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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:** GT-B7320L  
**FCC ID (Requested):** A3LGTB7320L  
**Report No:** FG-227-R2  
**Job No:** FG-227  
**Date issued:** August 22, 2009

- Abstract -

All measurement reported here in accordance with FCC Rules, 47CFR  
Part2, Part22, Part24

**Prepared By**

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KJ KWON – Test Engineer

**Authorized By**

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WT JANG – Technical Manager



# TABLE OF CONTENT

<b>MEASUREMENT REPORT</b>	<b>Page</b>
<b>1. FCC Certification Information</b> .....	<b>3</b>
1.1 §2.1033 General Information .....	3
<b>2. INTRODUCTION</b> .....	<b>4</b>
2.1 General.....	4
<b>3. MEASURING INSTRUMENT CALIBRATION</b> .....	<b>5</b>
<b>4. TEST EQUIPMENT LIST</b> .....	<b>6</b>
<b>5. FCC 3G MEASUREMENT PROCEDURES</b> .....	<b>7</b>
5.1 Effective Radiated Power / Equivalent Isotropic Radiated Power .....	8
5.2 Radiated Spurious & Harmonic Emission .....	9
5.3 Occupied Bandwidth .....	11
5.4 Spurious and Harmonic Emissions at Antenna Terminal.....	11
5.4.1 Occupied Bandwidth Emission Limits .....	11
5.4.2 Conducted Spurious Emission.....	13
5.5 Frequency Stability / Temperature Variation .....	14
<b>6. TEST DATA</b> .....	<b>15</b>
6.1 Conducted Output Power .....	15
6.2 Effective Radiated Power(E.R.P.) .....	16
6.3 Equivalent Isotropic Radiated Power(E.I.R.P.) .....	17
6.4 Cellular WCDMA Radiated Spurious & Harmonic measurement .....	18
6.5 PCS WCDMA Radiated Spurious & Harmonic measurement.....	19
6.6 Cellular WCDMA Radiated Spurious & Harmonic Conversion Table .....	20
6.7 PCS WCDMA Radiated Spurious & Harmonic Conversion Table .....	21
6.8 Frequency Stability .....	22
6.8.1 Cellular WCDMA Frequency Stability Table .....	22
6.8.2 PCS WCDMA Frequency Stability Table .....	23
6.8.3 Cellular WCDMA Frequency Stability Graph.....	24
6.8.4 PCS WCDMA Frequency Stability Graph.....	26
<b>7. SAMPLE CALCULATION</b> .....	<b>28</b>
7.1 Emission Designator.....	28
<b>8. CONCLUSION</b> .....	<b>29</b>
<b>9. TEST PLOT</b> .....	<b>30</b>



# 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
  
- FCC ID: A3LGTB7320L
  
- Model: GT-B7320L
  
- Quantity: Quantity production is planned
- Emission Designators: 4M19F9W(Cellular WCDMA), 4M20F9W(PCS WCDMA)
  
- Tx Freq. Range: 826.4 - 846.6 MHz (Cellular WCDMA)  
1852.4 - 1907.6 MHz (PCS WCDMA)
  
- Rx Freq. Range: 871.4 - 891.6 MHz (Cellular WCDMA)  
1932.4 - 1987.6 MHz (PCS WCDMA)
  
- Max. Power Rating: 0.075 W Cellular WCDMA (18.75 dBm)  
0.234 W PCS WCDMA(23.69 dBm)
  
- FCC Classification(s): PCS Licensed Portable Tx Held to Ear (PCE)
  
- Equipment (EUT) Type: 850/1900 GSM/WCDMA/EDGE/GPRS Phone with  
Bluetooth and WLAN
  
- Modulation(s): WCDMA
- Frequency Tolerance:  $\pm 0.00025\%$  (2.5ppm)
- FCC Rule Part(s): §4(E), §2(H), §.
- Dates of Test: August 7-8, 2009
- Place of Test: SAMSUNG Lab,
- Test Report S/N: FG-227-R2

## 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 the rotating device at the same height and at a distance of 3-meters from the receive antenna. The rotating device which can rotate horizontal axis was mounted on the turn unit to facilitate rotation around a vertical axis. The measurement was made for each horizontal/vertical position combination with receive antenna horizontally polarized. This measurement was repeated with receive antenna vertically polarized.

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 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

Name Of Equipment	Model	Serial No.	Due Date
Spectrum Analyzer	ESI26	836119/010	2009-10-21
	E4440A(3Hz~26.5GHz)	MY46187454	2010-03-06
	E4440A(3Hz~26.5GHz)	MY41000236	2010-04-14
Network Analyzer	8753E	JP38160590	2010-06-19
Pre-Amplifier	8449B	3008A00691	2009-12-15
Communication test set	8960	MY47510060	2010-03-06
	8960	GB42230535	2009-12-18
Controller	CO2000	CO2000/424	Not Required
Turn Unit	CT0800	CT0800/057	Not Required
Rotating Device	DE3600-RH-PR	DE3600-RH-PR/050	Not Required
Antenna Master	MA4000	MA4000/204	Not Required
Horn Antenna	HF906	100134	2009-10-24
	HF906	360306/011	2010-06-13
	BBHA9120	9120D-637	2009-10-24
Dipole Antenna	UHA 9105	9105-2412	2009-11-07
	UHA 9105	9105-2413	2010-06-13
Power Supply	E3640A	MY40003594	2010-06-19
	E3640A	MY40003595	2010-06-19
	E3632A	MY40022438	2010-03-06
Divider	11636B	51946	Not Required
	11636B	56913	Not Required
	11636B	56918	Not Required
High Pass Filter	WHK/3.0/18G-10SS	492	Not Required
	WHK/3.5/18G-10SS	4	Not Required
Environmental Chamber	SH-241	92000549	2009-11-14
	SH-241	92000548	2009-11-14
Shielded Fully Anechoic Chamber	CHAMBER	ANT0001	Not Required

## 5. FCC 3G MEASUREMENT PROCEDURES

The maximum output power is a measure of the maximum power the UE can transmit (i.e. the actual power as would be measured assuming no measurement error) in a band width of at least (1+a) times the chip rate of the radio access mode

The default test configuration is configure an established radio link between the UE and a communication test set using a 12.2kbps RMC (reference measurement channel) configured in Test Loop Mode 1. Maximum output is verified according to 3GPP TS 34.121 Section 5.2

1. Configure TCP (Transmit Power Control) set to "All 1" S.
2. RMC and AMR connections at 12.2kbps are measured under 3.4kbps SRB (signaling radio bearer)
3. Measure the mean power of the UE in a bandwidth of at least (1+a)times the chip rate o the radio access mode. The mean power shall be averaged over at least one timeslot.

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

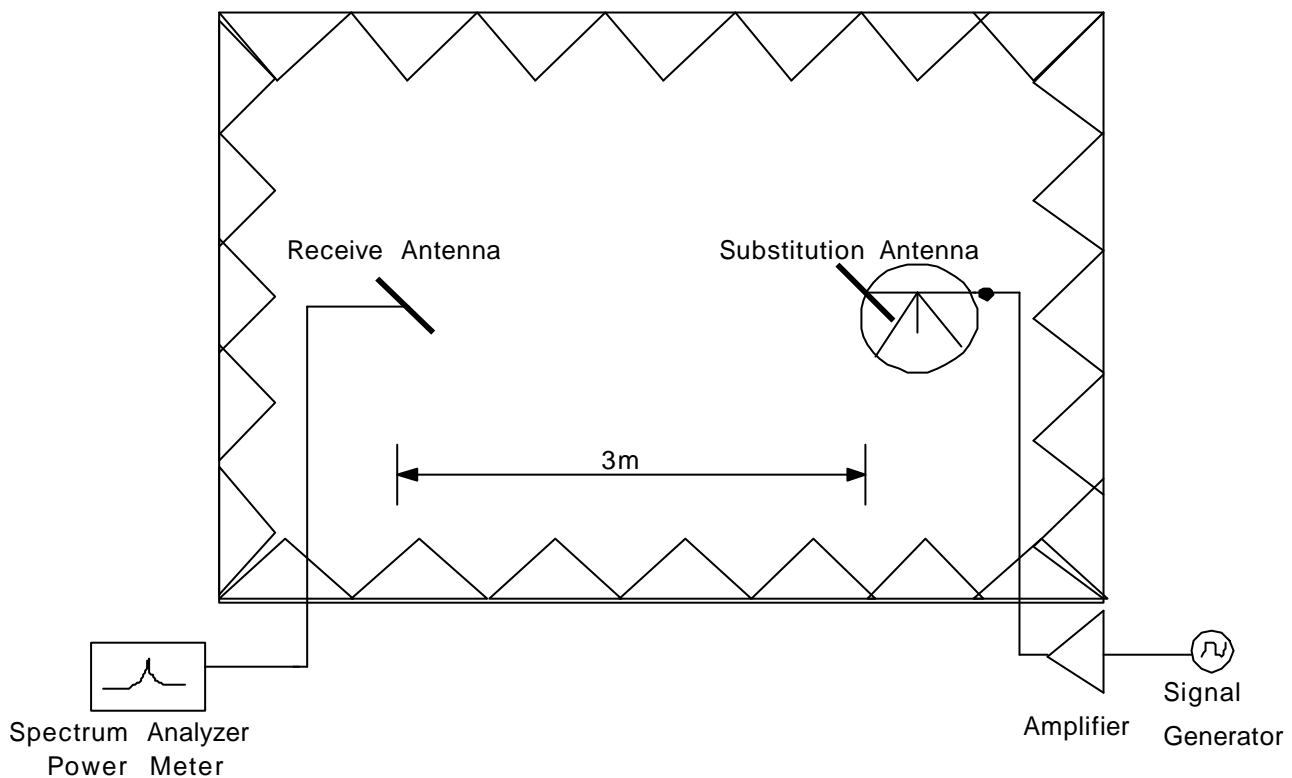
Operating Band	Channel	HSDPA Inactive		HSDPA Active
		12.2 kbps RMC	12.2 kbps AMR	12.2 kbps RMC
Cellular WCDMA	4132	23.11	22.99	22.38
	4175	23.18	23.08	22.44
	4233	23.19	23.17	22.54
PCS WCDMA	9262	22.85	22.87	22.35
	9400	23.27	23.25	22.70
	9538	23.10	23.62	22.55

## 5.1 Effective Radiated Power / Equivalent Isotropic Radiated Power

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

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

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



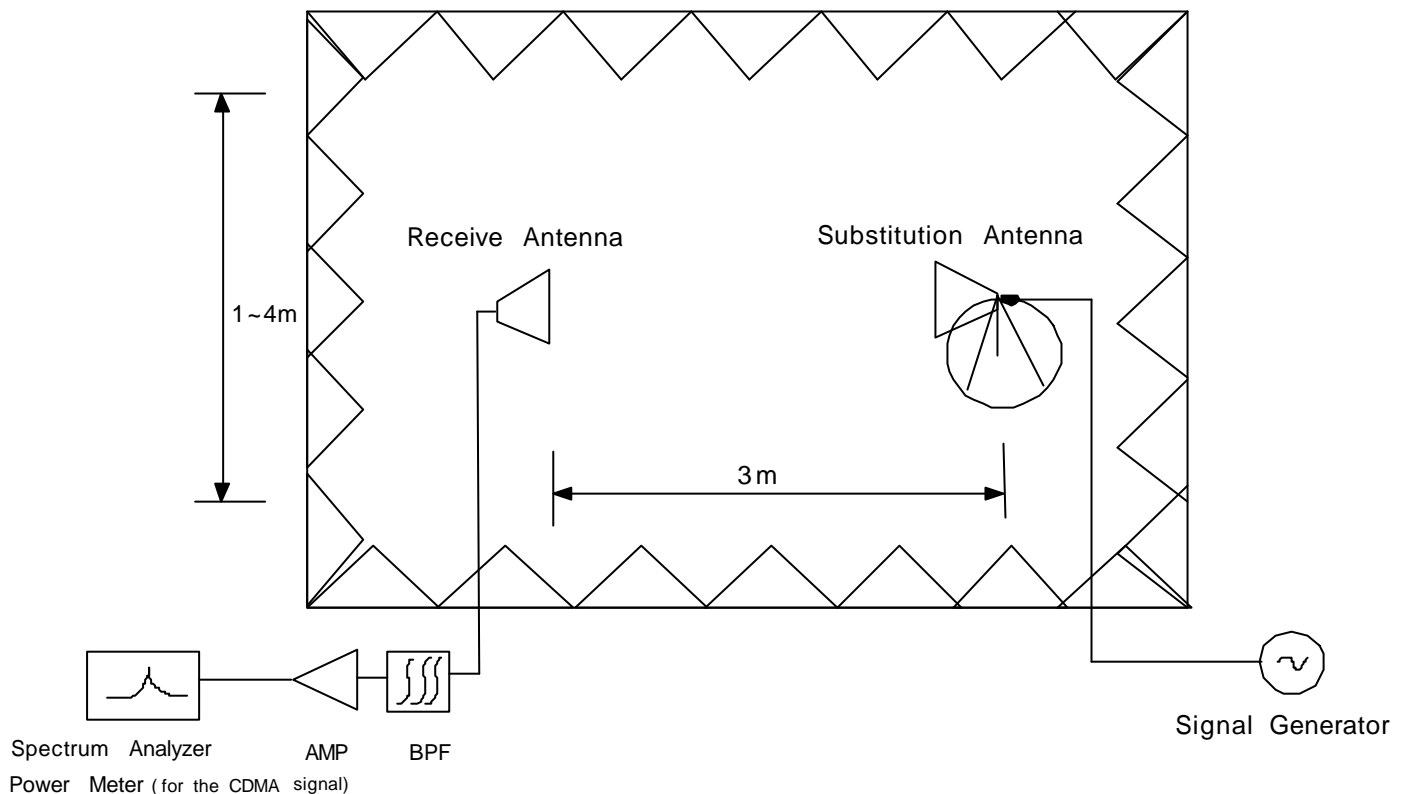
**Figure 3. Diagram of ERP/EIRP test Set-up**

The EUT was placed on the rotating device at 3-meters from the receive antenna. The turn unit and rotating device 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.

## 5.2 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 the rotating device at 3-meters from the receive antenna. The turn unit and rotating device 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.



## SAMPLE CALCULATION

### Example: Channel 600 PCS Mode 2<sup>nd</sup> Harmonic(3760MHz)

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 3760MHz. 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  $25.5\text{dBm} - (-24.8) = 50.3\text{dBc}$ .

- End of page -

## 5.3 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.

## 5.4 Spurious and Harmonic Emissions at Antenna Terminal

### 5.4.1 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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BLOCK	Freq. Range (MHz) Transmitter (Tx)	Freq. Range (MHz) Receiver (Rx)
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**

BLOCK	Freq. Range (MHz) Transmitter (Tx)	Freq. Range (MHz) Receiver (Rx)
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**

BLOCK	Freq. Range (MHz) Transmitter (Tx)	Freq. Range (MHz) Receiver (Rx)
A	1710 – 1720	2110 – 2120
B	1720 – 1730	2120 – 2130
C	1730 – 1735	2130 – 2135
D	1735 – 1740	2135 – 2140
E	1740 – 1745	2140 – 2145
F	1745 – 1755	2145 – 2155

**Table 3. Broadband AWS Service Frequency Blocks**

## 5.4.2 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  $-13$ dBm, calculation shown below.

$$43 + 10\log ( 0.333 \text{ W} ) = 38.22\text{dB}$$

$$25.22 \text{ dBm} - 38.22 \text{ dB} = -13 \text{ dBm}$$

### **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  $-13$ dBm 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. (PCS Mode : 10MHz to 20GHz). A display line was placed at  $-13$ dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

Plots are shown herein.

## 5.5 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 Conducted Output Power

A base station simulator was used to establish communication with the Samsung 850/1900 GSM/WCDMA/EDGE/GPRS Phone with Bluetooth and WLAN.

FCC ID: A3LGTB7320L. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA inactive at 12.2 kbps RMC. The WCDMA conducted powers are reported below, respectively.

BAND	Channel	UMTS RF Conducted Power Table		
		HSDPA Inactive		HSDPA Active
		12.2 kbps RMC [dBm]	12.2 kbps AMR [dBm]	12.2 kbps RMC [dBm]
Cellular	4132	23.11	22.99	22.38
	4183	23.18	23.08	22.44
	4233	23.19	23.17	22.54
PCS	9262	22.85	22.87	22.35
	9400	23.27	23.25	22.70
	9538	23.10	23.62	22.55

Table 6.1 WCDMA Conducted Output Powers



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

Supply Voltage : 3.7VDC

Modulation : Cellular WCDMA

Reference level

Frequency (MHz)	Output (dBm)	Polarization	P/M (dBm)	Ant gain (dBd)	Ref level (dBm)
826.4	17.00	H	-19.44	-0.67	-18.77
		V	-19.68	-0.67	-19.01
836.6	18.00	H	-19.92	-0.73	-19.19
		V	-19.39	-0.73	-18.66
846.6	19.00	H	-21.61	-0.79	-20.82
		V	-20.33	-0.79	-19.54

Result

Frequency (MHz)	From EUT Tested level (dBm)	Polarization (H/V)	Azimuth (angle)	ERP (dBm)	ERP (W)	Battery
826.4	-18.89	H	280/70	16.88	0.049	Standard
836.6	-19.59	H	291/70	17.60	0.058	Standard
846.6	-21.07	H	282/20	18.75	0.075	Standard

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

- All modes of operation were investigated, and the worst-case results are reported.

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



### 6.3 Equivalent Isotropic Radiated Power(E.I.R.P.)

Supply Voltage : 3.7VDC

Modulation : PCS WCDMA

Reference level

Frequency (MHz)	Output (dBm)	Polarization	P/M (dBm)	Ant gain (dBi)	Ref level (dBm)
1852.4	21.00	H	-17.67	9.70	-27.37
		V	-17.32	9.70	-27.02
1880.0	24.00	H	-15.17	9.70	-24.87
		V	-15.17	9.70	-24.87
1907.6	22.00	H	-17.17	9.70	-26.87
		V	-16.81	9.70	-26.51

Result

Frequency (MHz)	From EUT Tested level (dBm)	Polarization (H/V)	Azimuth (angle)	EIRP (dBm)	EIRP (W)	Battery
1852.4	-27.10	V	218/100	20.92	0.124	Standard
1880.0	-25.18	V	219/100	23.69	0.234	Standard
1907.6	-26.76	V	217/90	21.75	0.150	Standard

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

- All modes of operation were investigated, and the worst-case results are reported.

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

## 6.4 Cellular WCDMA Radiated Spurious & Harmonic measurement

Operating Frequency : 826.4 MHz(Low), 836.4 MHz(Middle), 846.6 MHz(High)

Measured Output Power : 18.75 dBm = 0.075 W

Modulation Signal : CDMA

$$\text{Limit} : 43 + 10\log_{10}(P) = 31.75\text{dBc}$$

### Result

Channel	Harmonic	Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Result (dBc)
4132	2	1652.80	-57.05	V	63.81
	3	2479.20	-67.22	H	69.41
	4	3305.60	-66.92	V	65.38
	5	4132.00	-	-	-
	6	4958.40	-	-	-
	7	5784.80	-	-	-
4175	2	1672.80	-52.81	H	58.96
	3	2509.20	-66.78	H	68.98
	4	3345.60	-66.62	H	65.01
	5	4182.00	-	-	-
	6	5018.40	-	-	-
	7	5854.80	-	-	-
4233	2	1693.20	-65.63	V	71.64
	3	2539.80	-66.84	V	67.79
	4	3386.40	-66.88	V	65.31
	5	4233.00	-	-	-
	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 All modes of operation were investigated, and the worst-case results are reported..

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



## 6.5 PCS WCDMA Radiated Spurious & Harmonic measurement

Operating Frequency : 1852.4 MHz(Low), 1880.00 MHz(Middle), 1907.60 MHz(High)

Measured Output Power : 23.69 dBm = 0.234 W

Modulation Signal : PCS

$$\text{Limit : } 43 + 10\log_{10}(P) = 36.69\text{dBc}$$

### Result

Channel	Harmonic	Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Result (dBc)
9262	2	3704.80	-61.62	V	61.74
	3	5557.20	-66.07	H	60.08
	4	7409.60	-68.34	V	57.93
	5	9262.00	-	-	-
	6	11114.40	-	-	-
	7	12966.80	-	-	-
9400	2	3760.00	-66.71	V	66.35
	3	5640.00	-67.10	H	61.06
	4	7520.00	-67.85	H	57.42
	5	9400.00	-	-	-
	6	11280.00	-	-	-
	7	13160.00	-	-	-
9538	2	3815.20	-67.08	H	65.44
	3	5722.80	-66.69	V	59.89
	4	7630.40	-67.76	H	57.16
	5	9538.00	-	-	-
	6	11445.60	-	-	-
	7	13353.20	-	-	-

#### 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 All modes of operation were investigated, and the worst-case results are reported..

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



## 6.6 Cellular WCDMA Radiated Spurious & Harmonic Conversion Table

Date : August 8, 2009

Test Engineer : KJ KWON

Tx Cable loss  
 Tx Horn Ant Gain  
 Tx Level to radiate -13dBm  
 ESI Level received from Tx with -13dBm  
 Tested Level from EUT  
 = ERP+2.14 - (-13 + - )

CH	Har	Frequency (MHz)	Tx C/L dB	Tx Horn Gain dBi	Tx Level dBm	ESI Level : H dBm	ESI Level : V dBm	Test ed EUT Level : H dBm	Test ed EUT Level : H dBm	Result EUT : H (dBc)	Result EUT : V (dBc)
4357	2	1652.80	-9.02	9.50	-13.50	-25.78	-25.24	-57.16	-57.05	67.69	61.74
	3	2479.20	-11.41	10.70	-12.30	-30.65	-30.96	-67.22	-67.56	60.08	60.49
	4	3305.60	-13.59	12.30	-11.70	-34.30	-34.88	-66.96	-66.92	57.93	58.07
	5	4132.00	-15.15	12.50	-10.30	-37.37	-37.16	-	-	-	-
	6	4958.40	-16.71	12.70	-9.00	-39.95	-40.17	-	-	-	-
	7	5784.80	-18.17	12.90	-7.70	-42.25	-42.16	-	-	-	-
4408	2	1673.20	-9.07	9.50	-13.40	-26.45	-26.15	-52.81	-54.14	66.63	66.35
	3	2509.80	-11.43	10.70	-12.30	-30.90	-30.96	-66.78	-66.79	61.06	61.18
	4	3346.40	-13.78	12.30	-11.50	-34.28	-34.36	-66.62	-66.72	57.42	57.87
	5	4183.00	-15.26	12.50	-10.20	-36.90	-37.13	-	-	-	-
	6	5019.60	-16.94	12.70	-8.80	-40.04	-40.64	-	-	-	-
	7	5856.20	-18.23	12.90	-7.70	-42.75	-42.94	-	-	-	-
4458	2	1693.20	-9.08	9.50	-13.40	-26.64	-26.78	-65.70	-65.63	65.75	65.44
	3	2539.80	-11.41	10.70	-12.30	-30.32	-30.81	-67.06	-66.84	60.63	59.89
	4	3386.40	-13.82	12.30	-11.50	-34.25	-34.55	-67.51	-66.88	57.16	57.44
	5	4233.00	-15.38	12.50	-10.10	-37.07	-37.26	-	-	-	-
	6	5079.60	-17.06	12.70	-8.60	-40.12	-40.75	-	-	-	-
	7	5926.20	-18.41	12.90	-13.50	-43.10	-42.67	-	-	-	-



## 6.7 PCS WCDMA Radiated Spurious & Harmonic Conversion Table

Date : August 8, 2009.

Test Engineer : KJ KWON

Tx Cable loss  
 Tx Horn Ant Gain  
 Tx Level to radiate -13dBm  
 ESI Level received from Tx with -13dBm  
 Tested Level from EUT  
 = EIRP -(-13 + - )

CH	Har	Frequency (MHz)	Tx C/L dB	Tx Horn Gain dBi	Tx Level dBm	ESI Level : H dBm	ESI Level : V dBm	Tested EUT Level : H dBm	Tested EUT Level : V dBm	Result EUT : H (dBc)	Result EUT : V (dBc)
9262	2	3704.80	-14.91	12.40	-10.50	-36.94	-36.57	-67.94	-61.62	63.81	63.84
	3	5557.20	-17.69	12.90	-8.20	-42.68	-42.80	-66.07	-66.60	69.41	70.00
	4	7409.60	-20.43	10.50	-3.10	-47.33	-46.96	-68.57	-68.34	65.89	65.38
	5	9262.00	-23.63	11.20	-0.60	-51.79	-50.45	-	-	-	-
	6	11114.40	-26.86	11.60	2.30	-54.95	-55.26	-	-	-	-
	7	12966.80	-28.80	12.90	2.90	-58.88	-58.56	-	-	-	-
9400	2	3760.00	-15.19	12.40	-10.20	-37.08	-37.05	-67.02	-66.71	58.96	59.40
	3	5640.00	-17.78	12.90	-8.10	-42.73	-43.08	-67.10	-67.57	68.98	69.04
	4	7520.00	-20.67	10.60	-2.90	-47.12	-46.95	-67.85	-68.13	65.05	65.01
	5	9400.00	-23.23	11.60	-1.40	-51.75	-52.22	-	-	-	-
	6	11280.00	-26.34	12.10	1.20	-55.98	-56.30	-	-	-	-
	7	13160.00	-28.12	12.80	2.30	-59.32	-58.91	-	-	-	-
9538	2	3815.20	-14.23	12.40	-11.20	-38.02	-38.68	-67.08	-67.43	71.64	71.77
	3	5722.80	-18.11	13.00	-7.90	-43.48	-43.49	-67.42	-66.69	69.37	67.79
	4	7630.40	-21.16	11.20	-3.00	-47.29	-47.44	-67.76	-68.19	66.23	65.31
	5	9538.00	-23.54	11.70	-1.20	-52.60	-52.08	-	-	-	-
	6	11445.60	-26.84	11.70	2.10	-56.26	-56.23	-	-	-	-
	7	13353.20	-28.23	12.30	2.90	-60.44	-59.84	-	-	-	-



## 6.8 Frequency Stability

### 6.8.1 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)	-8.60	836,600,037	0.000004	0.044
100%		-30	11.30	836,600,010	0.000001	0.012
100%		-20	31.70	836,599,966	-0.000004	-0.040
100%		-10	-39.50	836,599,970	-0.000004	-0.036
100%		0	16.60	836,600,041	0.000005	0.049
100%		+10	22.10	836,600,046	0.000005	0.054
100%		+20	-8.60	836,600,037	0.000004	0.044
100%		+30	16.70	836,600,044	0.000005	0.052
100%		+40	-17.20	836,600,008	0.000001	0.009
100%		+50	32.40	836,599,994	-0.000001	-0.007
100%		+60	-4.60	836,600,006	0.000001	0.007
85%	3.25	+20	11.80	836,600,025	0.000003	0.030
115%	4.26	+20	36.50	836,600,030	0.000004	0.036
Batt. Endpoint	3.25	+20	11.80	836,600,025	0.000003	0.030

**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**



6.8.2 PCS WCDMA Frequency Stability Table

Operating Frequency : 1,880,000,000 Hz

Channel : 9400

Reference Voltage : 3.7VDC

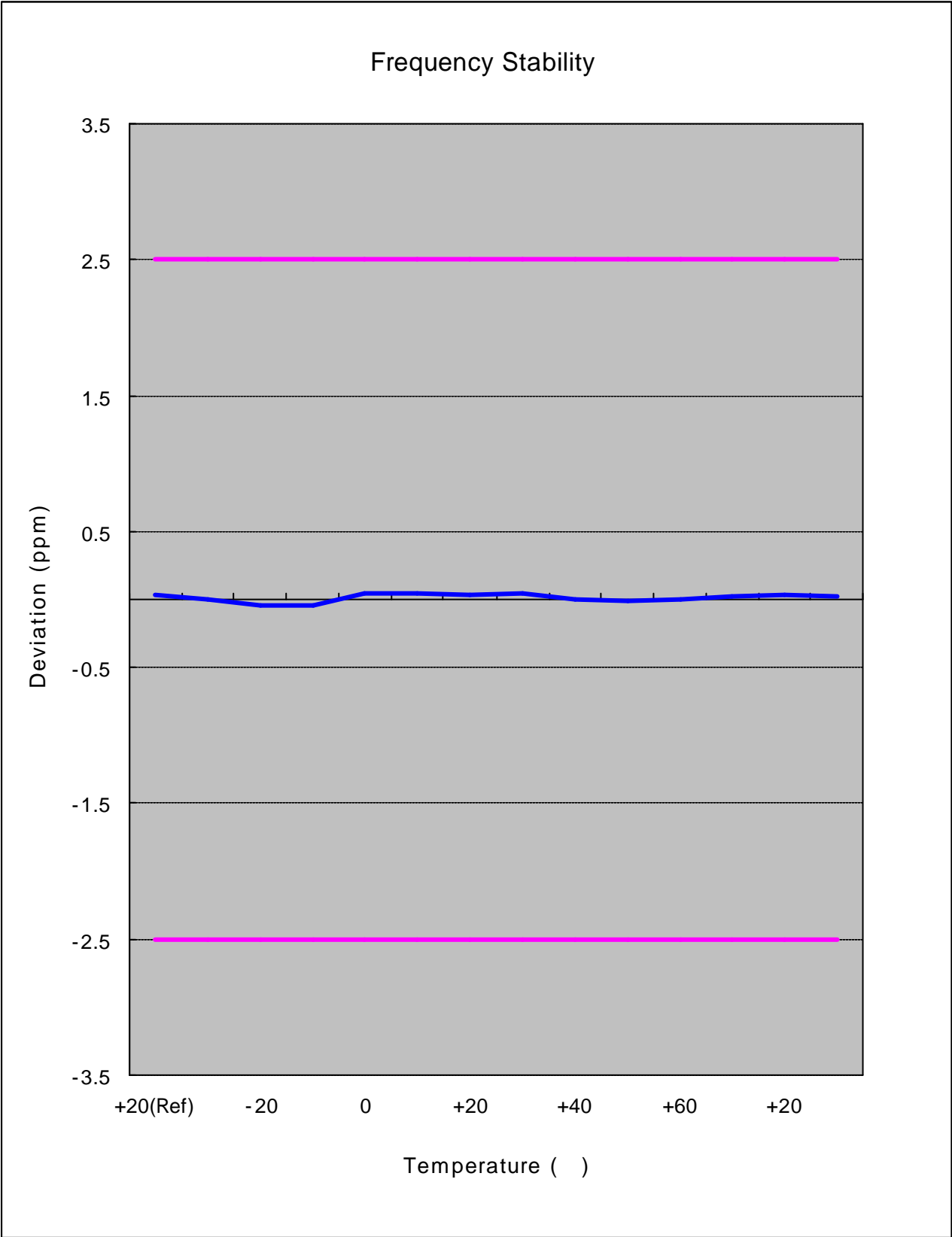
**Deviation Limit :  $\pm 0.00025\%$  or 2.5ppm**

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency Error (Hz)	Frequency (Hz)	Deviation (%)	ppm
100%	3.70	+20(Ref)	-22.80	1,880,000,035	0.000002	0.018
100%		-30	23.60	1,879,999,982	-0.000001	-0.010
100%		-20	-36.90	1,879,999,951	-0.000003	-0.026
100%		-10	13.50	1,879,999,968	-0.000002	-0.017
100%		0	12.10	1,879,999,964	-0.000002	-0.019
100%		+10	12.50	1,880,000,038	0.000002	0.020
100%		+20	-22.80	1,880,000,035	0.000002	0.018
100%		+30	-0.80	1,880,000,010	0.000001	0.005
100%		+40	34.00	1,879,999,960	-0.000002	-0.021
100%		+50	-12.70	1,879,999,957	-0.000002	-0.023
100%		+60	3.40	1,880,000,007	0.000000	0.004
85%	3.25	+20	16.60	1,879,999,981	-0.000001	-0.010
115%	4.26	+20	16.70	1,879,999,987	-0.000001	-0.007
Batt. Endpoint	3.25	+20	16.60	1,879,999,981	-0.000001	-0.010

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

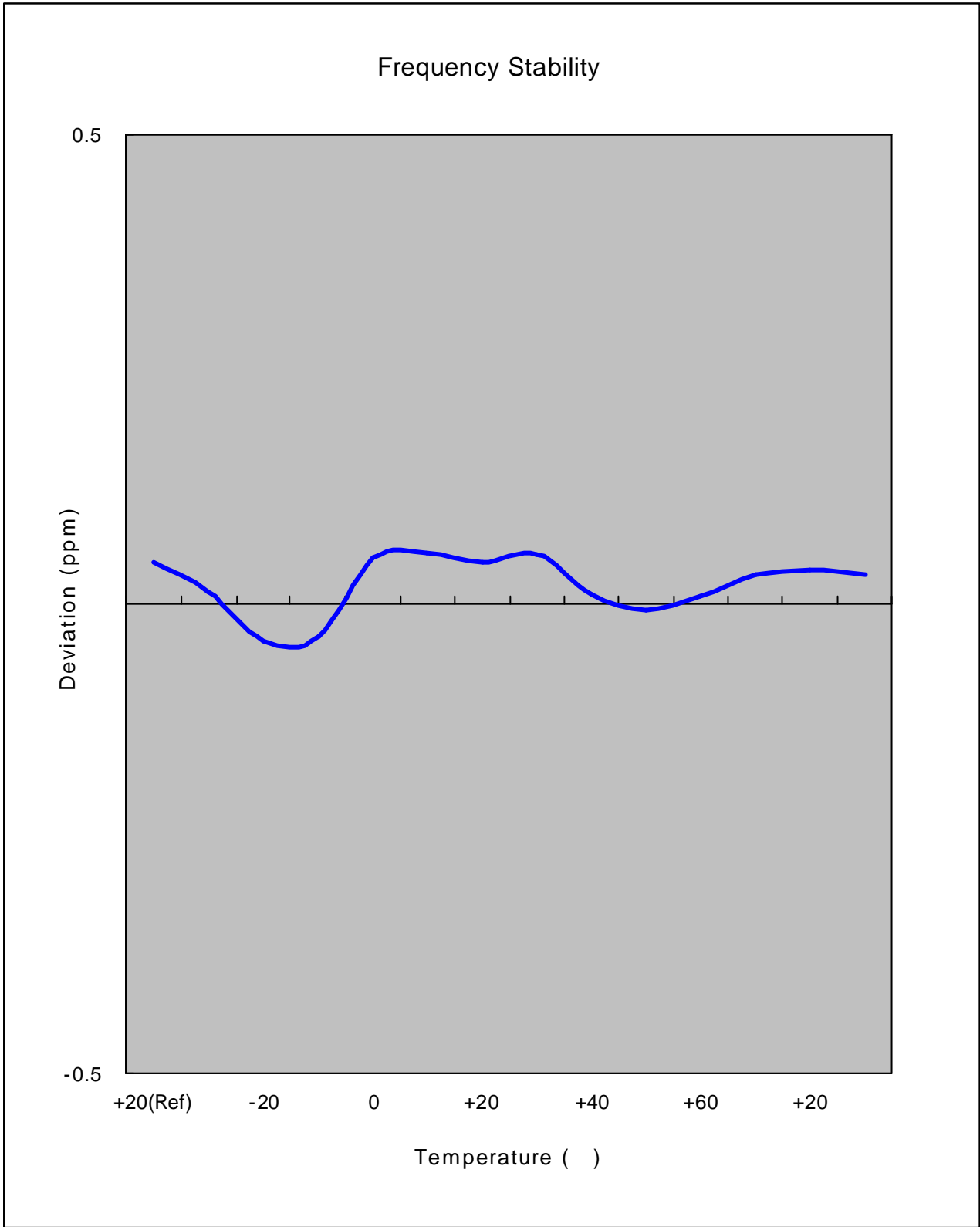
**The EUT is tested down to the battery end point**

6.8.3 Cellular WCDMA Frequency Stability Graph



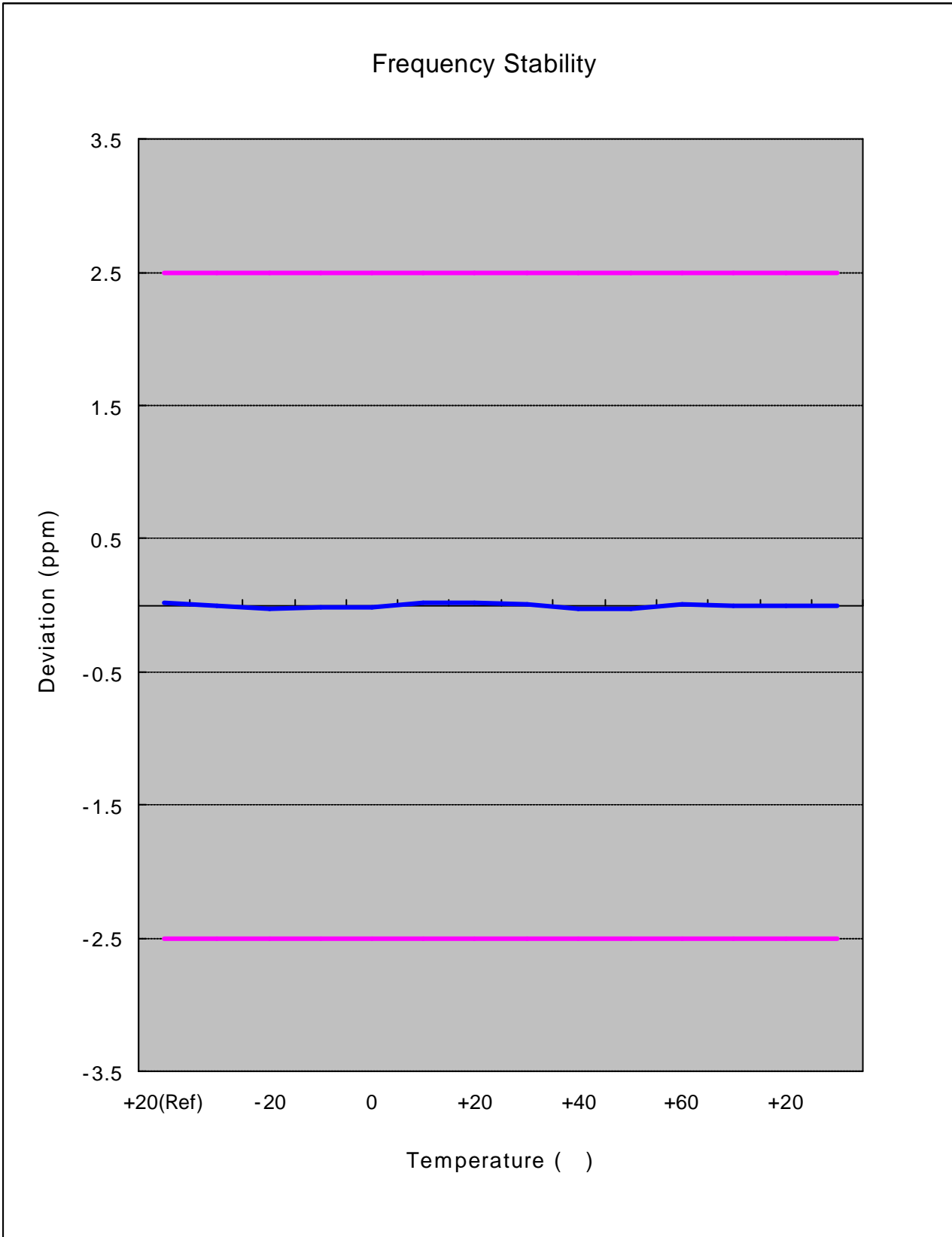
- End of page -

Zoom In



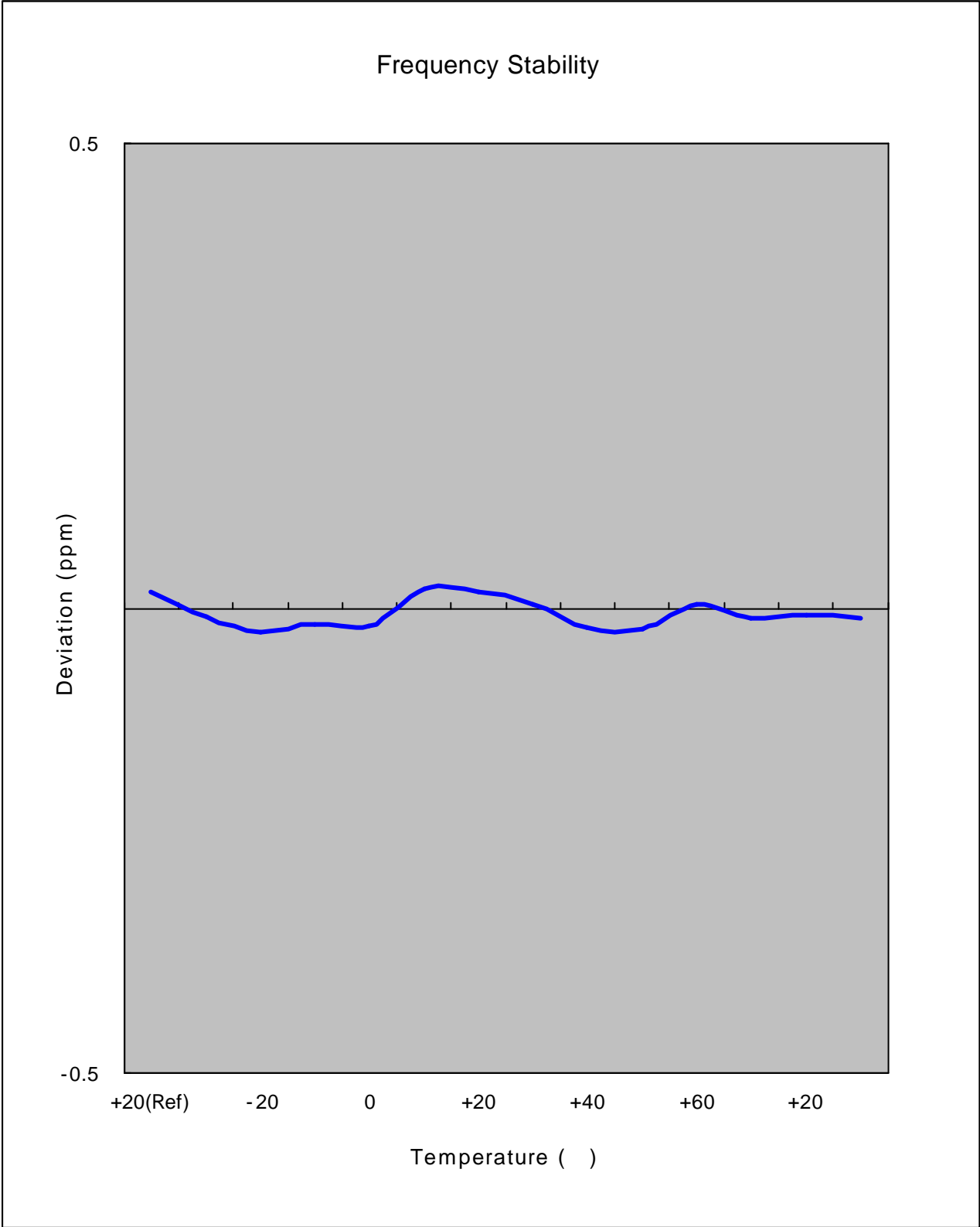
- End of page -

6.8.4 PCS WCDMA Frequency Stability Graph



- End of page -

Zoom In



- End of page -

## 7. SAMPLE CALCULATION

### 7.1 Emission Designator

Emission Designator = 4M19F9W

CDMA BW = 4.19MHz

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 850/1900 GSM/WCDMA/EDGE/GPRS Phone with Bluetooth and WLAN.

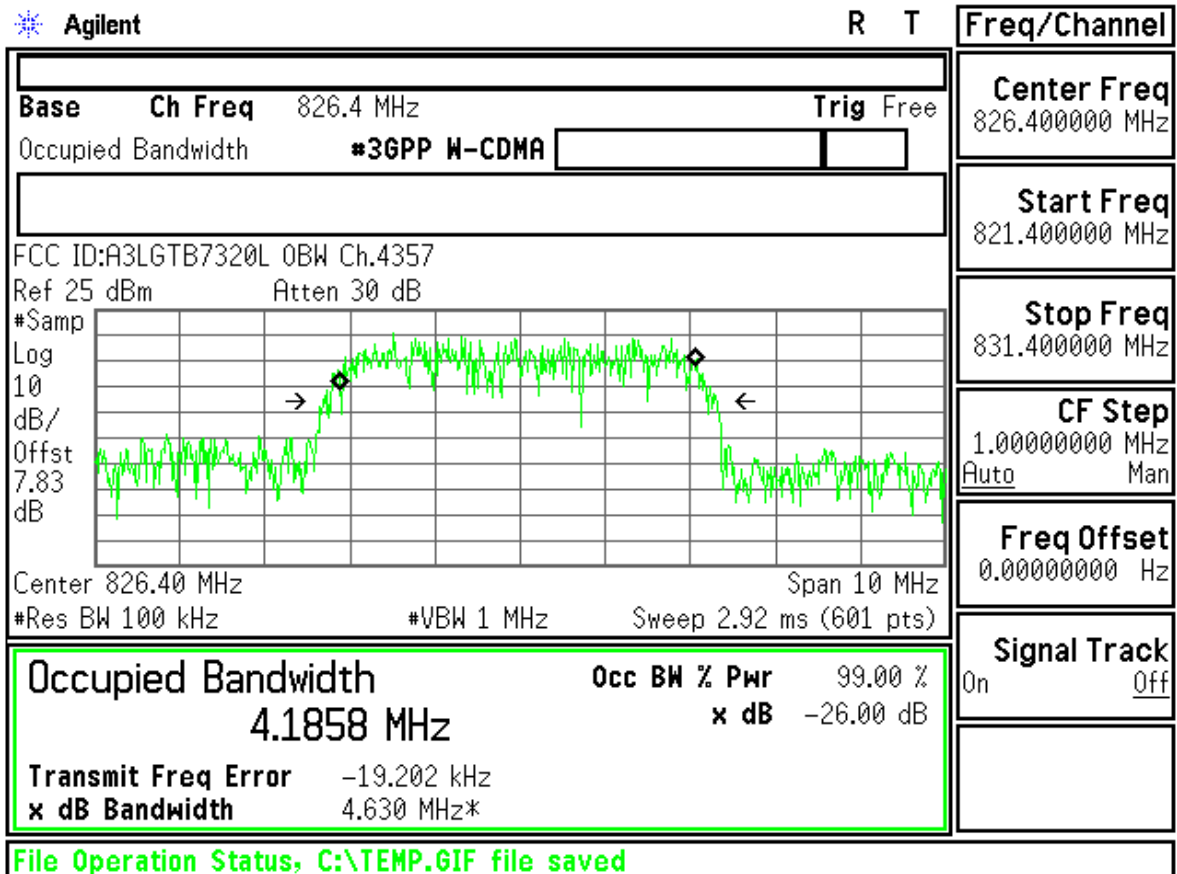
FCC ID : A3LGTB7320L complies with all the requirements of Parts 2, 22, 24 of the FCC Rules.

- End of page -

## 9. TEST PLOT



Measurement/Instrument Screen						
Control	Waveform Quality				Call Parms	
Waveform Quality Setup ▾		<b>Minimum</b>	<b>Maximum</b>	<b>Average</b>	Cell Power	
	EVM (%):	6.22	6.82	6.54	-104.00	
	Frequency Error (Hz):	-18.69	5.03	-7.91	dBm/3.84 MHz	
	Origin Offset (dB):	-32.00	-29.77	-30.59	Channel Type	
	Phase Error (°):	2.79	3.11	2.96	12.2k RMC	
	Mag Error (%):	3.84	4.14	4.02	Paging Service	
	Time Error (chips):	0.80	0.94	0.88	RB Test Mode	
	Max PCDE: -29.36 dB at Cch.64.16:0					
	50 / 50			Single		
Calibrate Measurements	<b>Thermal Power</b>					
	Thermal Power <b>23.19 dBm</b>					
Snap Window Positions	Single					
	Active Cell Connected			Sys Type: UTRA FDD		
1 of 2						1 of 3



Agilent

R T

Freq/Channel

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

Center Freq	836.600000 MHz
-------------	----------------

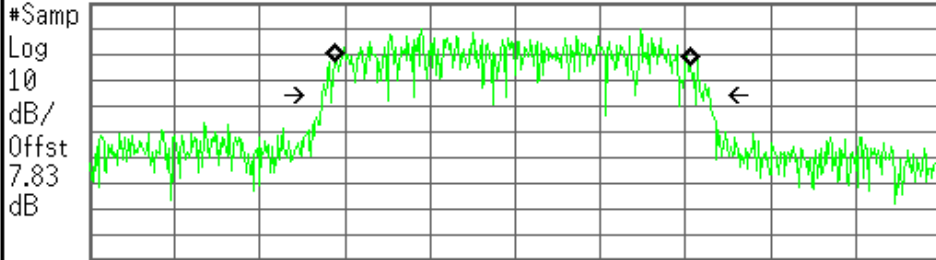
Start Freq	831.600000 MHz
------------	----------------

Stop Freq	841.600000 MHz
-----------	----------------

CF Step	1.00000000 MHz	Auto	Man
---------	----------------	------	-----

Freq Offset	0.00000000 Hz
-------------	---------------

FCC ID:A3LGTB7320L 0BW Ch.4408  
 Ref 25 dBm Atten 30 dB



Center 836.60 MHz Span 10 MHz  
 #Res BW 100 kHz #VBW 1 MHz Sweep 2.92 ms (601 pts)

Signal Track	On	Off
--------------	----	-----

Occupied Bandwidth	4.1745 MHz	Occ BW % Pwr	99.00 %
Transmit Freq Error	-22.356 kHz	x dB	-26.00 dB
x dB Bandwidth	4.574 MHz*		

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel

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

Center Freq	846.600000 MHz
-------------	----------------

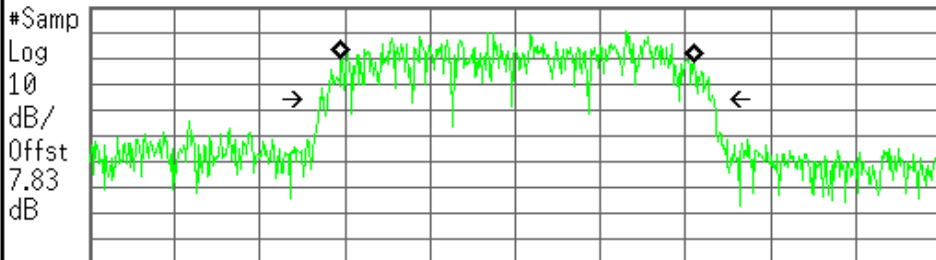
Start Freq	841.600000 MHz
------------	----------------

Stop Freq	851.600000 MHz
-----------	----------------

CF Step	1.00000000 MHz	Auto	Man
---------	----------------	------	-----

Freq Offset	0.00000000 Hz
-------------	---------------

FCC ID:A3LGTB7320L 0BW Ch.4458  
 Ref 25 dBm Atten 30 dB



Center 846.60 MHz Span 10 MHz  
 #Res BW 100 kHz #VBW 1 MHz Sweep 2.92 ms (601 pts)

Signal Track	On	Off
--------------	----	-----

Occupied Bandwidth	4.1350 MHz	Occ BW % Pwr	99.00 %
Transmit Freq Error	25.812 kHz	x dB	-26.00 dB
x dB Bandwidth	4.627 MHz*		

File Operation Status, C:\TEMP.GIF file saved

Agilent

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

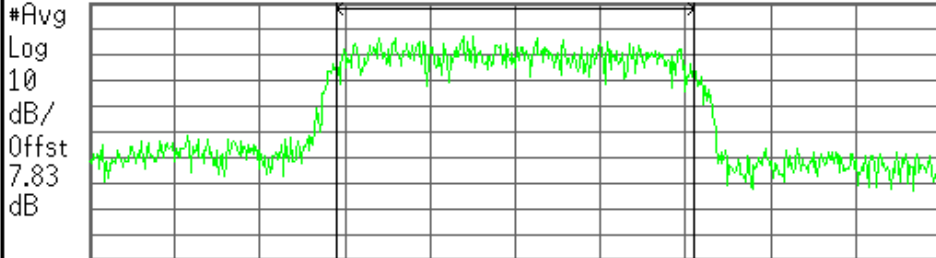
Stop Freq  
831.400000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LGTB7320L Power Out Ch.4357  
 Ref 25 dBm Atten 30 dB



Center 826.40 MHz Span 10 MHz  
 #Res BW 62 kHz #VBW 620 kHz Sweep 7.6 ms (601 pts)

Channel Power Power Spectral Density  
 23.48 dBm /4.1830 MHz -42.73 dBm/Hz

File Operation Status, C:\TEMP.GIF file saved

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

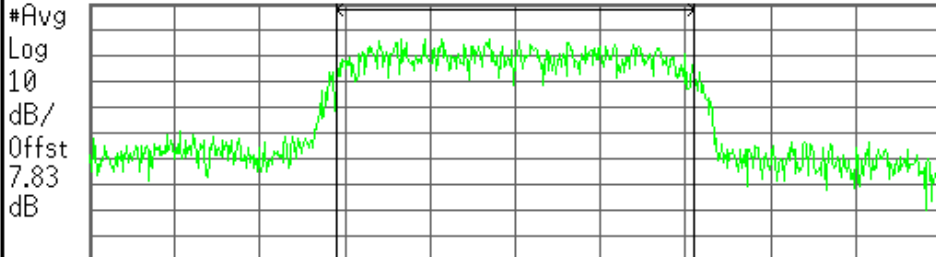
Stop Freq  
841.600000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LGTB7320L Power Out Ch.4408  
 Ref 25 dBm Atten 30 dB



Center 836.60 MHz Span 10 MHz  
 #Res BW 62 kHz #VBW 620 kHz Sweep 7.6 ms (601 pts)

Channel Power Power Spectral Density  
 23.37 dBm /4.1858 MHz -42.85 dBm/Hz

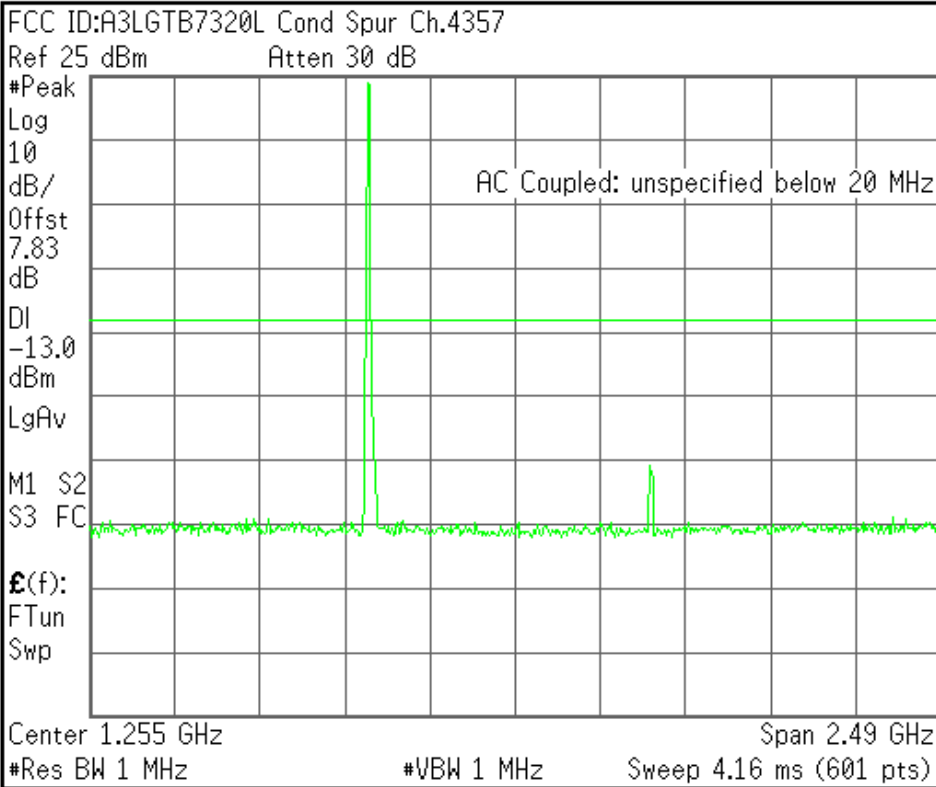
File Operation Status, C:\TEMP.GIF file saved

<b>Base</b> <b>Ch Freq</b> 846.6 MHz <b>Trig</b> Free		<b>Freq/Channel</b>	
Channel Power <b>#3GPP W-CDMA</b>		<b>Center Freq</b> 846.600000 MHz	
FCC ID:A3LGTB7320L Power Out Ch.4458 Ref 25 dBm    Atten 30 dB		<b>Start Freq</b> 841.600000 MHz	
#Avg Log 10 dB/ Offst 7.83 dB		<b>Stop Freq</b> 851.600000 MHz	
		<b>CF Step</b> 1.00000000 MHz Auto    Man	
Center 846.60 MHz    Span 10 MHz #Res BW 62 kHz    #VBW 620 kHz    Sweep 7.6 ms (601 pts)		<b>Freq Offset</b> 0.00000000 Hz	
<b>Channel Power</b> <b>Power Spectral Density</b>		<b>Signal Track</b> On    Off	
23.37 dBm /4.2319 MHz    -42.90 dBm/Hz			
File Operation Status, C:\TEMP.GIF file saved			

Agilent

R L

Freq/Channel



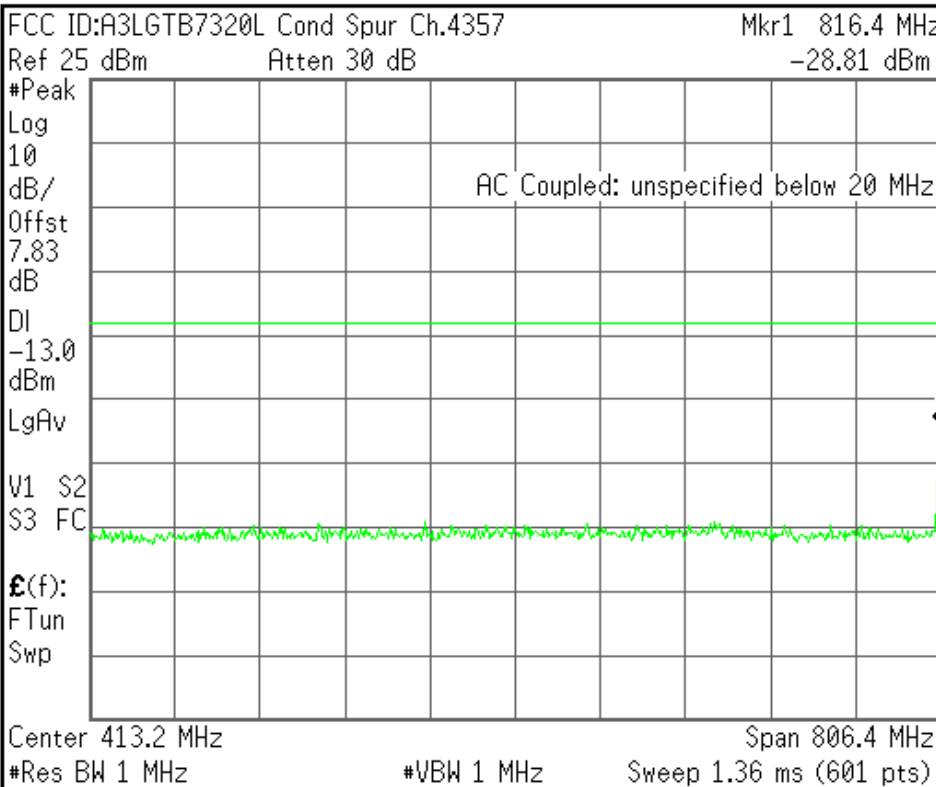
<b>Center Freq</b> 1.25500000 GHz
<b>Start Freq</b> 10.0000000 MHz
<b>Stop Freq</b> 2.50000000 GHz
<b>CF Step</b> 249.000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



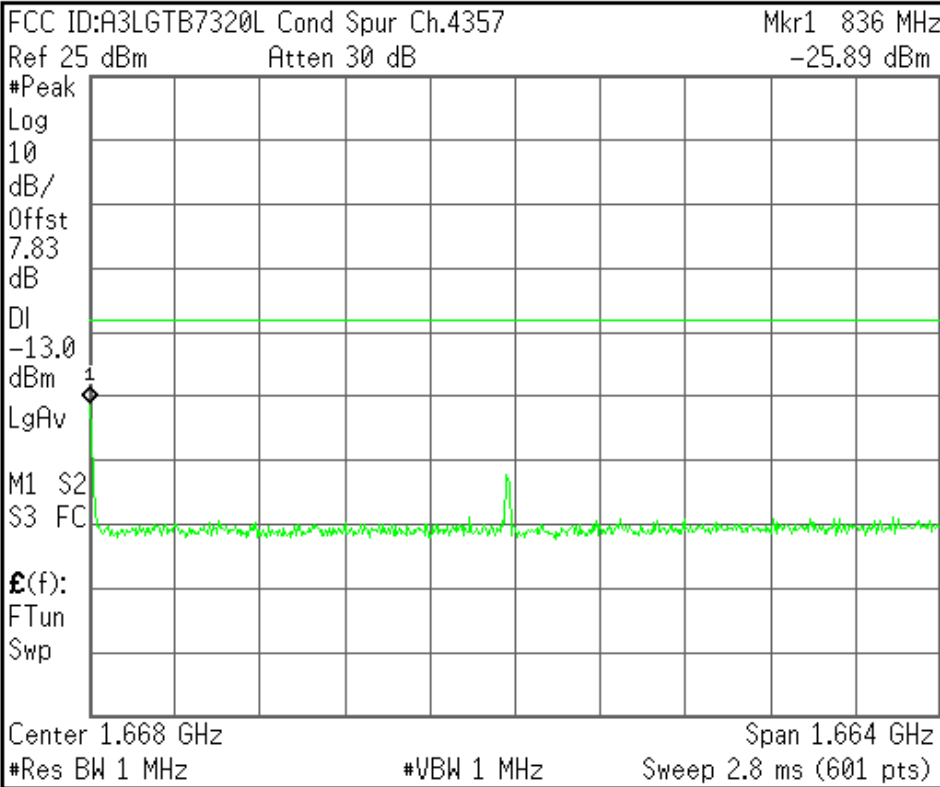
<b>Center Freq</b> 413.200000 MHz
<b>Start Freq</b> 10.0000000 MHz
<b>Stop Freq</b> 816.400000 MHz
<b>CF Step</b> 80.6400000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



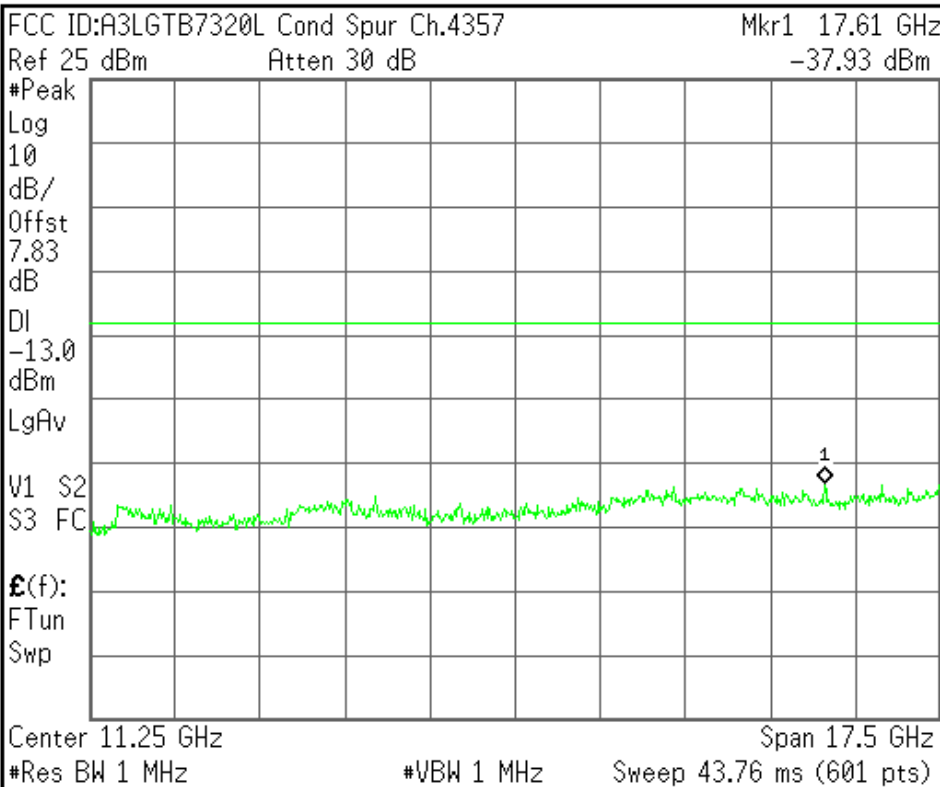
<b>Center Freq</b> 1.66820000 GHz
<b>Start Freq</b> 836.400000 MHz
<b>Stop Freq</b> 2.50000000 GHz
<b>CF Step</b> 166.360000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



<b>Center Freq</b> 11.25000000 GHz
<b>Start Freq</b> 2.50000000 GHz
<b>Stop Freq</b> 20.00000000 GHz
<b>CF Step</b> 1.75000000 GHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel

FCC ID:A3LGTB7320L Cond Spur Ch.4408

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

LgAv

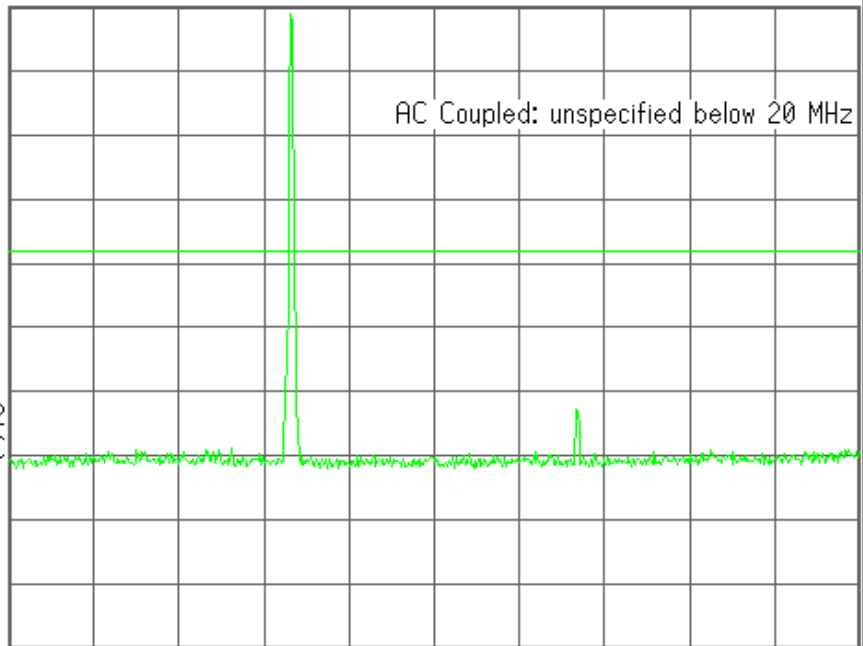
M1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Center 1.255 GHz

Span 2.49 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 4.16 ms (601 pts)

Center Freq  
1.25500000 GHz

Start Freq  
10.00000000 MHz

Stop Freq  
2.50000000 GHz

CF Step  
249.0000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel

FCC ID:A3LGTB7320L Cond Spur Ch.4408

Mkr1 826.6 MHz

Ref 25 dBm

Atten 30 dB

-25.00 dBm

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

LgAv

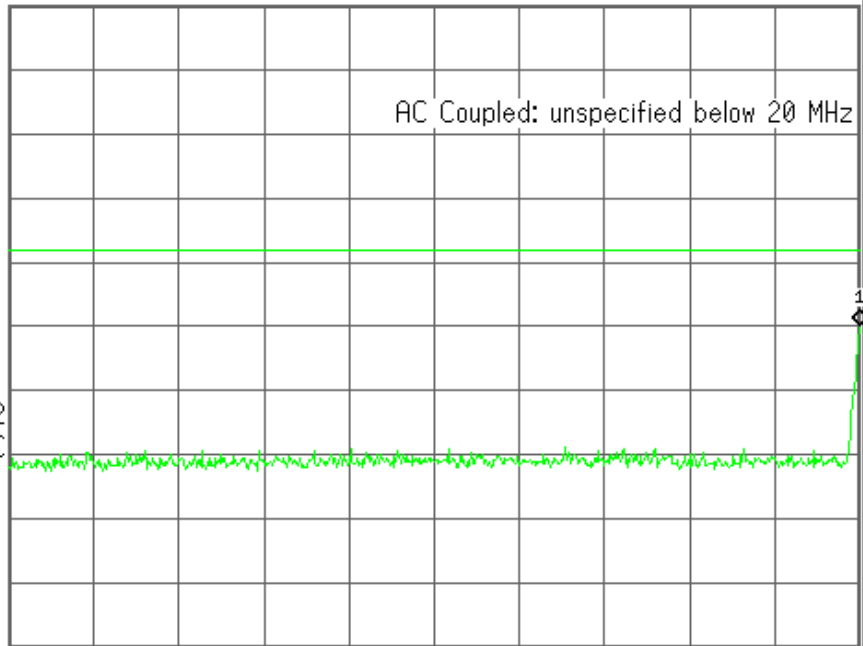
V1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Center 418.3 MHz

Span 816.6 MHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 1.4 ms (601 pts)

Center Freq  
418.300000 MHz

Start Freq  
10.00000000 MHz

Stop Freq  
826.600000 MHz

CF Step  
81.66000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

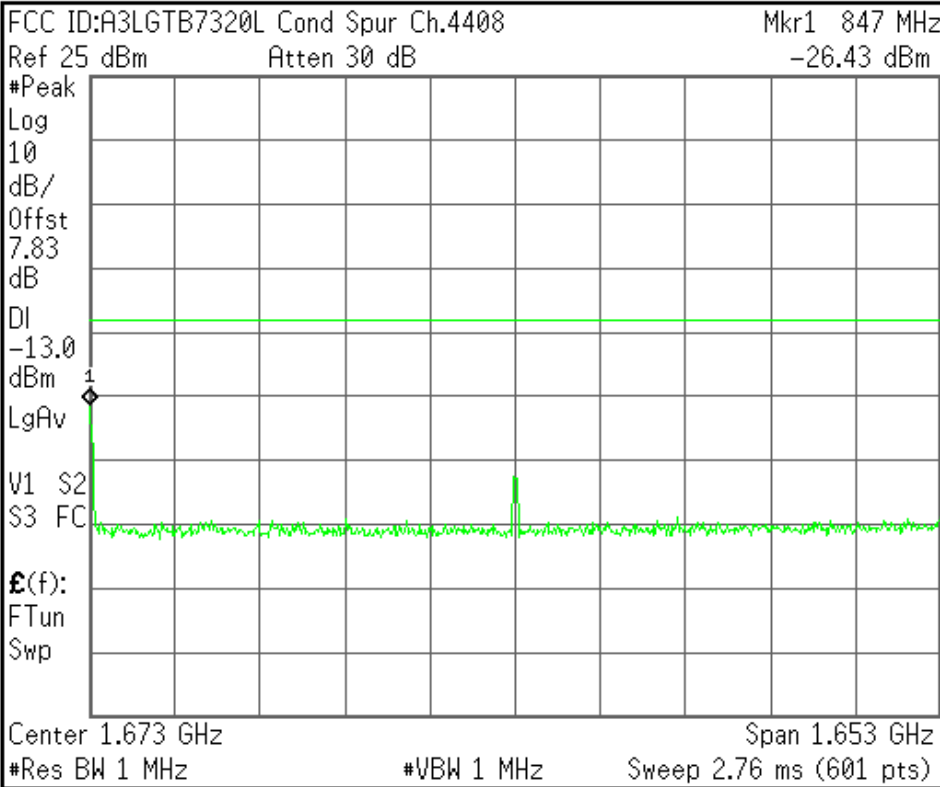
Signal Track  
On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



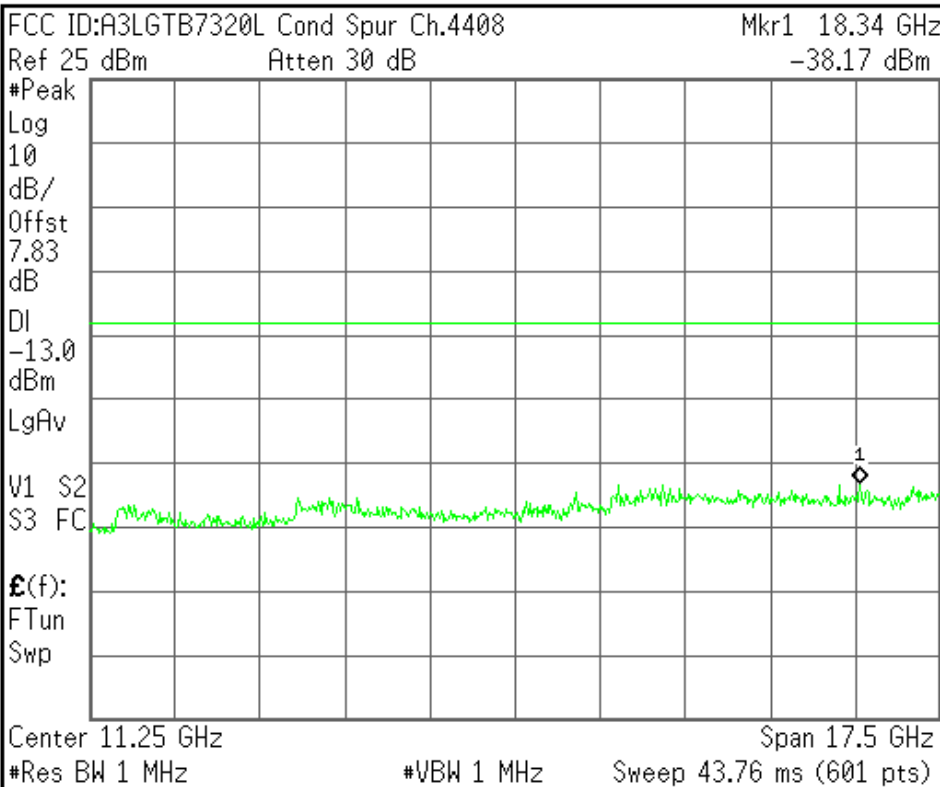
<b>Center Freq</b> 1.67330000 GHz
<b>Start Freq</b> 846.600000 MHz
<b>Stop Freq</b> 2.50000000 GHz
<b>CF Step</b> 165.340000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



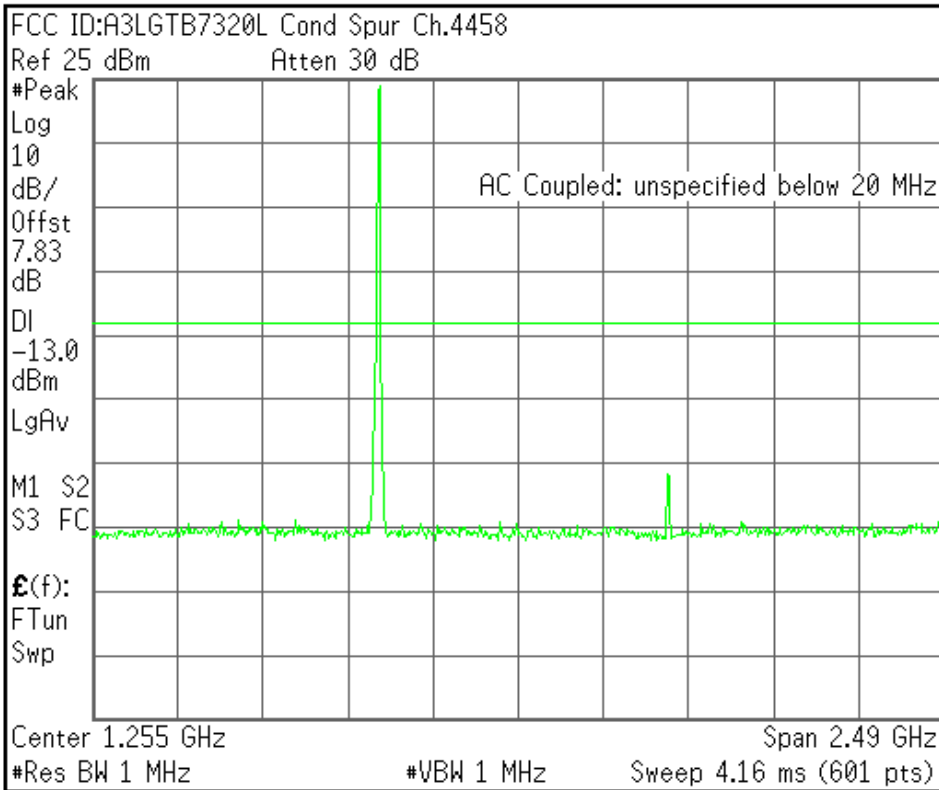
<b>Center Freq</b> 11.25000000 GHz
<b>Start Freq</b> 2.50000000 GHz
<b>Stop Freq</b> 20.00000000 GHz
<b>CF Step</b> 1.75000000 GHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



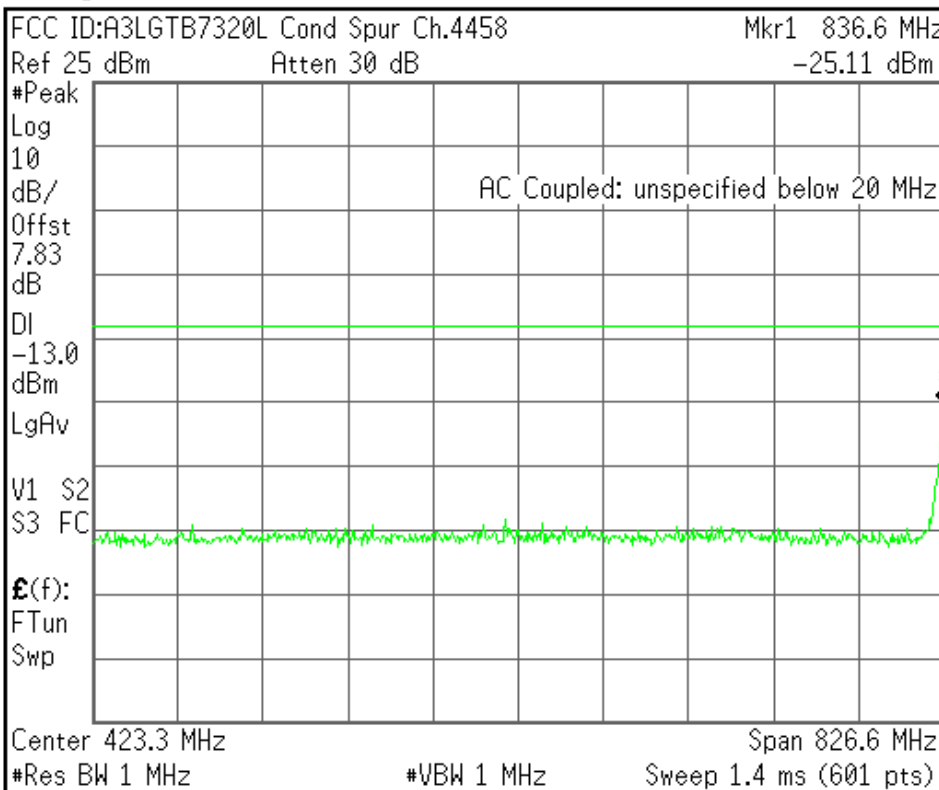
<b>Center Freq</b> 1.25500000 GHz
<b>Start Freq</b> 10.00000000 MHz
<b>Stop Freq</b> 2.50000000 GHz
<b>CF Step</b> 249.0000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



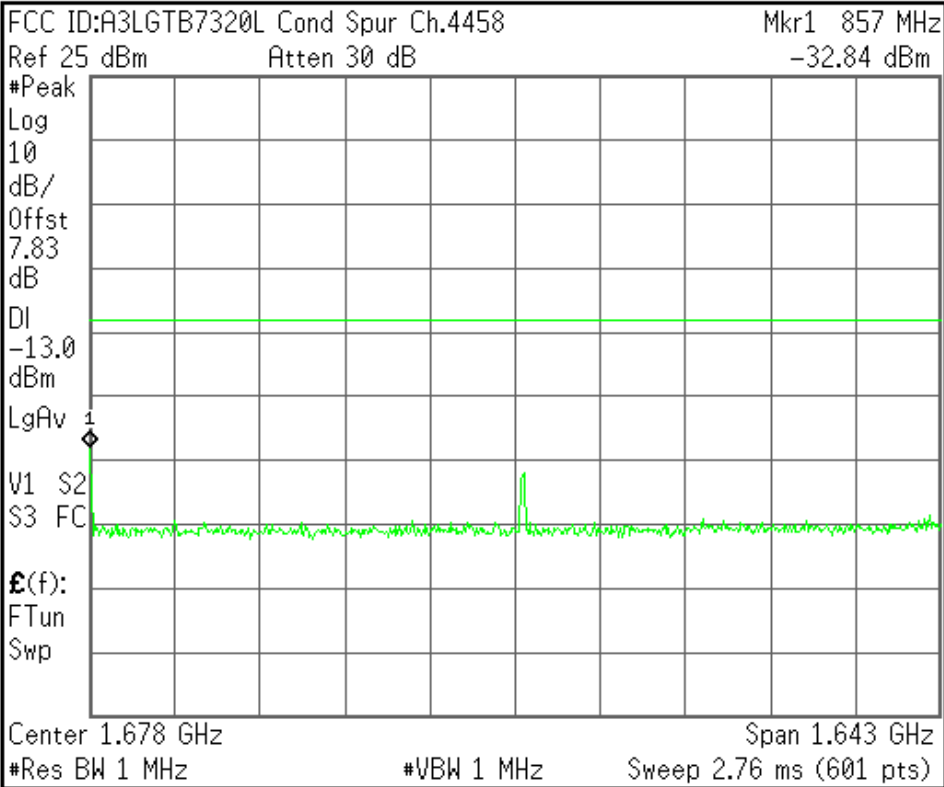
<b>Center Freq</b> 423.300000 MHz
<b>Start Freq</b> 10.00000000 MHz
<b>Stop Freq</b> 836.600000 MHz
<b>CF Step</b> 82.66000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



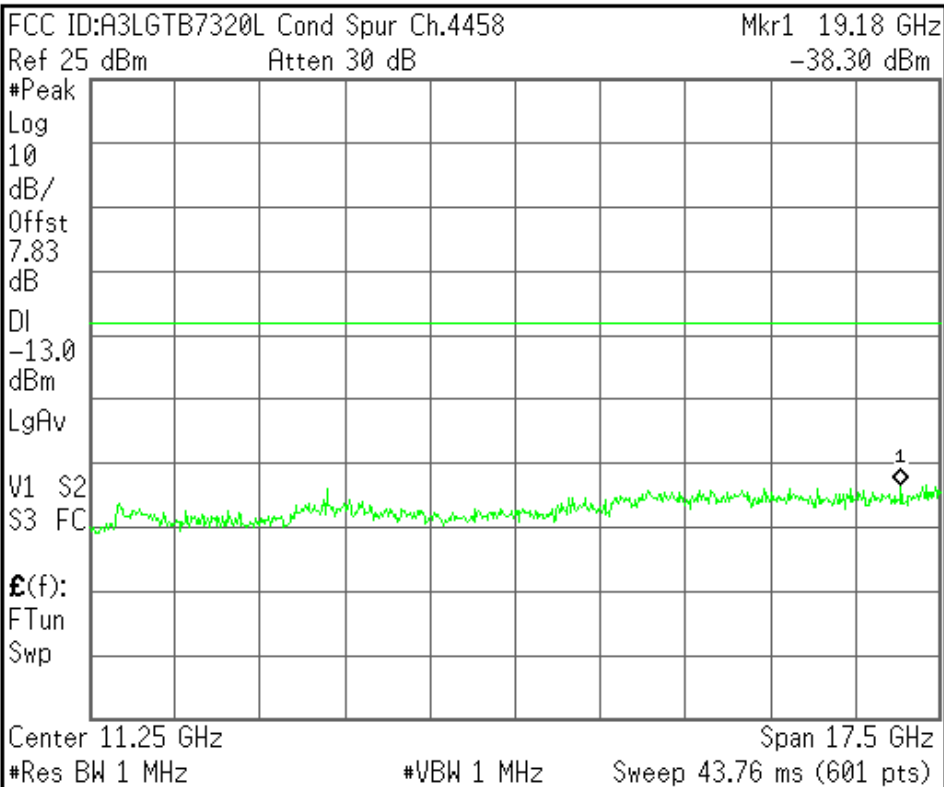
<b>Center Freq</b> 1.67830000 GHz
<b>Start Freq</b> 856.600000 MHz
<b>Stop Freq</b> 2.50000000 GHz
<b>CF Step</b> 164.340000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



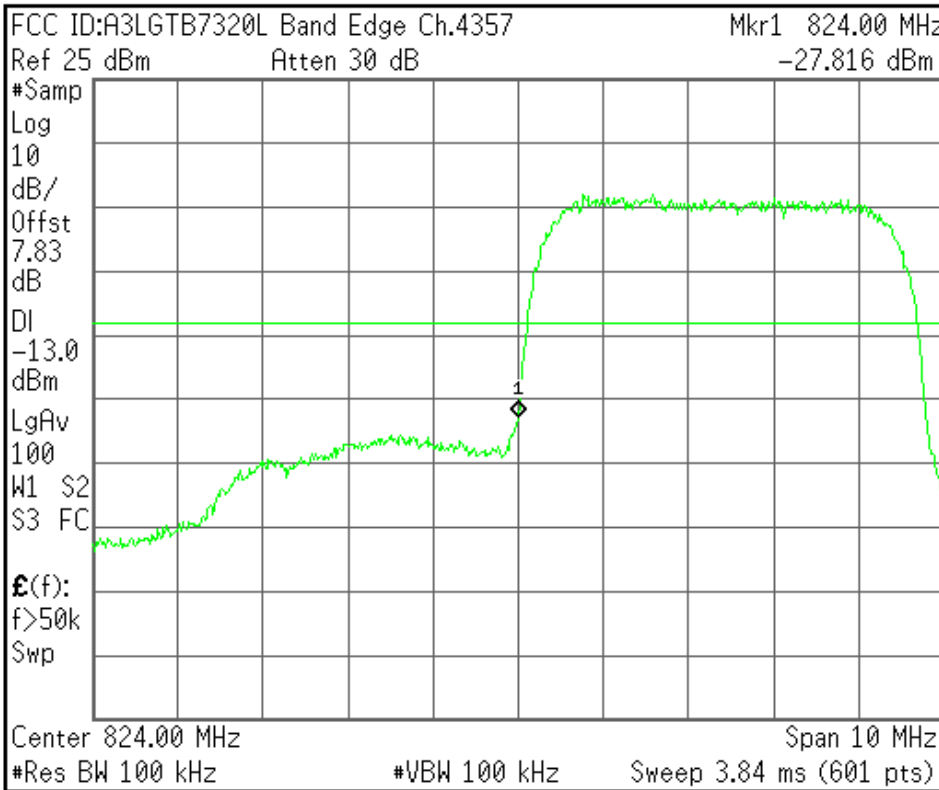
<b>Center Freq</b> 11.2500000 GHz
<b>Start Freq</b> 2.50000000 GHz
<b>Stop Freq</b> 20.0000000 GHz
<b>CF Step</b> 1.75000000 GHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



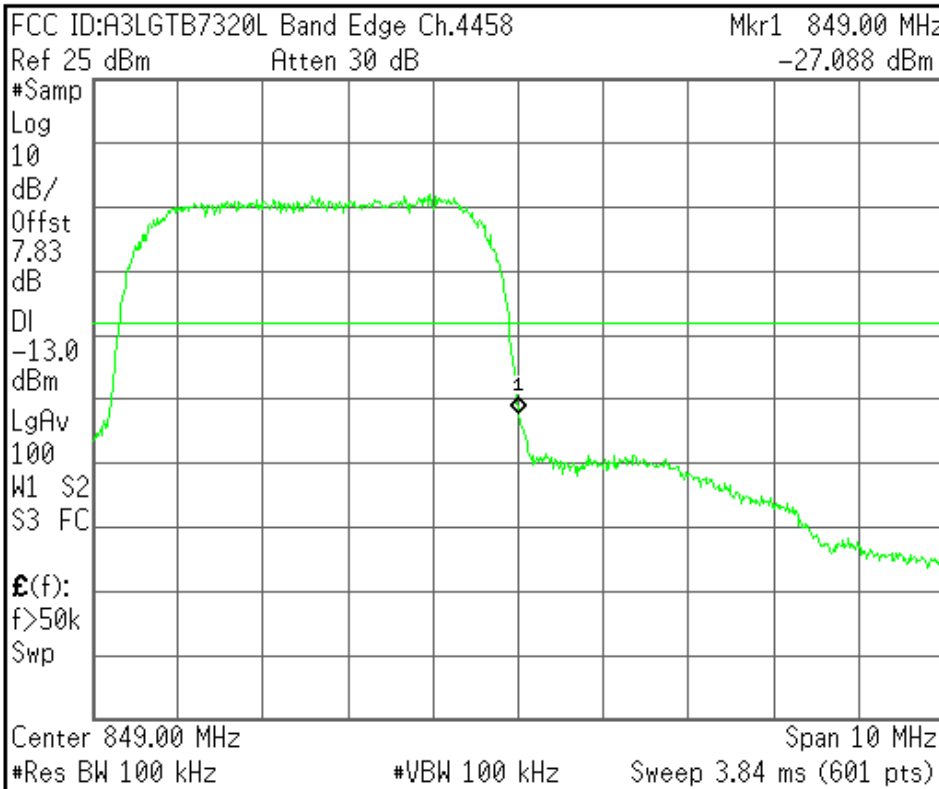
<b>Center Freq</b> 824.000000 MHz
<b>Start Freq</b> 819.000000 MHz
<b>Stop Freq</b> 829.000000 MHz
<b>CF Step</b> 1.00000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



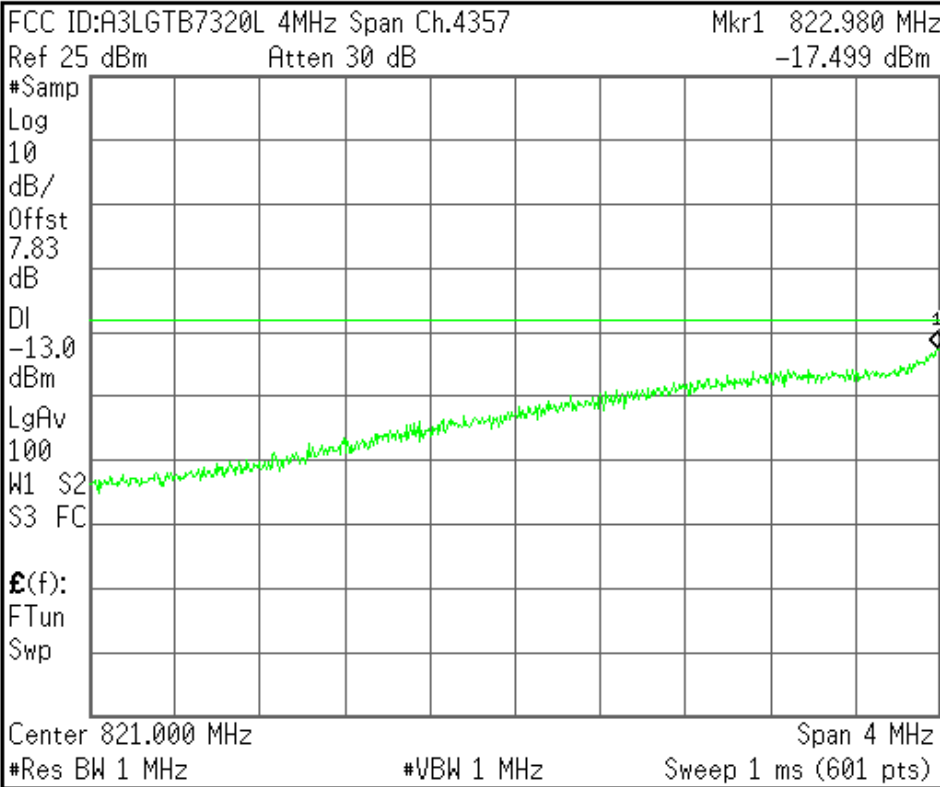
<b>Center Freq</b> 849.000000 MHz
<b>Start Freq</b> 844.000000 MHz
<b>Stop Freq</b> 854.000000 MHz
<b>CF Step</b> 1.00000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



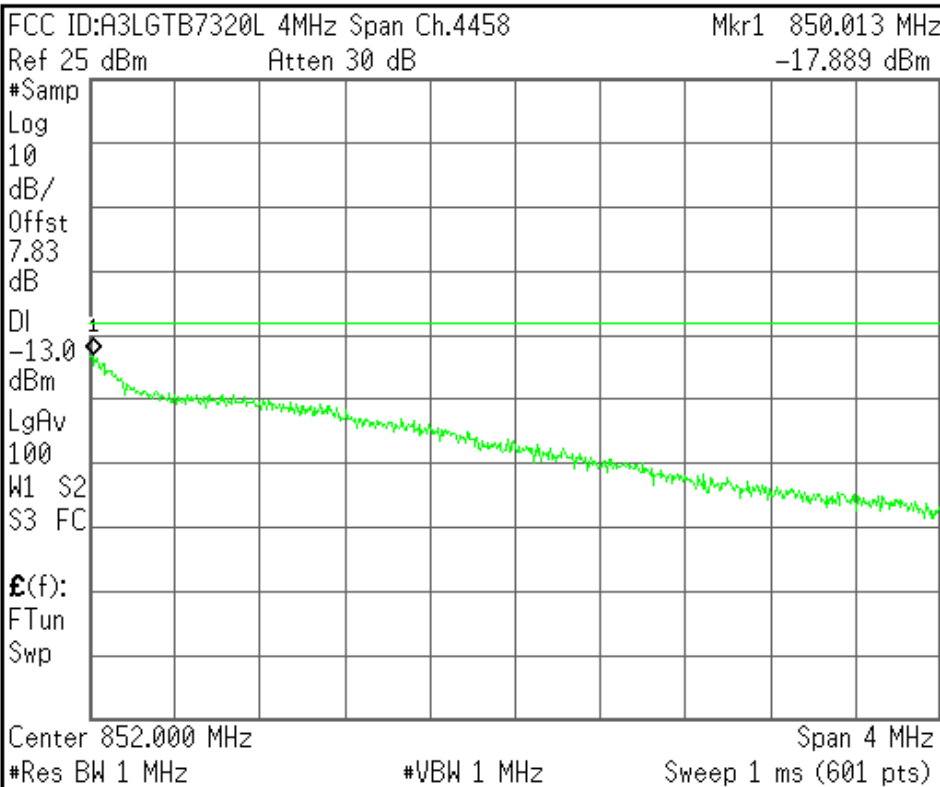
<b>Center Freq</b> 821.000000 MHz
<b>Start Freq</b> 819.000000 MHz
<b>Stop Freq</b> 823.000000 MHz
<b>CF Step</b> 400.000000 kHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel

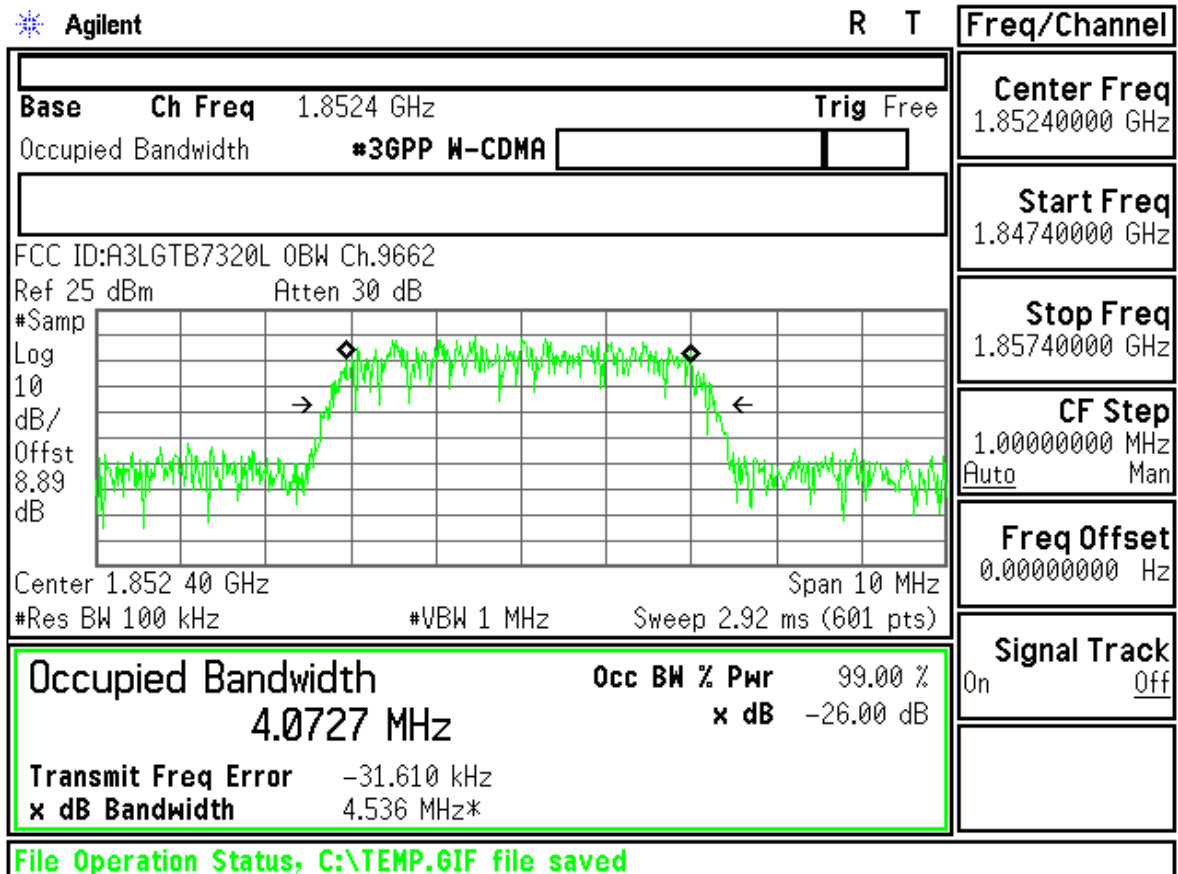


<b>Center Freq</b> 852.000000 MHz
<b>Start Freq</b> 850.000000 MHz
<b>Stop Freq</b> 854.000000 MHz
<b>CF Step</b> 400.000000 kHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved



Measurement/Instrument Screen						
Control	Waveform Quality				Call Parms	
Waveform Quality Setup ▾		<u>Minimum</u>	<u>Maximum</u>	<u>Average</u>	Cell Power	
	EVM (%):	9.22	11.08	10.45	-104.00	
	Frequency Error (Hz):	-40.24	23.26	-13.58	dBm/3.84 MHz	
	Origin Offset (dB):	-32.62	-29.53	-30.98	Channel Type	
	Phase Error (°):	4.85	6.00	5.60	12.2k RMC	
	Mag Error (%):	3.62	3.86	3.75	Paging Service	
	Time Error (chips):	1.17	1.31	1.28	RB Test Mode	
	Max PCDE: -22.47 dB at Cch.64.16:0					
	50 /50			Single		
Calibrate Measurements	Thermal Power					
	Thermal Power <b>23.10 dBm</b>					
Snap Window Positions	Single					
	Sys Type: UTRA FDD					
1 of 2	Active Cell Connected				1 of 3	
		IntRef	Offset	R T		



Agilent

R T

Freq/Channel

Base Ch Freq 1.88 GHz Trig Free  
 Occupied Bandwidth #3GPP W-CDMA

Center Freq  
1.88000000 GHz

Start Freq  
1.87500000 GHz

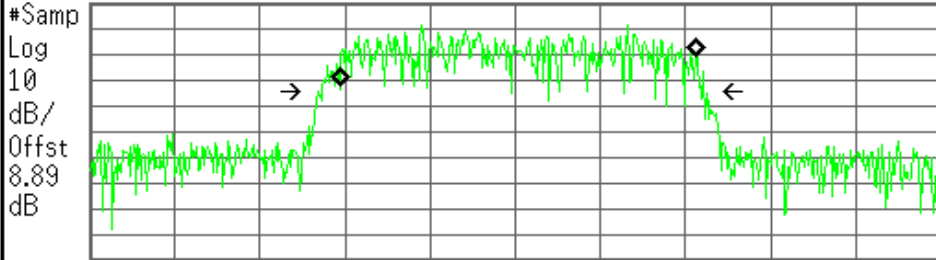
Stop Freq  
1.88500000 GHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LGTB7320L 0BW Ch.9800  
 Ref 25 dBm Atten 30 dB



Center 1.880 00 GHz Span 10 MHz  
 #Res BW 100 kHz #VBW 1 MHz Sweep 2.92 ms (601 pts)

**Occupied Bandwidth** Occ BW % Pwr 99.00 %  
 4.1836 MHz x dB -26.00 dB  
 Transmit Freq Error 22.836 kHz  
 x dB Bandwidth 4.546 MHz\*

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel

Base Ch Freq 1.9076 GHz Trig Free  
 Occupied Bandwidth #3GPP W-CDMA

Center Freq  
1.90760000 GHz

Start Freq  
1.90260000 GHz

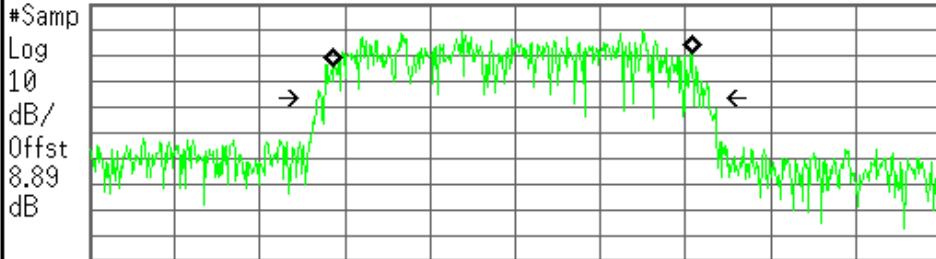
Stop Freq  
1.91260000 GHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LGTB7320L 0BW Ch.9938  
 Ref 25 dBm Atten 30 dB



Center 1.907 60 GHz Span 10 MHz  
 #Res BW 100 kHz #VBW 1 MHz Sweep 2.92 ms (601 pts)

**Occupied Bandwidth** Occ BW % Pwr 99.00 %  
 4.2030 MHz x dB -26.00 dB  
 Transmit Freq Error -24.617 kHz  
 x dB Bandwidth 4.604 MHz\*

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel

Base	Ch Freq	1.8524 GHz	Trig	Free
Channel Power		#3GPP W-CDMA		

Center Freq	1.85240000 GHz
-------------	----------------

Start Freq	1.84740000 GHz
------------	----------------

Stop Freq	1.85740000 GHz
-----------	----------------

CF Step	1.00000000 MHz	Auto	Man
---------	----------------	------	-----

Freq Offset	0.00000000 Hz
-------------	---------------

FCC ID:A3LGTB7320L Power Out Ch.9662  
 Ref 25 dBm Atten 30 dB



Center 1.852 40 GHz Span 10 MHz  
 #Res BW 62 kHz #VBW 620 kHz Sweep 7.6 ms (601 pts)

Signal Track	On	Off
--------------	----	-----

Channel Power	Power Spectral Density
22.99 dBm /4.0727 MHz	-43.11 dBm/Hz

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel

Base	Ch Freq	1.88 GHz	Trig	Free
Channel Power		#3GPP W-CDMA		

Center Freq	1.88000000 GHz
-------------	----------------

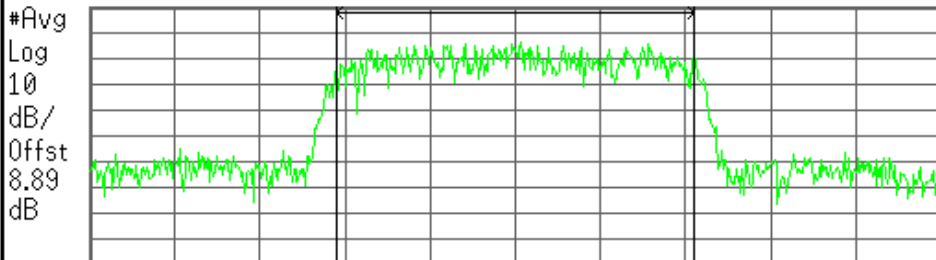
Start Freq	1.87500000 GHz
------------	----------------

Stop Freq	1.88500000 GHz
-----------	----------------

CF Step	1.00000000 MHz	Auto	Man
---------	----------------	------	-----

Freq Offset	0.00000000 Hz
-------------	---------------

FCC ID:A3LGTB7320L Power Out Ch.9800  
 Ref 25 dBm Atten 30 dB

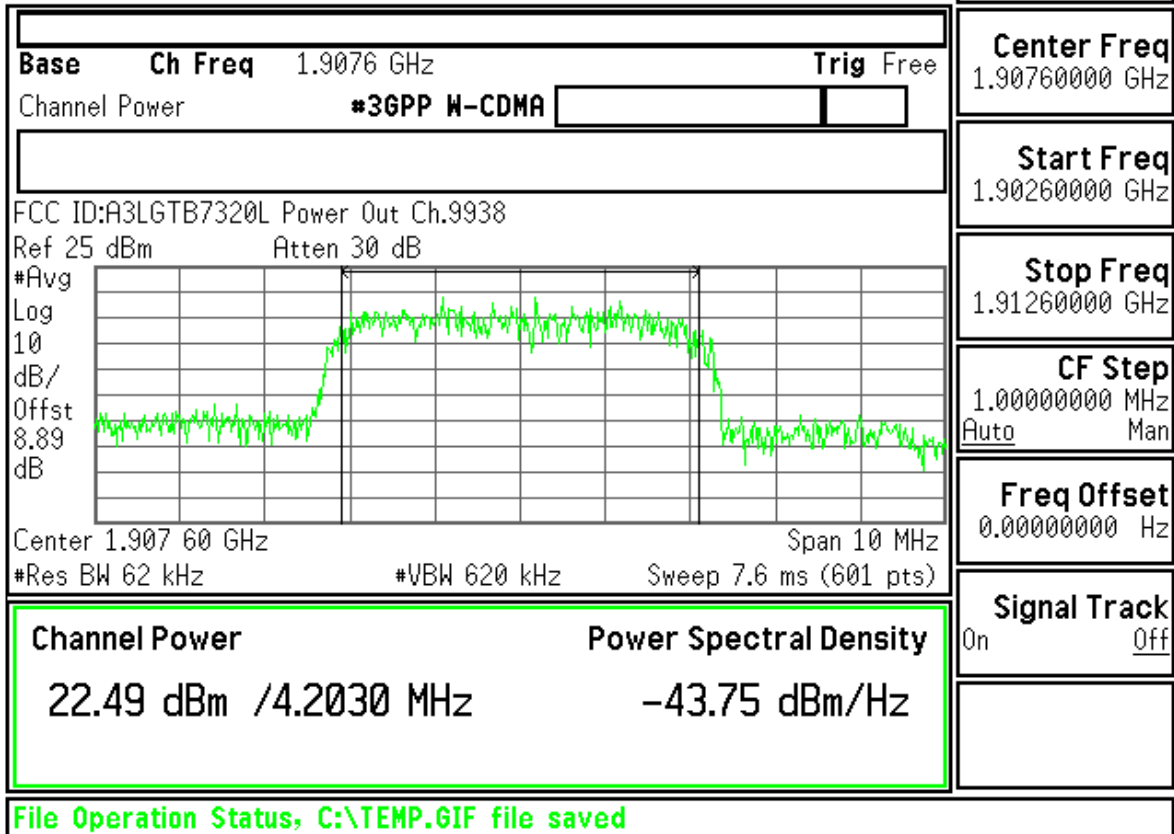


Center 1.880 00 GHz Span 10 MHz  
 #Res BW 62 kHz #VBW 620 kHz Sweep 7.6 ms (601 pts)

Signal Track	On	Off
--------------	----	-----

Channel Power	Power Spectral Density
23.32 dBm /4.1836 MHz	-42.90 dBm/Hz

File Operation Status, C:\TEMP.GIF file saved



Agilent

R L

Freq/Channel

FCC ID:A3LGTB7320L Cond Spur Ch.9662

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

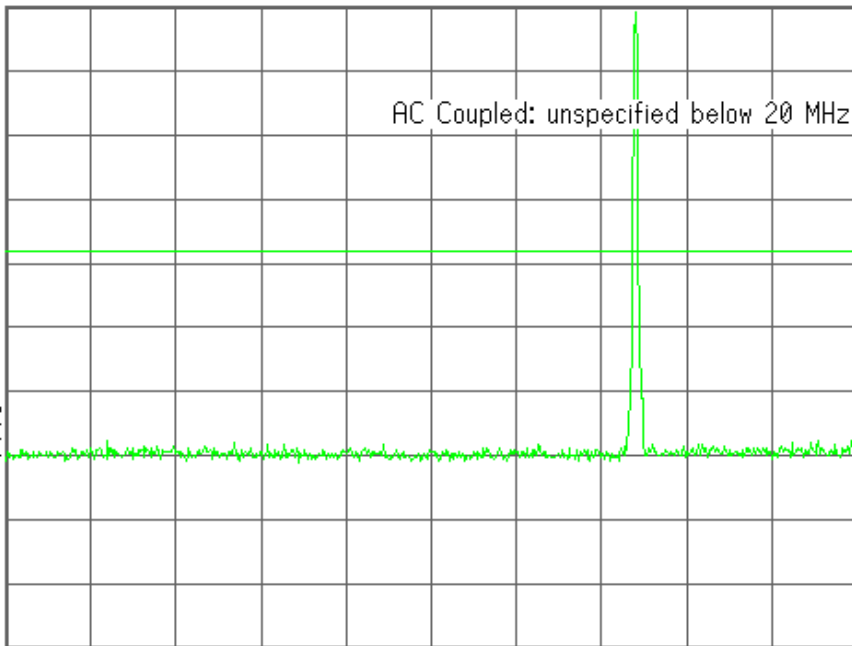
M1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Center 1.255 GHz

Span 2.49 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 4.16 ms (601 pts)

Center Freq  
1.25500000 GHz

Start Freq  
10.00000000 MHz

Stop Freq  
2.50000000 GHz

CF Step  
249.0000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel

FCC ID:A3LGTB7320L Cond Spur Ch.9662

Mkr1 1.842 GHz

Ref 25 dBm

Atten 30 dB

-20.04 dBm

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

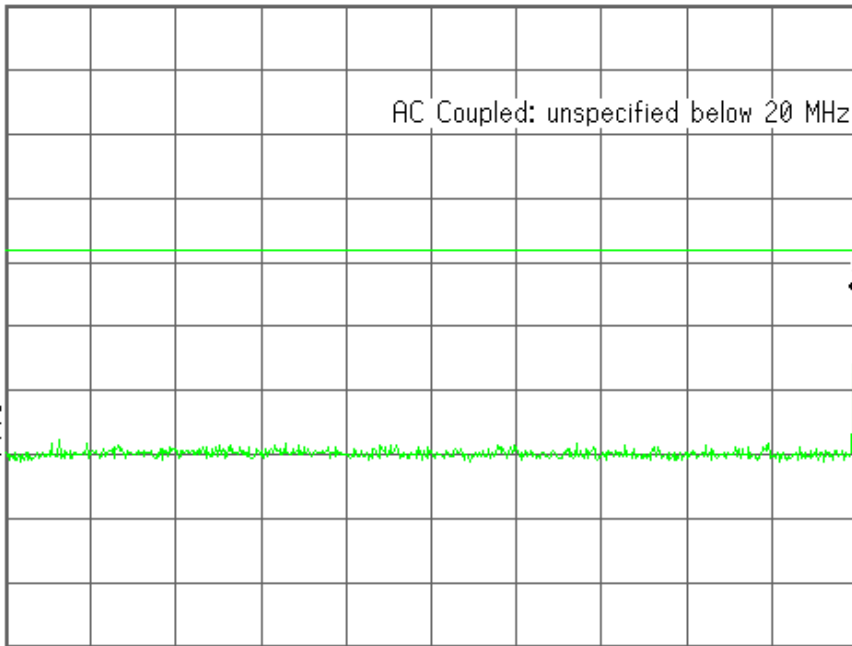
V1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Center 926 MHz

Span 1.832 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 3.08 ms (601 pts)

Center Freq  
926.2000000 MHz

Start Freq  
10.00000000 MHz

Stop Freq  
1.84240000 GHz

CF Step  
183.2400000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

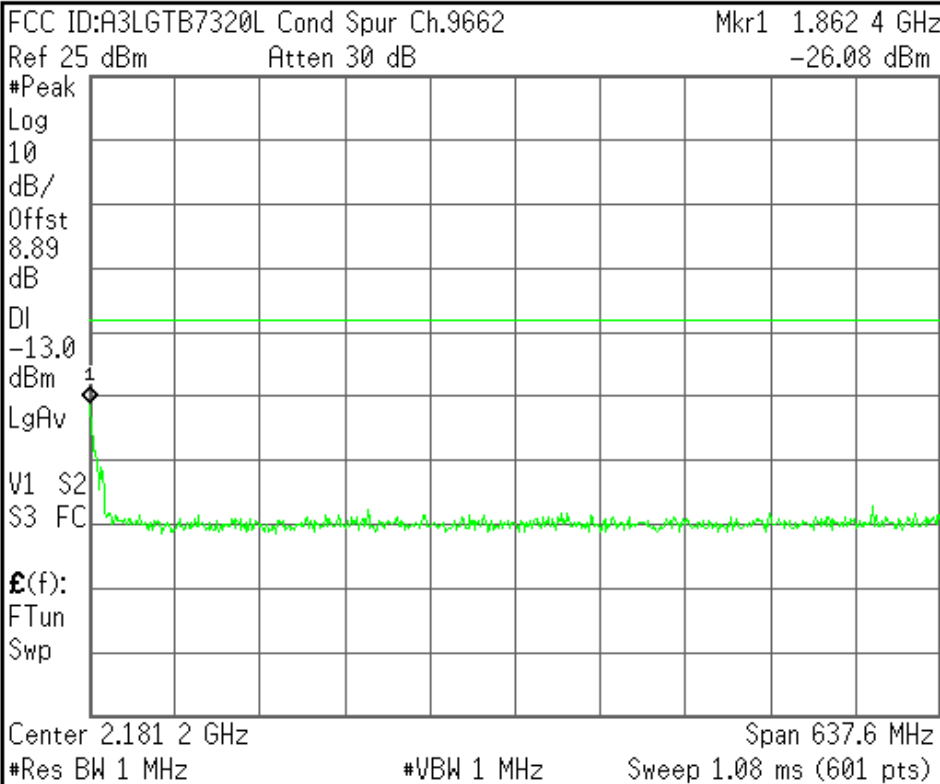
Signal Track  
On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



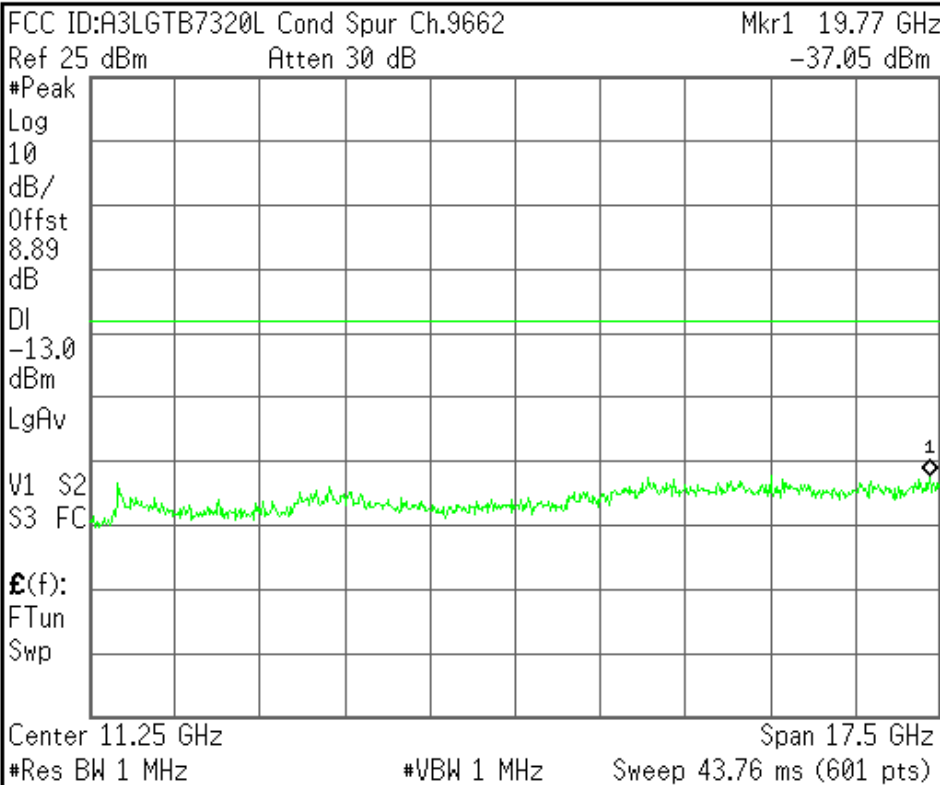
<b>Center Freq</b> 2.18120000 GHz
<b>Start Freq</b> 1.86240000 GHz
<b>Stop Freq</b> 2.50000000 GHz
<b>CF Step</b> 63.76000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



<b>Center Freq</b> 11.25000000 GHz
<b>Start Freq</b> 2.50000000 GHz
<b>Stop Freq</b> 20.00000000 GHz
<b>CF Step</b> 1.75000000 GHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel

FCC ID:A3LGTB7320L Cond Spur Ch.9800

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

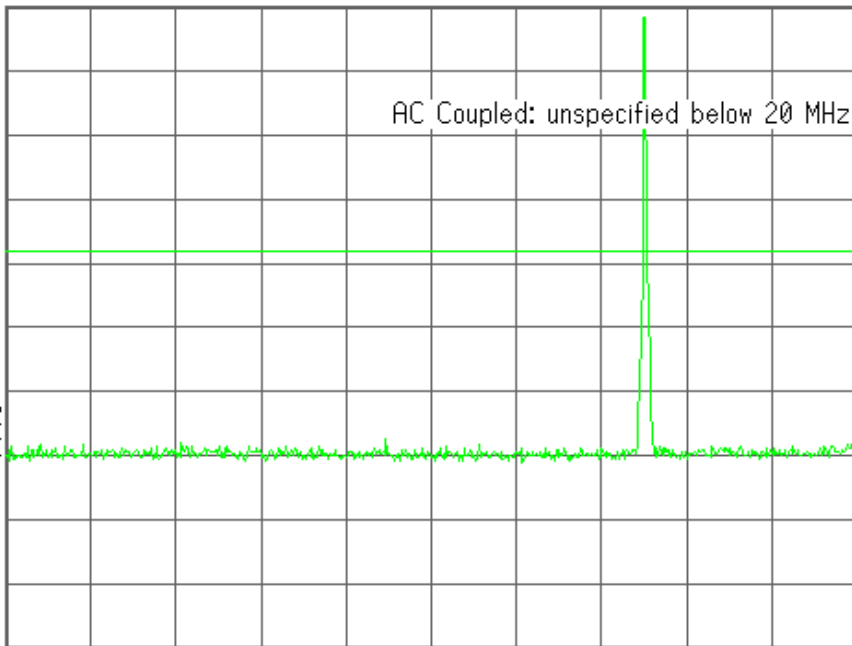
M1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Center 1.255 GHz

Span 2.49 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 4.16 ms (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

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel

FCC ID:A3LGTB7320L Cond Spur Ch.9800

Mkr1 1.870 GHz

Ref 25 dBm

Atten 30 dB

-24.86 dBm

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

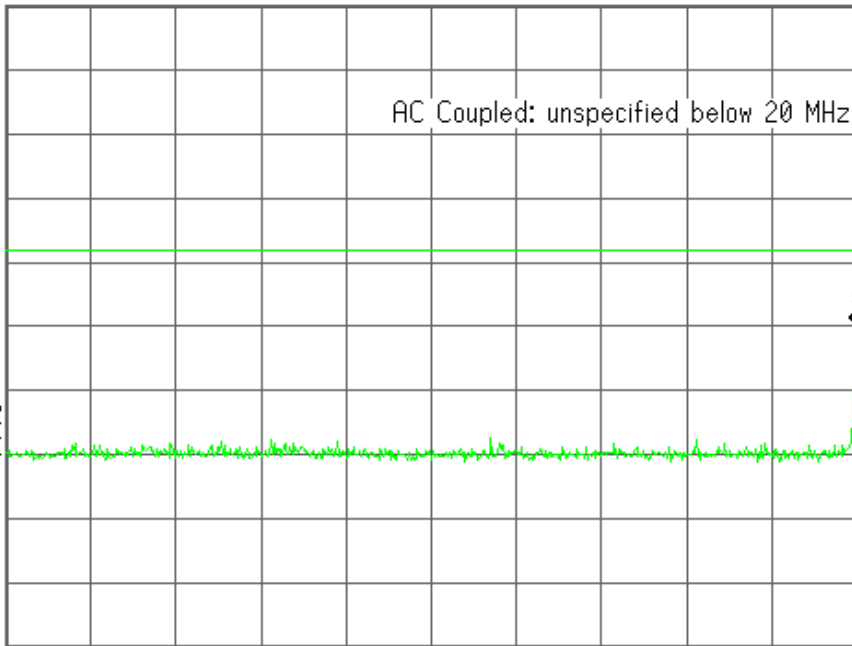
V1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Center 940 MHz

Span 1.86 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 3.12 ms (601 pts)

Center Freq  
940.000000 MHz

Start Freq  
10.0000000 MHz

Stop Freq  
1.87000000 GHz

CF Step  
186.000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

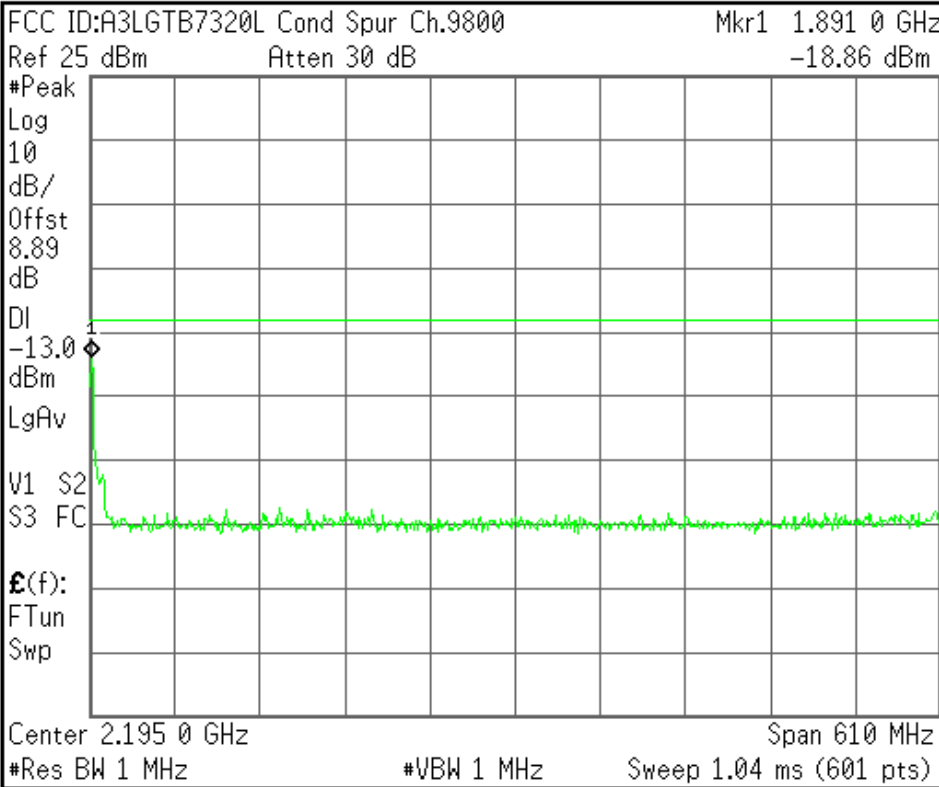
Signal Track  
On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



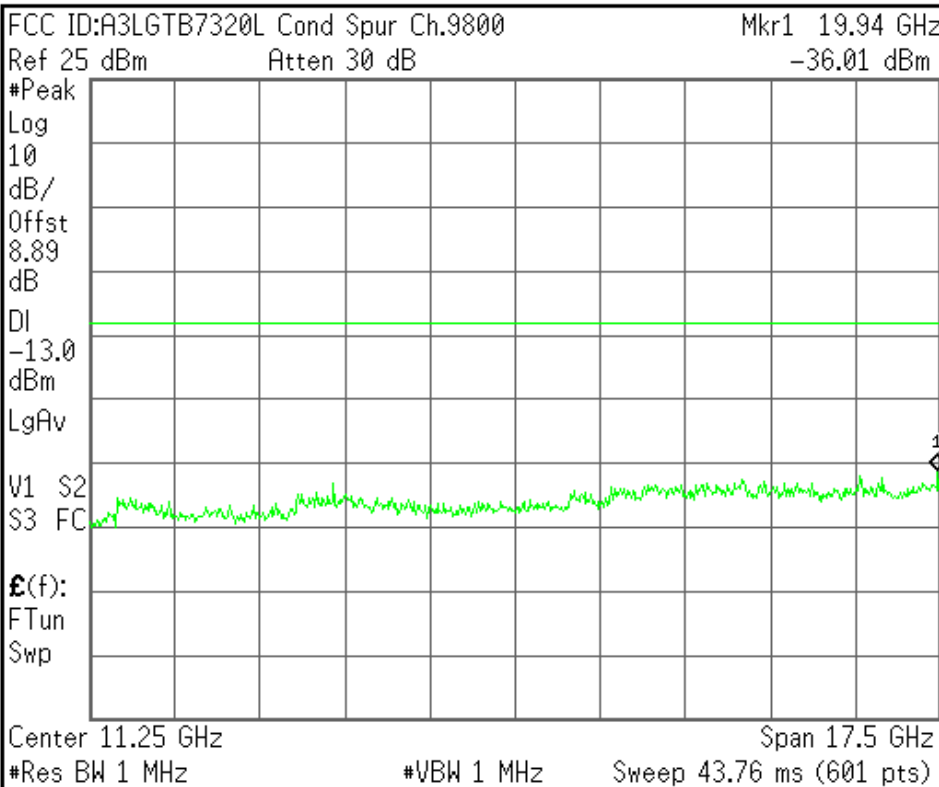
<b>Center Freq</b> 2.19500000 GHz
<b>Start Freq</b> 1.89000000 GHz
<b>Stop Freq</b> 2.50000000 GHz
<b>CF Step</b> 61.00000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



<b>Center Freq</b> 11.25000000 GHz
<b>Start Freq</b> 2.50000000 GHz
<b>Stop Freq</b> 20.00000000 GHz
<b>CF Step</b> 1.75000000 GHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel

FCC ID:A3LGTB7320L Cond Spur Ch.9938

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

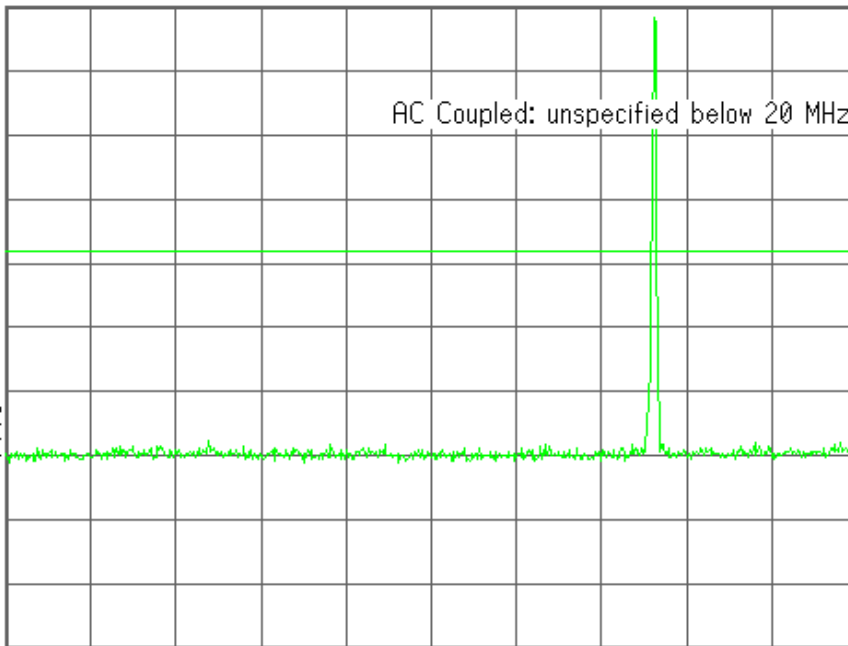
M1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Center 1.255 GHz

Span 2.49 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 4.16 ms (601 pts)

Center Freq  
1.25500000 GHz

Start Freq  
10.00000000 MHz

Stop Freq  
2.50000000 GHz

CF Step  
249.0000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel

FCC ID:A3LGTB7320L Cond Spur Ch.9938

Mkr1 1.898 GHz

Ref 25 dBm

Atten 30 dB

-24.78 dBm

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

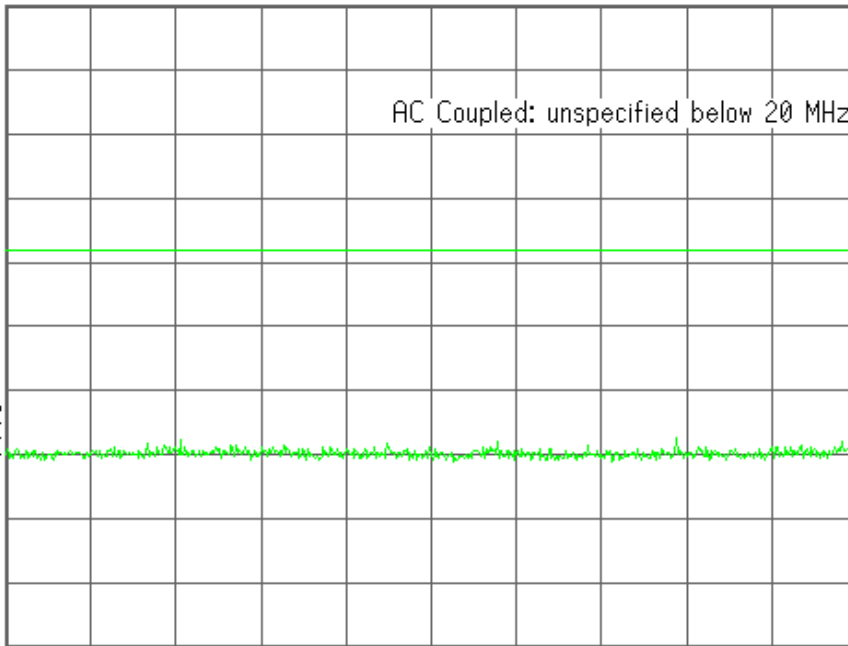
M1 S2

S3 FC

$\mathcal{E}(f)$ :

FTun

Swp



Center 954 MHz

Span 1.888 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 3.16 ms (601 pts)

Center Freq  
953.800000 MHz

Start Freq  
10.00000000 MHz

Stop Freq  
1.89760000 GHz

CF Step  
188.7600000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

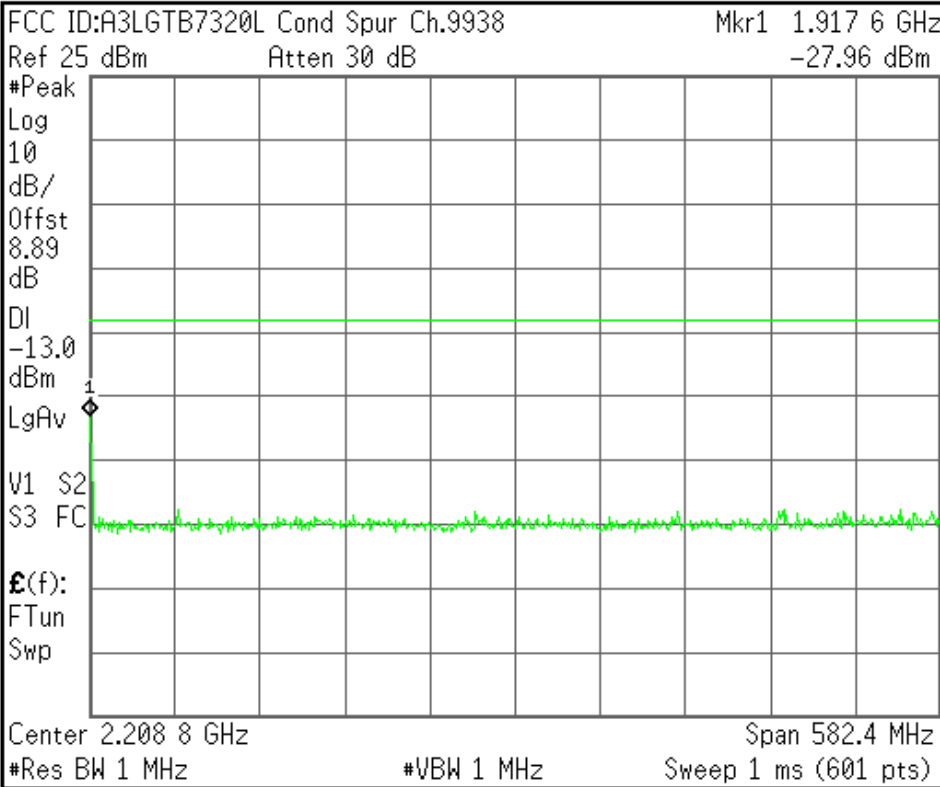
Signal Track  
On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



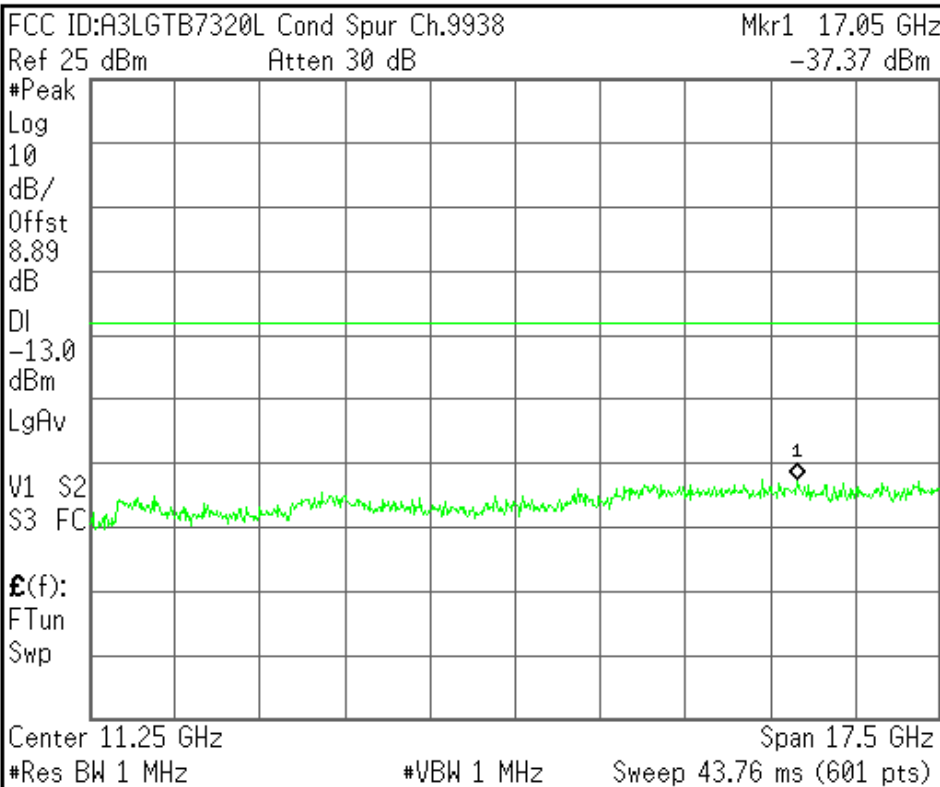
<b>Center Freq</b> 2.20880000 GHz
<b>Start Freq</b> 1.91760000 GHz
<b>Stop Freq</b> 2.50000000 GHz
<b>CF Step</b> 58.2400000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



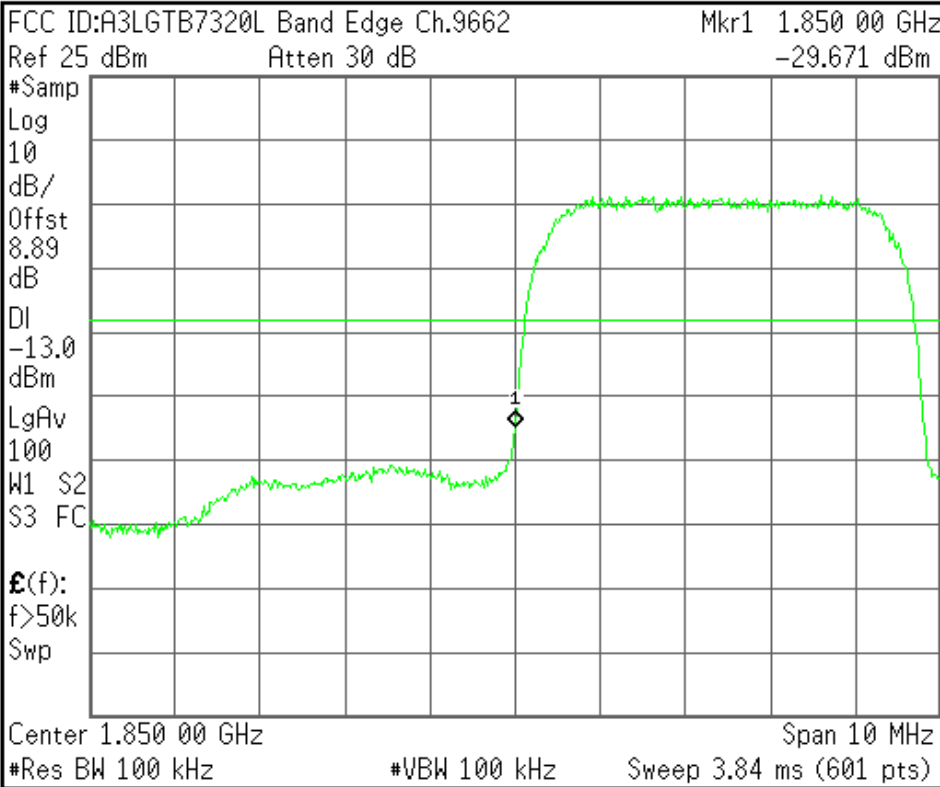
<b>Center Freq</b> 11.2500000 GHz
<b>Start Freq</b> 2.50000000 GHz
<b>Stop Freq</b> 20.0000000 GHz
<b>CF Step</b> 1.75000000 GHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



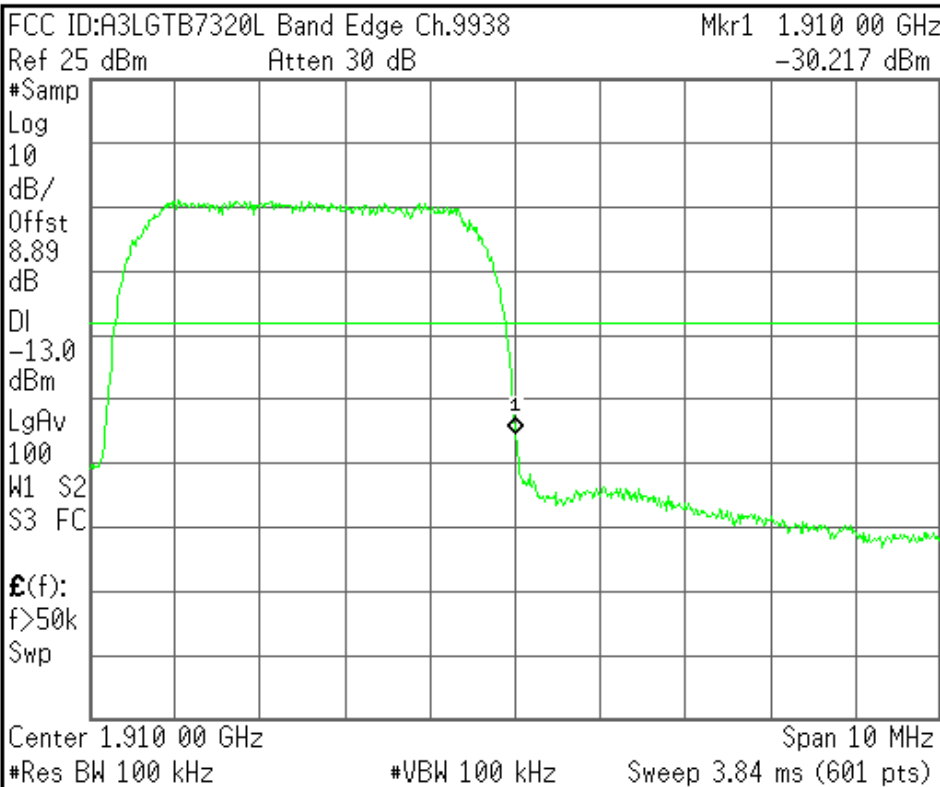
<b>Center Freq</b> 1.85000000 GHz
<b>Start Freq</b> 1.84500000 GHz
<b>Stop Freq</b> 1.85500000 GHz
<b>CF Step</b> 1.00000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



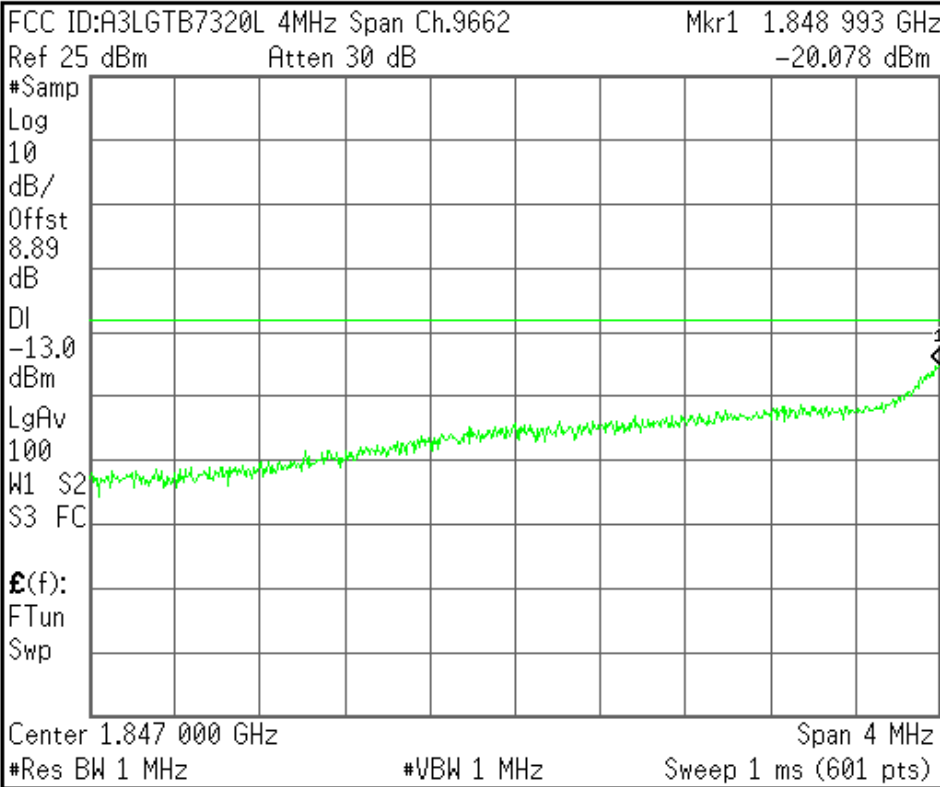
<b>Center Freq</b> 1.91000000 GHz
<b>Start Freq</b> 1.90500000 GHz
<b>Stop Freq</b> 1.91500000 GHz
<b>CF Step</b> 1.00000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



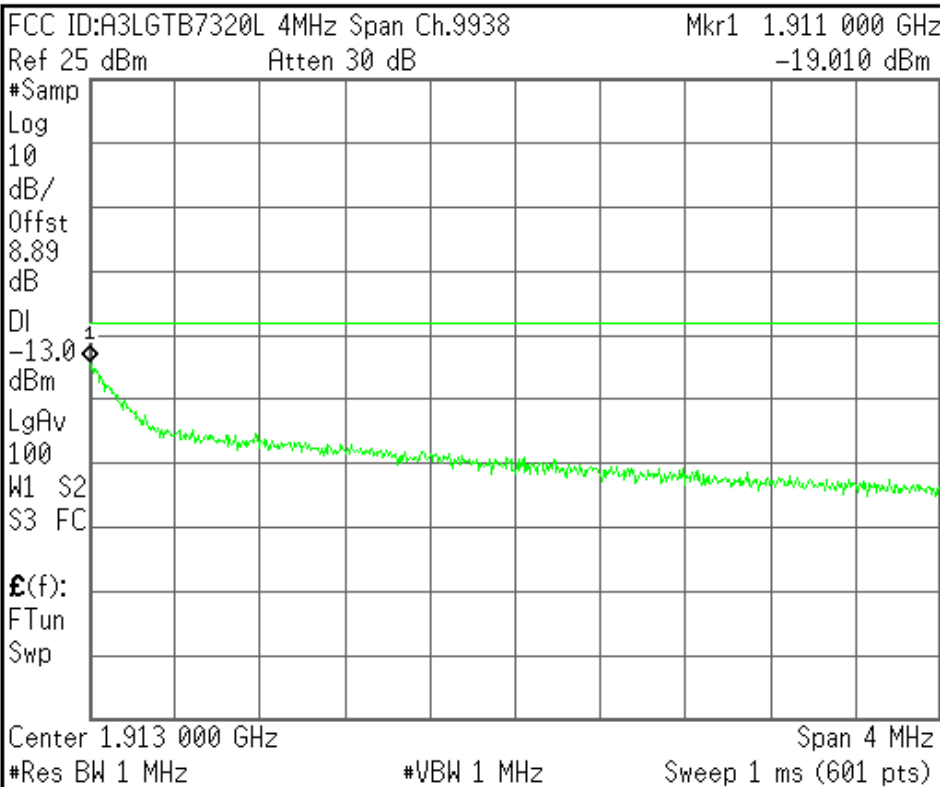
<b>Center Freq</b> 1.84700000 GHz
<b>Start Freq</b> 1.84500000 GHz
<b>Stop Freq</b> 1.84900000 GHz
<b>CF Step</b> 400.000000 kHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R T

Freq/Channel



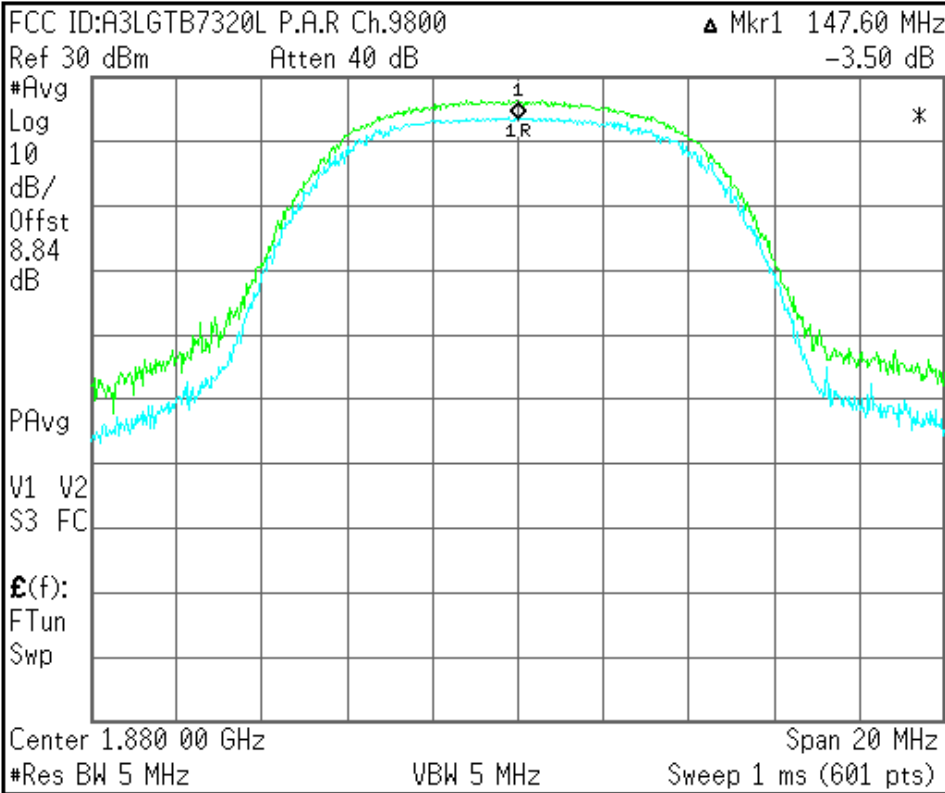
<b>Center Freq</b> 1.91300000 GHz
<b>Start Freq</b> 1.91100000 GHz
<b>Stop Freq</b> 1.91500000 GHz
<b>CF Step</b> 400.000000 kHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

File Operation Status, C:\TEMP.GIF file saved

Agilent

R L

Freq/Channel



<b>Center Freq</b> 1.88000000 GHz
<b>Start Freq</b> 1.87000000 GHz
<b>Stop Freq</b> 1.89000000 GHz
<b>CF Step</b> 2.00000000 MHz Auto Man
<b>Freq Offset</b> 0.00000000 Hz
<b>Signal Track</b> On Off

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