



SAMSUNG ELECTRONICS Co., Ltd.,  
Regulatory Compliance Group  
IT R&D Center  
416 Maetan3-Dong,  
Yeongtong-gu, Suwon city,  
Gyeonggi-Do, Korea 443-742

## FCC CFR47 PART 22 & 24 SUBPART CERTIFICATION REPORT

Model Tested : SGH-A551  
FCC ID(Requested) : A3LSGHA551  
Report No : FE-148-R2  
Job No : FE-148  
Date issued : August 24, 2007

- Abstract -

All measurement reported herein accordance with FCC Rules, 47CFR Part2,  
Part22, Part24.

Prepared By

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SH ONG- Test Engineer

Authorized By

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WW JANG - Manager



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# MEASUREMENT REPORT

## 1. FCC Certification Information

The following information is in accordance with FCC Rules, 47CFR Part2, Subpart J, Sections 2.1033 – 2.1055.

### 1.1. §2.1033 General Information

- Applicant Name : SAMSUNG ELECTRONICS CO., LTD.
- Address : 416 Maetan3-Dong, Yeongtong-gu, Suwon City  
Gyeonggi-Do, Korea 443-742
- Attention : SungJoo KIM, Engineering Manager (QA Lab)
- FCC ID : A3LSGHA551
- Quantity : Quantity production is planned
- Emission Designators : 249KGXW(GSM1900), 244KG7W(GSM1900 EDGE)  
4M22F9W(Cellular WCDMA)
- Tx Freq. Range : 826.4 - 846.6MHz(Cellular WCDMA)  
1850.2MHz - 1909.8MHz (GSM1900)
- Rx Freq. Range : 871.40-891.60 MHz (Cellular WCDMA)  
1930.2MHz - 1989.8MHz (GSM1900))
- Max. Power Rating : 0.156 W ERP Cellular WCDMA (21.93dBm)  
1.189 W EIRP GSM1900 (30.75dBm)  
0.632 W EIRP GSM1900 EDGE(28.01dBm)
- FCC Classification(s) : Licensed Portable Tx Held to Ear (PCE)
- Equipment (EUT) Type : 850 WCDMA/HSDPA and 1900 GSM/EDGE Phone  
with Bluetooth.
- Frequency Tolerance :  $\pm 0.00025\%$  (2.5ppm)
- FCC Rule Part(s) : §24(E), §22(H), §2.
- Dates of Test : August 2 - 3, 2007
- Place of Test : SAMSUNG Lab,
- Test Report S/N : FE-148-R2

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## 2. INTRODUCTION

### 2.1. General

These measurement test were conducted at **SAMSUNG ELECTRONICS CO., LTD(SUWON)**. The site address is 416 Maetan3-Dong, Yeongtong-gu, Suwon City, Gyeonggi-Do, Korea 443-742 The site have 1 Fully-anechoic chamber and measurement facility.



**Figure1. Map of the Suwon City area.**

### **Measurement Procedure**

The radiated and spurious measurements were made Fully-anechoic chamber at a 3-meter test range (see Figure2). The equipment under testing was placed on a Non-conducted turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. The substitution antenna will replace the EUT antenna it the same position and in vertical polarization. The frequency of the signal generator shall be set to the frequencies that were measured on the EUT. The test antenna shall be raised and lowered, if necessary, to ensure that the maximum signal is still being received. The signal generator, output level, shall be adjusted until an equal or a known related level to what was measured from the EUT is obtained in the spectrum analyzer. This level was recorded.

For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.



**Figure2. Photograph of 3m Fully-Anechoic Chamber**



### **3. MEASURING INSTRUMENT CALIBRATION**

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

- End of page

#### 4. TEST EQUIPMENT LIST

<b>Name Of Equipment</b>	<b>Model</b>	<b>Serial No.</b>	<b>Due Date</b>
Spectrum Analyzer	ESI26	836119/010	2007-10-01
	E4440A(3Hz~26.5GHz)	MY41000236	2008-04-14
	E4440A(3Hz~26.5GHz)	MY41000233	2008-07-23
Signal Generator	SMR20	835197/030	2008-01-11
Amplifier	5S1G4	304866	2007-10-19
Communication test set	8753E	JP38160590	2008-06-26
Power Sensor	8485A	3318A19924	2007-09-24
Power Meter	E4419B	GB41293846	2007-09-06
Pre-Amplifier	8449B	3008A00691	2008-01-02
Communication test set	8960	GB42230535	2008-01-02
	8960	GB42360886	2008-07-03
Antenna Master	MA240	240/618	Not Required
Controller	HD100	100/756	Not Required
Horn Antenna	HF906	100134	2008-05-04
Dipole Antenna	3121C-DB4	9007-588	2008-05-29
Communication test set	CMU200	109162	2007-10-17
Receive Antenna	HL040	353255/019	2007-09-20
	HL040	353255/020	2008-04-25
Spectrum Analyzer	E3640A	MY40003594	2008-06-25
Divider	11636B	51946	Not Required
	11636B	51942	Not Required
High Pass Filter	WHK1.0/15G-10SS	1	Not Required
	WHK/3.5/18G-10SS	4	Not Required
Environmental Chamber	SH-241	92000549	2007-11-16
Shielded Fully Anechoic Chamber	CHAMBER	ANT0001	Not Required

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## 5. DESCRIPTION OF TESTS

### 5.1 Conducted Output Power

#### Measurement Conditions for UMTS

The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing a recommended for evaluating EMC measurements. All measurement were taken with a fully charged battery. The base station simulator configurations were set so as to achieve and maintain the EUT's maximum output power level. Power measurements were performed using the digital average power function of the base station simulator.

#### Output Power Verification

The maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's". Results for all applicable physical channel configurations (DPCCH, DPDCH and spreading codes) should be tabulated in the test report. All Configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations should be clearly identified.

Table1  
3GPP TS 34.121 Nominal Maximum Output Power

Operating Band	Power Class3		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
Band II	+24	+1/-3	+21	+2/-2
Band V	+24	+1/-3	+21	+2/-2

Operating Band	Channel	12.2 kbps RMC (HSDPA Inactive)	12.2 kbps AMR (HSDPA Inactive)	12.2 kbps RMC (HSDPA Active)
Cellular WCDMA	4132	22.38dBm	22.41dBm	21.54dBm
	4183	22.48dBm	22.46dBm	21.84dBm
	4233	22.26dBm	22.21dBm	21.60dBm

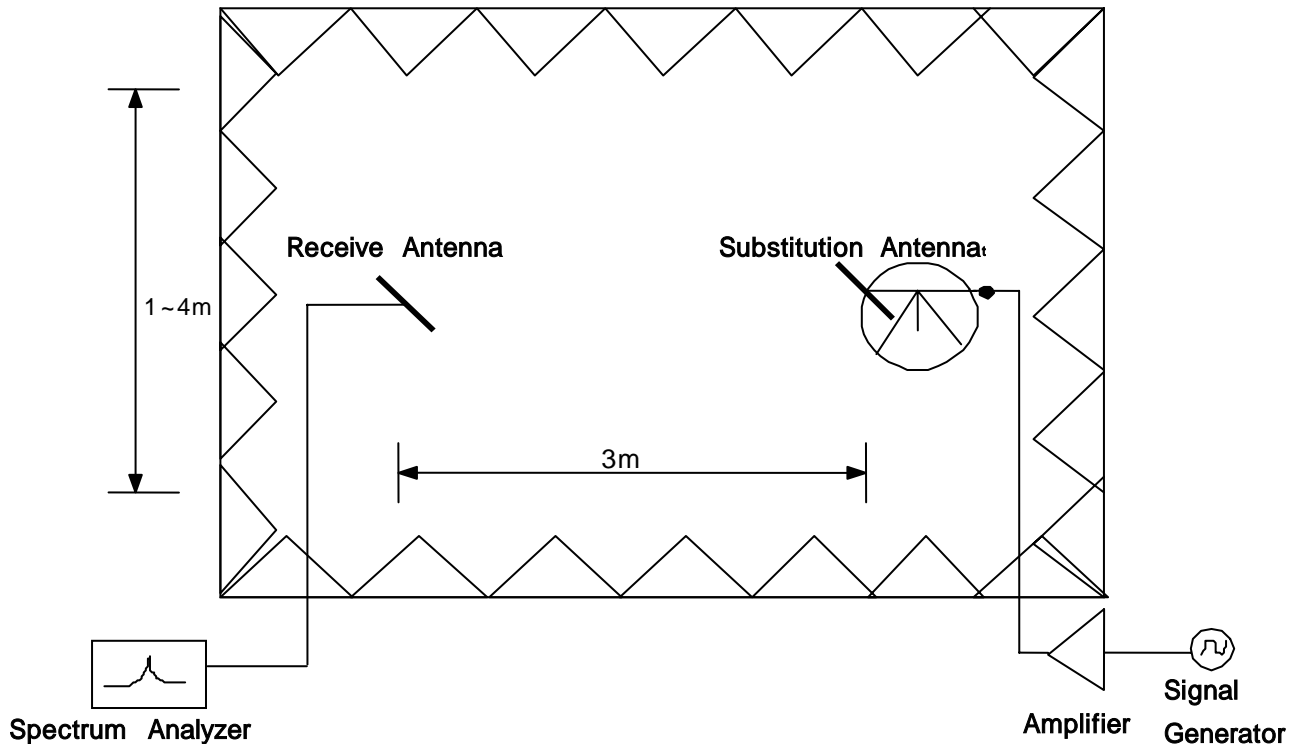
This device was tested under all configurations and the highest power is reported In WCDMA mode with HSDAP inactive at 12.2kbps RMC and TPC bits all set to "1"

This unit was tested with its standard battery

## 5.2 Effective Radiated Power / Equivalent Isotropic Radiated Power

### Test Set-up for the ERP/EIRP TEST

Effective Radiated Power Output and Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004:



**Figure 3. Diagram of ERP/EIRP test Set-up**

The EUT was placed on a Non-conducted turntable 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For GSM signals, an average detector is used, with RBW=VBW=3MHz, SPAN=10MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of dipole is measured. The ERP and EIRP are recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

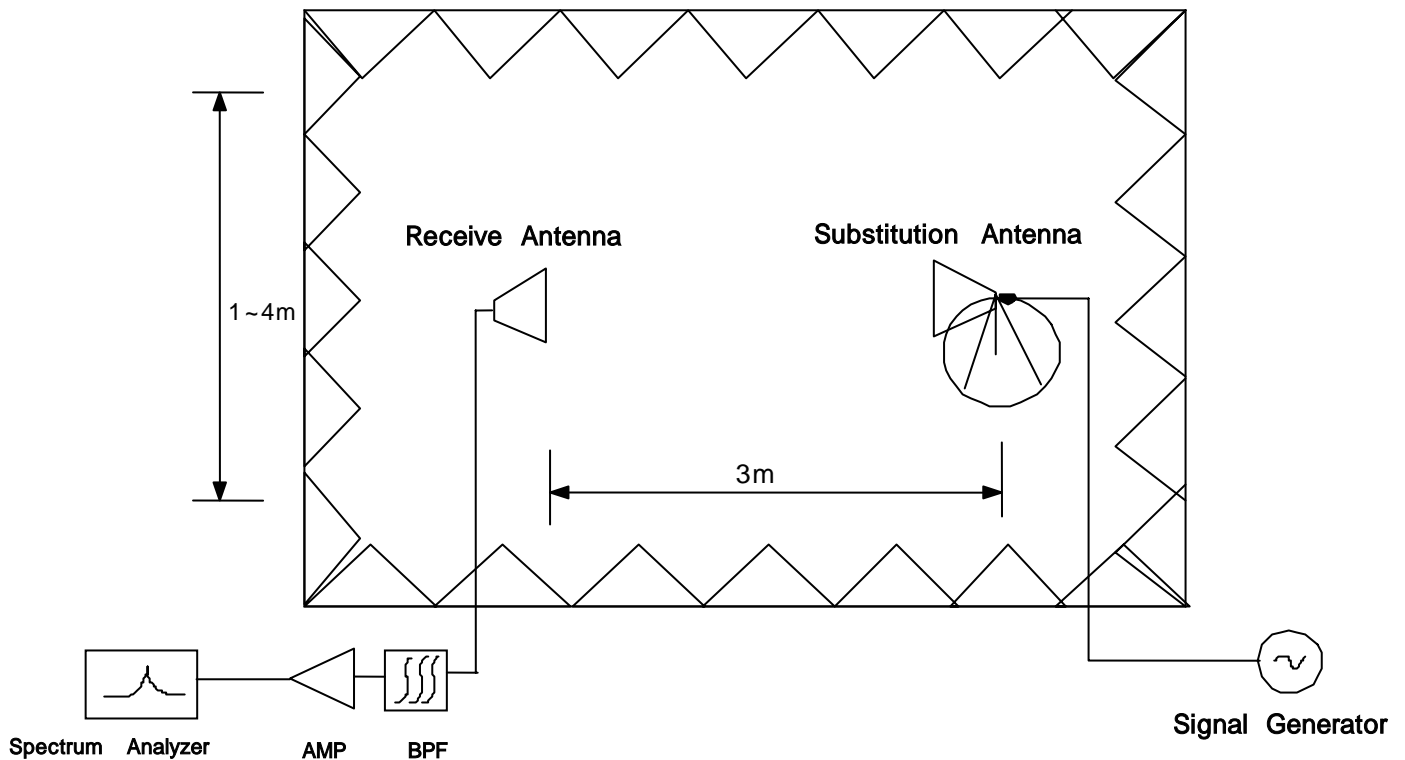
This device was tested under all configurations and the highest power is reported In WCDMA mode with HSDAP inactive at 12.2kbps RMC and TPC bits all set to "1"

This unit was tested with its standard battery

## 5.3 Radiated Spurious & Harmonic Emission

### Test Set-up for the Radiated Emission TEST

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004



**Figure 4. Diagram of Radiated Spurious & Harmonic test Set-up**

The EUT was placed on a Non-conducted turntable 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. The Spectrum was investigated from 30MHz to the 10<sup>th</sup> Harmonic of the fundamental. A peak detector is used, with RBW=VBW=1MHz. The value that we could measure was only reported. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported In WCDMA mode with HSDAP inactive at 12.2kbps RMC and TPC bits all set to "1"

This unit was tested with its standard battery



## SAMPLE CALCULATION

### **Example: Channel 661 , Second Harmonic(3760.00MHz)**

The receive analyzer reading at 3meters with the EUT on the turntable was  $-81.0\text{dBm}$ . The gain of the substituted antenna is  $8.1\text{dBi}$ . The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of  $-81.0\text{dBm}$  of the receive analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is  $2.0\text{dB}$  at  $3760.00\text{MHz}$ . So  $6.1\text{dB}$  is added to the signal generator reading of  $-30.9\text{dBm}$  yielding  $-24.8\text{dBm}$ . The fundamental EIRP was  $25.5\text{dBm}$  so this harmonic was  $25.5\text{dBm} - (-24.8) = 50.3\text{dBc}$ .

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## 5.4 Occupied Bandwidth

### **Test Procedure**

The EUT was setup to maximum output power at its lowest channel. The occupied bandwidth was measured using a spectrum analyzer. The measurements are repeated for the highest and a middle channel. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26Db below the transmitter power.

Plots of the EUT's occupied bandwidth are shown herein.

## 5.5 Spurious and Harmonic Emission at Antenna Terminal

### 5.5.1 Occupied Bandwidth Emission Limits

- (a) On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB.
- (b) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1MHz 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. 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 emission are attenuated at least 26 dB below the transmitter power.
- (c) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.
- (d) The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

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<b>BLOCK</b>	<b>Freq. Range (MHz) Transmitter (Tx)</b>	<b>Freq. Range (MHz) Receiver (Rx)</b>
A	1850 – 1865	1930 – 1945
B	1870 – 1885	1950 – 1965
C	1895 – 1910	1975 – 1990
D	1865 – 1870	1945 – 1950
E	1885 – 1890	1965 – 1970
F	1890 – 1895	1970 – 1975

**Table 1. Broadband PCS Service Frequency Blocks**

<b>BLOCK</b>	<b>Freq. Range (MHz) Transmitter (Tx)</b>	<b>Freq. Range (MHz) Receiver (Rx)</b>
A* Low + A	824 ~ 835	869 ~ 880
B	835 ~ 845	880 ~ 890
A* High	845 ~ 846.5	890 ~ 891.5
B*	846.5 ~ 849	891.5 ~ 894

**Table 2. Cellular Service Frequency Blocks**

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## 5.5.2 Conducted Spurious Emission

### **Minimum standard:**

On any frequency outside a license frequency block, the power of any emission shall be attenuated below the transmitter power(P) by at least  $43+10\log (P)$ dB. Limit equivalent to -13dBm, calculation shown below.

$$43 + 10\log ( 0.192 \text{ W} ) = 35.84 \text{ dB}$$

$$22.84 \text{ dBm} - 35.84 \text{ dB} = -13 \text{ dBm}$$

### **Test Procedure:**

The EUT was setup to maximum output power at its lowest channel. The Resolution BW of the analyzer is set to 1% of the emission bandwidth to show compliance with the -13dBm limit, in the 1MHz bands immediately outside and adjacent to the edge of the frequency block. The measurements are repeated for the EUT's highest channel. For the Out-of-Band measurements a 1MHz RBW was used to scan from 10MHz to 10GHz. (GSM1900 Mode : 10MHz to 20GHz). A display line was placed at -13dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

Plots are shown herein.

-End of page-

## 5.6 Frequency Stability / Temperature Variation

The frequency stability of the transmitter is measured by:

- a.) Temperature: The temperature is carried from -30°C to +60°C using an environmental chamber.
- b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification- The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025$  ( $\pm 2.5$ ppm) of the center frequency.

Time Period and Procedure:

1. The carrier frequency of the transmitter and the individual oscillators is measured at room temperature (25°C to 27°C to provide a reference).
2. The equipment is subjected to an overnight "soak" at -30°C without any power applied.
3. After the overnight "soak" at -30°C (Usually 14~16 hours), the equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter and the individual oscillators is made within a three minute interval after applying to the transmitter.
4. Frequency measurements are made at 10°C interval up to room temperature. At least a period of one and one half-hour is provided to allow stabilization of the equipment at each temperature level.
5. Again the transmitter carrier frequency and the individual oscillators is measured at room temperature to begin measurement of the upper temperature levels.
6. Frequency measurements are at 10 intervals starting at -30°C up to +60°C allowing at least two hours at each temperature for stabilization. In all measurements the frequency is measured within three minutes after re-applying power to the transmitter.
7. The artificial load is mounted external to the temperature chamber.

NOTE : The EUT is tested down to the battery endpoint.

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## 6. TEST DATA

### 6.1. Effective Radiated Power (E.R.P.)

Supply Voltage : 3.7VDC

Modulation : Cellular WCDMA

#### Reference level

Frequency (MHz)	Output (dBm)	Polarization (H/V)	S/A (dBm)	Ant gain (dBi)	Ref level (dBm)
826.40	22.00	H	-16.62	0.00	-16.62
		V	-14.95	0.00	-14.95
836.60	22.00	H	-16.62	0.00	-16.62
		V	-14.95	0.00	-14.95
846.60	22.00	H	-16.62	0.00	-16.62
		V	-14.95	0.00	-14.95

#### Result

Frequency (MHz)	Tested level (dBm)	Polarization (H/V)	Azimuth (angle)	ERP (dBm)	ERP (W)	Battery
824.40	-16.69	H2	0	21.93	0.156	Standard
836.60	-16.91	H1	179	21.71	0.148	Standard
846.60	-17.59	H1	181	21.03	0.127	Standard

**NOTE :** Standard batteries are the only battery options for this phone

**Radiated measurements at 3 meters by Substitution Method**

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## 6.2. Cellular WCDMA Radiated Spurious & Harmonic measurement

Operating Frequency : 826.40 MHz(Low), 836.60MHz(Middle), 846.60MHz(High)

Measured Output Power : 22.84 dBm = 0.192 W

Modulation Signal : Cellular WCDMA

Limit :  $43 + 10\log_{10}(P) = 35.84 \text{ dBc}$

### Result

Channel	Harmonic	Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Result (dBc)
4132	2	1652.80	-60.59	H1	72.46
	3	2479.20	-53.79	H1	60.94
	4	3305.60	-63.36	H2	66.98
	5	4132.00	-68.19	V	68.27
	6	4958.40	-	-	-
	7	5784.80	-	-	-
4183	2	1673.20	-62.32	H1	73.41
	3	2509.80	-49.54	V	56.01
	4	3346.40	-61.62	H1	65.28
	5	4183.00	-67.94	H1	68.43
	6	5019.60	-	-	-
	7	5856.20	-	-	-
4233	2	1693.20	-61.82	H2	71.93
	3	2539.80	-53.83	H1	60.56
	4	3386.40	-62.12	H1	65.30
	5	4233.00	-68.42	V	68.47
	6	5079.60	-	-	-
	7	5926.20	-	-	-

### NOTE :

1. "-" Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. The spectrum is measured from 30MHz to the 10<sup>th</sup> harmonic and the worst-case emissions and reported.

### Radiated Spurious Emission measurements at 3 meters by Substitution Method



### 6.3. Cellular WCDMA Radiated Spurious & Harmonic Conversion Table

Date : 2007. 08. 02

Test Engineer : SH ONG

Tx Cable loss  
 Tx Horn Ant Gain  
 Rx Cable loss + HPF Insertion loss + Attenuator  
 Pre- Amp gain  
 Air loss  
 Tested Level from EUT  
 = + + -  
 = ERP -

CH	Har	Frequency (MHz)	Tx CL (dB)	Horn Gain (dB)	Tx Level @ (S/G 10dBm)	Tested Level EUT : H (dBm)	Tested Level EUT : V (dBm)	Amplitude of Emission EUT : H (dBm)	Amplitude of Emission EUT : V (dBm)	Result EUT : H (dBc)	Result EUT : V (dBc)
4132	2	1652.80	7.05	8.03	0.98	-60.59	-60.55	-48.39	-48.58	72.46	72.65
	3	2479.20	8.91	9.55	0.64	-53.79	-56.35	-36.87	-38.94	60.94	63.01
	4	3305.60	10.70	9.64	-1.06	-63.36	-64.67	-42.91	-43.44	66.98	67.51
	5	4132.00	11.99	10.67	-1.32	-68.56	-68.19	-44.81	-44.20	68.88	68.27
	6	4958.40	13.20	11.05	-2.15	-	-	-	-	-	-
	7	5784.80	14.67	11.23	-3.44	-	-	-	-	-	-
4183	2	1673.20	7.12	8.03	0.91	-62.32	-63.38	-49.34	-50.03	73.41	74.10
	3	2509.80	9.02	9.55	0.53	-52.73	-49.54	-35.89	-31.94	59.96	56.01
	4	3346.40	10.54	9.64	-0.90	-61.62	-63.17	-41.21	-42.20	65.28	66.27
	5	4183.00	12.14	10.67	-1.47	-67.94	-68.30	-44.36	-44.70	68.43	68.77
	6	5019.60	13.62	11.05	-2.57	-	-	-	-	-	-
	7	5856.20	14.70	11.23	-3.47	-	-	-	-	-	-
4233	2	1693.20	7.17	8.03	0.86	-61.82	-63.02	-47.86	-49.22	71.93	73.29
	3	2539.80	9.05	9.55	0.50	-53.83	-55.51	-36.49	-37.23	60.56	61.30
	4	3386.40	10.55	9.64	-0.91	-62.12	-66.11	-41.23	-44.34	65.30	68.41
	5	4233.00	12.07	10.67	-1.40	-68.89	-68.42	-45.75	-44.40	69.82	68.47
	6	5079.60	13.80	11.05	-2.75	-	-	-	-	-	-
	7	5926.20	14.93	11.23	-3.70	-	-	-	-	-	-

## 6.4. Frequency Stability

### 6.4.1. Cellular WCDMA Frequency Stability Table

Operating Frequency : 836,600,000 Hz

Channel : 4183

Reference Voltage : 3.7VDC

Deviation Limit :  $\pm 0.00025$  % or 2.5ppm

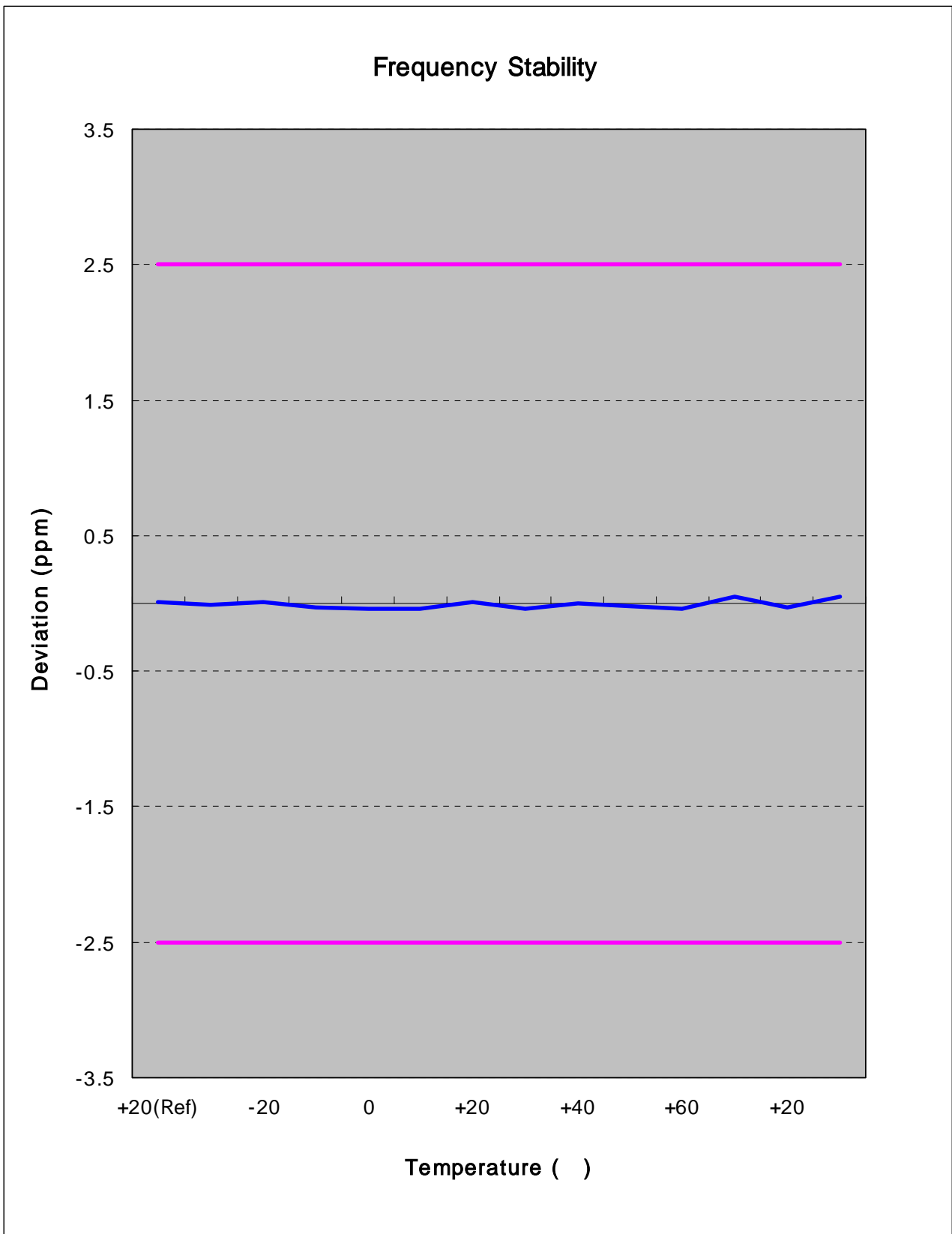
Voltage (%)	Power (VDC)	Temp. (°C)	Frequency Error (Hz)	Frequency (Hz)	Deviation (%)	ppm
100%	3.70	+20(Ref)	6.08	836,600,006	0.000001	0.007
100%		-30	-9.93	836,599,990	-0.000001	-0.012
100%		-20	7.91	836,600,008	0.000001	0.009
100%		-10	-26.76	836,599,973	-0.000003	-0.032
100%		0	-30.54	836,599,969	-0.000004	-0.037
100%		+10	-32.81	836,599,967	-0.000004	-0.039
100%		+20	6.08	836,600,006	0.000001	0.007
100%		+30	-32.63	836,599,967	-0.000004	-0.039
100%		+40	3.06	836,600,003	0.000000	0.004
100%		+50	-15.14	836,599,985	-0.000002	-0.018
100%		+60	-36.87	836,599,963	-0.000004	-0.044
85%		3.32	+20	39.65	836,600,040	0.000005
115%	4.26	+20	-23.57	836,599,976	-0.000003	-0.028
Batt.Endpoint	3.32	+20	39.65	836,600,040	0.000005	0.047

**Note :** The temperature is varied from -30 °C to +60 °C using an environmental chamber.

**The EUT is tested down to the battery end point.**

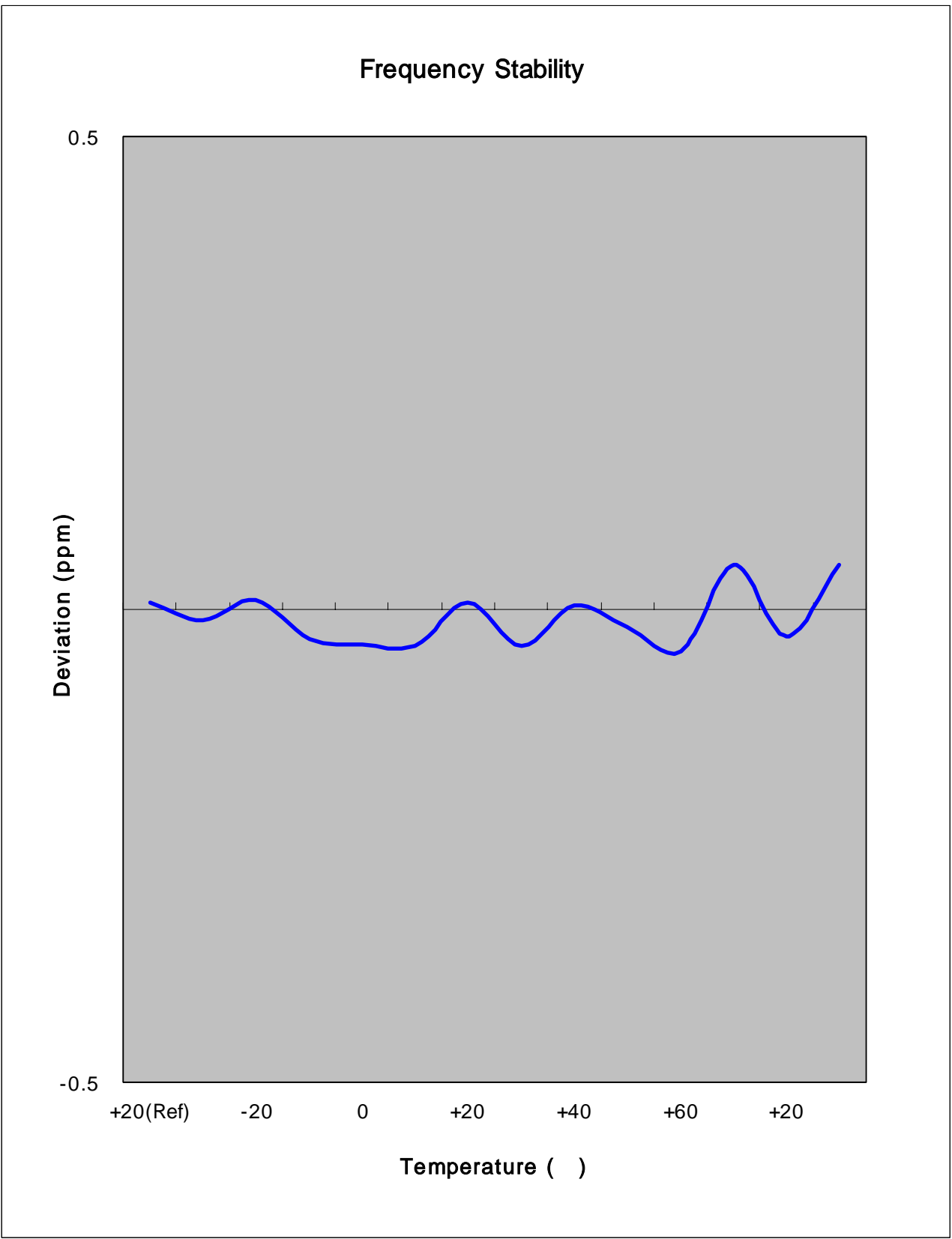
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### 6.4.2. Cellular WCDMA Frequency Stability Graph



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**Zoom IN**



## 7. SAMPLE CALCULATION

### 7.1 Emission Designator

Emission Designator = 4M21F9W

Calculation : 2M + 2DK

WCDMA BW = 4.21MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination(Audio/Data)

(Measured at the 99.75% power bandwidth)

- End of page -



## **8. CONCLUSION**

The data collected shows that the SAMSUNG 850 WCDMA/HSDPA and 1900 GSM/EDGE Phone with Bluetooth.

FCC ID : A3LSGHA551 complies with all the requirements of Parts 2,22,24 of the FCC Rules.

- End of page



## 9. TEST PLOTS

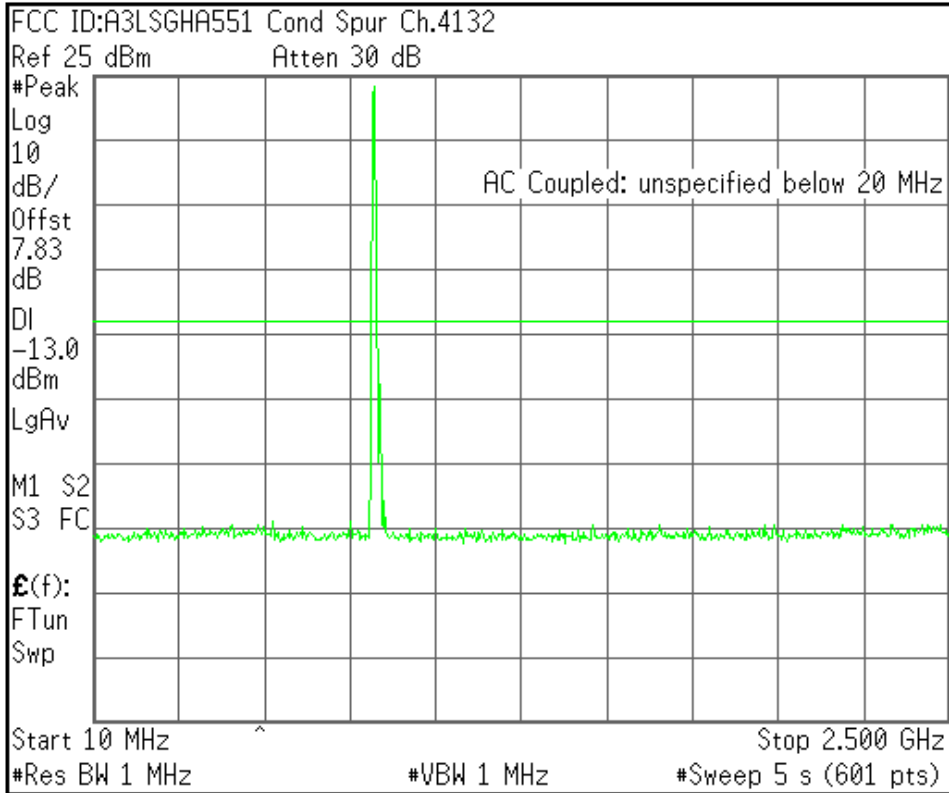
- End of page

Cellular WCDMA

Agilent

R T

Freq/Channel



Center Freq  
1.25500000 GHz

Start Freq  
10.0000000 MHz

Stop Freq  
2.50000000 GHz

CF Step  
249.000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

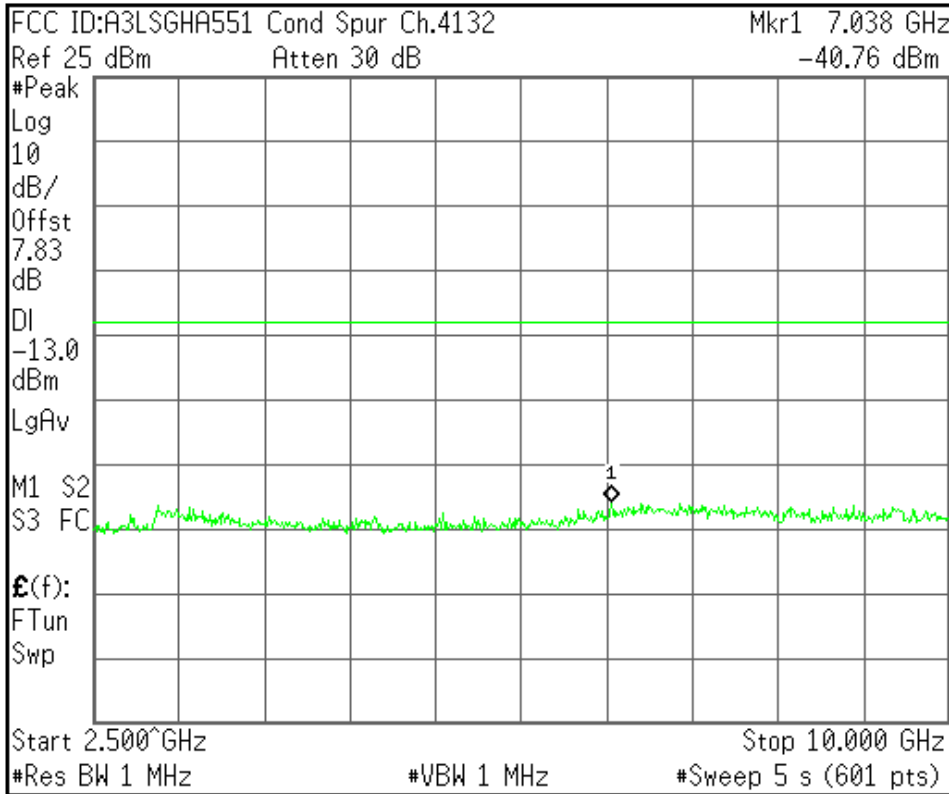
Signal Track  
On Off

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Agilent

R T

Freq/Channel



Center Freq  
6.25000000 GHz

Start Freq  
2.50000000 GHz

Stop Freq  
10.0000000 GHz

CF Step  
750.000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

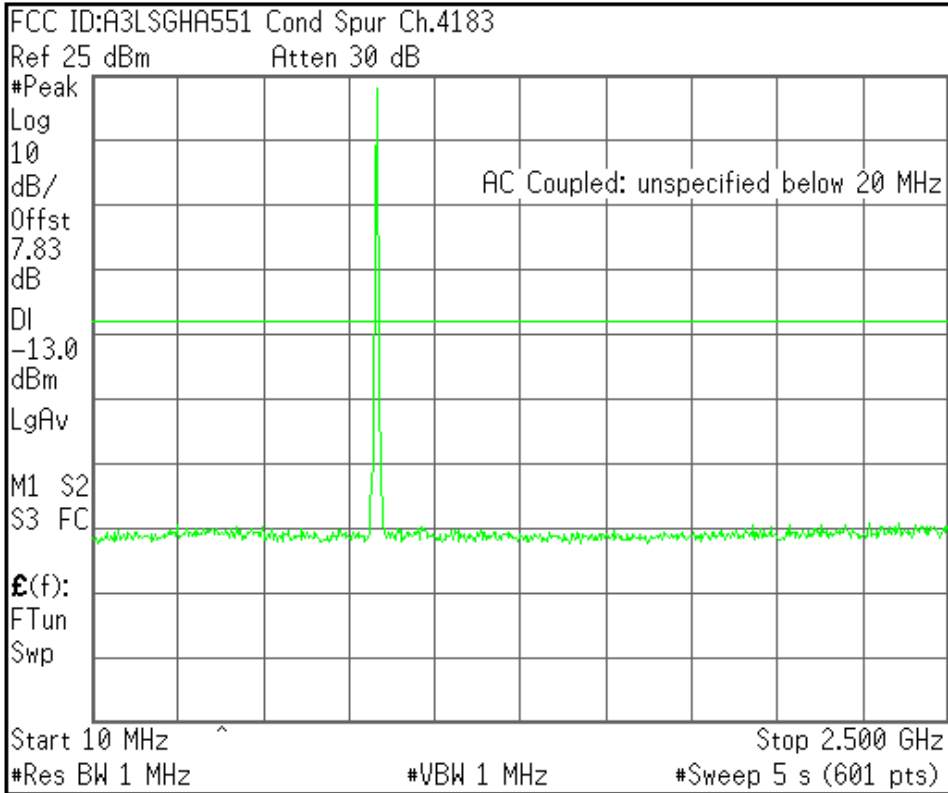
Signal Track  
On Off

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R T

Freq/Channel



Center Freq  
1.25500000 GHz

Start Freq  
10.0000000 MHz

Stop Freq  
2.50000000 GHz

CF Step  
249.000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

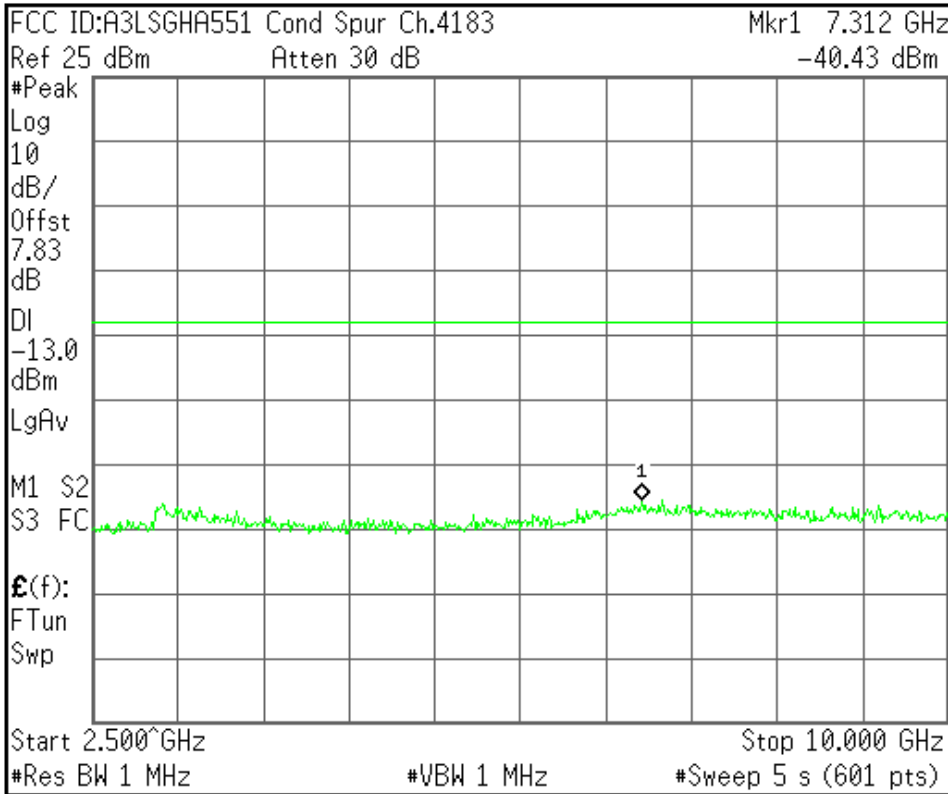
Signal Track  
On Off

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R T

Freq/Channel



Center Freq  
6.25000000 GHz

Start Freq  
2.50000000 GHz

Stop Freq  
10.0000000 GHz

CF Step  
750.000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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R T

Freq/Channel

FCC ID:A3LSGHA551 Cond Spur Ch.4233

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

LgAv

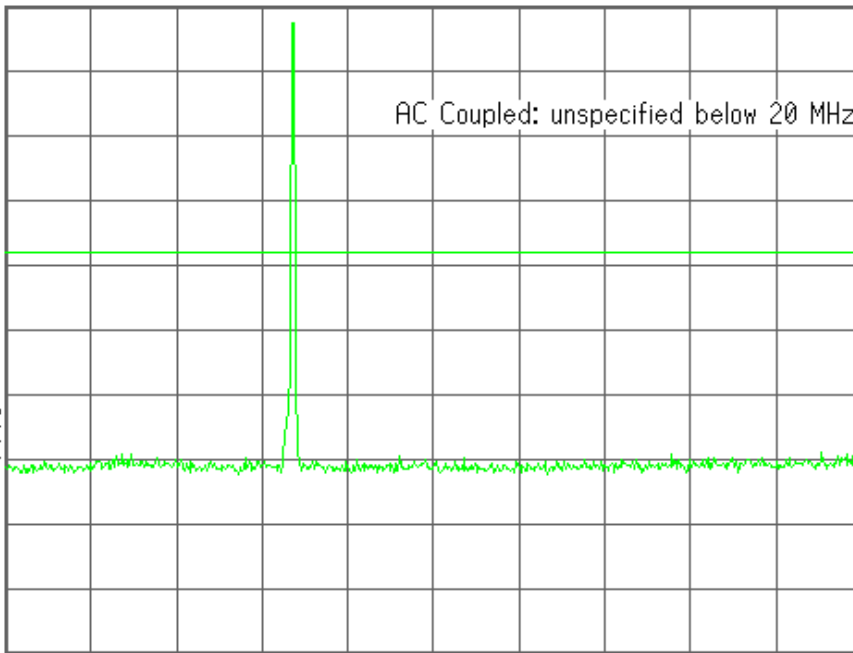
M1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Start 10 MHz

Stop 2.500 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 5 s (601 pts)

Center Freq  
1.25500000 GHz

Start Freq  
10.0000000 MHz

Stop Freq  
2.50000000 GHz

CF Step  
249.000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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R T

Freq/Channel

FCC ID:A3LSGHA551 Cond Spur Ch.4233

Mkr1 7.825 GHz

Ref 25 dBm

Atten 30 dB

-40.65 dBm

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

LgAv

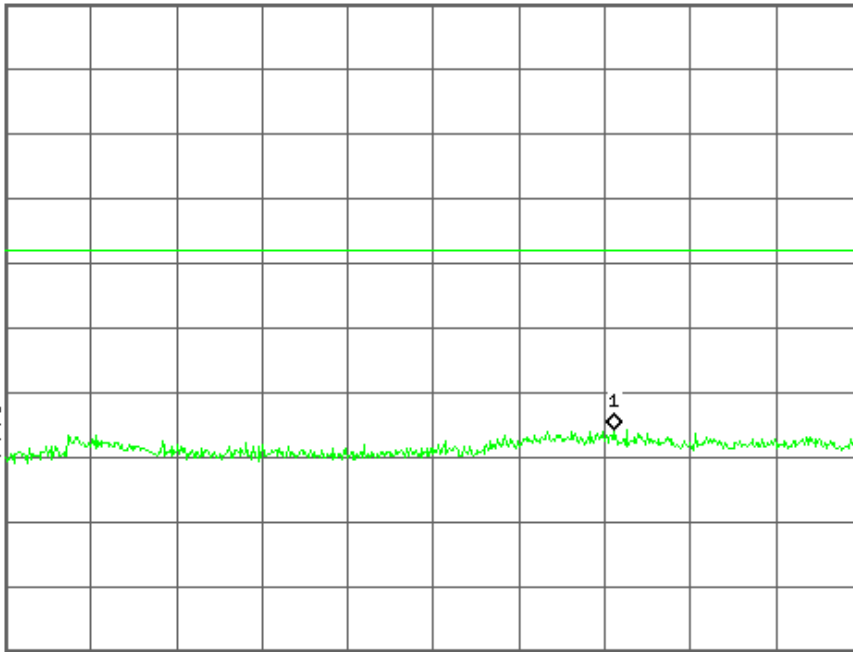
M1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Start 2.500 GHz

Stop 10.000 GHz

#Res BW 1 MHz

#VBW 1 MHz

#Sweep 5 s (601 pts)

Center Freq  
6.25000000 GHz

Start Freq  
2.50000000 GHz

Stop Freq  
10.0000000 GHz

CF Step  
750.000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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R T

Freq/Channel

Base	Ch Freq	826.4 MHz	Trig	Free
Channel Power		#3GPP W-CDMA		

Center Freq  
826.400000 MHz

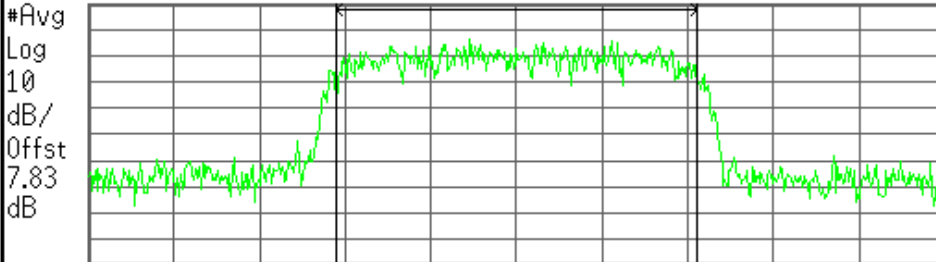
Start Freq  
821.400000 MHz

Stop Freq  
831.400000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

FCC ID:A3LSGHA551 Power Out Ch.4132  
Ref 25 dBm Atten 30 dB



Start 821.40 MHz Stop 831.40 MHz  
#Res BW 62 kHz #VBW 620 kHz Sweep 7.6 ms (601 pts)

Signal Track  
On Off

<b>Channel Power</b>	<b>Power Spectral Density</b>
23.00 dBm /4.2151 MHz	-43.25 dBm/Hz

Illegal parameter value

Agilent

R T

Freq/Channel

Base	Ch Freq	836.6 MHz	Trig	Free
Channel Power		#3GPP W-CDMA		

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

FCC ID:A3LSGHA551 Power Out Ch.4183  
Ref 25 dBm Atten 30 dB



Start 831.60 MHz Stop 841.60 MHz  
#Res BW 62 kHz #VBW 620 kHz Sweep 7.6 ms (601 pts)

Signal Track  
On Off

<b>Channel Power</b>	<b>Power Spectral Density</b>
22.58 dBm /4.1403 MHz	-43.59 dBm/Hz

Illegal parameter value

Agilent

R T

Freq/Channel

Base Ch Freq 846.6 MHz Trig Free  
 Channel Power #3GPP W-CDMA

Center Freq  
846.600000 MHz

Start Freq  
841.600000 MHz

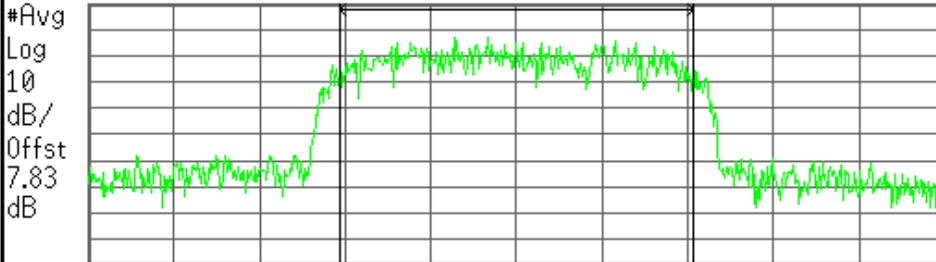
Stop Freq  
851.600000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LSGHA551 Power Out Ch.4233  
 Ref 25 dBm Atten 30 dB



Start 841.60 MHz Stop 851.60 MHz  
 #Res BW 62 kHz #VBW 620 kHz Sweep 7.6 ms (601 pts)

**Channel Power** **Power Spectral Density**  
 22.87 dBm /4.1172 MHz -43.28 dBm/Hz

Illegal parameter value

Agilent

R T

Freq/Channel

Base Ch Freq 826.4 MHz Trig Free  
 Occupied Bandwidth #3GPP W-CDMA

Center Freq  
826.400000 MHz

Start Freq  
821.400000 MHz

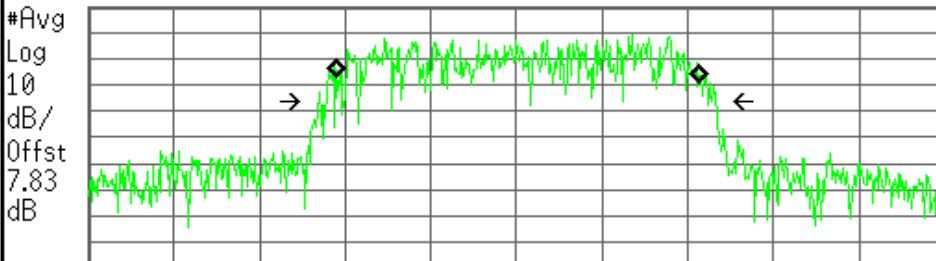
Stop Freq  
831.400000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LSGHA551 0BW Ch.4132  
 Ref 25 dBm Atten 30 dB



Start 821.40 MHz Stop 831.40 MHz  
 #Res BW 100 kHz #VBW 1 MHz #Sweep 3 ms (601 pts)

**Occupied Bandwidth** **Occ BW % Pwr** 99.00 %  
 4.2151 MHz x dB -26.00 dB  
**Transmit Freq Error** 13.195 kHz  
**x dB Bandwidth** 4.635 MHz\*

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R T

Freq/Channel

Base	Ch Freq	836.6 MHz	Trig	Free
Occupied Bandwidth		#3GPP W-CDMA		

Center Freq  
836.600000 MHz

Start Freq  
831.600000 MHz

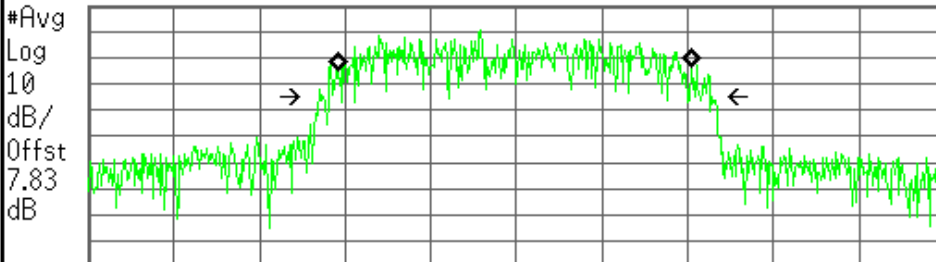
Stop Freq  
841.600000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LSGHA551 0BW Ch.4183  
Ref 25 dBm Atten 30 dB



Start 831.60 MHz Stop 841.60 MHz  
#Res BW 100 kHz #VBW 1 MHz #Sweep 3 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr	99.00 %
4.1403 MHz	x dB	-26.00 dB
Transmit Freq Error	-21.180 kHz	
x dB Bandwidth	4.574 MHz*	

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R T

Freq/Channel

Base	Ch Freq	846.6 MHz	Trig	Free
Occupied Bandwidth		#3GPP W-CDMA		

Center Freq  
846.600000 MHz

Start Freq  
841.600000 MHz

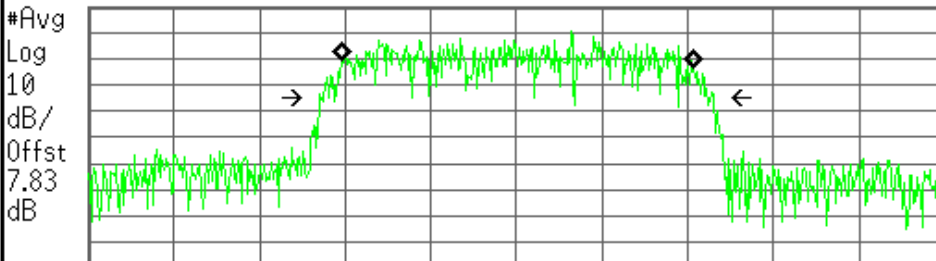
Stop Freq  
851.600000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LSGHA551 0BW Ch.4233  
Ref 25 dBm Atten 30 dB



Start 841.60 MHz Stop 851.60 MHz  
#Res BW 100 kHz #VBW 1 MHz #Sweep 3 ms (601 pts)

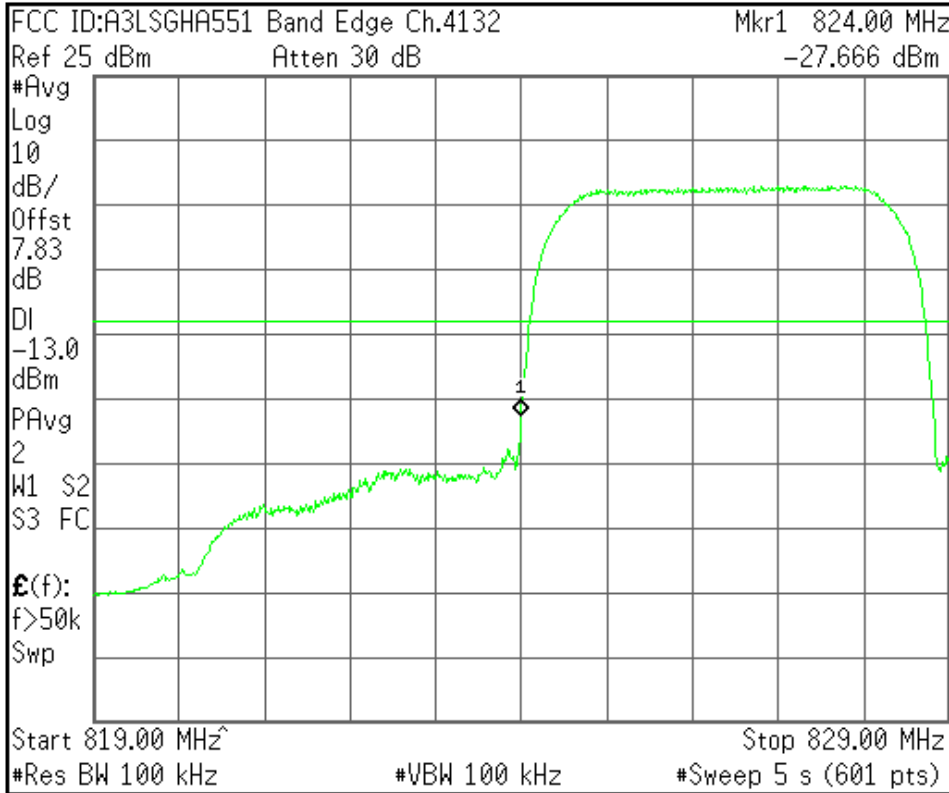
Occupied Bandwidth	Occ BW % Pwr	99.00 %
4.1172 MHz	x dB	-26.00 dB
Transmit Freq Error	5.648 kHz	
x dB Bandwidth	4.609 MHz*	

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R T

Freq/Channel



Center Freq  
824.000000 MHz

Start Freq  
819.000000 MHz

Stop Freq  
829.000000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

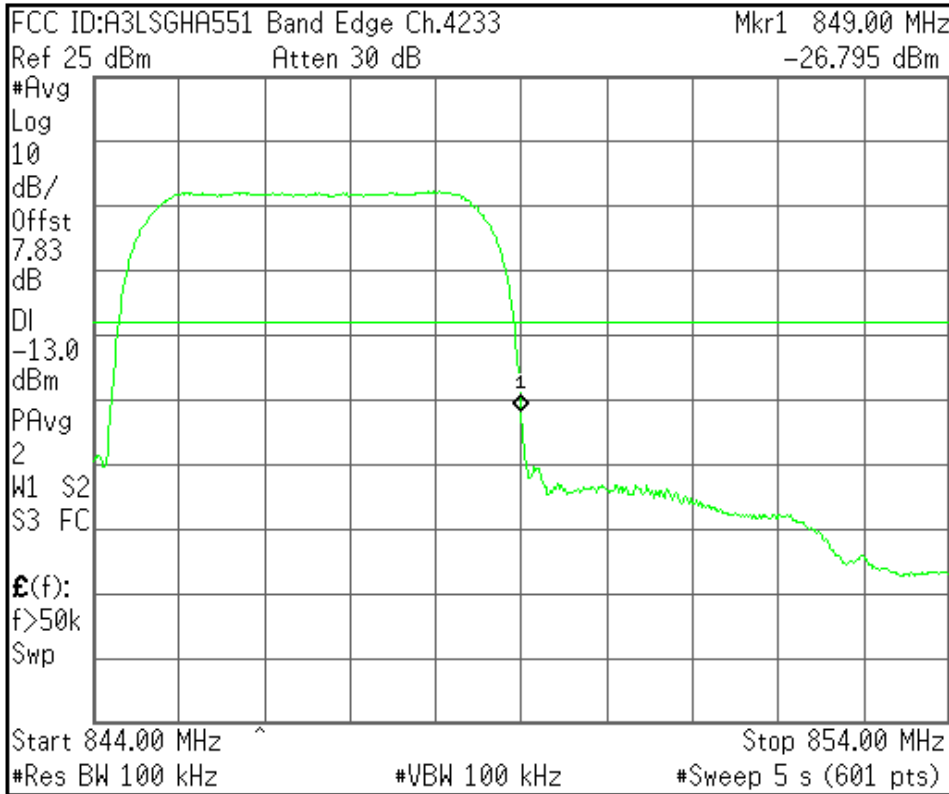
Signal Track  
On Off

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R T

Freq/Channel



Center Freq  
849.000000 MHz

Start Freq  
844.000000 MHz

Stop Freq  
854.000000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

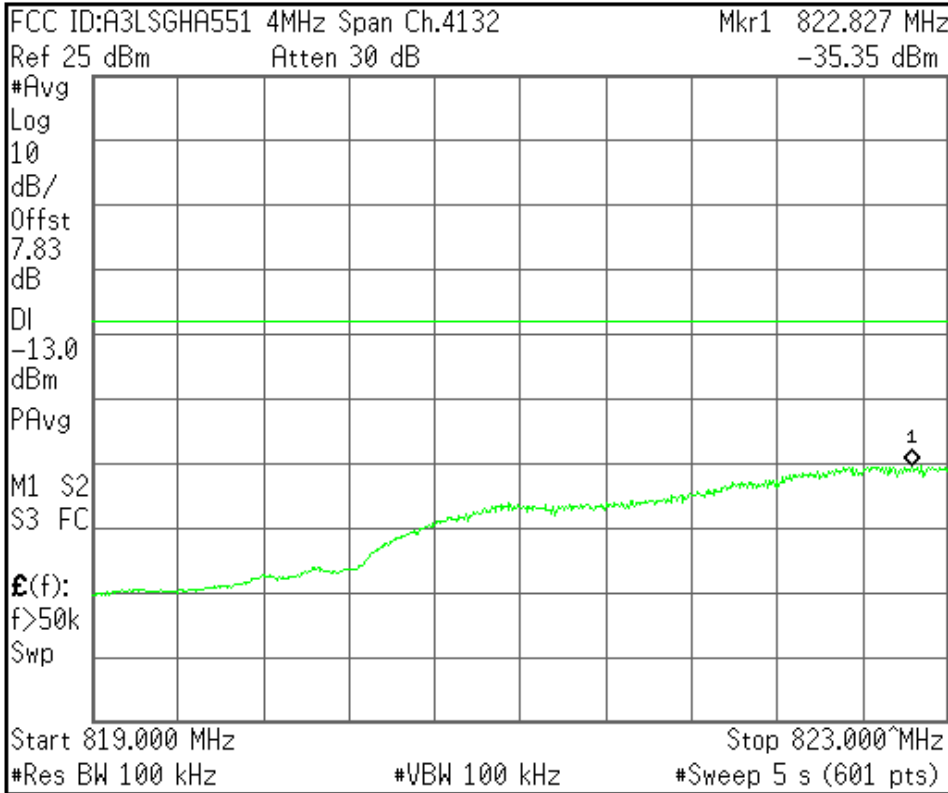
Signal Track  
On Off

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R T

Freq/Channel



Center Freq  
821.000000 MHz

Start Freq  
819.000000 MHz

Stop Freq  
823.000000 MHz

CF Step  
400.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

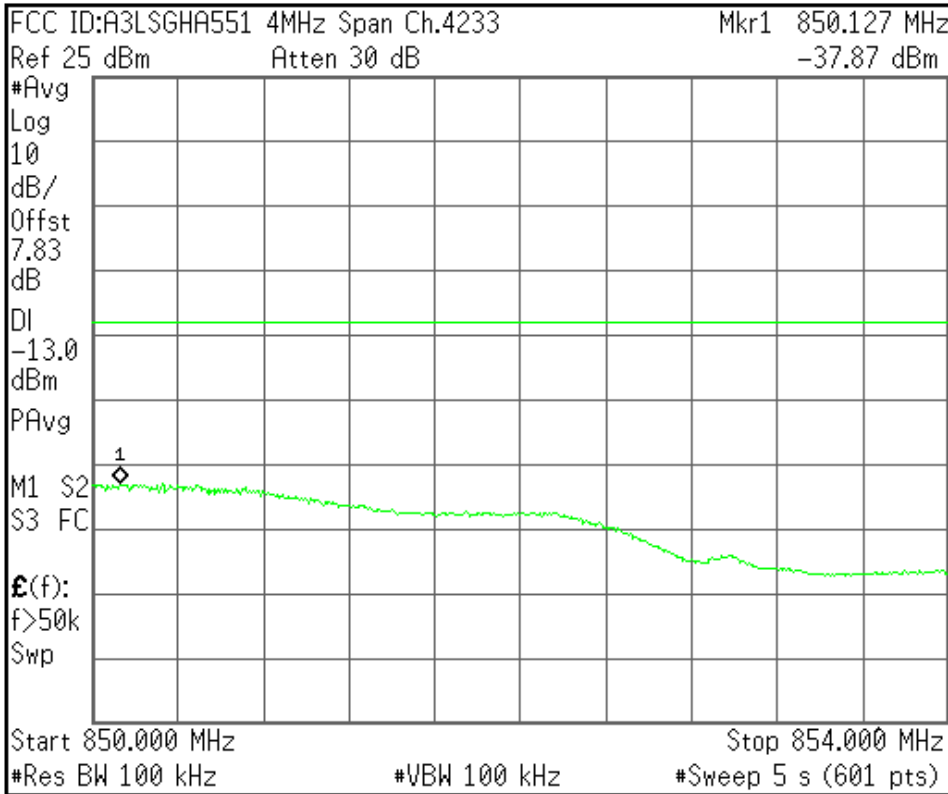
Signal Track  
On Off

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R T

Freq/Channel



Center Freq  
852.000000 MHz

Start Freq  
850.000000 MHz

Stop Freq  
854.000000 MHz

CF Step  
400.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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