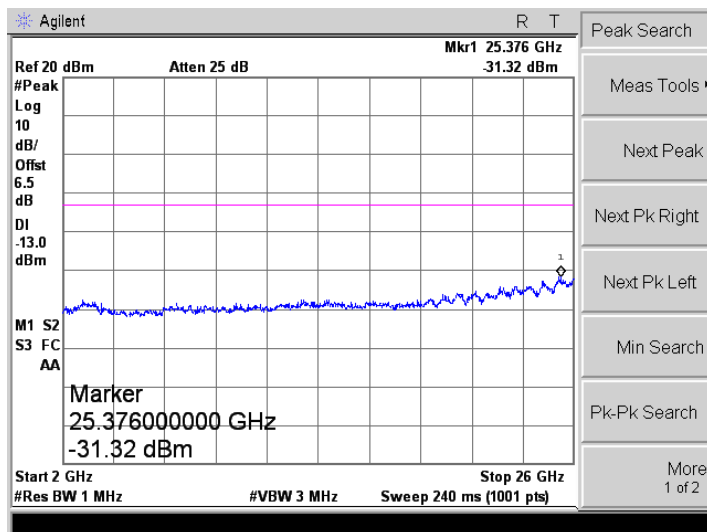
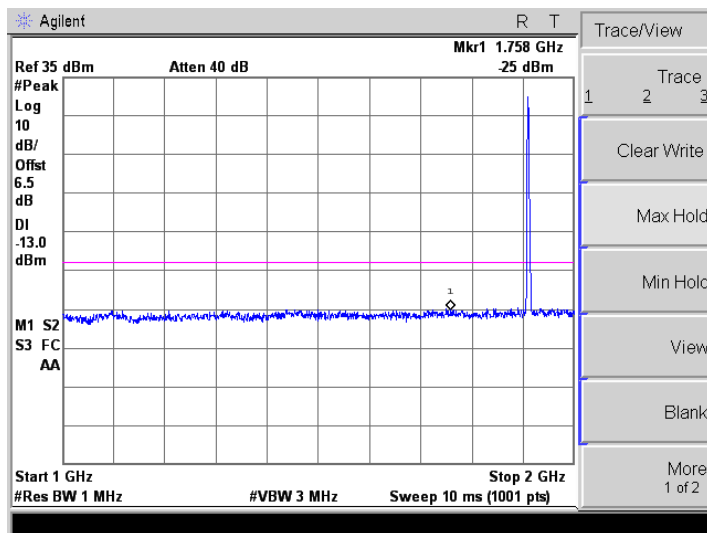
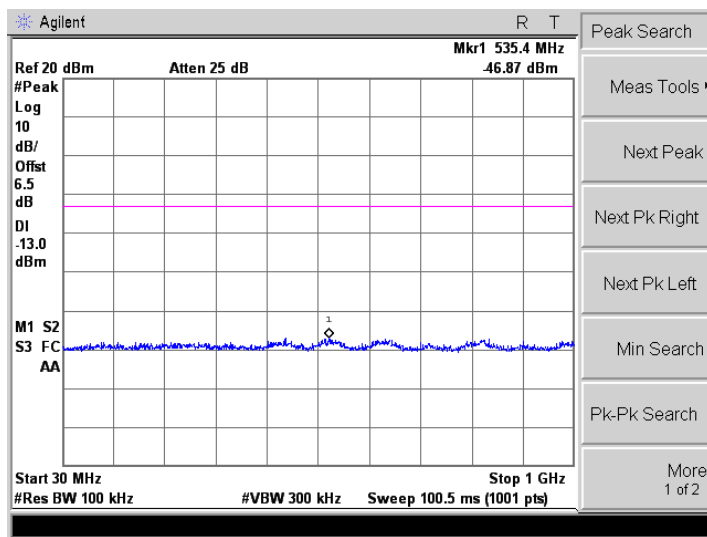
EGPRS1900  
(8PSK,1Slot)-Low



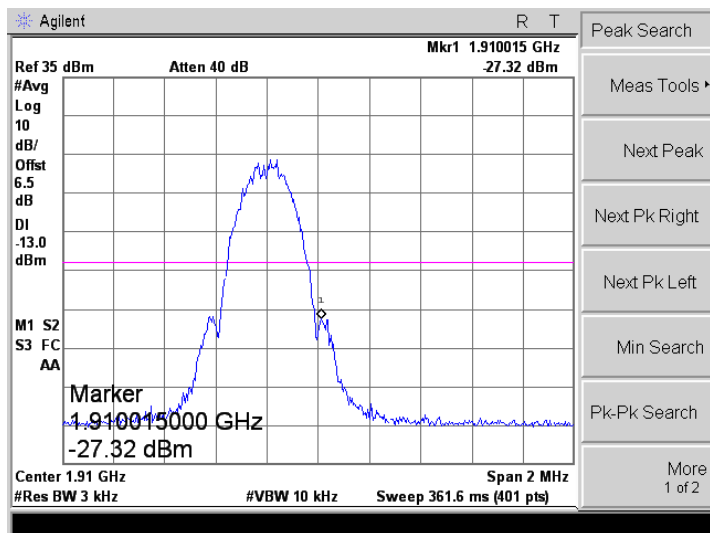
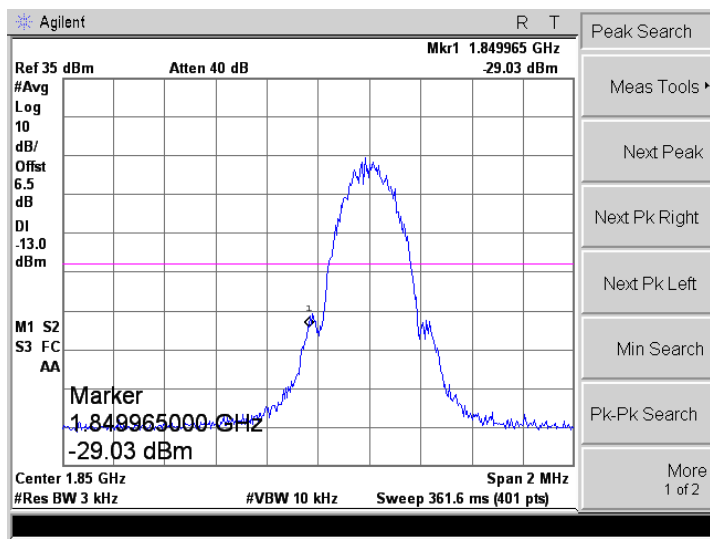
EGPRS1900  
(8PSK,1Slot)-Middle



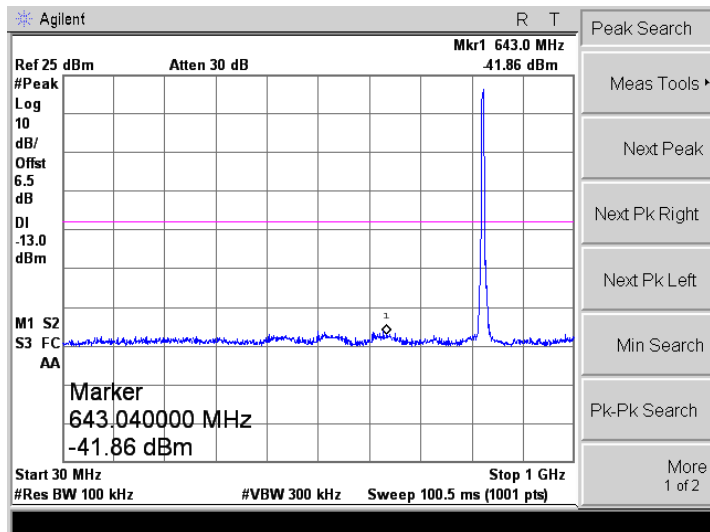
EGPRS1900  
(8PSK,1Slot)-High



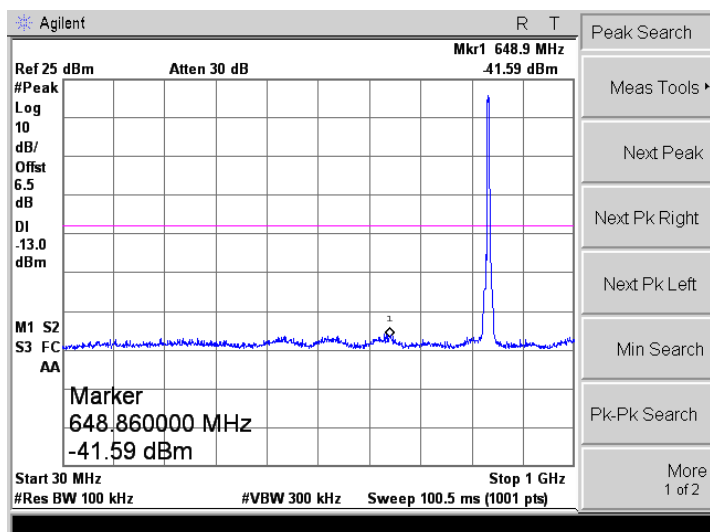
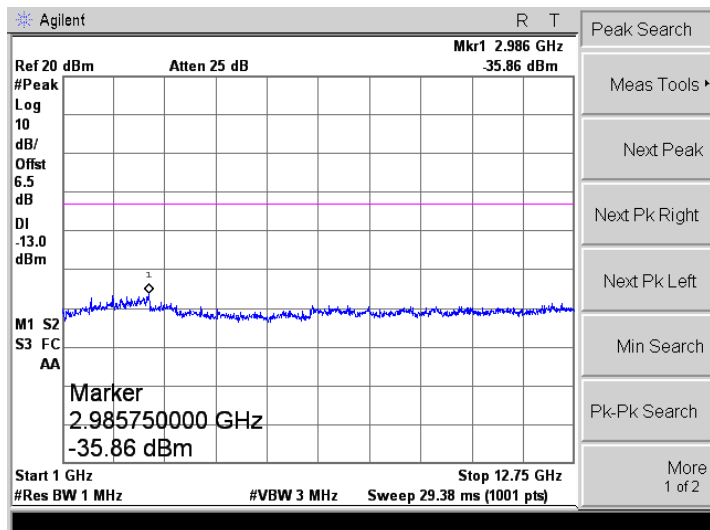
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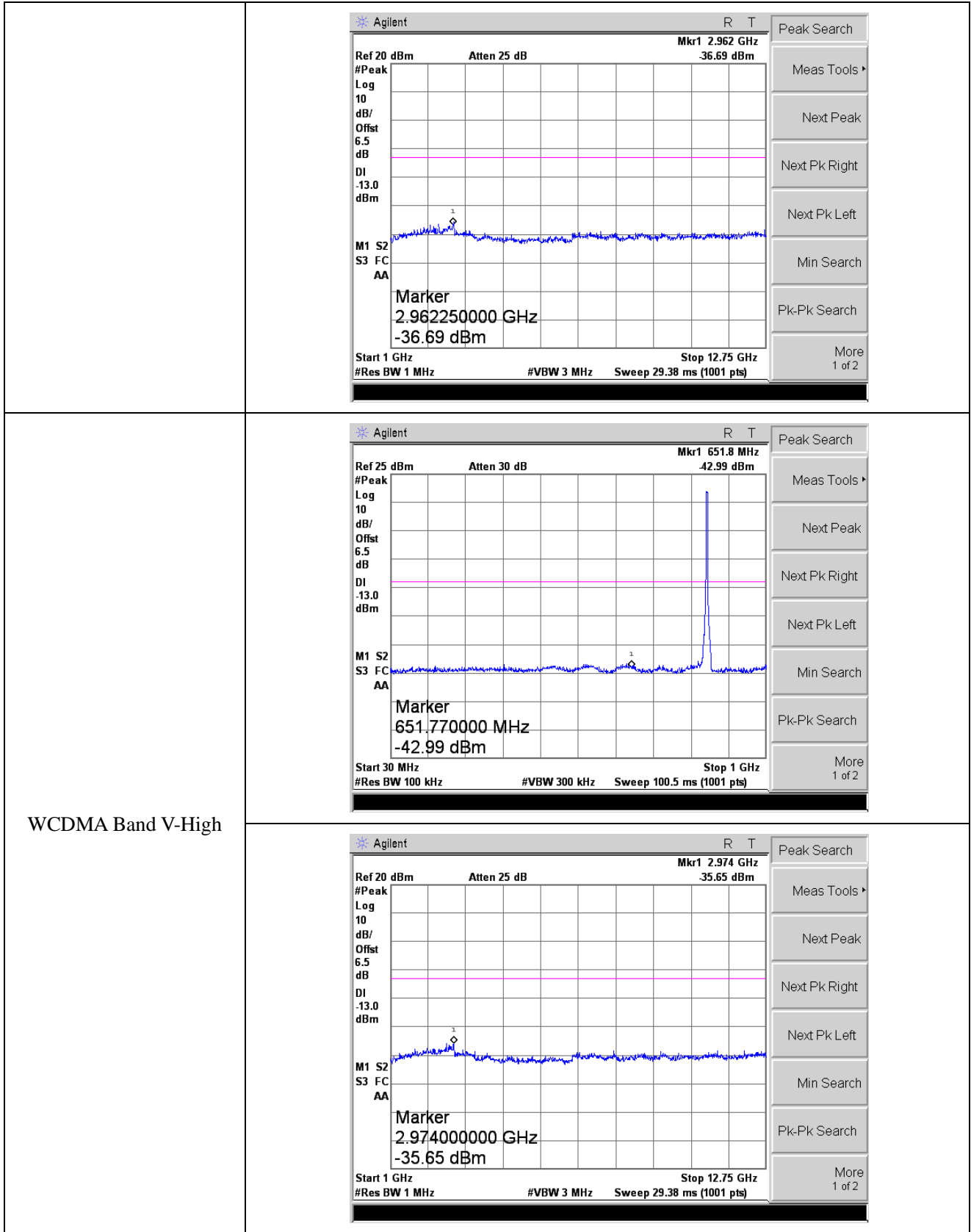


WCDMA Band V-Low

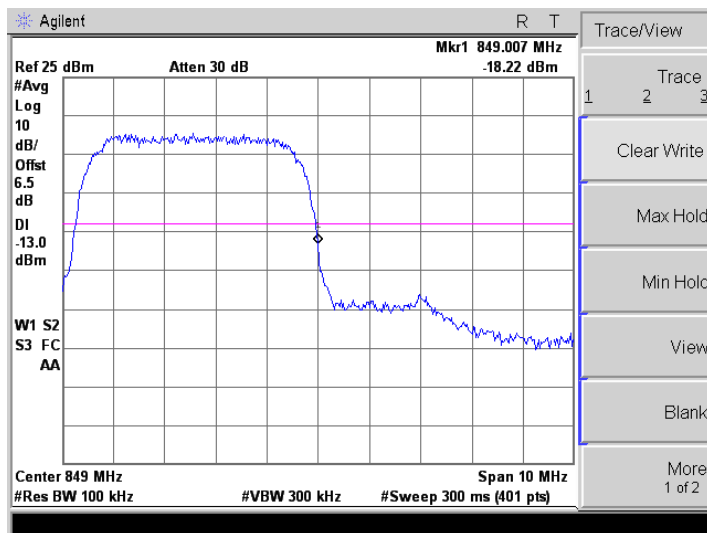
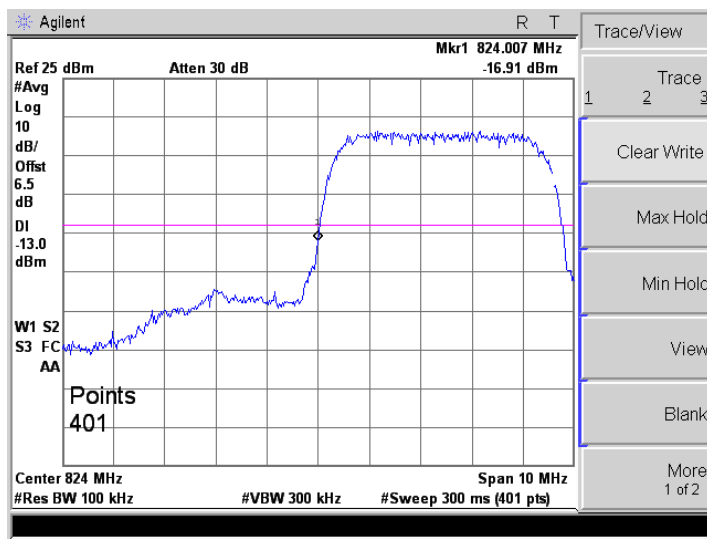


WCDMA Band V-Middle

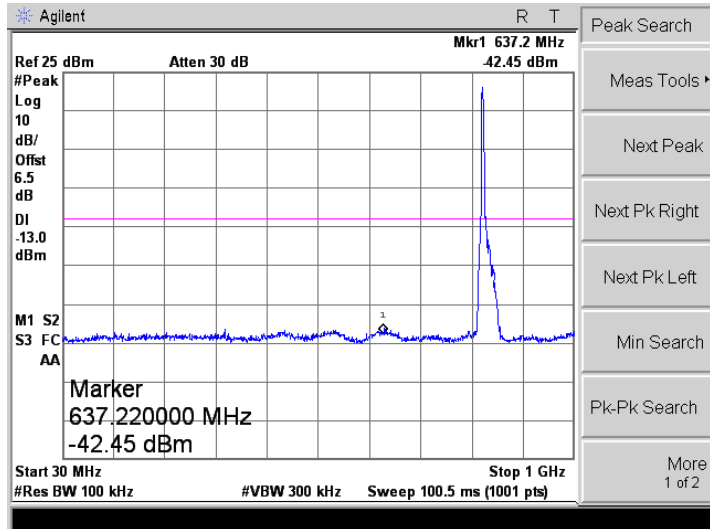




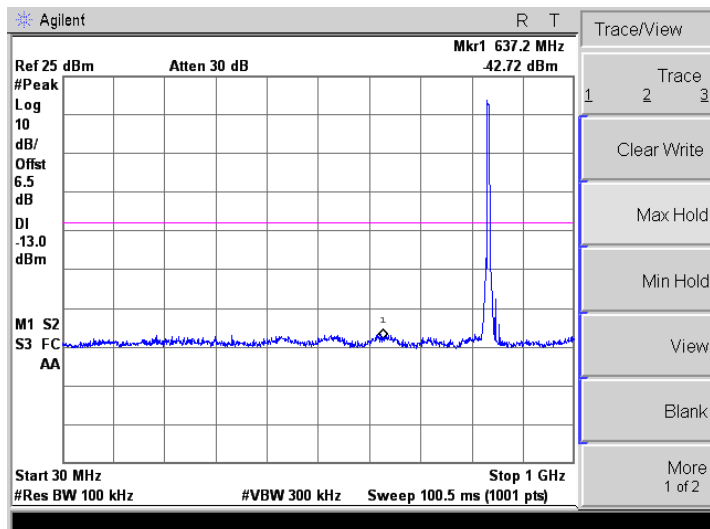
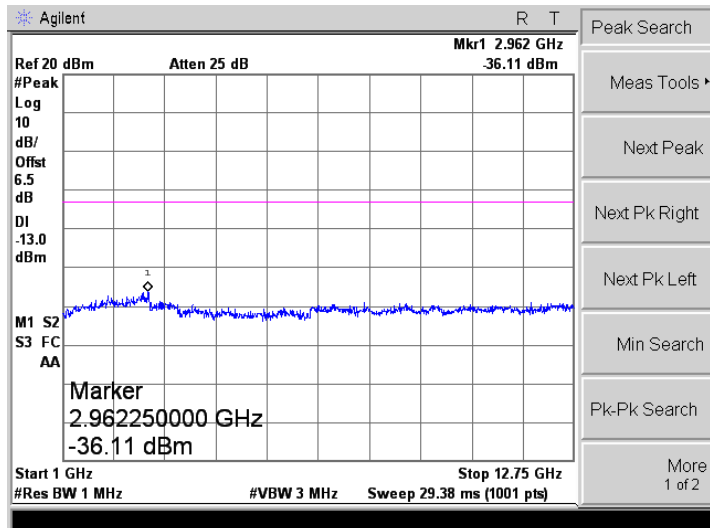
Bandedge



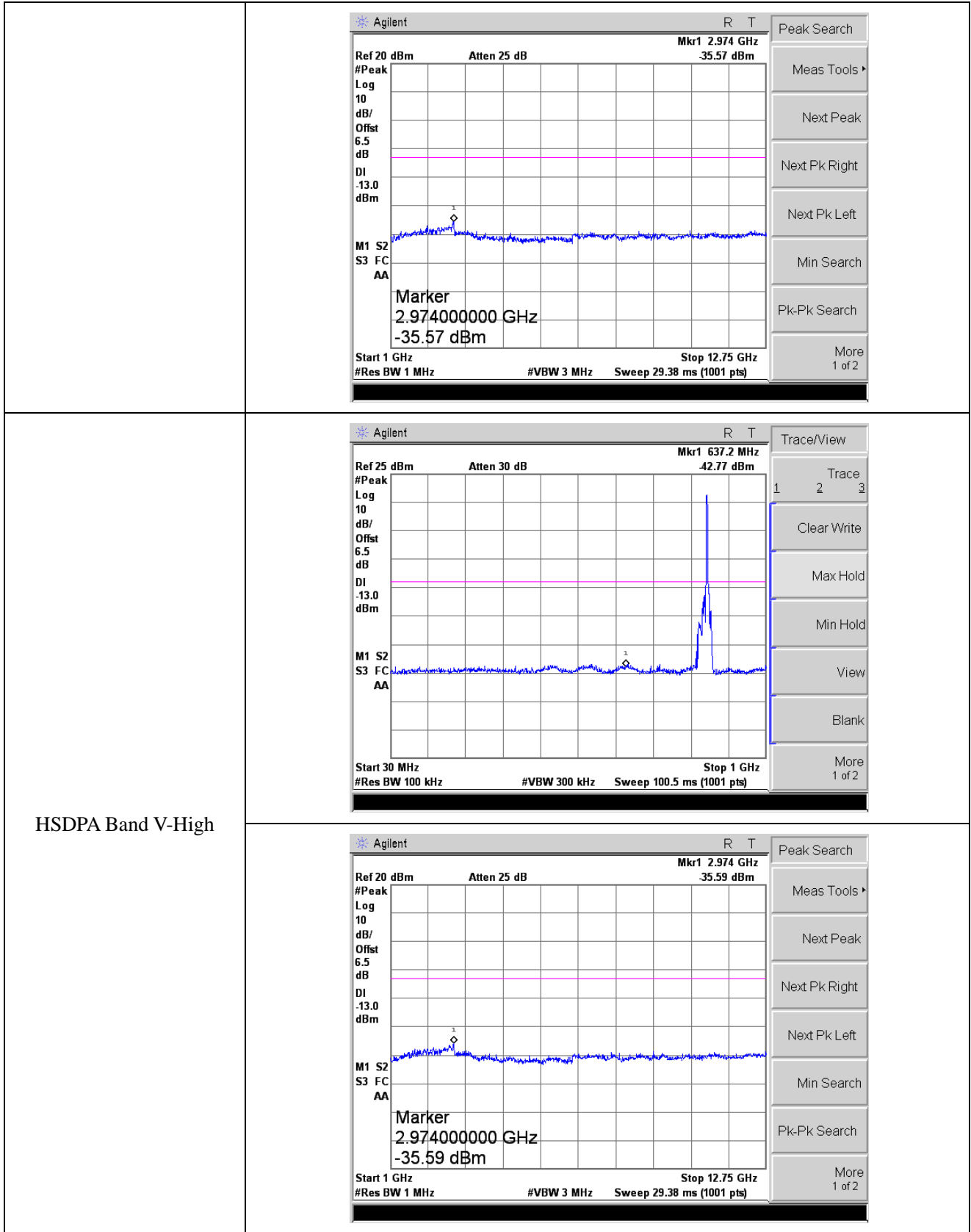
HSDPA Band V-Low



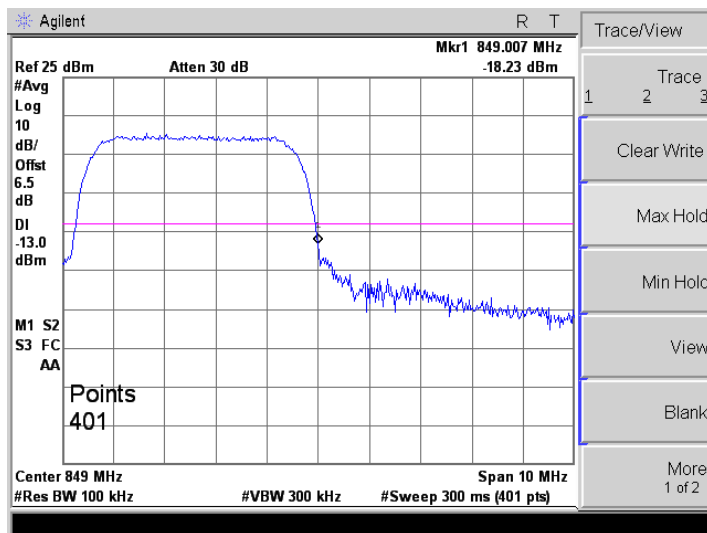
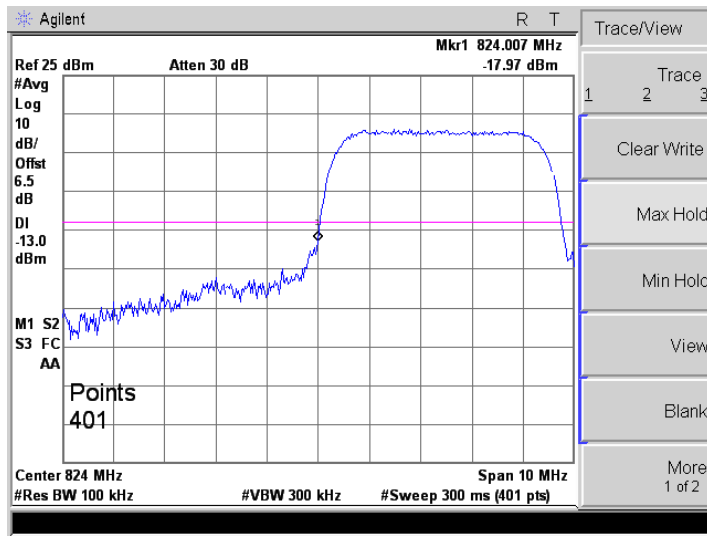
HSDPA Band V-Middle



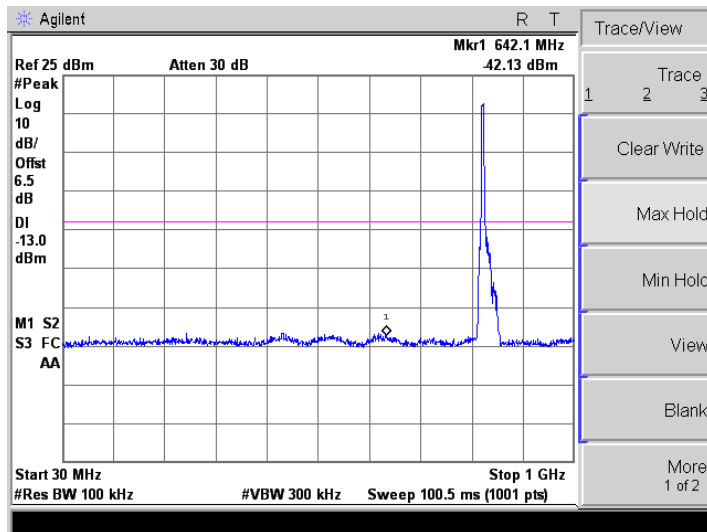




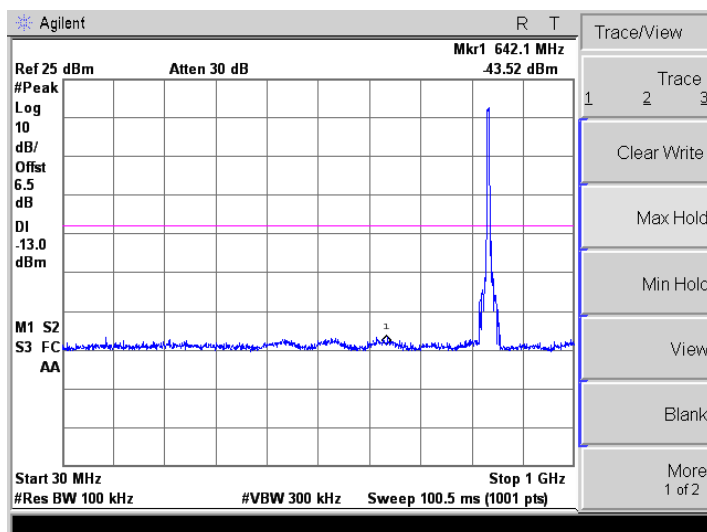
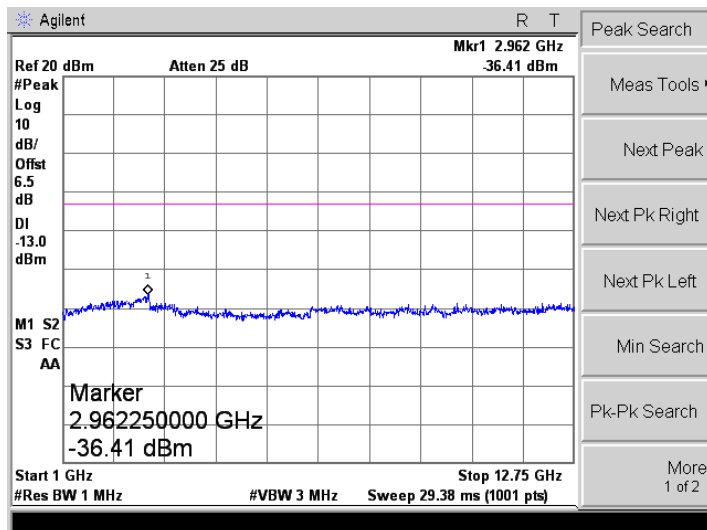
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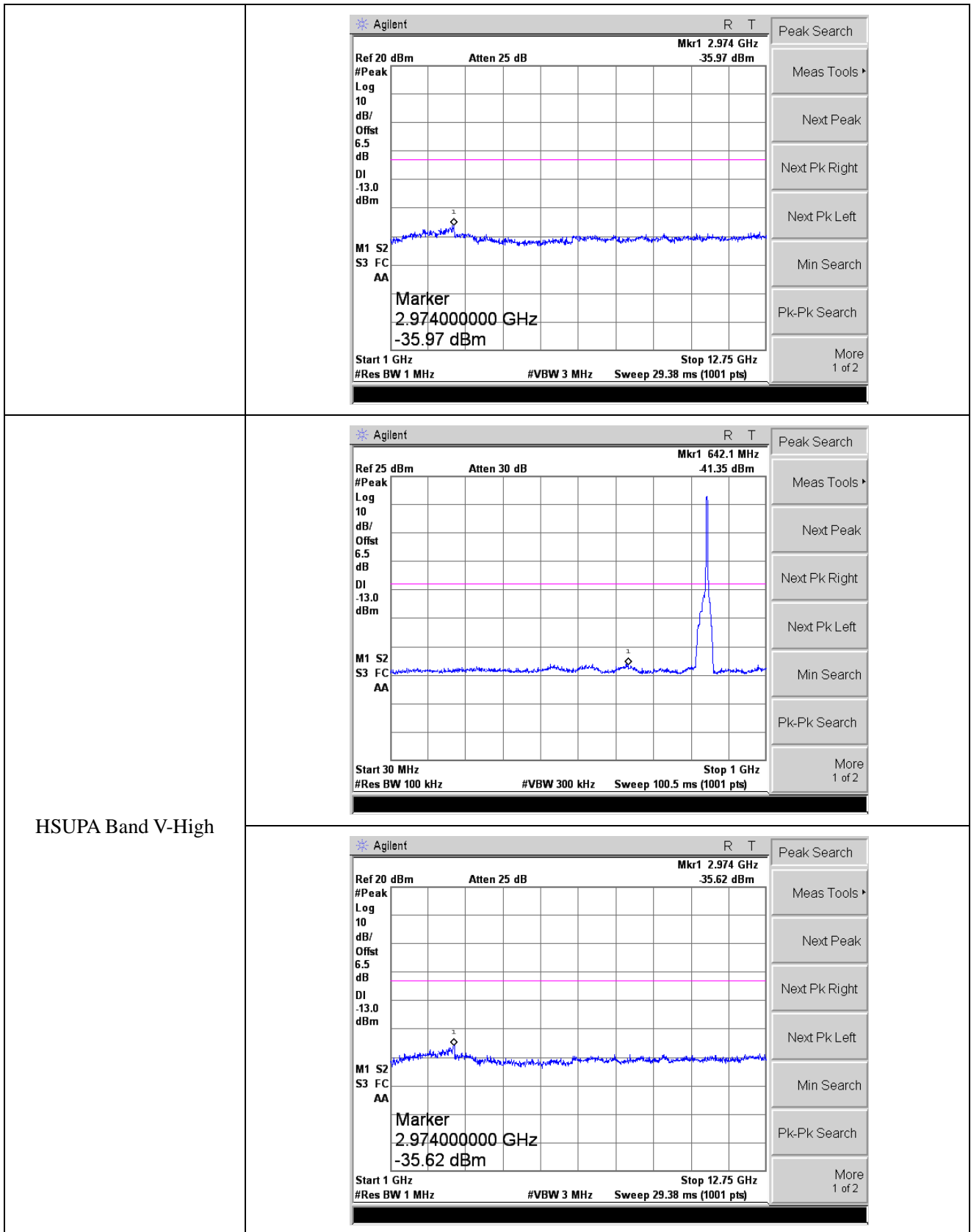


HSUPA Band V-Low

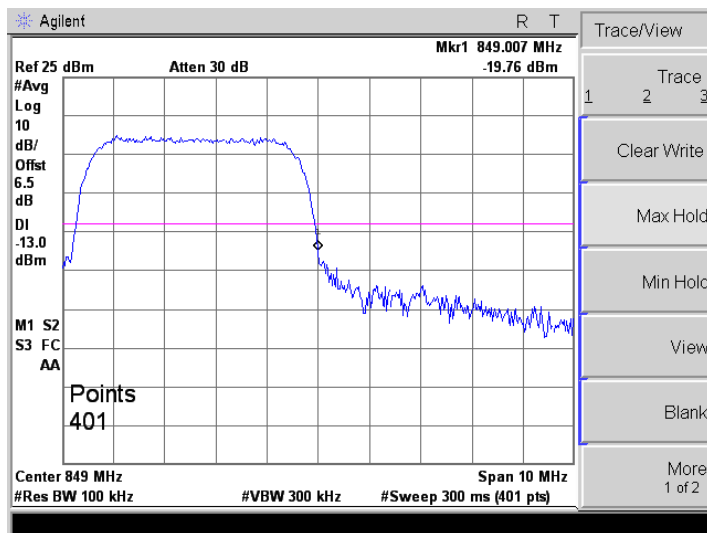
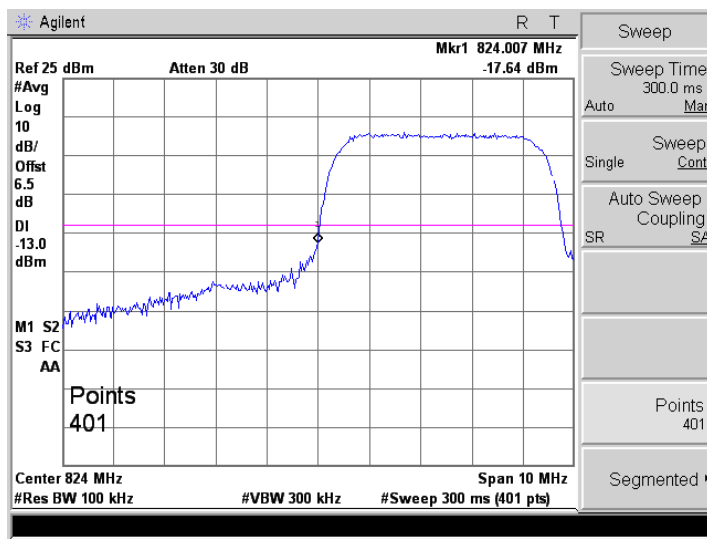


HSUPA Band V-Middle

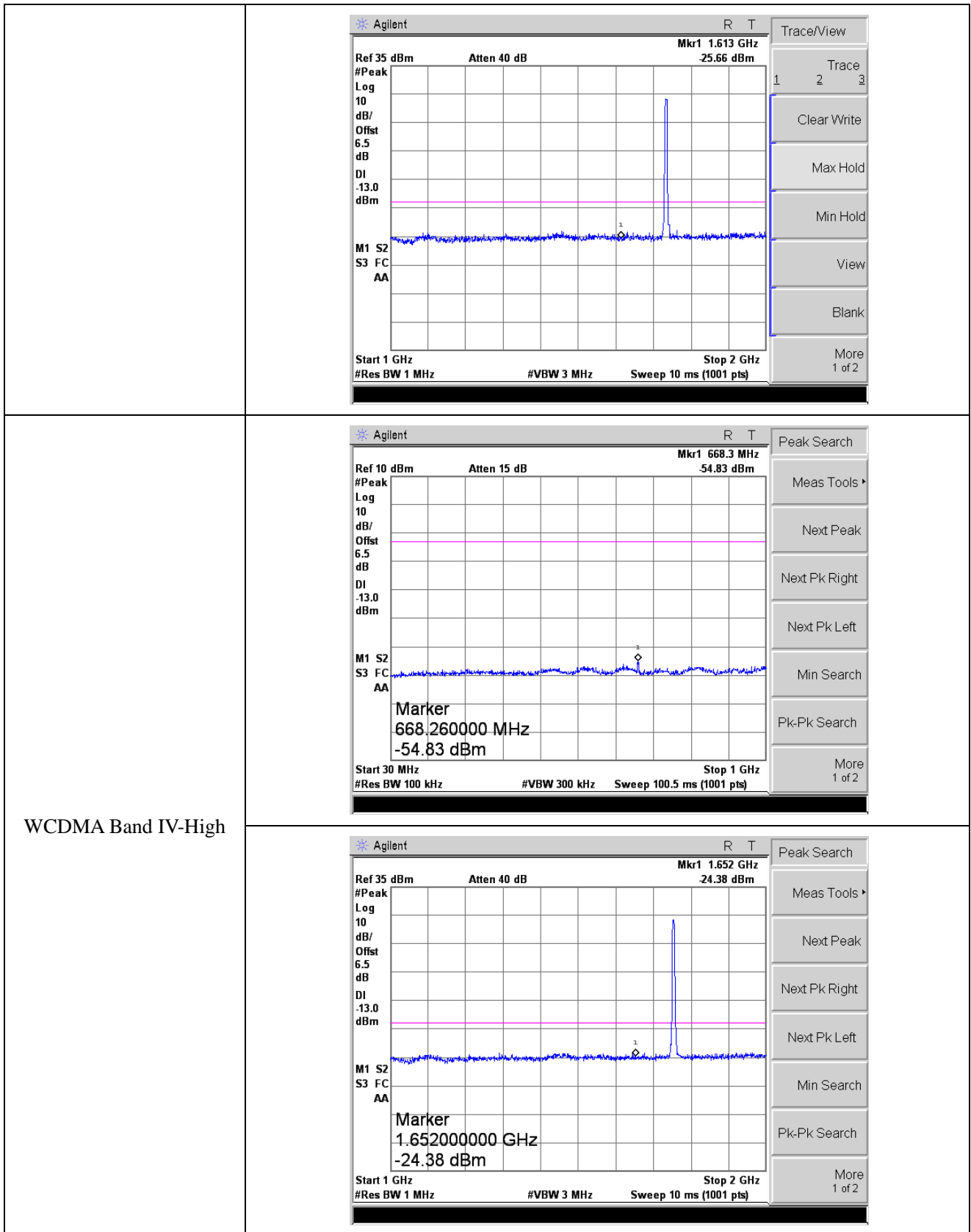




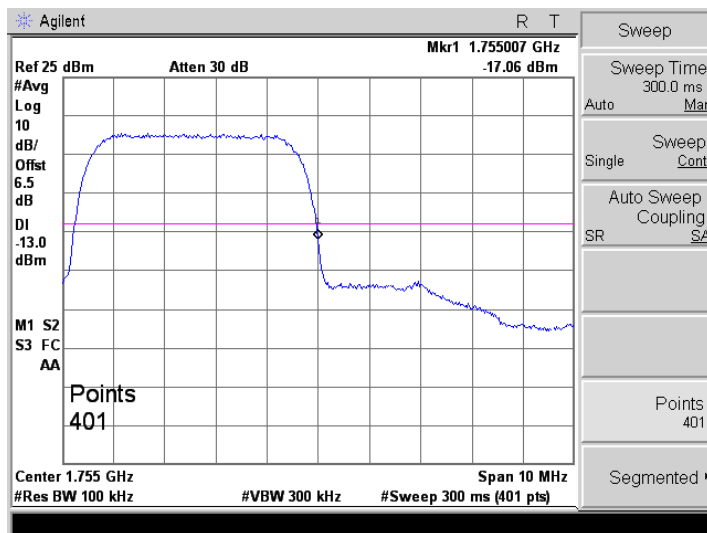
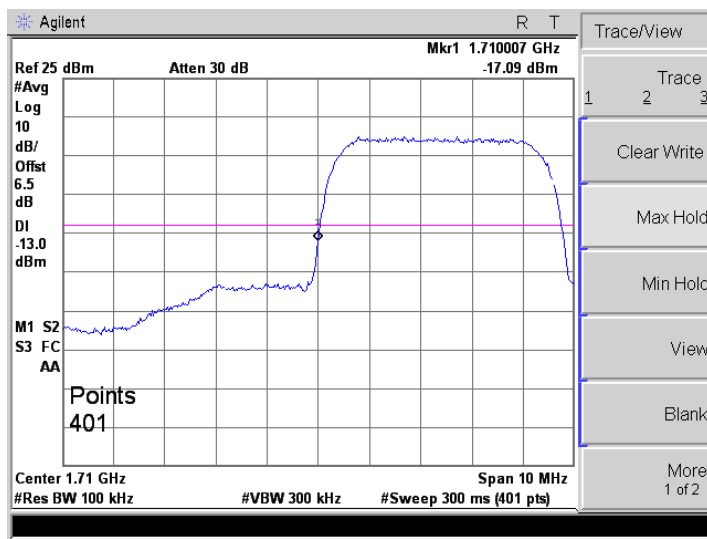
Bandedge



<p>WCDMA Band IV-Low</p>	
<p>WCDMA Band IV-Middle</p>	
<p>WCDMA Band IV-Middle</p>	

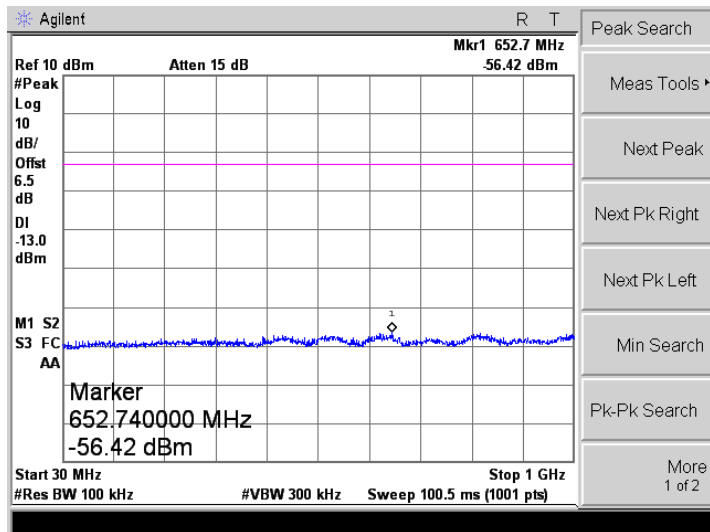


Bandedge

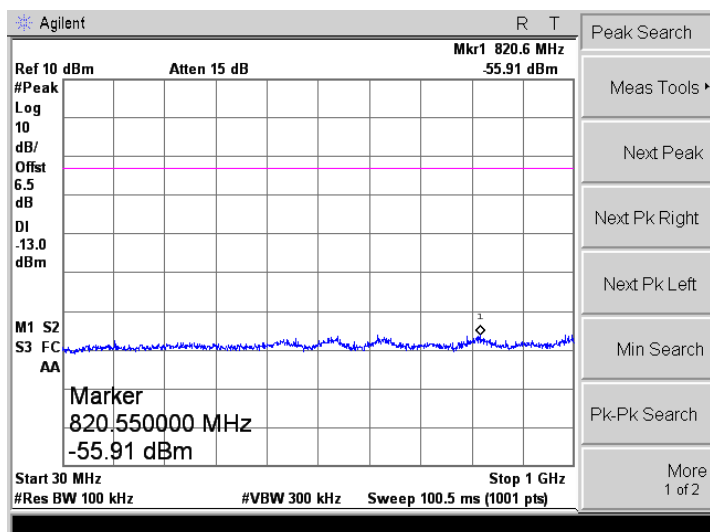
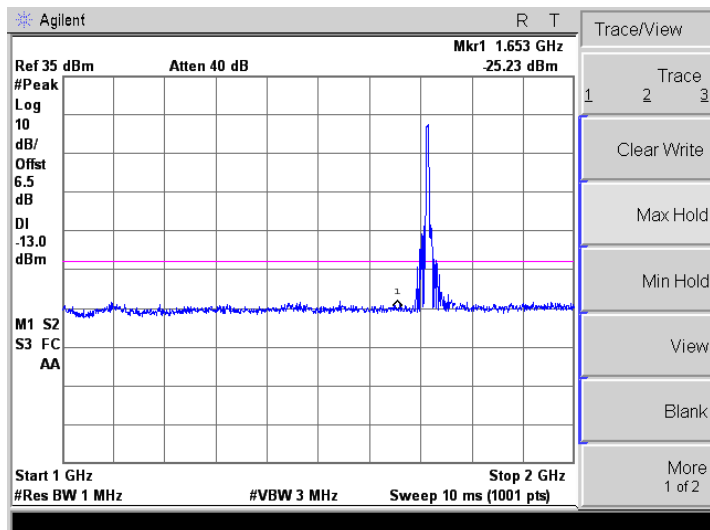


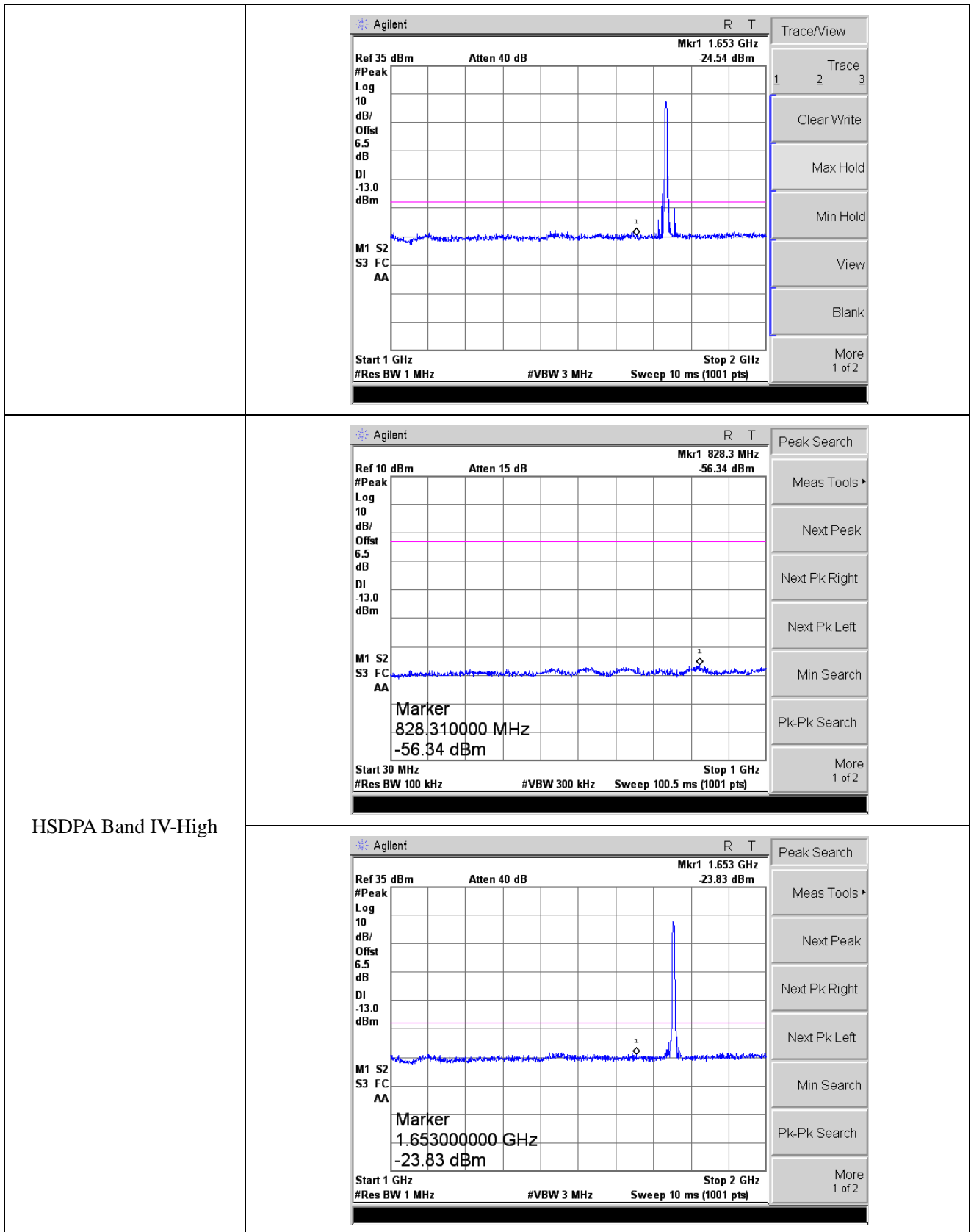


HSDPA Band IV-Low

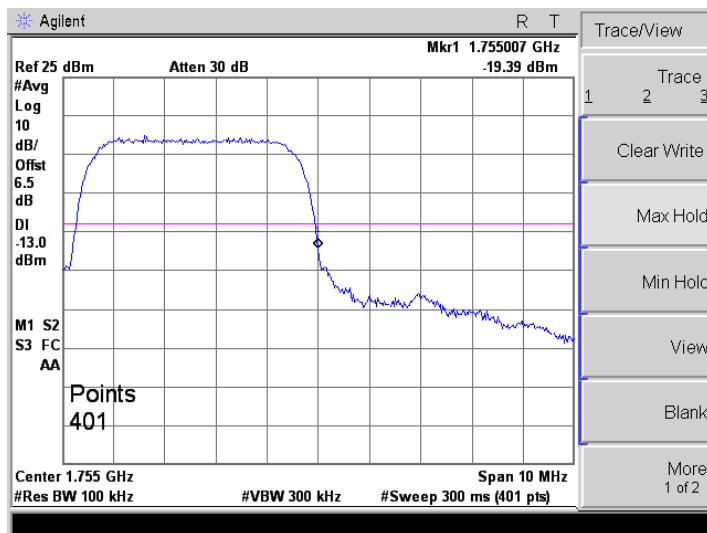
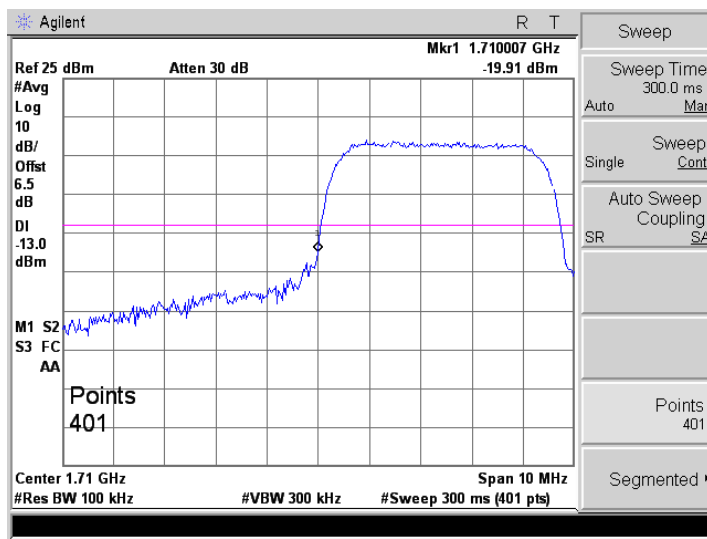


HSDPA Band IV-Middle

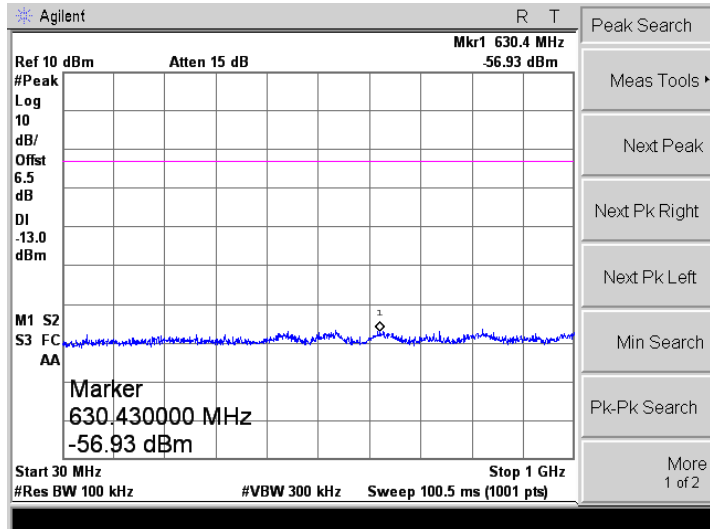




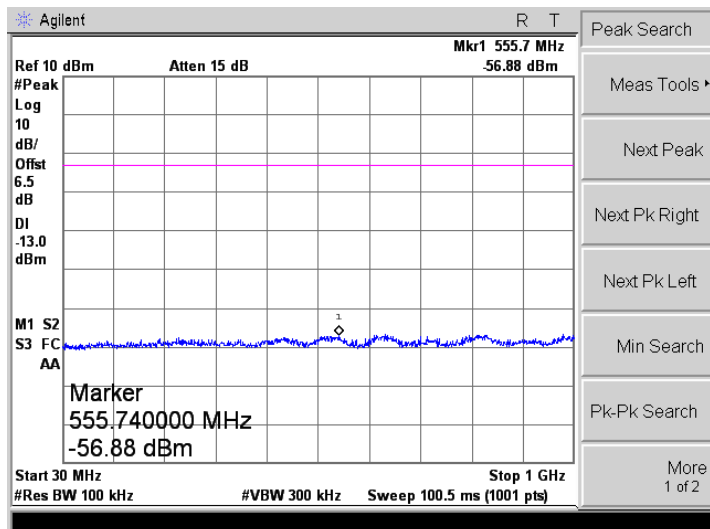
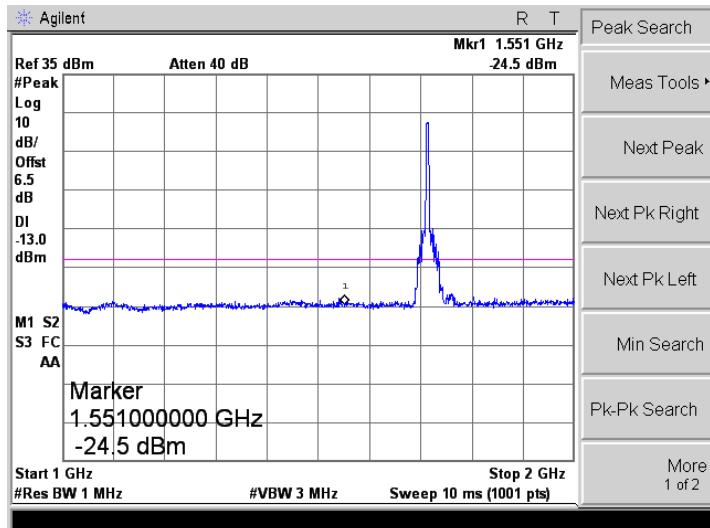
Bandedge

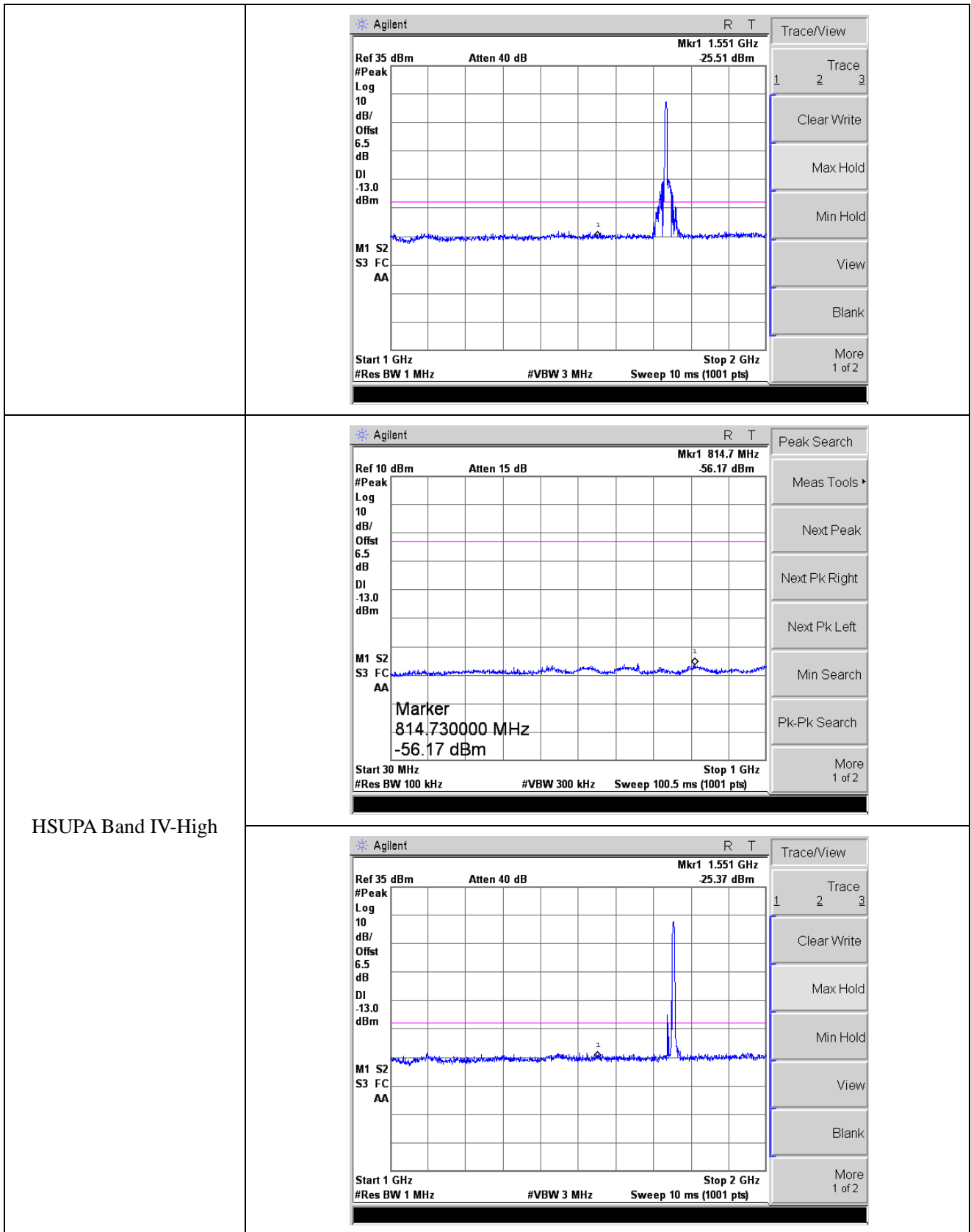


HSUPA Band IV-Low

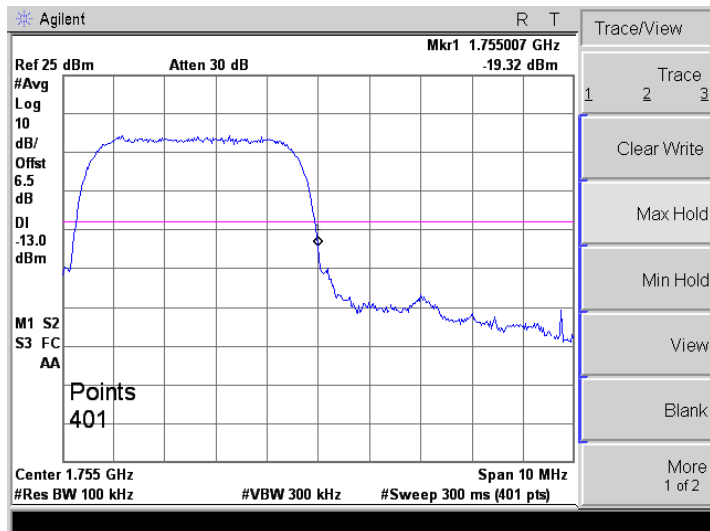
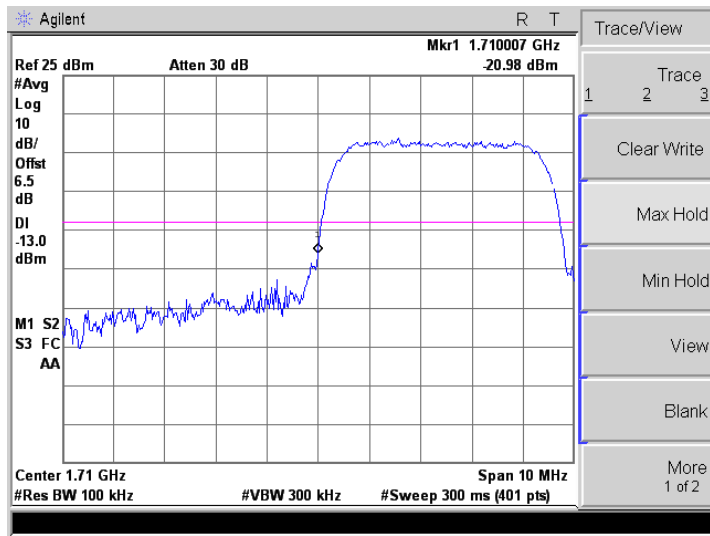


HSUPA Band IV-Middle

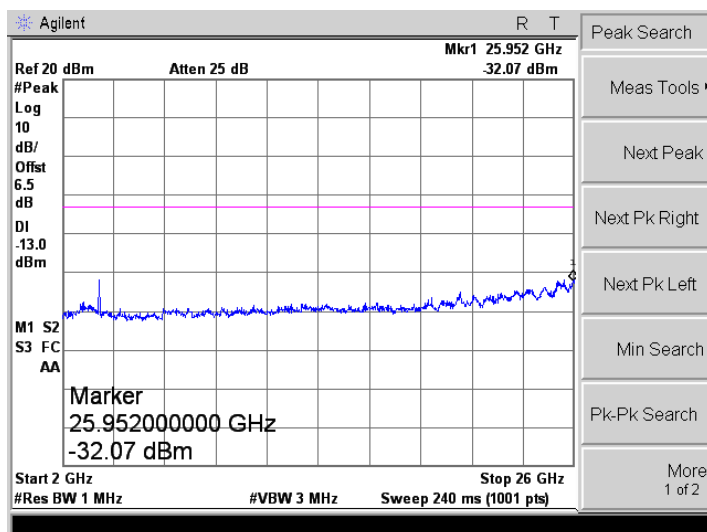
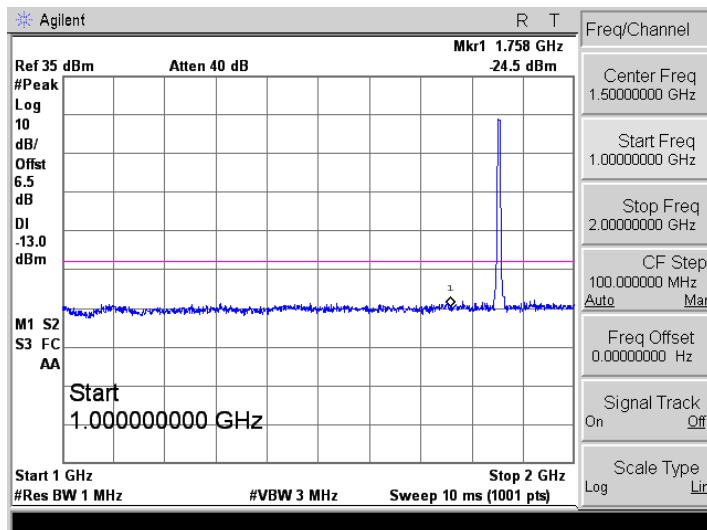
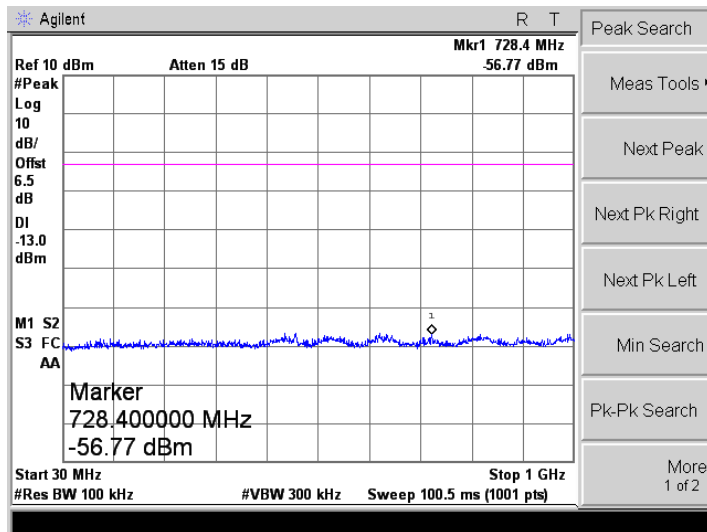




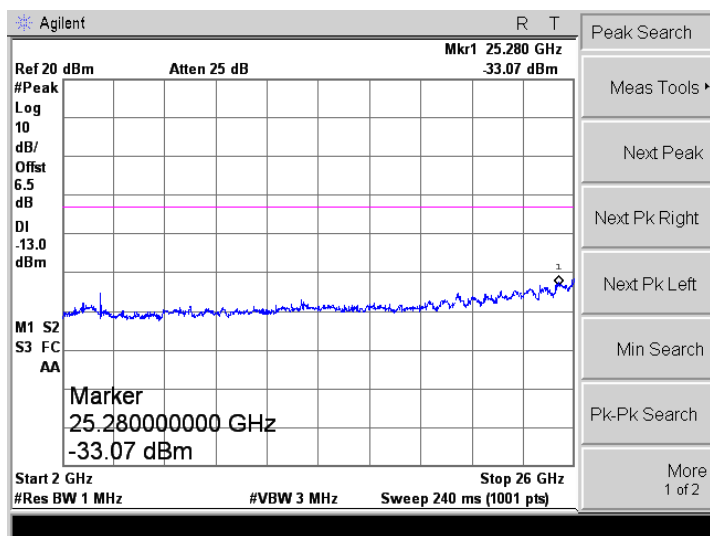
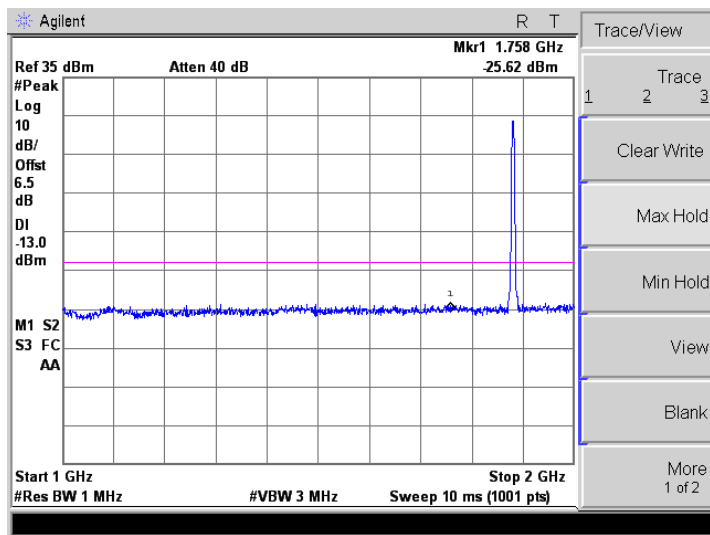
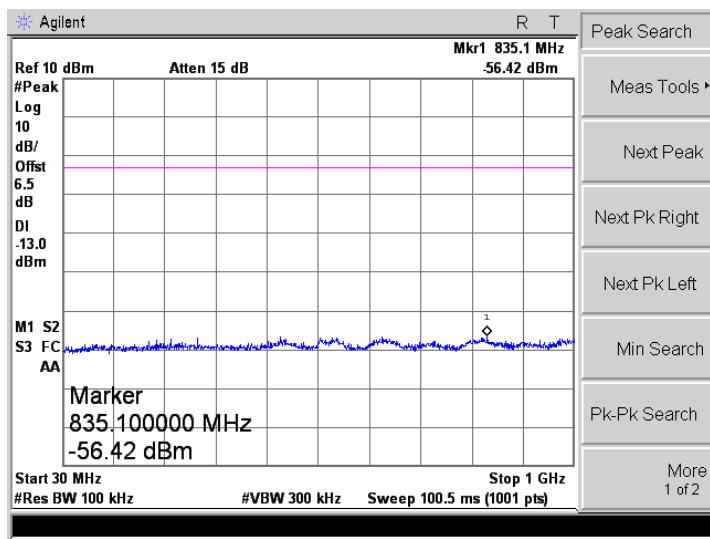
Bandedge



WCDMA Band II-Low

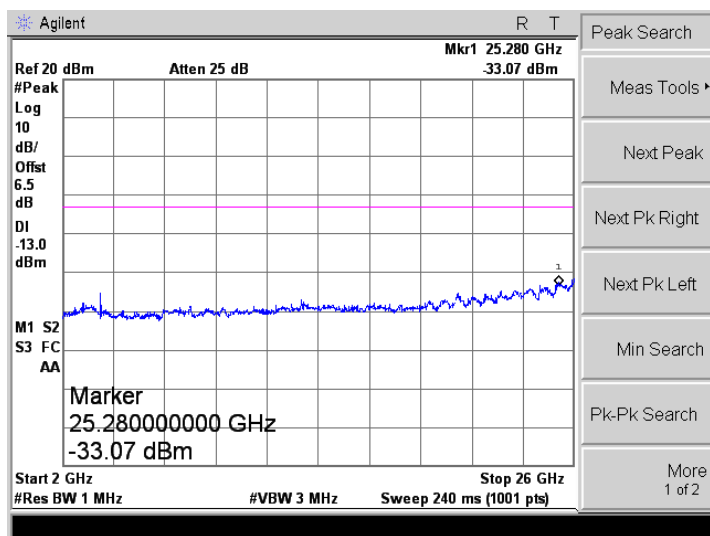
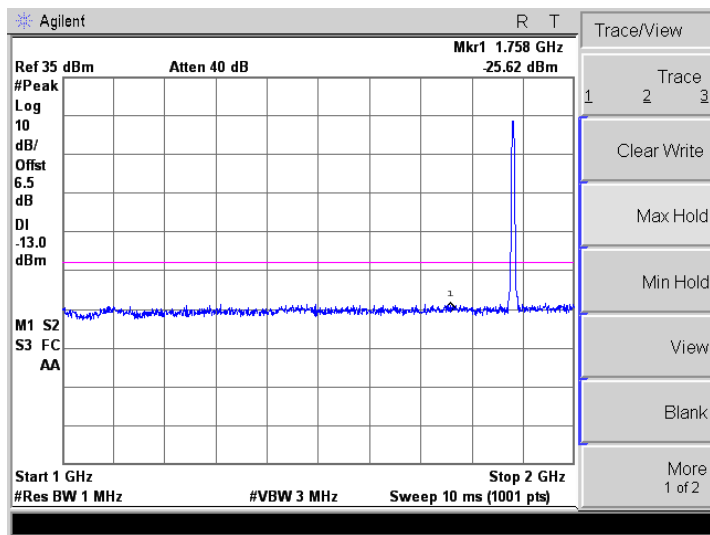
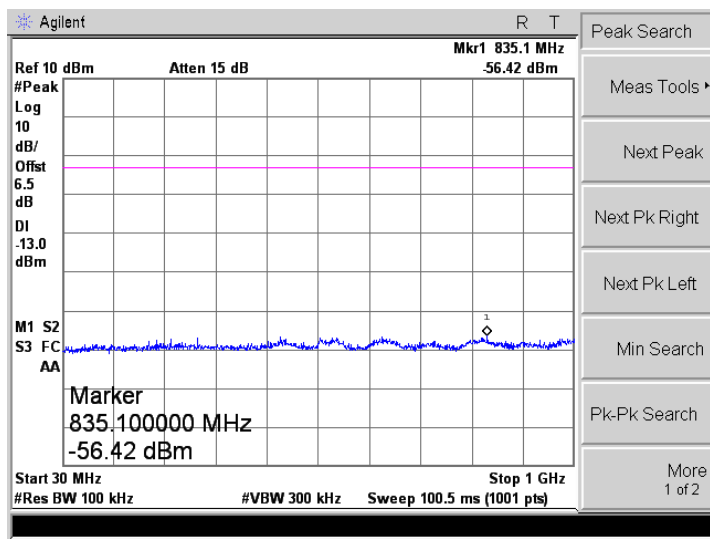


WCDMA Band II-Low

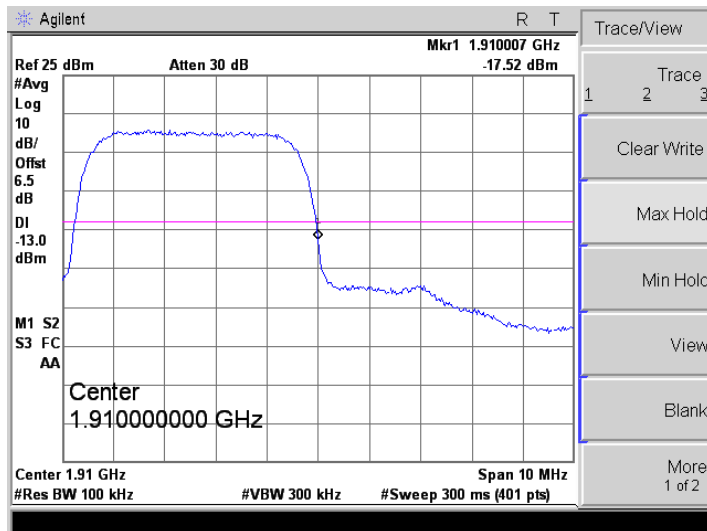
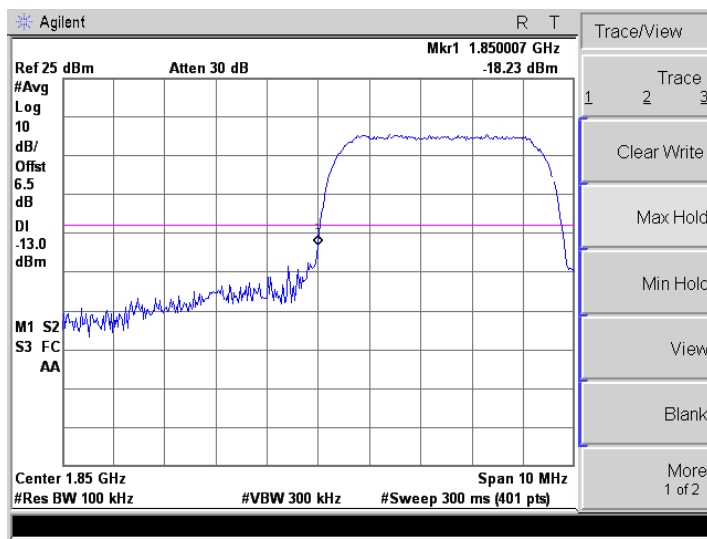




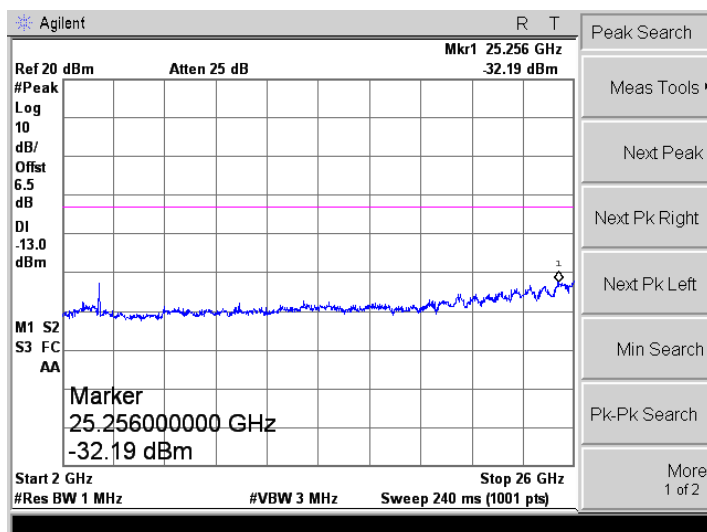
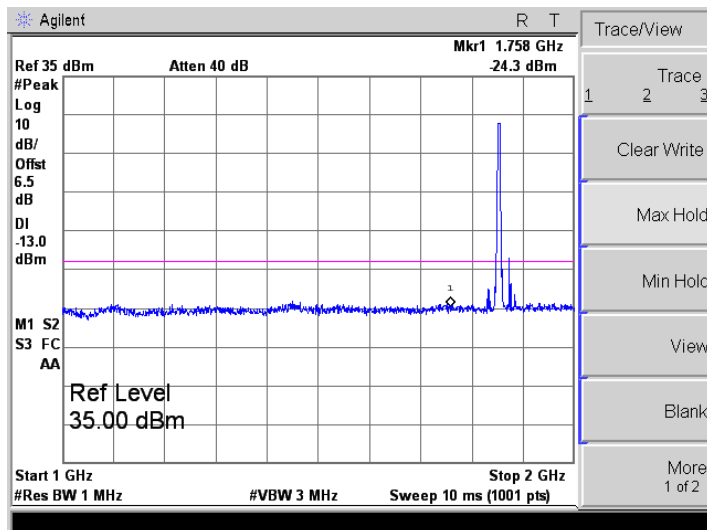
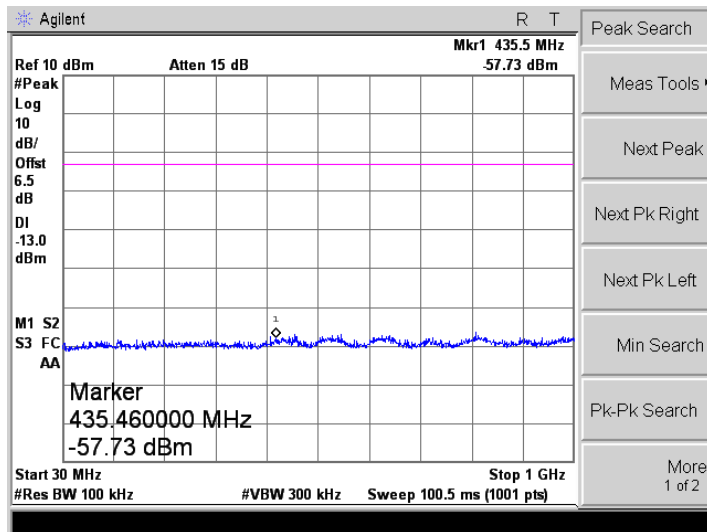
WCDMA Band II-Low



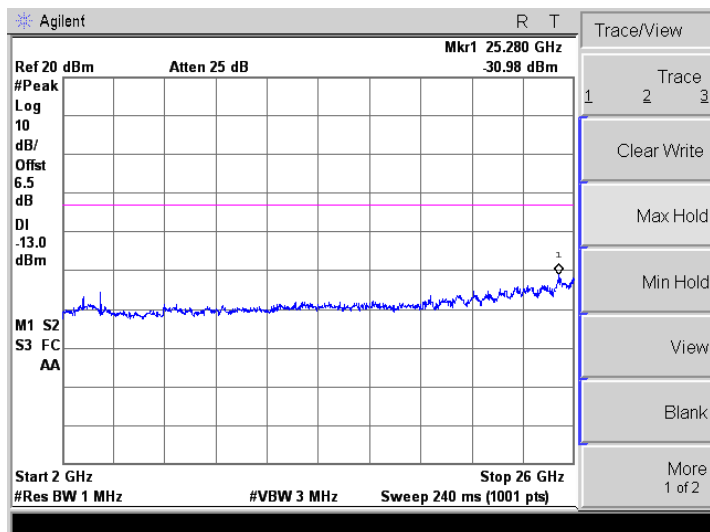
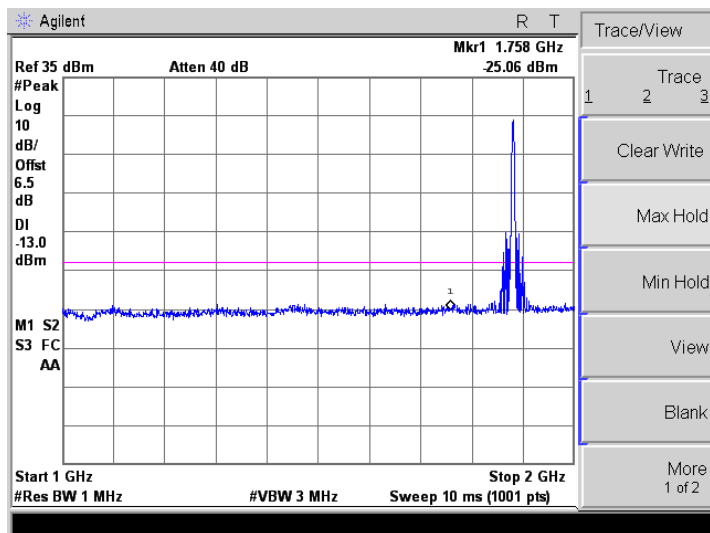
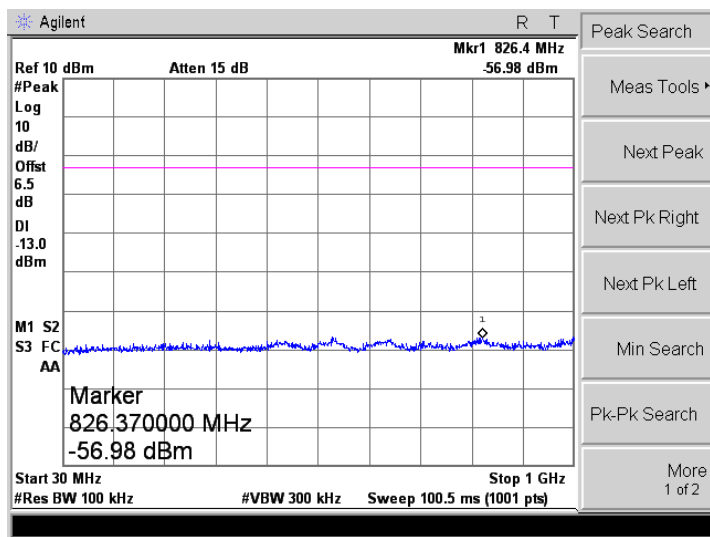
Bandedge



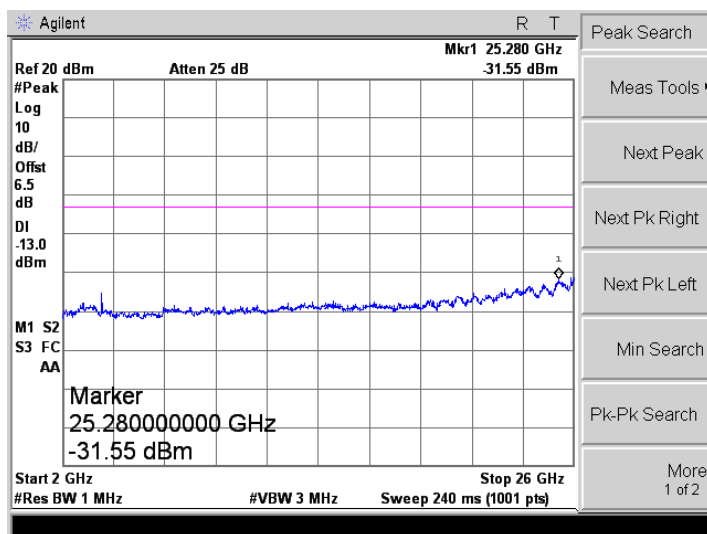
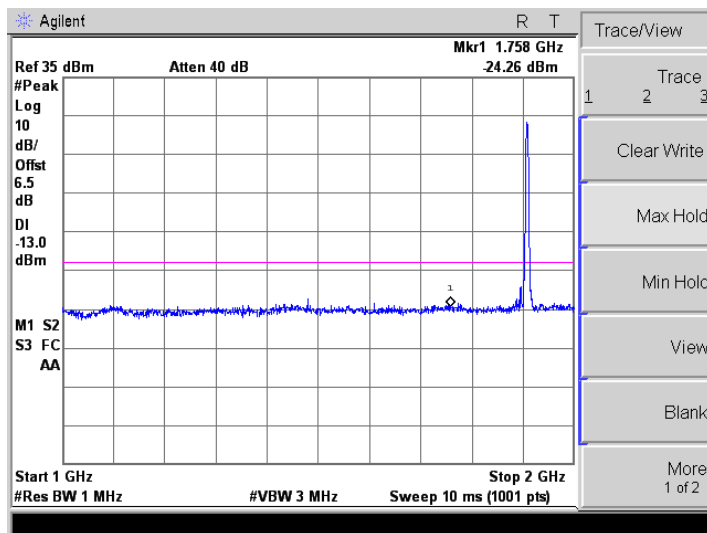
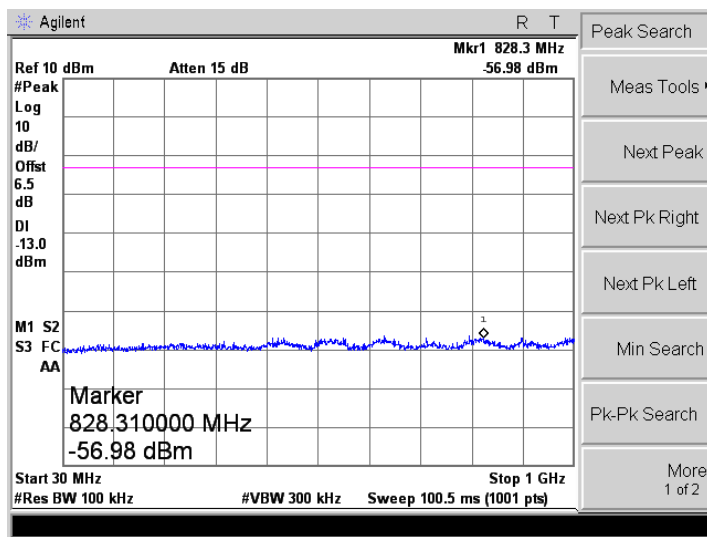
HSDPA Band II-Low



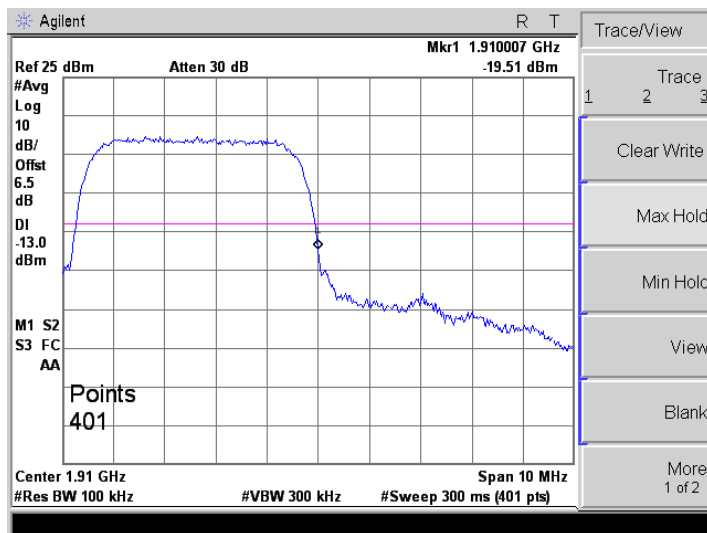
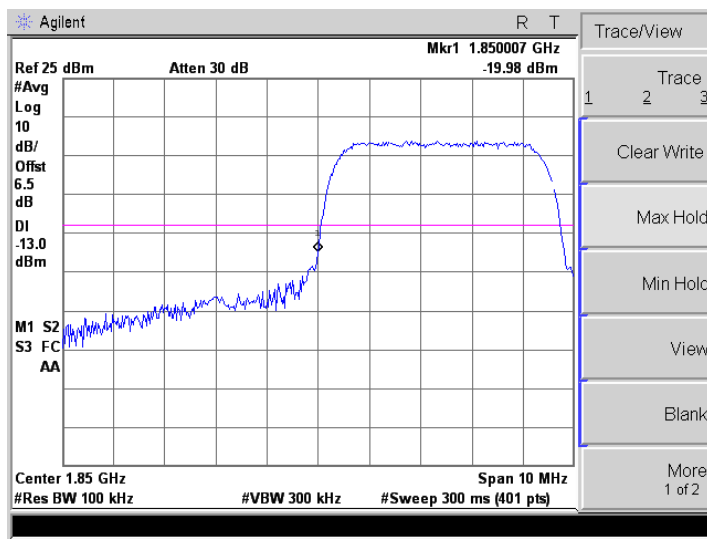
HSDPA Band II-Middle



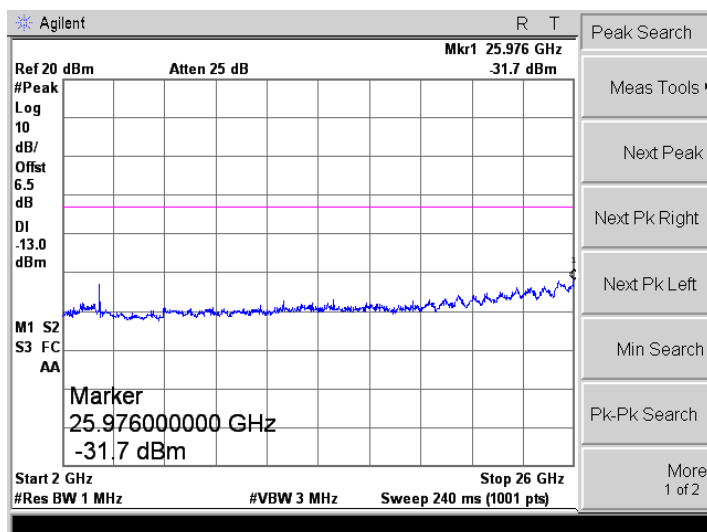
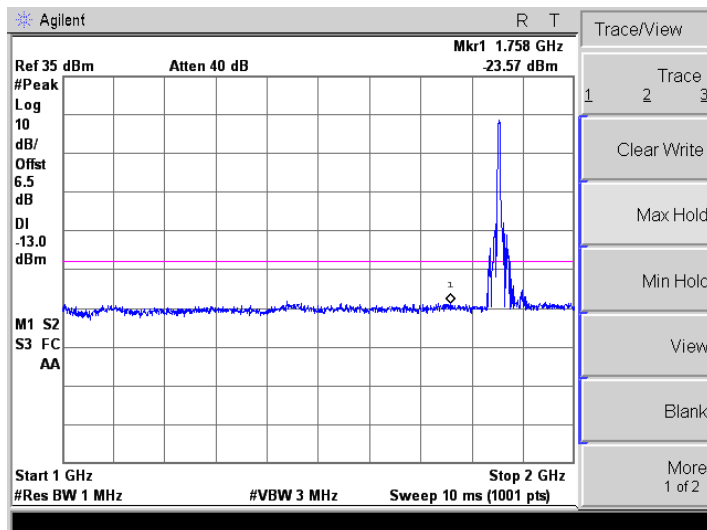
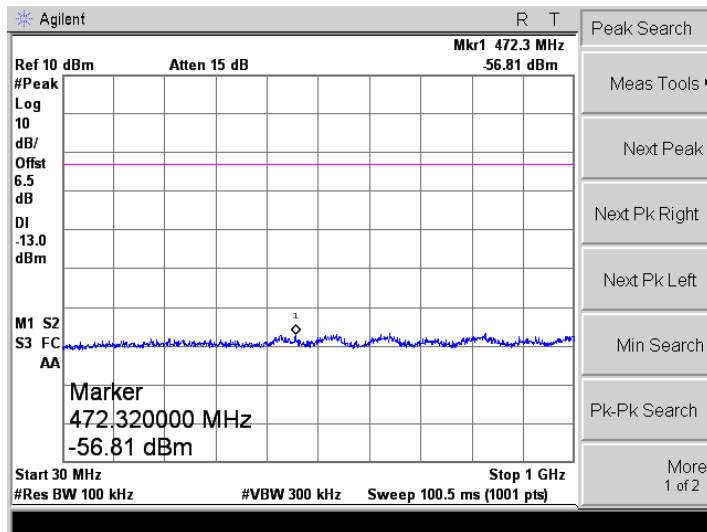
HSDPA Band II-High



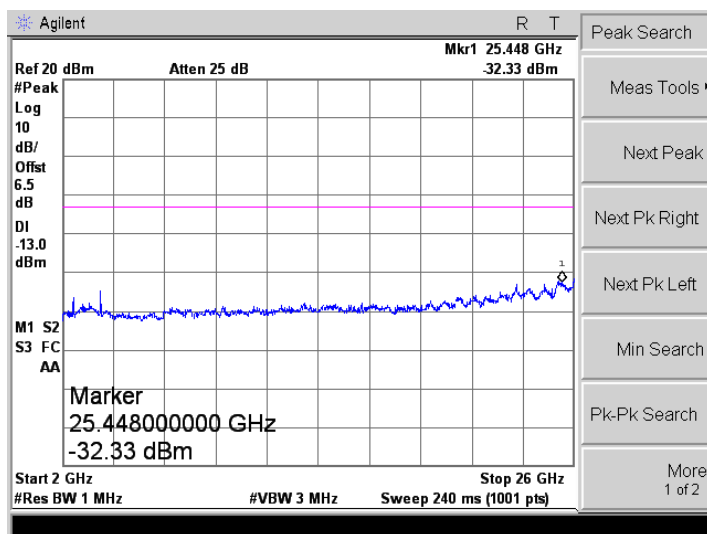
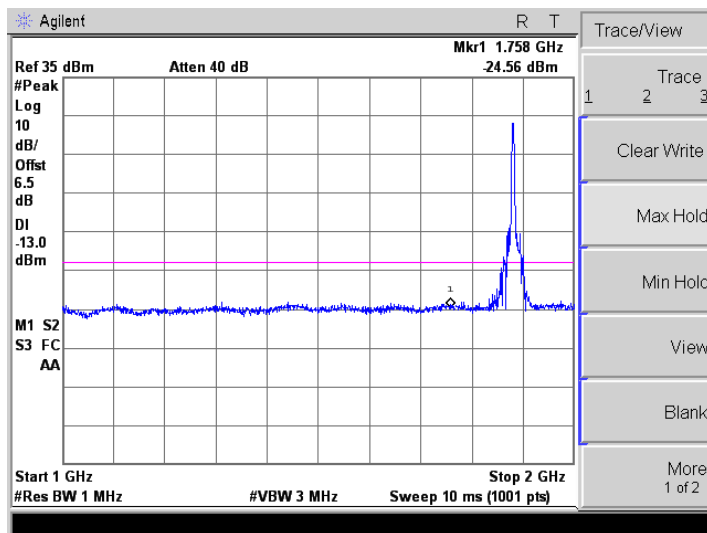
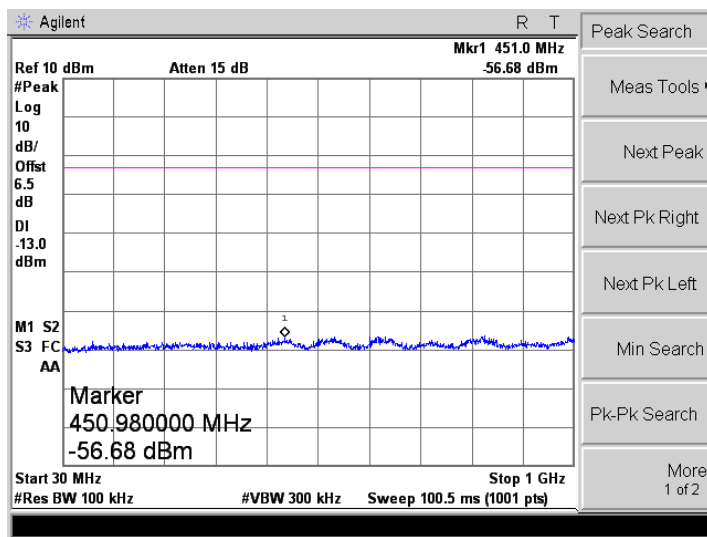
Bandedge



HSUPA Band II-Low

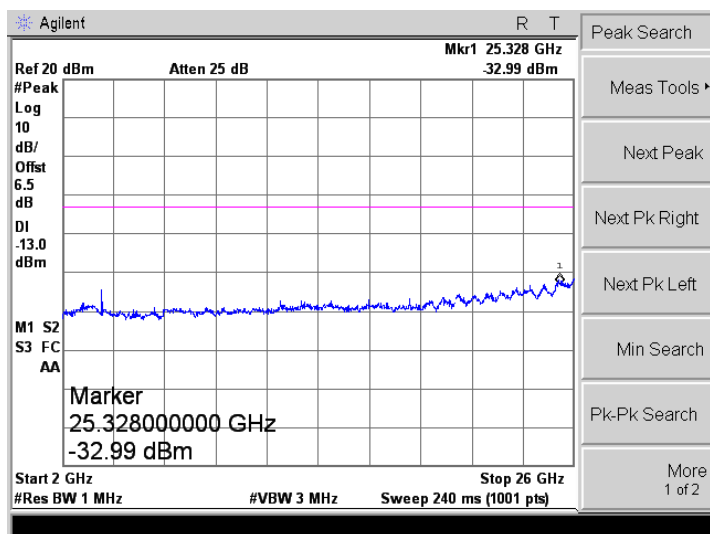
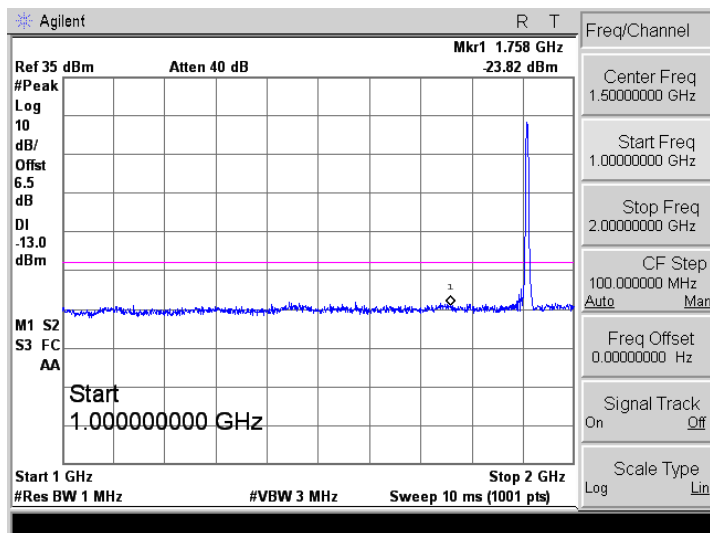
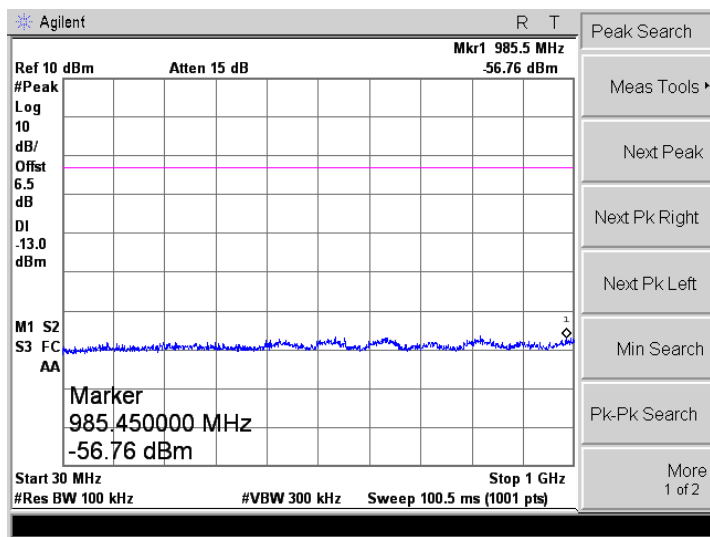


HSUPA Band II-Middle

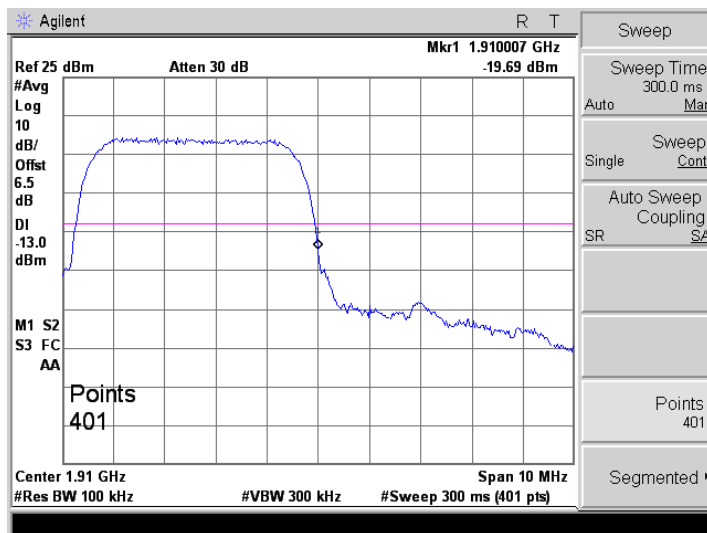
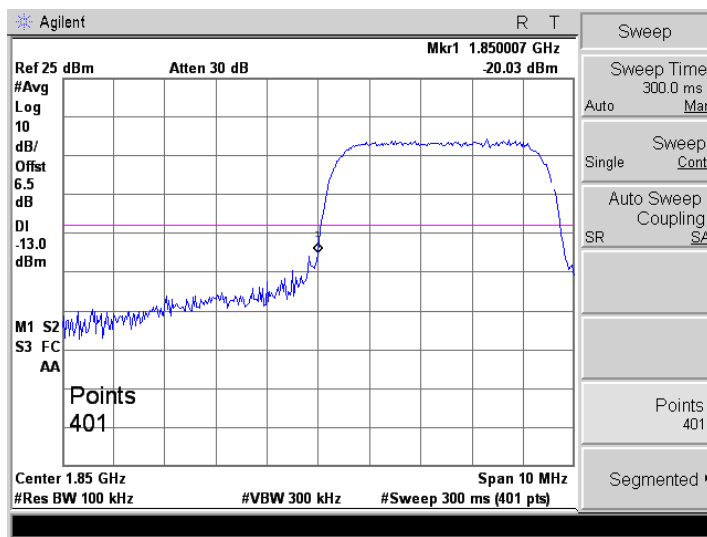




HSUPA Band II-High



Bandedge



## APPENDIX E

### Frequency Stability

Note: 1. Worst case at GSM850/PCS1900/WCDMA B2/B4/B5 middle channel

2. Normal Voltage NV=DC3.85V; Low Voltage LV=DC3.5V;High Voltage HV=DC4.35V

➤ Frequency stability V.S. Temperature measurement

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature ( °C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	72	0.0864	2.50	Pass
	-20	61	0.0726		
	-10	53	0.0634		
	0	47	0.0561		
	10	42	0.0506		
	20	37	0.0441		
	30	42	0.0506		
	40	48	0.0579		
	50	56	0.0671		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature ( °C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	67	0.0356	2.50	Pass
	-20	53	0.0282		
	-10	46	0.0245		
	0	40	0.0213		
	10	35	0.0184		
	20	28	0.0151		
	30	36	0.0192		
	40	44	0.0233		
	50	49	0.0262		

Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz					
Power supplied (Vdc)	Temperature ( °C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	70	0.0837	2.50	Pass
	-20	55	0.0653		
	-10	43	0.0515		
	0	39	0.0469		
	10	33	0.0395		
	20	28	0.0331		
	30	32	0.0377		
	40	36	0.0432		
	50	41	0.0487		
Reference Frequency: WCDMA Band IV Middle channel=1412 channel=1733.6MHz					
Power supplied (Vdc)	Temperature ( °C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	57	0.0328	2.50	Pass
	-20	48	0.0275		
	-10	42	0.0244		
	0	37	0.0213		
	10	29	0.0169		
	20	24	0.0138		
	30	28	0.0160		
	40	32	0.0186		
	50	37	0.0213		

Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature ( °C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	54	0.0286	2.50	Pass
	-20	45	0.0237		
	-10	41	0.0217		
	0	35	0.0188		
	10	28	0.0147		
	20	22	0.0119		
	30	26	0.0139		
	40	33	0.0176		
	50	39	0.0209		

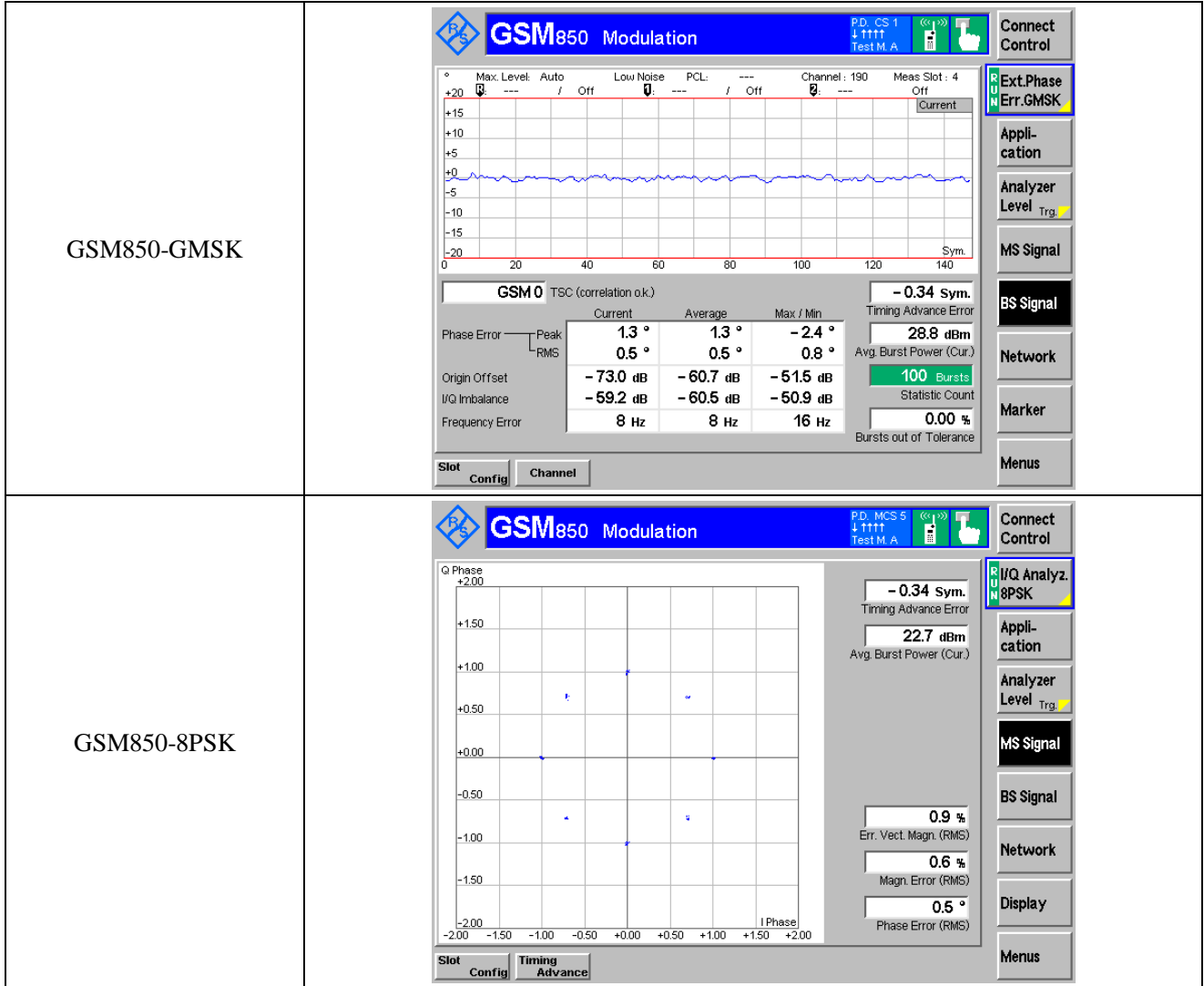
➤ Frequency stability V.S. Voltage measurement

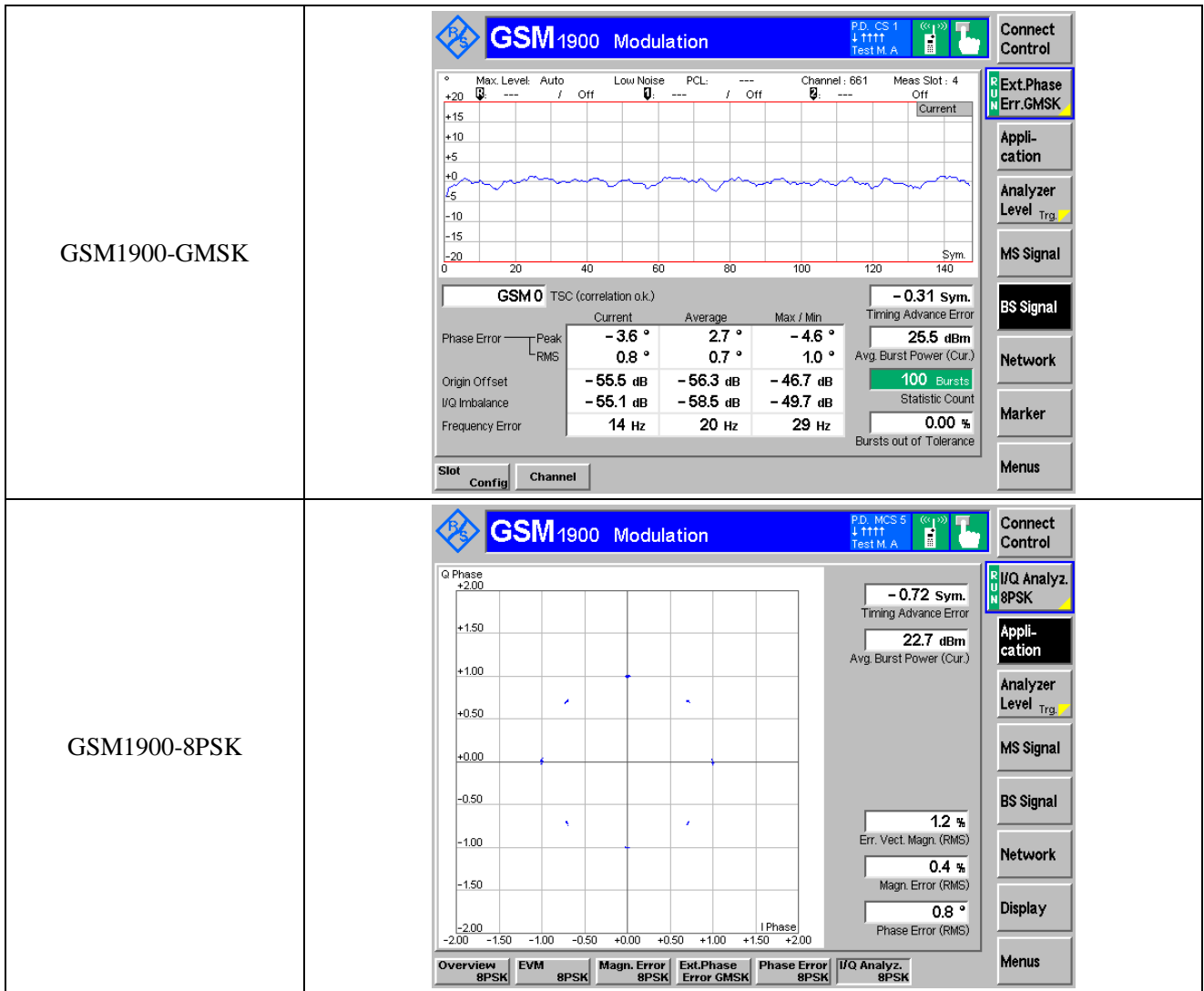
Reference Frequency: GSM850 (GSM link) Middle channel=190 channel=836.6MHz					
Temperature ( °C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	62	0.0736	2.50	Pass
	NV	55	0.0662		
	LV	47	0.0561		
Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Temperature ( °C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	80	0.0426	2.50	Pass
	NV	65	0.0348		
	LV	56	0.0299		

Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz					
Temperature ( °C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	
		Hz	ppm	Result	
25	HV	39	0.0469	2.50	Pass
	NV	43	0.0515		
	LV	48	0.0579		
Reference Frequency: WCDMA Band IV Middle channel=1412 channel=1733.6MHz					
Temperature ( °C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	63	0.0364	2.50	Pass
	NV	53	0.0306		
	LV	42	0.0244		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Temperature ( °C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	46	0.0245	2.50	Pass
	NV	54	0.0286		
	LV	59	0.0315		

# APPENDIX F

## Modulation characteristics







<p>WCDMA B5</p>	<p>WCDMA FDD Band V Modulation</p> <p>Measurement Length: 2560 Chip</p> <p>Q Phase</p> <p>I Phase</p> <p>Err. Vect. Magn. (RMS): 2.5 %</p> <p>Magn. Error (RMS): 2.0 %</p> <p>Phase Error (RMS): 0.9 °</p> <p>Slot Number: 0</p> <p>UE Power: 23.42 dBm</p> <p>I/Q Origin Offset: -59.07 dB</p> <p>I/Q Imbalance: -66.65 dB</p>
<p>WCDMA B4</p>	<p>WCDMA FDD Band IV Modulation</p> <p>Measurement Length: 2560 Chip</p> <p>Q Phase</p> <p>I Phase</p> <p>Err. Vect. Magn. (RMS): 3.6 %</p> <p>Magn. Error (RMS): 2.8 %</p> <p>Phase Error (RMS): 1.3 °</p> <p>Slot Number: 0</p> <p>UE Power: 23.26 dBm</p> <p>I/Q Origin Offset: -64.20 dB</p> <p>I/Q Imbalance: -64.33 dB</p>
<p>WCDMA B2</p>	<p>WCDMA FDD Band II Modulation</p> <p>Measurement Length: 2560 Chip</p> <p>Q Phase</p> <p>I Phase</p> <p>Err. Vect. Magn. (RMS): 3.5 %</p> <p>Magn. Error (RMS): 2.7 %</p> <p>Phase Error (RMS): 1.3 °</p> <p>Slot Number: 0</p> <p>UE Power: 23.15 dBm</p> <p>I/Q Origin Offset: -57.16 dB</p> <p>I/Q Imbalance: -62.21 dB</p>

## **APPENDIX PHOTOGRAPHS**

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**Please refer to “ANNEX”**

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