



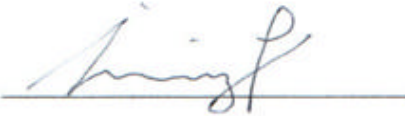
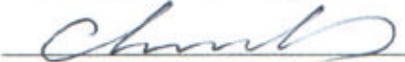

MSUNG ELECTRONICS Co., Ltd.,
Regulatory Compliance Team
IT R&D Center
416, Maetan-3dong,
Paldal-gu, Suwon-si,
Gyeonggi-do, Korea 442-742

FCC CFR47 PART 24 SUBPART CERTIFICATION TEST DATA

Model Tested: SGH-P100
FCC ID (Requested): A3LSGHP100
Report No: FA-008-R1
Date issued: May 13, 2003

- Abstract -

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

Prepared By		Date	<u>May 13, 2003</u>
	EH JUNG - Test Engineer		
Checked By		Date	<u>May 14, 2003</u>
	CW PARK - Manager		
Authorized By		Date	<u>May 14, 2003</u>
	JK CHOI - Senior Manager		

Test Equipment

Name of Equipment	Model	Serial No.	Due Date
Spectrum Analyzer	ESI26(20Hz~26.5GHz)	836119/010	2004-02-04
	E4440B(3Hz~26.5GHz)	MY41000236	2003-11-25
	E4440B(3Hz~26.5GHz)	MY41000233	2003-11-25
Signal Generator	SMIQ03B(300KHz~3.3GHz)	83824/021	2004-01-20
	SMR20(1GHz~20GHz)	835197/030	2004-01-20
Power Meter	E4419B	GB41293846	2003-11-26
Power Sensor	8481B(1mW~25W)	3318A10325	2003-09-26
	8485A(1uW~100mW)	3318A19924	2003-09-26
Amplifier	5S1G4(0.8~4.2GHz, 5W)	304866	2003-11-26
Pre-Amplifier	8449B(1~26.5GHz, 30dB)	3008A00691	2004-01-21
Communication test set	8960	GB42230535	2003-12-02
	8960	GB42360886	2004-01-09
Antenna Master	MA0001	ANT0967	Not Required
Controller	HD100	100/756	Not Required
Environmental Chamber	PL-4S(Temperature/Humidity)	13005454	2003-08-20
	SH-241	92000548	2003-12-12
	SH-241	92000549	2003-12-12
Horn Antenna	HF906(1GHz~18GHz)	360306/011	2004-02-10
	HF906(1GHz~18GHz)	100134	2003-09-07
Dipole Antenna	3121C-DB4	9007-587	2003-11-08
	3121C-DB4	1454	2003-05-19
	3121C-DB4	1455	2003-05-19
Attenuator	8494A(0~11dB)	3308A31997	2004-01-20
	8496A(0~110dB)	3308A14426	2004-01-20
Directional Coupler	4278-311-2(0.1~1GHz)	B3679637	2004-01-22
	4278-111-2(1~2GHz)	B103DC8722	2004-01-22
High Pass Filter	WHK1.0/15G-10SS(1~15GHz)	1	Not Required
	WHV1.0/15G-10SS(1~15GHz)	1	Not Required
	WHK/3.5/18G-10SS(3.5~18GHz)	3	Not Required
	WHK/3.5/18G-10SS(3.5~18GHz)	4	Not Required
Shielded Semi-Anechoic Chamber	RF0002	ANT0001	2004-01-21

FCC ID : A3LSGHP100

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

Supply Voltage: 3.7 VDC

Modulation: PCS GSM

■ Reference level

Frequency (MHz)	Output (dBm)	Polarization	S/A (dBm)	P/M (dBm)	Ant gain (dBi)	Ref level (dBm)
1880.00	27.00	H	-12.83	-12.78	8.26	-21.04
		V	-12.74	-12.72	8.26	-20.98

■ Result

Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Azimuth (angle)	EIRP (dBm)	EIRP (W)	Battery
1850.20	-15.63	H1	131	32.41	1.742	Standard
1880.00	-16.77	H1	113	31.27	1.340	Standard
1909.80	-16.99	H1	116	31.05	1.274	Standard

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

□

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. 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 the dipole is measured. The ERP is recorded.

FCC ID : A3LSGHP100

Field Strength of SPURIOUS Radiation

Operating Frequency : 1850.2 MHz

Measured Output Power : 32.41 dBm = 1.742 W

Modulation Signal : PCS GSM

$$\text{Limit : } 43 + 10 \log_{10}(W) = 45.41 \text{ dBc}$$

■ Result

Channel	Harmonic	Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Result (dBc)
512	2	3700.40	-49.82	H2	59.88
	3	5550.60	-64.63	V	69.07
	4	7400.80	-62.63	H2	63.68
	5	9251.00	-58.39	H1	55.33
	6	11101.20	-67.81	H2	61.11
661	2	3760.00	-50.58	H2	58.81
	3	5640.00	-63.37	H2	68.27
	4	7520.00	-64.30	H2	65.49
	5	9400.00	-60.16	H1	57.33
	6	11280.00	-64.92	H2	58.17
810	2	3819.60	-49.78	H1	57.69
	3	5729.40	-61.46	H2	66.34
	4	7639.20	-64.62	H2	66.51
	5	9549.00	-61.93	H2	58.12
	6	11458.80	-61.23	H1	53.13

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. 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 the dipole is measured. The ERP is recorded.

Radiated Spurious & Harmonic Conversion Table

GSM1800 Mode

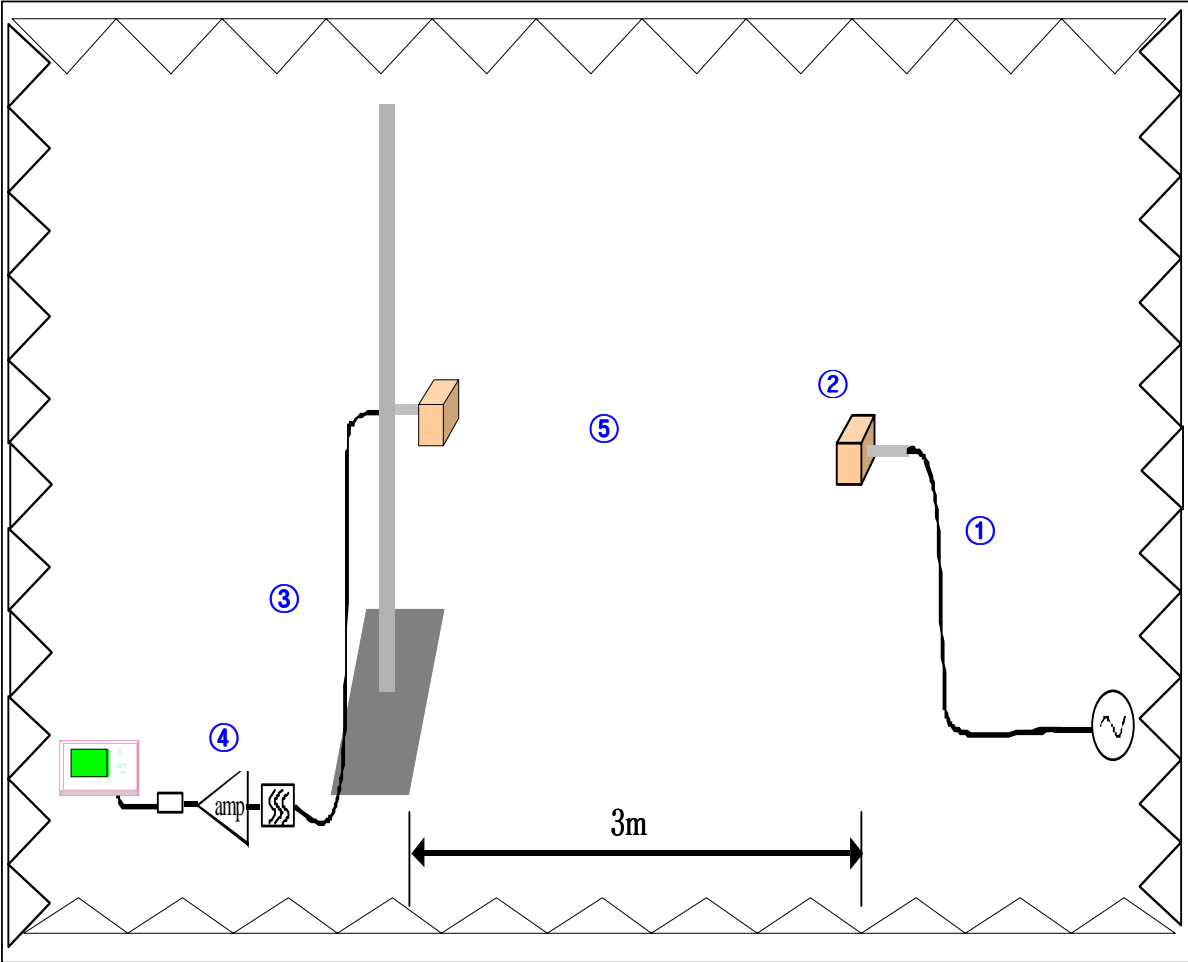
Date : 2003 . 04 . 29 .

Test Engineer : EH Jung

① Tx Cable loss
 ② Tx Horn Ant Gain
 ③ Rx Cable loss + LPF Insertion loss + Attenuator
 ④ Pre-Amp gain
 ⑤ Air loss
 ⑥ Tested Level from EUT
 ⑦ = ⑥ + ① + ② - ③
 ⑧ = FIRP - ⑤

CH	차수	Frequency (MHz)	① Tx CL (dB)	② Horn Gain (dB)	Tx Level (Horn 끝단) S/G 10dBm	③ Tested Level Ant : H (dBm)	④ Tested Level Ant : V (dBm)	⑤ Actual Value Ant : H (dBm)	⑥ Actual Value Ant : V (dBm)	⑦ Result Ant : H (dBc)	⑧ Result Ant : V (dBc)
512	2	3700.40	15.61	9.98	4.37	-49.82	-55.43	-27.56	-32.50	59.88	64.82
	3	5550.60	18.44	11.18	2.74	-65.33	-64.63	-37.28	-36.75	69.60	69.07
	4	7400.80	22.46	11.48	-0.98	-62.63	-62.55	-31.36	-32.51	63.68	64.83
	5	9251.00	25.71	12.34	-3.37	-58.39	-64.11	-23.01	-29.27	55.33	61.59
	6	11101.20	30.50	13.76	-6.74	-67.81	-68.74	-28.79	-30.98	61.11	63.30
661	2	3760.00	14.24	10.02	5.78	-50.58	-55.66	-26.49	-31.79	58.81	64.11
	3	5640.00	18.60	11.18	2.58	-63.37	-66.20	-35.95	-38.44	68.27	70.76
	4	7520.00	22.56	11.50	-1.06	-64.30	-63.95	-33.17	-33.65	65.49	65.97
	5	9400.00	25.90	12.32	-3.58	-60.16	-66.01	-25.01	-31.39	57.33	63.71
	6	11280.00	30.58	13.68	-6.90	-64.92	-68.12	-25.85	-29.40	58.17	61.72
810	2	3819.60	14.22	10.02	5.80	-49.78	-55.30	-25.37	-31.34	57.69	63.66
	3	5729.40	19.27	11.26	1.99	-61.46	-62.53	-34.02	-34.61	66.34	68.93
	4	7639.20	23.79	11.52	-2.27	-64.62	-65.77	-34.19	-36.08	66.51	68.40
	5	9549.00	26.01	12.30	-3.71	-61.93	-68.99	-25.80	-32.00	58.12	64.32
	6	11458.80	30.14	13.60	-6.54	-61.23	-66.52	-20.81	-28.89	53.13	59.21

**Radiated Spurious & Harmonic
Configuration for Calibration**



- ① Tx Cable loss
- ② Horn Ant Gain
- ③ Rx Cable loss + HPF Insertion loss + Attenuator
- ④ Pre-Amp gain
- ⑤ Air loss

FCC ID : A3LSGHP100

Frequency Stability (PCS GSM)

Operating Frequency : 1,880,000,000 Hz

Channel : 661

Reference voltage : 3.7VDC

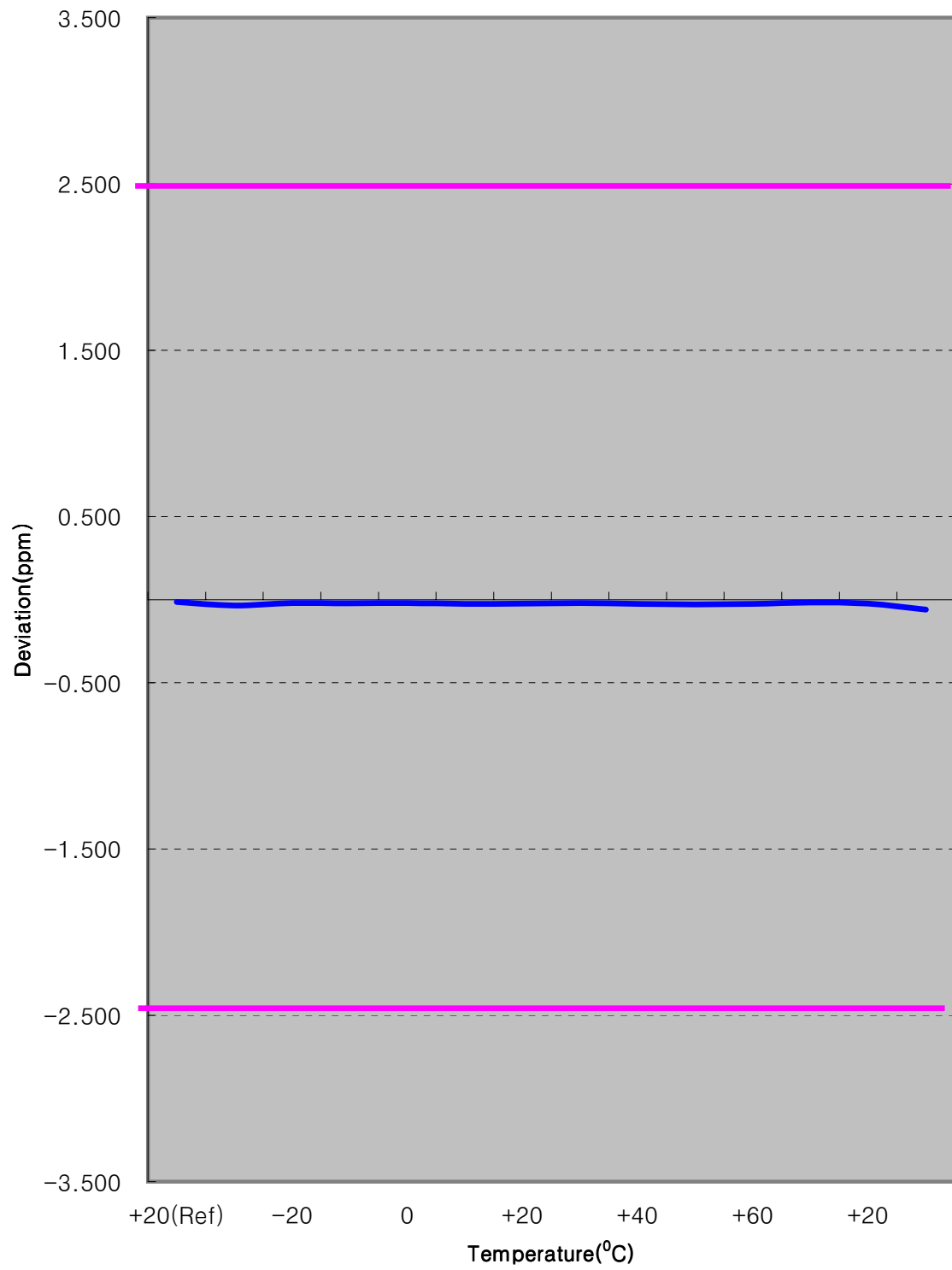
Deviation Limit : $\pm 0.00025\%$ or 2.5ppm

Voltage (%)	Power (V dc)	TEMP (OC)	Frequency error (Hz)	Frequency (Hz)	Deviation (%)	ppm
100%	3.70	+20(Ref)	-26.94	1,879,999,973	-0.000001	-0.014
100%		-30	-65.56	1,879,999,934	-0.000003	-0.035
100%		-20	-38.39	1,879,999,962	-0.000002	-0.020
100%		-10	-42.02	1,879,999,958	-0.000002	-0.022
100%		0	-37.57	1,879,999,962	-0.000002	-0.020
100%		+10	-47	1,879,999,953	-0.000003	-0.025
100%		+20	-44.49	1,879,999,956	-0.000002	-0.024
100%		+30	-39.25	1,879,999,961	-0.000002	-0.021
100%		+40	-47.21	1,879,999,953	-0.000003	-0.025
100%		+50	-52.72	1,879,999,947	-0.000003	-0.028
100%		+60	-47.85	1,879,999,952	-0.000003	-0.025
85%		3.15	+20	-31.64	1,879,999,968	-0.000002
115%	4.26	+20	-43.41	1,879,999,957	-0.000002	-0.023
Batt. Endpoint	3.12	+20	-113.94	1,879,999,886	-0.000006	-0.061

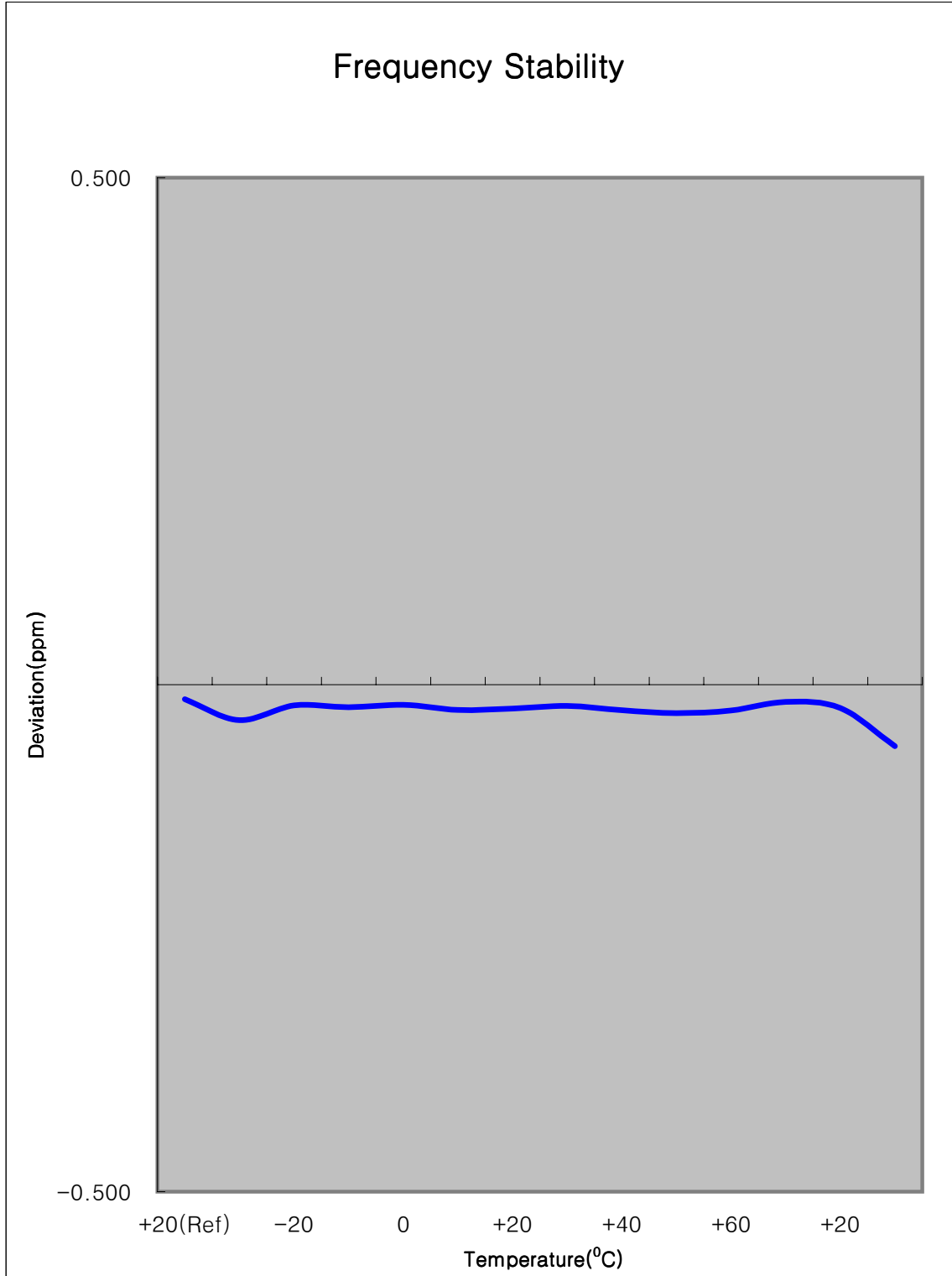
Note : The temperature is varied from -30°C to +60°C using an environmental chamber

The EUT is tested down to the battery end point.

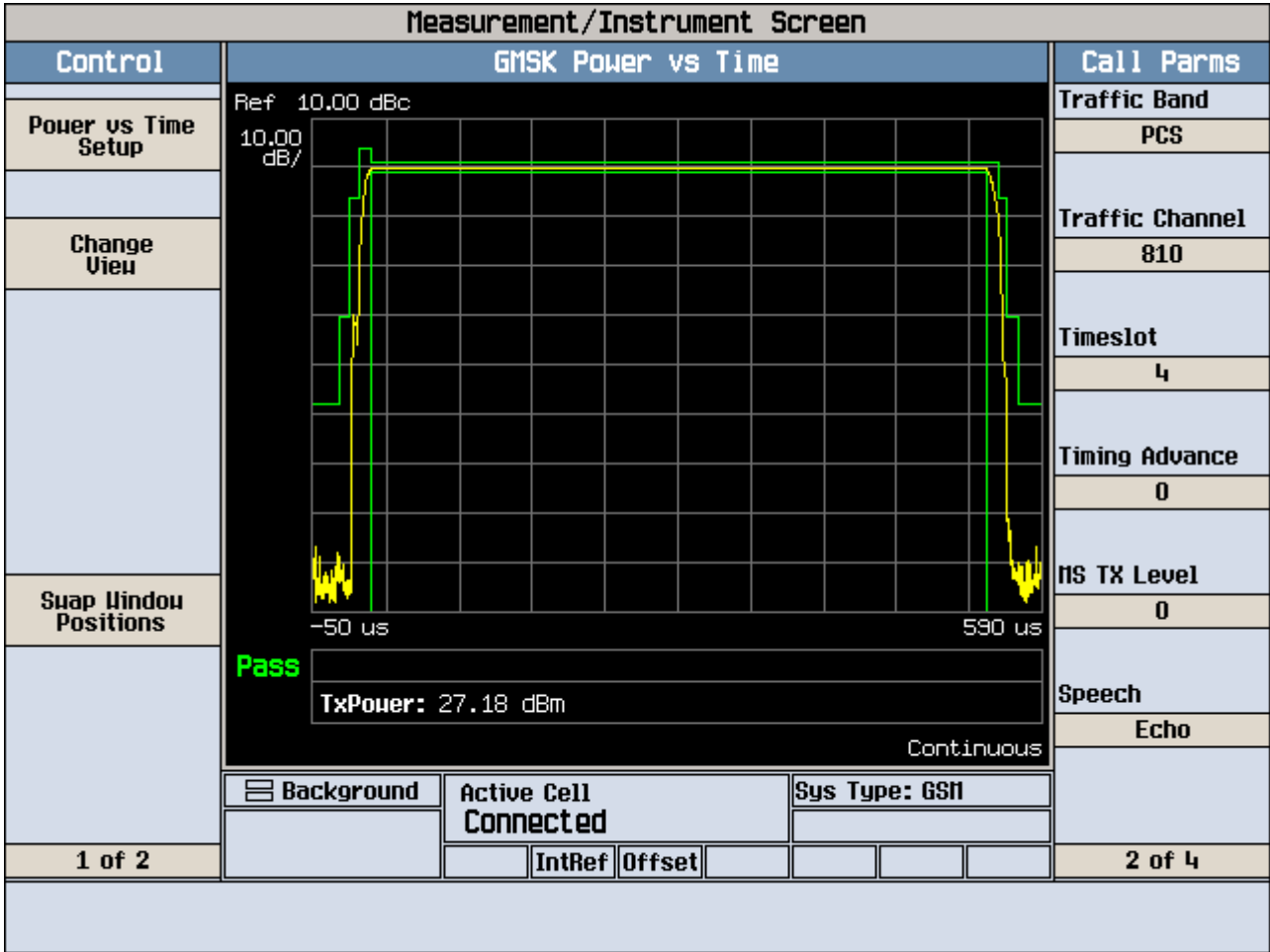
Frequency Stability



Zoom In



Measurement/Instrument Screen			
Control	GMSK Power vs Time		Call Parms
Power vs Time Setup			Traffic Band PCS
Change View			Traffic Channel 661
Swap Window Positions			Timeslot 4
1 of 2			Timing Advance 0
	<div style="display: flex; justify-content: space-between;"> Ref 10.00 dBc 10.00 dB/ </div> <div style="display: flex; justify-content: space-between;"> -50 us 590 us </div> <div style="margin-top: 10px;"> Pass TxPower: 27.82 dBm Continuous </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="background-color: #e0e0e0; padding: 2px;">☰ Background</div> <div style="background-color: #e0e0e0; padding: 2px;">Active Cell Connected</div> <div style="background-color: #e0e0e0; padding: 2px;">Sys Type: GSM</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="background-color: #e0e0e0; padding: 2px;">IntRef</div> <div style="background-color: #e0e0e0; padding: 2px;">Offset</div> </div>		NIS TX Level 0
		Speech Echo	
		2 of 4	

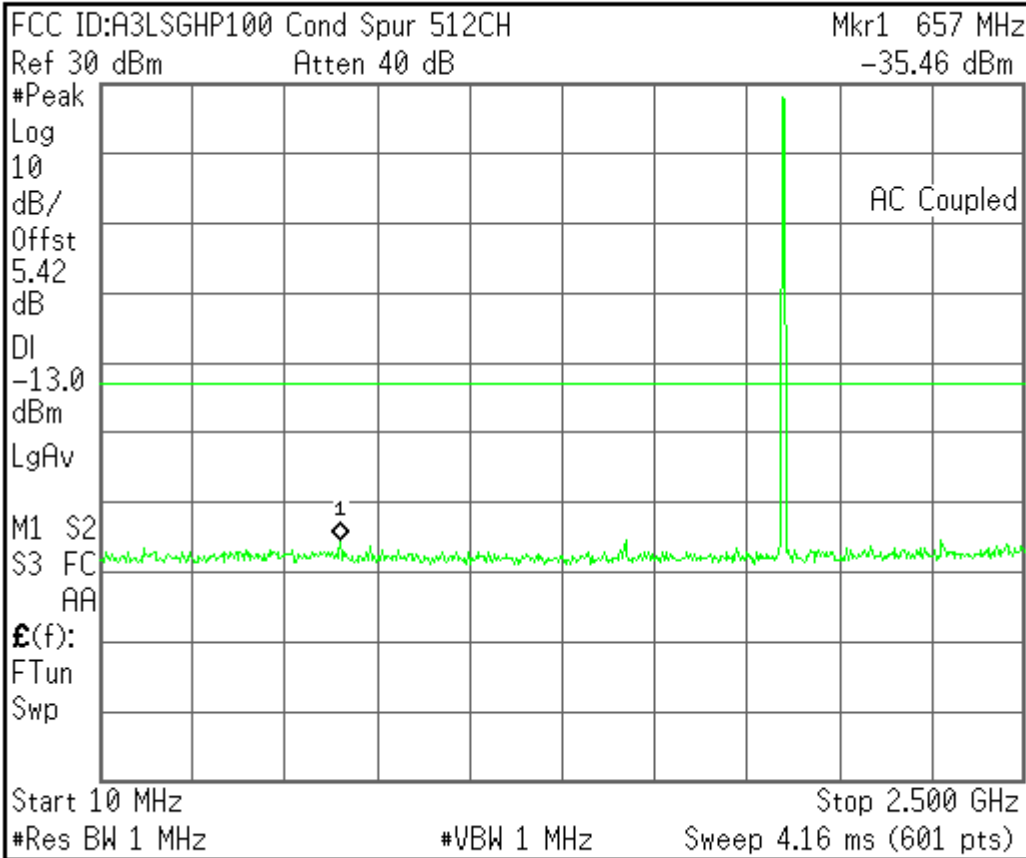


Measurement/Instrument Screen								
ORFS Setup	ORFS: Modulation & Switching Graph	Call Params						
Measurement Setup ▾	<p>MODULATION Ref 10.00 dB 10.00 dB/</p> <p>SWITCHING Ref 10.00 dBm 10.00 dB/</p> <p>Pass</p> <p>-1800 kHz - 0 kHz 1800 kHz - Abs. limit - Rel. limit</p> <p>441 /441 Continuous</p>	Traffic Band						
Modulation Frequencies ▾		PCS						
Switching Frequencies ▾		Traffic Channel						
Return to ORFS Control		512						
		Timeslot						
		4						
		Timing Advance						
		0						
		MS TX Level						
		0						
		Speech						
		Echo						
		2 of 4						
	<table border="1"> <tr> <td>Background</td> <td>Active Cell Connected</td> <td>Sys Type: GSM</td> </tr> <tr> <td></td> <td>IntRef</td> <td>Offset</td> </tr> </table>	Background	Active Cell Connected	Sys Type: GSM		IntRef	Offset	
Background	Active Cell Connected	Sys Type: GSM						
	IntRef	Offset						

Measurement/Instrument Screen								
Control	ORFS: Modulation & Switching Graph	Call Parms						
ORFS Setup	<p>MODULATION Ref 10.00 dB</p> <p>SWITCHING Ref 10.00 dBm</p> <p>441 / 441 Continuous</p>	Traffic Band						
Change View		PCS						
Suap Window Positions		Traffic Channel						
1 of 2		661						
		Timeslot						
		4						
		Timing Advance						
		0						
		MS TX Level						
		0						
		Speech						
		Echo						
	<table border="1"> <tr> <td>Background</td> <td>Active Cell Connected</td> <td>Sys Type: GSM</td> </tr> <tr> <td></td> <td>IntRef</td> <td>Offset</td> </tr> </table>	Background	Active Cell Connected	Sys Type: GSM		IntRef	Offset	2 of 4
Background	Active Cell Connected	Sys Type: GSM						
	IntRef	Offset						

Measurement/Instrument Screen			
Control	ORFS: Modulation & Switching Graph		Call Parms
ORFS Setup	<div style="display: flex; flex-direction: column;"> <div style="margin-bottom: 10px;"> <p>MODULATION</p> <p>Ref 10.00 dB</p> <p>10.00 dB/</p> <p>-1800 kHz - 0 kHz 1800 kHz</p> <p>- Abs. limit - Rel. limit</p> </div> <div> <p>SWITCHING</p> <p>Ref 10.00 dBm</p> <p>10.00 dB/</p> <p>-1800 kHz - 0 kHz 1800 kHz</p> <p>120 /441 Continuous</p> </div> </div>		Traffic Band
Change View			PCS
Suap Window Positions			Traffic Channel
1 of 2			810
		Timeslot	4
		Timing Advance	0
		MS TX Level	0
		Speech	Echo
	Background	Active Cell Connected	Sys Type: GSM
		IntRef	Offset
			2 of 4

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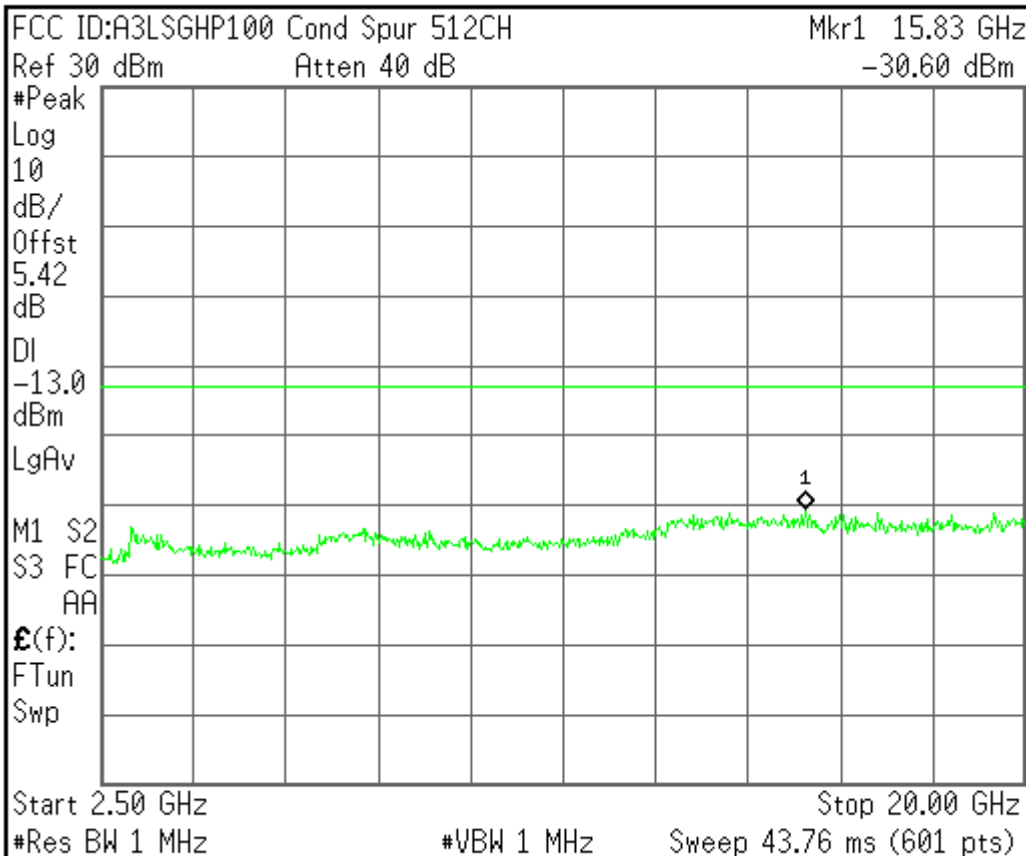


Freq/Channel

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

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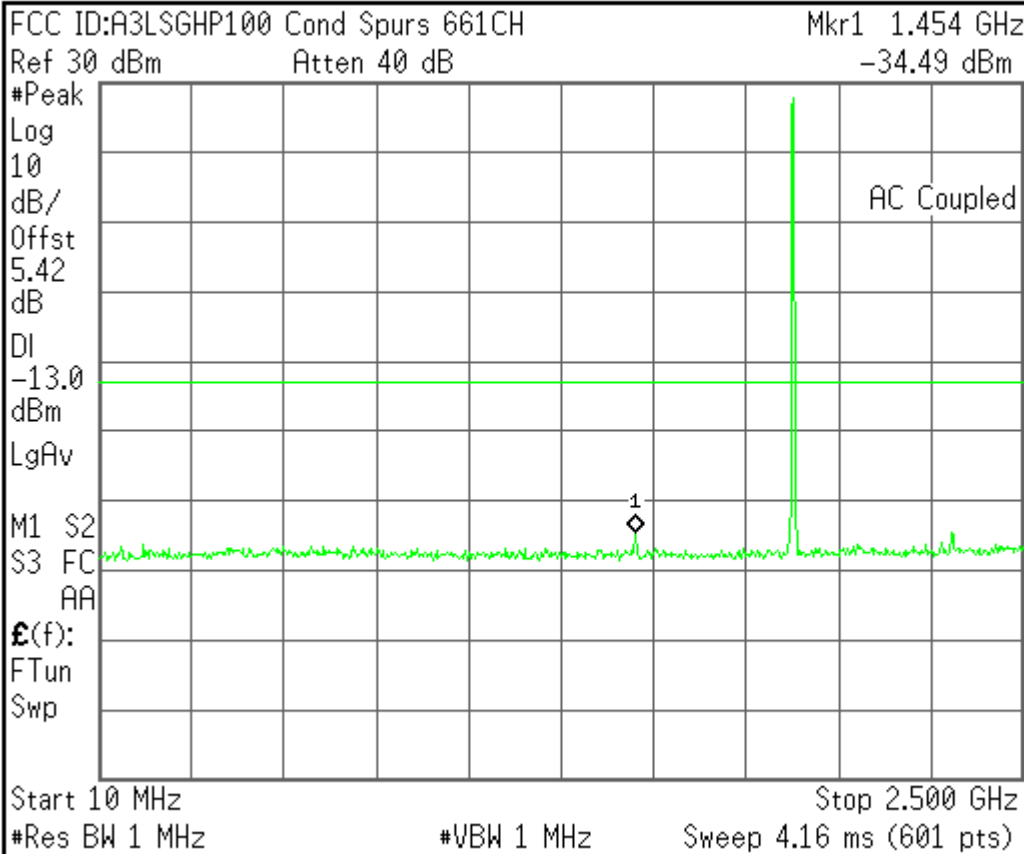


Freq/Channel

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Start Freq 2.50000000 GHz
Stop Freq 20.0000000 GHz
CF Step 1.75000000 GHz Auto Man
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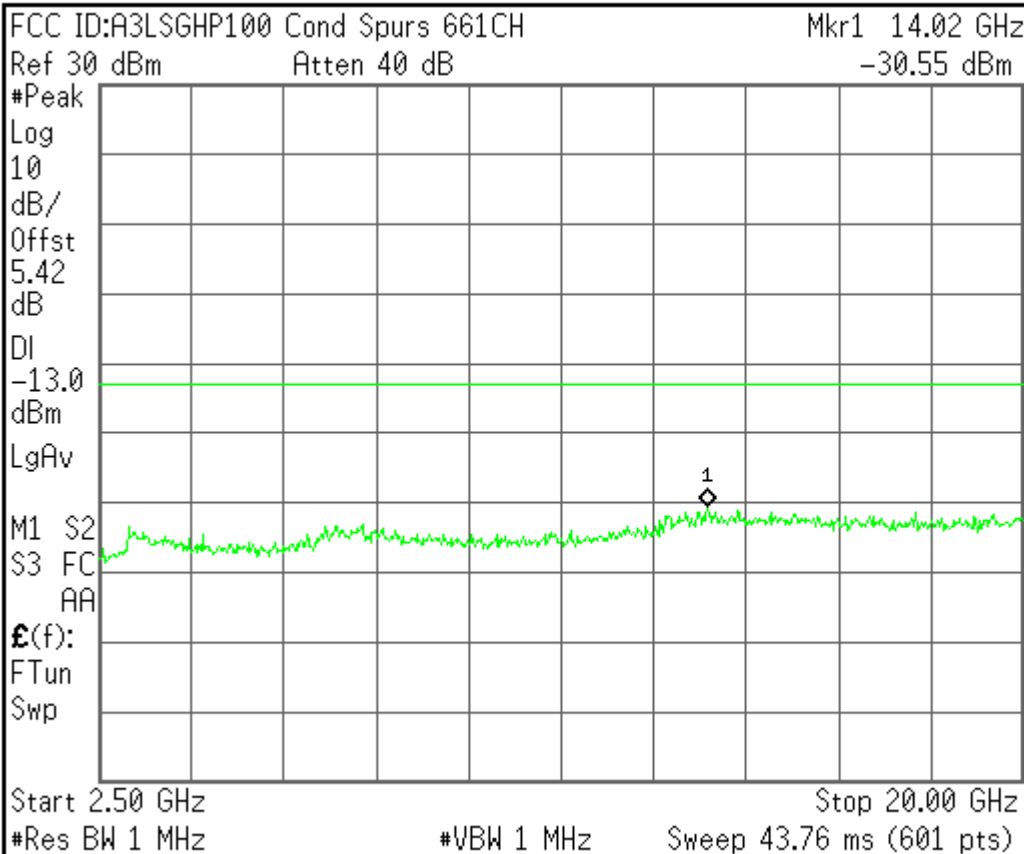


Freq/Channel

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Start Freq 10.0000000 MHz
Stop Freq 2.50000000 GHz
CF Step 249.000000 MHz Auto Man
Freq Offset 0.00000000 Hz
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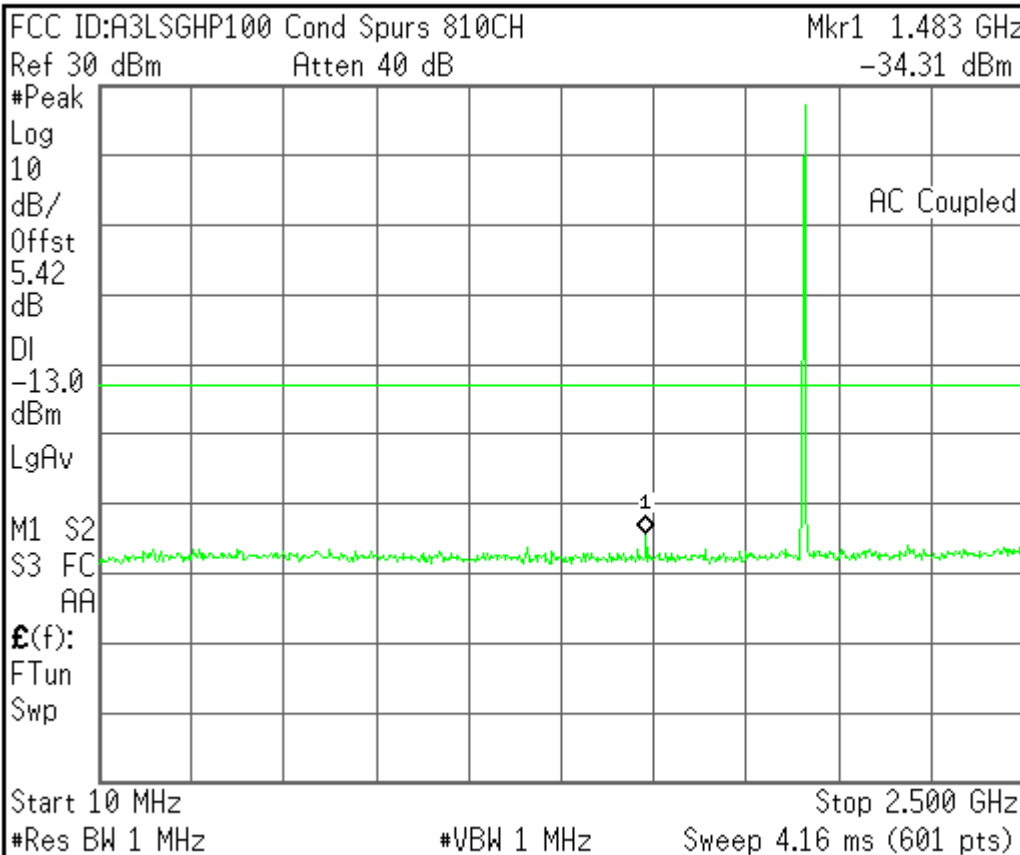
Freq/Channel

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

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Freq/Channel

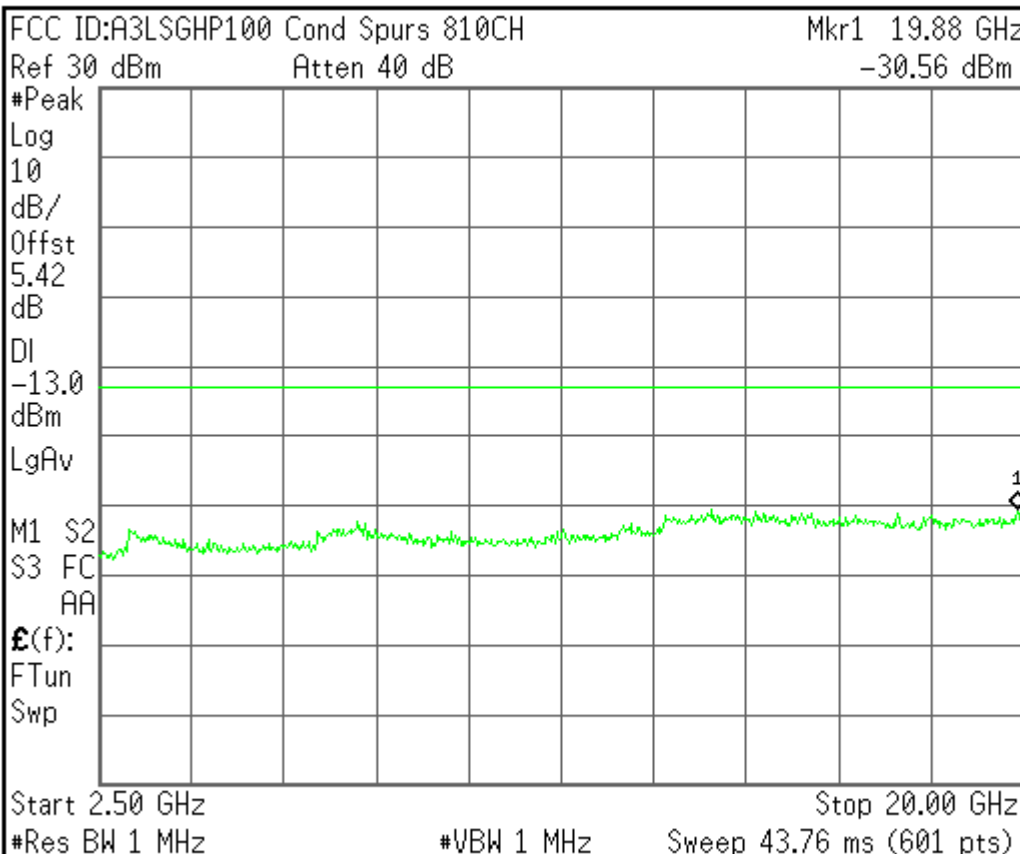


Center Freq 1.25500000 GHz
Start Freq 10.0000000 MHz
Stop Freq 2.50000000 GHz
CF Step 249.000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

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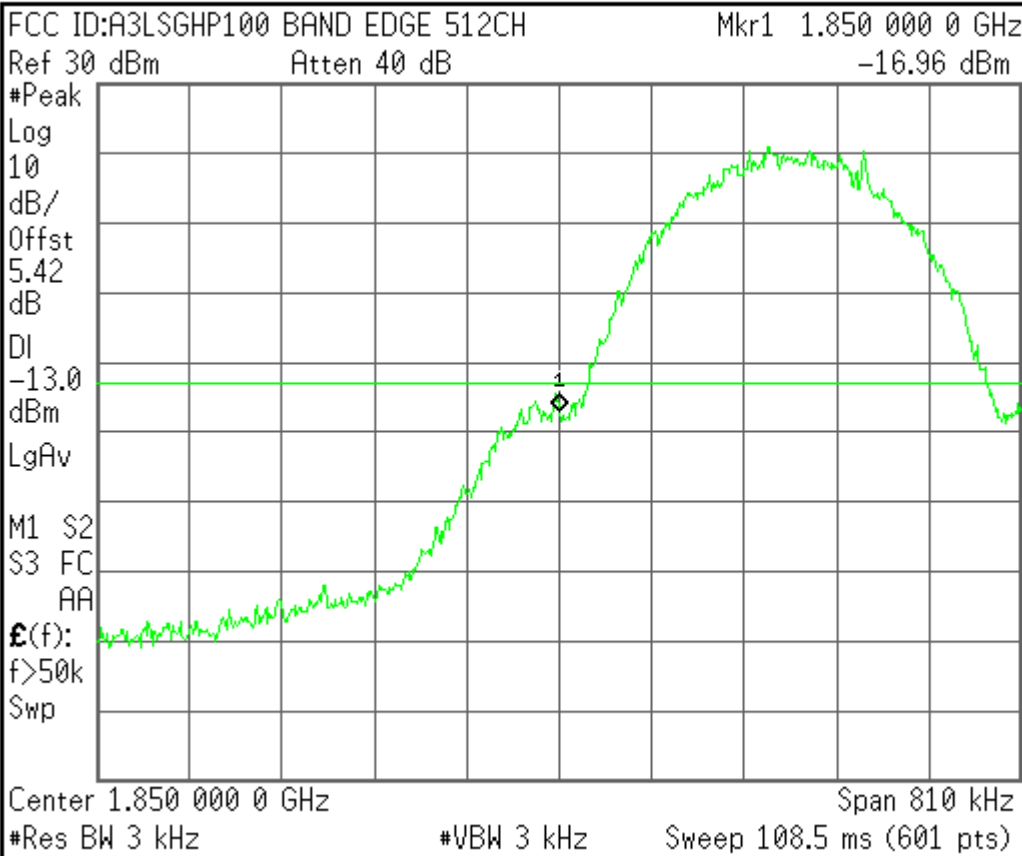


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More 1 of 2

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Alpha Editor



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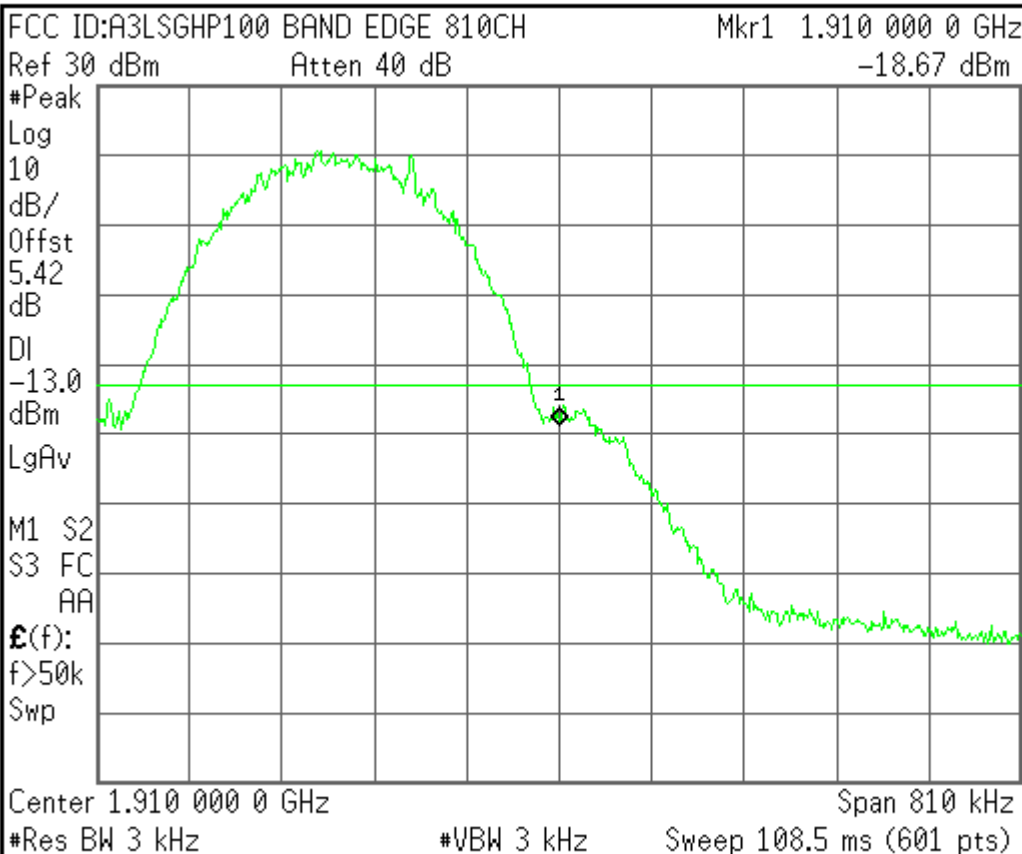
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1 of 3

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Alpha Editor



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