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IT R&D Center  
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Gyeonggi-Do, Korea 443-742

## FCC CFR47 PART 22 & 24 SUBPART CERTIFICATION REPORT

**Model Tested:** SCH-U470  
**FCC ID (Requested):** A3LSCHU470  
**Report No:** FE-236-R1  
**Job No:** FE-236  
**Date issued:** December 24, 2007

- Abstract -

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

**Prepared By**

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**Authorized By**

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# 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. DESCRIPTION OF TESTS .....</b>                                     | <b>7</b>    |
| 5.1 Output Power Variation .....                                         | 7           |
| 5.2 Effective Radiated Power / Equivalent Isotropic Radiated Power ..... | 8           |
| 5.3 Radiated Spurious & Harmonic Emission .....                          | 9           |
| 5.4 Occupied Bandwidth .....                                             | 11          |
| 5.5 Spurious and Harmonic Emissions at Antenna Terminal .....            | 11          |
| 5.5.1 Occupied Bandwidth Emission Limits .....                           | 11          |
| 5.5.2 Conducted Spurious Emission .....                                  | 12          |
| 5.6 Frequency Stability / Temperature Variation .....                    | 13          |
| <b>6. TEST DATA .....</b>                                                | <b>14</b>   |
| 6.1 Effective Radiated Power(E.R.P.) .....                               | 14          |
| 6.2 Equivalent Isotropic Radiated Power(E.I.R.P.) .....                  | 15          |
| 6.3 Cellular CDMA Radiated Spurious & Harmonic measurement.....          | 16          |
| 6.4 PCS CDMA Radiated Spurious & Harmonic measurement .....              | 17          |
| 6.5 CDMA Radiated Spurious & Harmonic Conversion Table .....             | 18          |
| 6.6 PCS Radiated Spurious & Harmonic Conversion Table .....              | 19          |
| 6.7 Frequency Stability.....                                             | 20          |
| 6.7.1 CDMA Frequency Stability Table .....                               | 20          |
| 6.7.2 PCS Frequency Stability Table .....                                | 21          |
| 6.7.3 CDMA Frequency Stability Graph .....                               | 22          |
| 6.7.4 PCS Frequency Stability Graph .....                                | 24          |
| <b>7. SAMPLE CALCULATION .....</b>                                       | <b>26</b>   |
| 7.1 Emission Designator .....                                            | 26          |
| <b>8. CONCLUSION.....</b>                                                | <b>27</b>   |
| <b>9. TEST PLOTS.....</b>                                                | <b>28</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.

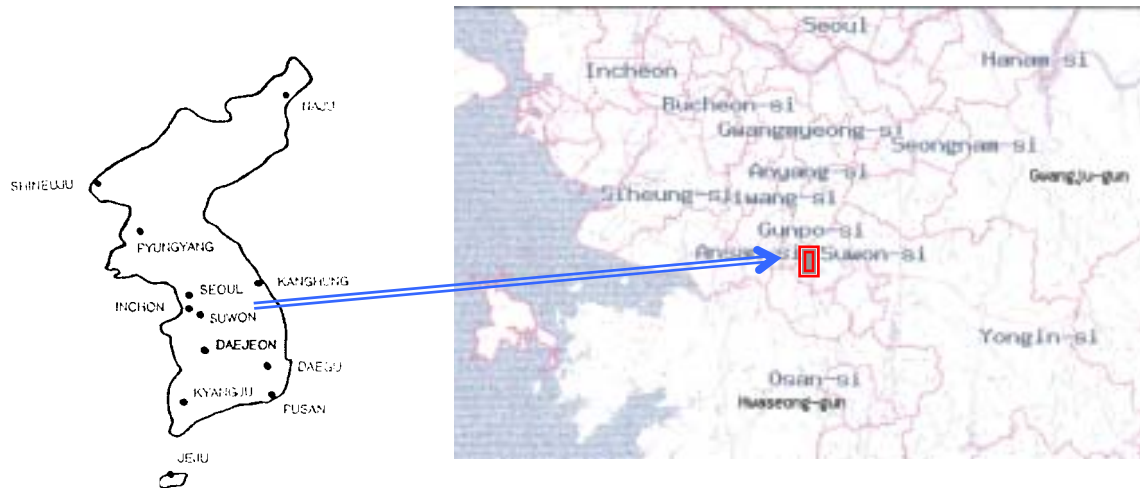
#### **1.1 §2.1033 General Information**

- Applicant Name: SAMSUNG ELECTRONICS CO., LTD.
- Address: 416 Maetan3-Dong, Yeongtong-gu, Suwon City  
Gyeonggi-Do, Korea 443-742
- Attention: SungJoo KIM, Engineering Manager (QA Lab)
- FCC ID: A3LSCHU470
- Quantity: Quantity production is planned
- Emission Designators: 1M27F9W(CDMA), 1M27F9W(PCS CDMA)
- Tx Freq. Range: 824.70-848.31MHz (CDMA)  
1851.25-1908.75MHz (PCS CDMA)
- Rx Freq. Range: 869.70-893.31MHz (CDMA)  
1931.25-1988.75MHz (PCS CDMA)
- Max. Power Rating: 0.328 W ERP CDMA (25.16dBm)  
0.596 W EIRP PCS (27.75dBm)
- FCC Classification(s): Licensed Portable Tx Held to Ear (PCE)
- Equipment (EUT) Type: Dual-Band CDMA Phone with Bluetooth
- Modulation(s): CDMA
- Frequency Tolerance:  $\pm 0.00025\%$  (2.5ppm)
- FCC Rule Part(s): §24(E), §22(H), §2.
- Dates of Test: December 17-18 , 2007
- Place of Test: SAMSUNG Lab,
- Test Report S/N: FE-236-R1

## 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.

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#### 4. TEST EQUIPMENT LIST

| Name Of Equipment               | Model               | Serial No. | Due Date     |
|---------------------------------|---------------------|------------|--------------|
| Spectrum Analyzer               | ESI26               | 836119/010 | 2008-10-17   |
|                                 | E4440A(3Hz~26.5GHz) | MY41000236 | 2008-04-14   |
|                                 | E4440A(3Hz~26.5GHz) | MY41000233 | 2008-07-23   |
| Signal Generator                | SMR20               | 835197/030 | 2008-01-11   |
| Network Analyzer                | 8753E               | JP38160590 | 2008-06-26   |
| Power Sensor                    | 8485A               | 3318A19924 | 2008-10-01   |
| Power Meter                     | E4419B              | GB41293846 | 2008-09-06   |
| 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     | 2008-10-17   |
| Receive Antenna                 | HL040               | 353255/019 | 2008-09-20   |
|                                 | HL040               | 353255/020 | 2008-04-25   |
| Power Supply                    | 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   | 2008-11-15   |
| Shielded Fully Anechoic Chamber | CHAMBER             | ANT0001    | Not Required |

## 5. DESCRIPTION OF TESTS

### 5.1 Output Power Variation

#### Test Condition to measure the Output Power

This device was tested under all R.C.s and S.O.s and worst case is reported with RC3/SO55, with “All Up” power control bits.

The following procedures were followed according to FCC “SAR Measurement Procedures for 3G Devices”, May 2006.

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 5-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH0 and demodulation of RC 3,4 or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 5-2 was applied.
5. FCHs were configured at full rate for maximum SAR with “All Up” power control bits.

| Parameter      | Units       | Value |
|----------------|-------------|-------|
| $\hat{I}_{or}$ | dBm/1.23MHz | -104  |
| Pilot Ec/Ior   | dB          | -7    |
| Traffic Ec/Ior | dB          | -7.4  |

**Table 5-1**  
**Parameters for Max. Power for RC1**

| Parameter      | Units       | Value |
|----------------|-------------|-------|
| $\hat{I}_{or}$ | dBm/1.23MHz | -86   |
| Pilot Ec/Ior   | dB          | -7    |
| Traffic Ec/Ior | dB          | -7.4  |

**Table 5-2**  
**Parameters for Max. Power for RC1**

| Band     | Channel | CDMA2000 RC | SO2   | SO55  | TDSO SO32 |
|----------|---------|-------------|-------|-------|-----------|
| Cellular | 1013    | RC1         | 25.22 | 25.22 | -         |
|          |         | RC3         | 25.18 | 25.18 | 25.16     |
|          | 384     | RC1         | 25.13 | 25.13 | -         |
|          |         | RC3         | 25.1  | 25.1  | 25.1      |
|          | 777     | RC1         | 25.02 | 25.02 | -         |
|          |         | RC3         | 24.99 | 24.99 | 24.98     |
| PCS      | 25      | RC1         | 24.93 | 24.93 | -         |
|          |         | RC3         | 24.93 | 24.95 | 24.91     |
|          | 600     | RC1         | 24.94 | 24.94 | -         |
|          |         | RC3         | 24.95 | 24.96 | 25        |
|          | 1175    | RC1         | 24.85 | 24.89 | -         |
|          |         | RC3         | 24.89 | 24.9  | 25        |

**Table 5-3**  
**Maximum Power Output Table for SCH-U470**

## 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 output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004

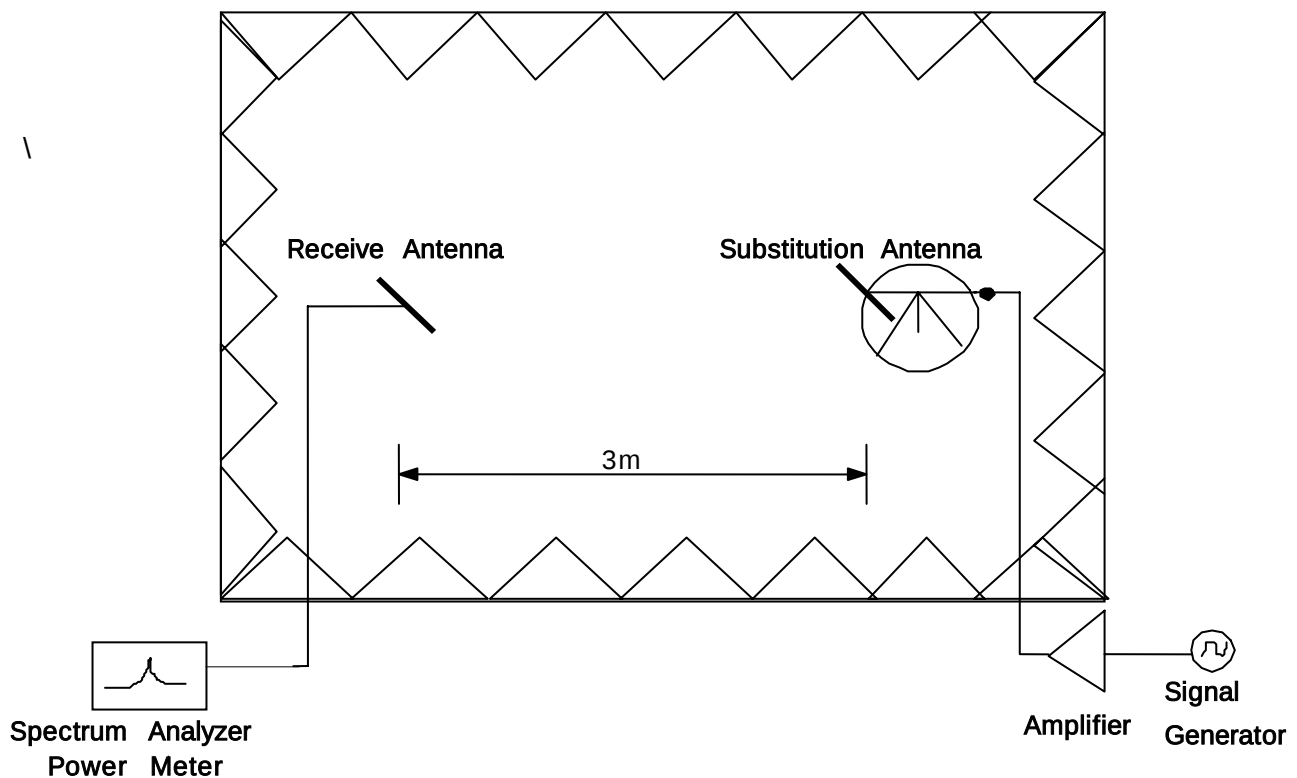


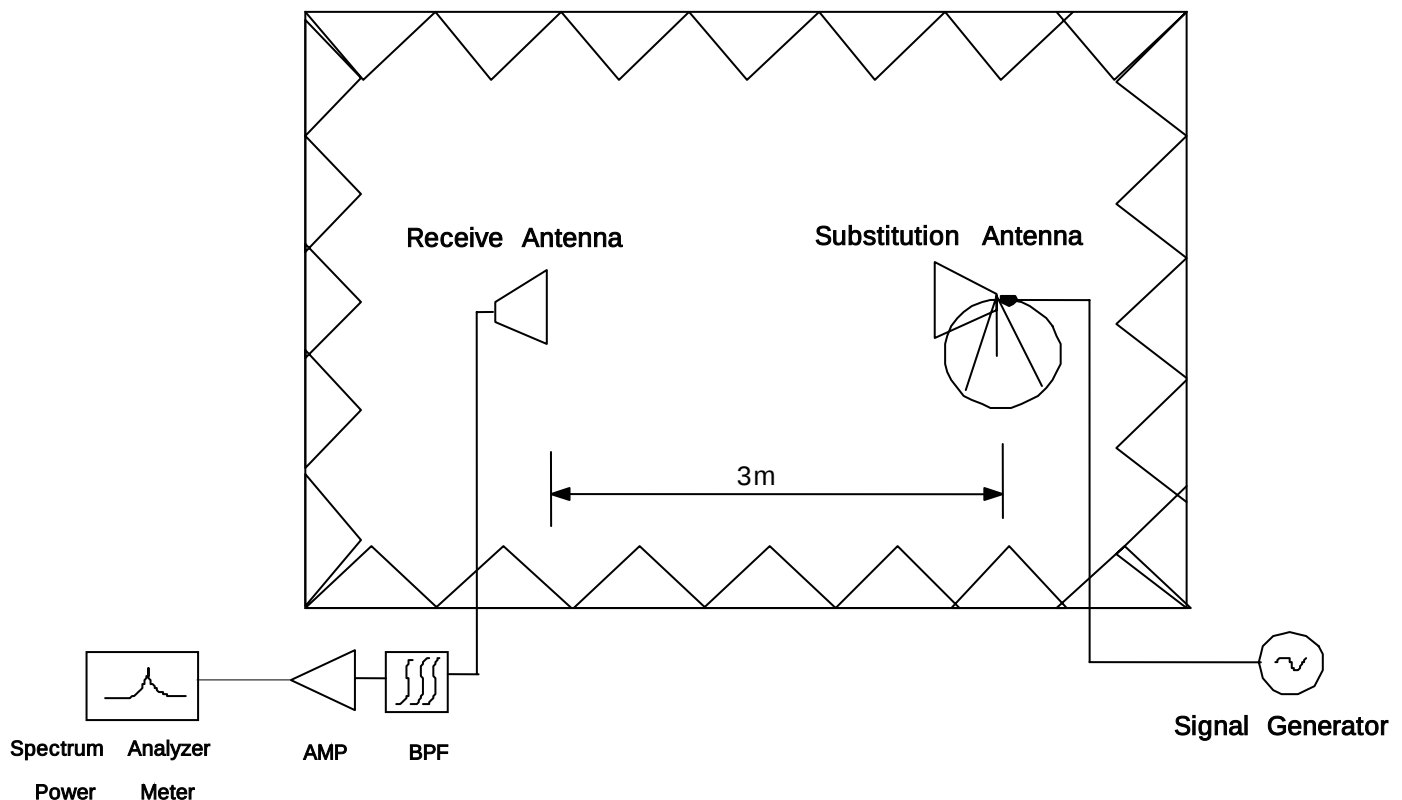
Figure 3. Diagram of ERP/EIRP test Set-up

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 CDMA & PCS 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.

## 5.3 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 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  $25.5\text{dBm} - (-24.8) = 50.3\text{dBc}$ .

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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 Emissions 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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| BLOCK | Freq. Range (MHz)<br>Transmitter (Tx) | Freq. Range (MHz)<br>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)<br>Transmitter (Tx) | Freq. Range (MHz)<br>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**

### 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  $-13$  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.

## 5.6 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  $\pm 0.00025$  ( $\pm 2.5\text{ppm}$ ) 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.
  - 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 : CDMA

#### ■ Reference level

| Frequency (MHz) | Output (dBm) | Polarization | P/M (dBm) | Ant gain (dBd) | Ref level (dBm) |
|-----------------|--------------|--------------|-----------|----------------|-----------------|
| 824.70          | 24.00        | H            | -13.62    | 0.00           | -13.62          |
|                 |              | V            | -13.46    | 0.00           | -13.46          |
| 836.52          | 25.00        | H            | -13.48    | 0.00           | -13.48          |
|                 |              | V            | -12.74    | 0.00           | -12.74          |
| 848.31          | 24.00        | H            | -16.83    | 0.00           | -16.83          |
|                 |              | V            | -15.92    | 0.00           | -15.92          |

#### ■ Result

| Frequency (MHz) | From EUT Tested level (dBm) | Polarization (H/V) | Azimuth (angle) | ERP (dBm) | ERP (W) | Battery  |
|-----------------|-----------------------------|--------------------|-----------------|-----------|---------|----------|
| 824.70          | -13.37                      | H                  | 286             | 24.25     | 0.266   | Standard |
| 836.52          | -13.32                      | H                  | 276             | 25.16     | 0.328   | Standard |
| 848.31          | -16.91                      | H                  | 280             | 23.92     | 0.247   | Standard |
| 836.52          | -13.43                      | H                  | 280             | 25.05     | 0.320   | Extended |

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

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

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

Supply Voltage : 3.7VDC

Modulation : PCS

### ■ Reference level

| Frequency (MHz) | Output (dBm) | Polarization | P/M (dBm) | Ant gain (dBi) | Ref level (dBm) |
|-----------------|--------------|--------------|-----------|----------------|-----------------|
| 1851.25         | 27.00        | H            | -14.20    | 8.13           | -22.33          |
|                 |              | V            | -13.90    | 8.13           | -22.03          |
| 1880.00         | 28.00        | H            | -13.00    | 8.11           | -21.11          |
|                 |              | V            | -12.52    | 8.11           | -20.63          |
| 1908.75         | 26.00        | H            | -14.48    | 8.33           | -22.81          |
|                 |              | V            | -14.55    | 8.33           | -22.88          |

### ■ Result

| Frequency (MHz) | From EUT Tested level (dBm) | Polarization (H/V) | Azimuth (angle) | EIRP (dBm) | EIRP (W) | Battery  |
|-----------------|-----------------------------|--------------------|-----------------|------------|----------|----------|
| 1851.25         | -21.90                      | H                  | 296             | 27.43      | 0.553    | Standard |
| 1880.00         | -21.36                      | H                  | 322             | 27.75      | 0.596    | Standard |
| 1908.75         | -23.03                      | H                  | 316             | 25.78      | 0.378    | Standard |
| 1880.00         | -21.42                      | H                  | 323             | 27.69      | 0.587    | Extended |

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

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

## 6.3 Cellular CDMA Radiated Spurious & Harmonic measurement

### Field Strength of SPURIOUS Radiation

Operating Frequency : 824.70 MHz(Low), 836.52MHz(Middle), 848.31MHz(High)

Measured Output Power : 25.16 dBm = 0.328 W

Modulation Signal : CDMA

**Limit :  $43 + 10\log_{10}(P) = 38.16$  dBc**

#### ■ Result

| Channel | Harmonic | Frequency (MHz) | From EUT Tested level (dBm) | POL (H/V) | Result (dBc) |
|---------|----------|-----------------|-----------------------------|-----------|--------------|
| 1013    | 2        | 1649.40         | -56.50                      | H         | 71.53        |
|         | 3        | 2474.10         | -63.27                      | H         | 73.07        |
|         | 4        | 3298.80         | -64.22                      | H         | 69.68        |
|         | 5        | 4123.50         | -67.60                      | H         | 70.05        |
|         | 6        | 4948.20         | -                           | -         | -            |
|         | 7        | 5772.90         | -                           | -         | -            |
| 384     | 2        | 1673.04         | -59.35                      | H         | 73.12        |
|         | 3        | 2509.56         | -64.15                      | H         | 72.99        |
|         | 4        | 3346.08         | -63.59                      | V         | 68.45        |
|         | 5        | 4182.68         | -68.53                      | V         | 71.40        |
|         | 6        | 5019.12         | -                           | -         | -            |
|         | 7        | 5855.64         | -                           | -         | -            |
| 777     | 2        | 1696.62         | -59.52                      | H         | 72.06        |
|         | 3        | 2544.93         | -64.98                      | H         | 74.81        |
|         | 4        | 3393.24         | -61.50                      | H         | 66.89        |
|         | 5        | 4241.55         | -69.02                      | H         | 71.97        |
|         | 6        | 5089.86         | -                           | -         | -            |
|         | 7        | 5938.17         | -                           | -         | -            |

#### 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

## 6.4 PCS CDMA Radiated Spurious & Harmonic measurement

### Field Strength of SPURIOUS Radiation

Operating Frequency : 1851.25 MHz(Low), 1880.00 MHz(Middle), 1908.75MHz(High)

Measured Output Power : 27.75 dBm = 0.596 W

Modulation Signal : PCS

**Limit :  $43 + 10\log_{10}(P) = 40.75$  dBc**

#### ■ Result

| Channel | Harmonic | Frequency (MHz) | From EUT Tested level (dBm) | POL (H/V) | Result (dBc) |
|---------|----------|-----------------|-----------------------------|-----------|--------------|
| 25      | 2        | 3702.50         | -46.32                      | H         | 49.04        |
|         | 3        | 5553.75         | -63.49                      | H         | 62.30        |
|         | 4        | 7405.55         | -62.76                      | V         | 56.87        |
|         | 5        | 9256.25         | -69.16                      | V         | 59.99        |
|         | 6        | 11107.50        | -                           | -         | -            |
|         | 7        | 12958.75        | -                           | -         | -            |
| 600     | 2        | 3760.00         | -54.51                      | V         | 57.64        |
|         | 3        | 5640.00         | -60.10                      | H         | 59.21        |
|         | 4        | 7520.00         | -64.23                      | V         | 58.28        |
|         | 5        | 9400.00         | -70.31                      | H         | 60.23        |
|         | 6        | 11280.00        | -                           | -         | -            |
|         | 7        | 13160.00        | -                           | -         | -            |
| 1175    | 2        | 3817.50         | -48.57                      | H         | 51.86        |
|         | 3        | 5726.25         | -61.73                      | V         | 60.68        |
|         | 4        | 7635.00         | -63.50                      | V         | 57.60        |
|         | 5        | 9543.75         | -70.19                      | V         | 60.04        |
|         | 6        | 11452.50        | -                           | -         | -            |
|         | 7        | 13361.25        | -                           | -         | -            |

#### 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 CDMA Radiated Spurious & Harmonic Conversion Table

Date : 2007.12.18

Test Engineer : JH WOO

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 | Tested EUT Level : H dBm | Tested EUT Level : H dBm | Result EUT : H (dBc) | Result EUT : V (dBc) |
|------|-----|-----------------|-----------|------------------|--------------|-------------------|-------------------|--------------------------|--------------------------|----------------------|----------------------|
| 1013 | 2   | 1649.40         | -7.61     | 8.25             | -13.60       | -25.27            | -25.38            | -56.50                   | -62.35                   | 71.53                | 77.27                |
|      | 3   | 2474.10         | -9.47     | 9.58             | -13.10       | -30.50            | -30.81            | -63.27                   | -65.03                   | 73.07                | 74.52                |
|      | 4   | 3298.80         | -11.00    | 9.67             | -11.70       | -34.84            | -34.95            | -64.22                   | -66.62                   | 69.68                | 71.97                |
|      | 5   | 4123.50         | -12.43    | 10.59            | -11.20       | -37.85            | -37.77            | -67.60                   | -68.33                   | 70.05                | 70.86                |
|      | 6   | 4948.20         | -13.89    | 11.00            | -10.10       | -39.43            | -39.73            | -                        | -                        | -                    | -                    |
|      | 7   | 5772.90         | -15.05    | 11.36            | -9.30        | -41.89            | -41.91            | -                        | -                        | -                    | -                    |
| 384  | 2   | 1673.04         | -7.64     | 8.25             | -13.60       | -26.53            | -26.81            | -59.35                   | -63.27                   | 73.12                | 76.76                |
|      | 3   | 2509.56         | -9.52     | 9.58             | -13.10       | -31.46            | -31.23            | -64.15                   | -65.36                   | 72.99                | 74.43                |
|      | 4   | 3346.08         | -11.14    | 9.67             | -11.50       | -35.81            | -34.32            | -63.96                   | -63.59                   | 68.45                | 69.57                |
|      | 5   | 4182.68         | -12.53    | 10.59            | -11.10       | -37.80            | -37.28            | -68.90                   | -68.53                   | 71.40                | 71.55                |
|      | 6   | 5019.12         | -14.11    | 11.00            | -9.90        | -40.23            | -40.78            | -                        | -                        | -                    | -                    |
|      | 7   | 5855.64         | -15.21    | 11.36            | -9.20        | -43.99            | -42.99            | -                        | -                        | -                    | -                    |
| 777  | 2   | 1696.62         | -7.66     | 8.25             | -13.60       | -27.76            | -27.90            | -59.52                   | -60.10                   | 72.06                | 72.50                |
|      | 3   | 2544.93         | -9.45     | 9.58             | -13.10       | -30.47            | -31.32            | -64.98                   | -66.51                   | 74.81                | 75.49                |
|      | 4   | 3393.24         | -11.10    | 9.67             | -11.60       | -34.91            | -34.46            | -61.50                   | -62.87                   | 66.89                | 68.71                |
|      | 5   | 4241.55         | -12.65    | 10.59            | -10.90       | -37.28            | -37.82            | -69.02                   | -69.49                   | 72.04                | 71.97                |
|      | 6   | 5089.86         | -14.22    | 11.00            | -9.80        | -39.83            | -40.09            | -                        | -                        | -                    | -                    |
|      | 7   | 5938.17         | -15.30    | 11.36            | -9.10        | -43.10            | -43.38            | -                        | -                        | -                    | -                    |

## 6.6 PCS Radiated Spurious & Harmonic Conversion Table

Date : 2007.12.18

Test Engineer : JH WOO

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<br>(MHz) | Tx<br>C/L<br>dB | Tx<br>Horn<br>Gain<br>dBi | Tx<br>Level<br>dBm | ESI<br>Level :<br>H<br>dBm | ESI<br>Level :<br>V<br>dBm | Tested<br>EUT<br>Level : H<br>dBm | Tested<br>EUT<br>Level : H<br>dBm | Result<br>EUT : H<br>(dBc) | Result<br>EUT : V<br>(dBc) |
|------|-----|--------------------|-----------------|---------------------------|--------------------|----------------------------|----------------------------|-----------------------------------|-----------------------------------|----------------------------|----------------------------|
| 25   | 2   | 3702.50            | -11.64          | 9.62                      | -11.00             | -38.03                     | -37.54                     | -46.32                            | -46.82                            | 49.04                      | 50.03                      |
|      | 3   | 5553.75            | -14.78          | 11.05                     | -9.30              | -41.94                     | -41.60                     | -63.49                            | -65.26                            | 62.30                      | 64.41                      |
|      | 4   | 7405.00            | -17.03          | 11.70                     | -7.70              | -46.34                     | -46.64                     | -64.03                            | -62.76                            | 58.44                      | 56.87                      |
|      | 5   | 9256.25            | -20.05          | 12.38                     | -5.30              | -49.47                     | -49.92                     | -70.13                            | -69.16                            | 61.41                      | 59.99                      |
|      | 6   | 11107.50           | -22.74          | 13.52                     | -3.80              | -54.07                     | -54.19                     | -                                 | -                                 | -                          | -                          |
|      | 7   | 12958.75           | -24.72          | 13.03                     | -1.30              | -57.00                     | -56.95                     | -                                 | -                                 | -                          | -                          |
| 600  | 2   | 3760.00            | -11.80          | 9.62                      | -10.80             | -37.96                     | -37.44                     | -54.85                            | -54.51                            | 57.64                      | 57.82                      |
|      | 3   | 5640.00            | -14.87          | 11.05                     | -9.20              | -41.64                     | -42.31                     | -60.10                            | -62.42                            | 59.21                      | 60.86                      |
|      | 4   | 7520.00            | -17.13          | 11.70                     | -7.60              | -46.20                     | -46.70                     | -64.40                            | -64.23                            | 58.95                      | 58.28                      |
|      | 5   | 9400.00            | -19.55          | 12.38                     | -5.80              | -50.83                     | -51.07                     | -70.31                            | -70.66                            | 60.23                      | 60.34                      |
|      | 6   | 11280.00           | -22.21          | 13.52                     | -4.30              | -53.97                     | -54.07                     | -                                 | -                                 | -                          | -                          |
|      | 7   | 13160.00           | -23.92          | 13.03                     | -2.10              | -57.87                     | -57.70                     | -                                 | -                                 | -                          | -                          |
| 1175 | 2   | 3817.50            | -11.83          | 9.62                      | -10.80             | -37.46                     | -38.11                     | -48.57                            | -50.61                            | 51.86                      | 53.25                      |
|      | 3   | 5726.25            | -15.07          | 11.05                     | -9.00              | -41.52                     | -41.80                     | -61.75                            | -61.73                            | 60.98                      | 60.68                      |
|      | 4   | 7635.00            | -17.61          | 11.70                     | -7.10              | -46.33                     | -46.65                     | -65.06                            | -63.50                            | 59.48                      | 57.60                      |
|      | 5   | 9543.75            | -19.77          | 12.38                     | -5.60              | -50.84                     | -50.90                     | -70.26                            | -70.19                            | 60.17                      | 60.04                      |
|      | 6   | 11452.50           | -22.47          | 13.52                     | -4.10              | -54.65                     | -54.81                     | -                                 | -                                 | -                          | -                          |
|      | 7   | 13361.25           | -24.22          | 13.03                     | -1.80              | -58.95                     | -58.65                     | -                                 | -                                 | -                          | -                          |

## 6.7 Frequency Stability

### 6.7.1 CDMA Frequency Stability Table

Operating Frequency : 836,520,000 Hz

Channel : 384

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)   | -13.21               | 836,519,987    | -0.000002     | -0.016 |
| 100%           |             | -30        | -14.91               | 836,519,985    | -0.000002     | -0.018 |
| 100%           |             | -20        | 28.88                | 836,520,029    | 0.000003      | 0.035  |
| 100%           |             | -10        | -39.21               | 836,519,961    | -0.000005     | -0.047 |
| 100%           |             | 0          | 48.33                | 836,520,048    | 0.000006      | 0.058  |
| 100%           |             | +10        | -41.42               | 836,519,959    | -0.000005     | -0.050 |
| 100%           |             | +20        | -13.21               | 836,519,987    | -0.000002     | -0.016 |
| 100%           |             | +30        | 39.29                | 836,520,039    | 0.000005      | 0.047  |
| 100%           |             | +40        | -16.24               | 836,519,984    | -0.000002     | -0.019 |
| 100%           |             | +50        | 40.22                | 836,520,040    | 0.000005      | 0.048  |
| 100%           |             | +60        | -40.56               | 836,519,959    | -0.000005     | -0.048 |
| 85%            | 3.25        | +20        | 23.66                | 836,520,024    | 0.000003      | 0.028  |
| 115%           | 4.26        | +20        | -38.64               | 836,519,961    | -0.000005     | -0.046 |
| Batt. Endpoint | 3.25        | +20        | 23.66                | 836,520,024    | 0.000003      | 0.028  |

**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**

## 6.7.2 PCS Frequency Stability Table

Operating Frequency : 1,880,000,000 Hz

Channel : 600

Reference Voltage : 3.7VDC

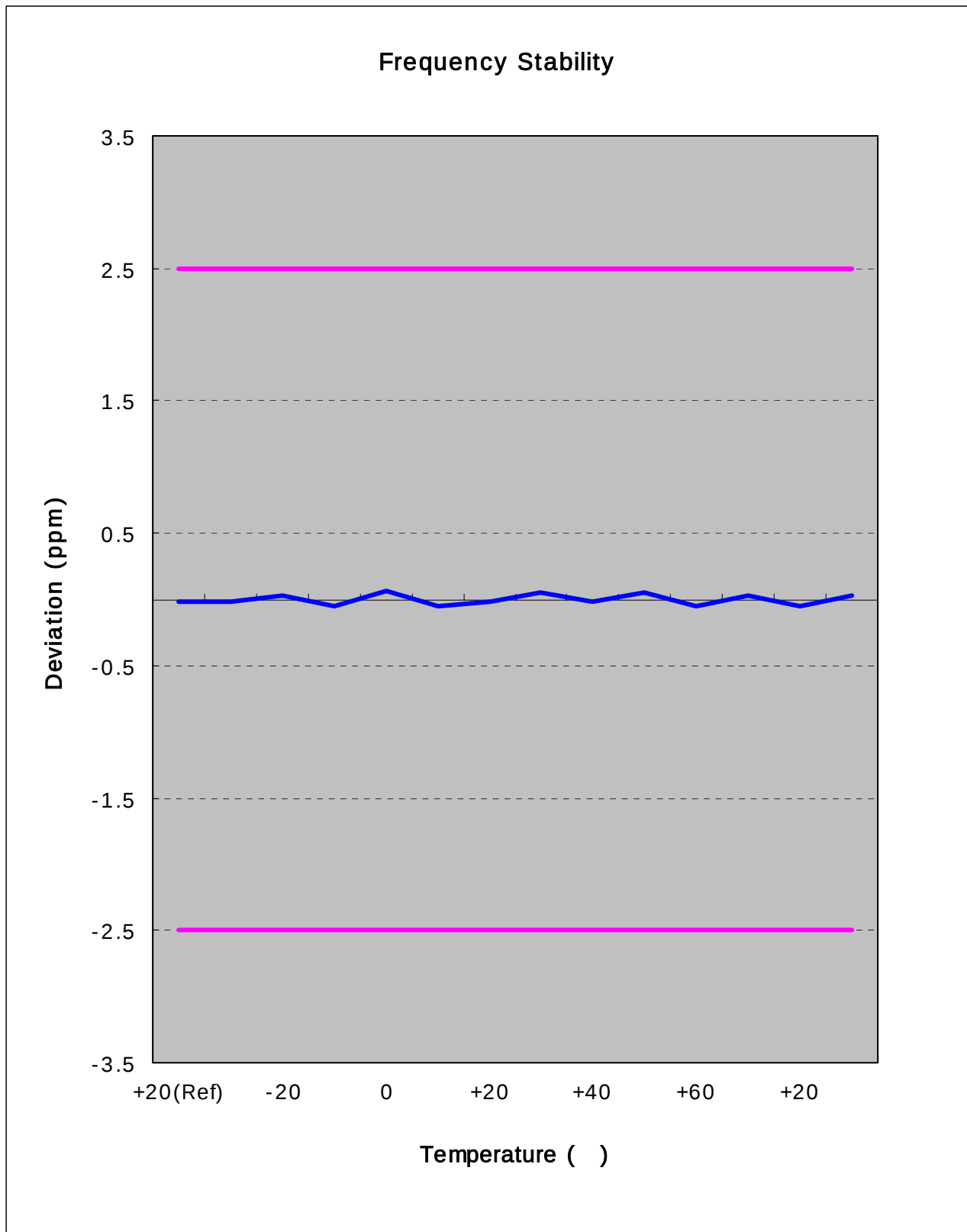
**Deviation Limit :  $\pm 0.00025$  % or 2.5ppm**

| Voltage (%)    | Power (VDC) | Temp. (°C) | Frequency Error (Hz) | Frequency (Hz) | Deviation (%) | ppm    |
|----------------|-------------|------------|----------------------|----------------|---------------|--------|
| 100%           | 3.70        | +20(Ref)   | -40.66               | 1,879,999,959  | -0.000002     | -0.022 |
| 100%           |             | -30        | 13.05                | 1,880,000,013  | 0.000001      | 0.007  |
| 100%           |             | -20        | -50.11               | 1,879,999,950  | -0.000003     | -0.027 |
| 100%           |             | -10        | 40.58                | 1,880,000,041  | 0.000002      | 0.022  |
| 100%           |             | 0          | -21.31               | 1,879,999,979  | -0.000001     | -0.011 |
| 100%           |             | +10        | 45.99                | 1,880,000,046  | 0.000002      | 0.024  |
| 100%           |             | +20        | -40.66               | 1,879,999,959  | -0.000002     | -0.022 |
| 100%           |             | +30        | 21.31                | 1,880,000,021  | 0.000001      | 0.011  |
| 100%           |             | +40        | -21.33               | 1,879,999,979  | -0.000001     | -0.011 |
| 100%           |             | +50        | 48.99                | 1,880,000,049  | 0.000003      | 0.026  |
| 100%           |             | +60        | -34.55               | 1,879,999,965  | -0.000002     | -0.018 |
| 85%            | 3.25        | +20        | 42.12                | 1,880,000,042  | 0.000002      | 0.022  |
| 115%           | 4.26        | +20        | -36.66               | 1,879,999,963  | -0.000002     | -0.020 |
| Batt. Endpoint | 3.25        | +20        | 42.12                | 1,880,000,042  | 0.000002      | 0.022  |

**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**

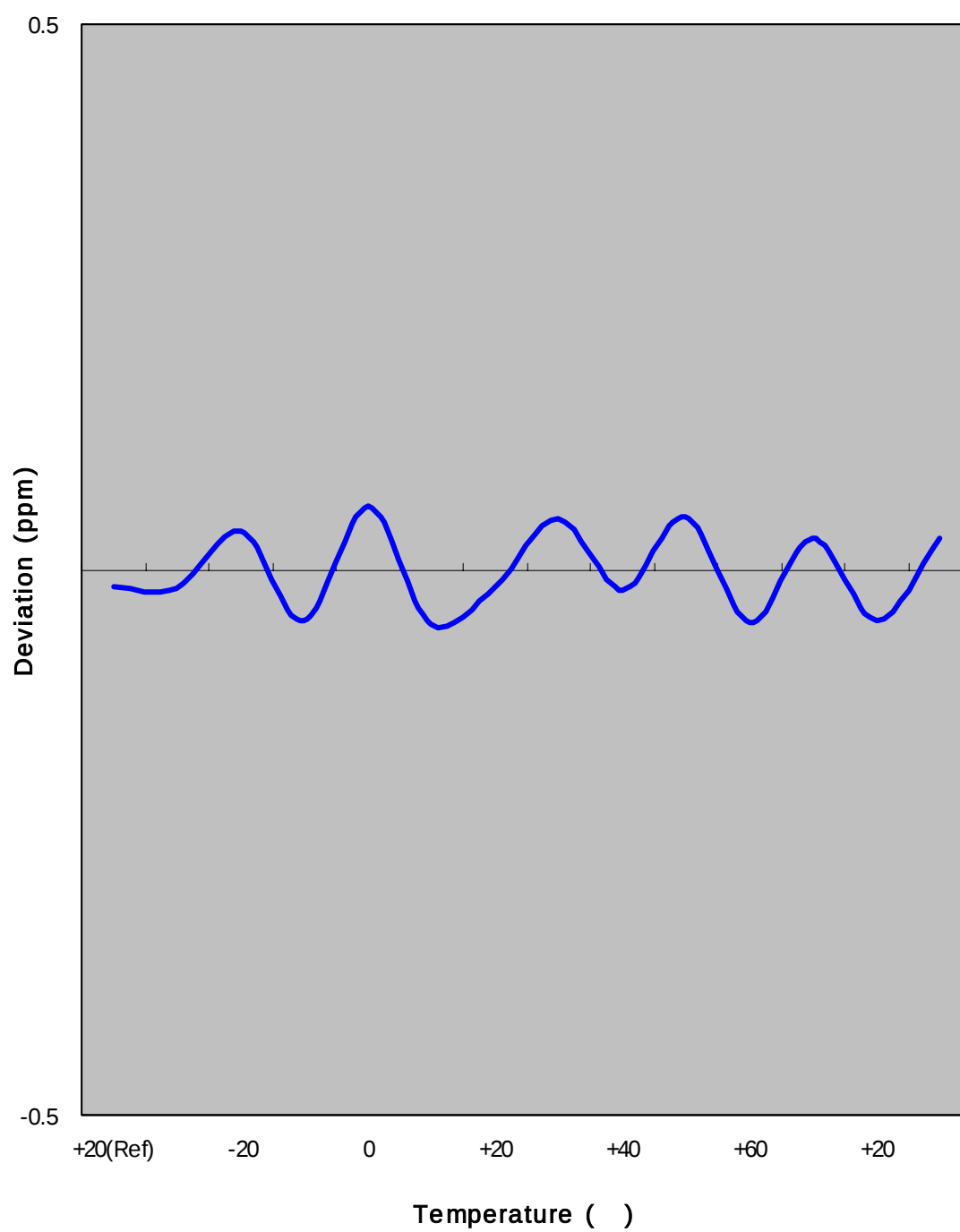
### 6.7.3 CDMA Frequency Stability Graph



– End of page –

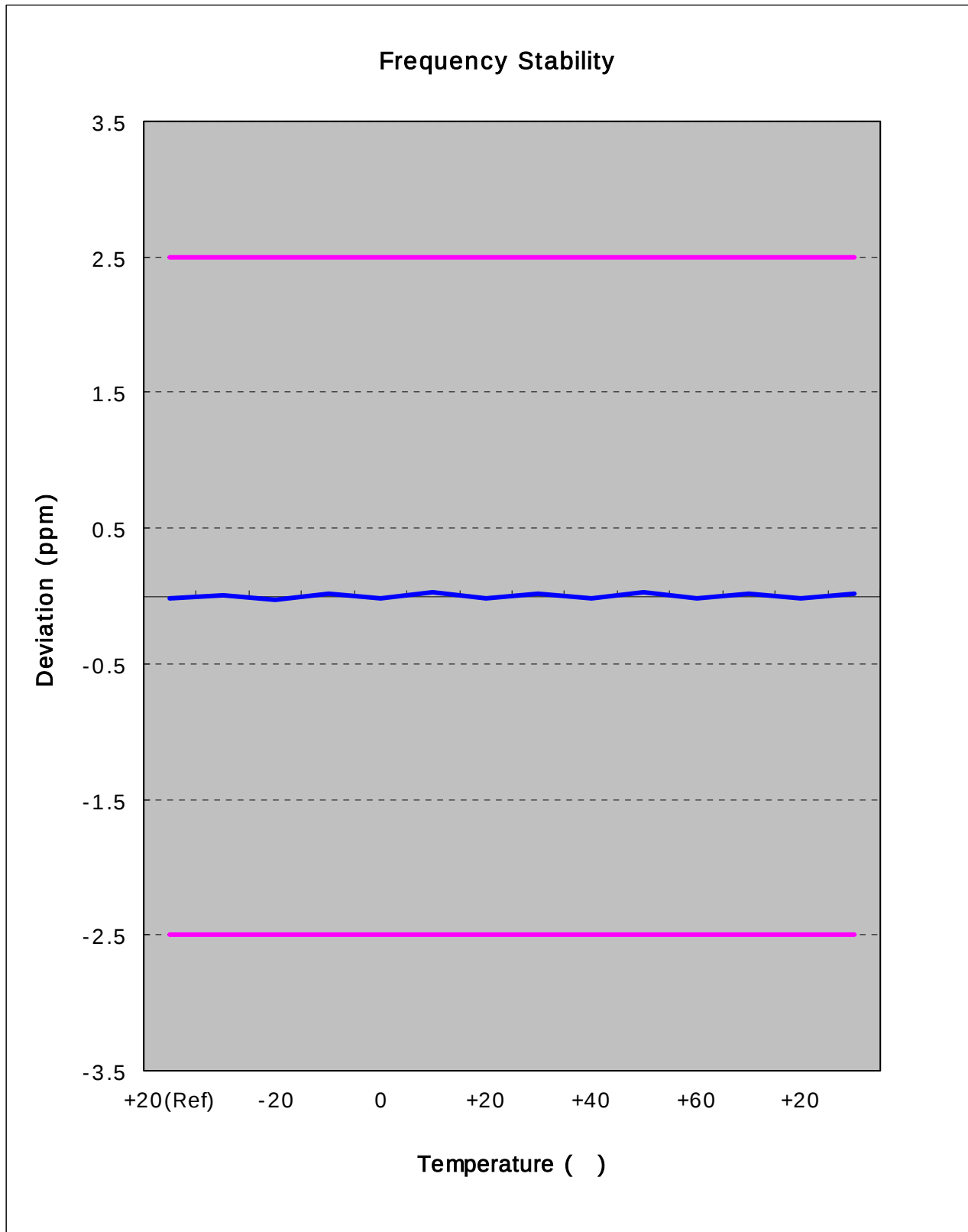
Zoom In

### Frequency Stability



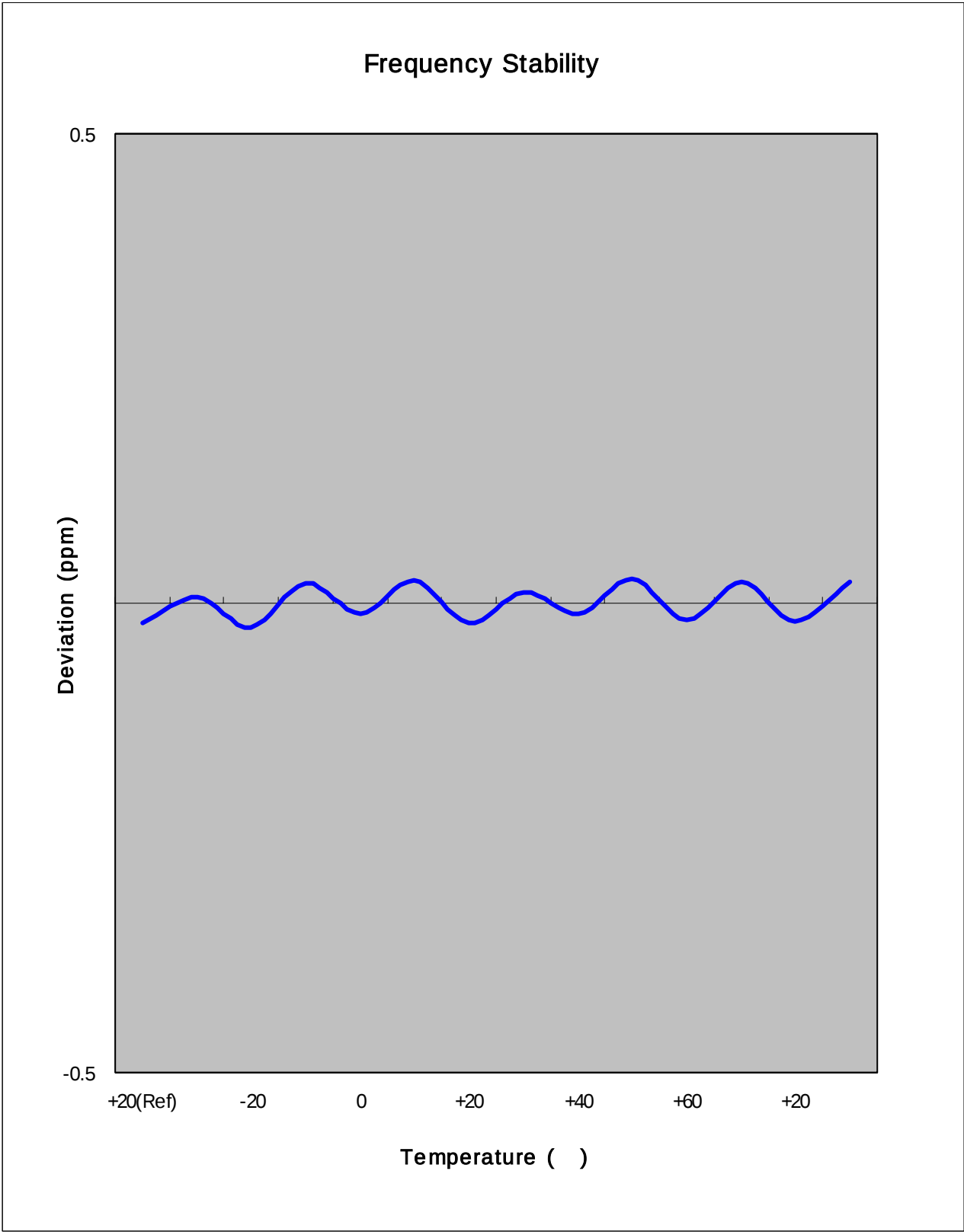
– End of page –

#### 6.7.4 PCS Frequency Stability Graph



– End of page –

Zoom In



- End of page -

## 7. SAMPLE CALCULATION

### 7.1 Emission Designator

Emission Designator = 1M25F9W

Calculation : 2M + 2DK

CDMA BW = 1.25MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination(Audio/Data)

(Measured at the 99.75% power bandwidth)

– End of page –



## **8. CONCLUSION**

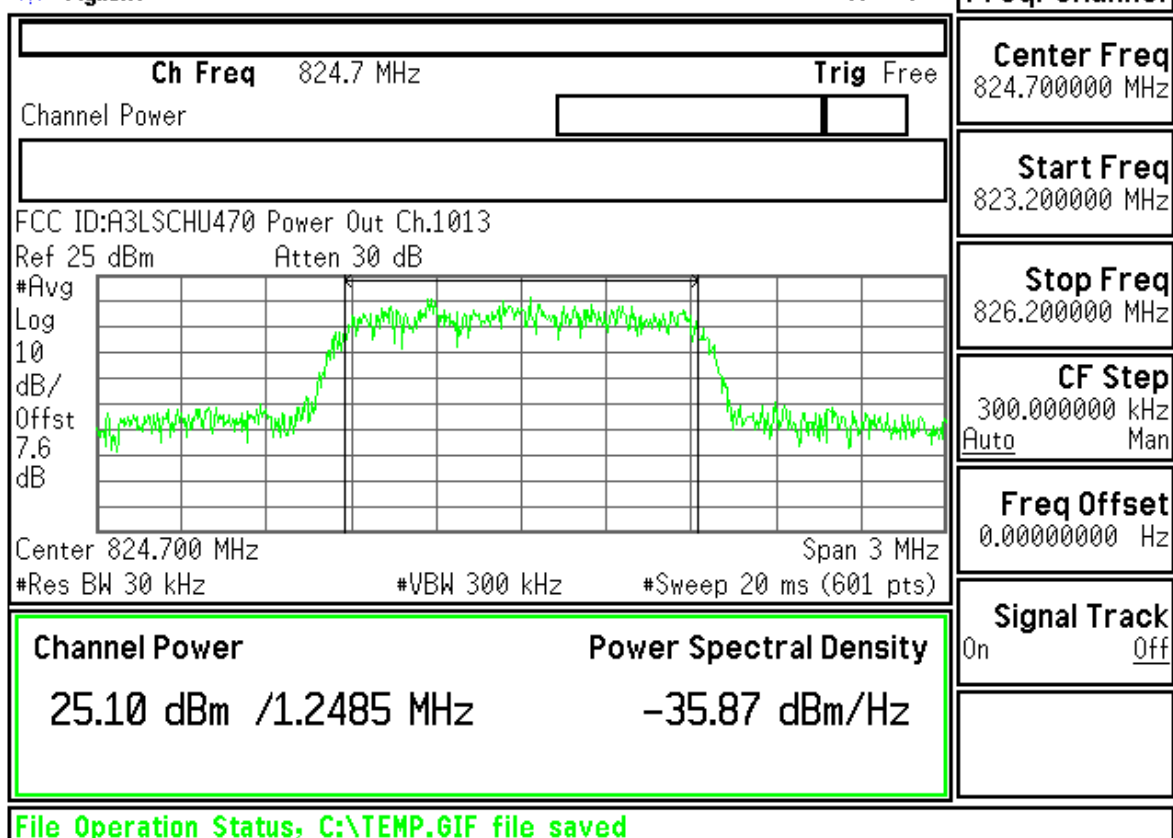
The data collected shows that the SAMSUNG Dual-Band CDMA Phone with Bluetooth  
FCC ID : A3LSCHU470 complies with all the requirements of Parts 2, 22, 24 of the FCC Rules.

- End of page -

## 9. TEST PLOTS

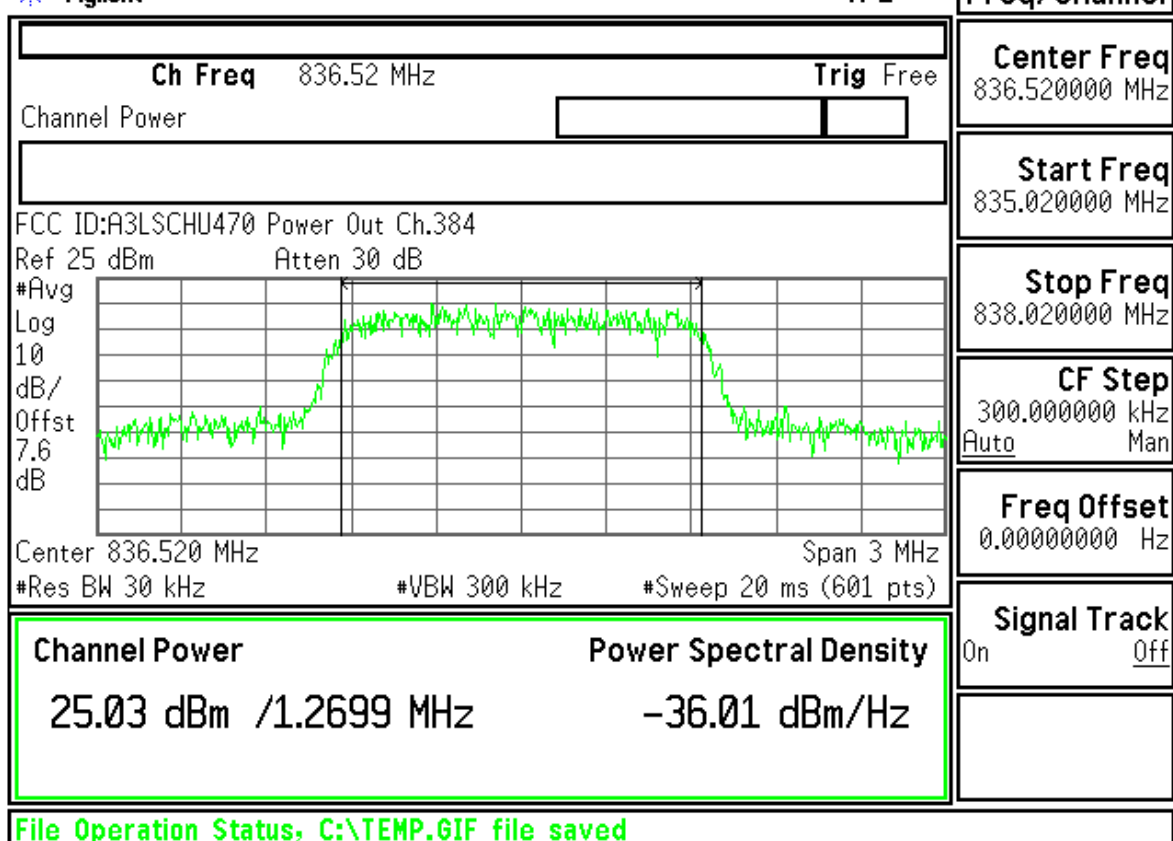
Agilent

R T



Agilent

R L



Agilent

R T

Freq/Channel

Ch Freq 848.31 MHz Trig Free

Channel Power

FCC ID:A3LSCHU470 Power Out Ch.777

Ref 25 dBm

Atten 30 dB

#Avg

Log

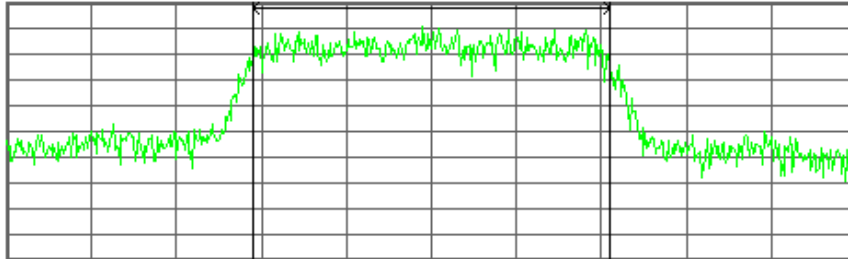
10

dB/

Offst

7.6

dB



Center 848.310 MHz

Span 3 MHz

#Res BW 30 kHz

#VBW 300 kHz

#Sweep 20 ms (601 pts)

Channel Power

24.72 dBm /1.2611 MHz

Power Spectral Density

-36.29 dBm/Hz

Center Freq  
848.310000 MHz

Start Freq  
846.810000 MHz

Stop Freq  
849.810000 MHz

CF Step  
300.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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

Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Power Out Ch.1013

Ref 25 dBm

Atten 30 dB

#Samp

Log

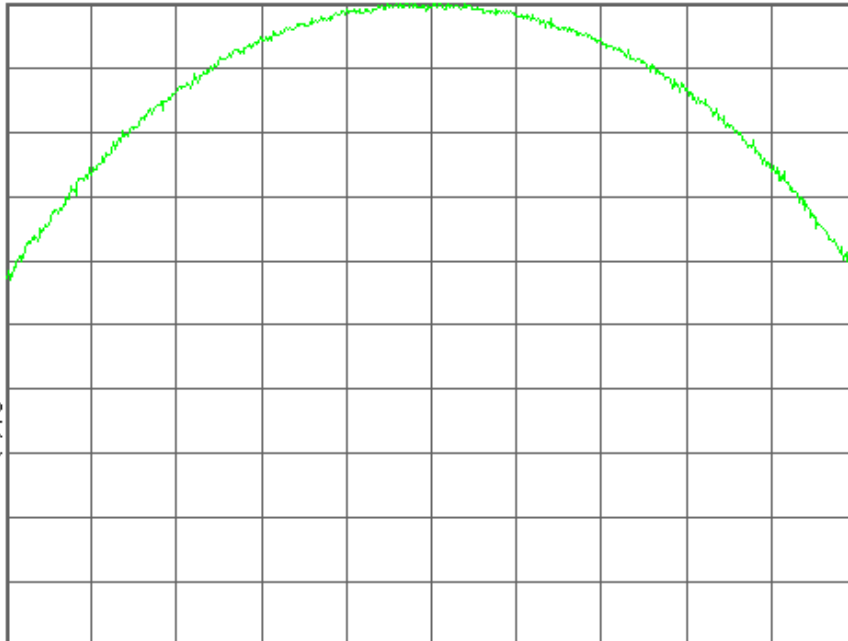
10

dB/

Offst

7.6

dB



Center 824.70 MHz

Span 10 MHz

#Res BW 3 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

#LgAv

100

W1 S2

S3 FC

E(f):

FTun

Swp

Center Freq  
824.700000 MHz

Start Freq  
819.700000 MHz

Stop Freq  
829.700000 MHz

CF Step  
1.00000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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

Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Power Out Ch.384

Ref 25 dBm

Atten 30 dB

#Samp

Log

10

dB/

Offst

7.6

dB

#LgAv

100

W1 S2

S3 FC

$E(f)$ :

FTun

Swp

Center 836.52 MHz

Span 10 MHz

#Res BW 3 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Center Freq

836.520000 MHz

Start Freq

831.520000 MHz

Stop Freq

841.520000 MHz

CF Step

1.00000000 MHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

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

Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Power Out Ch.777

Ref 25 dBm

Atten 30 dB

#Samp

Log

10

dB/

Offst

7.6

dB

#LgAv

100

W1 S2

S3 FC

$E(f)$ :

FTun

Swp

Center 848.31 MHz

Span 10 MHz

#Res BW 3 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Center Freq

848.310000 MHz

Start Freq

843.310000 MHz

Stop Freq

853.310000 MHz

CF Step

1.00000000 MHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

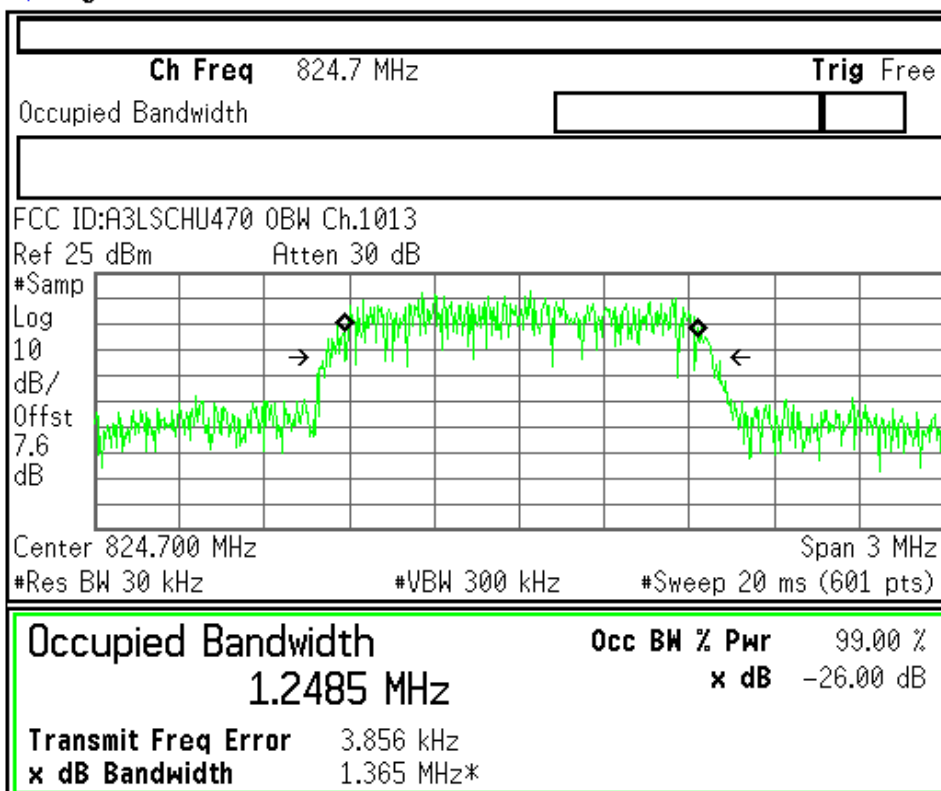
Off

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

Agilent

R T

Freq/Channel



**Center Freq**  
824.700000 MHz

**Start Freq**  
823.200000 MHz

**Stop Freq**  
826.200000 MHz

**CF Step**  
300.000000 kHz  
Auto Man

**Freq Offset**  
0.00000000 Hz

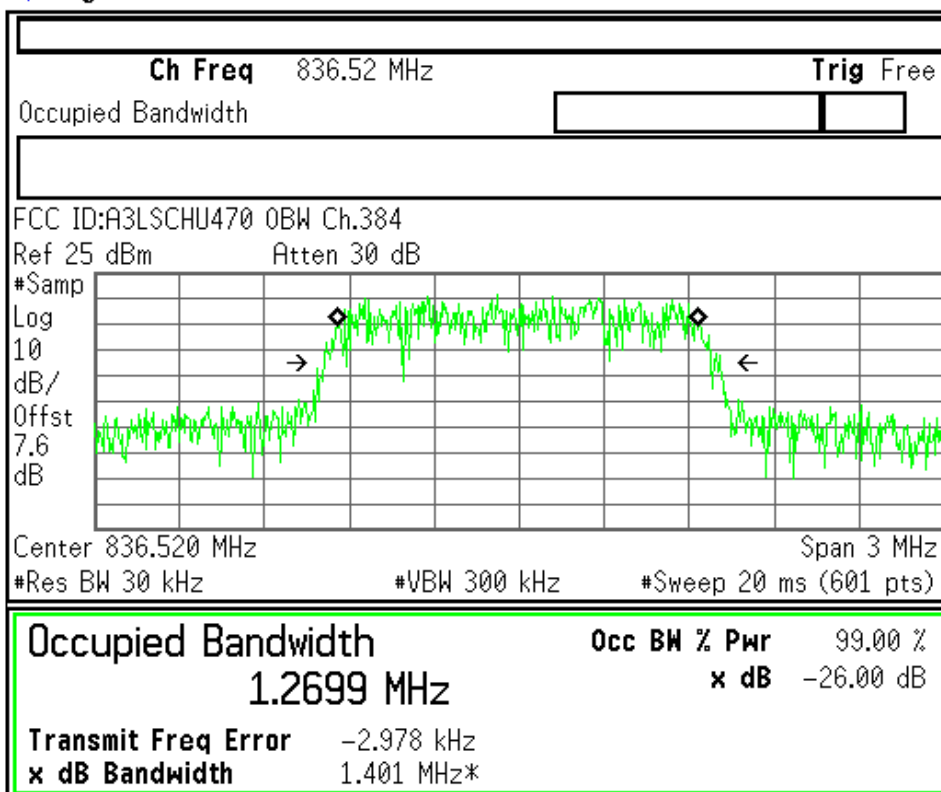
**Signal Track**  
On Off

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

Agilent

R T

Freq/Channel



**Center Freq**  
836.520000 MHz

**Start Freq**  
835.020000 MHz

**Stop Freq**  
838.020000 MHz

**CF Step**  
300.000000 kHz  
Auto Man

**Freq Offset**  
0.00000000 Hz

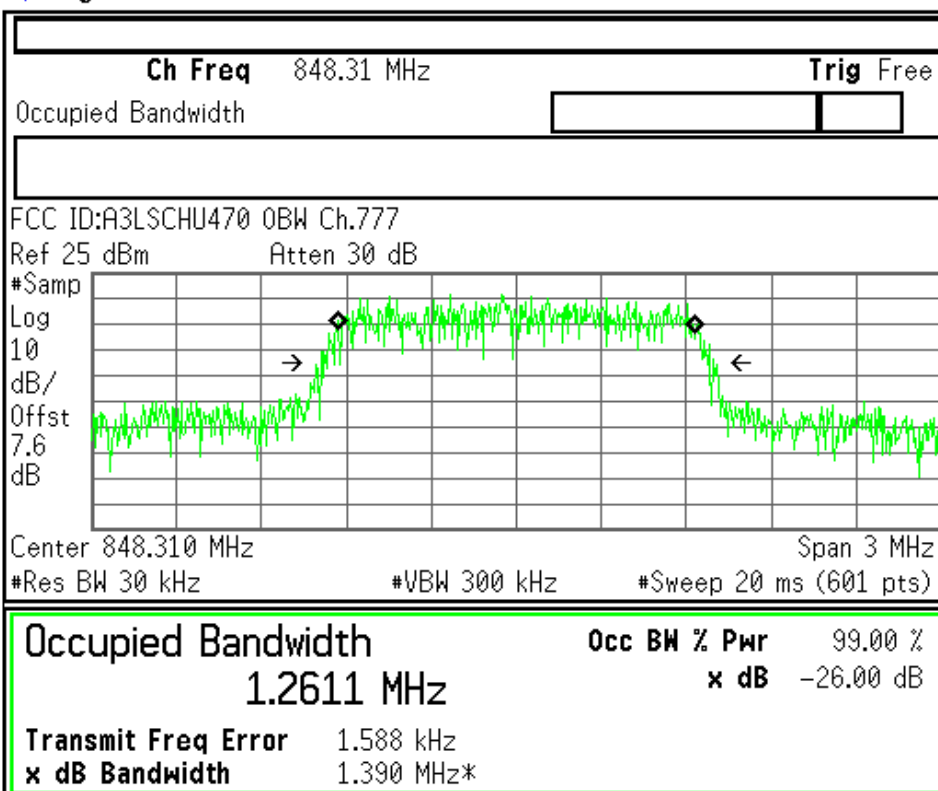
**Signal Track**  
On Off

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

Agilent

R T

Freq/Channel



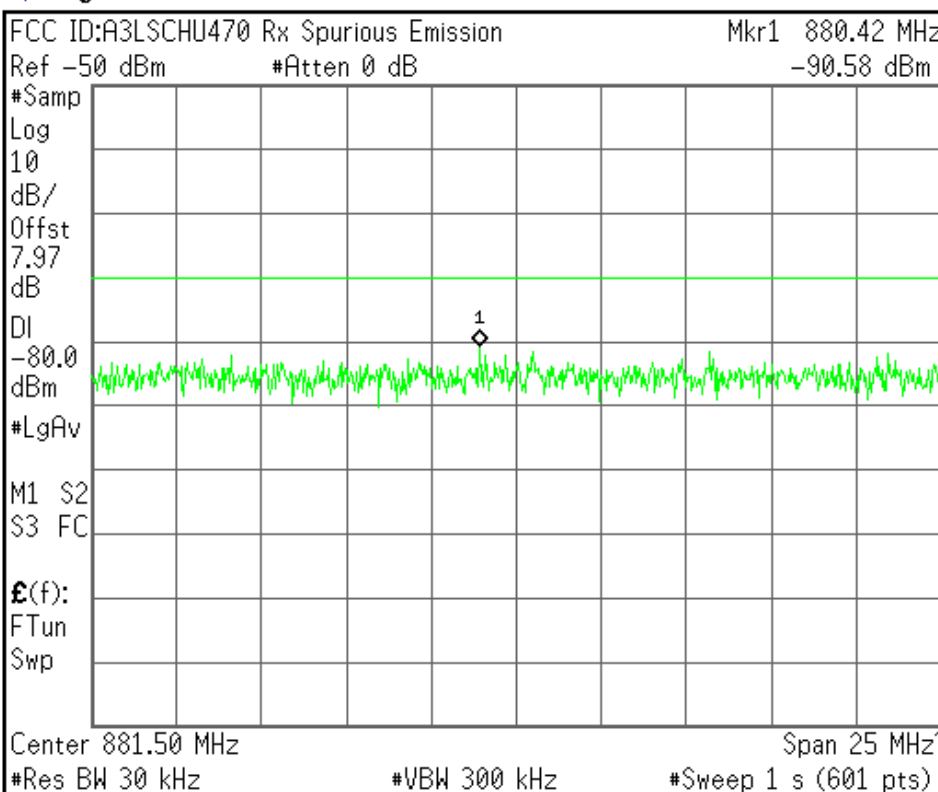
|                     |                            |
|---------------------|----------------------------|
| <b>Center Freq</b>  | 848.310000 MHz             |
| <b>Start Freq</b>   | 846.810000 MHz             |
| <b>Stop Freq</b>    | 849.810000 MHz             |
| <b>CF Step</b>      | 300.000000 kHz<br>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>  | 881.500000 MHz             |
| <b>Start Freq</b>   | 869.000000 MHz             |
| <b>Stop Freq</b>    | 894.000000 MHz             |
| <b>CF Step</b>      | 2.50000000 MHz<br>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

FCC ID:A3LSCHU470 Cond Spur Ch.1013

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

7.6

dB

DI

-13.0

dBm

#LgAv

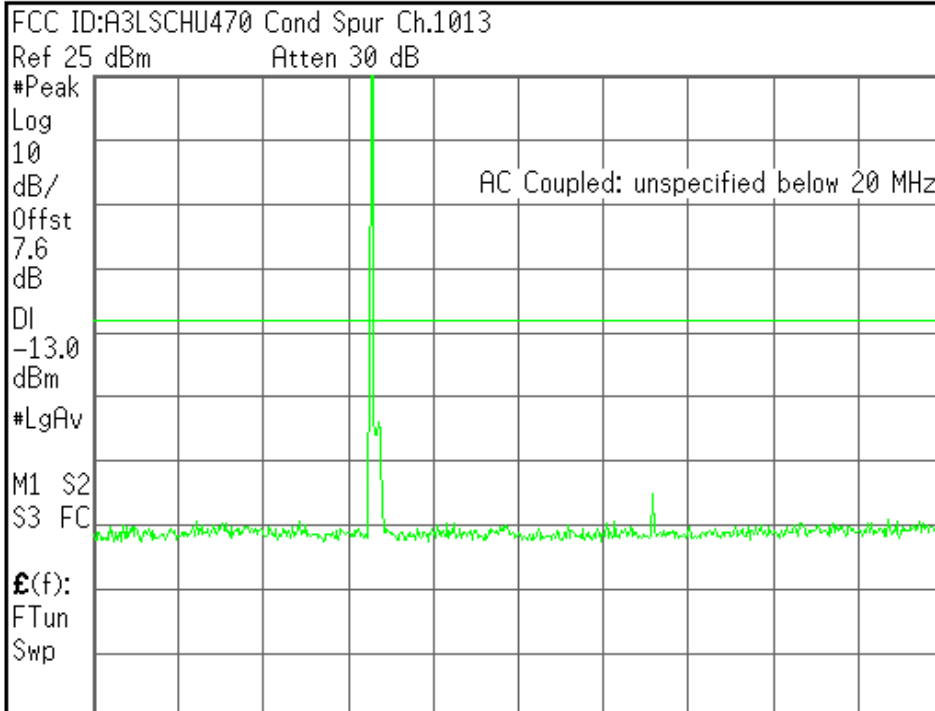
M1 S2

S3 FC

£(f):

FTun

Swp



Center 1.255 GHz

Span 2.49 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 4.16 ms (601 pts)

Invalid suffix

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

Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.1013

Ref 25 dBm

Atten 30 dB

Mkr1 463.8 MHz

-44.81 dBm

#Peak

Log

10

dB/

Offst

7.6

dB

DI

-13.0

dBm

#LgAv

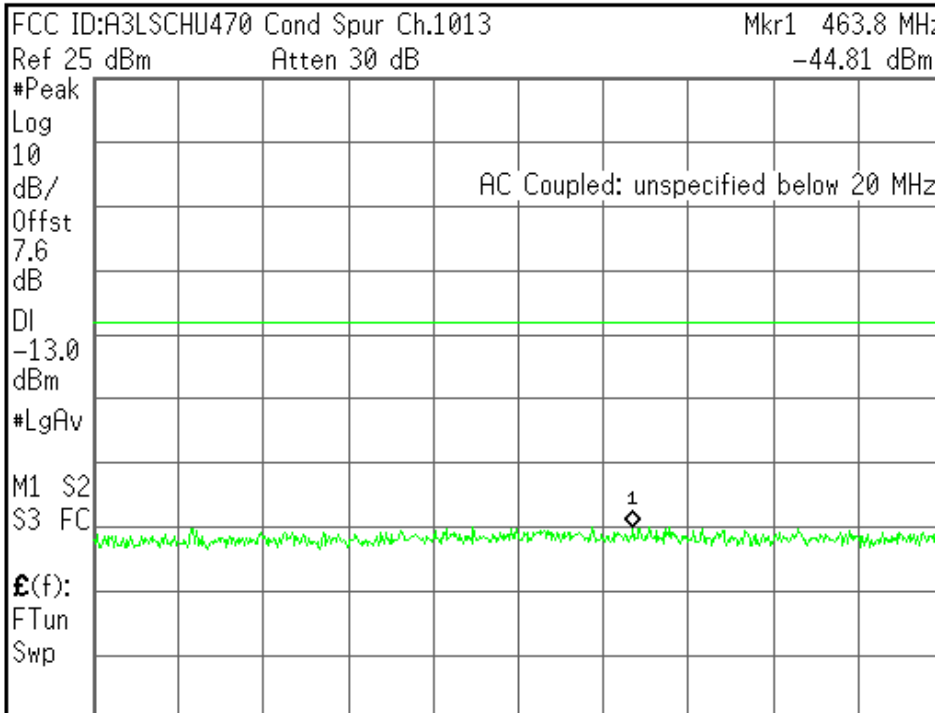
M1 S2

S3 FC

£(f):

FTun

Swp



Center 367.4 MHz

Span 714.7 MHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 1.2 ms (601 pts)

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

Center Freq  
367.350000 MHz

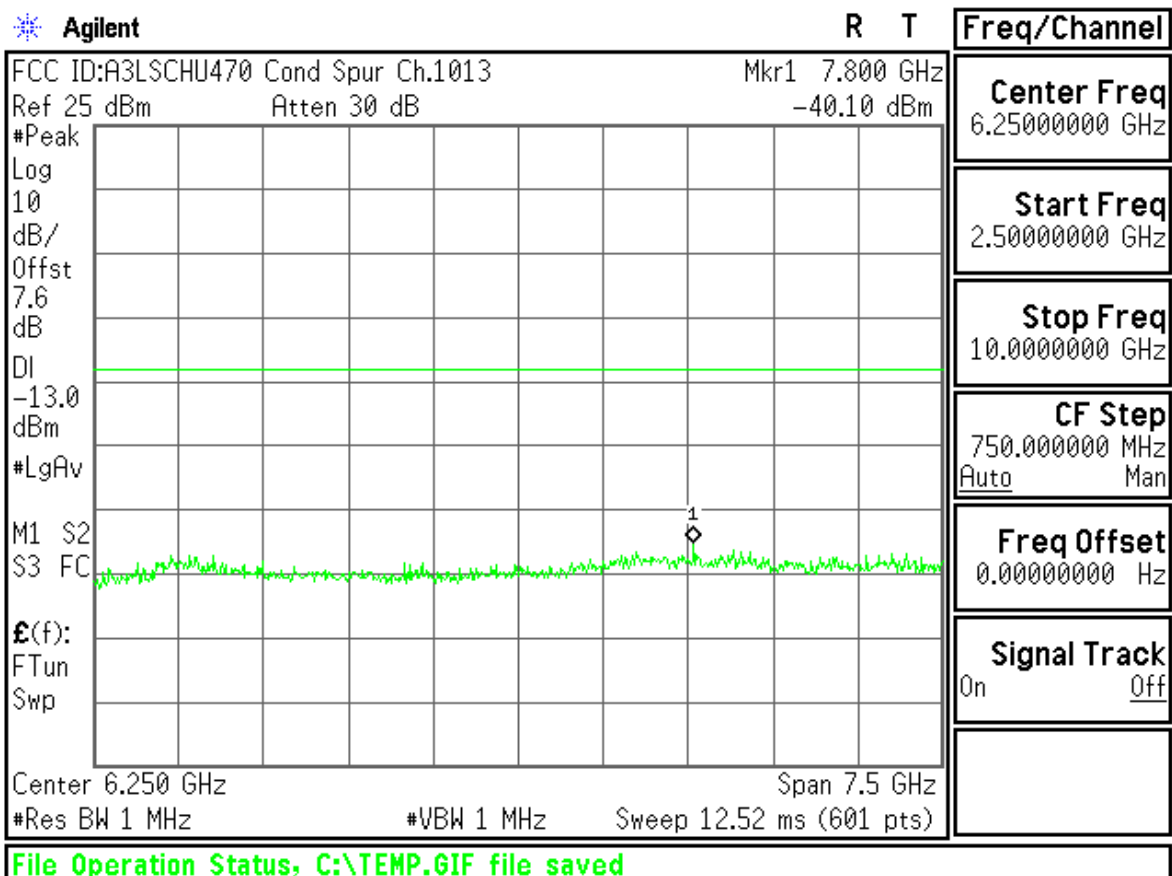
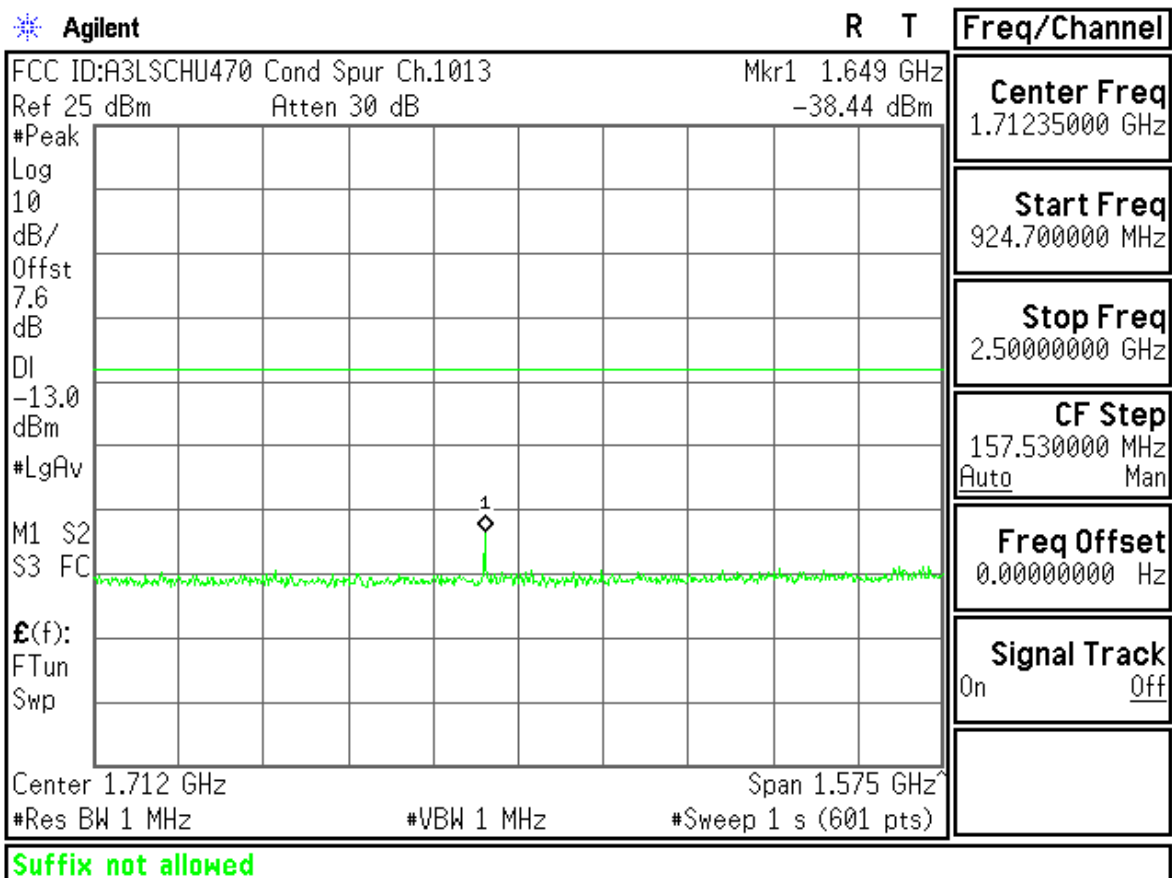
Start Freq  
10.00000000 MHz

Stop Freq  
724.7000000 MHz

CF Step  
71.4700000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off



Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.384

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

7.6

dB

DI

-13.0

dBm

#LgAv

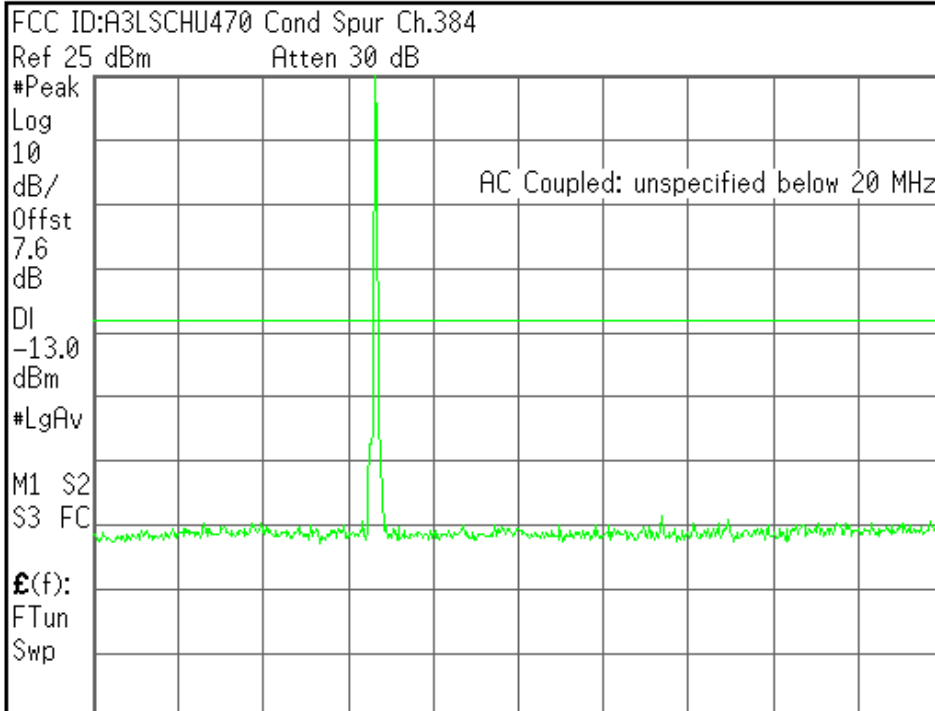
M1 S2

S3 FC

$E(f)$ :

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 T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.384

Mkr1 491.9 MHz

Ref 25 dBm

Atten 30 dB

-44.43 dBm

#Peak

Log

10

dB/

Offst

7.6

dB

DI

-13.0

dBm

#LgAv

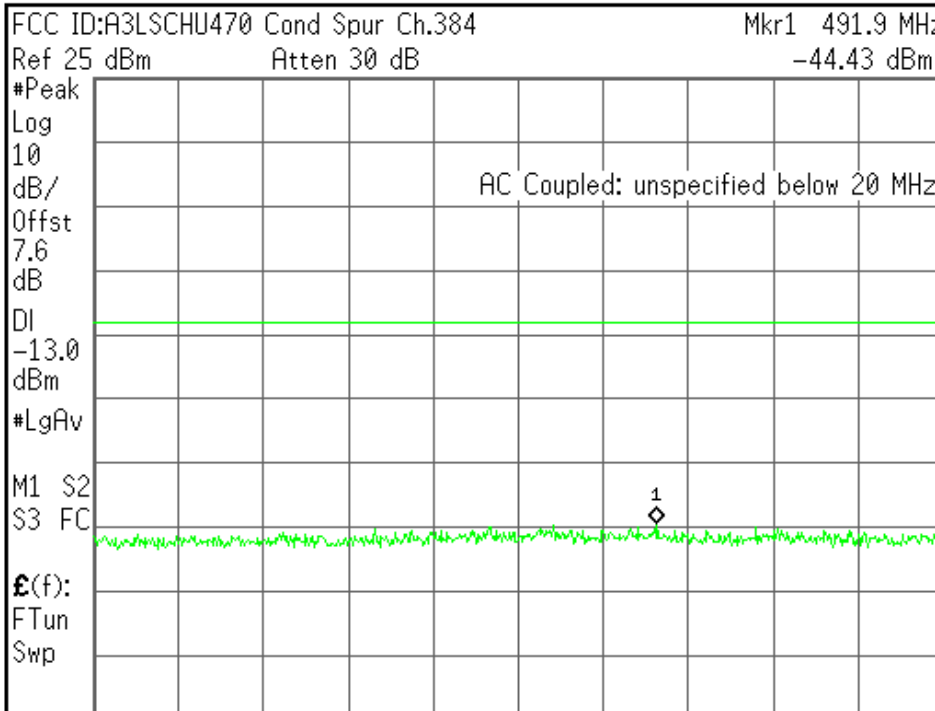
M1 S2

S3 FC

$E(f)$ :

FTun

Swp



Center 373.3 MHz

Span 726.5 MHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 1.24 ms (601 pts)

Center Freq  
373.260000 MHz

Start Freq  
10.00000000 MHz

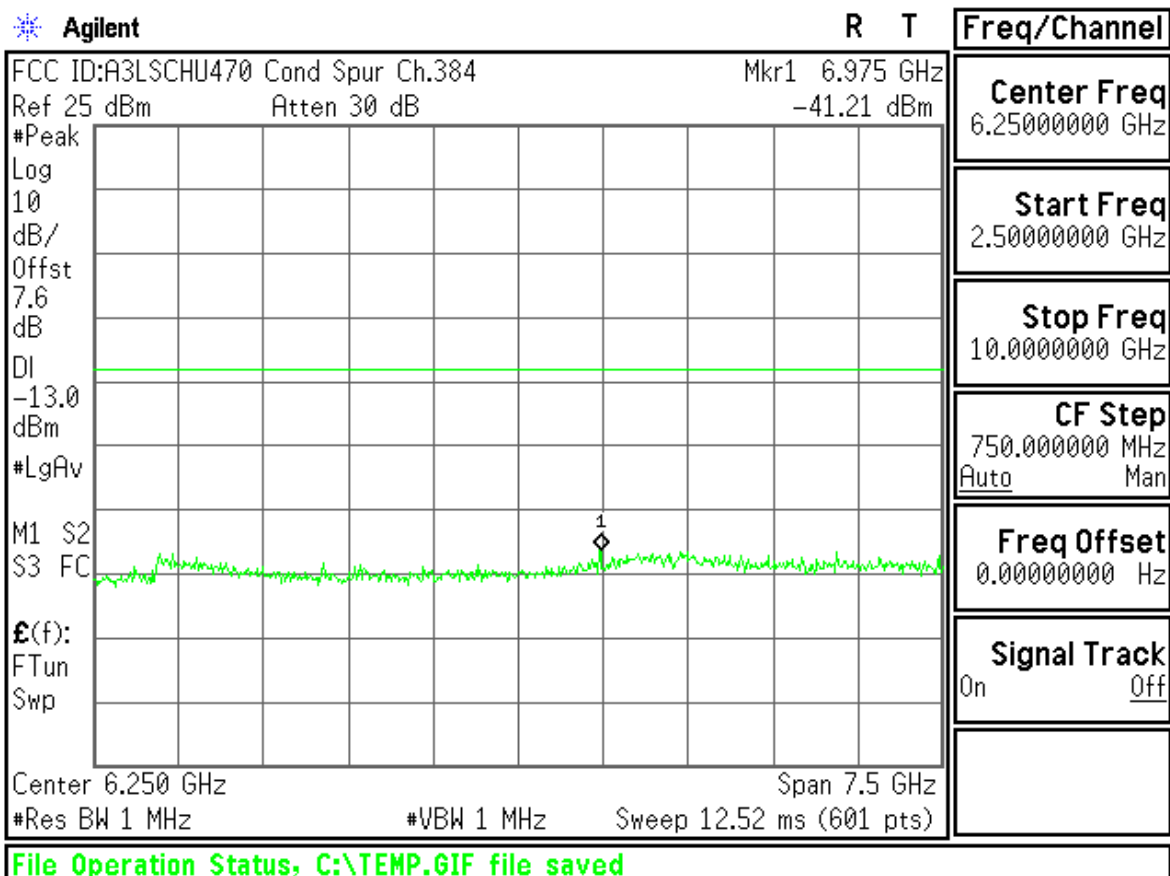
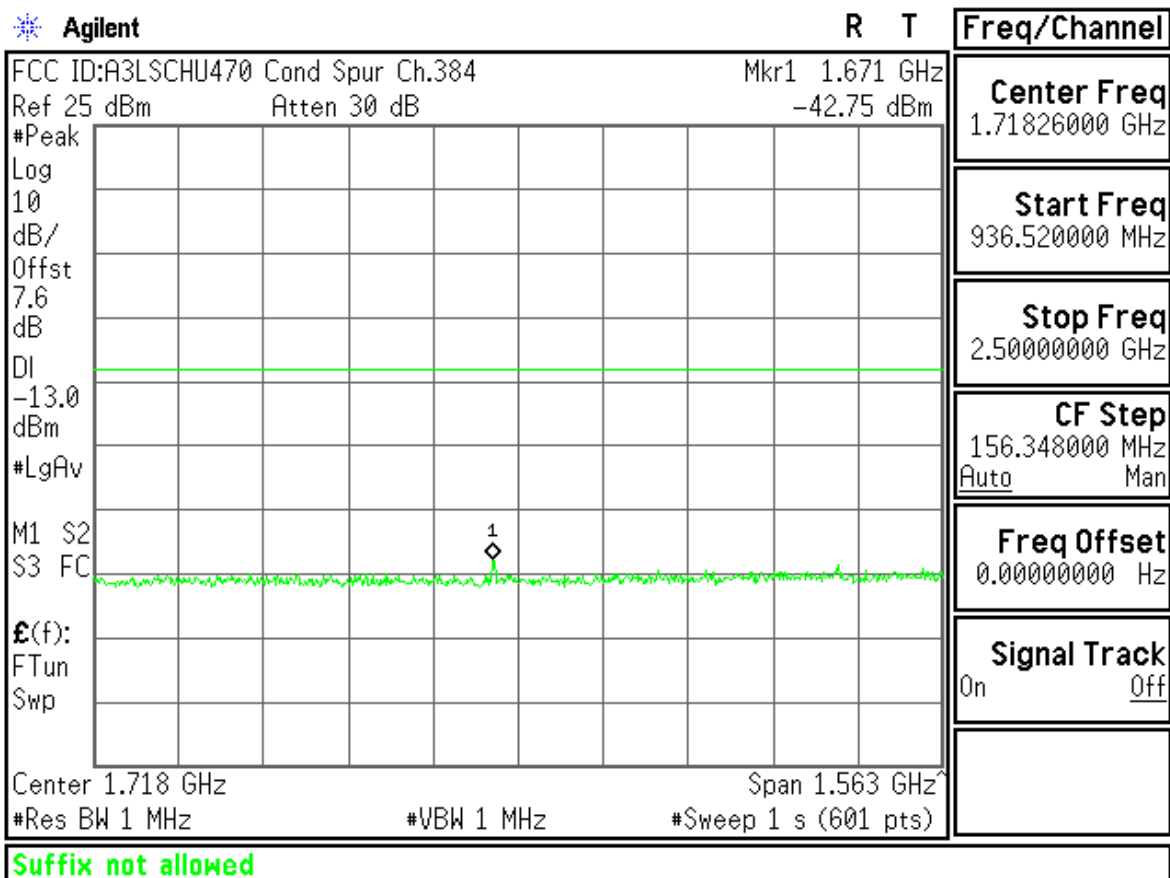
Stop Freq  
736.520000 MHz

CF Step  
72.6520000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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



Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.777

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

7.6

dB

DI

-13.0

dBm

#LgAv

M1 S2

S3 FC

$E(f)$ :

FTun

Swp

AC Coupled: unspecified below 20 MHz

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 T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.777

Mkr1 469.0 MHz

Ref 25 dBm

Atten 30 dB

-43.88 dBm

#Peak

Log

10

dB/

Offst

7.6

dB

DI

-13.0

dBm

#LgAv

M1 S2

S3 FC

$E(f)$ :

FTun

Swp

AC Coupled: unspecified below 20 MHz

Center 379.2 MHz

Span 738.3 MHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 1.24 ms (601 pts)

Center Freq  
379.155000 MHz

Start Freq  
10.00000000 MHz

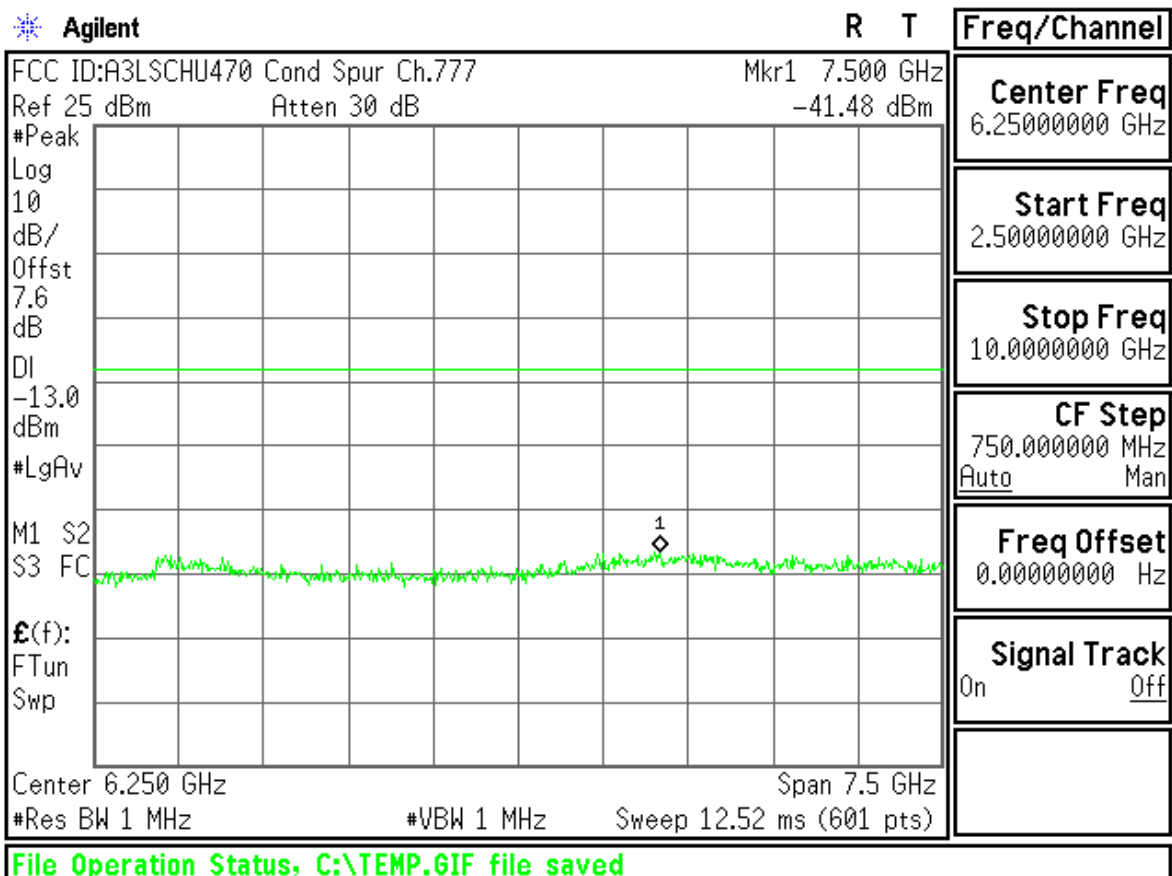
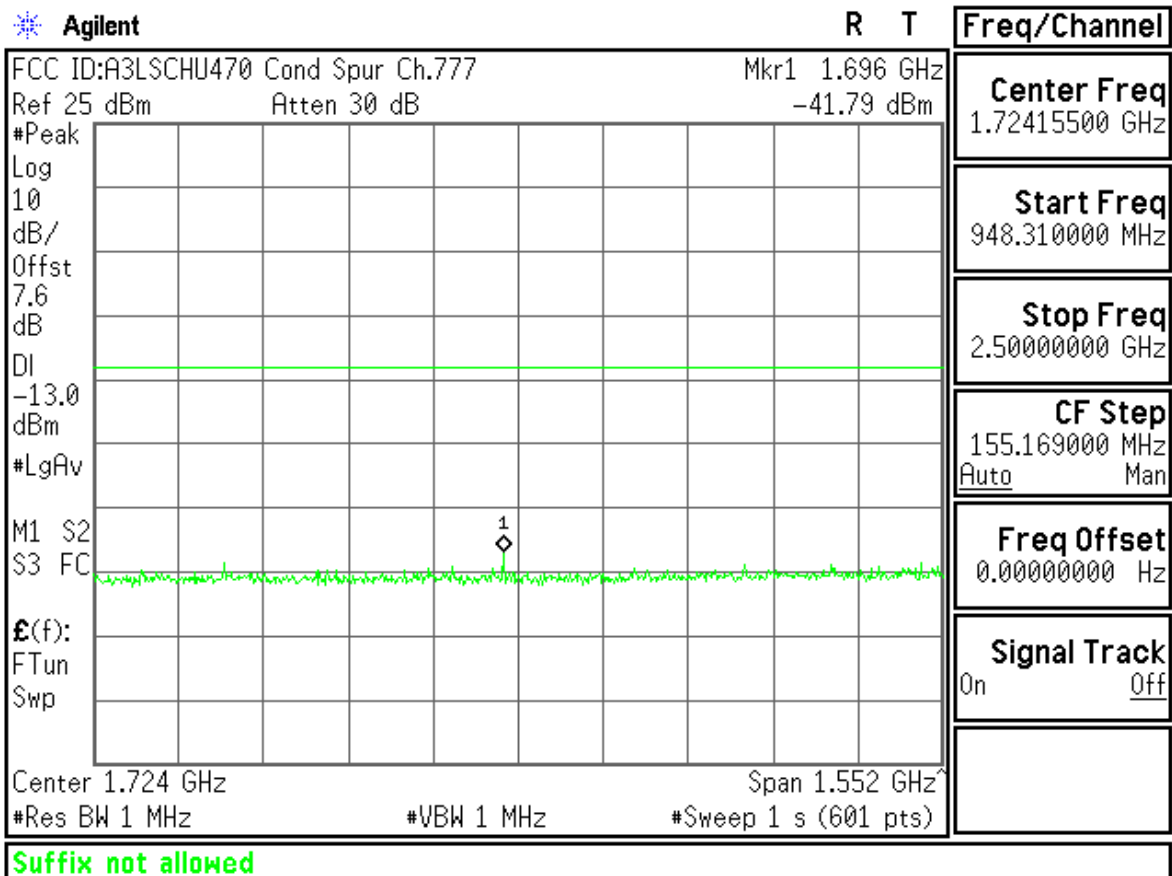
Stop Freq  
748.310000 MHz

CF Step  
73.8310000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

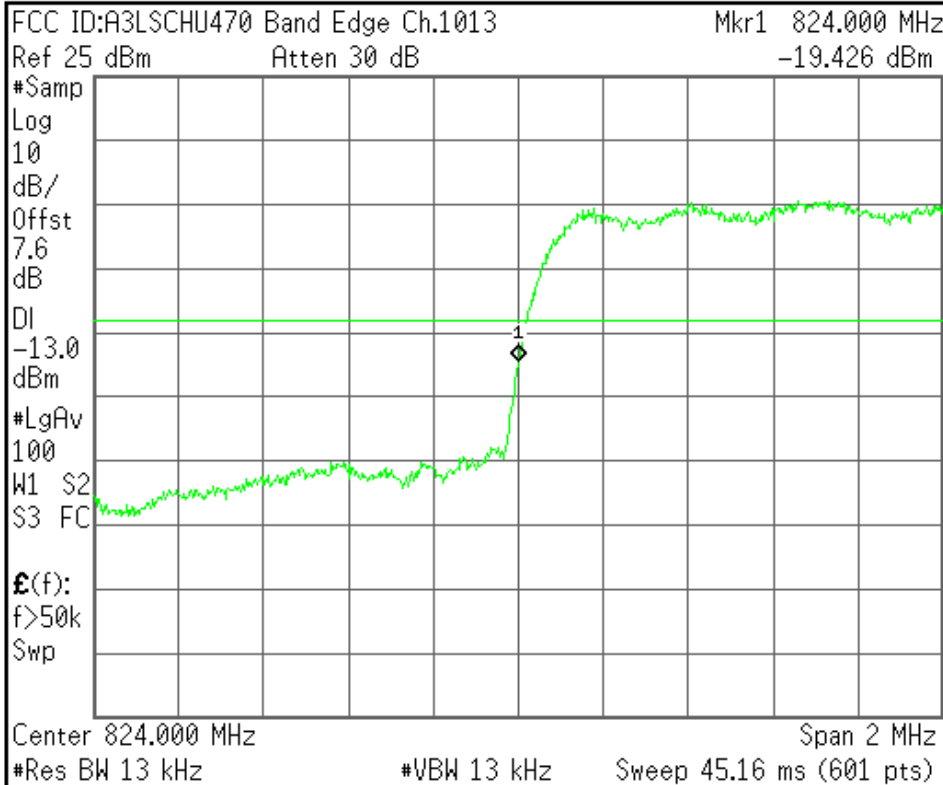
File Operation Status, C:\TEMP.GIF file saved



Agilent

R T

Freq/Channel



Center Freq  
824.000000 MHz

Start Freq  
823.000000 MHz

Stop Freq  
825.000000 MHz

CF Step  
200.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

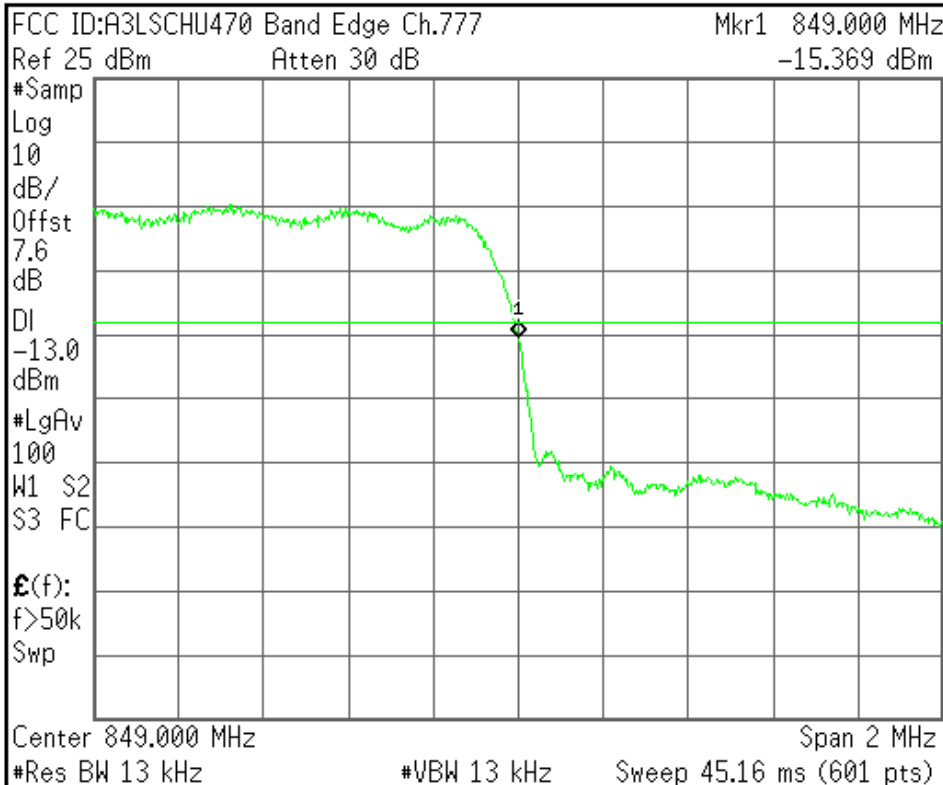
Signal Track  
On Off

Invalid suffix

Agilent

R T

Freq/Channel



Center Freq  
849.000000 MHz

Start Freq  
848.000000 MHz

Stop Freq  
850.000000 MHz

CF Step  
200.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

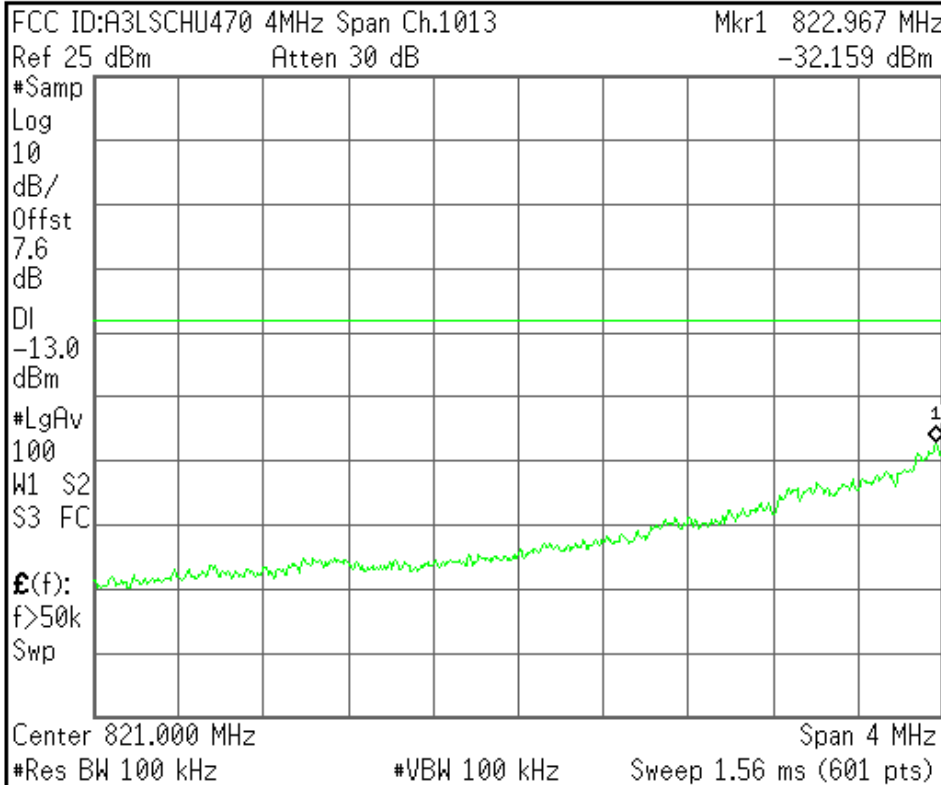
Signal Track  
On Off

Invalid suffix

Agilent

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

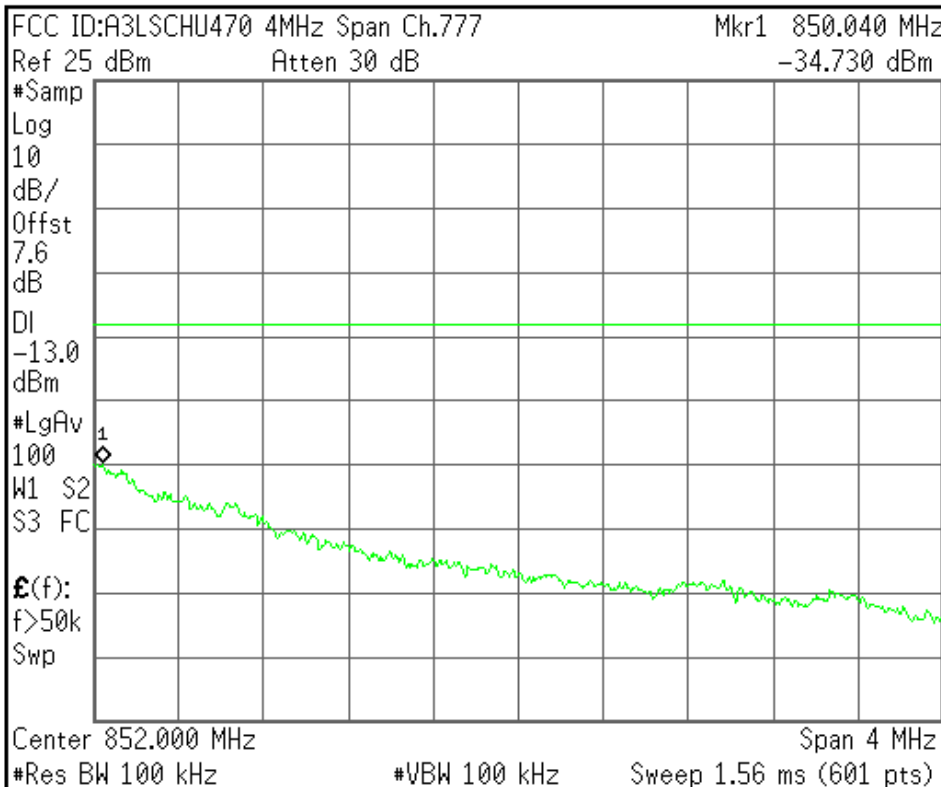
Signal Track  
On Off

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

Agilent

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

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

\* Agilent

R T

Freq/Channel

Ch Freq 1.85125 GHz Trig Free

Channel Power

Center Freq  
1.85125000 GHz

Start Freq  
1.84975000 GHz

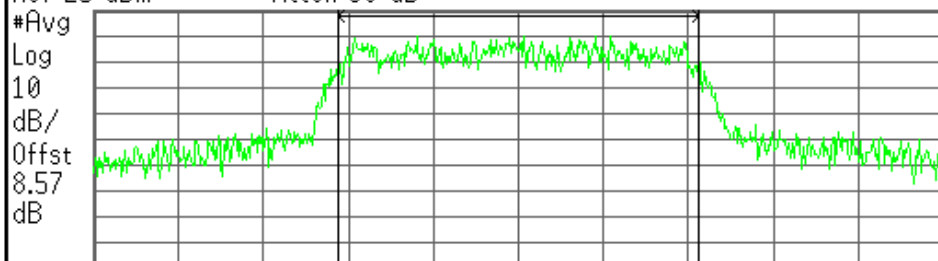
Stop Freq  
1.85275000 GHz

CF Step  
300.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LSCHU470 Power Out Ch.25  
Ref 25 dBm Atten 30 dB



Center 1.851 250 GHz Span 3 MHz  
#Res BW 30 kHz #VBW 300 kHz #Sweep 20 ms (601 pts)

Channel Power Power Spectral Density  
25.27 dBm /1.2746 MHz -35.79 dBm/Hz

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

\* Agilent

R T

Freq/Channel

Ch Freq 1.88 GHz Trig Free

Channel Power

Center Freq  
1.88000000 GHz

Start Freq  
1.87850000 GHz

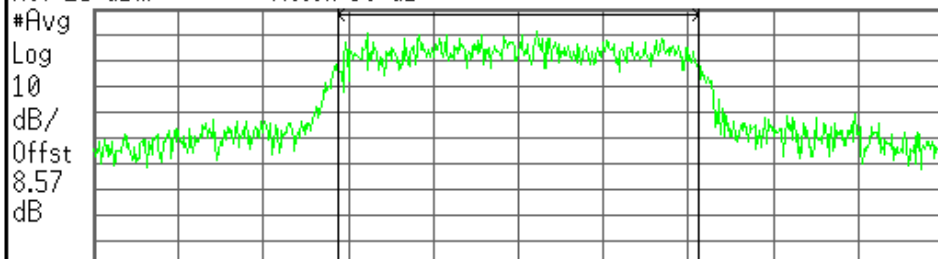
Stop Freq  
1.88150000 GHz

CF Step  
300.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

FCC ID:A3LSCHU470 Power Out Ch.600  
Ref 25 dBm Atten 30 dB



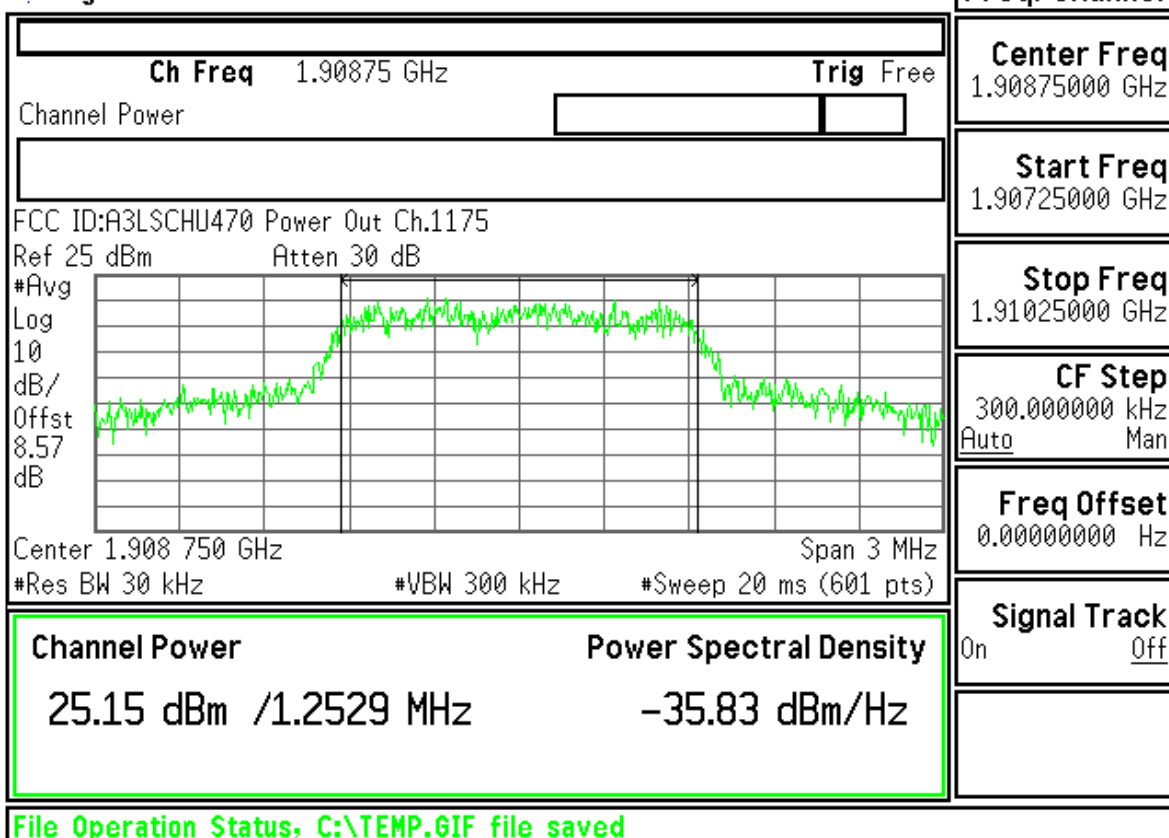
Center 1.880 000 GHz Span 3 MHz  
#Res BW 30 kHz #VBW 300 kHz #Sweep 20 ms (601 pts)

Channel Power Power Spectral Density  
25.29 dBm /1.2668 MHz -35.74 dBm/Hz

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

Agilent

R T



Freq/Channel

**Center Freq**  
1.90875000 GHz

**Start Freq**  
1.90725000 GHz

**Stop Freq**  
1.91025000 GHz

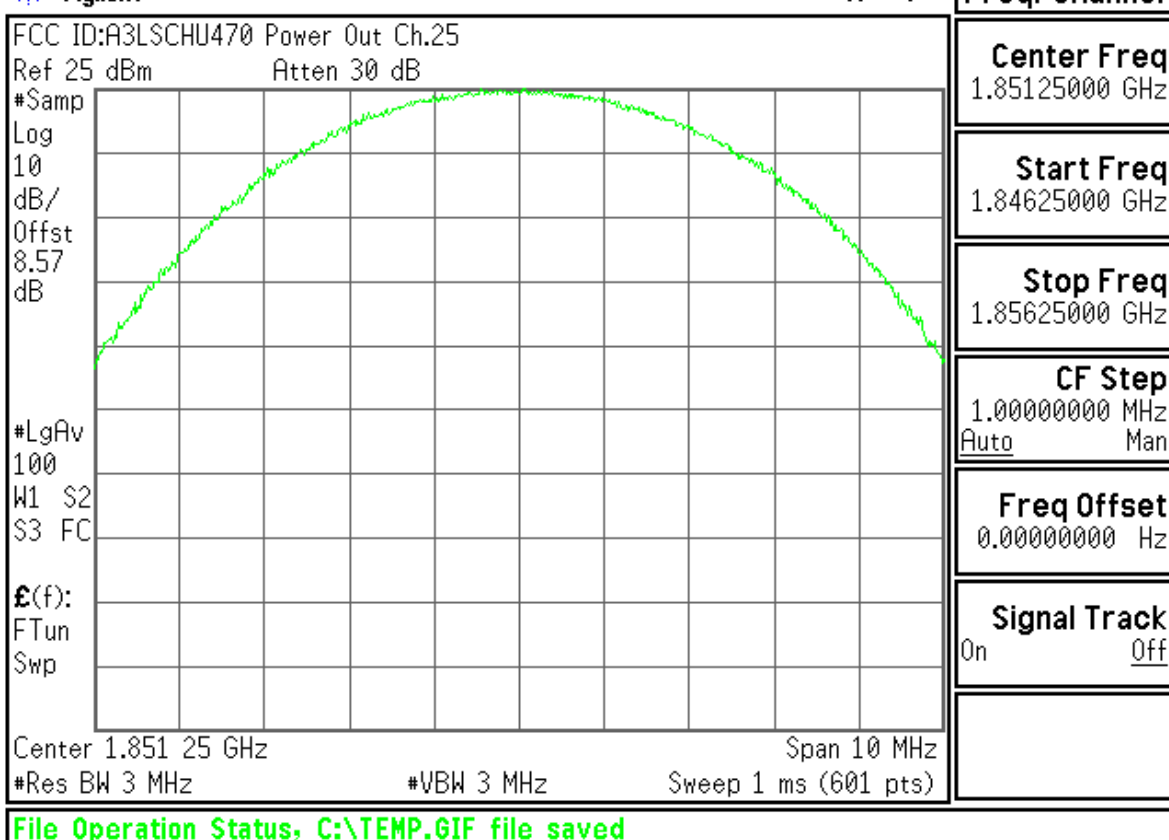
**CF Step**  
300.000000 kHz  
Auto Man

**Freq Offset**  
0.00000000 Hz

**Signal Track**  
On Off

Agilent

R T



**Center Freq**  
1.85125000 GHz

**Start Freq**  
1.84625000 GHz

**Stop Freq**  
1.85625000 GHz

**CF Step**  
1.00000000 MHz  
Auto Man

**Freq Offset**  
0.00000000 Hz

**Signal Track**  
On Off

Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Power Out Ch.600

Ref 25 dBm

Atten 30 dB

#Samp

Log

10

dB/

Offst

8.57

dB

#LgAv

100

W1 S2

S3 FC

$E(f)$ :

FTun

Swp

Center 1.880 00 GHz

Span 10 MHz

#Res BW 3 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

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

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

Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Power Out Ch.1175

Ref 25 dBm

Atten 30 dB

#Samp

Log

10

dB/

Offst

8.57

dB

#LgAv

100

W1 S2

S3 FC

$E(f)$ :

FTun

Swp

Center 1.908 75 GHz

Span 10 MHz

#Res BW 3 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

Center Freq

1.90875000 GHz

Start Freq

1.90375000 GHz

Stop Freq

1.91375000 GHz

CF Step

1.00000000 MHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

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

Agilent

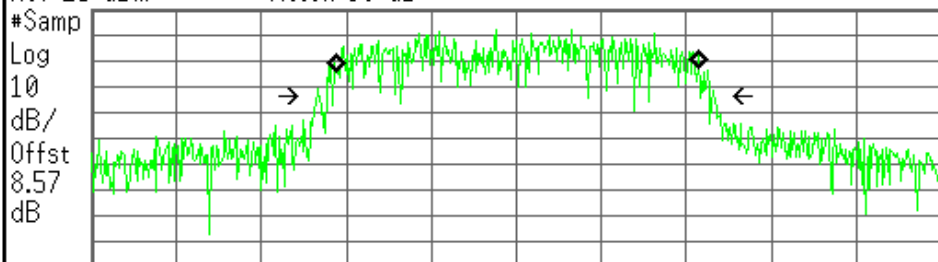
R T

Freq/Channel

Ch Freq 1.85125 GHz Trig Free  
Occupied Bandwidth

FCC ID:A3LSCHU470 0BW Ch.25

Ref 25 dBm Atten 30 dB



Center 1.851 250 GHz

Span 3 MHz

#Res BW 30 kHz

#VBW 300 kHz

#Sweep 20 ms (601 pts)

Occupied Bandwidth

1.2746 MHz

Occ BW % Pwr 99.00 %

x dB -26.00 dB

Transmit Freq Error 2.030 kHz

x dB Bandwidth 1.401 MHz\*

Center Freq  
1.85125000 GHz

Start Freq  
1.84975000 GHz

Stop Freq  
1.85275000 GHz

CF Step  
300.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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

Agilent

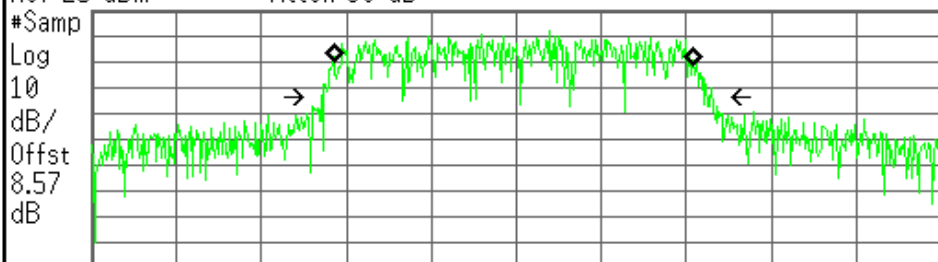
R T

Freq/Channel

Ch Freq 1.88 GHz Trig Free  
Occupied Bandwidth

FCC ID:A3LSCHU470 0BW Ch.600

Ref 25 dBm Atten 30 dB



Center 1.880 000 GHz

Span 3 MHz

#Res BW 30 kHz

#VBW 300 kHz

#Sweep 20 ms (601 pts)

Occupied Bandwidth

1.2668 MHz

Occ BW % Pwr 99.00 %

x dB -26.00 dB

Transmit Freq Error -10.239 kHz

x dB Bandwidth 1.385 MHz\*

Center Freq  
1.88000000 GHz

Start Freq  
1.87850000 GHz

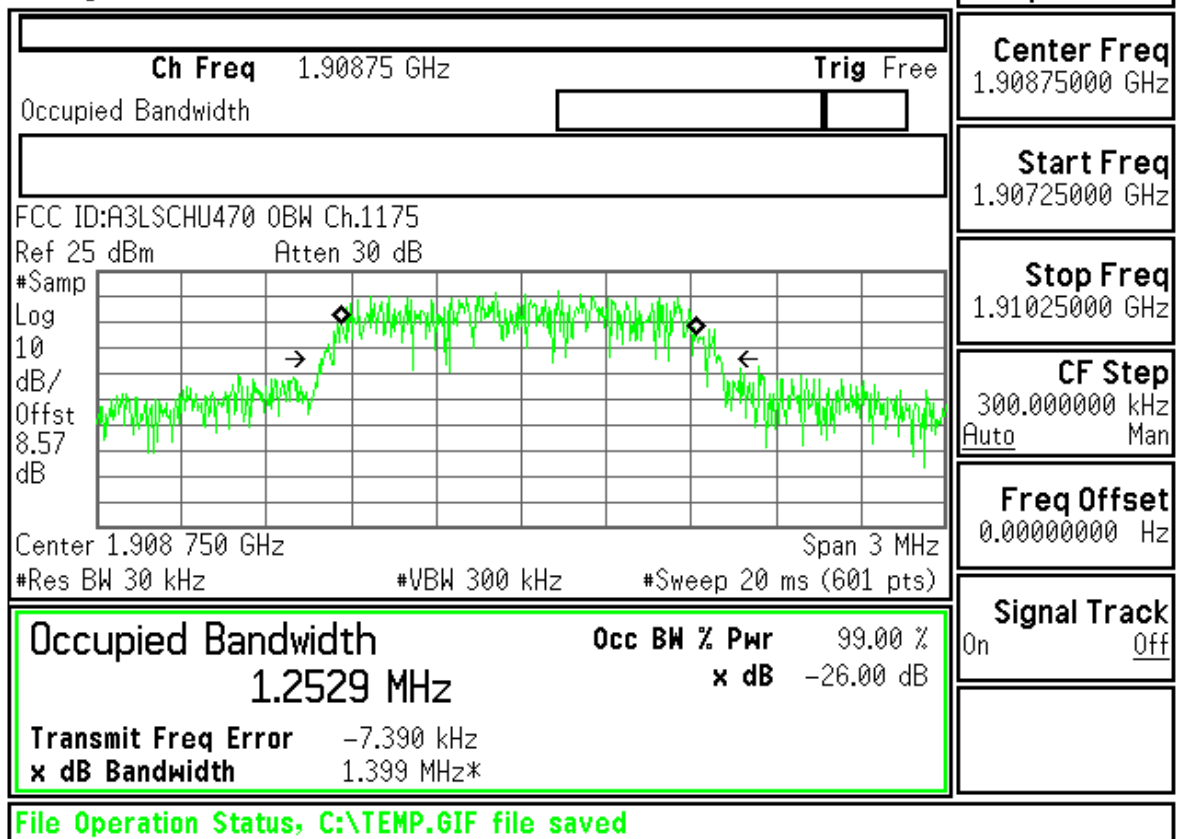
Stop Freq  
1.88150000 GHz

CF Step  
300.000000 kHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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



Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.25

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

8.57

dB

DI

-13.0

dBm

#LgAv

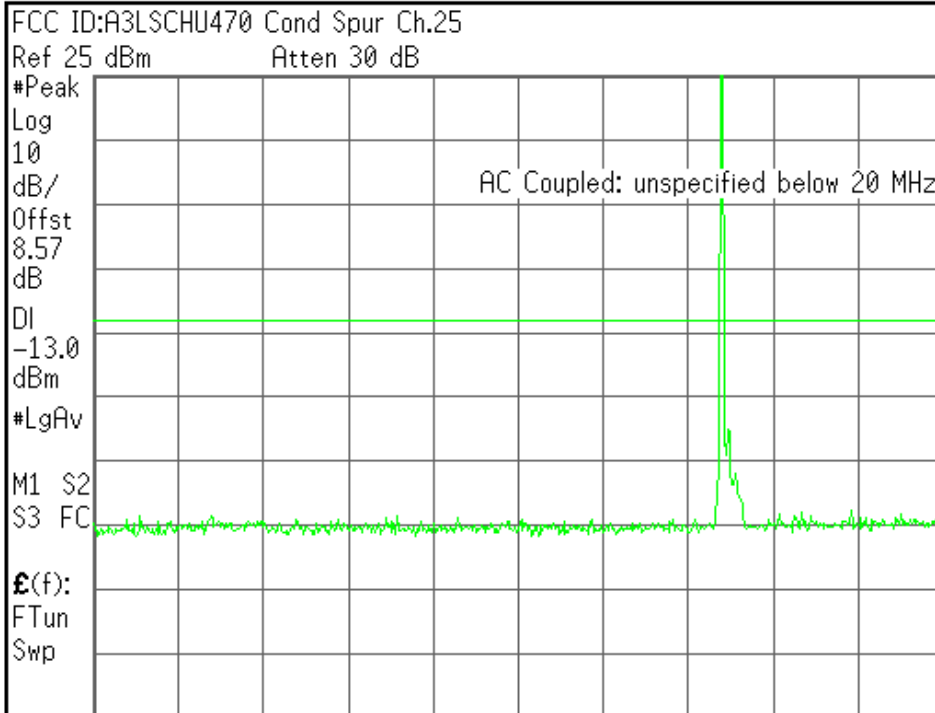
M1 S2

S3 FC

$E(f)$ :

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 T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.25

Ref 25 dBm

Atten 30 dB

Mkr1 1.418 GHz

-43.60 dBm

#Peak

Log

10

dB/

Offst

8.57

dB

DI

-13.0

dBm

#LgAv

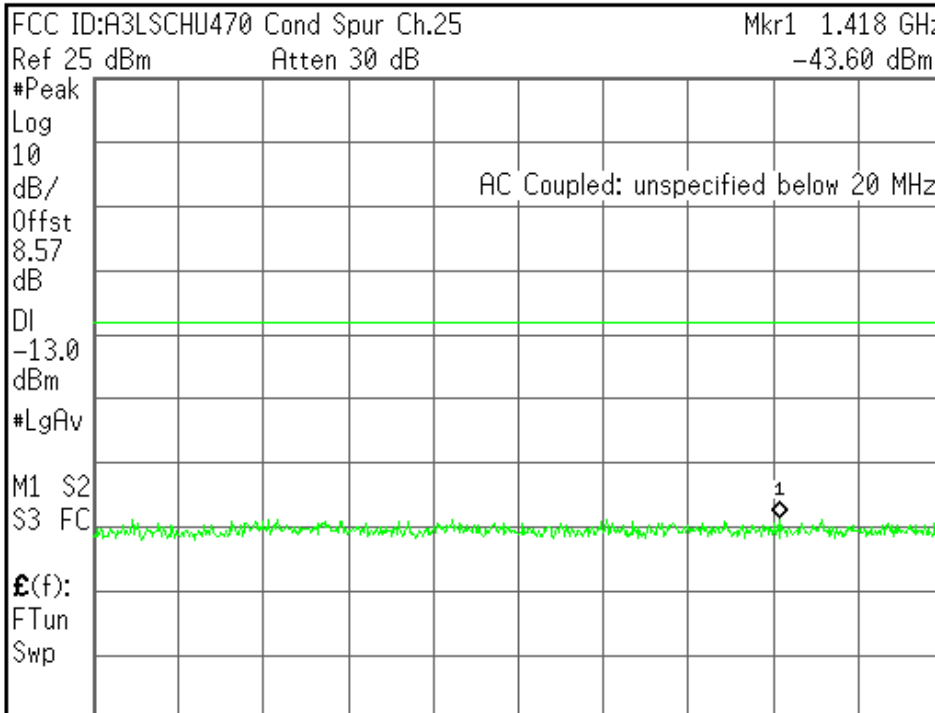
M1 S2

S3 FC

$E(f)$ :

FTun

Swp



Center 881 MHz

Span 1.741 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 2.92 ms (601 pts)

Center Freq  
880.625000 MHz

Start Freq  
10.00000000 MHz

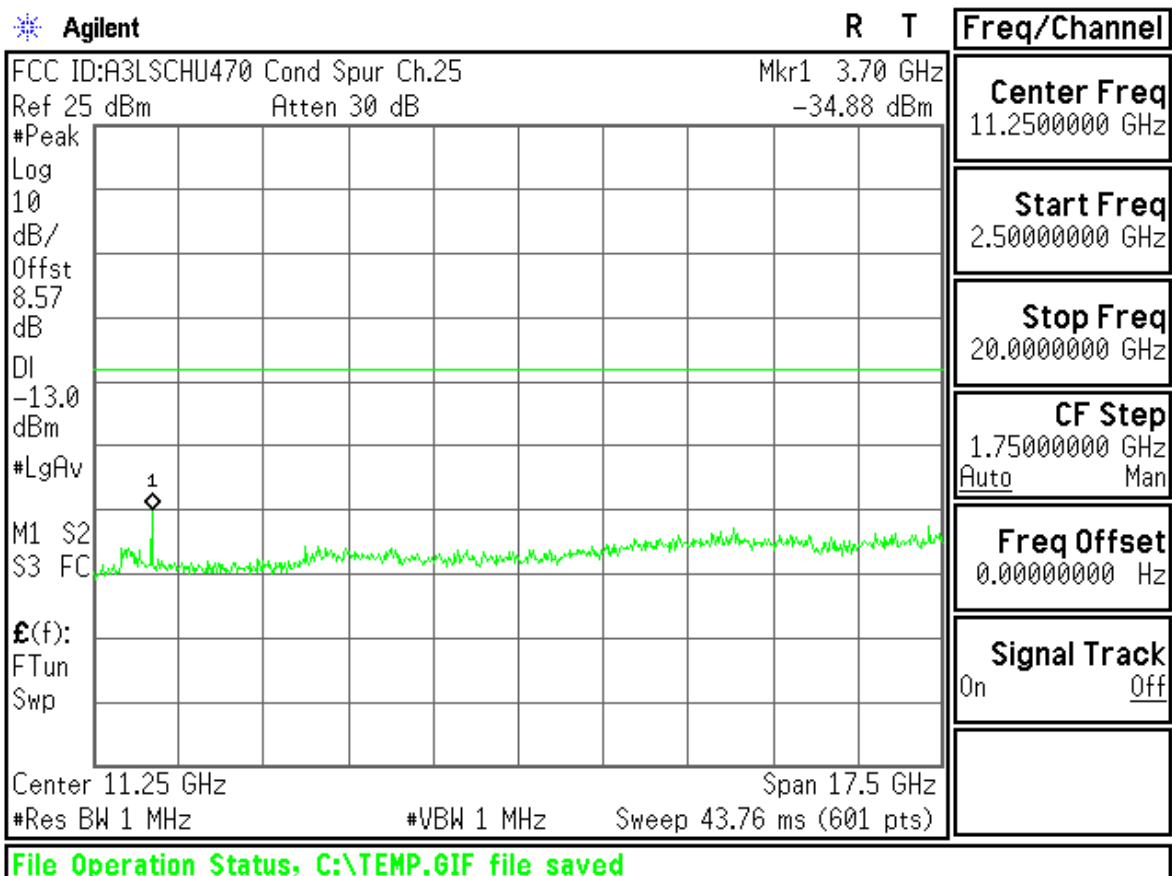
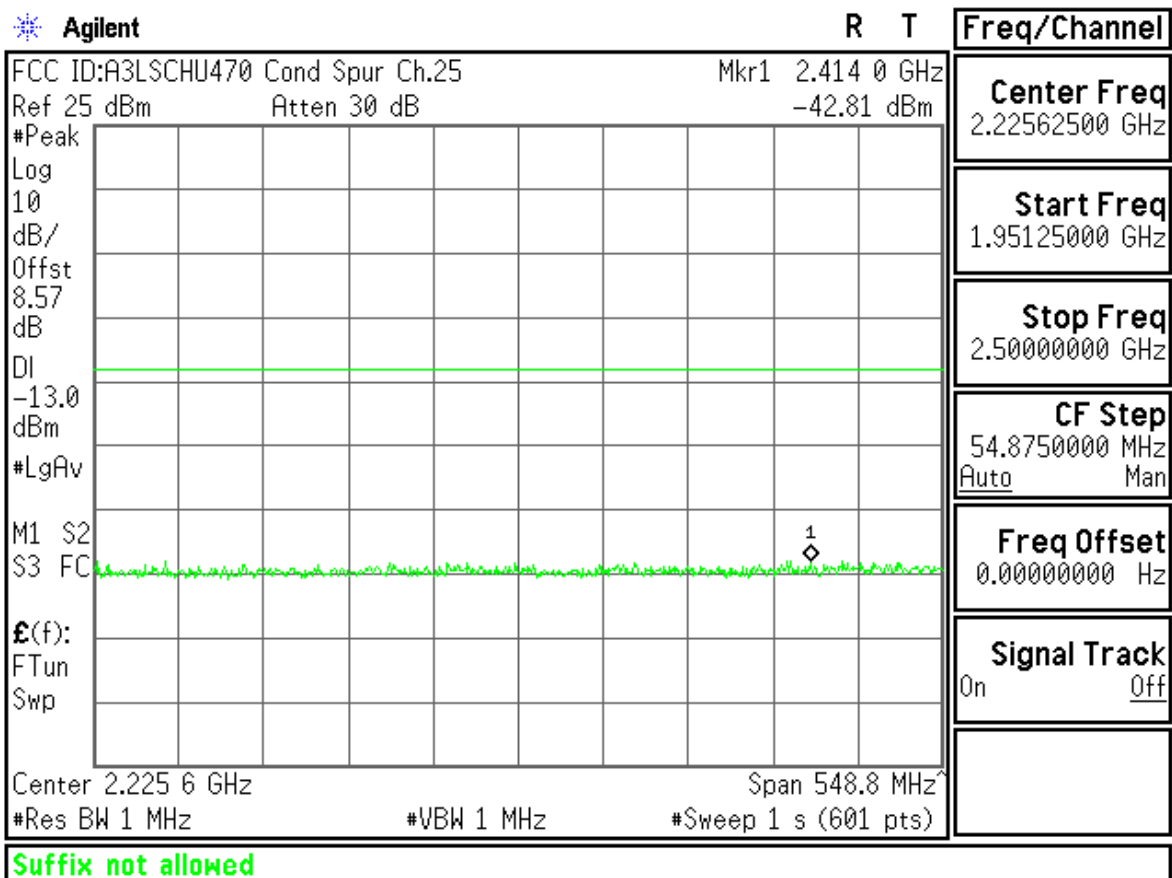
Stop Freq  
1.75125000 GHz

CF Step  
174.125000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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



Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.600

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

8.57

dB

DI

-13.0

dBm

#LgAv

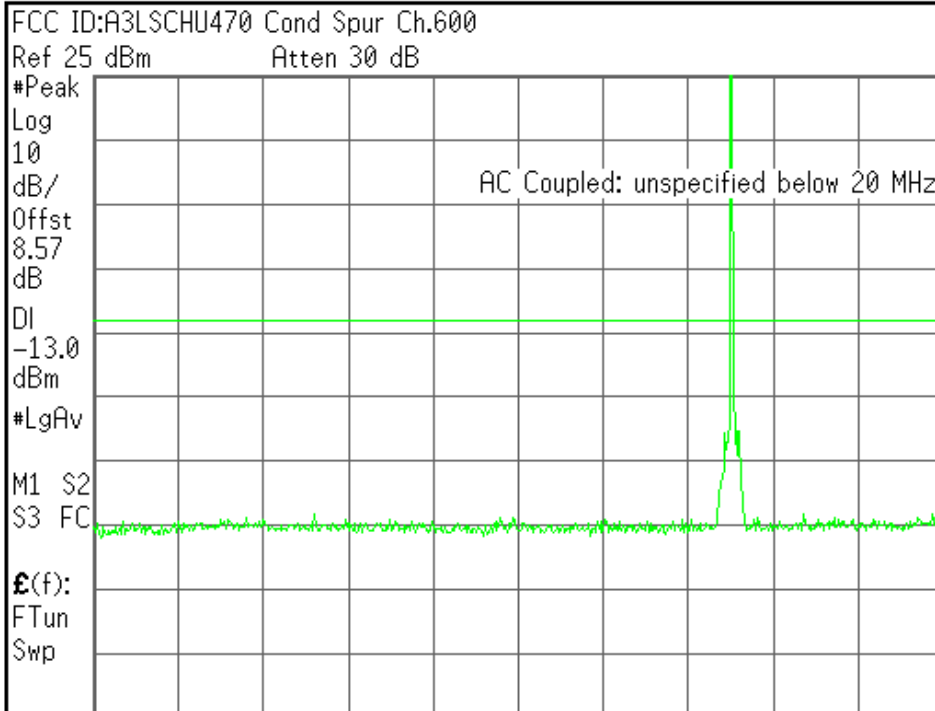
M1 S2

S3 FC

$E(f)$ :

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:A3LSCHU470 Cond Spur Ch.600

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

8.57

dB

DI

-13.0

dBm

#LgAv

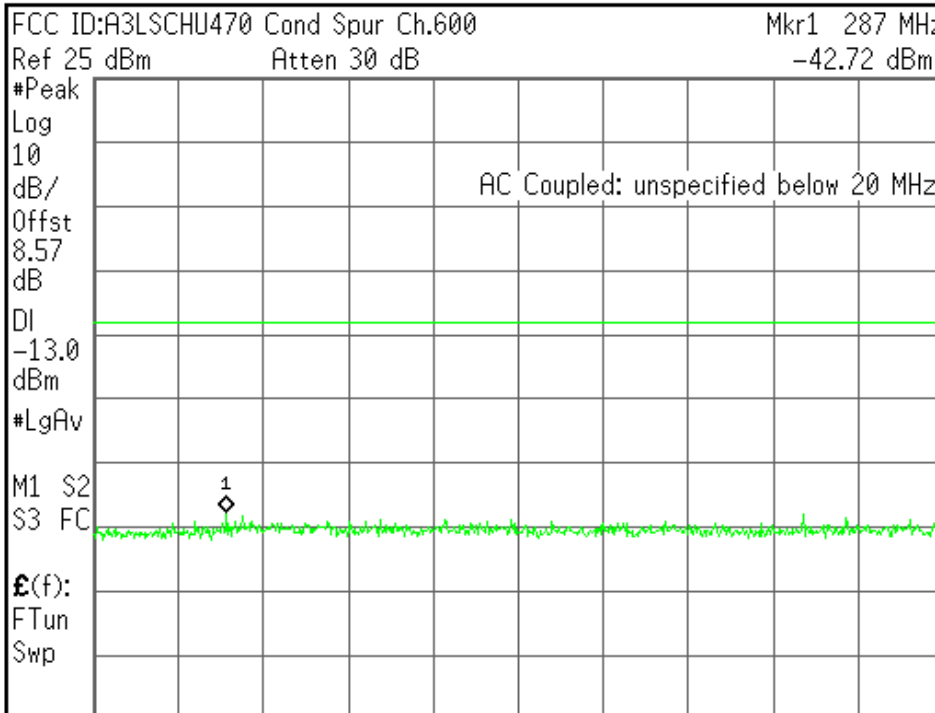
M1 S2

S3 FC

$E(f)$ :

FTun

Swp



Center 895 MHz

Span 1.77 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 2.96 ms (601 pts)

Center Freq  
895.0000000 MHz

Start Freq  
10.00000000 MHz

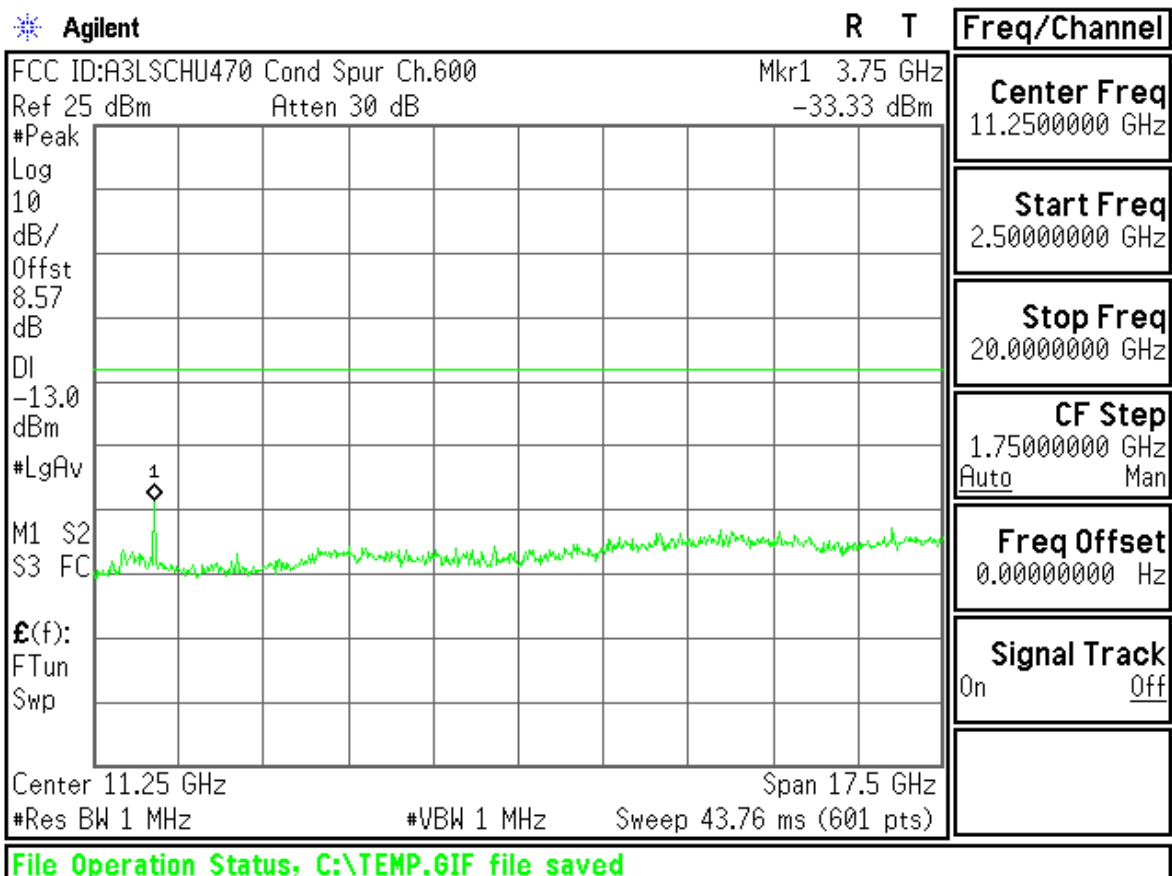
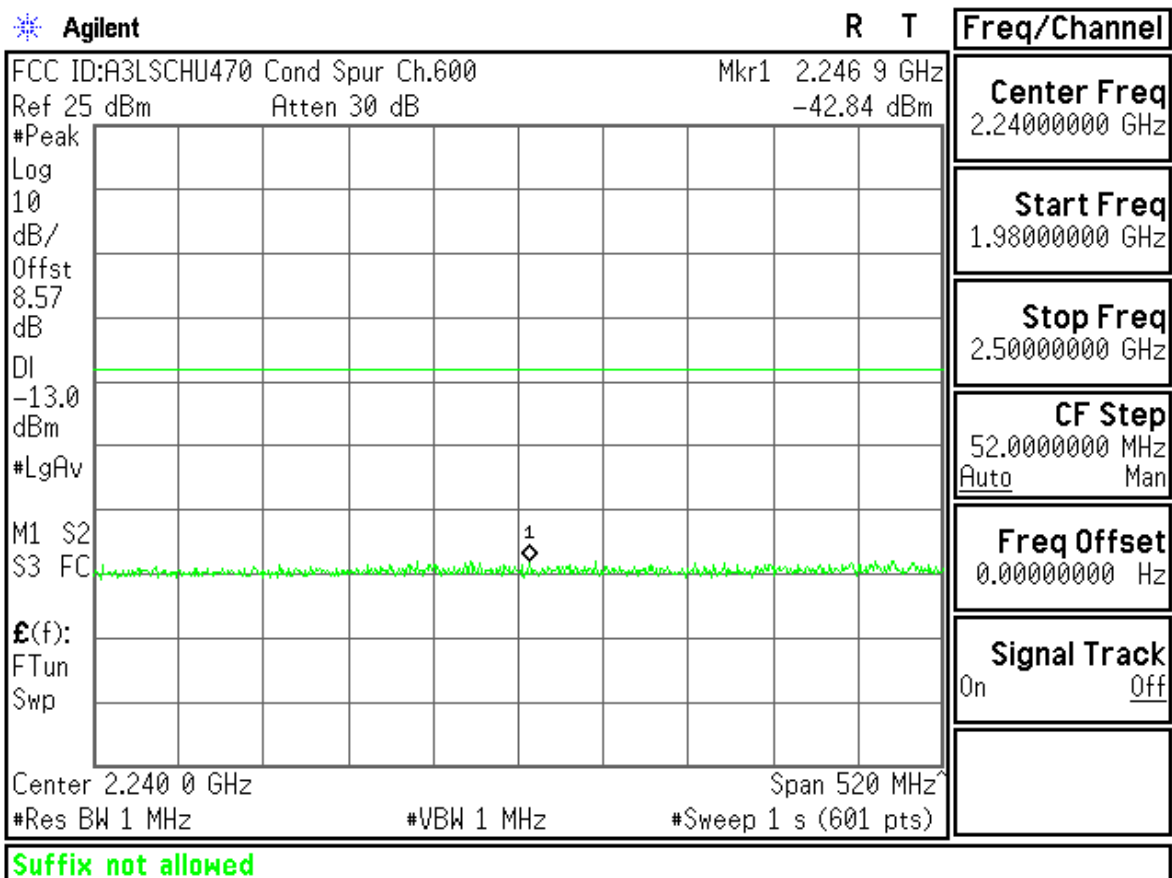
Stop Freq  
1.780000000 GHz

CF Step  
177.0000000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

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



Agilent

R T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.1175

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

8.57

dB

DI

-13.0

dBm

#LgAv

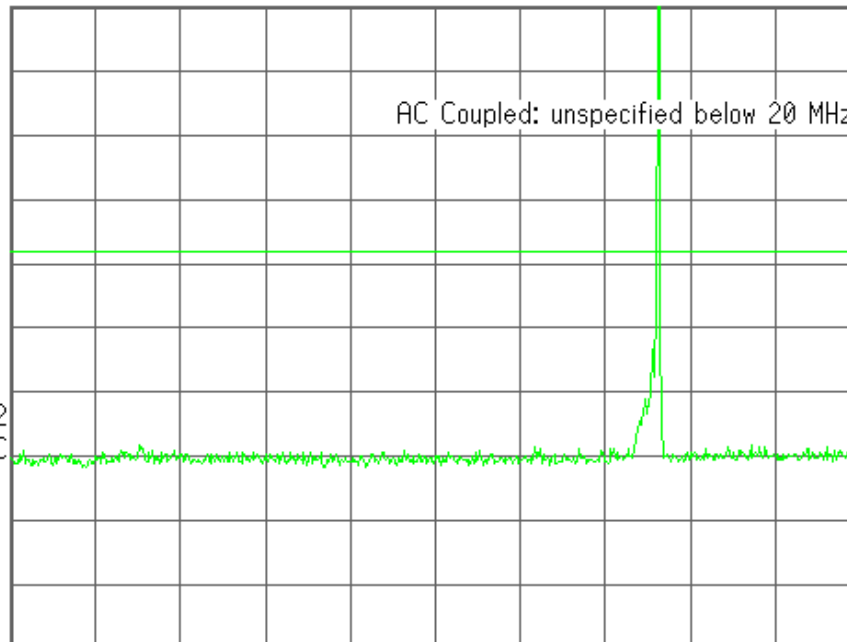
M1 S2

S3 FC

$E(f)$ :

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 T

Freq/Channel

FCC ID:A3LSCHU470 Cond Spur Ch.1175

Ref 25 dBm

Atten 30 dB

Mkr1 448 MHz

-43.40 dBm

#Peak

Log

10

dB/

Offst

8.57

dB

DI

-13.0

dBm

#LgAv

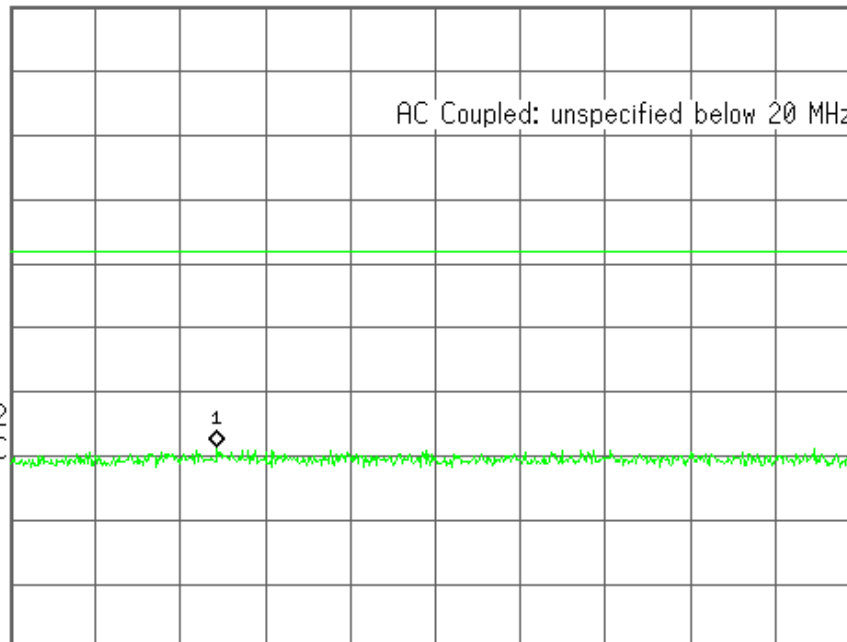
M1 S2

S3 FC

$E(f)$ :

FTun

Swp



Center 909 MHz

Span 1.799 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 3 ms (601 pts)

Center Freq  
909.375000 MHz

Start Freq  
10.0000000 MHz

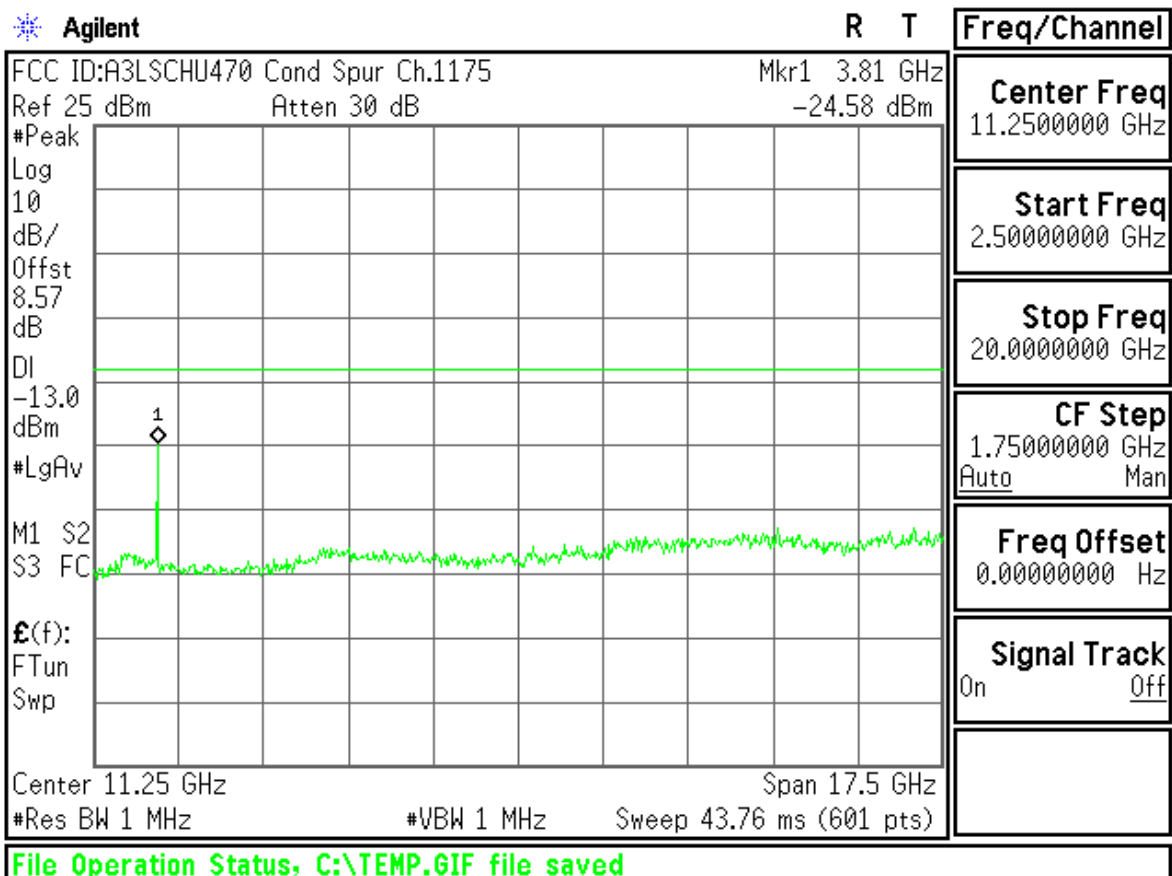
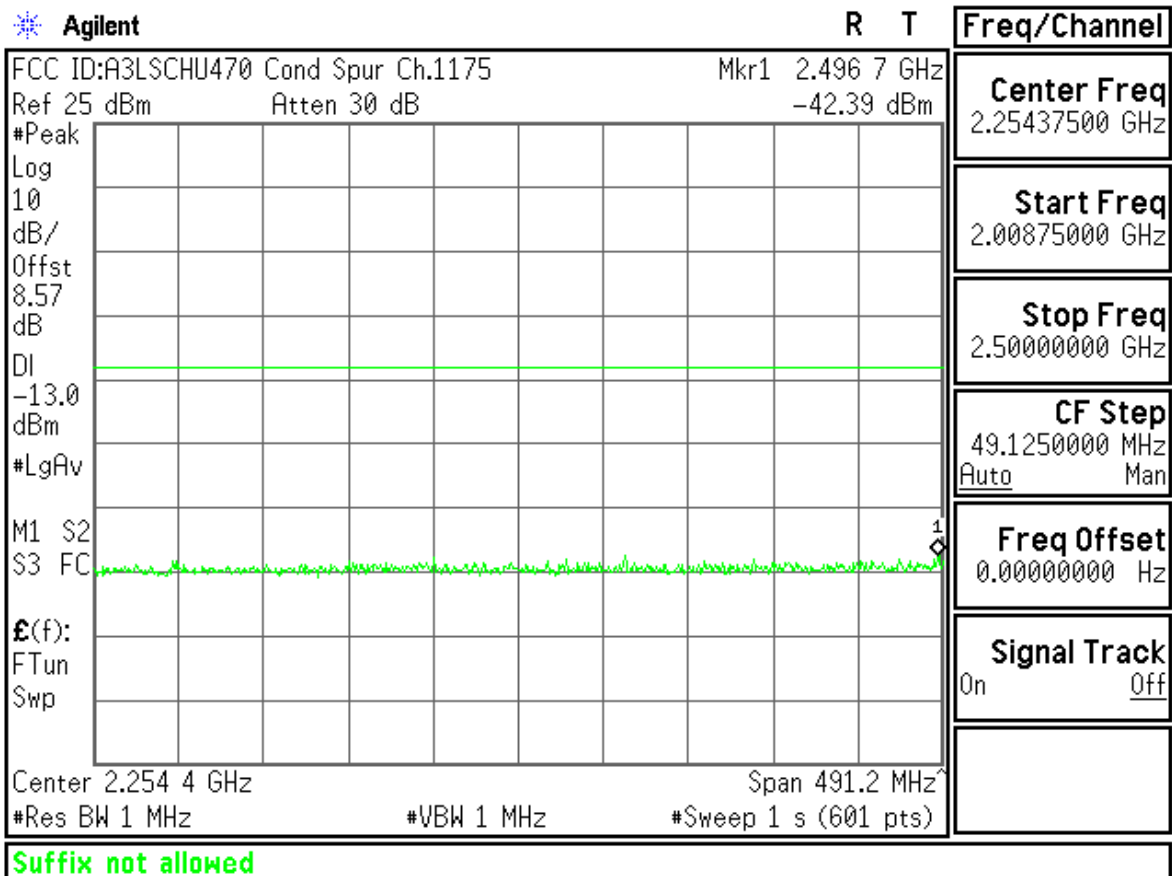
Stop Freq  
1.80875000 GHz

CF Step  
179.875000 MHz  
Auto Man

Freq Offset  
0.00000000 Hz

Signal Track  
On Off

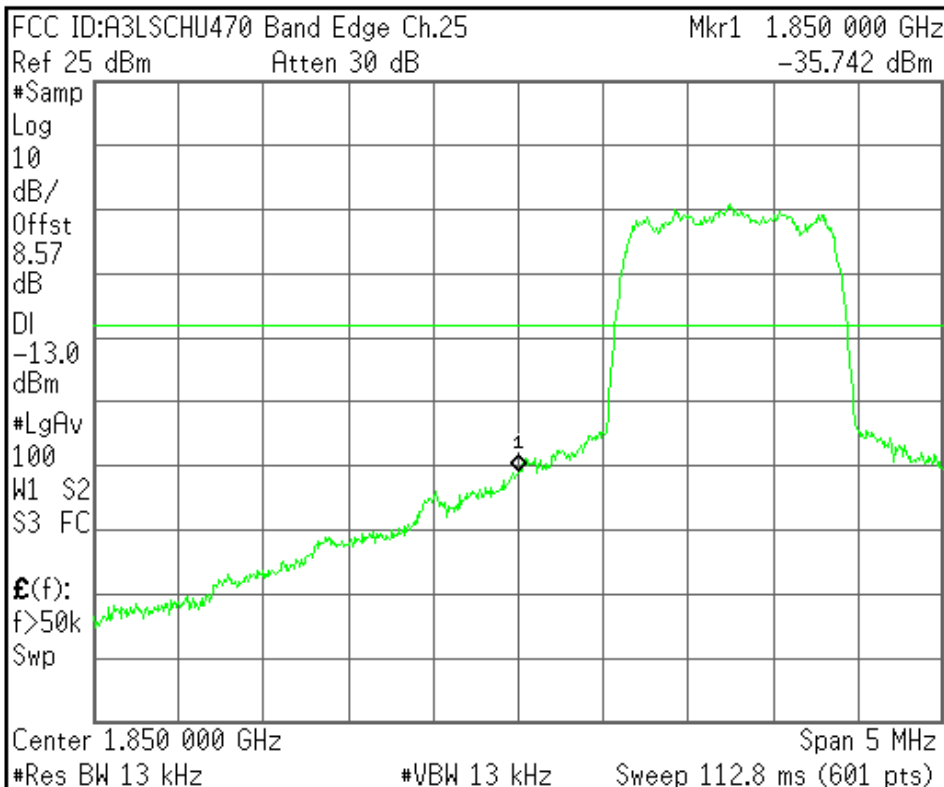
File Operation Status, C:\TEMP.GIF file saved



Agilent

R T

Freq/Channel



**Center Freq**  
 1.85000000 GHz

**Start Freq**  
 1.84750000 GHz

**Stop Freq**  
 1.85250000 GHz

**CF Step**  
 500.000000 kHz  
 Auto Man

**Freq Offset**  
 0.00000000 Hz

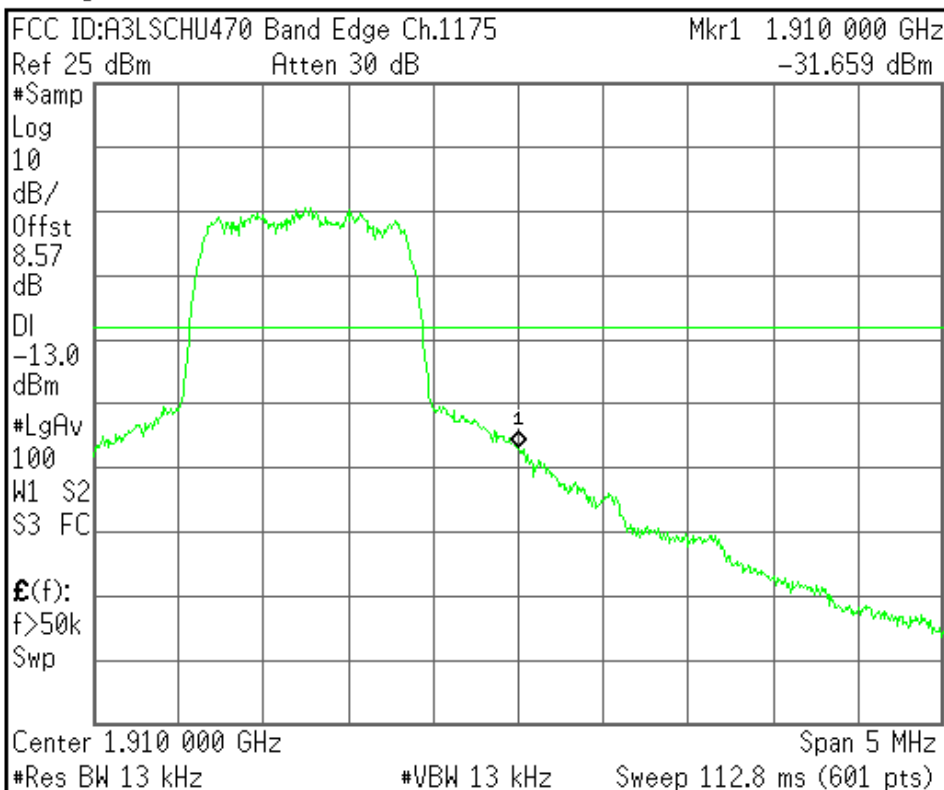
**Signal Track**  
 On Off

Invalid suffix

Agilent

R T

Freq/Channel



**Center Freq**  
 1.91000000 GHz

**Start Freq**  
 1.90750000 GHz

**Stop Freq**  
 1.91250000 GHz

**CF Step**  
 500.000000 kHz  
 Auto Man

**Freq Offset**  
 0.00000000 Hz

**Signal Track**  
 On Off

Invalid suffix

