

TEST REPORT

Reference No..... : WTX21X03021684W-1
FCC ID : 2AJWI-GSMSOCUS4G
Applicant : Tekview Limited
Address : Unit 8 George Holmes Business Centre George Holmes Way Swadlincote
Derbyshire DE11 9DF United Kingdom
Product Name : 4G Power Socket
Test Model. : GSMSOCUS4G
Standards : FCC Part 22, FCC Part 24E, FCC Part 27
Date of Receipt sample : Mar.18, 2021
Date of Test..... : Mar.18, 2021 to Apr.07, 2021
Date of Issue : Apr.07, 2021
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:

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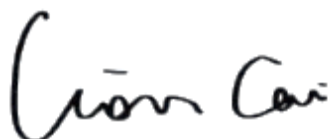
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Report version

Version No.	Date of issue	Description
Rev.00	Apr.07, 2021	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Tekview Limited
Address of applicant: Unit 8 George Holmes Business Centre George Holmes Way
Swadlincote Derbyshire DE11 9DF United Kingdom

Manufacturer: Xiamen SimPal Communication Technology Co., Ltd.
Address of manufacturer: 3F, No 2208, Dianqian Group II, Gaodian Village, Huli District,
Xiamen

General Description of EUT:	
Product Name:	4G Power Socket
Trade Name:	/
Model No.:	GSMSOCUS4G
Adding Model(s):	SimPal-T420
Rated Voltage:	AC110-250V
Battery:	/
Adapter Model:	/
Software Version:	/
Hardware Version:	/
<i>Note: The test data is gathered from a production sample provided by the manufacturer. The appearance of others models listed in the report is different from main-test model GSMSOCUS4G, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT:	
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 4, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 4: 1710~1755MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 4: 2110~2155MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 23.49dBm, WCDMA Band 4: 23.39dBm WCDMA Band 5: 23.53dBm
Type of Emission:	WCDMA Band 2: 4M17F9W WCDMA Band 4: 4M15F9W WCDMA Band 5: 4M16F9W
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 1dBi, WCDMA Band 4: 1dBi, WCDMA Band 5: 1dBi

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	WCDMA Band 5	Low, Middle, High Channels
TM2	HSDPA Band 5	Low, Middle, High Channels
TM3	HSUPA Band 5	Low, Middle, High Channels
TM4	WCDMA Band 4	Low, Middle, High Channels
TM5	HSDPA Band 4	Low, Middle, High Channels
TM6	HSUPA Band 4	Low, Middle, High Channels
TM7	WCDMA Band 2	Low, Middle, High Channels
TM8	HSDPA Band 2	Low, Middle, High Channels
TM9	HSUPA Band 2	Low, Middle, High Channels

Testing Configure			
Support Band	Support Standard	Channel Frequency	Channel Number
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 WCDMA, HSDPA, HSUPA compliance test and record the worst case.			

Test Conditions	
Temperature:	22~25 °C
Relative Humidity:	50~55 %.
ATM Pressure:	1019 mbar

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

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

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	$\pm 0.42\text{dB}$
Occupied Bandwidth	Conducted	$\pm 1.5\%$
Frequency Stability	Conducted	2.3%
Transmitter Spurious Emissions	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)	/	/	/
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	/	/
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	/	/
SEMT-C004	Cable	Zheng DI	2M0RFC	/	/	/

SEMT-C005	Cable	Zheng DI	1M0RFC	/	/	/
SEMT-C006	Cable	Zheng DI	1M0RFC	/	/	/

Software List			
Description	Manufacturer	Model	Version
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

FCC Rules	Description of Test Item	Result
§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

3.1 Standard Applicable

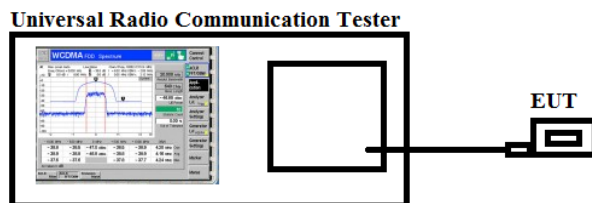
According to §22.913(a)(2), the ERP of mobile and portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

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	Limit (dBm)	Result
WCDMA Band V	4132	V	20.87	<38.45	Pass
		H	16.32		
	4183	V	20.12		
		H	16.82		
	4233	V	20.42		
		H	16.12		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band IV	1312	V	20.11	<30.00	Pass
		H	15.17		
	1412	V	20.42		
		H	15.39		
	1513	V	20.27		
		H	15.39		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band II	9262	V	19.83	<33.00	Pass
		H	14.12		
	9400	V	19.32		
		H	14.71		
	9538	V	19.87		
		H	14.16		

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

Please refer to Appendix A

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

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.

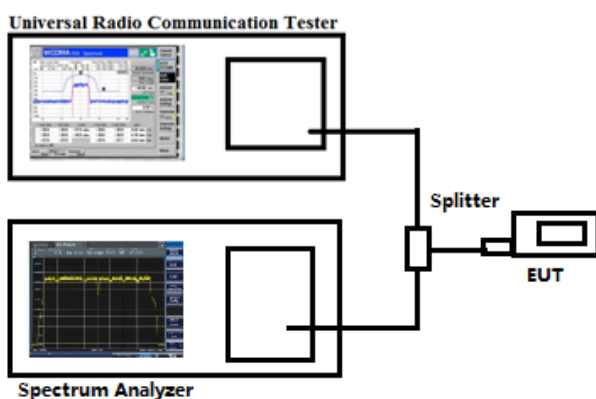
According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for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

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.

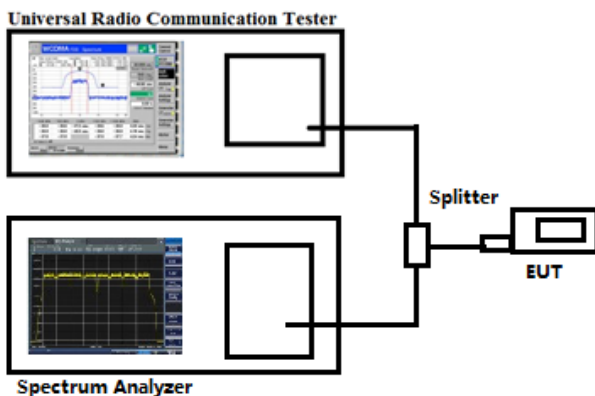
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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

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.

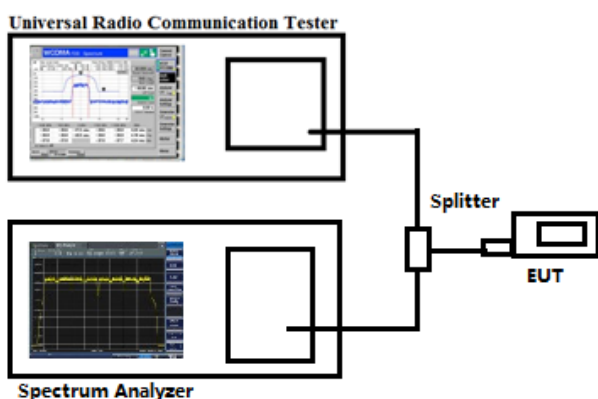
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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 10th 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

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.

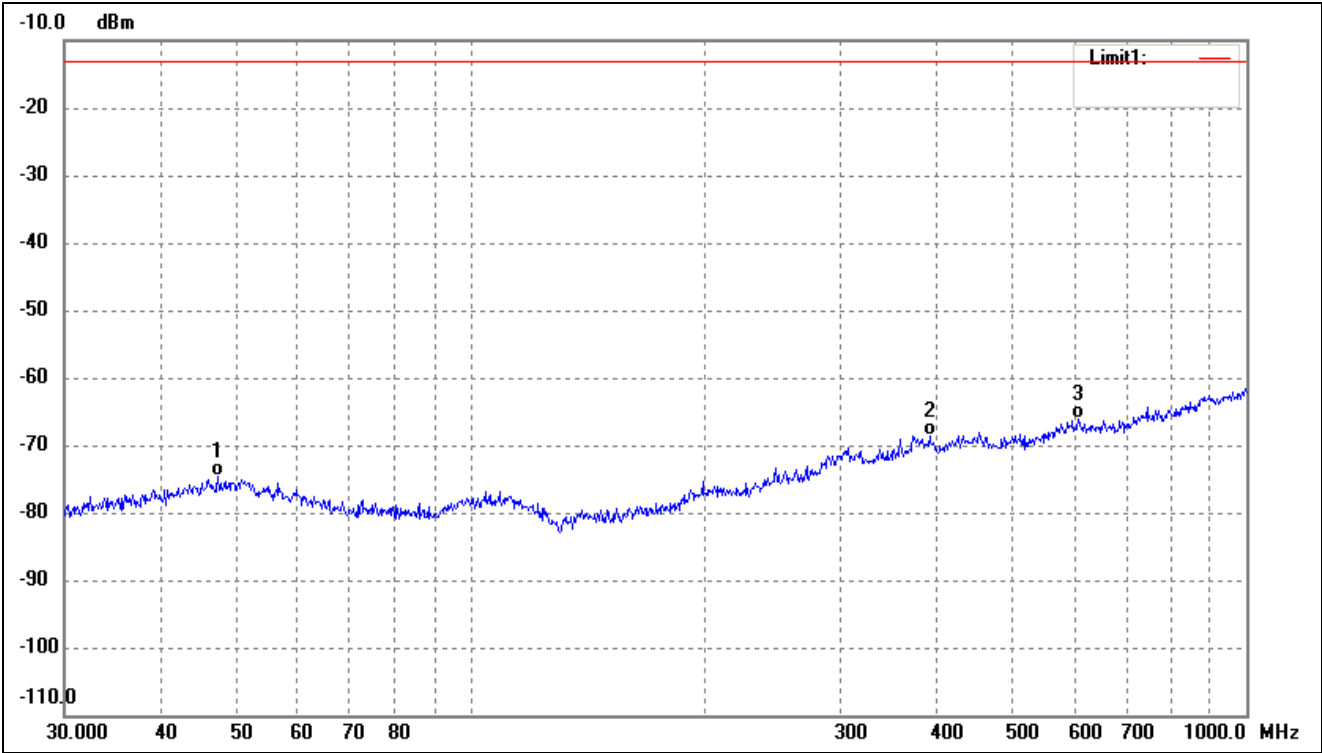
Spurious attenuation limit in dB = $43 + 10 \log_{10}(\text{power out in Watts})$

7.3 Summary of Test Results/Plots

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

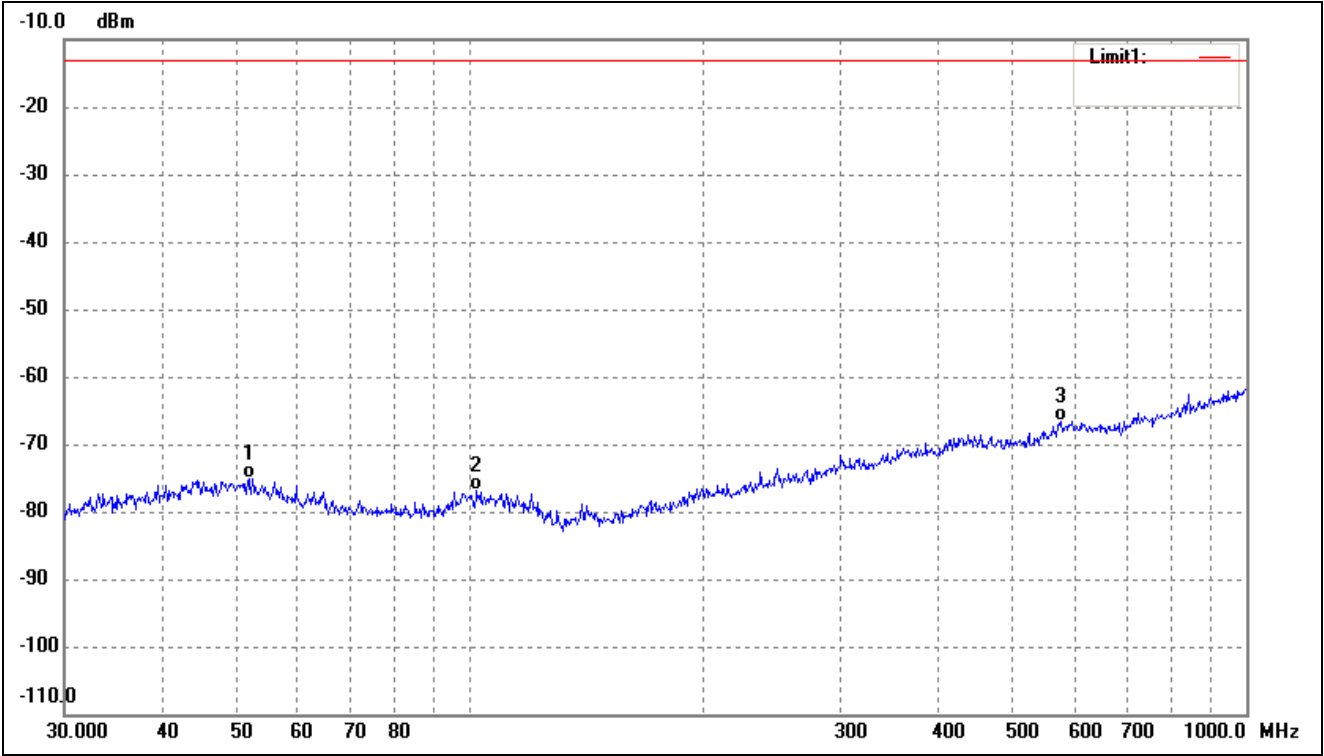
➤ Spurious Emissions Below 1GHz

Test Channel	WCDMA Band V	Polarity:	Horizontal
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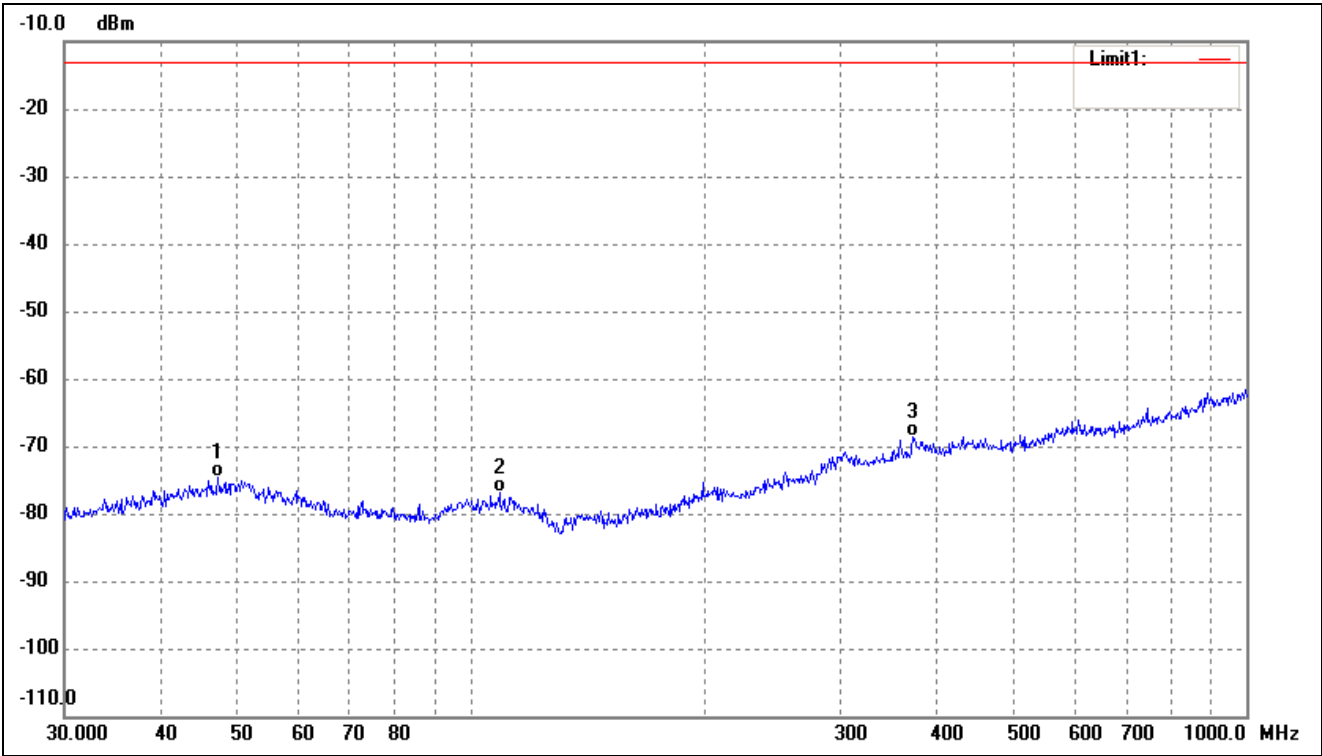
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	47.3255	-76.02	1.41	-74.61	-13.00	-61.61	ERP
2	390.7226	-74.55	6.02	-68.53	-13.00	-55.53	ERP
3	607.7867	-75.59	9.49	-66.10	-13.00	-53.10	ERP

Test Channel	WCDMA Band V	Polarity:	Vertical
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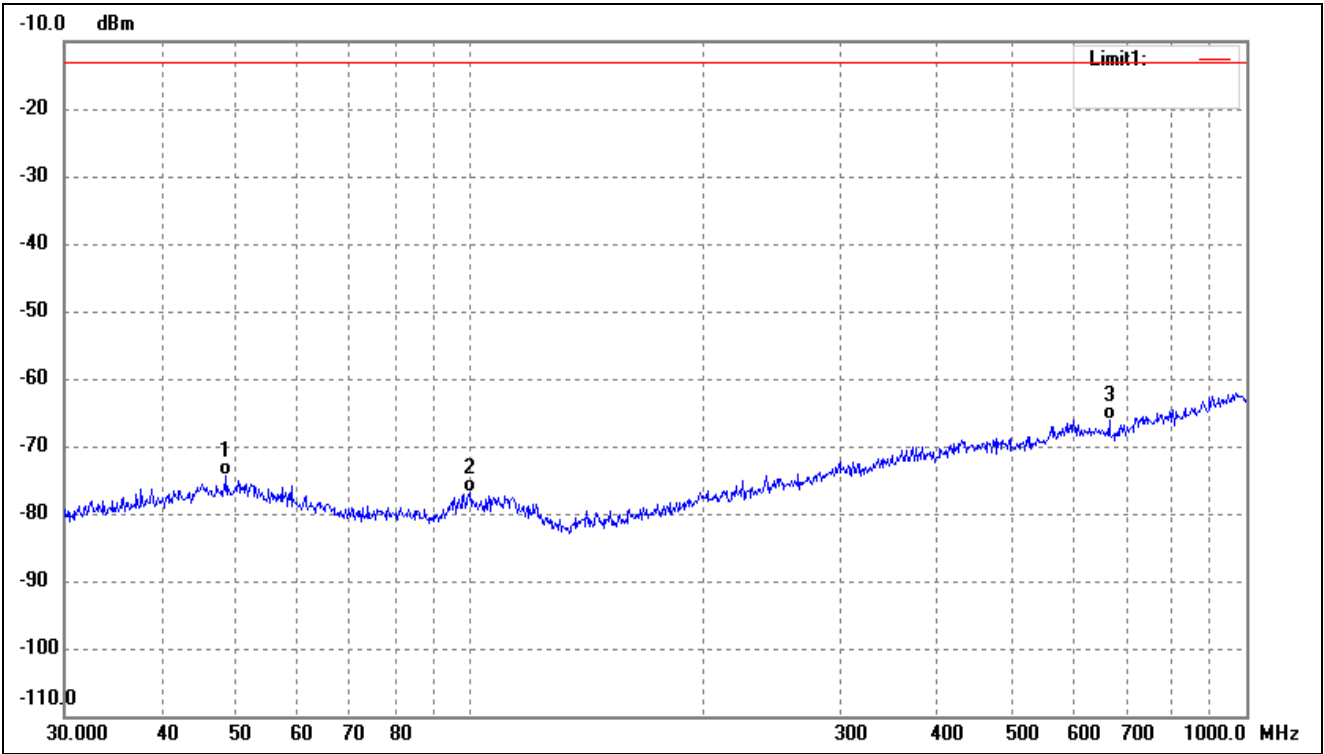
No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	52.0251	-76.33	1.17	-75.16	-13.00	-62.16	ERP
2	102.0014	-76.39	-0.53	-76.92	-13.00	-63.92	ERP
3	576.6443	-75.88	9.28	-66.60	-13.00	-53.60	ERP

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	47.3255	-76.02	1.41	-74.61	-13.00	-61.61	ERP
2	109.0286	-76.46	-0.38	-76.84	-13.00	-63.84	ERP
3	372.0045	-74.61	6.06	-68.55	-13.00	-55.55	ERP

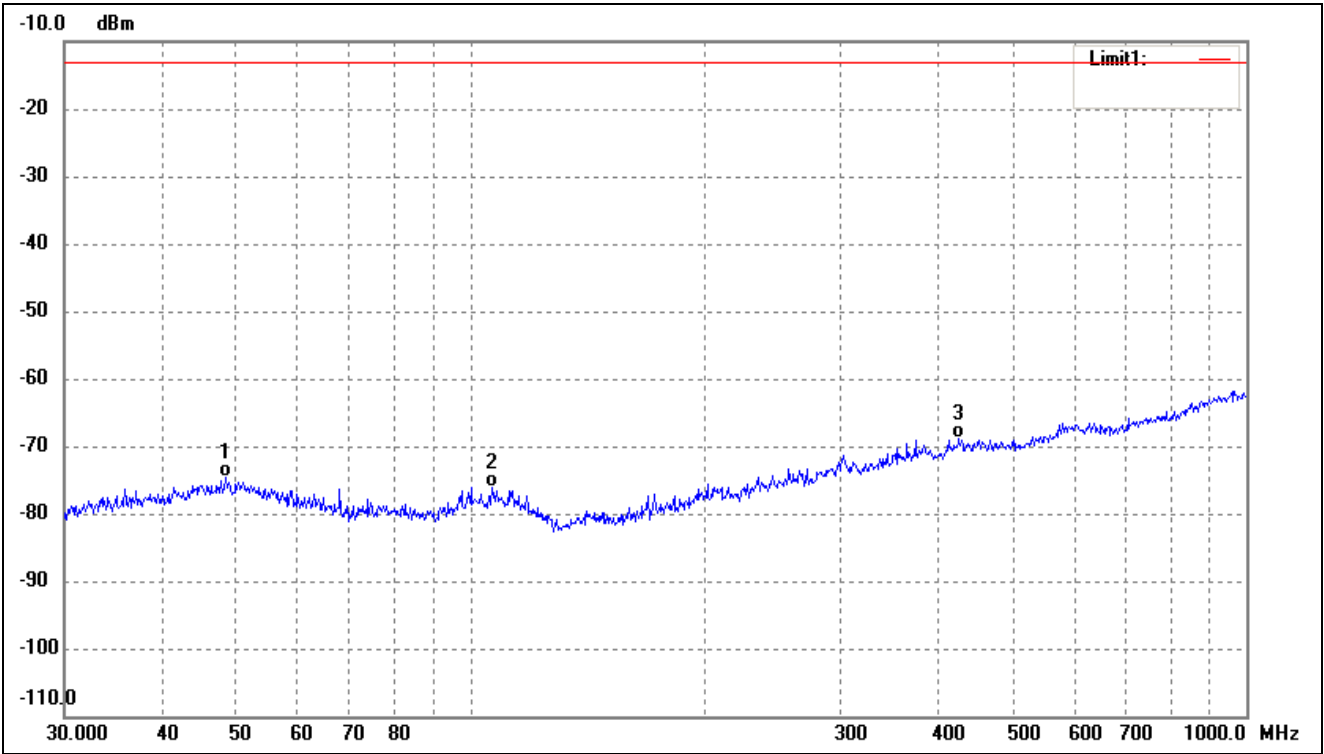
Test Channel	WCDMA Band IV	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	48.5016	-75.82	1.50	-74.32	-13.00	-61.32	ERP
2	99.8777	-76.35	-0.61	-76.96	-13.00	-63.96	ERP
3	665.8035	-75.54	9.31	-66.23	-13.00	-53.23	ERP

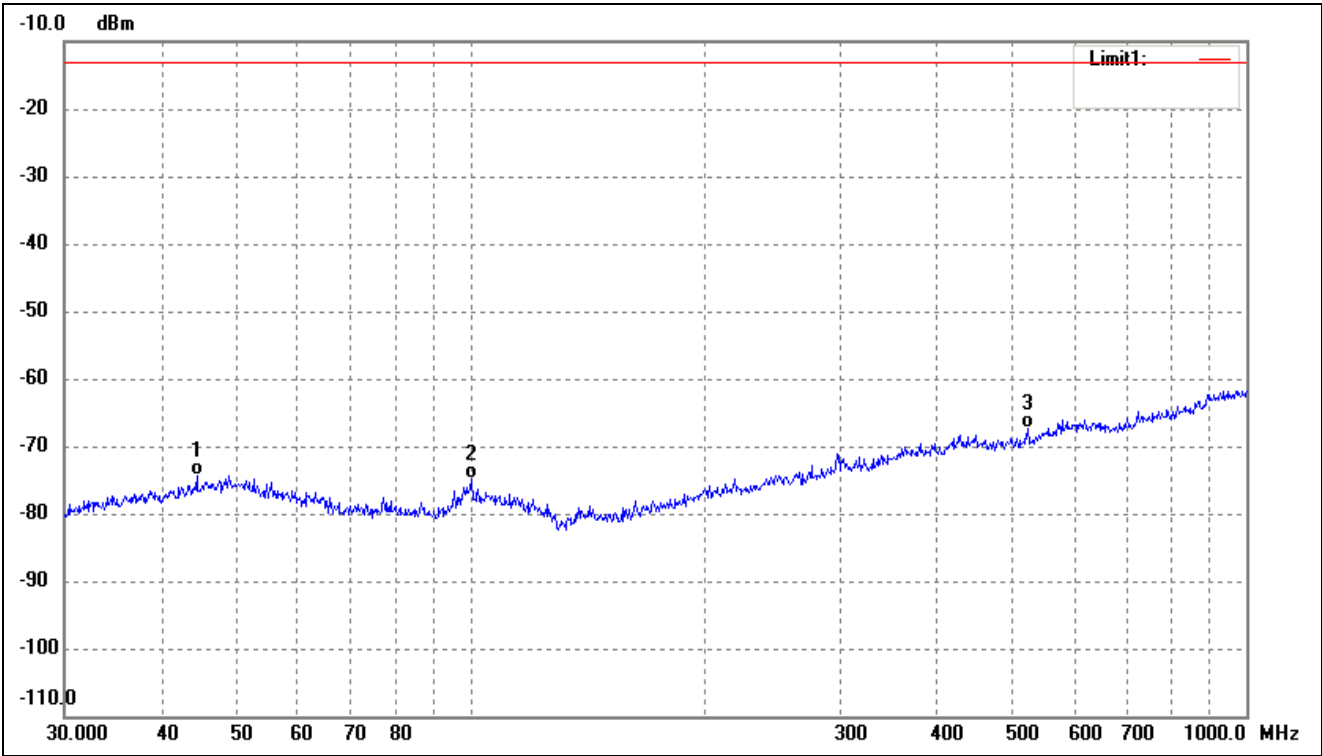
Note: $Margin = (Reading + Correct) - Limit$

Test Channel	WCDMA Band II	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	48.5016	-76.09	1.50	-74.59	-13.00	-61.59	ERP
2	106.7587	-75.79	-0.43	-76.22	-13.00	-63.22	ERP
3	426.5210	-76.37	7.42	-68.95	-13.00	-55.95	ERP

Test Channel	WCDMA Band II	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.4308	-75.55	1.10	-74.45	-13.00	-61.45	ERP
2	100.5806	-74.22	-0.56	-74.78	-13.00	-61.78	ERP
3	522.7180	-74.68	7.36	-67.32	-13.00	-54.32	ERP

Note: $Margin = (Reading + Correct) - Limit$

➤ Spurious Emissions Above 1GHz

➤ 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	-37.51	4.94	-32.57	-13	-19.57	H
2479.2	-42.49	8.46	-34.03	-13	-21.03	H
1652.8	-37.73	4.94	-32.79	-13	-19.79	V
2479.2	-41.07	8.46	-32.61	-13	-19.61	V
Middle Channel (836.6MHz)						
1672.8	-36.77	5.11	-31.66	-13	-18.66	H
2509.2	-42.09	8.54	-33.55	-13	-20.55	H
1672.8	-36.62	5.11	-31.51	-13	-18.51	V
2509.2	-42.01	8.54	-33.47	-13	-20.47	V
High Channel (846.6MHz)						
1693.2	-35.17	5.25	-29.92	-13	-16.92	H
2539.8	-41.07	8.57	-32.5	-13	-19.50	H
1693.2	-37.83	5.25	-32.58	-13	-19.58	V
2539.8	-44.16	8.57	-35.59	-13	-22.59	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	-41.2	8.65	-32.55	-13	-19.55	H
5137.2	-47.04	12.03	-35.01	-13	-22.01	H
3424.8	-40.5	8.65	-31.85	-13	-18.85	V
5137.2	-48.93	12.03	-36.9	-13	-23.9	V
Middle Channel (1732.4MHz)						
3466.8	-41.78	8.91	-32.87	-13	-19.87	H
5200.2	-49.62	12.29	-37.33	-13	-24.33	H
3466.8	-40.95	8.91	-32.04	-13	-19.04	V
5200.2	-49.19	12.29	-36.9	-13	-23.9	V
High Channel (1752.6MHz)						
3505.2	-42.71	9.11	-33.6	-13	-20.6	H
5257.8	-49.38	12.56	-36.82	-13	-23.82	H
3505.2	-41.92	9.11	-32.81	-13	-19.81	V
5257.8	-46.28	12.56	-33.72	-13	-20.72	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	-40.11	10.54	-29.57	-13	-16.57	H
5557.2	-48.49	13.37	-35.12	-13	-22.12	H
3704.8	-39.29	10.54	-28.75	-13	-15.75	V
5557.2	-48.57	13.37	-35.2	-13	-22.2	V
Middle Channel (1880MHz)						
3760.0	-42.48	10.64	-31.84	-13	-18.84	H
5640.0	-49.85	13.54	-36.31	-13	-23.31	H
3760.0	-39.06	10.64	-28.42	-13	-15.42	V
5640.0	-47.26	13.54	-33.72	-13	-20.72	V
High Channel (1907.6MHz)						
3815.2	-39.39	10.74	-28.65	-13	-15.65	H
5722.8	-47.55	13.71	-33.84	-13	-20.84	H
3815.2	-41.23	10.74	-30.49	-13	-17.49	V
5722.8	-47.32	13.71	-33.61	-13	-20.61	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

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

Please refer to Appendix E

9. Modulation characteristics

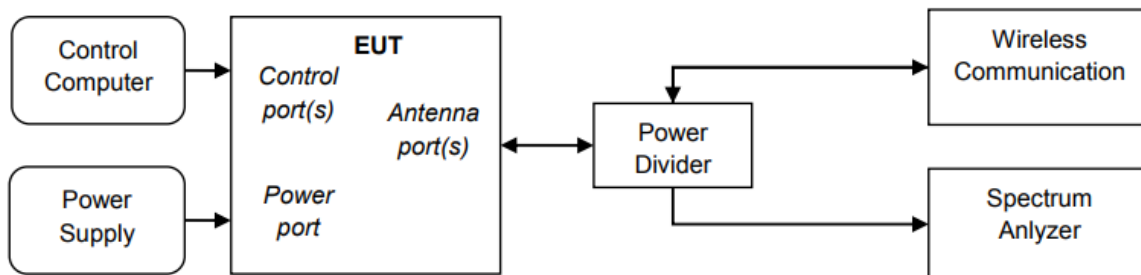
9.1 Standard Applicable

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

Project No.	WTX21X03021684W	Test Engineer	Combat
Start date	2021/3/22	Finish date	2022/3/25
Temperature	24℃	Humidity	51%
RF specifications	WCDMA		

APPENDIX	Description of Test Item	Result
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	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	23.53	22.92	22.76	23.05	23.32	23.49
HSDPA Subtest-1	21.97	21.75	21.75	21.87	22.31	22.47
HSDPA Subtest-2	21.95	21.73	21.72	21.85	22.29	22.42
HSDPA Subtest-3	21.94	21.71	21.73	21.84	22.27	22.43
HSDPA Subtest-4	21.93	21.75	21.71	21.83	22.28	22.44
HSUPA Subtest-1	21.35	21.17	21.17	21.65	21.73	22.05
HSUPA Subtest-2	21.32	21.15	21.15	21.62	21.71	22.03
HSUPA Subtest-3	21.32	21.13	21.13	21.63	21.71	22.04
HSUPA Subtest-4	21.33	21.14	21.14	21.64	21.72	22.02
HSUPA Subtest-5	21.34	21.14	21.13	21.65	21.70	22.03

Conducted Average power (dBm)						
Band	WCDMA Band IV					
Channel	1312	1412	1513			
Frequency(MHz)	1712.4	1733.4	1752.6			
RMC 12.2k	23.24	22.90	23.39			
HSDPA Subtest-1	21.90	21.95	21.80			
HSDPA Subtest-2	21.87	21.92	21.78			
HSDPA Subtest-3	21.86	21.93	21.76			
HSDPA Subtest-4	21.88	21.94	21.77			
HSUPA Subtest-1	21.43	21.50	21.43			
HSUPA Subtest-2	21.41	21.47	21.42			
HSUPA Subtest-3	21.42	21.48	21.41			
HSUPA Subtest-4	21.41	21.47	21.41			
HSUPA Subtest-5	21.40	21.49	21.42			

APPENDIX B

Peak-to-average Ratio (PAR) of Transmitter

WCDMA Band IV				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	1312	1712.4	4.87	13
	1412	1733.4	4.32	13
	1513	1752.6	4.63	13

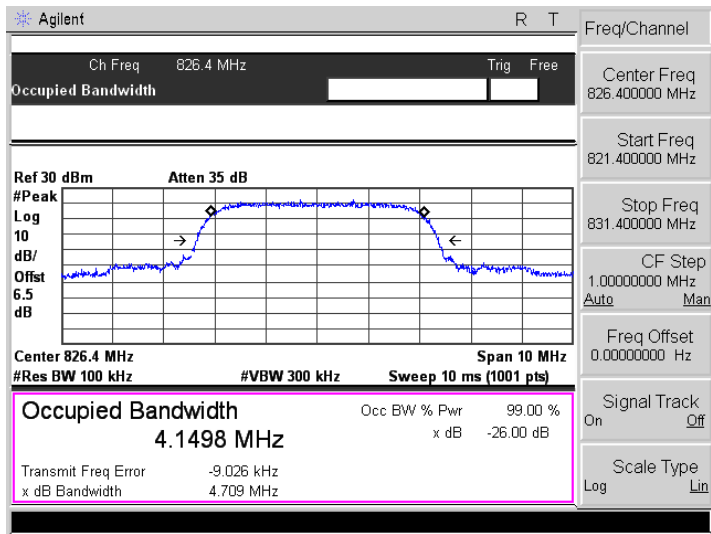
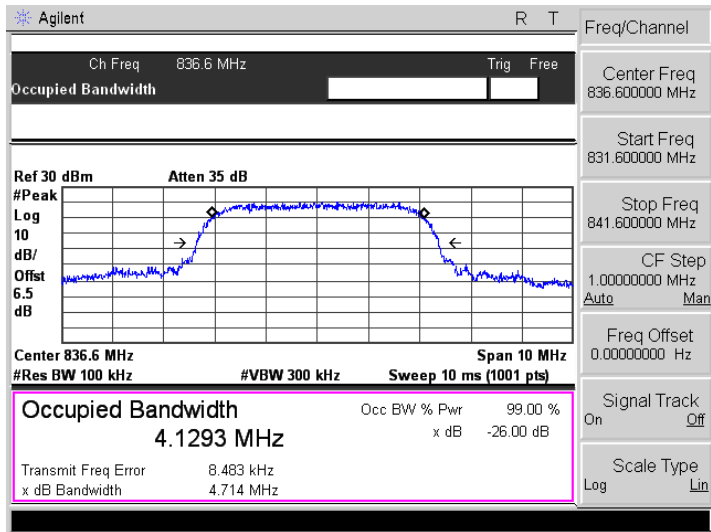
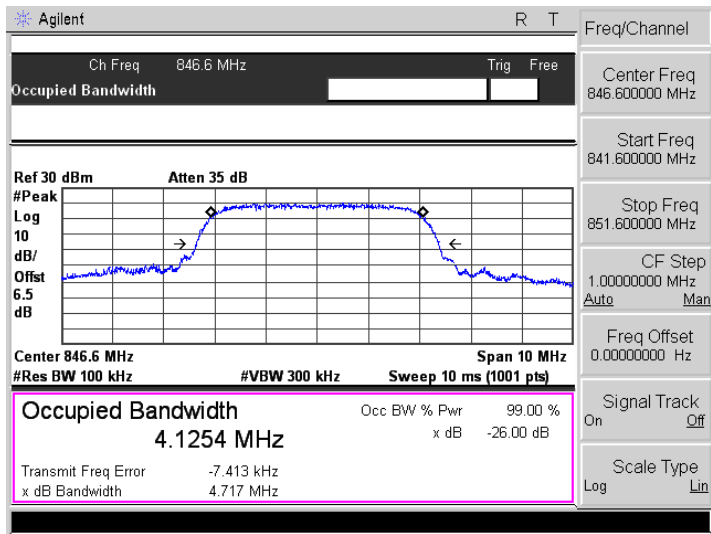
WCDMA Band II				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	5.17	13
	9400	1880.0	5.24	13
	9538	1907.6	4.96	13

Note: Only the worst case was selected to record.

APPENDIX C

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
WCDMA Band V	4132	826.40	4149.8	4709
	4183	836.60	4129.3	4714
	4233	846.60	4125.4	4717
HSDPA	4132	826.40	4172.5	5491
	4183	836.60	4151.1	5808
	4233	846.60	4156.3	4797
HSUPA	4132	826.40	4140.7	4745
	4183	836.60	4144.7	4683
	4233	846.60	4164.3	5374
WCDMA Band II	9262	1852.40	4123.5	4704
	9400	1880.00	4131.3	4722
	9538	1907.60	4138.0	4688
HSDPA	9262	1852.40	4136.8	4720
	9400	1880.00	4145.6	4719
	9538	1907.60	4152.7	4706
HSUPA	9262	1852.40	4148.6	4664
	9400	1880.00	4133.6	4713
	9538	1907.60	4152.4	4734
WCDMA Band IV	1312	1712.4	4128.5	4703
	1412	1733.4	4139.4	4690
	1513	1752.6	4125.6	4700
HSDPA	1312	1712.4	4139.3	4698
	1412	1733.4	4128.6	4686
	1513	1752.6	4158.7	4739
HSUPA	1312	1712.4	4128.6	4705
	1412	1733.4	4148.1	4713

	1513	1752.6	4140.9	4740
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WCDMA Band V-Low	 Agilent R T Ch Freq 826.4 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/Offset 6.5 dB Center 826.4 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1498 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -9.026 kHz x dB Bandwidth 4.709 MHz Freq/Channel Center Freq 826.400000 MHz Start Freq 821.400000 MHz Stop Freq 831.400000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
WCDMA Band V-Middle	 Agilent R T Ch Freq 836.6 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/Offset 6.5 dB Center 836.6 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1293 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 8.483 kHz x dB Bandwidth 4.714 MHz Freq/Channel Center Freq 836.600000 MHz Start Freq 831.600000 MHz Stop Freq 841.600000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
WCDMA Band V-High	 Agilent R T Ch Freq 846.6 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/Offset 6.5 dB Center 846.6 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1254 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -7.413 kHz x dB Bandwidth 4.717 MHz Freq/Channel Center Freq 846.600000 MHz Start Freq 841.600000 MHz Stop Freq 851.600000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

HSDPA-Low	Agilent R T Ch Freq 826.4 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 826.4 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1725 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -3.927 kHz x dB Bandwidth 5.491 MHz Freq/Channel Center Freq 826.400000 MHz Start Freq 821.400000 MHz Stop Freq 831.400000 MHz CF Step 1.0000000 MHz Auto Man Freq Offset 0.0000000 Hz Signal Track On Off Scale Type Log Lin
HSDPA-Middle	Agilent R T Ch Freq 836.6 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 836.6 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1511 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 14.156 kHz x dB Bandwidth 5.608 MHz Trace/View Trace 1 2 3 Clear Write Max Hold Min Hold View Blank More 1 of 2
HSDPA-High	Agilent R T Ch Freq 846.6 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 846.6 MHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1563 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -14.599 kHz x dB Bandwidth 4.797 MHz Trace/View Trace 1 2 3 Clear Write Max Hold Min Hold View Blank More 1 of 2

The figure displays three screenshots of an Agilent spectrum analyzer interface, showing the measurement of HSUPA signals at different frequencies. Each screenshot includes a spectral plot, a table of measurement data, and a list of controls on the right side.

HSUPA-Low (826.4 MHz):

- Center Freq: 826.4 MHz
- Span: 10 MHz
- Res BW: 100 kHz
- VBW: 300 kHz
- Sweep: 10 ms (1001 pts)
- Occupied Bandwidth: 4.1407 MHz
- Occ BW % Pwr: 99.00 %
- x dB: -26.00 dB
- Transmit Freq Error: -11.691 kHz
- x dB Bandwidth: 4.745 MHz

HSUPA-Middle (836.6 MHz):

- Center Freq: 836.6 MHz
- Span: 10 MHz
- Res BW: 100 kHz
- VBW: 300 kHz
- Sweep: 10 ms (1001 pts)
- Occupied Bandwidth: 4.1447 MHz
- Occ BW % Pwr: 99.00 %
- x dB: -26.00 dB
- Transmit Freq Error: 8.154 kHz
- x dB Bandwidth: 4.683 MHz

HSUPA-High (846.6 MHz):

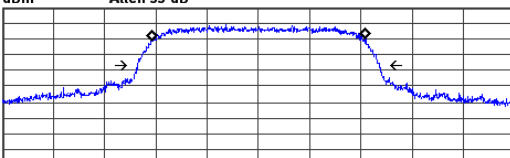
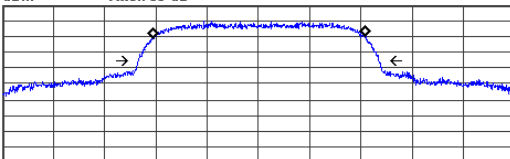
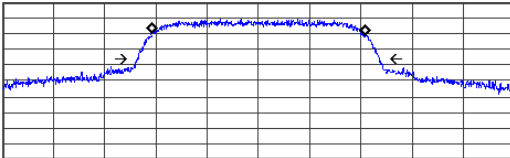
- Center Freq: 846.6 MHz
- Span: 10 MHz
- Res BW: 100 kHz
- VBW: 300 kHz
- Sweep: 10 ms (1001 pts)
- Occupied Bandwidth: 4.1643 MHz
- Occ BW % Pwr: 99.00 %
- x dB: -26.00 dB
- Transmit Freq Error: -9.799 kHz
- x dB Bandwidth: 5.374 MHz

WCDMA Band II-Low	Agilent R T Ch Freq 1.8524 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.852 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1235 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.692 kHz x dB Bandwidth 4.704 MHz Freq/Channel Center Freq 1.85240000 GHz Start Freq 1.84740000 GHz Stop Freq 1.85740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
WCDMA Band II-Middle	Agilent R T Ch Freq 1.88 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.88 GHz Span 10 MHz #Res BW 100 kHz #VBW 1 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 4.1313 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -5.195 kHz x dB Bandwidth 4.722 MHz Freq/Channel Center Freq 1.88000000 GHz Start Freq 1.87500000 GHz Stop Freq 1.88500000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
WCDMA Band II-High	Agilent R T Ch Freq 1.9076 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.908 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1380 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -2.812 kHz x dB Bandwidth 4.688 MHz Freq/Channel Center Freq 1.90760000 GHz Start Freq 1.90260000 GHz Stop Freq 1.91260000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

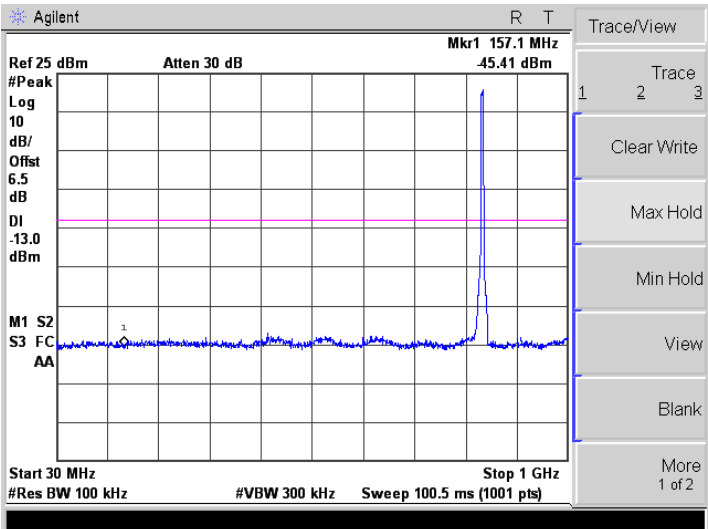
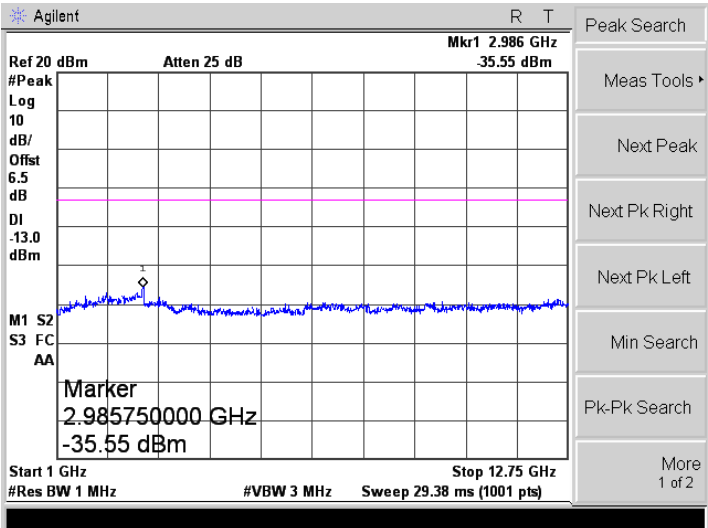
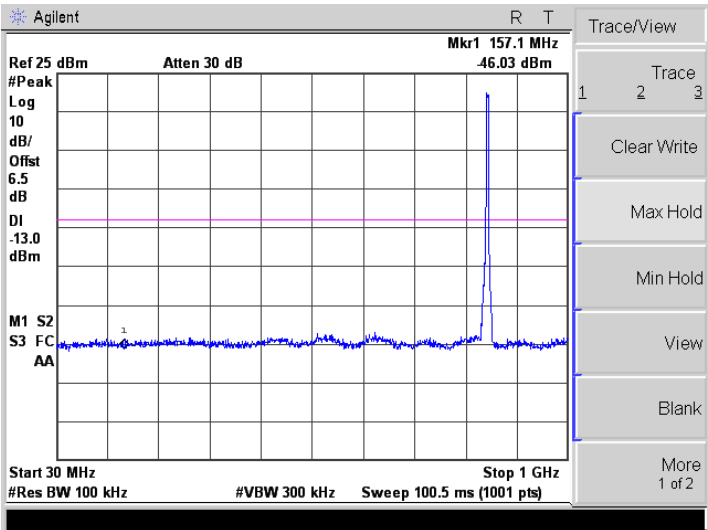
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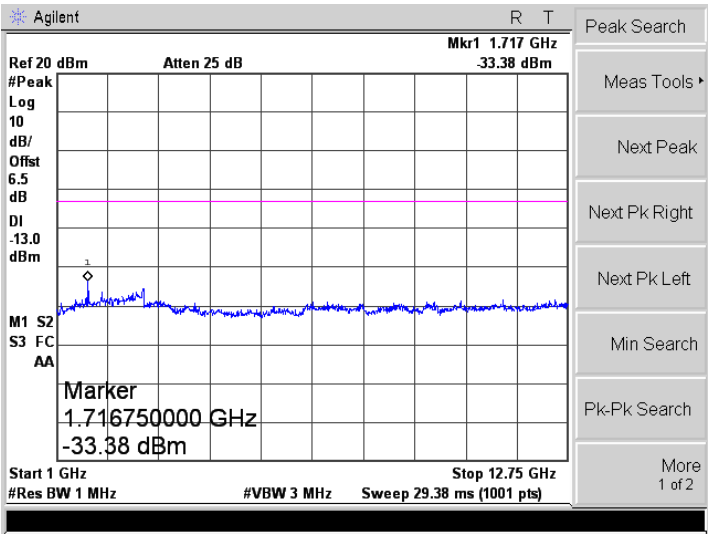
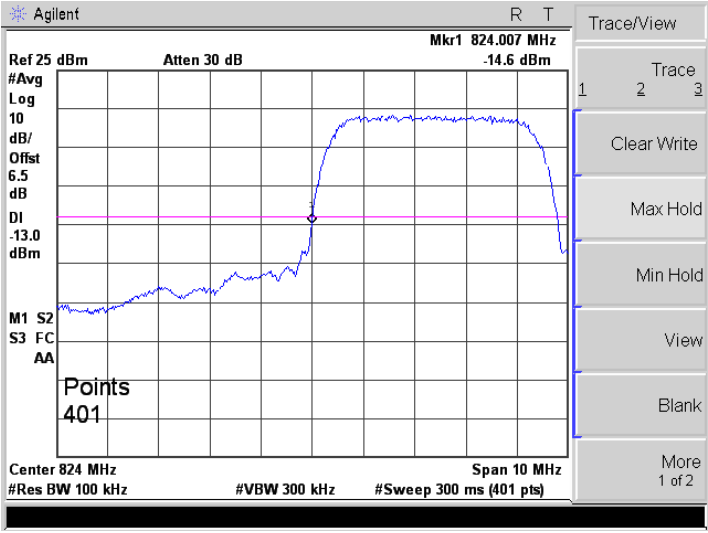
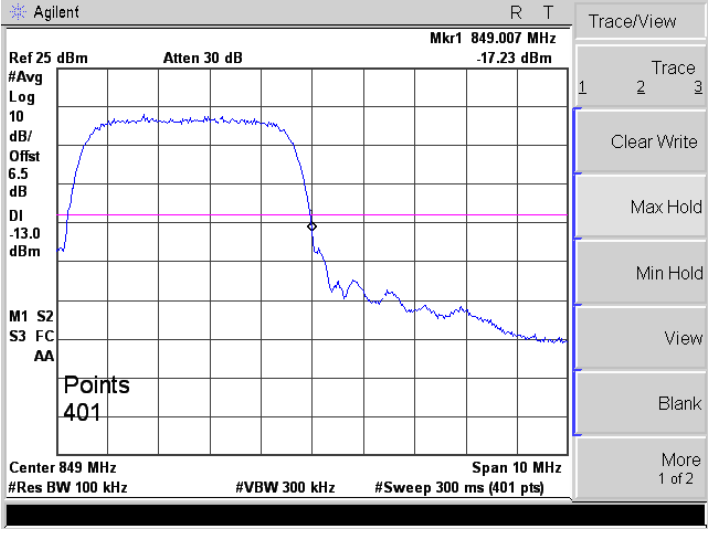
HSUPA-Low	Agilent R T Ch Freq 1.8524 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.852 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1486 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -896.499 Hz x dB Bandwidth 4.664 MHz Freq/Channel Center Freq 1.85240000 GHz Start Freq 1.84740000 GHz Stop Freq 1.85740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
HSUPA-Middle	Agilent R T Ch Freq 1.88 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.88 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1336 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.988 kHz x dB Bandwidth 4.713 MHz Freq/Channel Center Freq 1.88000000 GHz Start Freq 1.87500000 GHz Stop Freq 1.88500000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
HSUPA-High	Agilent R T Ch Freq 1.9076 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.908 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1524 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -14.281 Hz x dB Bandwidth 4.734 MHz Freq/Channel Center Freq 1.90760000 GHz Start Freq 1.90260000 GHz Stop Freq 1.91260000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

WCDMA Band IV-Low	Agilent R T Ch Freq 1.7124 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.712 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1285 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 2.198 kHz x dB Bandwidth 4.703 MHz Freq/Channel Center Freq 1.71240000 GHz Start Freq 1.70740000 GHz Stop Freq 1.71740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
WCDMA Band IV-Middle	Agilent R T Ch Freq 1.7324 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.732 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1394 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 7.784 kHz x dB Bandwidth 4.690 MHz Freq/Channel Center Freq 1.73240000 GHz Start Freq 1.72740000 GHz Stop Freq 1.73740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
WCDMA Band IV-High	Agilent R T Ch Freq 1.7526 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.753 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1256 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -7.190 kHz x dB Bandwidth 4.700 MHz Freq/Channel Center Freq 1.75260000 GHz Start Freq 1.74760000 GHz Stop Freq 1.75760000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

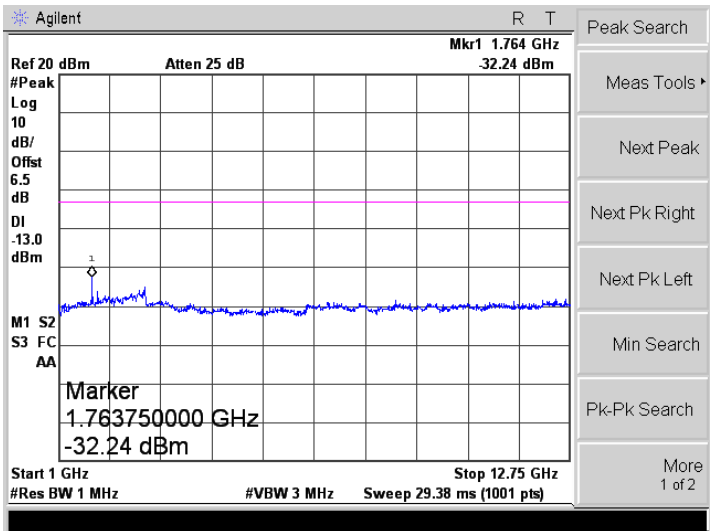
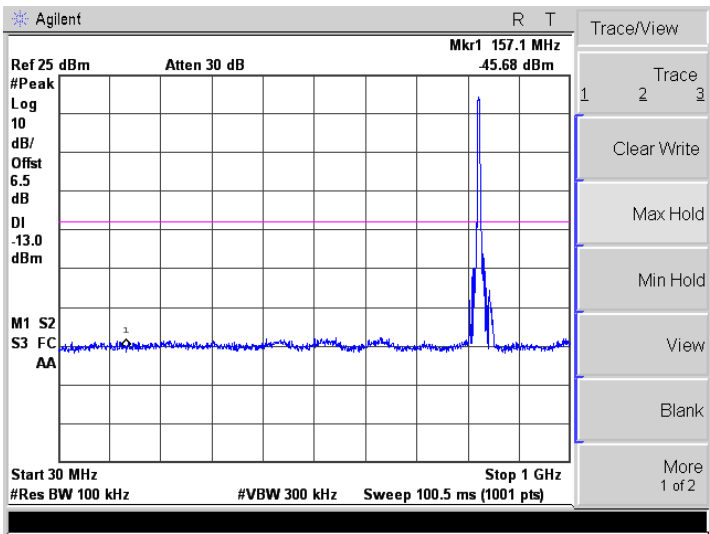
HSDPA-Low	Agilent R T Ch Freq 1.7124 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB  Center 1.712 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1393 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 191.945 Hz x dB Bandwidth 4.698 MHz Freq/Channel Center Freq 1.71240000 GHz Start Freq 1.70740000 GHz Stop Freq 1.71740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
HSDPA-Middle	Agilent R T Ch Freq 1.7324 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB  Center 1.732 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1286 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 10.714 kHz x dB Bandwidth 4.686 MHz Trace/View Trace 1 2 3 Clear Write Max Hold Min Hold View Blank More 1 of 2
HSDPA-High	Agilent R T Ch Freq 1.7526 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB  Center 1.753 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1587 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -4.273 kHz x dB Bandwidth 4.739 MHz Freq/Channel Center Freq 1.75260000 GHz Start Freq 1.74760000 GHz Stop Freq 1.75760000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

HSUPA-Low	Agilent R T Ch Freq 1.7124 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.712 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1286 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -105.484 Hz x dB Bandwidth 4.705 MHz Freq/Channel Center Freq 1.71240000 GHz Start Freq 1.70740000 GHz Stop Freq 1.71740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
HSUPA-Middle	Agilent R T Ch Freq 1.7324 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.732 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1481 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -2.066 kHz x dB Bandwidth 4.713 MHz Freq/Channel Center Freq 1.73240000 GHz Start Freq 1.72740000 GHz Stop Freq 1.73740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
HSUPA-High	Agilent R T Ch Freq 1.7526 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.753 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.1409 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -7.245 kHz x dB Bandwidth 4.740 MHz Freq/Channel Center Freq 1.75260000 GHz Start Freq 1.74760000 GHz Stop Freq 1.75760000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

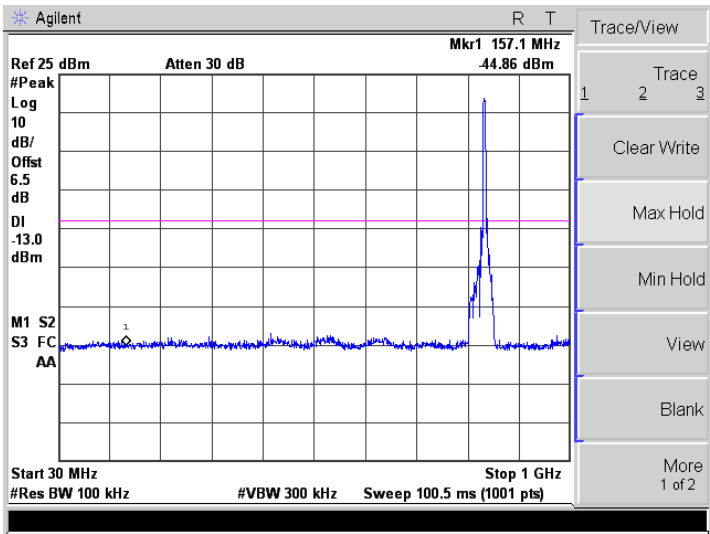
WCDMA Band V-Middle	
	
WCDMA Band V-High	

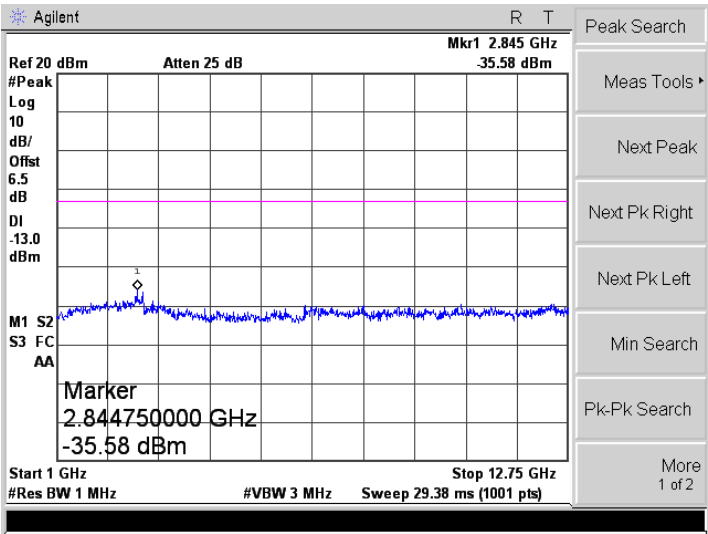
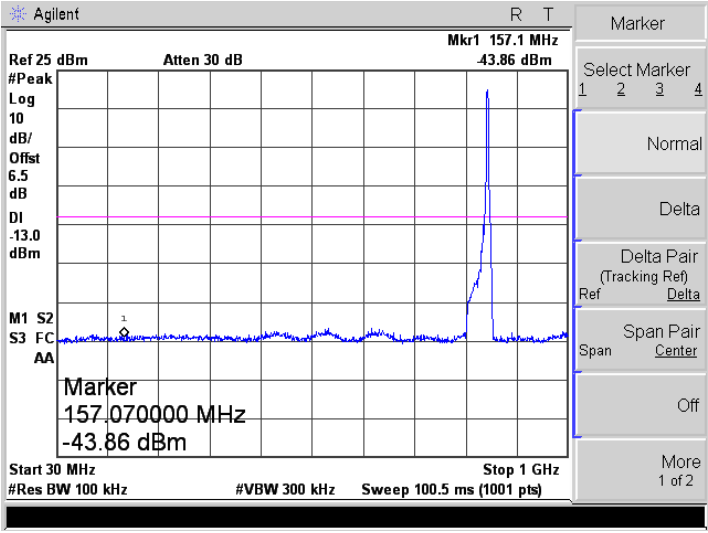
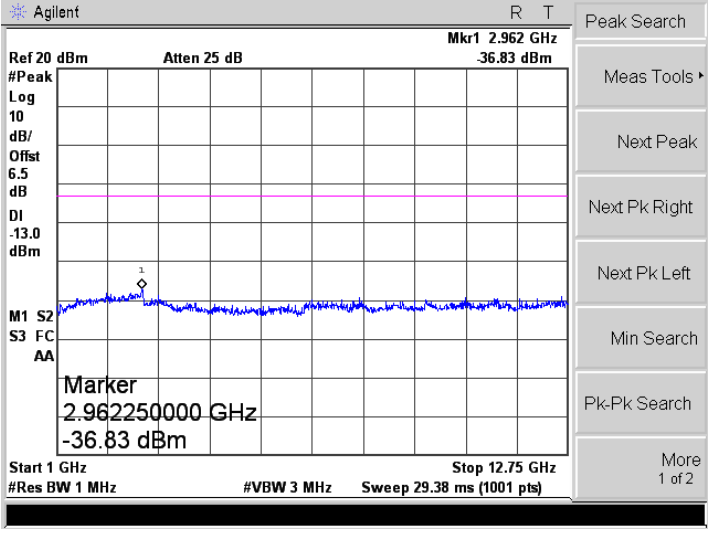
	
Bandedge	
	

HSDPA Band V-Low

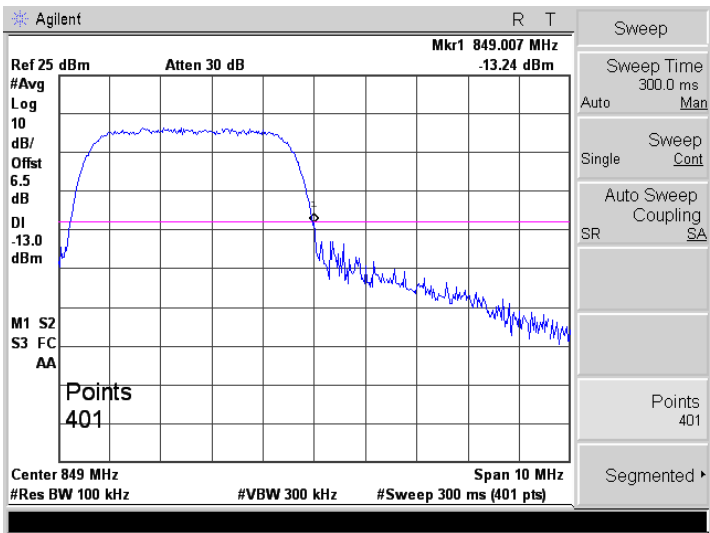
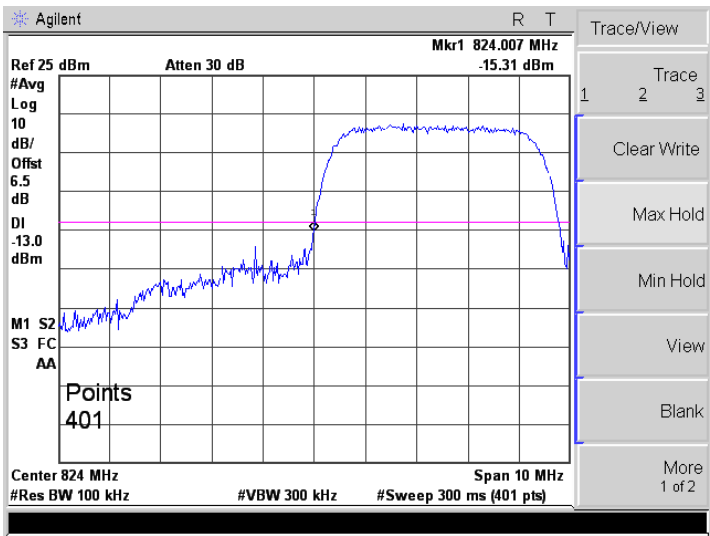


HSDPA Band V-Middle

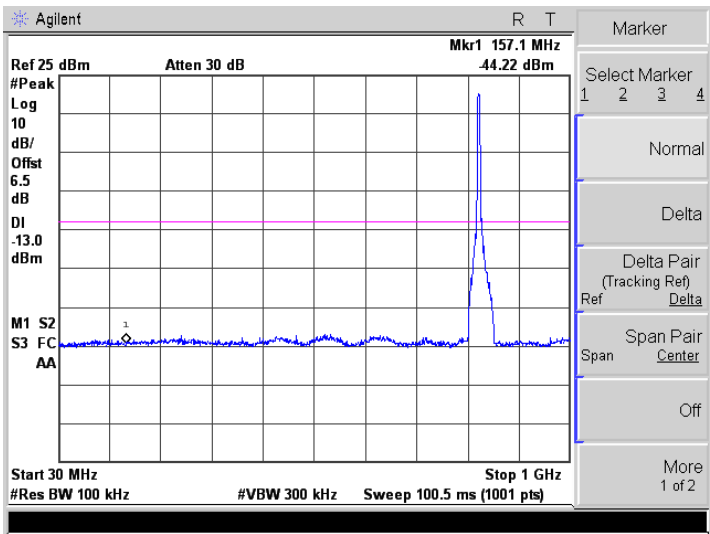


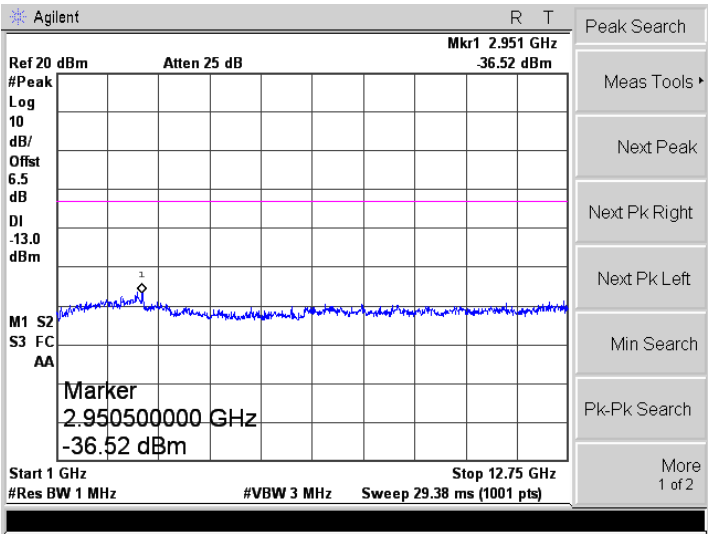
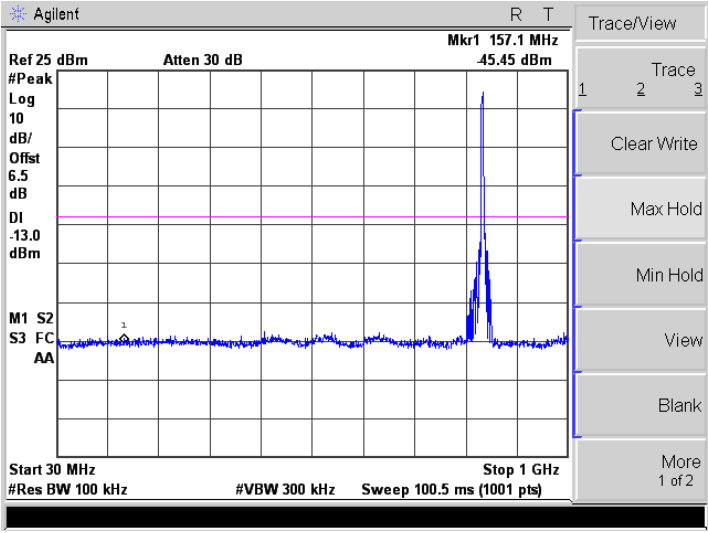
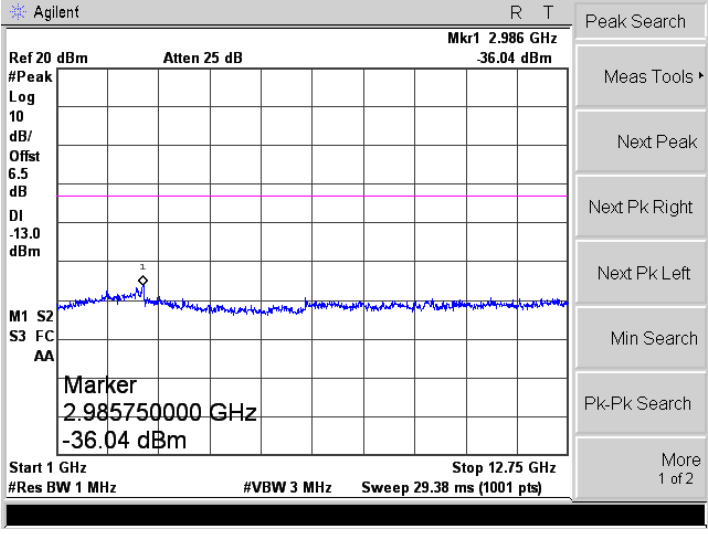
	
HSDPA Band V-High	
	

Bandedge

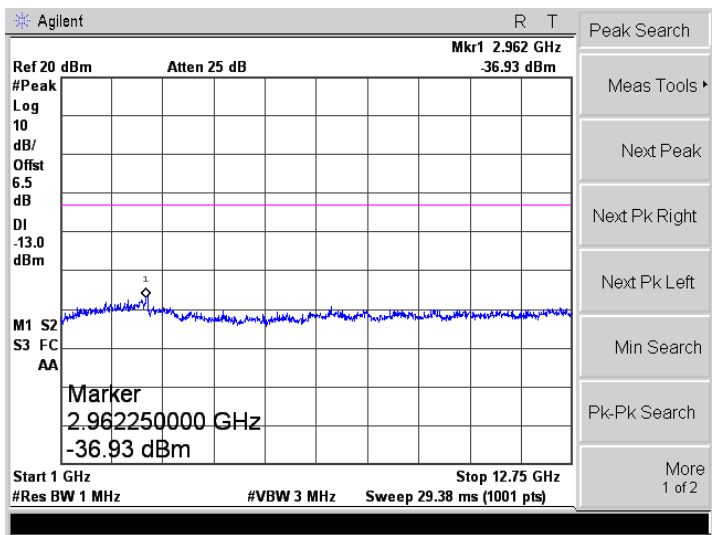
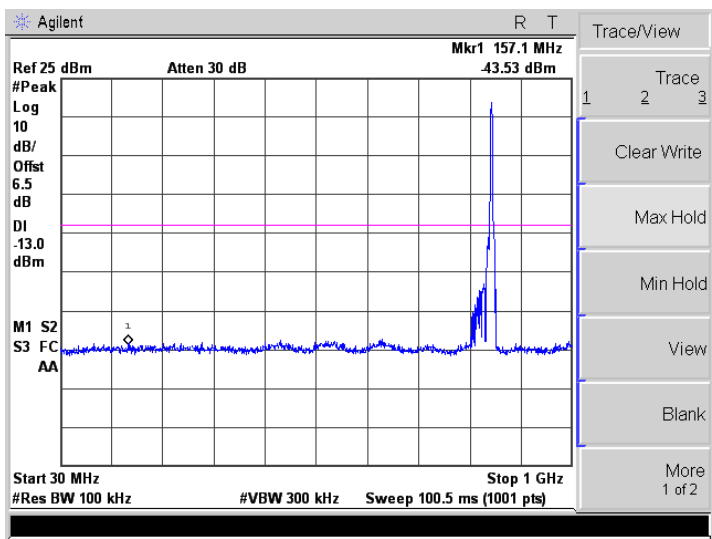


HSUPA Band V-Low

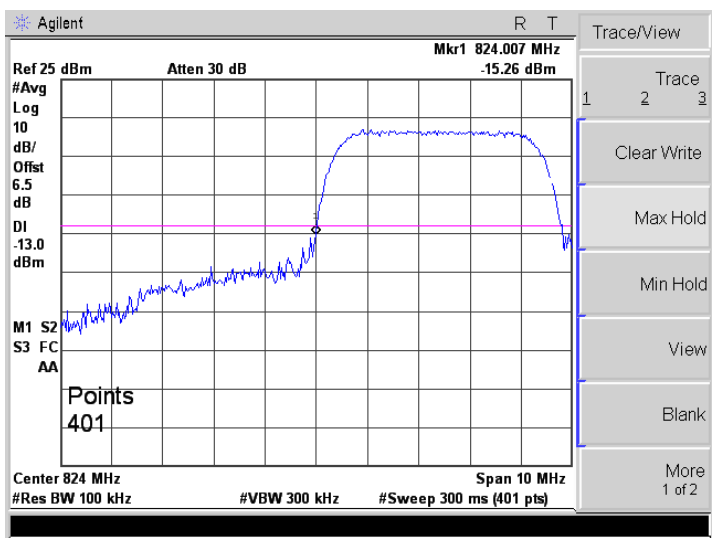


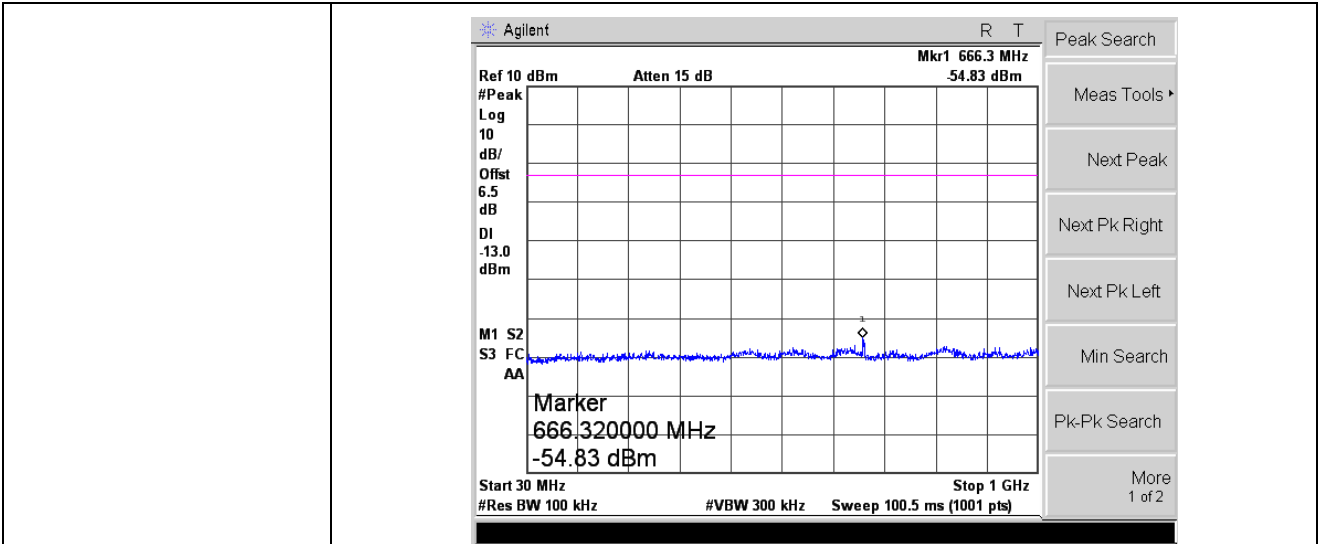
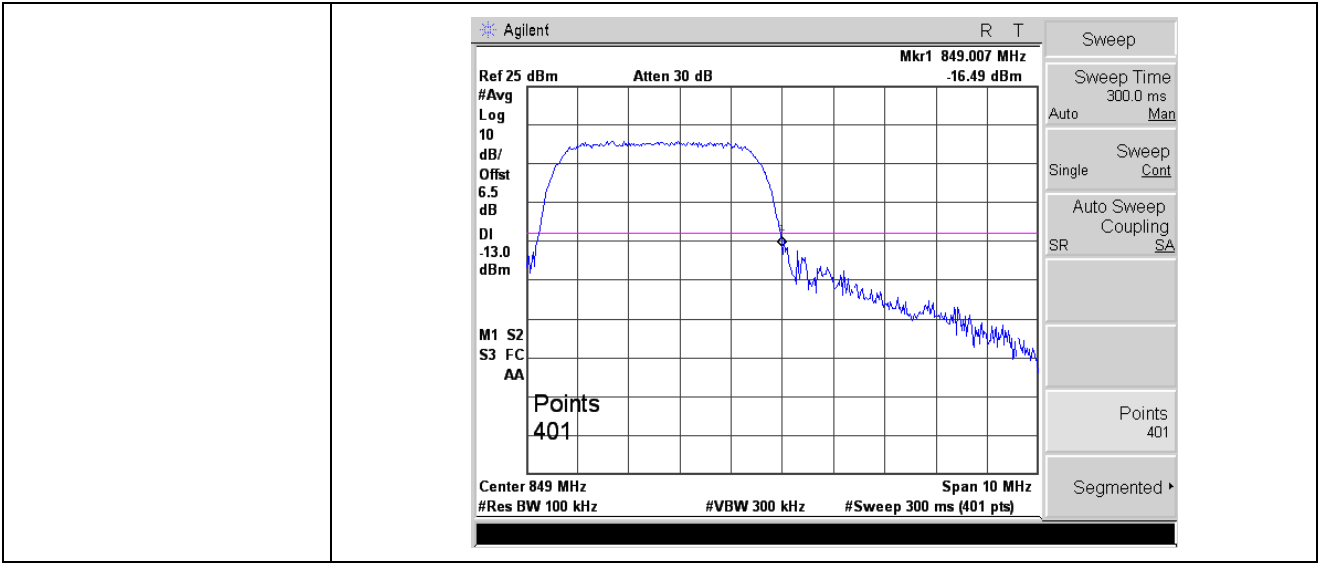
	
HSUPA Band V-Middle	
	

HSUPA Band V-High

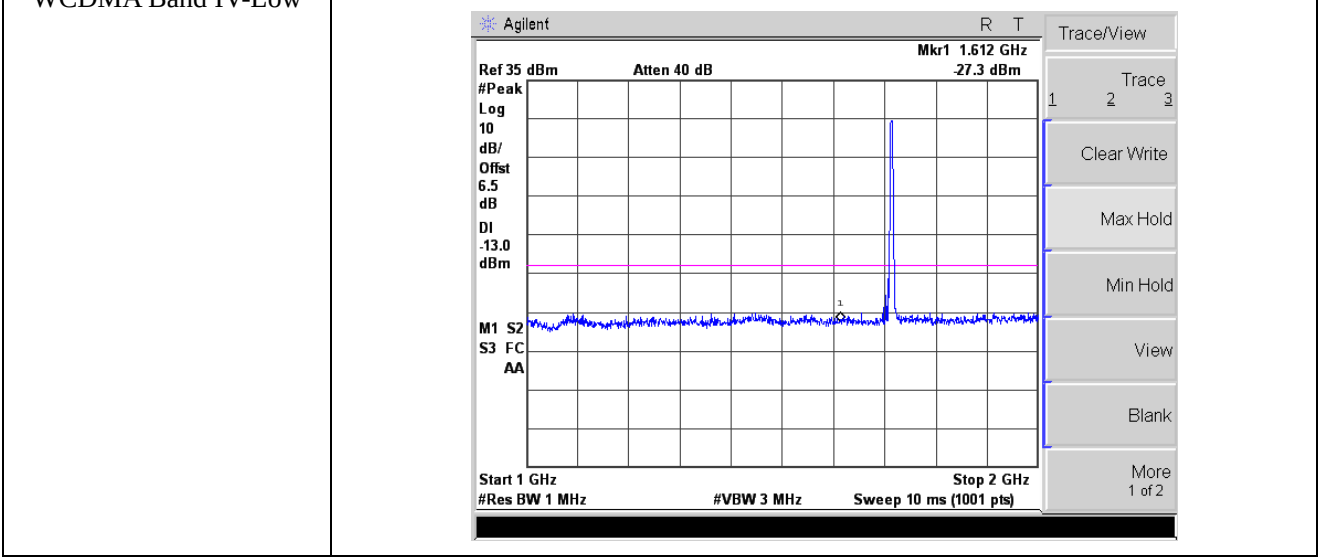


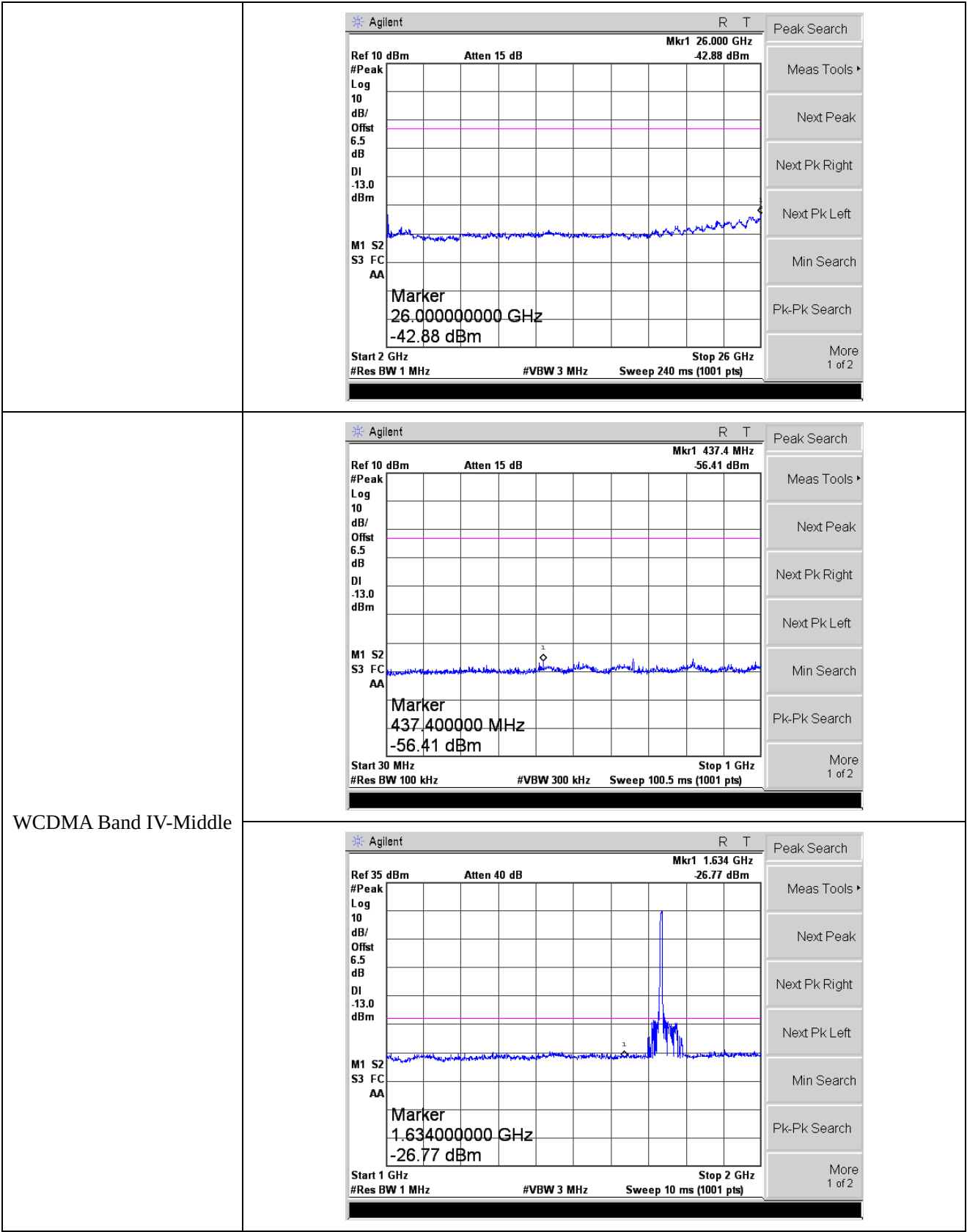
Bandedge

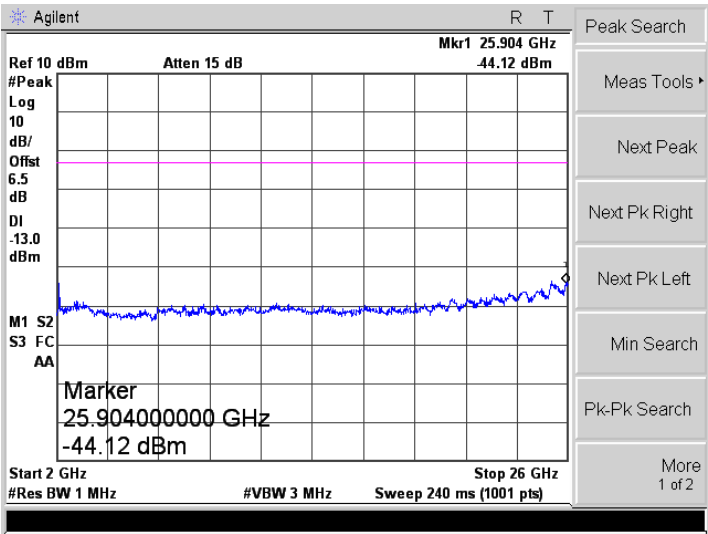
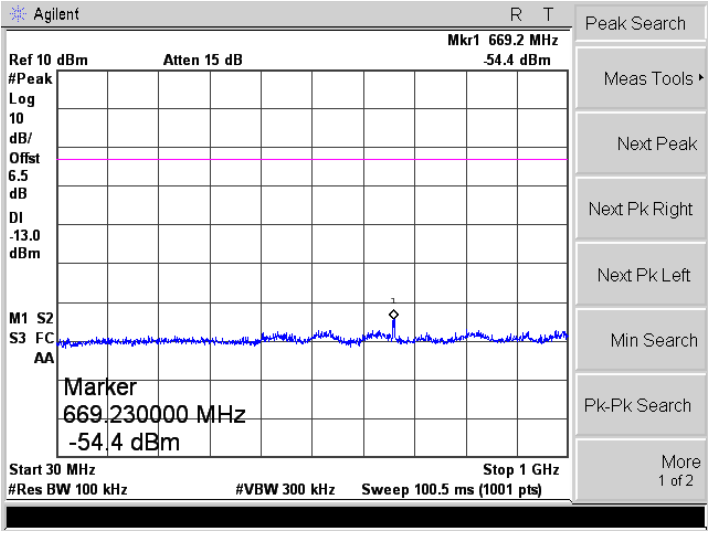
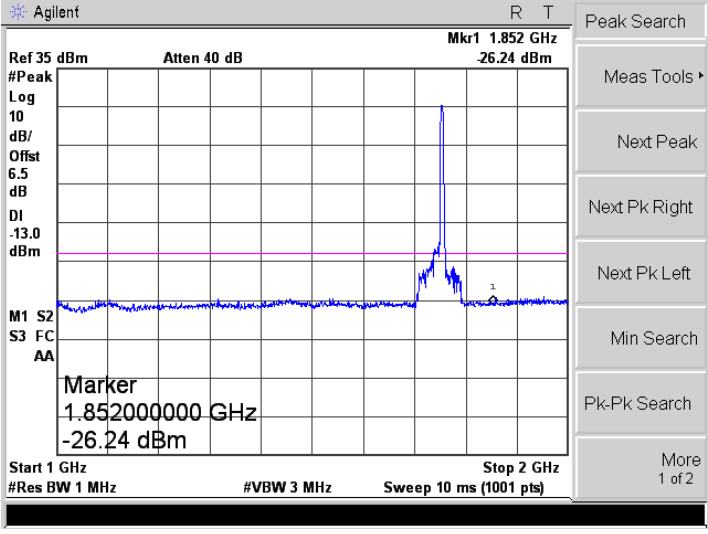


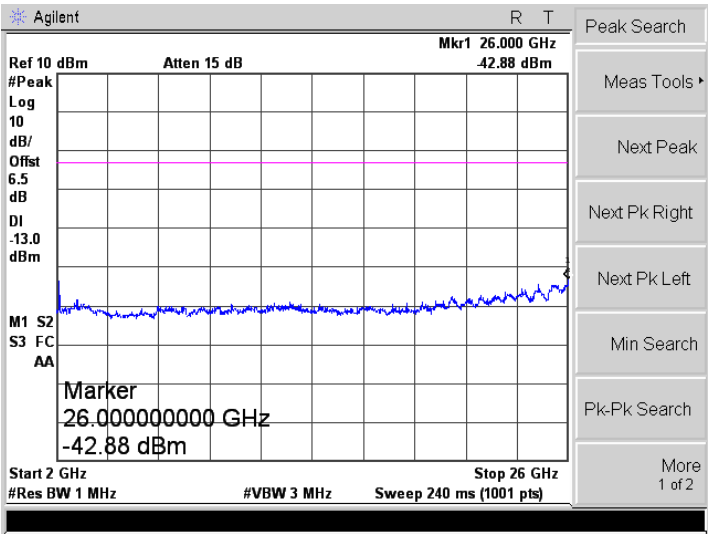
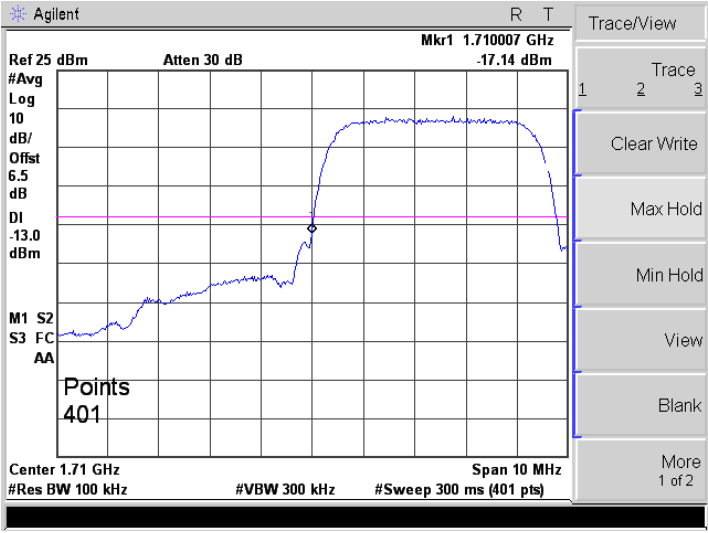
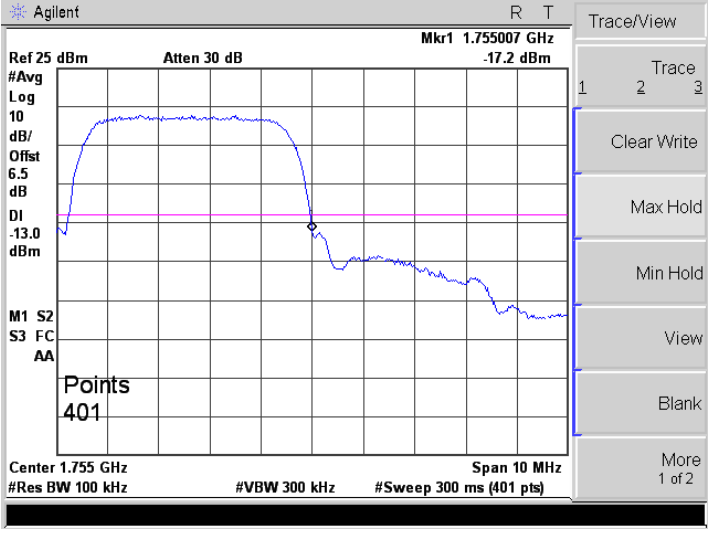


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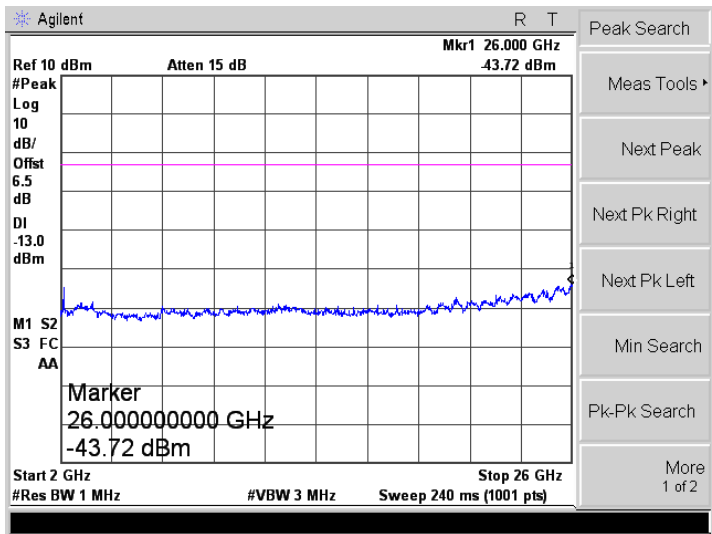
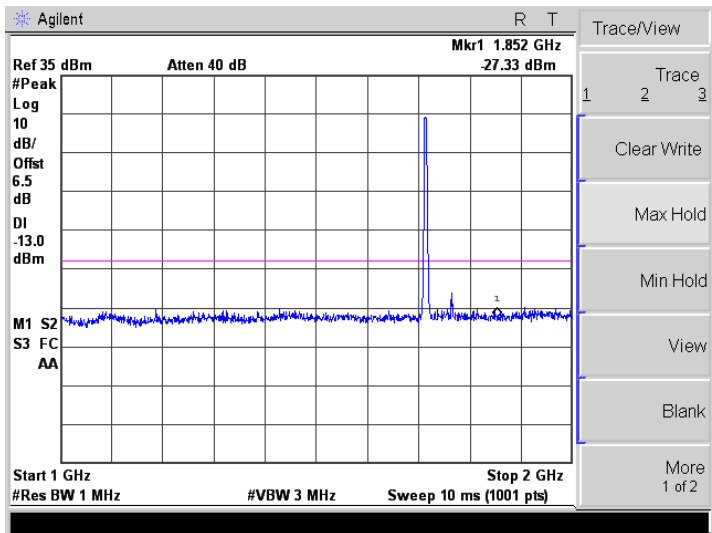
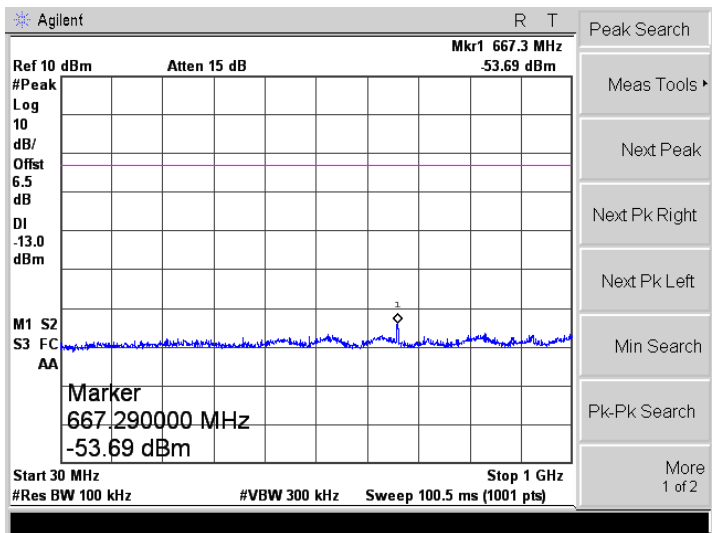


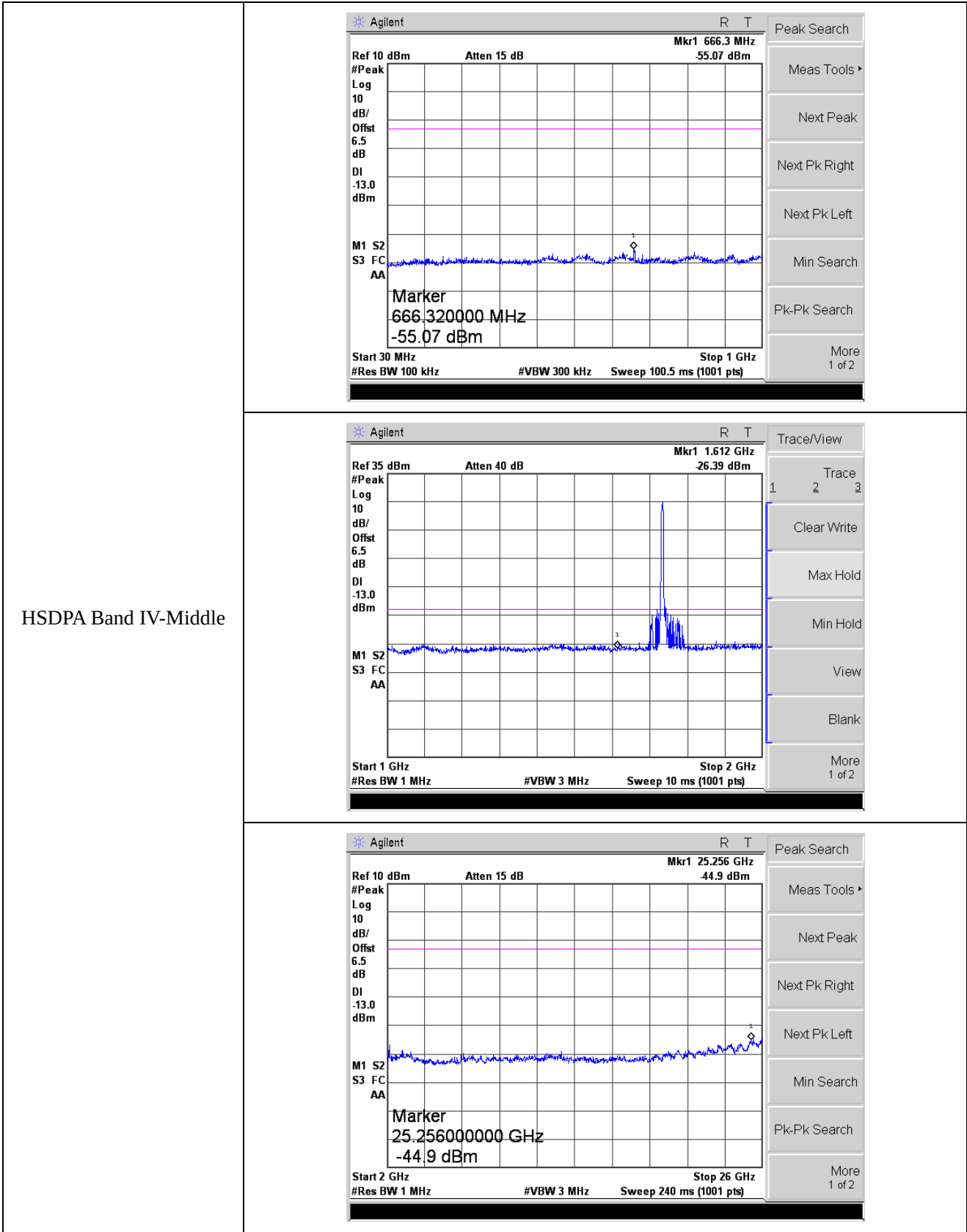


	
WCDMA Band IV-High	
	

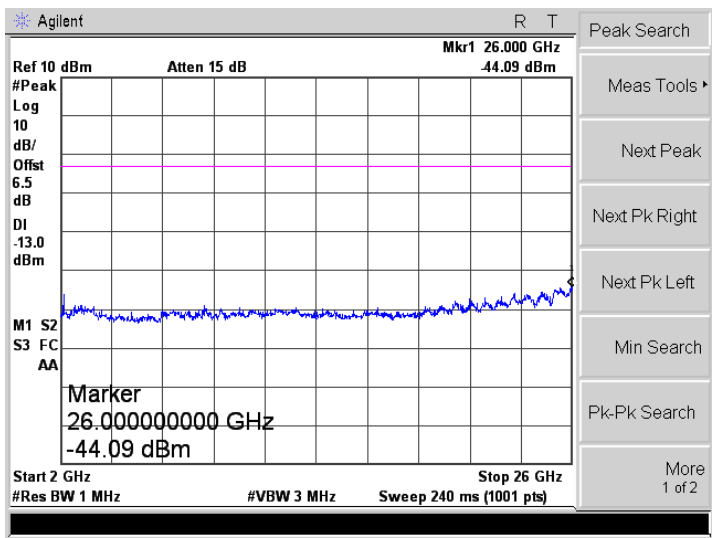
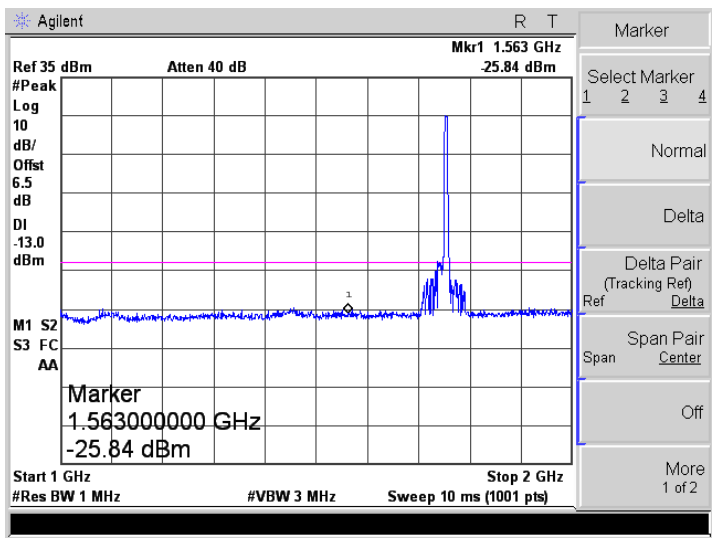
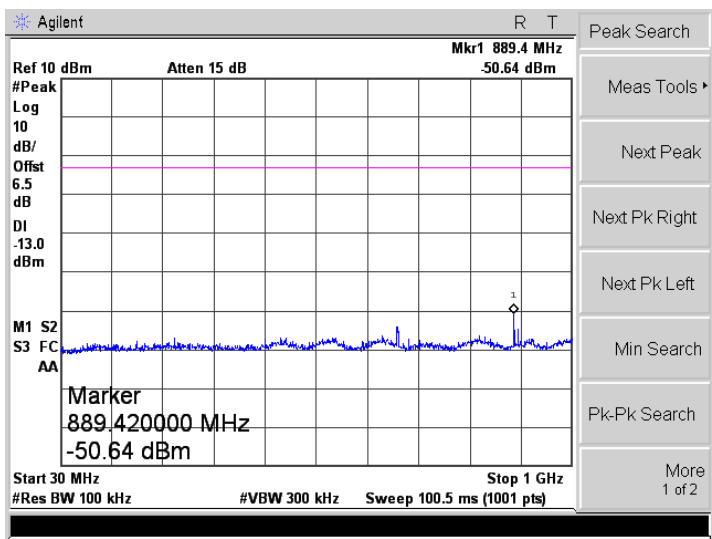
	
Bandedge	
	

HSDPA Band IV-Low

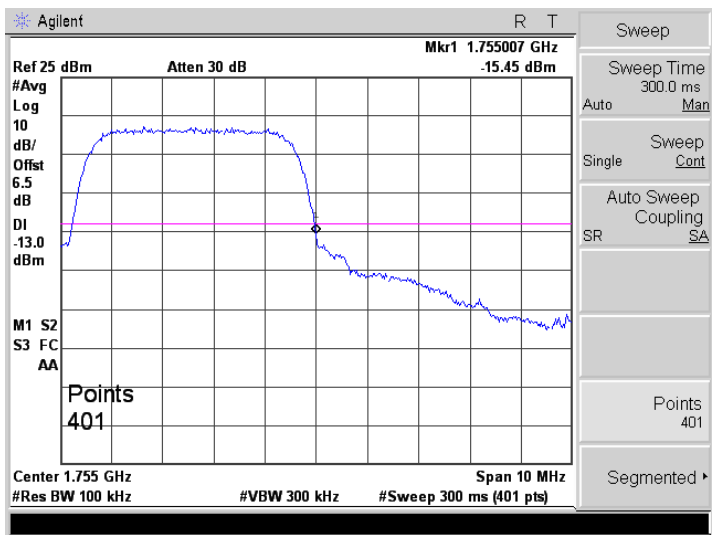
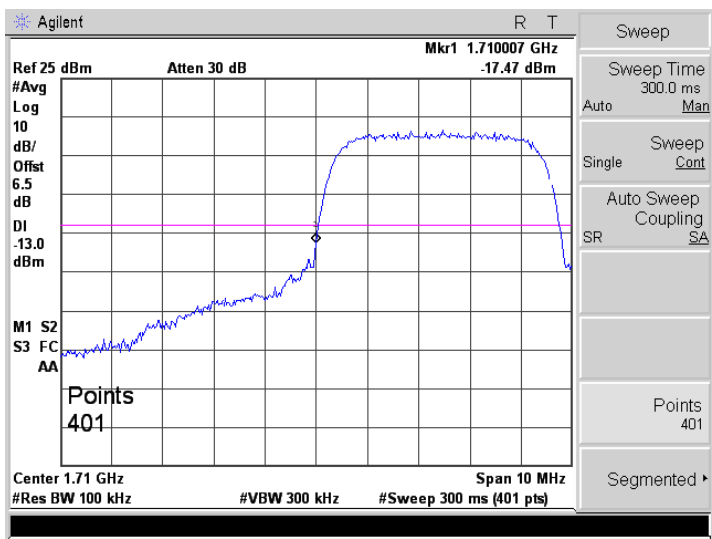




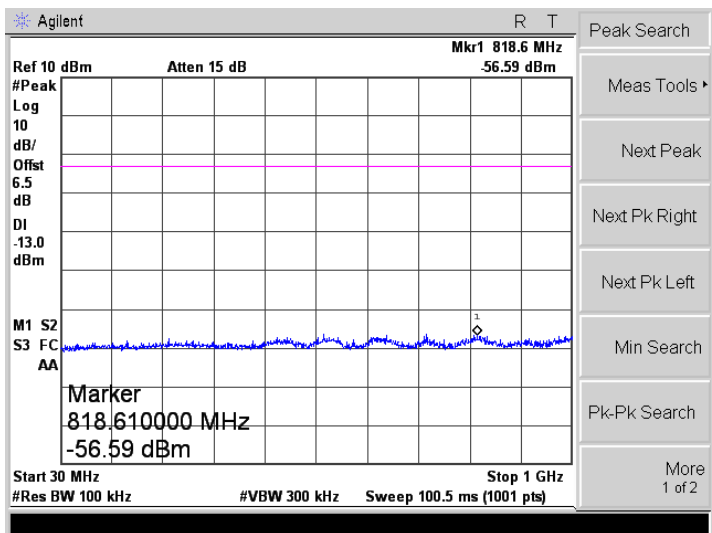
HSDPA Band IV-High



Bandedge

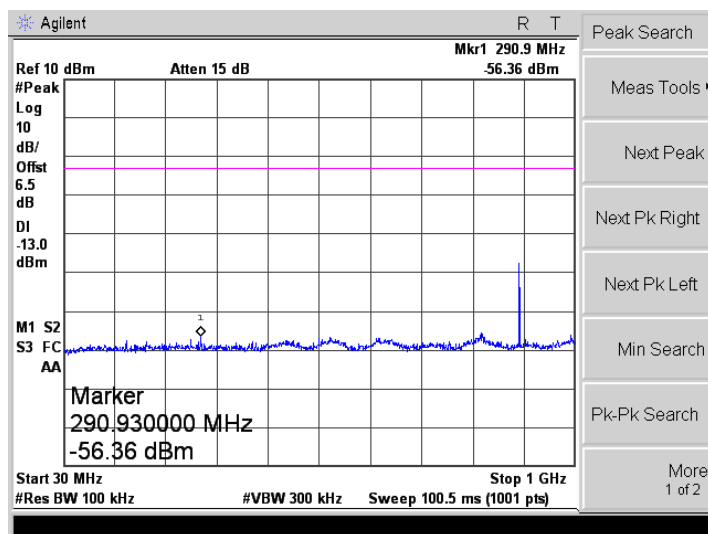


HSUPA Band IV-Low

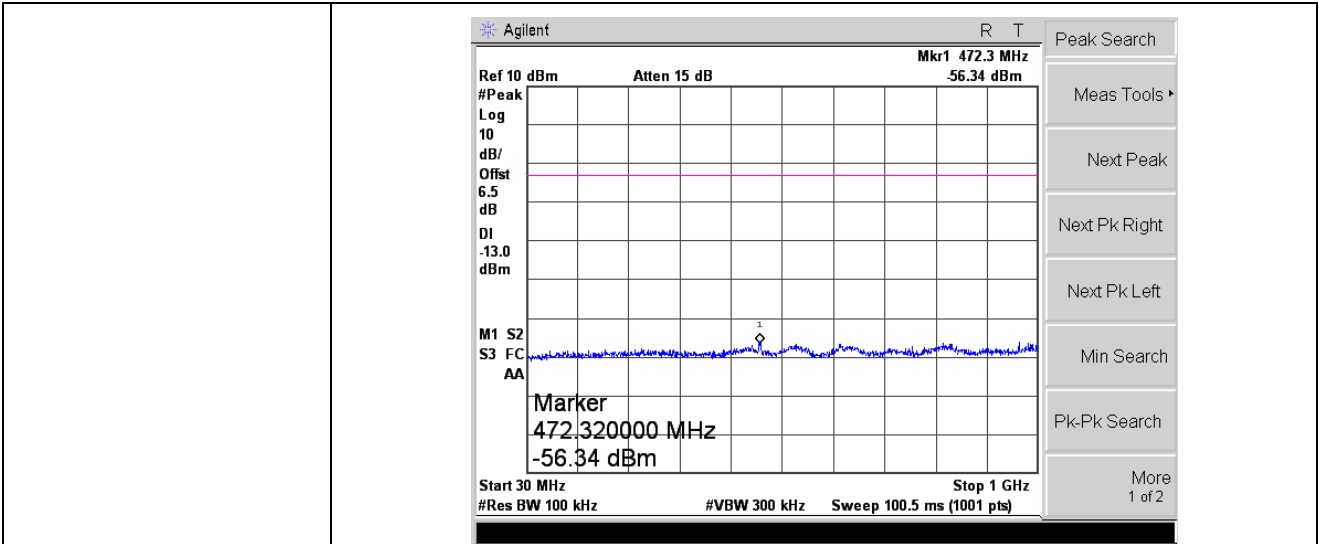
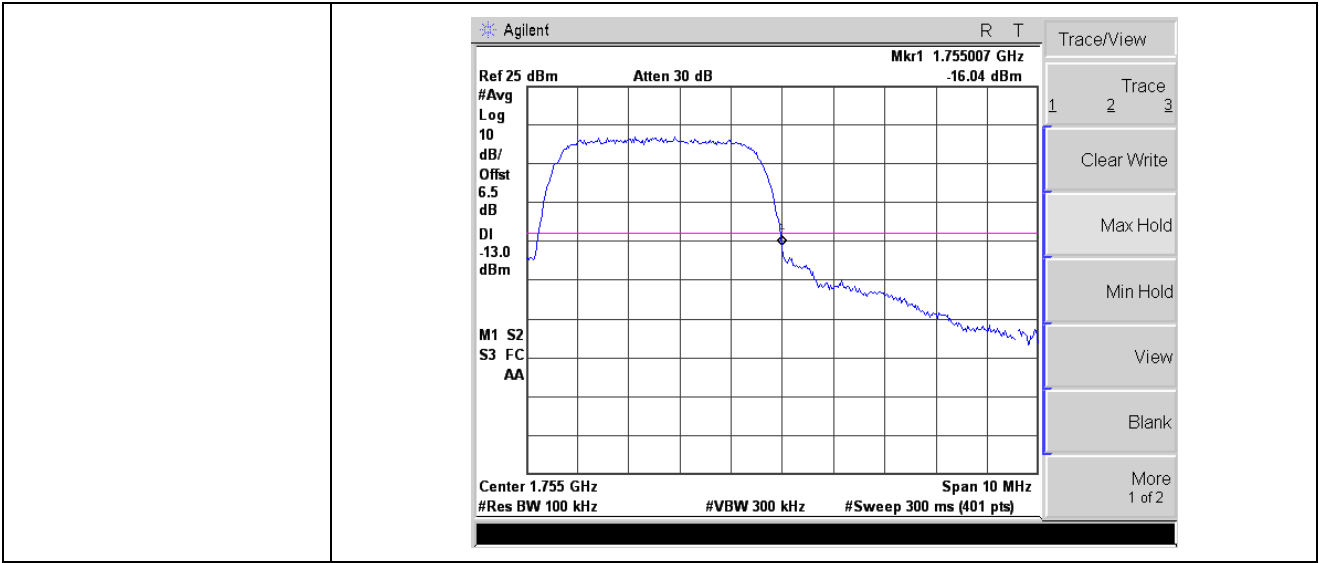




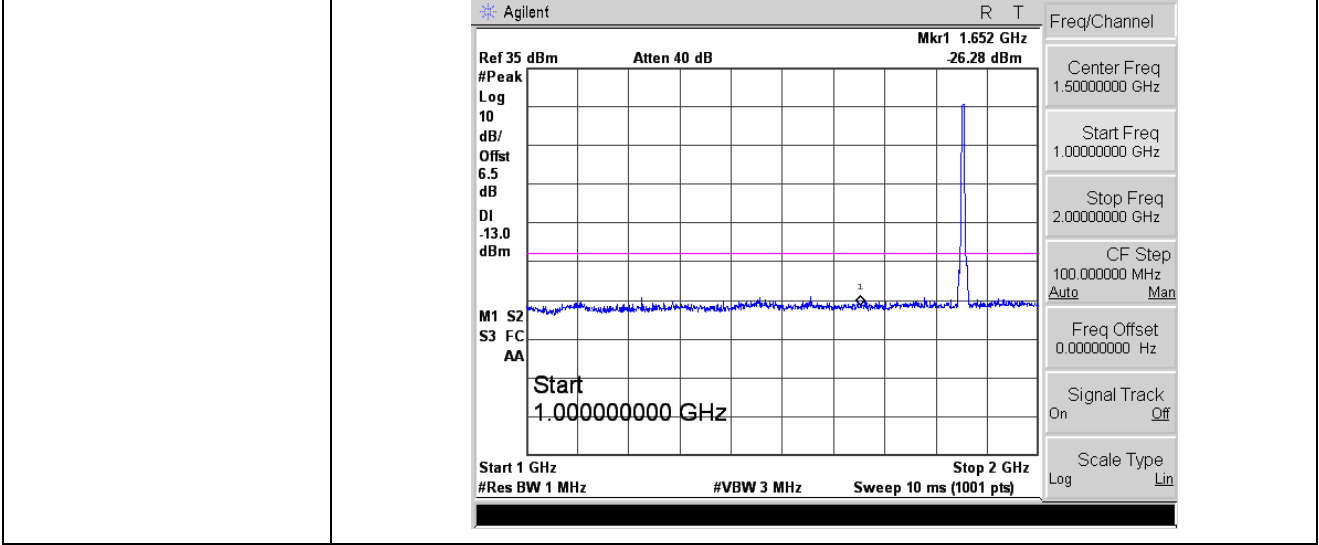
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- Meas Tools ▾
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- Next Pk Right
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- Pk-Pk Search
- More
1 of 2

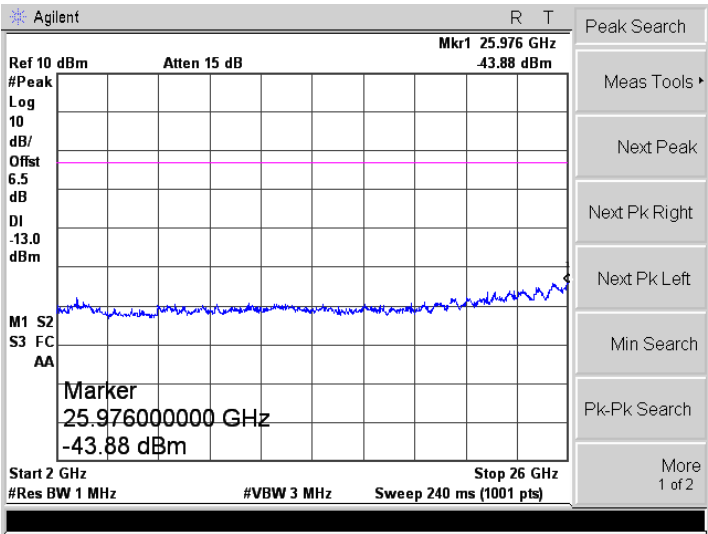
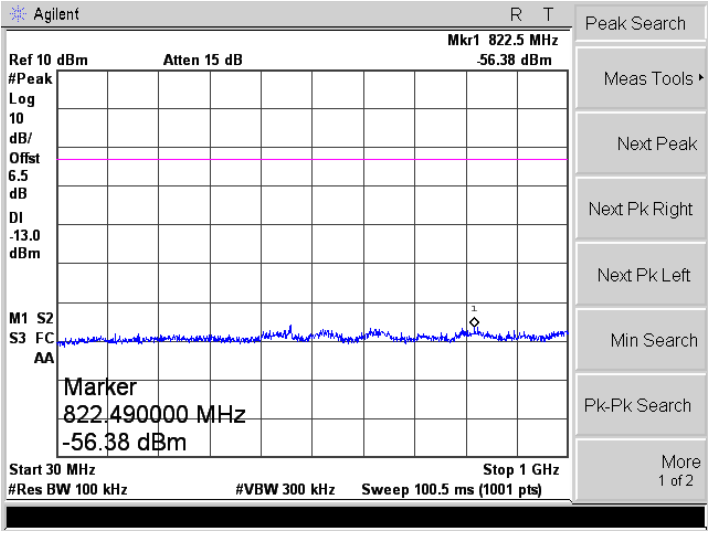
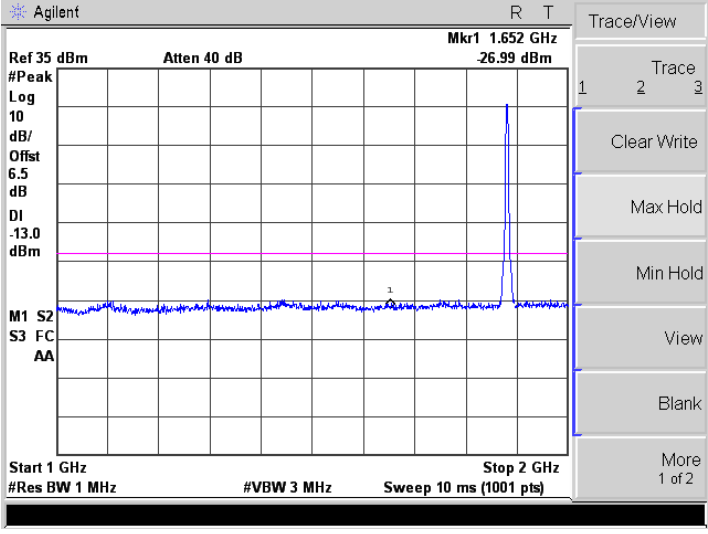


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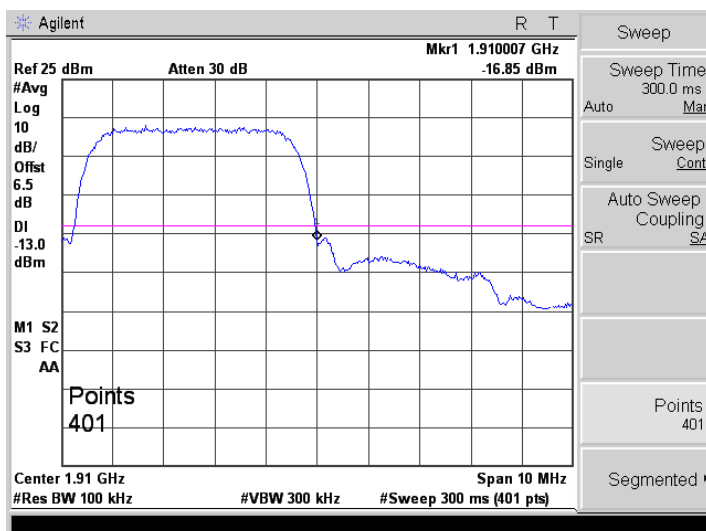
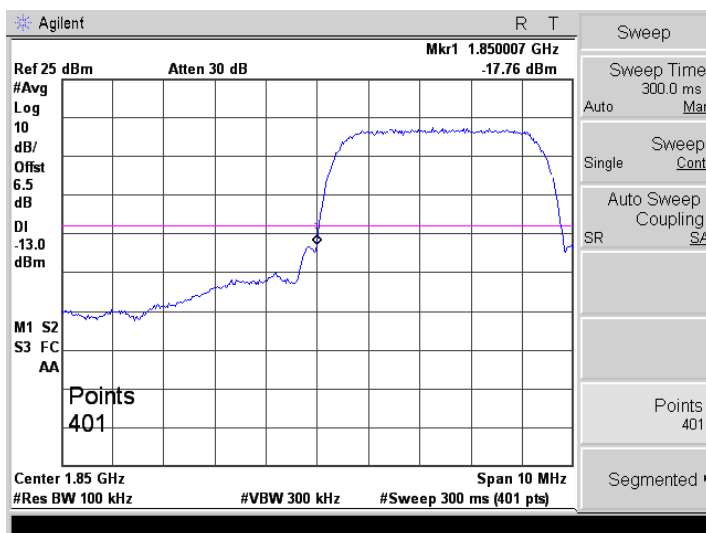
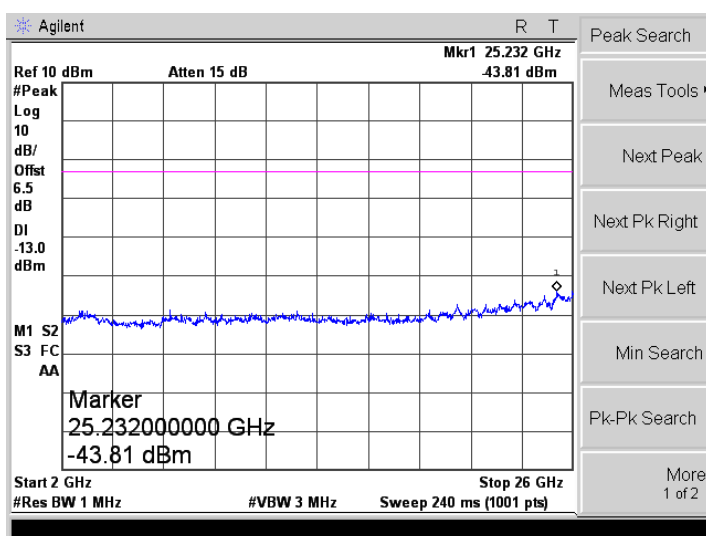


WCDMA Band II-Low



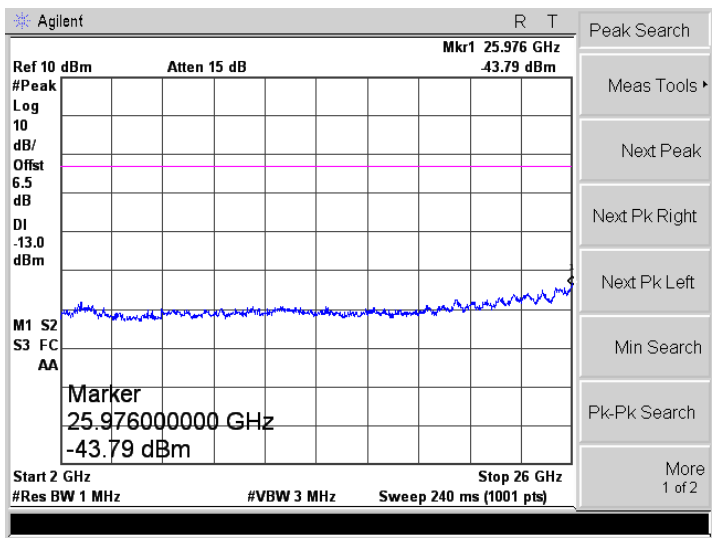
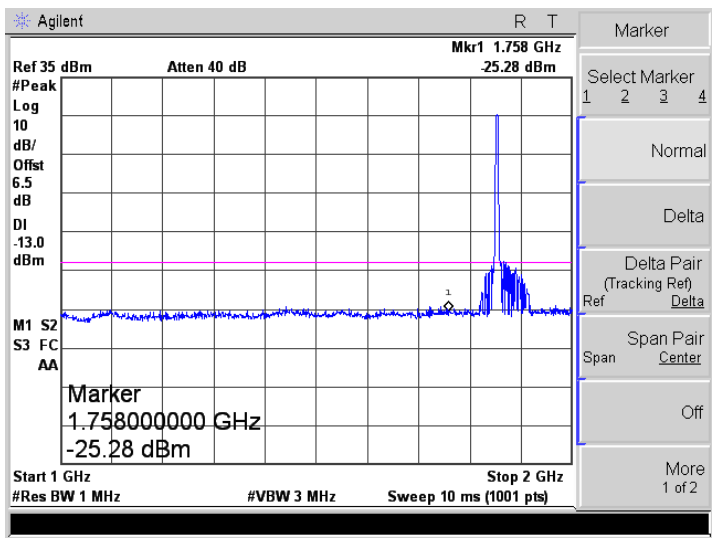
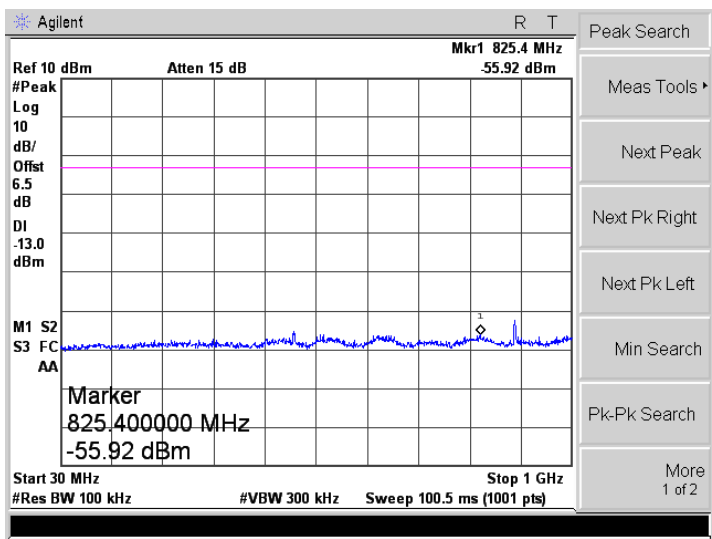
	
WCDMA Band II-Middle	
	



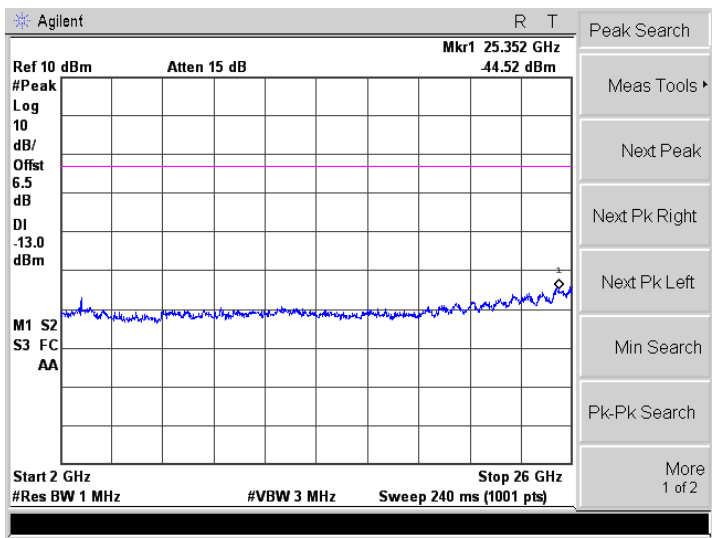
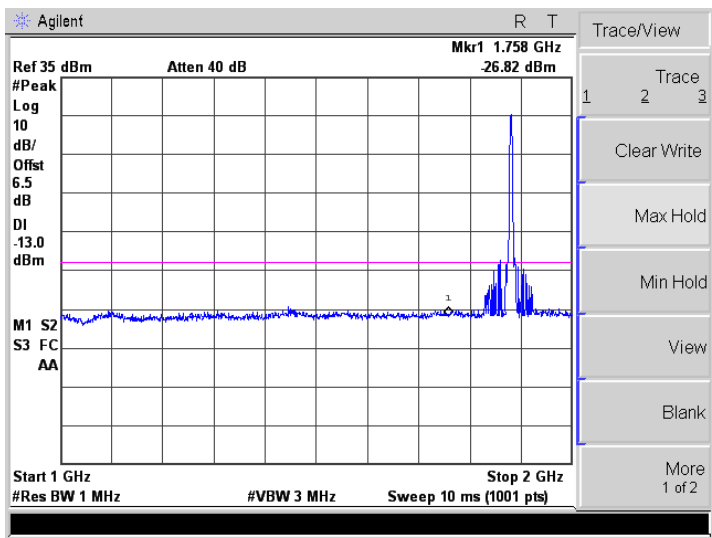
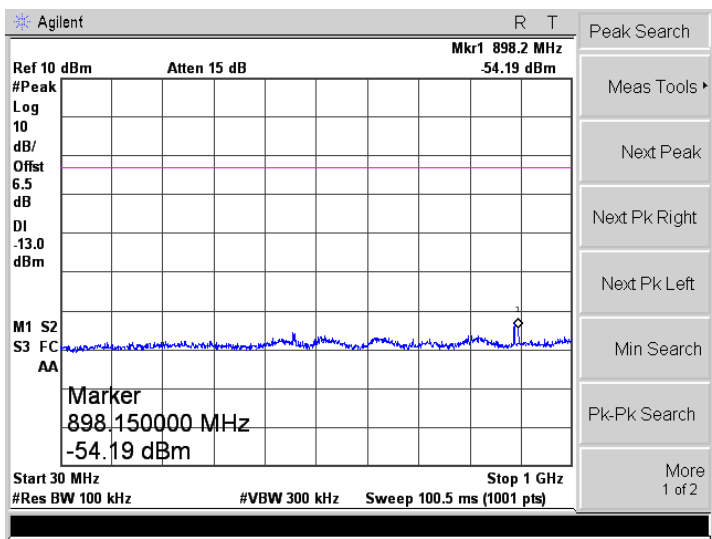


Bandedge

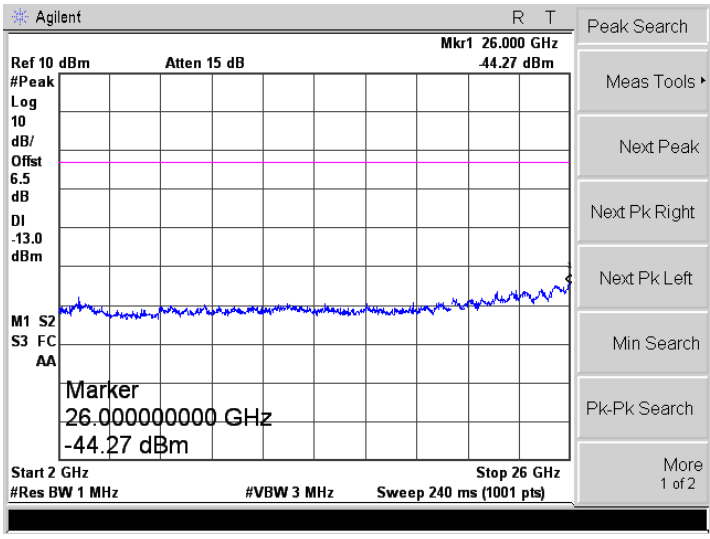
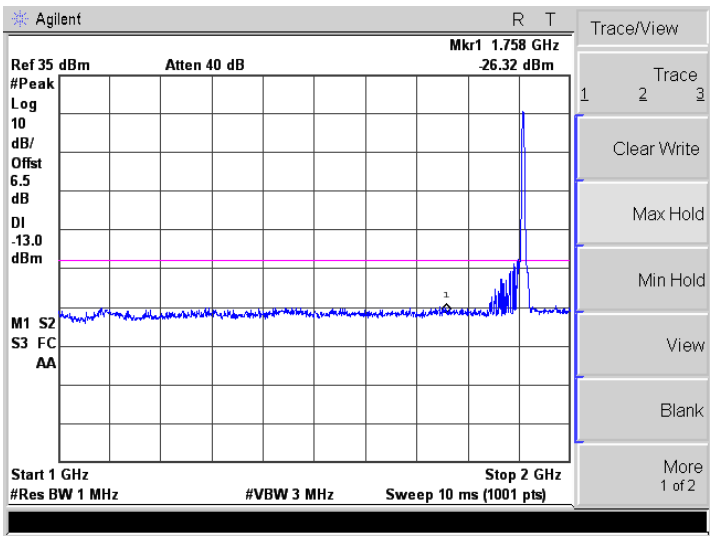
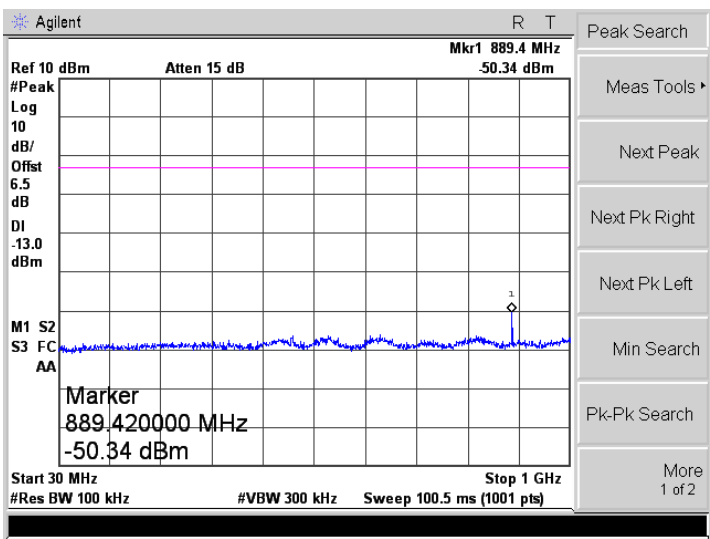
HSDPA Band II-Low



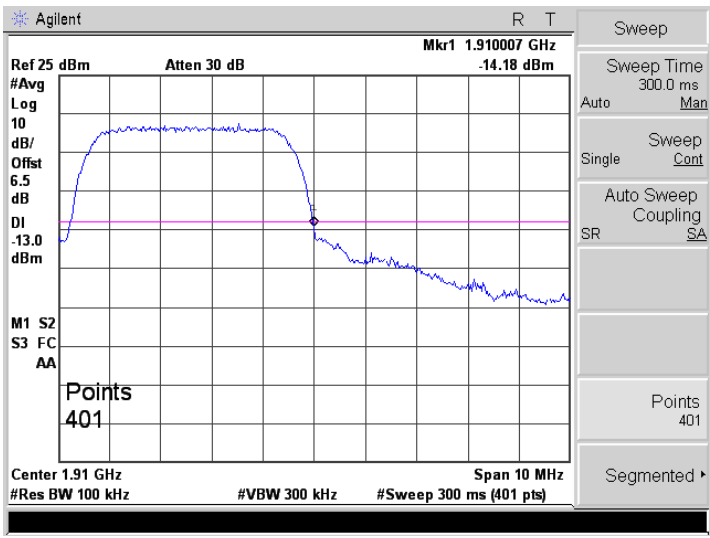
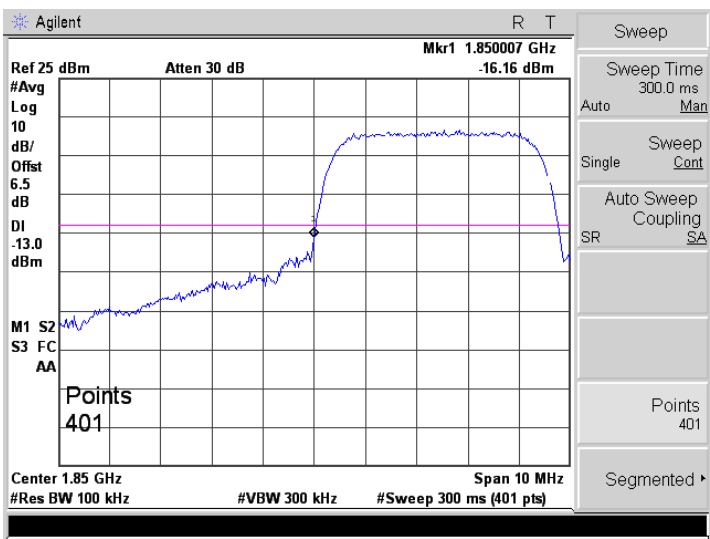
HSDPA Band II-Middle



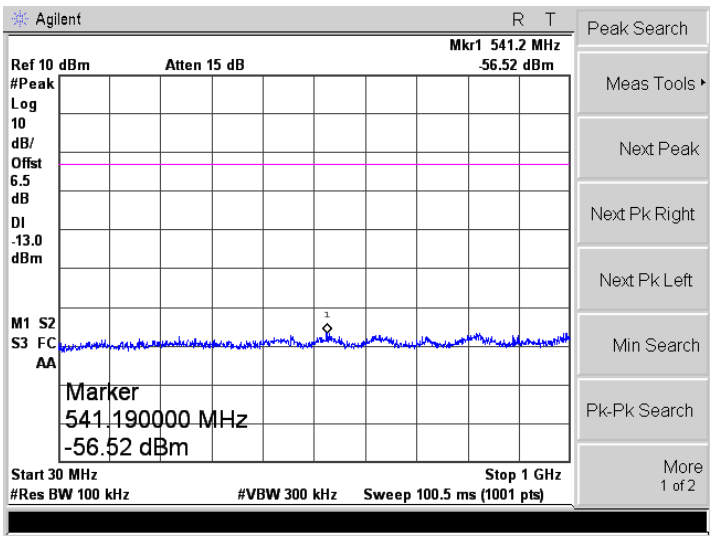
HSDPA Band II-High

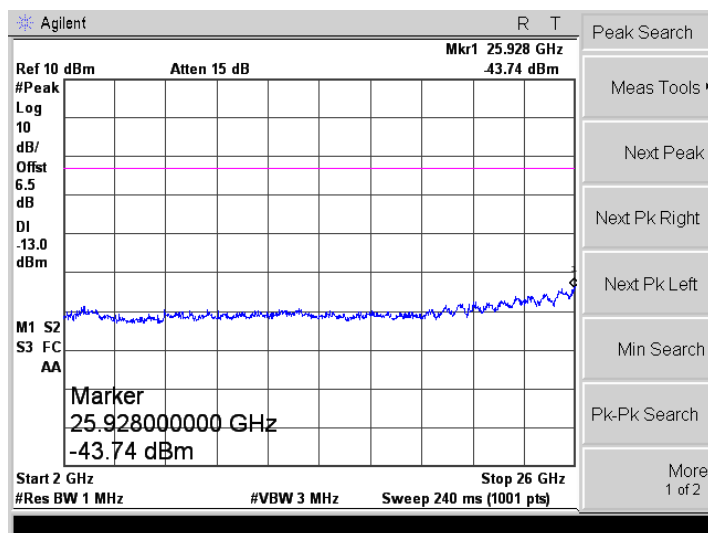
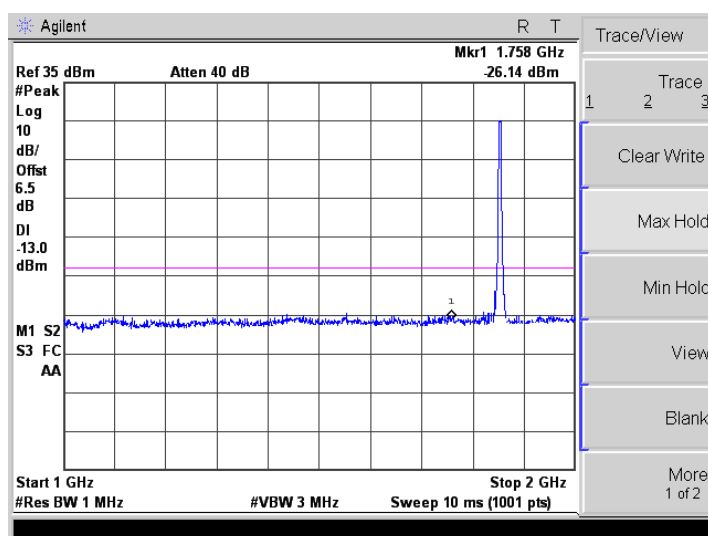


Bandedge

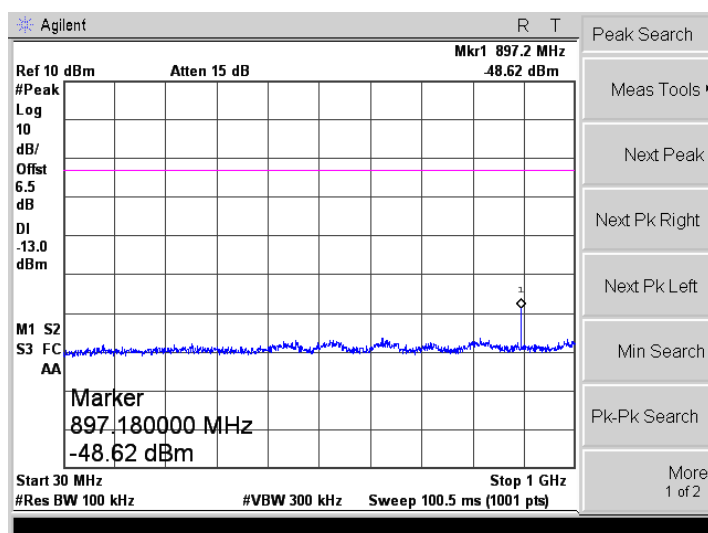


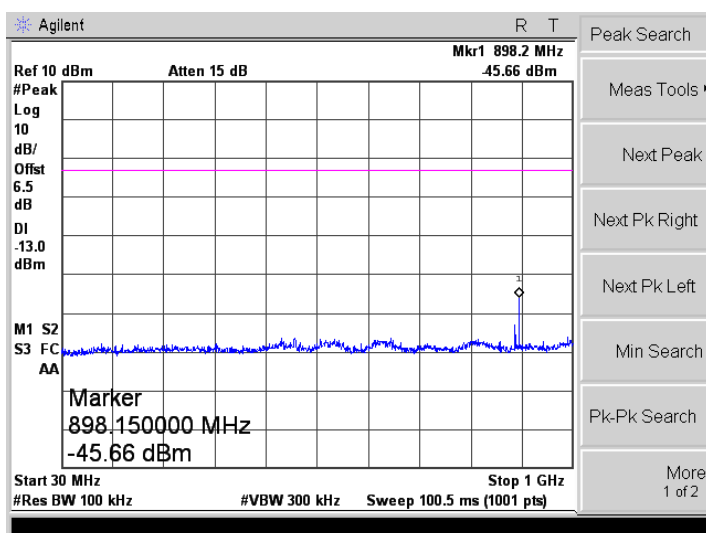
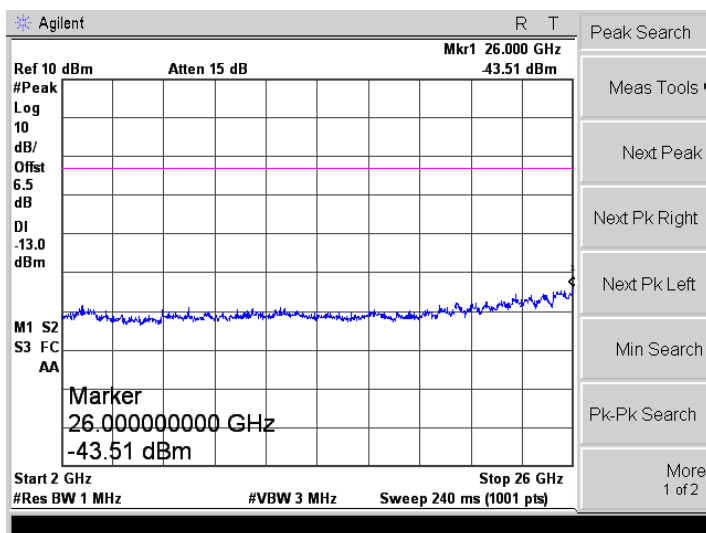
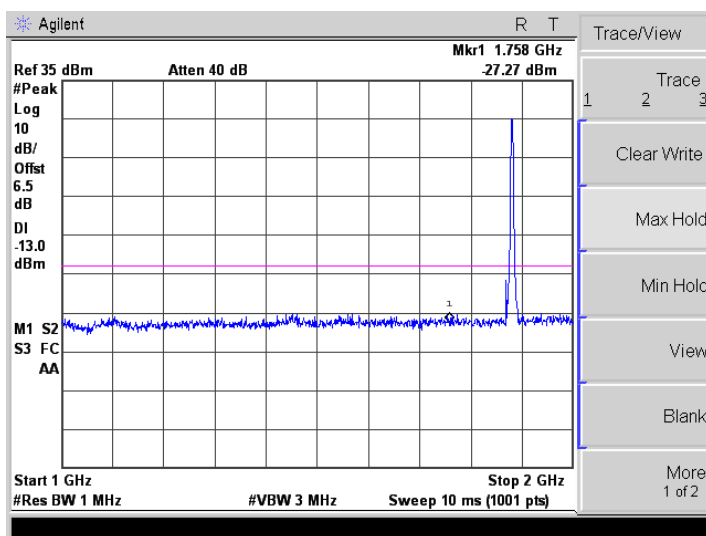
HSUPA Band II-Low



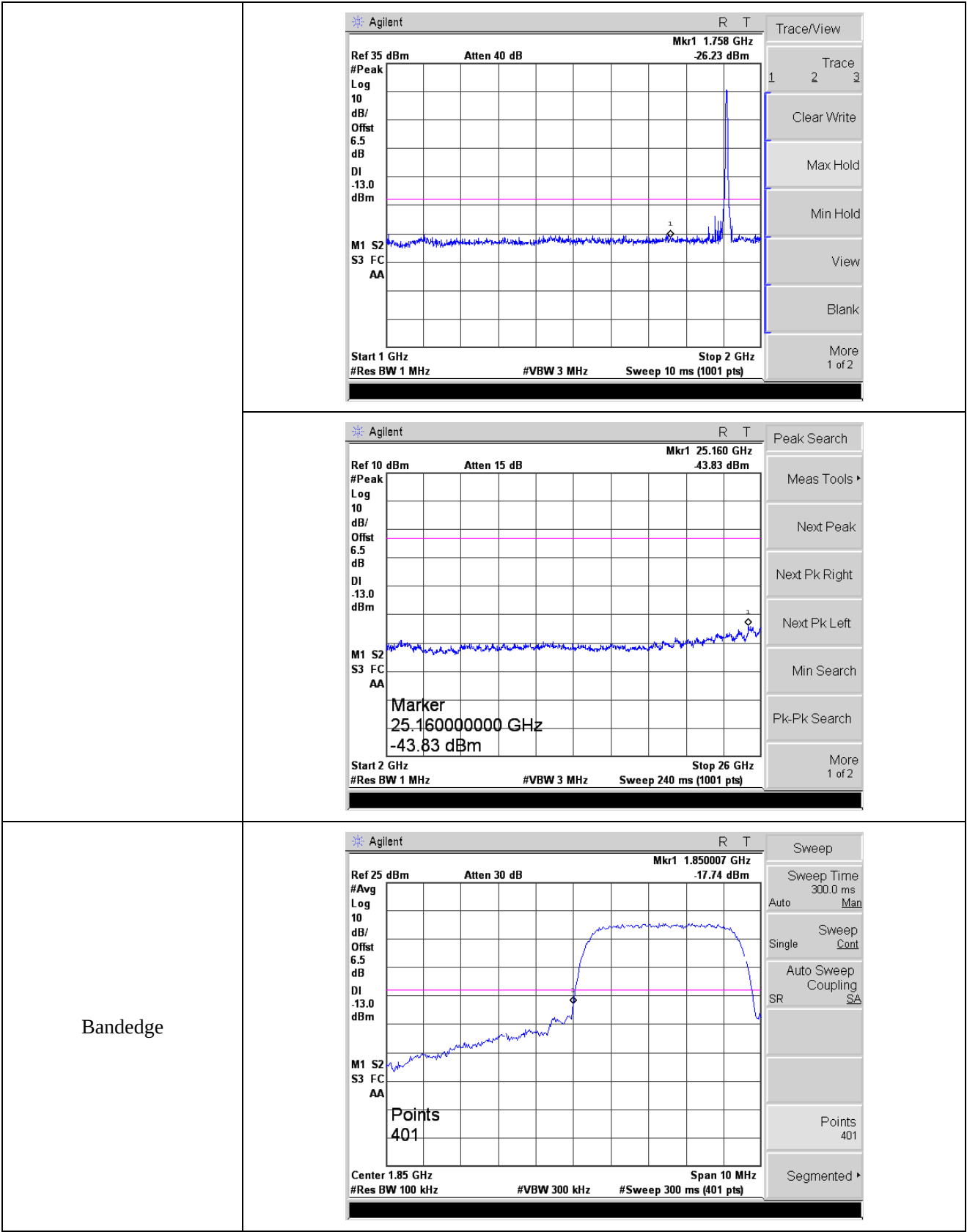


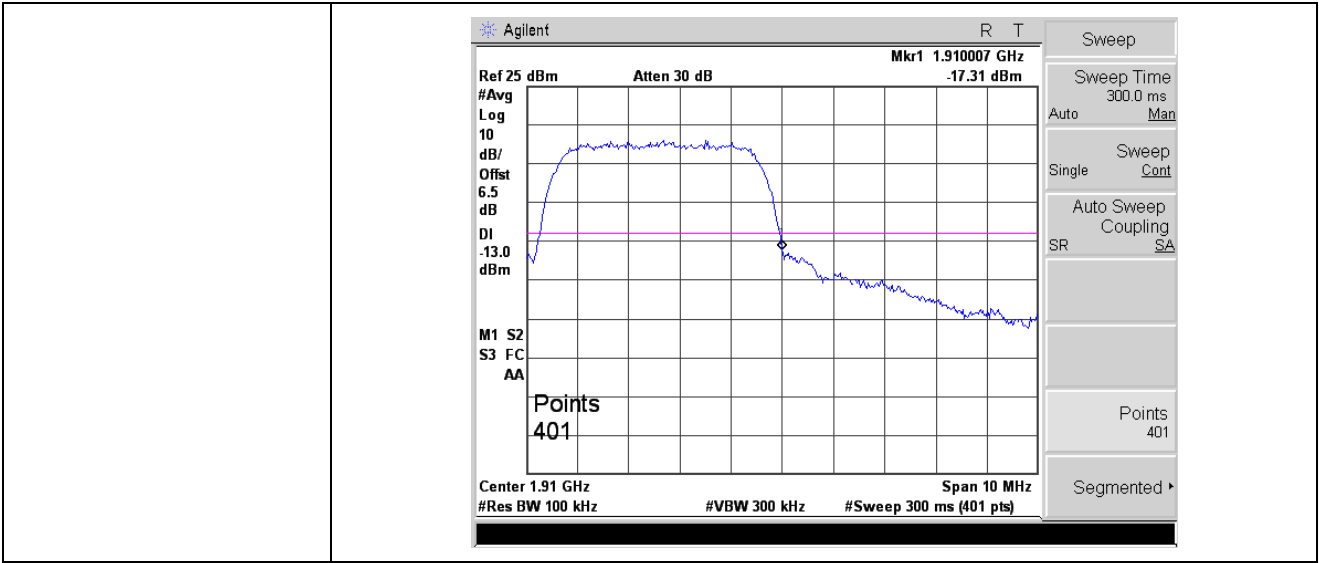
HSUPA Band II- Middle





HSUPA Band II-High





APPENDIX E

Frequency Stability

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

2. Normal Voltage NV=AC230V; Low Voltage LV=AC110V; High Voltage HV=DC250V

➤ Frequency stability V.S. Temperature measurement

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	51	0.0607	2.50	Pass
	-20	45	0.0542		
	-10	41	0.0487		
	0	34	0.0405		
	10	27	0.0322		
	20	22	0.0267		
	30	27	0.0322		
	40	31	0.0368		
	50	37	0.0441		
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	68	0.0395	2.50	Pass
	-20	55	0.0315		
	-10	43	0.0248		
	0	39	0.0226		
	10	34	0.0195		
	20	29	0.0169		
	30	33	0.0191		
	40	40	0.0231		
	50	45	0.0257		

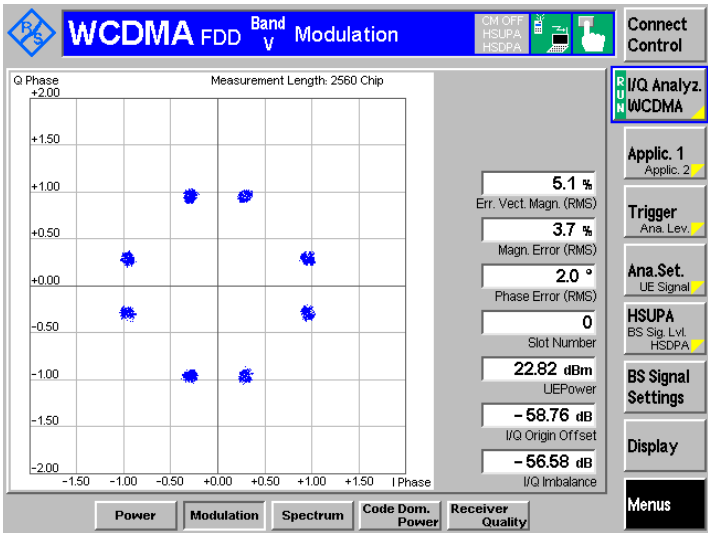
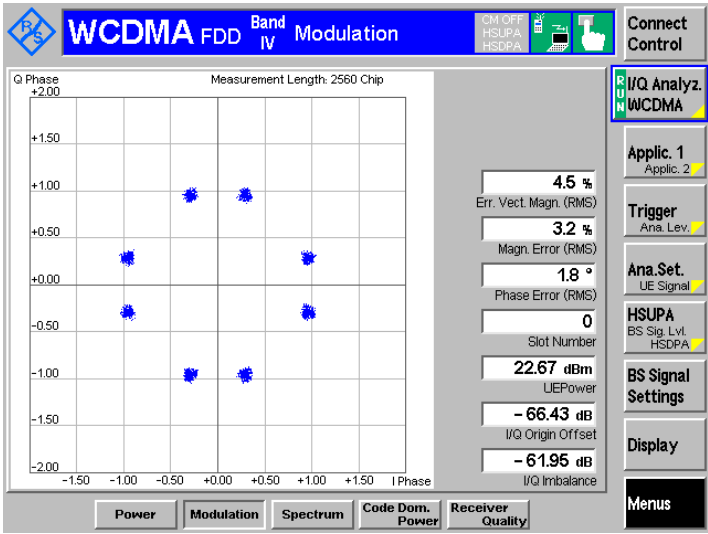
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	67	0.0356	2.50	Pass
	-20	58	0.0311		
	-10	54	0.0286		
	0	48	0.0254		
	10	41	0.0217		
	20	36	0.0192		
	30	40	0.0213		
	40	44	0.0233		
	50	50	0.0266		

➤ Frequency stability V.S. Voltage measurement

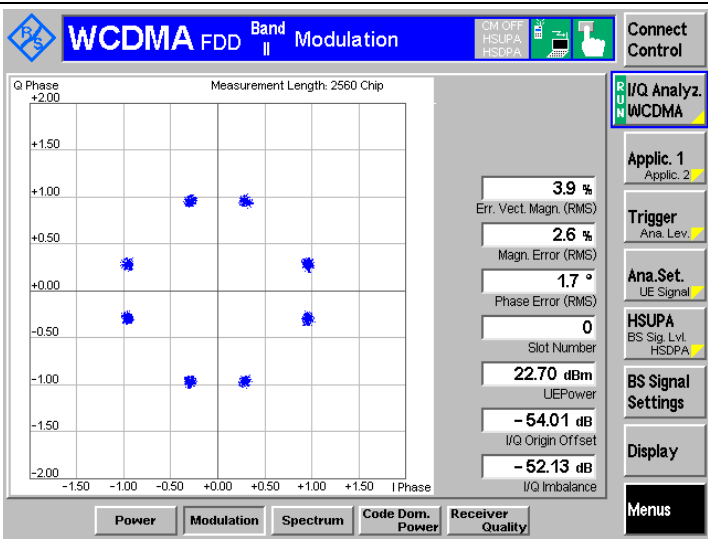
Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	
		Hz	ppm	Result	
25	HV	25	0.0303	2.50	Pass
	NV	31	0.0368		
	LV	35	0.0423		
Reference Frequency: WCDMA Band IV Middle channel=1412 channel=1733.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	61	0.0351	2.50	Pass
	NV	56	0.0324		
	LV	45	0.0257		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	70	0.0372	2.50	Pass
	NV	62	0.0331		
	LV	52	0.0274		

APPENDIX F

Modulation characteristics

WCDMA B5	
WCDMA B4	

WCDMA B2



APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

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