

TEST REPORT

Reference No..... : WTX20X08059474W-1
FCC ID : 2ARO3-WNEXT
Applicant : Worldwide telecom limited
Address : 2F Block C; Shenfang Building, Zhen Hualu, Futian, Shenzhen
Product Name : SmartPhone
Test Model. : WNEXT
Standards : FCC Part 22H, FCC Part 24E
Date of Receipt sample : Aug.26, 2020
Date of Test..... : Aug.26, 2020 to Sep.14, 2020
Date of Issue : Sep.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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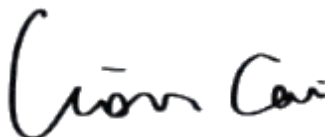
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Report version

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

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Worldwide telecom limited
Address of applicant: 2F Block C; Shenfang Building, Zhen Hualu, Futian, Shenzhen

Manufacturer: Worldwide telecom limited
Address of manufacturer: 2F Block C; Shenfang Building, Zhen Hualu, Futian, Shenzhen

General Description of EUT:	
Product Name:	SmartPhone
Trade Name:	WOLKI
Model No.:	WNEXT
Adding Model(s):	/
Rated Voltage:	DC3.8V
Battery:	3100mAh
Adapter Model:	WCH05 Input: AC100-240V, 50/60Hz, 0.15A; Output: DC5V, 1000mA
Software Version:	WOLKI_W NEXT_V01_20200807
Hardware Version:	V707IF3_MB
<i>Note: The test data is gathered from a production sample provided by the manufacturer.</i>	

Technical Characteristics of EUT:	
2G	
Support Networks:	GSM, GPRS, EDGE
Support Band:	GSM850/PCS1900
Uplink Frequency:	GSM/GPRS/EDGE 850: 824~849MHz GSM/GPRS/EDGE 1900: 1850~1910MHz
Downlink Frequency:	GSM/GPRS/EDGE 850: 869~894MHz GSM/GPRS/EDGE 1900: 1930~1990MHz
Max RF Output Power:	GSM850: 32.34dBm, GSM1900: 29.93dBm EDGE850: 26.44dBm, EDGE1900: 26.93dBm
Type of Emission:	GSM850:250KGXW, GSM1900: 255KGXW EDGE850: 257KG7W, EDGE1900: 246KG7W
Type of Modulation:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM850: -0.5dBi; GSM1900: 0.5dBi
GPRS Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Band:	WCDMA Band 2, WCDMA Band 5
Uplink Frequency:	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
Downlink Frequency:	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
RF Output Power:	WCDMA Band 2: 22.83dBm, WCDMA Band 5: 23.75dBm
Type of Emission:	WCDMA Band 2: 4M24F9W WCDMA Band 5: 4M23F9W
Type of Modulation:	BPSK
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 2: 0.5dBi, WCDMA Band 5: -0.5dBi

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.

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 2	Low, Middle, High Channels
TM11	HSDPA Band 2	Low, Middle, High Channels
TM12	HSUPA Band 2	Low, Middle, High Channels

Testing Configure			
Support Band	Support Standard	Channel Frequency(MHz)	Channel Number
GSM 850	GSM/GPRS/EGPRS	824.2	128
		836.6	190
		848.8	251
PCS 1900	GSM/GPRS/EGPRS	1850.2	512
		1880.0	661
		1909.8	810
WCDMA Band 5	WCDMA/HSDPA/HSUPA	826.4	4132
		836.6	4183
		846.6	4233
WCDMA Band 2	WCDMA/HSDPA/HSUPA	1852.4	9262
		1880.0	9400
		1907.6	9538
Note: the transmitter has been tested on the communications mode of GSM, GPRS, EGPRS, 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	Unshielded	Without Ferrite
Earphone Cable	1.0	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
/	/	/	/

1.6 Measurement Uncertainty

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

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
SEMT-1075	Communication Tester	Rohde & Schwarz	CMW500	148650	2020-04-28	2021-04-27
SEMT-1063	GSM Tester	Rohde & Schwarz	CMU200	114403	2020-04-28	2021-04-27
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2020-04-28	2021-04-27
SEMT-1079	Spectrum Analyzer	Agilent	N9020A	US47140102	2020-04-28	2021-04-27
SEMT-1080	Signal Generator	Agilent	83752A	3610A01453	2020-04-28	2021-04-27
SEMT-1081	Vector Signal Generator	Agilent	N5182A	MY47070202	2020-04-28	2021-04-27
SEMT-1028	Power Divider	Weinschel	1506A	PM204	2020-04-28	2021-04-27
SEMT-1082	Power Divider	RF-Lambda	RFLT4W5M18G	14110400027	2020-04-28	2021-04-27
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2020-04-28	2021-04-27
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2020-04-28	2021-04-27
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2020-04-28	2021-04-27
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2020-04-28	2021-04-27
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
SEMT-1068	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
SEMT-1042	Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2019-05-05	2021-05-04
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2020-04-28	2021-04-27
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2020-04-28	2021-04-27
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2020-04-28	2021-04-27
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2019-05-05	2021-05-04
SEMT-1166	Power Limiter	Agilent	N9356B	MY45450376	2020-04-28	2021-04-27
SEMT-1055	RF Limiter	ATTEN	AT-BSF-0820~0920	/	2020-04-28	2021-04-27
SEMT-1056	RF Limiter	ATTEN	AT-BSF-1710~1910	/	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)	RF Output Power	Compliant
§24.51	Peak-to-average Ratio (PAR) of Transmitter	Compliant
§22.917(b), §24.238(b)	Emission Bandwidth	Compliant
§22.917(a), §24.238(a)	Spurious Emissions at Antenna Terminal	Compliant
§22.917(a), §24.238(a)	Spurious Radiation Emissions	Compliant
§22.917(a), §24.238(a)	Out of Band Emissions	Compliant
§22.355, §24.235	Frequency Stability	Compliant

3. RF Exposure

3.1 Standard Applicable

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

3.2 Test Result

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

4. RF Output Power

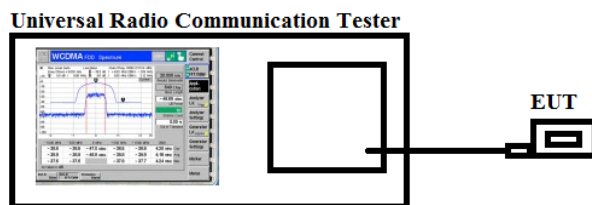
4.1 Standard Applicable

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

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

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	30.17	<38.45	Pass
		H	26.57		
	190	V	30.25		
		H	25.78		
	251	V	30.42		
		H	25.36		
GPRS850	128	V	30.74	<38.45	Pass
		H	25.12		
	190	V	29.69		
		H	24.05		
	251	V	29.49		
		H	24.13		
EGPRS850	128	V	24.16	<38.45	Pass
		H	20.35		
	190	V	24.27		
		H	19.98		
	251	V	24.39		
		H	20.21		

Mode	Channel	Antenna Polar	EIRP (dBm)	Limit (dBm)	Result
PCS1900	512	V	27.15	<33.00	Pass
		H	22.59		
	661	V	27.59		
		H	22.36		
	810	V	27.39		
		H	22.49		
GPRS1900	512	V	27.36	<33.00	Pass
		H	22.10		
	661	V	27.98		
		H	22.56		
	810	V	27.31		
		H	22.14		
EGPRS1900	512	V	23.17	<33.00	Pass
		H	18.69		
	661	V	23.58		
		H	18.57		
	810	V	23.36		
		H	18.97		

Mode	Channel	Antenna Polar	ERP	Limit (dBm)	Result
WCDMA Band V	4132	V	20.98	<38.45	Pass
		H	15.85		
	4183	V	20.36		
		H	15.19		
	4233	V	20.57		
		H	15.36		

Mode	Channel	Antenna Polar	EIRP	Limit (dBm)	Result
WCDMA Band II	9262	V	20.46	<33.00	Pass
		H	14.35		
	9400	V	20.97		
		H	14.15		
	9538	V	20.39		
		H	14.87		

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	32.05	32.34	32.12	29.93	29.79	29.86
GPRS(1Slot)	32.10	32.39	32.19	30.01	30.03	29.96
EGPRS(1Slot)	26.16	26.41	26.44	26.93	26.86	26.86

Conducted Average power (dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4183	4233	9262	9400	9538
Frequency(MHz)	826.4	836.6	846.6	1852.4	1880.0	1907.6
RMC 12.2k	23.71	23.74	23.75	22.83	22.83	22.69
HSDPA Subtest-1	22.65	22.82	22.62	22.04	21.97	21.82
HSDPA Subtest-2	22.62	22.80	22.61	22.02	21.95	21.80
HSDPA Subtest-3	22.63	22.79	22.60	22.03	21.93	21.79
HSDPA Subtest-4	22.64	22.78	22.61	22.02	21.94	21.78
HSUPA Subtest-1	22.72	22.89	22.73	22.08	21.94	21.71
HSUPA Subtest-2	22.68	22.85	22.71	22.03	21.92	21.68
HSUPA Subtest-3	22.69	22.87	22.72	22.05	21.91	21.67
HSUPA Subtest-4	22.69	22.85	22.71	22.05	21.92	21.69
HSUPA Subtest-5	22.67	22.86	22.71	22.06	21.93	21.68

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

5.1 Standard Applicable

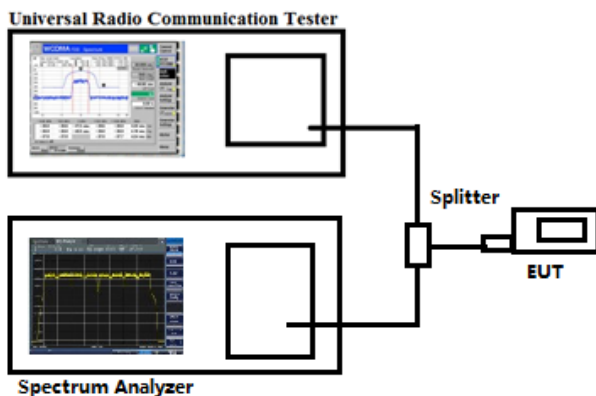
According to §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in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

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	4.88	13
GPRS(1 Slot)	661	1850.2	4.24	13
EDGE(1 Slot)	661	1850.2	4.39	13

WCDMA Band II				
Test Mode	Channel	Frequency (MHz)	PAR (dB)	Limit (dB)
WCDMA	9262	1852.4	4.74	13
	9400	1880.0	4.30	13
	9538	1907.6	4.02	13

Note: Only the worst case was selected to record.

6. Emission Bandwidth

6.1 Standard Applicable

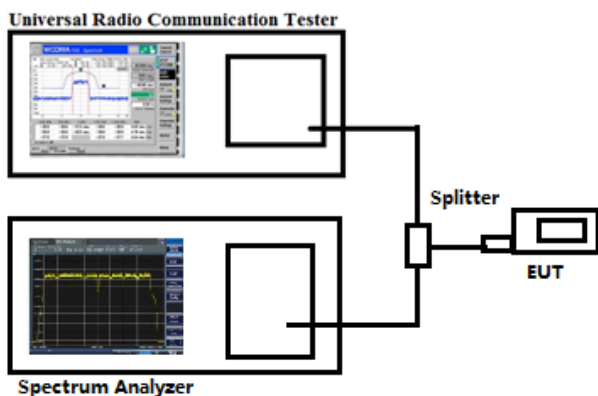
According to §22.917(b), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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.

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	246.4302	310.472
	190	836.60	250.6128	322.958
	251	848.80	248.1157	318.786
GPRS850 (GMSK,1Slot)	128	824.20	249.9690	321.327
	190	836.60	244.6702	315.665
	251	848.80	245.3657	315.050
EGPRS850 (8PSK,1Slot)	128	824.20	257.2876	316.266
	190	836.60	245.8548	305.714
	251	848.80	251.6248	313.733
PCS1900 (GMSK)	512	1850.20	251.5964	323.590
	661	1880.00	250.2825	321.603
	810	1909.80	246.7835	316.878
GPRS1900 (GMSK,1Slot)	512	1850.20	250.9798	327.756
	661	1880.00	255.1113	336.288
	810	1909.80	242.4328	316.882
EGPRS1900 (8PSK,1Slot)	512	1850.20	244.3639	306.312
	661	1880.00	240.3324	305.294
	810	1909.80	246.9686	306.881

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
WCDMA Band V	4132	826.40	4236.3	4904
	4183	836.60	4206.0	4831
	4233	846.60	4231.3	4870
HSDPA	4132	826.40	4225.4	4885
	4183	836.60	4213.2	4879
	4233	846.60	4220.5	4888
HSUPA	4132	826.40	4236.7	4847
	4183	836.60	4204.1	4865
	4233	846.60	4222.7	4854
WCDMA Band II	9262	1852.40	4235.6	4853
	9400	1880.00	4236.5	4829
	9538	1907.60	4228.5	4809
HSDPA	9262	1852.40	4239.2	4923
	9400	1880.00	4235.5	4880
	9538	1907.60	4240.7	4869
HSUPA	9262	1852.40	4234.9	4889
	9400	1880.00	4238.3	4914
	9538	1907.60	4235.3	4875

GSM850	
Low Channel	Agilent R T Ch Freq 824.2 MHz Trig Free Occupied Bandwidth Center 824.200000 MHz 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 246.4302 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.384 kHz x dB Bandwidth 310.472 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 0.0000000 Hz Signal Track On Off Scale Type Log Lin
Middle Channel	Agilent R T Ch Freq 836.6 MHz Trig Free Occupied Bandwidth Center 836.6 MHz 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 250.6128 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.313 kHz x dB Bandwidth 322.958 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 0.0000000 Hz Signal Track On Off Scale Type Log Lin
High Channel	Agilent R T Ch Freq 848.8 MHz Trig Free Occupied Bandwidth Center 848.8 MHz 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 248.1157 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -865.903 Hz x dB Bandwidth 318.786 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 0.0000000 Hz Signal Track On Off Scale Type Log Lin

GPRS850	
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 249.9690 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 705.744 Hz x dB Bandwidth 321.327 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 0.0000000 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 257.2876 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.426 kHz x dB Bandwidth 316.266 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 245.8548 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -1.413 kHz x dB Bandwidth 305.714 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 251.6248 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 981.541 Hz x dB Bandwidth 313.733 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

GSM1900	
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 Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 251.5964 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 405.615 Hz x dB Bandwidth 323.590 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

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 Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 250.9798 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 754.523 Hz x dB Bandwidth 327.756 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 Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 255.1113 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -535.759 Hz x dB Bandwidth 336.288 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 Span 1 MHz #Res BW 10 kHz #VBW 30 kHz Sweep 10.36 ms (1001 pts) Occupied Bandwidth 242.4328 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 2.038 kHz x dB Bandwidth 316.882 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

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 244.3639 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 526.916 Hz x dB Bandwidth 306.312 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 240.3324 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 32.757 Hz x dB Bandwidth 305.294 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 246.9686 kHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 432.610 Hz x dB Bandwidth 306.881 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

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/ Offst 6.5 dB

Center 826.4 MHz Span 10 MHz

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

Occupied Bandwidth 4.2363 MHz

Occ BW % Pwr 99.00 % x dB -26.00 dB

Transmit Freq Error 1.103 kHz

x dB Bandwidth 4.904 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/ Offst 6.5 dB

Center 836.6 MHz Span 10 MHz

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

Occupied Bandwidth 4.2060 MHz

Occ BW % Pwr 99.00 % x dB -26.00 dB

Transmit Freq Error -14.738 kHz

x dB Bandwidth 4.831 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/ Offst 6.5 dB

Center 846.6 MHz Span 10 MHz

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

Occupied Bandwidth 4.2313 MHz

Occ BW % Pwr 99.00 % x dB -26.00 dB

Transmit Freq Error -7.336 kHz

x dB Bandwidth 4.870 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 4.2254 MHz Occ BW % Pwr99.00 % x dB-26.00 dB Transmit Freq Error-2.138 kHz x dB Bandwidth4.885 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 TrackOn Off Scale TypeLog Lin
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 4.2132 MHz Occ BW % Pwr99.00 % x dB-26.00 dB Transmit Freq Error-19.847 kHz x dB Bandwidth4.879 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 TrackOn Off Scale TypeLog Lin
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 4.2205 MHz Occ BW % Pwr99.00 % x dB-26.00 dB Transmit Freq Error-18.713 kHz x dB Bandwidth4.888 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 TrackOn Off Scale TypeLog Lin

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 4.2367 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -4.894 kHz x dB Bandwidth 4.847 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 Start 831.6000000 MHz Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Start 831.6 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Stop 841.6 MHz Occupied Bandwidth 4.2041 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -20.800 kHz x dB Bandwidth 4.865 MHz Trace/View 1 2 3 Trace Clear Write Max Hold Min Hold View Blank More 1 of 2
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 4.2227 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -9.794 kHz x dB Bandwidth 4.854 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 II	
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 4.2356 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -2.715 kHz x dB Bandwidth 4.853 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 4.2365 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -7.959 kHz x dB Bandwidth 4.829 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 4.2285 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -14.361 kHz x dB Bandwidth 4.809 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 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 4.2392 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -3.666 kHz x dB Bandwidth 4.923 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 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 4.2355 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -5.071 kHz x dB Bandwidth 4.880 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 Ch Freq 1.9076 GHz Trig Free Occupied Bandwidth Start 1.902600000 GHz Ref 30 dBm Atten 35 dB #Peak Log 10 dB/ Offset 6.5 dB Start 1.903 GHz Stop 1.913 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 10 ms (1001 pts) Occupied Bandwidth 4.2407 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -14.143 kHz x dB Bandwidth 4.869 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- 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 4.2349 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 2.221 kHz x dB Bandwidth 4.889 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 Marker 1.884980000 GHz 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 4.2383 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -15.197 kHz x dB Bandwidth 4.914 MHz Peak Search Meas Tools Next Peak Next Pk Right Next Pk Left Min Search Pk-Pk Search More 1 of 2
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 4.2353 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error -6.393 kHz x dB Bandwidth 4.875 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

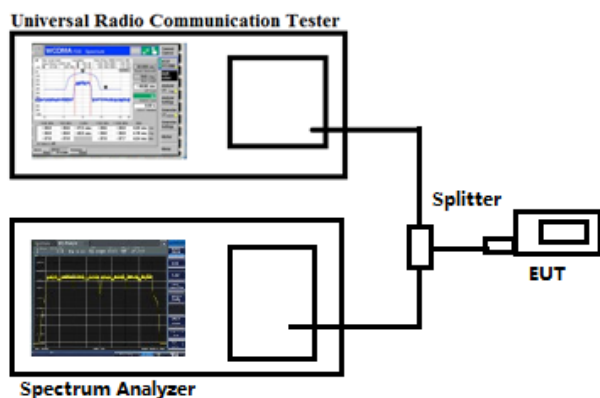
According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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.

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.

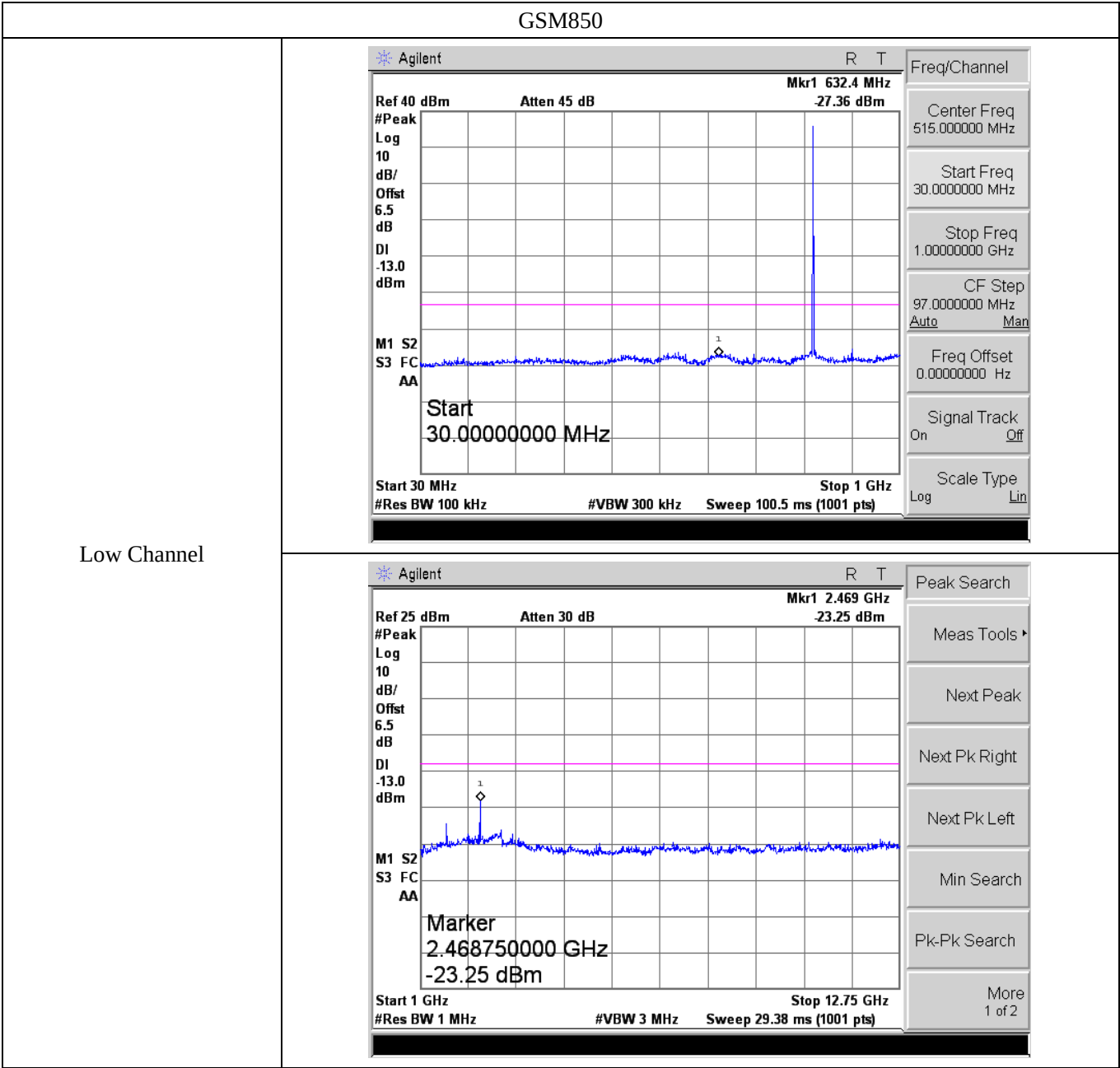
Test Configuration for the out of band emissions testing:



7.3 Summary of Test Results/Plots

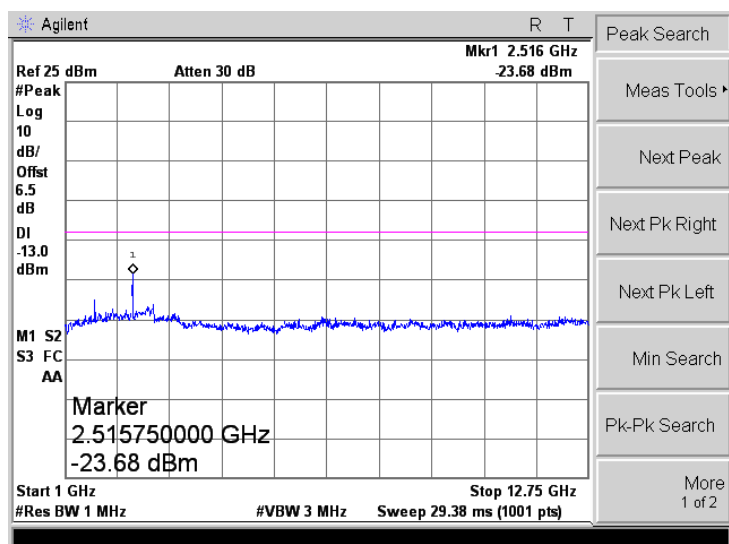
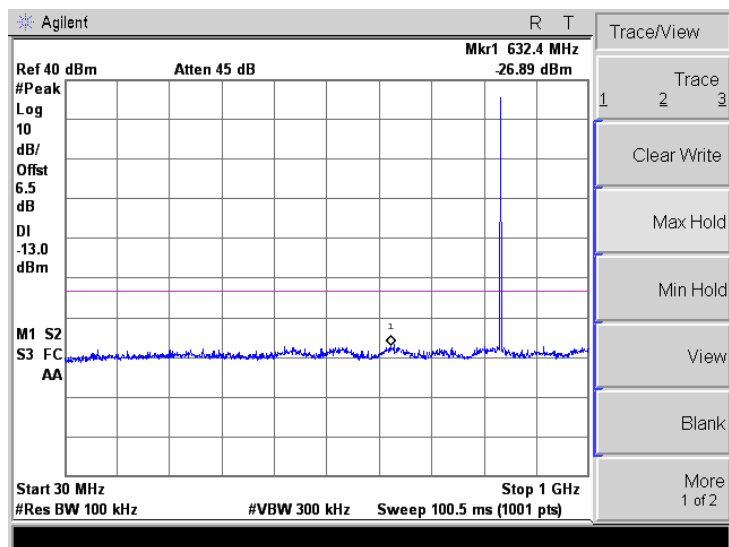
Note: Pre-scan mode WCDMA/HSDPA/HSUPA find the worst case at WCDMA mode and recorded in the test report.

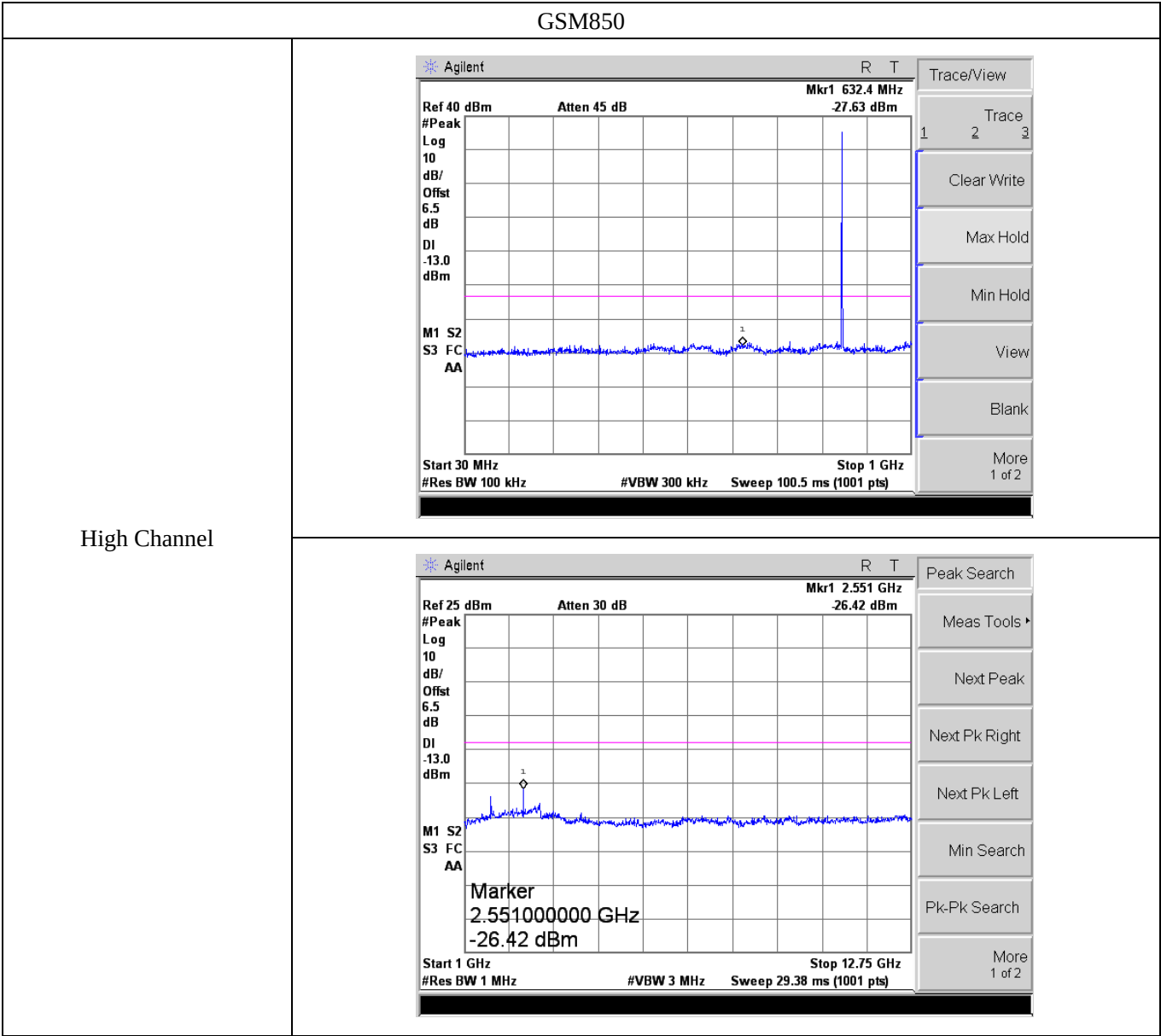
Please refer to the following test plots



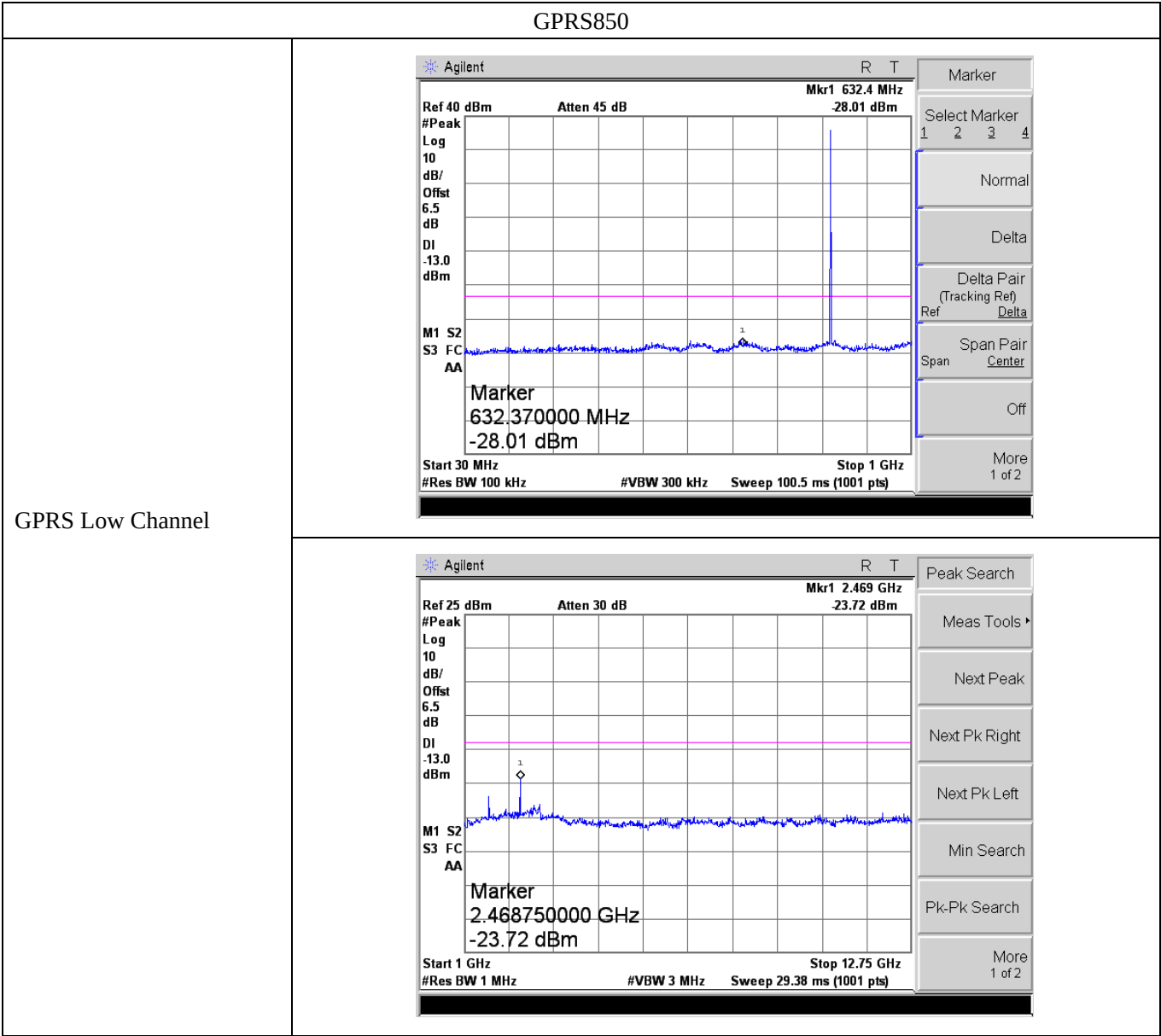
GSM850

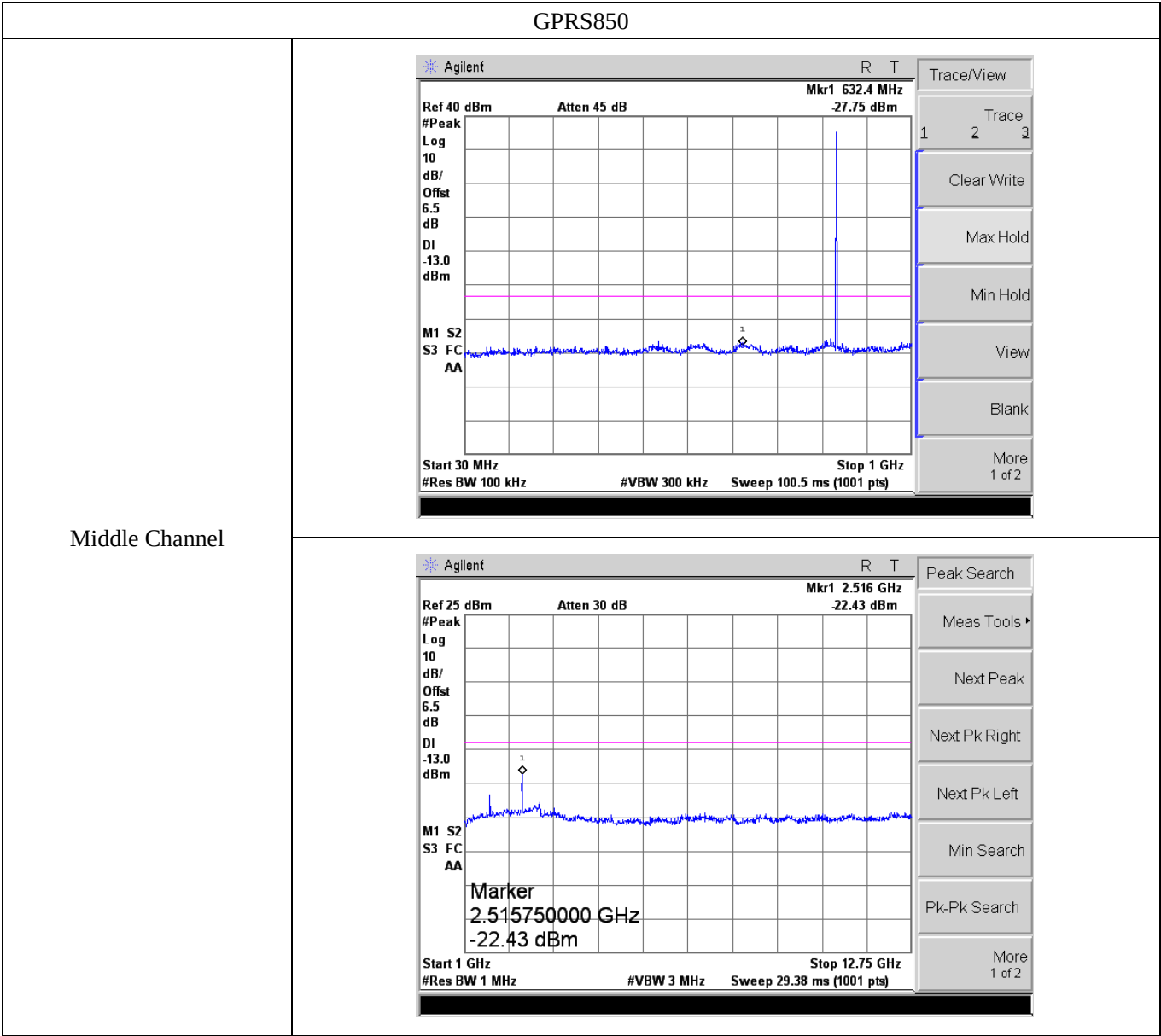
Middle Channel

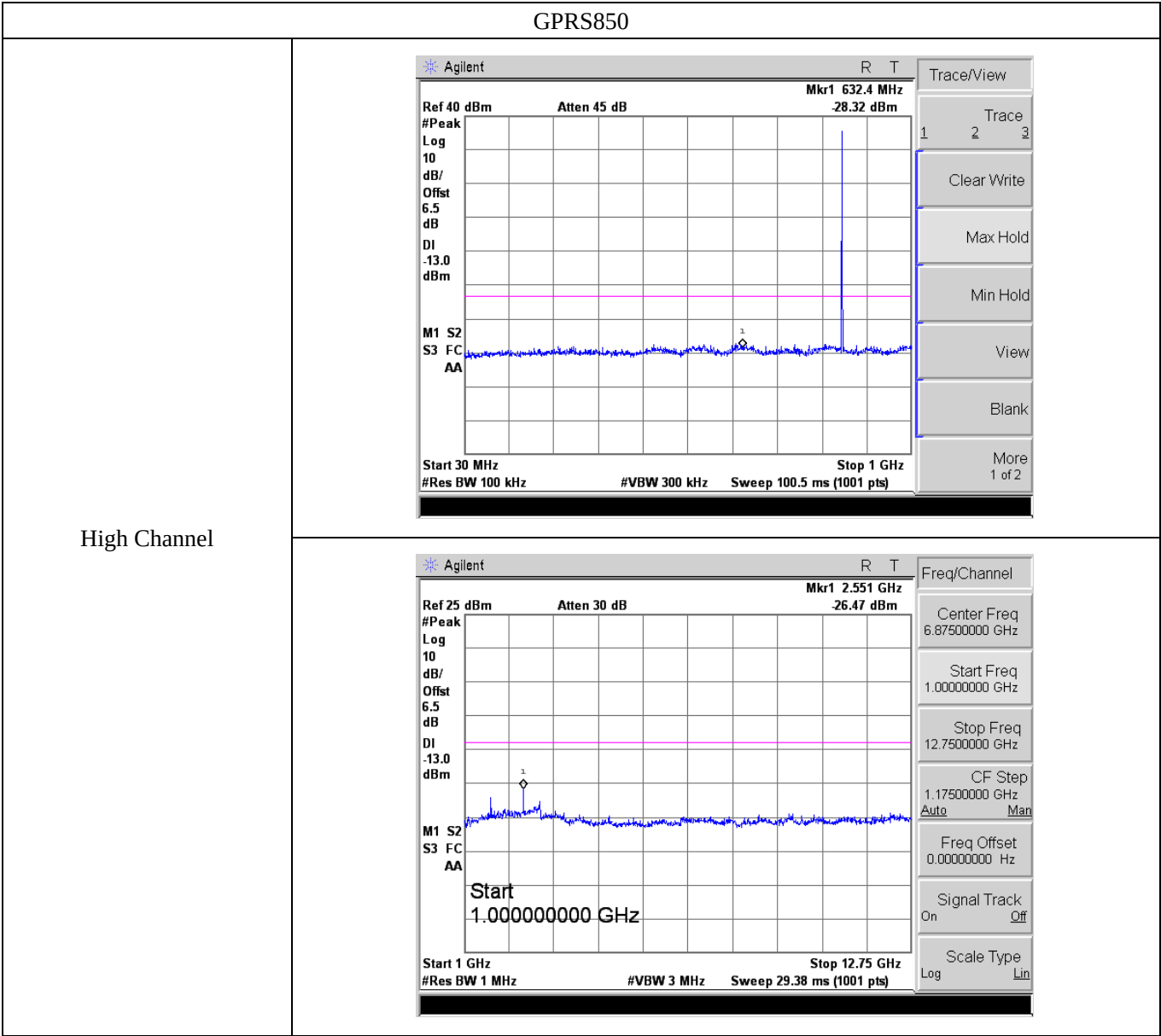


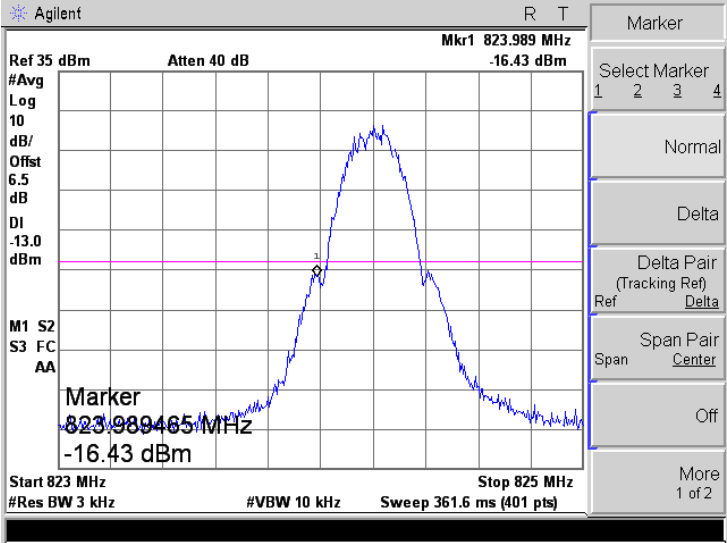
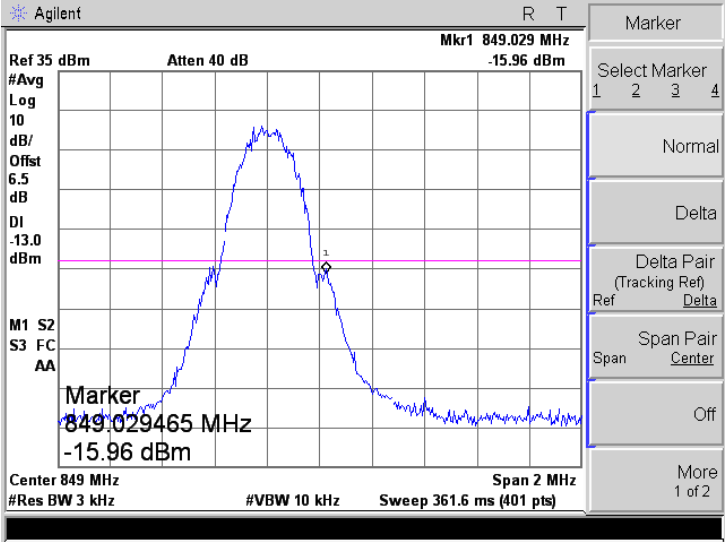


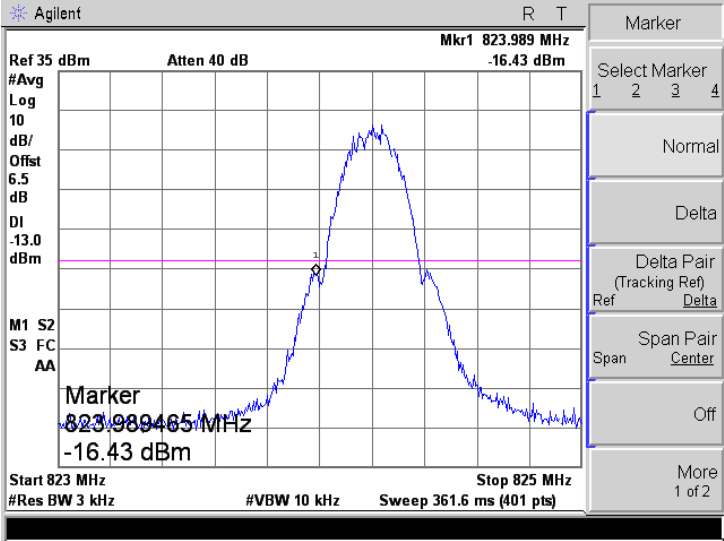
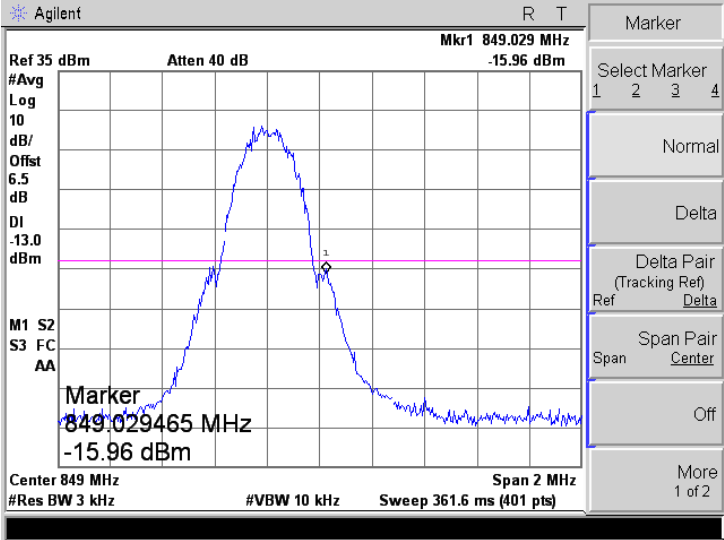
GSM850	
Low Band Emission	
High Band Emission	

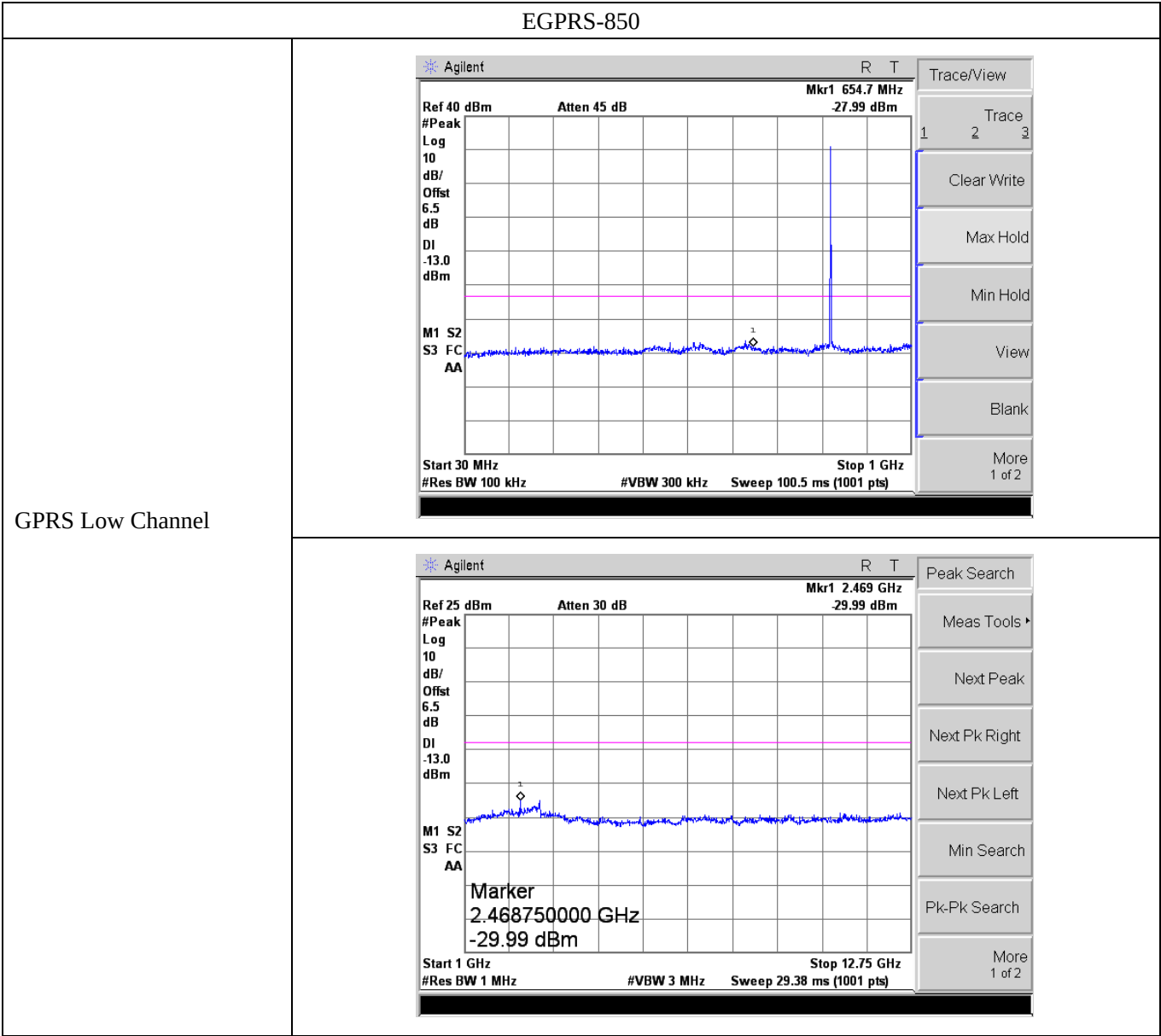


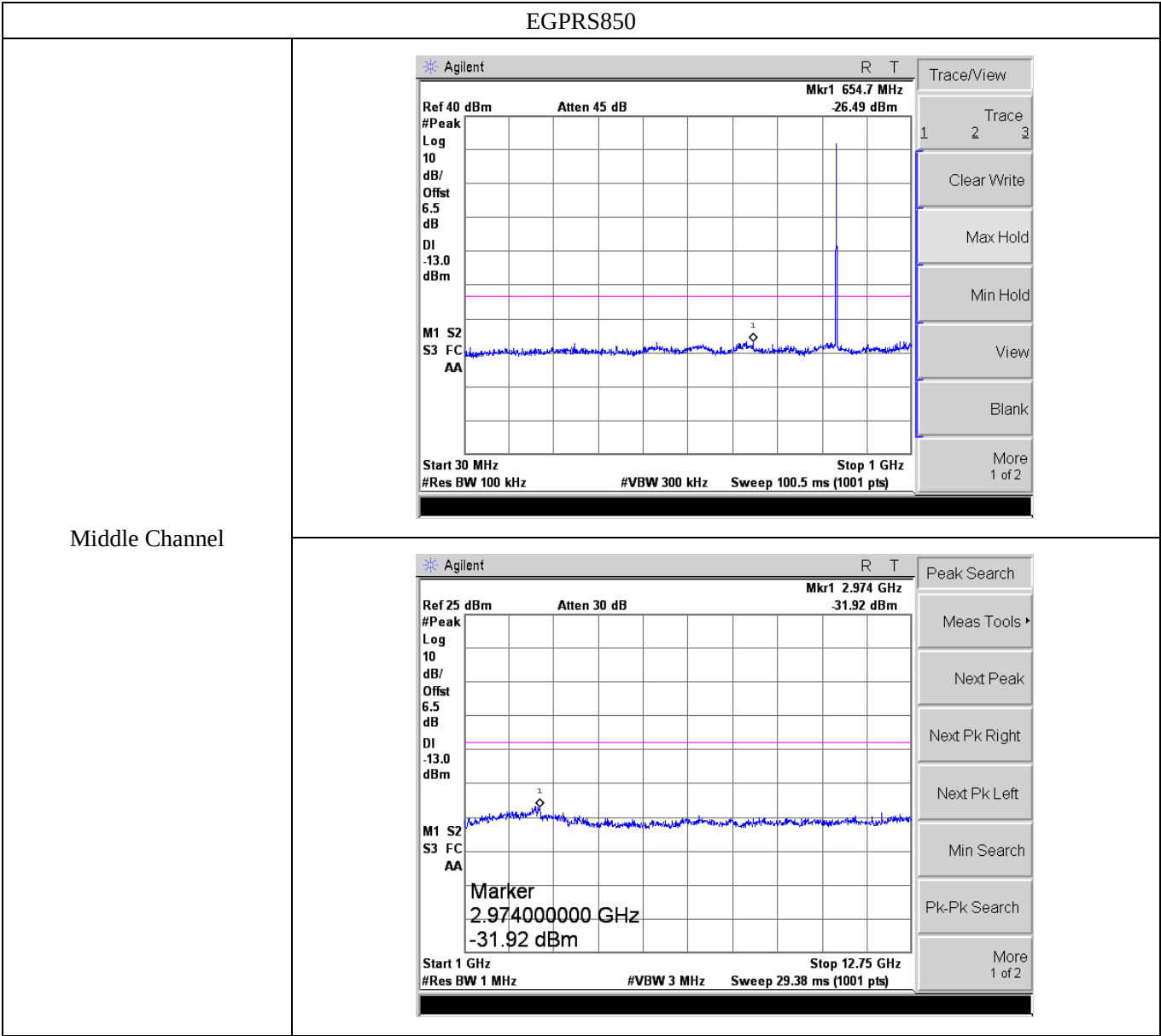


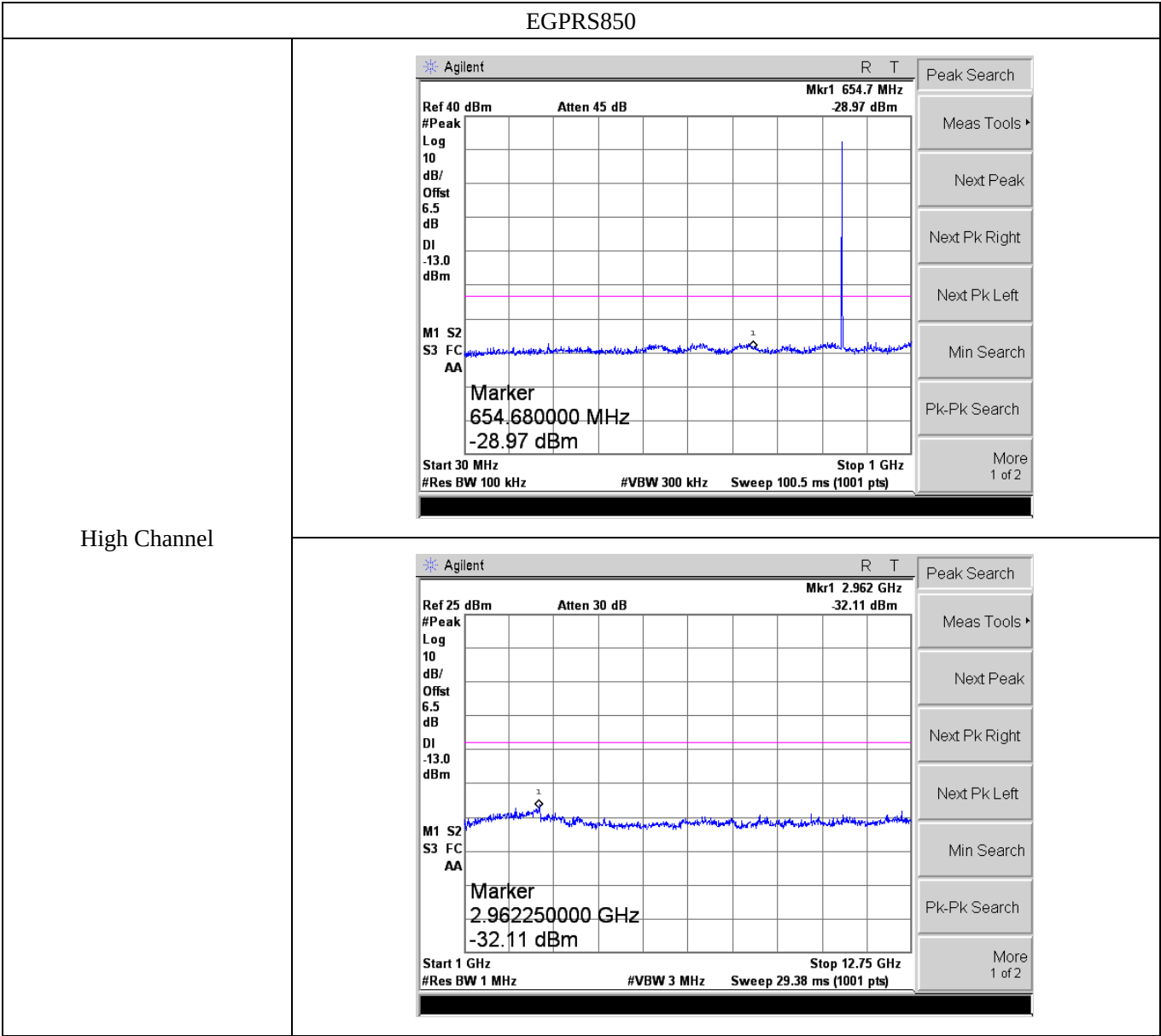


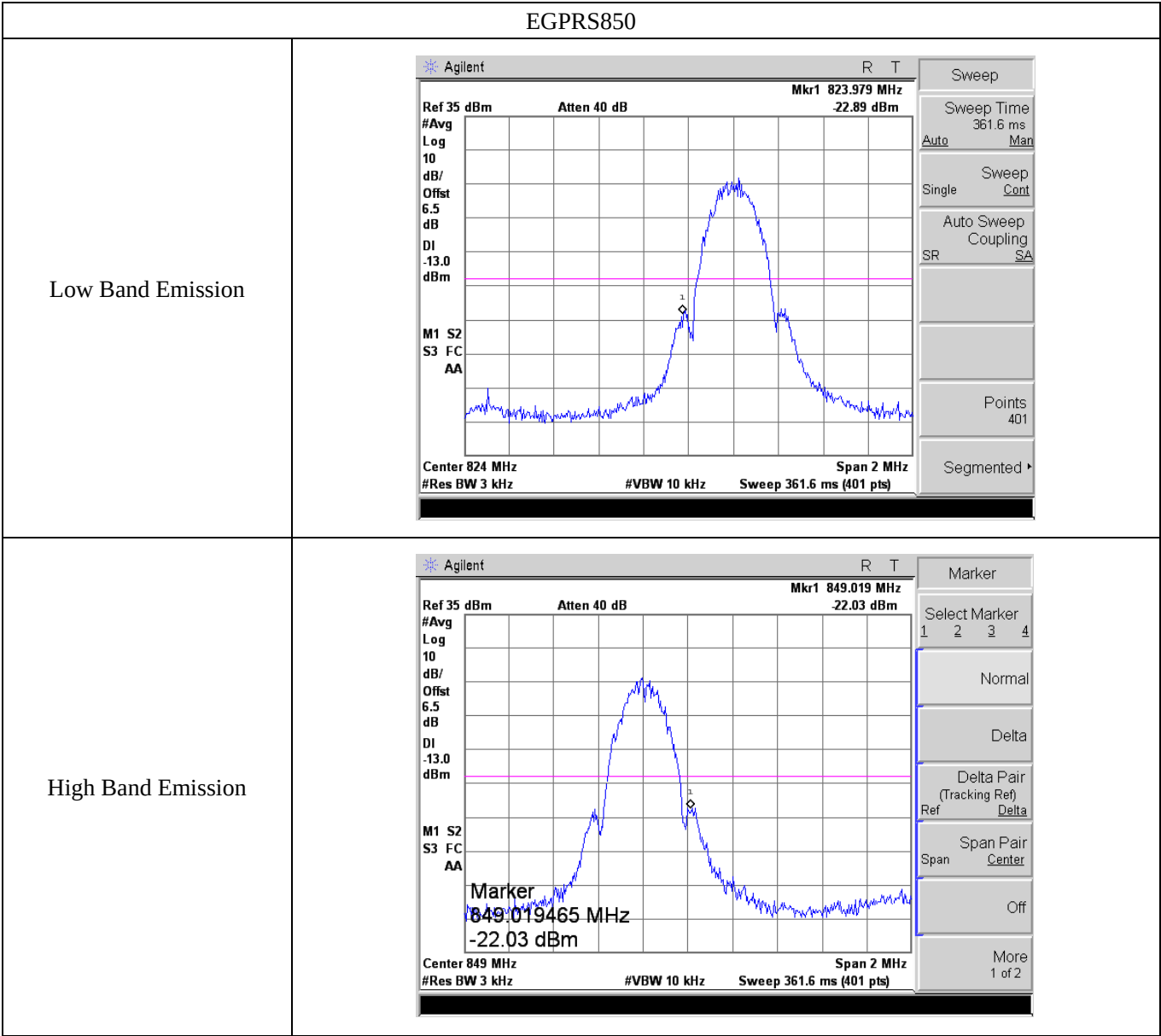
GPRS850	
Low Band Emission	
High Band Emission	

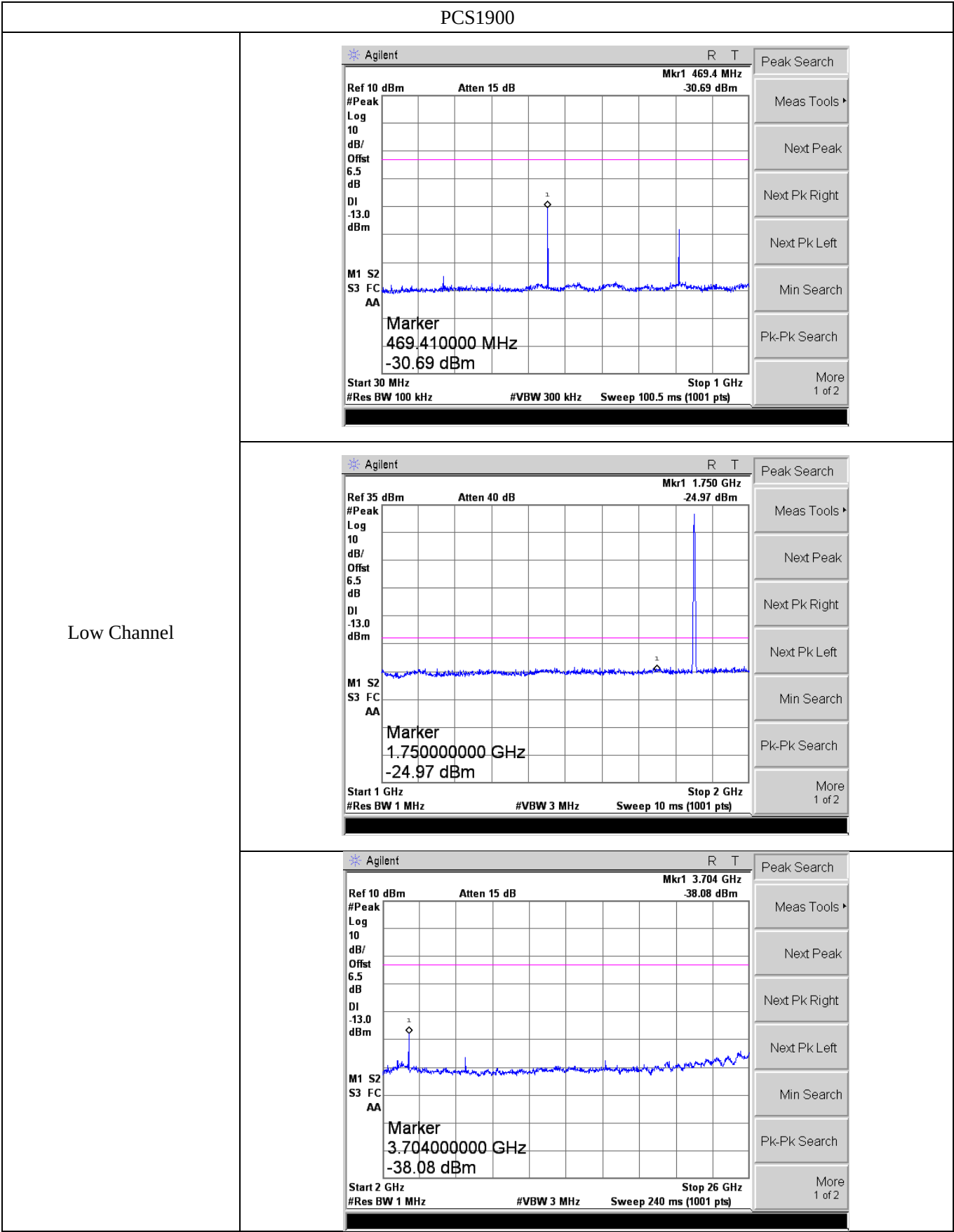
GPRS850	
Low Band Emission	
High Band Emission	

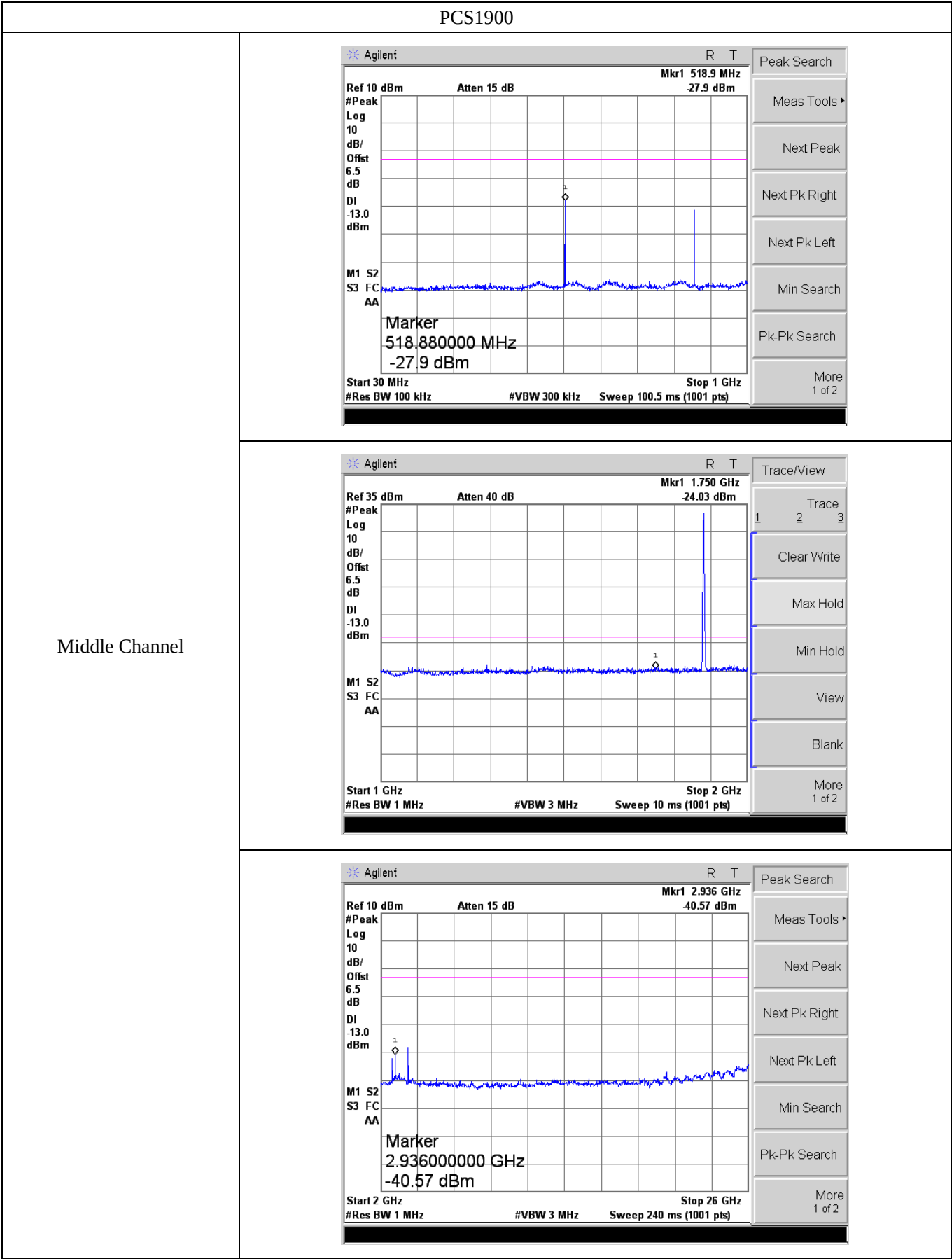


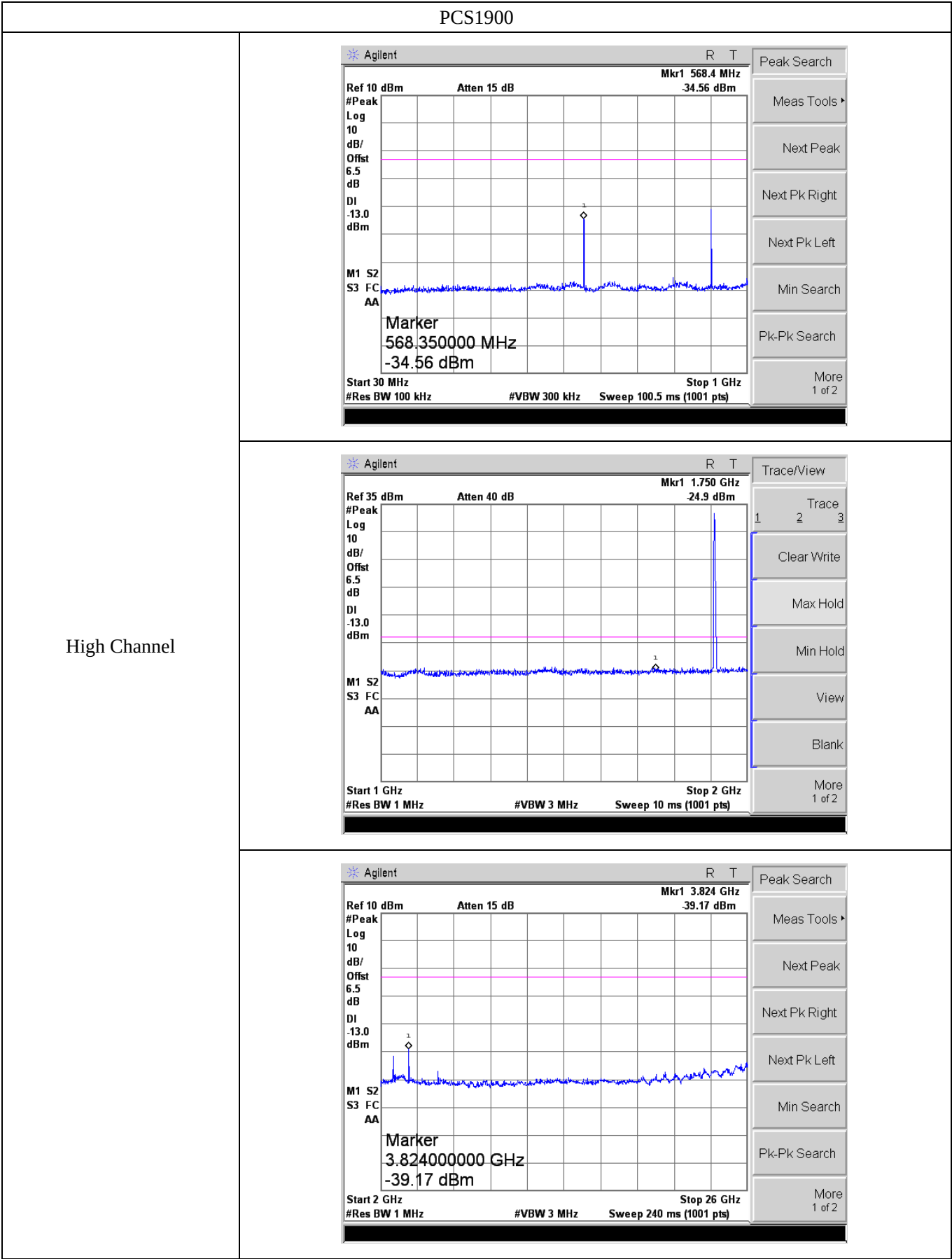


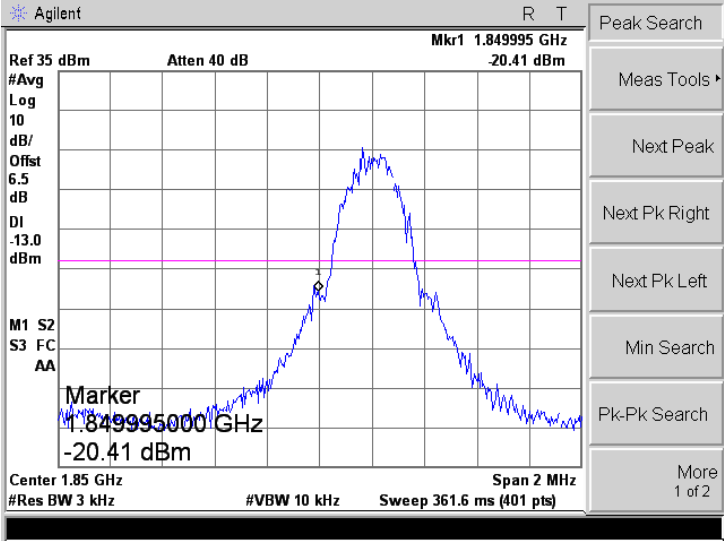
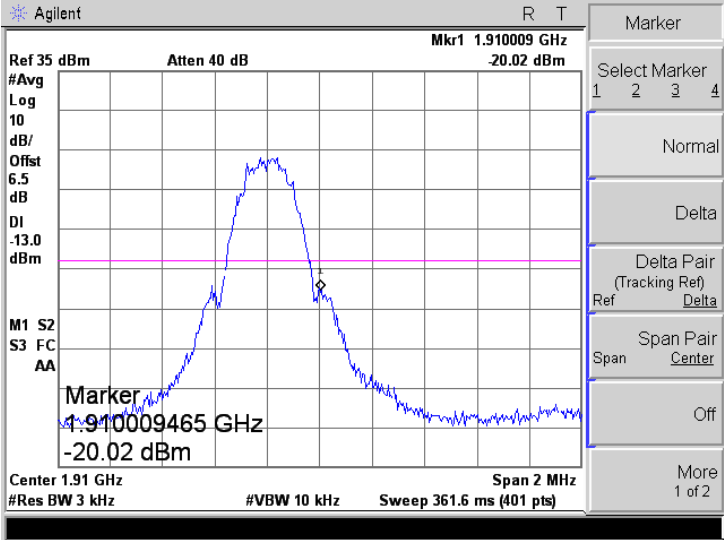




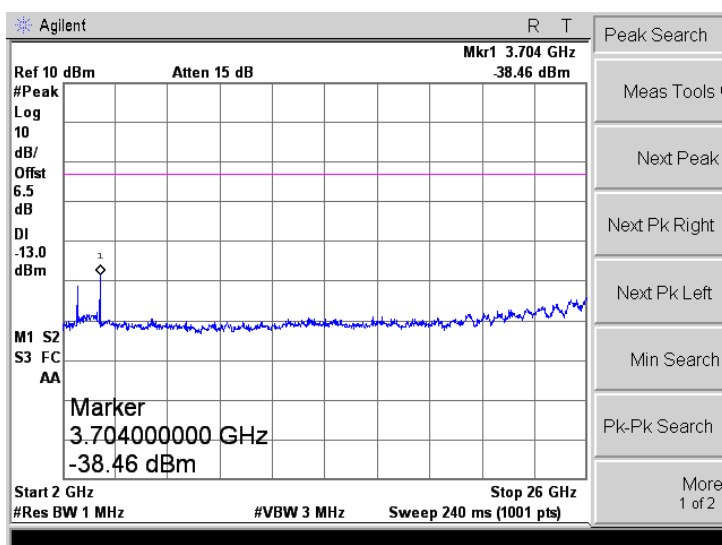
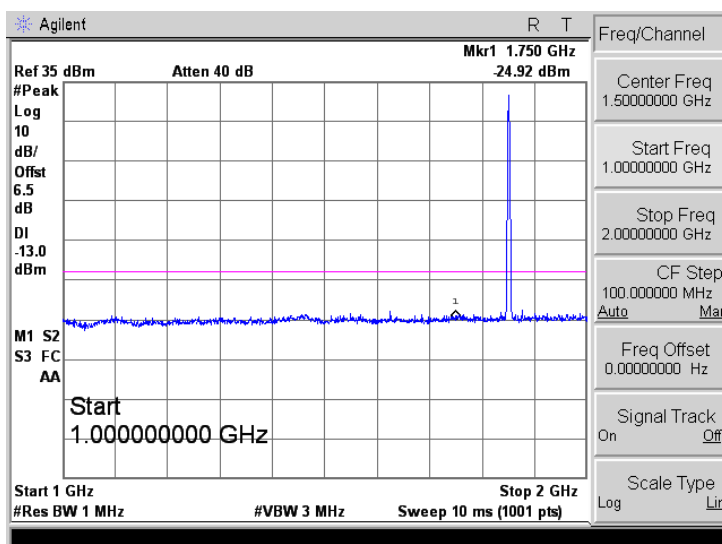
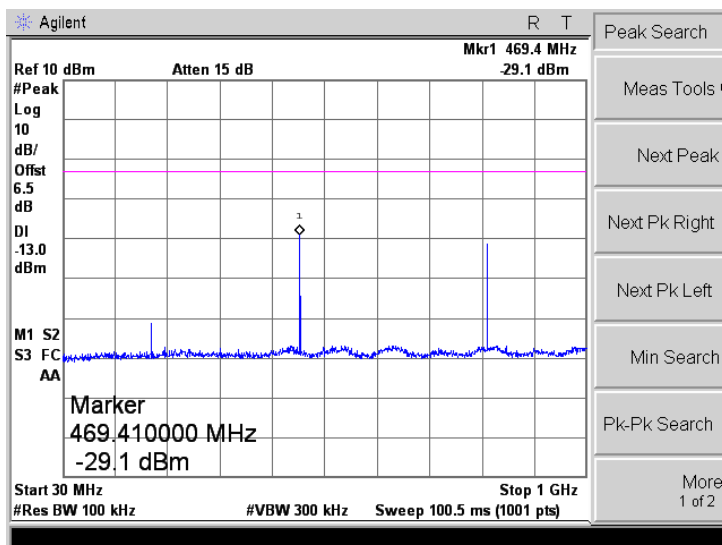


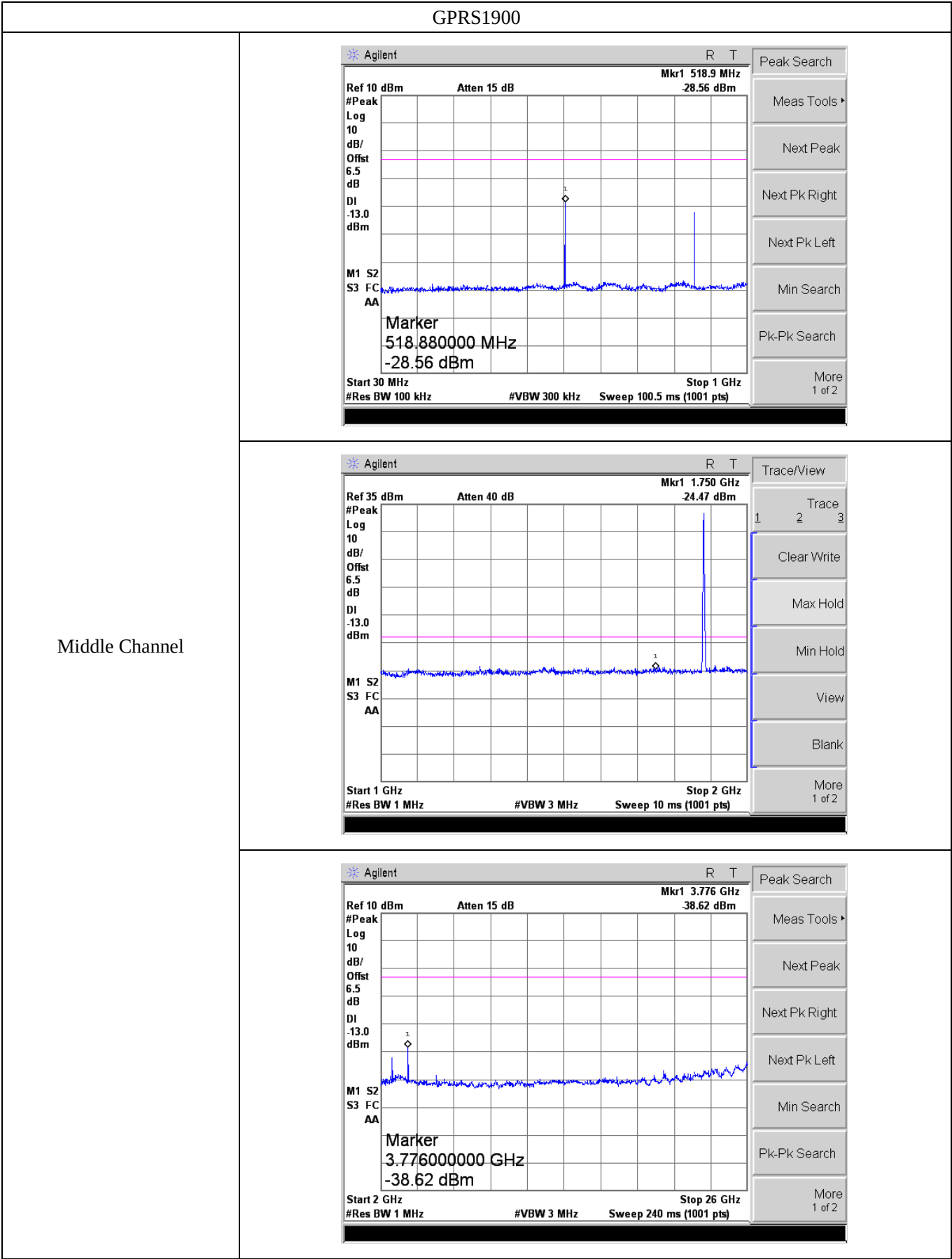


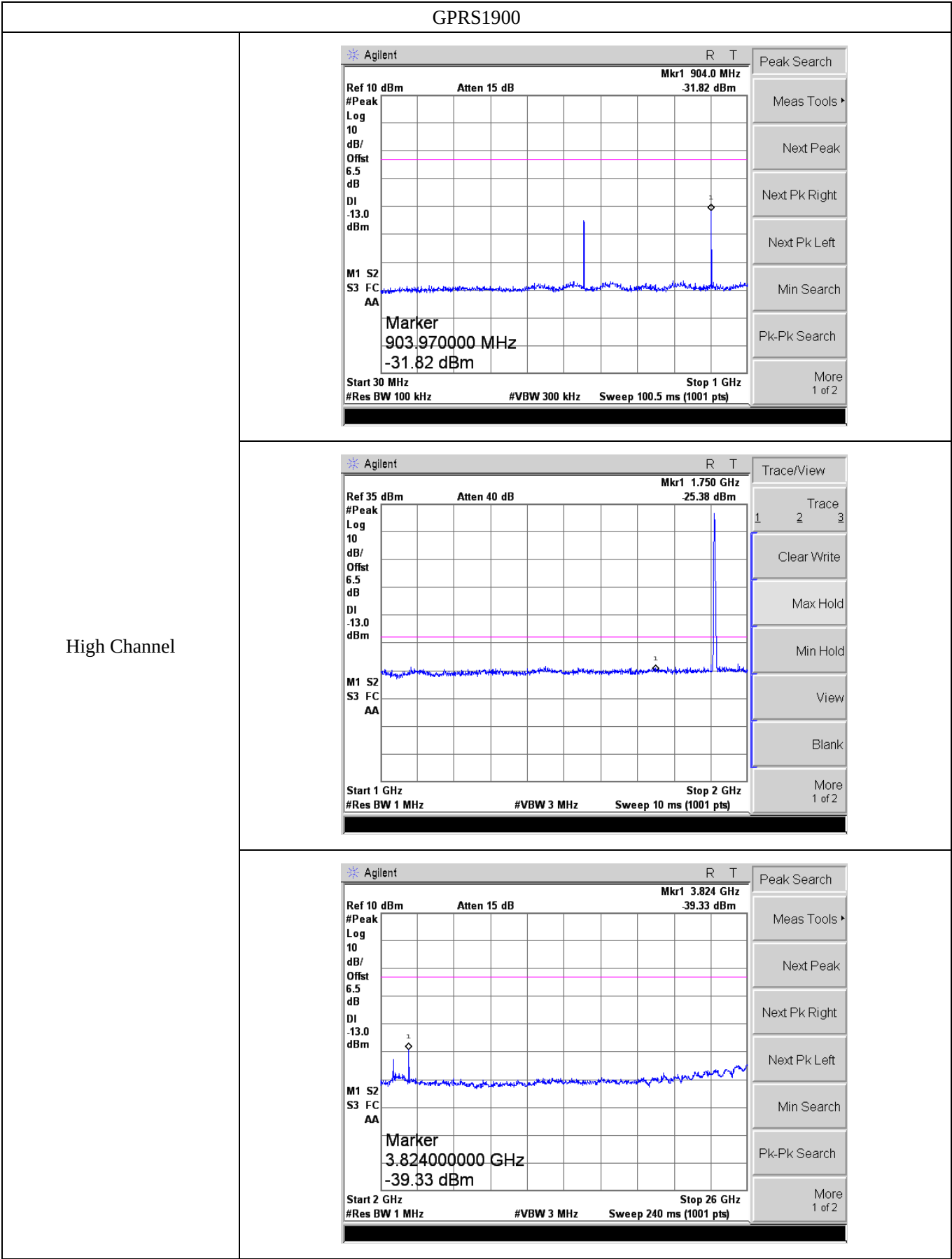


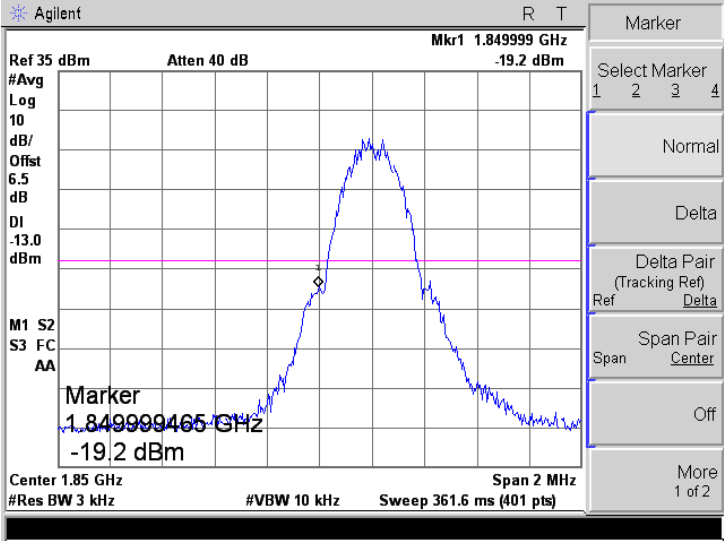
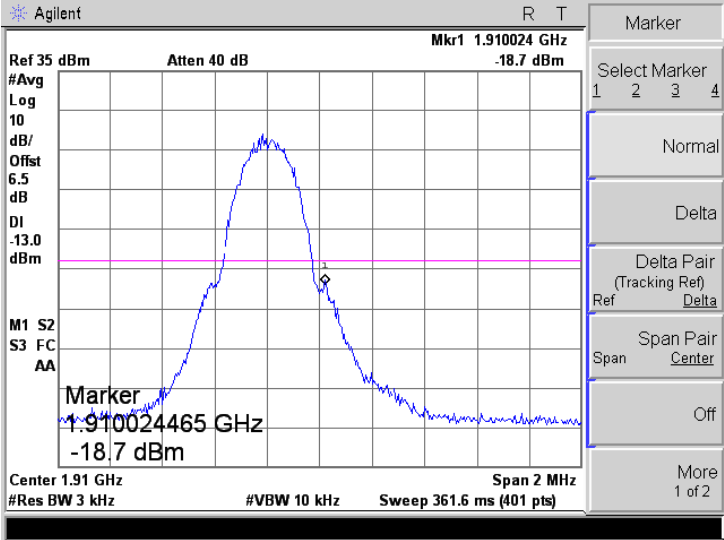
PCS1900	
Low Band Emission	
High Band Emission	

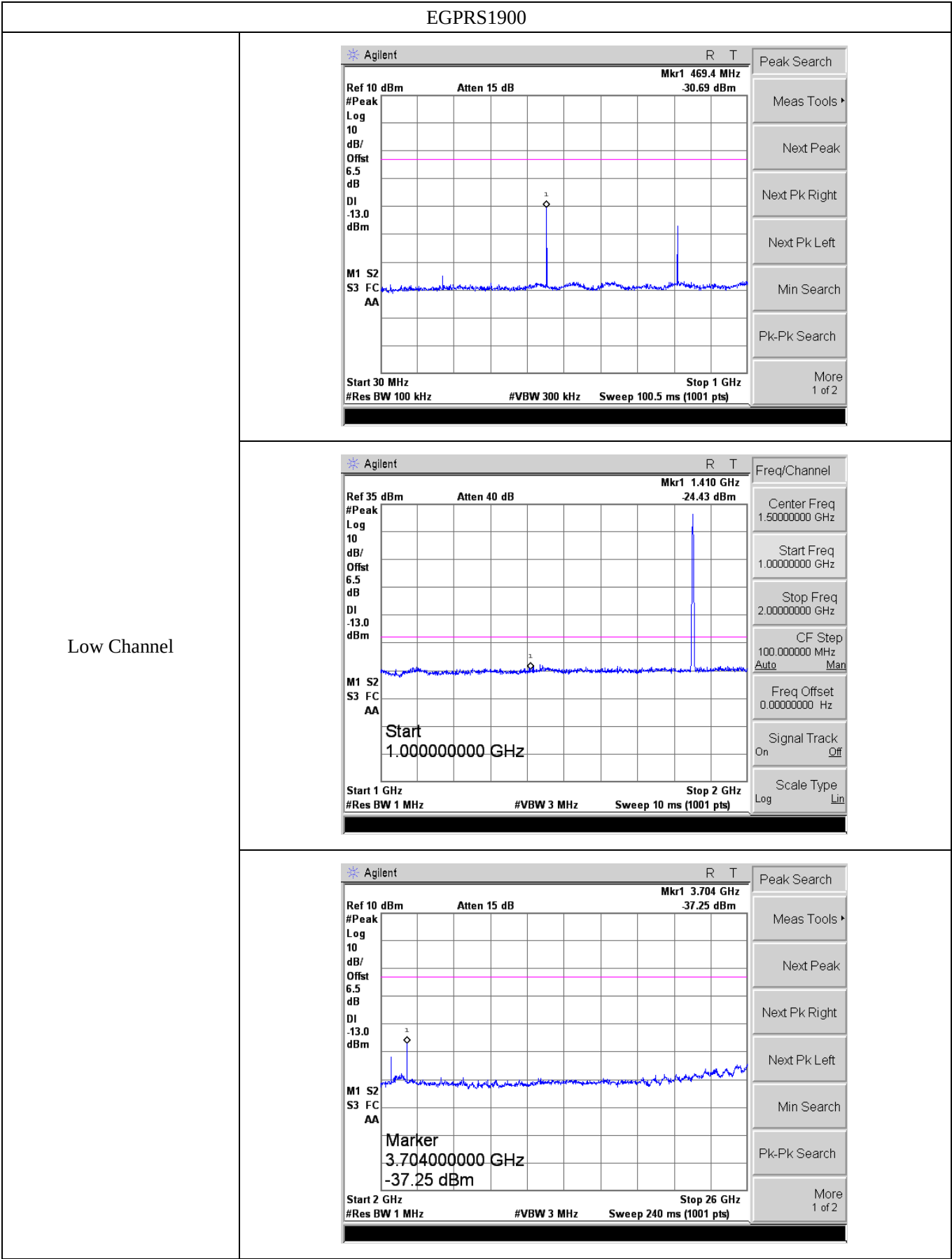
Low Channel



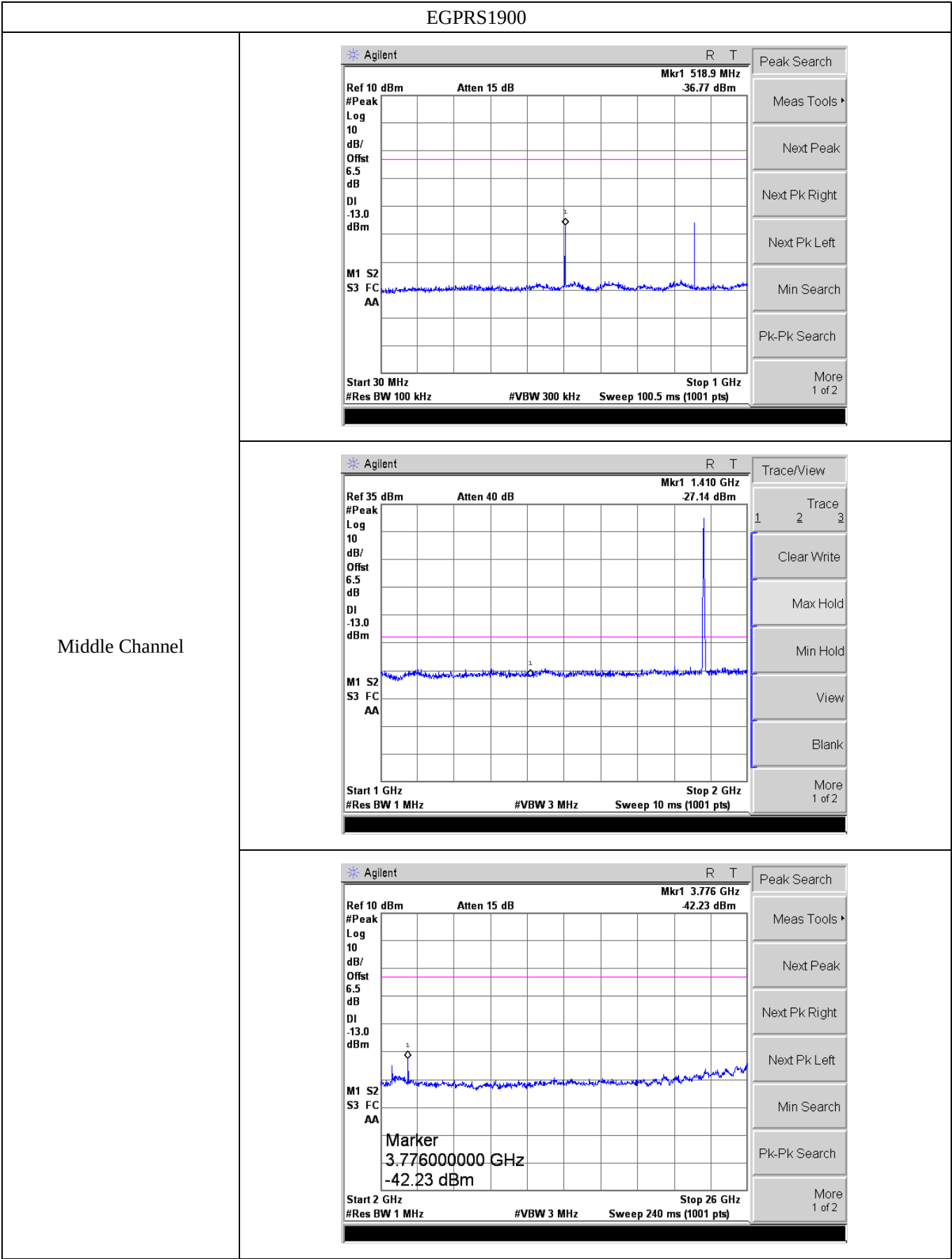




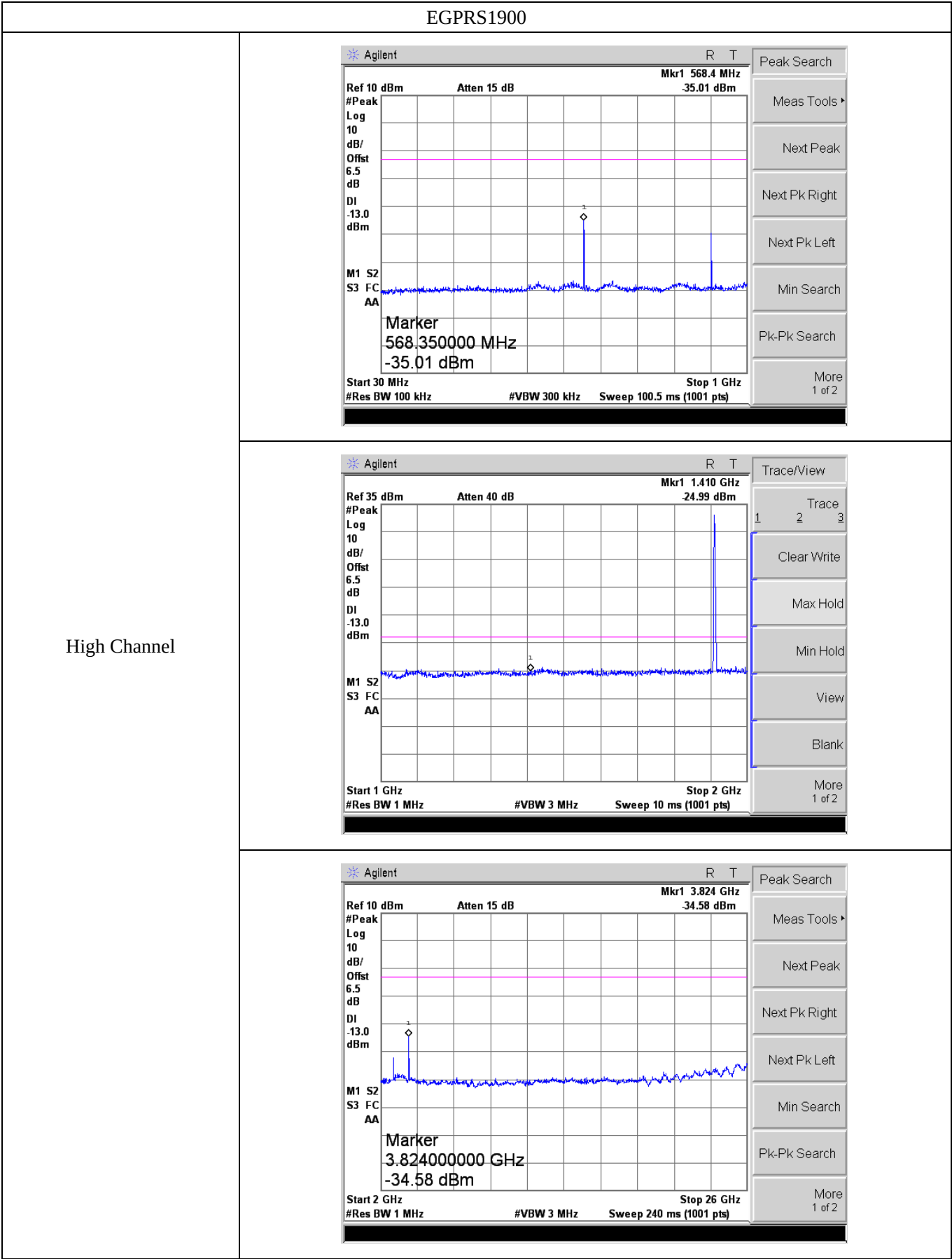
GPRS1900	
Low Band Emission	
High Band Emission	

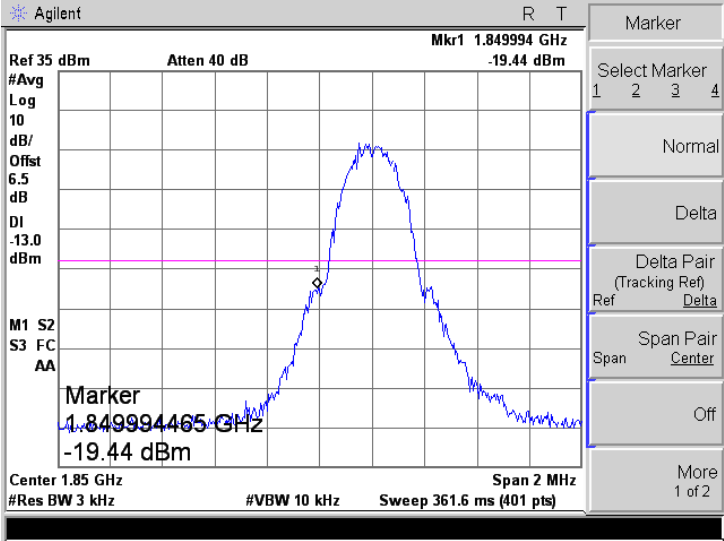
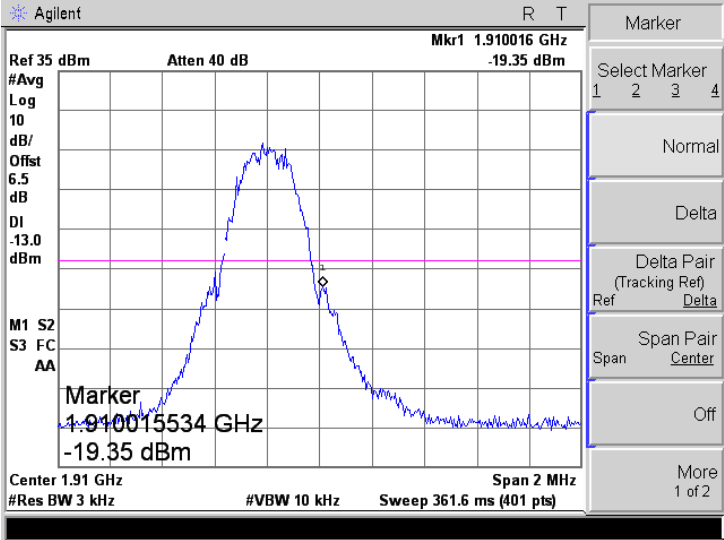


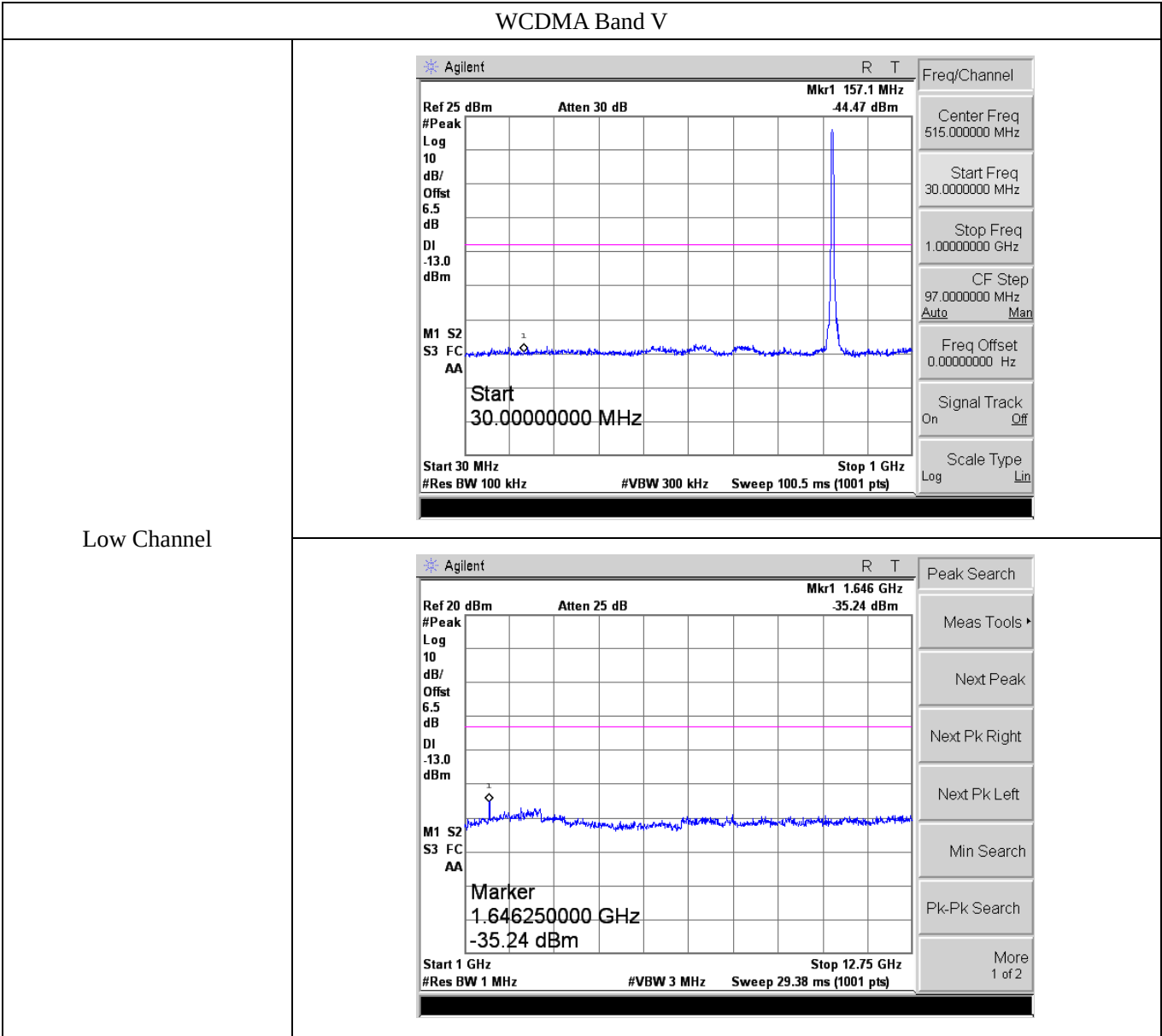
Low Channel

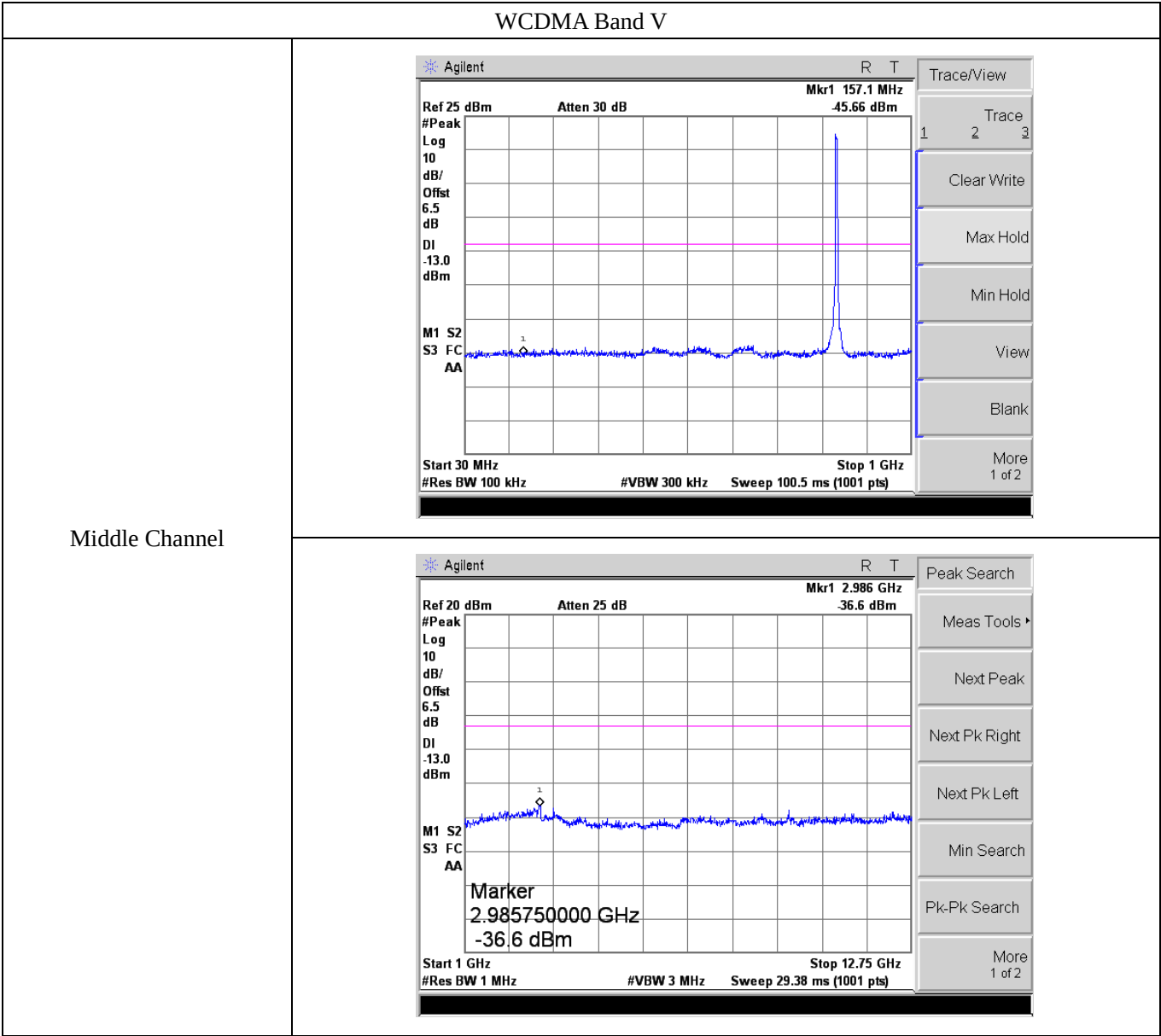


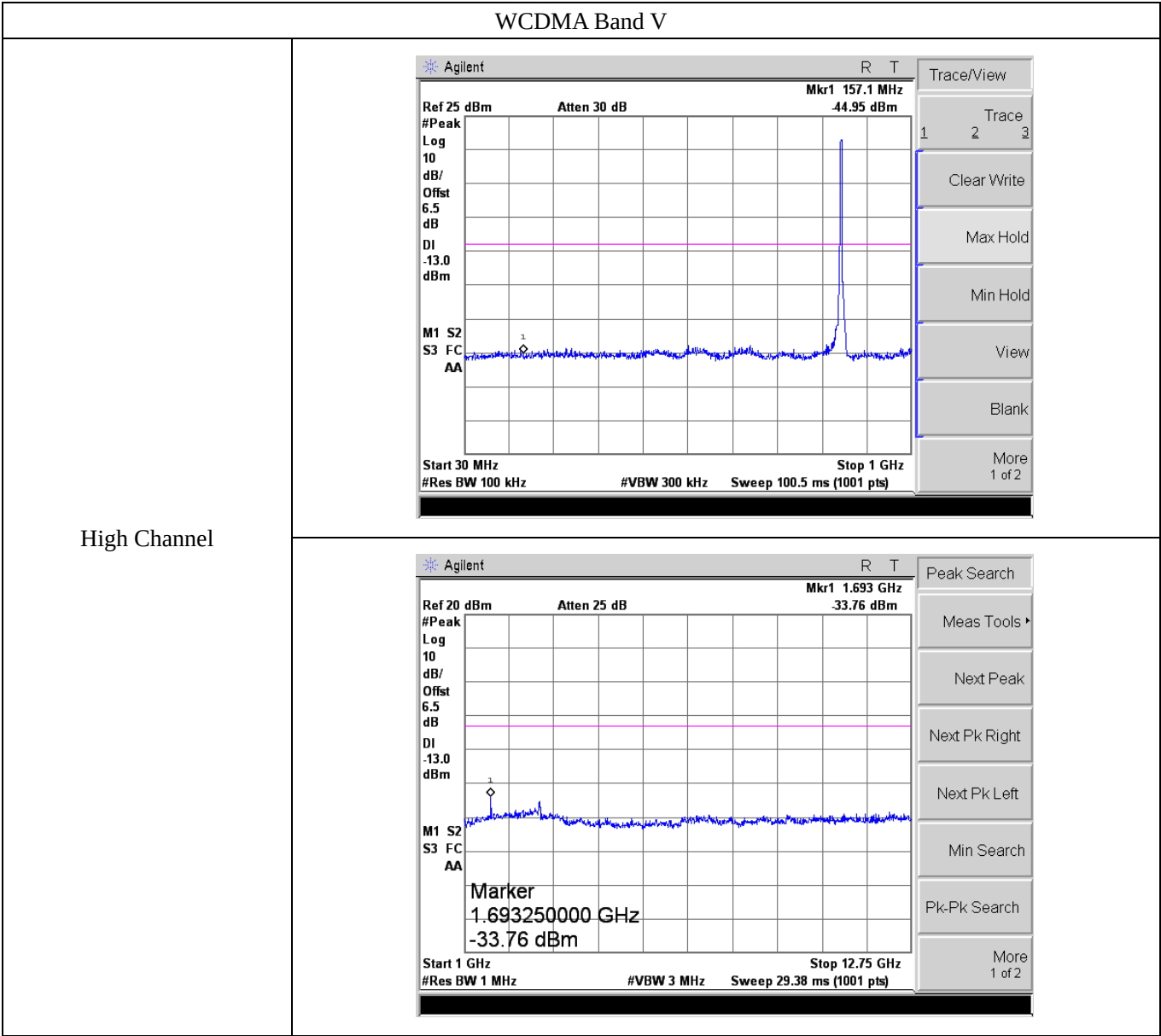
Middle Channel

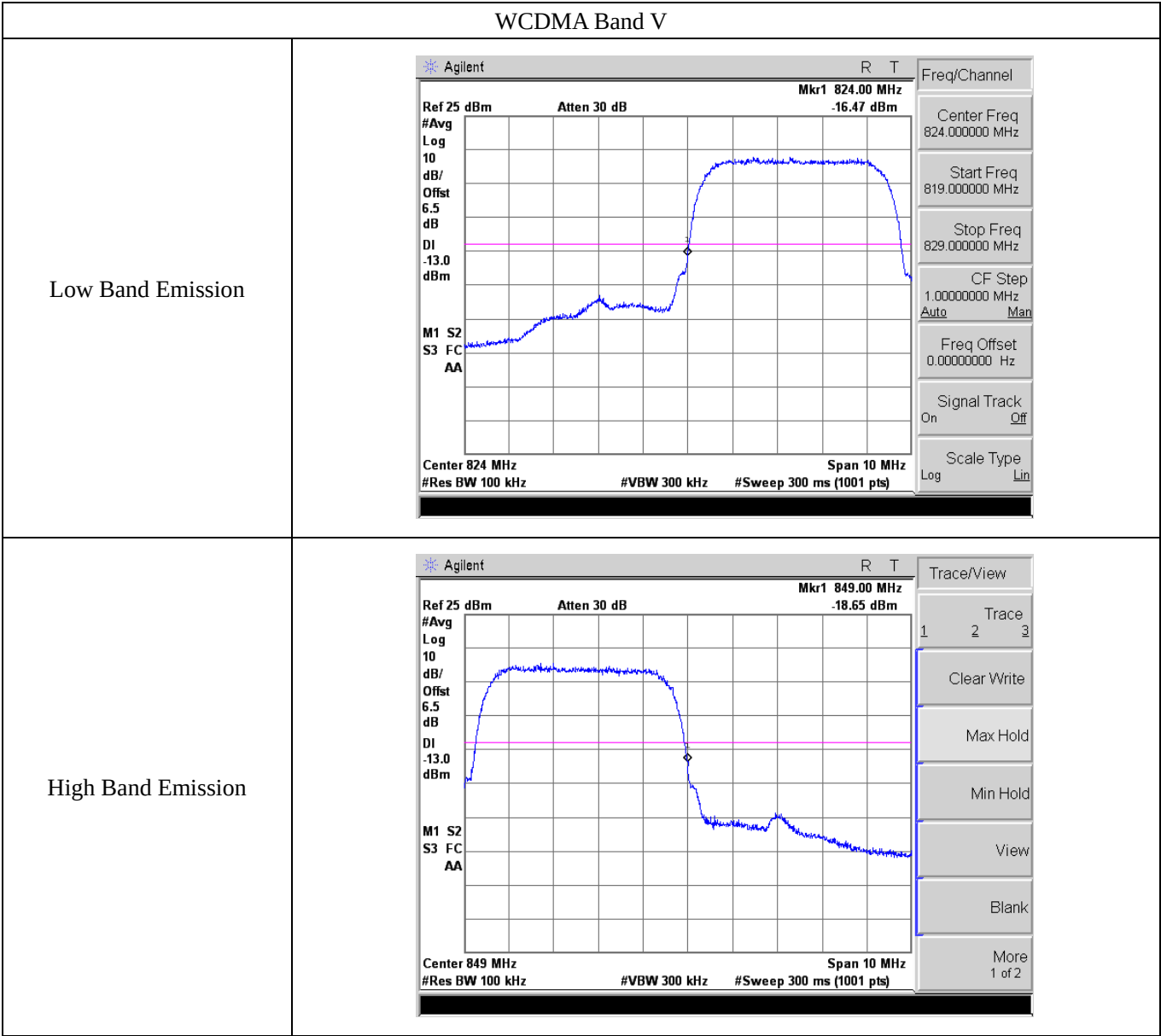


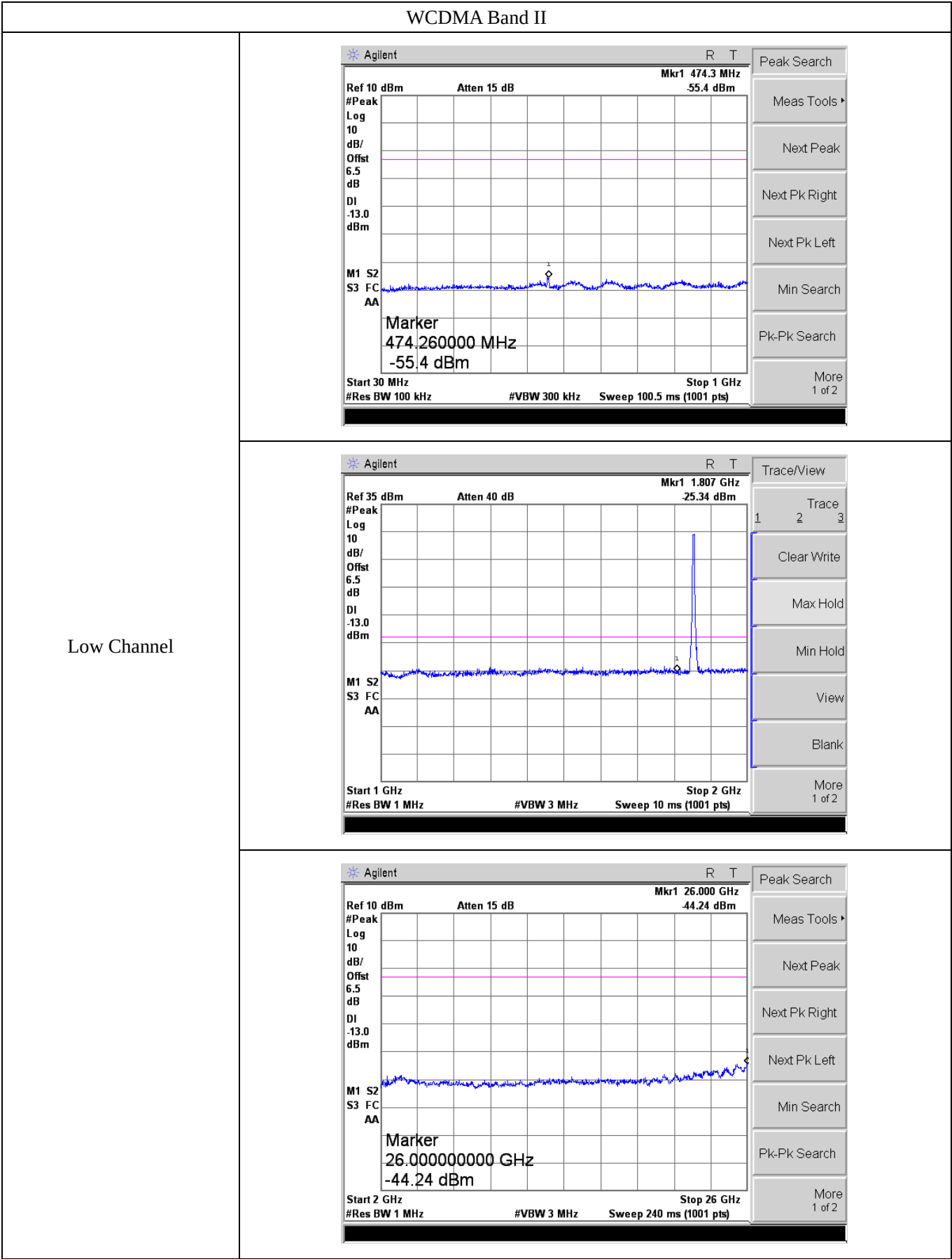
EGPRS1900	
Low Band Emission	
High Band Emission	



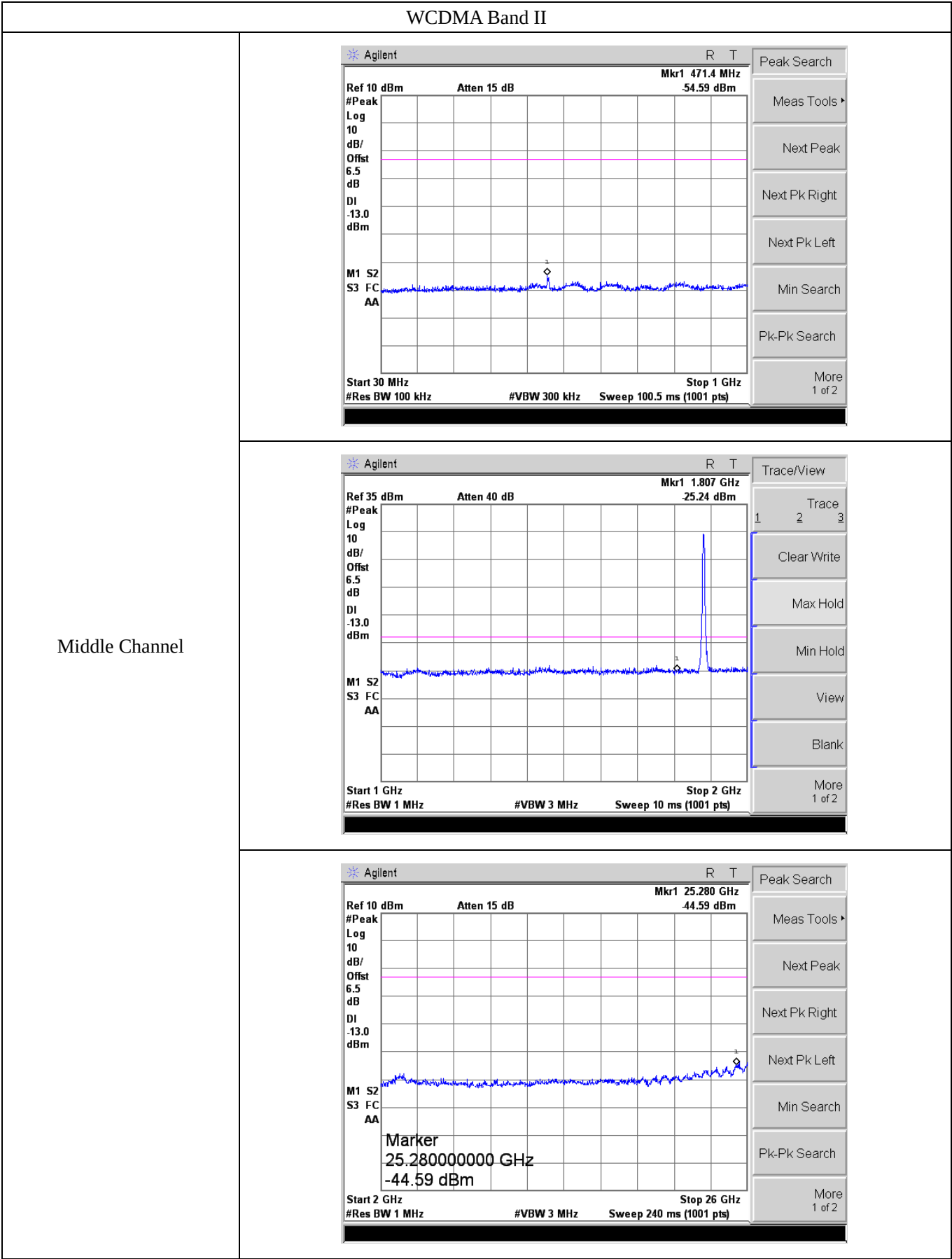


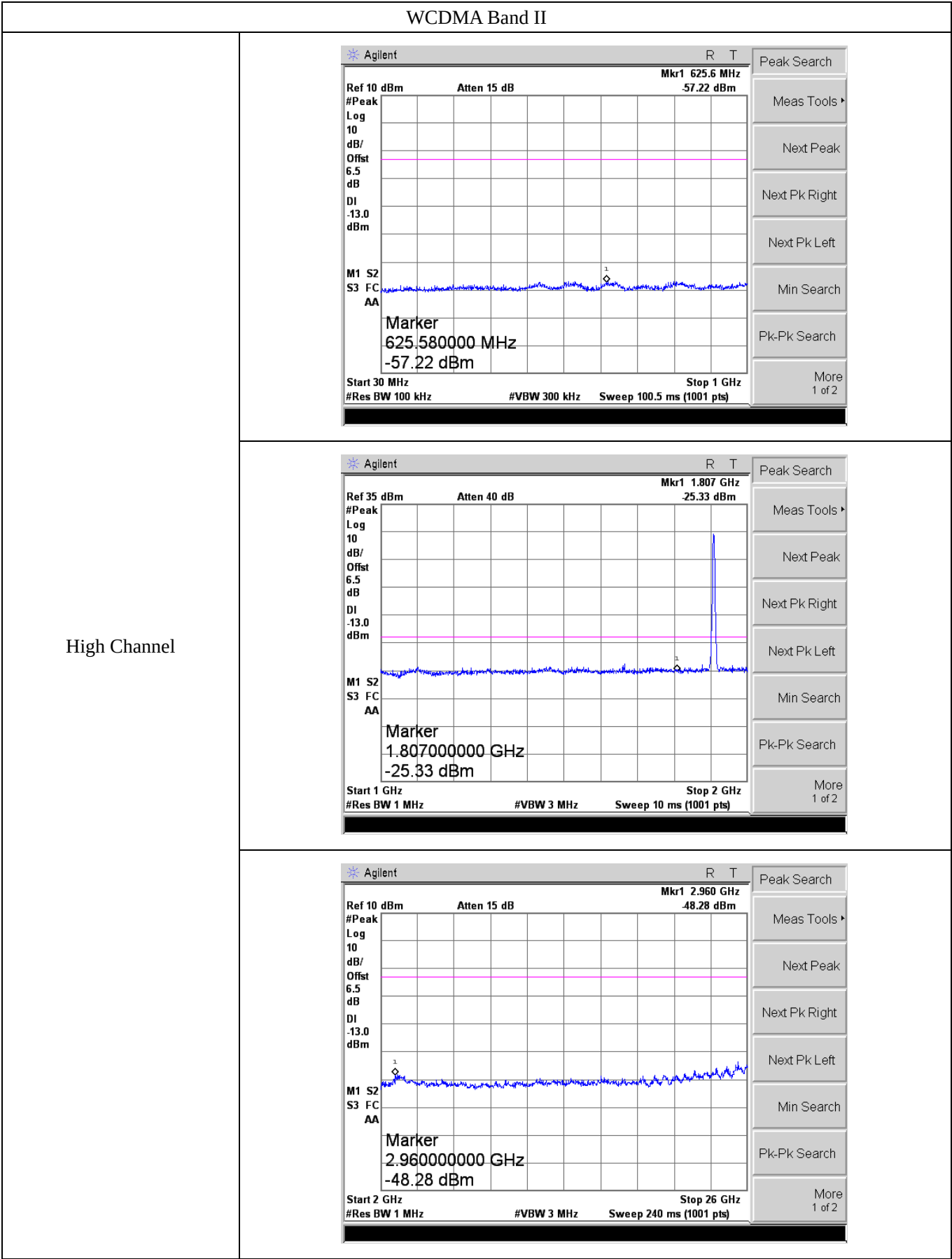


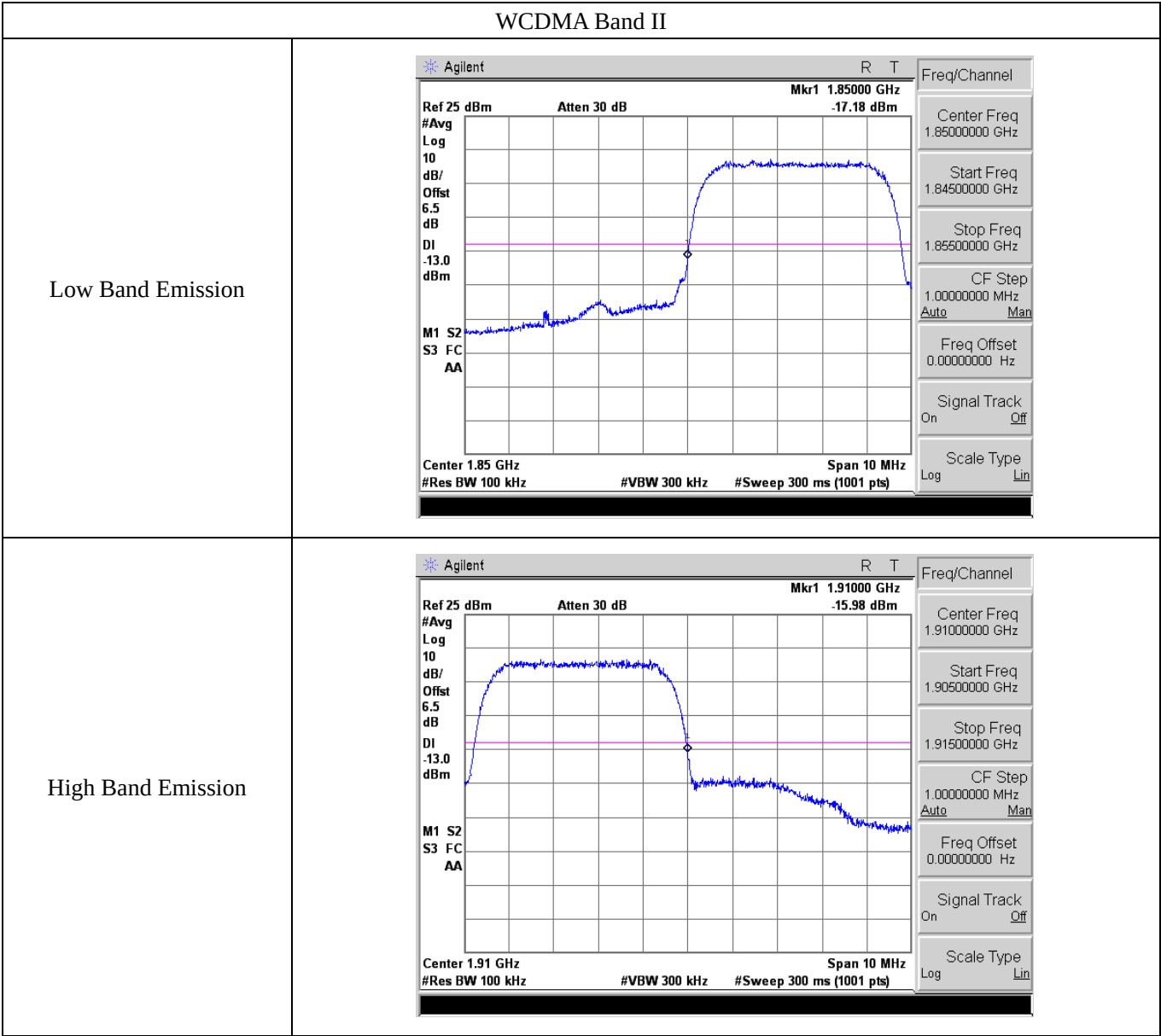




Low Channel







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.

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.

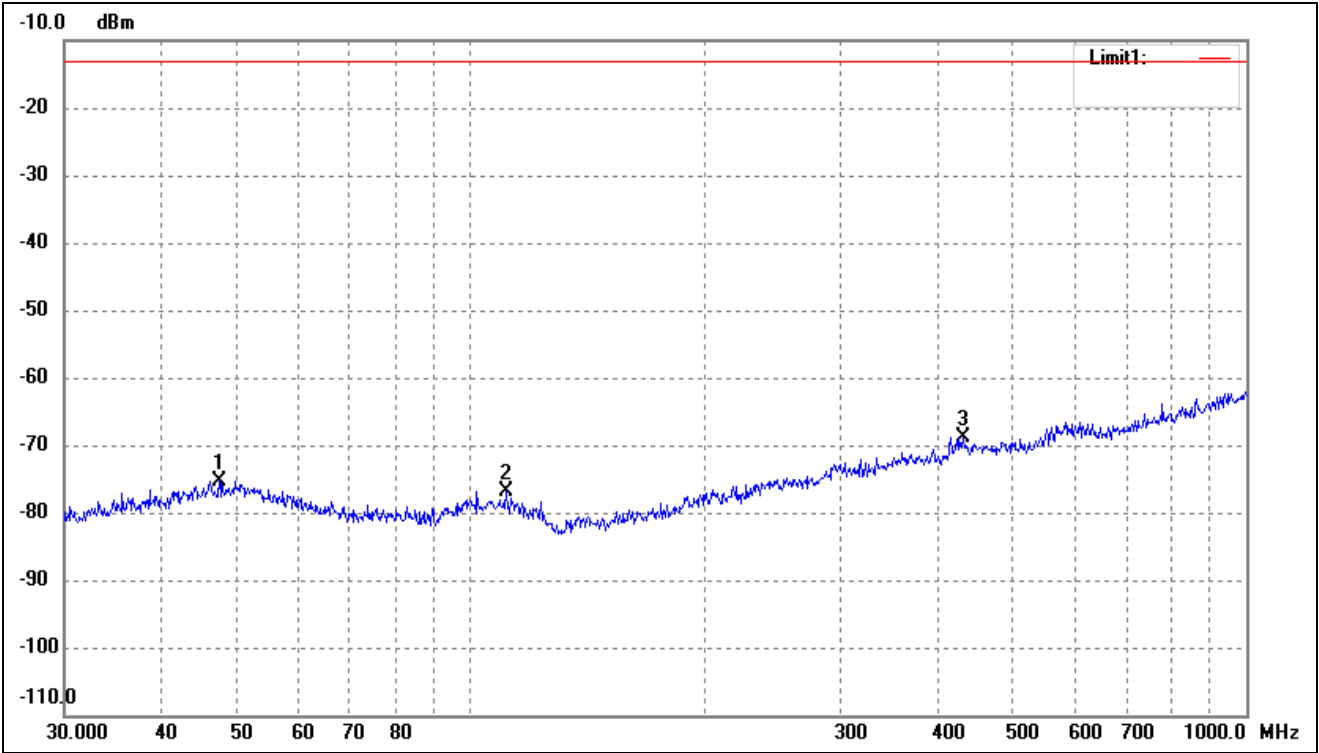
Spurious attenuation limit in dB = $43 + 10 \log_{10}(\text{power out in Watts})$

8.3 Summary of Test Results/Plots

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

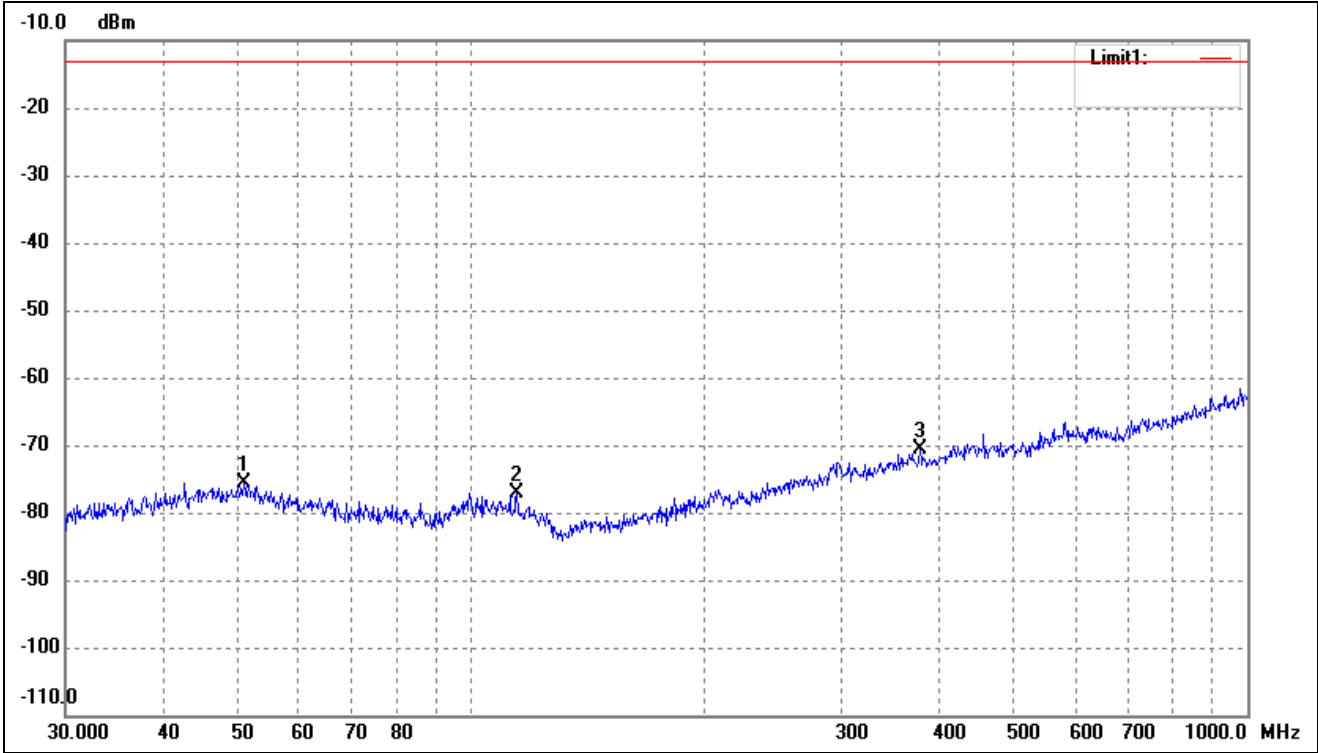
➤ Spurious Emissions Below 1GHz

For Cellular Band			
Test Channel	GSM850	Polarity:	Horizontal



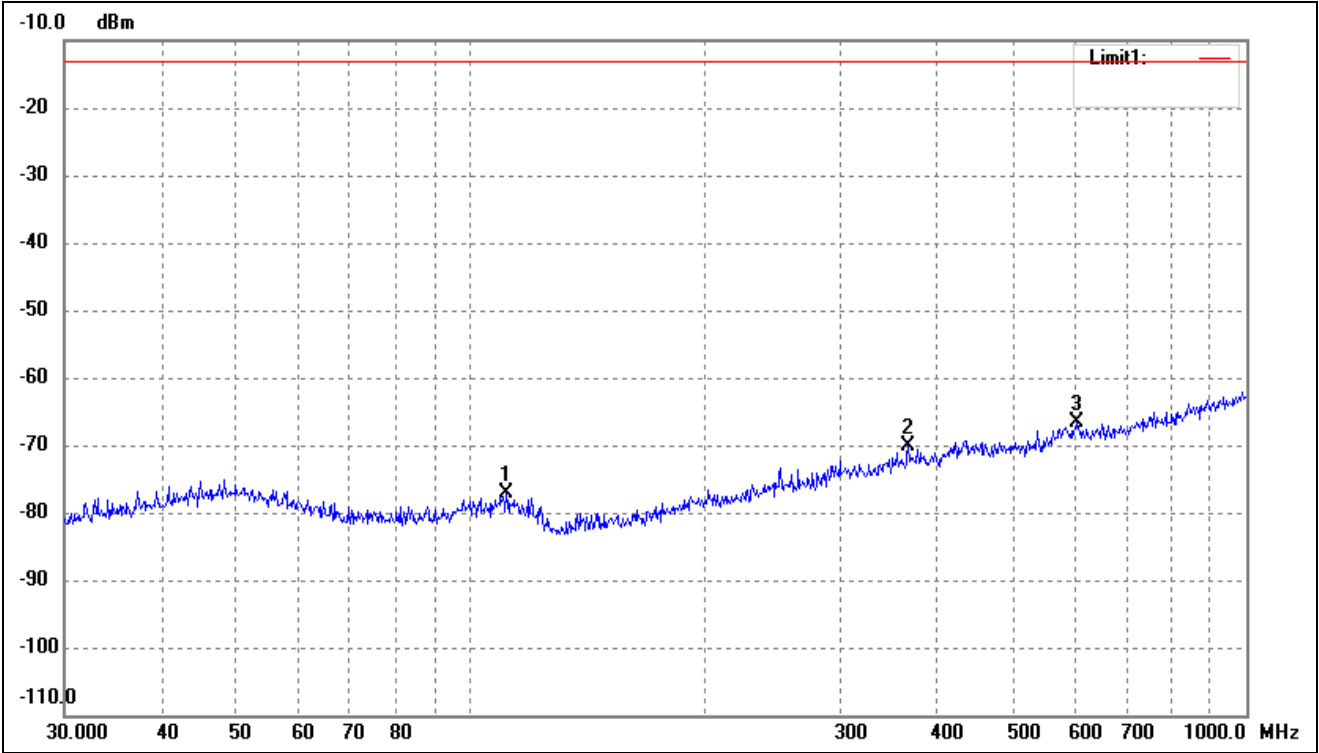
No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ()	Height (cm)	Remark
1	47.4918	-76.67	1.42	-75.25	-13.00	-62.25	-	-	peak
2	111.3468	-76.48	-0.50	-76.98	-13.00	-63.98	-	-	peak
3	432.5457	-76.20	7.41	-68.79	-13.00	-55.79	-	-	peak

For Cellular Band			
Test Channel	GSM850	Polarity:	Vertical



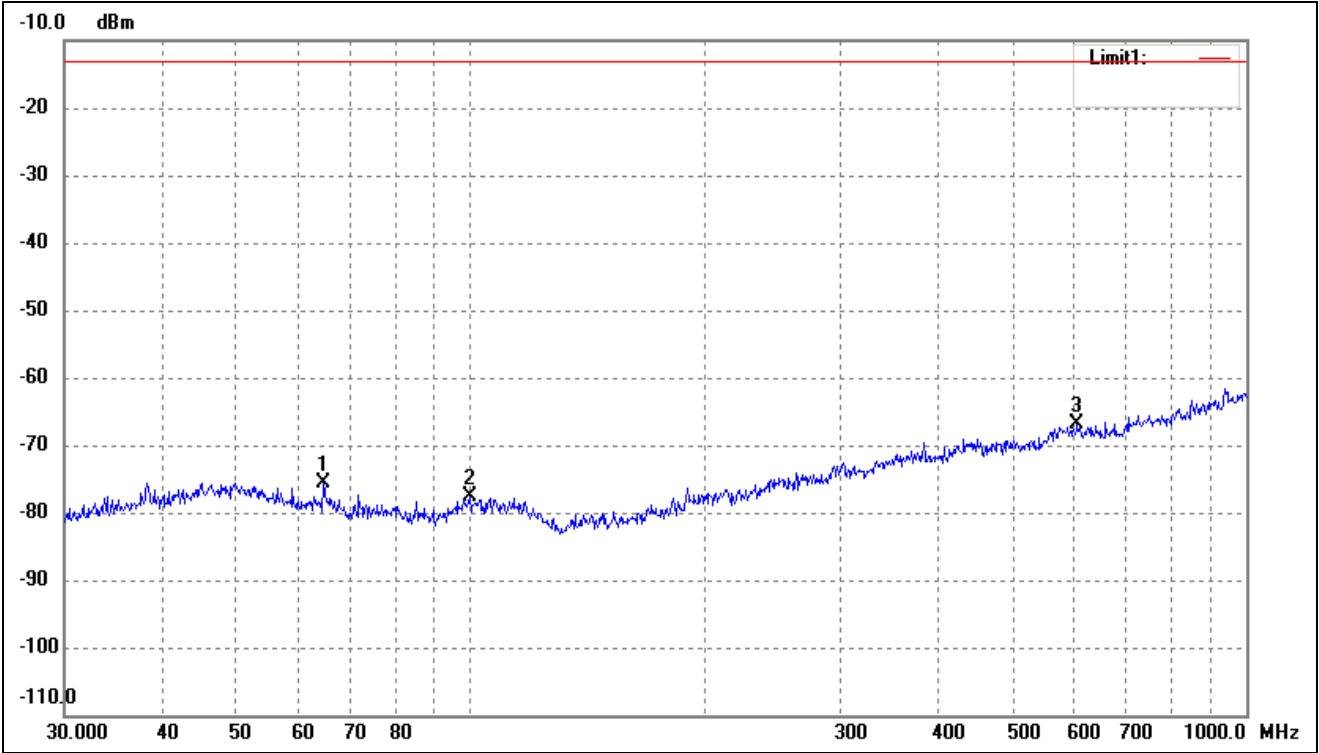
No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ()	Height (cm)	Remark
1	50.9420	-76.99	1.41	-75.58	-13.00	-62.58	-	-	peak
2	114.5146	-76.28	-0.84	-77.12	-13.00	-64.12	-	-	peak
3	378.5843	-76.66	6.12	-70.54	-13.00	-57.54	-	-	peak

For Cellular Band			
Test Channel	GSM1900	Polarity:	Horizontal



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ()	Height (cm)	Remark
1	111.3468	-76.60	-0.50	-77.10	-13.00	-64.10	-	-	peak
2	366.8231	-76.15	5.96	-70.19	-13.00	-57.19	-	-	peak
3	605.6592	-76.02	9.49	-66.53	-13.00	-53.53	-	-	peak

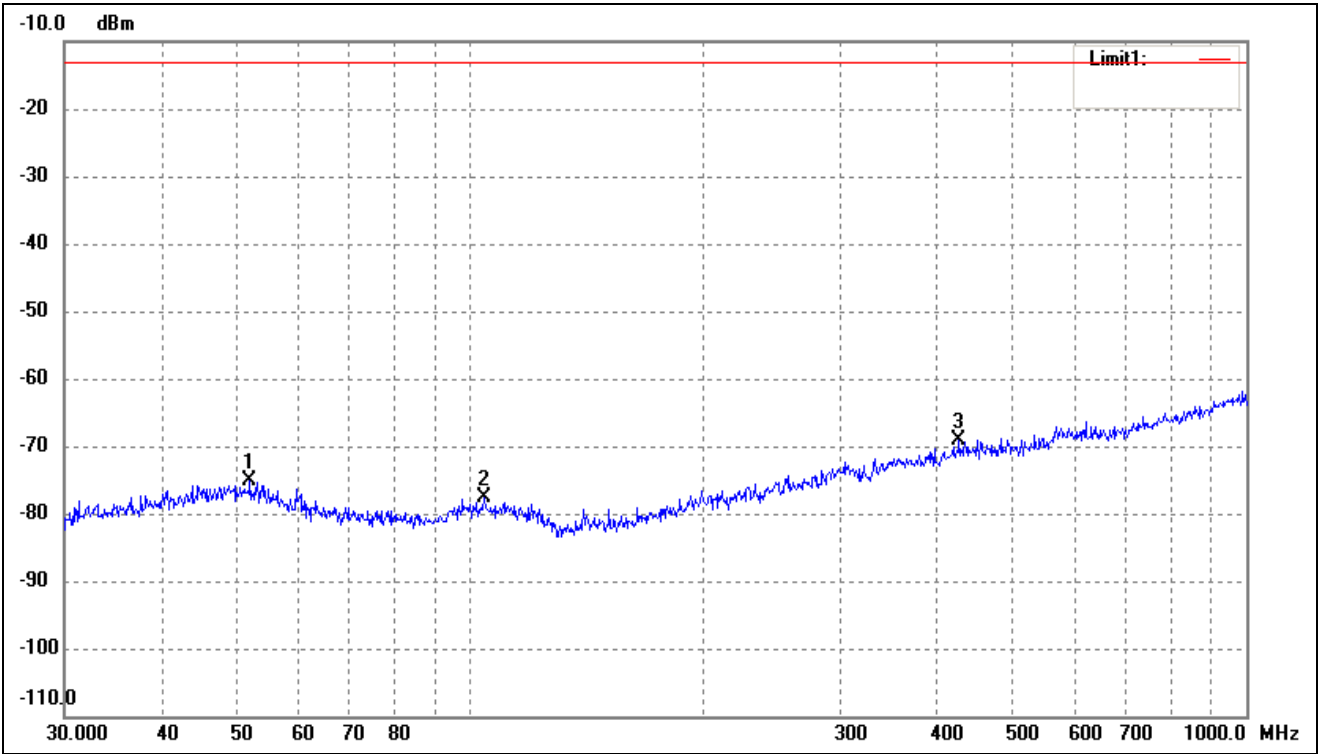
For Cellular Band			
Test Channel	GSM1900	Polarity:	Vertical



No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ()	Height (cm)	Remark
1	64.6594	-74.56	-1.17	-75.73	-13.00	-62.73	-	-	peak
2	99.8777	-77.00	-0.61	-77.61	-13.00	-64.61	-	-	peak
3	605.6592	-76.24	9.49	-66.75	-13.00	-53.75	-	-	peak

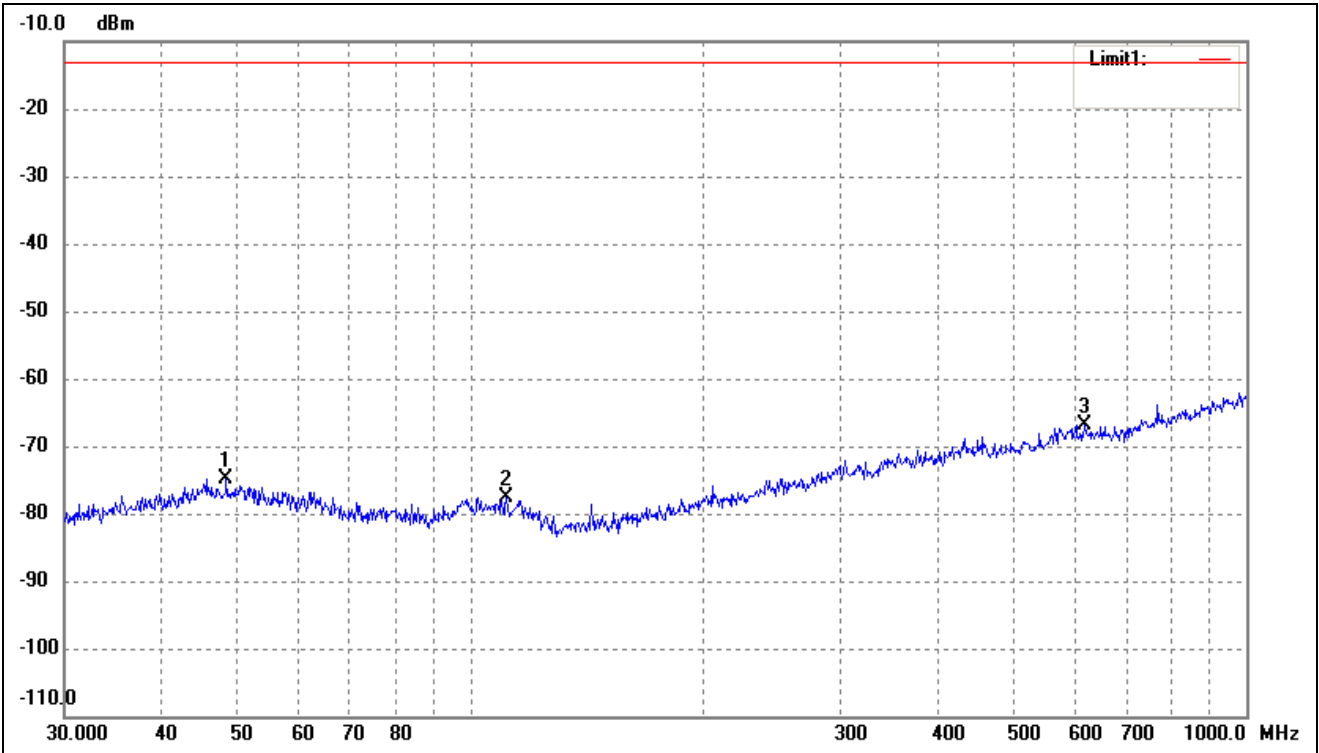
Note: Margin= (Reading+ Correct)- Limit

Test Channel	band 5	Polarity:	Horizontal
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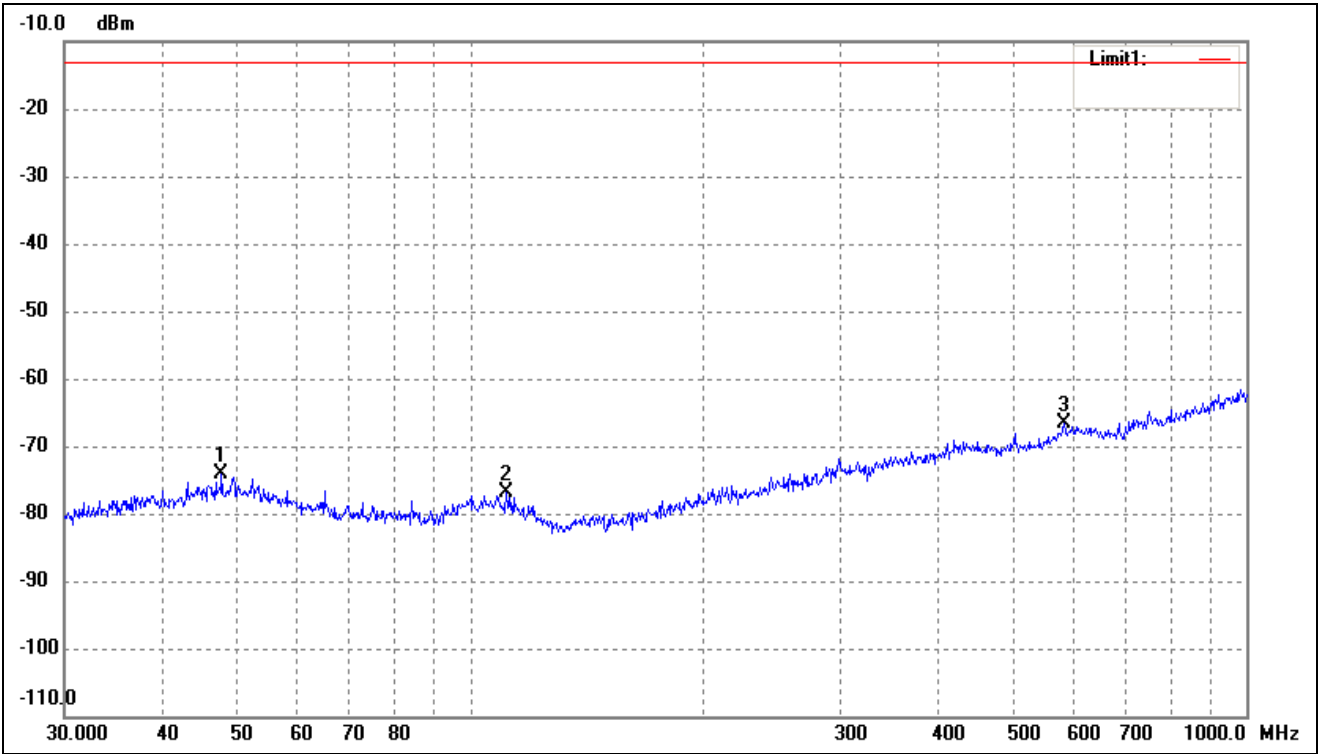
No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ()	Height (cm)	Remark
1	52.0251	-76.23	1.17	-75.06	-13.00	-62.06	-	-	peak
2	104.1701	-77.14	-0.49	-77.63	-13.00	-64.63	-	-	peak
3	426.5210	-76.45	7.42	-69.03	-13.00	-56.03	-	-	peak

Test Channel	band 5	Polarity:	Vertical
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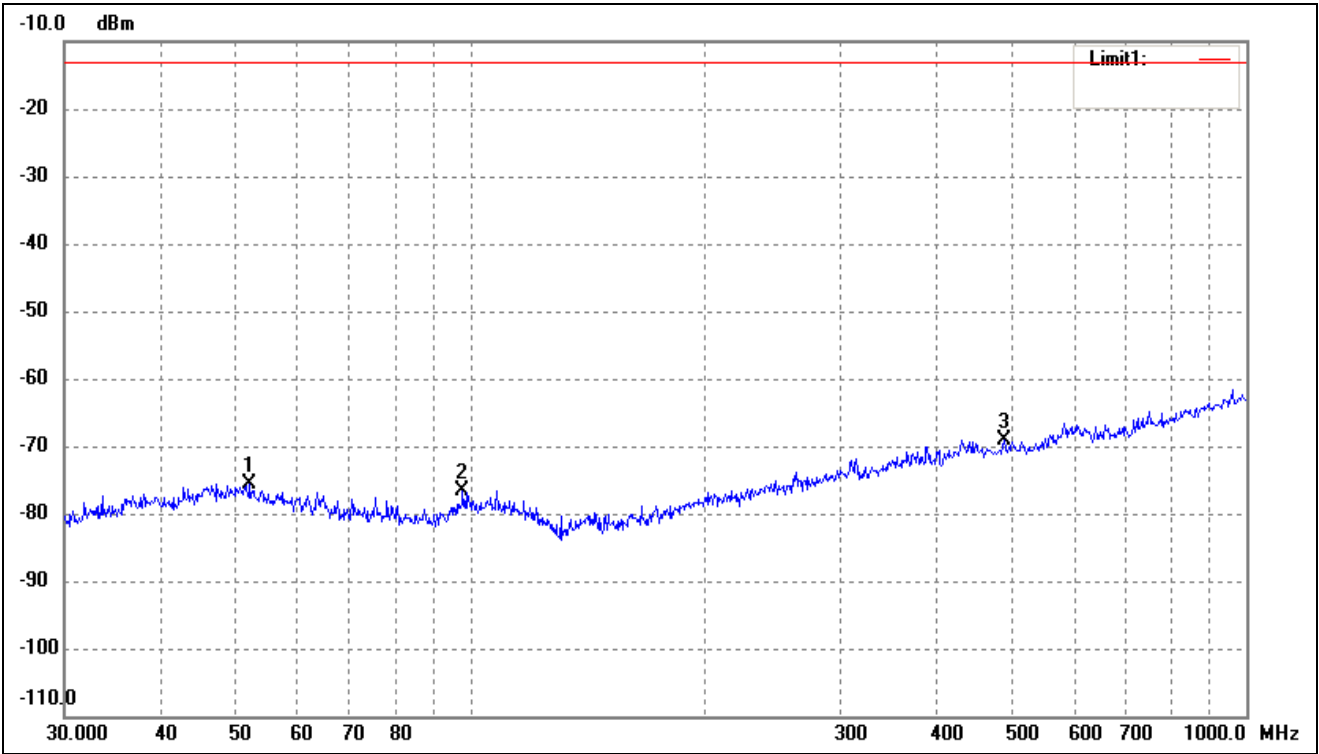
No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ()	Height (cm)	Remark
1	48.5016	-76.41	1.50	-74.91	-13.00	-61.91	-	-	peak
2	111.3468	-77.20	-0.50	-77.70	-13.00	-64.70	-	-	peak
3	618.5369	-76.26	9.44	-66.82	-13.00	-53.82	-	-	peak

Test Channel	band 2	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ()	Height (cm)	Remark
1	47.8260	-75.56	1.45	-74.11	-13.00	-61.11	-	-	peak
2	111.3468	-76.45	-0.50	-76.95	-13.00	-63.95	-	-	peak
3	582.7425	-75.92	9.34	-66.58	-13.00	-53.58	-	-	peak

Test Channel	band 2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBm)	Correct dB	Result (dBm)	Limit (dBm)	Margin (dB)	Degree ()	Height (cm)	Remark
1	52.0251	-76.74	1.17	-75.57	-13.00	-62.57	-	-	peak
2	97.7983	-75.55	-1.03	-76.58	-13.00	-63.58	-	-	peak
3	487.3151	-76.20	7.16	-69.04	-13.00	-56.04	-	-	peak

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

Remark: ‘-’ Means the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

- 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)						
3815.2	-39.54	10.74	-28.8	-13	-15.80	H
5722.8	-49.98	13.71	-36.27	-13	-23.27	H
3815.2	-41.01	10.74	-30.27	-13	-17.27	V
5722.8	-48.78	13.71	-35.07	-13	-22.07	V
Middle Channel (836.6MHz)						
1673.2	-34.34	5.11	-29.23	-13	-16.23	H
2509.8	-43.05	8.54	-34.51	-13	-21.51	H
1673.2	-34.41	5.11	-29.30	-13	-16.30	V
2509.8	-43.13	8.54	-34.59	-13	-21.59	V
High Channel (848.8MHz)						
1697.6	-35.11	5.25	-29.86	-13	-16.86	H
2546.4	-44.99	8.57	-36.42	-13	-23.42	H
1697.6	-37.26	5.25	-32.01	-13	-19.01	V
2546.4	-41.73	8.57	-33.16	-13	-20.16	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	-39.81	10.54	-29.27	-13	-16.27	H
5550.6	-48.41	13.37	-35.04	-13	-22.04	H
3700.4	-41.98	10.54	-31.44	-13	-18.44	V
5550.6	-49.15	13.37	-35.78	-13	-22.78	V
Middle Channel (1880MHz)						
3760.0	-39.14	10.64	-28.5	-13	-15.5	H
5640.0	-47.48	13.54	-33.94	-13	-20.94	H
3760.0	-40.82	10.64	-30.18	-13	-17.18	V
5640.0	-48.32	13.54	-34.78	-13	-21.78	V
High Channel (1909.8MHz)						
3819.6	-42.59	10.74	-31.85	-13	-18.85	H
5729.4	-47.17	13.71	-33.46	-13	-20.46	H
3819.6	-39.34	10.74	-28.60	-13	-15.60	V
5729.4	-48.28	13.71	-34.57	-13	-21.57	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	-37.47	4.94	-32.53	-13	-19.53	H
2479.2	-41.8	8.46	-33.34	-13	-20.34	H
1652.8	-34.38	4.94	-29.44	-13	-16.44	V
2479.2	-43.82	8.46	-35.36	-13	-22.36	V
Middle Channel (836.6MHz)						
1672.8	-35.35	5.11	-30.24	-13	-17.24	H
2509.2	-41.22	8.54	-32.68	-13	-19.68	H
1672.8	-34.84	5.11	-29.73	-13	-16.73	V
2509.2	-42.19	8.54	-33.65	-13	-20.65	V
High Channel (846.6MHz)						
1693.2	-36.32	5.25	-31.07	-13	-18.07	H
2539.8	-41.74	8.57	-33.17	-13	-20.17	H
1693.2	-35.17	5.25	-29.92	-13	-16.92	V
2539.8	-44.91	8.57	-36.34	-13	-23.34	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	-41.88	10.54	-31.34	-13	-18.34	H
5557.2	-47.47	13.37	-34.1	-13	-21.1	H
3704.8	-40.36	10.54	-29.82	-13	-16.82	V
5557.2	-48.14	13.37	-34.77	-13	-21.77	V
Middle Channel (1880MHz)						
3760.0	-42.69	10.64	-32.05	-13	-19.05	H
5640.0	-47.93	13.54	-34.39	-13	-21.39	H
3760.0	-42.1	10.64	-31.46	-13	-18.46	V
5640.0	-47.58	13.54	-34.04	-13	-21.04	V
High Channel (1907.6MHz)						
3815.2	-39.54	10.74	-28.8	-13	-15.80	H
5722.8	-49.98	13.71	-36.27	-13	-23.27	H
3815.2	-41.01	10.74	-30.27	-13	-17.27	V
5722.8	-48.78	13.71	-35.07	-13	-22.07	V

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 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/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	50	0.0598	2.50	Pass
	-20	44	0.0524		
	-10	40	0.0478		
	0	35	0.0414		
	10	28	0.0340		
	20	23	0.0276		
	30	28	0.0331		
	40	35	0.0423		
	50	50	0.0598		
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	60	0.0319		
	-10	49	0.0262		
	0	45	0.0241		
	10	38	0.0205		
	20	32	0.0172		
	30	39	0.0209		
	40	47	0.0250		
	50	51	0.0270		

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	64	0.0763	2.50	Pass
	-20	50	0.0598		
	-10	40	0.0478		
	0	36	0.0432		
	10	32	0.0386		
	20	28	0.0331		
	30	35	0.0423		
	40	39	0.0469		
	50	43	0.0515		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
NV	-30	64	0.0763	2.50	Pass
	-20	50	0.0598		
	-10	40	0.0478		
	0	36	0.0432		
	10	32	0.0386		
	20	28	0.0331		
	30	35	0.0423		
	40	39	0.0469		
	50	43	0.0515		

➤ 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	50	0.0598	2.50	Pass
	NV	44	0.0524		
	LV	33	0.0395		
Reference Frequency: PCS1900 (GSM link) Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	58	0.0307	2.50	Pass
	NV	44	0.0233		
	LV	33	0.0176		
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	22	0.0267	2.50	Pass
	NV	30	0.0359		
	LV	35	0.0423		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	HV	28	0.0151	2.50	Pass
	NV	33	0.0176		
	LV	41	0.0217		

10. Modulation characteristics

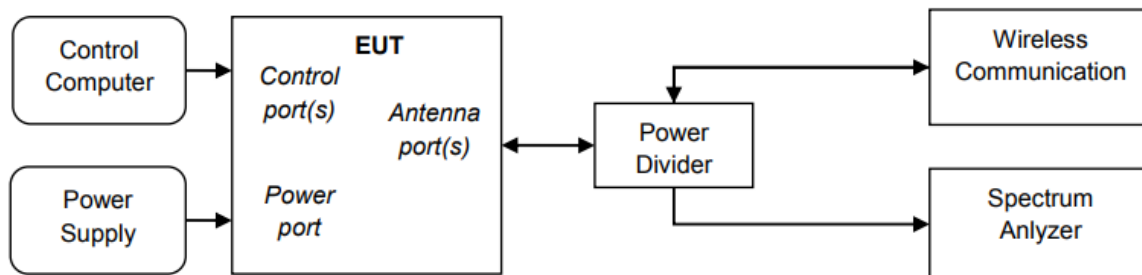
10.1 Standard Applicable

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.

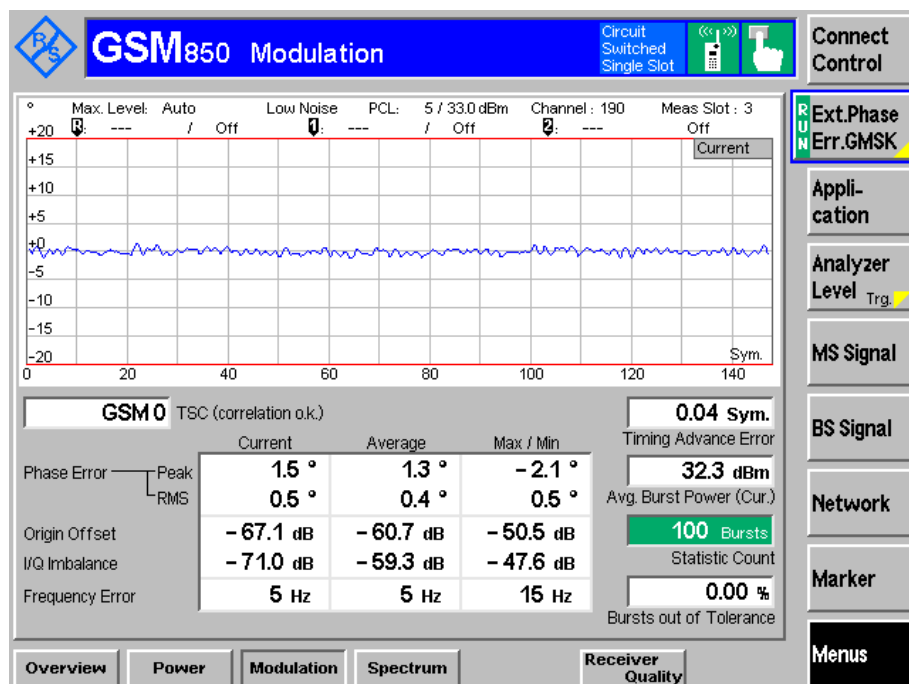


10.3 Summary of Test Results/Plots

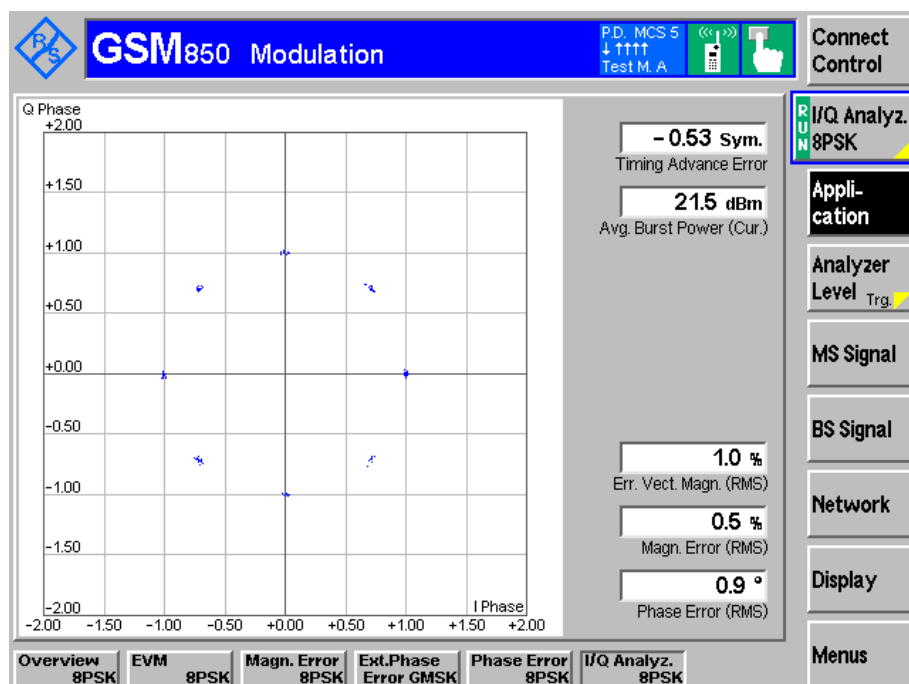
Only the worst case was selected to record

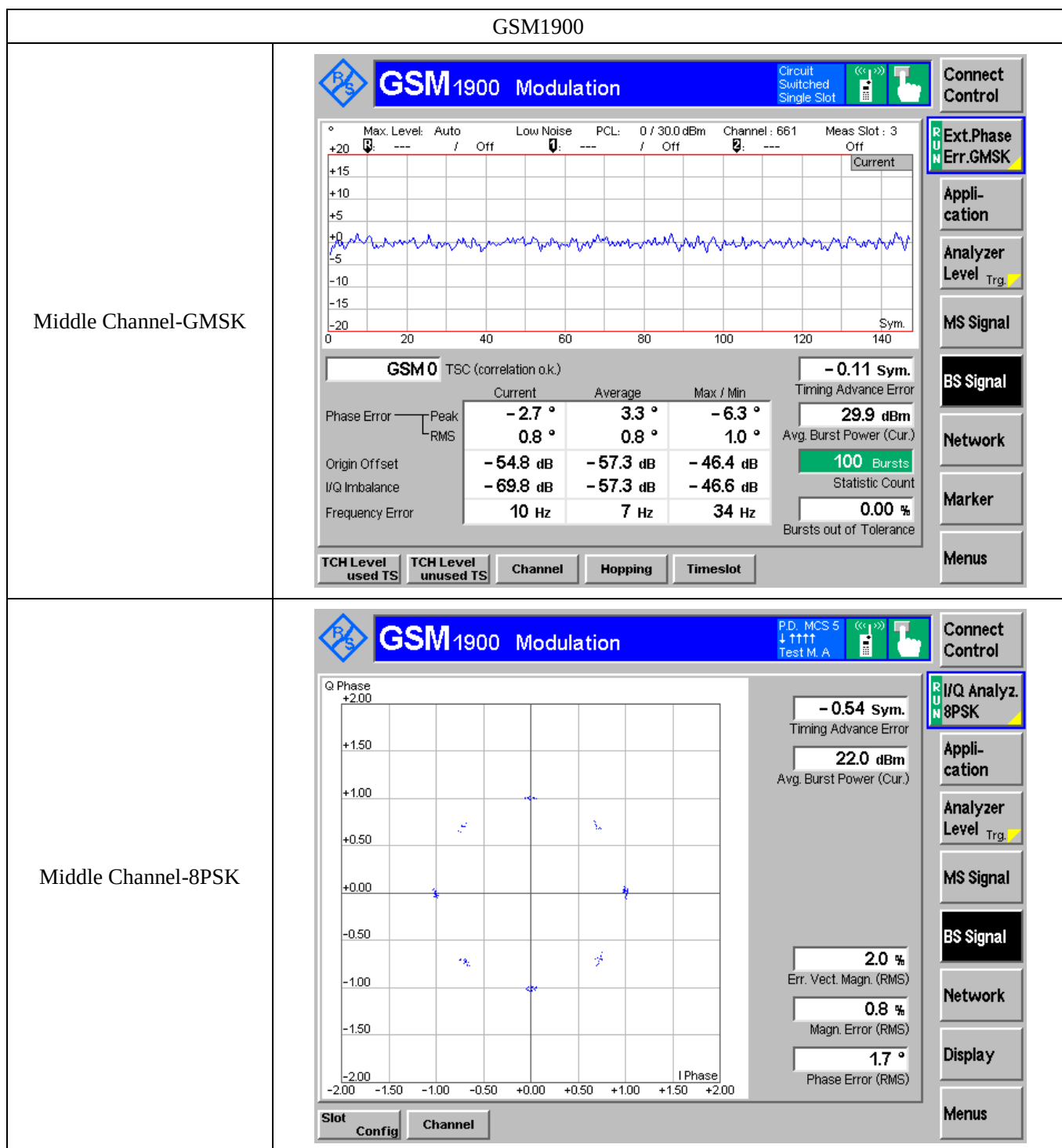
GSM850

Middle Channel-GMSK

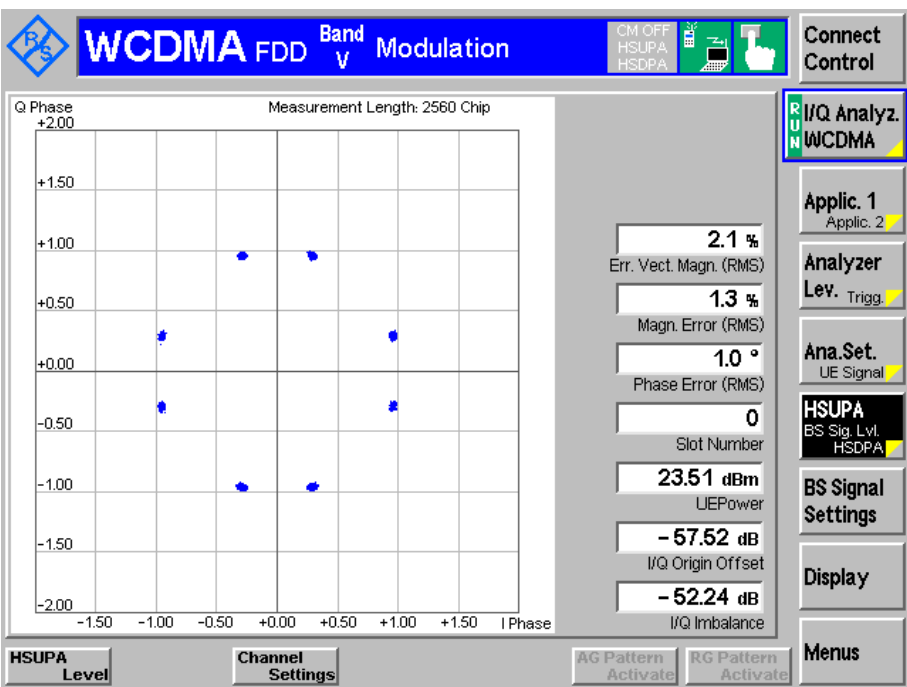


Middle Channel-8PSK

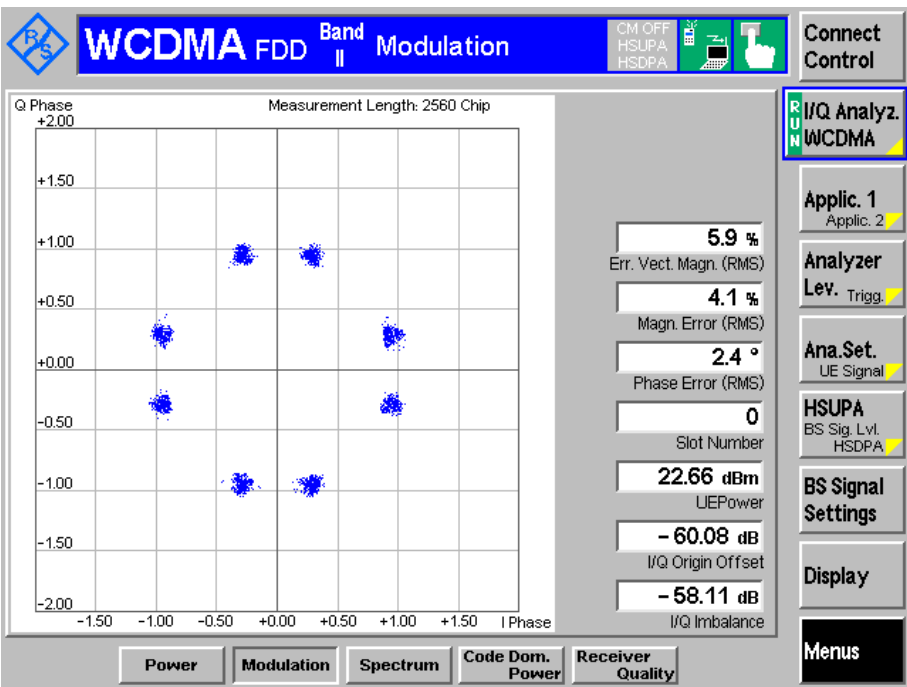




WCDMA B5



WCDMA B2



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