



**FCC CFR47 PART 22H AND 24E  
CERTIFICATION TEST REPORT**

**FOR**

**850/1900 GSM/GPRS PHONE WITH BLUETOOTH AND WLAN**

**MODEL NUMBER: GT-C3222W**

**FCC ID: A3LGTC3222W**

**REPORT NUMBER: 11I13659-1, Revision A**

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*Prepared for*

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**NVLAP LAB CODE 200065-0**

Revision History

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---	02/07/11	Initial Issue	T. Chan
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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SAMSUNG ELECTRONICS CO., LTD.  
416, MAETAN 3-DONG, YEONGTONG-GU  
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

**EUT DESCRIPTION:** 850/1900 GSM/GPRS PHONE WITH BLUETOOTH AND WLAN

**MODEL:** GT-C3222W

**SERIAL NUMBER:** F1001E

**DATE TESTED:** FEBRUARY 02-04, 2011

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22 SUBPART H AND 24 SUBPART E	Pass

Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For CCS By:

Tested By:



THU CHAN  
ENGINEERING MANAGER  
UL CCS

CHIN PANG  
EMC ENGINEER  
UL CCS

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47 Part 22, and FCC CFR Part 24.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

EUT is an 850/1900 GSM/GPRS Phone with Bluetooth and WLAN

### 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted and radiated ERP / EIRP output powers as follows:

Frequency range (MHz)	Modulation	Conducted		ERP / EIRP	
		dBm	mW	dBm	mW
824.2 - 848.80	GPRS	32.64	1836.5	31.60	1445.4
1850.2 - 1909.8	GPRS	30.50	1122.0	24.18	261.8

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an IFA antenna for the 850MHz and 1900MHz bands with a maximum peak gain of -2.61dBi for cell band and -3.34dBi for PCS band.

### 5.4. SOFTWARE AND FIRMWARE

The EUT is linked with Agilent 8960 Communication Test Set

### 5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

Based on the investigation results, the highest peak power and enhanced data rate is the worst-case scenario for all measurements.

Worst case modes:

- Cellular & PCS bands for GSM
  - GPRS (GMSK)

For the fundamental investigation, since the EUT is a portable device that has three orientations; therefore X, Y and Z orientations have been investigated, also with AC/DC adapter and headset and the worst case was found to be on EUT only at Y orientation for both Cell and for PCS band

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	E7A3U3DEBE	DW1Z423DS/5-E	DoC
DC Power Supply	HP	E3610A	KR24104150	NA
DC Power Supply	XANTREX	XHR60-18	C01064	NA

### I/O CABLES (CONDUCTED TEST)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	3	US 115V	Un-shielded	2m	NA
2	DC	1	DC	Un-shielded	1m	NA
3	Directional Coupler	1	Spectrum Analyzer	Un-shielded	None	NA
4	Antenna Port	1	EUT	Un-shielded	0.2m	NA
5	RFIn/Out	1	Communications Test Set	Un-shielded	2m	NA

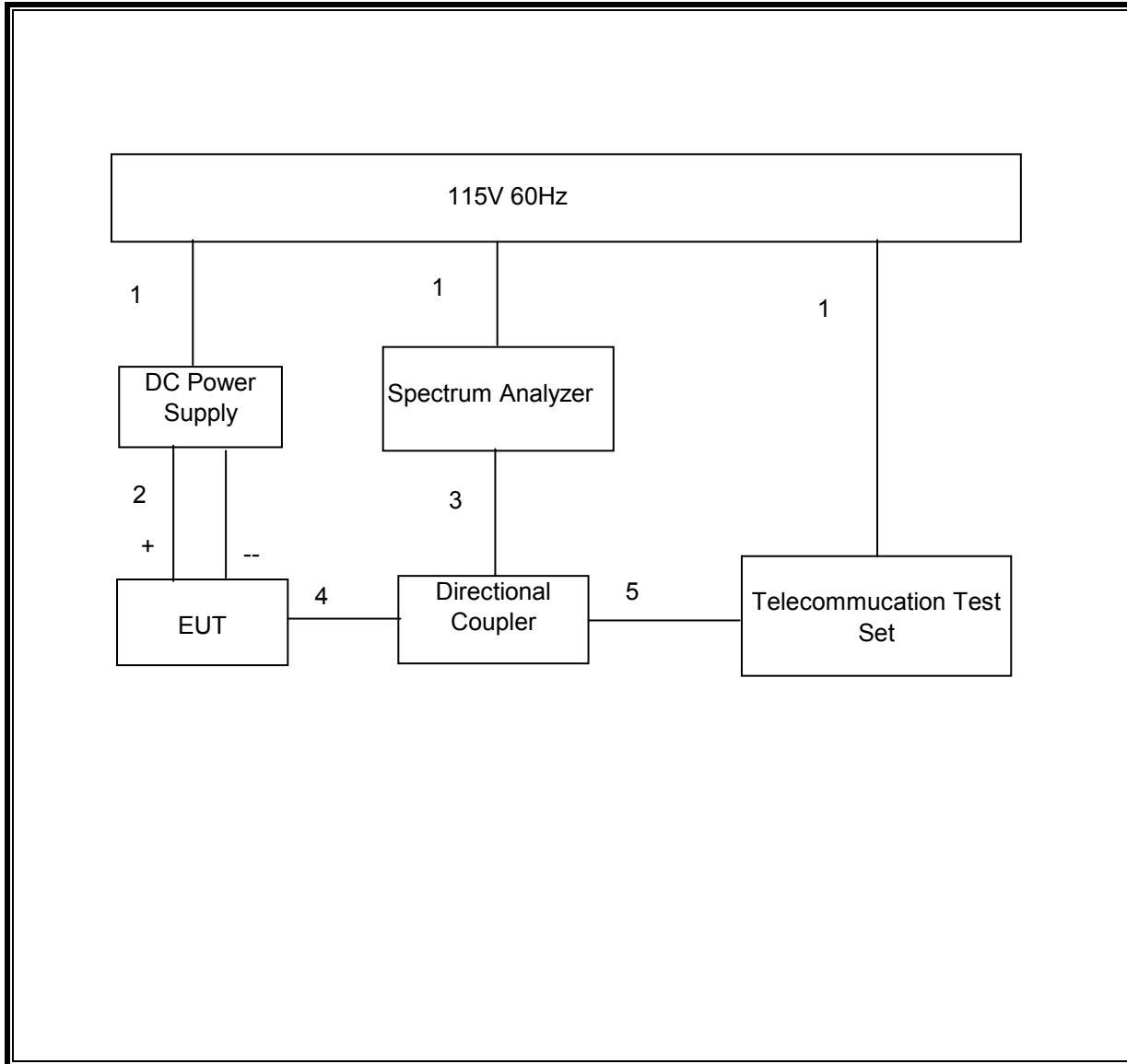
### I/O CABLES (RADIATED TEST)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	2m	NA
2	DC	1	DC	Un-shielded	1m	NA
3	Audio	1	Headset	Un-shielded	1m	NA
4	RF In/Out	1	Horn	Un-shielded	1.5m	NA

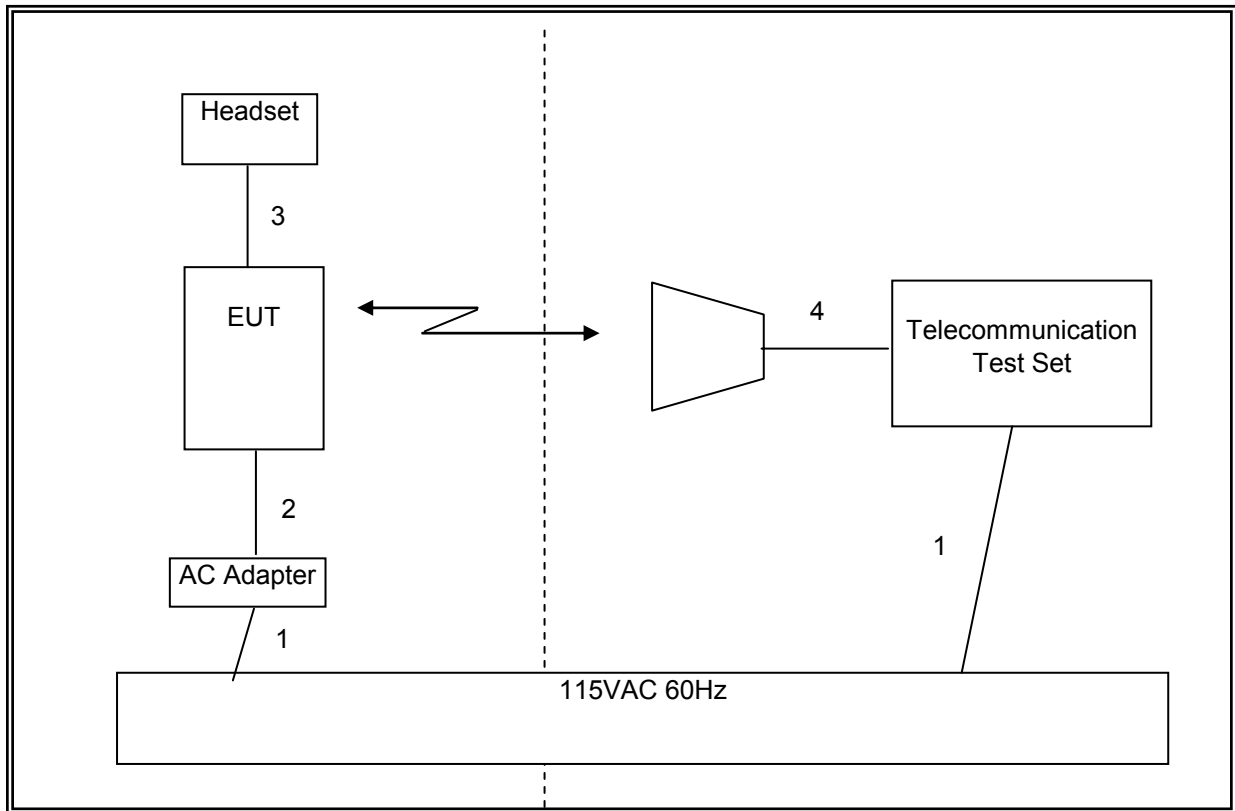
### TEST SETUP

The EUT is a stand alone device. A link is established between the EUT and the Agilent communications test set.

**SETUP DIAGRAM FOR CONDUCTED TESTS**



**SETUP DIAGRAM FOR RADIATED TESTS**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/14/11
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	07/14/11
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01159	05/08/11
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	04/07/11
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Signal Generator, 20 GHz	Agilent / HP	83732B	C00774	07/14/12
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	06/28/11
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02686	CNR
Directional Coupler, 18 GHz	Krytar	1817	N02656	CNR
Communication Test Set	Agilent / HP	E5515C	C01086	06/17/11
Directional Coupler, 4.2 GHz, 40 dB	A-R	DC7144A	C00983	CNR

## 7. RF POWER OUTPUT VERIFICATION

### PROCEDURE USED TO ESTABLISH TEST SIGNAL

#### GPRS/EGPRS

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900  
Press Connection control to choose the different menus  
Press RESET > choose all to reset all settings  
Connection Press Signal Off to turn off the signal and change settings  
Network Support > GSM+GPRS or GSM+EGPRS  
Main Service > Packet Data  
Service selection > Test Mode A – Auto Slot Config. off  
MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting  
    > Slot configuration > Uplink/Gamma  
    > 33 dBm for GPRS 850/900  
    > 30 dBm for GPRS1800/1900  
BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel  
Frequency Offset > + 0 Hz  
Mode > BCCH and TCH  
BCCH Level > -85 dBm (May need to adjust if link is not stable)  
BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]  
Channel Type > Off  
P0> 4 dB  
Slot Config > Unchanged (if already set under MS Signal)  
TCH > choose desired test channel  
Hopping > Off  
Main Timeslot > 3 (Default)  
Network Coding Scheme > CS4 (GPRS) and MCS9 (EGPRS)  
Bit Stream > 2E9-1PSR Bit Pattern  
AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input  
Connection Press Signal On to turn on the signal and change settings

**RULE PART(S)**

FCC: §2.1046

**LIMITS**

For reporting purposes only

**TEST PROCEDURE**

The transmitter output was connected to a Communications Test Set and configured to operate at maximum power in a call. The peak power was measured using the spectrum analyzer at three equally spaced operating frequencies for each band. The RBW was set to 300 KHz for the GSM measurement.

**MODES TESTED**

- GPRS (GMSK) mode.

**RESULTS**

**GSM**

Band	Ch	Frequency	Conducted output power (dBm)	
			Average	Peak
GSM850	128	824.2		32.35
	190	836.6		32.26
	251	848.8		32.63
GSM1900	512	1850.2		30.17
	661	1880		30.20
	810	1909.8		30.48

**GPRS**

Band	Ch	Frequency	Conducted output power (dBm)			
			Average		Peak	
			1 slot	2 slot	1 slot	2 slot
GSM850	128	824.2			32.38	32.30
	190	836.6			32.28	32.20
	251	848.8			32.64	32.63
GSM1900	512	1850.2			30.19	30.17
	661	1880			30.22	30.20
	810	1909.8			30.50	30.48

## 8. CONDUCTED TEST RESULTS

### 8.1. OCCUPIED BANDWIDTH

#### RULE PART(S)

FCC: §2.1049

#### LIMITS

For reporting purposes only

#### TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

#### MODES TESTED

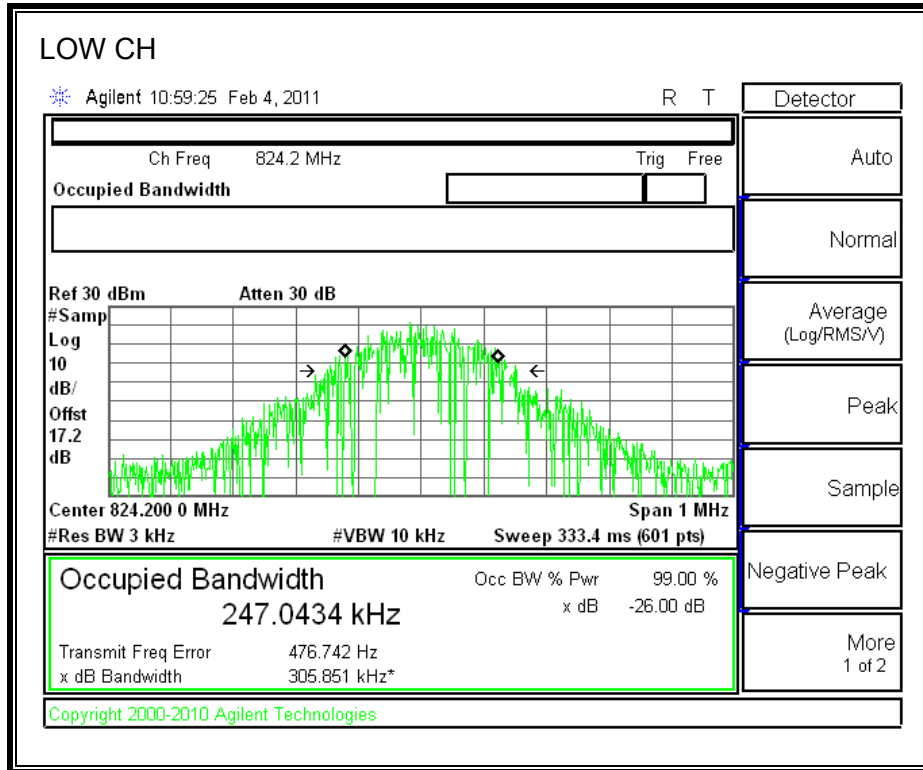
- GPRS (GMSK)

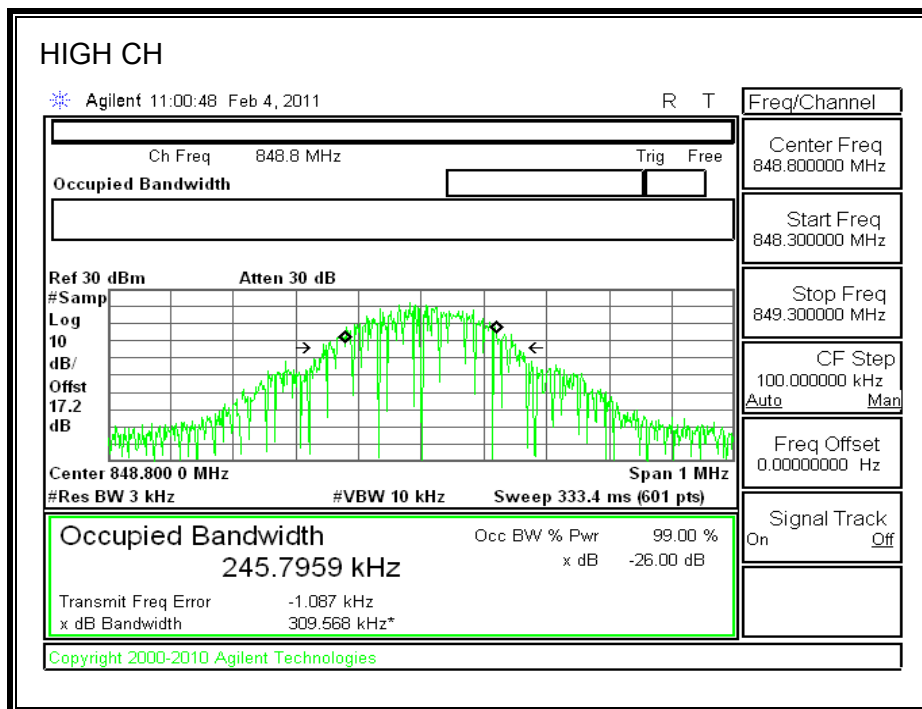
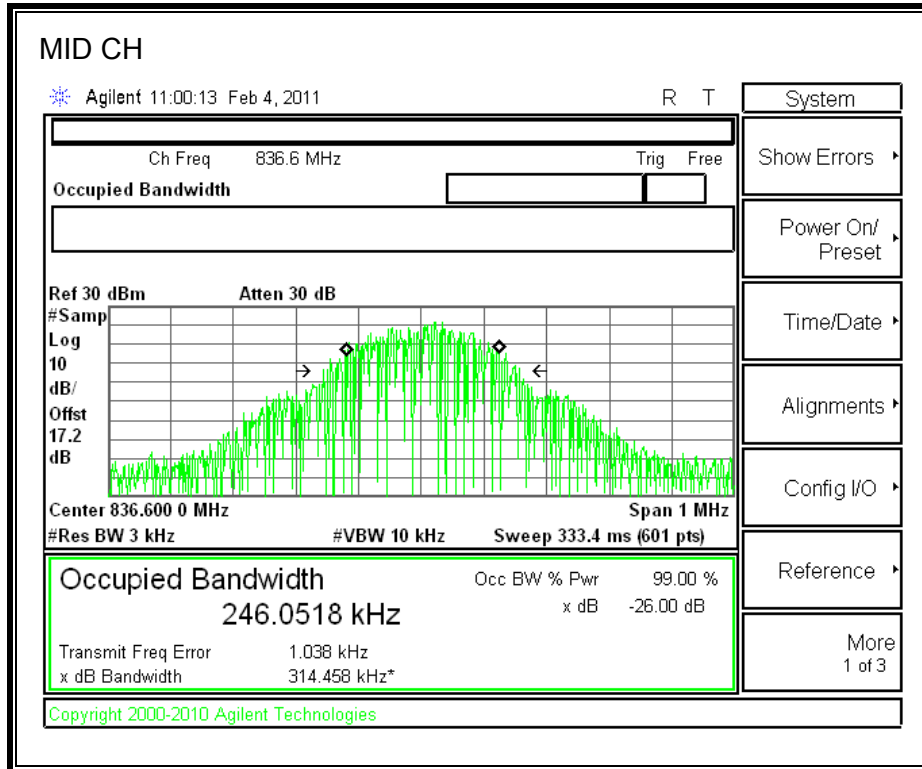
#### RESULTS

Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
CELL	GPRS	128	824.2	247.0434	305.851
		190	836.6	246.0518	314.458
		251	848.8	245.7959	309.568
PCS	GPRS	512	1850.2	253.3914	301.615
		661	1880.0	244.2328	302.813
		810	1909.8	240.0720	307.362

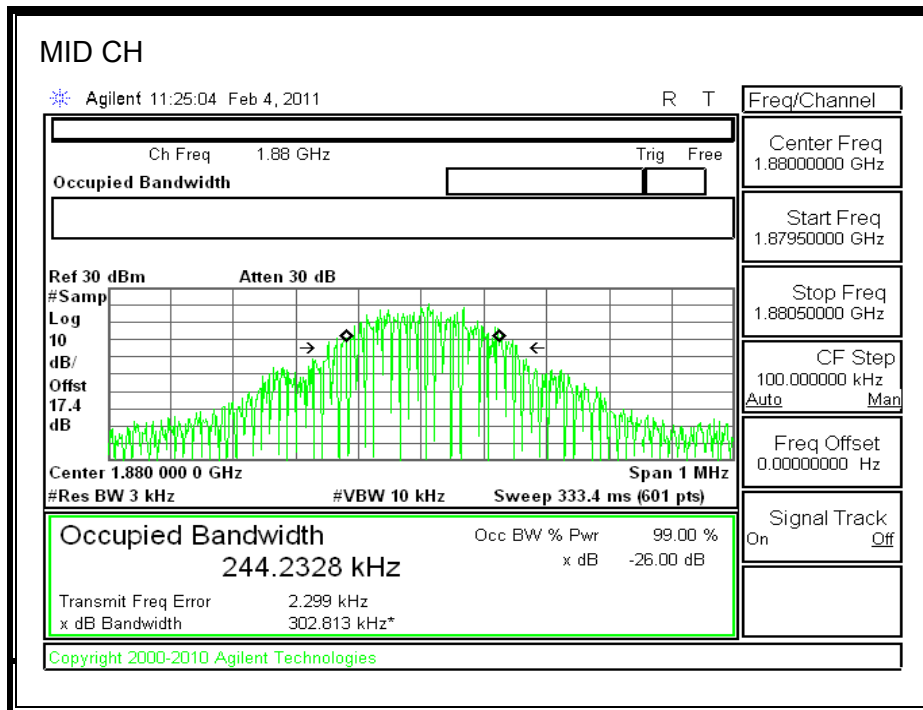
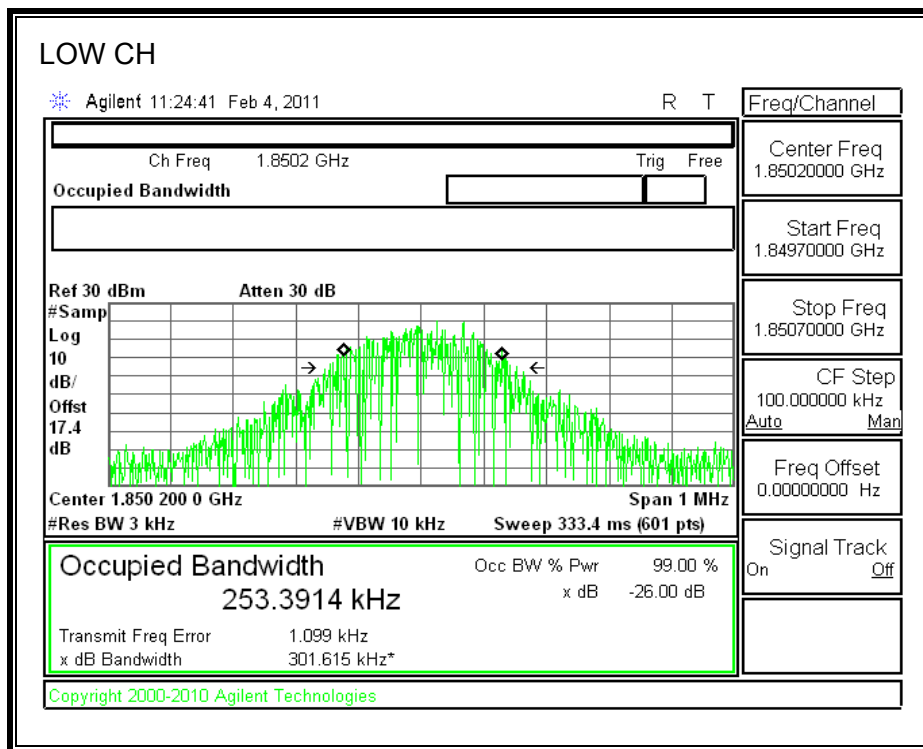
**GPRS850 BAND**

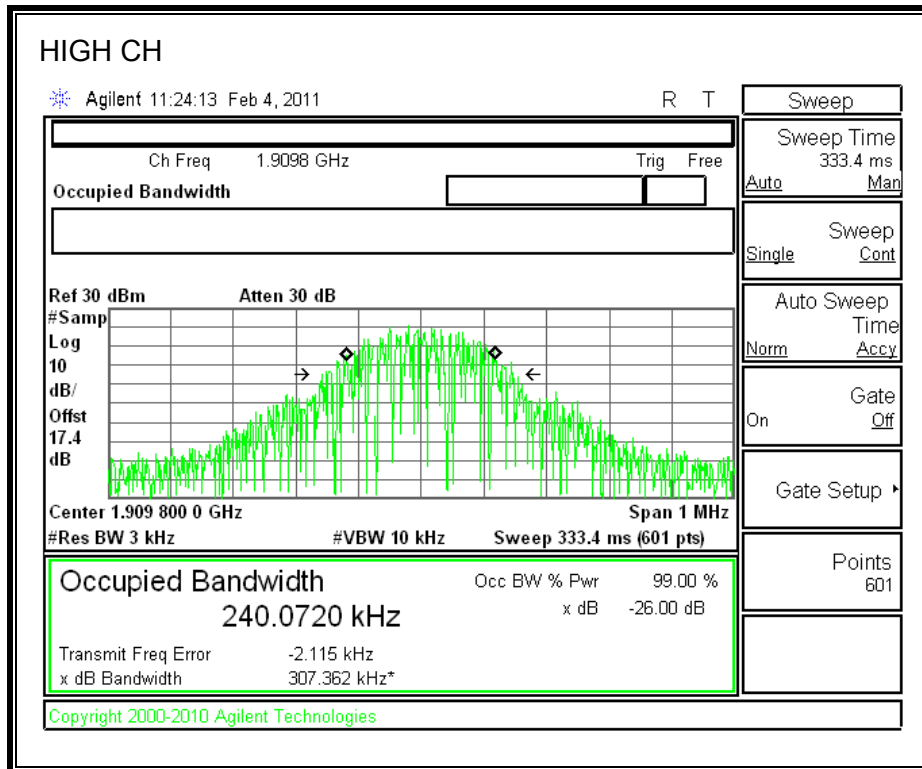
**99% and 26dB Bandwidth**





**GPRS1900 PCS Band**





## **8.2. BAND EDGE**

### **RULE PART(S)**

FCC: §22.359, 24.238

### **LIMITS**

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.

### **TEST PROCEDURE**

The transmitter output was connected to a Agilent 8960 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency (824, 848, 1850, 1910MHz)
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

### **MODES TESTED**

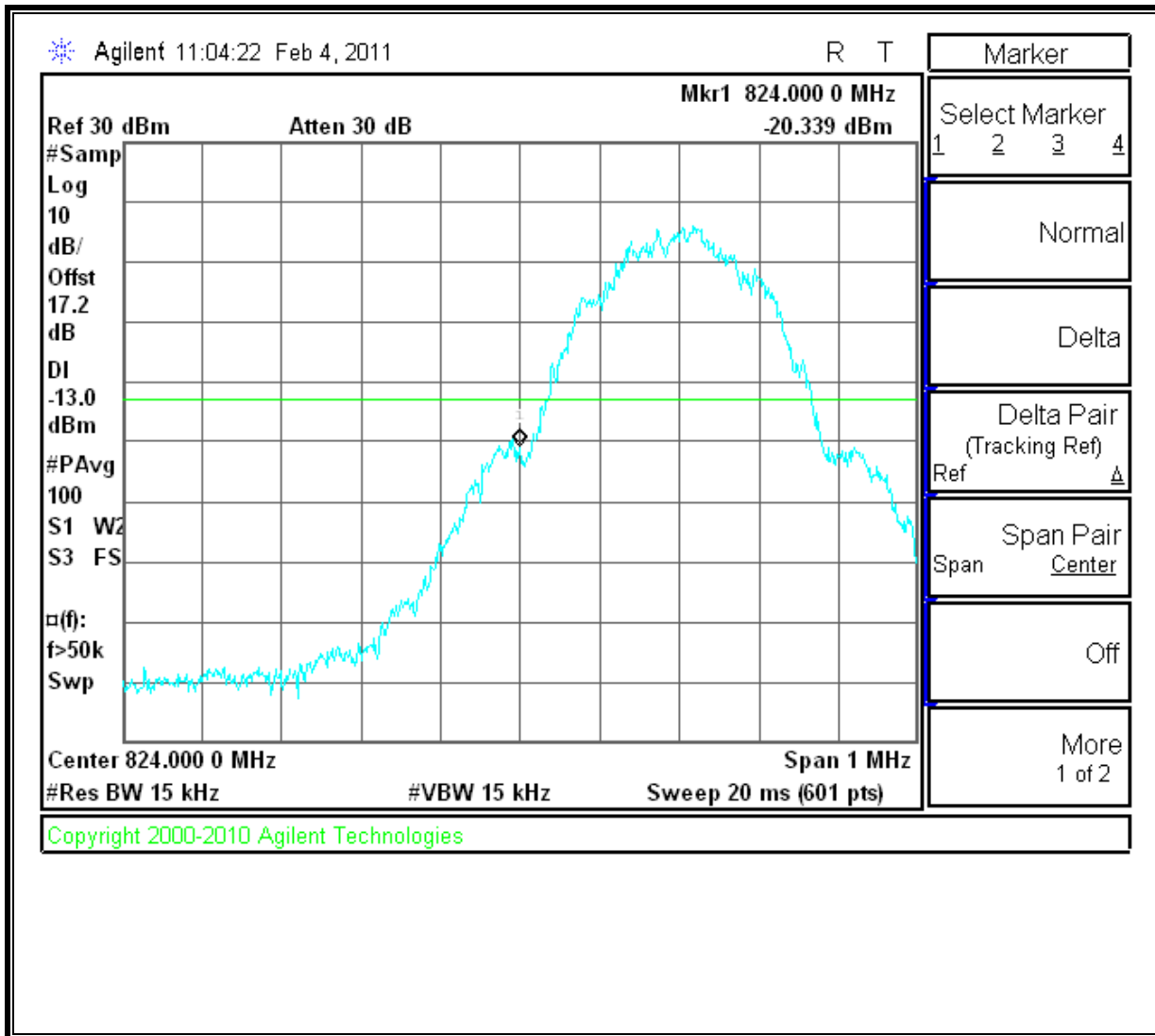
- GPRS (GMSK)

### **RESULTS**

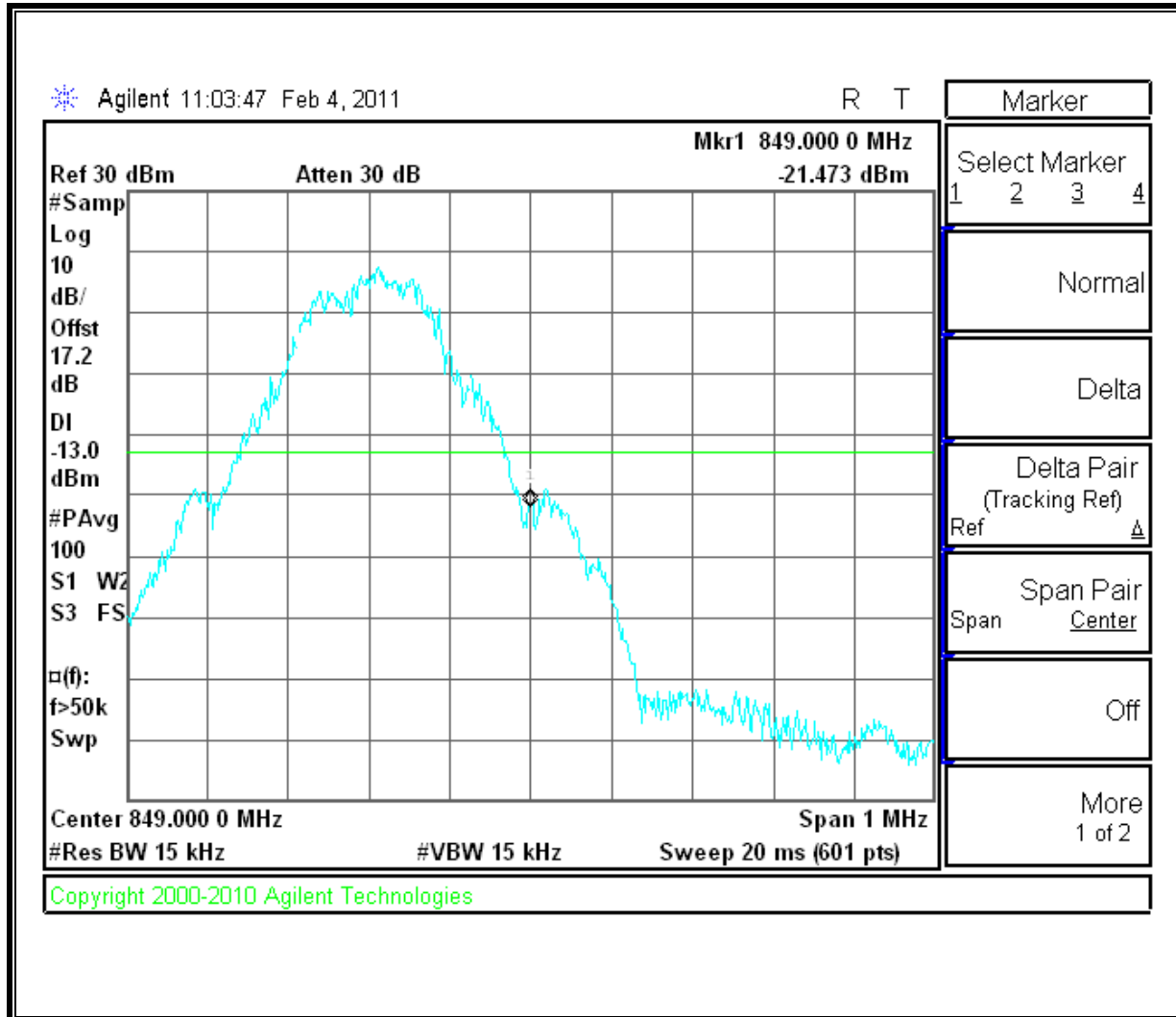
See the following pages.

**GPRS850**

**Low Channel Band Edge**

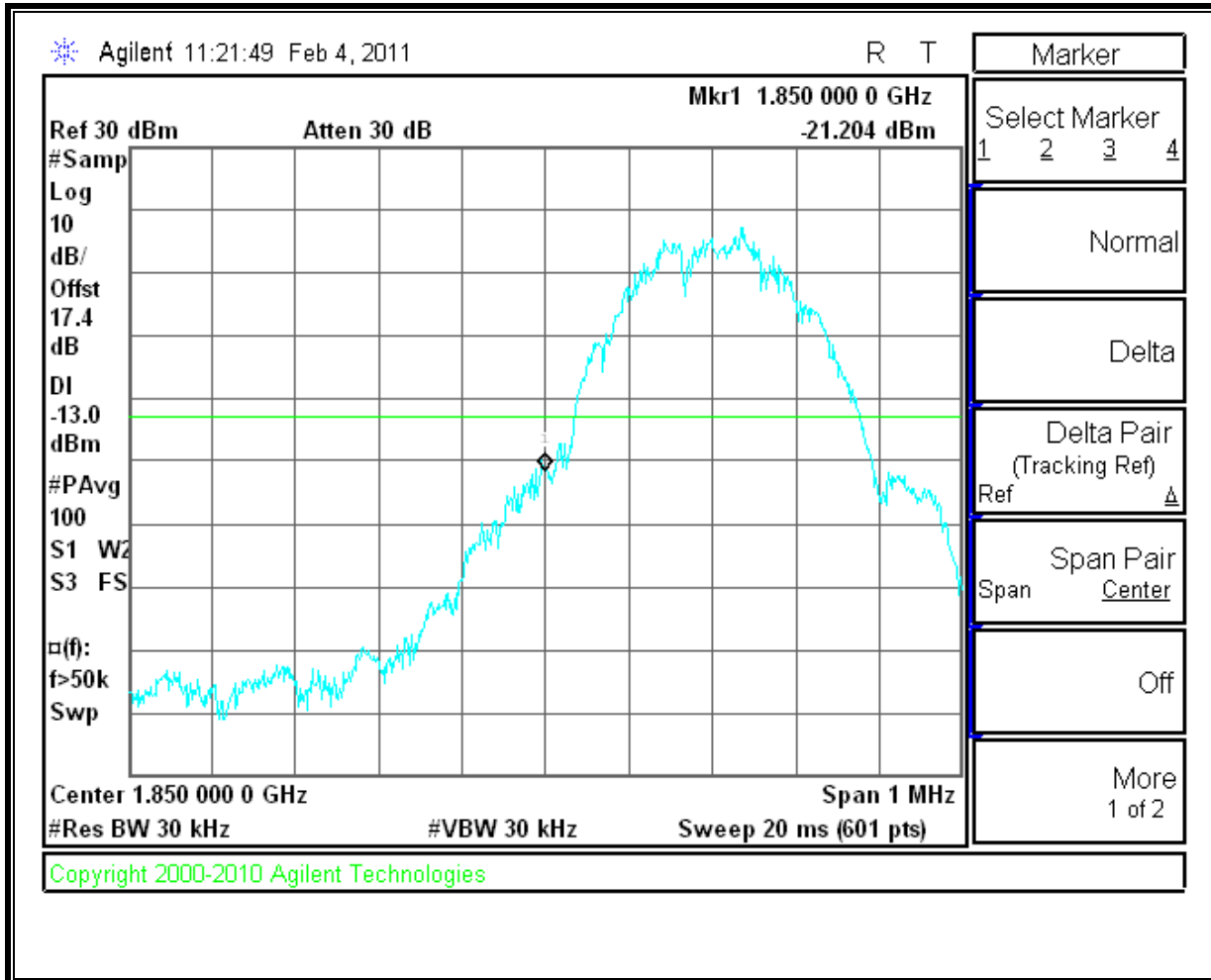


**High Channel Band Edge**

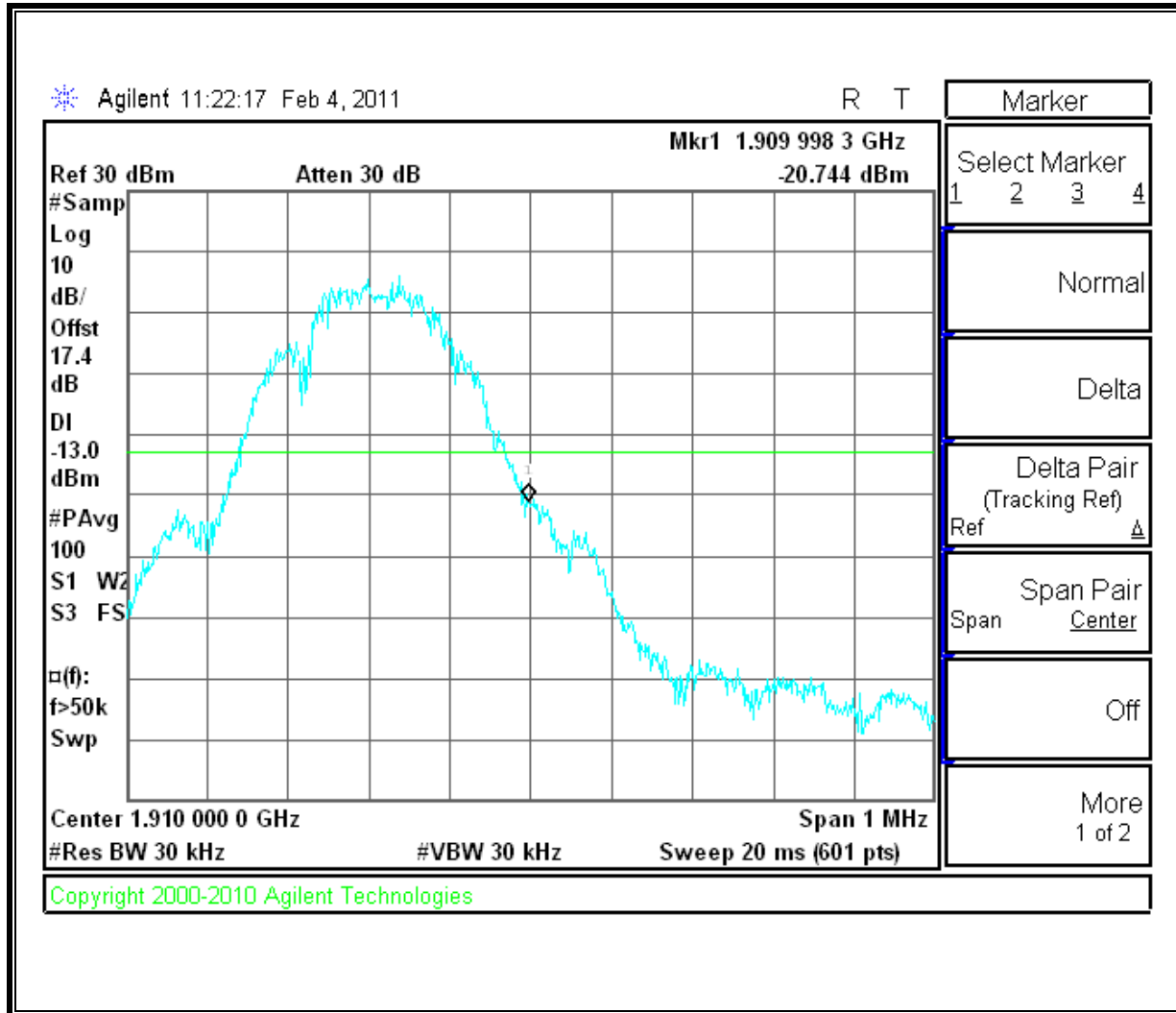


**GPRS1900**

**Low Channel Band Edge**



**High Channel Band Edge**



### **8.3. OUT OF BAND EMISSIONS**

#### **RULE PART(S)**

FCC: §2.1051, §22.901, §22.917, §24.238

#### **LIMITS**

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.

#### **TEST PROCEDURE**

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

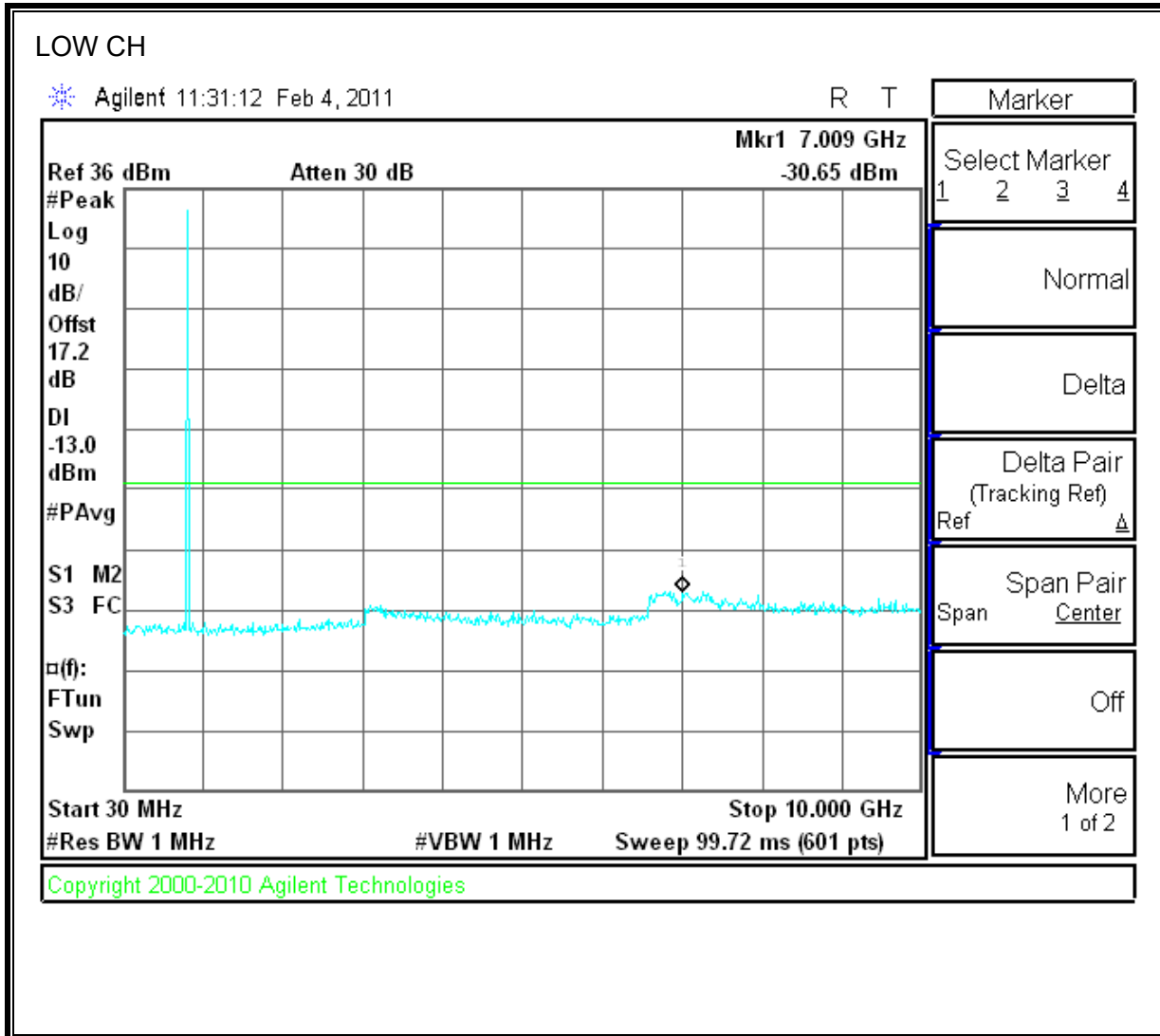
#### **MODES TESTED**

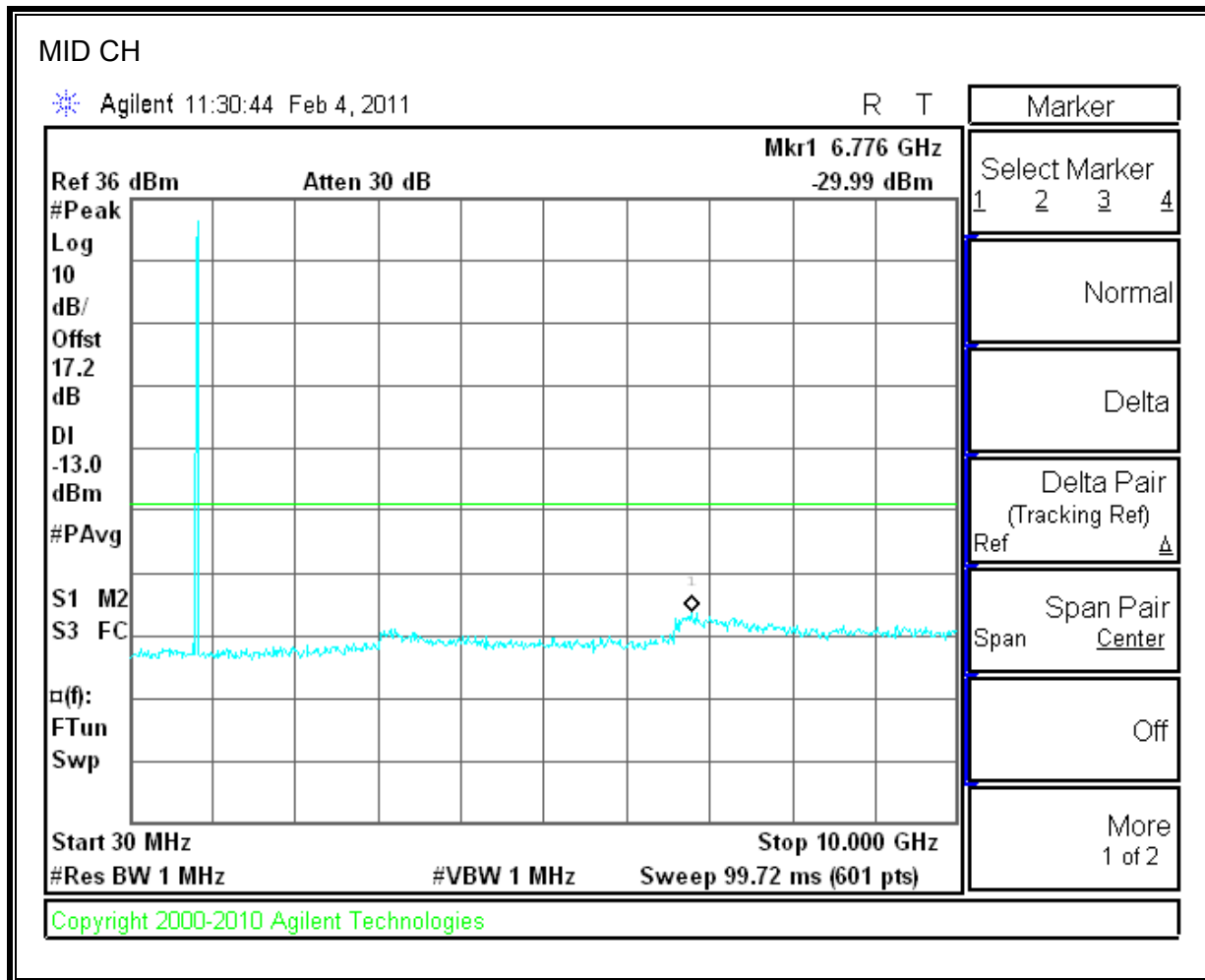
- GPRS (GMSK)

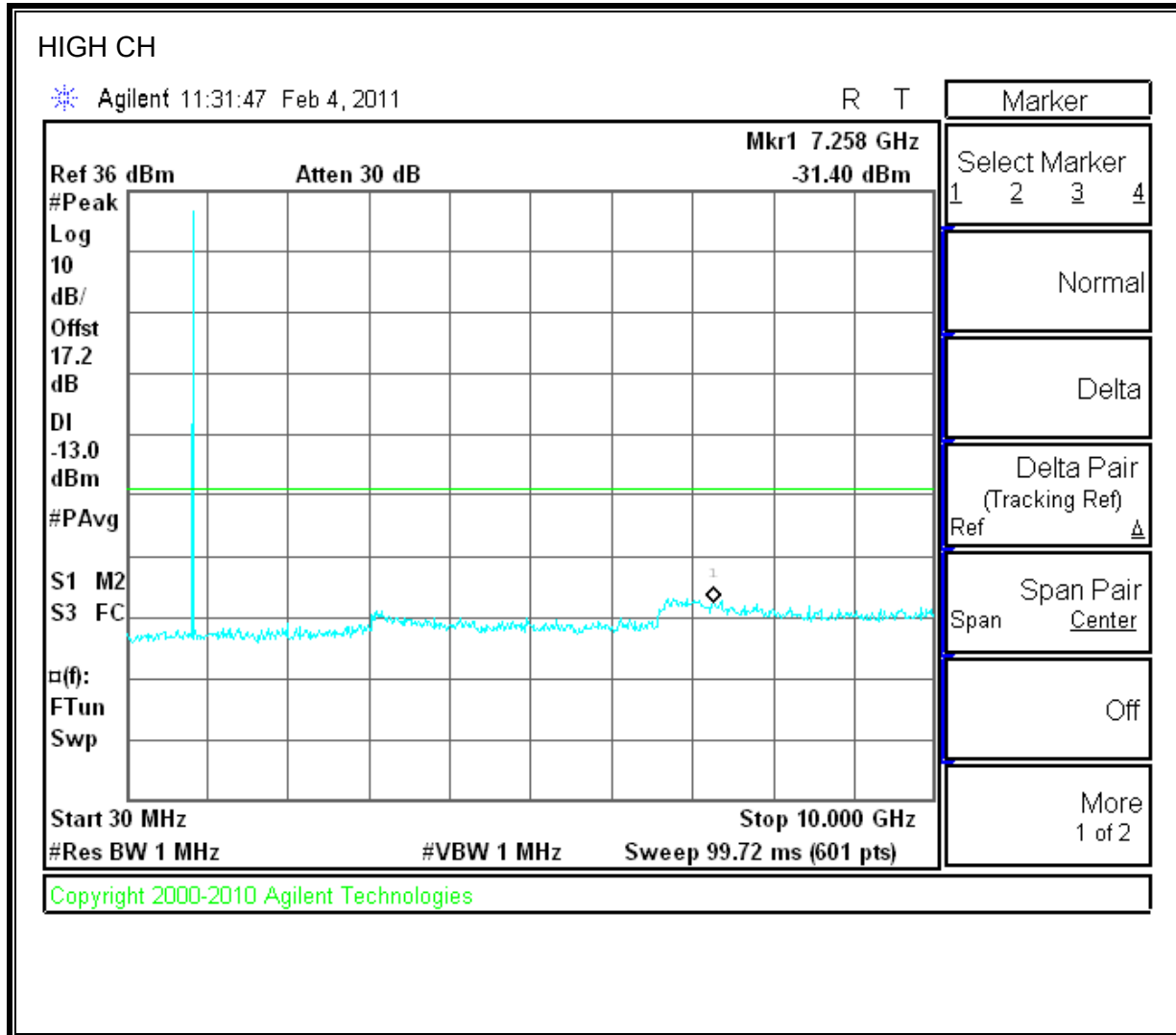
#### **RESULTS**

See the following pages.

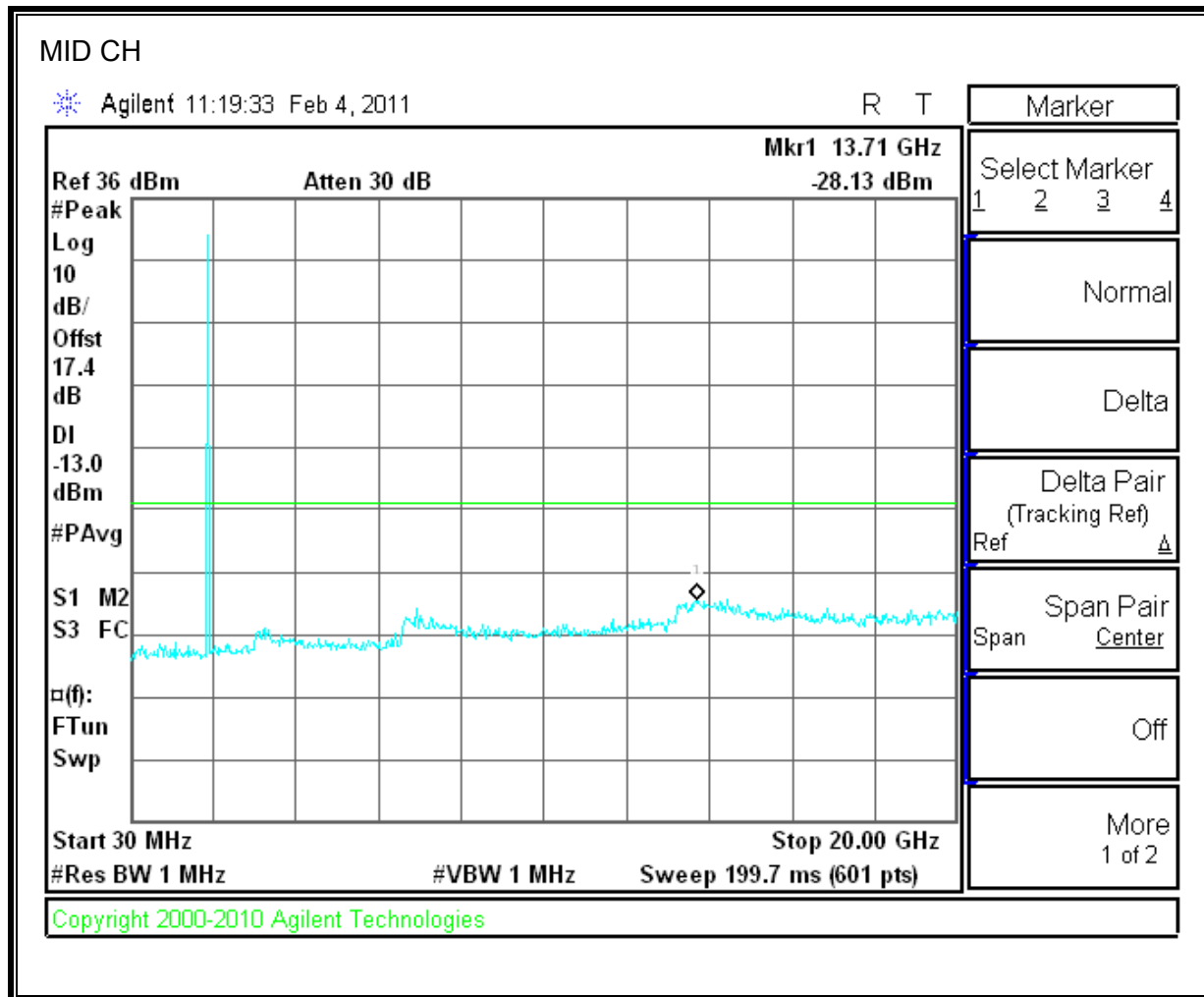
**GPRS Mode (Cellular Band)**

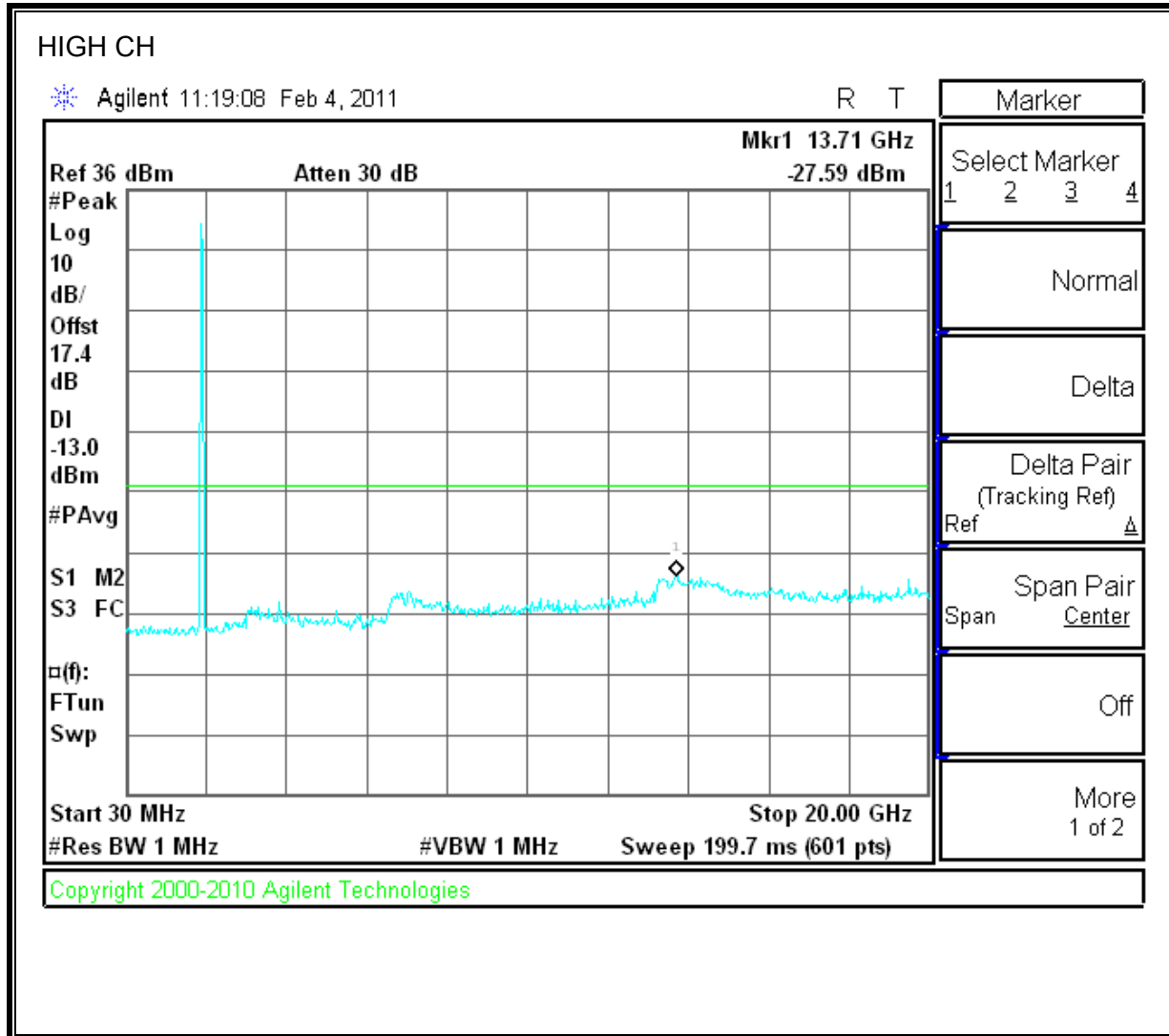












## 8.4. FREQUENCY STABILITY

### RULE PART(S)

FCC: §2.1055, §22.355, §24.235

### LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### TEST PROCEDURE

#### **Frequency Stability vs Temperature:**

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50°C is reached. Reference power supply voltage for these tests is 4.1 Vdc.

#### **Frequency Stability vs Voltage:**

The peak frequency error is recorded (worst-case). The test voltages are 4.72 to 3.49 Vdc.

### MODES TESTED

- GPRS (GMSK)

### RESULTS

See the following pages.

**GPRS Mode (Cellular Band)**

Reference Frequency: Cellular Mid Channel 836.599988Hz @ 20°C				
Limit: to stay +/- 2.5 ppm = 2091.500 Hz				
DC Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
4.10	50	836.599450	0.643	2.5
4.10	40	836.599941	0.056	2.5
4.10	30	836.599970	0.022	2.5
4.10	<b>20</b>	<b>836.599988</b>	<b>0</b>	2.5
4.10	10	836.600030	-0.050	2.5
4.10	0	836.600039	-0.061	2.5
4.10	-10	836.600025	-0.044	2.5
4.10	-20	836.600022	-0.041	2.5
4.10	-30	836.599935	0.063	2.5
Reference Frequency: Cellular Mid Channel 836.599988MHz @ 20°C				
Limit: to stay +/- 2.5 ppm = 2091.500 Hz				
DC Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
<b>4.10</b>	<b>20</b>	<b>836.599988</b>	<b>0.000</b>	2.5
<b>3.49</b>	<b>20</b>	<b>836.600007</b>	<b>-0.023</b>	2.5
4.72	20	836.599953	0.042	2.5
3.1 (end point voltage)	20	836.600013	-0.030	2.5

**GPRS Mode (PCS Band)**

Reference Frequency: PCS Mid Channel 1879.99975MHz @ 20°C				
Limit: within the authorized block or +/- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
4.10	50	1879.999933	0.022	2.5
4.10	40	1879.999944	0.016	2.5
4.10	30	1879.999938	0.020	2.5
4.10	<b>20</b>	<b>1879.999975</b>	<b>0</b>	<b>2.5</b>
4.10	10	1880.000019	-0.023	2.5
4.10	0	1880.000051	-0.040	2.5
4.10	-10	1880.000028	-0.028	2.5
4.10	-20	1880.000045	-0.037	2.5
4.10	-30	1880.000109	-0.071	2.5
Reference Frequency: PCS Mid Channel 1879.999975MHz @ 20°C				
Limit: within the authorized block or +/- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
<b>4.10</b>	<b>20</b>	<b>1879.999975</b>	<b>0.000</b>	<b>2.5</b>
<b>3.49</b>	<b>20</b>	<b>1879.999993</b>	<b>-0.010</b>	<b>2.5</b>
3.72	20	1879.999928	0.025	2.5
3.1 (end point voltage)	20	1879.999822	0.081	2.5

## **9. RADIATED TEST RESULTS**

### **9.1. RADIATED POWER (ERP & EIRP)**

#### **RULE PART(S)**

FCC: §2.1046, §22.913, §24.232

#### **LIMITS**

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

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.

#### **TEST PROCEDURE**

ANSI / TIA / EIA 603C

#### **MODES TESTED**

- GPRS (GMSK)

**RESULTS for Cellular Band (ERP)**

Mode	Channel	f (MHz)	ERP	
			dBm	mW
GPRS	128	824.20	31.60	1445.44
	190	836.60	30.96	1247.38
	251	848.80	29.97	993.12

**RESULTS for PCS Band (EIRP)**

Mode	Channel	f (MHz)	EIRP	
			dBm	mW
GPRS	512	1850.20	24.14	259.42
	661	1880.00	23.90	245.47
	810	1909.80	24.18	261.82

**ERP for GPRS Mode (Cellular Band)**

High Frequency Substitution Measurement Compliance Certification Services Chamber B								
<b>Company:</b>		SAMSUNG						
<b>Project #:</b>		11113659-1						
<b>Date:</b>		02/02/11						
<b>Test Engineer:</b>		Mengistu Mekuria						
<b>Configuration:</b>		EUT Alone						
<b>Mode:</b>		TX, GPRS CELL Band						
<b>Test Equipment:</b>								
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)								
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
824.20	32.10	V	0.5	0.0	31.60	38.5	-6.9	
824.20	12.59	H	0.5	0.0	12.09	38.5	-26.4	
836.60	31.46	V	0.5	0.0	30.96	38.5	-7.5	
836.60	13.24	H	0.5	0.0	12.74	38.5	-25.7	
848.80	30.47	V	0.5	0.0	29.97	38.5	-8.5	
848.80	15.51	H	0.5	0.0	15.01	38.5	-23.4	
Rev. 1.21.11								

**EIRP for GPRS Mode (PCS Band)**

High Frequency Fundamental Measurement Compliance Certification Services Chamber B								
<b>Company:</b>		Samsung						
<b>Project #:</b>		11113659-1						
<b>Date:</b>		02/02/11						
<b>Test Engineer:</b>		Mengistu Mekuria						
<b>Configuration:</b>		EUT Alone						
<b>Mode:</b>		TX, GPRS PCS Band						
<b>Test Equipment:</b>								
Receiving: Horn T59, and Camber B SMA Cables								
Substitution: Horn T60 Substitution, 6ft SMA Cable (208947003) Warehouse								
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.851	7.9	V	0.85	8.01	15.07	33.0	-17.9	
1.851	17.0	H	0.85	8.01	24.14	33.0	-8.9	
1.880	5.9	V	0.85	8.07	13.08	33.0	-19.9	
1.880	16.7	H	0.85	8.07	23.90	33.0	-9.1	
1.909	5.4	V	0.85	8.13	12.70	33.0	-20.3	
1.909	16.9	H	0.85	8.13	24.18	33.0	-8.8	
Rev. 1.21.11								

## **9.2. FIELD STRENGTH OF SPURIOUS RADIATION**

### **RULE PART(S)**

FCC: §2.1053, §22.917, §24.238

### **LIMIT**

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.

### **TEST PROCEDURE**

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth ( i.e. 100 kHz or 1 percent of emission bandwidth, as specified). 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.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth ( i.e. 1 MHz or 1 percent of emission bandwidth, as specified). 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.

### **MODES TESTED**

- GPRS (GMSK)

### **RESULTS**

See the following pages.

**GPRS Mode (Cellular Band)**

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
Company:		SAMSUNG							
Project #:		11113659-1							
Date:		02/02/11							
Test Engineer:		Mengistu Mekuria							
Configuration:		EUT Alone							
Mode:		TX, GPRS CELL Band							
Chamber		Pre-amplifier		Filter		Limit			
5m Chamber B		T145 8449B		Filter 1		Part 22			
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
<b>Low Ch, 824.2MHz</b>									
1.648	3.3	V	3.0	35.5	1.0	-31.3	-13.0	-18.3	
2.473	-0.2	V	3.0	35.4	1.0	-34.6	-13.0	-21.6	
3.297	-9.9	V	3.0	35.5	1.0	-44.4	-13.0	-31.4	
4.121	-9.4	V	3.0	35.2	1.0	-43.6	-13.0	-30.6	
1.648	6.3	H	3.0	35.5	1.0	-28.3	-13.0	-15.3	
2.473	-0.7	H	3.0	35.4	1.0	-35.1	-13.0	-22.1	
3.297	-11.6	H	3.0	35.5	1.0	-46.2	-13.0	-33.2	
4.121	-6.9	H	3.0	35.2	1.0	-41.2	-13.0	-28.2	
<b>Mid Ch, 836.6MHz</b>									
1.673	1.9	V	3.0	35.5	1.0	-32.7	-13.0	-19.7	
2.510	-2.7	V	3.0	35.4	1.0	-37.1	-13.0	-24.1	
3.346	-15.5	V	3.0	35.5	1.0	-50.0	-13.0	-37.0	
4.183	-9.1	V	3.0	35.2	1.0	-43.4	-13.0	-30.4	
1.673	5.5	H	3.0	35.5	1.0	-29.0	-13.0	-16.0	
2.510	-7.0	H	3.0	35.4	1.0	-41.5	-13.0	-28.5	
3.346	-13.7	H	3.0	35.5	1.0	-48.2	-13.0	-35.2	
4.183	-9.5	H	3.0	35.2	1.0	-43.8	-13.0	-30.8	
5.020	-15.5	H	3.0	35.3	1.0	-49.8	-13.0	-36.8	
<b>Hi Ch, 848.8MHz</b>									
1.698	-2.7	V	3.0	35.5	1.0	-37.2	-13.0	-24.2	
2.546	-10.8	V	3.0	35.4	1.0	-45.2	-13.0	-32.2	
3.395	-14.4	V	3.0	35.5	1.0	-48.9	-13.0	-35.9	
4.244	-5.3	V	3.0	35.2	1.0	-39.5	-13.0	-26.5	
1.698	2.3	H	3.0	35.5	1.0	-32.2	-13.0	-19.2	
2.546	-10.7	H	3.0	35.4	1.0	-45.1	-13.0	-32.1	
3.395	-16.2	H	3.0	35.5	1.0	-50.7	-13.0	-37.7	
4.244	-9.1	H	3.0	35.2	1.0	-43.4	-13.0	-30.4	
Rev. 03.03.09									
Note: No other emissions were detected above the system noise floor.									

**GPRS Mode (PCS Band)**

Compliance Certification Services									
Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		11113659-1							
Date:		02/02/11							
Test Engineer:		Mengistu Mekuria							
Configuration:		EUT Alone							
Mode:		TX, GPRS PCS Band							
Chamber		Pre-amplifier		Filter		Limit			
5m Chamber B		T145 8449B		Filter 1		Part 24			
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
<b>Low Ch, 1850.2MHz</b>									
3.700	-0.3	V	3.0	35.4	1.0	-34.7	-13.0	-21.7	
5.551	5.6	V	3.0	35.4	1.0	-28.8	-13.0	-15.8	
7.401	-4.3	V	3.0	35.7	1.0	-39.0	-13.0	-26.0	
9.251	-3.3	V	3.0	35.6	1.0	-37.9	-13.0	-24.9	
11.101	-6.1	V	3.0	34.8	1.0	-39.9	-13.0	-26.9	
3.700	-2.2	H	3.0	35.4	1.0	-36.6	-13.0	-23.6	
5.551	12.5	H	3.0	35.4	1.0	-21.9	-13.0	-8.9	
7.401	1.5	H	3.0	35.7	1.0	-33.2	-13.0	-20.2	
9.251	2.5	H	3.0	35.6	1.0	-32.1	-13.0	-19.1	
11.101	-0.5	H	3.0	34.8	1.0	-34.3	-13.0	-21.3	
<b>Mid Ch, 1880.0MHz</b>									
3.760	-5.2	V	3.0	35.3	1.0	-39.5	-13.0	-26.5	
5.640	7.1	V	3.0	35.4	1.0	-27.3	-13.0	-14.3	
7.520	-0.4	V	3.0	35.7	1.0	-35.1	-13.0	-22.1	
9.400	-7.0	V	3.0	35.6	1.0	-41.6	-13.0	-28.6	
11.280	-8.6	V	3.0	34.7	1.0	-42.3	-13.0	-29.3	
3.760	-5.0	H	3.0	35.3	1.0	-39.4	-13.0	-26.4	
5.640	12.6	H	3.0	35.4	1.0	-21.9	-13.0	-8.9	
7.520	6.3	H	3.0	35.7	1.0	-28.4	-13.0	-15.4	
9.400	0.8	H	3.0	35.6	1.0	-33.7	-13.0	-20.7	
11.280	-0.8	H	3.0	34.7	1.0	-34.5	-13.0	-21.5	
<b>High Ch, 1909.8MHz</b>									
3.820	-9.5	V	3.0	35.3	1.0	-43.9	-13.0	-30.9	
5.729	5.8	V	3.0	35.4	1.0	-28.6	-13.0	-15.6	
7.639	-0.9	V	3.0	35.7	1.0	-35.6	-13.0	-22.6	
9.549	-7.4	V	3.0	35.6	1.0	-42.0	-13.0	-29.0	
11.459	-8.8	V	3.0	34.6	1.0	-42.3	-13.0	-29.3	
3.820	-2.0	H	3.0	35.3	1.0	-36.3	-13.0	-23.3	
5.729	13.5	H	3.0	35.4	1.0	-21.0	-13.0	-8.0	
7.639	8.3	H	3.0	35.7	1.0	-26.4	-13.0	-13.4	
9.549	0.2	H	3.0	35.6	1.0	-34.3	-13.0	-21.3	
11.459	-0.4	H	3.0	34.6	1.0	-34.0	-13.0	-21.0	
Rev. 03.03.09									
Note: No other emissions were detected above the system noise floor.									

Note: No other emissions were found within 20dB from the system noise below 1GHz.