

TEST REPORT

Reference No..... : WTX19X09063044W-1
FCC ID : 2AIV6-T640A
Applicant : Shenzhen Inrico Electronics Co.,LTD
Address : 3/F, Building NO.118, High Tech Industrial Park,72 Guowei Road, Luohu District, Shenzhen, China
Product Name : Intelligent Two Way Radio
Test Model. : T640A
Standards : FCC Part 22H, FCC Part 24E, FCC Part 27
Date of Receipt sample : Sep.10, 2019
Date of Test..... : Sep.10, 2019 to Jun.17, 2020
Date of Issue : Jun.17, 2020
Test Result..... : Pass

Remarks:

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

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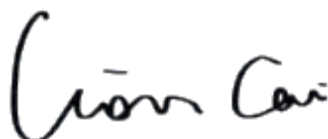
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Report version

Version No.	Date of issue	Description
Rev.00	Jun.17, 2020	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Shenzhen Inrico Electronics Co.,LTD
Address of applicant: 3/F, Building NO.118, High Tech Industrial Park,72 Guowei Road, Luohu District, Shenzhen, China

Manufacturer: Shenzhen Inrico Electronics Co.,LTD
Address of manufacturer: 3/F, Building NO.118, High Tech Industrial Park,72 Guowei Road, Luohu District, Shenzhen, China

General Description of EUT:	
Product Name:	Intelligent Two Way Radio
Trade Name:	Inrico
Model No.:	T640A
Adding Model(s):	/
Rated Voltage:	DC3.8V
Battery Capacity:	4000mAh
Adapter Model:	HJ-0502000W2-US Input: AC100-240V~50/60Hz, 0.3A; Output: DC5V, 2000mA
Software Version:	mt6739atu_tvz805_m20_02_inrico_chunjing_wlw_cc_32gbltp4d3_o1_lte_3m-fdd-cs_mul 20200420
Hardware Version:	TVZ805_MB_V1.0_20190311
Note: The test data is gathered from a production sample provided by the manufacturer.	

Technical Characteristics of EUT:	
2G	
Support Networks:	GSM, GPRS, EDGE
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS/EDGE 850: 869~894MHz GSM/GPRS/EDGE 1900: 1930~1990MHz
Max RF Output Power:	GSM850: 32.86dBm, GSM1900: 30.27dBm EDGE850: 26.57dBm, EDGE1900: 27.73dBm
Type of Emission:	GSM850: 249KGXW, GSM1900: 251KGXW EDGE850: 249KG7W, EDGE1900: 252KG7W
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: 1.2dBi; GSM1900: 1.2dBi
GPRS/EDGE Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 4, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 4: 1710~1755MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 4: 2110~2155MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 22.87dBm, WCDMA Band 4: 22.97dBm WCDMA Band 5: 22.92dBm
Type of Emission:	WCDMA Band 2: 4M20F9W WCDMA Band 4: 4M19F9W WCDMA Band 5: 4M28F9W
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 1.2dBi, WCDMA Band 4: 0.7dBi, WCDMA Band 5: 1.2dBi

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
/	/	/	/

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

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

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	$\pm 0.42\text{dB}$
Occupied Bandwidth	Conducted	$\pm 1.5\%$
Frequency Stability	Conducted	2.3%
Transmitter Spurious Emissions	Conducted	$\pm 0.42\text{dB}$
Transmitter Spurious Emissions	Radiated	30-200MHz $\pm 4.52\text{dB}$
		0.2-1GHz $\pm 5.56\text{dB}$
		1-6GHz $\pm 3.84\text{dB}$
		6-18GHz $\pm 3.92\text{dB}$

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
SEMT-1075	Communication Tester	Rohde & Schwarz	CMW500	148650	2019-04-30	2020-04-29
SEMT-1063	GSM Tester	Rohde & Schwarz	CMU200	114403	2019-04-30	2020-04-29
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2019-04-30	2020-04-29
SEMT-1079	Spectrum Analyzer	Agilent	N9020A	US47140102	2019-04-30	2020-04-29
SEMT-1080	Signal Generator	Agilent	83752A	3610A01453	2019-04-30	2020-04-29
SEMT-1081	Vector Signal Generator	Agilent	N5182A	MY47070202	2019-04-30	2020-04-29
SEMT-1028	Power Divider	Weinschel	1506A	PM204	2019-04-30	2020-04-29
SEMT-1082	Power Divider	RF-Lambda	RFLT4W5M18G	14110400027	2019-04-30	2020-04-29
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2019-04-30	2020-04-29
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2019-04-30	2020-04-29
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2019-04-30	2020-04-29
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2019-04-30	2020-04-29
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
SEMT-1068	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
SEMT-1042	Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2019-05-05	2021-05-04
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2019-04-30	2020-04-29
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2019-04-30	2020-04-29
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2019-04-30	2020-04-29
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2019-05-05	2021-05-04
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2019-04-30	2020-04-29
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2019-04-30	2020-04-29
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2019-04-30	2020-04-29
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2019-03-18	2020-03-17
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2019-03-18	2020-03-17
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2019-03-18	2020-03-17
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2019-03-18	2020-03-17

SEMT-C005	Cable	Zheng DI	1M0RFC	/	2019-03-18	2020-03-17
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2019-03-18	2020-03-17

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
SEMT-1075	Communication Tester	Rohde & Schwarz	CMW500	148650	2020-04-28	2021-04-27
SEMT-1063	GSM Tester	Rohde & Schwarz	CMU200	114403	2020-04-28	2021-04-27
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2020-04-28	2021-04-27
SEMT-1079	Spectrum Analyzer	Agilent	N9020A	US47140102	2020-04-28	2021-04-27
SEMT-1080	Signal Generator	Agilent	83752A	3610A01453	2020-04-28	2021-04-27
SEMT-1081	Vector Signal Generator	Agilent	N5182A	MY47070202	2020-04-28	2021-04-27
SEMT-1028	Power Divider	Weinschel	1506A	PM204	2020-04-28	2021-04-27
SEMT-1082	Power Divider	RF-Lambda	RFLT4W5M18G	14110400027	2020-04-28	2021-04-27
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2020-04-28	2021-04-27
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2020-04-28	2021-04-27
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2020-04-28	2021-04-27
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2020-04-28	2021-04-27
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2020-04-28	2021-04-27
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2020-04-28	2021-04-27
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2020-04-28	2021-04-27
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2020-04-28	2021-04-27
SEMT-1048	RF Limiter	ATTEN	AT-BSF-2400~2500	/	2020-04-28	2021-04-27
SEMT-1076	RF Switcher	Top Precision	RCS03-A2	/	2020-04-28	2021-04-27
SEMT-C001	Cable	Zheng DI	LL142-07-07-10M(A)	/	2020-03-17	2021-03-16
SEMT-C002	Cable	Zheng DI	ZT40-2.92J-2.92J-6M	/	2020-03-17	2021-03-16
SEMT-C003	Cable	Zheng DI	ZT40-2.92J-2.92J-2.5M	/	2020-03-17	2021-03-16
SEMT-C004	Cable	Zheng DI	2M0RFC	/	2020-03-17	2021-03-16
SEMT-C005	Cable	Zheng DI	1M0RFC	/	2020-03-17	2021-03-16
SEMT-C006	Cable	Zheng DI	1M0RFC	/	2020-03-17	2021-03-16

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
§1.1307, §2.1093	RF Exposure	Compliant
§22.913(a), §24.232(c), §27.50(d)	RF Output Power	Compliant
§24.51, §27.50	Peak-to-average 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 Exposure

3.1 Standard Applicable

According to §1.1307 and §2.1093, the portable transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF exposure, please see the SAR report.

4. RF Output Power

4.1 Standard Applicable

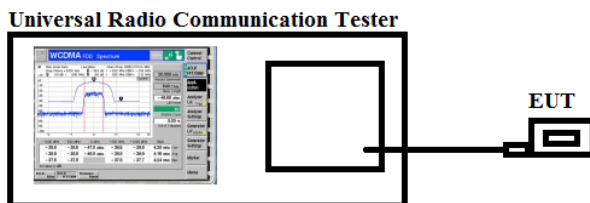
According to §22.913(a)(2), the ERP of mobile and portable stations transmitters and auxiliary test transmitters must not exceed 7 Watts.

According to §24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

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

4.2 Test Procedure

- Conducted output power test method:



- Radiated power test method:

1. The setup of EUT is according with per ANSI/TIA Standard 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.

4.3 Summary of Test Results/Plots

➤ **Max. Radiated Power**

Mode	Channel	Antenna Polar	ERP (dBm)	Limit (dBm)	Result
GSM850	128	V	31.04	<38.45	Pass
		H	24.57		
	190	V	30.55		
		H	24.23		
	251	V	30.16		
		H	24.18		
GPRS850	128	V	30.42	<38.45	Pass
		H	24.25		
	190	V	29.69		
		H	24.03		
	251	V	29.47		
		H	23.57		
EGPRS850	128	V	24.71	<38.45	Pass
		H	21.05		
	190	V	24.28		
		H	21.21		
	251	V	24.38		
		H	21.03		

Mode	Channel	Antenna Polar	EIRP (dBm)	Limit (dBm)	Result
PCS1900	512	V	27.42	<33.00	Pass
		H	22.63		
	661	V	27.15		
		H	22.46		
	810	V	27.36		
		H	22.52		
GPRS1900	512	V	28.02	<33.00	Pass
		H	22.95		
	661	V	27.16		
		H	22.35		
	810	V	27.16		
		H	22.09		
EGPRS1900	512	V	23.65	<33.00	Pass
		H	19.45		
	661	V	23.32		
		H	19.41		
	810	V	23.17		
		H	19.53		

Mode	Channel	Antenna Polar	ERP	Limit (dBm)	Result
WCDMA Band V	4132	V	20.42	<38.45	Pass
		H	16.05		
	4183	V	20.39		
		H	16.15		
	4233	V	20.31		
		H	16.57		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band IV	1312	V	20.74	<30.00	Pass
		H	15.35		
	1412	V	20.26		
		H	15.14		
	1513	V	20.69		
		H	15.02		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band II	9262	V	20.38	<33.00	Pass
		H	14.87		
	9400	V	20.69		
		H	14.05		
	9538	V	20.36		
		H	14.11		

Note: Pre-scan mode WCDMA/HSDPA/HSUPA find the worst case at WCDMA mode and recorded in the test report.

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

Conducted Average power (dBm)						
Band	GSM850			PCS1900		
Channel	128	190	251	512	661	810
Frequency(MHz)	824.20	836.60	848.80	1850.20	1880.00	1909.80
GSM	32.83	32.85	32.86	30.27	30.05	29.97
GPRS(1Slot)	32.62	32.65	32.66	30.22	30.02	29.87
EGPRS(1Slot)	26.50	26.53	26.57	27.51	27.73	27.45

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	22.92	22.87	22.82	22.61	22.77	22.87
HSDPA Subtest-1	21.88	21.91	21.85	22.09	22.22	22.31
HSDPA Subtest-2	21.85	21.87	21.83	22.06	22.20	22.29
HSDPA Subtest-3	21.86	21.89	21.82	22.07	22.21	22.27
HSDPA Subtest-4	21.87	21.87	21.84	22.08	22.21	22.28
HSUPA Subtest-1	21.96	21.94	21.91	22.09	22.13	22.31
HSUPA Subtest-2	21.93	21.92	21.87	22.07	22.12	22.27
HSUPA Subtest-3	21.94	21.91	21.89	22.04	22.1	22.29
HSUPA Subtest-4	21.93	21.92	21.87	22.05	22.11	22.29
HSUPA Subtest-5	21.95	21.92	21.89	22.06	22.11	22.28

Conducted Average power (dBm)						
Band	WCDMA Band IV					
Channel	1312	1412	1513			
Frequency(MHz)	1712.4	1733.4	1752.6			
RMC 12.2k	22.97	22.79	22.77			
HSDPA Subtest-1	22.62	22.37	22.23			
HSDPA Subtest-2	22.59	22.35	22.21			
HSDPA Subtest-3	22.59	22.36	22.22			
HSDPA Subtest-4	22.57	22.37	22.21			
HSUPA Subtest-1	22.63	22.39	22.29			
HSUPA Subtest-2	22.61	22.36	22.26			
HSUPA Subtest-3	22.62	22.37	22.27			
HSUPA Subtest-4	22.59	22.38	22.28			
HSUPA Subtest-5	22.62	22.37	22.27			

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

5.1 Standard Applicable

According to §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51, in measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

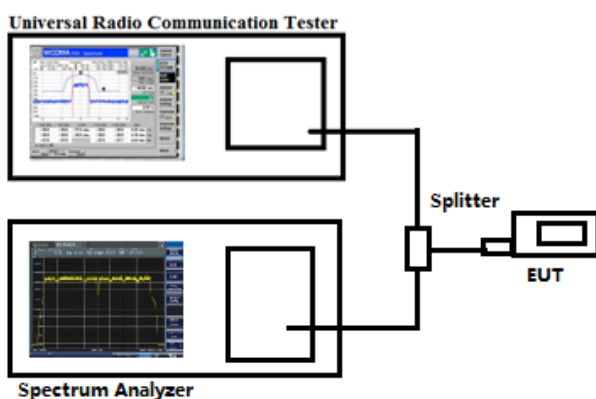
According to §27.50(B), the peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for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

5.2 Test Procedure

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:



5.3 Summary of Test Results

PCS1900				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
GSM	661	1850.2	4.52	13
GPRS(1 Slot)	661	1850.2	5.29	13
EDGE(1 Slot)	661	1850.2	5.03	13

WCDMA Band IV				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	1312	1712.4	4.13	13
	1412	1733.4	4.59	13
	1513	1752.6	4.97	13

WCDMA Band II				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	5.45	13
	9400	1880.0	6.03	13
	9538	1907.6	6.11	13

Note: Only the worst case was selected to record.

6. Emission Bandwidth

6.1 Standard Applicable

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

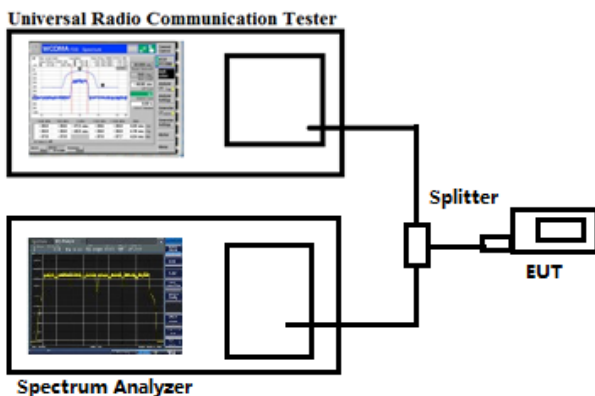
According to §24.238(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

According to §27.53, the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

6.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 10kHz for GSM mode and 100kHz for WCDMA mode, VBW shall be at least 3 times the RBW, and the 26dB bandwidth was recorded.

Test Configuration for the emission bandwidth testing:

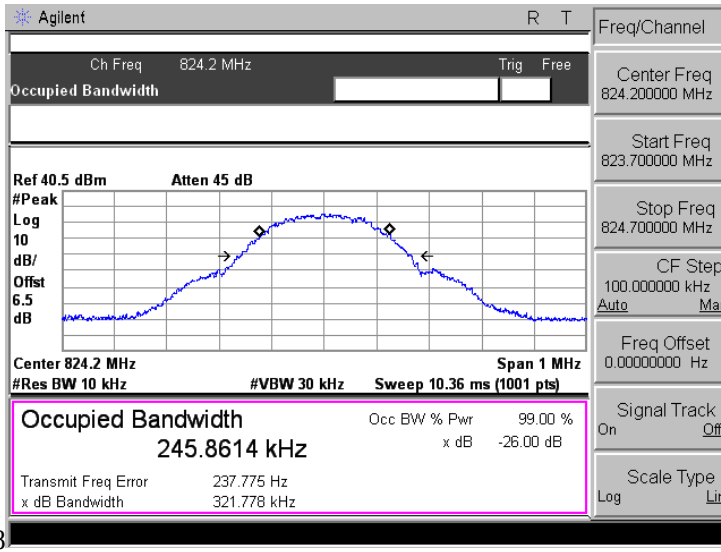
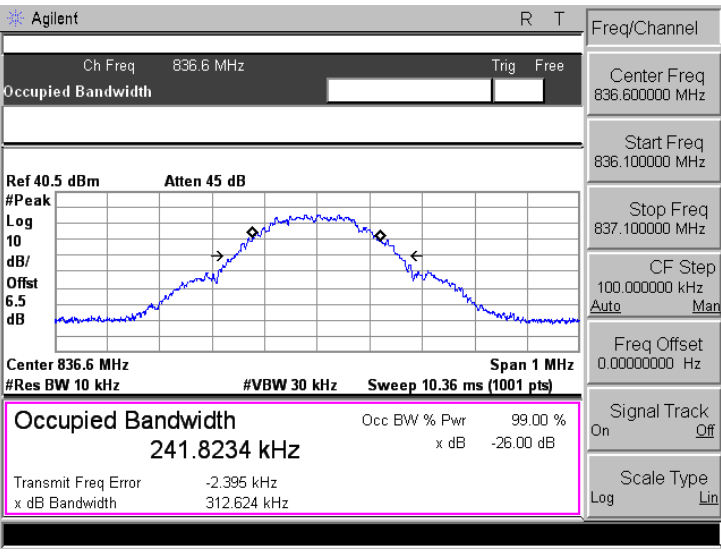
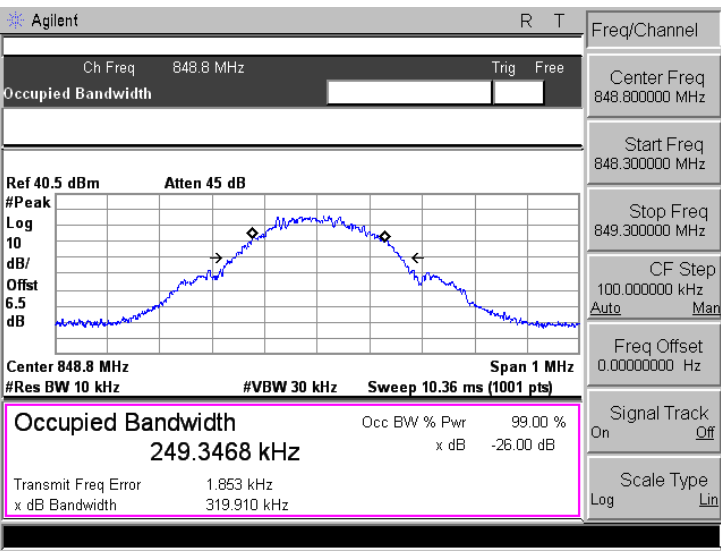


6.3 Summary of Test Results/Plots

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
GSM 850 (GMSK)	128	824.20	248.4810	312.055
	190	836.60	246.5532	317.849
	251	848.80	246.2763	321.593
GPRS850 (GMSK,1Slot)	128	824.20	245.8614	321.778
	190	836.60	241.8234	312.624
	251	848.80	249.3468	319.910
EGPRS850 (8PSK,1Slot)	128	824.20	248.5356	322.357
	190	836.60	246.8854	319.038
	251	848.80	246.7725	319.278
PCS1900 (GMSK)	512	1850.20	246.1380	309.256
	661	1880.00	250.8783	318.539
	810	1909.80	246.9025	310.244
GPRS1900 (GMSK,1Slot)	512	1850.20	244.3777	313.114
	661	1880.00	242.6549	310.108
	810	1909.80	247.1958	317.259
EGPRS1900 (8PSK,1Slot)	512	1850.20	249.3827	324.498
	661	1880.00	252.0634	322.005
	810	1909.80	246.7583	316.184

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
WCDMA Band V	4132	826.40	4202.6	4769
	4183	836.60	4166.6	4734
	4233	846.60	4282.9	6787
HSDPA	4132	826.40	4181.2	4742
	4183	836.60	4185.0	5024
	4233	846.60	4219.9	5092
HSUPA	4132	826.40	4183.2	4754
	4183	836.60	4200.4	4953
	4233	846.60	4227.6	7488
WCDMA Band II	9262	1852.40	4179.5	4703
	9400	1880.00	4179.4	4746
	9538	1907.60	4172.2	4718
HSDPA	9262	1852.40	4193.2	4754
	9400	1880.00	4193.2	5975
	9538	1907.60	4177.5	4702
HSUPA	9262	1852.40	4202.3	5138
	9400	1880.00	4184.2	4713
	9538	1907.60	4190.5	4724
WCDMA Band IV	1312	1712.4	4174.3	4687
	1412	1733.4	4177.4	4706
	1513	1752.6	4167.4	4747
HSDPA	1312	1712.4	4172.7	4708
	1412	1733.4	4183.9	4714
	1513	1752.6	4187.2	5136
HSUPA	1312	1712.4	4180.1	4705
	1412	1733.4	4169.4	4706
	1513	1752.6	4192.9	4664

GSM850	
Low Channel	Agilent R T Ch Freq 824.2 MHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 824.2 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Span 1 MHz Occupied Bandwidth 248.4810 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 243.210 Hz x dB Bandwidth 312.055 kHz Freq/Channel Center Freq 824.200000 MHz Start Freq 823.700000 MHz Stop Freq 824.700000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

Low Channel	 Agilent R T Ch Freq 824.2 MHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/Offset 6.5 dB Center 824.2 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 245.8614 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 237.775 Hz x dB Bandwidth 321.778 kHz Freq/Channel Center Freq 824.200000 MHz Start Freq 823.700000 MHz Stop Freq 824.700000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	 Agilent R T Ch Freq 836.6 MHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/Offset 6.5 dB Center 836.6 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 241.8234 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -2.395 kHz x dB Bandwidth 312.624 kHz Freq/Channel Center Freq 836.600000 MHz Start Freq 836.100000 MHz Stop Freq 837.100000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	 Agilent R T Ch Freq 848.8 MHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/Offset 6.5 dB Center 848.8 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 249.3468 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.853 kHz x dB Bandwidth 319.910 kHz Freq/Channel Center Freq 848.800000 MHz Start Freq 848.300000 MHz Stop Freq 849.300000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

EGPRS850	
Low Channel	Agilent R T Ch Freq 824.2 MHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 824.2 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 248.5356 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.679 kHz x dB Bandwidth 322.357 kHz Freq/Channel Center Freq 824.200000 MHz Start Freq 823.700000 MHz Stop Freq 824.700000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 836.6 MHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 836.6 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 246.8854 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -2.428 kHz x dB Bandwidth 319.038 kHz Freq/Channel Center Freq 836.600000 MHz Start Freq 836.100000 MHz Stop Freq 837.100000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent R T Ch Freq 848.8 MHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 848.8 MHz Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 246.7725 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 908.858 Hz x dB Bandwidth 319.278 kHz Freq/Channel Center Freq 848.800000 MHz Start Freq 848.300000 MHz Stop Freq 849.300000 MHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

PCS1900	
Low Channel	Agilent R T Ch Freq 1.8502 GHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.85 GHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Span 1 MHz Occupied Bandwidth 246.1380 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.566 kHz x dB Bandwidth 309.256 kHz Freq/Channel Center Freq 1.85020000 GHz Start Freq 1.84970000 GHz Stop Freq 1.85070000 GHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 1.88 GHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.88 GHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Span 1 MHz Occupied Bandwidth 250.8783 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.648 kHz x dB Bandwidth 318.539 kHz 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
High Channel	Agilent R T Ch Freq 1.9098 GHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.91 GHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Span 1 MHz Occupied Bandwidth 246.9025 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 872.484 Hz x dB Bandwidth 310.244 kHz 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

GPRS1900	
Low Channel	Agilent R T Ch Freq 1.8502 GHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.85 GHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Span 1 MHz Occupied Bandwidth 244.3777 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.063 kHz x dB Bandwidth 313.114 kHz Freq/Channel Center Freq 1.85020000 GHz Start Freq 1.84970000 GHz Stop Freq 1.85070000 GHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

EGPRS1900	
Low Channel	Agilent R T Ch Freq 1.8502 GHz Trig Free Occupied Bandwidth Ref 40.5 dBm Atten 45 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.85 GHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Span 1 MHz Occupied Bandwidth 249.3827 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -70.612 Hz x dB Bandwidth 324.498 kHz Freq/Channel Center Freq 1.85020000 GHz Start Freq 1.84970000 GHz Stop Freq 1.85070000 GHz CF Step 100.000000 kHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

WCDMA Band V	
Low Channel	Agilent R T Ch Freq 826.4 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 826.4 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.2026 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 13.658 kHz x dB Bandwidth 4.769 MHz Freq/Channel Center Freq 826.400000 MHz Start Freq 821.400000 MHz Stop Freq 831.400000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 836.6 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 836.6 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1666 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -14.517 kHz x dB Bandwidth 4.734 MHz Freq/Channel Center Freq 836.600000 MHz Start Freq 831.600000 MHz Stop Freq 841.600000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent R T Ch Freq 846.6 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 846.6 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.2829 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 12.746 kHz x dB Bandwidth 6.787 MHz Freq/Channel Center Freq 846.600000 MHz Start Freq 841.600000 MHz Stop Freq 851.600000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

WCDMA Band V- HSDPA	
Low Channel	Agilent Ch Freq826.4 MHz TrigFree Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 826.4 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1812 MHz Occ BW % Pwr99.00 % x dB-26.00 dB Transmit Freq Error12.608 kHz x dB Bandwidth4.742 MHz Freq/Channel Center Freq826.400000 MHz Start Freq821.400000 MHz Stop Freq831.400000 MHz CF Step1.00000000 MHz AutoMan Freq Offset0.00000000 Hz Signal TrackOnOff Scale TypeLogLin
Middle Channel	Agilent Ch Freq836.6 MHz TrigFree Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 836.6 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1850 MHz Occ BW % Pwr99.00 % x dB-26.00 dB Transmit Freq Error-28.667 kHz x dB Bandwidth5.024 MHz Freq/Channel Center Freq836.600000 MHz Start Freq831.600000 MHz Stop Freq841.600000 MHz CF Step1.00000000 MHz AutoMan Freq Offset0.00000000 Hz Signal TrackOnOff Scale TypeLogLin
High Channel	Agilent Ch Freq846.6 MHz TrigFree Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 846.6 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.2199 MHz Occ BW % Pwr99.00 % x dB-26.00 dB Transmit Freq Error10.699 kHz x dB Bandwidth5.092 MHz Freq/Channel Center Freq846.600000 MHz Start Freq841.600000 MHz Stop Freq851.600000 MHz CF Step1.00000000 MHz AutoMan Freq Offset0.00000000 Hz Signal TrackOnOff Scale TypeLogLin

WCDMA Band V- HSUPA	
Low Channel	Agilent R T Ch Freq 826.4 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 826.4 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1832 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 18.025 kHz x dB Bandwidth 4.754 MHz Freq/Channel Center Freq 826.400000 MHz Start Freq 821.400000 MHz Stop Freq 831.400000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 836.6 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 836.6 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.2004 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -19.351 kHz x dB Bandwidth 4.953 MHz Freq/Channel Center Freq 836.600000 MHz Start Freq 831.600000 MHz Stop Freq 841.600000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent R T Ch Freq 846.6 MHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 846.6 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.2276 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 3.539 kHz x dB Bandwidth 7.488 MHz Freq/Channel Center Freq 846.600000 MHz Start Freq 841.600000 MHz Stop Freq 851.600000 MHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

WCDMA Band IV	
Low Channel	Agilent R T Ch Freq 1.7124 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.712 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1743 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 3.331 kHz x dB Bandwidth 4.687 MHz Freq/Channel Center Freq 1.71240000 GHz Start Freq 1.70740000 GHz Stop Freq 1.71740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 1.7324 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.732 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1774 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -7.473 kHz x dB Bandwidth 4.706 MHz Freq/Channel Center Freq 1.73240000 GHz Start Freq 1.72740000 GHz Stop Freq 1.73740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent R T Ch Freq 1.7526 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.753 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1674 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -6.164 kHz x dB Bandwidth 4.747 MHz Freq/Channel Center Freq 1.75260000 GHz Start Freq 1.74760000 GHz Stop Freq 1.75760000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

WCDMA Band IV- HSDPA	
Low Channel	Agilent R T Ch Freq 1.7124 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.712 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1727 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -19.512 Hz x dB Bandwidth 4.708 MHz Freq/Channel Center Freq 1.71240000 GHz Start Freq 1.70740000 GHz Stop Freq 1.71740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 1.7324 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.732 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1839 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -7.472 kHz x dB Bandwidth 4.714 MHz Freq/Channel Center Freq 1.73240000 GHz Start Freq 1.72740000 GHz Stop Freq 1.73740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent R T Ch Freq 1.7526 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.753 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1872 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -9.923 kHz x dB Bandwidth 5.136 MHz Freq/Channel Center Freq 1.75260000 GHz Start Freq 1.74760000 GHz Stop Freq 1.75760000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

WCDMA Band IV- HSUPA	
Low Channel	Agilent R T Ch Freq 1.7124 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.712 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1801 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 7.057 kHz x dB Bandwidth 4.705 MHz Freq/Channel Center Freq 1.71240000 GHz Start Freq 1.70740000 GHz Stop Freq 1.71740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 1.7324 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.732 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1694 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -9.906 kHz x dB Bandwidth 4.706 MHz Freq/Channel Center Freq 1.73240000 GHz Start Freq 1.72740000 GHz Stop Freq 1.73740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent R T Ch Freq 1.7526 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.753 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1929 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.245 kHz x dB Bandwidth 4.664 MHz Freq/Channel Center Freq 1.75260000 GHz Start Freq 1.74760000 GHz Stop Freq 1.75760000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

WCDMA Band II

Low Channel

Agilent R T

Ch Freq 1.852 GHz Trig Free

Occupied Bandwidth

Ref 30 dBm Atten 35 dB

#Peak Log 10 dB/ Offst 6.5 dB

Center 1.852 GHz Span 10 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)

Occupied Bandwidth 4.1795 MHz

Occ BW % Pwr 99.00 %

x dB -26.00 dB

Transmit Freq Error -7.350 kHz

x dB Bandwidth 4.703 MHz

Trace/View

Trace 1 2 3

Clear Write

Max Hold

Min Hold

View

Blank

More 1 of 2

Middle Channel

Agilent R T

Ch Freq 1.88 GHz Trig Free

Occupied Bandwidth

Ref 30 dBm Atten 35 dB

#Peak Log 10 dB/ Offst 6.5 dB

Center 1.88 GHz Span 10 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)

Occupied Bandwidth 4.1794 MHz

Occ BW % Pwr 99.00 %

x dB -26.00 dB

Transmit Freq Error -8.927 kHz

x dB Bandwidth 4.746 MHz

Freq/Channel

Center Freq 1.88000000 GHz

Start Freq 1.87500000 GHz

Stop Freq 1.88500000 GHz

CF Step 1.00000000 MHz

Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Scale Type Log Lin

High Channel

Agilent R T

Ch Freq 1.9076 GHz Trig Free

Occupied Bandwidth

Ref 30 dBm Atten 35 dB

#Peak Log 10 dB/ Offst 6.5 dB

Center 1.908 GHz Span 10 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts)

Occupied Bandwidth 4.1722 MHz

Occ BW % Pwr 99.00 %

x dB -26.00 dB

Transmit Freq Error -8.202 kHz

x dB Bandwidth 4.718 MHz

Freq/Channel

Center Freq 1.90760000 GHz

Start Freq 1.90260000 GHz

Stop Freq 1.91260000 GHz

CF Step 1.00000000 MHz

Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Scale Type Log Lin

WCDMA Band II- HSDPA	
Low Channel	Agilent Ch Freq 1.8524 GHz Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.852 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1932 MHz Transmit Freq Error -11.467 kHz x dB Bandwidth 4.754 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Trace/View Trace 1 2 3 Clear Write Max Hold Min Hold View Blank More 1 of 2
Middle Channel	Agilent Ch Freq 1.88 GHz Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.88 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1932 MHz Transmit Freq Error -14.275 kHz x dB Bandwidth 5.975 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Freq/Channel Center Freq 1.8800000 GHz Start Freq 1.8750000 GHz Stop Freq 1.8850000 GHz CF Step 1.0000000 MHz Auto Man Freq Offset 0.0000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent Ch Freq 1.9076 GHz Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.908 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1775 MHz Transmit Freq Error -8.318 kHz x dB Bandwidth 4.702 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Freq/Channel Center Freq 1.9076000 GHz Start Freq 1.9026000 GHz Stop Freq 1.9126000 GHz CF Step 1.0000000 MHz Auto Man Freq Offset 0.0000000 Hz Signal Track On Off Scale Type Log Lin

WCDMA Band II- HSUPA	
Low Channel	Agilent R T Ch Freq 1.8524 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.852 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.2023 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -9.606 kHz x dB Bandwidth 5.138 MHz Freq/Channel Center Freq 1.85240000 GHz Start Freq 1.84740000 GHz Stop Freq 1.85740000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 1.88 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.88 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1842 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -8.982 kHz x dB Bandwidth 4.713 MHz Freq/Channel Center Freq 1.88000000 GHz Start Freq 1.87500000 GHz Stop Freq 1.88500000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent R T Ch Freq 1.9076 GHz Trig Free Occupied Bandwidth Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Center 1.908 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Span 10 MHz Occupied Bandwidth 4.1905 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -6.371 kHz x dB Bandwidth 4.724 MHz Freq/Channel Center Freq 1.90760000 GHz Start Freq 1.90260000 GHz Stop Freq 1.91260000 GHz CF Step 1.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off Scale Type Log Lin

7. Out of Band Emissions at Antenna Terminal

7.1 Standard Applicable

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

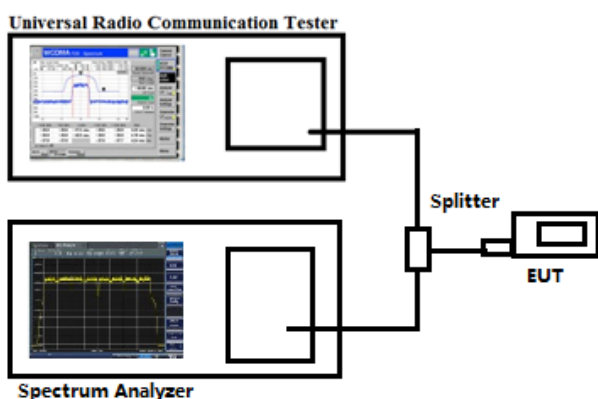
According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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

7.2 Test Procedure

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 100kHz and 1MHz for the scan frequency from 30MHz to 1GHz and the scan frequency from 1GHz to up to 10th harmonic.

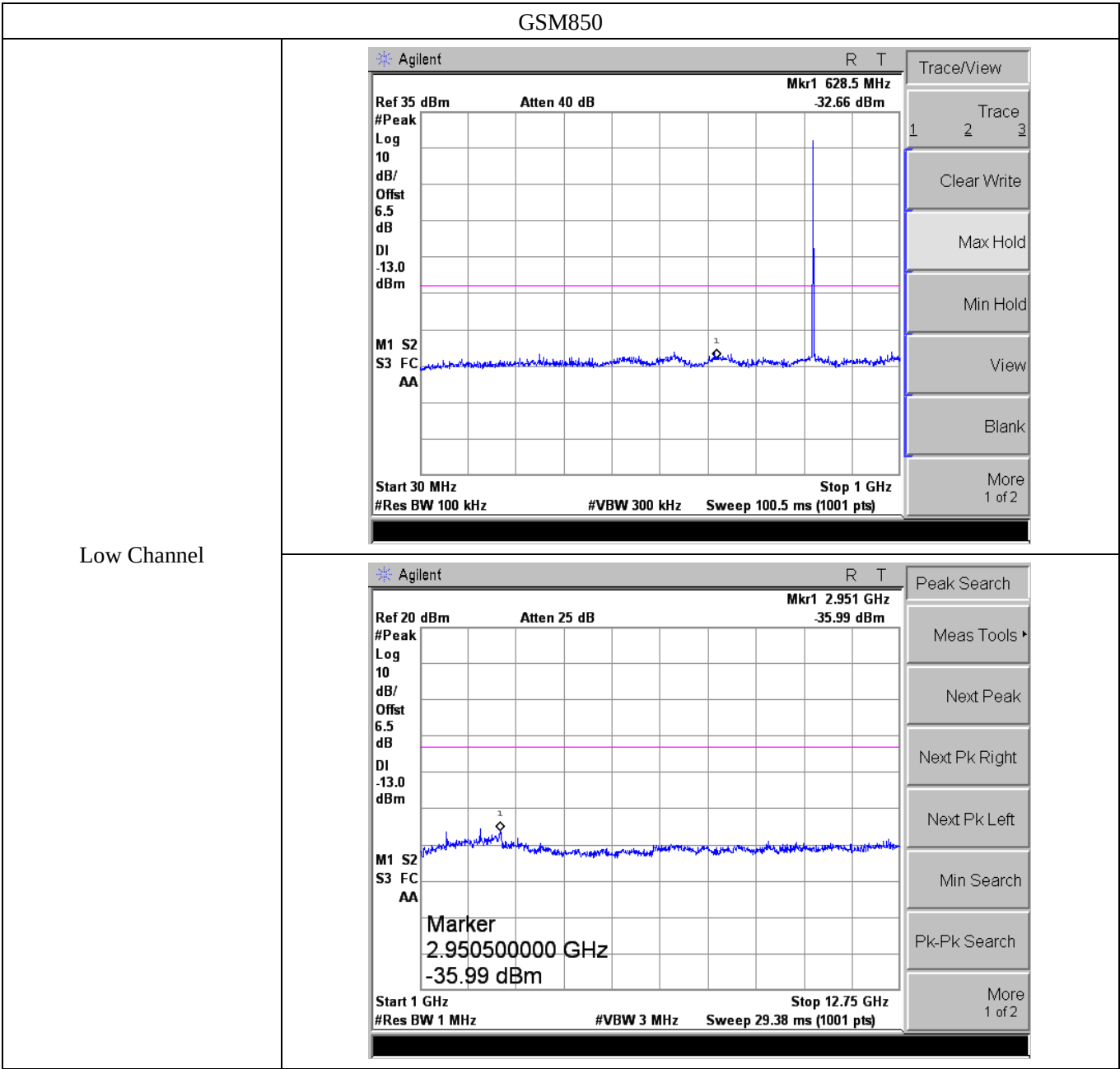
Test Configuration for the out of band emissions testing:

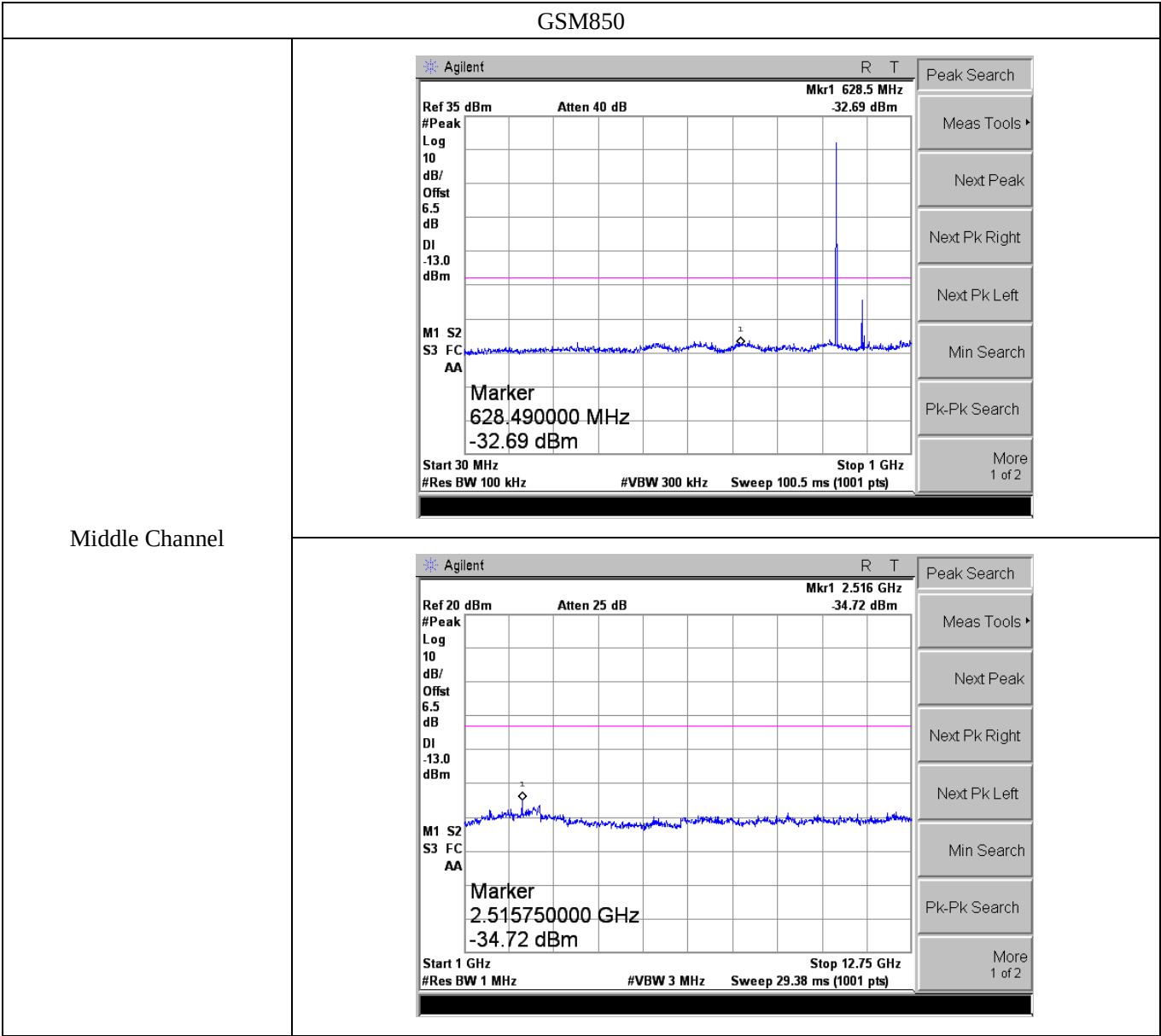


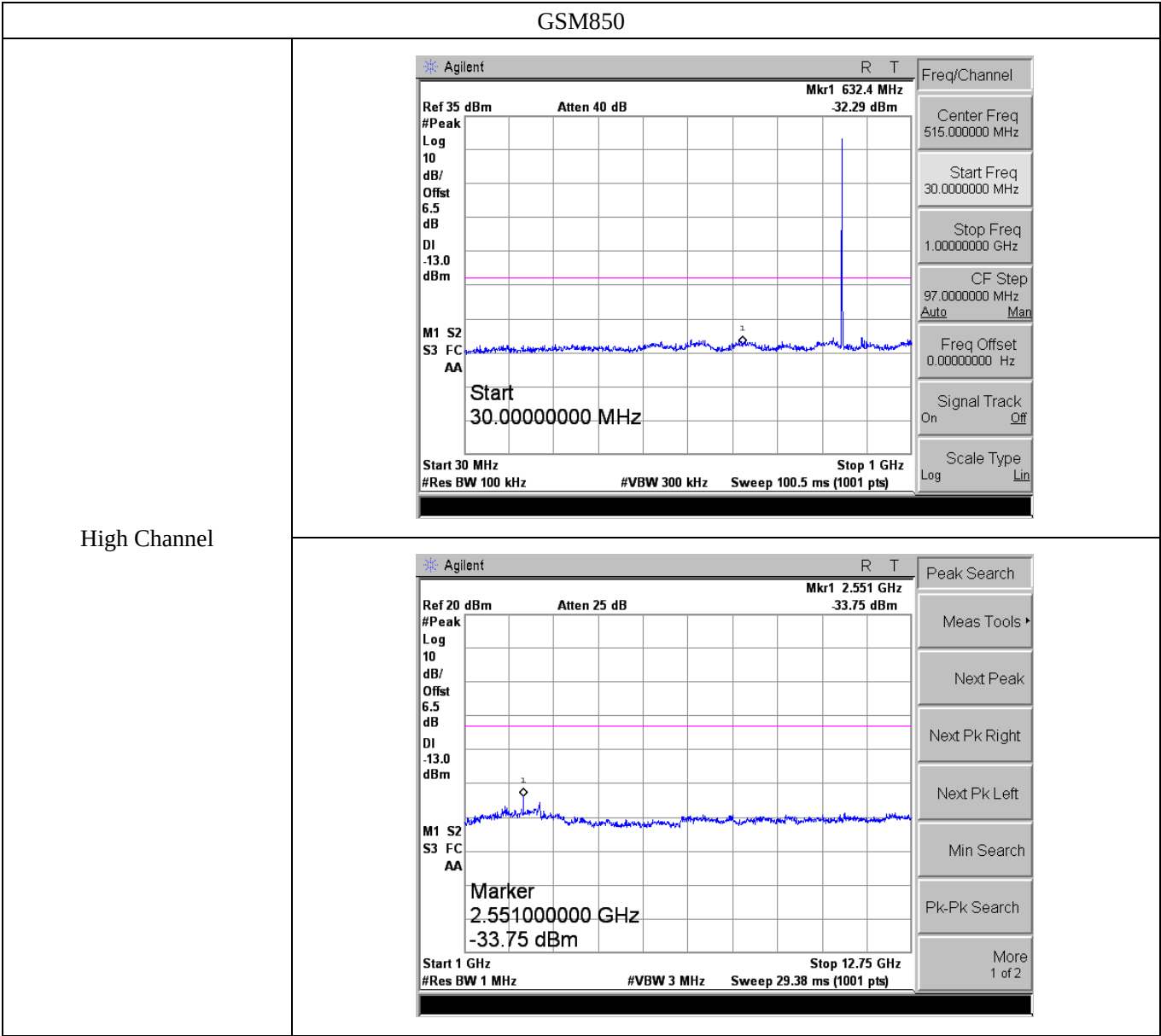
7.3 Summary of Test Results/Plots

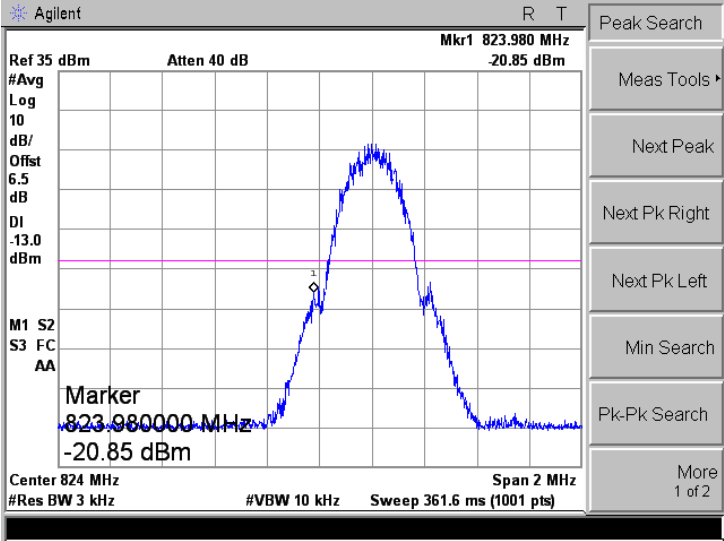
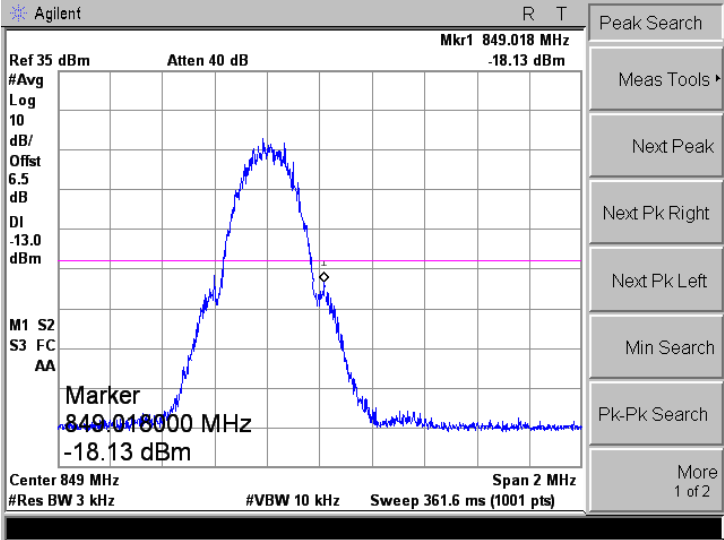
Note: Pre-scan mode WCDMA/HSDPA/HSUPA find the worst case at WCDMA mode and recorded in the test report.

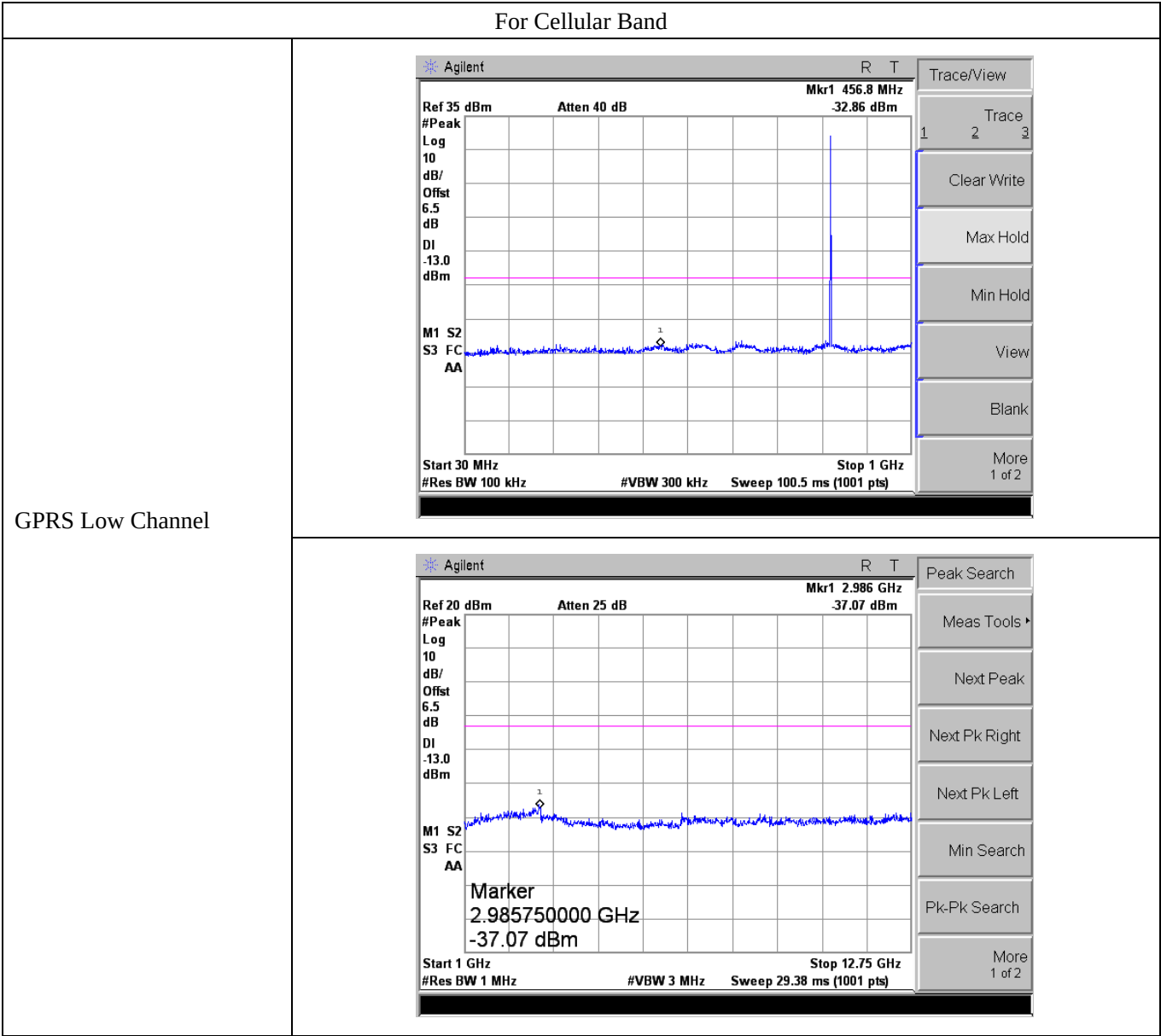
Please refer to the following test plots

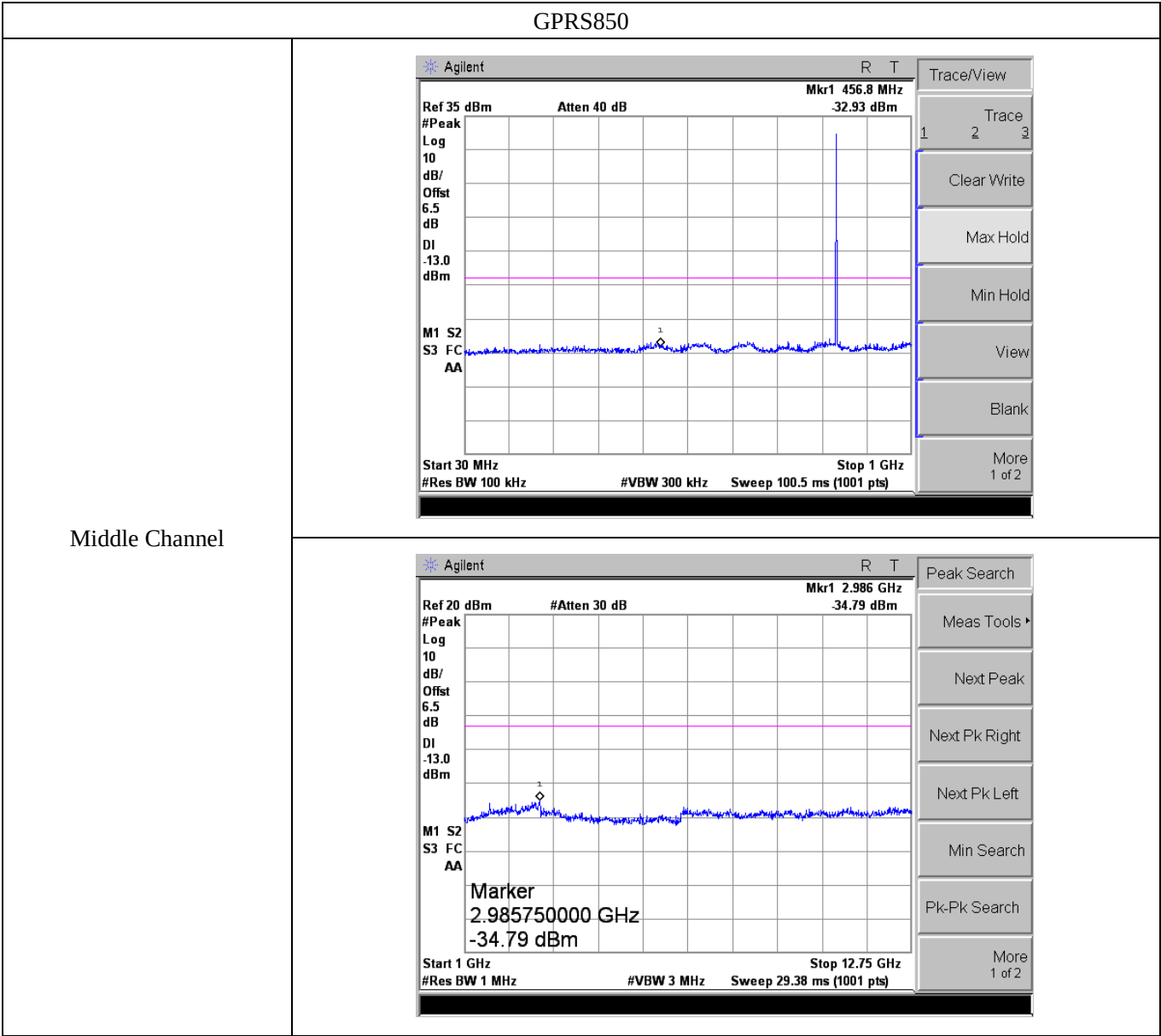


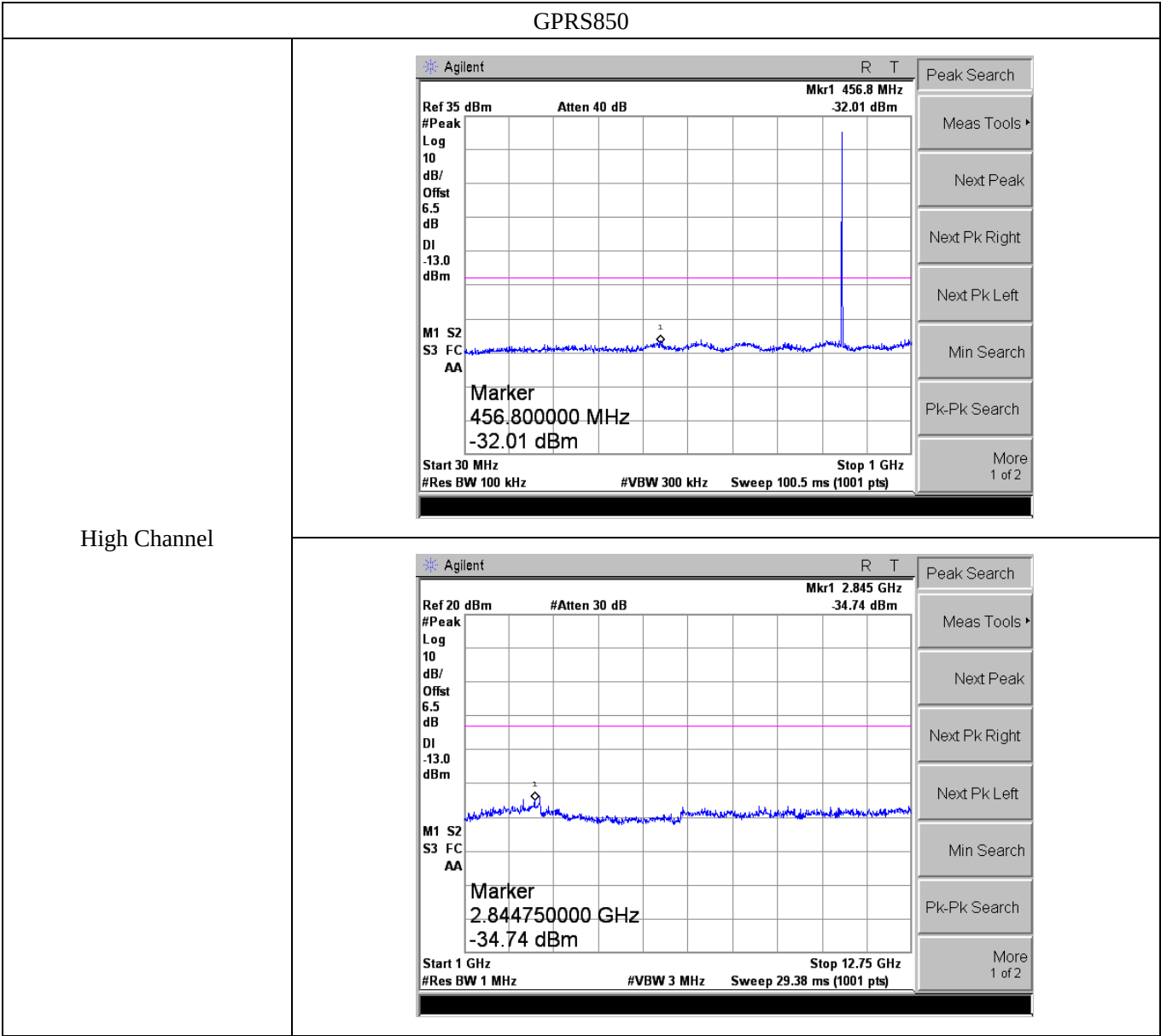


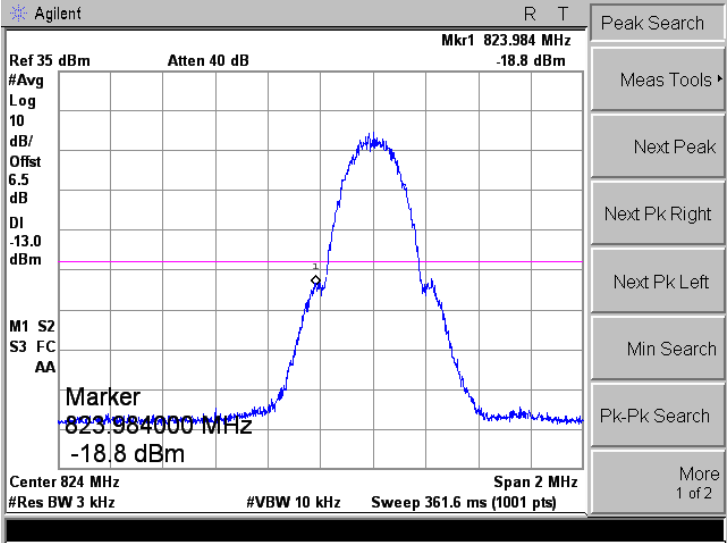
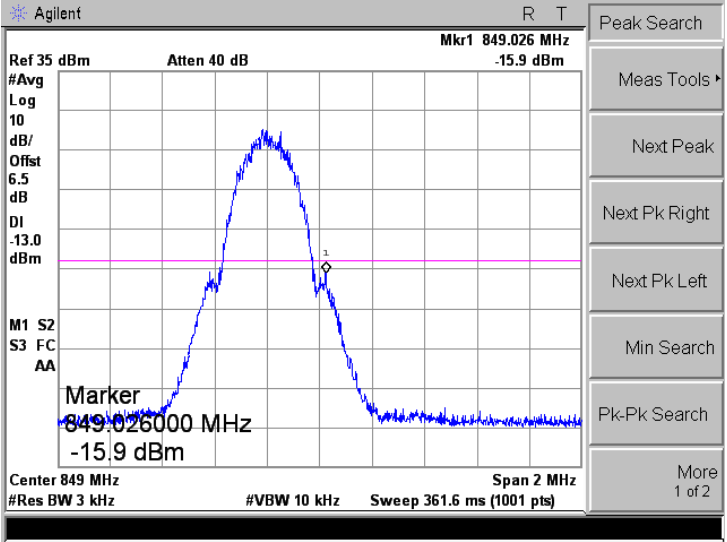


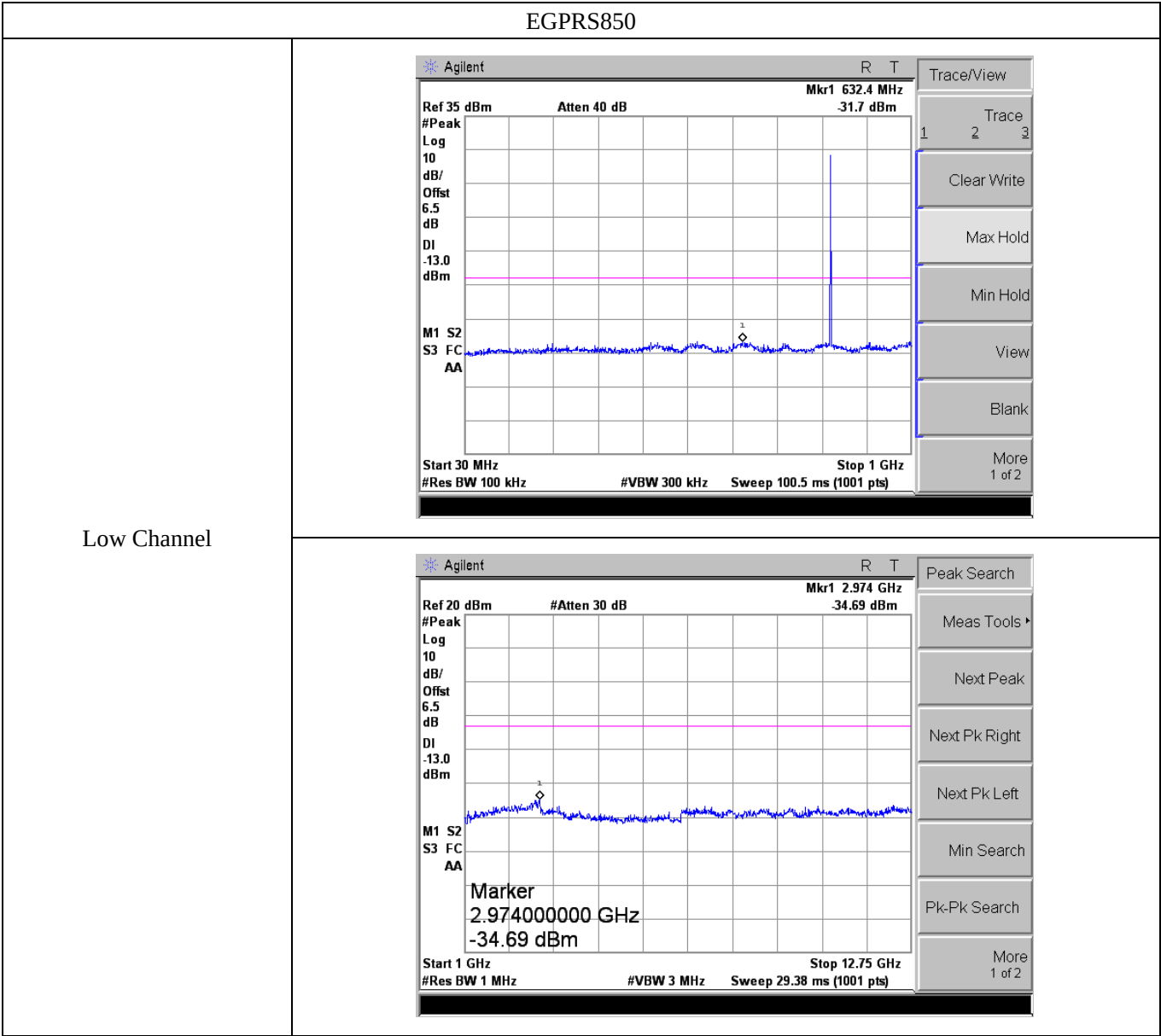
GSM850	
Low Band Emission	
High Band Emission	

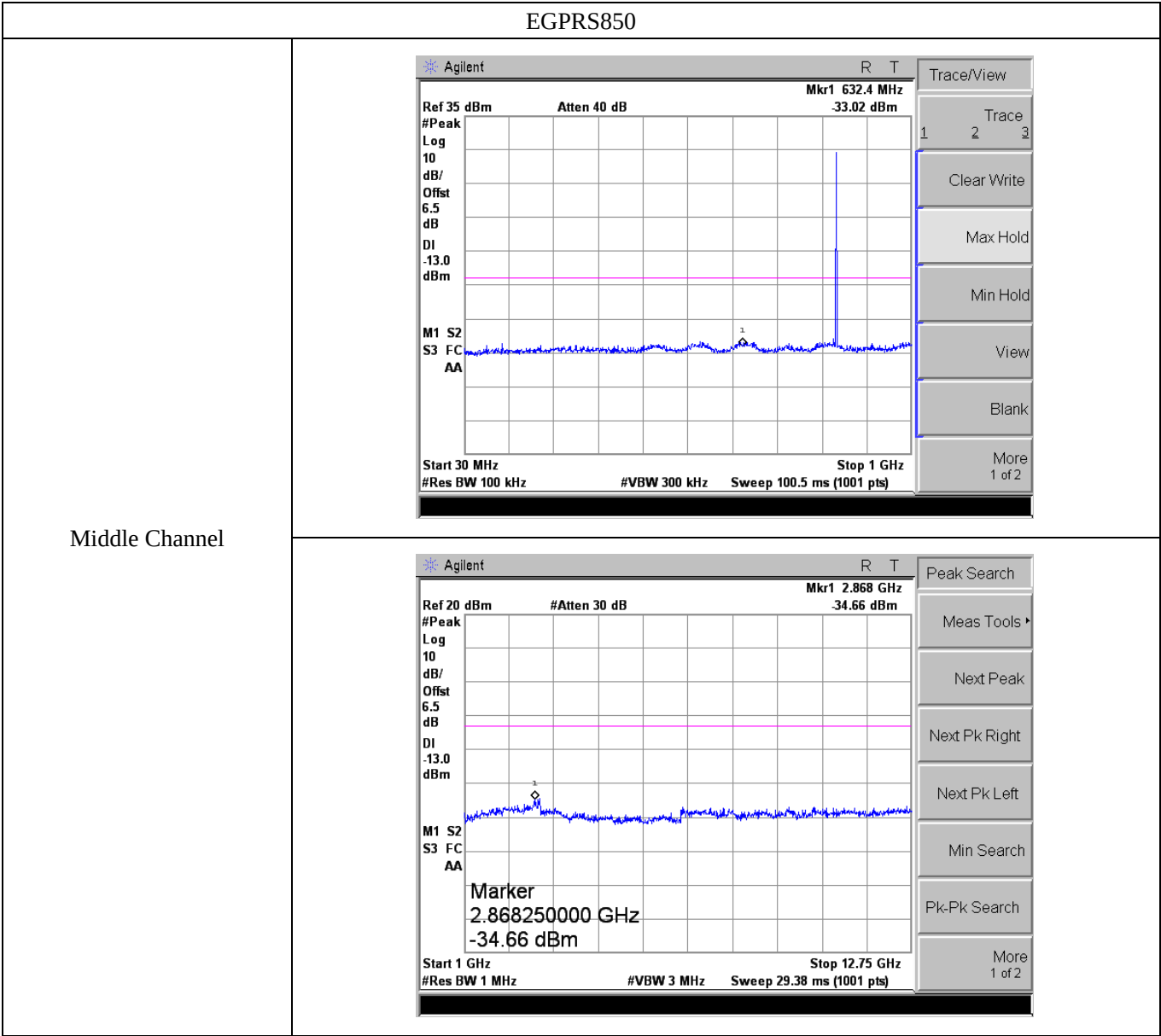


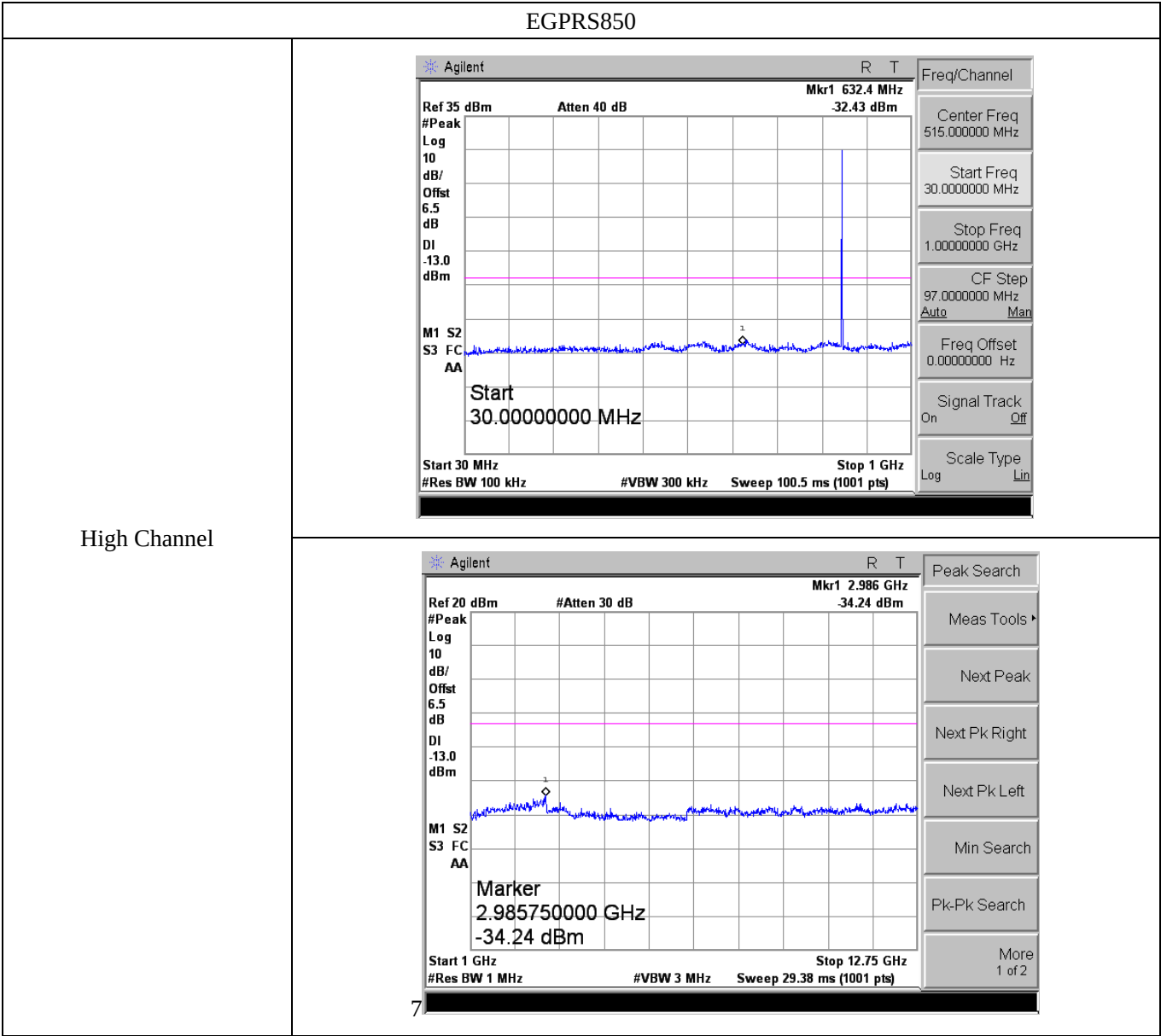


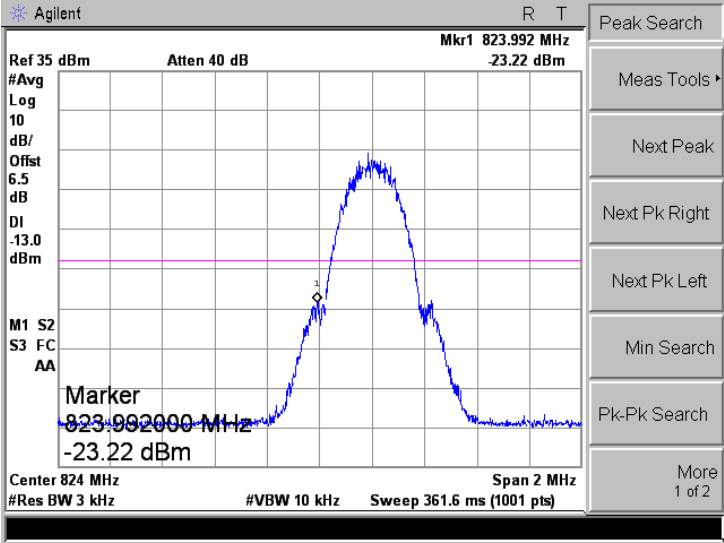
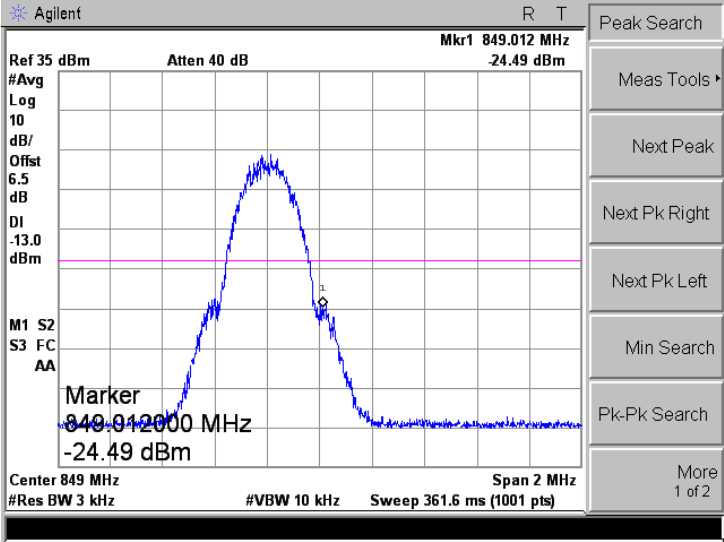


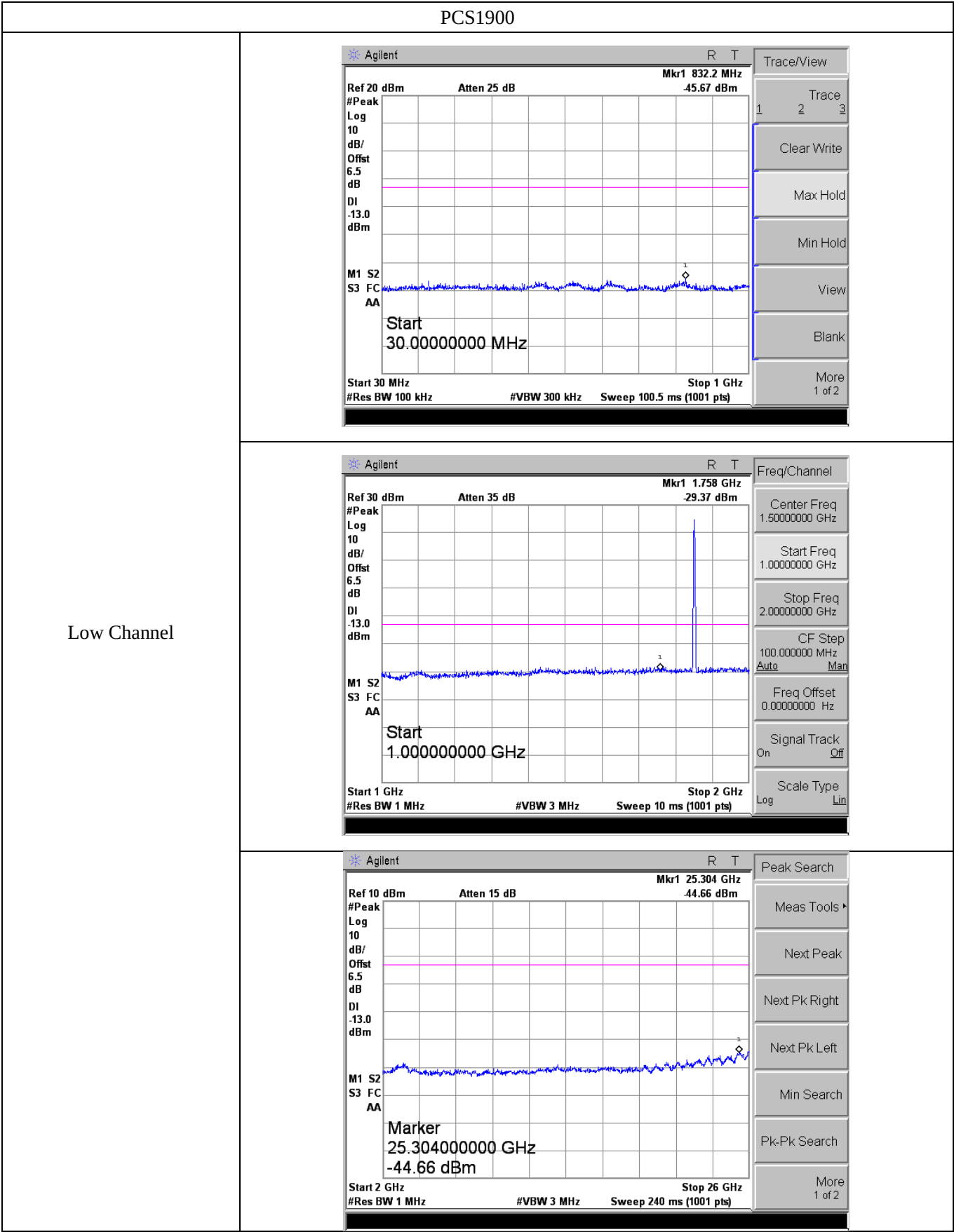
GPRS850	
Low Band Emission	
High Band Emission	



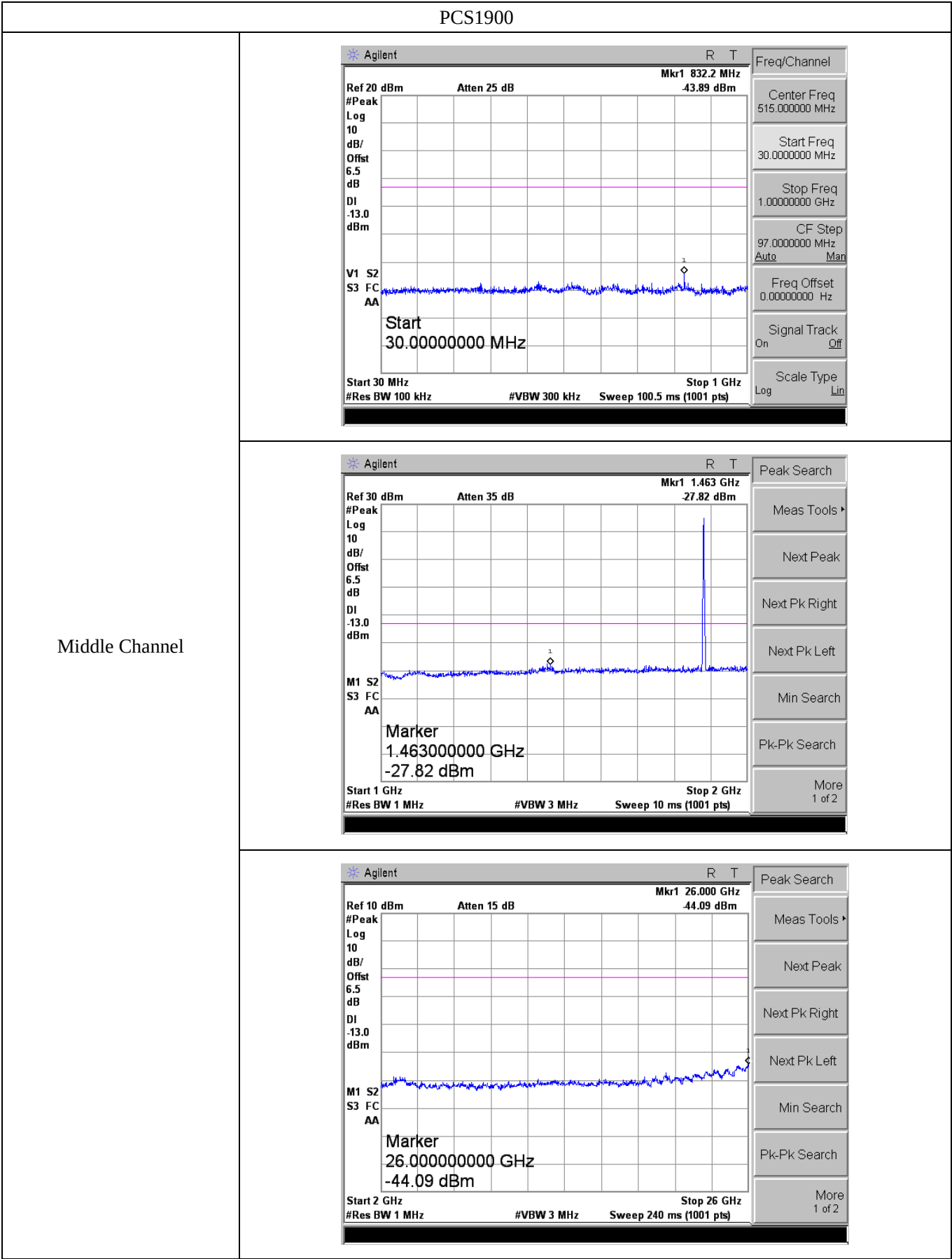


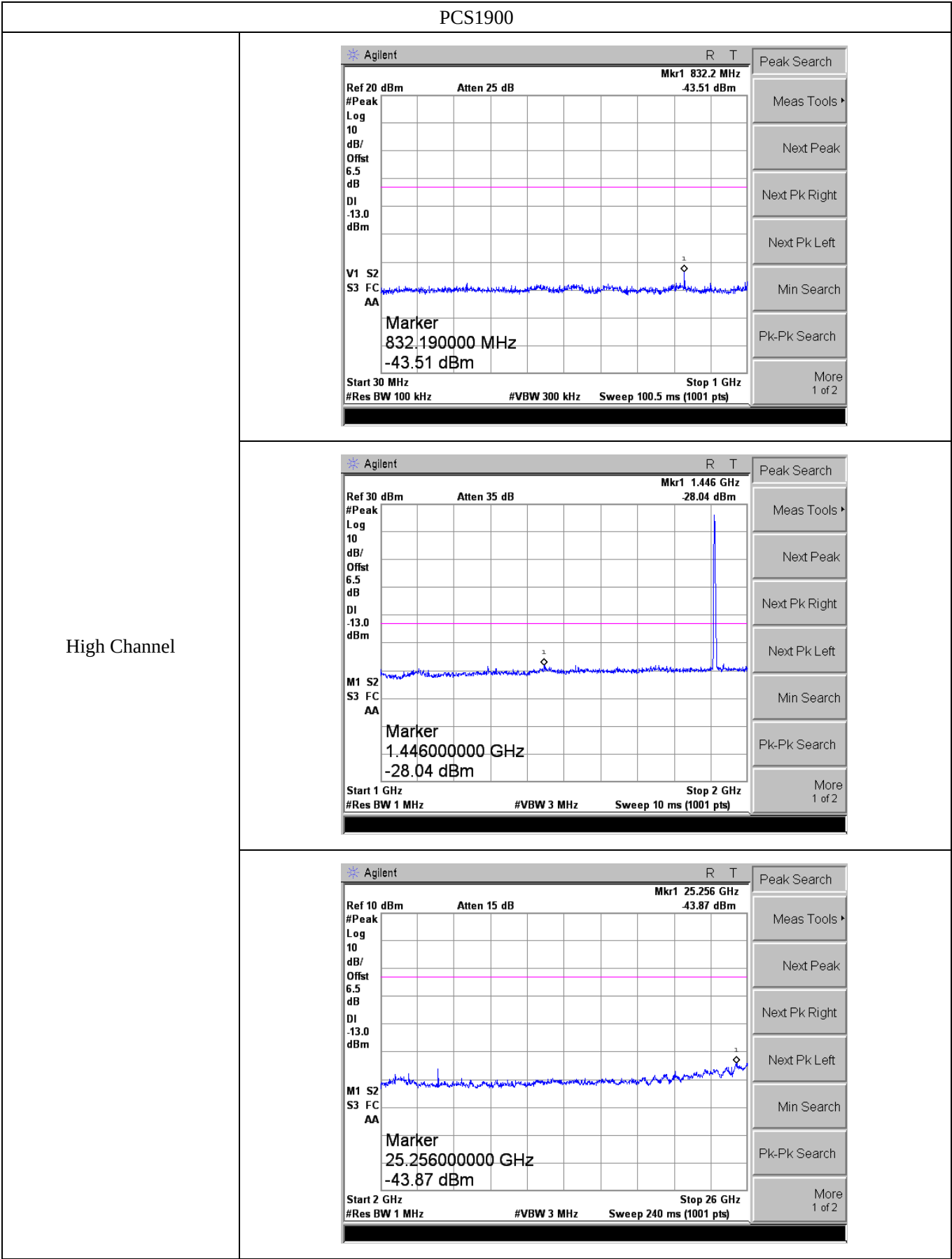


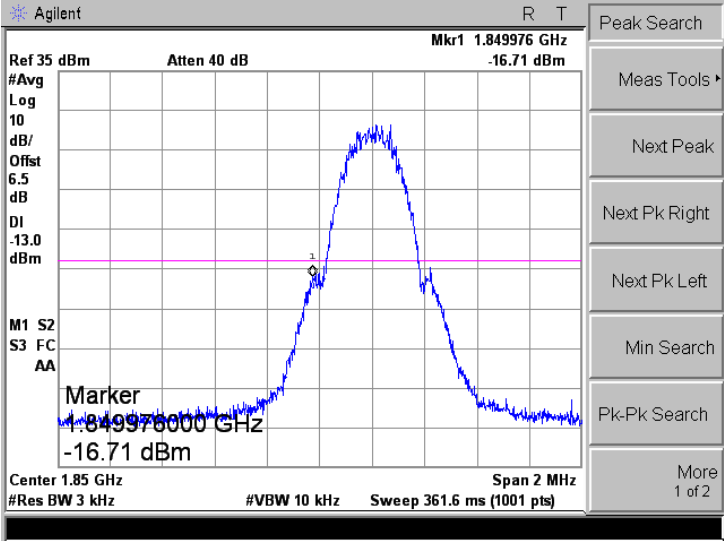
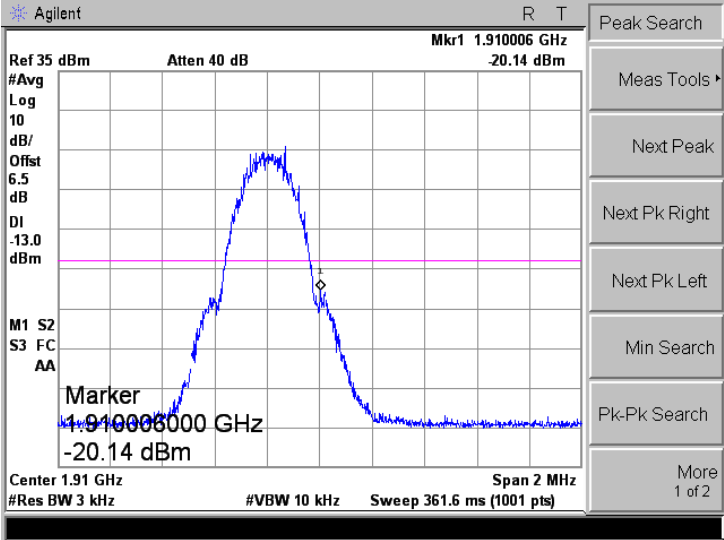
EGPRS850	
Low Band Emission	
High Band Emission	



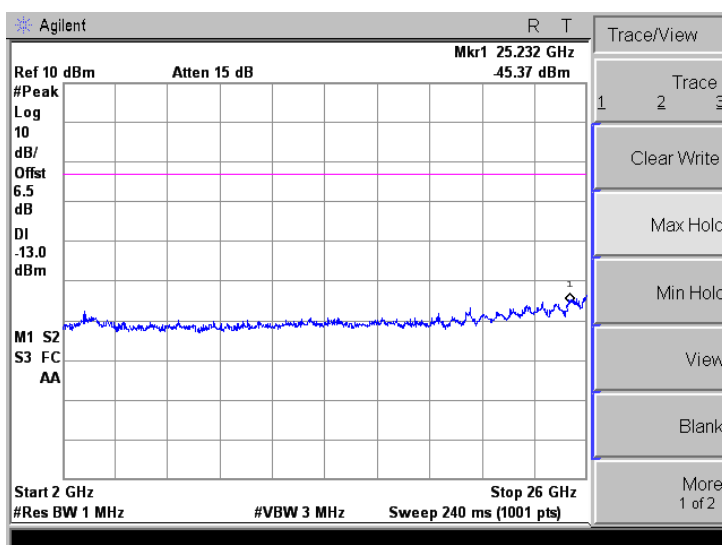
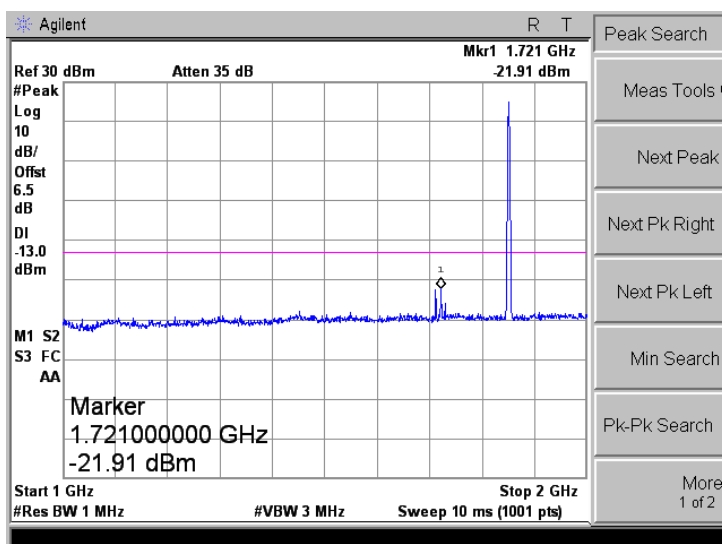
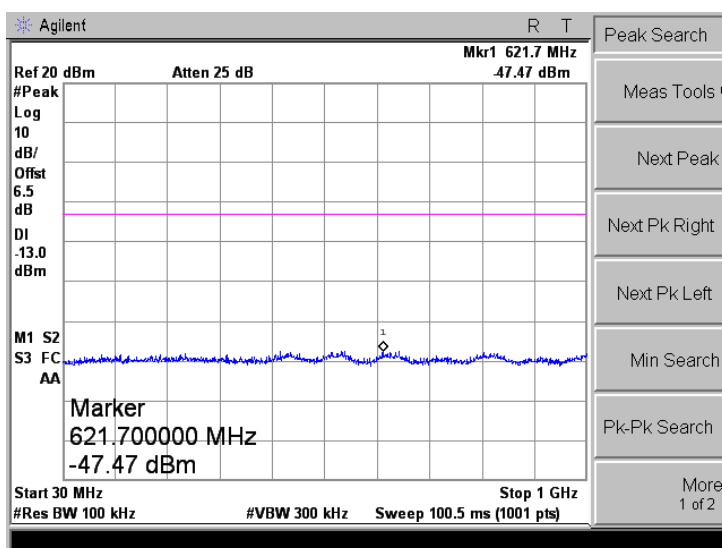
Low Channel

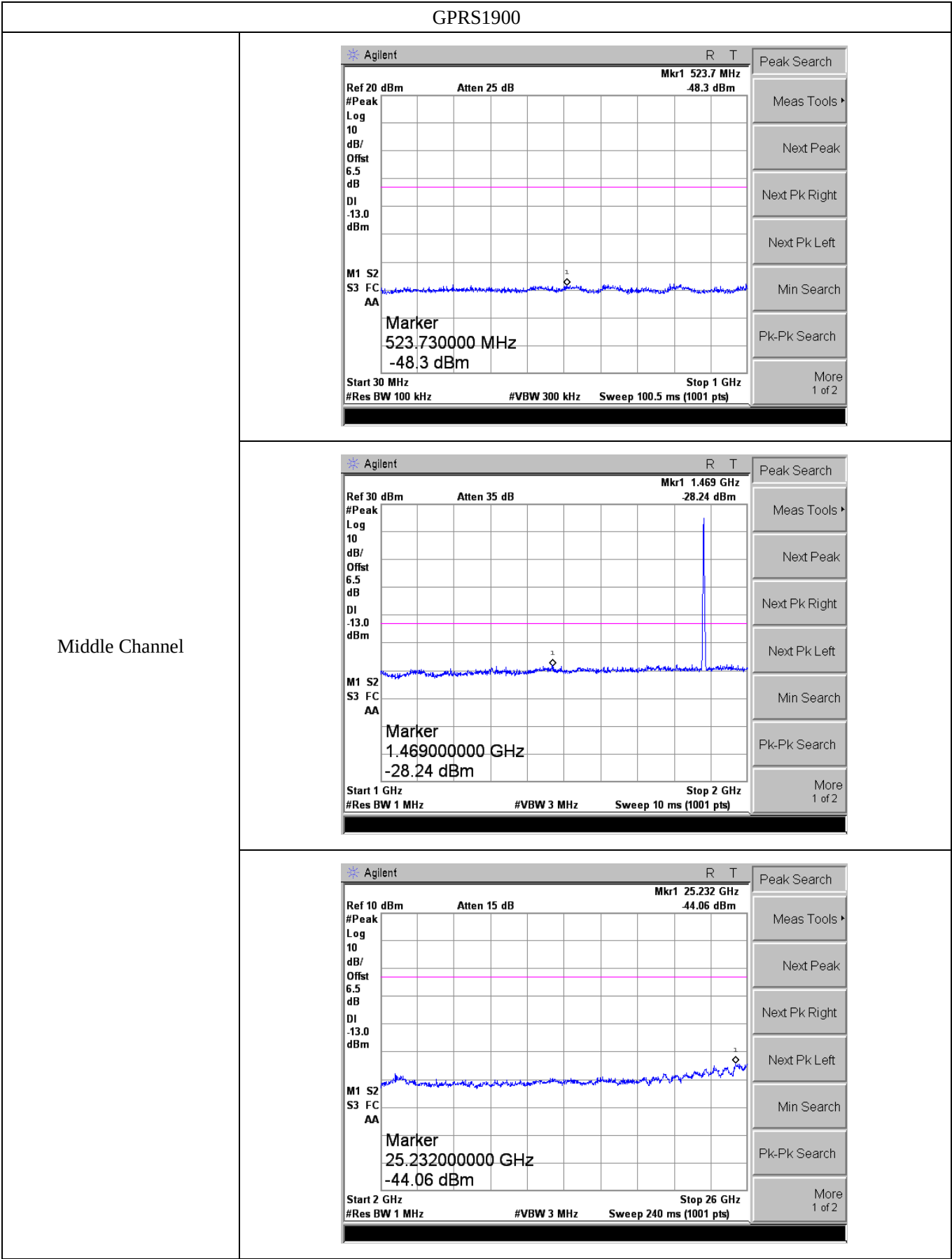


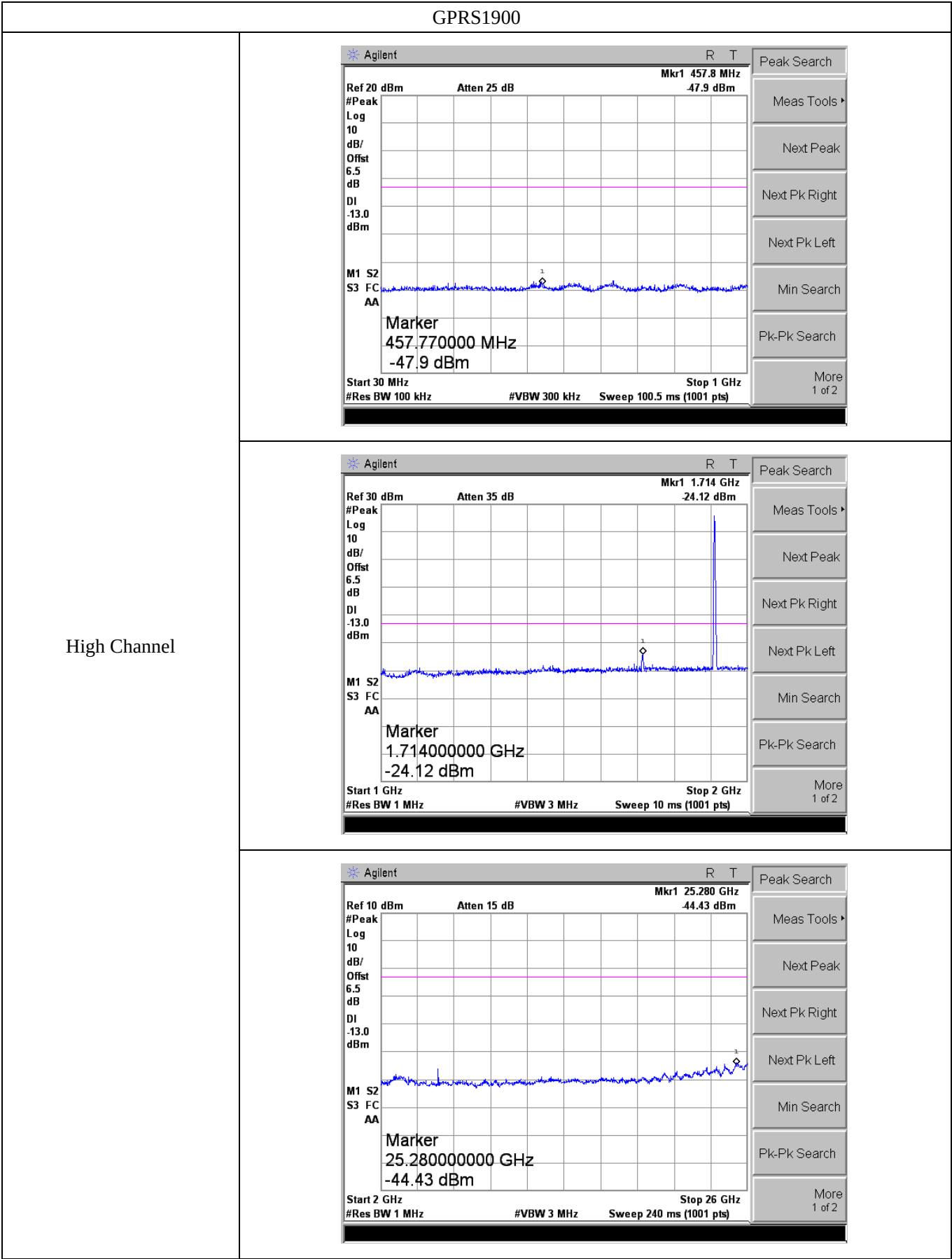


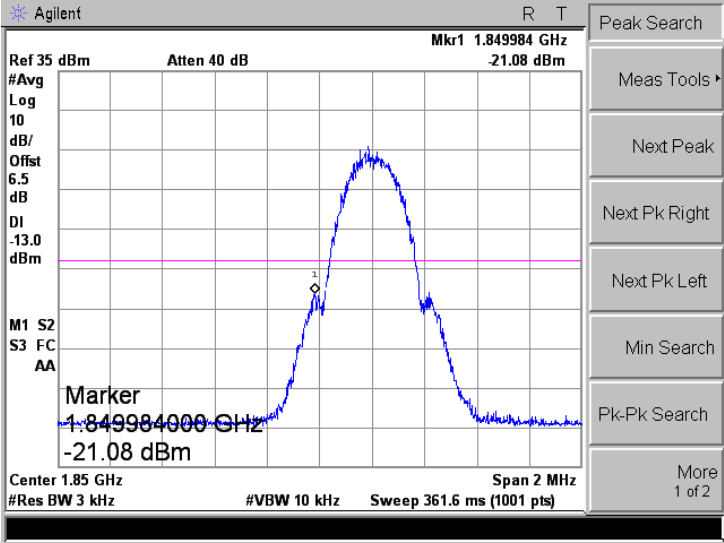
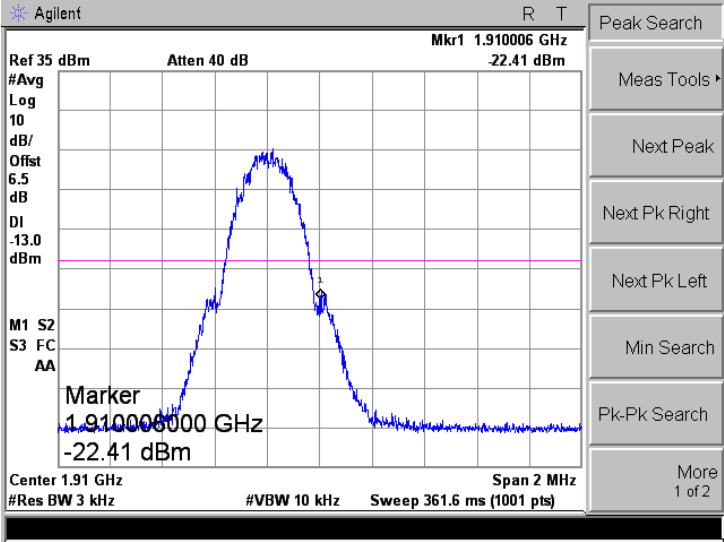
PCS1900	
Low Band Emission	
High Band Emission	

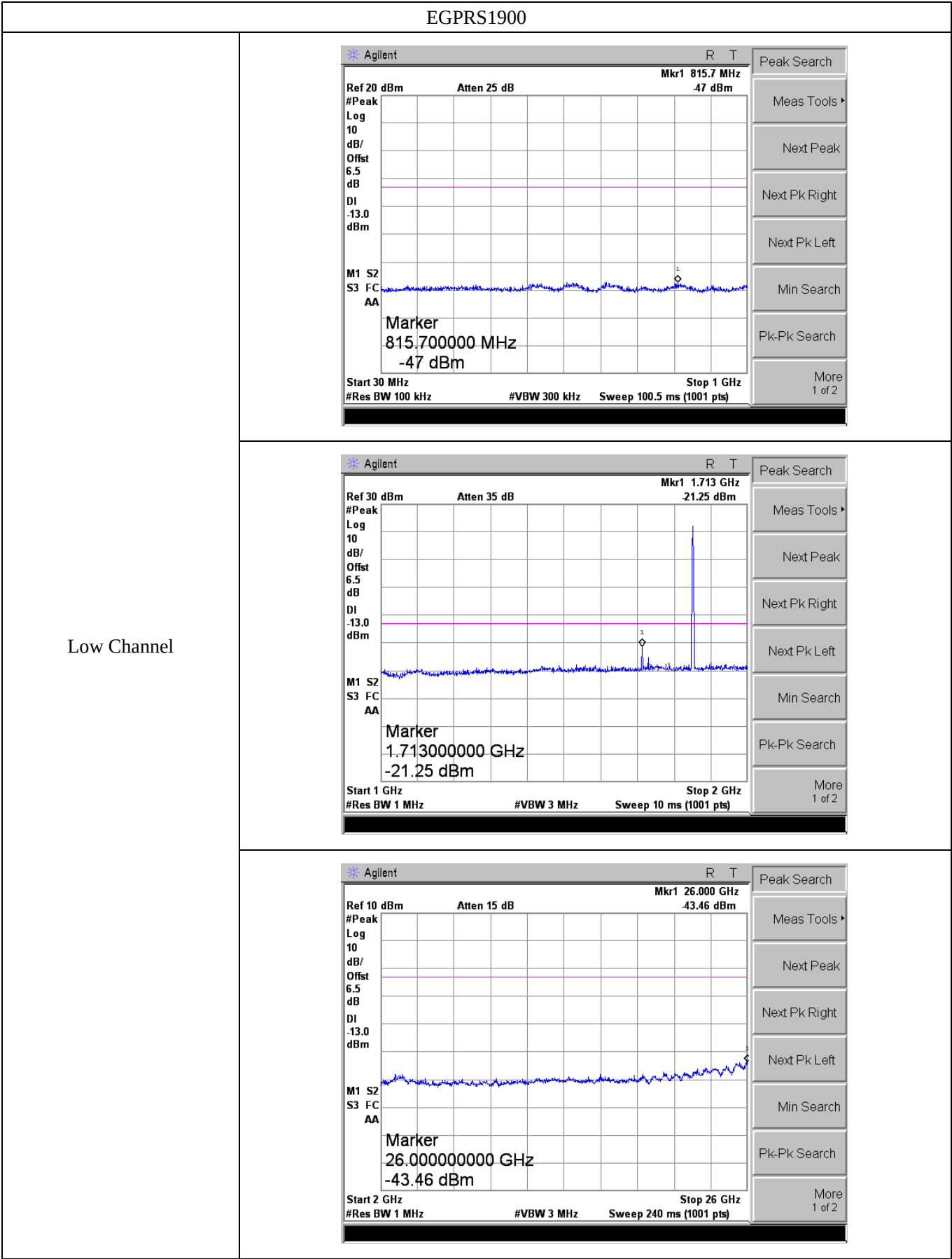
Low Channel

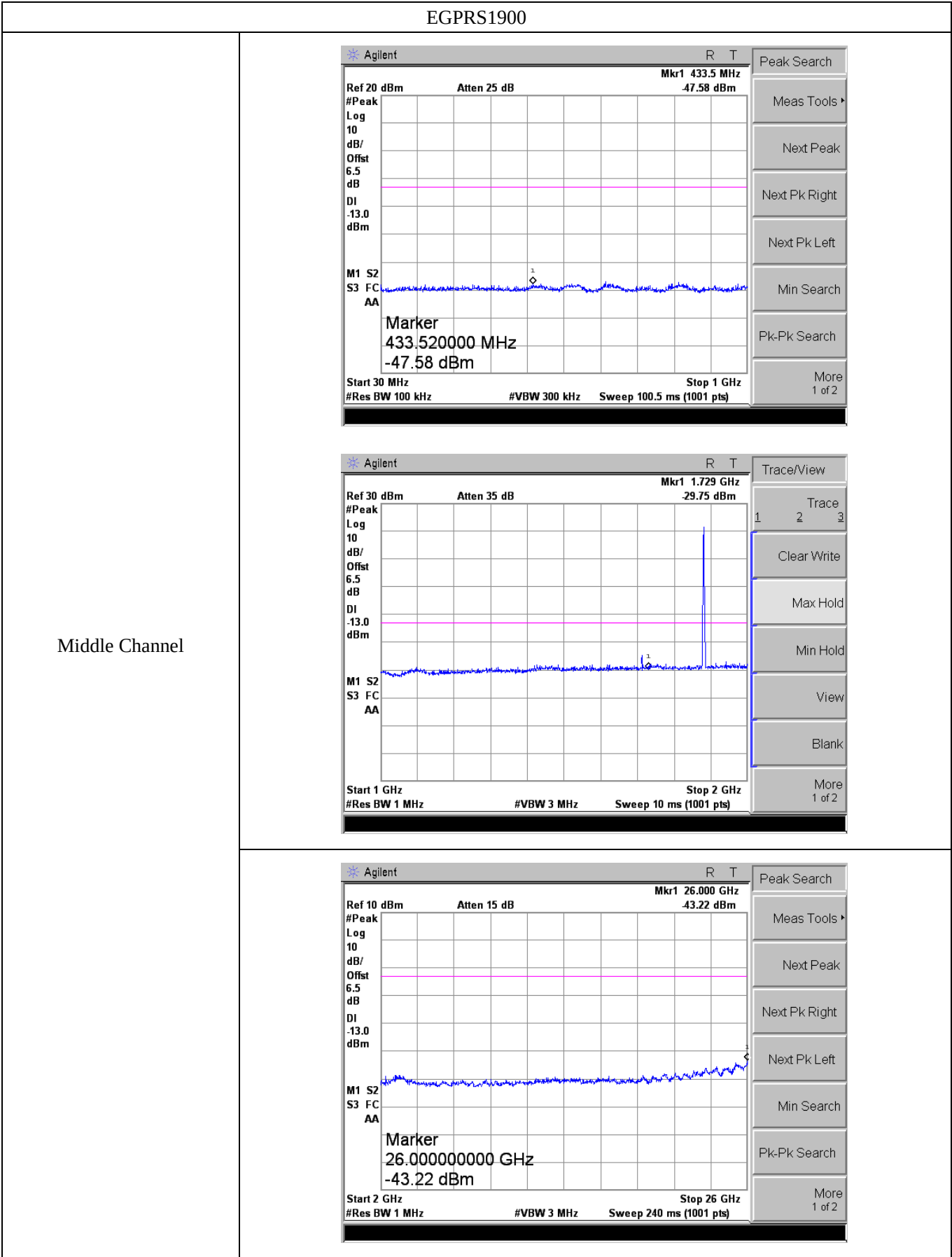


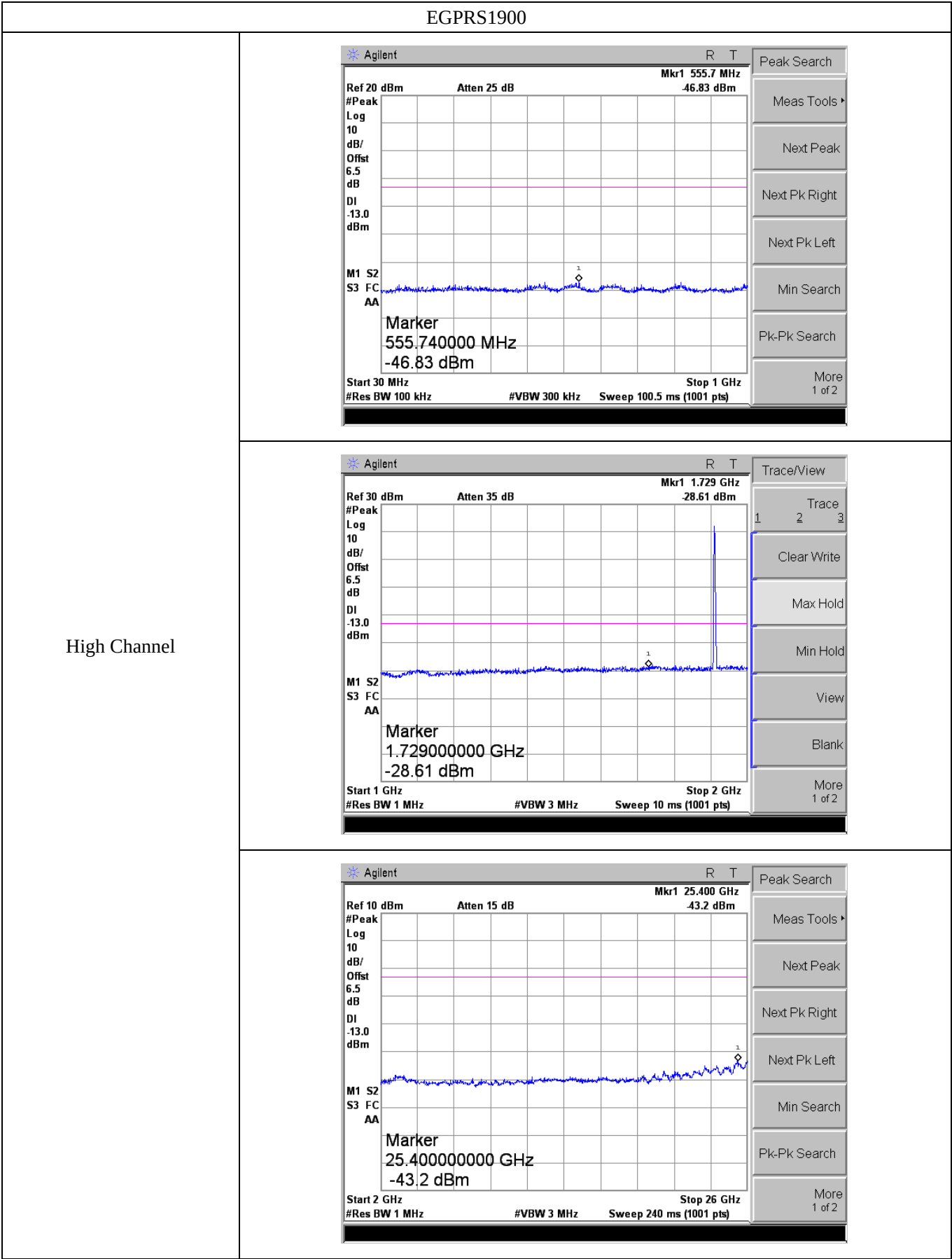




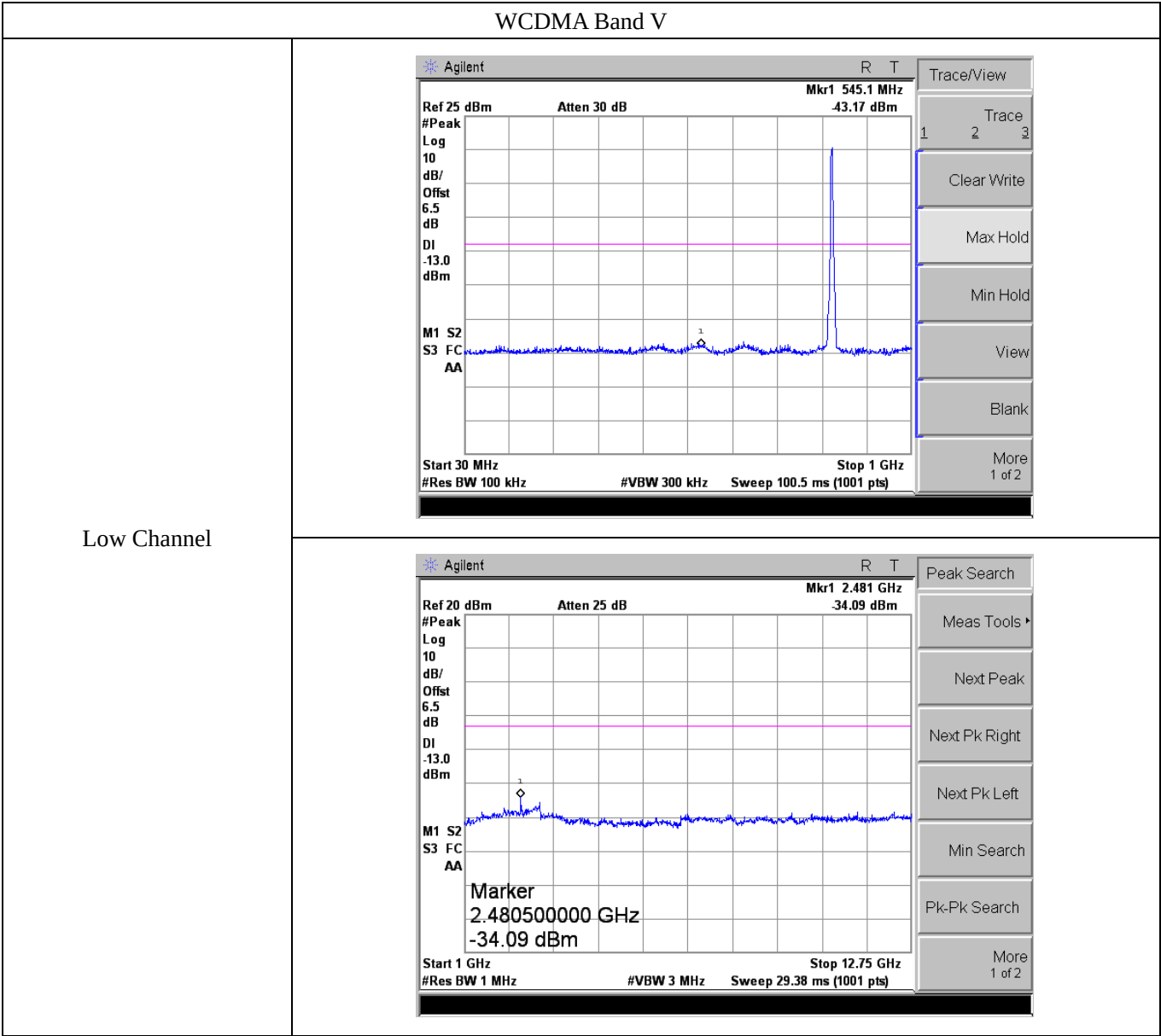
GPRS1900	
Low Band Emission	
High Band Emission	

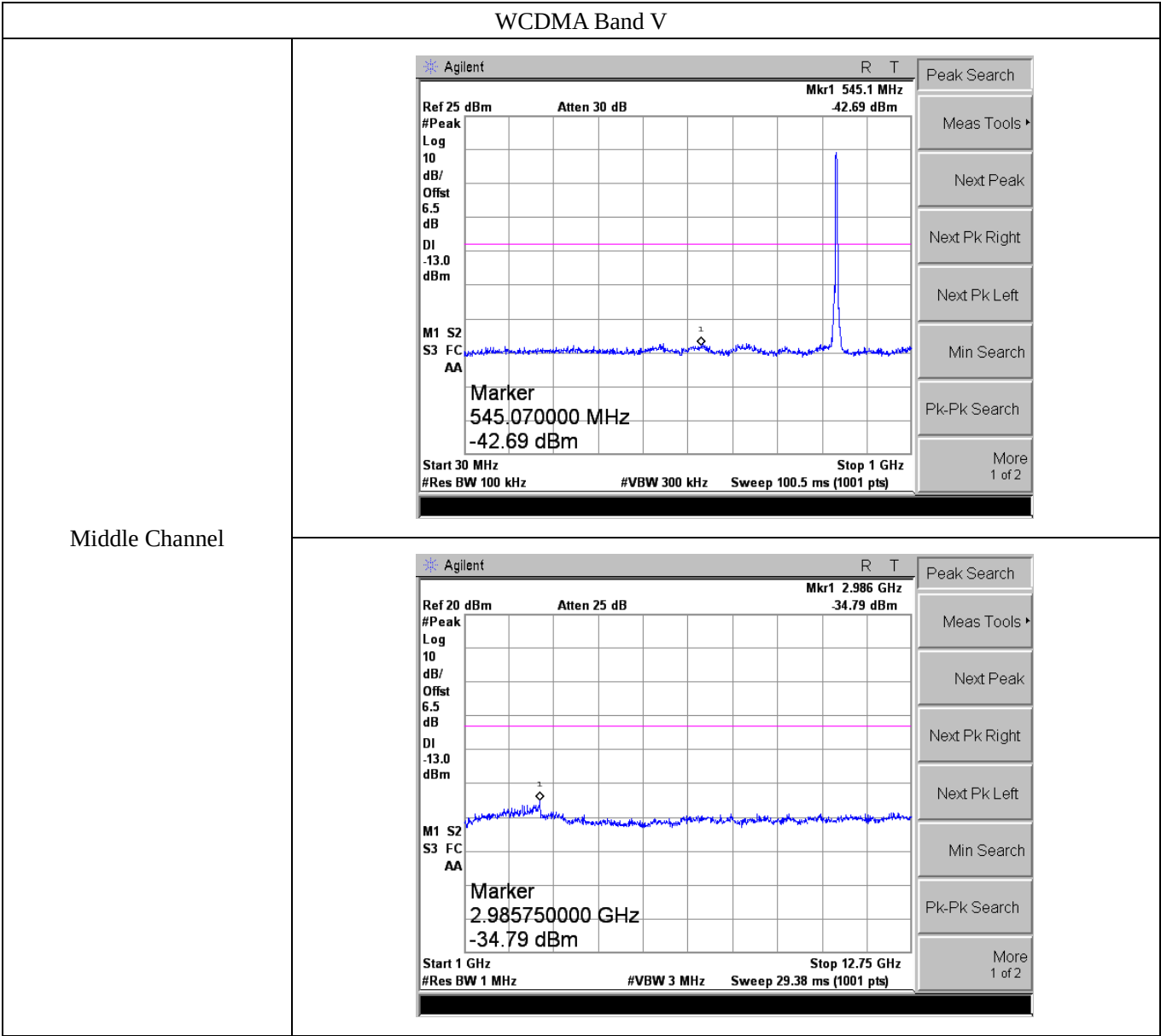


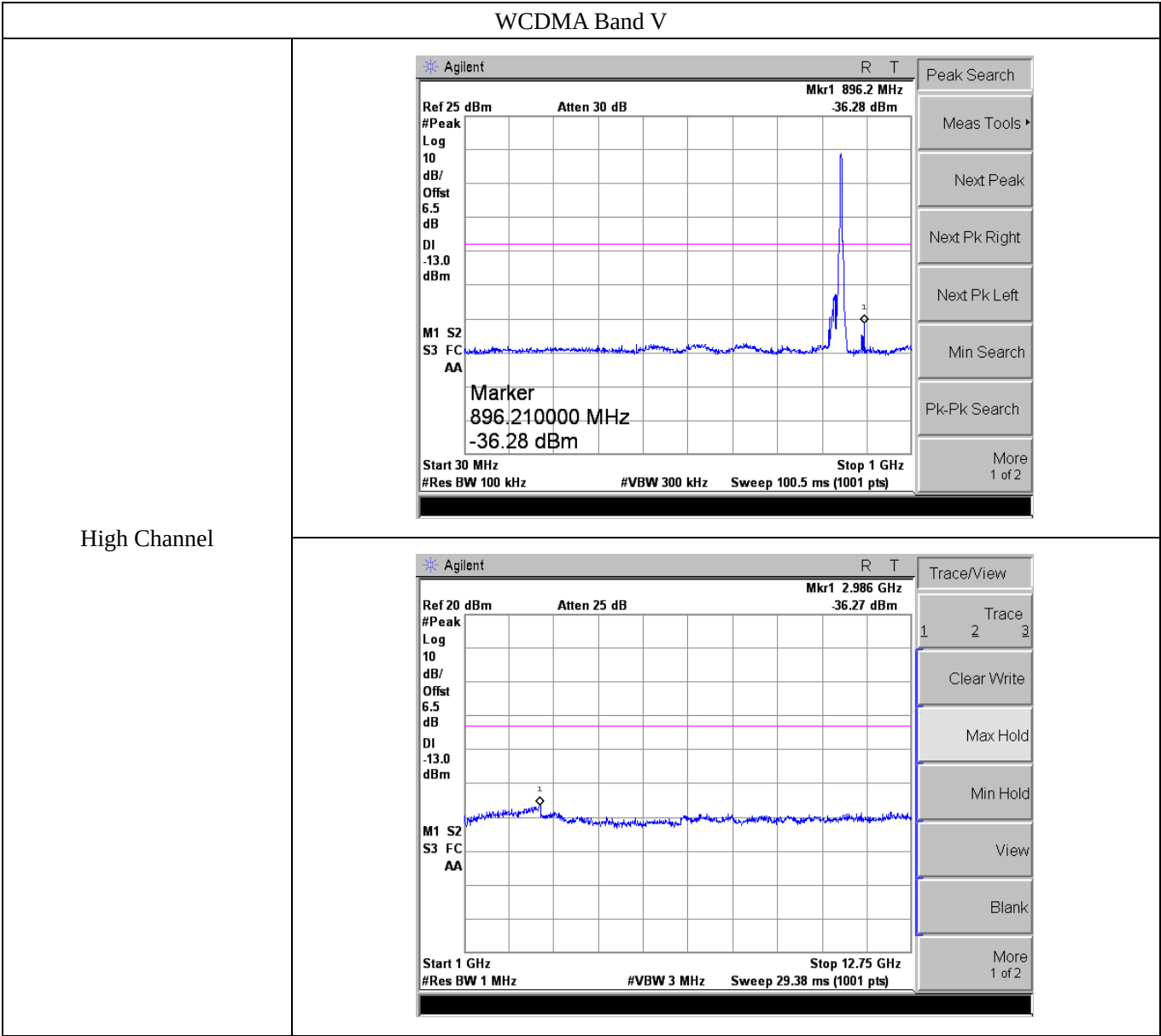


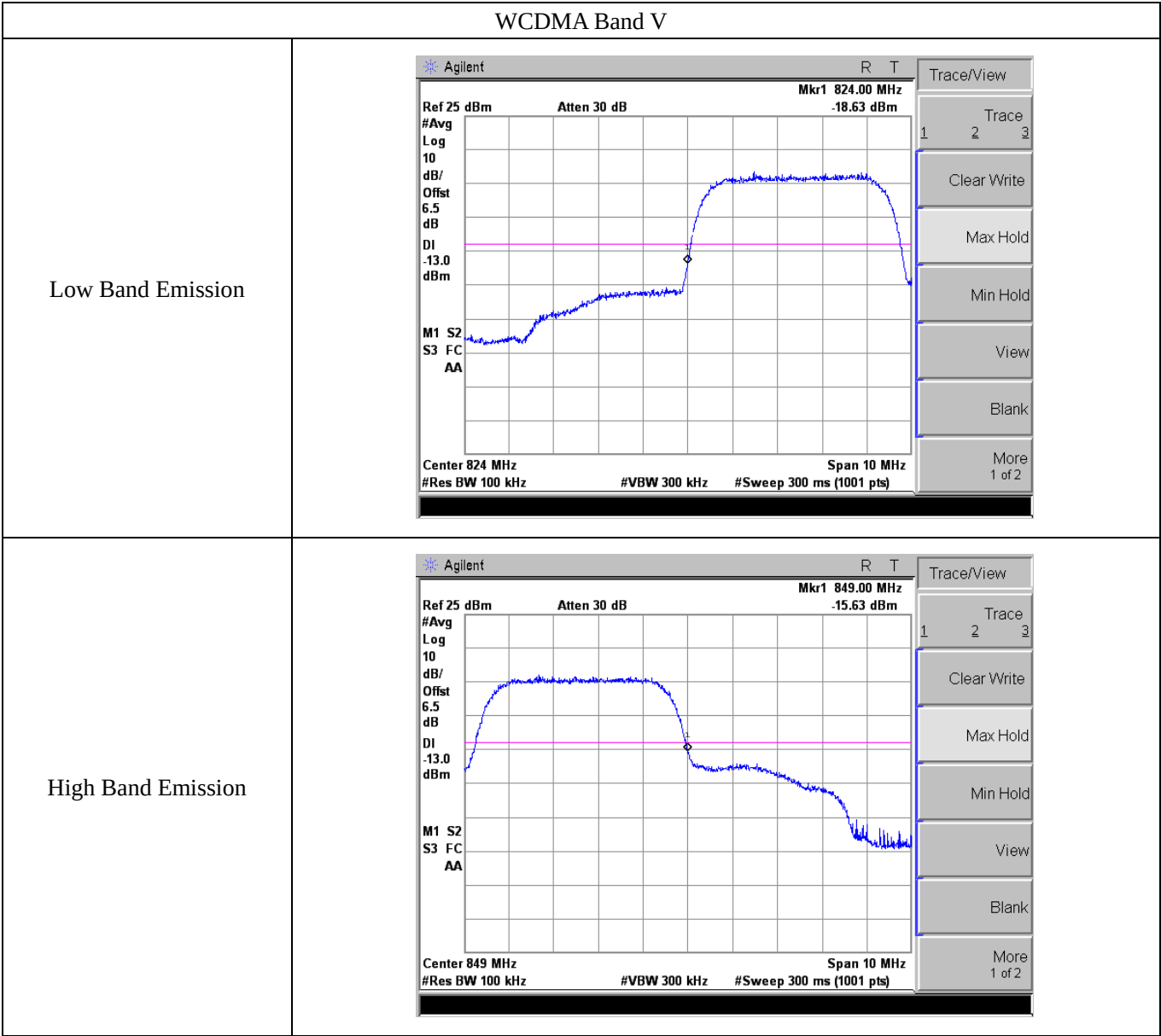


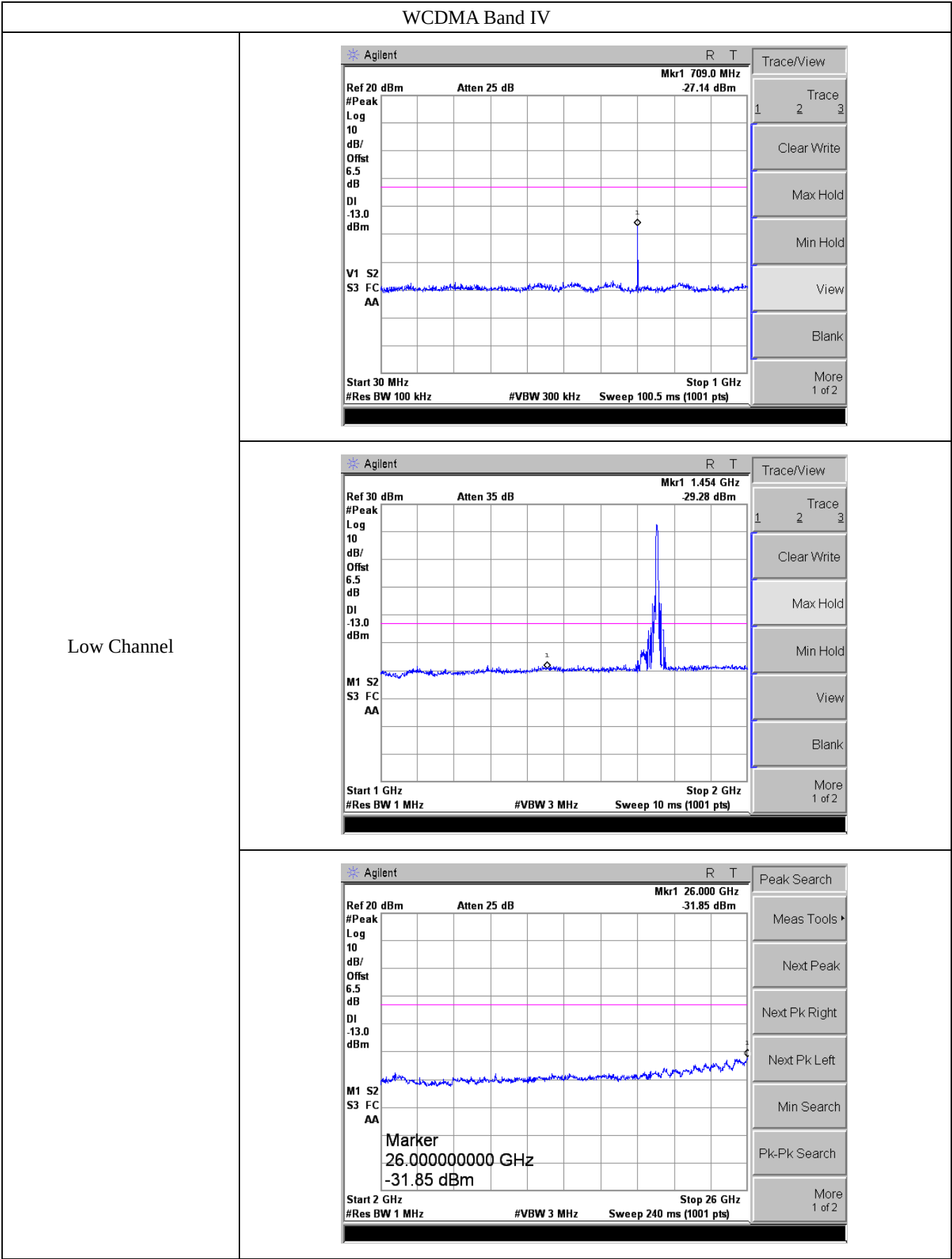
EGPRS1900	
Low Band Emission	
High Band Emission	

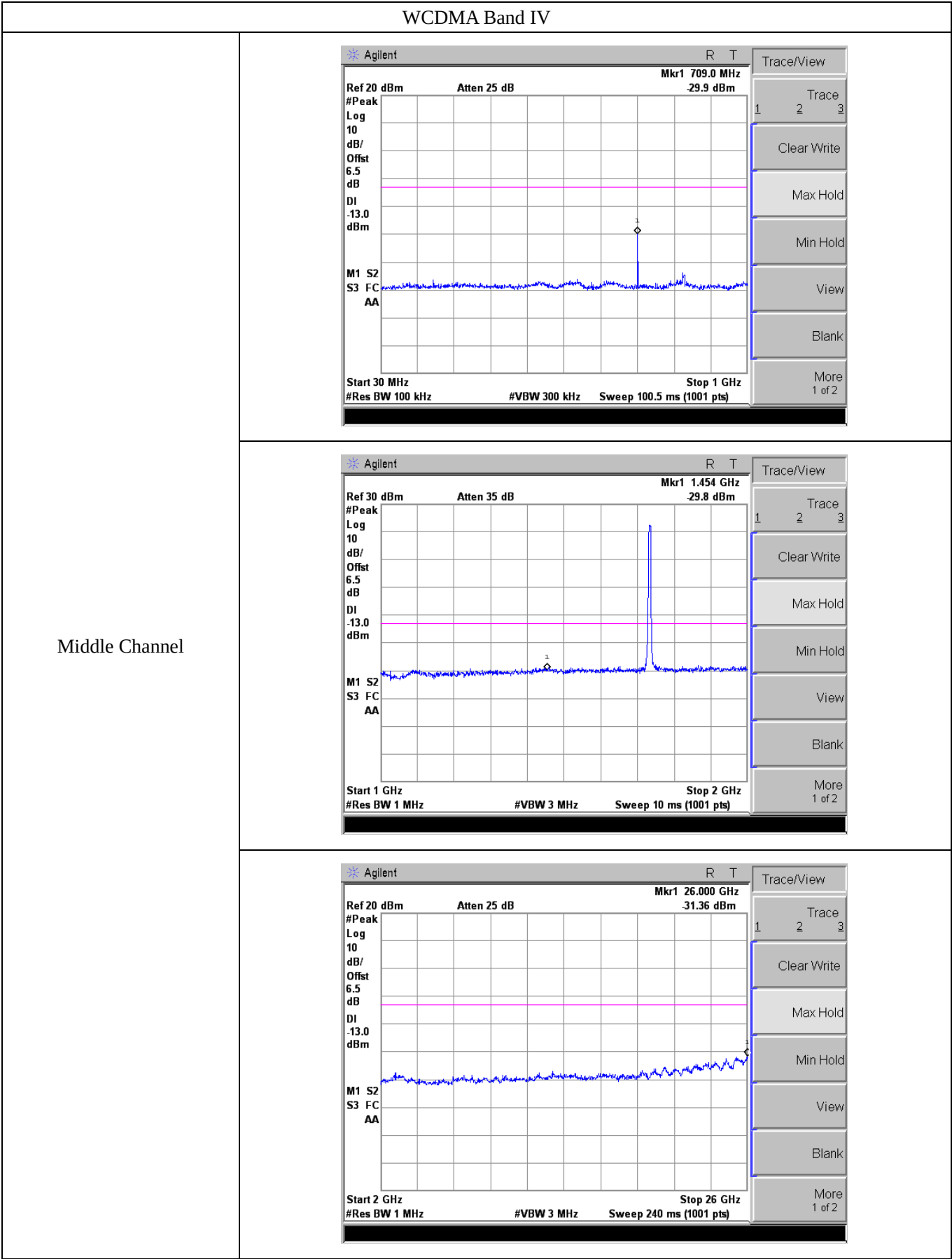


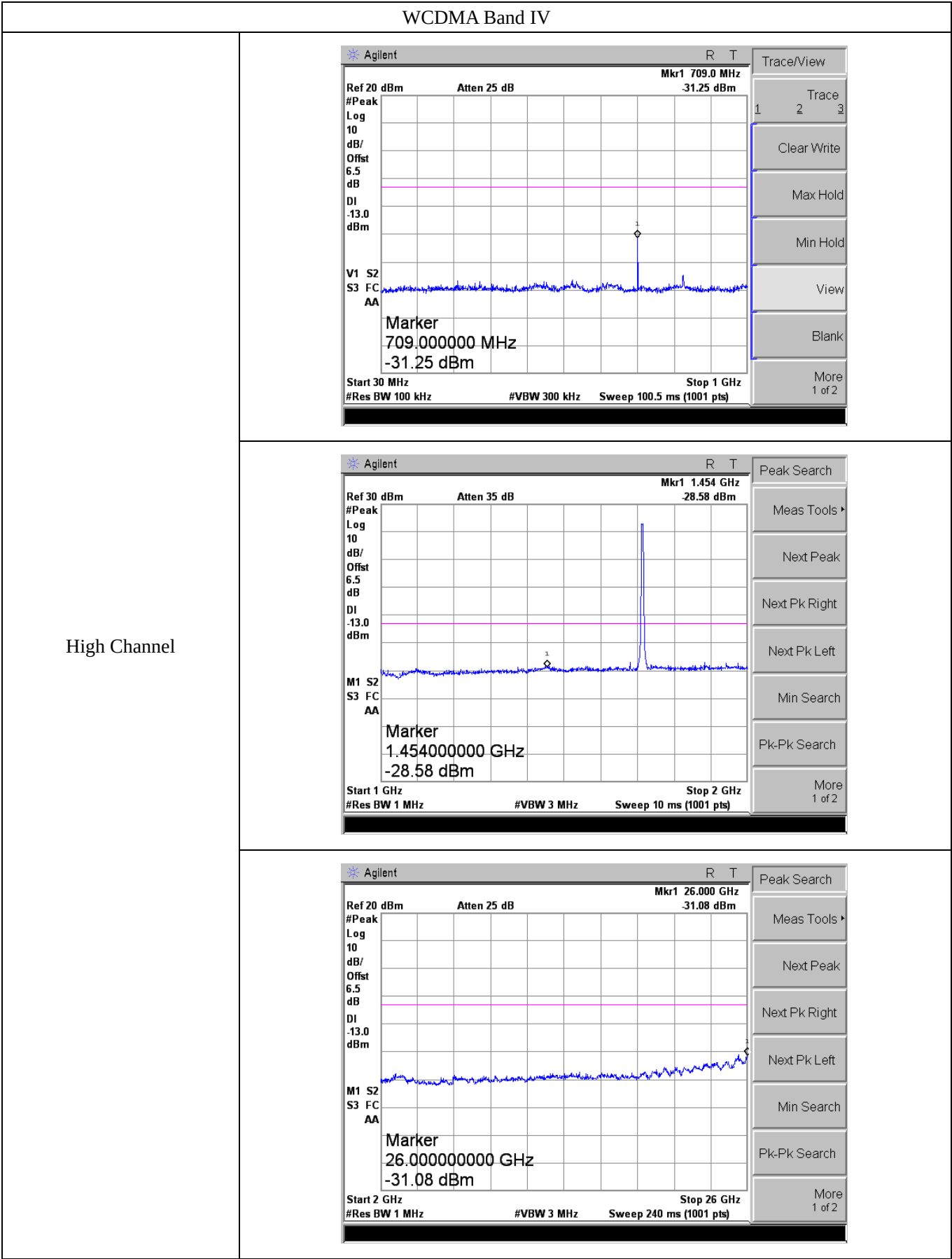


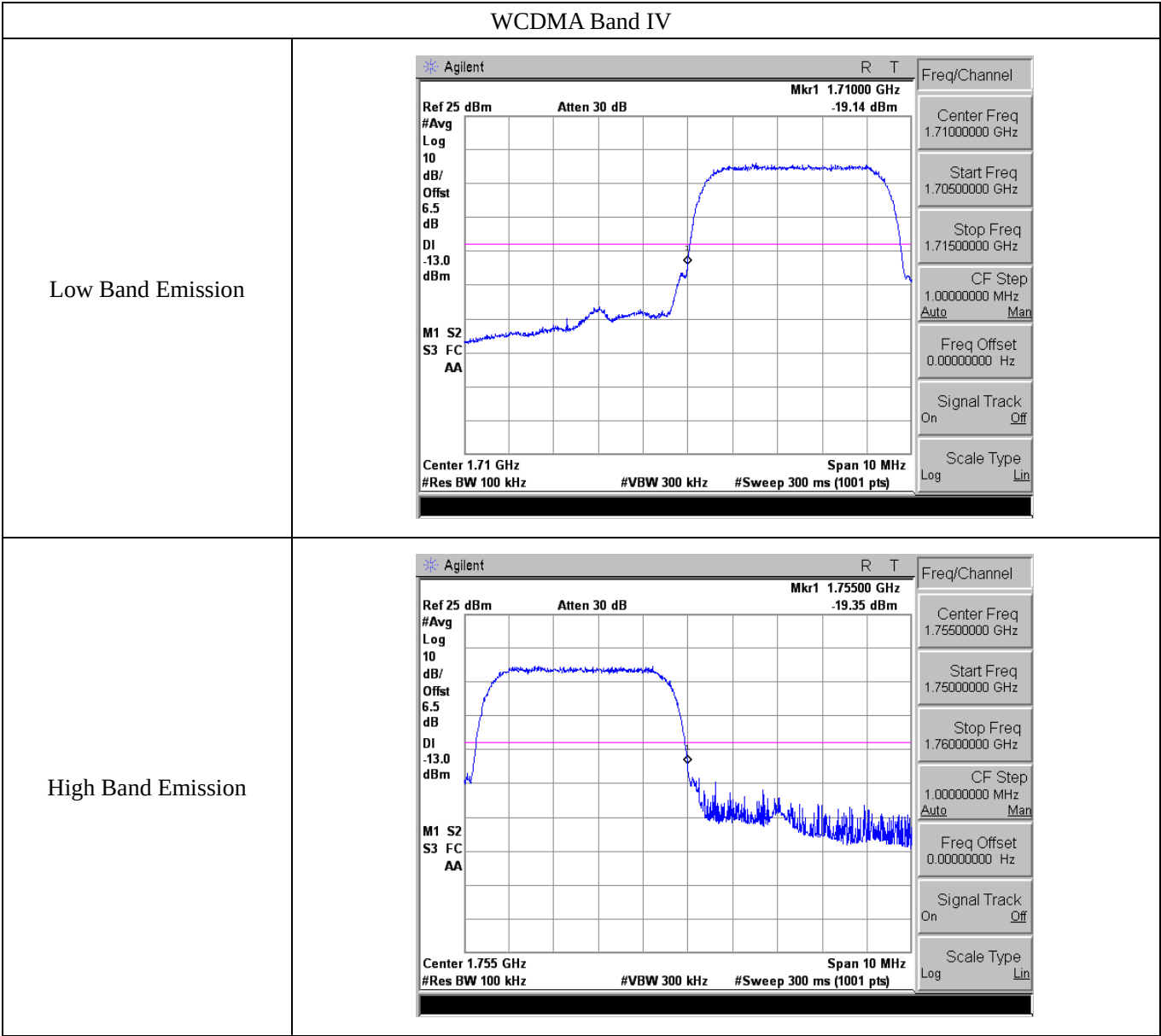


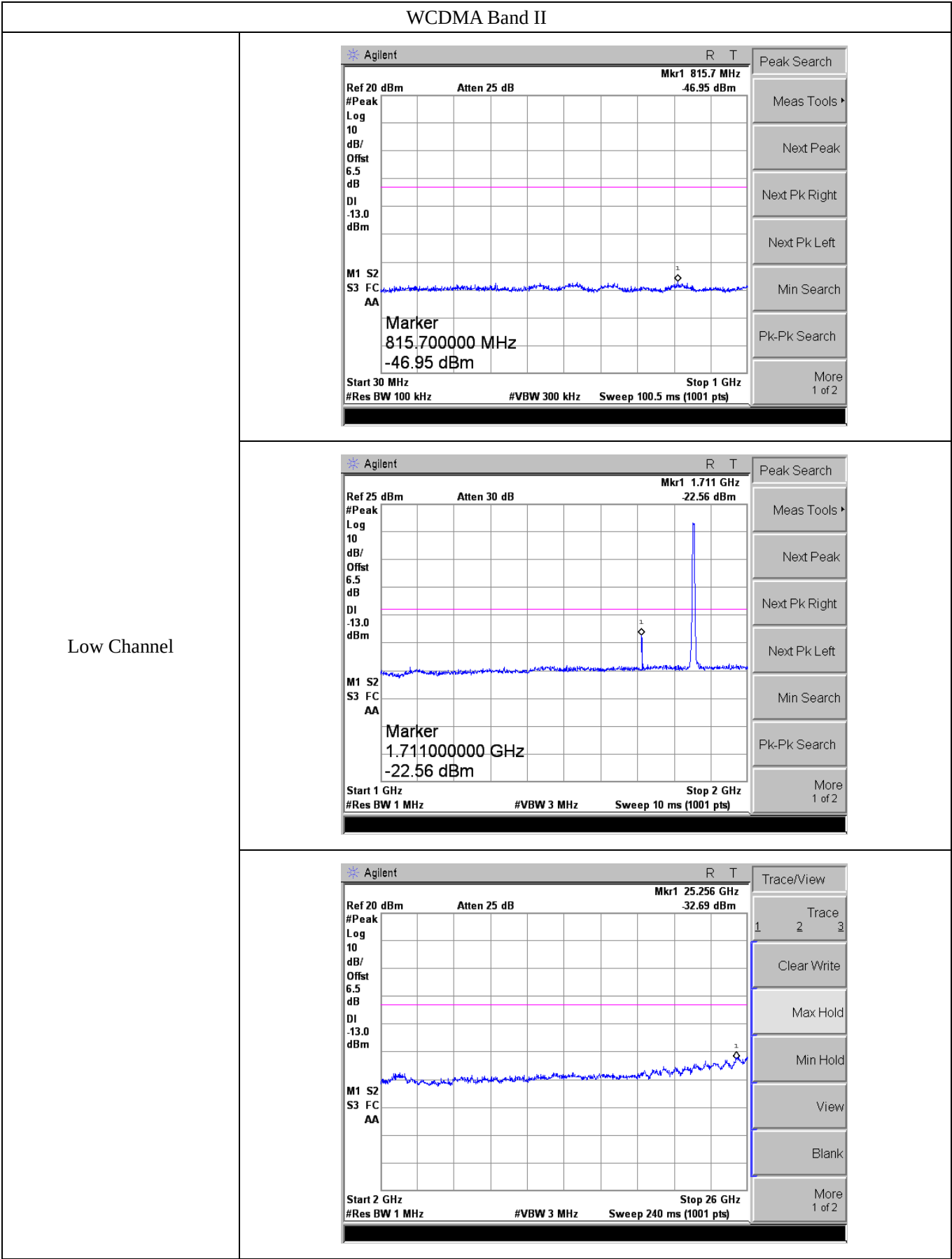


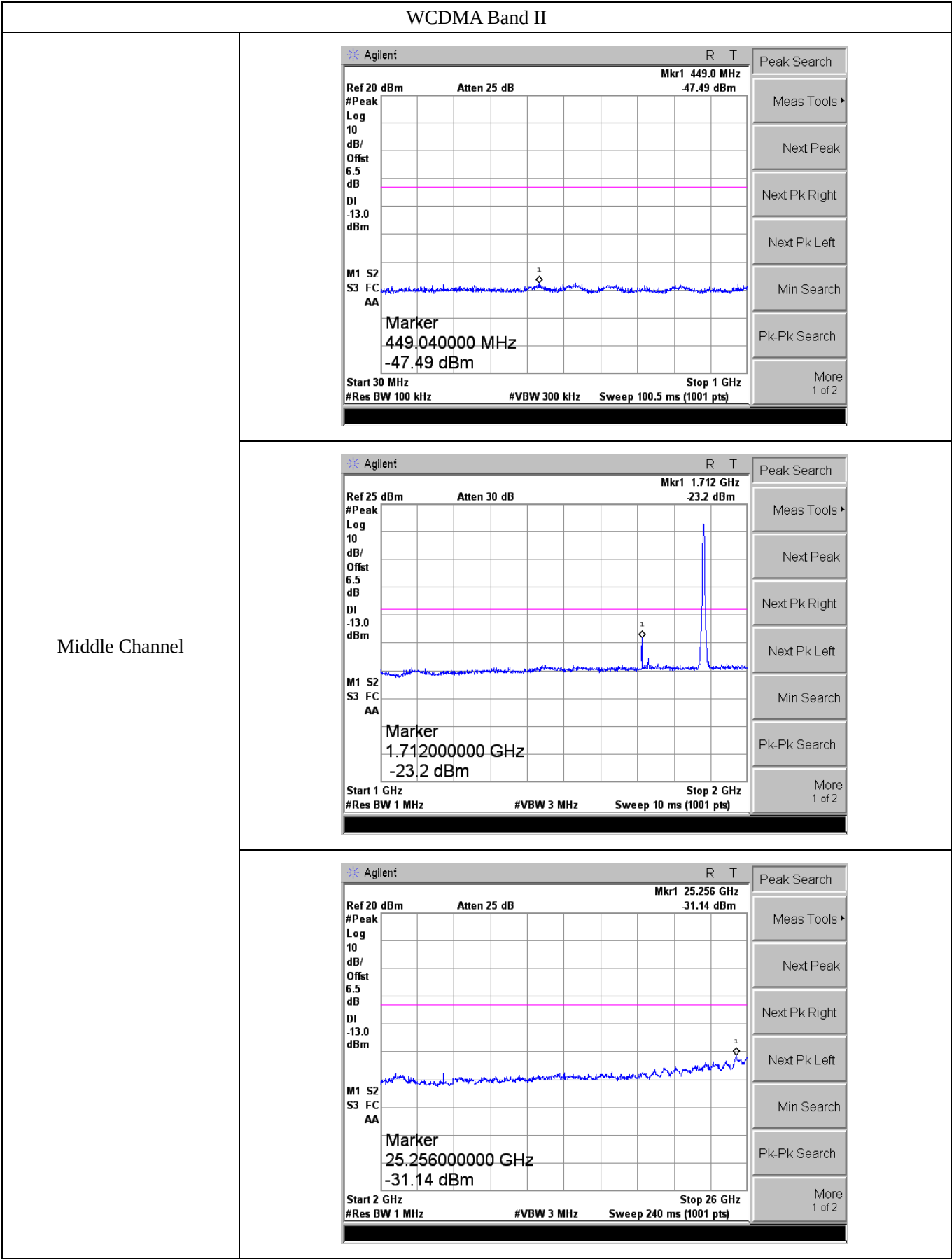


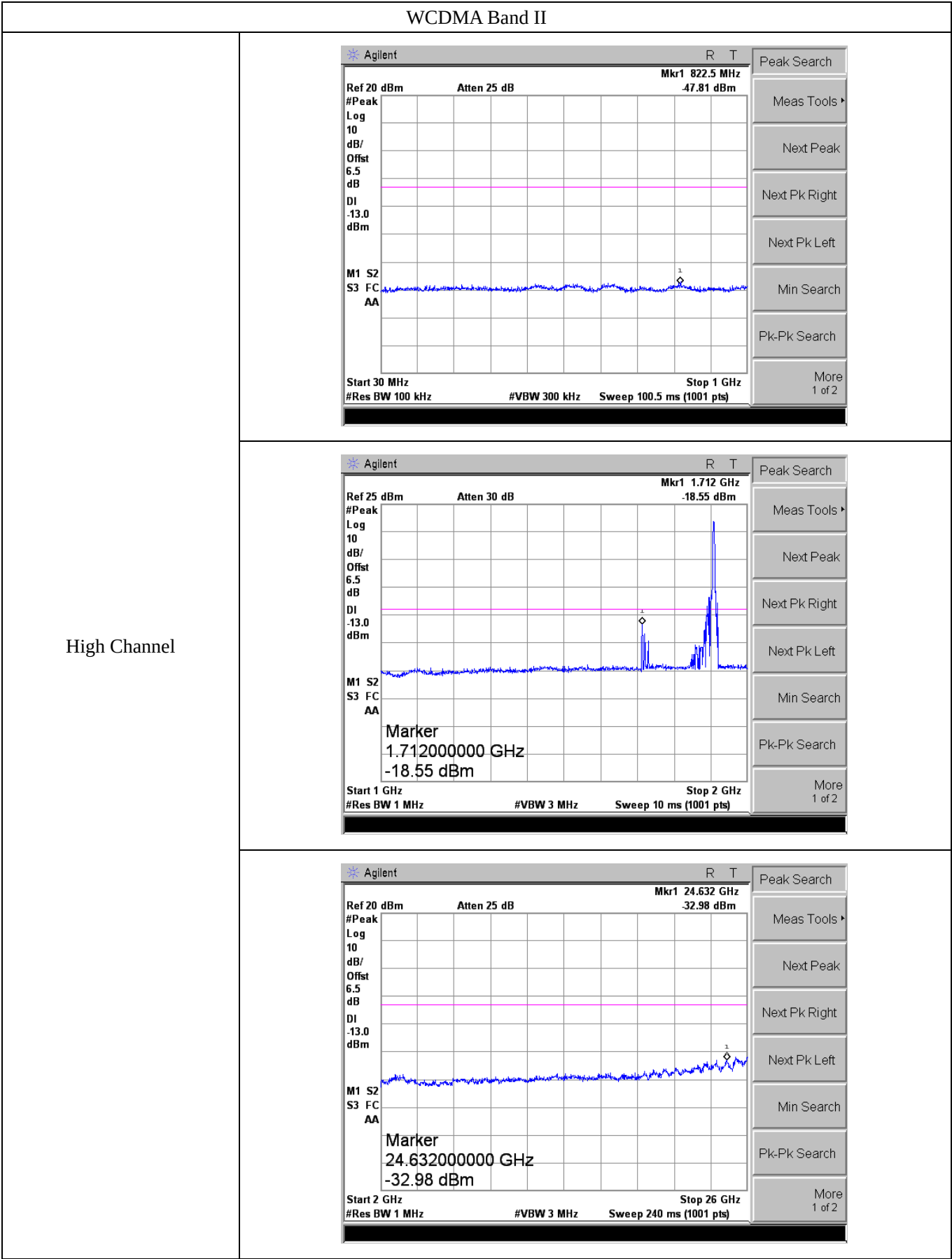


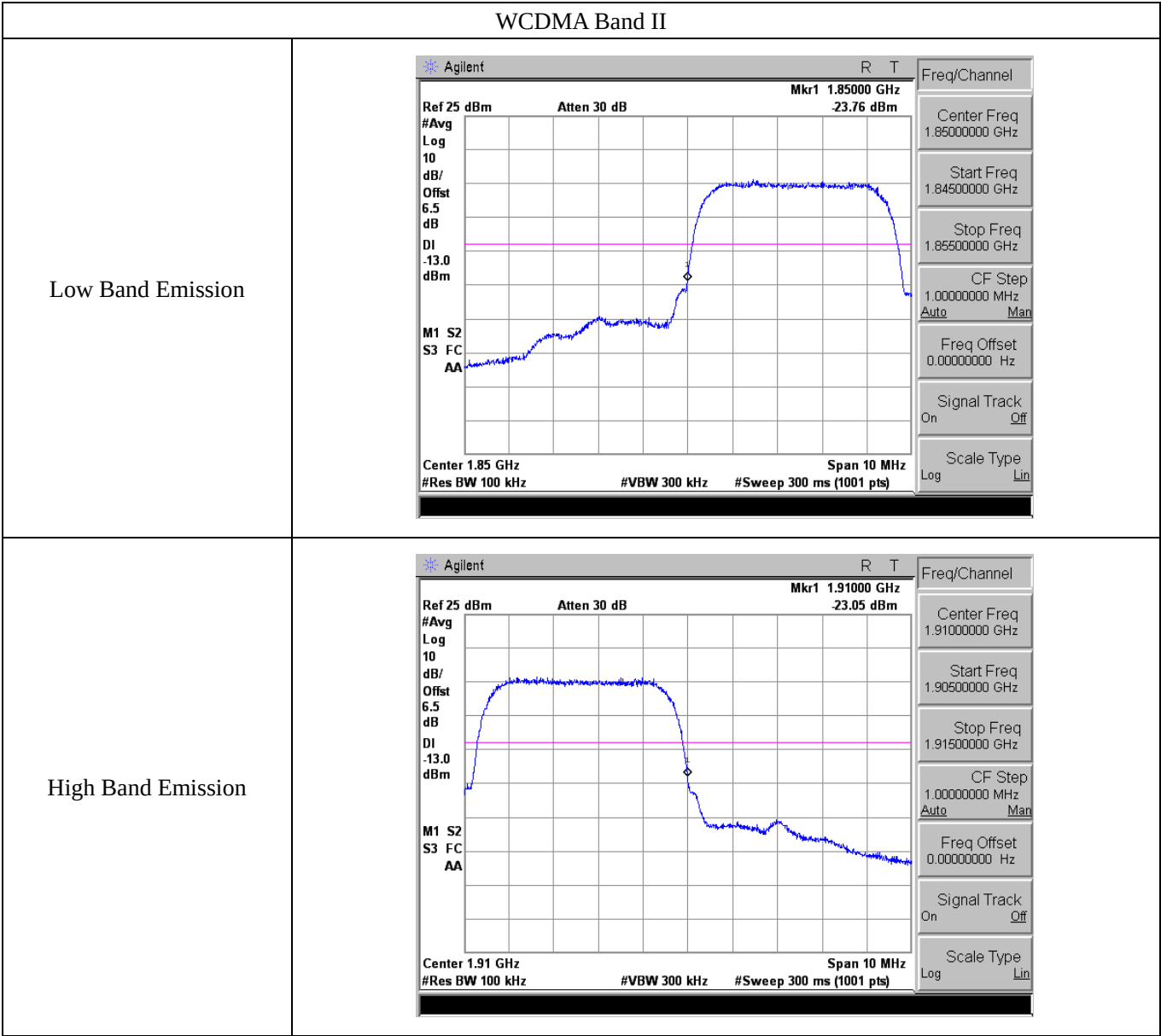












8. Spurious Radiated Emissions

8.1 Standard Applicable

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

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

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

8.2 Test Procedure

1. The setup of EUT is according with per ANSI/TIA Standard 603E and ANSI C63.26 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

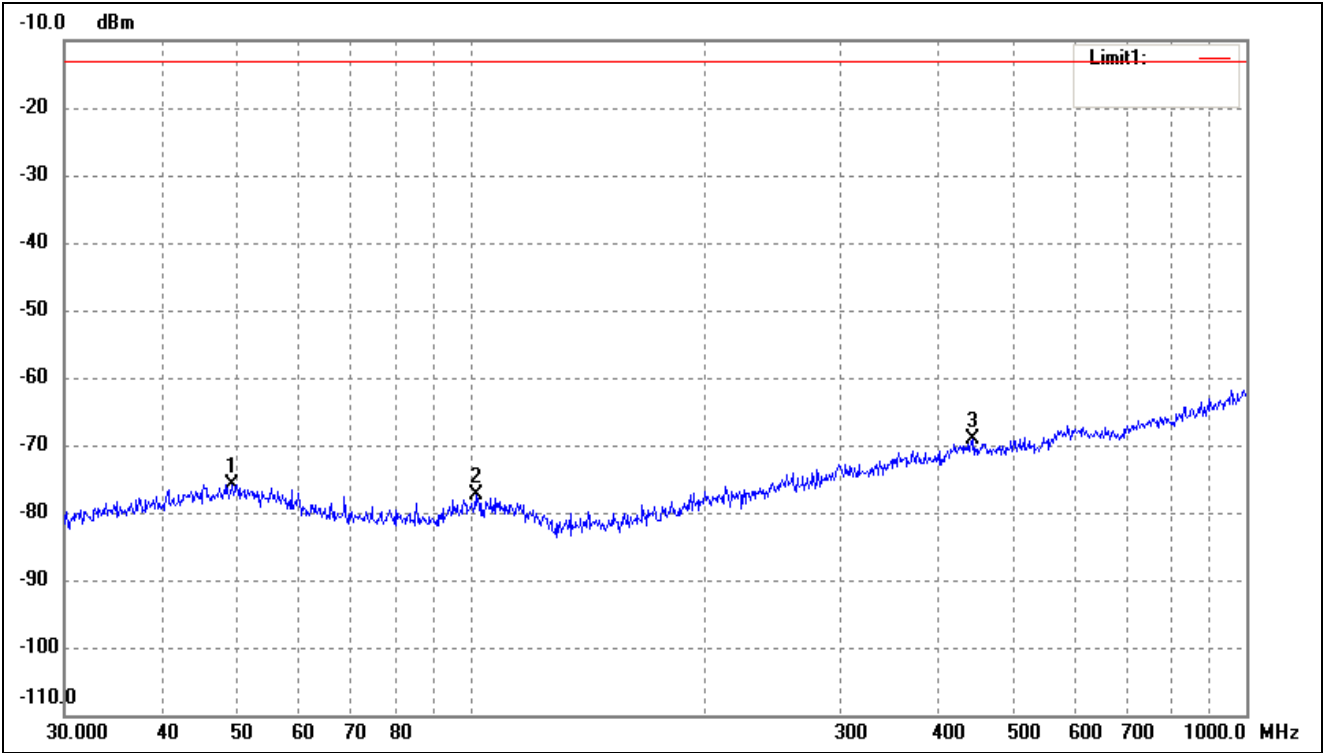
Spurious attenuation limit in dB = $43 + 10 \log_{10}(\text{power out in Watts})$

8.3 Summary of Test Results/Plots

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

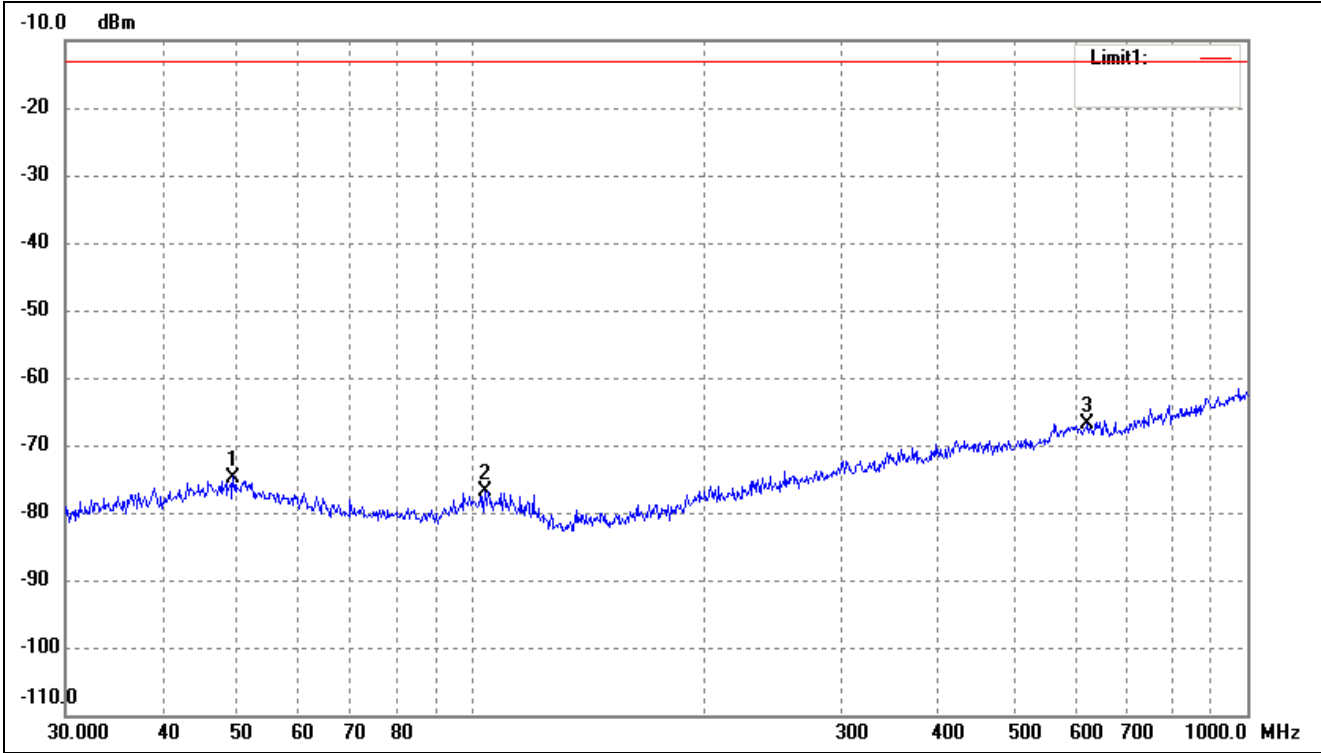
➤ Spurious Emissions Below 1GHz

For Cellular Band			
Test Channel	GSM850	Polarity:	Horizontal



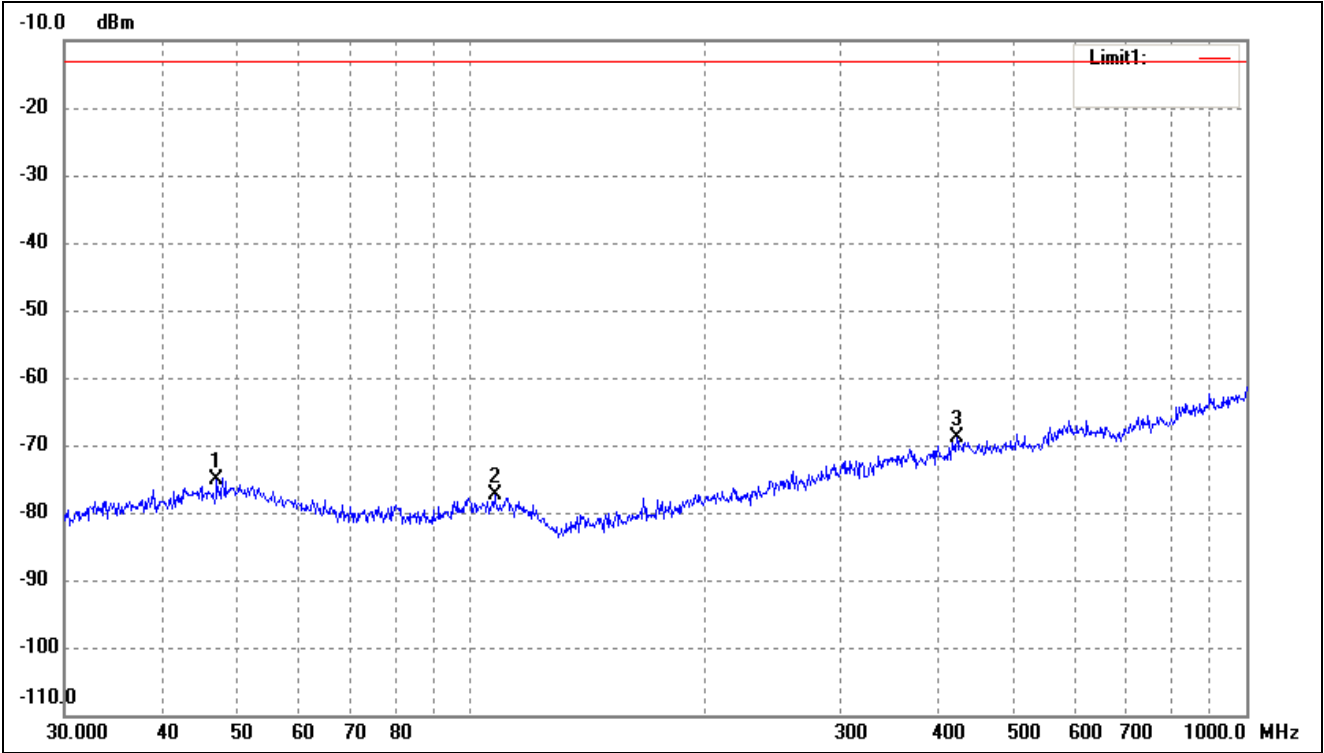
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	49.3594	-77.37	1.56	-75.81	-13.00	-62.81	ERP
2	101.6443	-76.84	-0.54	-77.38	-13.00	-64.38	ERP
3	444.8514	-76.52	7.31	-69.21	-13.00	-56.21	ERP

For Cellular Band			
Test Channel	GSM850	Polarity:	Vertical



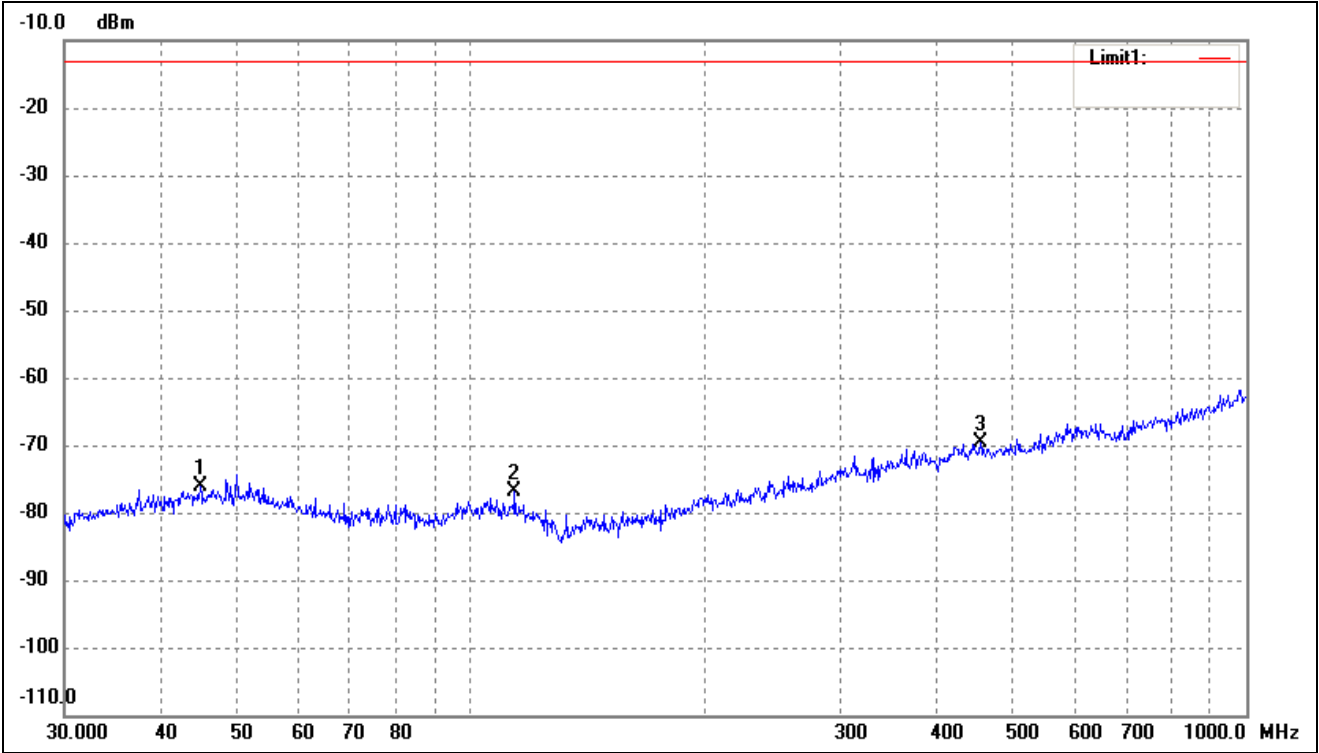
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	49.3594	-76.31	1.56	-74.75	-13.00	-61.75	ERP
2	104.1701	-76.29	-0.49	-76.78	-13.00	-63.78	ERP
3	622.8900	-76.28	9.42	-66.86	-13.00	-53.86	ERP

For Cellular Band			
Test Channel	GSM1900	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	47.1599	-76.42	1.40	-75.02	-13.00	-62.02	ERP
2	107.5101	-77.01	-0.40	-77.41	-13.00	-64.41	ERP
3	423.5403	-76.18	7.39	-68.79	-13.00	-55.79	ERP

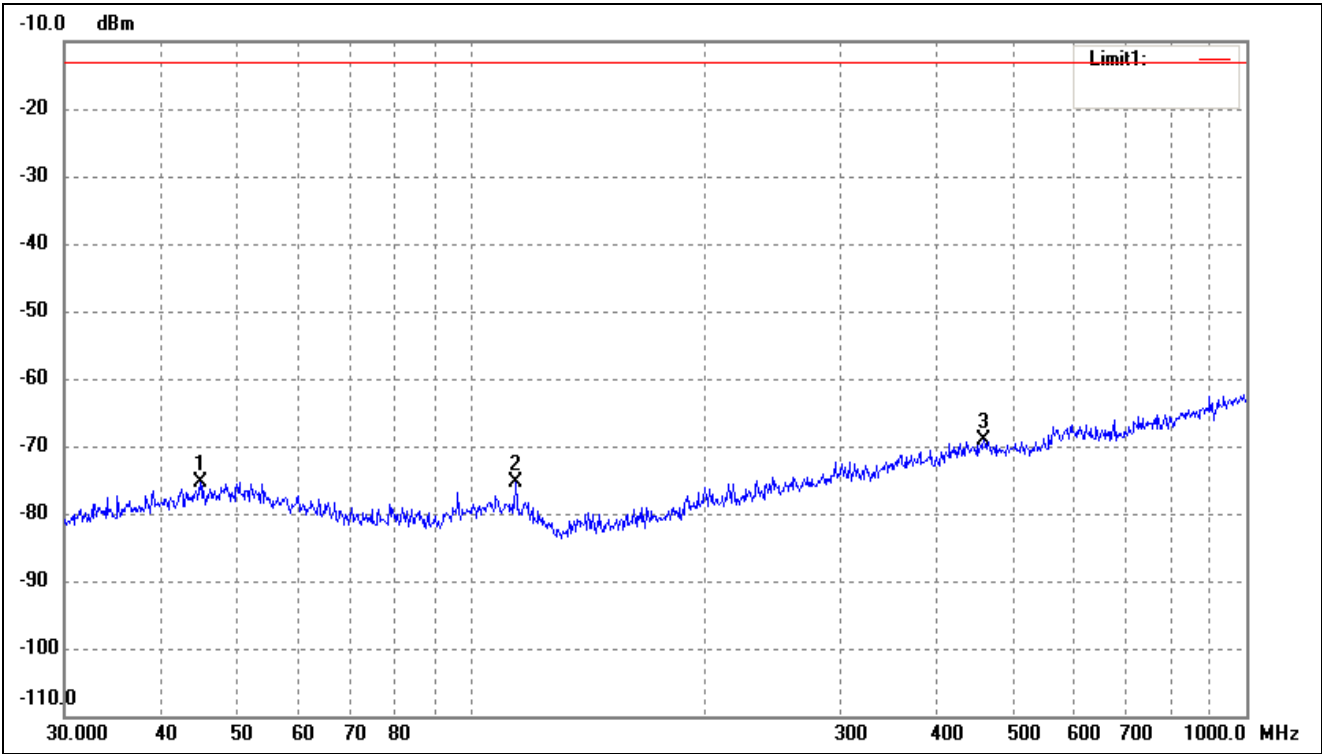
For Cellular Band			
Test Channel	GSM1900	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.9006	-77.44	1.21	-76.23	-13.00	-63.23	ERP
2	114.1138	-76.14	-0.79	-76.93	-13.00	-63.93	ERP
3	454.3100	-76.79	7.11	-69.68	-13.00	-56.68	ERP

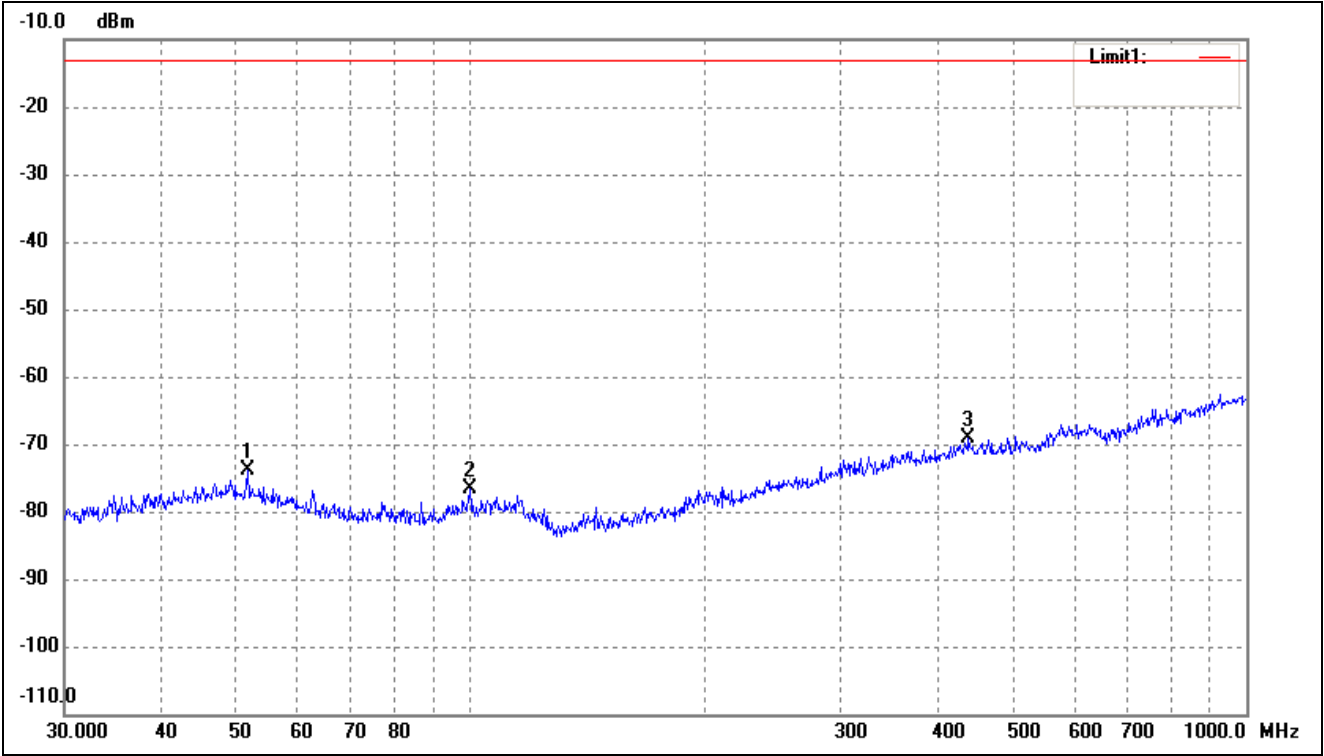
Note: $\text{Margin} = (\text{Reading} + \text{Correct}) - \text{Limit}$

Test Channel	WCDMA Band V	Polarity:	Horizontal
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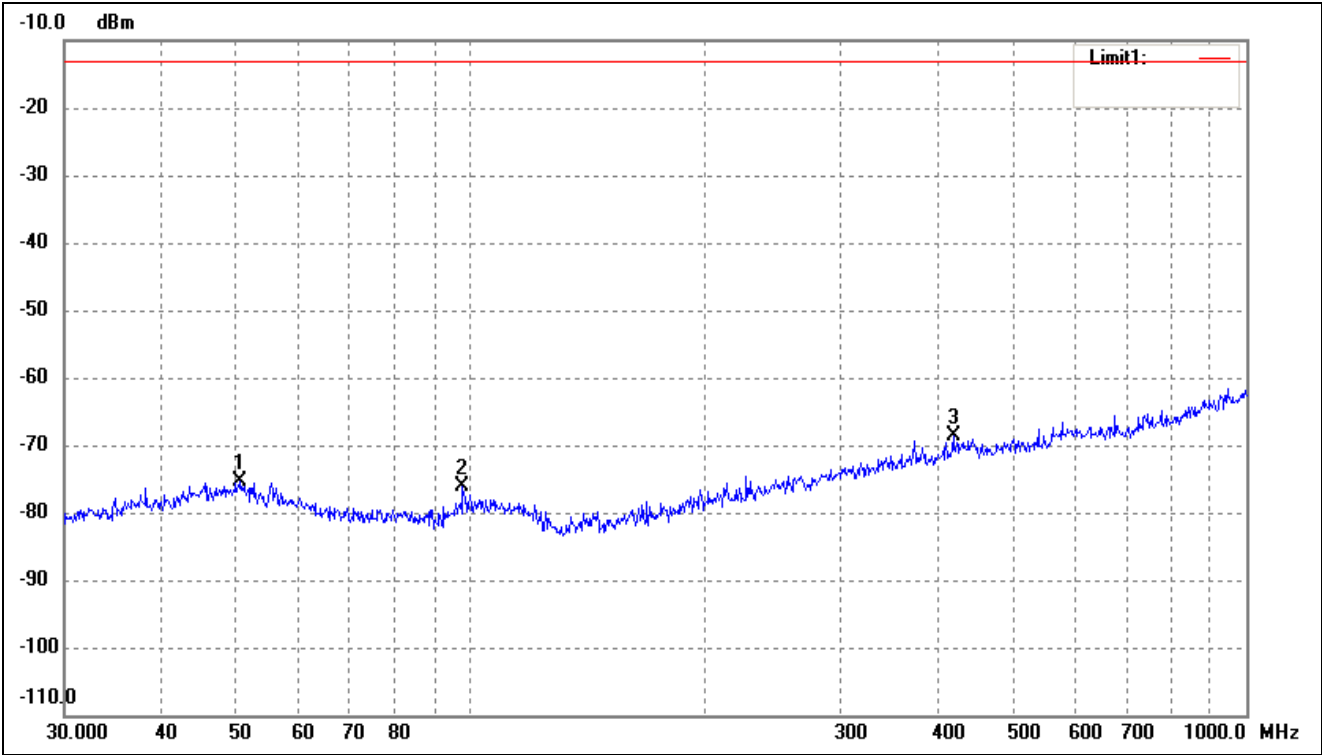
No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	44.9006	-76.55	1.21	-75.34	-13.00	-62.34	ERP
2	114.5146	-74.43	-0.84	-75.27	-13.00	-62.27	ERP
3	459.1144	-76.07	6.99	-69.08	-13.00	-56.08	ERP

Test Channel	WCDMA Band V	Polarity:	Vertical
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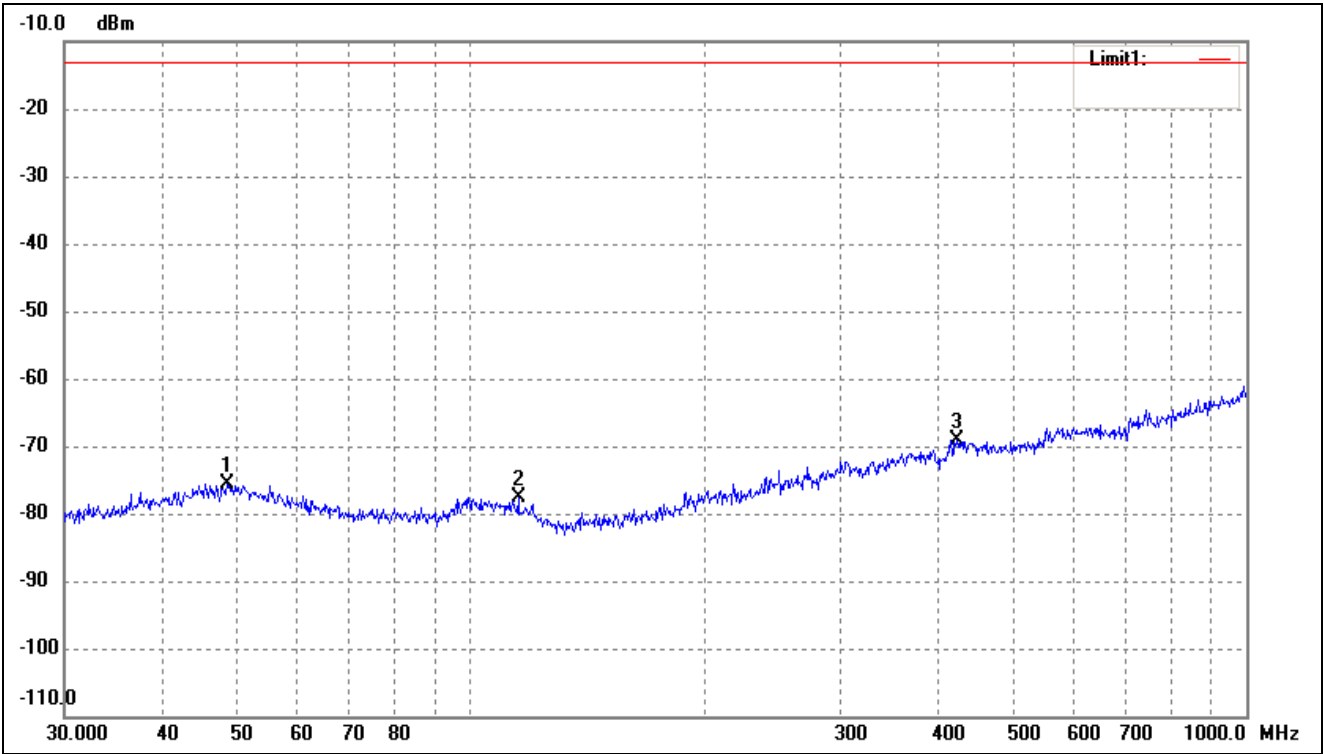
No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	51.6616	-75.22	1.25	-73.97	-13.00	-60.97	ERP
2	99.8777	-76.08	-0.61	-76.69	-13.00	-63.69	ERP
3	438.6554	-76.46	7.39	-69.07	-13.00	-56.07	ERP

Test Channel	WCDMA Band IV	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	50.5860	-76.75	1.48	-75.27	-13.00	-62.27	ERP
2	97.7983	-75.02	-1.03	-76.05	-13.00	-63.05	ERP
3	419.1081	-75.81	7.20	-68.61	-13.00	-55.61	ERP

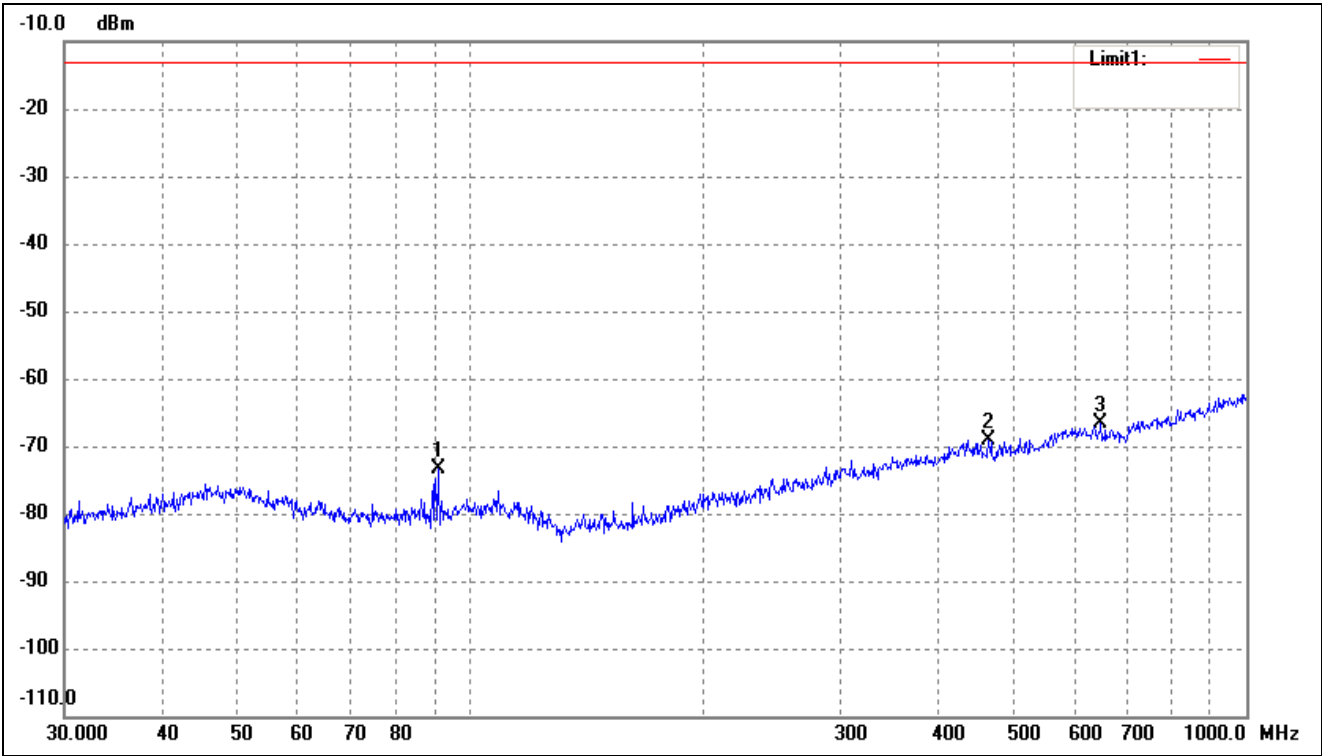
Test Channel	WCDMA Band IV	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark
1	48.6719	-77.04	1.51	-75.53	-13.00	-62.53	ERP
2	115.3205	-76.74	-0.93	-77.67	-13.00	-64.67	ERP
3	423.5403	-76.48	7.39	-69.09	-13.00	-56.09	ERP

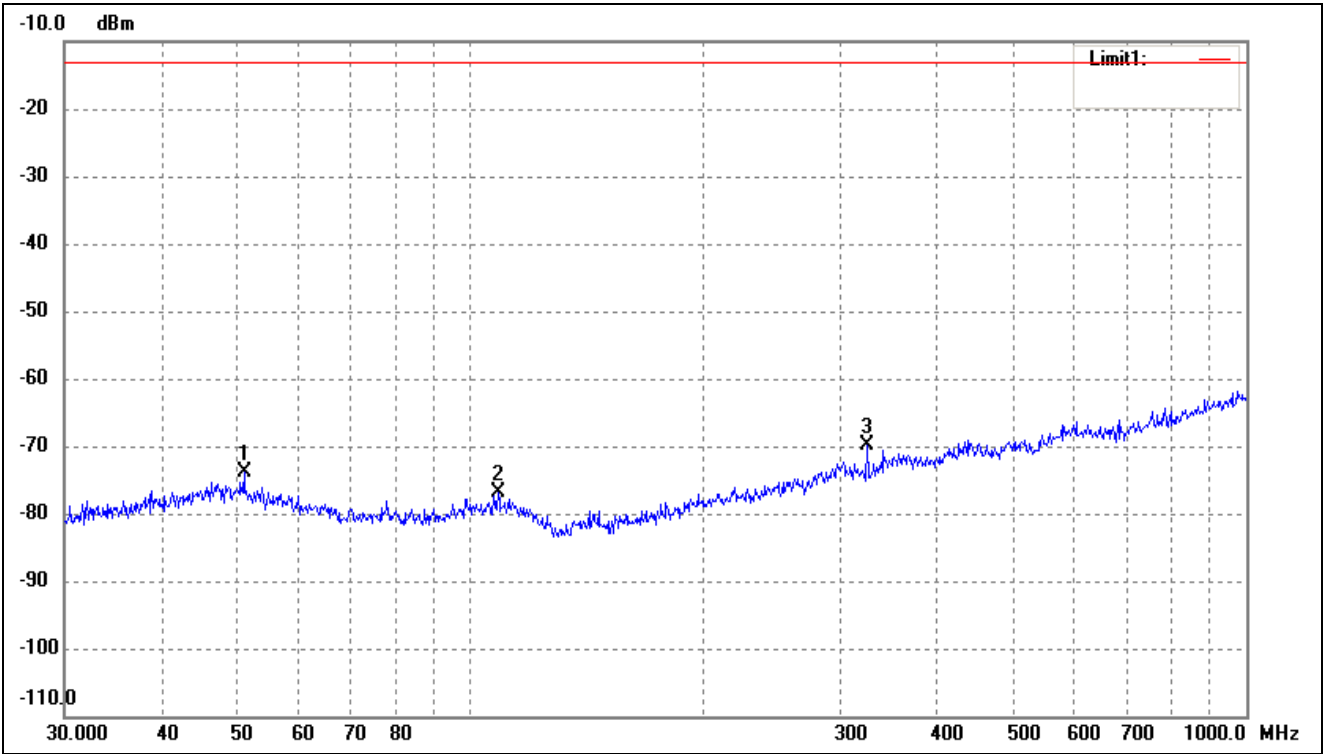
Note: $Margin = (Reading + Correct) - Limit$

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	90.8554	-70.90	-2.56	-73.46	-13.00	-60.46	ERP
2	465.5994	-76.15	6.95	-69.20	-13.00	-56.20	ERP
3	649.6597	-75.83	9.32	-66.51	-13.00	-53.51	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	51.1209	-75.34	1.37	-73.97	-13.00	-60.97	ERP
2	108.6470	-76.59	-0.38	-76.97	-13.00	-63.97	ERP
3	324.4561	-74.33	4.40	-69.93	-13.00	-56.93	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	-34.95	4.94	-30.01	-13	-17.01	H
2472.6	-43.38	8.46	-34.92	-13	-21.92	H
1648.4	-35.32	4.94	-30.38	-13	-17.38	V
2472.6	-41.79	8.46	-33.33	-13	-20.33	V
Middle Channel (836.6MHz)						
1673.2	-36.07	5.11	-30.96	-13	-17.96	H
2509.8	-41.14	8.54	-32.6	-13	-19.6	H
1673.2	-36.05	5.11	-30.94	-13	-17.94	V
2509.8	-41.09	8.54	-32.55	-13	-19.55	V
High Channel (848.8MHz)						
1697.6	-36.6	5.25	-31.35	-13	-18.35	H
2546.4	-41.14	8.57	-32.57	-13	-19.57	H
1697.6	-37.99	5.25	-32.74	-13	-19.74	V
2546.4	-41.01	8.57	-32.44	-13	-19.44	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	-39.34	10.54	-28.8	-13	-15.8	H
5550.6	-46.64	13.37	-33.27	-13	-20.27	H
3700.4	-40	10.54	-29.46	-13	-16.46	V
5550.6	-49.34	13.37	-35.97	-13	-22.97	V
Middle Channel (1880MHz)						
3760.0	-40.55	10.64	-29.91	-13	-16.91	H
5640.0	-49.94	13.54	-36.40	-13	-23.40	H
3760.0	-41.53	10.64	-30.89	-13	-17.89	V
5640.0	-48.43	13.54	-34.89	-13	-21.89	V
High Channel (1909.8MHz)						
3819.6	-39.88	10.74	-29.14	-13	-16.14	H
5729.4	-46.53	13.71	-32.82	-13	-19.82	H
3819.6	-42.11	10.74	-31.37	-13	-18.37	V
5729.4	-47.83	13.71	-34.12	-13	-21.12	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	-34.13	4.94	-29.19	-13	-16.19	H
2479.2	-41.45	8.46	-32.99	-13	-19.99	H
1652.8	-37.48	4.94	-32.54	-13	-19.54	V
2479.2	-42.39	8.46	-33.93	-13	-20.93	V
Middle Channel (836.6MHz)						
1672.8	-36.1	5.11	-30.99	-13	-17.99	H
2509.2	-43.29	8.54	-34.75	-13	-21.75	H
1672.8	-35.31	5.11	-30.2	-13	-17.20	V
2509.2	-43.75	8.54	-35.21	-13	-22.21	V
High Channel (846.6MHz)						
1693.2	-34.91	5.25	-29.66	-13	-16.66	H
2539.8	-42.26	8.57	-33.69	-13	-20.69	H
1693.2	-36.75	5.25	-31.5	-13	-18.50	V
2539.8	-44.39	8.57	-35.82	-13	-22.82	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	-34.29	8.65	-25.64	-13	-12.64	H
5137.2	-42.64	12.03	-30.61	-13	-17.61	H
3424.8	-32.2	8.65	-23.55	-13	-10.55	V
5137.2	-42.57	12.03	-30.54	-13	-17.54	V
Middle Channel (1732.4MHz)						
3466.8	-35.85	8.91	-26.94	-13	-13.94	H
5200.2	-40.52	12.29	-28.23	-13	-15.23	H
3466.8	-35.53	8.91	-26.62	-13	-13.62	V
5200.2	-40.28	12.29	-27.99	-13	-14.99	V
High Channel (1752.6MHz)						
3505.2	-34.88	9.11	-25.77	-13	-12.77	H
5257.8	-42.46	12.56	-29.9	-13	-16.9	H
3505.2	-34.92	9.11	-25.81	-13	-12.81	V
5257.8	-39.03	12.56	-26.47	-13	-13.47	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	-41.01	10.54	-30.47	-13	-17.47	H
5557.2	-49	13.37	-35.63	-13	-22.63	H
3704.8	-40.61	10.54	-30.07	-13	-17.07	V
5557.2	-48.93	13.37	-35.56	-13	-22.56	V
Middle Channel (1880MHz)						
3760.0	-40.48	10.64	-29.84	-13	-16.84	H
5640.0	-48.7	13.54	-35.16	-13	-22.16	H
3760.0	-39.85	10.64	-29.21	-13	-16.21	V
5640.0	-49.9	13.54	-36.36	-13	-23.36	V
High Channel (1907.6MHz)						
3815.2	-41.94	10.74	-31.20	-13	-18.20	H
5722.8	-48.51	13.71	-34.80	-13	-21.80	H
3815.2	-39.45	10.74	-28.71	-13	-15.71	V
5722.8	-49.59	13.71	-35.88	-13	-22.88	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.

9. Frequency Stability

9.1 Standard Applicable

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

9.2 Test Procedure

According to §2.1055, the following test procedure was performed.

The Frequency Stability is measured directly with a Frequency Domain Analyzer. Frequency Deviation in ppm is calculated from the measured peak to peak value.

The Carrier Frequency Stability over Power Supply Voltage and over Temperature is measured with a Frequency Domain Analyzer in histogram mode.

9.3 Summary of Test Results/Plots

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

2. Normal Voltage NV=DC3.8V; Low Voltage LV=DC3.5V; High Voltage HV=DC4.35V

➤ Frequency stability V.S. Temperature measurement

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	58	0.0690	2.50	Pass
	-20	46	0.0552		
	-10	41	0.0487		
	0	33	0.0395		
	10	29	0.0349		
	20	24	0.0285		
	30	28	0.0331		
	40	34	0.0405		
	50	38	0.0460		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	66	0.0352	2.50	Pass
	-20	56	0.0299		
	-10	45	0.0241		
	0	38	0.0200		
	10	31	0.0164		
	20	27	0.0143		
	30	34	0.0180		
	40	40	0.0213		
	50	45	0.0241		

Reference Frequency: WCDMA Band V Middle channel=4183 channel=836.6MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	62	0.0736	2.50	Pass
	-20	55	0.0662		
	-10	46	0.0552		
	0	38	0.0460		
	10	32	0.0377		
	20	25	0.0294		
	30	29	0.0349		
	40	35	0.0423		
	50	43	0.0515		
Reference Frequency: WCDMA Band IV Middle channel=1412 channel=1733.6MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	55	0.0320	2.50	Pass
	-20	43	0.0249		
	-10	38	0.0222		
	0	34	0.0195		
	10	26	0.0151		
	20	21	0.0120		
	30	25	0.0147		
	40	32	0.0186		
	50	37	0.0213		

Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
NV	-30	72	0.0381	2.50	Pass
	-20	64	0.0340		
	-10	52	0.0278		
	0	47	0.0250		
	10	39	0.0209		
	20	32	0.0168		
	30	35	0.0188		
	40	42	0.0225		
	50	50	0.0266		

➤ 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	59	0.0708	2.50	Pass
	NV	49	0.0588		
	LV	40	0.0478		
Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	45	0.0241	2.50	Pass
	NV	36	0.0192		
	LV	42	0.0221		

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	35	0.0414	2.50	Pass
	NV	28	0.0331		
	LV	22	0.0267		
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	69	0.0400	2.50	Pass
	NV	54	0.0311		
	LV	50	0.0289		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	34	0.0180	2.50	Pass
	NV	23	0.0123		
	LV	29	0.0155		

10. Modulation characteristics

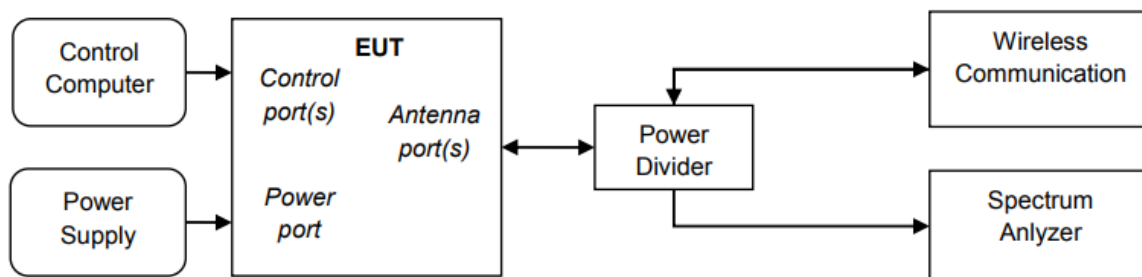
10.1 Standard Applicable

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

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

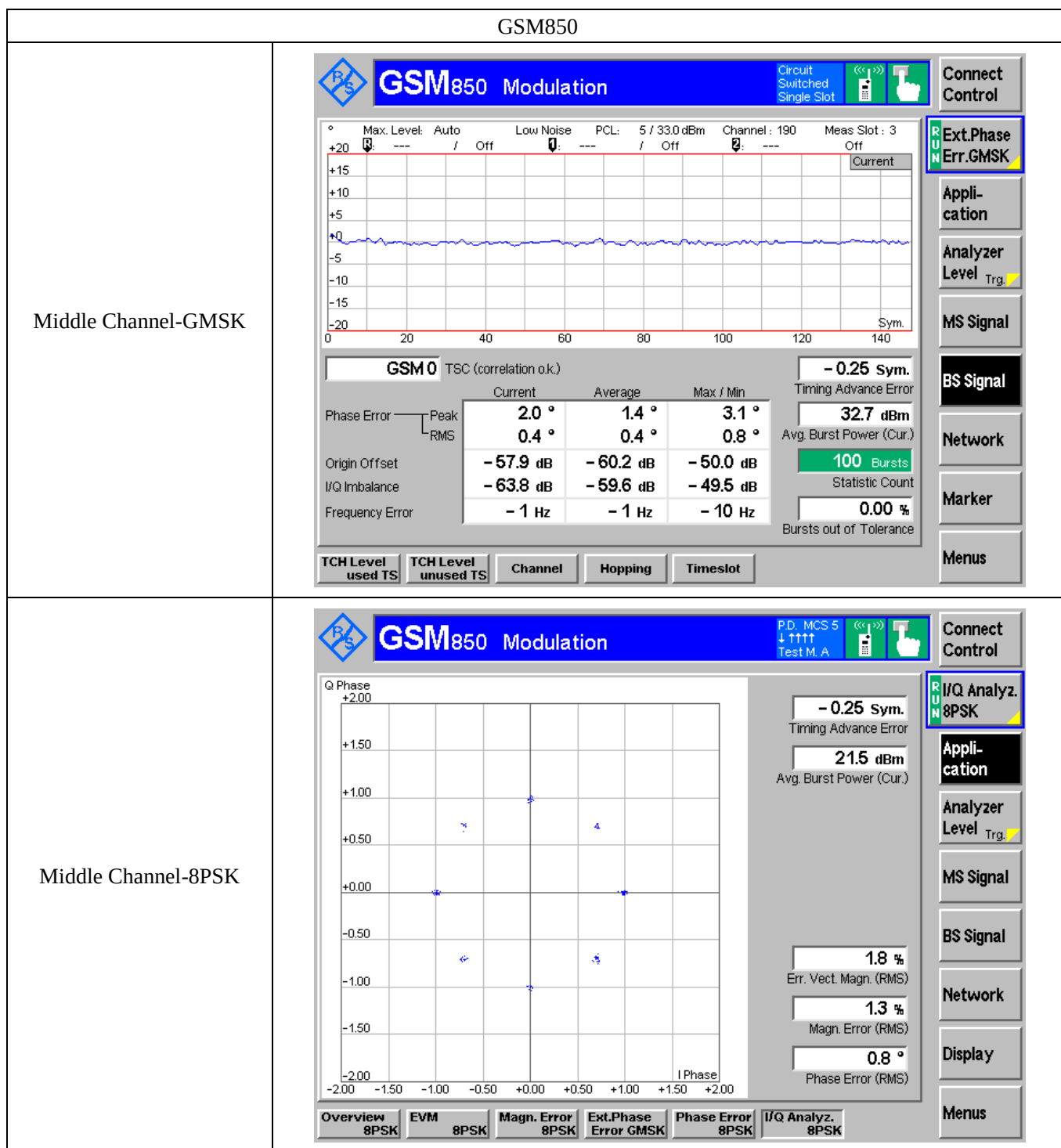
10.2 Test Procedure

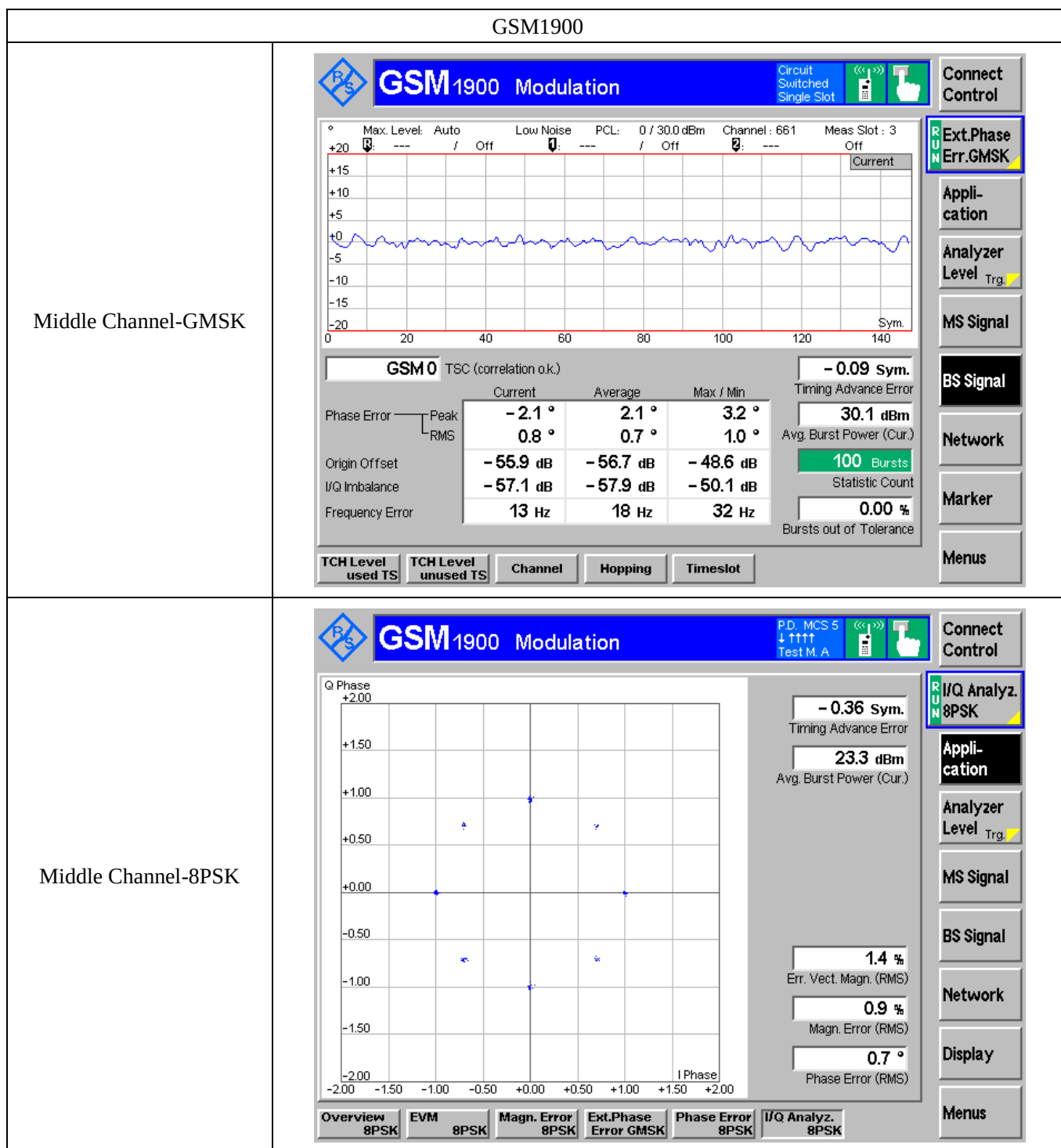
According to ANSI C63.26-2015 section 5.3.2, the following test setup was performed.

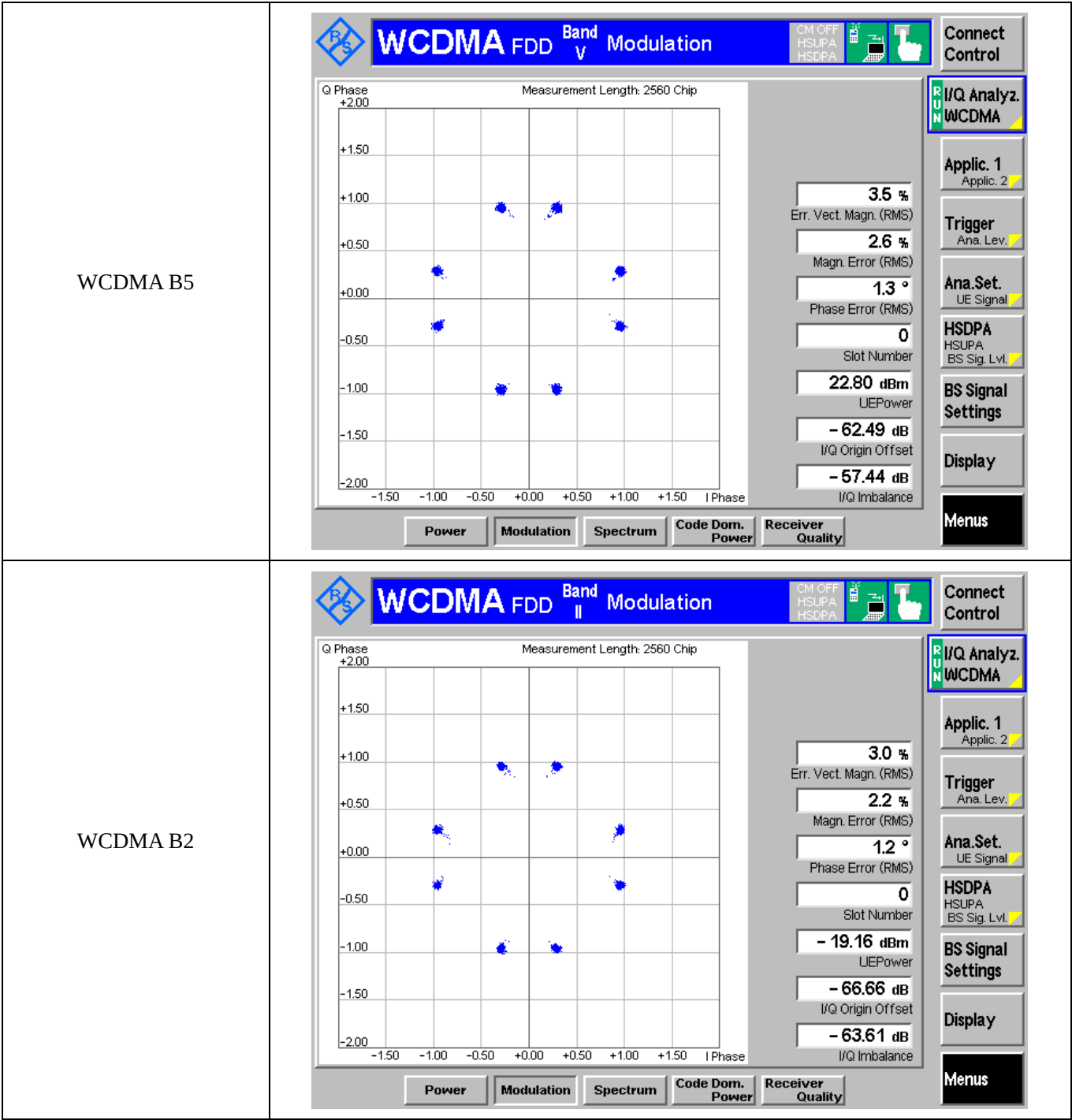


10.3 Summary of Test Results/Plots

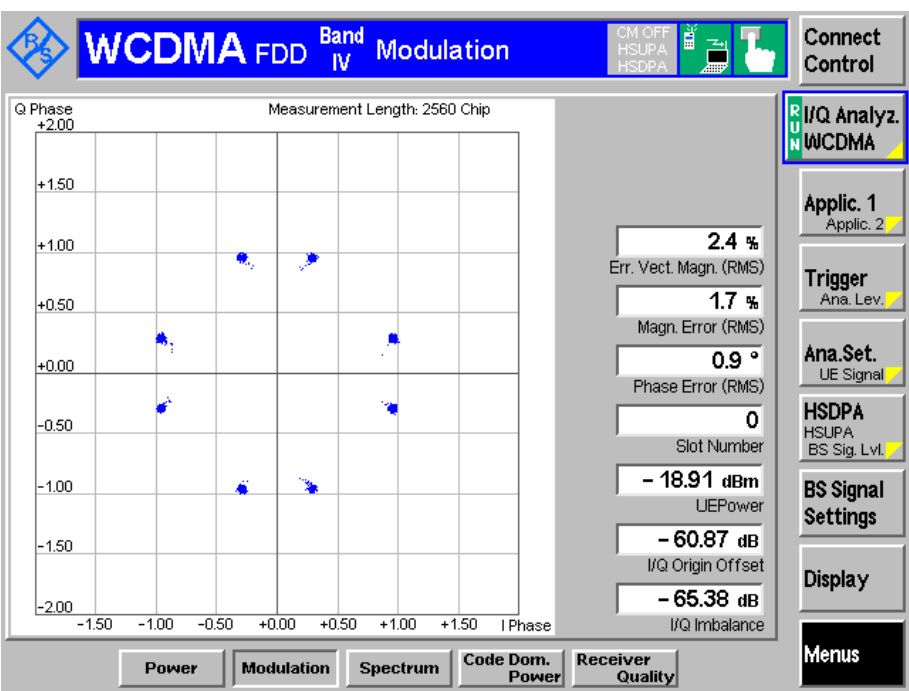
Only the worst case was selected to record







WCDMA B4



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