

TEST REPORT

Reference No..... : WTX22X03057847W001
FCC ID : YHLBLUN2
Applicant : BLU Products, Inc.
Address : 10814 NW 33rd St # 100 Doral, FL 33172,USA
Manufacturer : The same as Applicant
Address : The same as Applicant
Product Name : Smart Phone
Model No..... : N2
Standards : FCC Part 22H, FCC Part 24E, FCC Part 27
Date of Receipt sample : 2022-03-30
Date of Test..... : 2022-03-30 to 2022-05-28
Date of Issue : 2022-05-28
Test Report Form No. : WTX_Part 22_Part 24_Part 27W
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 approver.

Prepared By:

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Tested by:



Jason Su

Approved by:



Silin Chen

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Report version

Version No.	Date of issue	Description
Rev.00	2022-05-28	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT:	
Product Name:	Smart Phone
Trade Name:	BLU
Model No.:	N2
Adding Model(s):	/
Rated Voltage:	DC3.87V
Battery:	4100mAh (C806352410P)
Adapter Model:	US-BM-3000 INPUT:AC100-240V, 50/60Hz, 0.8A Output:DC5V3.0A/DC9V3A/DC10V3A
Software Version:	BOLD_N0050UU_V11.0.04.01_GENERIC
Hardware Version:	Kx3U _01
<p><i>Note: The Antenna Gain is provided by the customer and can affect the validity of results. The test data is gathered from a production sample provided by the manufacturer.</i></p>	

Technical Characteristics of EUT:	
2G	
Support Networks:	GSM, GPRS, EDGE
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS/EDGE 850: 869~894MHz GSM/GPRS/EDGE 1900: 1930~1990MHz
Max RF Output Power:	GSM850: 33.76dBm, GSM1900: 29.44dBm EDGE850: 27.07dBm, EDGE1900: 25.85dBm
Type of Emission:	GSM850: 252KGXW, GSM1900: 251KGXW EDGE850: 250KG7W, EDGE1900: 250KG7W
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -3.7dBi; GSM1900: 0.3dBi
GPRS/EDGE Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 4, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 4: 1710~1755MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 4: 2110~2155MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 23.51dBm, WCDMA Band 4: 23.43dBm WCDMA Band 5: 24.44dBm
Type of Emission:	WCDMA Band 2: 4M16F9W WCDMA Band 4: 4M16F9W WCDMA Band 5: 4M18F9W
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 0.3dBi, WCDMA Band 4: 0.2dBi, WCDMA Band 5: -3.7dBi

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.

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
USB Cable	1.0	Shielded	Without Ferrite
Headset Cable	1.2	Unshielded	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
Notebook	ASUS	FA5061C	M8NRCX057996349

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	2022-03-22	2023-03-21
SEMT-1063	GSM Tester	Rohde & Schwarz	CMU200	114403	2022-03-22	2023-03-21
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2022-03-25	2023-03-24
SEMT-1079	Spectrum Analyzer	Agilent	N9020A	US47140102	2022-03-22	2023-03-21
SEMT-1080	Signal Generator	Agilent	83752A	3610A01453	2022-03-22	2023-03-21
SEMT-1081	Vector Signal Generator	Agilent	N5182A	MY47070202	2022-03-22	2023-03-21
SEMT-1028	Power Divider	Weinschel	1506A	PM204	2022-03-22	2023-03-21
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	/	/	/
<input checked="" type="checkbox"/> Chamber A: Below 1GHz						
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2022-03-22	2023-03-21
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2022-03-22	2023-03-21
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2022-01-07	2023-01-06
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2021-03-20	2023-03-19
SEMT-1068	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2021-03-20	2023-03-19
<input checked="" type="checkbox"/> Chamber A: Above 1GHz						
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2022-03-22	2023-03-21
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2022-03-22	2023-03-21
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2022-03-22	2023-03-21
SEMT-1042	Horn Antenna	ETS	3117	00086197	2021-03-19	2023-03-18
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2021-04-27	2023-04-26
SEMT-1216	Pre-amplifier	Schwarzbeck	BBV 9721	9721-031	2022-03-25	2023-03-24
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2022-03-22	2023-03-21
<input type="checkbox"/> Chamber B:Below 1GHz						

SEMT-1068	Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2021-04-09	2023-04-08
SEMT-1067	Amplifier	Agilent	8447D	2944A10179	2022-03-22	2023-03-21
SEMT-1066	EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2022-03-22	2023-03-21
<input type="checkbox"/> Chamber C: Below 1GHz						
SEMT-1319	EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2022-01-07	2023-01-06
SEMT-1343	Trilog Broadband Antenna	Schwarz beck	VULB 9168	1194	2021-05-28	2023-05-27
SEMT-1333	Amplifier	HP	8447F	2944A03869	2022-03-22	2023-03-21

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

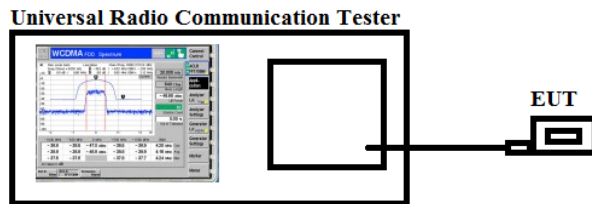
According to §22.913(a)(2), the ERP of mobile and portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

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 1710-1755MHz band and mobile and portable stations operating in the 1695-1710MHz and 1755-1780MHz 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	28.12	<38.45	Pass
		H	22.42		
	190	V	28.96		
		H	22.21		
	251	V	28.43		
		H	22.36		
GPRS850	128	V	28.13	<38.45	Pass
		H	23.51		
	190	V	28.68		
		H	23.13		
	251	V	28.45		
		H	23.01		
EGPRS850	128	V	28.32	<38.45	Pass
		H	23.43		
	190	V	28.31		
		H	22.87		
	251	V	28.34		
		H	22.12		

Mode	Channel	Antenna Polar	EIRP (dBm)	Limit (dBm)	Result
PCS1900	512	V	26.12	<33.00	Pass
		H	21.08		
	661	V	26.42		
		H	20.36		
	810	V	26.14		
		H	20.87		
GPRS1900	512	V	26.97	<33.00	Pass
		H	20.32		
	661	V	25.98		
		H	20.13		
	810	V	25.32		
		H	20.41		
EGPRS1900	512	V	25.97	<33.00	Pass
		H	20.13		
	661	V	25.87		
		H	20.32		
	810	V	25.78		
		H	20.13		

Mode	Channel	Antenna Polar	ERP	Limit (dBm)	Result
WCDMA Band V	4132	V	20.17	<38.45	Pass
		H	13.25		
	4183	V	20.47		
		H	13.25		
	4233	V	20.47		
		H	13.58		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band IV	1312	V	20.98	<30.00	Pass
		H	13.21		
	1412	V	20.45		
		H	13.11		
	1513	V	20.87		
		H	13.31		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band II	9262	V	20.89	<33.00	Pass
		H	14.12		
	9400	V	20.32		
		H	14.47		
	9538	V	20.51		
		H	14.38		

➤ **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 13dB.

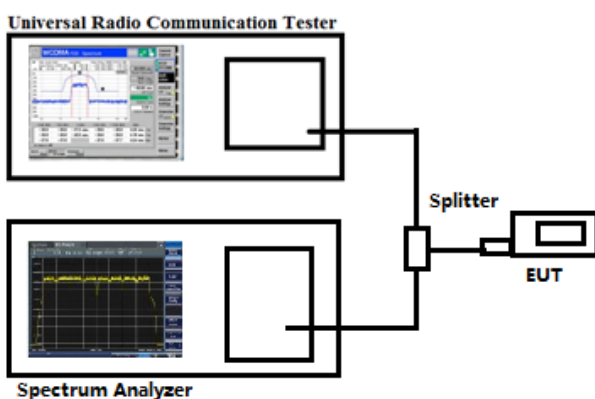
According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13dB for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

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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 26dB below the transmitter power.

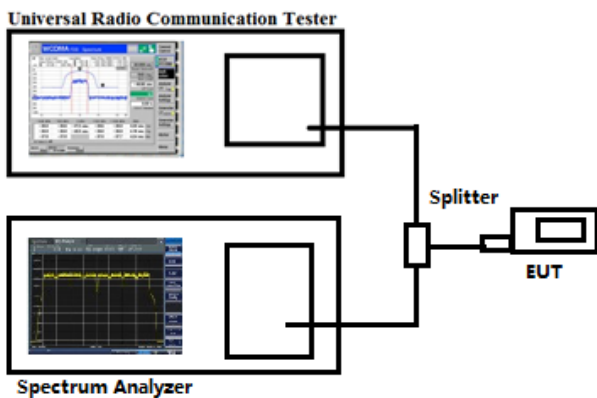
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

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 26dB 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.

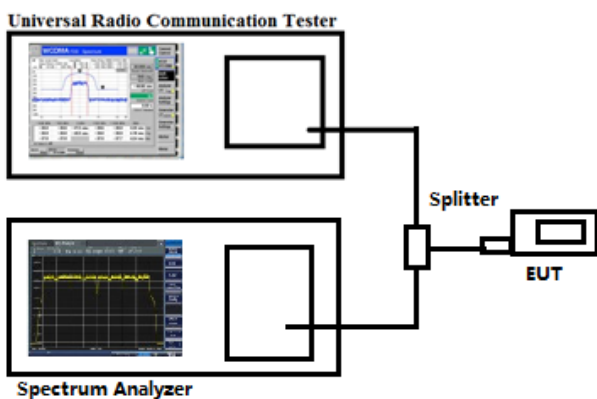
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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.

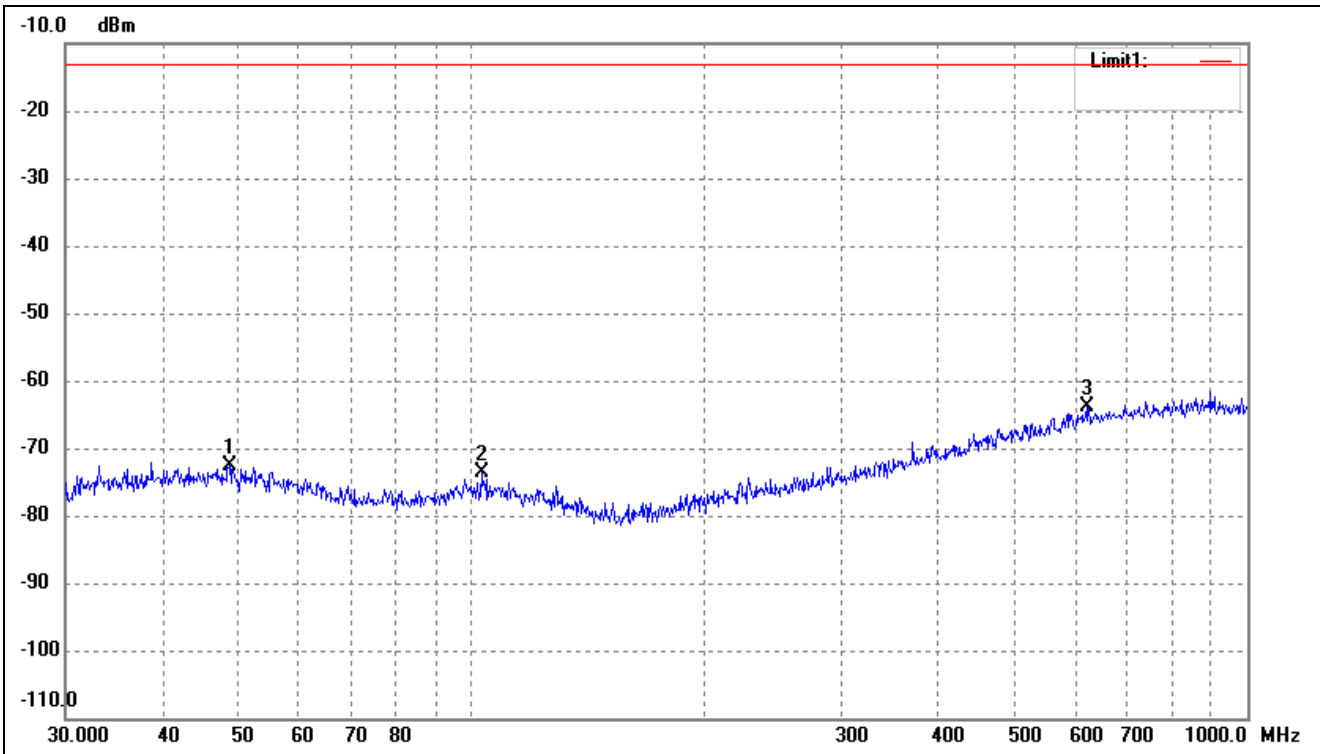
$$\text{Spurious attenuation limit in dB} = 43 + 10 \log_{10}(\text{power out in Watts})$$

7.3 Summary of Test Results/Plots

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

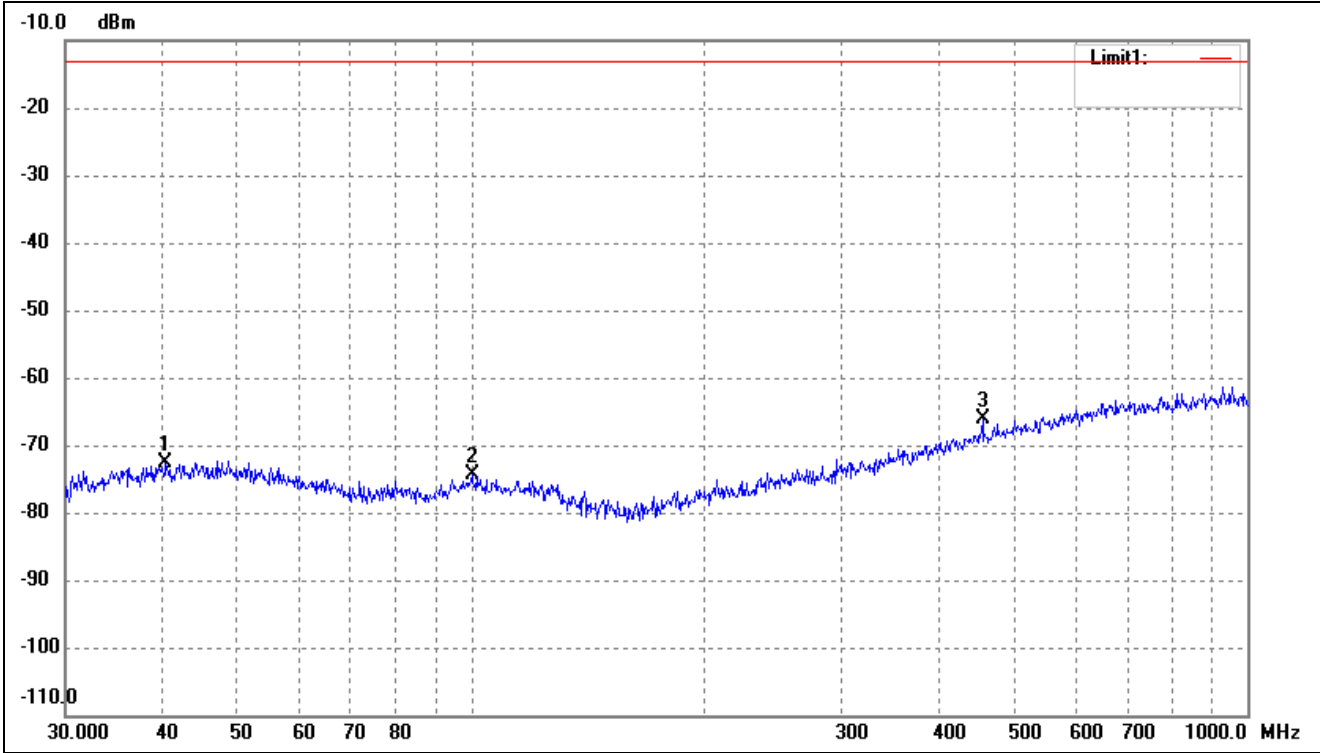
➤ Spurious Emissions Below 1GHz

For Cellular Band			
Test Channel	GSM850	Polarity:	Horizontal



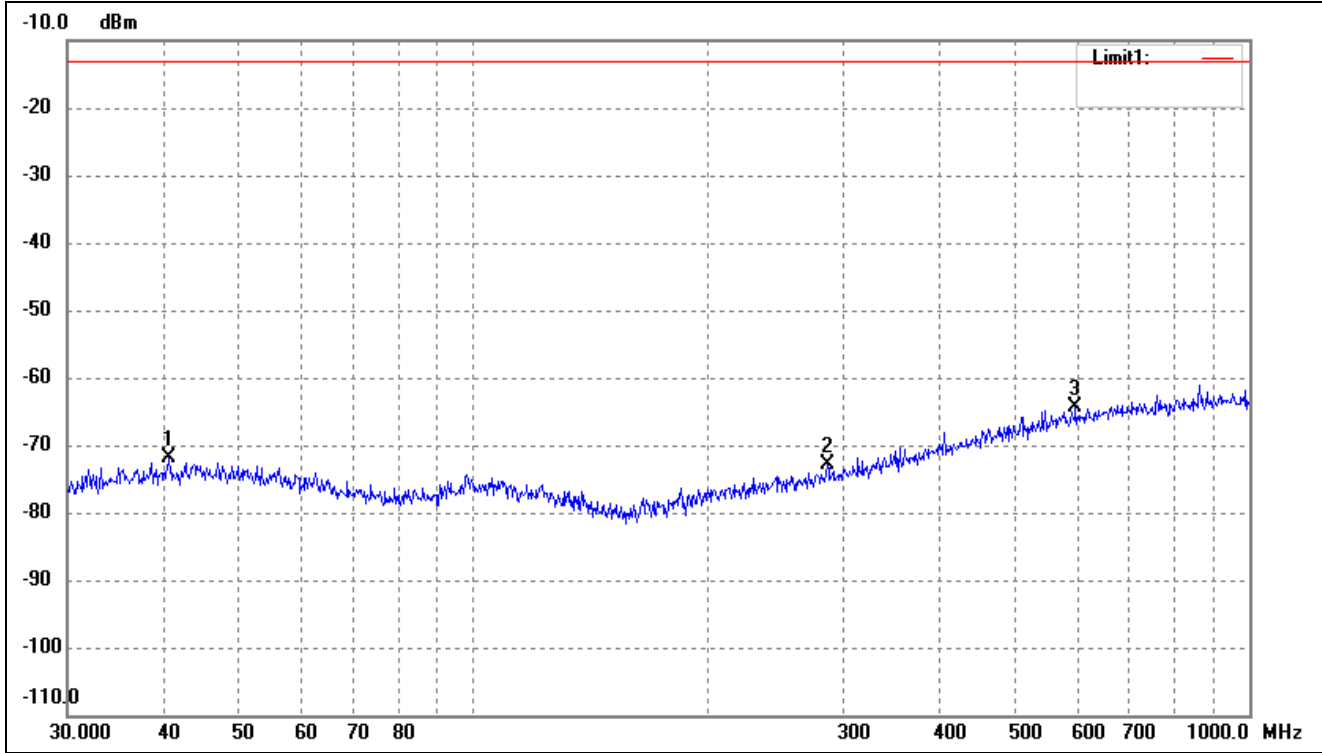
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	48.8429	-77.33	4.83	-72.50	-13.00	-59.50	ERP
2	103.0800	-76.65	3.03	-73.62	-13.00	-60.62	ERP
3	620.7096	-76.32	12.40	-63.92	-13.00	-50.92	ERP

For Cellular Band			
Test Channel	GSM850	Polarity:	Vertical



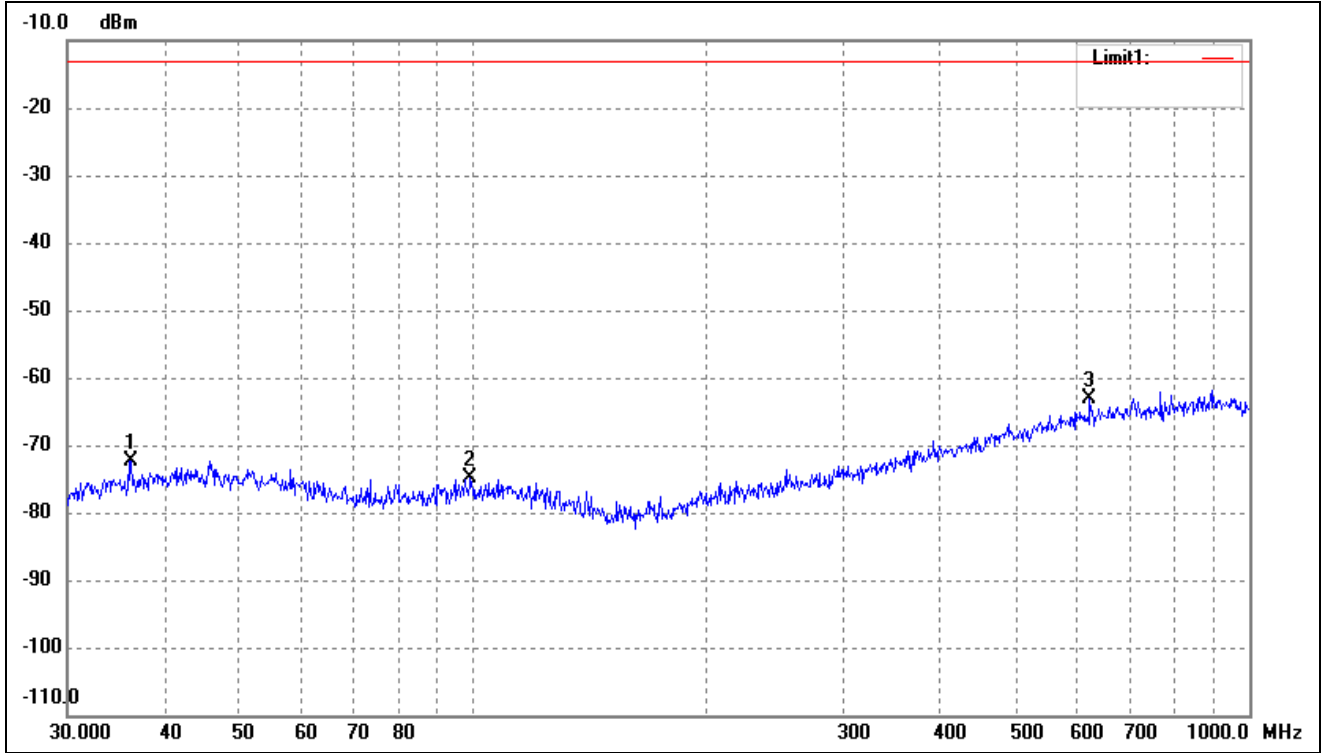
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	40.4172	-77.37	4.81	-72.56	-13.00	-59.56	ERP
2	100.2286	-77.53	3.07	-74.46	-13.00	-61.46	ERP
3	455.9058	-75.61	9.39	-66.22	-13.00	-53.22	ERP

For Cellular Band			
Test Channel	GSM1900	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	40.5591	-76.64	4.80	-71.84	-13.00	-58.84	ERP
2	285.9778	-77.42	4.47	-72.95	-13.00	-59.95	ERP
3	597.2234	-76.42	12.12	-64.30	-13.00	-51.30	ERP

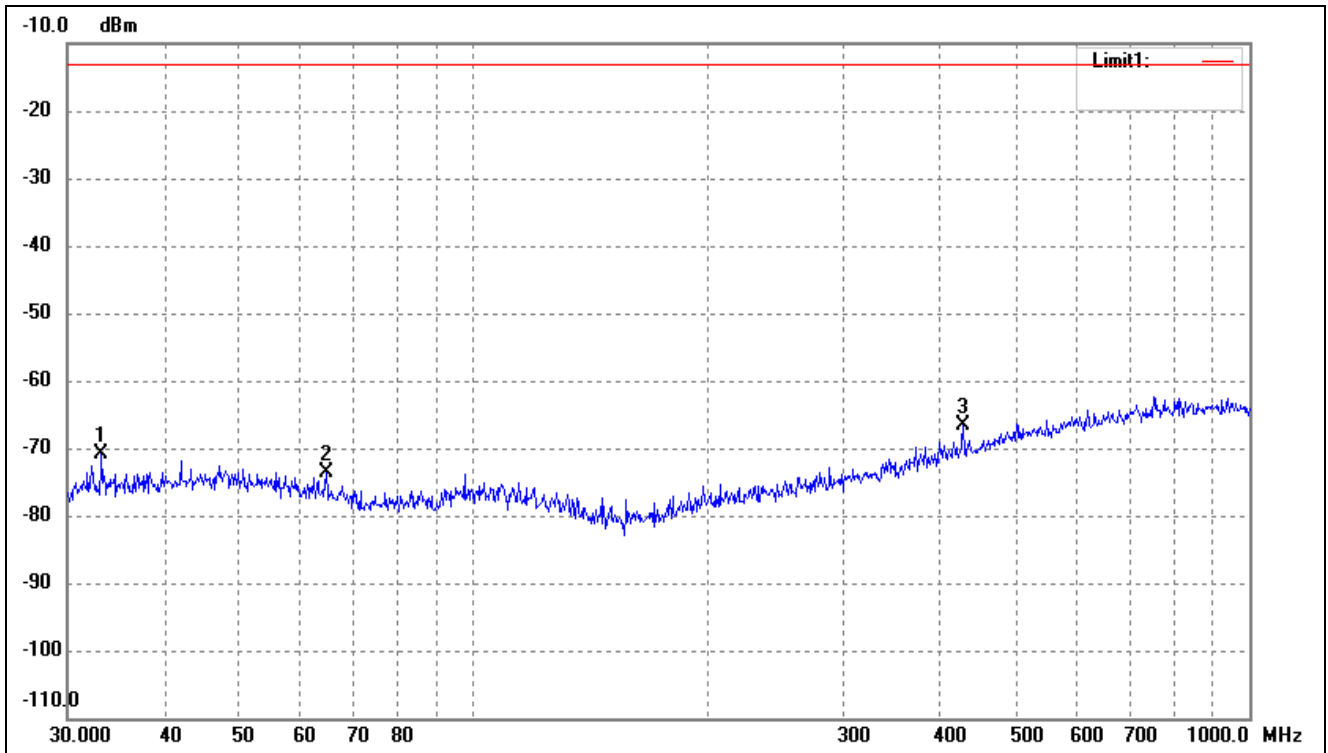
For Cellular Band			
Test Channel	GSM1900	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	36.2541	-76.25	3.88	-72.37	-13.00	-59.37	ERP
2	99.1797	-77.87	2.92	-74.95	-13.00	-61.95	ERP
3	622.8900	-75.61	12.42	-63.19	-13.00	-50.19	ERP

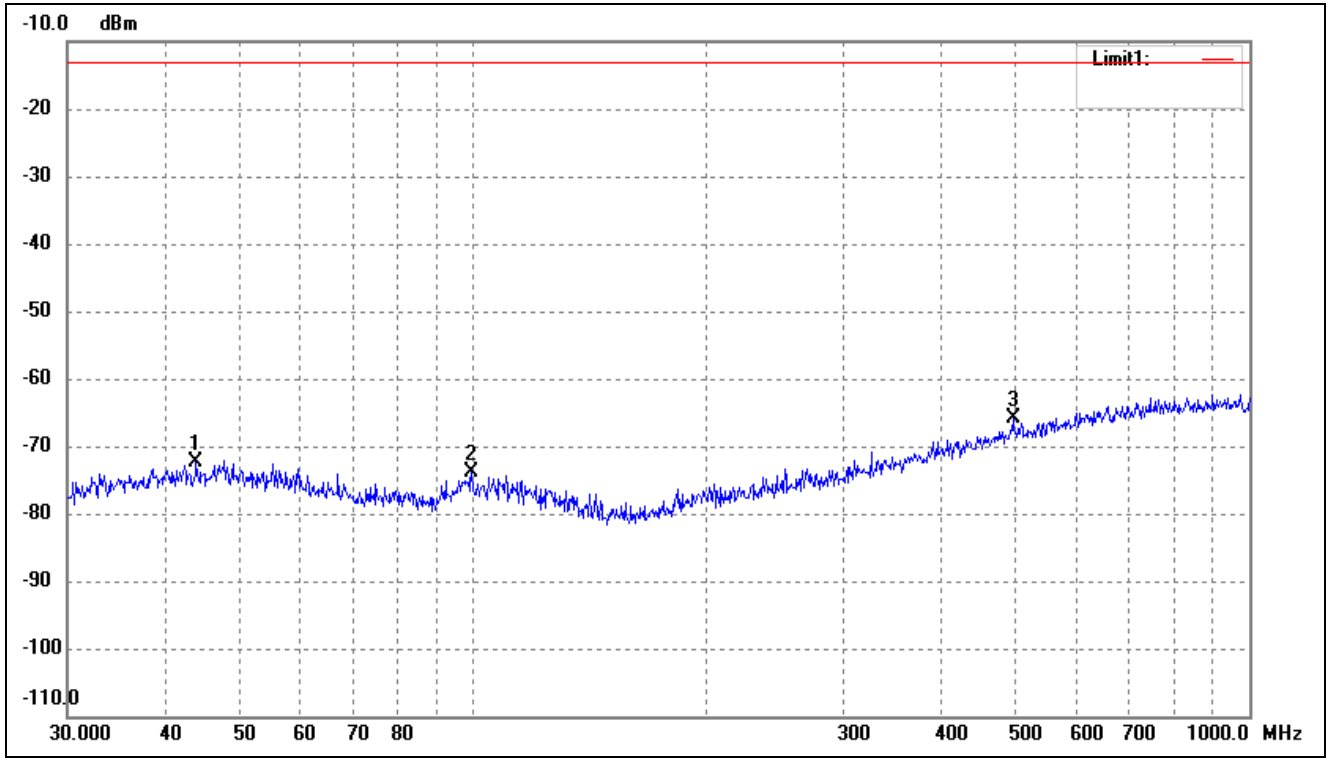
Note: Margin= (Reading+ Correct)- Limit

Test Channel	WCDMA Band V	Polarity:	Horizontal
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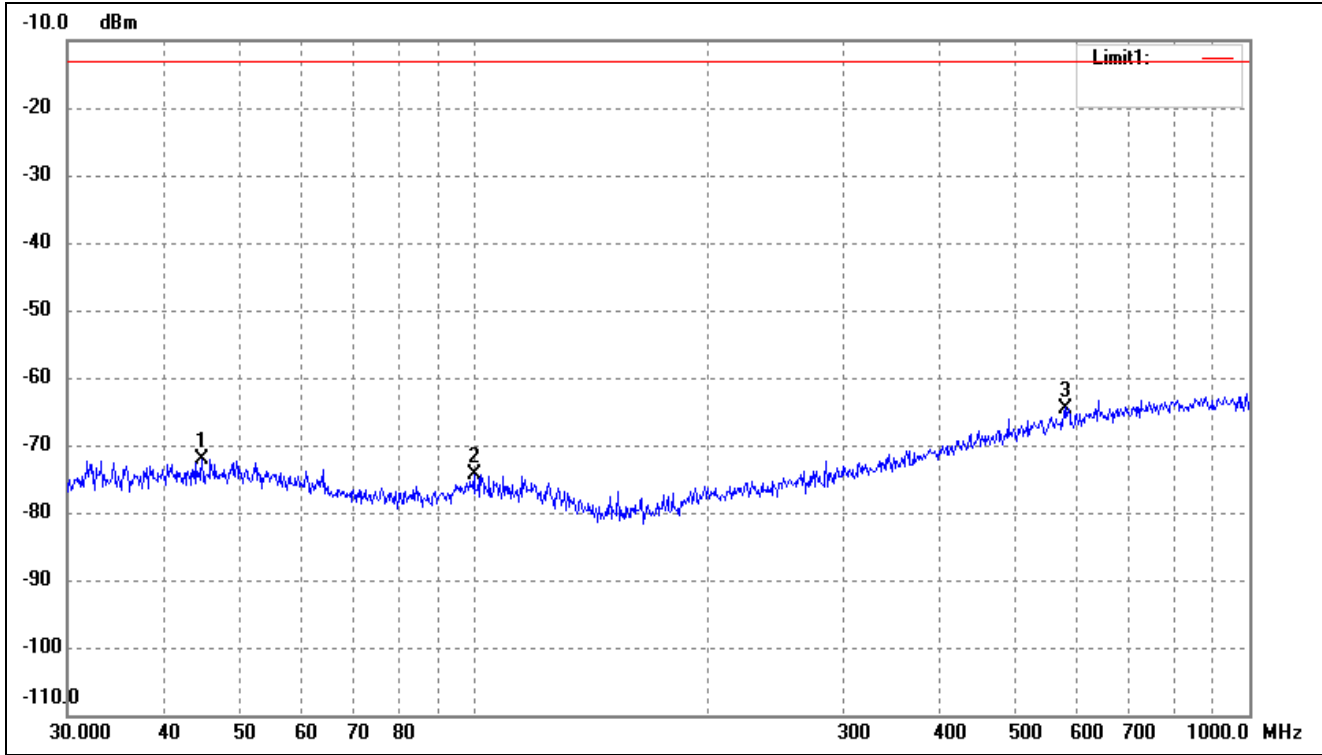
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	33.2112	-73.99	3.13	-70.86	-13.00	-57.86	ERP
2	64.6594	-76.09	2.56	-73.53	-13.00	-60.53	ERP
3	428.0193	-75.25	8.66	-66.59	-13.00	-53.59	ERP

Test Channel	WCDMA Band V	Polarity:	Vertical
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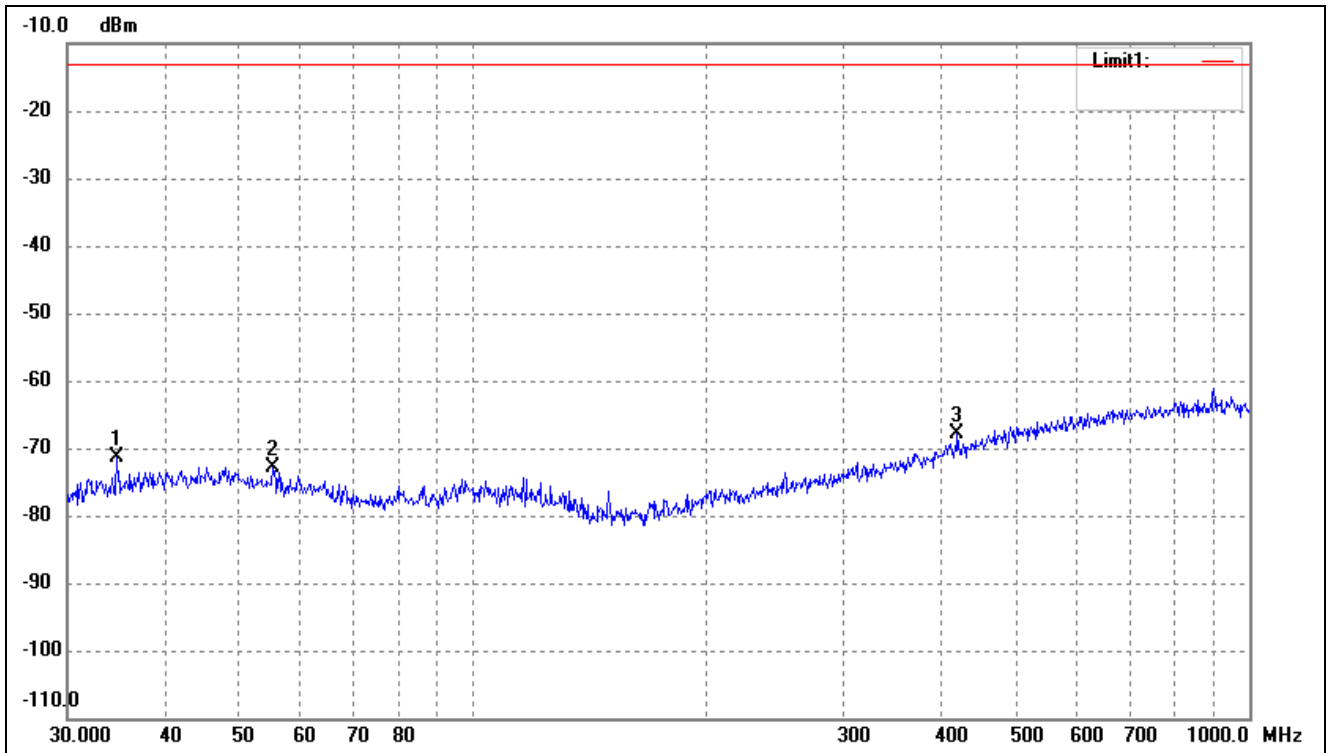
No.	Frequency (MHz)	Reading (dBm)	Correct (dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	43.9658	-77.21	4.82	-72.39	-13.00	-59.39	ERP
2	99.5281	-76.96	2.99	-73.97	-13.00	-60.97	ERP
3	495.9344	-76.37	10.40	-65.97	-13.00	-52.97	ERP

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	44.7434	-77.00	4.82	-72.18	-13.00	-59.18	ERP
2	100.2286	-77.41	3.07	-74.34	-13.00	-61.34	ERP
3	578.6699	-76.32	11.82	-64.50	-13.00	-51.50	ERP

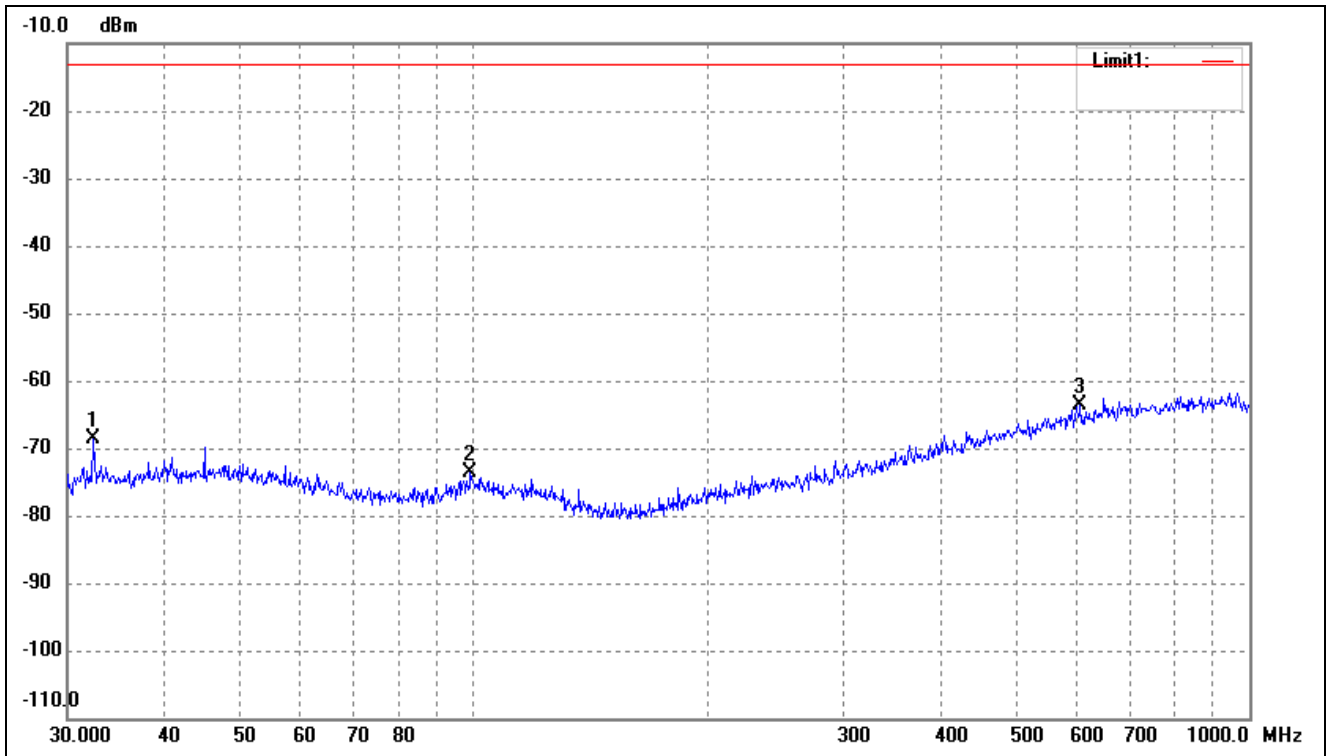
Test Channel	WCDMA Band IV	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	34.7602	-74.94	3.52	-71.42	-13.00	-58.42	ERP
2	55.2207	-76.95	4.07	-72.88	-13.00	-59.88	ERP
3	420.5803	-76.24	8.46	-67.78	-13.00	-54.78	ERP

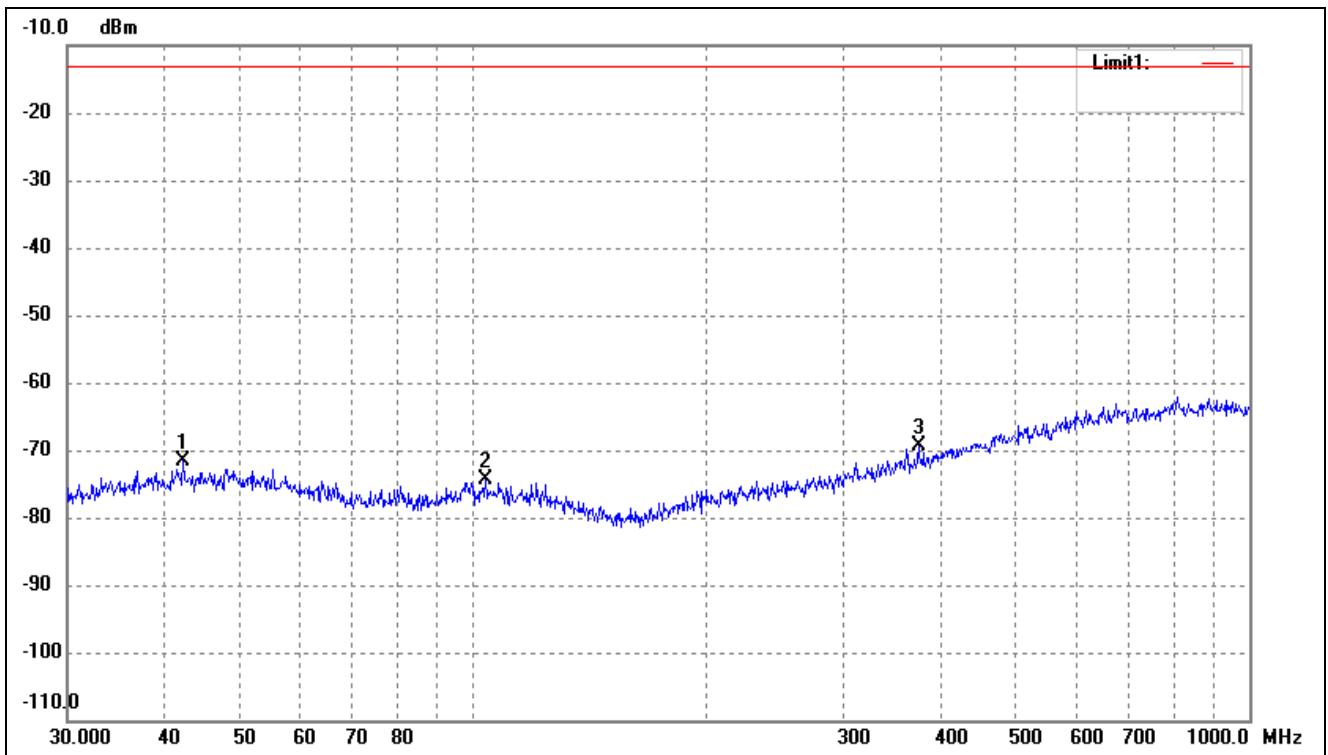
Note: Margin= (Reading+ Correct)- Limit

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	32.4059	-71.53	2.95	-68.58	-13.00	-55.58	ERP
2	99.1797	-76.54	2.92	-73.62	-13.00	-60.62	ERP
3	605.6592	-75.84	12.23	-63.61	-13.00	-50.61	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	42.3022	-76.48	4.81	-71.67	-13.00	-58.67	ERP
2	103.8055	-77.46	3.01	-74.45	-13.00	-61.45	ERP
3	374.6226	-76.50	7.14	-69.36	-13.00	-56.36	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	-36.35	4.94	-31.41	-13	-18.41	H
2472.6	-43.88	8.46	-35.42	-13	-22.42	H
1648.4	-37.42	4.94	-32.48	-13	-19.48	V
2472.6	-44.85	8.46	-36.39	-13	-23.39	V
Middle Channel (836.6MHz)						
1673.2	-36.54	5.11	-31.43	-13	-18.43	H
2509.8	-44.94	8.54	-36.4	-13	-23.4	H
1673.2	-38.6	5.11	-33.49	-13	-20.49	V
2509.8	-43.63	8.54	-35.09	-13	-22.09	V
High Channel (848.8MHz)						
1697.6	-36.98	5.25	-31.73	-13	-18.73	H
2546.4	-44.73	8.57	-36.16	-13	-23.16	H
1697.6	-38.53	5.25	-33.28	-13	-20.28	V
2546.4	-42.75	8.57	-34.18	-13	-21.18	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	-37.61	10.54	-27.07	-13	-14.07	H
5550.6	-44.58	13.37	-31.21	-13	-18.21	H
3700.4	-39.38	10.54	-28.84	-13	-15.84	V
5550.6	-41.93	13.37	-28.56	-13	-15.56	V
Middle Channel (1880MHz)						
3760.0	-38.36	10.64	-27.72	-13	-14.72	H
5640.0	-41.33	13.54	-27.79	-13	-14.79	H
3760.0	-39.86	10.64	-29.22	-13	-16.22	V
5640.0	-42.49	13.54	-28.95	-13	-15.95	V
High Channel (1909.8MHz)						
3819.6	-39.42	10.74	-28.68	-13	-15.68	H
5729.4	-44.9	13.71	-31.19	-13	-18.19	H
3819.6	-36.98	10.74	-26.24	-13	-13.24	V
5729.4	-43.18	13.71	-29.47	-13	-16.47	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	-36.03	4.94	-31.09	-13	-18.09	H
2479.2	-43.58	8.46	-35.12	-13	-22.12	H
1652.8	-39	4.94	-34.06	-13	-21.06	V
2479.2	-44.9	8.46	-36.44	-13	-23.44	V
Middle Channel (836.6MHz)						
1672.8	-38.03	5.11	-32.92	-13	-19.92	H
2509.2	-44.67	8.54	-36.13	-13	-23.13	H
1672.8	-36.29	5.11	-31.18	-13	-18.18	V
2509.2	-44.05	8.54	-35.51	-13	-22.51	V
High Channel (846.6MHz)						
1693.2	-38.84	5.25	-33.59	-13	-20.59	H
2539.8	-44.07	8.57	-35.5	-13	-22.5	H
1693.2	-37.63	5.25	-32.38	-13	-19.38	V
2539.8	-44.26	8.57	-35.69	-13	-22.69	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	-36.1	8.65	-27.45	-13	-14.45	H
5137.2	-44.44	12.03	-32.41	-13	-19.41	H
3424.8	-37.44	8.65	-28.79	-13	-15.79	V
5137.2	-44.99	12.03	-32.96	-13	-19.96	V
Middle Channel (1732.4MHz)						
3466.8	-37.81	8.91	-28.9	-13	-15.9	H
5200.2	-41.27	12.29	-28.98	-13	-15.98	H
3466.8	-37.46	8.91	-28.55	-13	-15.55	V
5200.2	-43.52	12.29	-31.23	-13	-18.23	V
High Channel (1752.6MHz)						
3505.2	-36.51	9.11	-27.4	-13	-14.4	H
5257.8	-43.44	12.56	-30.88	-13	-17.88	H
3505.2	-36.62	9.11	-27.51	-13	-14.51	V
5257.8	-42.67	12.56	-30.11	-13	-17.11	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	-39.31	10.54	-28.77	-13	-15.77	H
5557.2	-43.11	13.37	-29.74	-13	-16.74	H
3704.8	-38	10.54	-27.46	-13	-14.46	V
5557.2	-42.75	13.37	-29.38	-13	-16.38	V
Middle Channel (1880MHz)						
3760.0	-39.04	10.64	-28.4	-13	-15.4	H
5640.0	-43.79	13.54	-30.25	-13	-17.25	H
3760.0	-36.87	10.64	-26.23	-13	-13.23	V
5640.0	-43.4	13.54	-29.86	-13	-16.86	V
High Channel (1907.6MHz)						
3815.2	-39.08	10.74	-28.34	-13	-15.34	H
5722.8	-42.43	13.71	-28.72	-13	-15.72	H
3815.2	-37.51	10.74	-26.77	-13	-13.77	V
5722.8	-44.05	13.71	-30.34	-13	-17.34	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

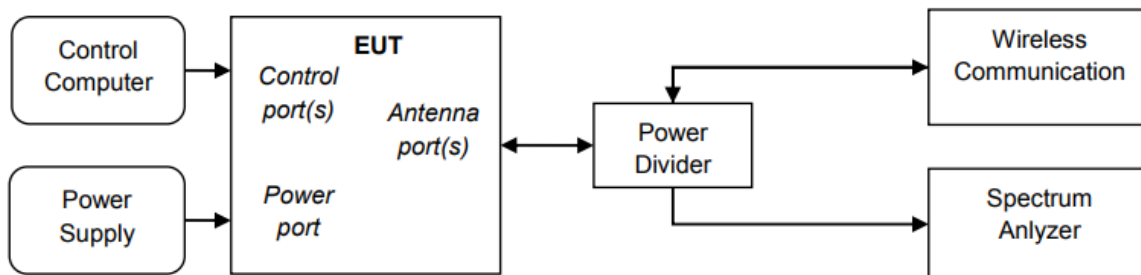
9.1 Standard Applicable

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 5000Hz 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.	WTX22X03057847W	Test Engineer	Dashan
Start date	2022/04/16	Finish date	2022/04/28
Temperature	24.7°C	Humidity	47%
RF specifications	GSM/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	GSM850			PCS1900		
Channel	128	190	251	512	661	810
Frequency(MHz)	824.20	836.60	848.80	1850.20	1880.00	1909.80
GSM	33.76	33.65	33.37	28.87	29.14	29.43
GPRS(1Slot)	33.62	33.50	33.28	28.82	29.15	29.44
EGPRS(1Slot)	26.89	26.98	27.07	25.85	25.16	24.96

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	24.44	24.35	24.19	23.50	23.37	23.51
HSDPA Subtest-1	23.40	23.35	23.21	22.51	22.43	22.47
HSDPA Subtest-2	22.38	23.32	23.19	22.48	22.41	22.45
HSDPA Subtest-3	22.37	23.34	23.17	22.49	22.42	22.46
HSDPA Subtest-4	22.38	23.34	23.18	22.47	22.41	22.45
HSUPA Subtest-1	23.42	23.30	23.23	22.48	22.36	22.49
HSUPA Subtest-2	23.41	23.27	23.21	22.46	22.32	22.43
HSUPA Subtest-3	23.39	23.28	23.21	22.43	22.33	22.47
HSUPA Subtest-4	23.37	23.27	23.2	22.44	22.34	22.46
HSUPA Subtest-5	23.38	23.28	23.19	22.44	22.34	22.47

Conducted Average power (dBm)						
Band	WCDMA Band IV					
Channel	1312	1412	1513			
Frequency(MHz)	1712.4	1733.4	1752.6			
RMC 12.2k	23.29	23.34	23.43			
HSDPA Subtest-1	22.27	22.35	22.45			
HSDPA Subtest-2	22.25	22.34	22.43			
HSDPA Subtest-3	22.24	22.32	22.41			
HSDPA Subtest-4	22.23	22.32	22.42			
HSUPA Subtest-1	22.40	22.54	22.69			
HSUPA Subtest-2	22.38	22.51	22.67			
HSUPA Subtest-3	22.37	22.5	22.65			
HSUPA Subtest-4	22.36	22.52	22.63			
HSUPA Subtest-5	22.35	22.52	22.67			

APPENDIX B**Peak-to-average Ratio (PAR) of Transmitter**

PCS1900				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GSM	661	1850.2	5.98	13
GPRS(1 Slot)	661	1850.2	5.27	13
EDGE(1 Slot)	661	1850.2	5.71	13

WCDMA Band IV				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	1312	1712.4	5.32	13
	1412	1733.4	6.12	13
	1513	1752.6	6.08	13

WCDMA Band II				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	6.28	13
	9400	1880.0	5.97	13
	9538	1907.6	5.13	13

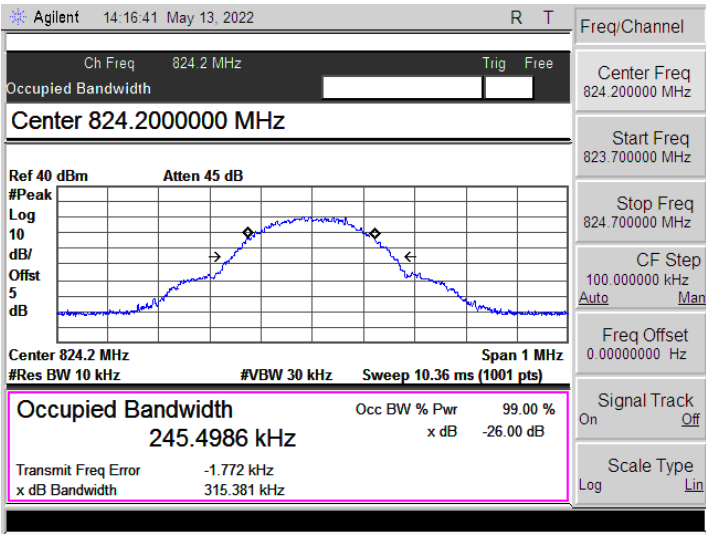
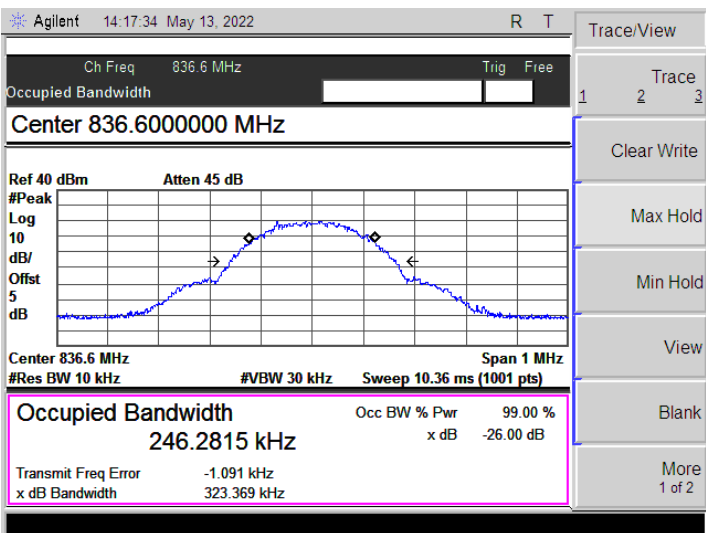
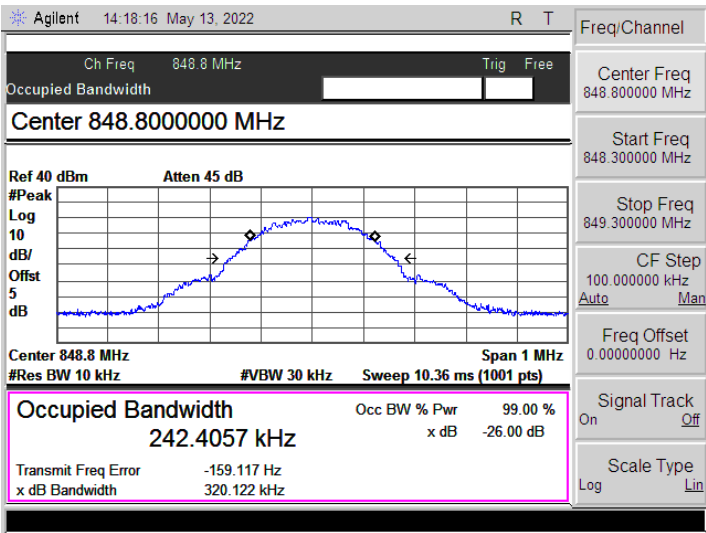
Note: Only the worst case was selected to record.

APPENDIX C

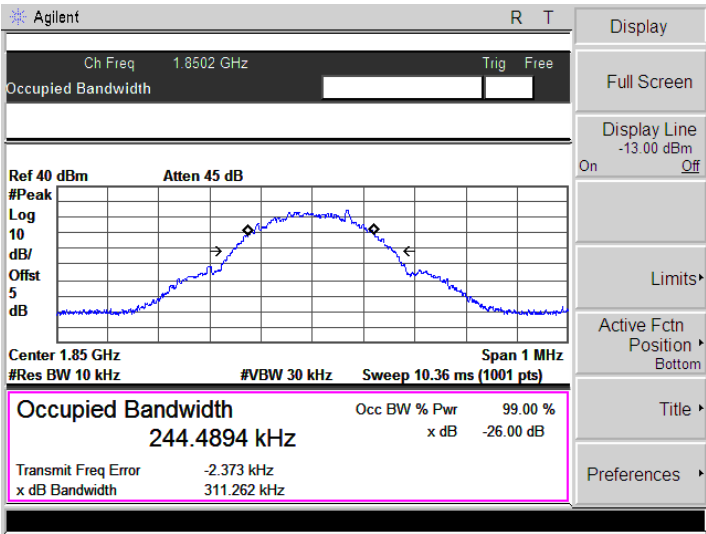
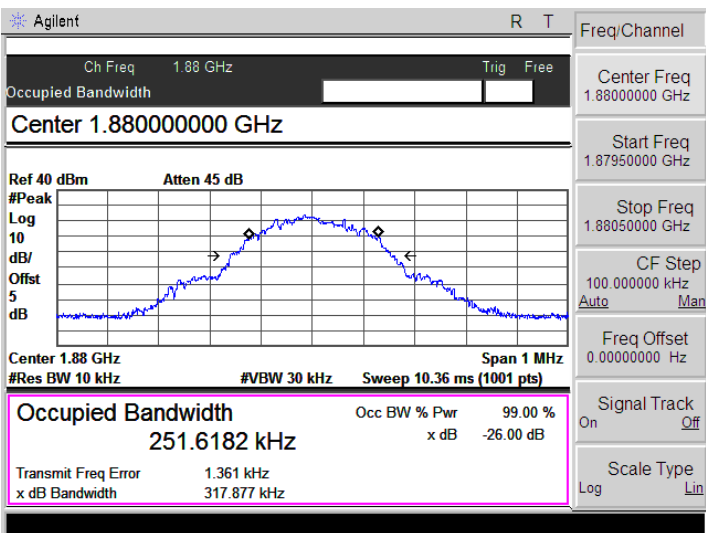
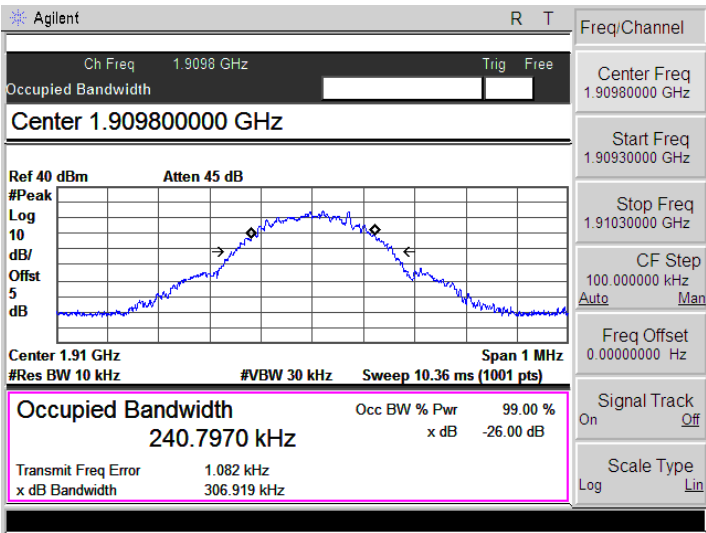
EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
GSM 850 (GMSK)	128	824.20	248.8321	322.104
	190	836.60	249.0904	315.810
	251	848.80	252.1798	311.158
GPRS850 (GMSK,1Slot)	128	824.20	245.4986	315.381
	190	836.60	246.2815	323.369
	251	848.80	242.4057	320.122
EGPRS850 (8PSK,1Slot)	128	824.20	250.1210	309.044
	190	836.60	245.6149	322.780
	251	848.80	243.8571	323.633
PCS1900 (GMSK)	512	1850.20	244.4894	311.262
	661	1880.00	251.6182	317.877
	810	1909.80	240.7970	306.919
GPRS1900 (GMSK,1Slot)	512	1850.20	245.2127	317.865
	661	1880.00	244.3020	315.241
	810	1909.80	246.2321	307.539
EGPRS1900 (8PSK,1Slot)	512	1850.20	243.7798	314.046
	661	1880.00	250.9269	312.099
	810	1909.80	246.0087	308.889

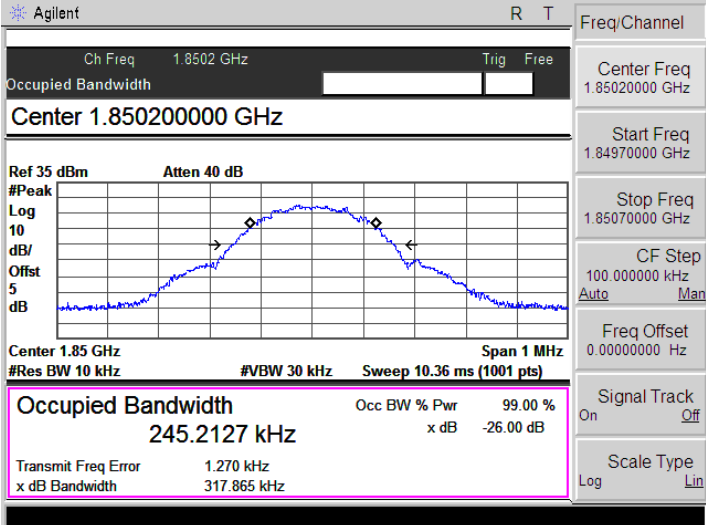
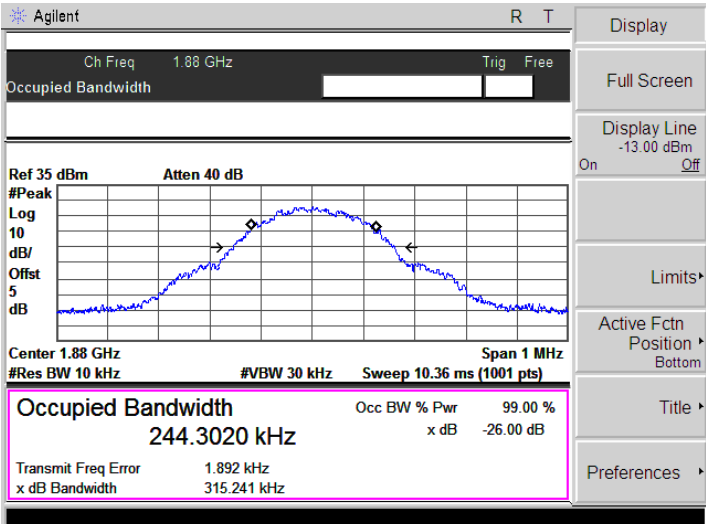
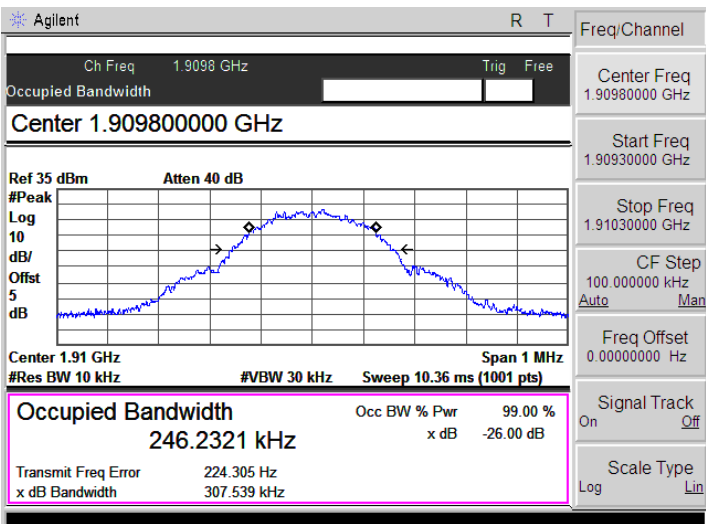
EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
WCDMA Band V	4132	826.40	4181.0	4769
	4183	836.60	4170.5	4709
	4233	846.60	4147.2	4713
HSDPA	4132	826.40	4173.0	4725
	4183	836.60	4158.8	4711
	4233	846.60	4161.7	4657
HSUPA	4132	826.40	4163.0	4710
	4183	836.60	4153.6	4687
	4233	846.60	4159.6	4710
WCDMA Band II	9262	1852.40	4153.6	4733
	9400	1880.00	4144.0	4709
	9538	1907.60	4154.7	4699
HSDPA	9262	1852.40	4157.7	4703
	9400	1880.00	4166.3	4707
	9538	1907.60	4149.4	4709
HSUPA	9262	1852.40	4164.5	4695
	9400	1880.00	4152.0	4703
	9538	1907.60	4159.3	4677
WCDMA Band IV	1312	1712.4	4147.9	4713
	1412	1733.4	4153.7	4706
	1513	1752.6	4156.8	4734
HSDPA	1312	1712.4	4146.0	4693
	1412	1733.4	4146.0	4737
	1513	1752.6	4155.2	4721
HSUPA	1312	1712.4	4154.3	4713
	1412	1733.4	4149.7	4698
	1513	1752.6	4163.2	4701

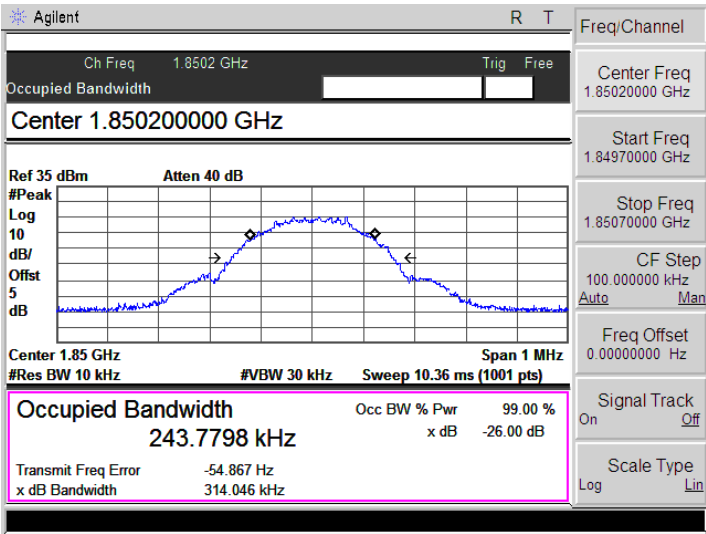
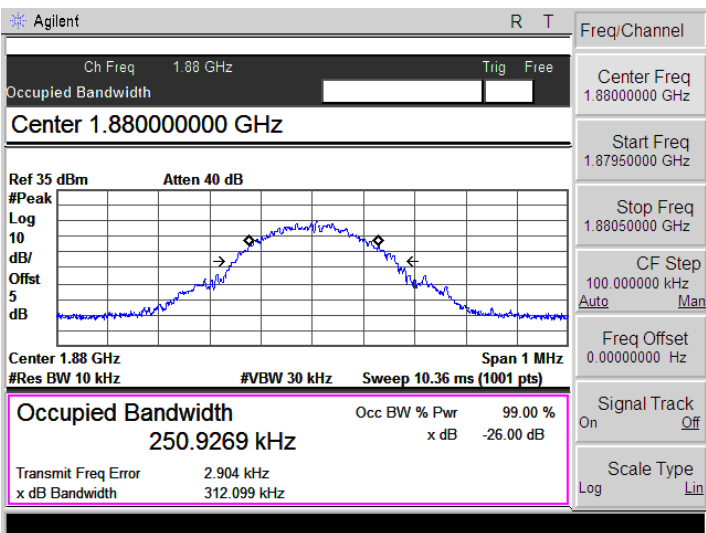
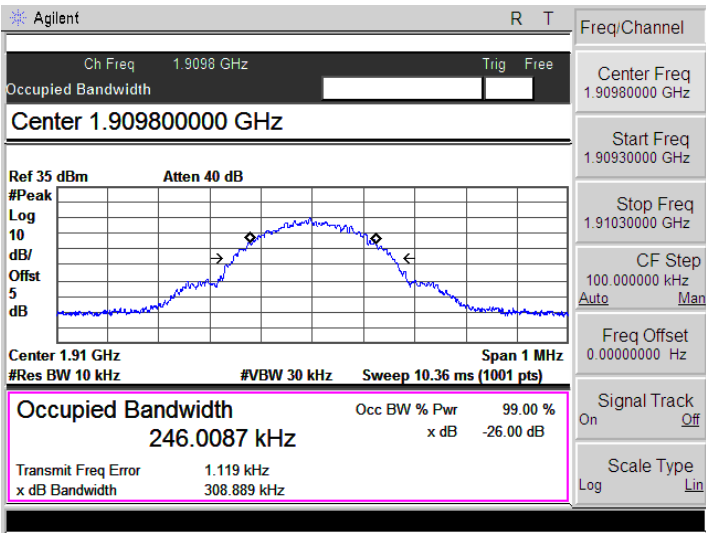
<p>GSM 850 (GMSK)-Low</p>	<p>Agilent 14:10:40 May 13, 2022 R T</p> <p>Ch Freq 824.2 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 824.200000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 5 dB</p> <p>Center 824.2 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth Occ BW % Pwr 99.00 % 248.8321 kHz x dB -26.00 dB</p> <p>Transmit Freq Error -3.159 kHz x dB Bandwidth 322.104 kHz</p> <p>Freq/Channel: Center Freq 824.200000 MHz, Start Freq 823.700000 MHz, Stop Freq 824.700000 MHz, CF Step 100.000000 kHz, Freq Offset 0.00000000 Hz, Signal Track On, Scale Type Log</p>
<p>GSM 850 (GMSK)-Middle</p>	<p>Agilent 14:11:45 May 13, 2022 R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 836.600000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 5 dB</p> <p>Center 836.6 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth Occ BW % Pwr 99.00 % 249.0904 kHz x dB -26.00 dB</p> <p>Transmit Freq Error -209.478 Hz x dB Bandwidth 315.810 kHz</p> <p>Freq/Channel: Center Freq 836.600000 MHz, Start Freq 836.100000 MHz, Stop Freq 837.100000 MHz, CF Step 100.000000 kHz, Freq Offset 0.00000000 Hz, Signal Track On, Scale Type Log</p>
<p>GSM 850 (GMSK)-High</p>	<p>Agilent 14:12:19 May 13, 2022 R T</p> <p>Ch Freq 848.8 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 848.800000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 5 dB</p> <p>Center 848.8 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth Occ BW % Pwr 99.00 % 252.1798 kHz x dB -26.00 dB</p> <p>Transmit Freq Error -1.634 kHz x dB Bandwidth 311.158 kHz</p> <p>Freq/Channel: Center Freq 848.800000 MHz, Start Freq 848.300000 MHz, Stop Freq 849.300000 MHz, CF Step 100.000000 kHz, Freq Offset 0.00000000 Hz, Signal Track On, Scale Type Log</p>

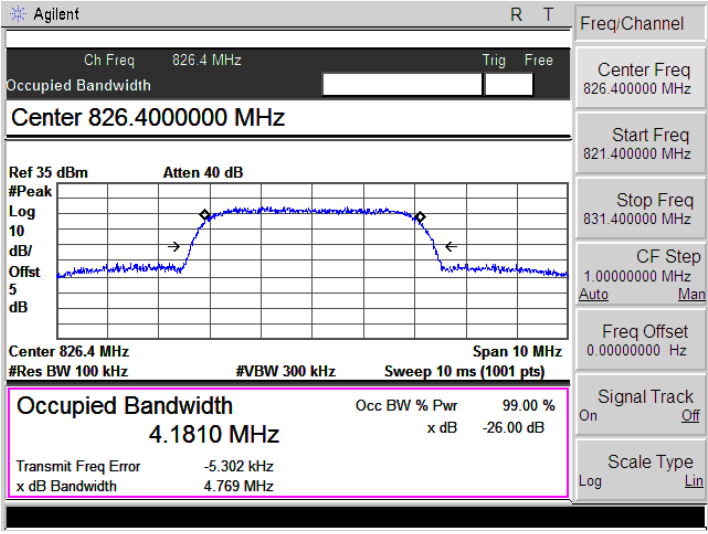
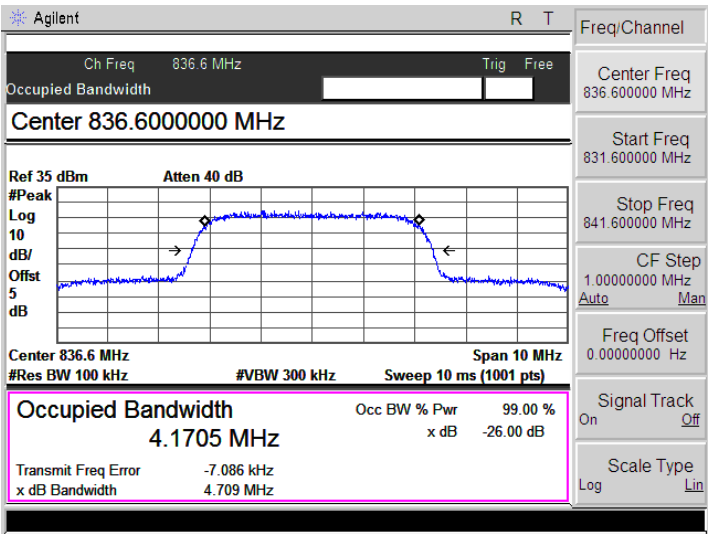
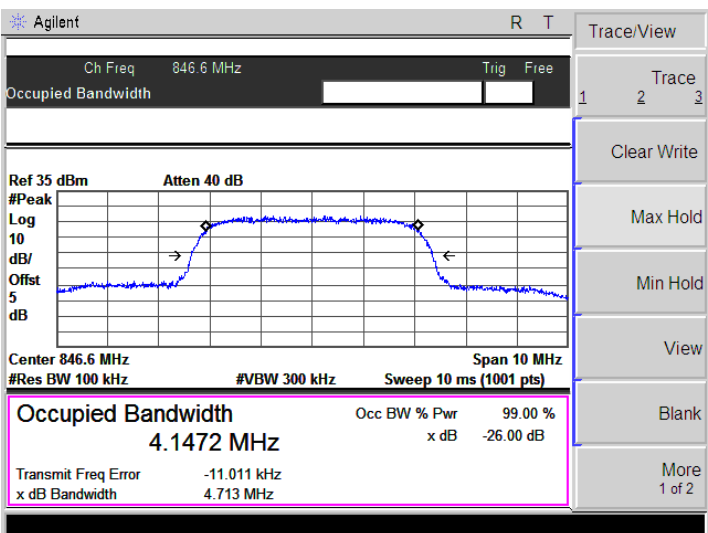
<p>GPRS850 (GMSK,1Slot)-Low</p>	 <p>Agilent 14:16:41 May 13, 2022 R T</p> <p>Ch Freq 824.2 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 824.200000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 5 dB</p> <p>Center 824.2 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth 245.4986 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -1.772 kHz x dB Bandwidth 315.381 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>GPRS850 (GMSK,1Slot)-Middle</p>	 <p>Agilent 14:17:34 May 13, 2022 R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 836.600000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 5 dB</p> <p>Center 836.6 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth 246.2815 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -1.091 kHz x dB Bandwidth 323.369 kHz</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>GPRS850 (GMSK,1Slot)-High</p>	 <p>Agilent 14:18:16 May 13, 2022 R T</p> <p>Ch Freq 848.8 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 848.800000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 5 dB</p> <p>Center 848.8 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth 242.4057 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -159.117 Hz x dB Bandwidth 320.122 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>

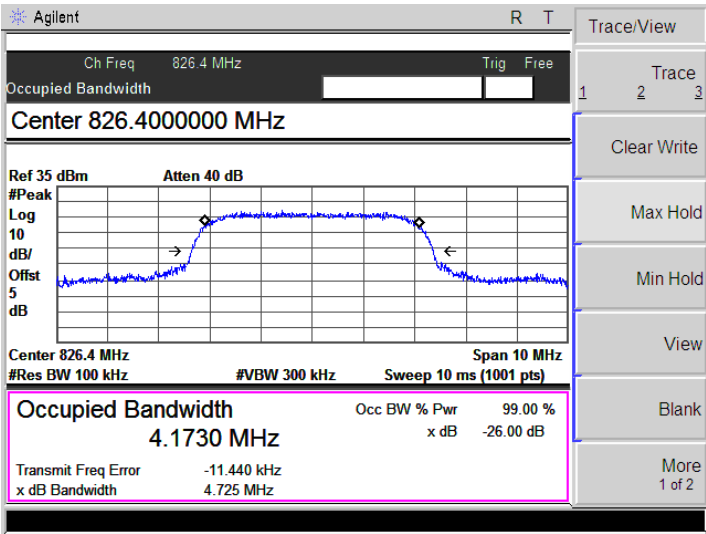
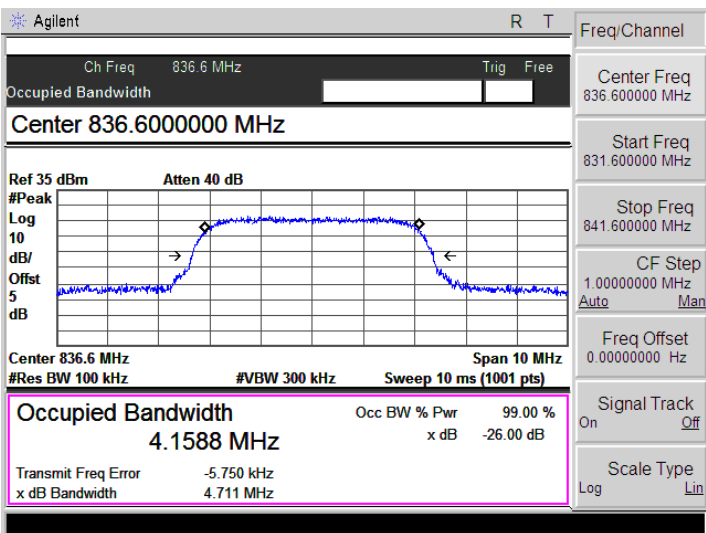
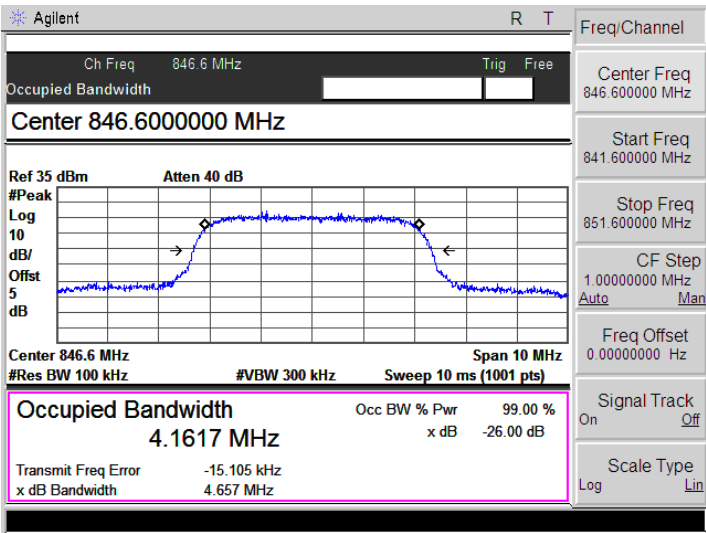
<p>EGPRS850 (8PSK,1Slot)-Low</p>	<p>Agilent 14:31:37 May 13, 2022 R T</p> <p>Ch Freq 824.2 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 824.200000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offst 5 dB</p> <p>Center 824.2 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth Occ BW % Pwr 99.00 % 250.1210 kHz x dB -26.00 dB</p> <p>Transmit Freq Error -1.290 kHz x dB Bandwidth 309.044 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 14:32:04 May 13, 2022 R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 836.600000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offst 5 dB</p> <p>Center 836.6 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth Occ BW % Pwr 99.00 % 245.6149 kHz x dB -26.00 dB</p> <p>Transmit Freq Error 453.540 Hz x dB Bandwidth 322.780 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 14:32:40 May 13, 2022 R T</p> <p>Ch Freq 848.8 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 848.800000 MHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/Offst 5 dB</p> <p>Center 848.8 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth Occ BW % Pwr 99.00 % 243.8571 kHz x dB -26.00 dB</p> <p>Transmit Freq Error -1.046 kHz x dB Bandwidth 323.633 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>

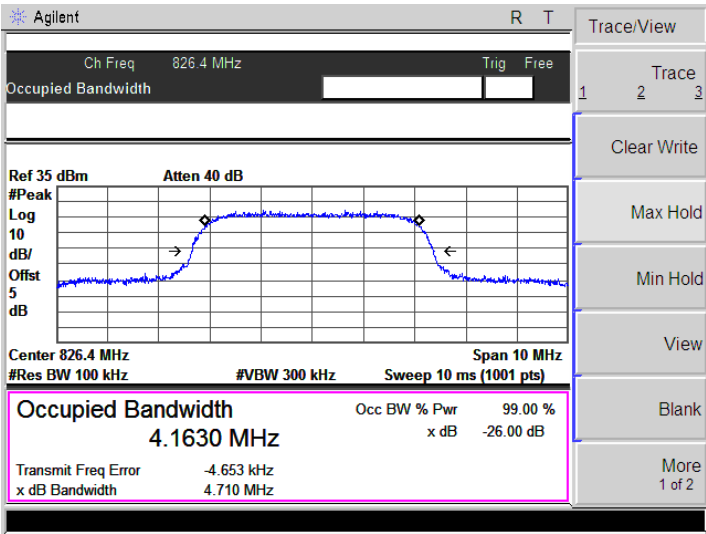
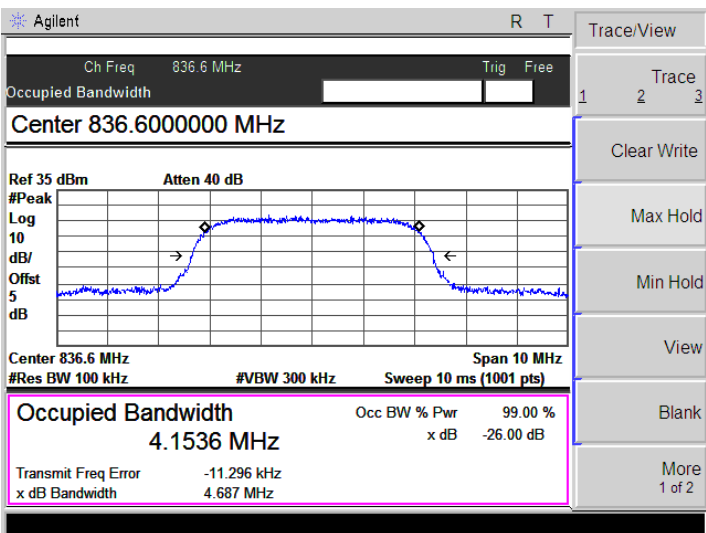
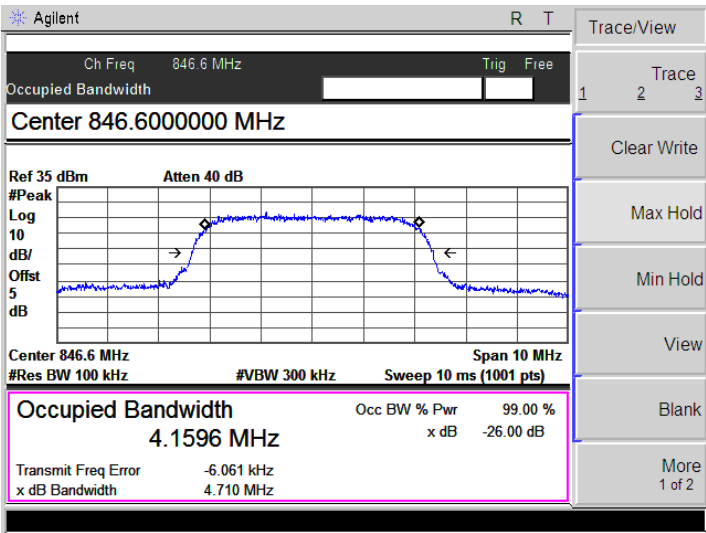
<p>PCS1900 (GMSK)-Low</p>	 <p>Agilent R T</p> <p>Ch Freq 1.8502 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 5 dB</p> <p>Center 1.85 GHz Span 1 MHz</p> <p>#Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts)</p> <p>Occupied Bandwidth 244.4894 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -2.373 kHz x dB Bandwidth 311.262 kHz</p> <p>Display Full Screen Display Line -13.00 dBm On Off Limits Active Fcn Position Bottom Title Preferences</p>
<p>PCS1900 (GMSK)-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 1.88 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.88000000 GHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 251.6182 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.361 kHz x dB Bandwidth 317.877 kHz</p> <p>Freq/Channel Center Freq 1.88000000 GHz Start Freq 1.87950000 GHz Stop Freq 1.88050000 GHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin</p>
<p>PCS1900 (GMSK)-High</p>	 <p>Agilent R T</p> <p>Ch Freq 1.9098 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.90980000 GHz</p> <p>Ref 40 dBm Atten 45 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 240.7970 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 1.082 kHz x dB Bandwidth 306.919 kHz</p> <p>Freq/Channel Center Freq 1.90980000 GHz Start Freq 1.90930000 GHz Stop Freq 1.91030000 GHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin</p>

<p>GPRS1900 (GMSK,1Slot)-Low</p>	
<p>GPRS1900 (GMSK,1Slot)-Middle</p>	
<p>GPRS1900 (GMSK,1Slot)-High</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>Center 826.400000 MHz</p> <p>Ref 35 dBm Atten 40 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 4.1810 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -5.302 kHz x dB Bandwidth 4.769 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>Center 836.600000 MHz</p> <p>Ref 35 dBm Atten 40 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 4.1705 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -7.086 kHz x dB Bandwidth 4.709 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>Center 846.6 MHz</p> <p>Ref 35 dBm Atten 40 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 4.1472 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -11.011 kHz x dB Bandwidth 4.713 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>Center 826.400000 MHz</p> <p>Ref 35 dBm Atten 40 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 4.1730 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -11.440 kHz x dB Bandwidth 4.725 MHz</p> <p>Trace/View Trace 1 2 3 Clear Write Max Hold Min Hold View Blank More 1 of 2</p>
<p>HSDPA-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 836.600000 MHz</p> <p>Ref 35 dBm Atten 40 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 4.1588 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -5.750 kHz x dB Bandwidth 4.711 MHz</p> <p>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</p>
<p>HSDPA-High</p>	 <p>Agilent R T</p> <p>Ch Freq 846.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 846.600000 MHz</p> <p>Ref 35 dBm Atten 40 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 4.1617 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -15.105 kHz x dB Bandwidth 4.657 MHz</p> <p>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</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 35 dBm Atten 40 dB</p> <p>#Peak</p> <p>Log 10</p> <p>dB/</p> <p>Offst 5</p> <p>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>Occupied Bandwidth 4.1630 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error -4.653 kHz</p> <p>x dB Bandwidth 4.710 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>HSUPA-Middle</p>	 <p>Agilent R T</p> <p>Ch Freq 836.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 836.600000 MHz</p> <p>Ref 35 dBm Atten 40 dB</p> <p>#Peak</p> <p>Log 10</p> <p>dB/</p> <p>Offst 5</p> <p>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>Occupied Bandwidth 4.1536 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error -11.296 kHz</p> <p>x dB Bandwidth 4.687 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>HSUPA-High</p>	 <p>Agilent R T</p> <p>Ch Freq 846.6 MHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 846.600000 MHz</p> <p>Ref 35 dBm Atten 40 dB</p> <p>#Peak</p> <p>Log 10</p> <p>dB/</p> <p>Offst 5</p> <p>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>Occupied Bandwidth 4.1596 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -26.00 dB</p> <p>Transmit Freq Error -6.061 kHz</p> <p>x dB Bandwidth 4.710 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>

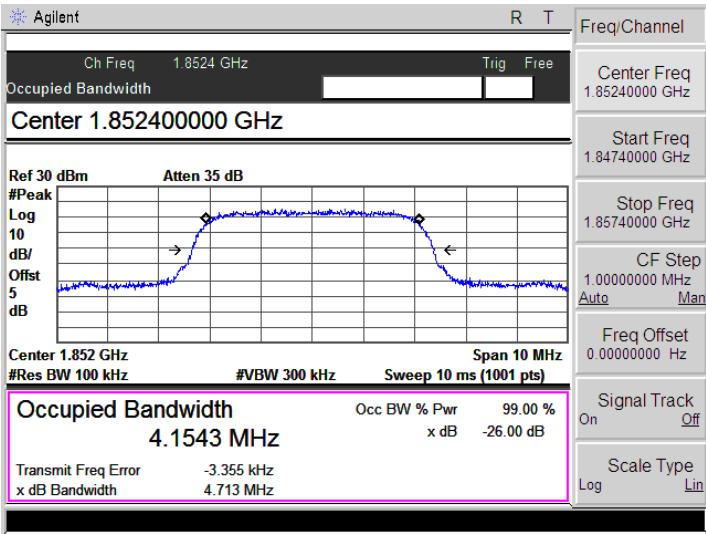
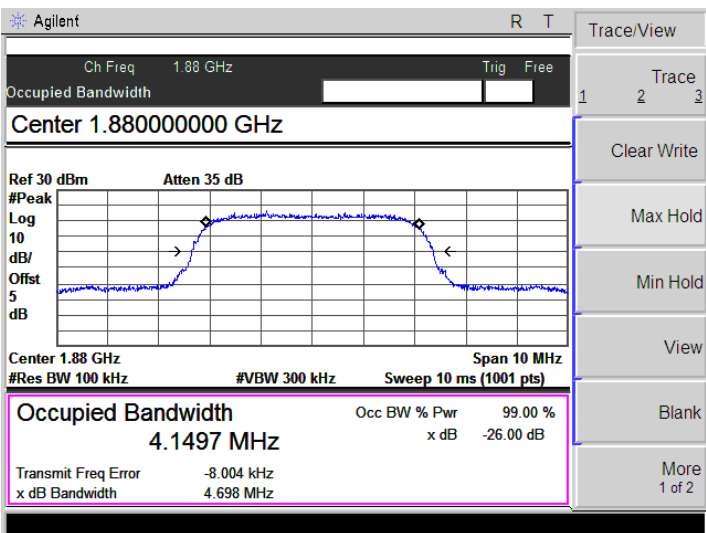
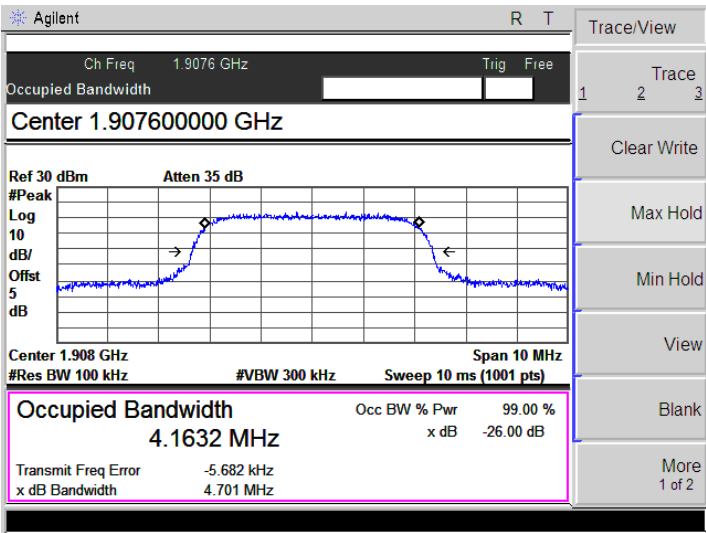
<p>WCDMA Band IV-Low</p>	<p>Agilent R T Trace/View</p> <p>Ch Freq 1.7124 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.71240000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/ Offst 5 dB</p> <p>Center 1.712 GHz Span 10 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p>Occupied Bandwidth 4.1536 MHz Occ BW % Pwr 99.00% x dB -26.00 dB</p> <p>Transmit Freq Error -7.254 kHz x dB Bandwidth 4.733 MHz</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>WCDMA Band IV-Middle</p>	<p>Agilent R T Trace/View</p> <p>Ch Freq 1.7324 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.73240000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 4.1440 MHz Occ BW % Pwr 99.00% x dB -26.00 dB</p> <p>Transmit Freq Error -10.833 kHz x dB Bandwidth 4.709 MHz</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>WCDMA Band IV-High</p>	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 1.7526 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.75260000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/ Offst 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>Occupied Bandwidth 4.1547 MHz Occ BW % Pwr 99.00% x dB -26.00 dB</p> <p>Transmit Freq Error -345.374 Hz x dB Bandwidth 4.699 MHz</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>HSDPA-Low</p>	<p>Agilent R T</p> <p>Ch Freq 1.7124 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.712400000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offst 5 dB</p> <p>Center 1.712 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p>Occupied Bandwidth 4.1577 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -6.846 kHz x dB Bandwidth 4.703 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>HSDPA-Middle</p>	<p>Agilent R T</p> <p>Ch Freq 1.7324 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.732400000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offst 5 dB</p> <p>Center 1.732 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p>Occupied Bandwidth 4.1663 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -3.073 kHz x dB Bandwidth 4.707 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>HSDPA-High</p>	<p>Agilent R T</p> <p>Ch Freq 1.7526 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.752600000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offst 5 dB</p> <p>Center 1.753 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)</p> <p>Occupied Bandwidth 4.1494 MHz</p> <p>Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error -7.891 kHz x dB Bandwidth 4.709 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>HSUPA-Low</p>	
<p>HSUPA-Middle</p>	
<p>HSUPA-High</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>Center 1.85240000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offst 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>Occupied Bandwidth Occ BW % Pwr 99.00 % 4.1479 MHz x dB -26.00 dB</p> <p>Transmit Freq Error 848.302 Hz x dB Bandwidth 4.713 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>Center 1.88000000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offst 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>Occupied Bandwidth Occ BW % Pwr 99.00 % 4.1537 MHz x dB -26.00 dB</p> <p>Transmit Freq Error -3.284 kHz x dB Bandwidth 4.706 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>WCDMA Band II-High</p>	<p>Agilent R T</p> <p>Ch Freq 1.9076 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Center 1.90760000 GHz</p> <p>Ref 30 dBm Atten 35 dB</p> <p>#Peak Log 10 dB/Offst 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>Occupied Bandwidth Occ BW % Pwr 99.00 % 4.1568 MHz x dB -26.00 dB</p> <p>Transmit Freq Error -10.370 kHz x dB Bandwidth 4.734 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>

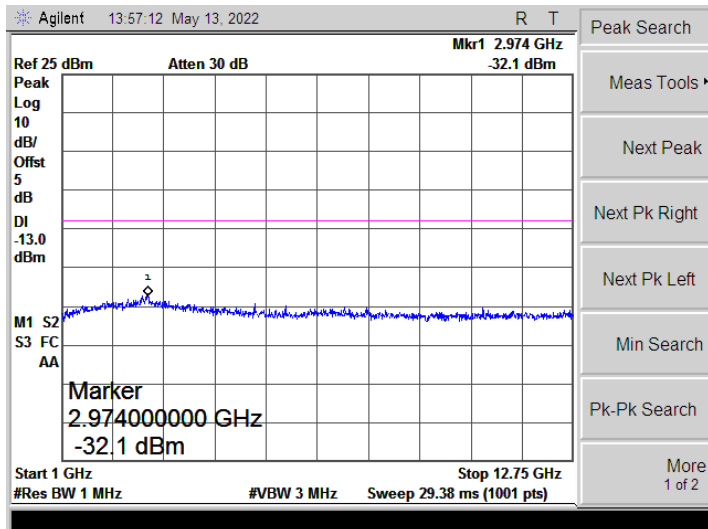
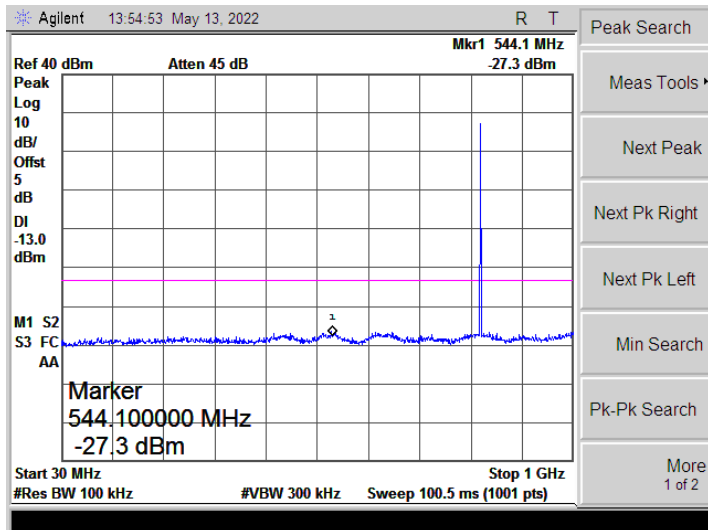
<p>HSDPA-Low</p>	
<p>HSDPA-Middle</p>	
<p>HSDPA-High</p>	

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

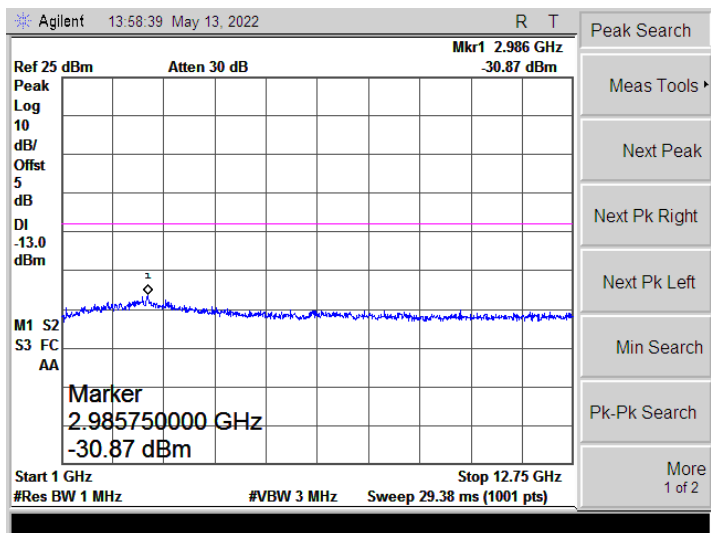
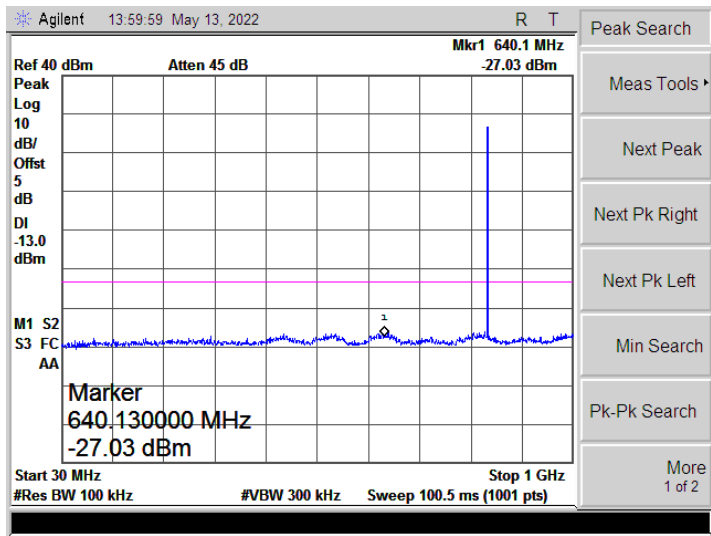
APPENDIX D

Out of Band Emissions at Antenna Terminal

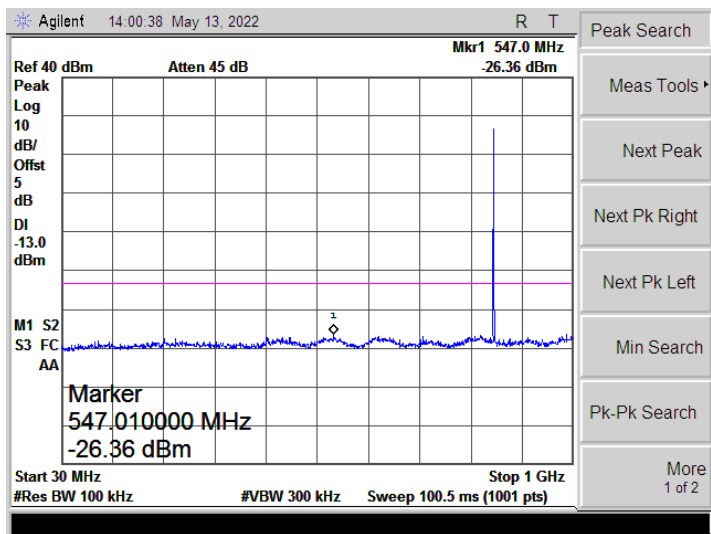
GSM 850
(GMSK)-Low



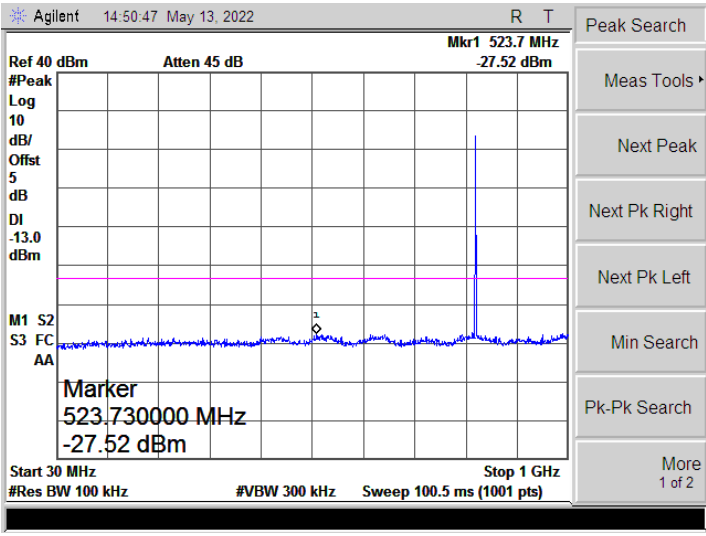
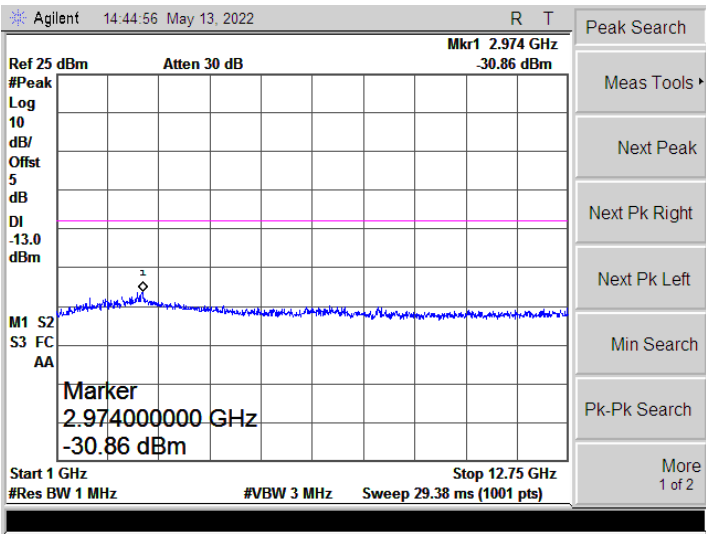
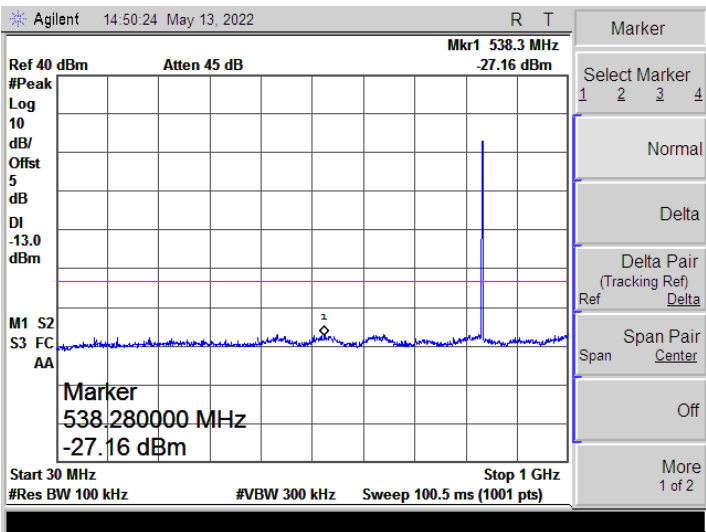
GSM 850
(GMSK)-Middle

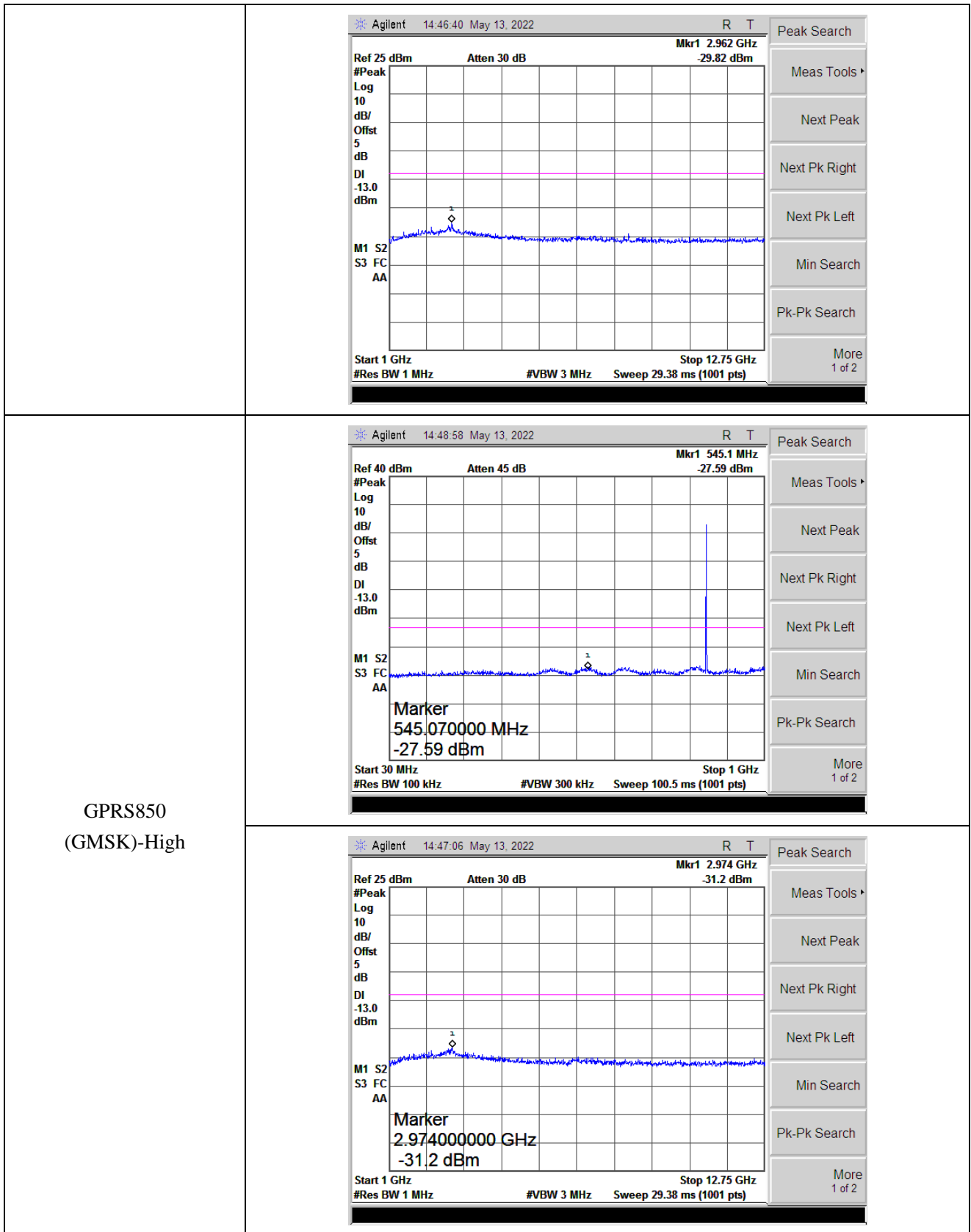


GSM 850
(GMSK)-High

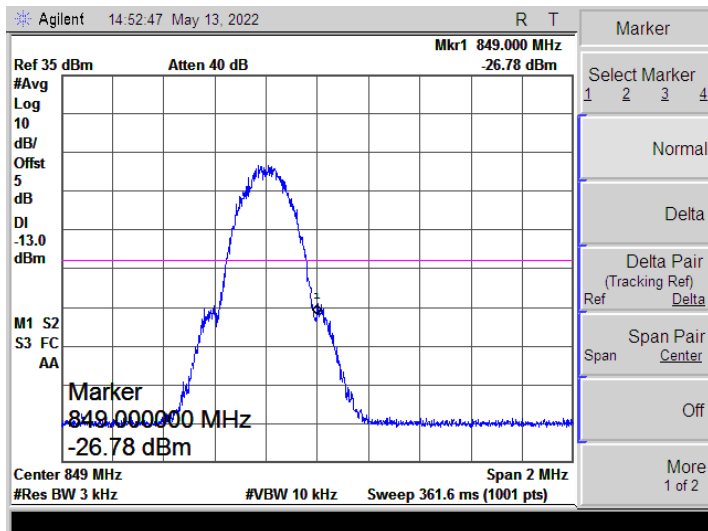
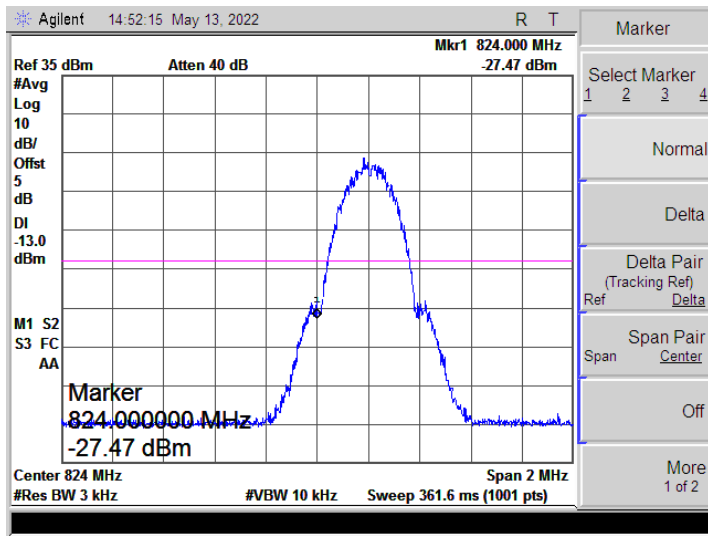


	<p>Agilent 14:01:21 May 13, 2022 R T</p> <p>Ref 25 dBm Atten 30 dB Mkr1 2.974 GHz -31.03 dBm</p> <p>Peak Search Meas Tools Next Peak Next Pk Right Next Pk Left Min Search Pk-Pk Search More 1 of 2</p> <p>Marker 2.97400000 GHz -31.03 dBm</p> <p>Start 1 GHz Stop 12.75 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 29.38 ms (1001 pts)</p>
<p>Bandedge</p>	<p>Agilent 14:06:40 May 13, 2022 R T</p> <p>Ref 25 dBm Atten 30 dB Mkr1 824.000 MHz -24.38 dBm</p> <p>Peak Search Meas Tools Next Peak Next Pk Right Next Pk Left Min Search Pk-Pk Search More 1 of 2</p> <p>Marker 824.000000 MHz -24.38 dBm</p> <p>Center 824 MHz Span 2 MHz #Res BW 3 kHz #VBW 10 kHz Sweep 361.6 ms (1001 pts)</p>
	<p>Agilent 14:08:00 May 13, 2022 R T</p> <p>Ref 25 dBm Atten 30 dB Mkr1 849.000 MHz -27.05 dBm</p> <p>Marker Select Marker 1 2 3 4 Normal Delta Delta Pair (Tracking Ref) Ref Delta Span Pair Span Center Off More 1 of 2</p> <p>Marker 849.000000 MHz -27.05 dBm</p> <p>Center 849 MHz Span 2 MHz #Res BW 3 kHz #VBW 10 kHz Sweep 361.6 ms (1001 pts)</p>

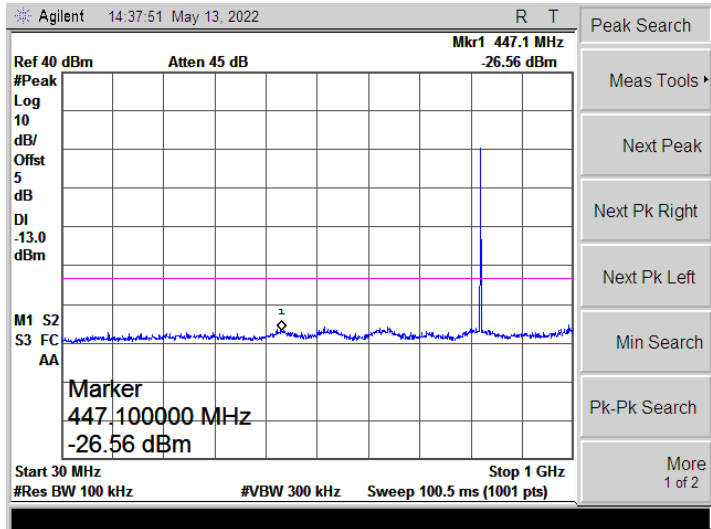
<p>GPRS850 (GMSK,1Slot)-Low</p>	
	
<p>GPRS850 (GMSK,1Slot)-Middle</p>	



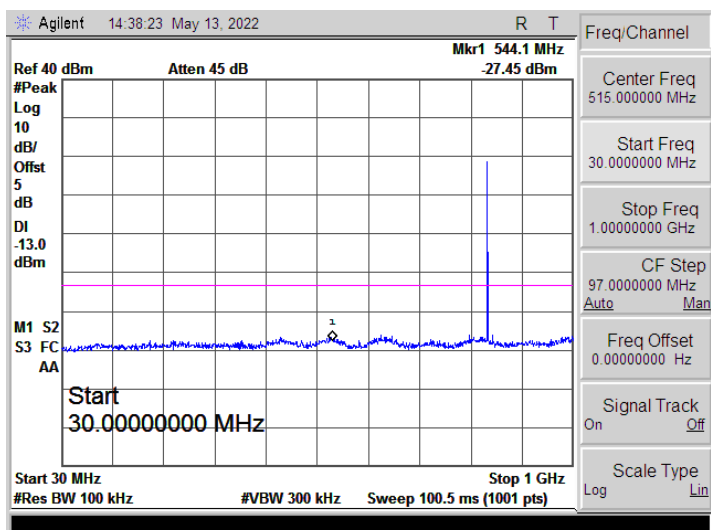
Bandedge

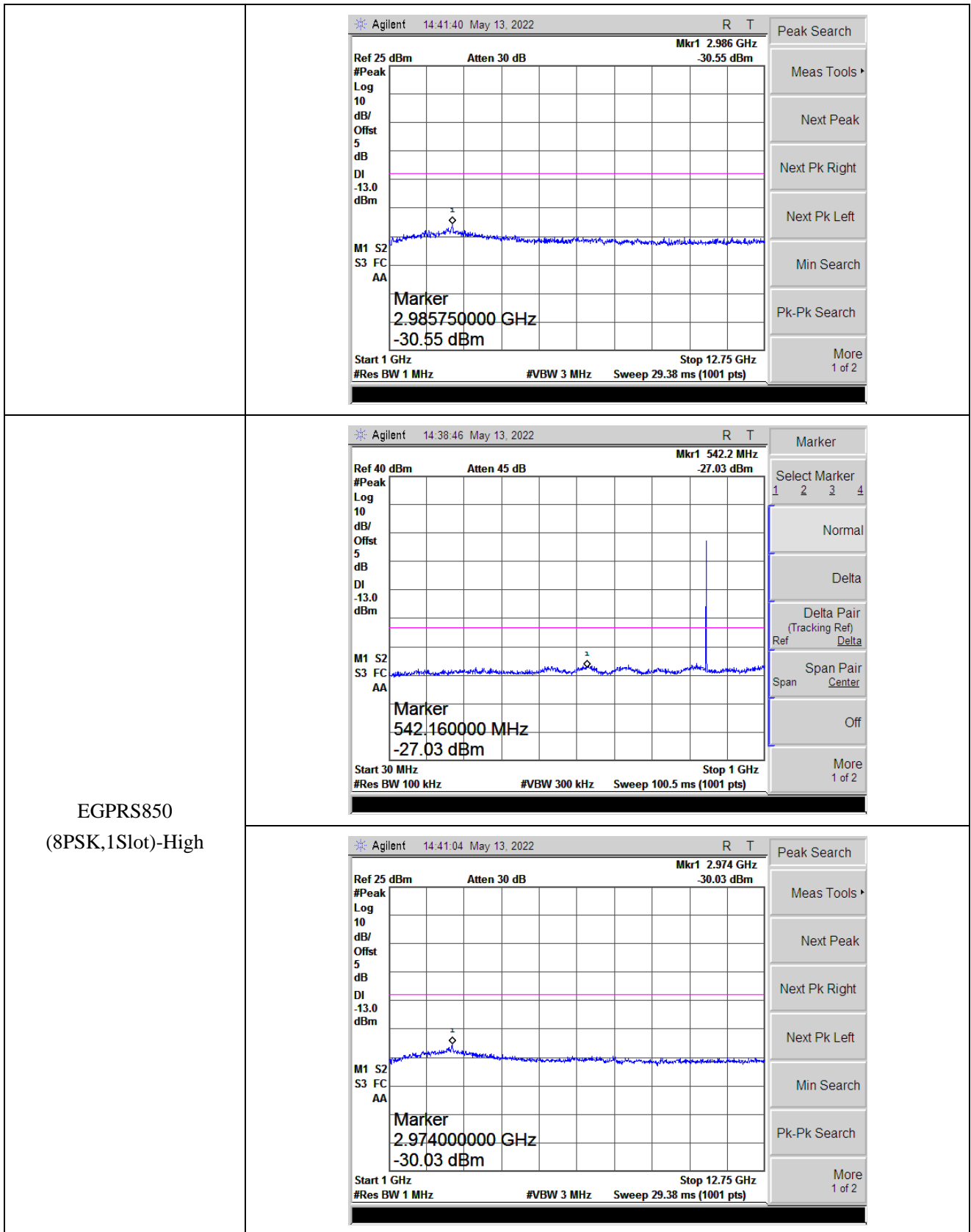


EGPRS850
(8PSK,1Slot)-Low

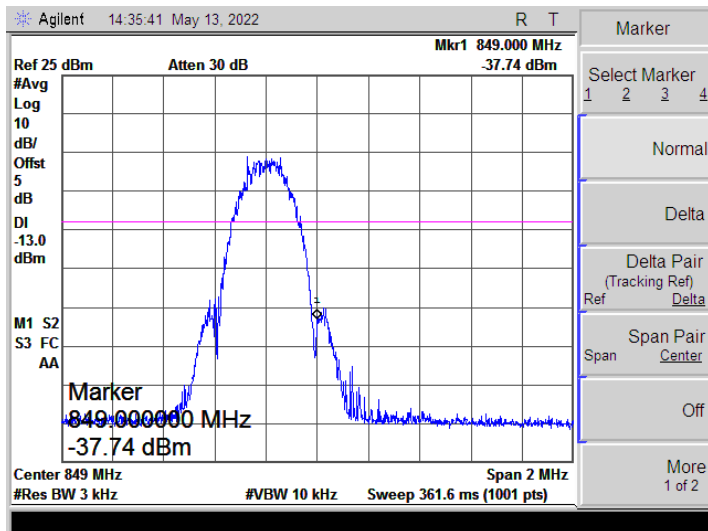
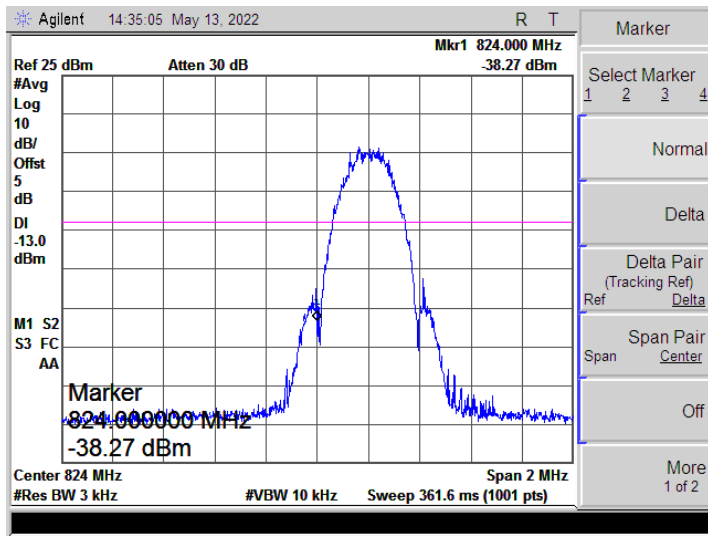


EGPRS850
(8PSK,1Slot)-Middle

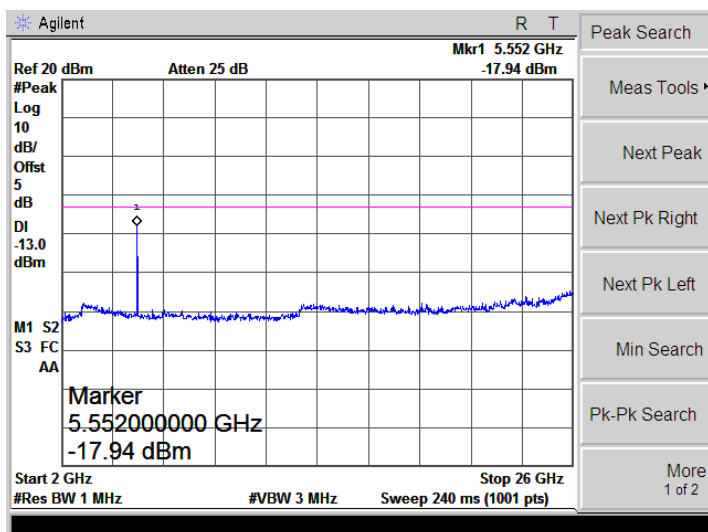
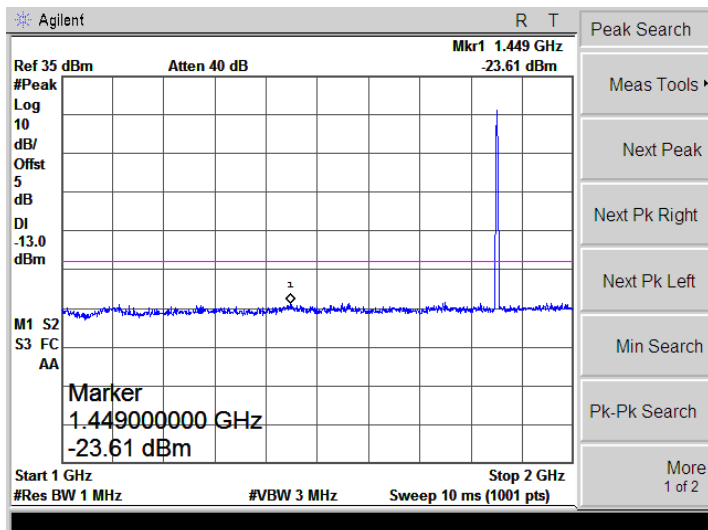
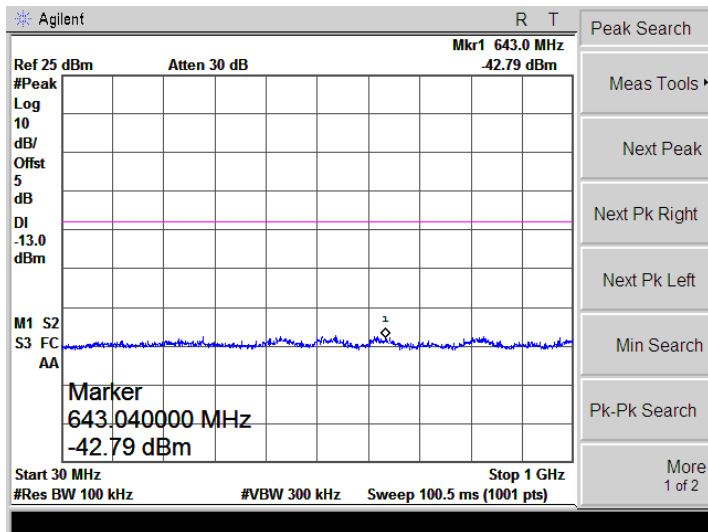




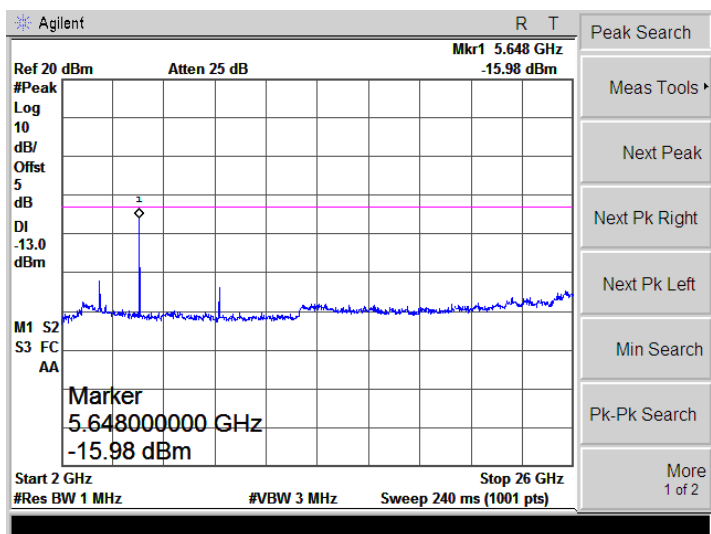
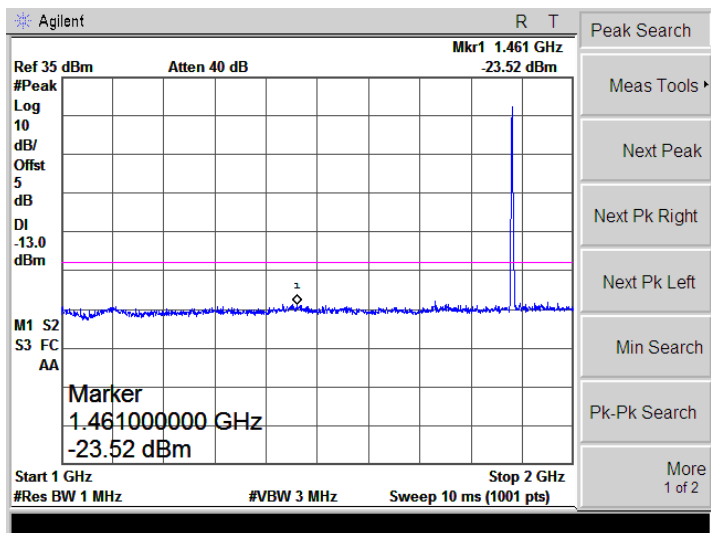
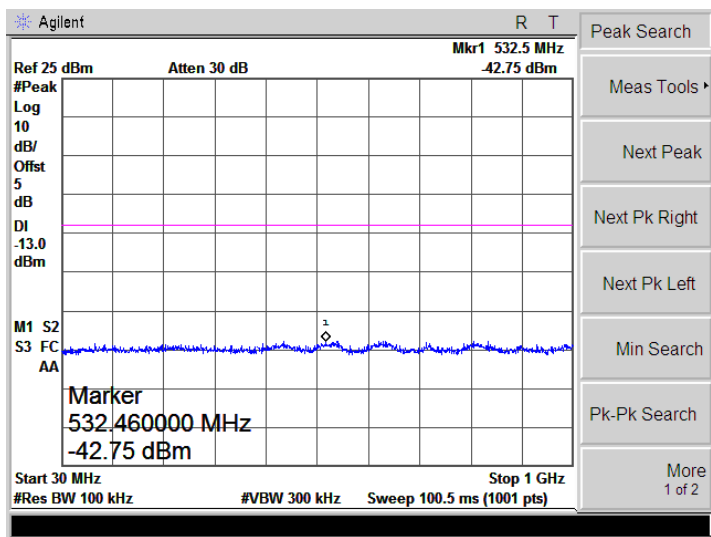
Bandedge



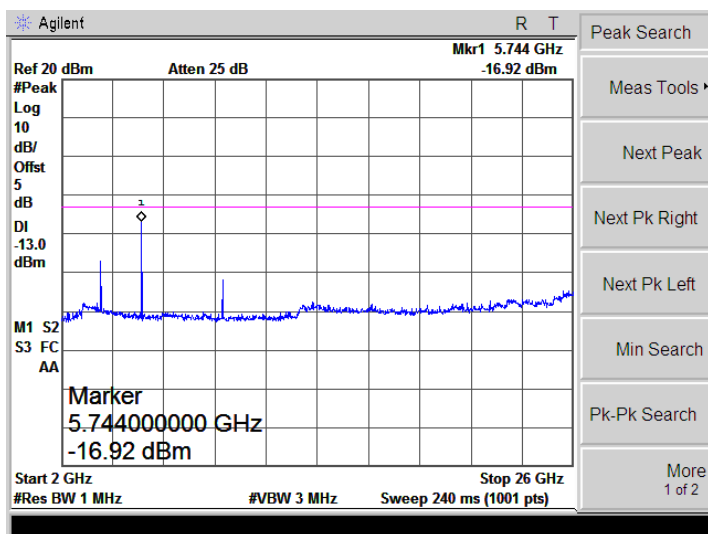
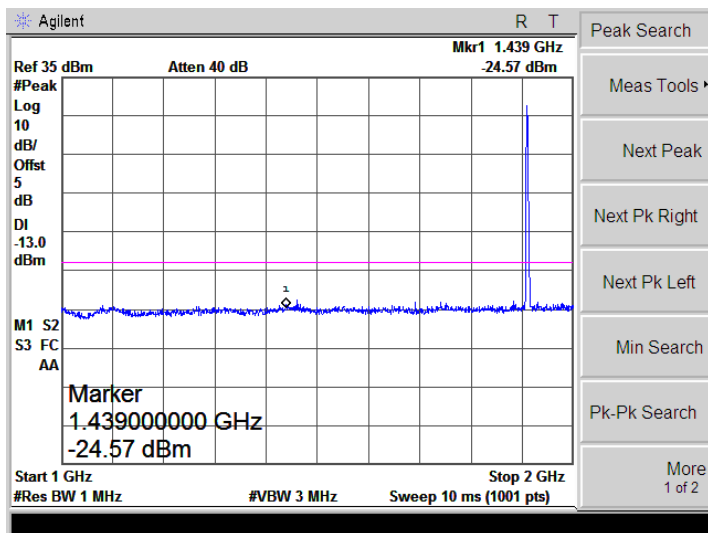
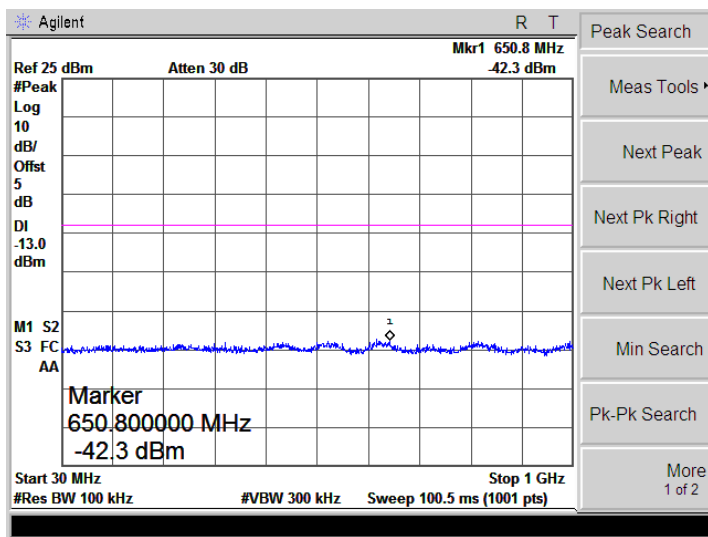
PCS1900
(GMSK)-Low



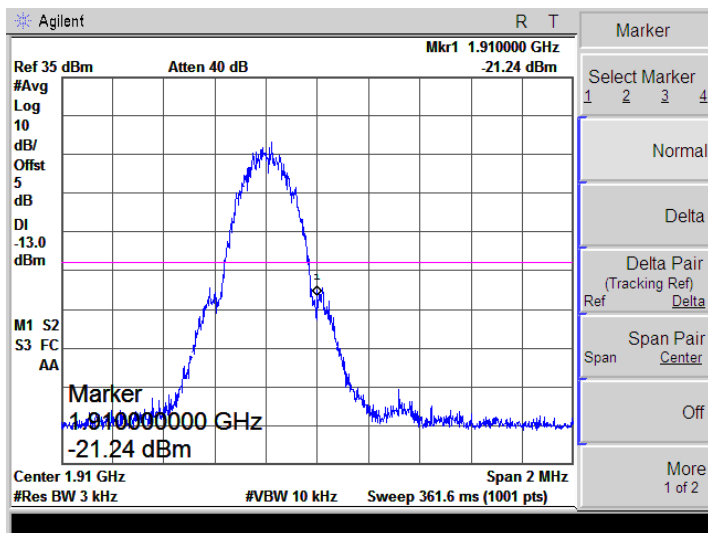
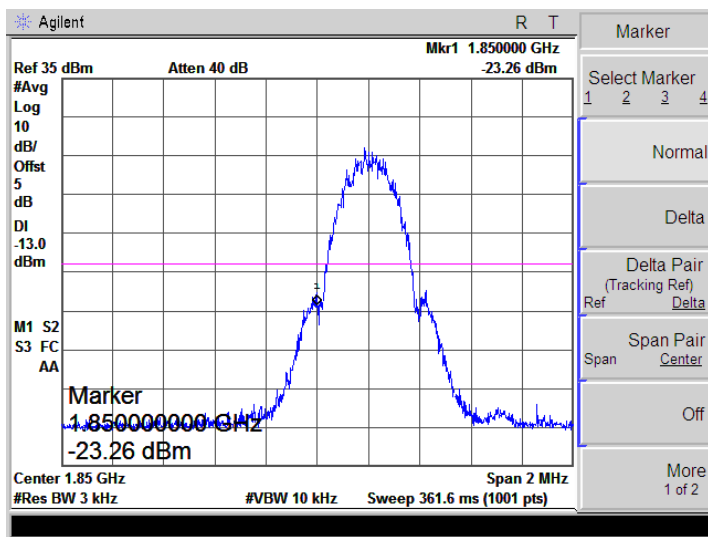
PCS1900
(GMSK)-Middle



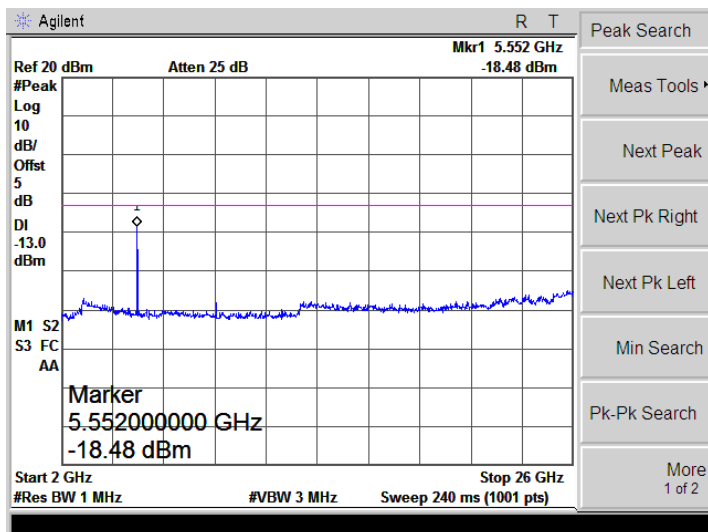
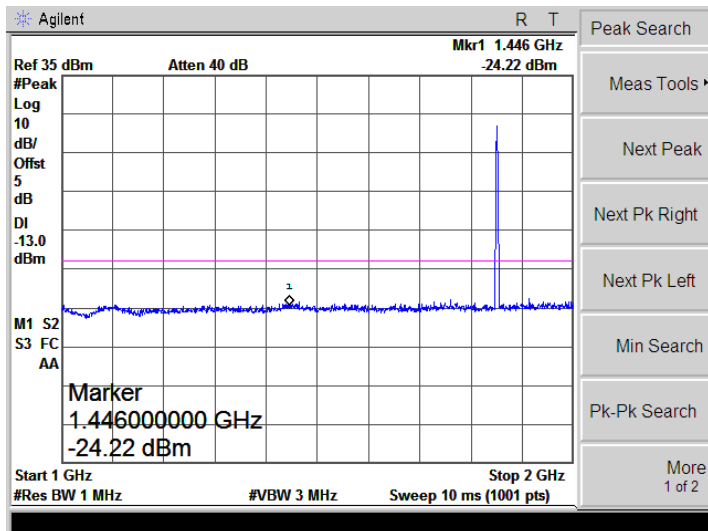
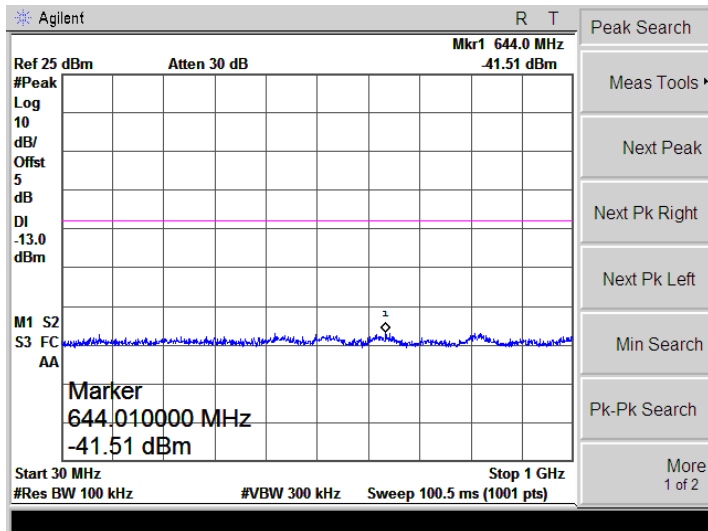
PCS1900
(GMSK)-High



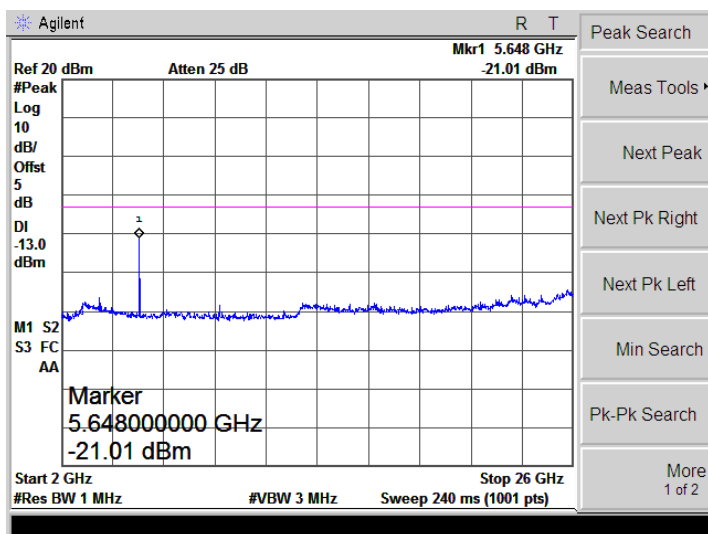
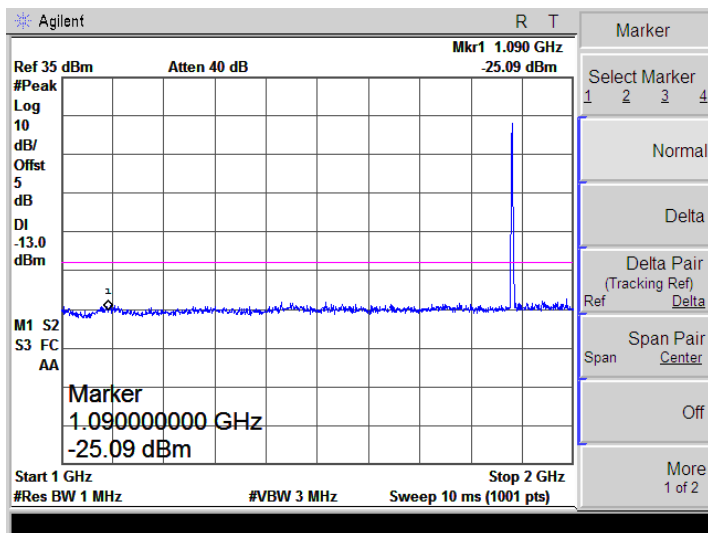
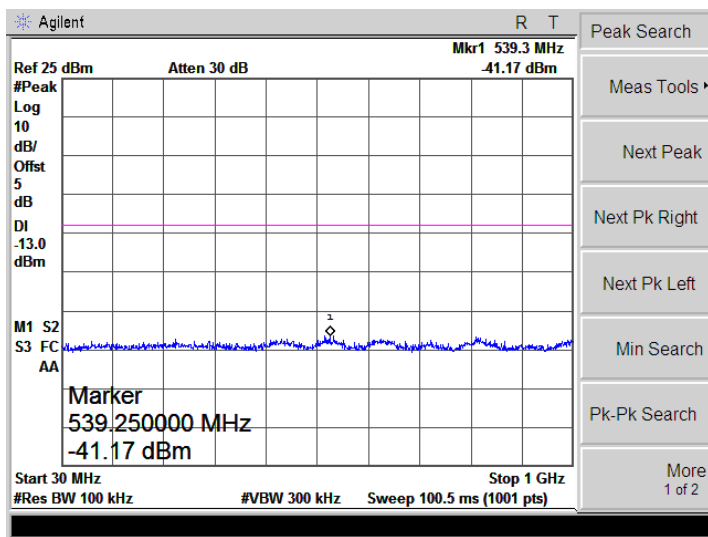
Bandedge



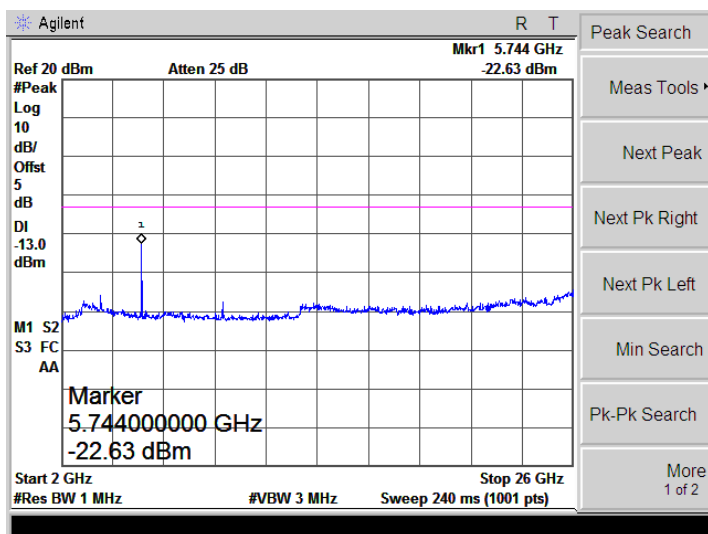
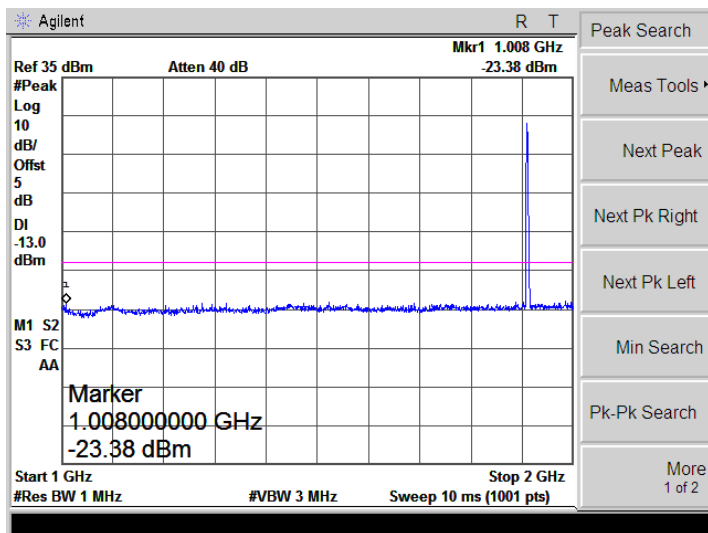
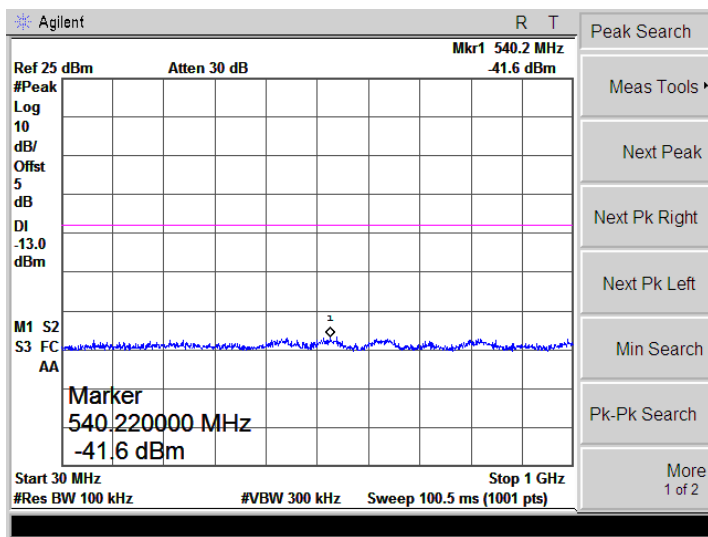
GPRS1900
(GMSK,1Slot)-Low



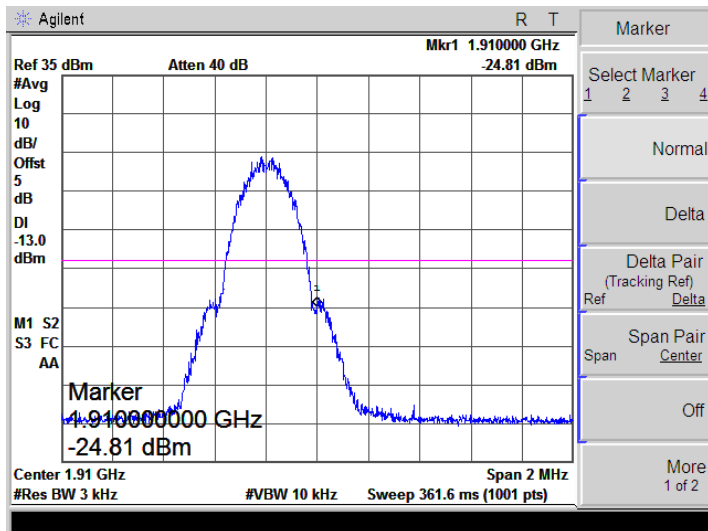
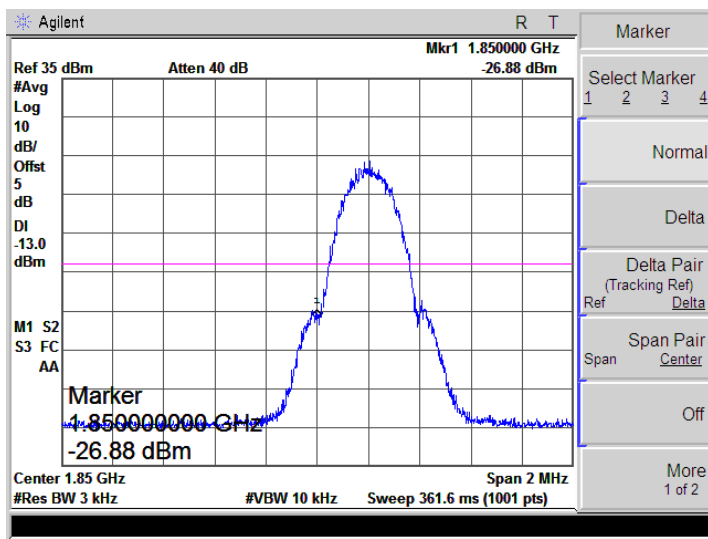
GPRS1900
(GMSK,1Slot)-Middle



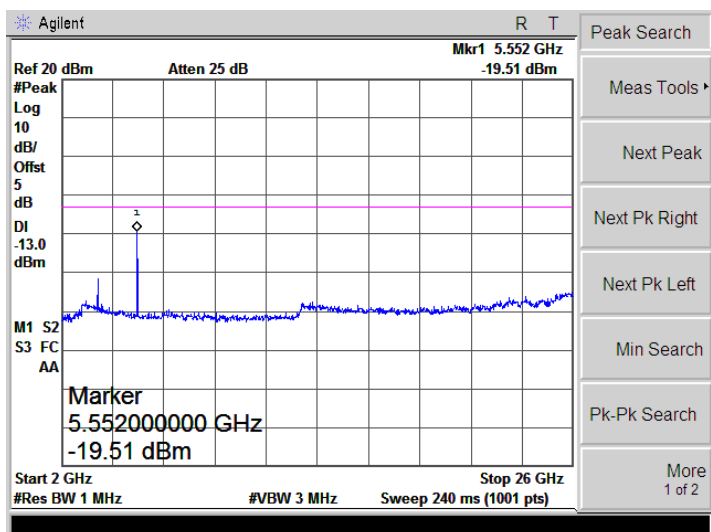
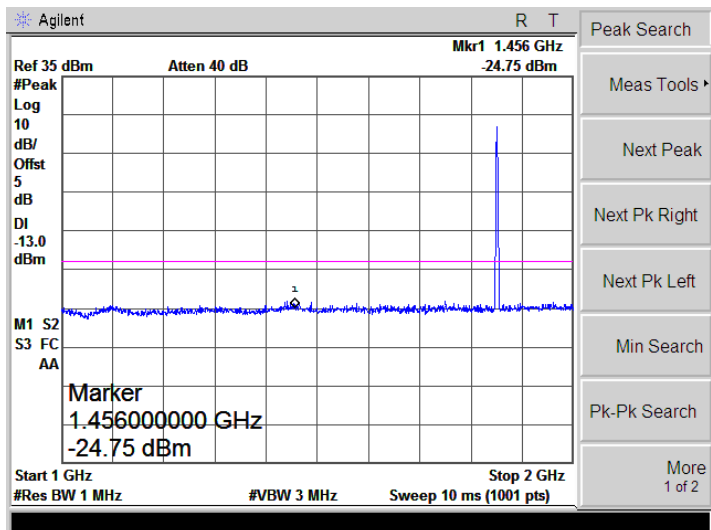
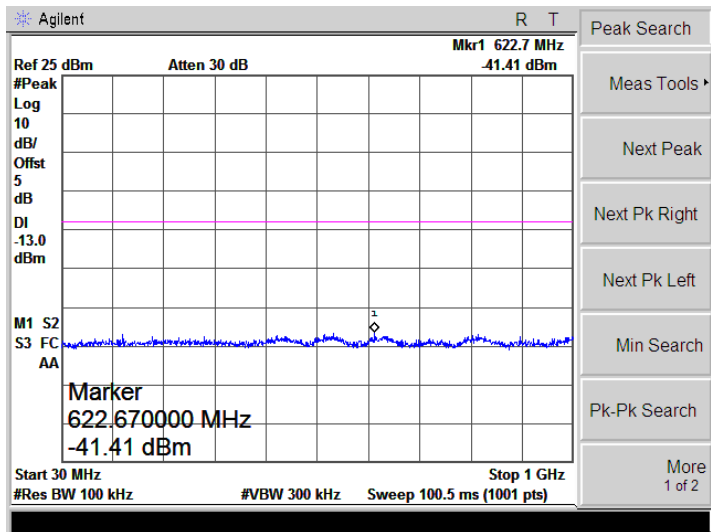
GPRS1900
(GMSK, 1Slot)-High



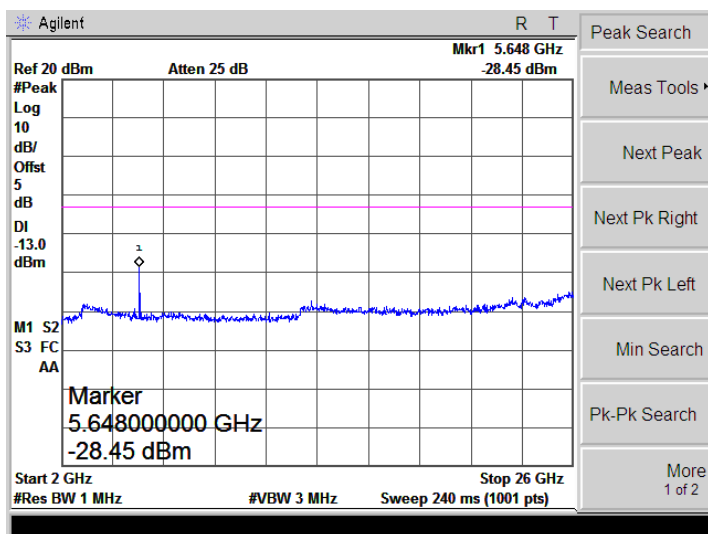
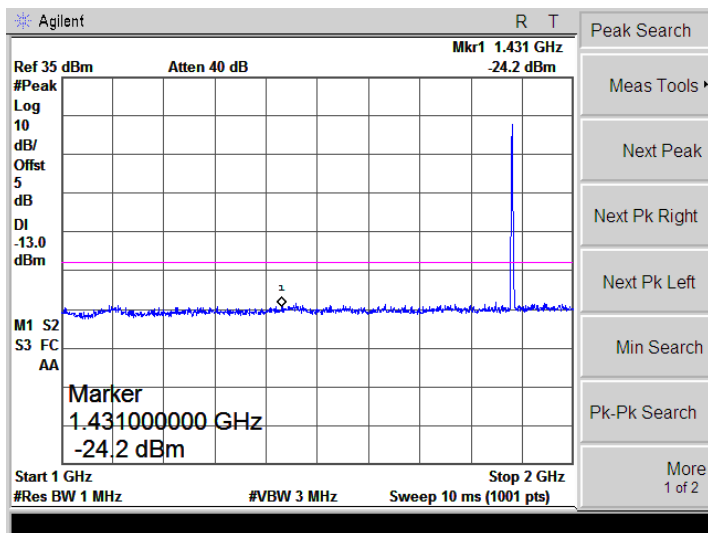
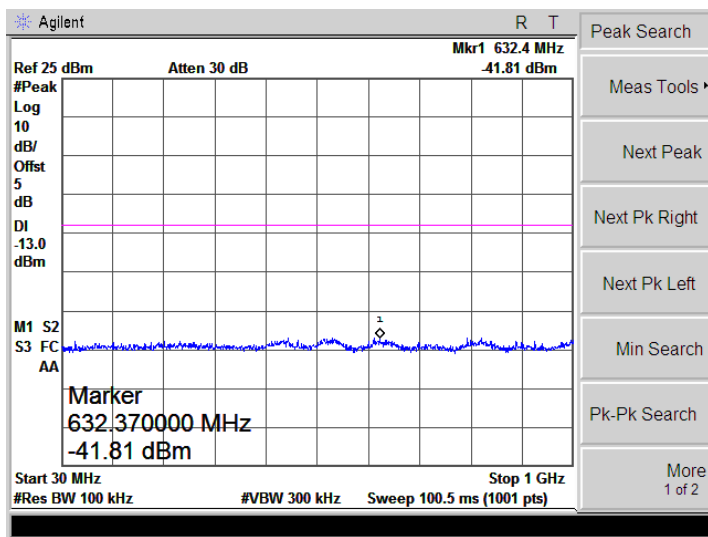
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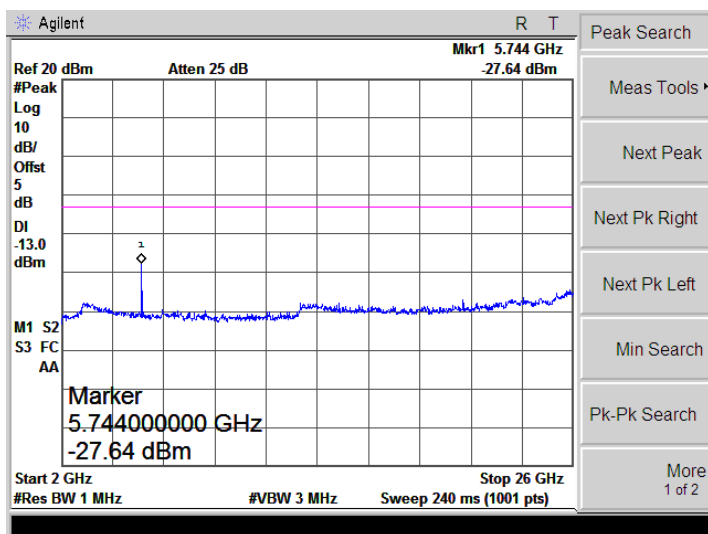
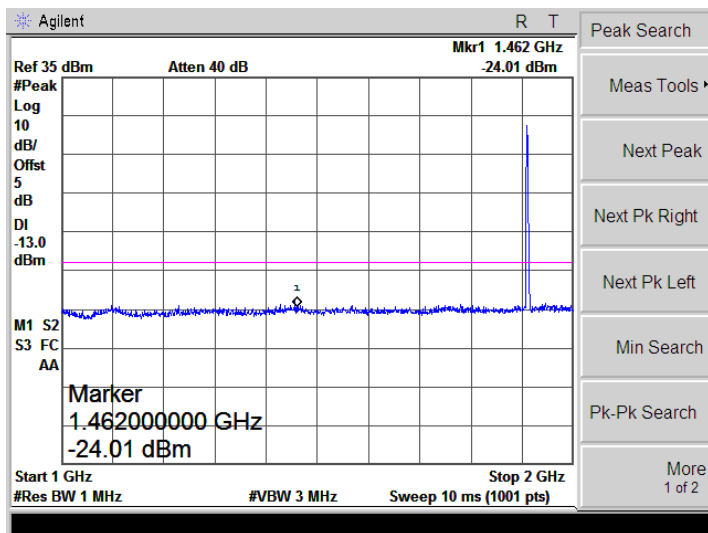
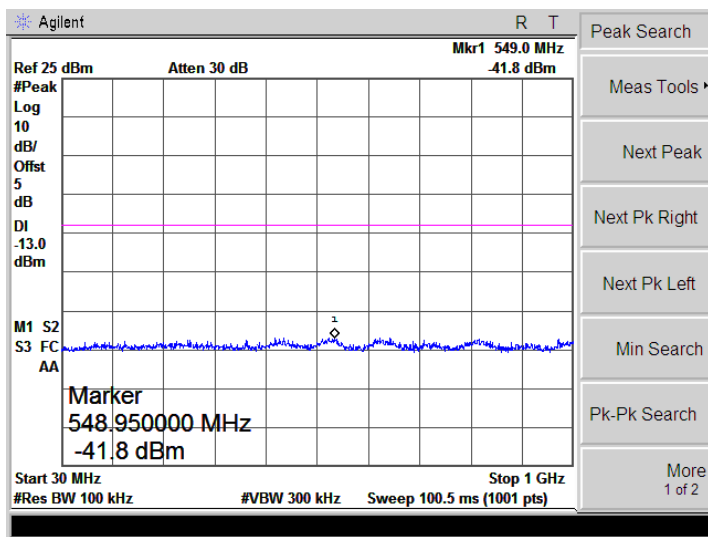
EGPRS1900
(8PSK,1Slot)-Low



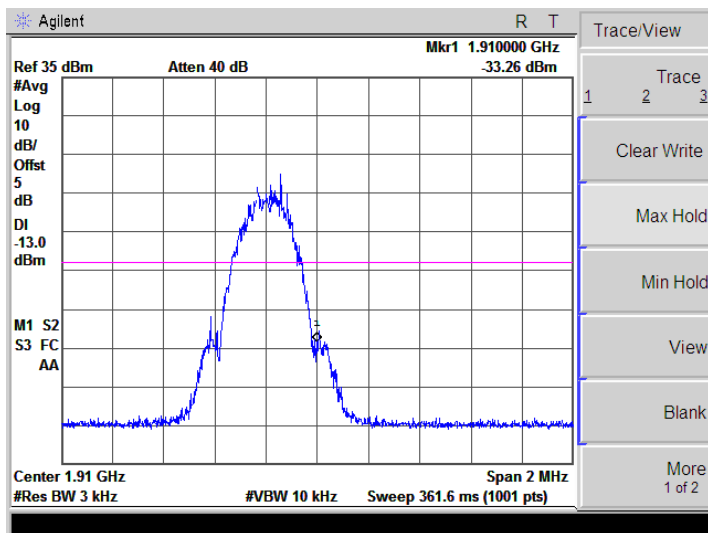
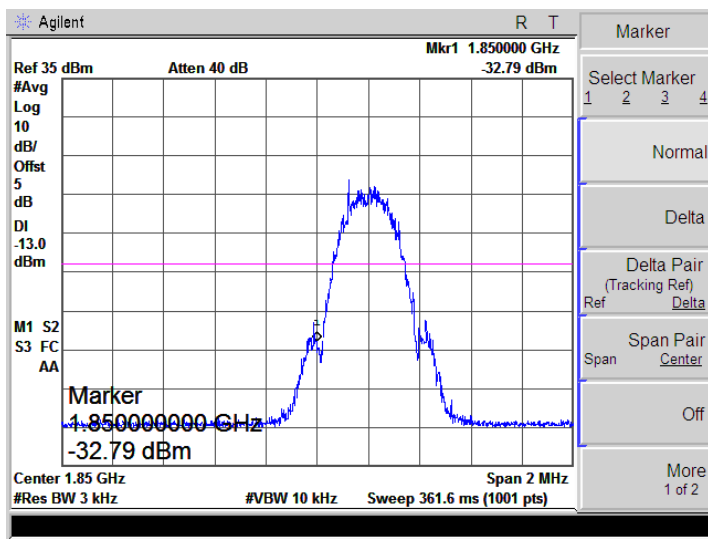
EGPRS1900
(8PSK,1Slot)-Middle



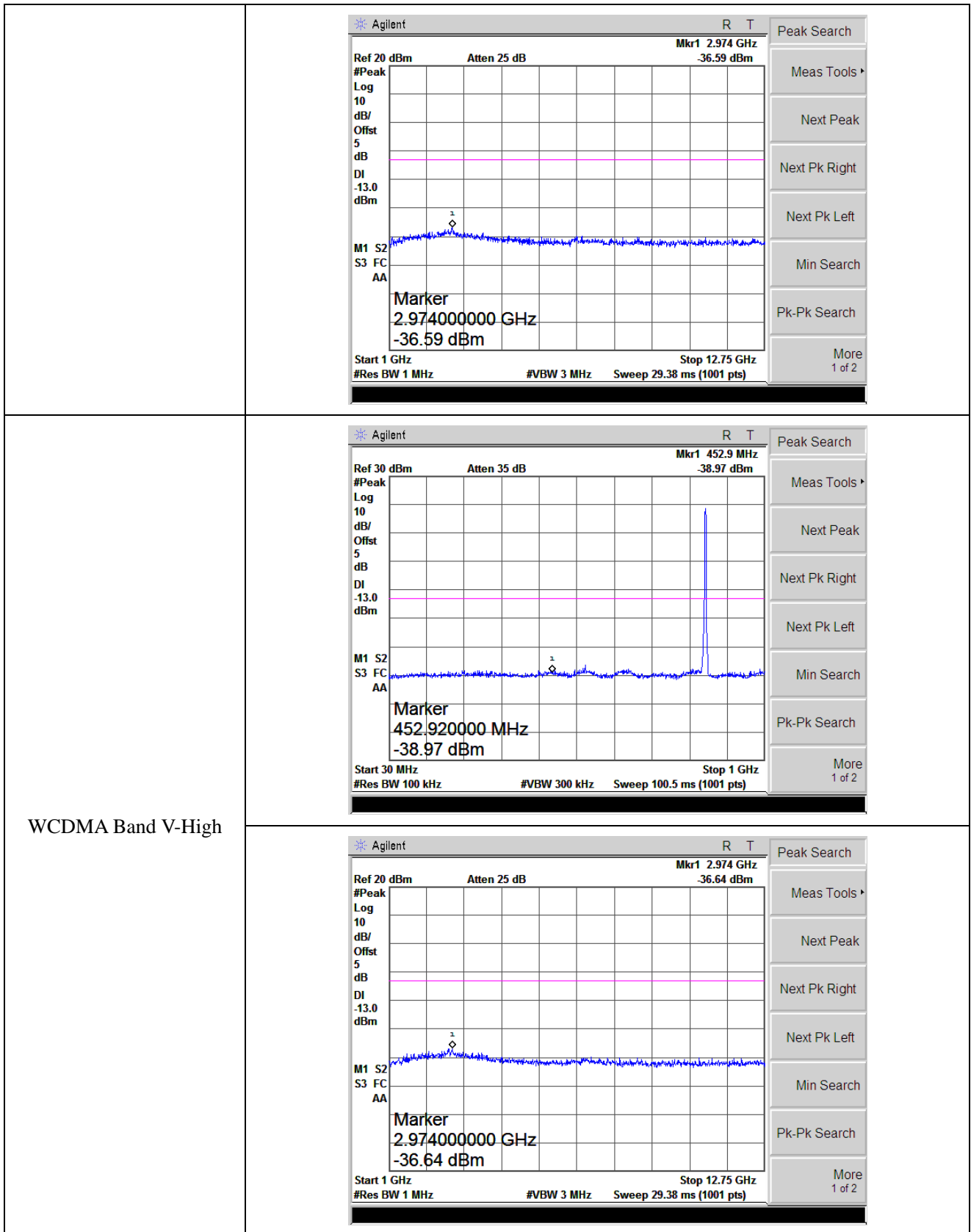
EGPRS1900
(8PSK,1Slot)-High



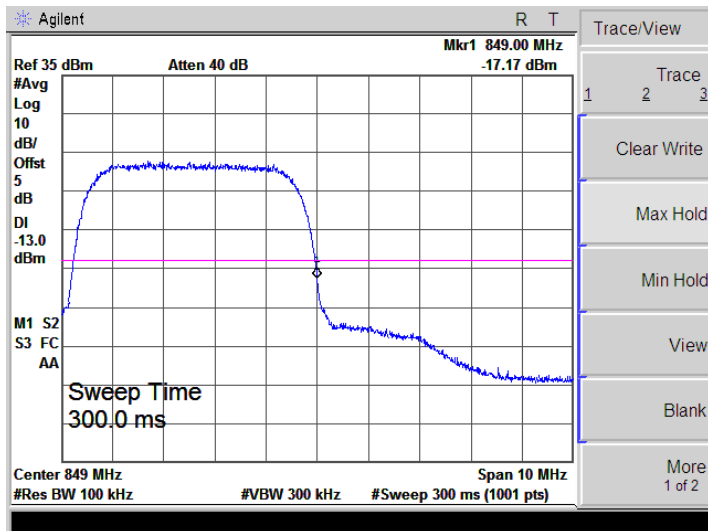
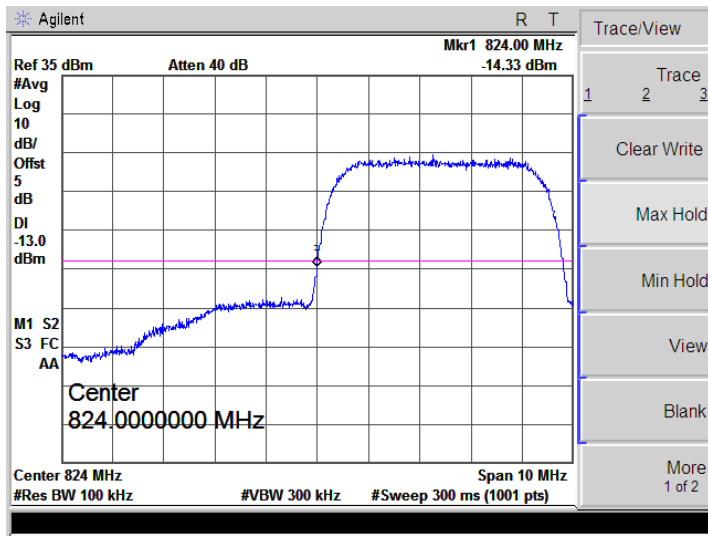
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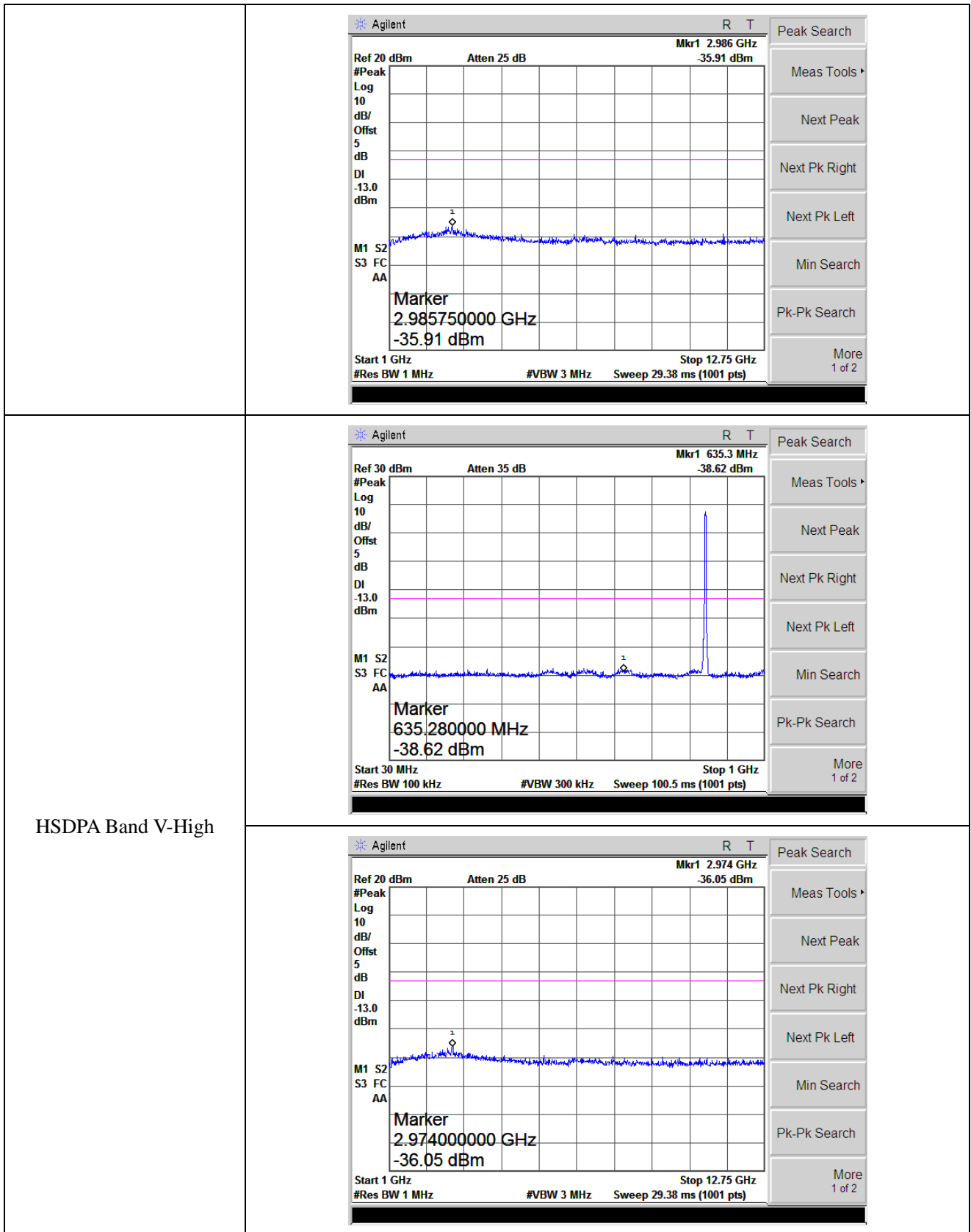
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<p>WCDMA Band V-Middle</p>	
<p>WCDMA Band V-Middle</p>	



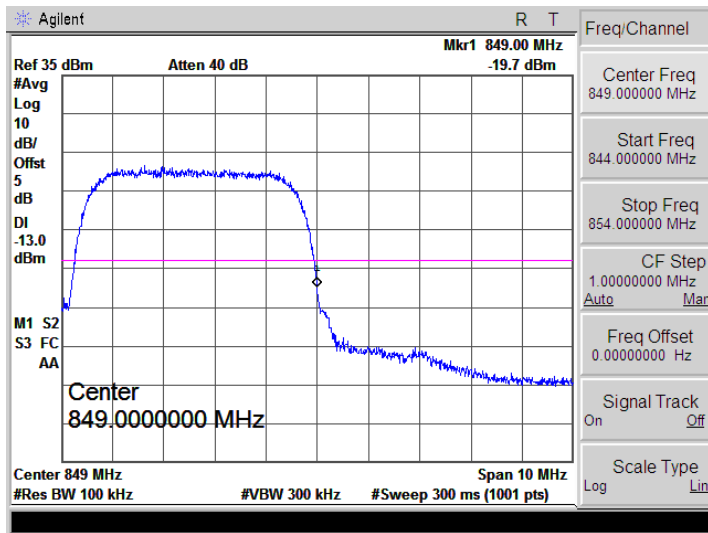
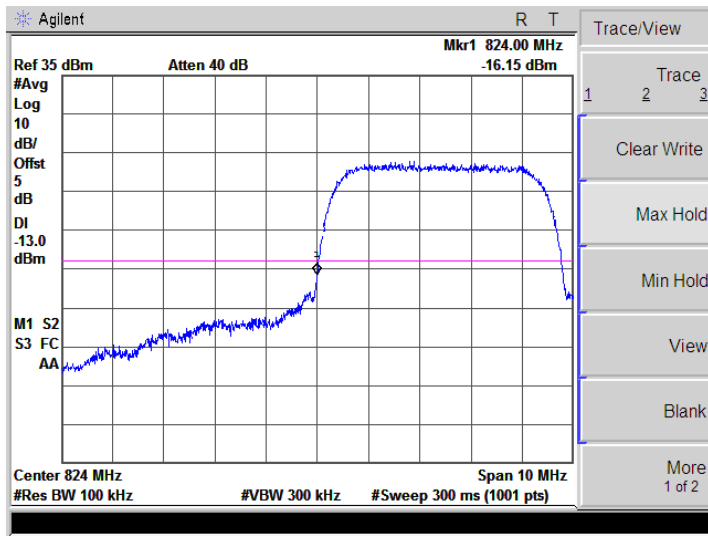
Bandedge



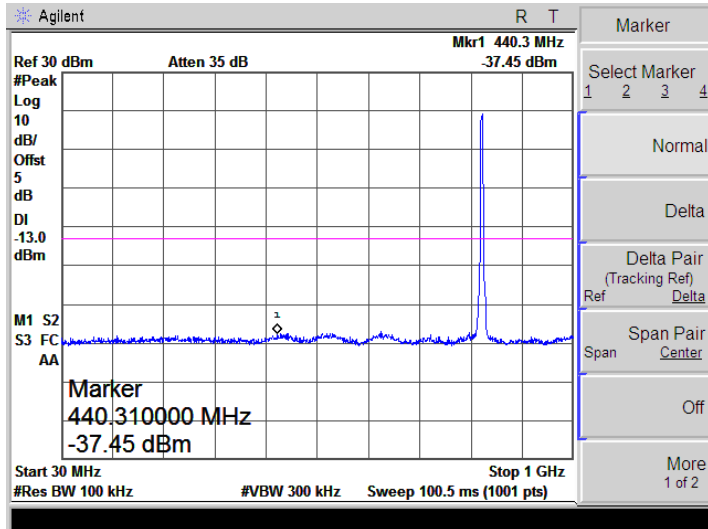
<p>HSDPA Band V-Low</p>	<p>Agilent R T Ref 30 dBm Atten 35 dB Mkr1 634.3 MHz -37.29 dBm #Peak 10 dB/ 5 Offst dB DI -13.0 dBm M1 S2 S3 FC AA Marker 634.310000 MHz -37.29 dBm Start 30 MHz Stop 1 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 100.5 ms (1001 pts)</p>
	<p>Agilent R T Ref 20 dBm Atten 25 dB Mkr1 2.880 GHz -37.03 dBm #Peak 10 dB/ 5 Offst dB DI -13.0 dBm M1 S2 S3 FC AA Marker 2.880000000 GHz -37.03 dBm Start 1 GHz Stop 12.75 GHz #Res BW 1 MHz #VBW 3 MHz Sweep 29.38 ms (1001 pts)</p>
<p>HSDPA Band V-Middle</p>	<p>Agilent R T Ref 30 dBm Atten 35 dB Mkr1 451.0 MHz -38.57 dBm #Peak 10 dB/ 5 Offst dB DI -13.0 dBm M1 S2 S3 FC AA Marker 450.980000 MHz -38.57 dBm Start 30 MHz Stop 1 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 100.5 ms (1001 pts)</p>



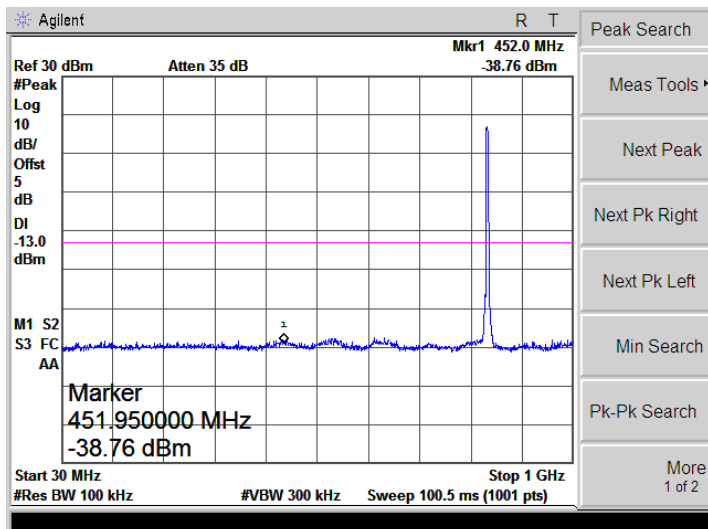
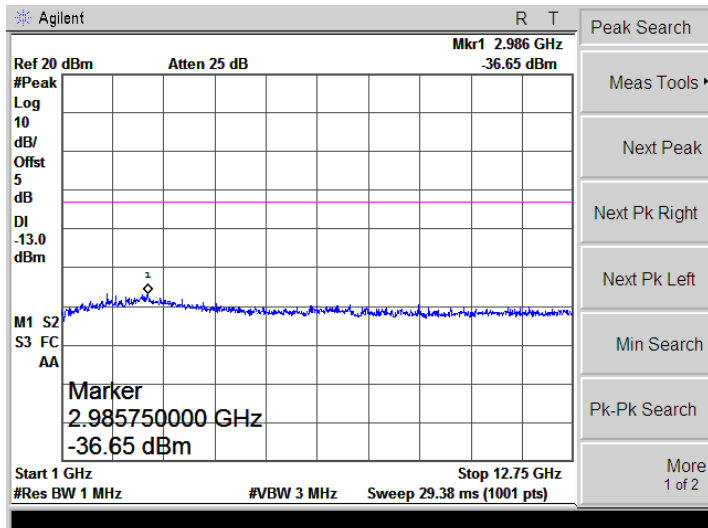
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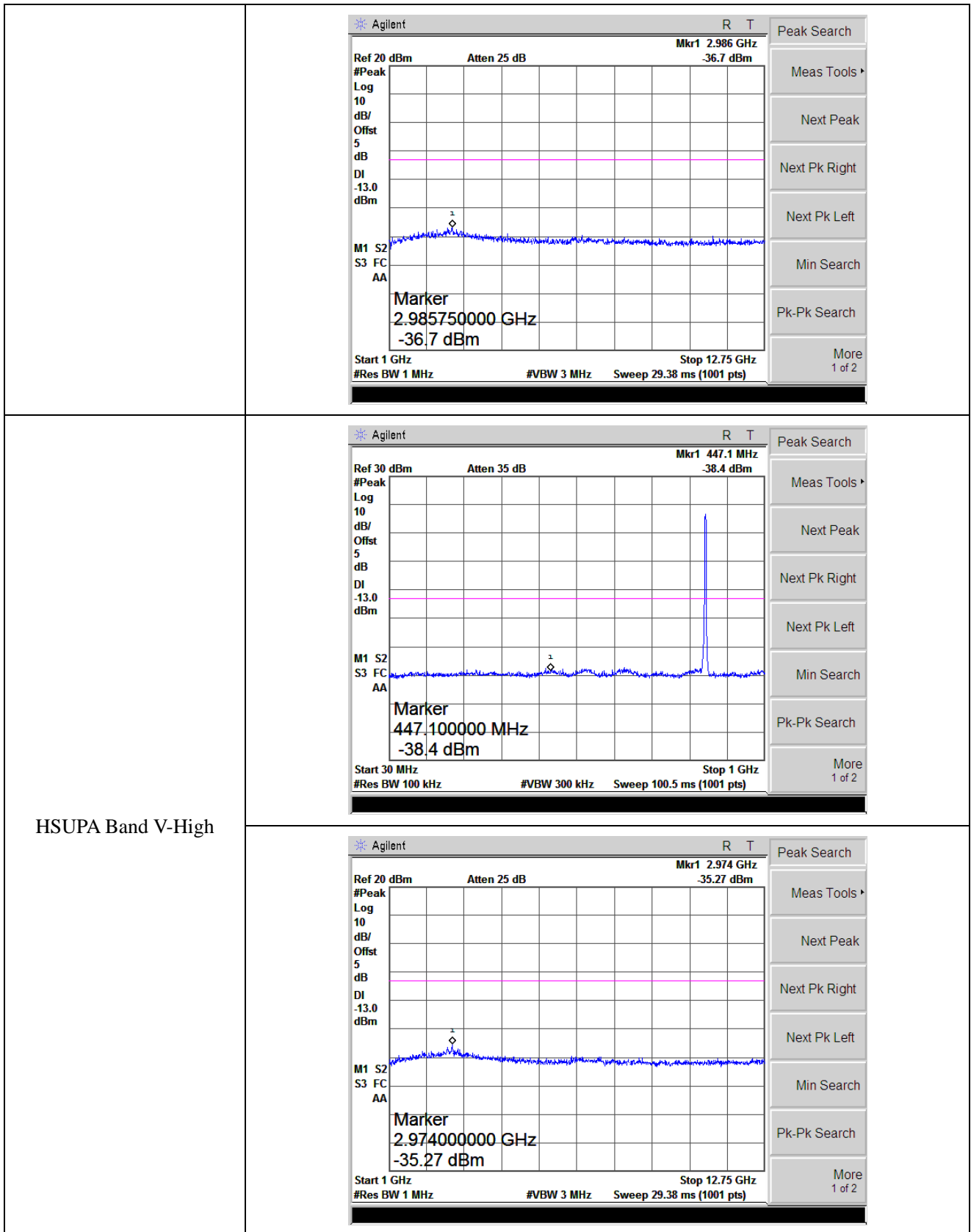


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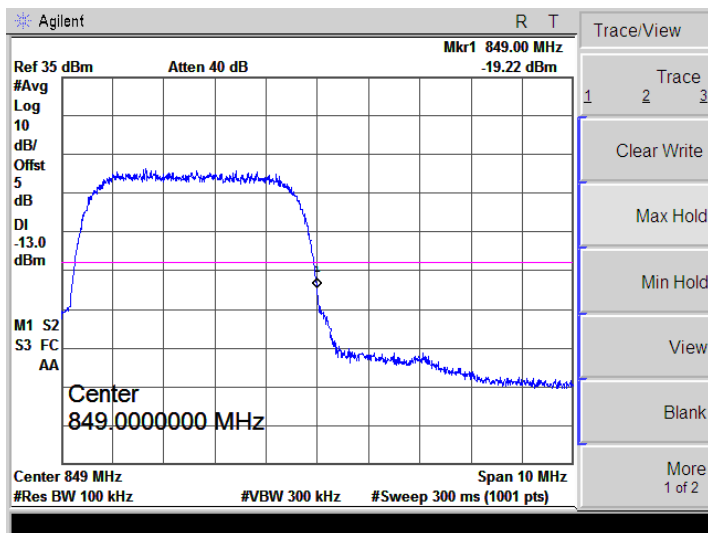
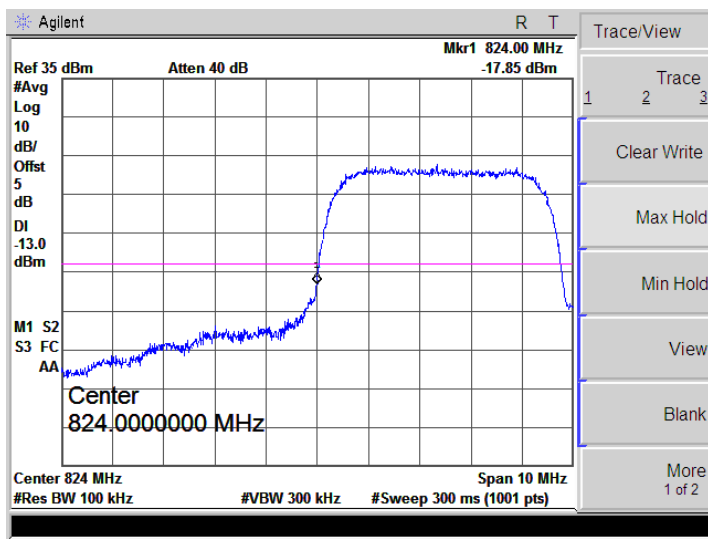


HSUPA Band V-Middle

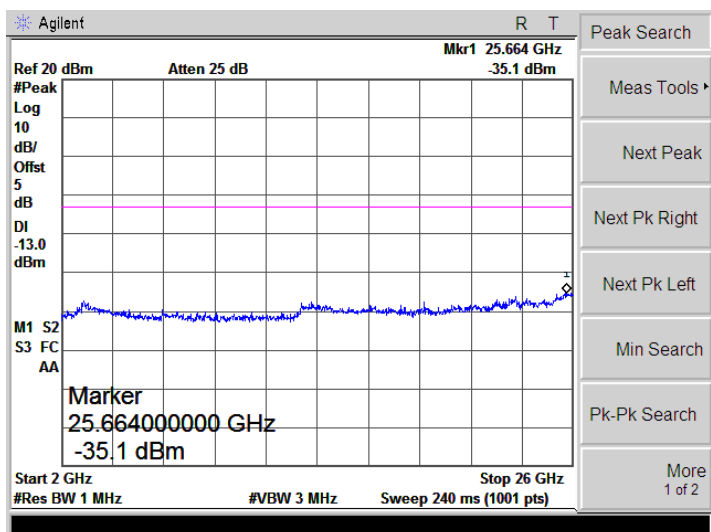
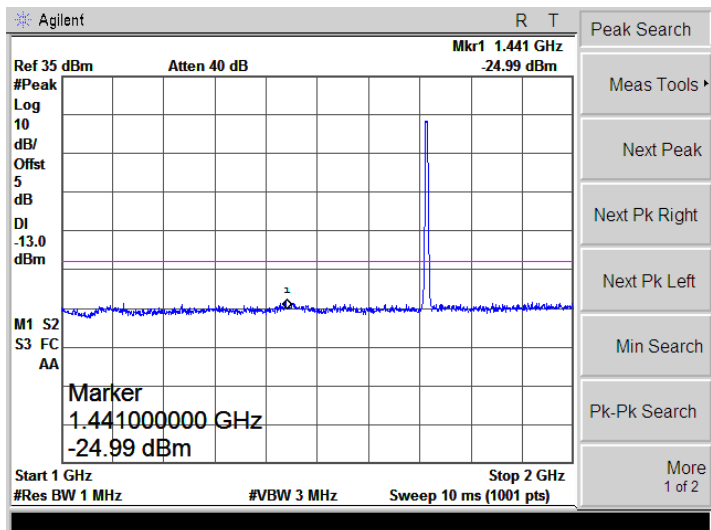
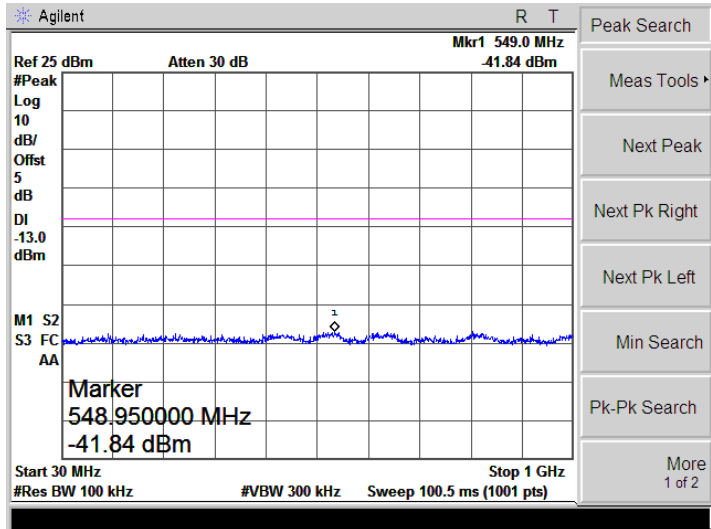


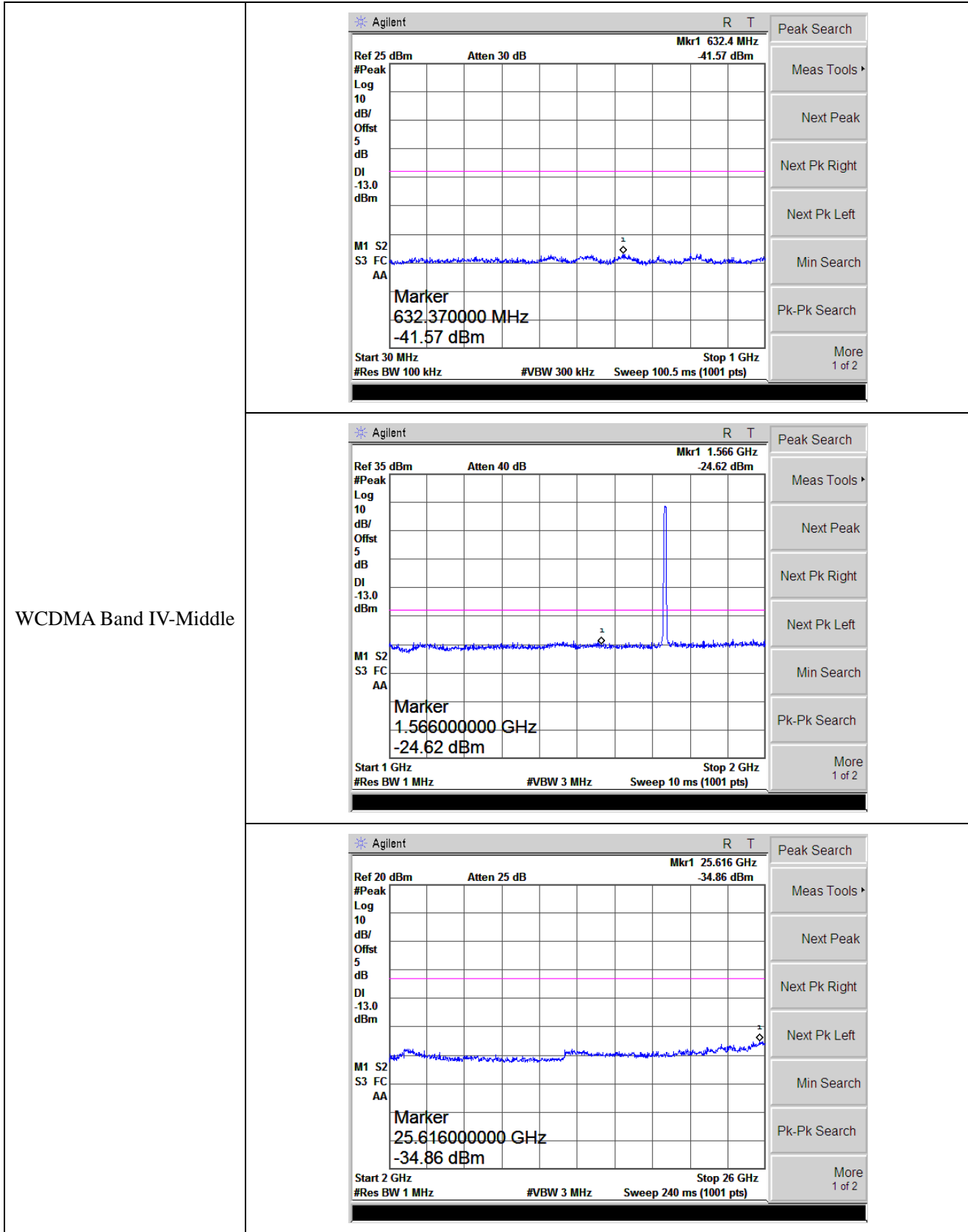


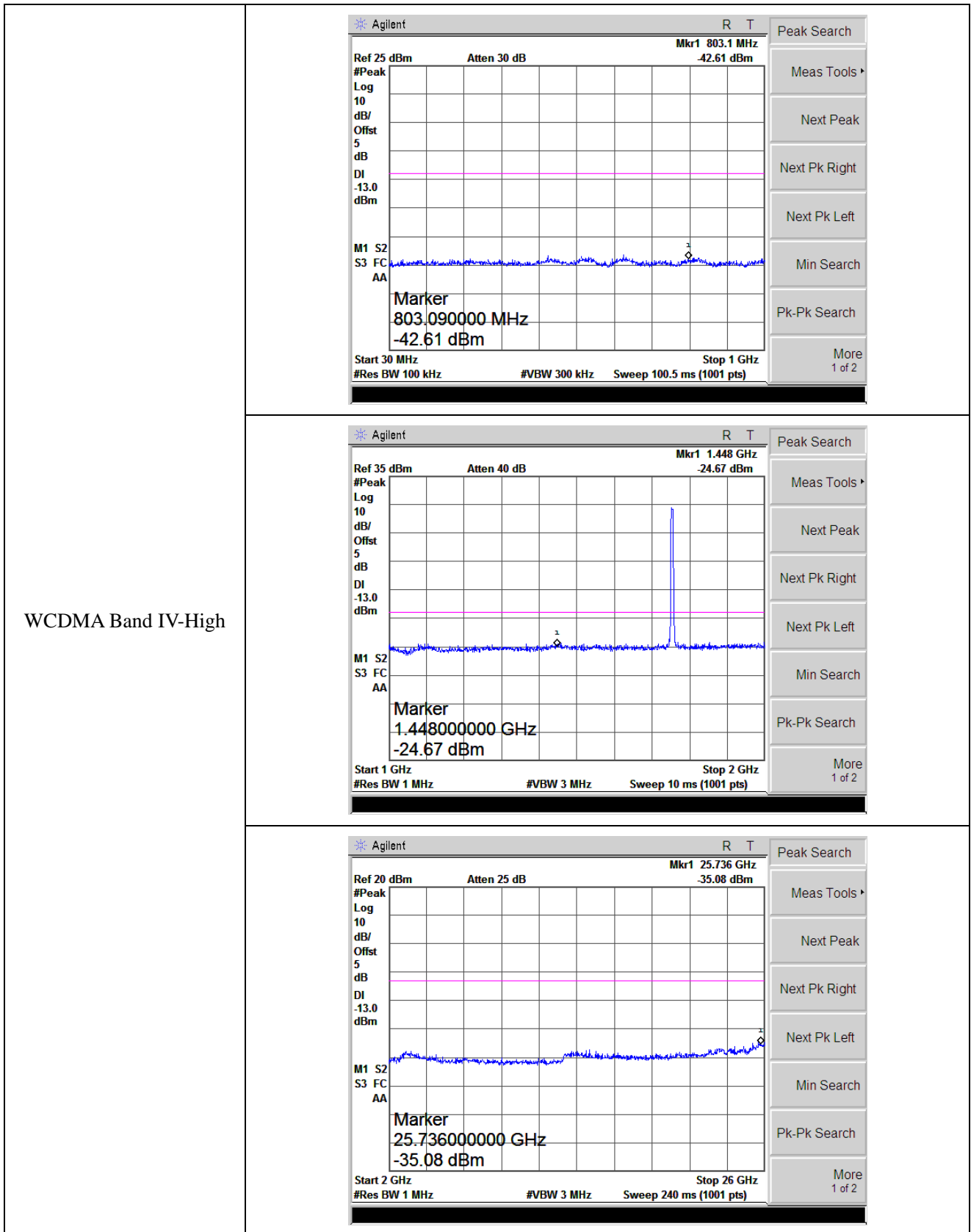
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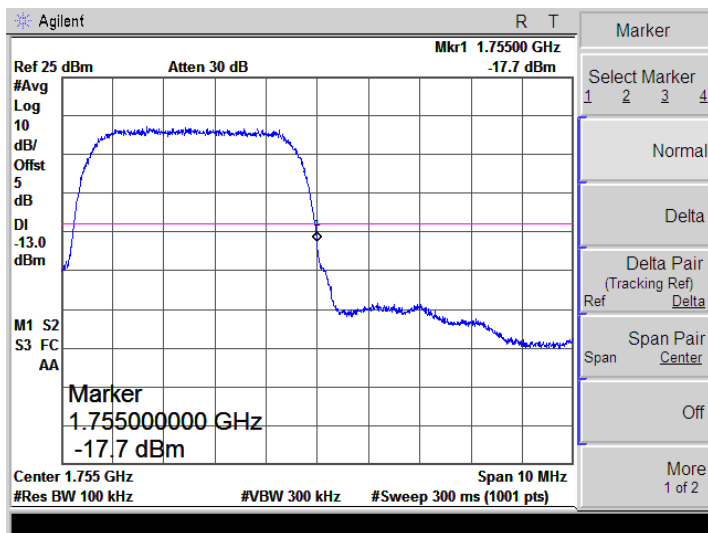
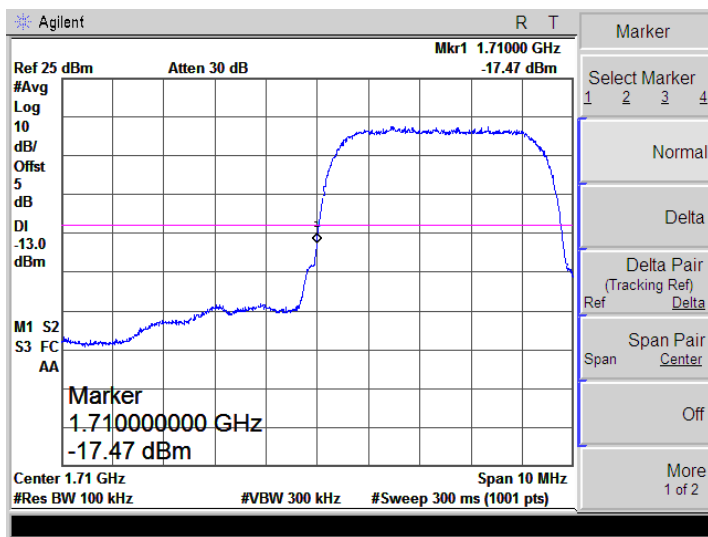
WCDMA Band IV-Low



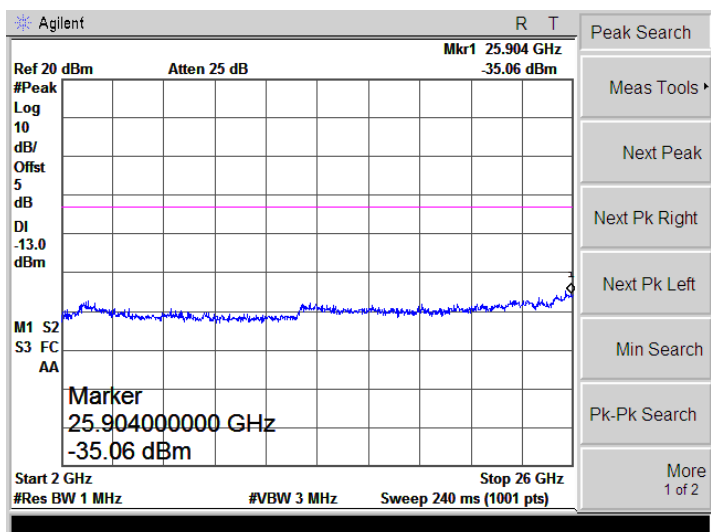
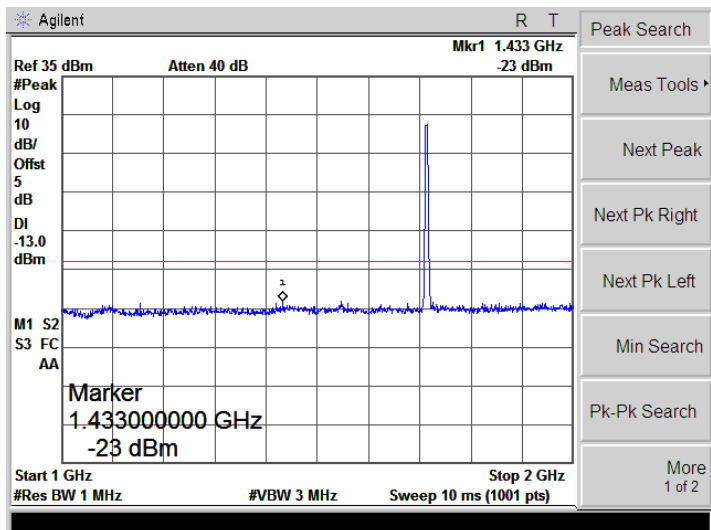
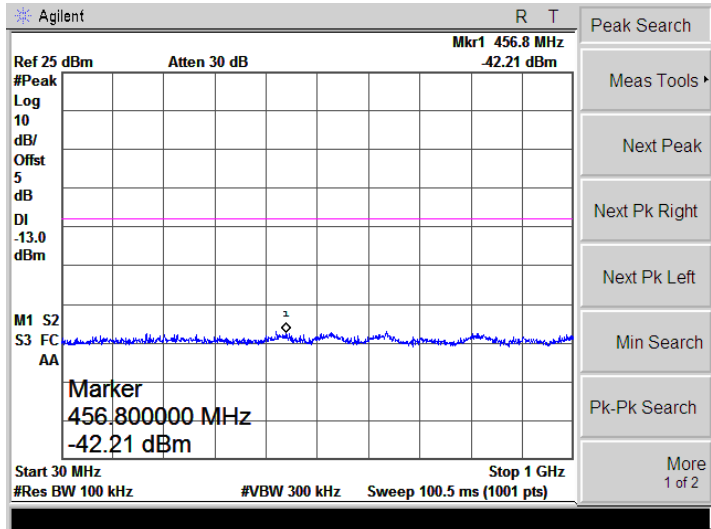


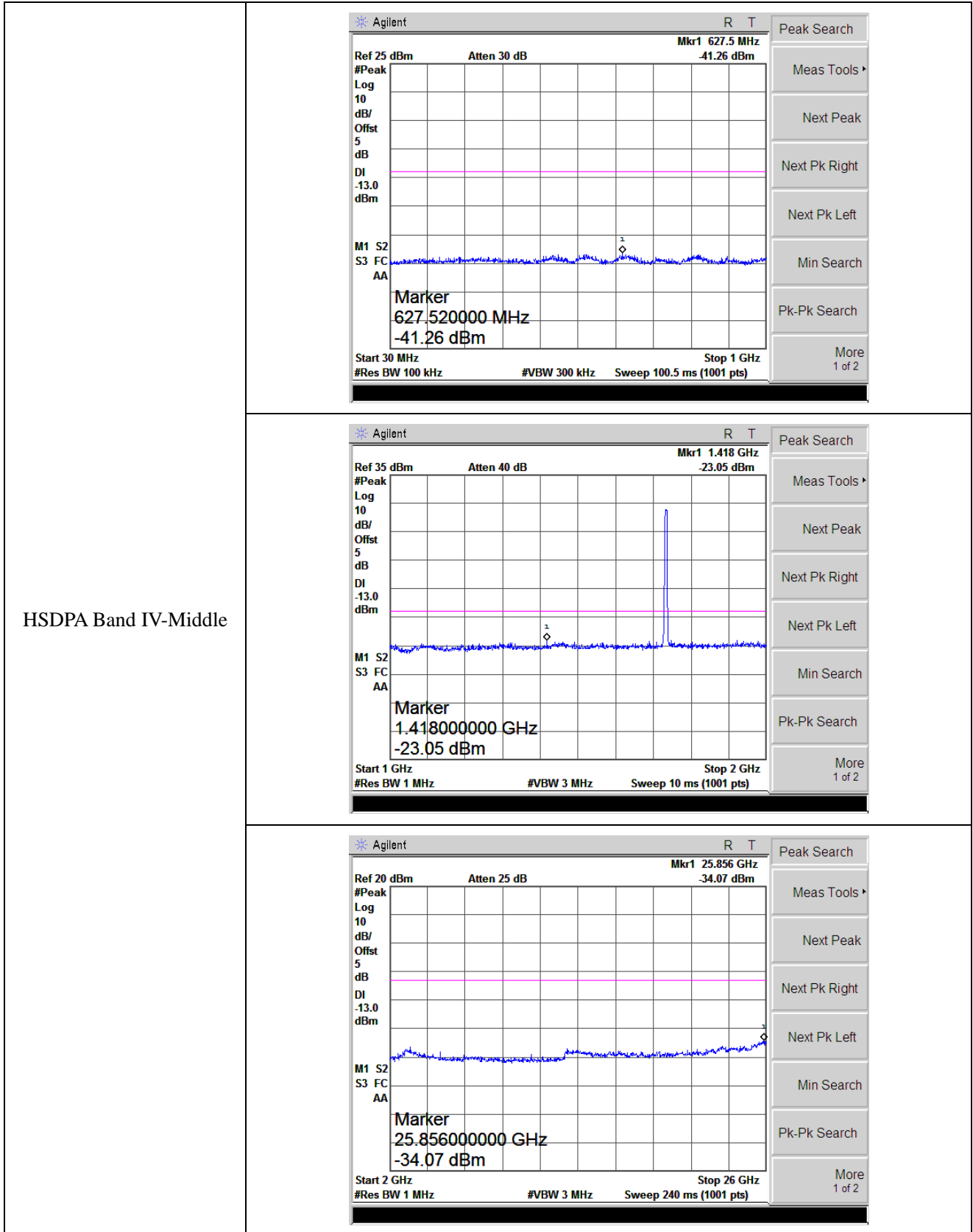


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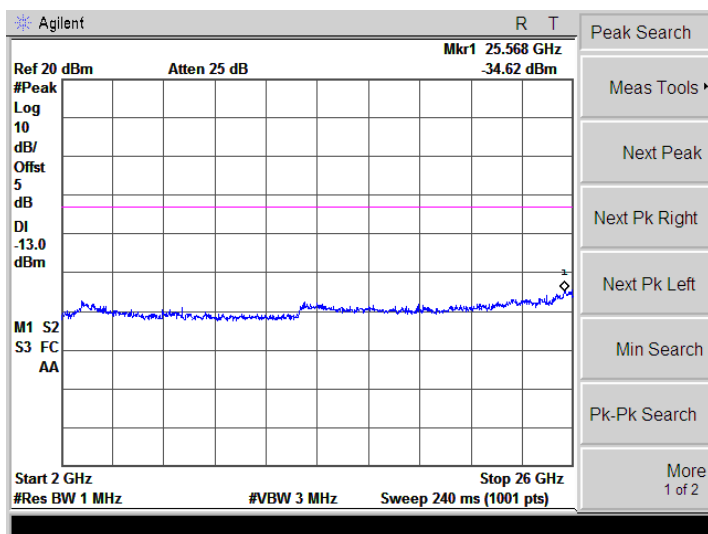
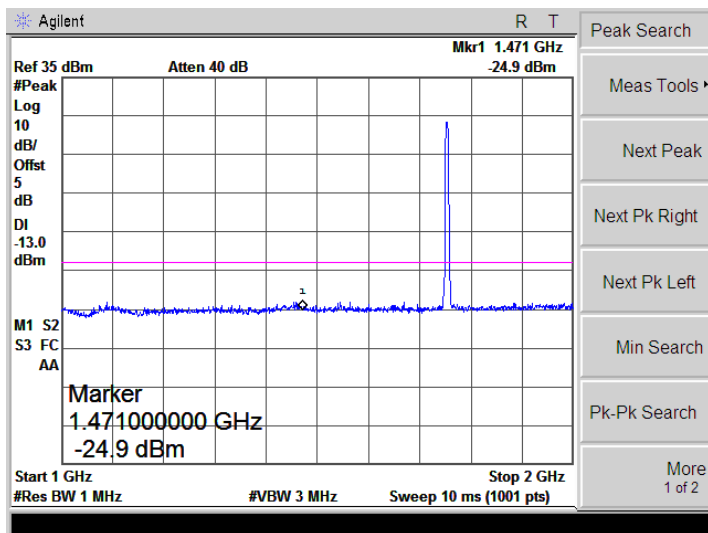
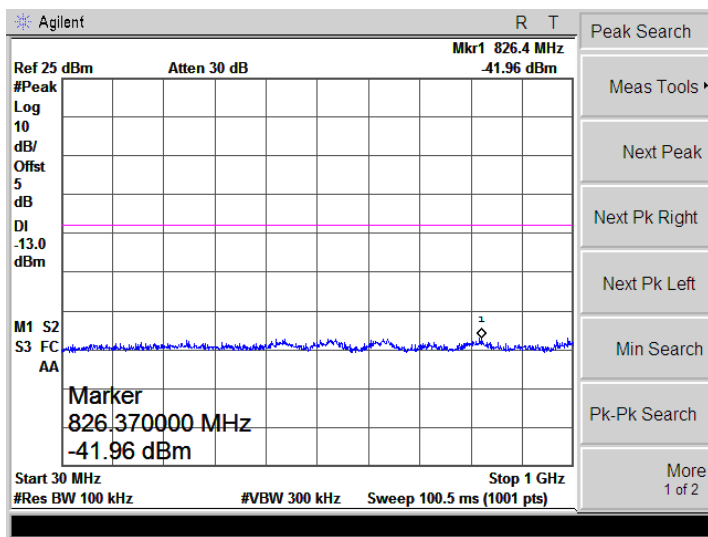


HSDPA Band IV-Low

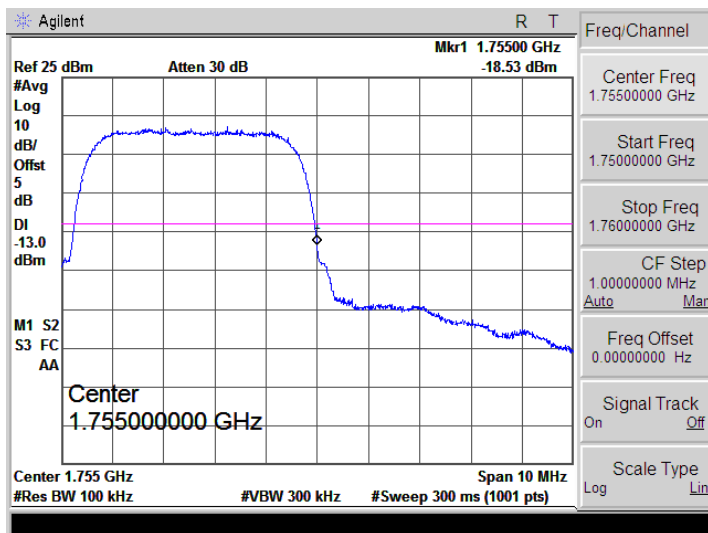
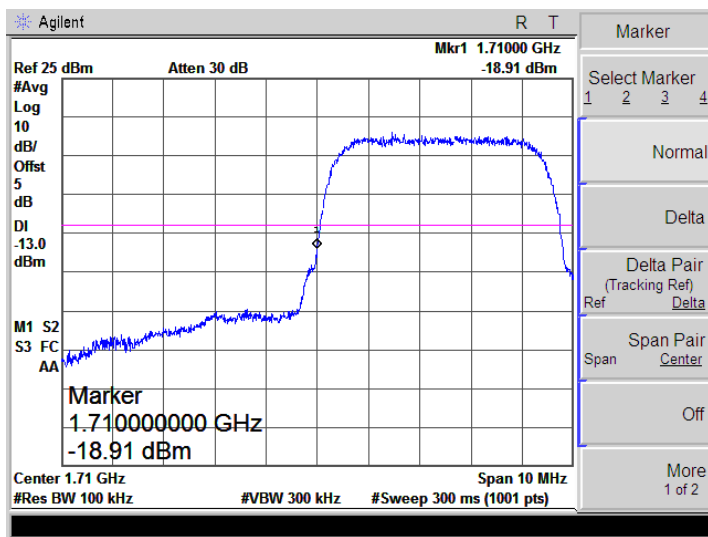




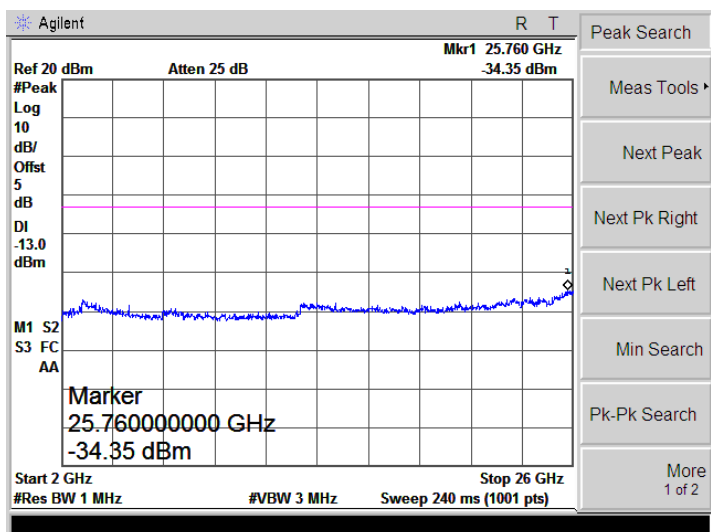
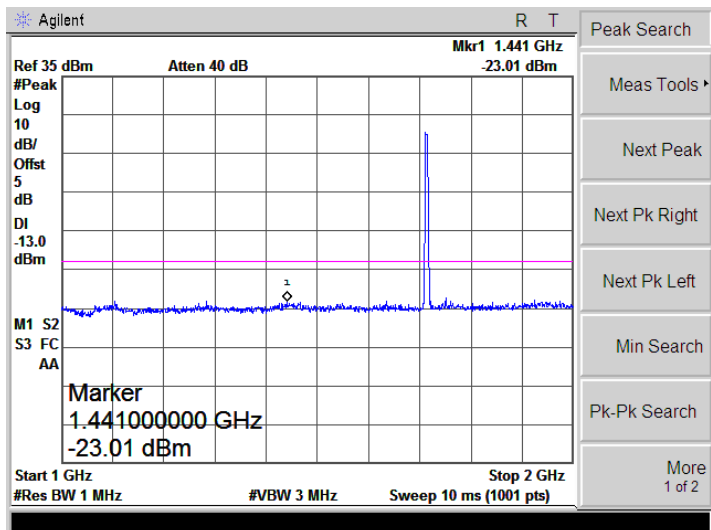
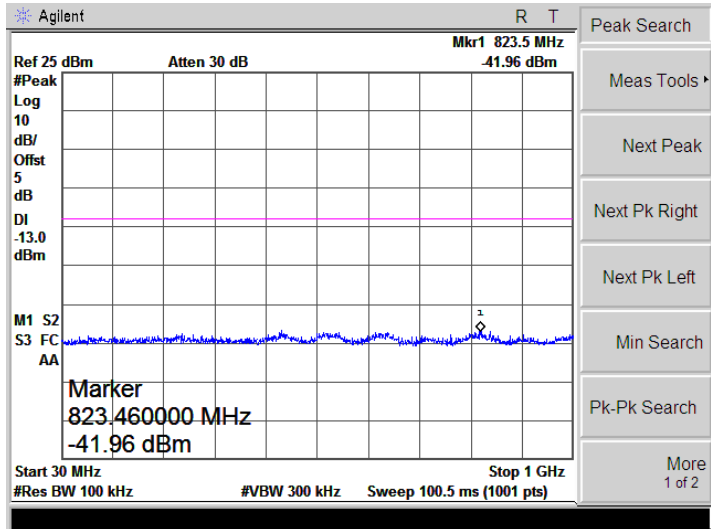
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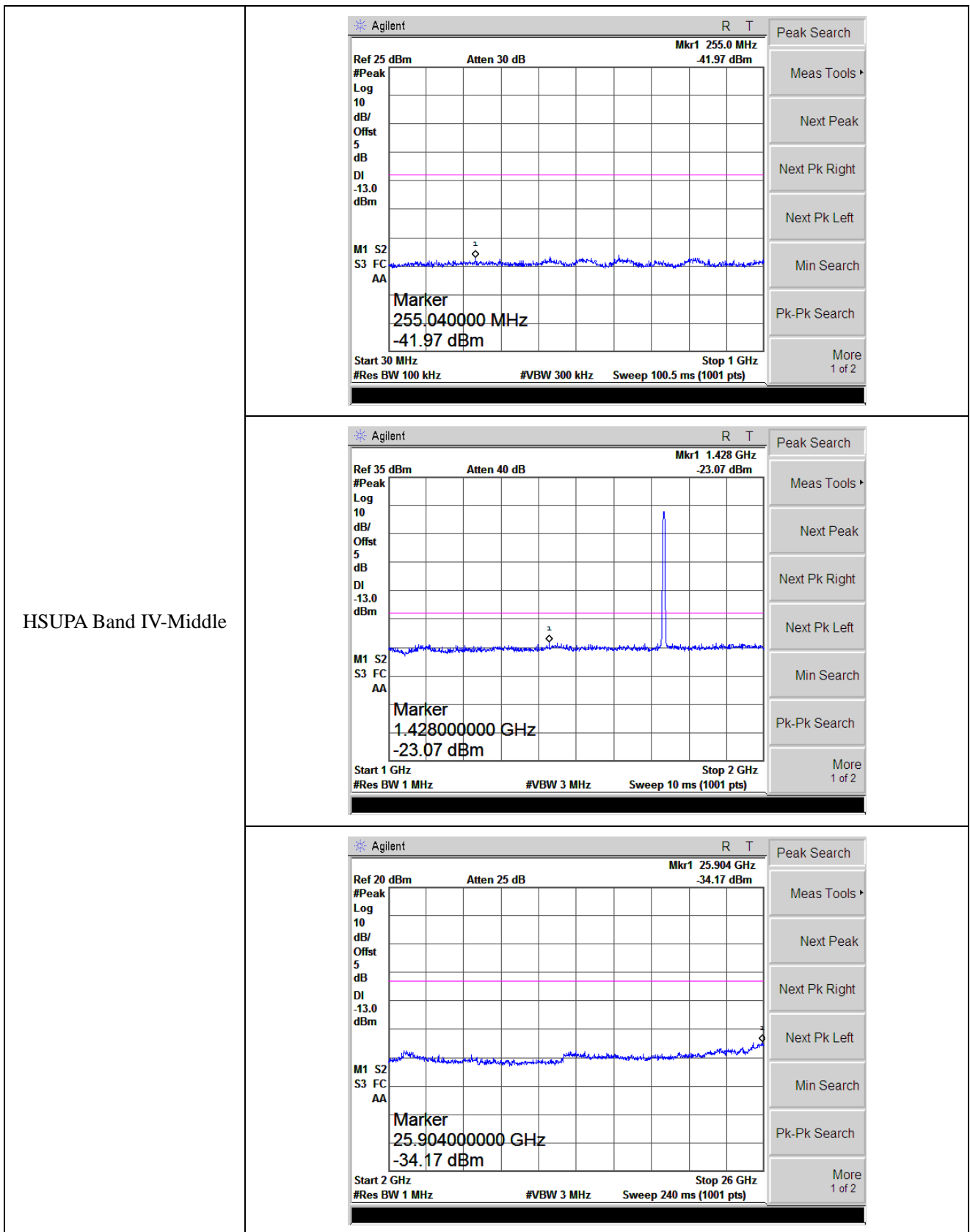


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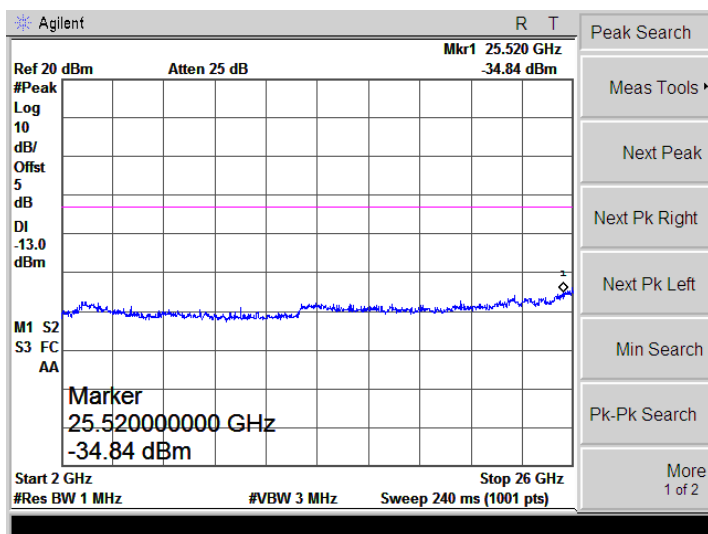
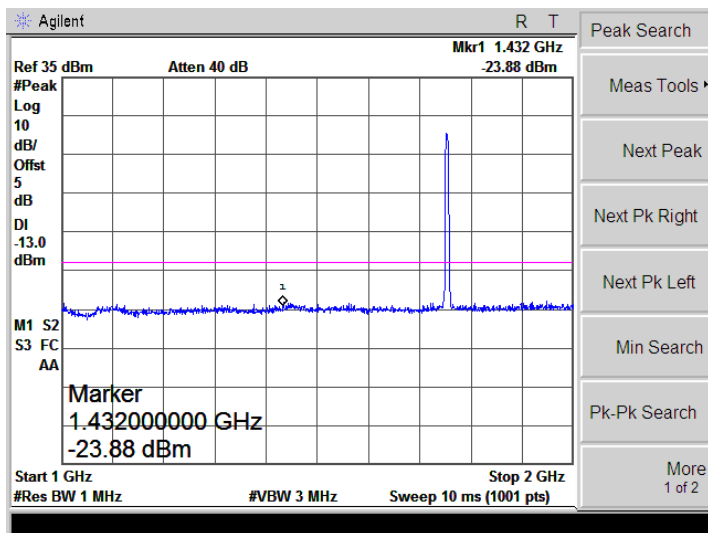
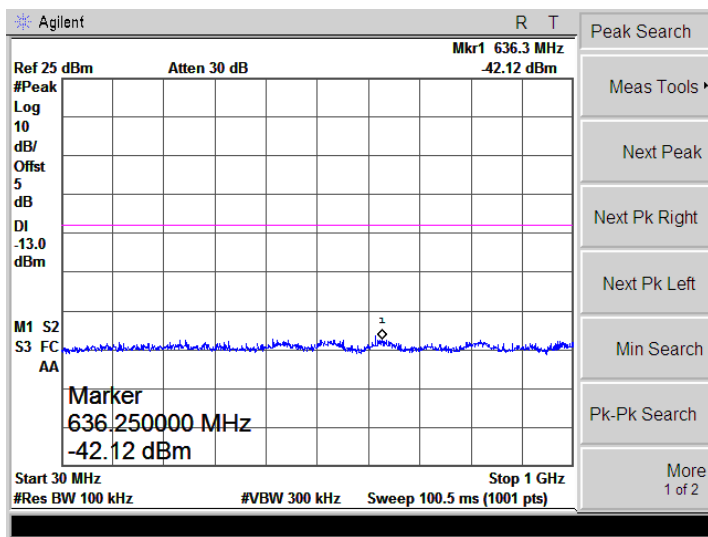


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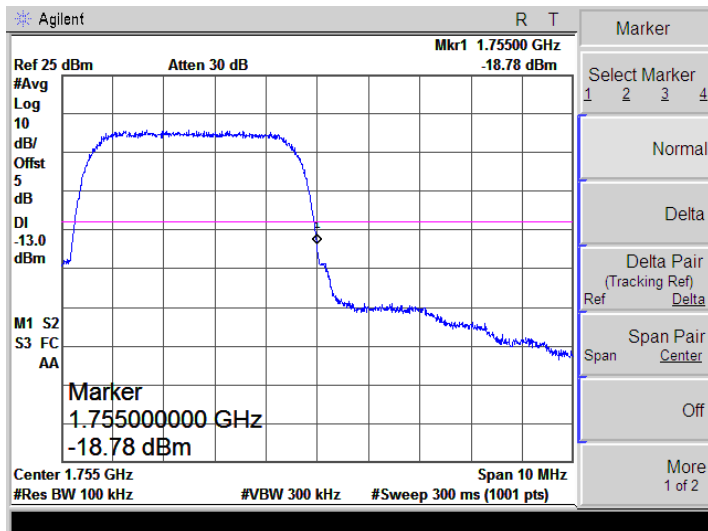
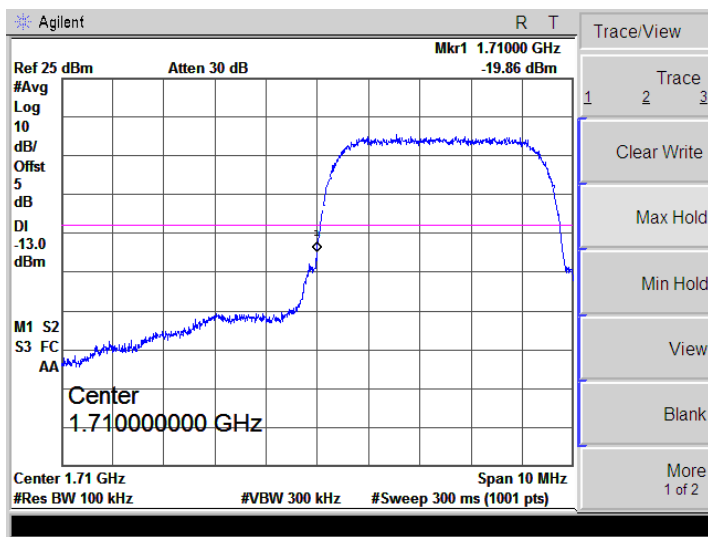




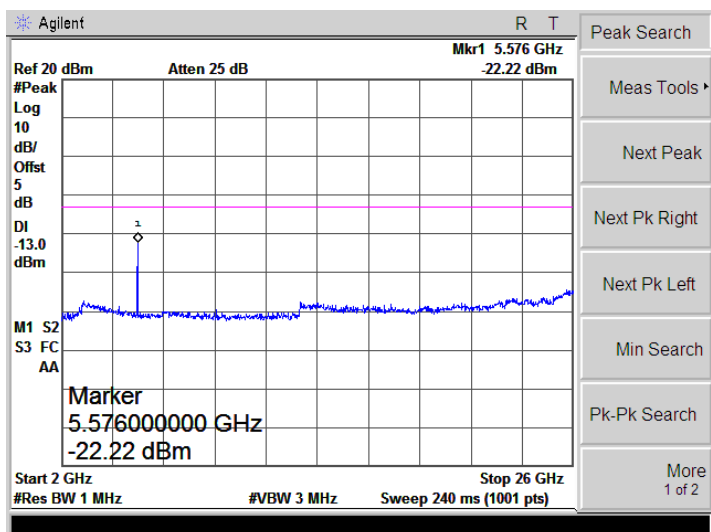
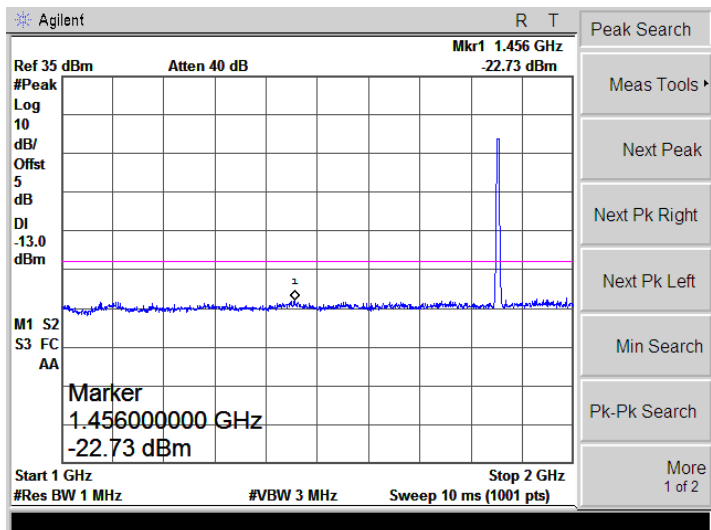
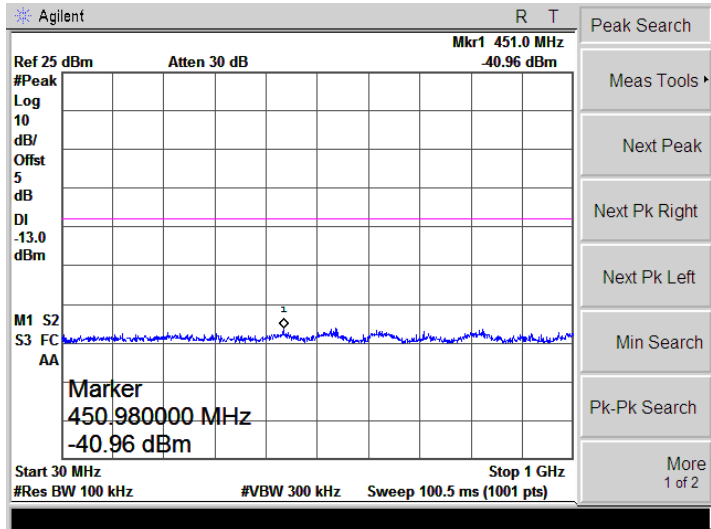
HSUPA Band IV-High



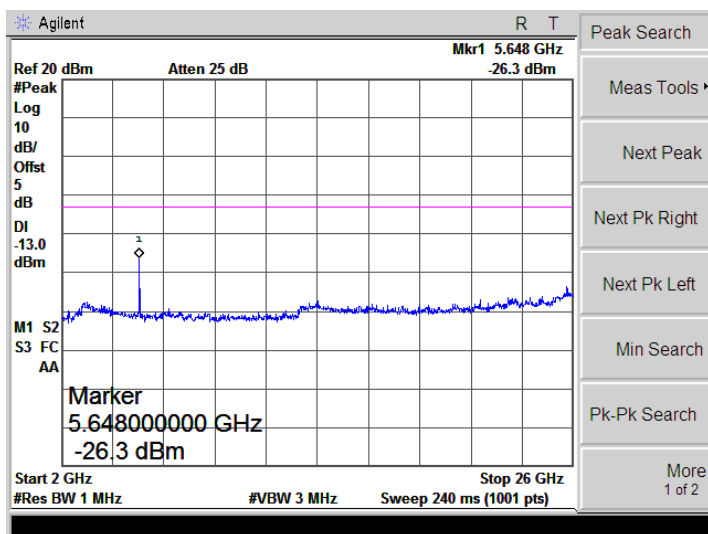
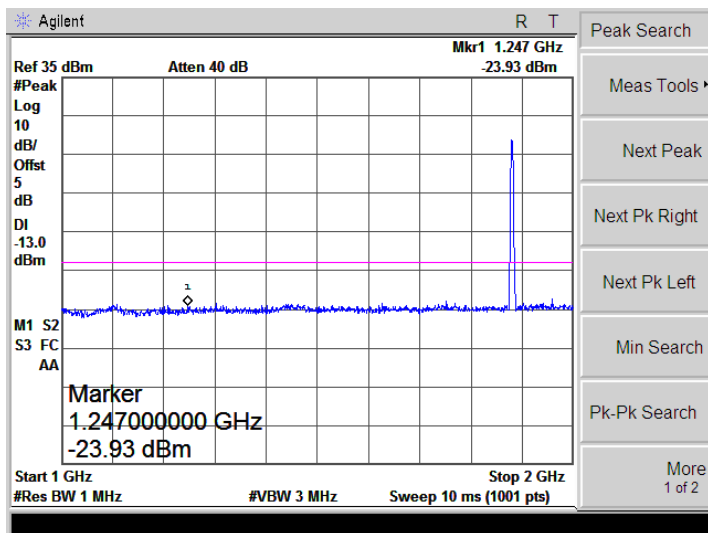
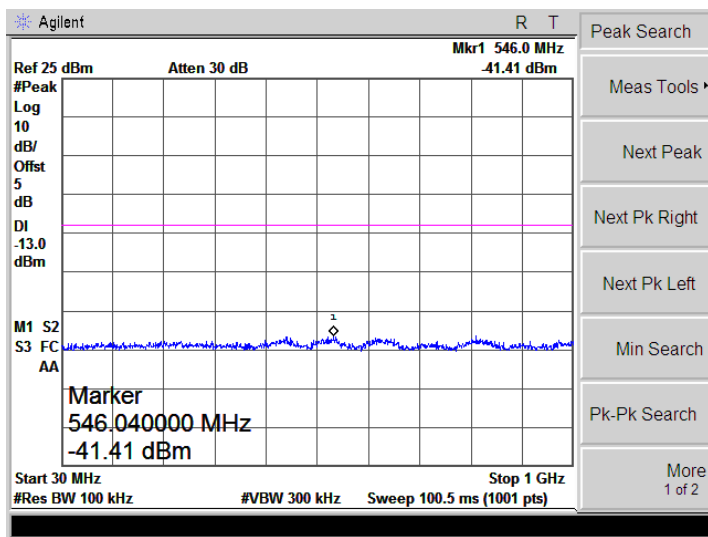
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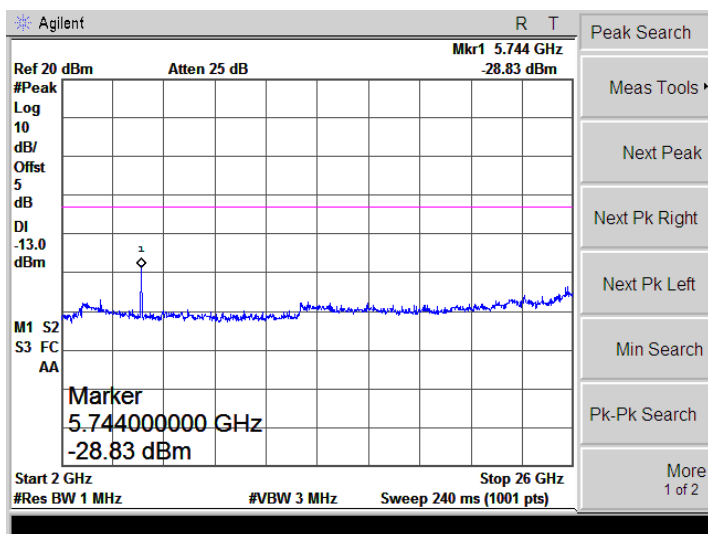
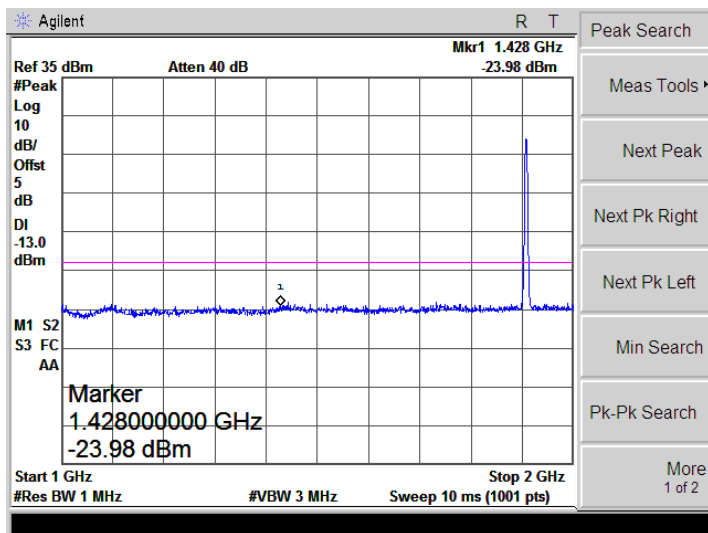
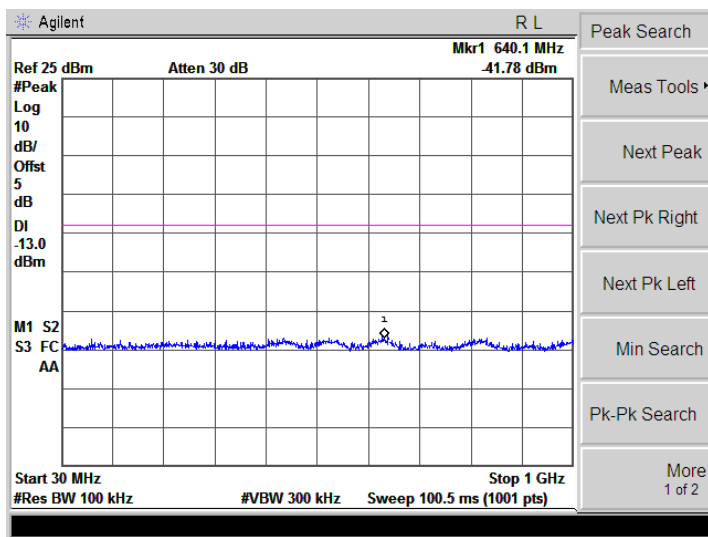
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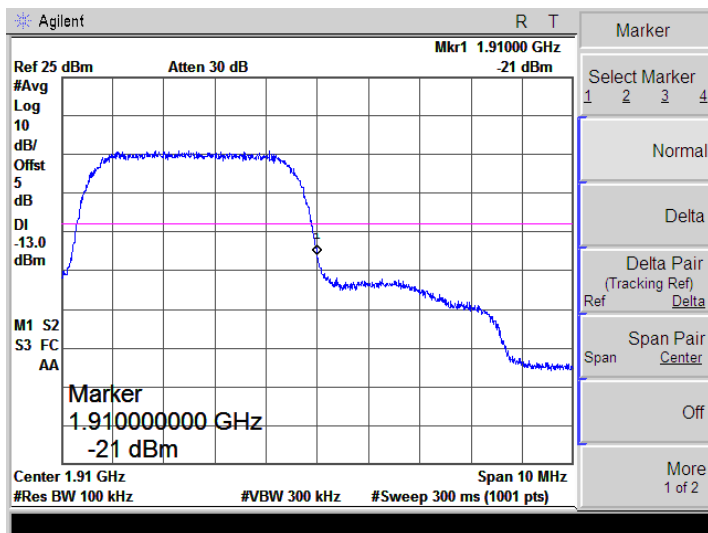
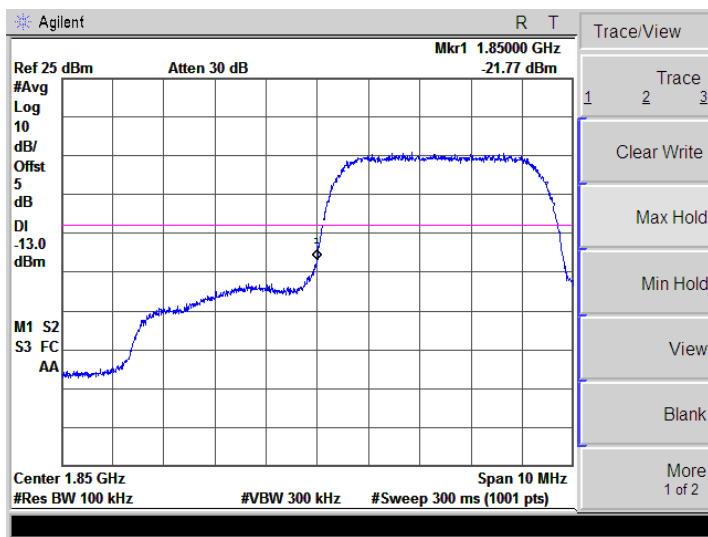
WCDMA Band II-Low



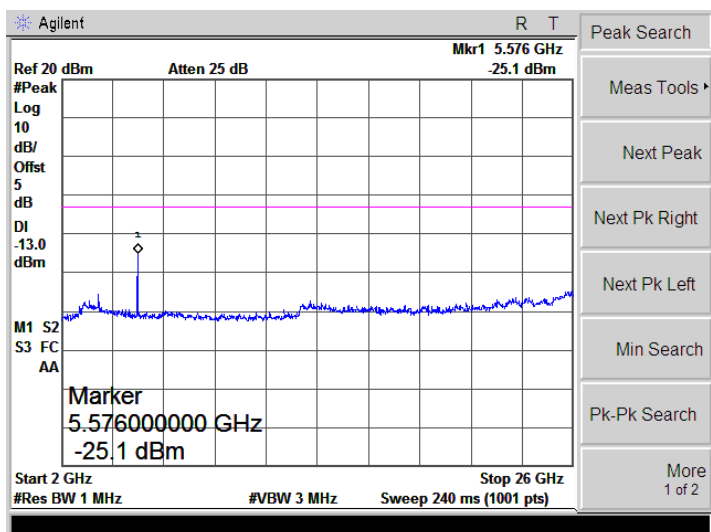
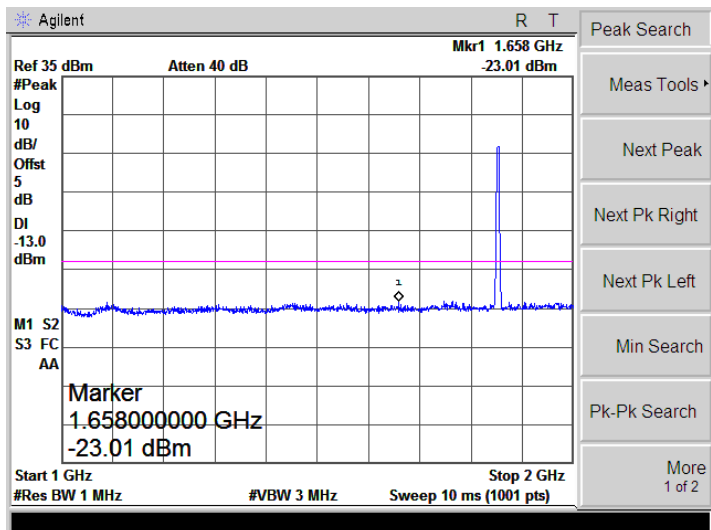
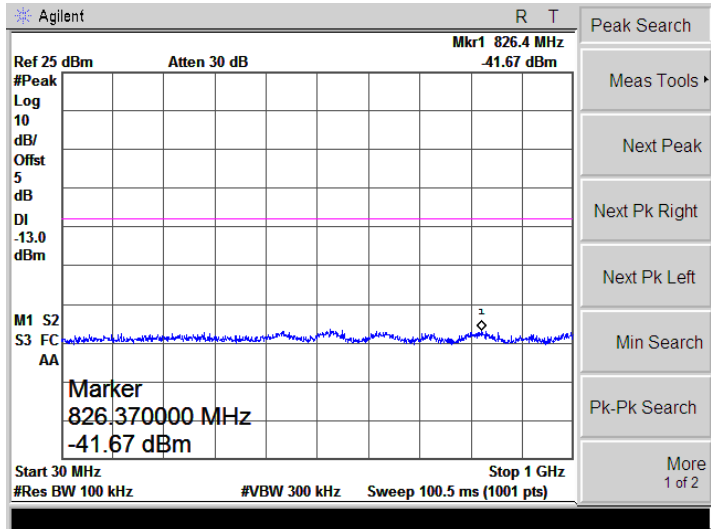
WCDMA Band II-Low



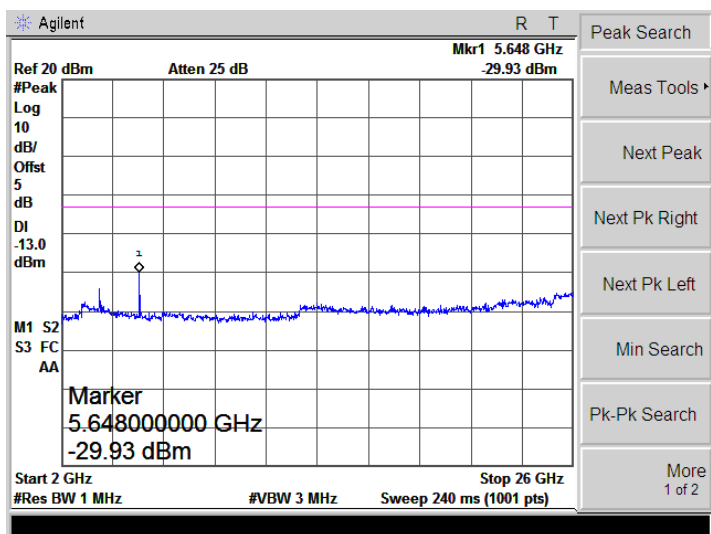
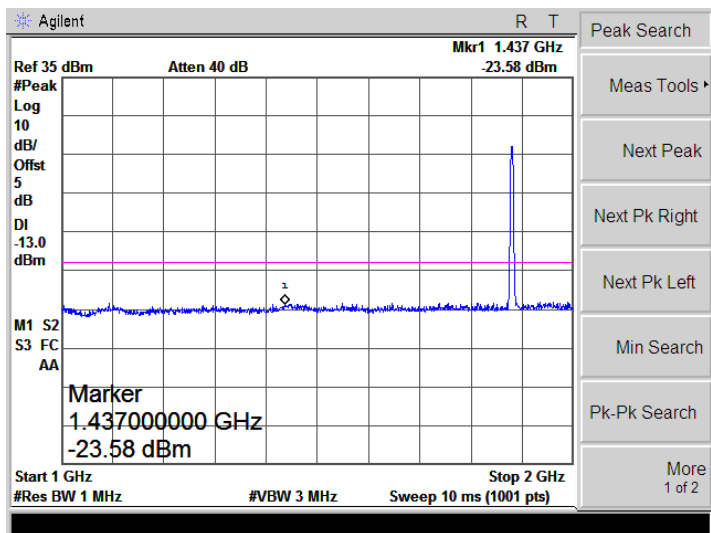
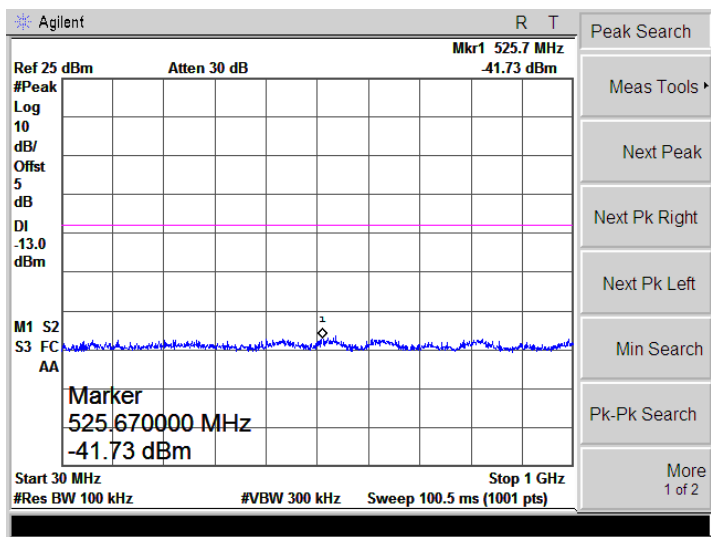
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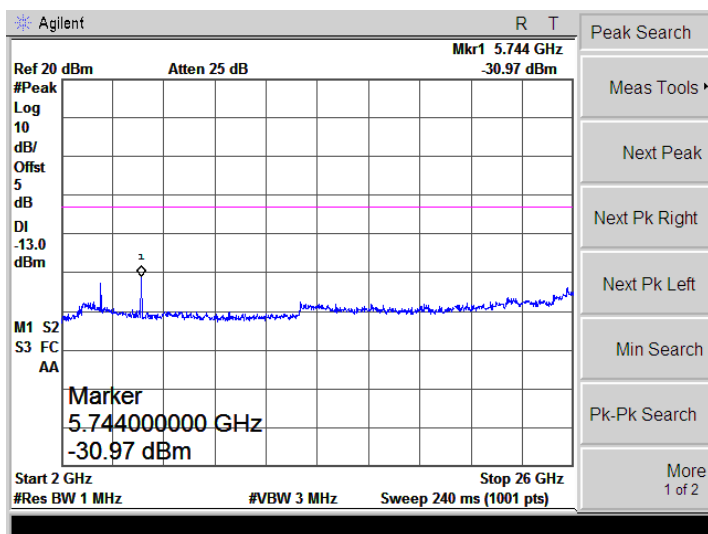
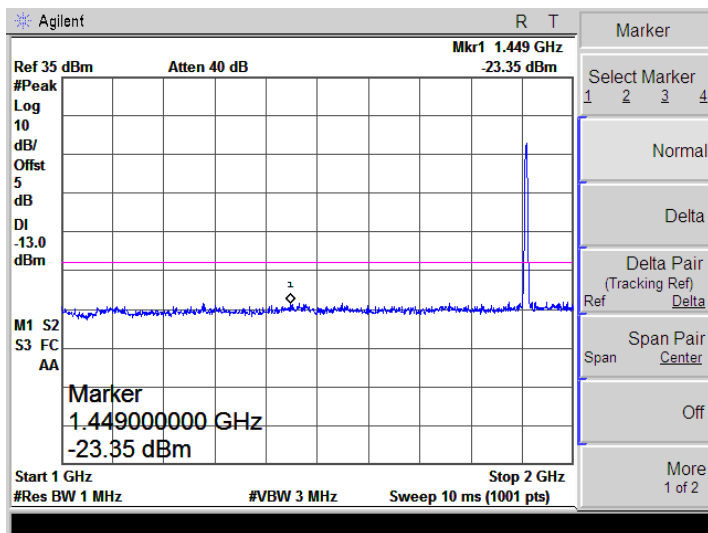
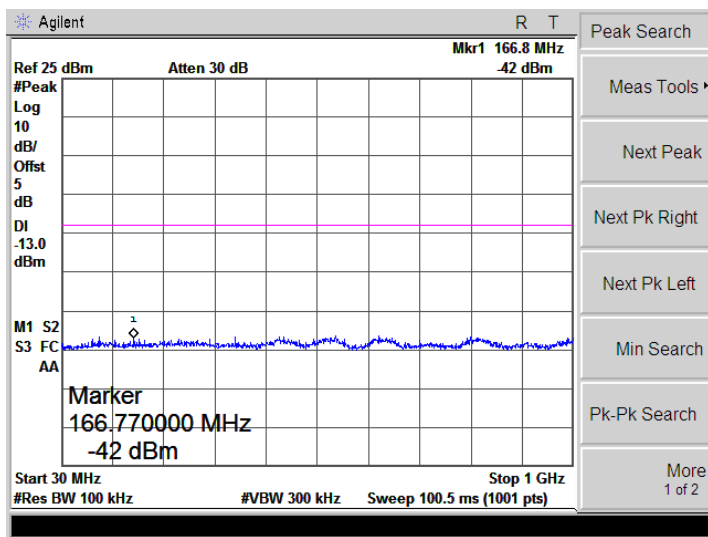
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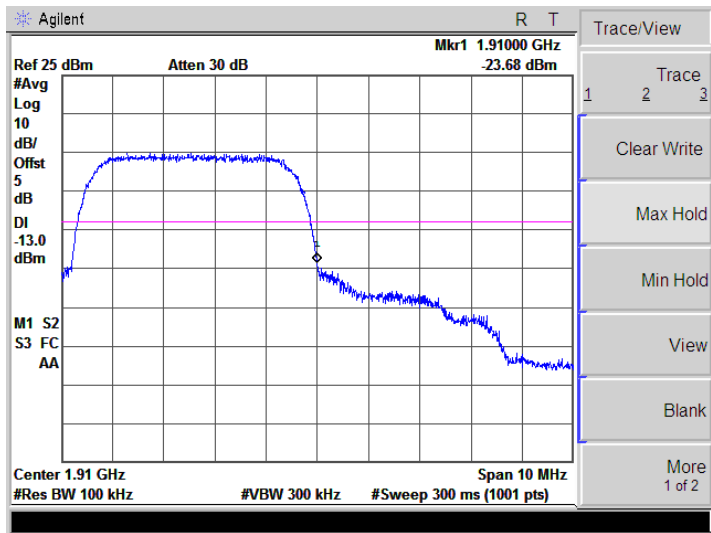
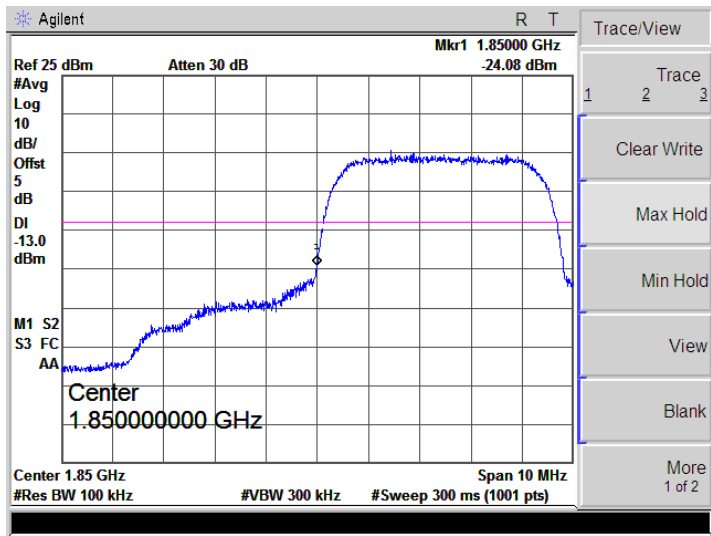
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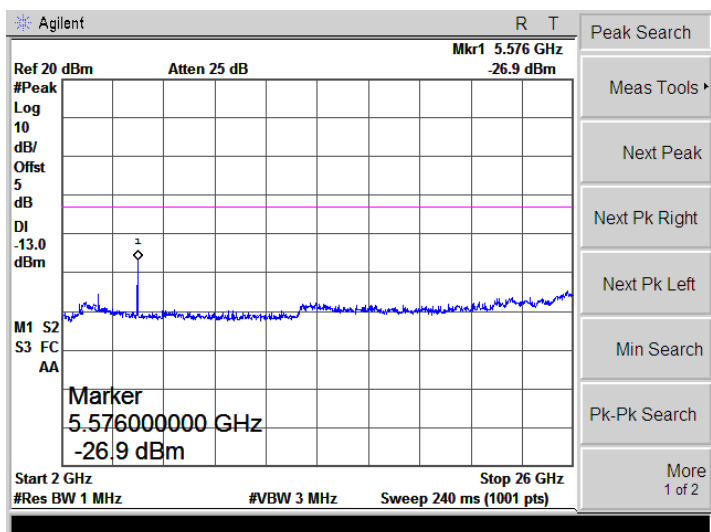
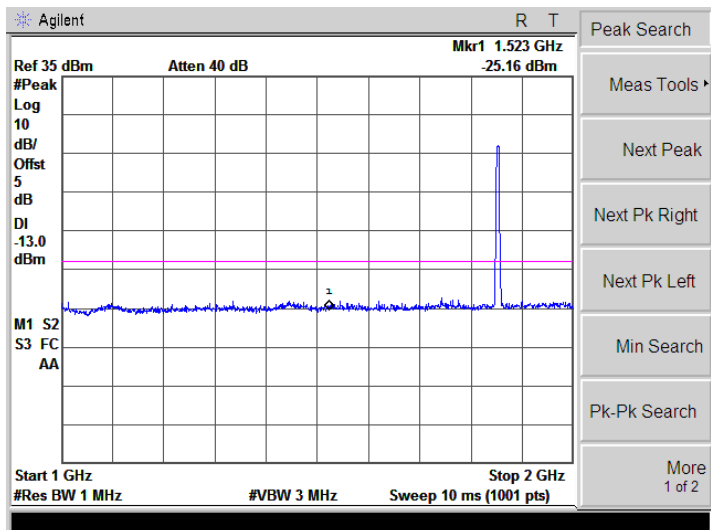
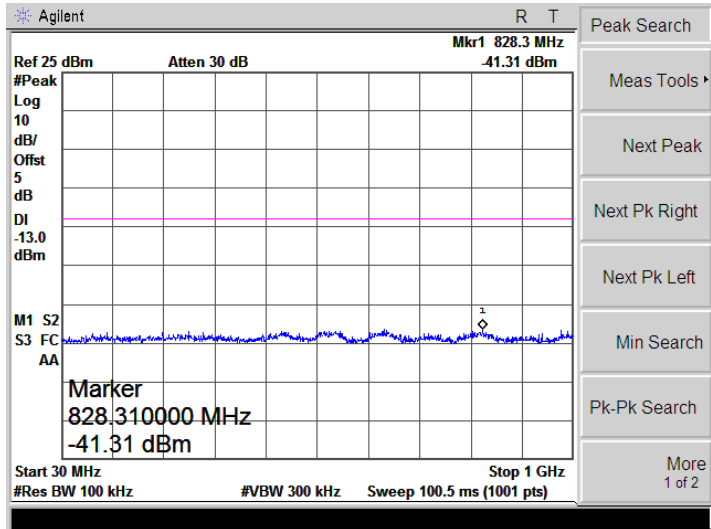
HSDPA Band II-Low



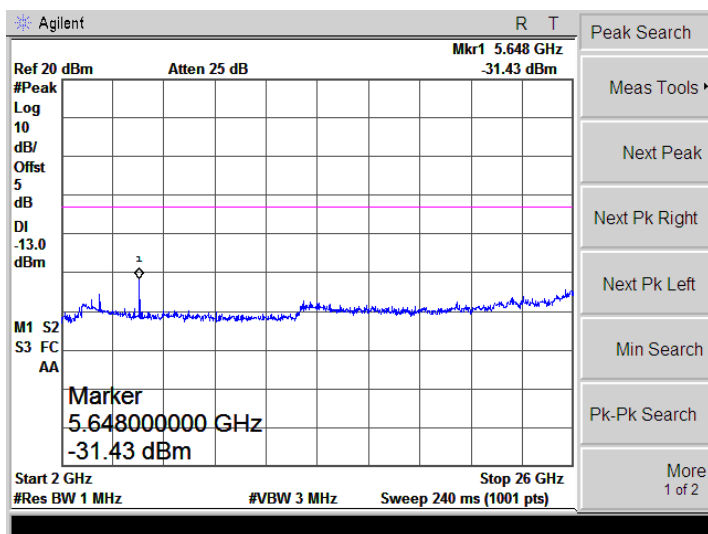
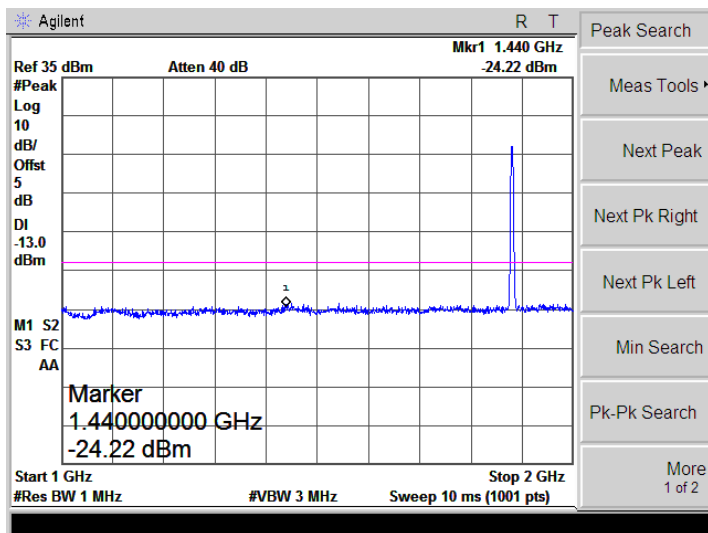
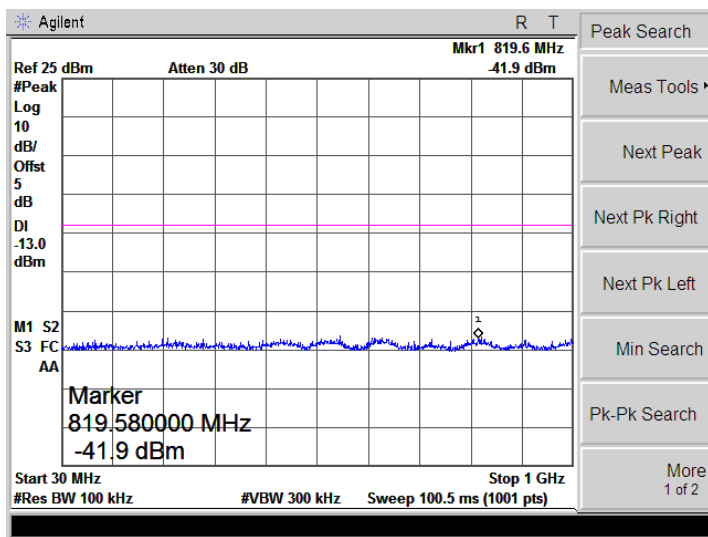
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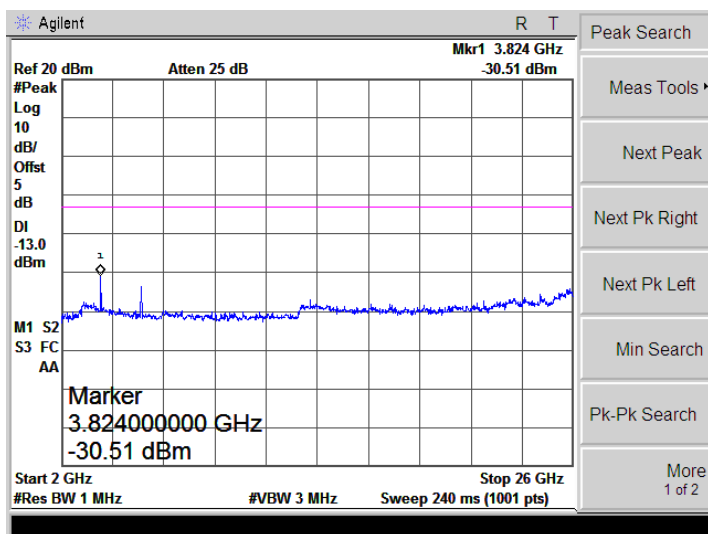
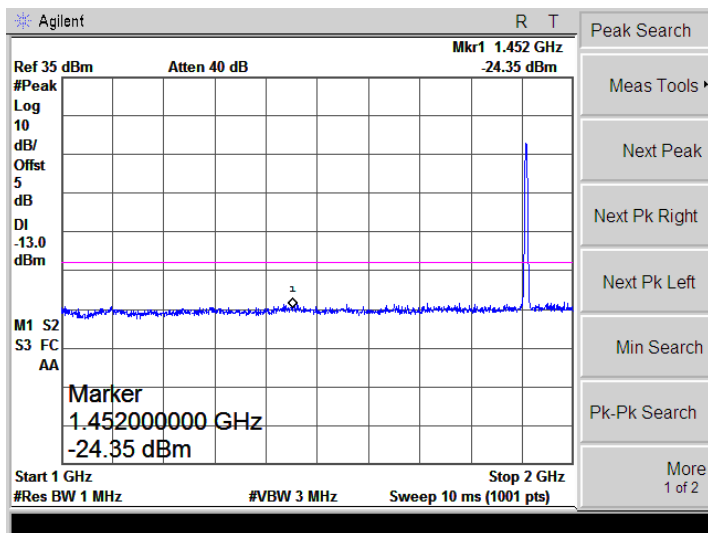
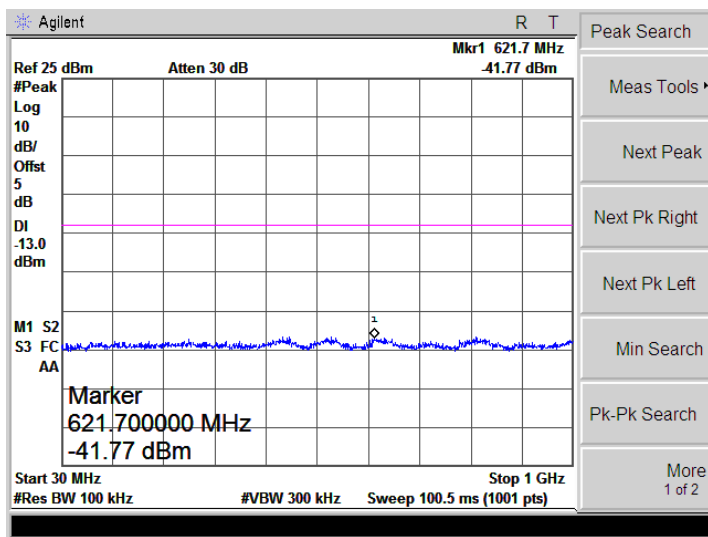
HSUPA Band II-Low



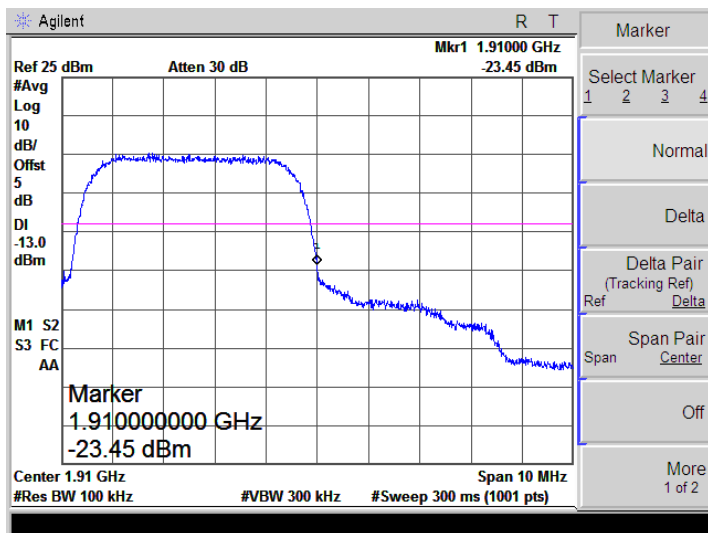
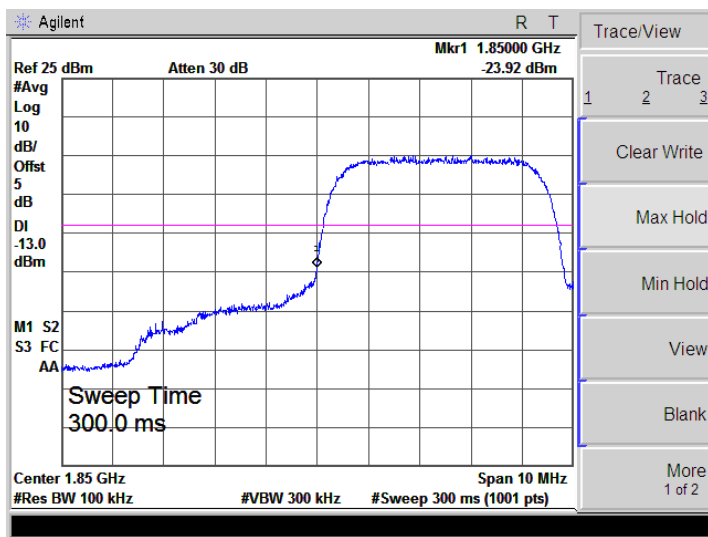
HSUPA Band II-Low



HSUPA Band II-Low



Bandedge



APPENDIX E**Frequency Stability**

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

2. Normal Voltage NV=DC3.87V; Low Voltage LV=DC3.5V;High Voltage HV=DC4.43V

➤ 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	58	0.0699	2.50	Pass
	-20	54	0.0644		
	-10	49	0.0588		
	0	45	0.0542		
	10	42	0.0497		
	20	38	0.0451		
	30	42	0.0506		
	40	48	0.0570		
	50	53	0.0634		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	78	0.0413	2.50	Pass
	-20	66	0.0352		
	-10	55	0.0295		
	0	50	0.0266		
	10	45	0.0241		
	20	38	0.0205		
	30	43	0.0229		
	40	48	0.0258		
	50	55	0.0291		

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	55	0.0662	2.50	Pass
	-20	48	0.0570		
	-10	39	0.0469		
	0	32	0.0377		
	10	24	0.0285		
	20	17	0.0202		
	30	23	0.0276		
	40	28	0.0331		
	50	35	0.0423		
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	45	0.0262	2.50	Pass
	-20	38	0.0217		
	-10	32	0.0186		
	0	26	0.0151		
	10	20	0.0115		
	20	15	0.0089		
	30	22	0.0124		
	40	25	0.0146		
	50	31	0.0177		

Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	76	0.0405	2.50	Pass
	-20	61	0.0323		
	-10	53	0.0282		
	0	46	0.0245		
	10	41	0.0217		
	20	35	0.0188		
	30	40	0.0213		
	40	44	0.0233		
	50	52	0.0274		

➤ Frequency stability V.S. Voltage measurement

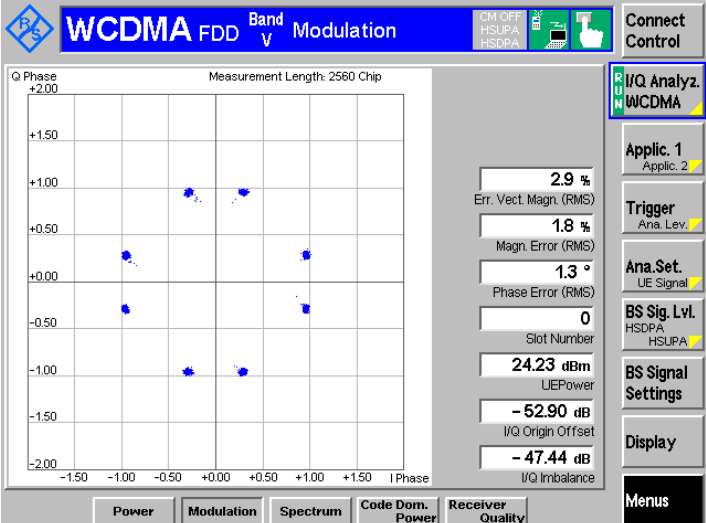
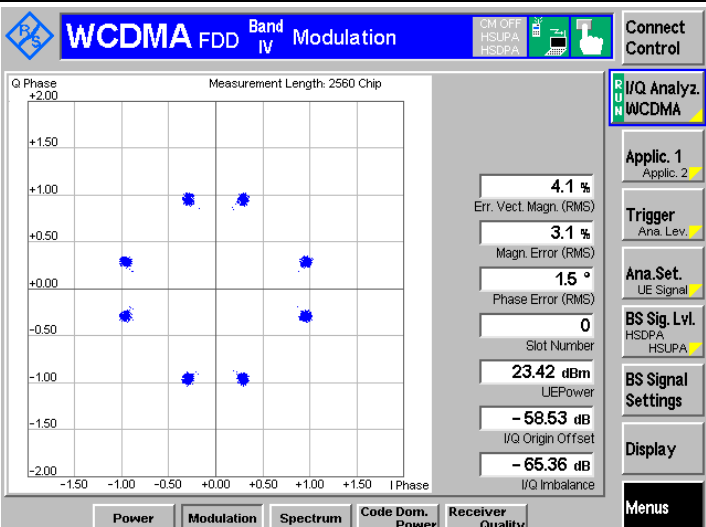
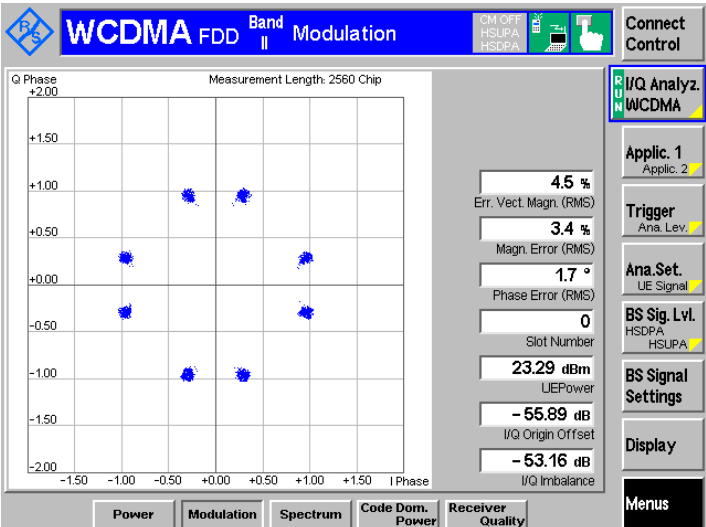
Reference Frequency: GSM850 (GSM link) Middle channel=190 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	72	0.0855	2.50	Pass
	NV	57	0.0680		
	LV	48	0.0570		
Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	41	0.0487	2.50	Pass
	NV	37	0.0441		
	LV	31	0.0368		

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	71	0.0846	2.50	Pass
	NV	57	0.0680		
	LV	50	0.0598		
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	72	0.0417	2.50	Pass
	NV	61	0.0351		
	LV	55	0.0315		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	39	0.0469	2.50	Pass
	NV	45	0.0542		
	LV	49	0.0588		

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): 2.9 %</p> <p>Magn. Error (RMS): 1.8 %</p> <p>Phase Error (RMS): 1.3 °</p> <p>Slot Number: 0</p> <p>UEPower: 24.23 dBm</p> <p>I/Q Origin Offset: -52.90 dB</p> <p>I/Q Imbalance: -47.44 dB</p> <p>Buttons: Power, Modulation, Spectrum, Code Dom. Power, Receiver Quality</p> <p>Right Panel: Connect Control, I/Q Analyz. WCDMA, Applic. 1, Trigger, Ana.Set., BS Sig. Lvl., BS Signal Settings, Display, Menu</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): 4.1 %</p> <p>Magn. Error (RMS): 3.1 %</p> <p>Phase Error (RMS): 1.5 °</p> <p>Slot Number: 0</p> <p>UEPower: 23.42 dBm</p> <p>I/Q Origin Offset: -58.53 dB</p> <p>I/Q Imbalance: -65.36 dB</p> <p>Buttons: Power, Modulation, Spectrum, Code Dom. Power, Receiver Quality</p> <p>Right Panel: Connect Control, I/Q Analyz. WCDMA, Applic. 1, Trigger, Ana.Set., BS Sig. Lvl., BS Signal Settings, Display, Menu</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): 4.5 %</p> <p>Magn. Error (RMS): 3.4 %</p> <p>Phase Error (RMS): 1.7 °</p> <p>Slot Number: 0</p> <p>UEPower: 23.29 dBm</p> <p>I/Q Origin Offset: -55.89 dB</p> <p>I/Q Imbalance: -53.16 dB</p> <p>Buttons: Power, Modulation, Spectrum, Code Dom. Power, Receiver Quality</p> <p>Right Panel: Connect Control, I/Q Analyz. WCDMA, Applic. 1, Trigger, Ana.Set., BS Sig. Lvl., BS Signal Settings, Display, Menu</p>

APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

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