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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:	SGH-A887
FCC ID (Requested):	A3LSGHA887
Report No:	FG-181-R2
Job No:	FG-181
Date issued:	June 18, 2009

- 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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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: A3LSGHA887
- Model: SGH-A887
- Quantity: Quantity production is planned
- Emission Designators: 4M18F9W(Cellular WCDMA),
4M12F9W(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: 0.073 W Cellular WCDMA (18.62 dBm)
0.163 W PCS WCDMA(22.12 dBm)
- FCC Classification(s): PCS Licensed Portable Tx Held to Ear (PCE)
- Equipment (EUT) Type: 850/1900 GSM/EDGE/WCDMA Phone with Bluetooth.
- Modulation(s): WCDMA
- Frequency Tolerance: $\pm 0.00025\%$ (2.5ppm)
- FCC Rule Part(s): §24(E), §22(H), §2.
- Dates of Test: June 13-15, 2009
- Place of Test: SAMSUNG Lab,
- Test Report S/N: FG-181-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	2009-06-20
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	2009-06-20
	E3640A	MY40003595	2010-05-25
	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	23.19	22.92	22.53
	4175	23.13	23.16	22.66
	4233	23.08	23.17	22.36
PCS WCDMA	9262	22.57	22.53	22.03
	9400	22.94	22.78	22.59
	9538	22.90	22.74	22.49

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

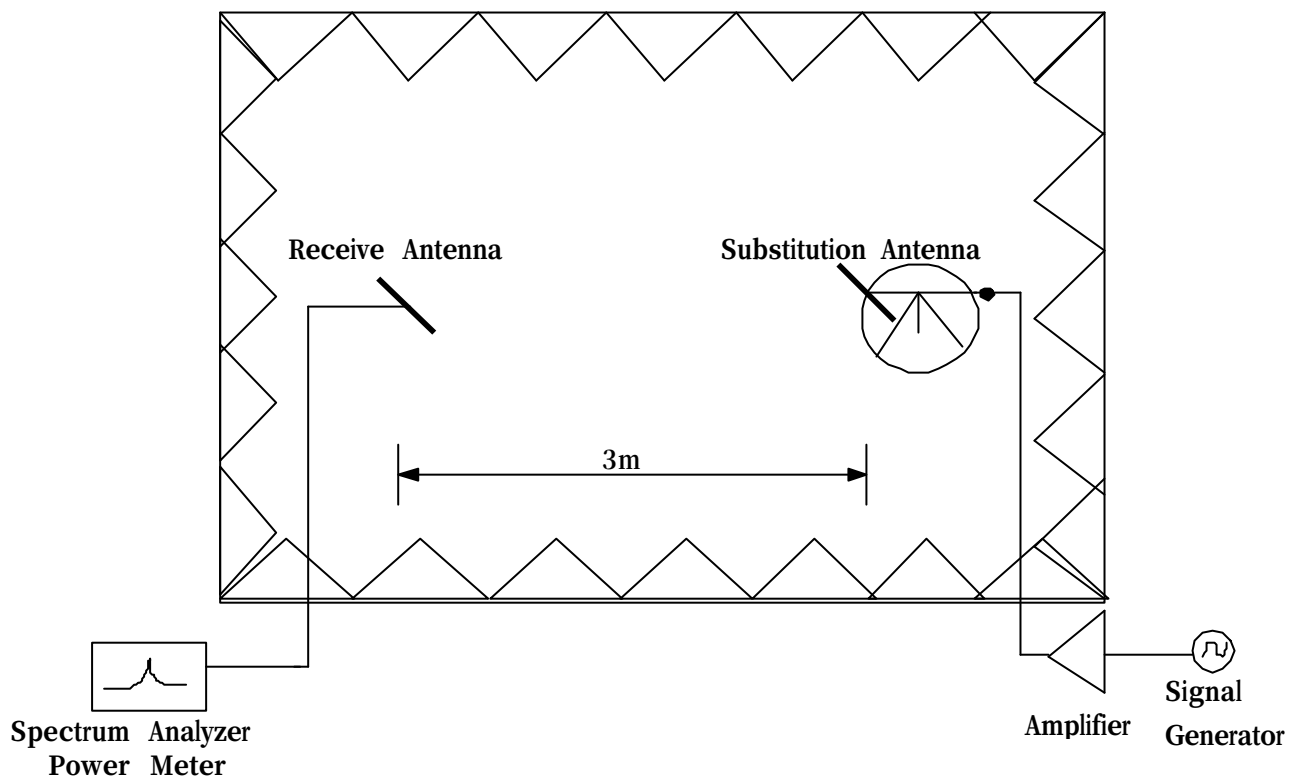


Figure 3. Diagram of ERP/EIRP test Set-up

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

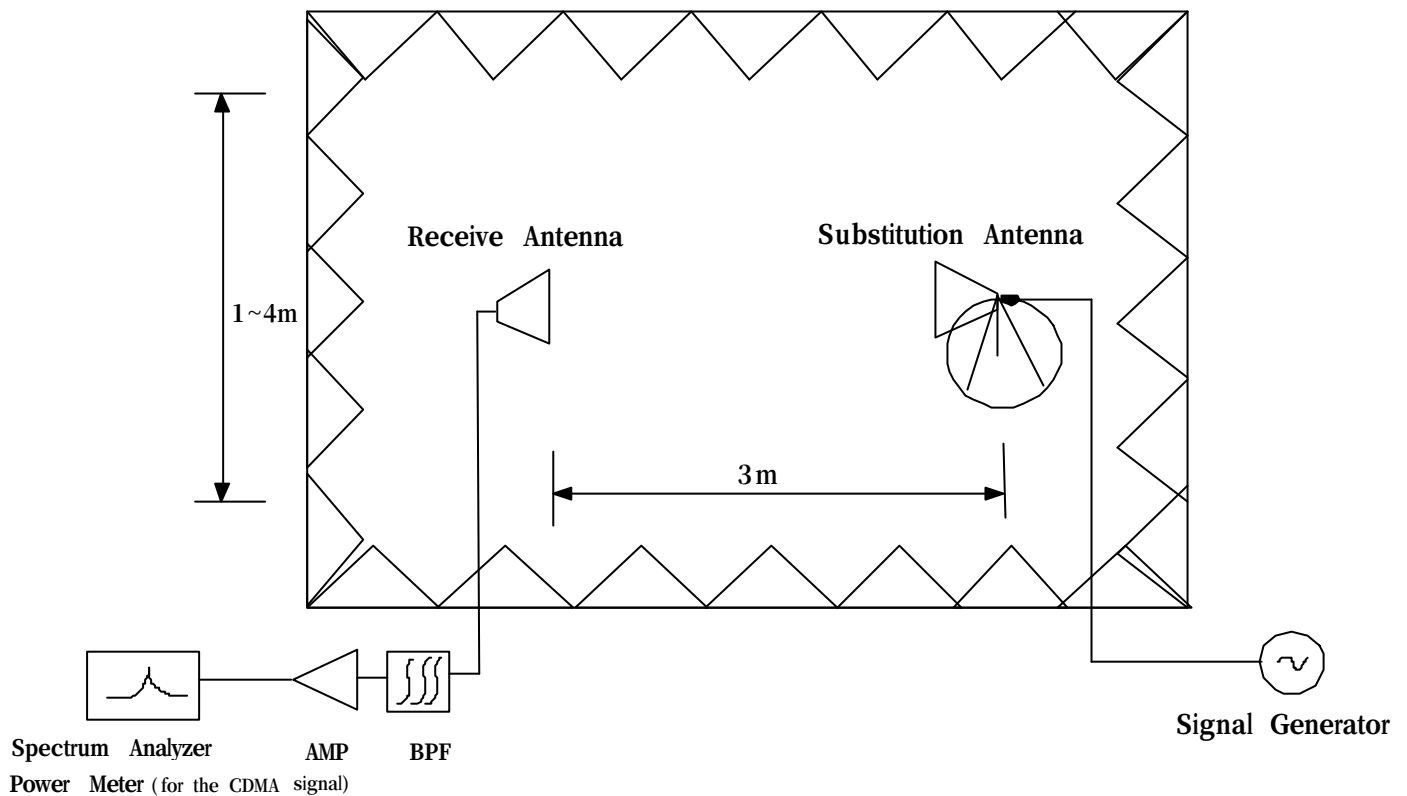


Figure 4. Diagram of Radiated Spurious & Harmonic test Set-up

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 10th 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 2nd Harmonic(3760MHz)

The receive analyzer reading at 3meters with the EUT on the turntable was -81.0dBm . The gain of the substituted antenna is 8.1dBi . The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0dBm of the receive analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0dB at 3760MHz. So 6.1dB is added to the signal generator reading of -30.9dBm yielding -24.8dBm . The fundamental EIRP was 25.5dBm so this harmonic was $25.5\text{dBm} - (-24.8) = 50.3\text{dBc}$.

5.3 Peak-Average Ratio

A peak to average ratio measurement is performed at the conducted port of the EUT. An average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth.

- End of page -

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.

- End of page -

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

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.

$$43 + 10\log(0.163 \text{ W}) = 35.12\text{dB}$$

$$22.12 \text{ dBm} - 38.22 \text{ dB} = -13 \text{ dBm}$$

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 ± 0.00025 (± 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.

- End of page -

6. TEST DATA

6.1 Conducted Output Power

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

FCC ID: A3LSGHA887. 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	23.19	22.92	22.53
	4183	23.13	23.16	22.66
	4233	23.08	23.17	22.36
PCS	9262	22.57	22.53	22.03
	9400	22.94	22.78	22.59
	9538	22.90	22.74	22.49

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	-19.75	-0.73	-19.22
		V	-19.39	-0.73	-18.66
846.6	19.00	H	-21.61	-0.79	-20.82
		V	-19.37	-0.79	-18.58

■Result

Frequency (MHz)	From EUT Tested level (dBm)	Polarization (H/V)	Azimuth (angle)	ERP (dBm)	ERP (W)	Battery
826.4	-18.91	H	286/115	16.86	0.049	Standard
836.6	-19.21	H	288/110	18.01	0.063	Standard
846.6	-21.20	H	282/90	18.62	0.073	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 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)
1852.40	21.00	H	-17.67	9.70	-27.37
		V	-17.32	9.70	-27.02
1880.00	22.00	H	-17.15	9.70	-26.85
		V	-17.17	9.70	-26.87
1907.60	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
1852.40	-27.21	H	97/180	21.16	0.131	Standard
1880.00	-27.13	V	233/100	21.74	0.149	Standard
1907.60	-26.75	H	20/0	22.12	0.163	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 : 18.62 dBm = 0.073 W

Modulation Signal : CDMA

Limit : $43 + 10\log_{10}(P) = 31.62\text{dBc}$

■Result

Channel	Harmonic	Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Result (dBc)
4132	2	1652.80	-58.59	H	65.67
	3	2479.20	-67.61	H	69.23
	4	3305.60	-67.00	V	65.33
	5	4132.00	-	-	-
	6	4958.40	-	-	-
	7	5784.80	-	-	-
4175	2	1672.80	-55.09	V	60.22
	3	2509.20	-67.25	V	68.74
	4	3345.60	-66.42	H	64.45
	5	4182.00	-	-	-
	6	5018.40	-	-	-
	7	5854.80	-	-	-
4233	2	1693.20	-59.88	V	65.86
	3	2539.80	-66.55	V	67.37
	4	3386.40	-66.96	V	65.09
	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 10th 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 : 22.12 dBm = 0.163 W

Modulation Signal : PCS

Limit : $43 + 10\log_{10}(P) = 35.12\text{dBc}$

■Result

Channel	Harmonic	Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Result (dBc)
9262	2	3704.80	-51.58	H	48.98
	3	5557.20	-66.40	H	58.66
	4	7409.60	-68.22	H	55.93
	5	9262.00	-	-	-
	6	11114.40	-	-	-
	7	12966.80	-	-	-
9400	2	3760.00	-57.34	V	54.31
	3	5640.00	-66.86	V	58.68
	4	7520.00	-67.98	V	55.56
	5	9400.00	-	-	-
	6	11280.00	-	-	-
	7	13160.00	-	-	-
9538	2	3815.20	-53.15	H	49.97
	3	5722.80	-65.41	H	56.86
	4	7630.40	-68.72	H	55.95
	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 10th 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 : June 15, 2009

Test Engineer : KJ KWON

- ① Tx Cable loss
- ② Tx Horn Ant Gain
- ③ Tx Level to radiate -13dBm
- ④ ESI Level received from Tx with -13dBm
- ⑤ Tested Level from EUT
- ⑥ = ERP+2.14 - (-13 +⑤ - ④)

CH	Har	Frequency (MHz)	① Tx C/L dB	②Tx Horn Gain dBi	③Tx Level dBm	④ ESI Level : H dBm	④ ESI Level : V dBm	⑤Test ed EUT Level : H dBm	⑤Test ed EUT Level : V dBm	⑥ Result EUT : H (dBc)	⑥ Result EUT : V (dBc)
4357	2	1652.80	-9.02	9.50	-16.09	-26.68	-27.10	-58.59	-59.74	65.67	66.40
	3	2479.20	-11.25	10.70	-18.38	-32.14	-31.45	-67.61	-67.92	69.23	70.23
	4	3305.60	-13.26	12.30	-19.62	-35.31	-35.43	-67.18	-67.00	65.63	65.33
	5	4132.00	-14.79	12.50	-21.54	-38.87	-38.90	-	-	-	-
	6	4958.40	-16.60	12.70	-22.35	-40.93	-40.69	-	-	-	-
	7	5784.80	-18.02	12.90	-23.73	-43.59	-43.30	-	-	-	-
4408	2	1673.20	-9.05	9.50	-16.10	-28.00	-28.63	-55.84	-55.09	61.60	60.22
	3	2509.80	-11.31	10.70	-18.32	-32.40	-31.64	-67.38	-67.25	68.74	69.37
	4	3346.40	-13.33	12.30	-19.62	-35.73	-35.60	-66.42	-66.72	64.45	64.88
	5	4183.00	-15.01	12.50	-21.73	-39.30	-39.11	-	-	-	-
	6	5019.60	-16.84	12.70	-22.83	-41.59	-41.32	-	-	-	-
	7	5856.20	-18.26	12.90	-23.94	-43.87	-43.84	-	-	-	-
4458	2	1693.20	-9.07	9.50	-16.33	-28.83	-27.75	-60.93	-59.88	65.86	65.89
	3	2539.80	-11.35	10.70	-18.41	-32.38	-32.94	-66.87	-66.55	68.25	67.37
	4	3386.40	-13.26	12.30	-19.79	-35.94	-35.46	-67.27	-66.96	65.09	65.26
	5	4233.00	-15.20	12.50	-21.86	-39.34	-39.07	-	-	-	-
	6	5079.60	-16.99	12.70	-22.63	-41.96	-41.42	-	-	-	-
	7	5926.20	-18.38	12.90	-23.97	-43.98	-43.32	-	-	-	-

6.7 PCS WCDMA Radiated Spurious & Harmonic Conversion Table

Date : June 15, 2009

Test Engineer : KJ KWON

- ① Tx Cable loss
- ② Tx Horn Ant Gain
- ③ Tx Level to radiate -13dBm
- ④ ESI Level received from Tx with -13dBm
- ⑤ Tested Level from EUT
- ⑥ = EIRP - (-13 + ⑤ - ④)

CH	Har	Frequency (MHz)	① Tx C/L dB	②Tx Horn Gain dBi	③Tx Level dBm	④ ESI Level : H dBm	④ ESI Level : V dBm	⑤Tested EUT Level : H dBm	⑤Tested EUT Level : V dBm	⑥ Result EUT : H (dBc)	⑥ Result EUT : V (dBc)
9262	2	3704.80	-14.02	12.40	-20.54	-37.72	-37.72	-51.58	-52.67	48.98	50.07
	3	5557.20	-17.68	12.90	-23.35	-42.81	-43.00	-66.40	-66.54	58.71	58.66
	4	7409.60	-20.47	10.50	-25.79	-47.41	-47.39	-68.22	-68.67	55.93	56.40
	5	9262.00	-23.65	11.20	-29.09	-50.87	-51.74	-	-	-	-
	6	11114.40	-26.73	11.60	-32.62	-55.94	-55.98	-	-	-	-
	7	12966.80	-28.60	12.90	-35.63	-59.18	-59.44	-	-	-	-
9400	2	3760.00	-14.17	12.40	-20.52	-38.11	-38.15	-58.20	-57.34	55.21	54.31
	3	5640.00	-17.83	12.90	-23.76	-42.84	-43.30	-67.01	-66.86	59.29	58.68
	4	7520.00	-20.58	10.60	-25.96	-47.63	-47.25	-68.07	-67.98	55.56	55.85
	5	9400.00	-23.19	11.60	-28.72	-51.86	-52.85	-	-	-	-
	6	11280.00	-26.31	12.10	-32.75	-56.33	-56.80	-	-	-	-
	7	13160.00	-28.22	12.80	-35.07	-59.42	-59.52	-	-	-	-
9538	2	3815.20	-14.18	12.40	-20.78	-38.30	-38.19	-53.15	-53.74	49.97	50.67
	3	5722.80	-17.92	13.00	-23.90	-43.67	-43.62	-65.41	-66.32	56.86	57.82
	4	7630.40	-20.95	11.20	-26.26	-47.83	-48.14	-68.72	-68.97	56.01	55.95
	5	9538.00	-23.60	11.70	-29.40	-52.43	-52.81	-	-	-	-
	6	11445.60	-26.67	11.70	-33.23	-56.85	-56.63	-	-	-	-
	7	13353.20	-28.41	12.30	-35.65	-60.50	-59.87	-	-	-	-

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 : ± 0.00025 % or 2.5ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency Error (Hz)	Frequency (Hz)	Deviation (%)	ppm
100%	3.70	+20(Ref)	21.60	836,600,022	0.000003	0.026
100%		-30	31.30	836,600,031	0.000004	0.037
100%		-20	-42.60	836,599,957	-0.000005	-0.051
100%		-10	48.40	836,600,048	0.000006	0.058
100%		0	12.10	836,600,012	0.000001	0.014
100%		+10	-21.80	836,599,978	-0.000003	-0.026
100%		+20	21.60	836,600,022	0.000003	0.026
100%		+30	-32.90	836,599,967	-0.000004	-0.039
100%		+40	48.90	836,600,049	0.000006	0.058
100%		+50	45.20	836,600,045	0.000005	0.054
100%		+60	-4.30	836,599,996	-0.000001	-0.005
85%	3.25	+20	13.90	836,600,014	0.000002	0.017
115%	4.26	+20	5.40	836,600,005	0.000001	0.006
Batt. Endpoint	3.25	+20	13.90	836,600,014	0.000002	0.017

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

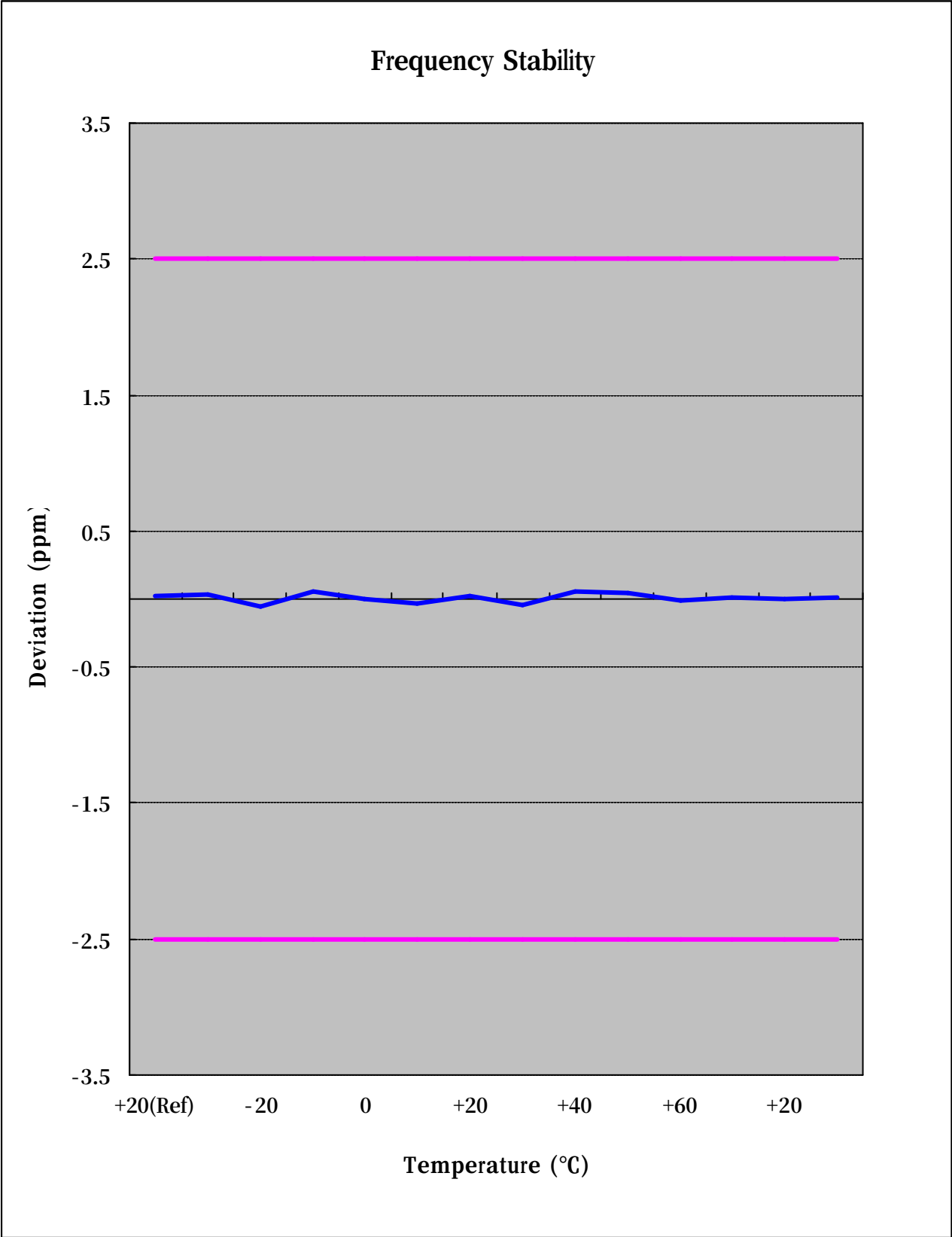
Deviation Limit : ± 0.00025 % or 2.5ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency Error (Hz)	Frequency (Hz)	Deviation (%)	ppm
100%	3.70	+20(Ref)	41.40	1,880,000,041	0.000002	0.022
100%		-30	37.40	1,880,000,037	0.000002	0.020
100%		-20	-4.50	1,879,999,996	0.000000	-0.002
100%		-10	41.00	1,880,000,041	0.000002	0.022
100%		0	-1.00	1,879,999,999	0.000000	-0.001
100%		+10	40.00	1,880,000,040	0.000002	0.021
100%		+20	41.40	1,880,000,041	0.000002	0.022
100%		+30	46.10	1,880,000,046	0.000002	0.025
100%		+40	15.50	1,880,000,016	0.000001	0.008
100%		+50	42.40	1,880,000,042	0.000002	0.023
100%		+60	35.80	1,880,000,036	0.000002	0.019
85%	3.25	+20	8.50	1,880,000,009	0.000000	0.005
115%	4.26	+20	23.80	1,880,000,024	0.000001	0.013
Batt. Endpoint	3.25	+20	8.50	1,880,000,009	0.000000	0.005

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

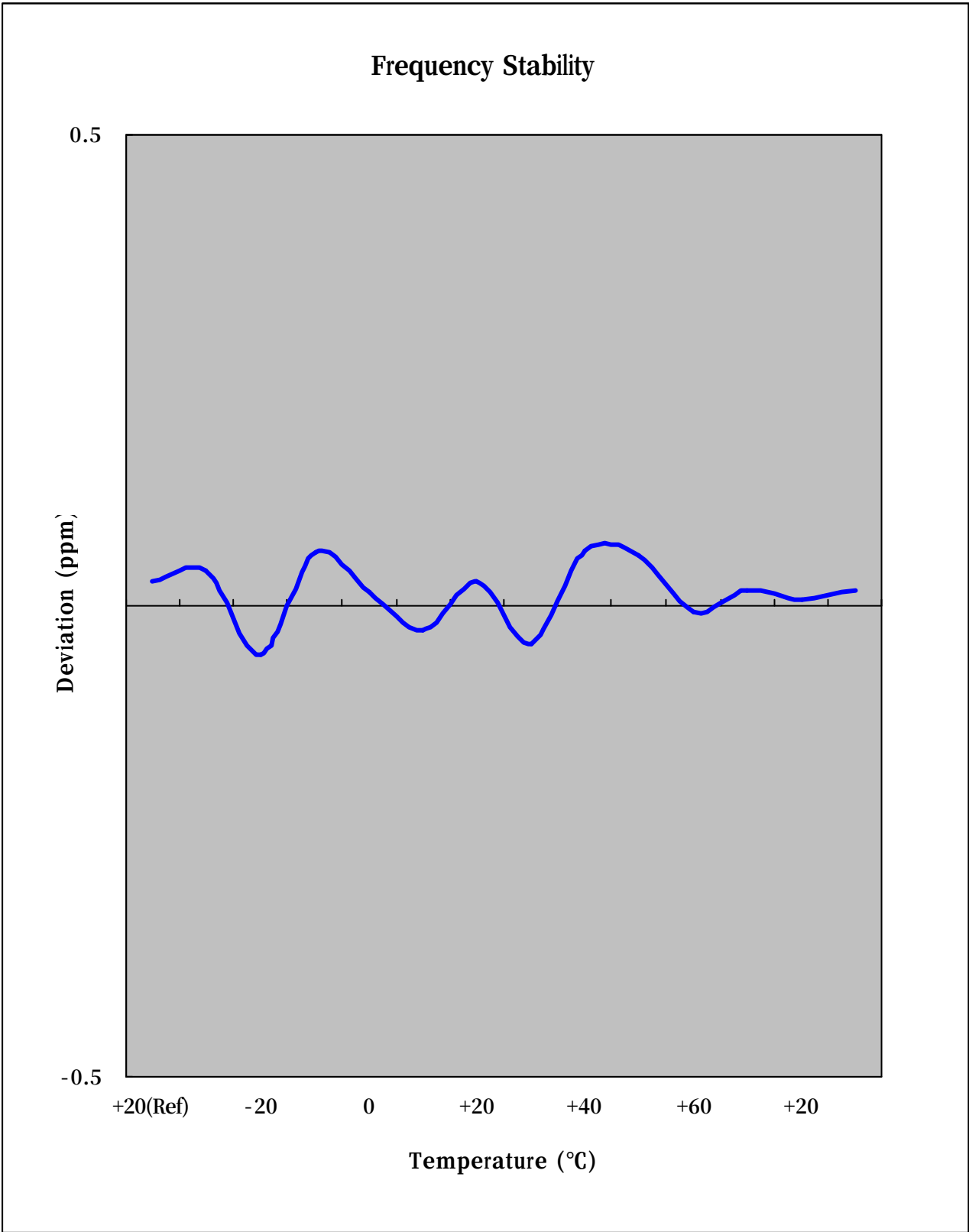
The EUT is tested down to the battery end point

6.8.3 Cellular WCDMA Frequency Stability Graph



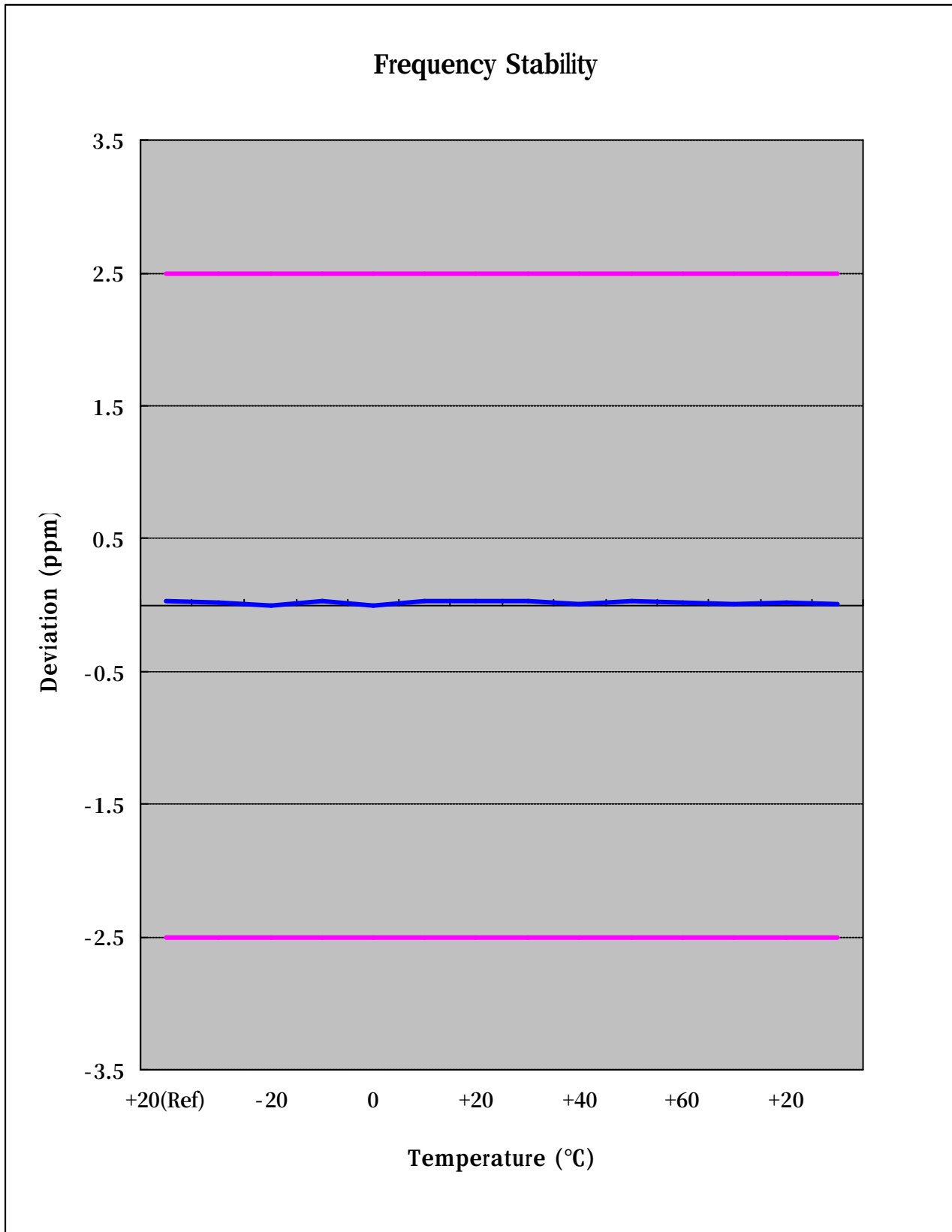
- End of page -

Zoom In



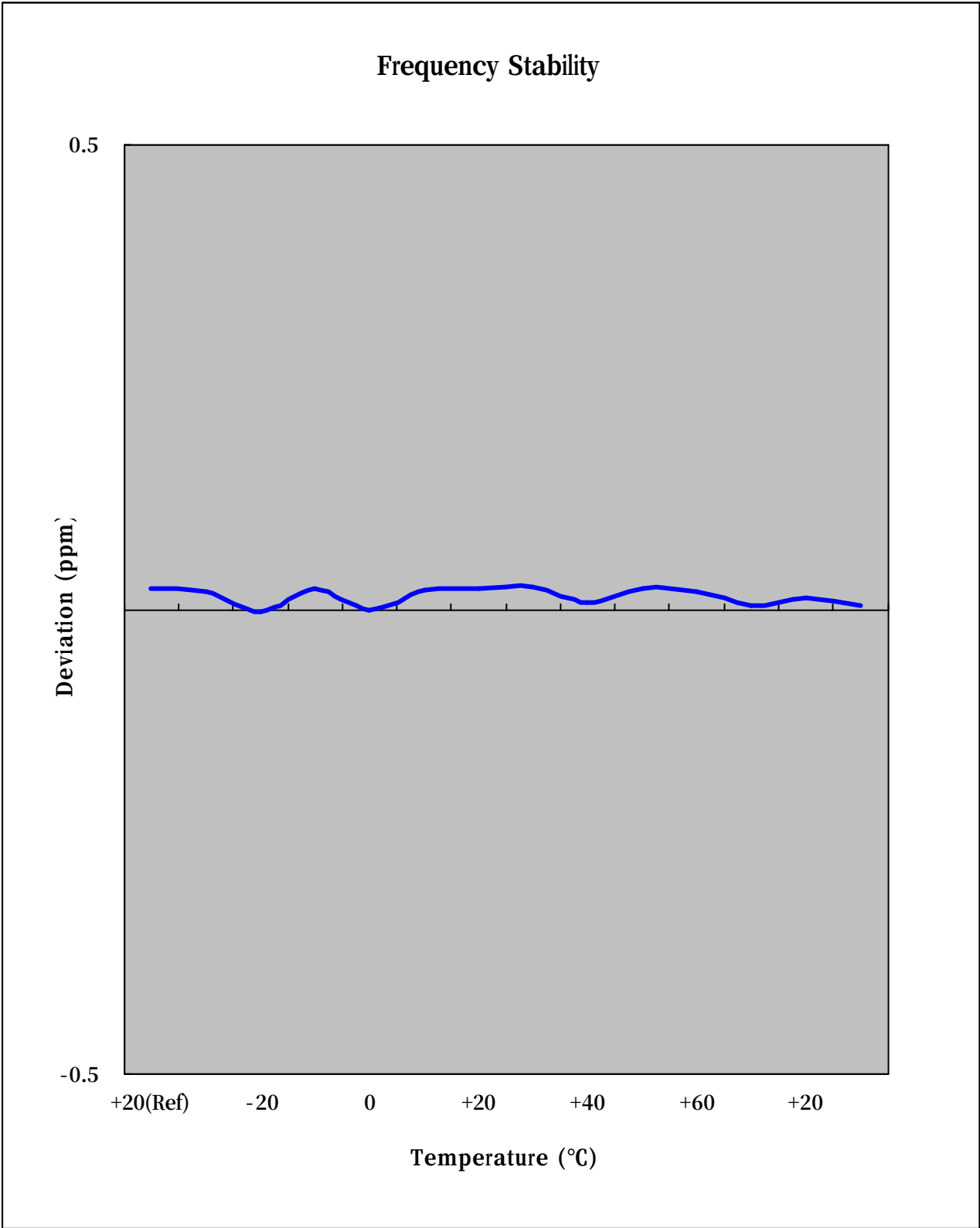
- End of page -

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/EDGE/WCDMA Phone with Bluetooth. FCC ID : A3LSGHA887 complies with all the requirements of Parts 2, 22, 24 of the FCC Rules.

- End of page -

9. TEST PLOT

Control	Waveform Quality										Call Parm			
Waveform Quality Setup ▾			Minimum		Maximum		Average		Cell Power					
	EVM (%):		7.05		8.05		7.35		-104.00					
	Frequency Error (Hz):		-38.93		-5.59		-19.58		dBm/3.84 MHz					
	Origin Offset (dB):		-32.14		-30.07		-30.98		Channel Type					
	Phase Error (°):		2.76		3.49		2.95		12.2k RNC					
	Mag Error (%):		5.15		5.34		5.24							
	Time Error (chips):		0.93		1.06		1.03		Paging Service					
	Max PCDE:		-28.22 dB		at Cch,64,16:0				RB Test Mode					
	50 / 50						Single							
	Thermal Power													
Calibrate Measurements	Thermal Power													
	23.19 dBm													
	Single													
Swap Window Positions			Active Cell Connected				Sys Type: UTRA FDD				HSDPA Parameters			
1 of 2			IntRef		Offset		R		T				1 of 3	

Control	Waveform Quality										Call Parm	
Waveform Quality Setup ▾			Minimum		Maximum		Average		Cell Power			
	EVM (%):		5.26		6.14		5.83		-104.00			
	Frequency Error (Hz):		-37.16		-6.32		-20.88		dBm/3.84 MHz			
	Origin Offset (dB):		-31.83		-29.81		-30.81		Channel Type			
	Phase Error (°):		2.29		2.87		2.66		12.2k RNC			
	Mag Error (%):		3.32		3.63		3.52					
	Time Error (chips):		0.86		1.00		0.93		Paging Service			
	Max PCDE:		-29.99 dB		at Cch,64,16:0				RB Test Mode			
	50 / 50						Single					
Calibrate Measurements	Thermal Power Thermal Power 23.13 dBm <											

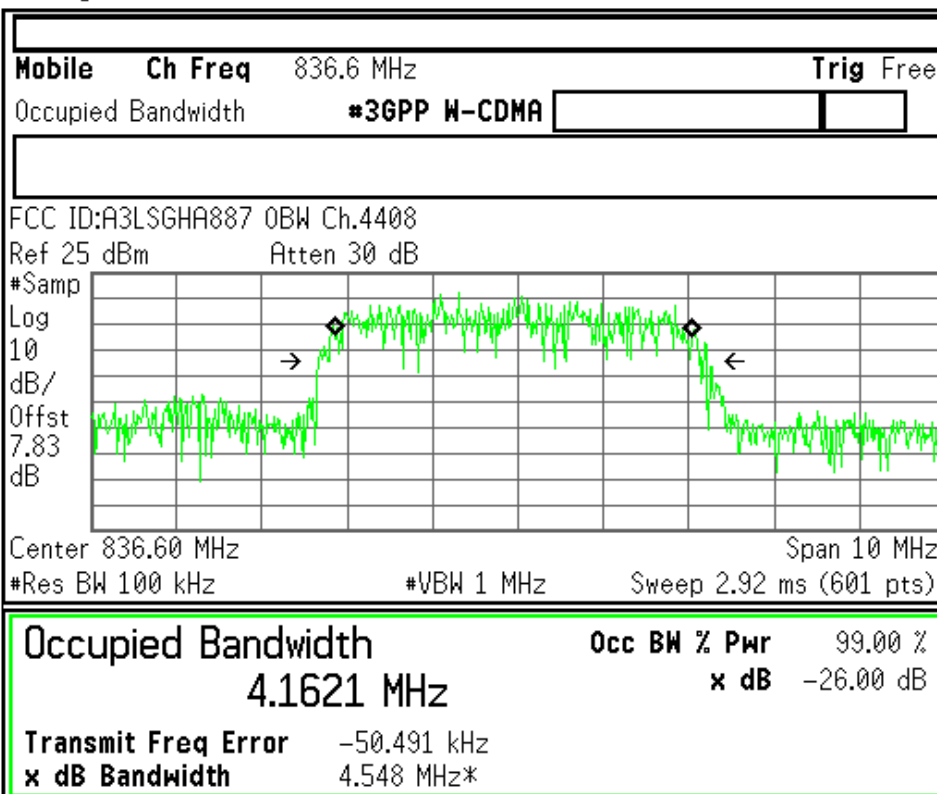
Control	Waveform Quality				Call Parms	
Waveform Quality Setup ▾		Minimum	Maximum	Average	Cell Power	
	EVM (%):	6.72	7.67	6.95	-104.00	
	Frequency Error (Hz):	-39.46	-3.65	-19.64	dBm/3.84 MHz	
	Origin Offset (dB):	-32.12	-29.80	-30.98	Channel Type	
	Phase Error (°):	2.89	3.57	3.05	12.2k RMC	
	Mag Error (%):	4.34	4.62	4.48	Paging Service	
	Time Error (chips):	0.96	0.97	0.97	RB Test Mode	
	Max PCDE: -27.81 dB at Cch,64,16:0					
	50 / 50				Single	
Calibrate Measurements	Thermal Power					
	Thermal Power 23.08 dBm					
Swap Window Positions	Single					
	Active Cell Connected				Sys Type: UTRA FDD	
1 of 2						1 of 3

Agilent		R T	Freq/Channel
Mobile	Ch Freq 826.4 MHz	Trig Free	Center Freq 826.400000 MHz
Occupied Bandwidth #3GPP W-CDMA			Start Freq 821.400000 MHz
FCC ID:A3LSGHA887 0BW Ch.4357			Stop Freq 831.400000 MHz
Ref 25 dBm Atten 30 dB			CF Step 1.00000000 MHz
#Samp			Auto Man
Log			Freq Offset 0.00000000 Hz
10			Signal Track On Off
dB/			
Offst			
7.83			
dB			
Center 826.40 MHz		Span 10 MHz	
#Res BW 100 kHz	#VBW 1 MHz	Sweep 2.92 ms (601 pts)	
Occupied Bandwidth 4.1801 MHz		Occ BW % Pwr 99.00 %	
		x dB -26.00 dB	
Transmit Freq Error -26.682 kHz			
x dB Bandwidth 4.581 MHz*			
File Operation Status, C:\TEMP.GIF file saved			

Agilent

R T

Freq/Channel



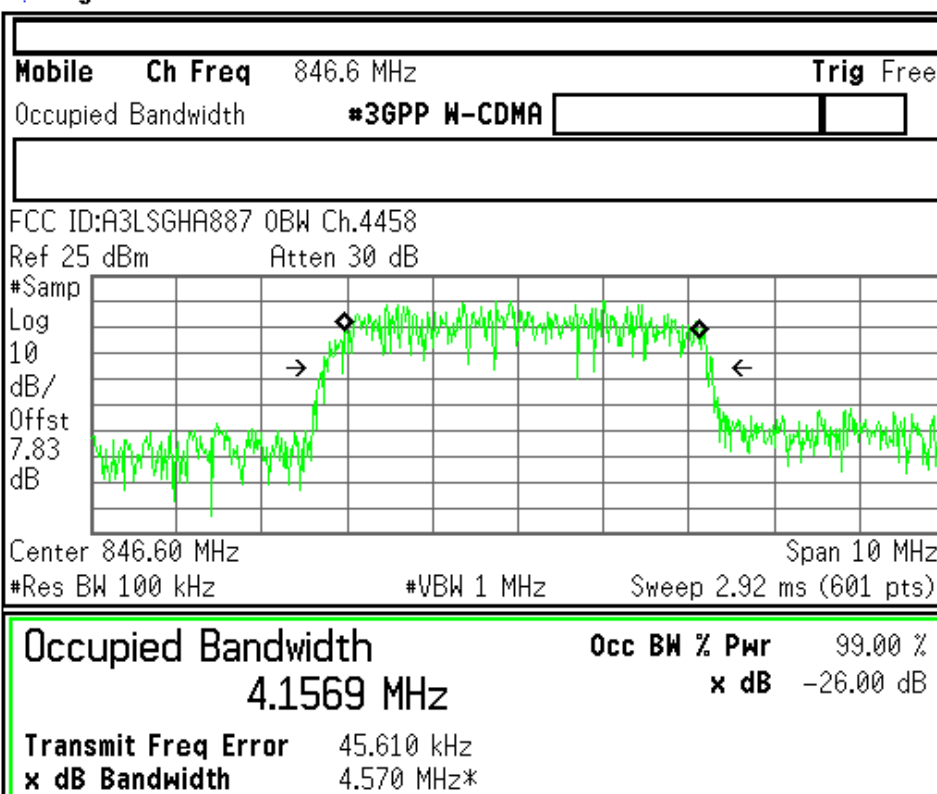
Center Freq	836.600000 MHz
Start Freq	831.600000 MHz
Stop Freq	841.600000 MHz
CF Step	1.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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

Agilent

R T

Freq/Channel



Center Freq	846.600000 MHz
Start Freq	841.600000 MHz
Stop Freq	851.600000 MHz
CF Step	1.00000000 MHz Auto Man
Freq Offset	0.00000000 Hz
Signal Track	On Off

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

Agilent

R T

Freq/Channel

FCC ID:A3LSGHA887 Cond Spur Ch.4357

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

#LgAv

M1 S2

S3 FC

£(f):

FTun

Swp

AC Coupled: unspecified below 20 MHz

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

Center 1.255 GHz

Span 2.49 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 4.16 ms (601 pts)

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

Agilent

R T

Freq/Channel

FCC ID:A3LSGHA887 Cond Spur Ch.4357

Mkr1 816.4 MHz

Ref 25 dBm

Atten 30 dB

-31.74 dBm

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

#LgAv

M1 S2

S3 FC

£(f):

FTun

Swp

AC Coupled: unspecified below 20 MHz

Center Freq
413.200000 MHz

Start Freq
10.0000000 MHz

Stop Freq
816.400000 MHz

CF Step
80.6400000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Center 413.2 MHz

Span 806.4 MHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 1.36 ms (601 pts)

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

Agilent

R T

Freq/Channel

FCC ID:A3LSGHA887 Cond Spur Ch.4357

Mkr1 836 MHz

Ref 25 dBm

Atten 30 dB

-27.53 dBm

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

#LgAv

V1 S2

S3 FC

£(f):

FTun

Swp

Center 1.668 GHz

Span 1.664 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 2.8 ms (601 pts)

Center Freq
1.66820000 GHz

Start Freq
836.400000 MHz

Stop Freq
2.50000000 GHz

CF Step
166.360000 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:A3LSGHA887 Cond Spur Ch.4357

Mkr1 19.33 GHz

Ref 25 dBm

Atten 30 dB

-38.37 dBm

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

#LgAv

V1 S2

S3 FC

£(f):

FTun

Swp

Center 11.25 GHz

Span 17.5 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 43.76 ms (601 pts)

Center Freq
11.2500000 GHz

Start Freq
2.50000000 GHz

Stop Freq
20.00000000 GHz

CF Step
1.75000000 GHz
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:A3LSGHA887 Cond Spur Ch.4408

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

#LgAv

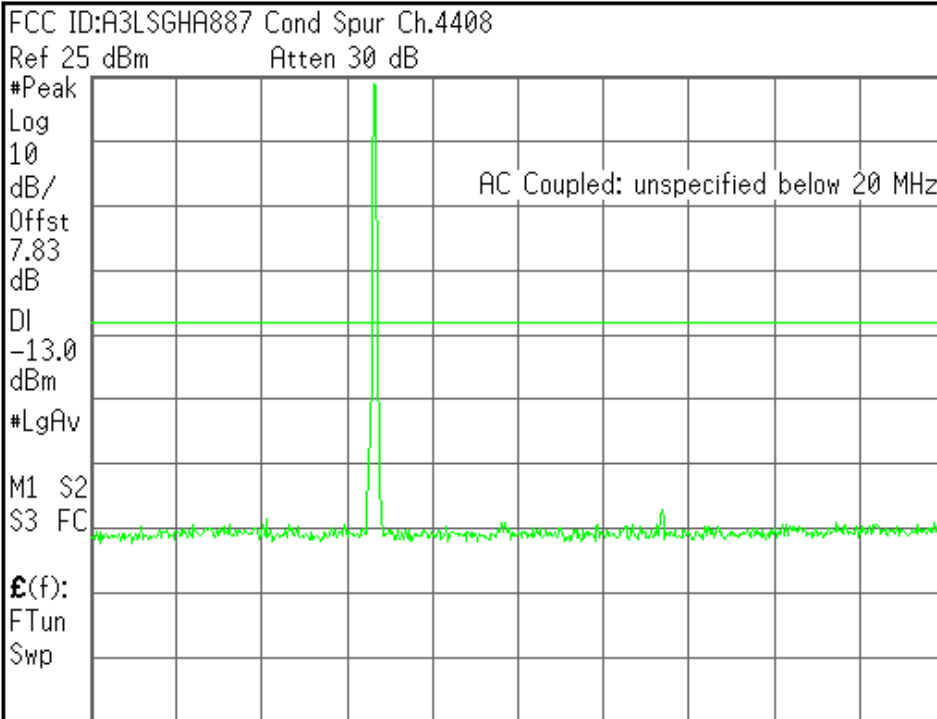
M1 S2

S3 FC

£(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:A3LSGHA887 Cond Spur Ch.4408

Ref 25 dBm

Atten 30 dB

Mkr1 826.6 MHz

-24.65 dBm

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

#LgAv

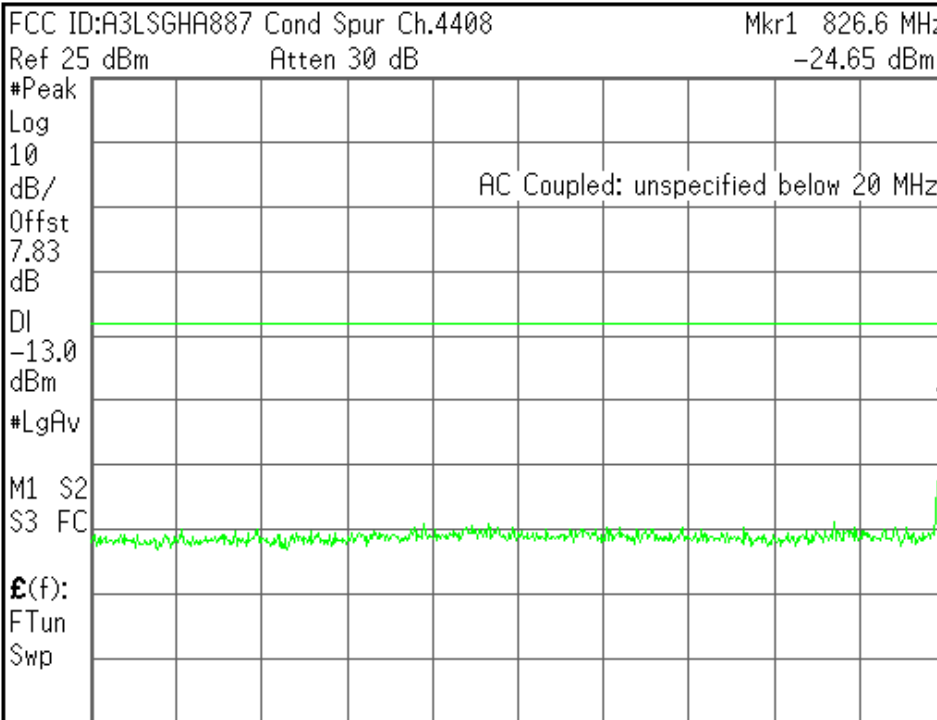
M1 S2

S3 FC

£(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
10.0000000 MHz

Stop Freq
826.600000 MHz

CF Step
81.6600000 MHz
Auto Man

Freq Offset
0.00000000 Hz

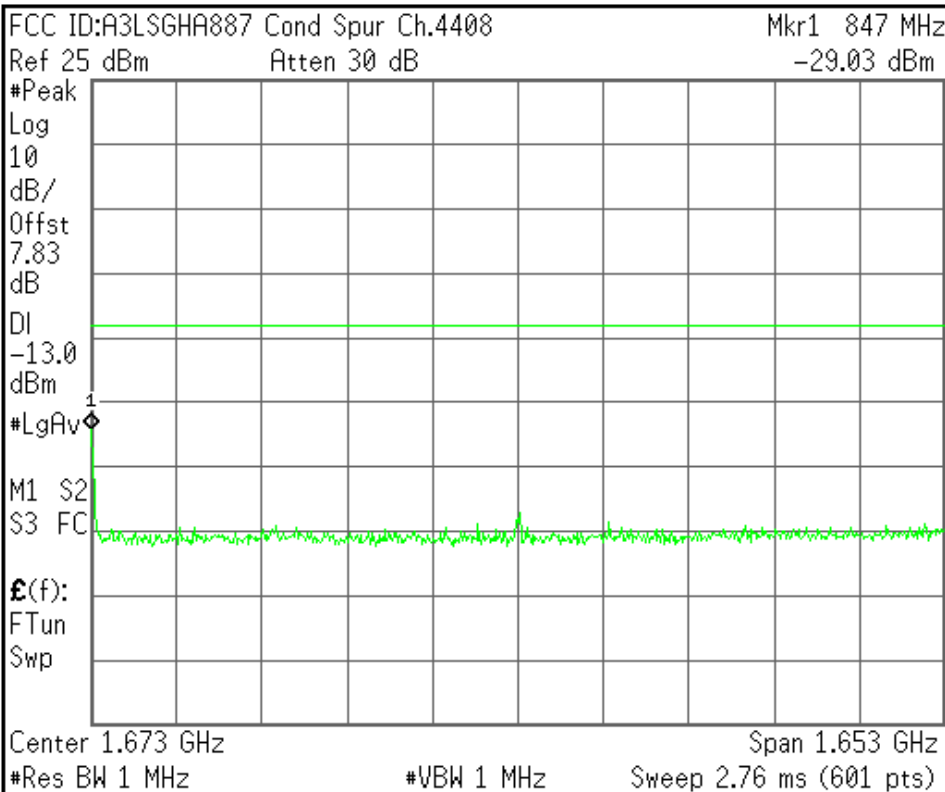
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
1.67330000 GHz

Start Freq
846.600000 MHz

Stop Freq
2.50000000 GHz

CF Step
165.340000 MHz
Auto Man

Freq Offset
0.00000000 Hz

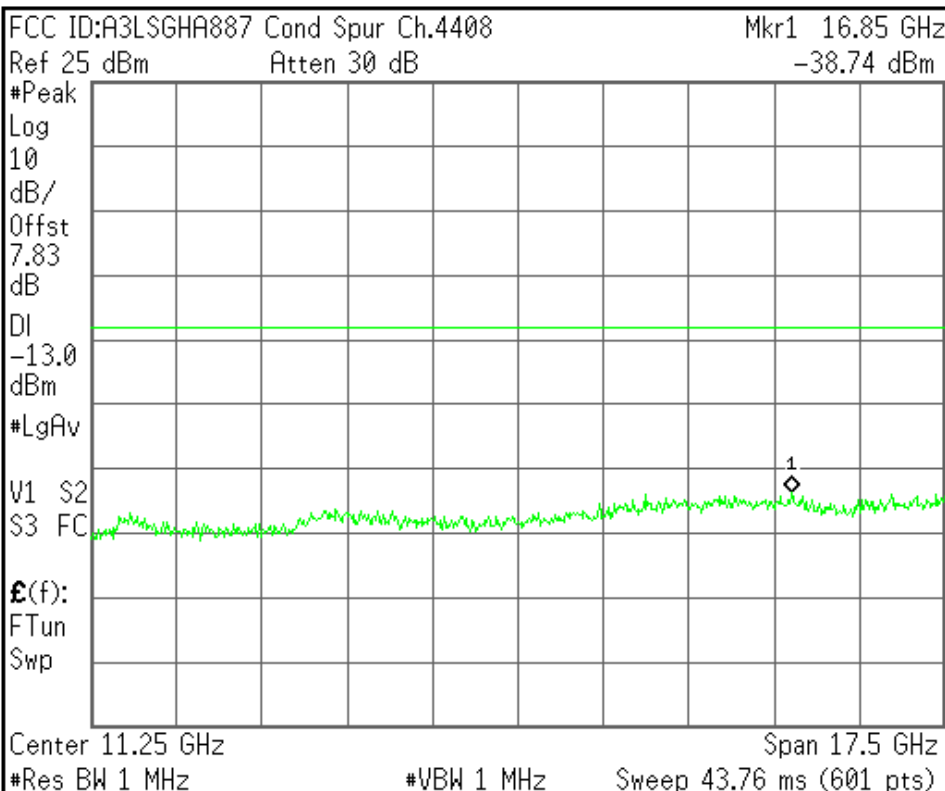
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
11.25000000 GHz

Start Freq
2.50000000 GHz

Stop Freq
20.00000000 GHz

CF Step
1.75000000 GHz
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:A3LSGHA887 Cond Spur Ch.4458

Ref 25 dBm

Atten 30 dB

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

#LgAv

M1 S2

S3 FC

£(f):

FTun

Swp

AC Coupled: unspecified below 20 MHz

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

Center 1.255 GHz

Span 2.49 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 4.16 ms (601 pts)

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

Agilent

R T

Freq/Channel

FCC ID:A3LSGHA887 Cond Spur Ch.4458

Mkr1 836.6 MHz

Ref 25 dBm

Atten 30 dB

-29.91 dBm

#Peak

Log

10

dB/

Offst

7.83

dB

DI

-13.0

dBm

#LgAv

V1 S2

S3 FC

£(f):

FTun

Swp

AC Coupled: unspecified below 20 MHz

Center Freq
423.300000 MHz

Start Freq
10.0000000 MHz

Stop Freq
836.600000 MHz

CF Step
82.6600000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Center 423.3 MHz

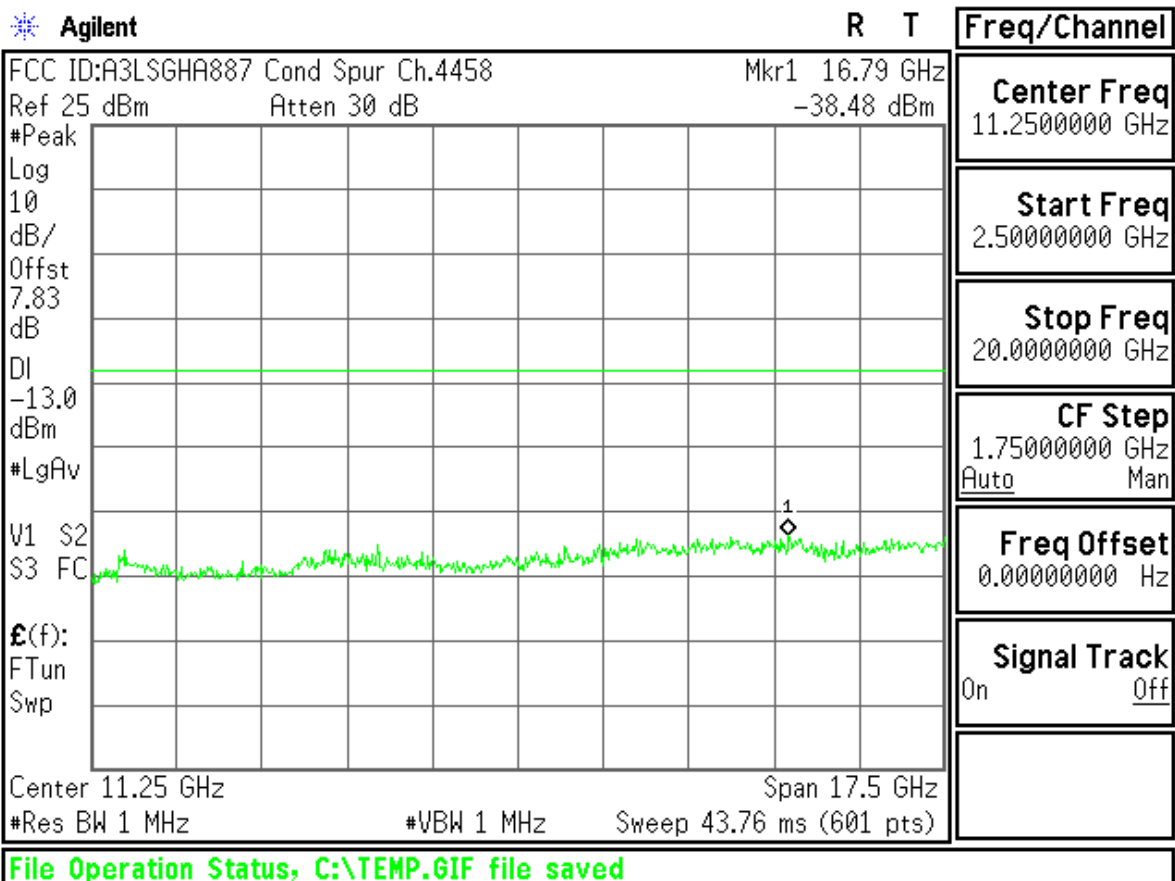
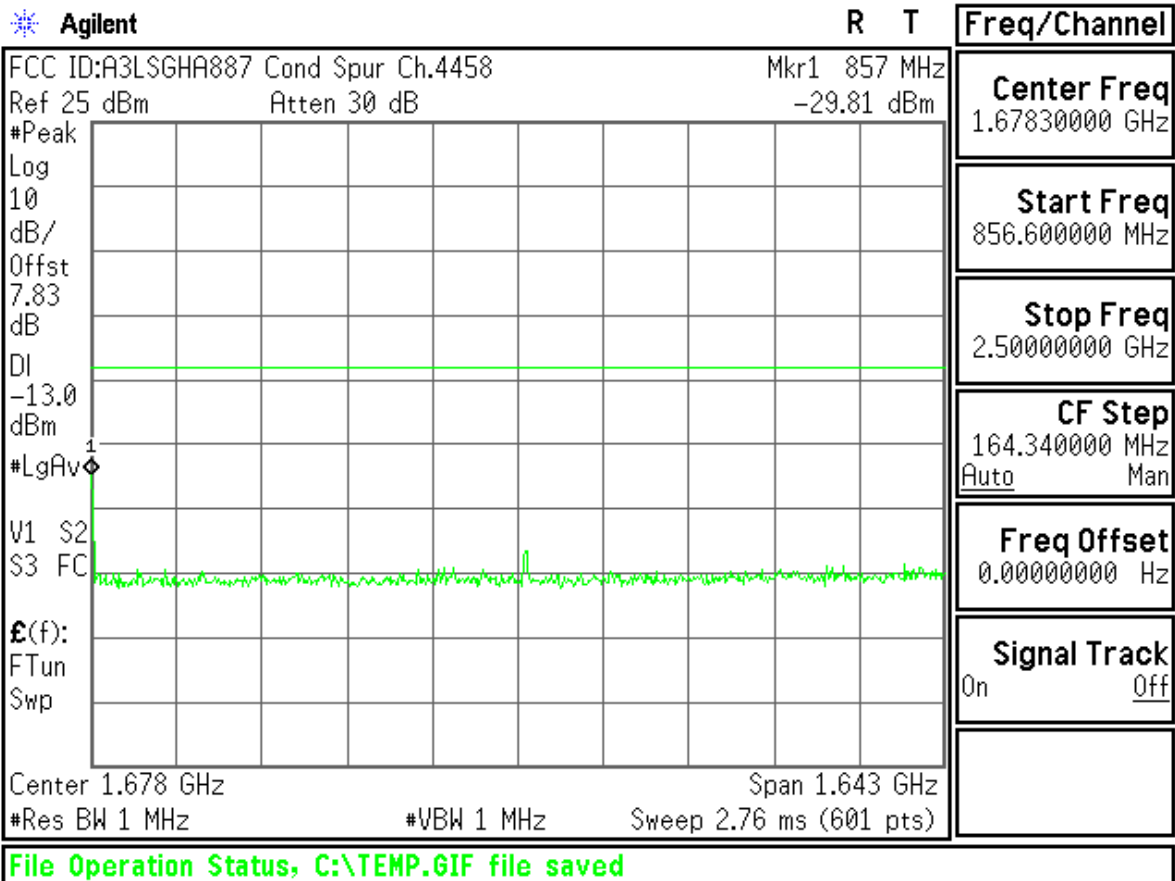
Span 826.6 MHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 1.4 ms (601 pts)

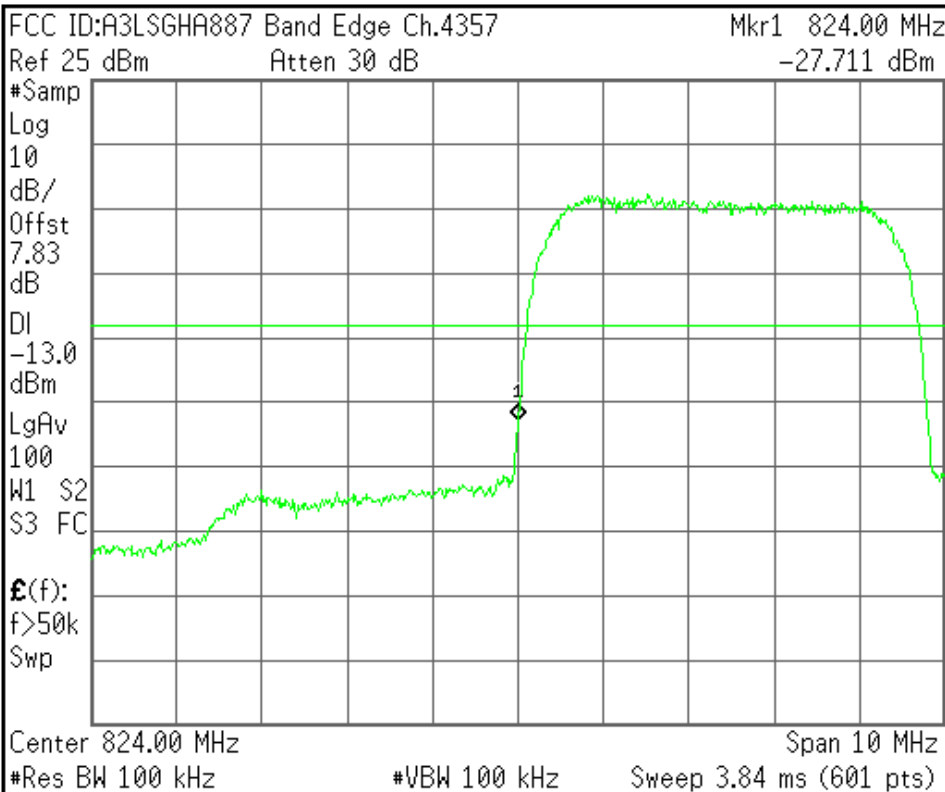
File Operation Status, C:\TEMP.GIF file saved



Agilent

R T

Freq/Channel



Center Freq
824.000000 MHz

Start Freq
819.000000 MHz

Stop Freq
829.000000 MHz

CF Step
1.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

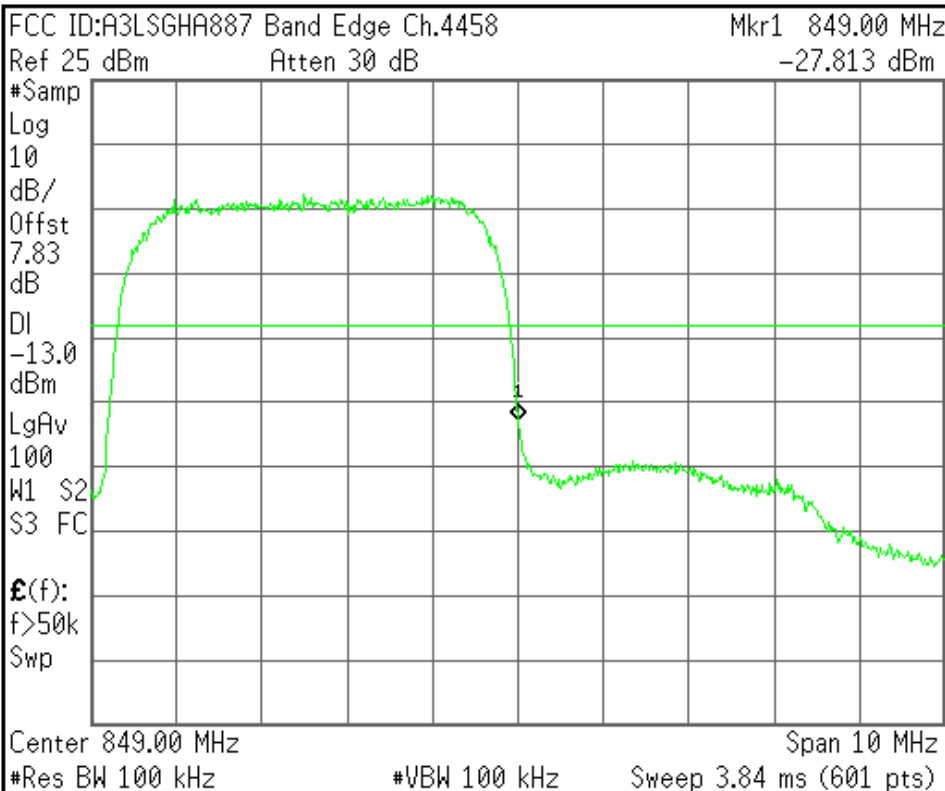
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
849.000000 MHz

Start Freq
844.000000 MHz

Stop Freq
854.000000 MHz

CF Step
1.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

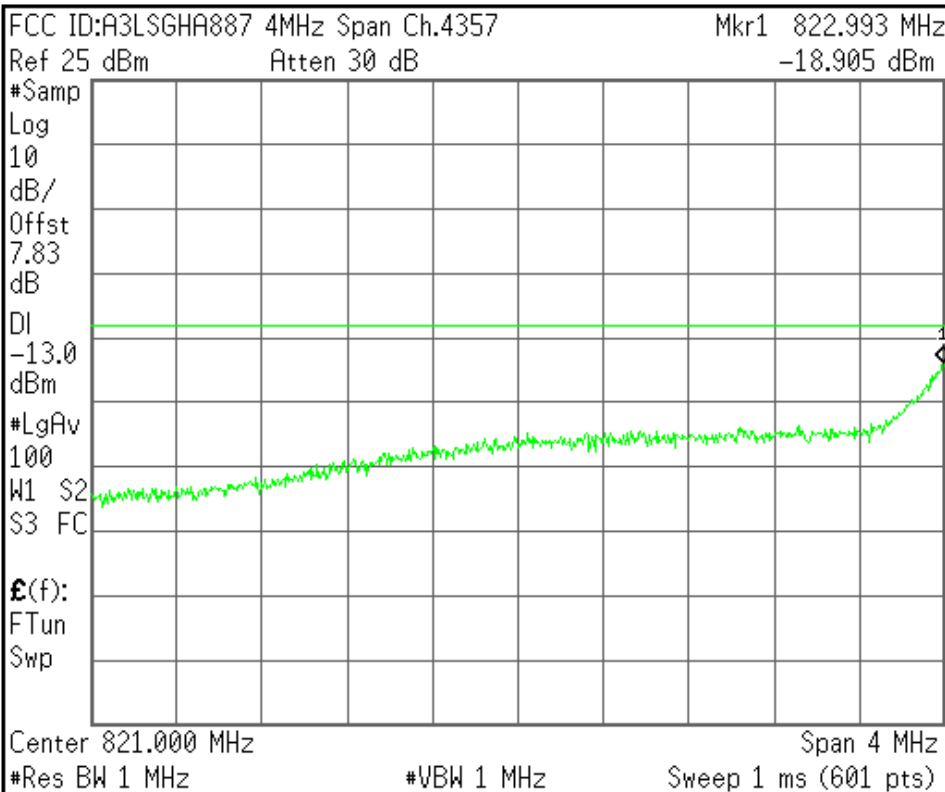
Signal Track
On Off

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

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

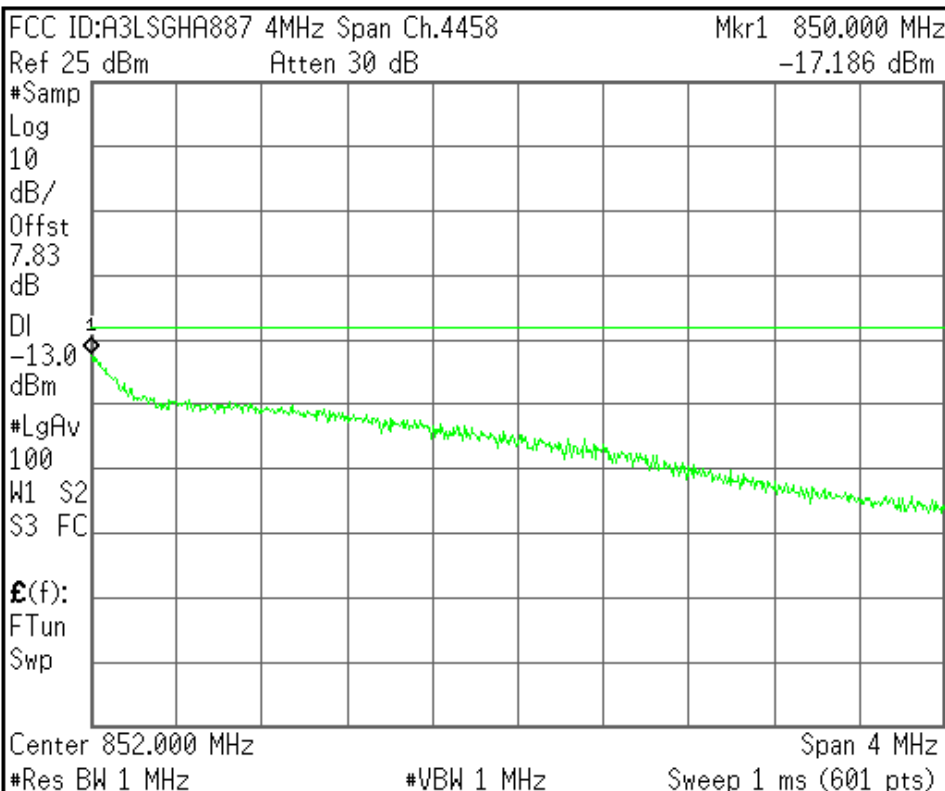
Signal Track
 On Off

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

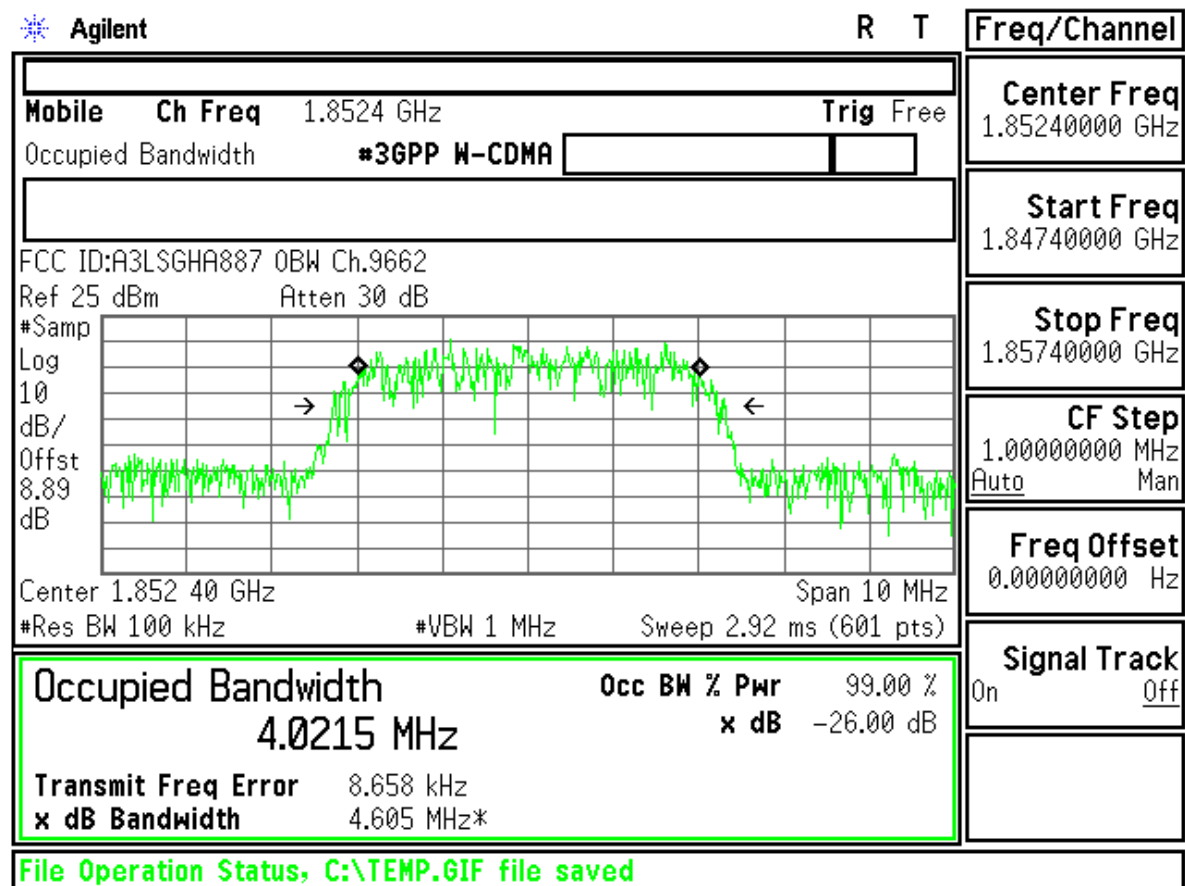
Signal Track
 On Off

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

Measurement/Instrument Screen											
Control		Waveform Quality								Call Params	
Waveform Quality Setup ▾			Minimum		Maximum		Average		Cell Power		
	EVM (%):		4.62		5.44		5.02		-104.00		
	Frequency Error (Hz):		-32.64		42.00		4.16		dBm/3.84 MHz		
	Origin Offset (dB):		-29.17		-27.21		-28.02		Channel Type		
	Phase Error (°):		2.05		2.48		2.24		12.2k RMC		
	Mag Error (%):		2.75		3.38		3.15				
	Time Error (chips):		0.65		0.81		0.74		Paging Service		
		Max PCDE: -33.24 dB at Cch.64.16:0								RB Test Mode	
50 / 5C										Single	
Calibrate Measurements		Thermal Power								HSDPA Parameters	
		Thermal Power 22.57 dBm									
Swap Window Positions											
		Active Cell Connected				Sys Type: UTRA FDD				Channel (UARFCN) Params	
1 of 2				IntRef		Offset		R T		1 of 3	

Measurement/Instrument Screen													
Control		Waveform Quality									Call Params		
Waveform Quality Setup ▾			Minimum			Maximum			Average			Cell Power	
	EVM (%):		8.50			12.02			9.07			-104.00	
	Frequency Error (Hz):		-93.12			4.23			-44.20			dBm/3.84 MHz	
	Origin Offset (dB):		-28.74			-26.93			-27.57			Channel Type	
	Phase Error (°):		4.49			6.61			4.83			12.2k RMC	
	Mag Error (%):		3.15			3.54			3.39				
	Time Error (chips):		0.67			0.81			0.69			Paging Service	
		Max PCDE: -21.80 dB at Cch.64.16:0									RB Test Mode		
		50 / 5C									Single		
Calibrate Measurements		Thermal Power									HSDPA Parameters		
		Thermal Power											
Swap Window Positions		22.94 dBm									34.121 Preset Call Configs ▾		
											Channel (UARFCN) Params		
		Single											
				Active Cell					Sys Type: UTRA FDD				
				Connected									
1 of 2						IntRef	Offset	R	T			1 of 3	

Measurement/Instrument Screen												
Control		Waveform Quality								Call Params		
Waveform Quality Setup ▾			Minimum		Maximum		Average		Cell Power			
			8.97		12.63		9.49		-104.00			
			Frequency Error (Hz):		-77.41		9.75		-38.77		dBm/3.84 MHz	
			Origin Offset (dB):		-29.89		-27.48		-28.35		Channel Type	
			Phase Error (°):		4.60		6.89		4.93		12.2k RNC	
			Mag Error (%):		3.84		4.29		4.06			
			Time Error (chips):		0.74		0.89		0.80		Paging Service	
			Max PCDE: -21.43 dB at Cch.64.16:0								RB Test Mode	
	50 / 50										Single	
Calibrate Measurements	Thermal Power											
	Thermal Power 22.90 dBm											
Swap Window Positions	Single											
1 of 2			Active Cell Connected					Sys Type: UTRA FDD				
					IntRef		Offset		R T			
										1 of 3		



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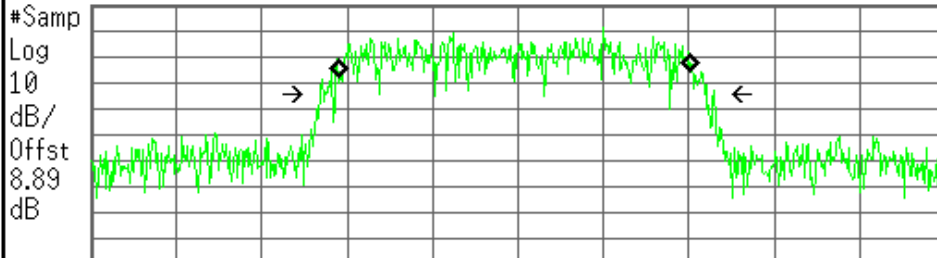
R T

Freq/Channel

Mobile Ch Freq 1.88 GHz Trig Free
Occupied Bandwidth *3GPP W-CDMA

FCC ID:A3LSGHA887 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 %
4.1234 MHz x dB -26.00 dB
Transmit Freq Error -41.834 kHz
x dB Bandwidth 4.629 MHz*

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

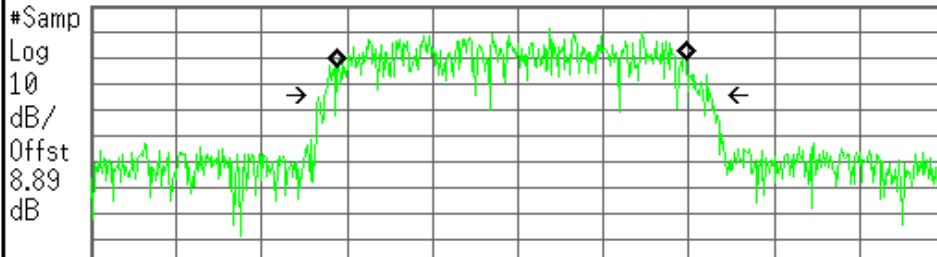
R T

Freq/Channel

Mobile Ch Freq 1.9076 GHz Trig Free
Occupied Bandwidth *3GPP W-CDMA

FCC ID:A3LSGHA887 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 %
4.0750 MHz x dB -26.00 dB
Transmit Freq Error -76.028 kHz
x dB Bandwidth 4.517 MHz*

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

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

FCC ID:A3LSGHA887 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

£(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
10.0000000 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

FCC ID:A3LSGHA887 Cond Spur Ch.9662

Mkr1 1.842 GHz

Ref 25 dBm

Atten 30 dB

-25.44 dBm

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

V1 S2

S3 FC

£(f):

FTun

Swp

AC Coupled: unspecified below 20 MHz

Center 926 MHz

Span 1.832 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 3.08 ms (601 pts)

Center Freq
926.200000 MHz

Start Freq
10.0000000 MHz

Stop Freq
1.84240000 GHz

CF Step
183.240000 MHz
Auto Man

Freq Offset
0.00000000 Hz

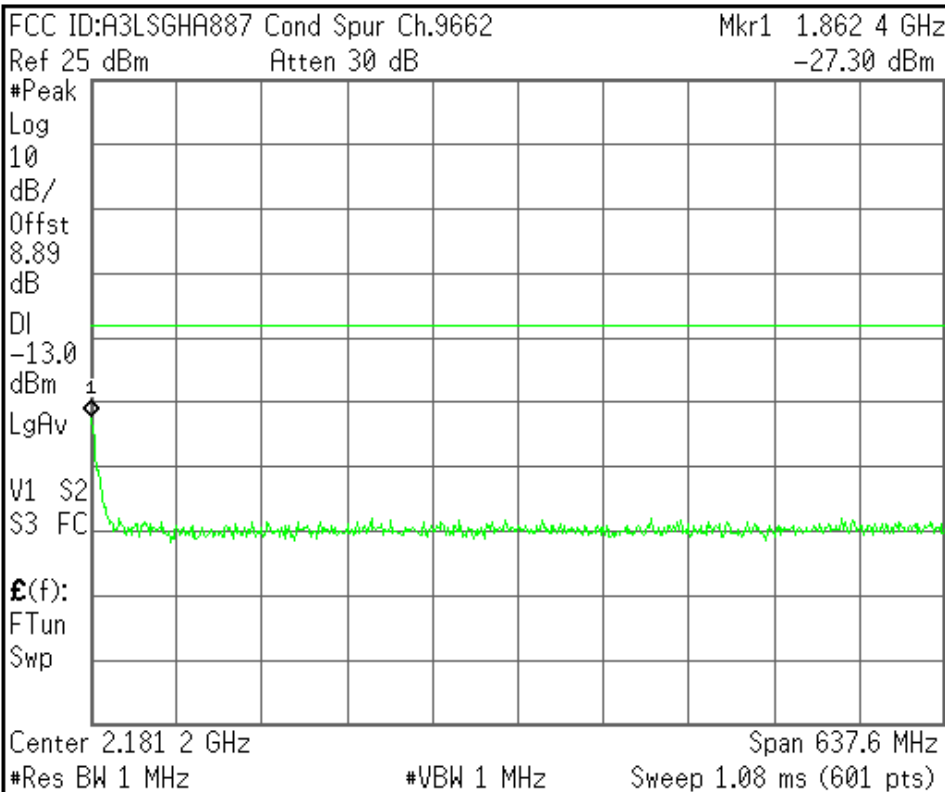
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
2.18120000 GHz

Start Freq
1.86240000 GHz

Stop Freq
2.50000000 GHz

CF Step
63.7600000 MHz
Auto Man

Freq Offset
0.00000000 Hz

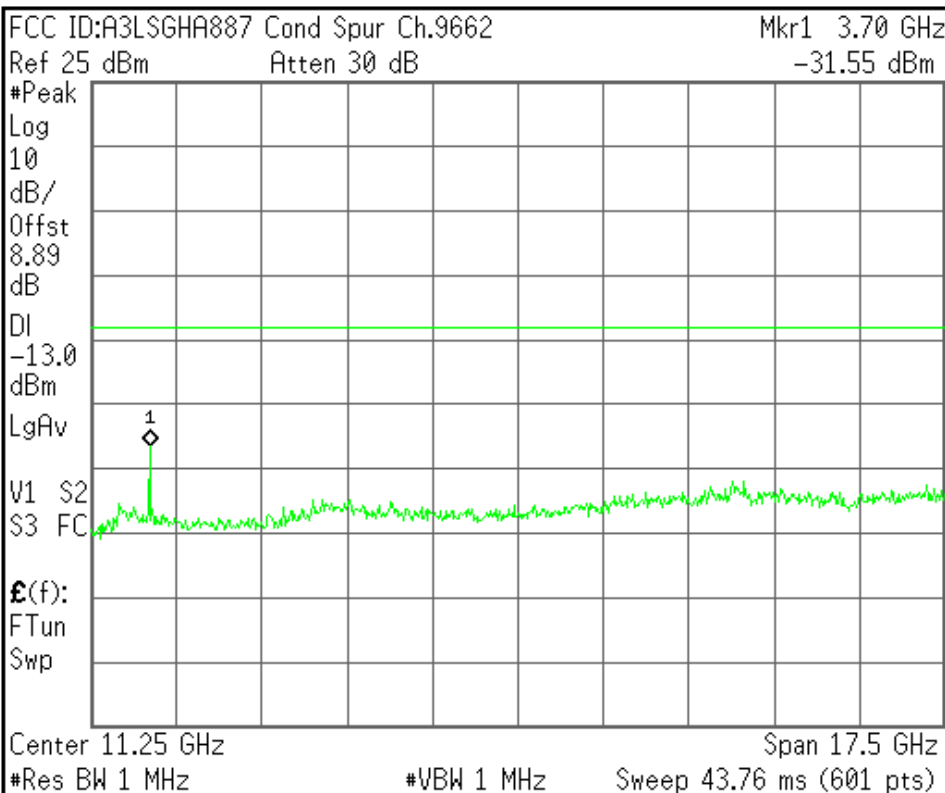
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
11.2500000 GHz

Start Freq
2.50000000 GHz

Stop Freq
20.0000000 GHz

CF Step
1.75000000 GHz
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:A3LSGHA887 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

$E(f)$:

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
10.0000000 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:A3LSGHA887 Cond Spur Ch.9800

Mkr1 1.870 GHz

Ref 25 dBm

Atten 30 dB

-25.74 dBm

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

V1 S2

S3 FC

$E(f)$:

FTun

Swp

AC Coupled: unspecified below 20 MHz

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

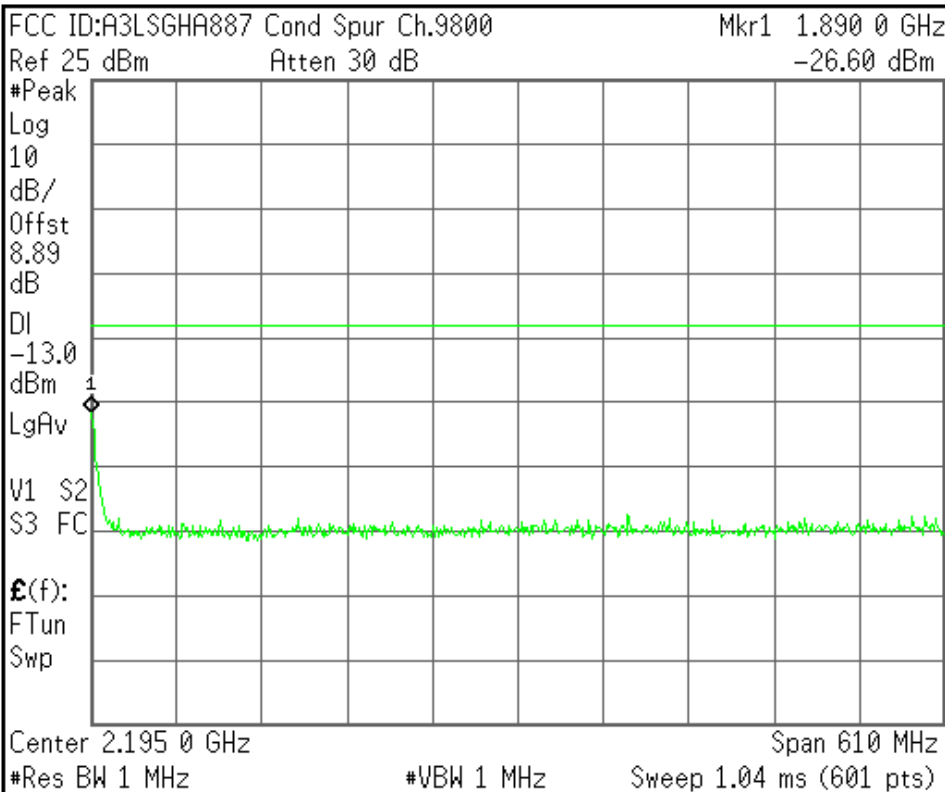
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
2.19500000 GHz

Start Freq
1.89000000 GHz

Stop Freq
2.50000000 GHz

CF Step
61.0000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

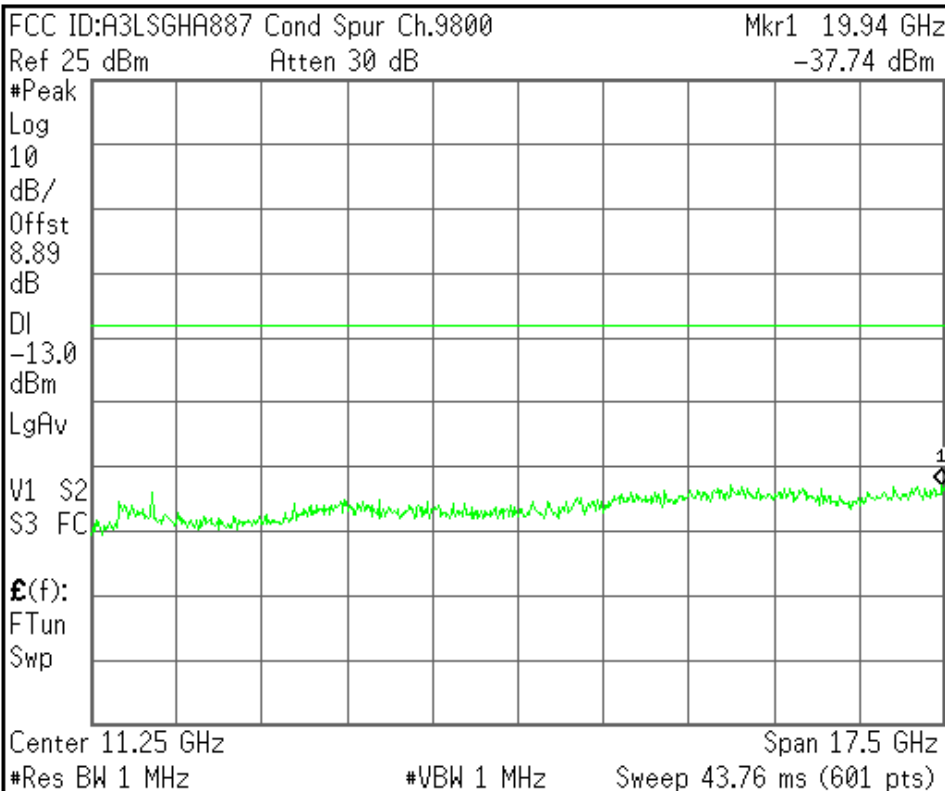
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
11.2500000 GHz

Start Freq
2.50000000 GHz

Stop Freq
20.0000000 GHz

CF Step
1.75000000 GHz
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:A3LSGHA887 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

£(f):

FTun

Swp

AC Coupled: unspecified below 20 MHz

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

Center 1.255 GHz

Span 2.49 GHz

#Res BW 1 MHz

#VBW 1 MHz

Sweep 4.16 ms (601 pts)

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

Agilent

R T

Freq/Channel

FCC ID:A3LSGHA887 Cond Spur Ch.9938

Mkr1 1.898 GHz

Ref 25 dBm

Atten 30 dB

-26.77 dBm

#Peak

Log

10

dB/

Offst

8.89

dB

DI

-13.0

dBm

LgAv

M1 S2

S3 FC

£(f):

FTun

Swp

AC Coupled: unspecified below 20 MHz

Center Freq
953.800000 MHz

Start Freq
10.0000000 MHz

Stop Freq
1.89760000 GHz

CF Step
188.760000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Center 954 MHz

Span 1.888 GHz

#Res BW 1 MHz

#VBW 1 MHz

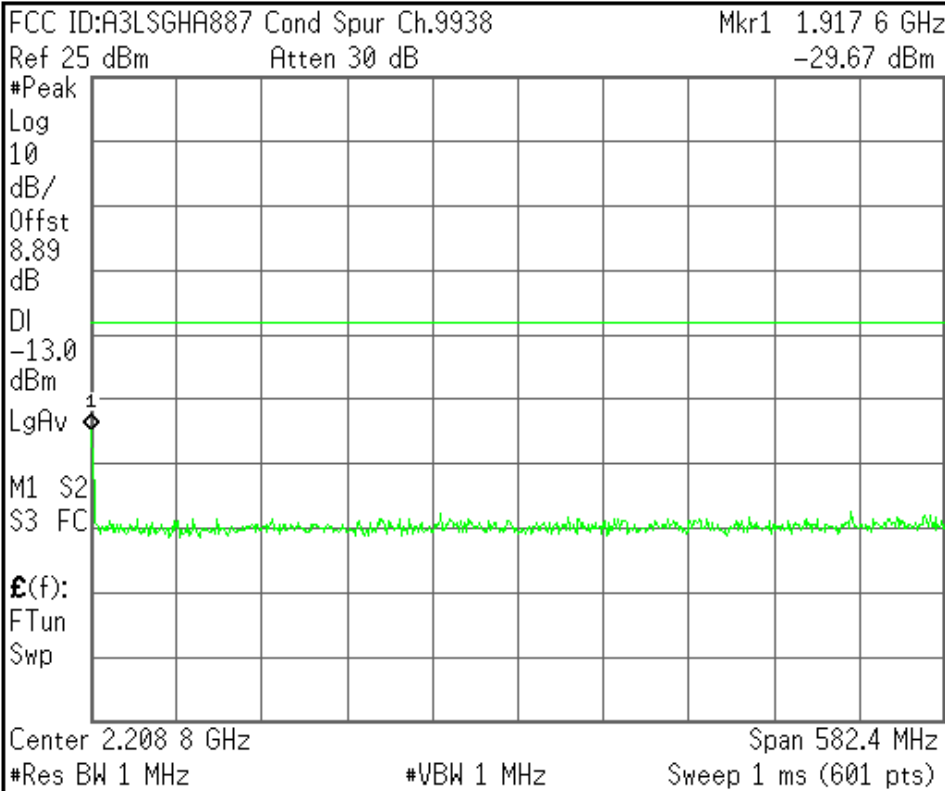
Sweep 3.16 ms (601 pts)

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

Agilent

R T

Freq/Channel



Center Freq
2.20880000 GHz

Start Freq
1.91760000 GHz

Stop Freq
2.50000000 GHz

CF Step
58.2400000 MHz
Auto Man

Freq Offset
0.00000000 Hz

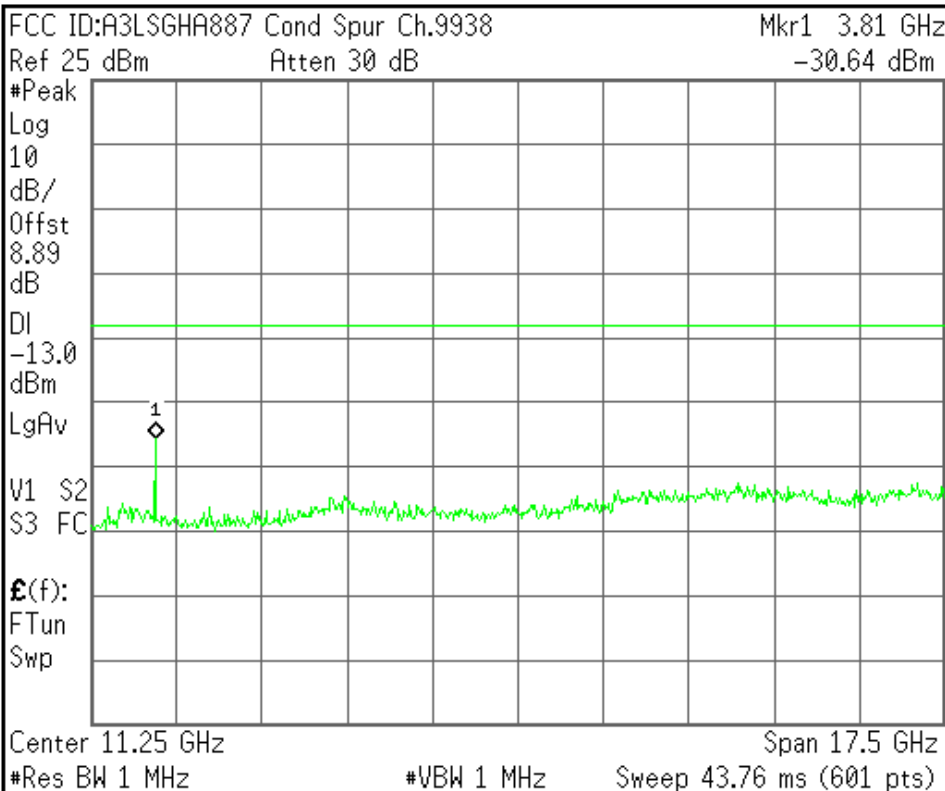
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
11.2500000 GHz

Start Freq
2.50000000 GHz

Stop Freq
20.0000000 GHz

CF Step
1.75000000 GHz
Auto Man

Freq Offset
0.00000000 Hz

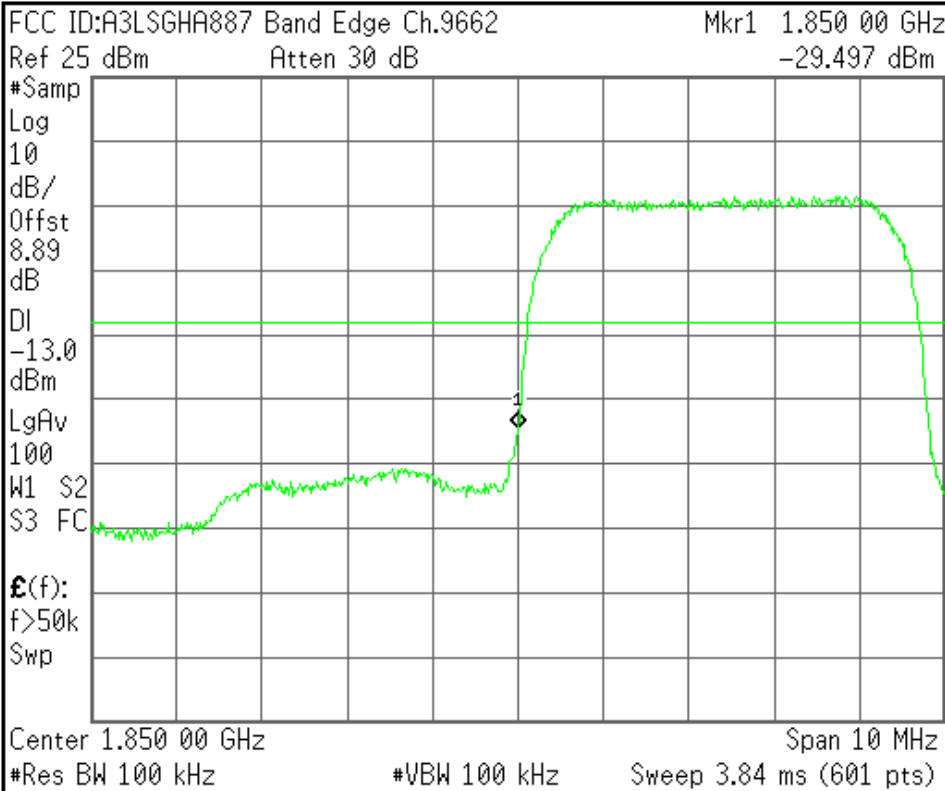
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
 1.85000000 GHz

Start Freq
 1.84500000 GHz

Stop Freq
 1.85500000 GHz

CF Step
 1.00000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

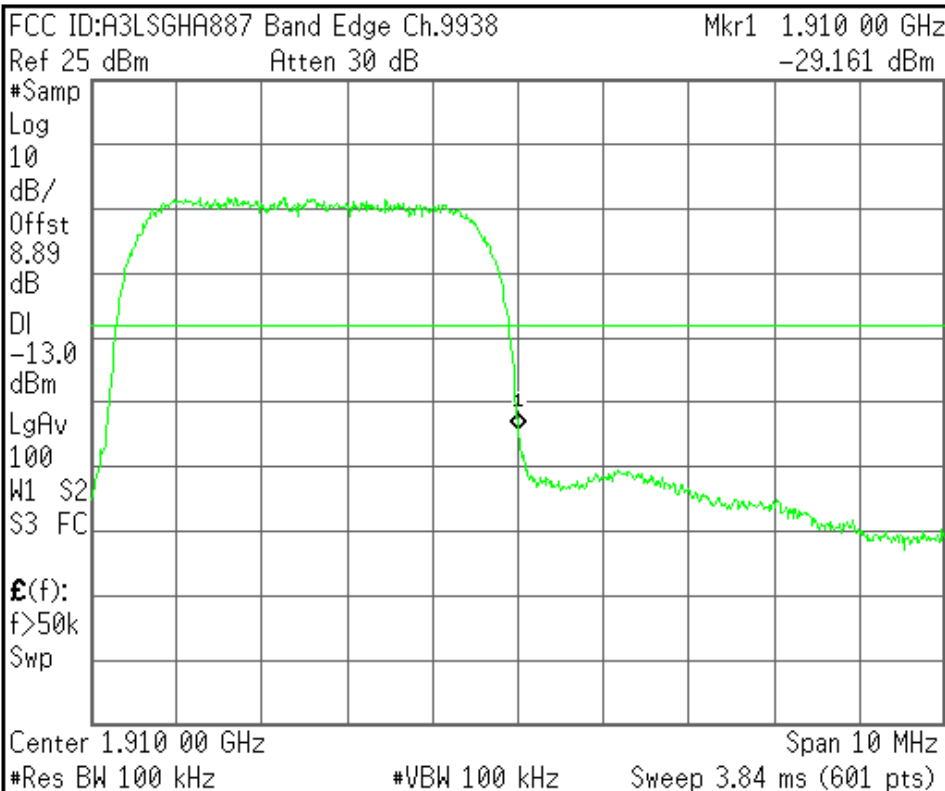
Signal Track
 On Off

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

Agilent

R T

Freq/Channel



Center Freq
 1.91000000 GHz

Start Freq
 1.90500000 GHz

Stop Freq
 1.91500000 GHz

CF Step
 1.00000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

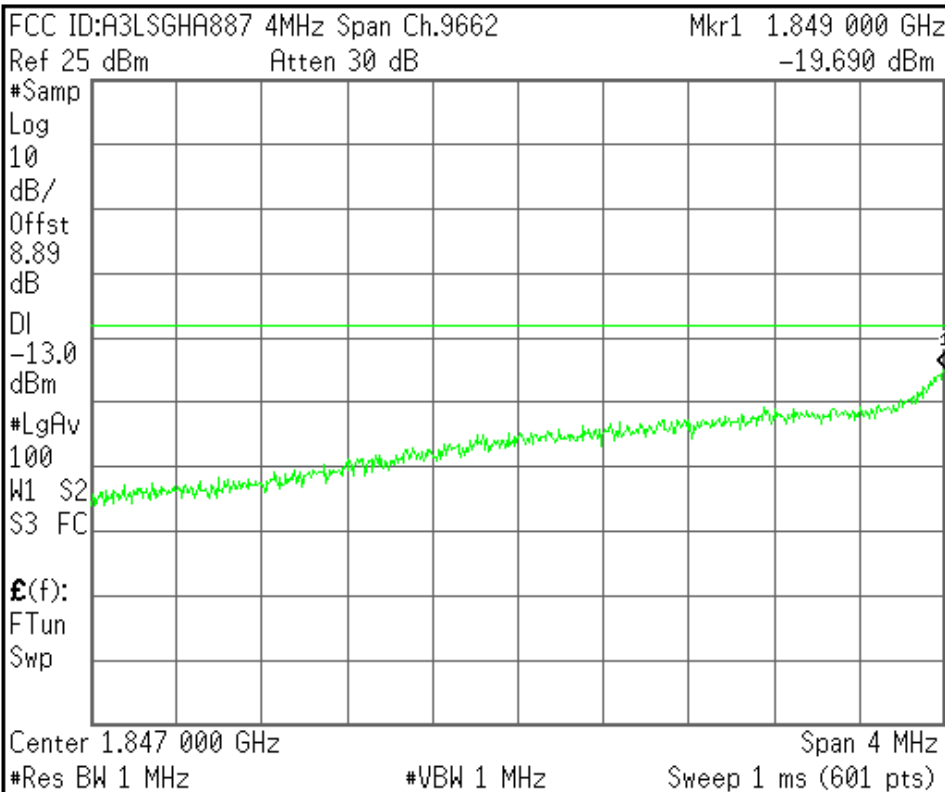
Signal Track
 On Off

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

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R T

Freq/Channel



Center Freq
1.84700000 GHz

Start Freq
1.84500000 GHz

Stop Freq
1.84900000 GHz

CF Step
400.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

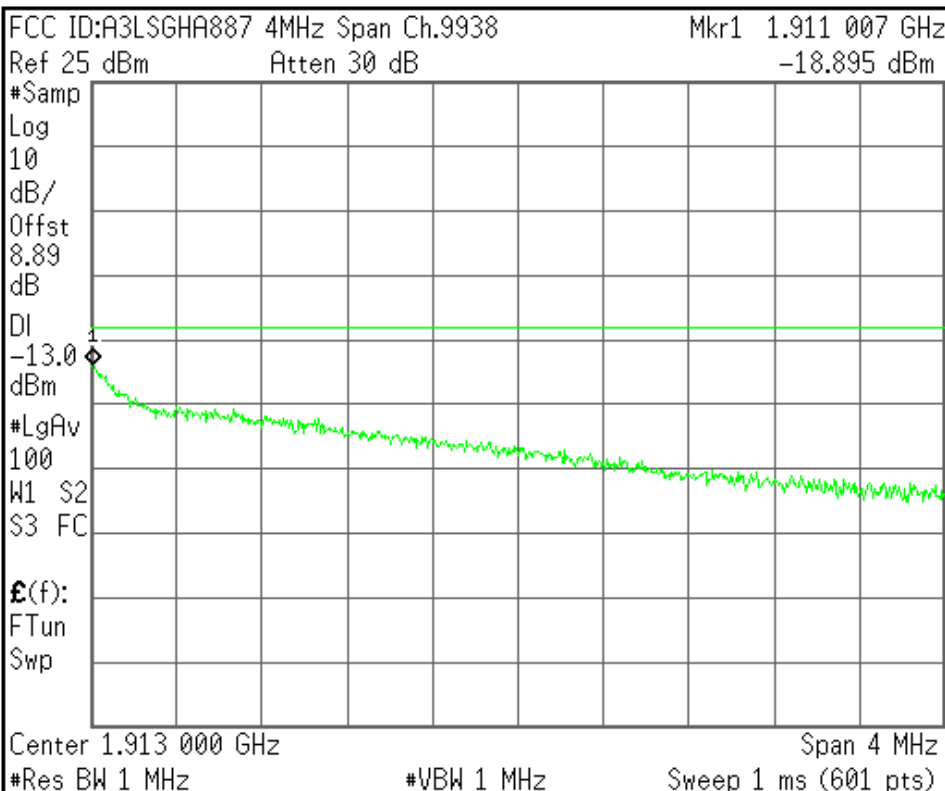
Signal Track
On Off

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

Agilent

R T

Freq/Channel



Center Freq
1.91300000 GHz

Start Freq
1.91100000 GHz

Stop Freq
1.91500000 GHz

CF Step
400.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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

FCC ID:A3LSGHA887 P.A.R Ch.9800

Δ Mkr1 0 Hz

Ref 30 dBm

Atten 40 dB

-3.46 dB

#Avg

Log

10

dB/

Offst

8.89

dB

#LgAv

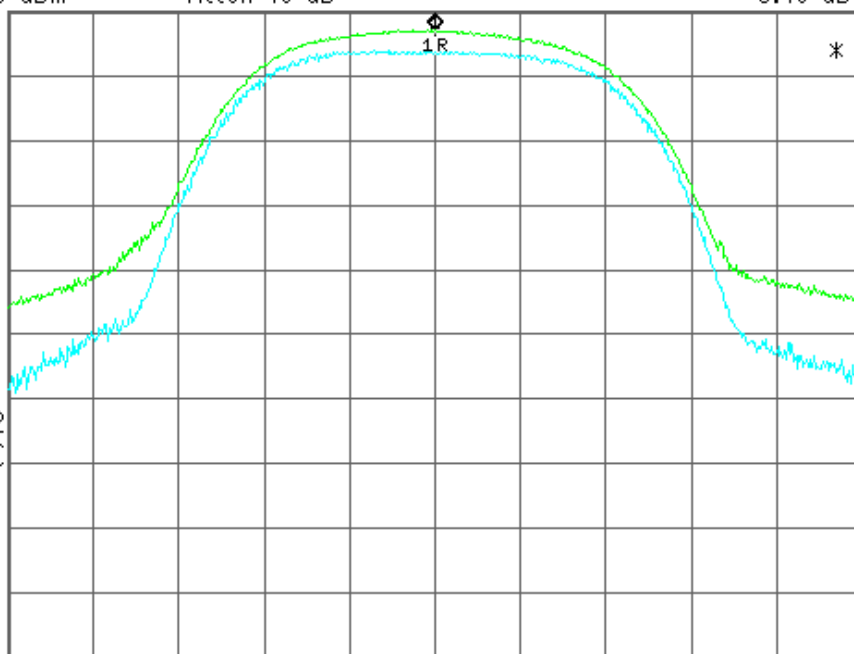
V1 M2

S3 FC

£(f):

FTun

Swp



Center 1.880 00 GHz

Span 20 MHz

#Res BW 5 MHz

#VBW 5 MHz

Sweep 1 ms (601 pts)

Center Freq
1.88000000 GHz

Start Freq
1.87000000 GHz

Stop Freq
1.89000000 GHz

CF Step
2.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

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