TEST REPORT

OF

FCC Part 22, 24, 15 Subpart B

FCC ID: U2UDB830

Equipment Under Test	:	GSM Mobile phone
Model Name	:	DB830
Serial No.	:	N/A
Applicant	:	b2WIN Corporation
Manufacturer	:	b2WIN Corporation
Date of Test(s)	:	2007-02-16 ~ 2007-02-28
Date of Issue	:	2007-03-07

In the configuration tested, the EUT complied with the standards specified above.

Tested By: **Date** **2007-03-07**

Feel Jeong

Approved By **Date** **2007-03-07**

James Kwon

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1. General Information

1.1. Testing Laboratory

SGS Testing Korea Co., Ltd.
Wireless Div. 2FL, 18-34, Sanbon-dong, Gunpo-Si, Gyeonggi-do, Korea 435-040
www.electrolab.kr.sgs.com
Telephone : +82 +31 428 5700
FAX : +82 +31 427 2371

1.2. Details of Applicant

Applicant : b2WIN Corporation
Address : Rm.1809, LG Twintel Bldg. 1, Samsung-dong, Kangnam-gu, Seoul, Korea, 135-090
Contact Person : Wan Jin Sim
Phone No. : +82 70 7012 2678
Fax No. : +82 02 566 3621

1.3. Description of EUT

Kind of Product	GSM Mobile phone
Model Name	DB830
Serial Number	N/A
Power Supply	DC 3.8 V
Frequency Range	2402 MHz ~ 2480 MHz(Bluetooth) 824.2 MHz ~ 848.8 MHz(GSM 850), 1850.2 MHz ~ 1909.8 MHz(GSM 1900)
Transmit Power (ERP & EIRP Power)	824.2 MHz ~ 848.8 MHz: 30.96 dBm 1850.2 MHz ~ 1909.8 MHz: 28.54 dBm
Modulation Technique	FHSS(Bluetooth), GMSK
Number of Channels	300(GSM 1900), 125(GSM 850)
Operating Conditions	-20 ℃ ~ 55 ℃
Antenna Type	Snap

1.4. Details of modification

-N/A

1.5. Test Equipment List

EQUIPMENT	MANUFACTURER	MODEL	CAL DUE.
Signal Generator	Agilent	E4438C	May 2007
Spectrum Analyzer	Agilent	E4440A	May 2007
Spectrum Analyzer	H.P	8593E	Sep. 2007
Power Meter	Agilent	E4416A	May 2007
Power Sensor	Agilent	E9327A	May 2007
DC Power Supply	Agilent	6674A	May 2007
DC Power Supply	Agilent	E3631A	May 2007
Attenuator	Agilent	8494B	May 2007
Two-Line V-Network	NNB 41	Schaffner	Sep. 2007
Test Receiver	Rohde & Schwarz	ESVS10	May 2007
Test Receiver	Rohde & Schwarz	ESHS10	Aug. 2007
Ultra-Broadband Antenna	Rohde & Schwarz	HL562	Sep. 2007
Horn Antenna	Electro-Metrics	RGA-60	Dec. 2007
Horn Antenna	SCHWARZBECK	BBHA9120D(0600)	Jul. 2007
Dipole Antenna	VHAP/UHAP	975/958	Jun. 2007
Communication Antenna	AR	AT 4002	N.C.R
Band Reject Filter	Wainwright	WRCG824/849-814/85960/10SS	May 2007

EQUIPMENT	MANUFACTURER	MODEL	CAL DUE.
Highpass Filter	Wainwright	WHK3.0/18G-10SS	Dec.2007
Dual Directional Coupler	Agilent	778D	Dec.2007
Mobile Test Unit	Agilent	E5515C	May 2007
Anechoic Chamber	SY Corporation	L x W x H 9.6 x 6.4 x 6.4	Aug. 2007

1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

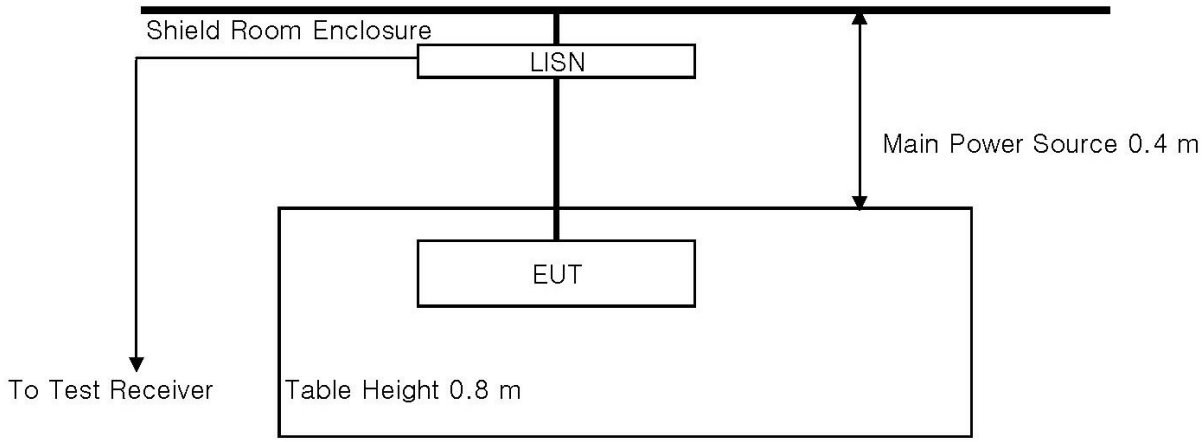
Description of Test	FCC Rule	Result
AC Power Line Conducted Emissions	§15.107	Complied
Spurious Radiated Emission	§22.917(a) §24.238(a)	Complied
RF Radiated Output Power	§2.1046 §22.913(a) §24.232(c)	Complied
Conducted Output Power	§2.1046(a) §22.913(a) §24.232(c)	Complied
Occupied Bandwidth	§2.1049(h) (i)	Complied
Spurious Emission at Antenna Terminal	§2.1051 §22.917(a) §24.238(a)	Complied
Frequency Stability	§2.1055 §22.355 §24.235	Complied
Band Edge	§22.905 §24.229	Complied

1.7. Measurement standard

The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI/TIA/EIA-603B-B-2002.

2. Conducted Power Line Test

2.1. Test Setup



2.2. Limit

According to §15.107(a) for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 uH/50 ohm line impedance stabilization network(LISN).
Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted limit (dBμV)	
	Qausi-peak	Average
0.15 – 0.50	66-56*	56-46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

* Decreases with the logarithm of the frequency.

2.3. Test Procedures

1. The test procedure is performed in a 6.5m × 3.6m× 3.6m (L×W×H) shielded room. The EUT along with its peripherals were placed on a 1.0m(W)× 1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
3. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

2.4. Test Results

The following table shows the highest levels of conducted emissions on both phase of Hot and Neutral line.

Ambient temperature : 48 ℃ Relative humidity : 52 %

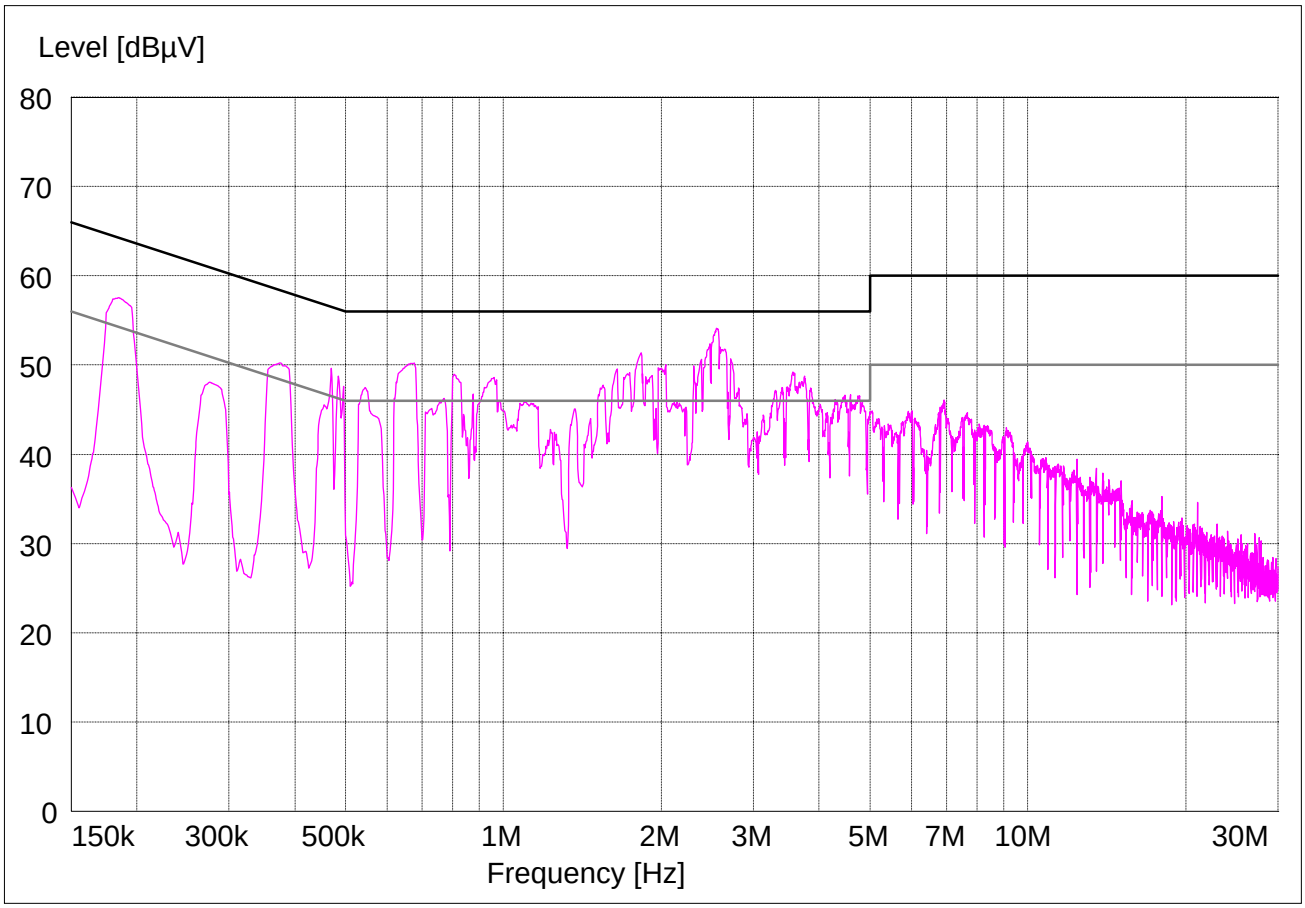
Frequency range : 0.15 MHz – 30 MHz
Measured Bandwidth : 9 kHz

FREQ.	LEVEL(dBuV)		LINE	LIMIT(dBuV)		MARGIN(dB)	
(MHz)	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.185	50.5	37.6	H	64.3	54.3	13.8	16.7
0.375	43.1	28.3	H	58.4	48.4	15.3	20.1
0.665	48.4	25.3	H	56.0	46.0	7.6	20.7
1.830	48.2	25.8	H	56.0	46.0	7.8	20.2
2.448	51.2	27.8	H	56.0	46.0	4.8	18.2
3.565	47.3	24.7	H	56.0	46.0	8.7	21.3
0.379	50.5	34.4	N	58.3	48.3	7.8	13.9
0.477	43.1	26.8	N	56.4	46.4	13.3	19.6
0.676	48.4	30.8	N	56.0	46.0	7.6	15.2
1.744	48.2	28.3	N	56.0	46.0	7.8	17.7
2.323	51.2	32.5	N	56.0	46.0	4.8	13.5
2.493	47.3	30.0	N	56.0	46.0	8.7	16.0

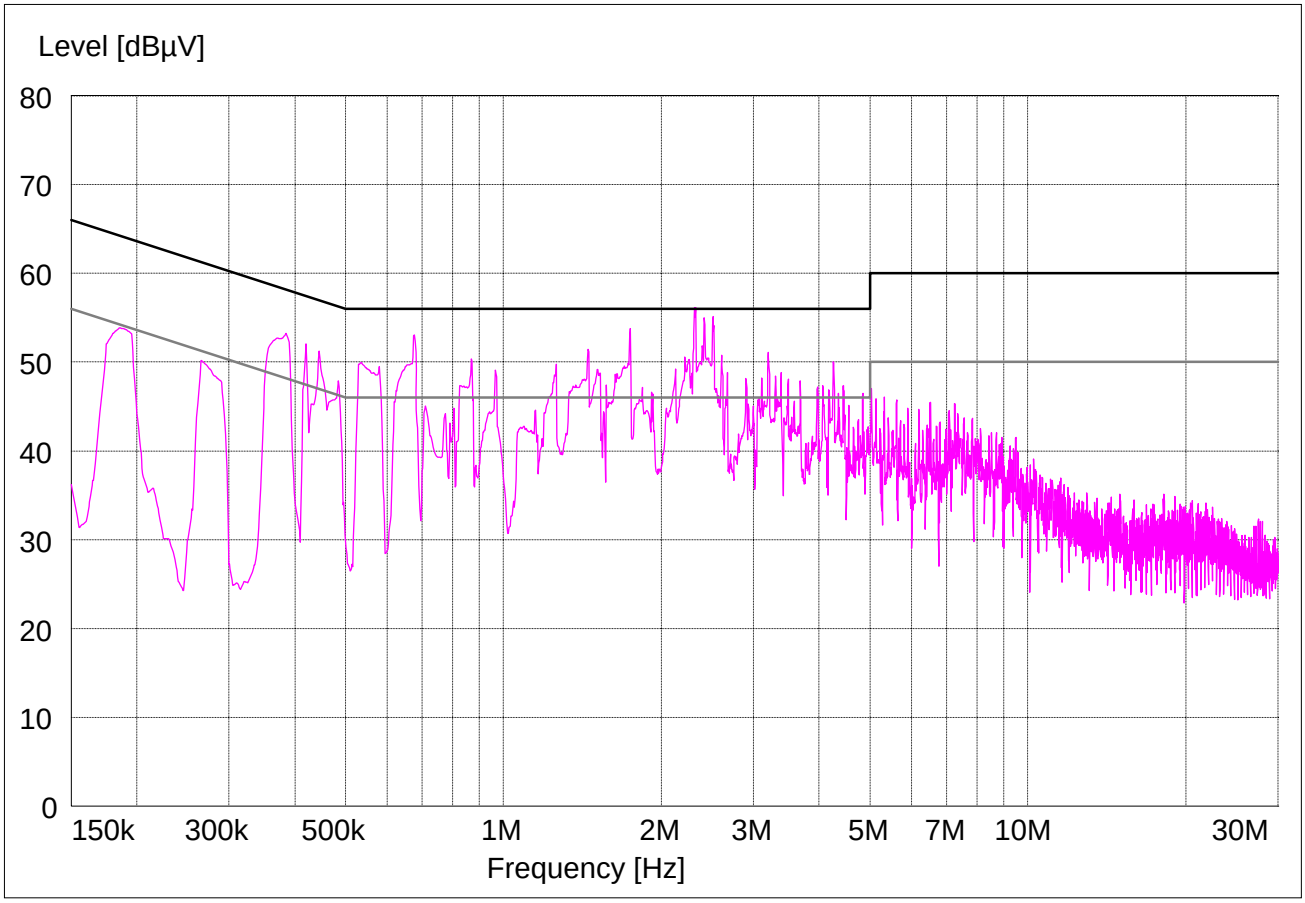
Note ;
Line (H) : Hot
Line (N) : Neutral

Plot of Conducted Power line

Test mode : (Hot)



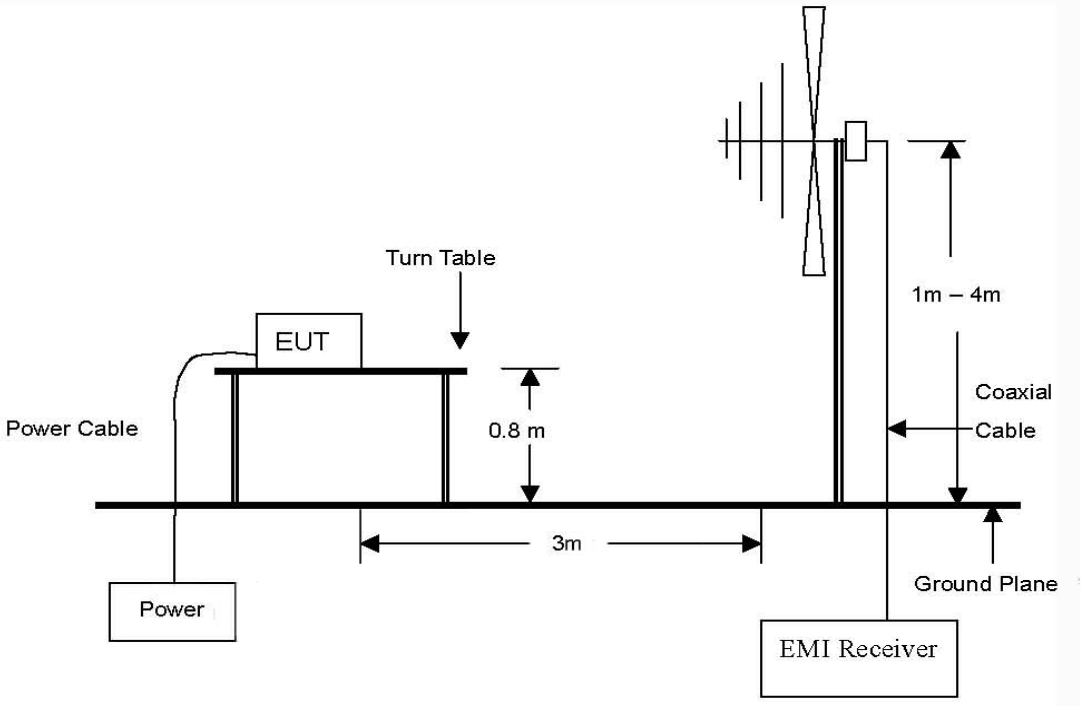
Test mode : (Neutral)



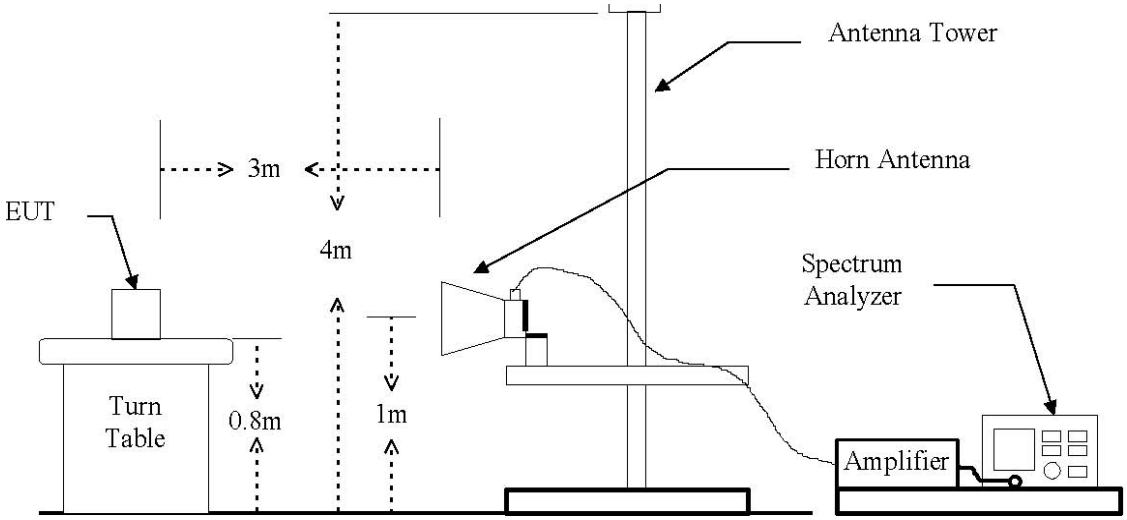
3. RF Radiated Output Power

3.1. Test Setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 18 GHz Emissions.



3.2. Limit

FCC §22.913(a), the ERP of mobile transmitters must not exceed 7 watts. FCC §24.232(c) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

3.3. Test Procedure

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position closest to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3m from EUT to correspond to the frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
5. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
6. The transmitter shall then the rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
7. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
8. The maximum signal level detected by the measuring receiver shall be noted.
9. The transmitter shall be replaced by a horn (substitution antenna).
10. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
11. The substitution antenna shall be connected to a calibrated signal generator.
12. In necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase he sensitivity of the measuring receiver.
13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring received, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
15. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
16. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
17. The measure of the effective radiated power is the large of the two levels recorded, at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.

3.4. Test Results

Ambient temperature : 22 ℃ Relative humidity : 50 %

GSM 850

Frequency (MHz)	Ant. Pol. (H/V)	Amp-C.L (dB)	S.G Power Level (dBm)	Antenna Gain (dBd)	E. R. P.	
					(dBm)	(W)
824.2	V	28.64	10.38	-8.53	30.49	1.12
836.6	V	28.64	10.84	-8.52	30.96	1.25
848.8	V	28.64	10.66	-8.50	30.80	1.20

GPRS 850

Frequency (MHz)	Ant. Pol. (H/V)	Amp-C.L (dB)	S.G Power Level (dBm)	Antenna Gain (dBd)	E. R. P.	
					(dBm)	(W)
824.2	V	28.64	10.21	-8.53	30.32	1.08
836.6	V	28.64	10.73	-8.52	30.85	1.22
848.8	V	28.64	10.43	-8.50	30.57	1.14

Remake: 1. ERP= SG Power Level +Amp-C.L. +Antenna Gain

GSM 1900

Frequency (MHz)	Ant. Pol. (H/V)	Amp-C.L (dB)	S.G Power Level (dBm)	Antenna Gain (dBi)	E. I. R. P.	
					(dBm)	(W)
1850.2	V	33.91	-15.94	9.02	26.99	0.50
1880.0	V	33.91	-14.43	9.06	28.54	0.71
1909.8	V	33.91	-15.16	9.09	27.84	0.61

GPRS 1900

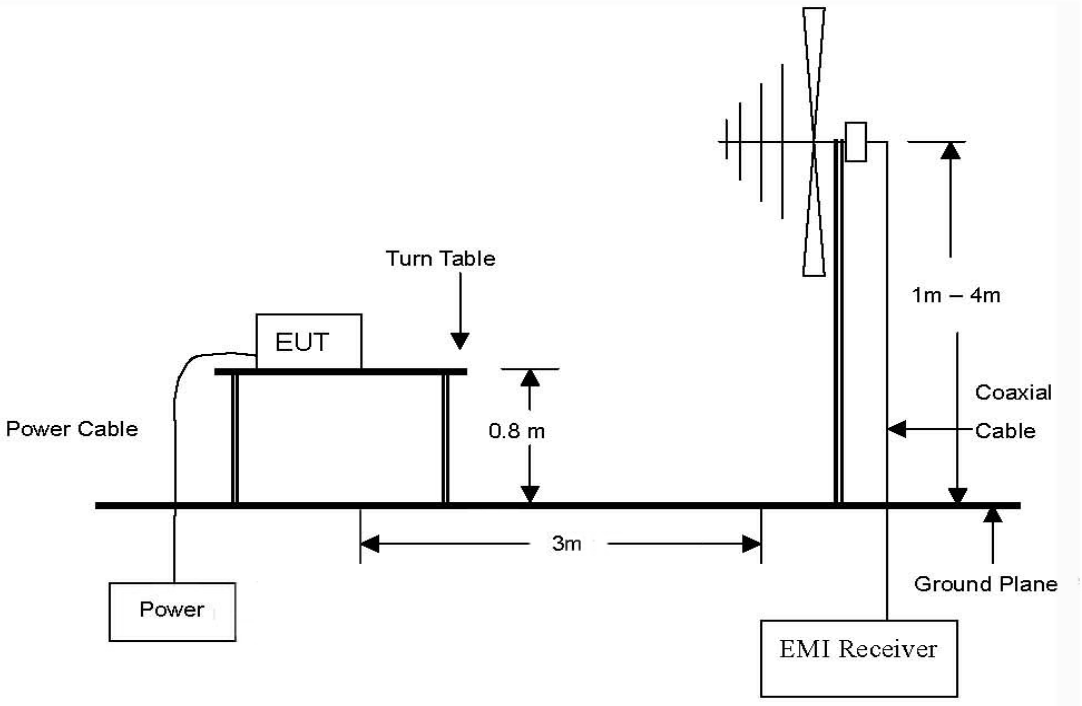
Frequency (MHz)	Ant. Pol. (H/V)	Amp-C.L (dB)	S.G Power Level (dBm)	Antenna Gain (dBi)	E. I. R. P.	
					(dBm)	(W)
1850.2	V	33.91	-16.13	9.02	26.80	0.48
1880.0	V	33.91	-14.64	9.06	28.03	0.64
1909.8	V	33.91	-15.27	9.09	27.73	0.59

Remake: 1. E.I.R.P.= S.G. Power Level +Amp-C.L. +Antenna Gain

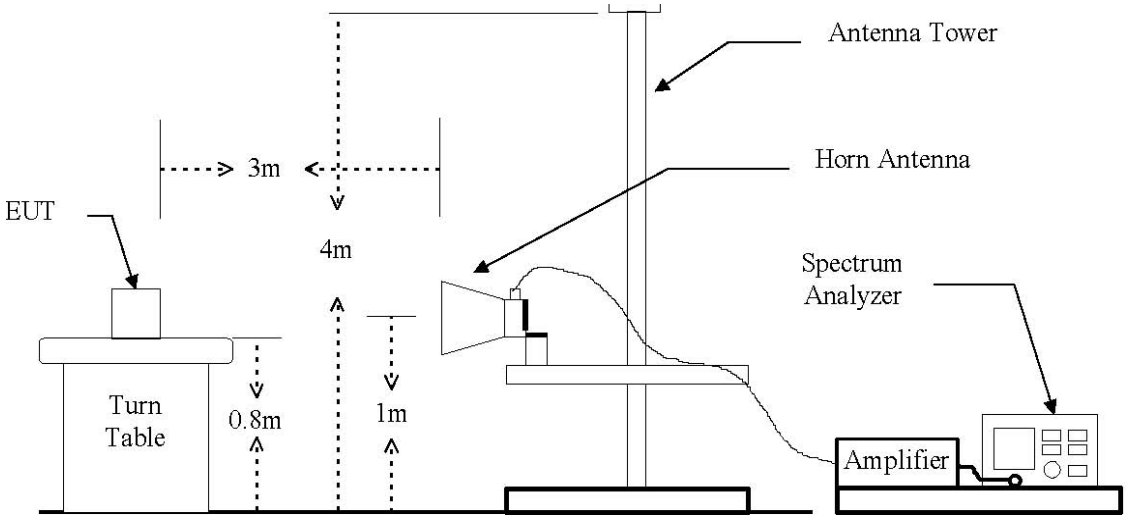
4. Spurious Radiated Emission

4.1. Test Setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 18 GHz Emissions.



4.2. Limit

§ 22.917(a) and §24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least 43+10log(P)dB.

4.3. Test Procedure

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position closest to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3m from EUT to correspond to the frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
5. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
6. The transmitter shall then the rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
7. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
8. The maximum signal level detected by the measuring receiver shall be noted.
9. The transmitter shall be replaced by a horn (substitution antenna).
10. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
11. The substitution antenna shall be connected to a calibrated signal generator.
12. In necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase he sensitivity of the measuring receiver.
13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring received, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
15. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
16. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
17. The measure of the effective radiated power is the large of the two levels recorded, at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.

4.4. Test Results

Ambient temperature : 22 ℃ Relative humidity : 50 %

GSM 850

Frequency (MHz)	Ant.Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	E.R.P. (dBm)	Limit (dBm)	Margin (dB)
TX LOW Channel (824.2 MHz)								
1648.4	V	-40.89	1.02	8.22	6.07	-35.84	-13	-22.84
2472.6	V	-47.81	1.06	10.03	7.88	-40.99	-13	-27.99
TX MID Channel (836.6 MHz)								
1673.2	V	-41.21	1.02	8.30	6.15	-37.08	-13	-24.08
2509.8	V	-48.61	1.06	10.70	8.55	-41.12	-13	-28.12
TX HIGH Channel (848.8 MHz)								
1697.6	V	-42.16	1.02	8.39	6.24	-36.94	-13	-23.94
2546.4	V	-48.14	1.06	10.11	7.96	-41.24	-13	-28.24

Remake: 1. No more harmonic above 3rd harmonic for all channel.
2. E.R.P.= SG Reading –Cable Loss +Gain
3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

GPRS 850

Frequency (MHz)	Ant.Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	E.R.P. (dBm)	Limit (dBm)	Margin (dB)
TX LOW Channel (824.2 MHz)								
1648.4	V	-41.13	1.02	8.22	6.07	-36.08	-13	-23.08
2472.6	V	-47.89	1.06	10.03	7.88	-41.07	-13	-28.07
TX MID Channel (836.6 MHz)								
1673.2	V	-41.33	1.02	8.30	6.15	-36.20	-13	-23.20
2509.8	V	-48.96	1.06	10.70	8.55	-41.47	-13	-28.47
TX HIGH Channel (848.8 MHz)								
1697.6	V	-42.26	1.02	8.39	6.24	-37.04	-13	-24.04
2546.4	V	-48.26	1.06	10.11	7.96	-41.36	-13	-28.36

Remake: 1. No more harmonic above 3rd harmonic for all channel.
2. E.R.P.= SG Reading –Cable Loss +Gain
3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

GSM 1900

Frequency (MHz)	Ant.Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	E.R.P. (dBm)	Limit (dBm)	Margin (dB)
TX LOW channel (1850.2 MHz)								
3700.4	V	-38.89	1.53	11.14	8.99	-31.43	-13	-18.43
5550.6	V	-48.31	2.20	11.56	9.41	-41.10	-13	-28.10
TX MID Channel (1880.0 MHz)								
3760.0	V	-38.88	1.53	11.18	9.03	-31.38	-13	-18.38
5640.0	V	-48.19	2.20	11.62	9.47	-40.92	-13	-27.92
TX HIGH Channel (1909.8 MHz)								
3819.6	V	-39.26	1.53	11.23	9.08	-31.71	-13	-18.71
5729.4	V	-48.54	2.20	11.68	9.53	-41.21	-13	-28.21

Remake: 1. No more harmonic above 3rd harmonic for all channel.
2. E.R.P.= SG Reading –Cable Loss +Gain
3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

GPRS 1900

Frequency (MHz)	Ant.Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	E.R.P. (dBm)	Limit (dBm)	Margin (dB)
TX LOW channel (1850.2 MHz)								
3700.4	V	-39.02	1.53	11.14	8.99	-31.56	-13	-18.56
5550.6	V	-48.39	2.20	11.56	9.41	-41.18	-13	-28.18
TX MID Channel (1880.0 MHz)								
3760.0	V	-39.08	1.53	11.18	9.03	-31.58	-13	-18.58
5640.0	V	-48.28	2.20	11.62	9.47	-41.01	-13	-28.01
TX HIGH Channel (1909.8 MHz)								
3819.6	V	-39.53	1.53	11.23	9.08	-31.98	-13	-18.98
5729.4	V	-48.76	2.20	11.68	9.53	-41.43	-13	-28.43

Remake: 1. No more harmonic above 3rd harmonic for all channel.
2. E.R.P.= SG Reading –Cable Loss +Gain
3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

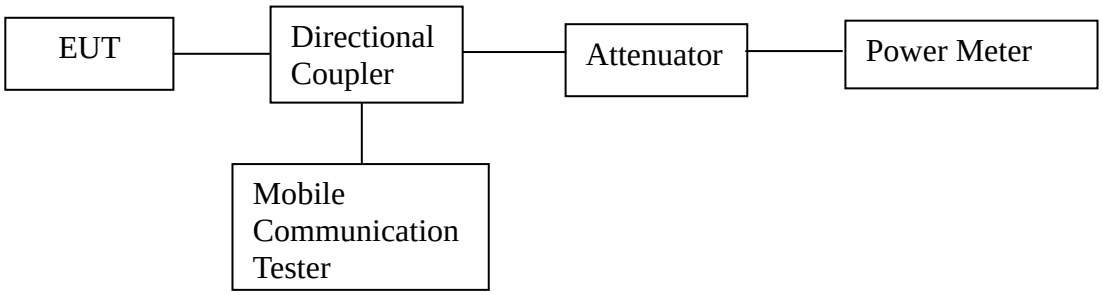
5 Conducted Output Power

5.1. Limit

FCC §22.913(a), the ERP of mobile transmitters must not exceed 7 watts. FCC §24.232(c) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

5.2. Test Procedure

1. The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a
2. Transmitter output was read off the power meter in dBm.
3. The power output at the transmitter port was determined by adding the value of the attenuator to the power meter reading



5.3. Test Results

GSM 850

Channel	Frequency (MHz)	Average Output Power (W)	Peak Output Power (W)	Limit (W)
LOW	824.20	1.27	1.28	7
MIDDLE	836.60	1.28	1.30	7
HIGH	848.80	1.26	1.27	7

GPRS 850

Channel	Frequency (MHz)	Average Output Power (W)	Peak Output Power (W)	Limit (W)
LOW	824.20	1.26	1.27	7
MIDDLE	836.60	1.27	1.28	7
HIGH	848.80	1.25	1.26	7

GSM 1900

Channel	Frequency (MHz)	Average Output Power (mW)	Peak Output Power (mW)	Limit (W)
LOW	1850.20	656	671	2
MIDDLE	1880.00	652	668	2
HIGH	1909.80	689	703	2

GPRS 1900

Channel	Frequency (MHz)	Average Output Power (mW)	Peak Output Power (mW)	Limit (W)
LOW	1850.20	651	666	2
MIDDLE	1880.00	648	660	2
HIGH	1909.80	688	691	2

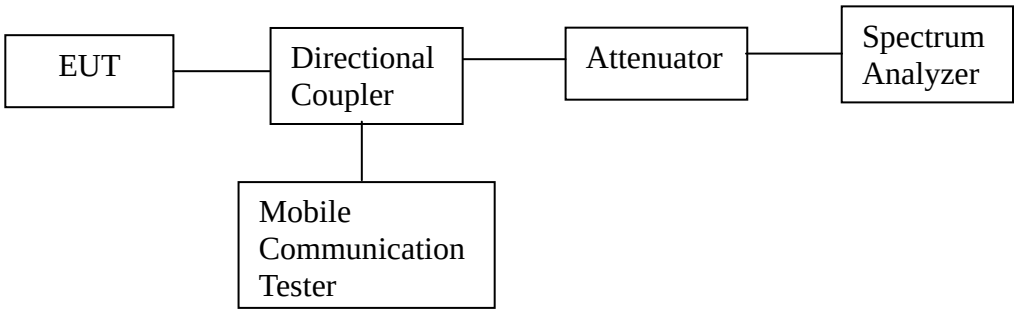
6 Occupied Bandwidth 26 dB

6.1. Limit

Requirements: CFR 47, Section §2.1049.

6.2. Test Procedure

1. The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.
2. The resolution bandwidth of the spectrum analyzer was set at 3 kHz. Span was set at 1 MHz



6.3. Test Results

GSM 850

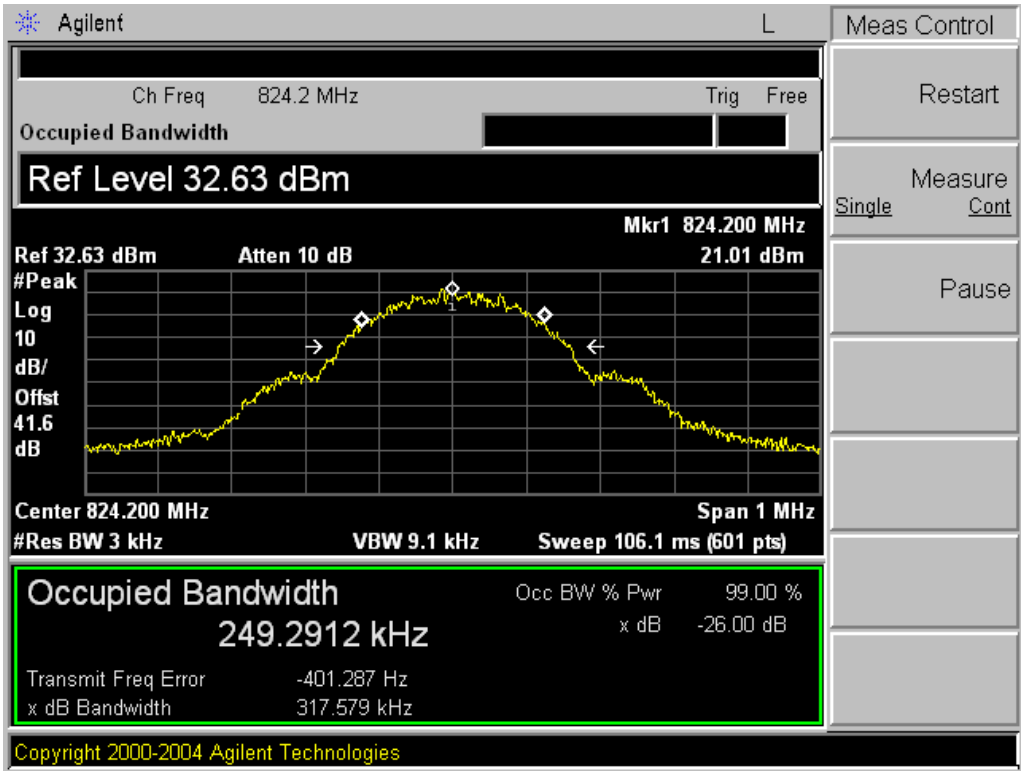
Channel	Frequency(MHz)	-26 dB Bandwidth(kHz)
LOW	824.20	317.58
MIDDLE	836.60	314.38
HIGH	848.80	313.73

GPRS 850

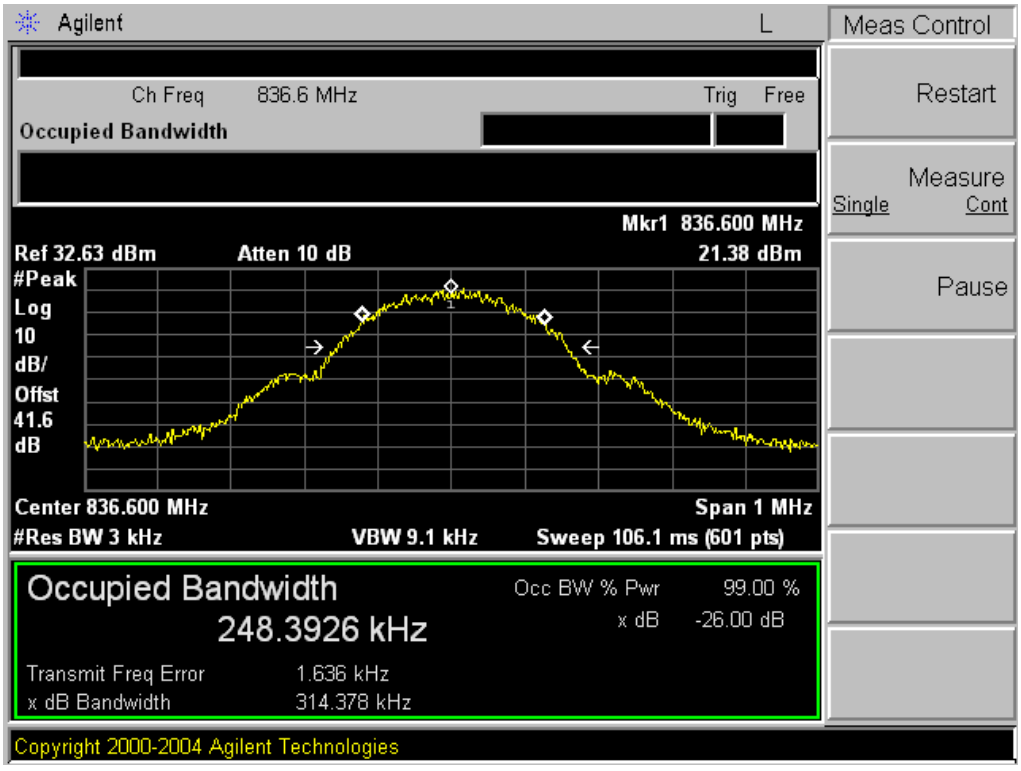
Channel	Frequency(MHz)	-26 dB Bandwidth(kHz)
LOW	824.20	325.81
MIDDLE	836.60	319.91
HIGH	848.80	312.79

Please refer to the following plots.

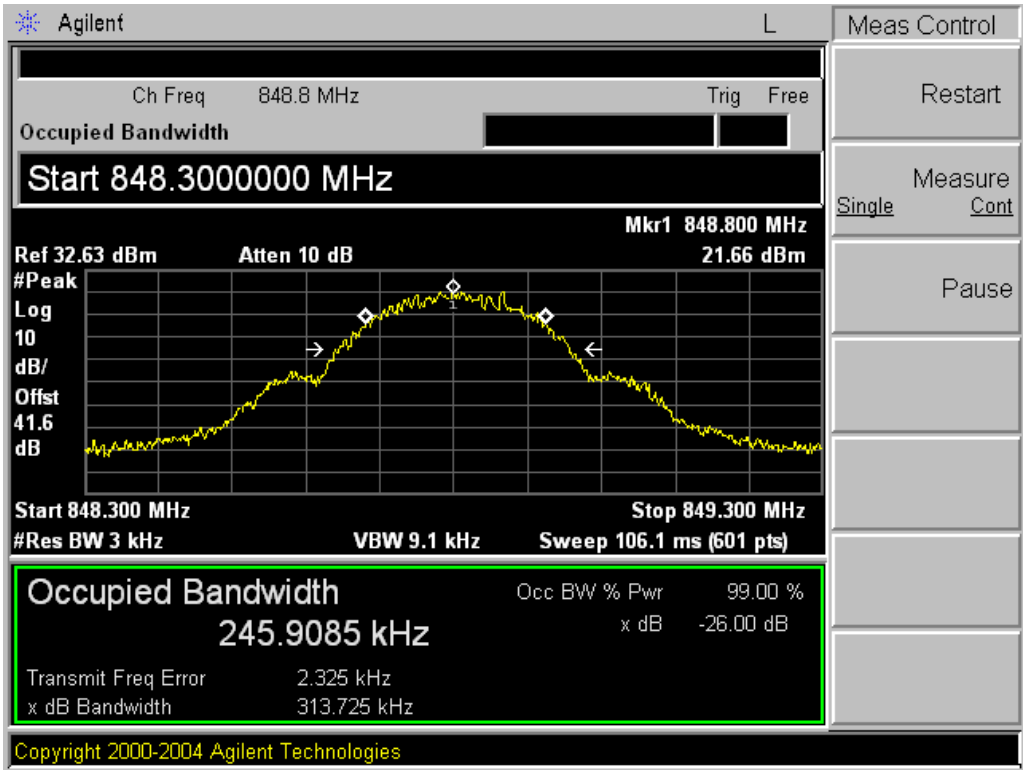
GSM 850 (Low Channel)



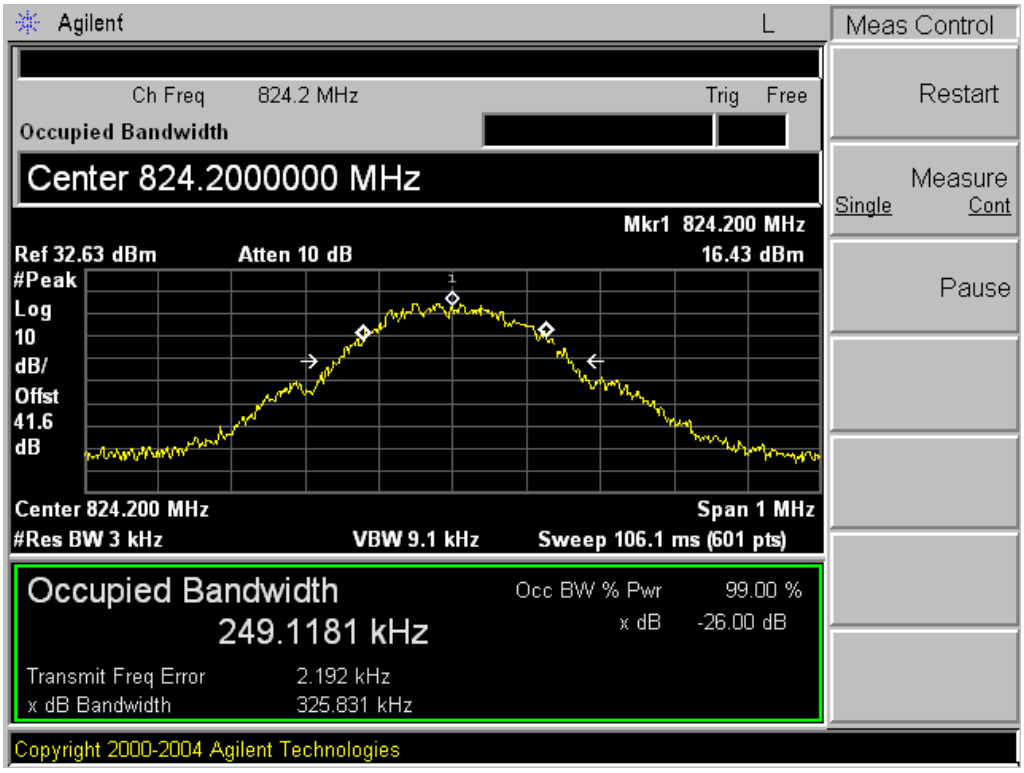
GSM 850 (Middle Channel)



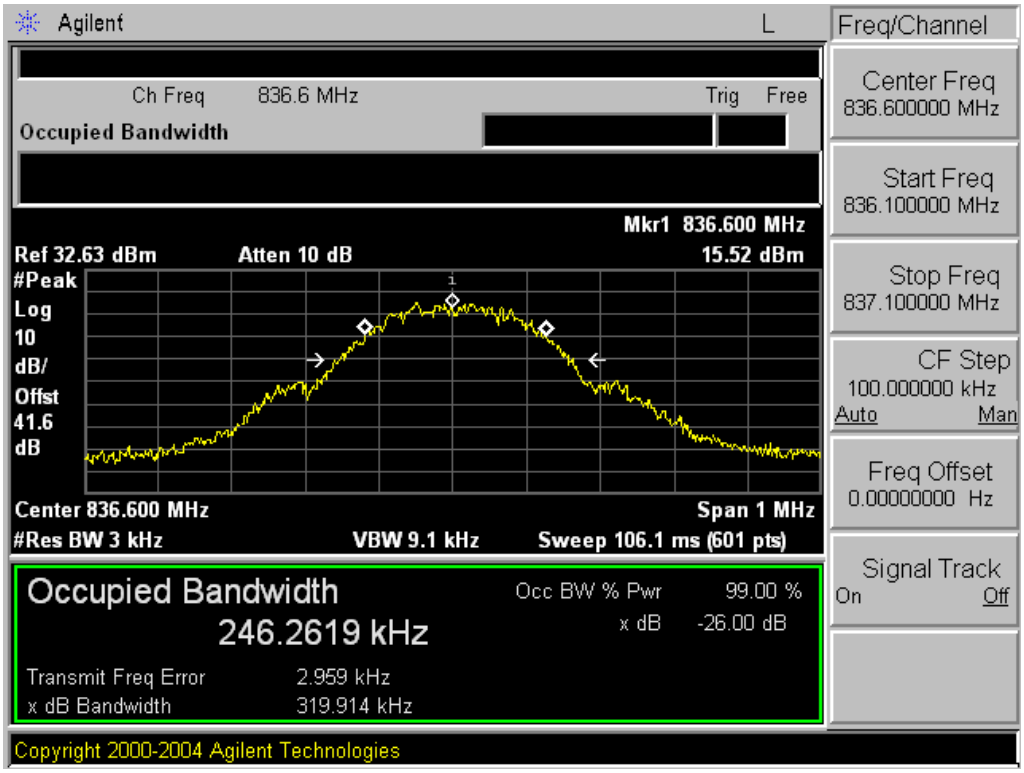
GSM 850 (High Channel)



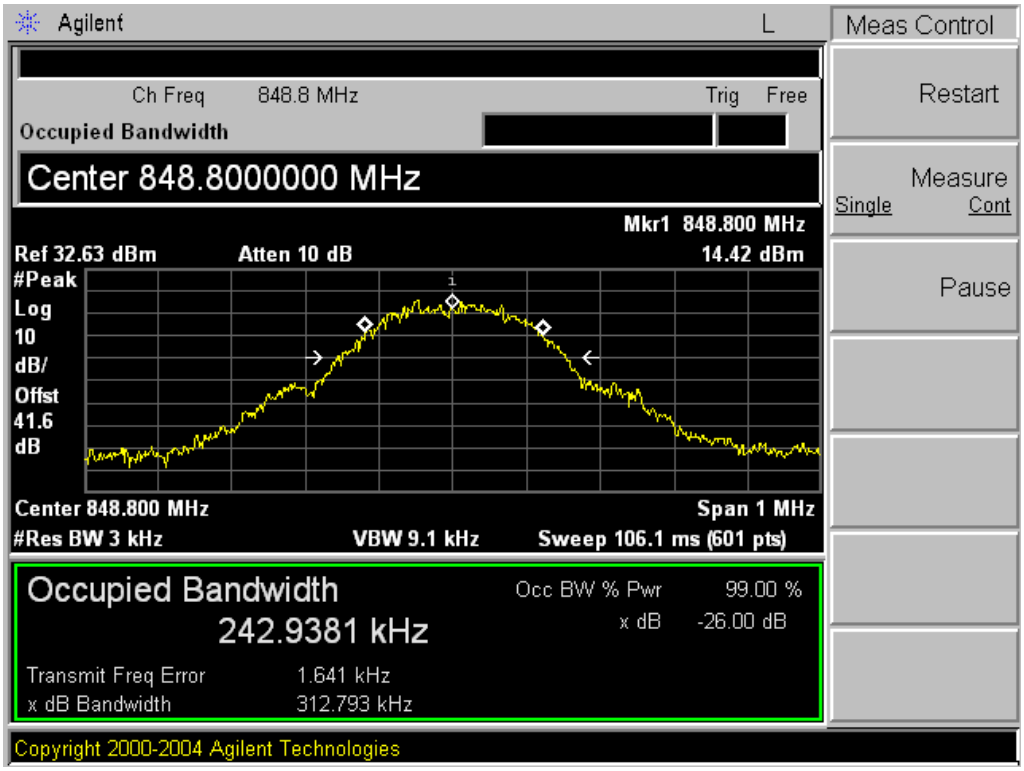
GPRS 850 (Low Channel)



GPRS 850 (Middle Channel)



GPRS 850 (High Channel)



GSM 1900

Channel	Frequency(MHz)	-26 dB Bandwidth(kHz)
LOW	1850.20	307.00
MIDDLE	1880.00	306.30
HIGH	1909.80	313.85

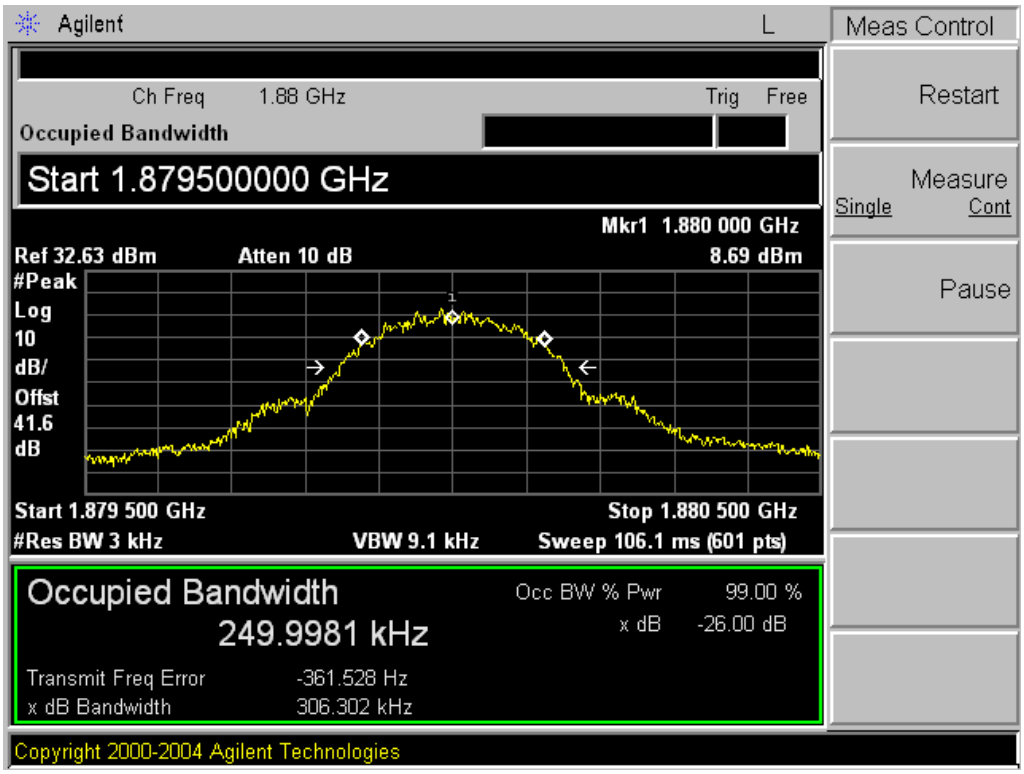
GPRS 1900

Channel	Frequency(MHz)	-26 dB Bandwidth(kHz)
LOW	1850.20	316.26
MIDDLE	1880.00	316.84
HIGH	1909.80	315.87

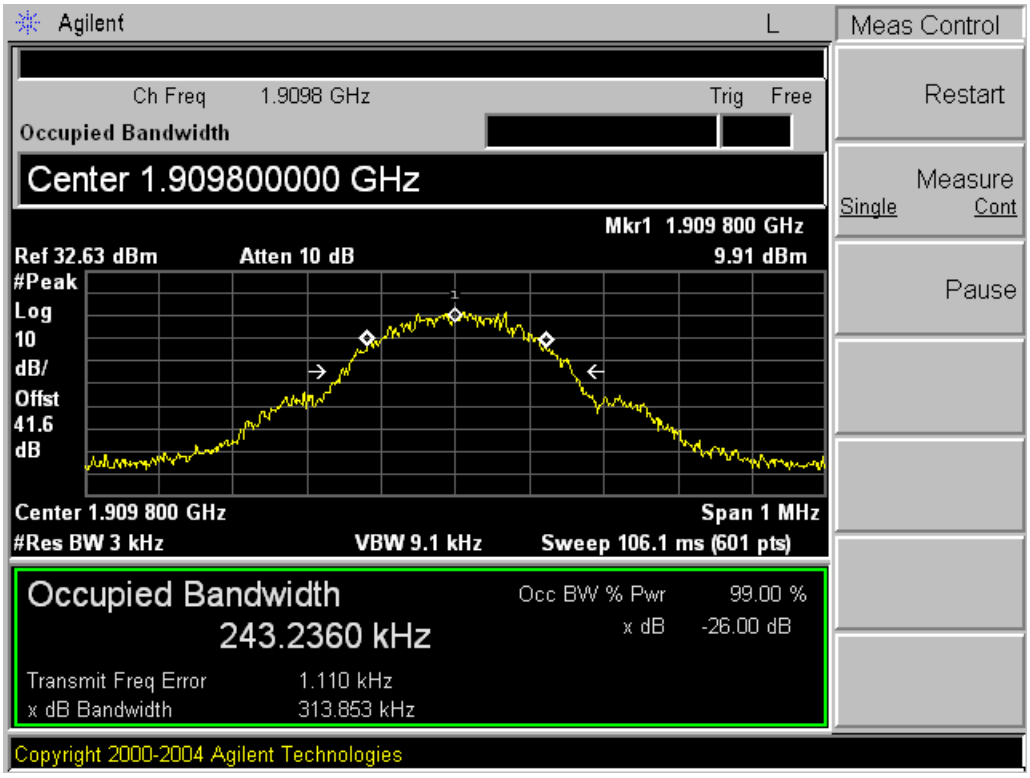
Please refer to the following plots.

GSM 1900 (Low Channel)

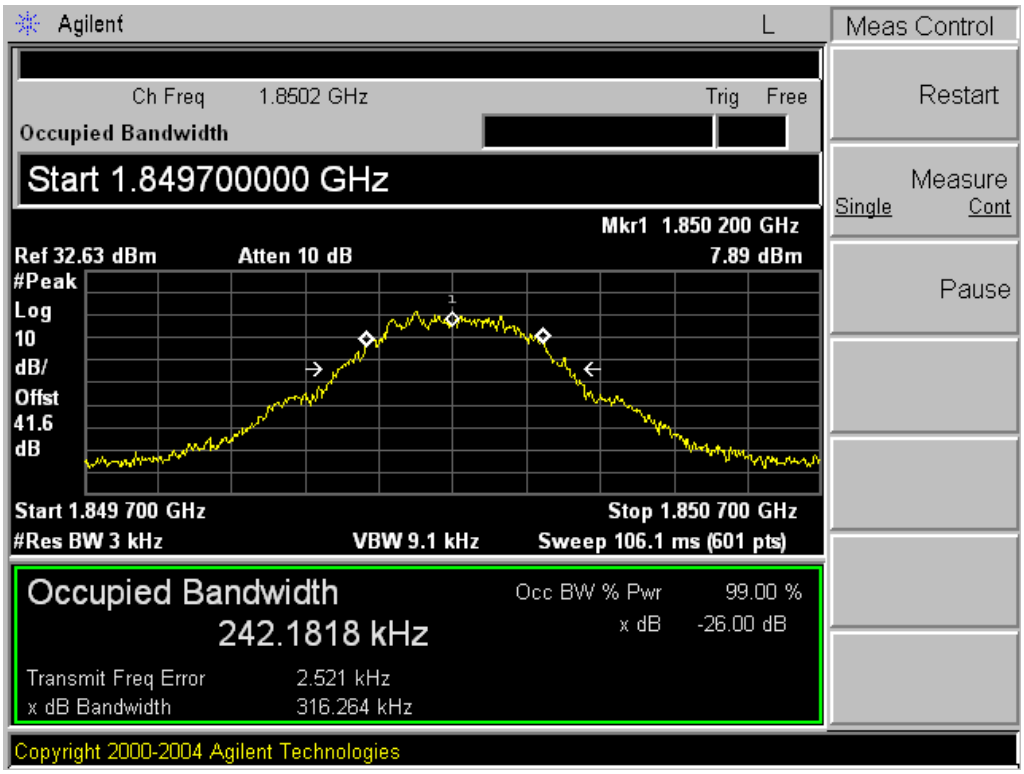
GSM 1900 (Middle Channel)



GSM 1900 (High Channel)

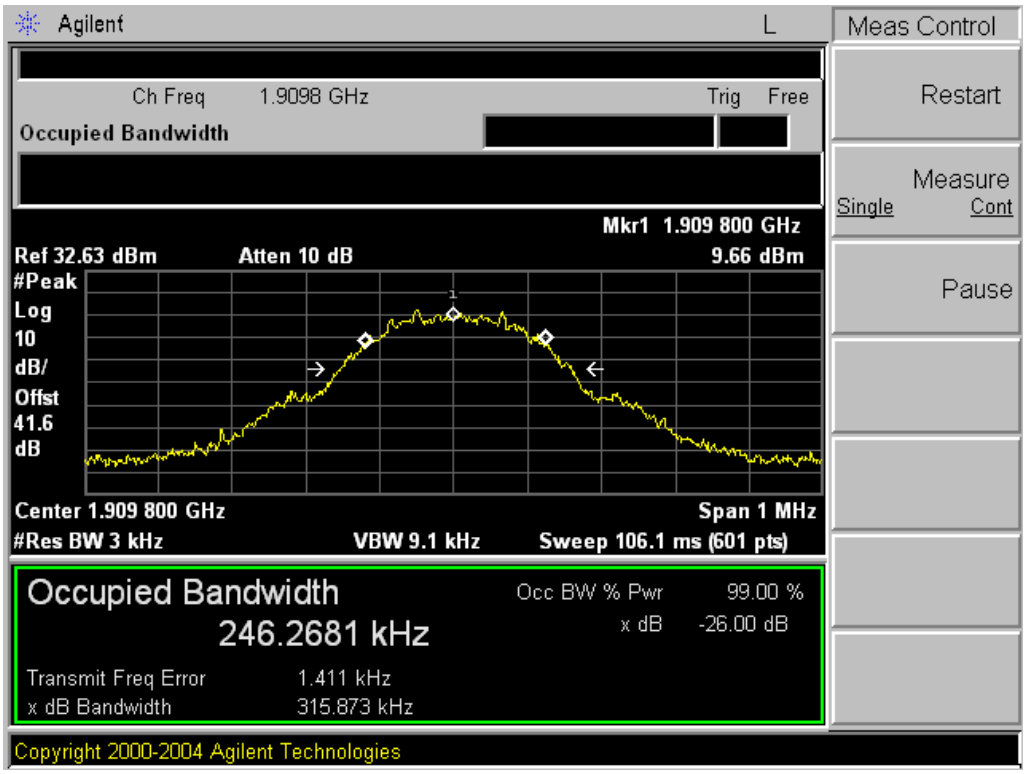


GPRS 1900 (Low Channel)



GPRS 1900 (Middle Channel)

GPRS 1900 (High Channel)



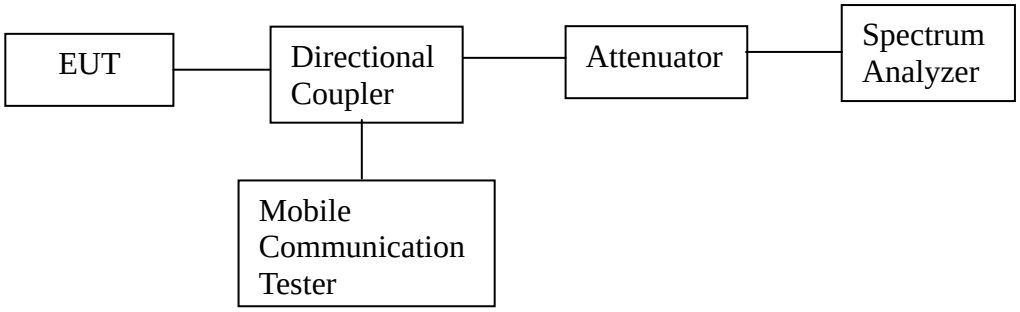
7. Spurious Emissions at Antenna Terminal

7.1. Limit

Requirements: CFR 47, § 2.1051. § 22.917 and §24.238 (a) Out of band emissions.
The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1057.

7.2. Test Procedure

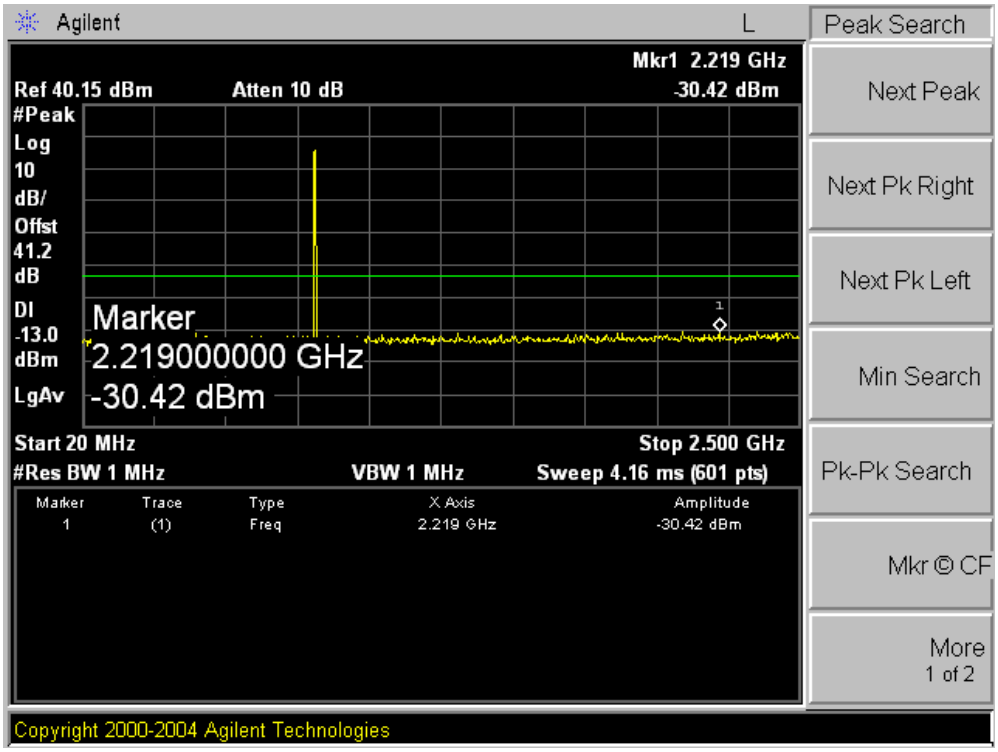
1. The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation.
2. The resolution bandwidth of the spectrum analyzer was set at 1 MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

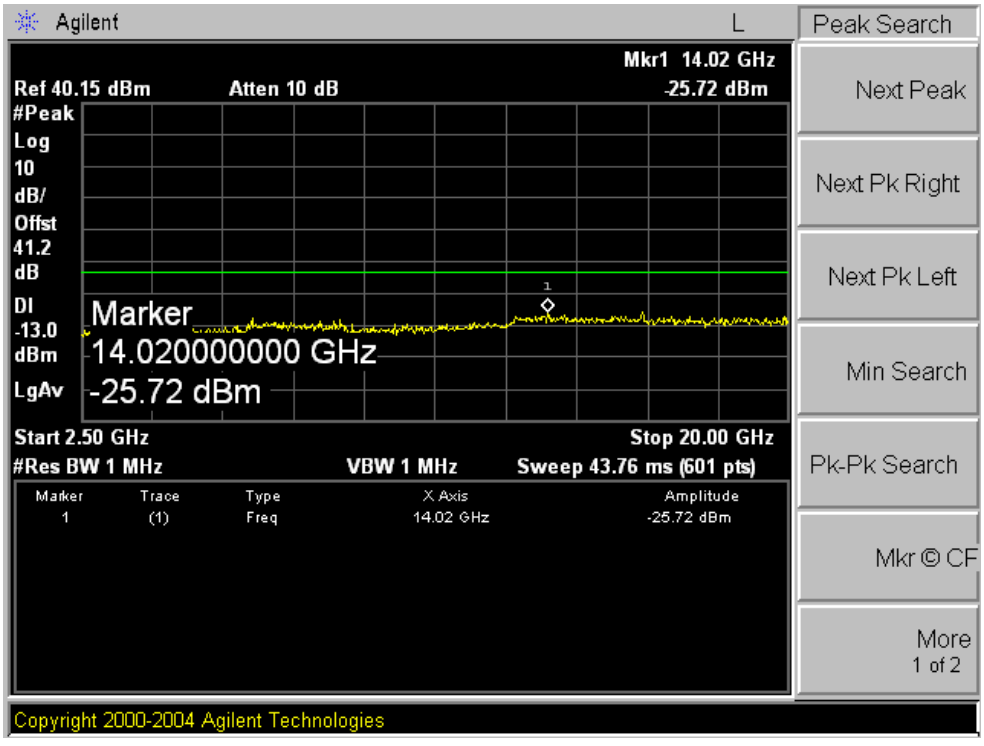


7.3. Test Results

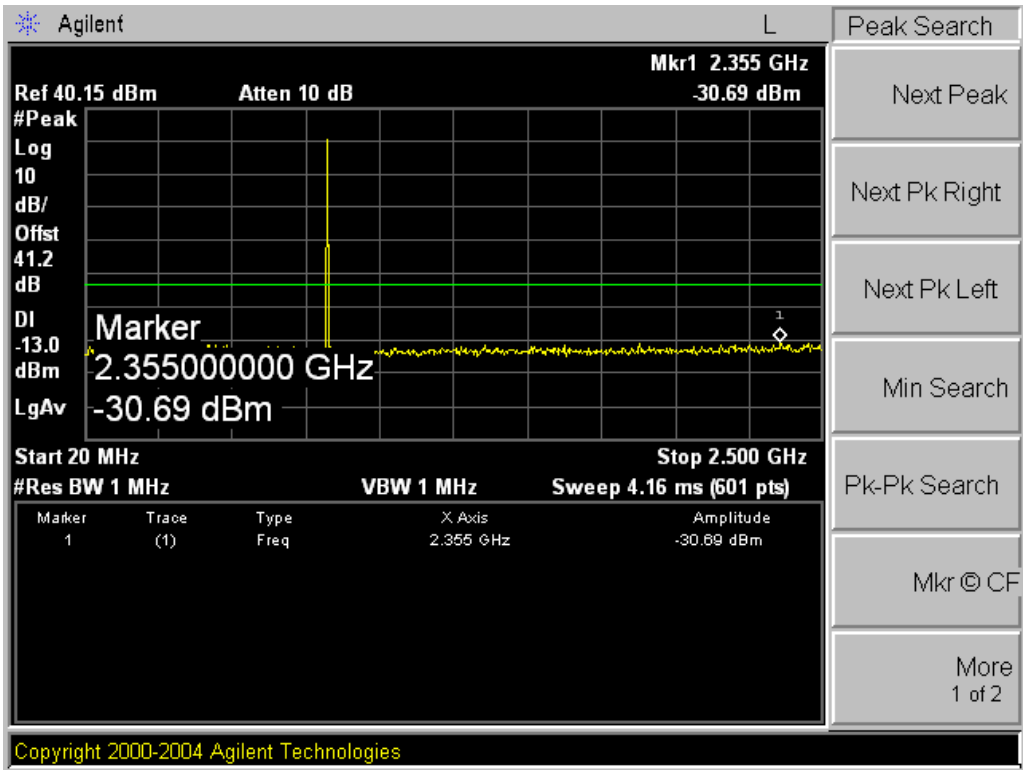
Please refer to the following plots.

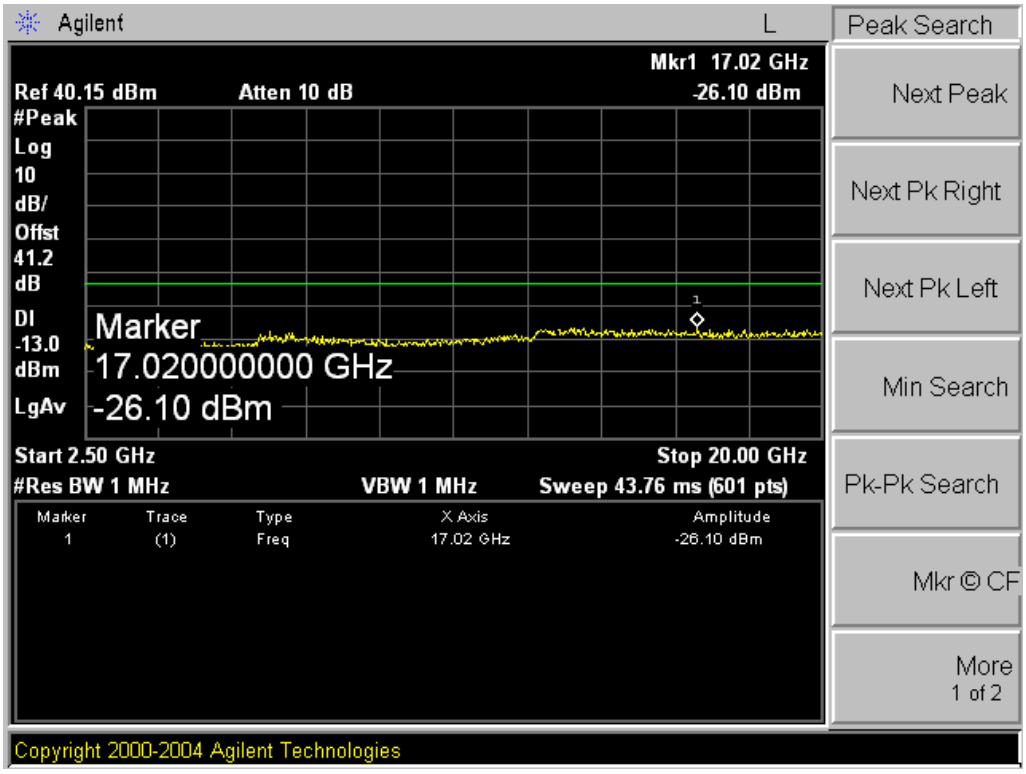
GSM 850 (Low Channel)



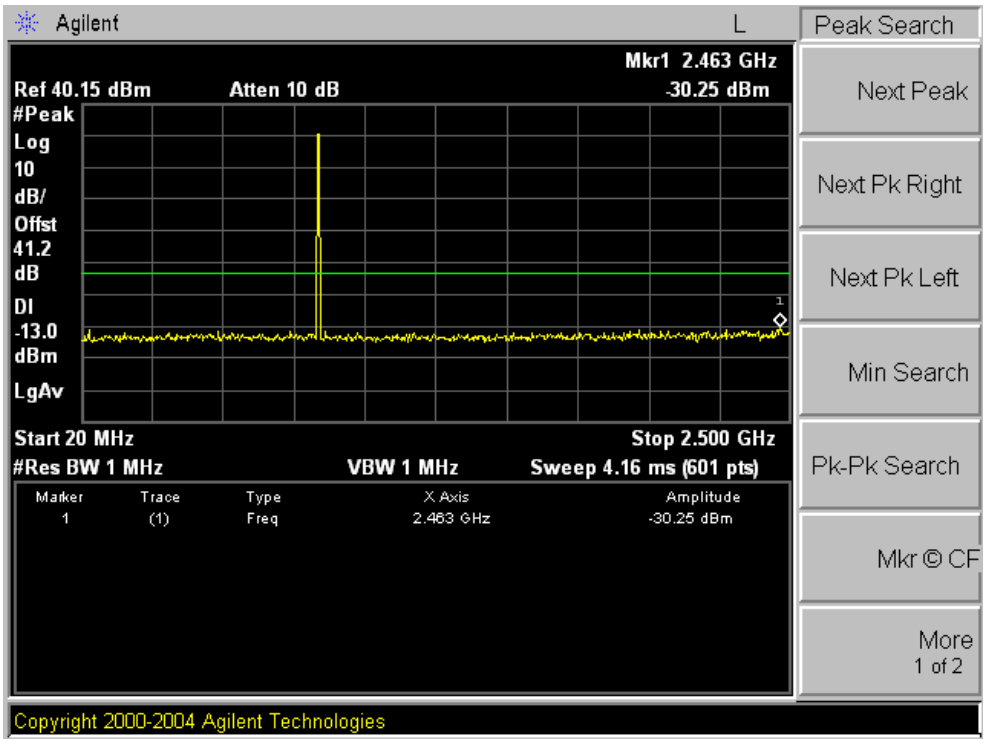


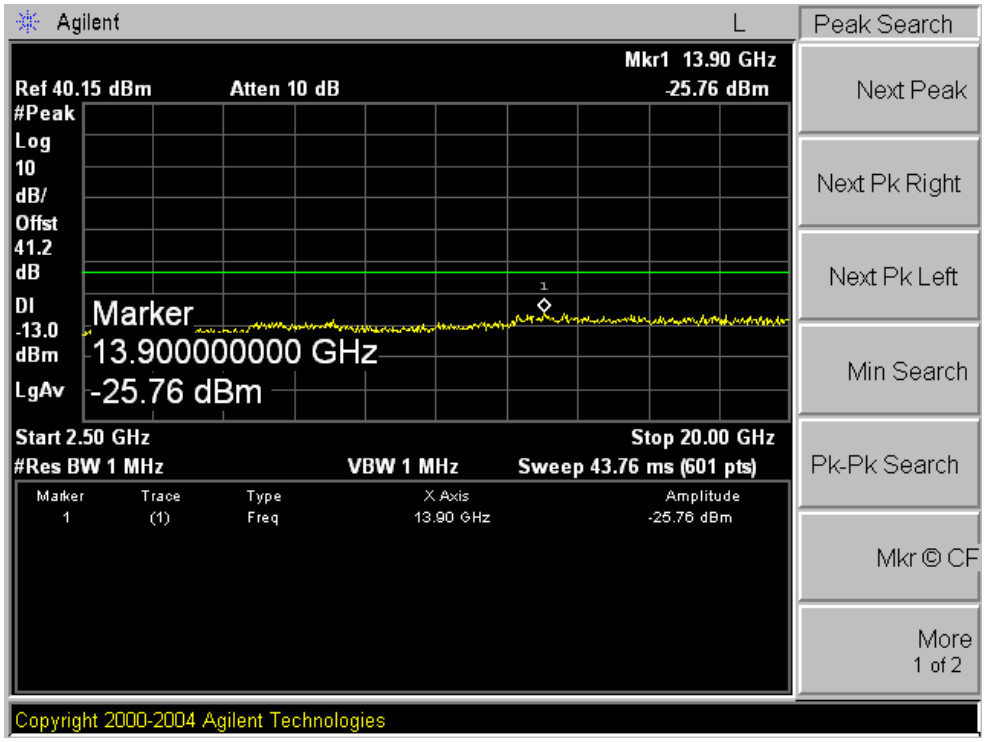
GSM 850 (Middle Channel)



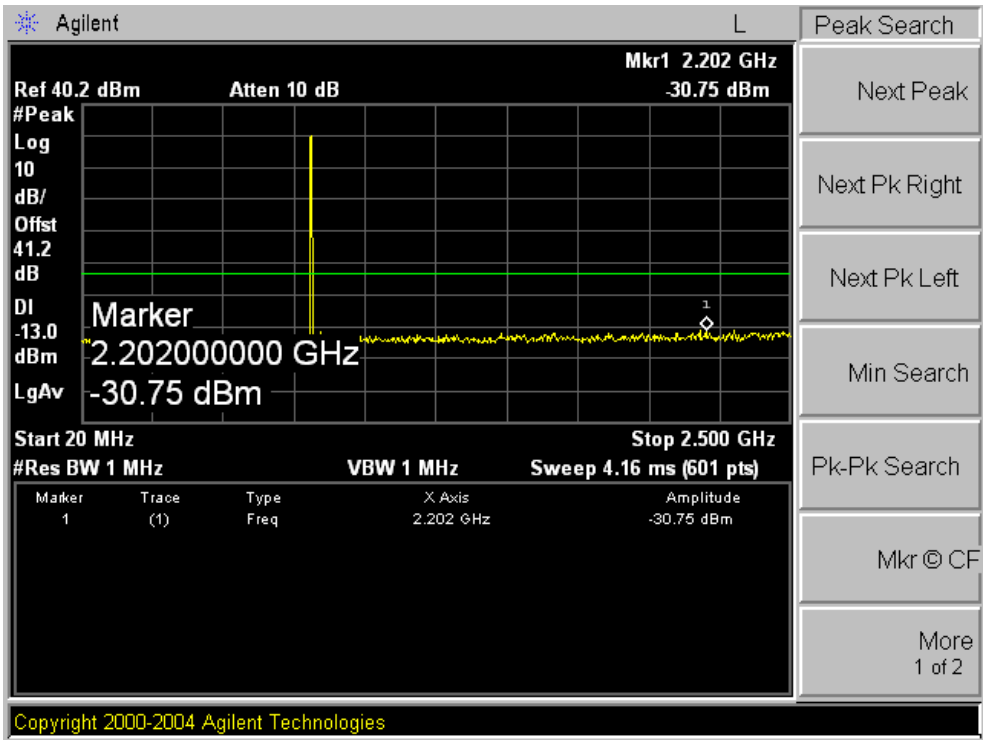


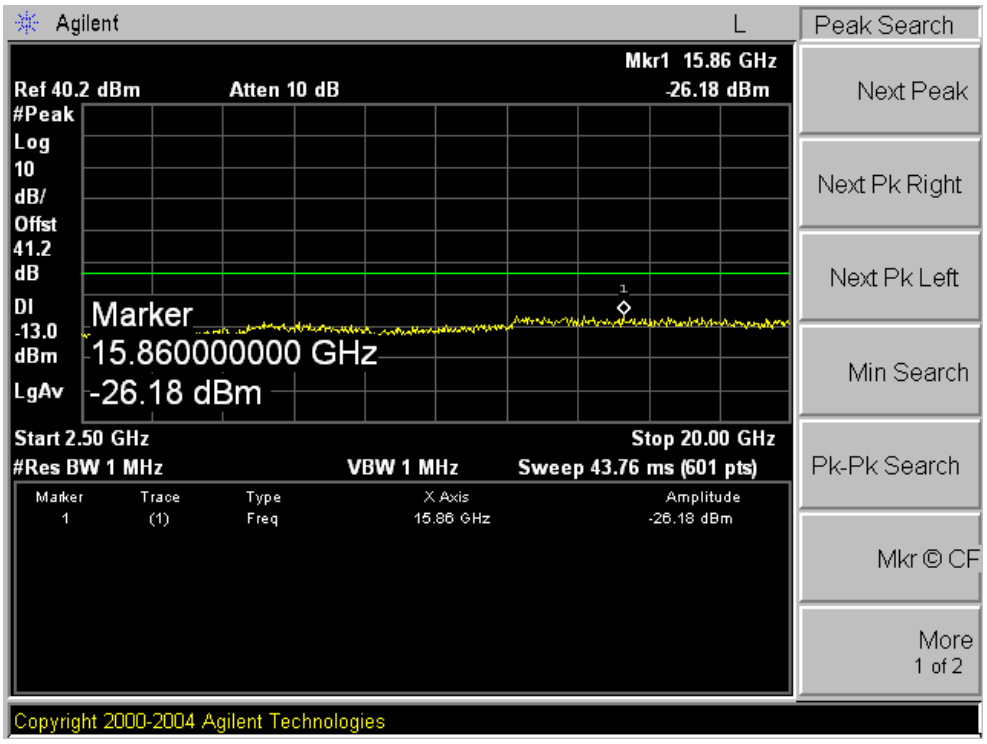
GSM 850 (High Channel)



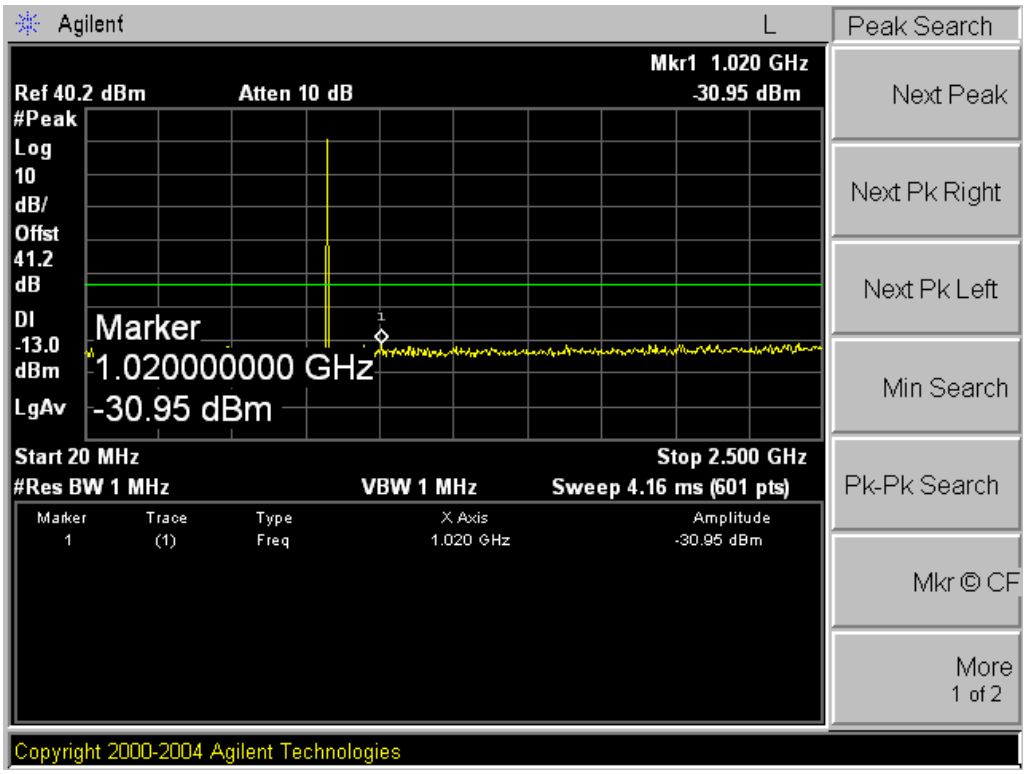


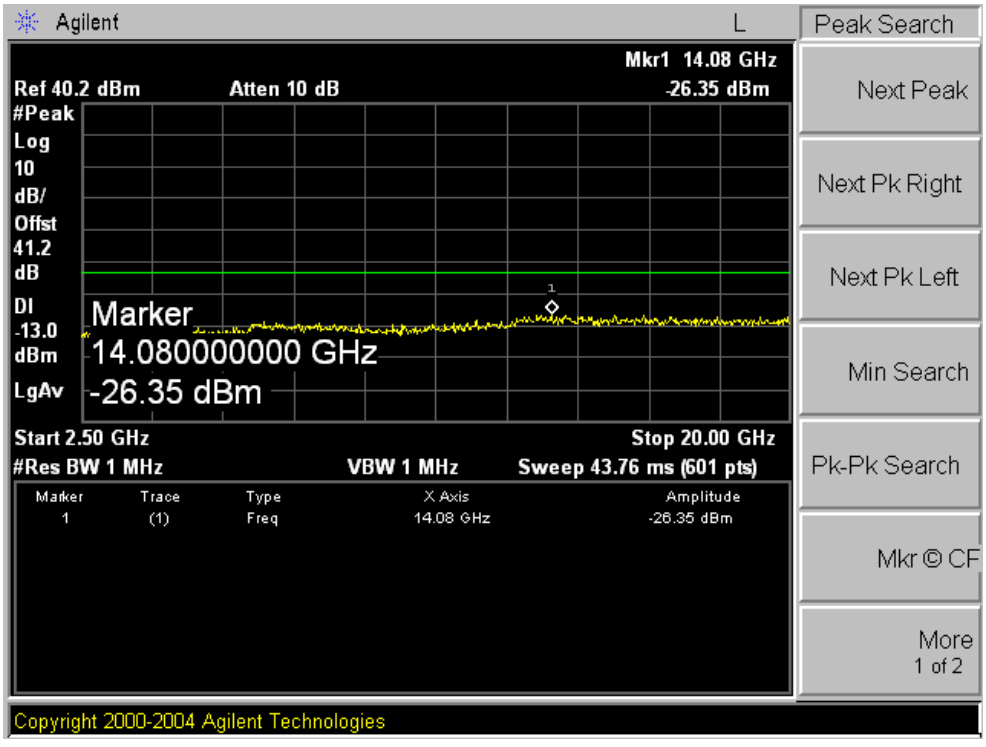
GPRS 850 (Low Channel)



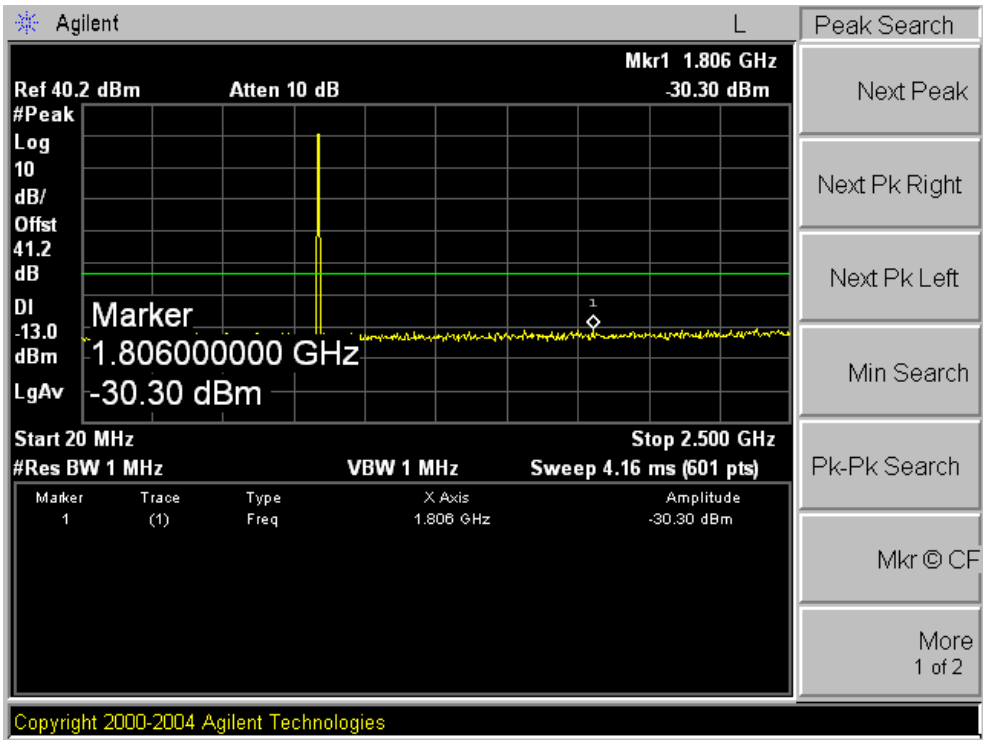


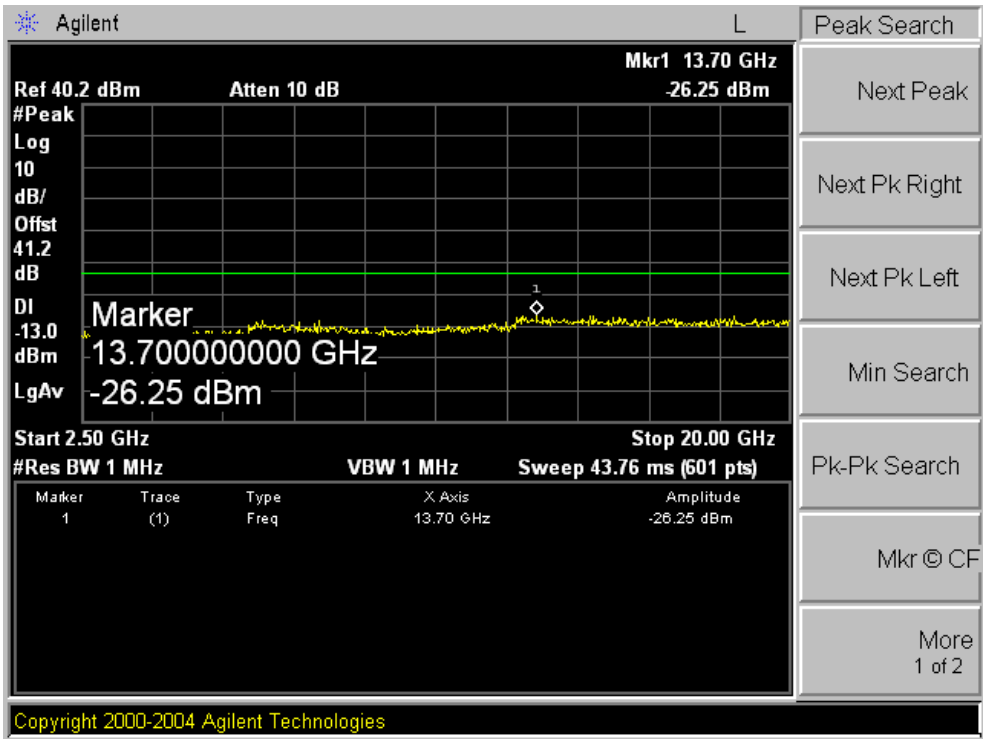
GPRS 850 (Middle Channel)



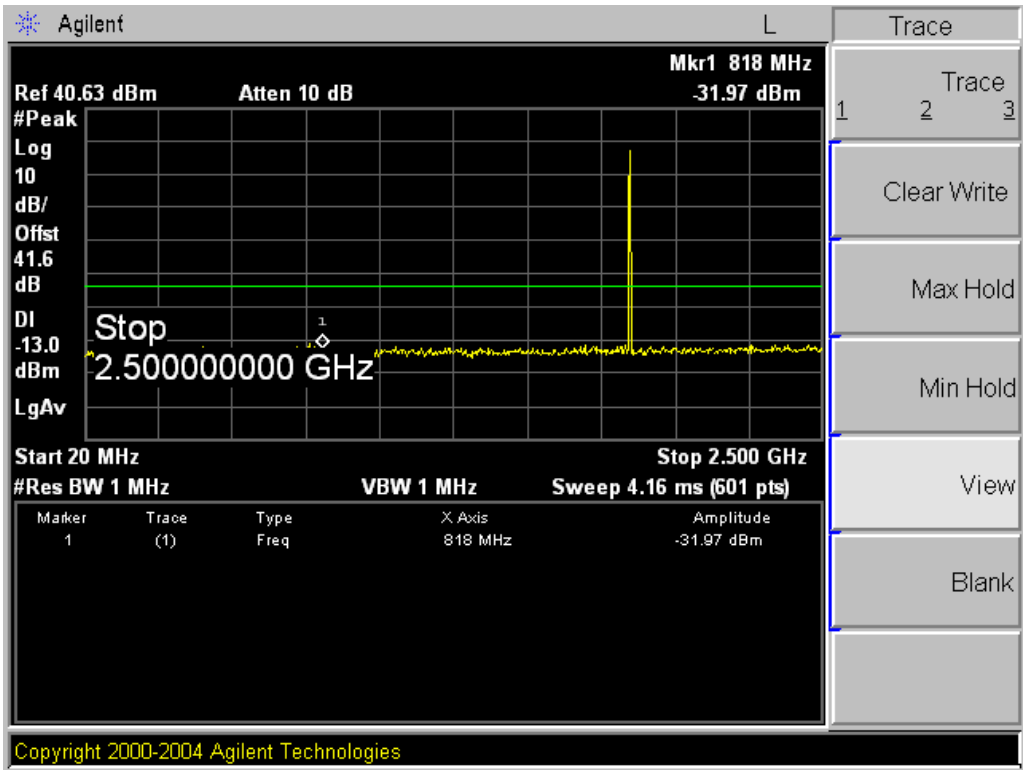


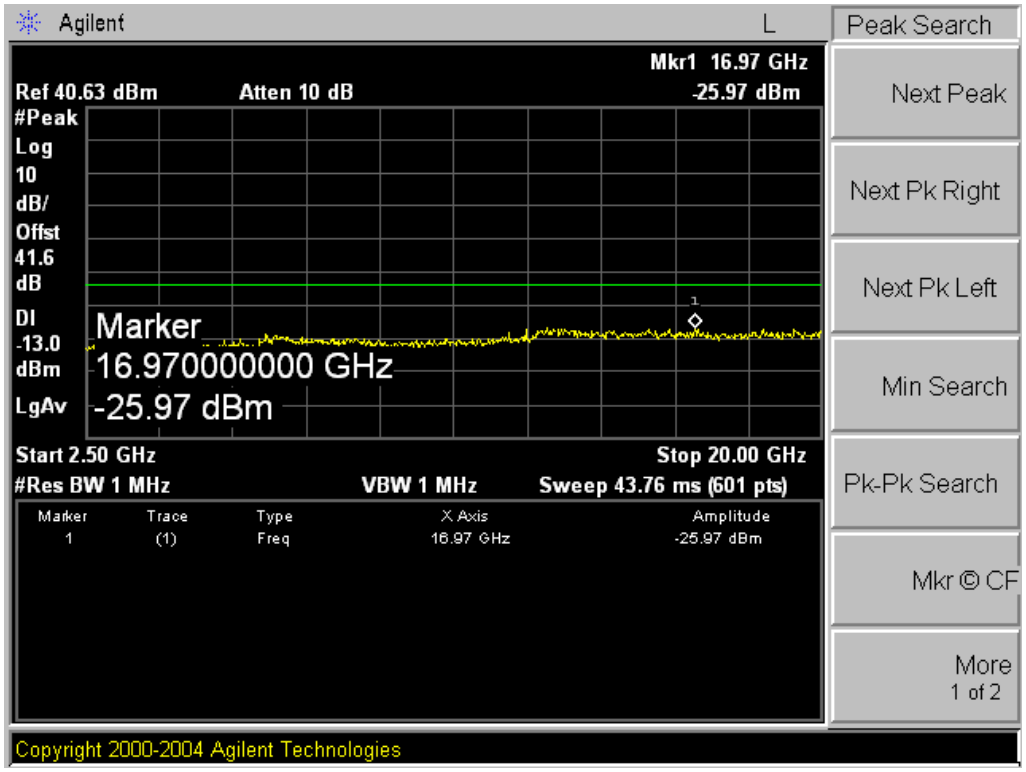
GPRS 850 (High Channel)



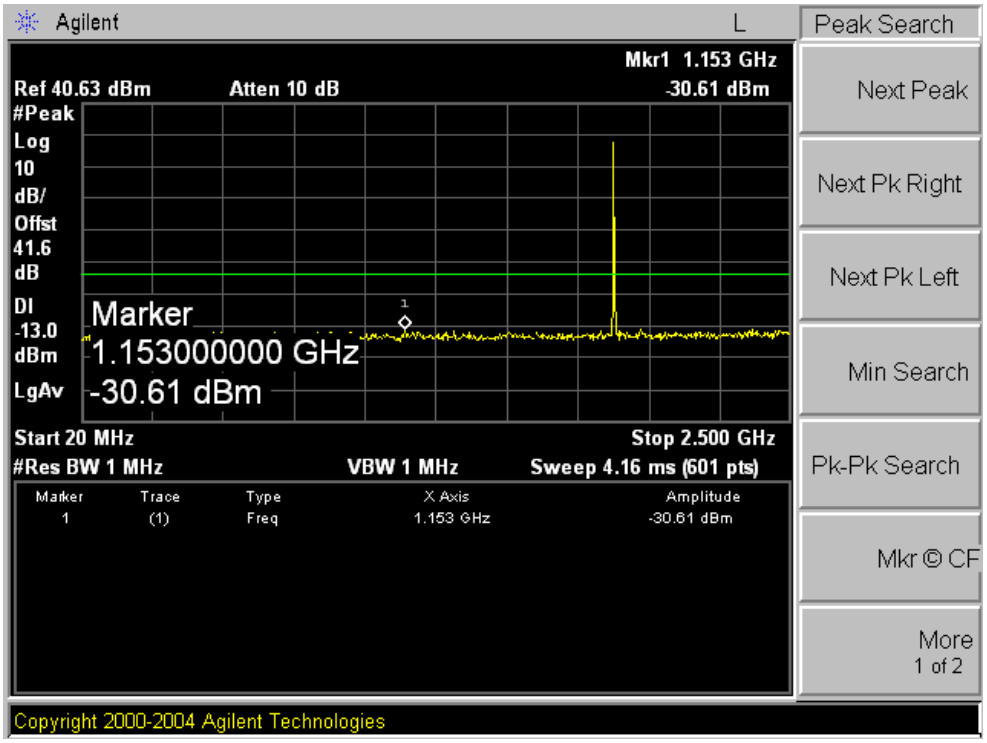


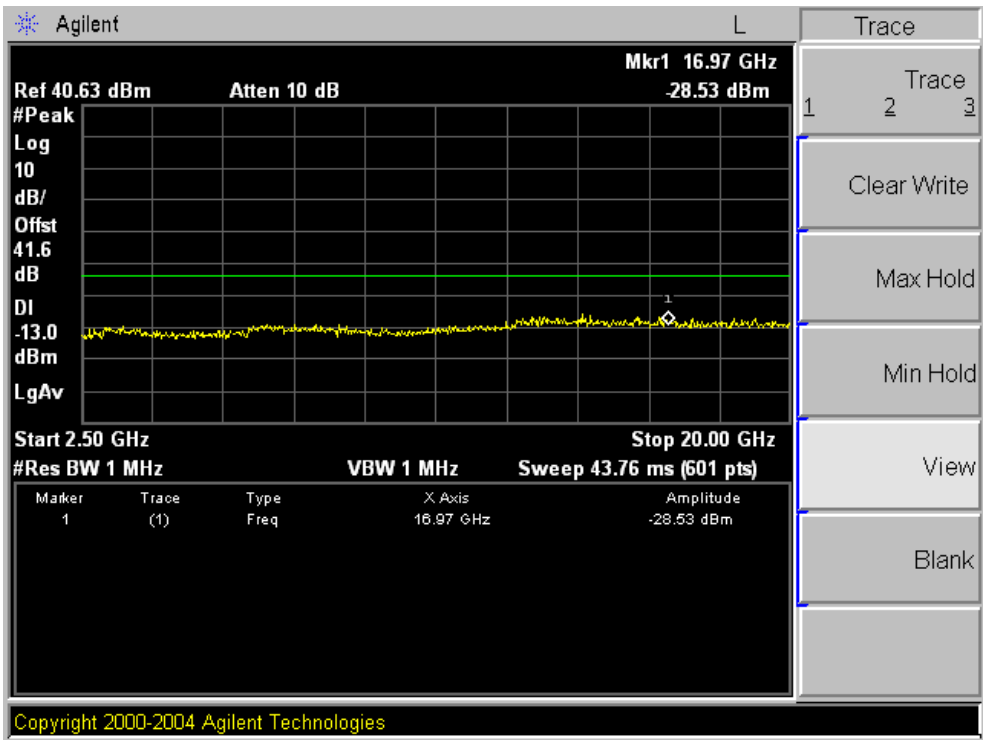
GSM 1900 (Low Channel)



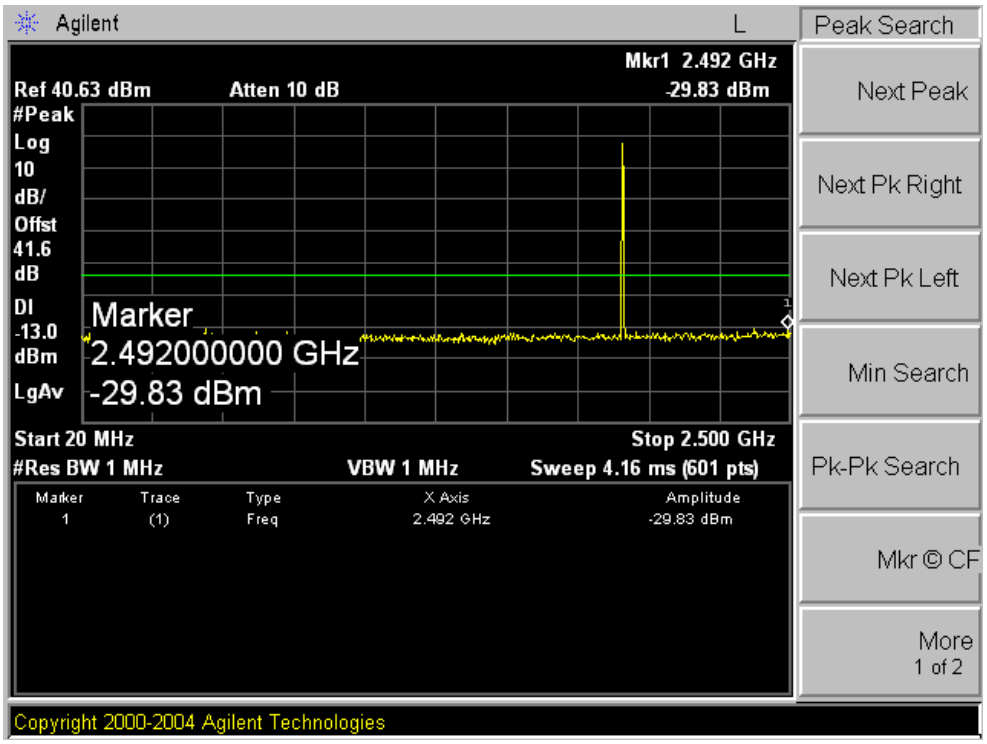


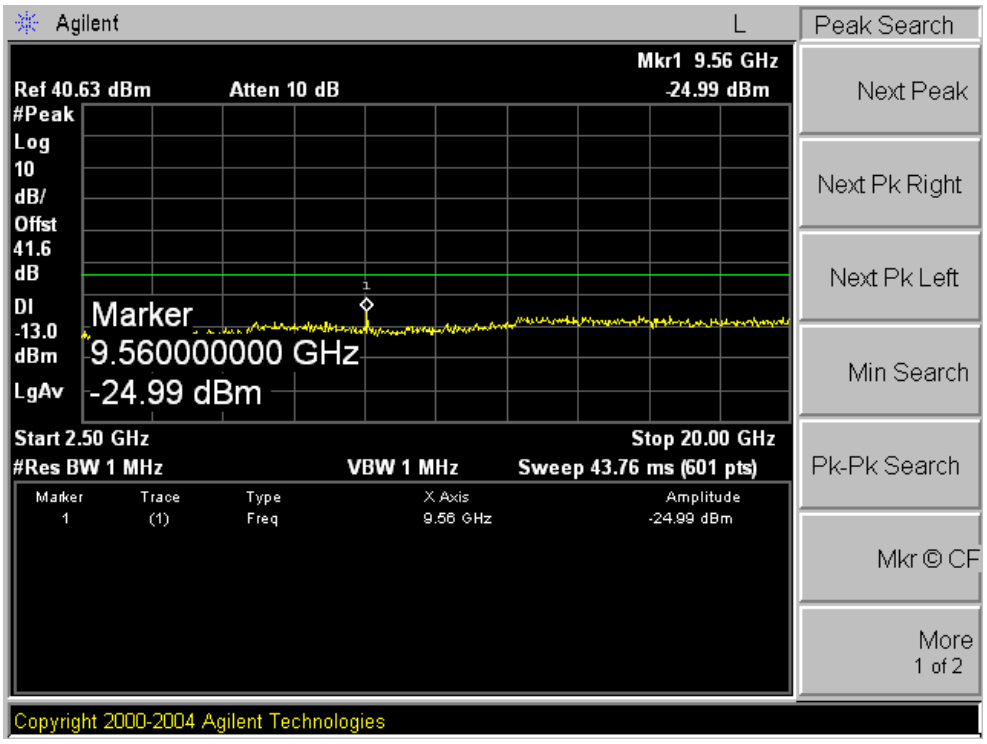
GSM 1900 (Middle Channel)



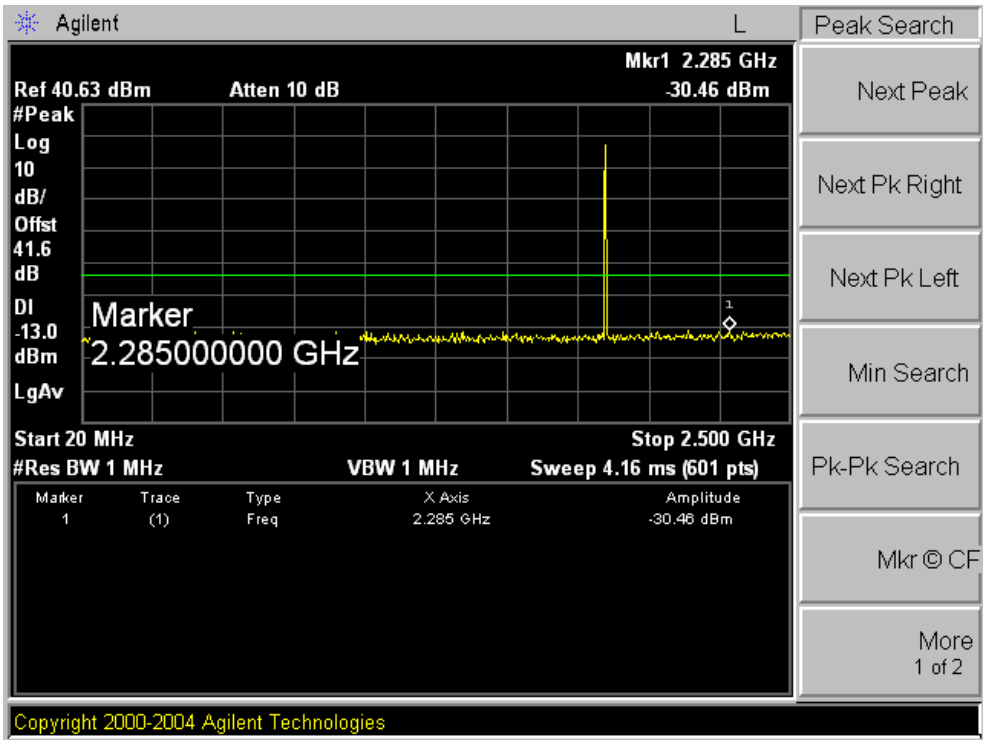


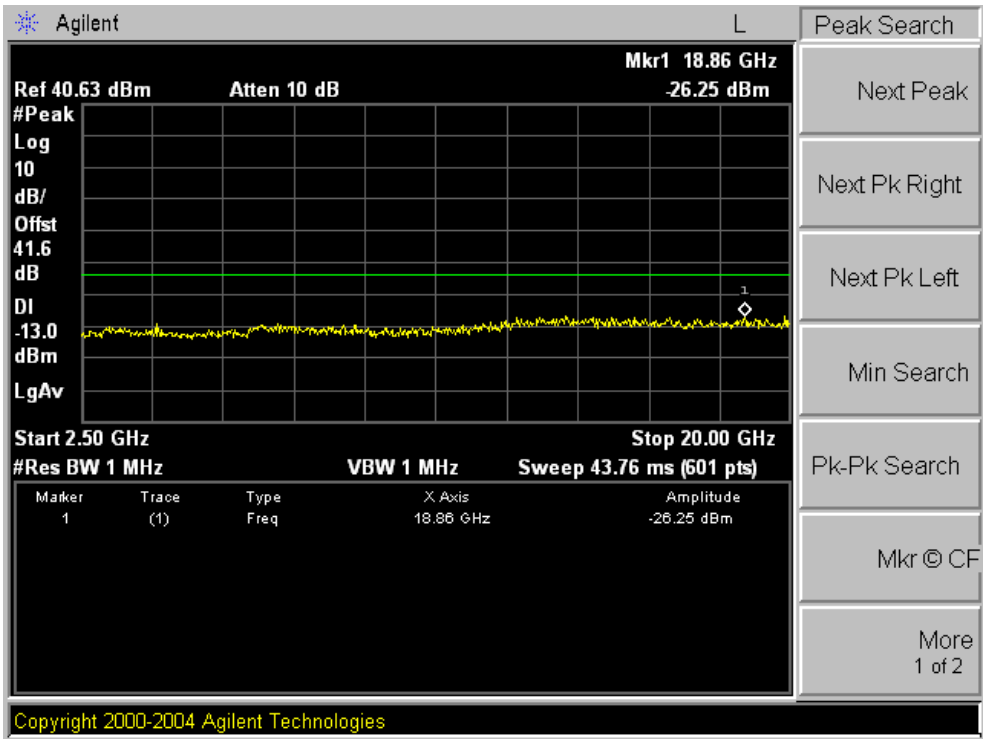
GSM 1900 (High Channel)



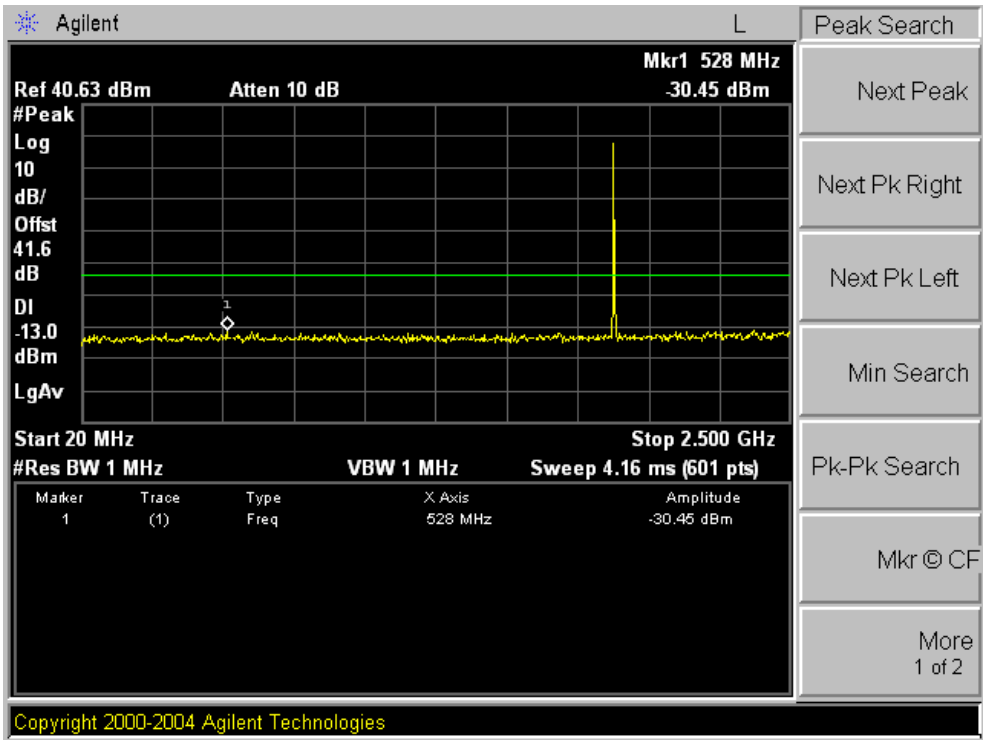


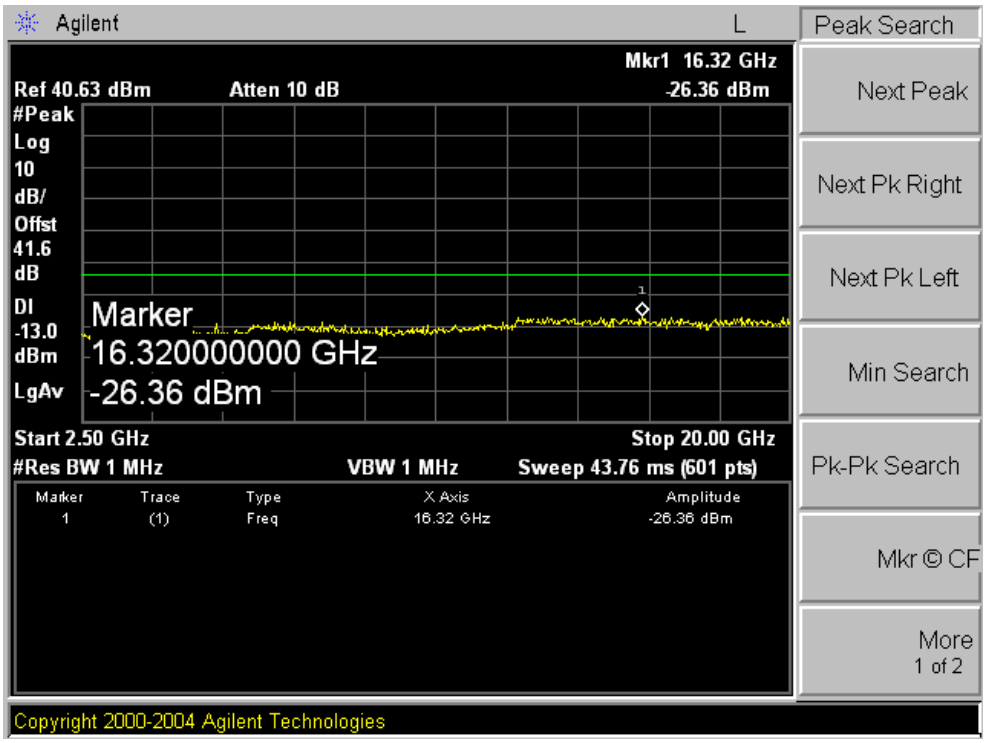
GPRS 1900 (Low Channel)



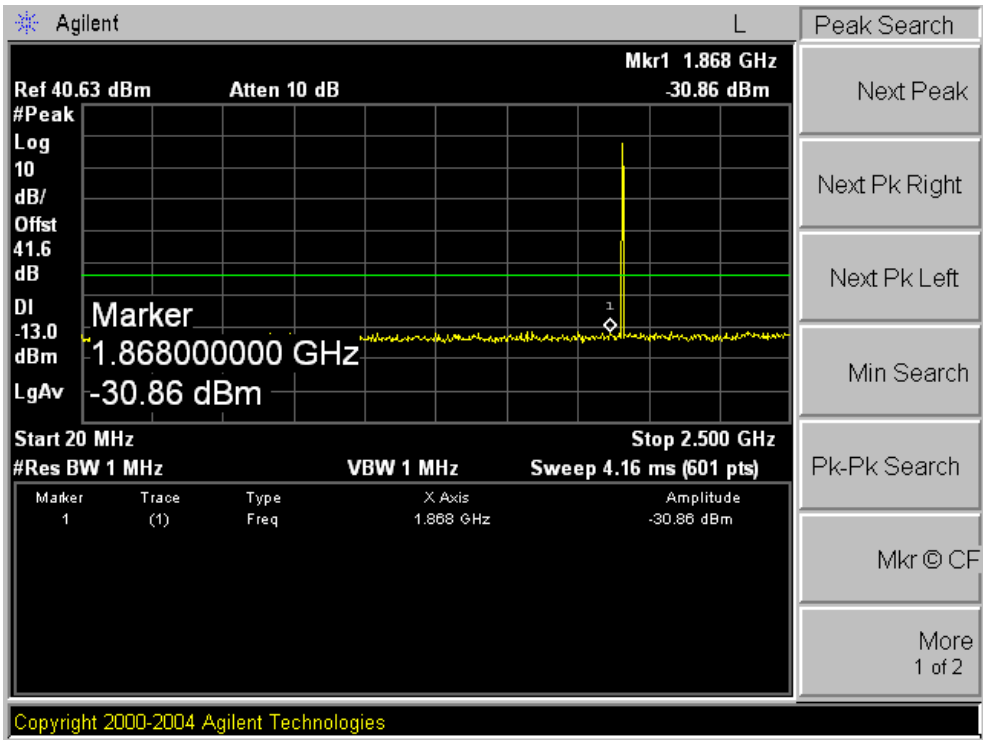


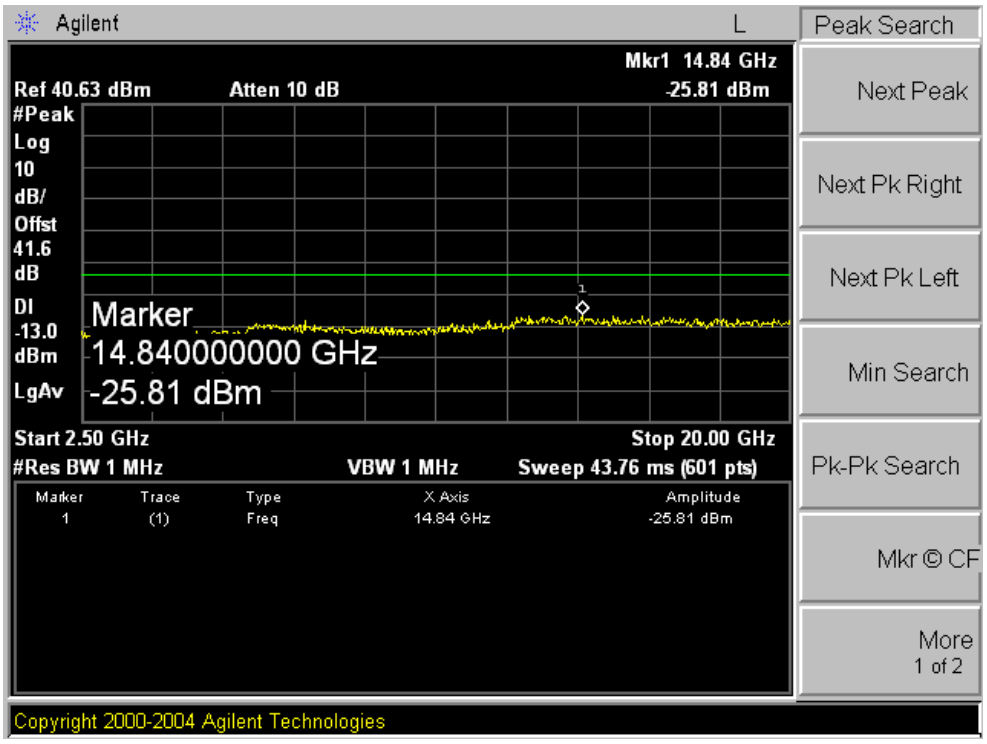
GPRS 1900 (Middle Channel)





GPRS 1900 (High Channel)





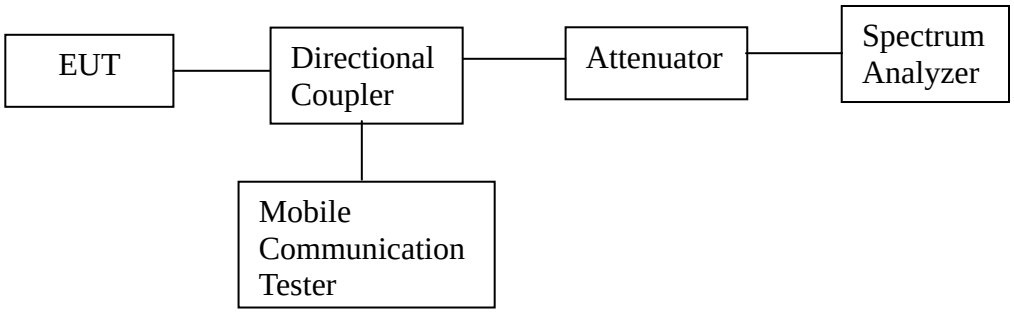
8. Band Edge

8.1. Limit

§ 22.917, the power of any emission 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

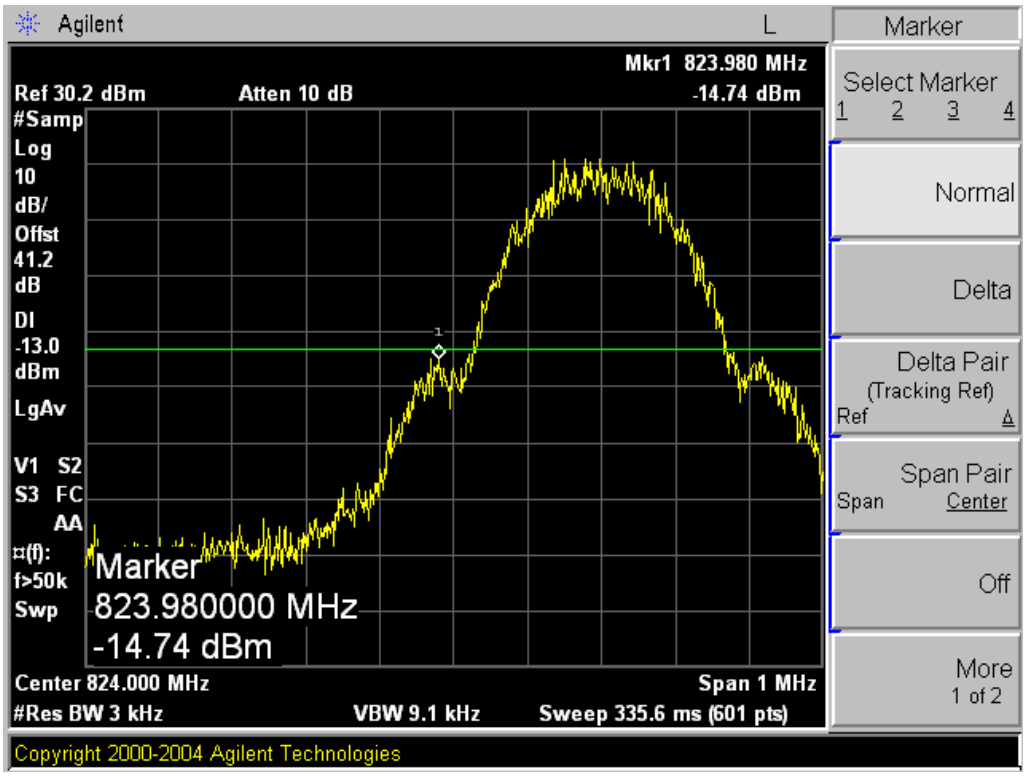
1. The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.
2. The center of the spectrum analyzer was set to block edge frequency, RBW set to 3 kHz.



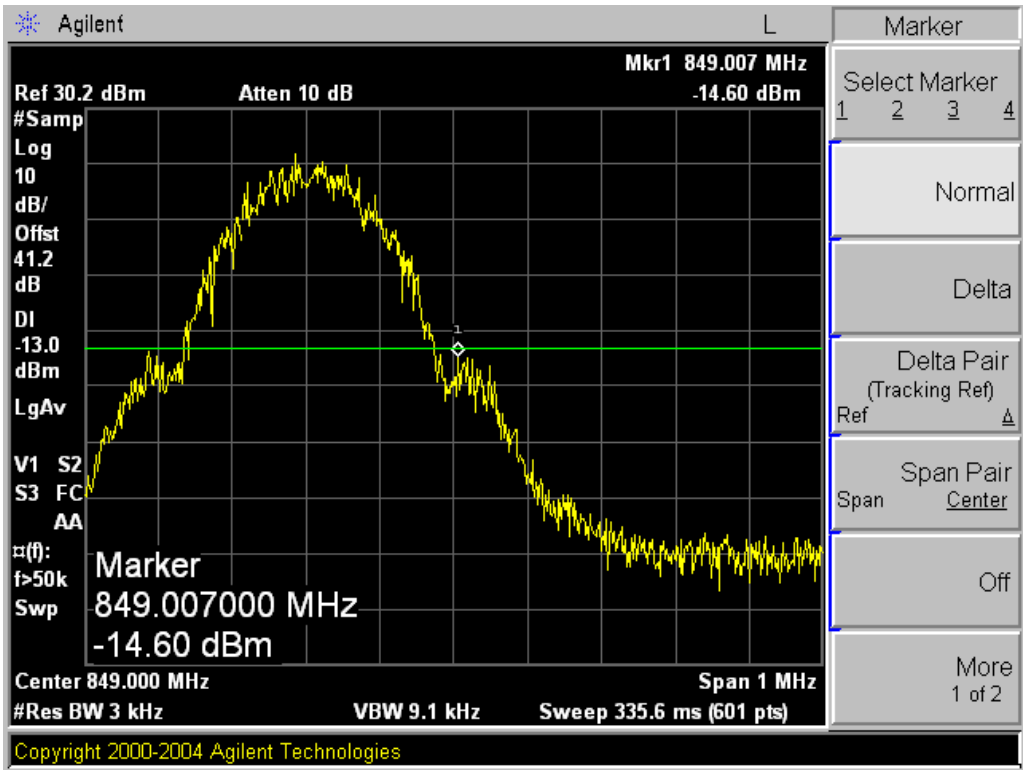
8.3. Test Results

Please refer to the following plots.

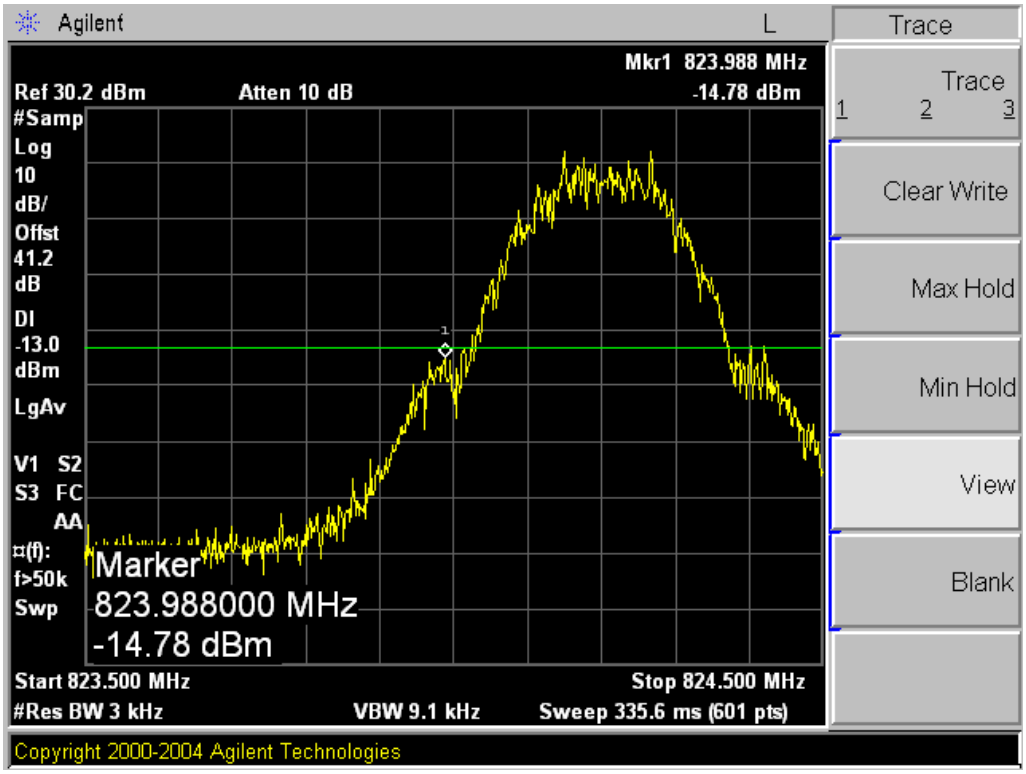
GSM 850 (Low Channel)



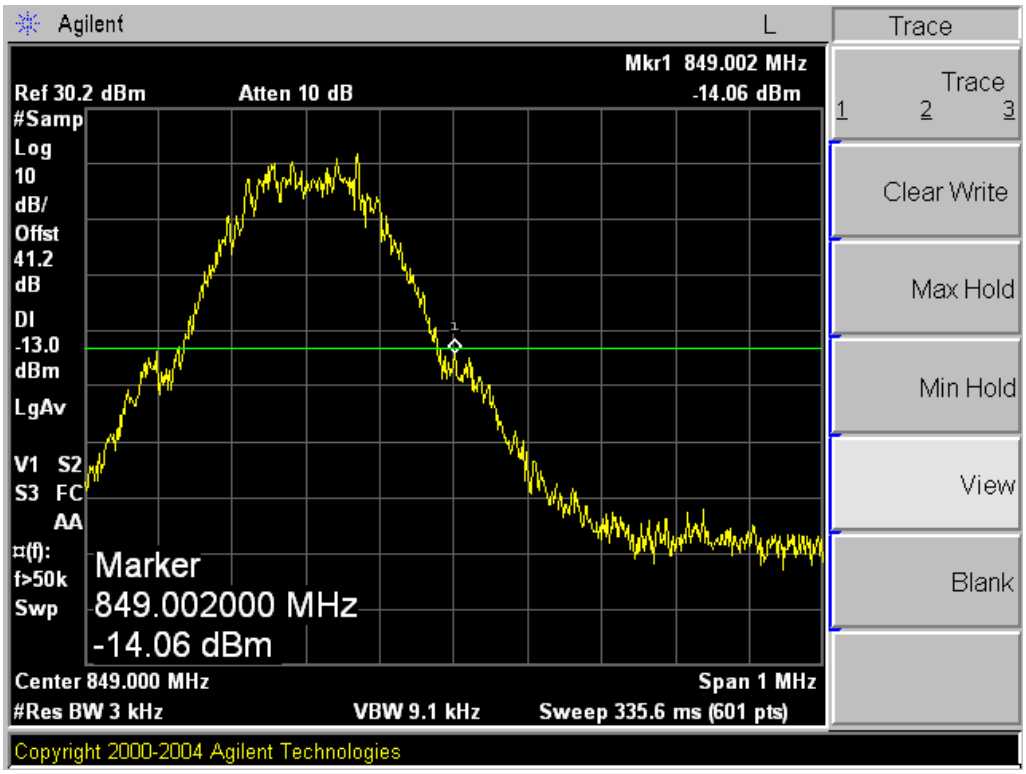
GSM 850 (High Channel)



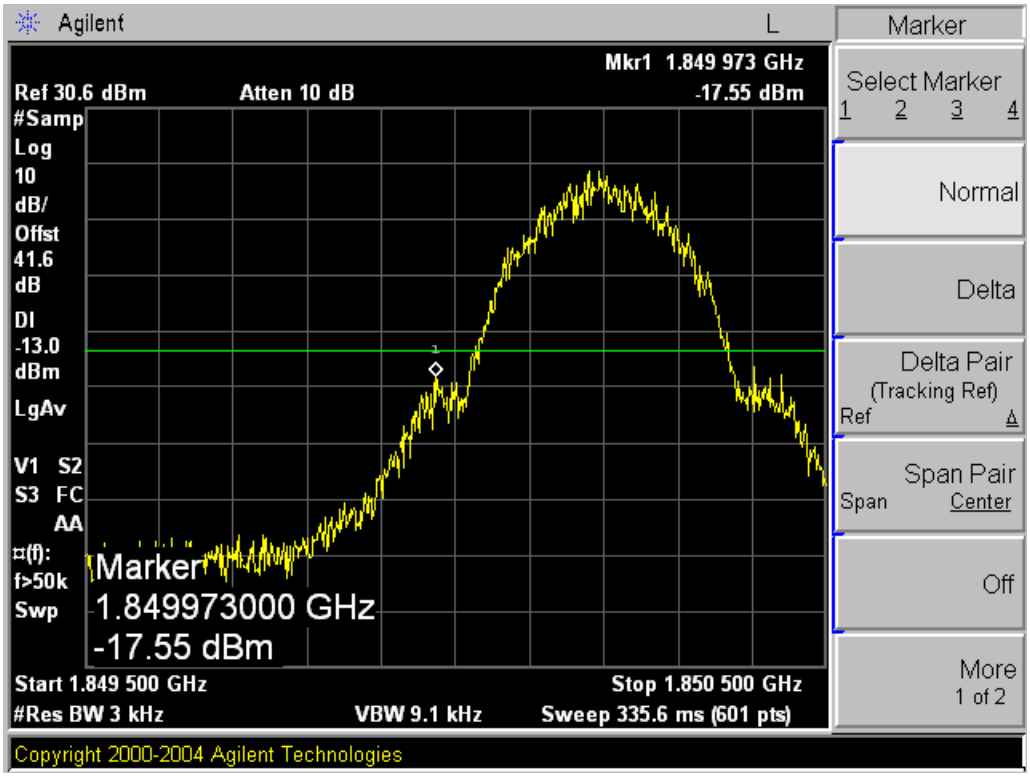
GPRS 850 (Low Channel)



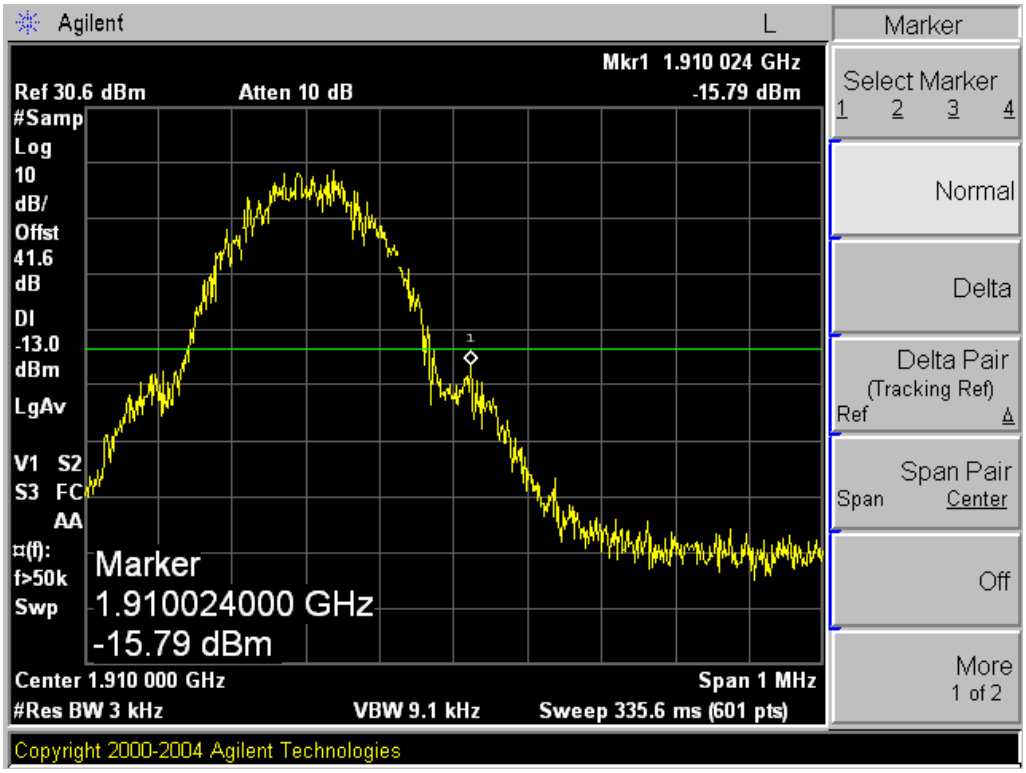
GPRS 850 (High Channel)



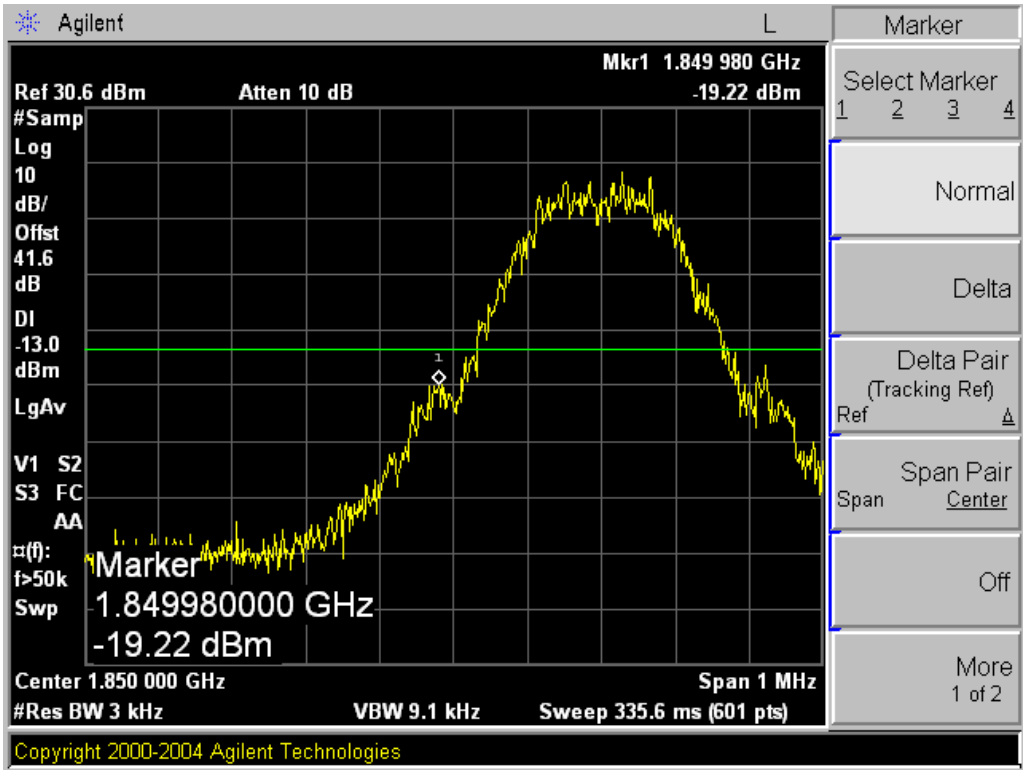
GSM 1900 (Low Channel)



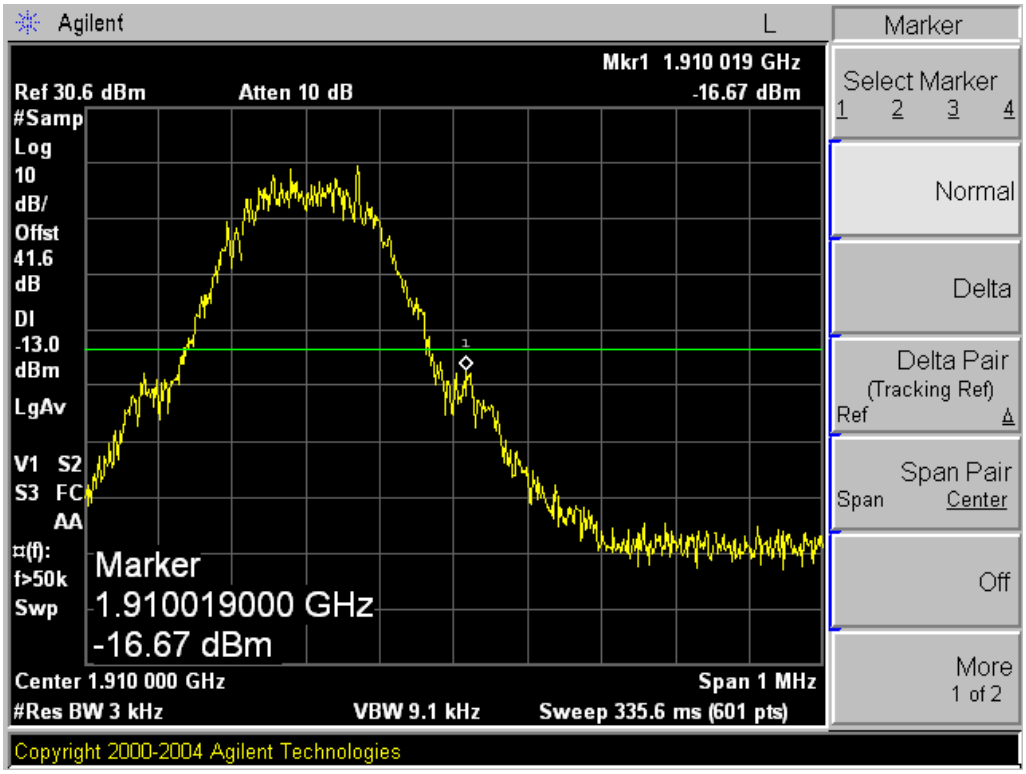
GSM 1900 (High Channel)



GPRS 1900 (Low Channel)



GPRS 1900 (High Channel)



9. Frequency Stability

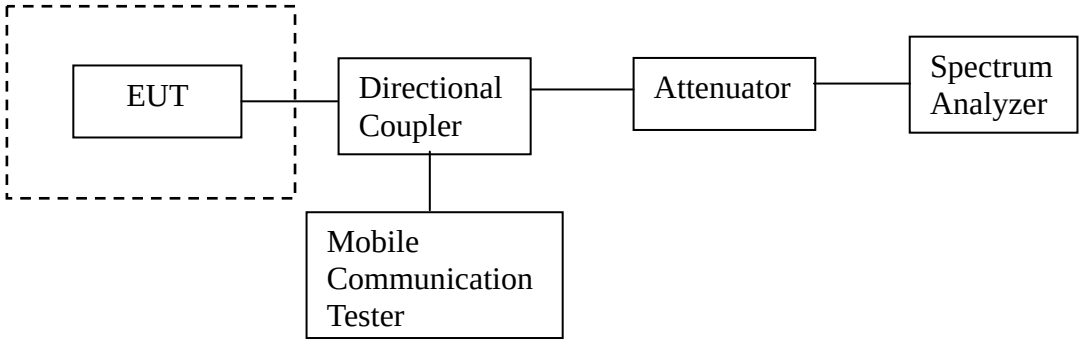
9.1. Limit

Requirements: FCC § 2.1055 (a), § 2.1055 (d) & following:
According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table of this section.
For Mobile devices operating in the 824 to 849 MHz band at a power level less than or equal to 3 Watts, the limit specified in Table C-1 is +/- 2.5 ppm.
§24.235 The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

9.2. Test Procedure

Frequency Stability vs. Temperature:
1. The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feed-through attenuators.
2. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.
3. After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.

Frequency Stability vs. Voltage:
1. An external variable DC power supply was connected to the battery terminals of the equipment under test.
2. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point.
3. The output frequency was recorded for each battery voltage.



9.3. Test Results

Frequency Stability versus Temperature

GSM 850

Reference Frequency: 836.60 MHz, Limit: 2.5 ppm			
Environment Temperature (℃)	Power Supplied (Vdc)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
22(Ref.)	3.8	-4	-0.005
60	3.8	-6	-0.007
50	3.8	-10	-0.012
40	3.8	-12	-0.014
30	3.8	-3	-0.004
20	3.8	-5	-0.006
10	3.8	-7	-0.008
0	3.8	-4	-0.005
-10	3.8	-10	-0.012
-20	3.8	-15	-0.018
-30	3.8	-9	-0.011

GSM 1900

Reference Frequency: 1880.00 MHz, Limit: 2.5 ppm			
Environment Temperature (℃)	Power Supplied (Vdc)	Frequency Measure with Time Elapse	
		Frequency Error (Hz)	ppm
22(Ref.)	3.8	20	0.011
60	3.8	-13	-0.007
50	3.8	-11	-0.006
40	3.8	-7	-0.004
30	3.8	-10	-0.005
20	3.8	12	0.006
10	3.8	9	0.005
0	3.8	4	0.002
-10	3.8	14	0.007
-20	3.8	16	0.009
-30	3.8	22	0.012

Frequency Stability versus Battery Voltage

GSM 850

Reference Frequency: 836.60 MHz, Limit: 2.5ppm			
Power Supplied (Vdc)	**Environment Temperature (℃)**	**Frequency Error (Hz)**	**ppm**
4.26	22	-6	-0.007
3.15	22	-9	-0.011

GSM 1900

Reference Frequency: 1880.00 MHz, Limit: 2.5ppm			
Power Supplied (Vdc)	**Environment Temperature (℃)**	**Frequency Error (Hz)**	**ppm**
4.26	22	17	0.009
3.15	22	22	0.012

Appendix A . Photos of Conducted Power Line Test

Appendix B. Photo of RF Rated output power & Spurious Emissions Test