



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 22 SUBPART CERTIFICATION TEST DATA

Model Tested: SCH-A633
FCC ID (Requested): A3LSCHA633
Report No: FA-014-R1
Date issued: July 23, 2003

- Abstract -

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

Prepared By

JH CHOI - Test Engineer

Date

July 24, 2003

Checked By

CW PARK - Manager

Date

July 24, 2003

Authorized By

JK CHOI - Senior Manager

Date

July 24, 2003

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	2004-03-31
Dipole Antenna	3121C-DB4	9007-587	2003-11-08
	3121C-DB4	9007-588	2004-03-21
Log Periodic Dipole Antenna	HO040	353255/020	2004-04-08
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 : A3LSCHA633

Effective Radiated Power (E.R.P.)

Supply Voltage: 3.7 VDC

Modulation: CDMA

■ Reference level

Frequency (MHz)	Output (dBm)	Polarization	S/A (dBm)	P/M (dBm)	Ant gain (dBi)	Ref level (dBm)
835.89	24.50	H	-12.75	-12.99	0.00	-12.99
		V	-11.82	-11.65	0.00	-11.65

■ Result

Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Azimuth (angle)	ERP (dBm)	ERP (W)	Battery
824.70	-15.71	H2	185	21.78	0.151	Standard
835.89	-13.91	H2	170	23.58	0.228	Standard
848.31	-14.40	H2	182	23.09	0.204	Standard

Note : Standard batteries are the only battery options for this phone

FCC ID : A3LSCHA633

Field Strength of SPURIOUS Radiation

Operating Frequency : 824.70MHz (Low), 835.89MHz (Middle), 848.37MHz (High)

Measured Output Power : 23.58 dBm = 0.228 W

Modulation Signal : CDMA

Limit : $43+10\log_{10}(W) = 36.58$ dBc

■ Result

Channel	Harmonic	Frequency (MHz)	From EUT Tested level (dBm)	POL (H/V)	Result (dBc)
1013	2	1649.40	-24.53	V	38.86
	3	2474.10	-43.78	H1	52.87
	4	3298.80	-53.31	H2	59.44
	5	4123.50	-72.98	H2	76.31
	6	4948.20	-66.23	V	68.38
	7	5772.90	-	-	-
363	2	1671.78	-29.32	H2	44.39
	3	2507.67	-40.85	H1	49.48
	4	3343.56	-55.26	H2	61.49
	5	4179.45	-83.31	V	86.42
	6	5015.34	-64.09	V	65.05
	7	5851.23	-	-	-
777	2	1696.62	-27.28	H2	41.26
	3	2544.93	-41.86	H1	51.06
	4	3393.24	-49.13	H2	56.30
	5	4241.55	-83.25	H1	85.73
	6	5089.86	-66.53	H2	67.36
	7	5938.17	-	-	-

Note : This radiated spurious measurements were made up to -130dBm noise level.

Radiated Spurious & Harmonic Conversion Table

① Tx Cable loss
 ② Tx Horn Ant Gain
 ③ Rx Cable loss + HPF Insertion loss + Attenuator
 ④ Pre- Amp gain
 ⑤ Air loss
 ⑥ Tested Level from EUT
 ⑦ = ⑥ + ⑤ + ③ - ④
 ⑧ = ERP+2.14 - ⑦

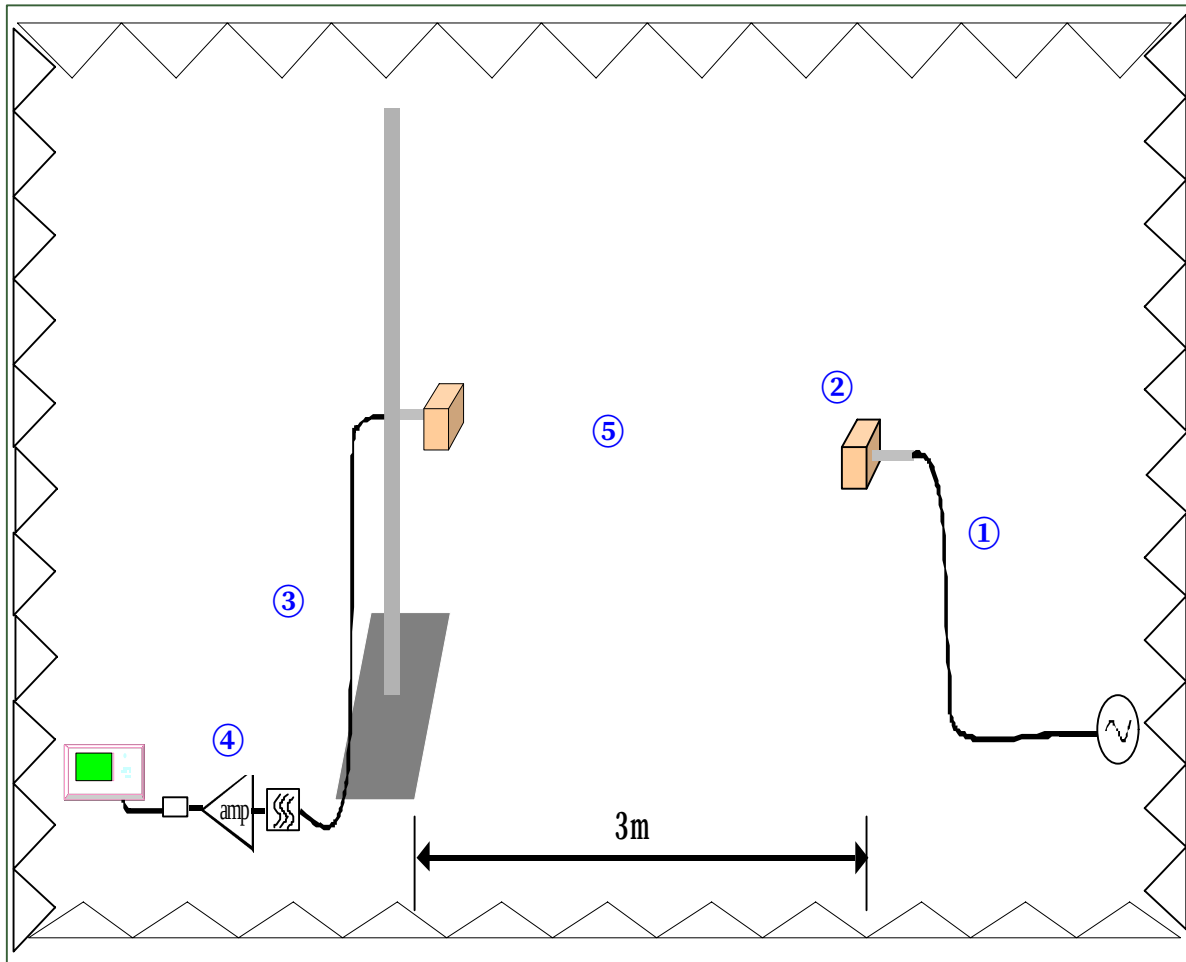
Date : 2003. 07. 14. ~ 07. 22.

Test Engineer : JH Choi, EH Jung

FCC ID : A3LSCHA633 Mode : CDMA ERP : 23.58

CH	Har	Frequency (MHz)	① Tx CL (dB)	② Horn Gain (dB)	Tx Level @ (S/G 0dBm)	⑥ Tested Level EUT : H (dBm)	⑥ Tested Level EUT : V (dBm)	⑦ Amplitude of Emission EUT : H (dBm)	⑦ Amplitude of Emission EUT : V (dBm)	⑧ Result EUT : H (dBc)	⑧ Result EUT : V (dBc)
1013	2	1649.40	8.10	7.21	-0.89	-23.53	-24.53	-13.37	-13.14	39.09	38.86
	3	2474.10	10.87	8.87	-2.00	-43.78	-47.21	-27.15	-30.21	52.87	55.93
	4	3298.80	13.29	8.43	-4.86	-53.31	-56.18	-33.72	-36.59	59.44	62.31
	5	4123.50	15.06	9.89	-5.17	-72.98	-89.23	-50.59	-66.45	76.31	92.17
	6	4948.20	17.66	10.33	-7.33	-83.23	-66.23	-58.57	-42.66	84.29	68.38
	7	5772.90	19.81	10.86	-8.95	-	-	-	-	-	-
363	2	1671.78	8.18	7.21	-0.97	-29.32	-31.33	-18.67	-19.50	44.39	45.22
	3	2507.67	11.09	8.87	-2.22	-40.85	-43.12	-23.76	-25.65	49.48	51.37
	4	3343.56	13.31	8.43	-4.88	-55.26	-62.12	-35.77	-42.50	61.49	68.22
	5	4179.45	15.40	10.20	-5.20	-86.34	-83.31	-63.96	-60.70	89.68	86.42
	6	5015.34	17.85	10.34	-7.51	-64.87	-64.09	-40.67	-39.33	66.39	65.05
	7	5851.23	19.45	10.86	-8.59	-	-	-	-	-	-
777	2	1696.62	8.27	7.21	-1.06	-27.28	-28.84	-15.54	-15.69	41.26	41.41
	3	2544.93	11.25	8.87	-2.38	-41.86	-43.89	-25.34	-26.80	51.06	52.52
	4	3393.24	13.70	8.54	-5.16	-49.13	-55.88	-30.58	-37.46	56.30	63.18
	5	4241.55	15.25	10.20	-5.05	-83.25	-84.29	-60.01	-60.55	85.73	86.27
	6	5089.86	18.63	10.39	-8.24	-66.53	-67.76	-41.64	-43.49	67.36	69.21
	7	5938.17	19.58	10.86	-8.72	-	-	-	-	-	-

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 : A3LSCHA633

Frequency Stability (CDMA)

Operating Frequency : 835,890,000 Hz

Channel : 363

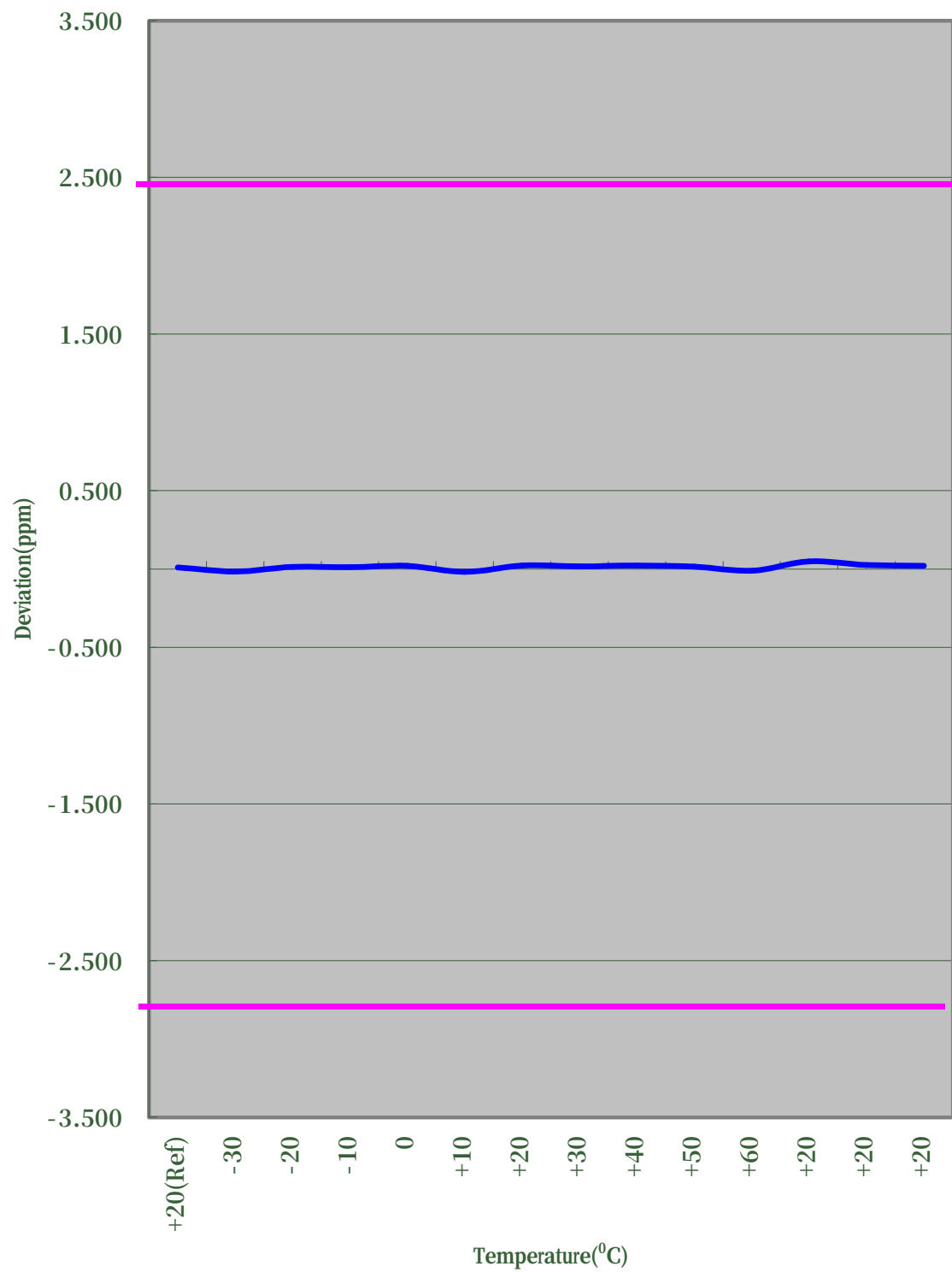
Reference voltage : 3.7VDC

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

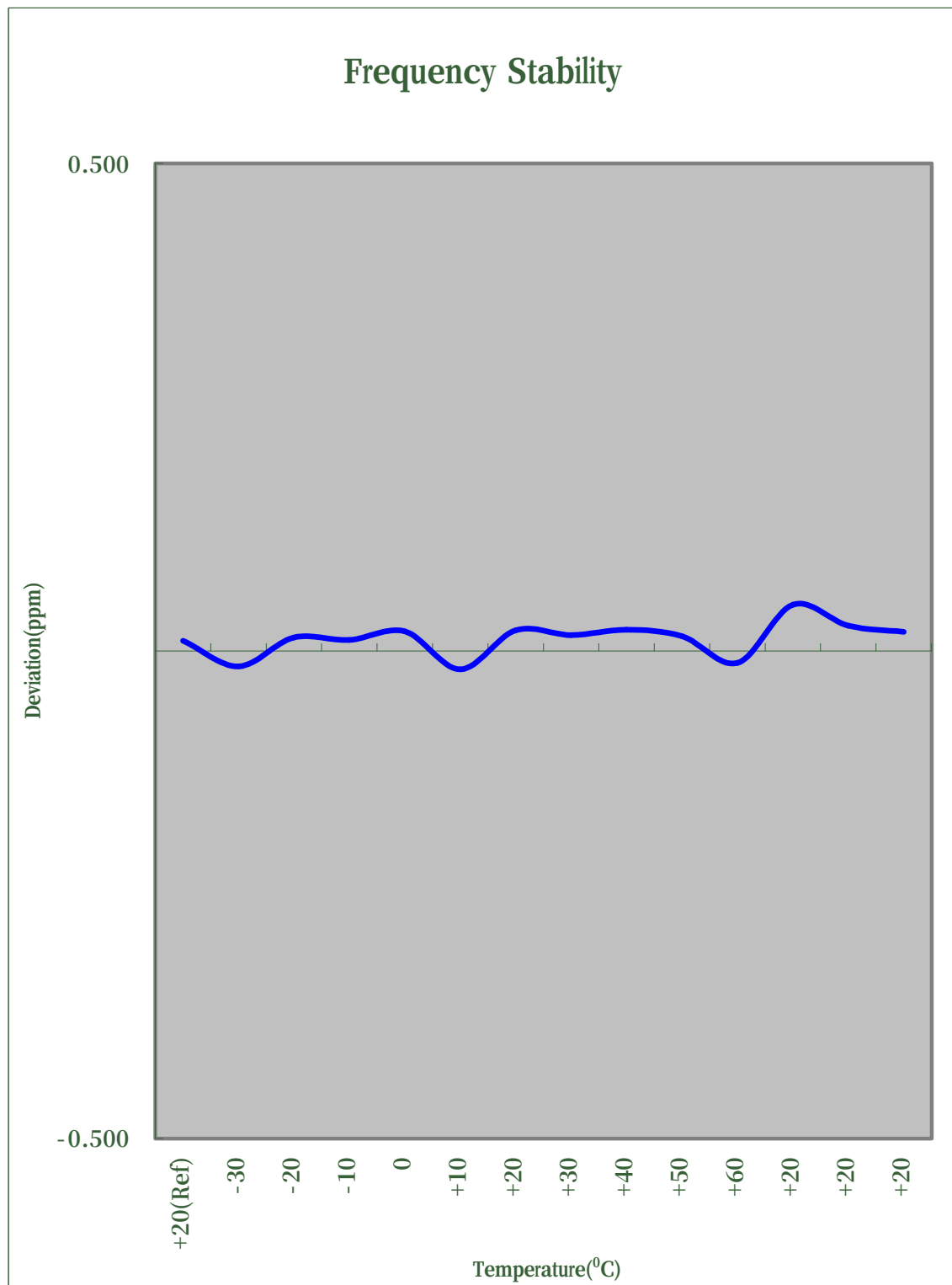
Voltage (%)	Power (V dc)	TEMP (OC)	Frequency error (Hz)	Frequency (Hz)	Deviation (%)	ppm
100%	3.70	+20(Ref)	8.70	835,890,009	0.000001	0.010
100%		-30	-13.20	835,889,987	-0.000002	-0.016
100%		-20	11.40	835,890,011	0.000001	0.014
100%		-10	9.30	835,890,009	0.000001	0.011
100%		0	16.70	835,890,017	0.000002	0.020
100%		+10	-15.90	835,889,984	-0.000002	-0.019
100%		+20	17.60	835,890,018	0.000002	0.021
100%		+30	13.60	835,890,014	0.000002	0.016
100%		+40	18.10	835,890,018	0.000002	0.022
100%		+50	12.60	835,890,013	0.000002	0.015
100%		+60	-10.20	835,889,990	-0.000001	-0.012
85%	3.15	+20	39.70	835,890,040	0.000005	0.047
115%	4.26	+20	21.70	835,890,022	0.000003	0.026
Batt. Endpoint	3.24	+20	16.40	835,890,016	0.000002	0.020

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

Frequency Stability

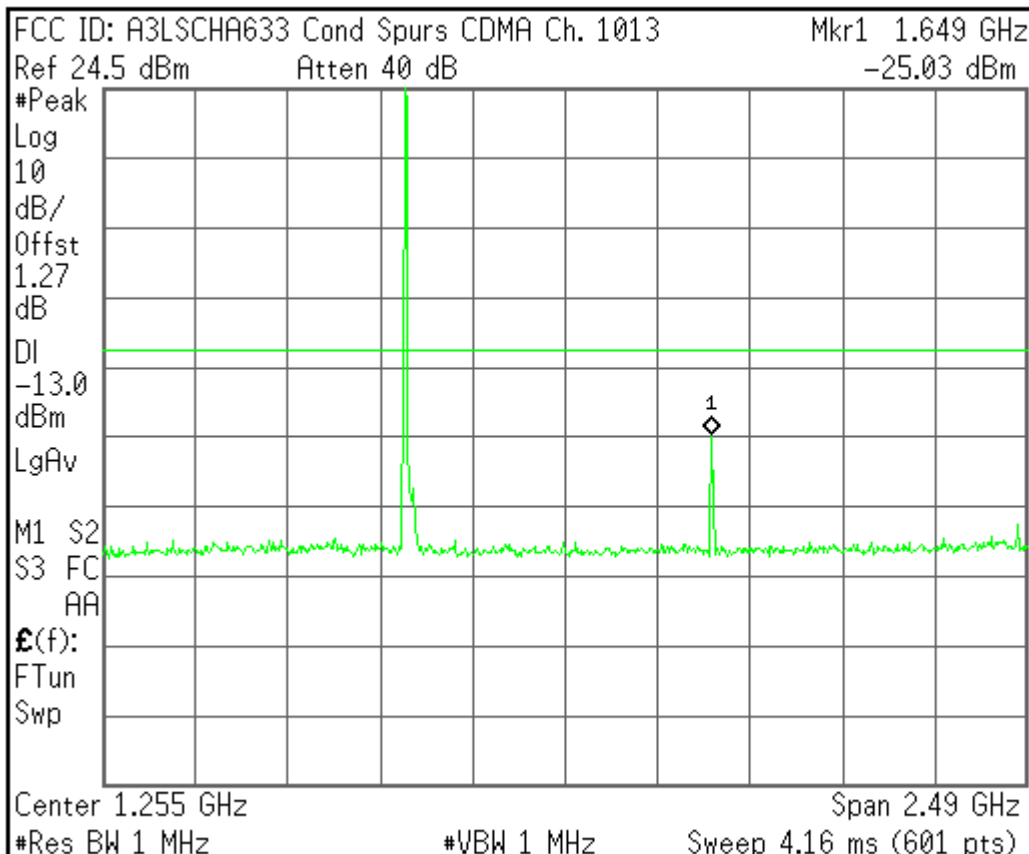


Zoom In





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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

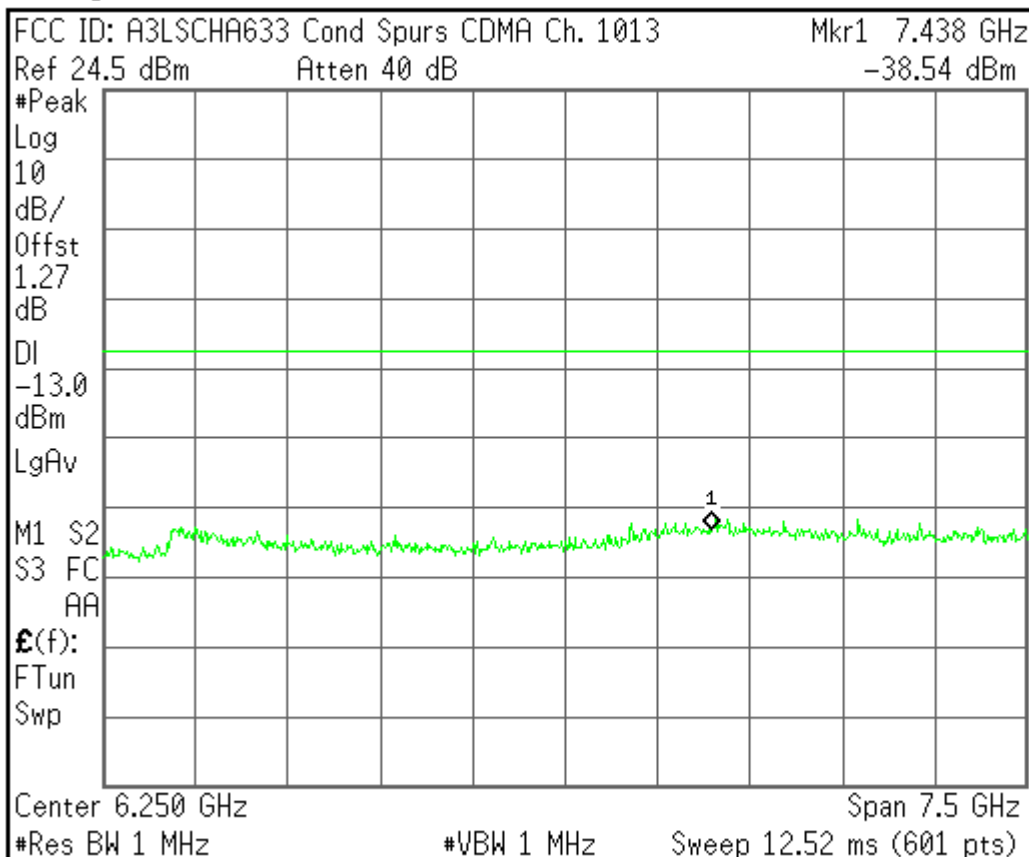
On

Off

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Freq/Channel

Center Freq

6.25000000 GHz

Start Freq

2.50000000 GHz

Stop Freq

10.0000000 GHz

CF Step

750.000000 MHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

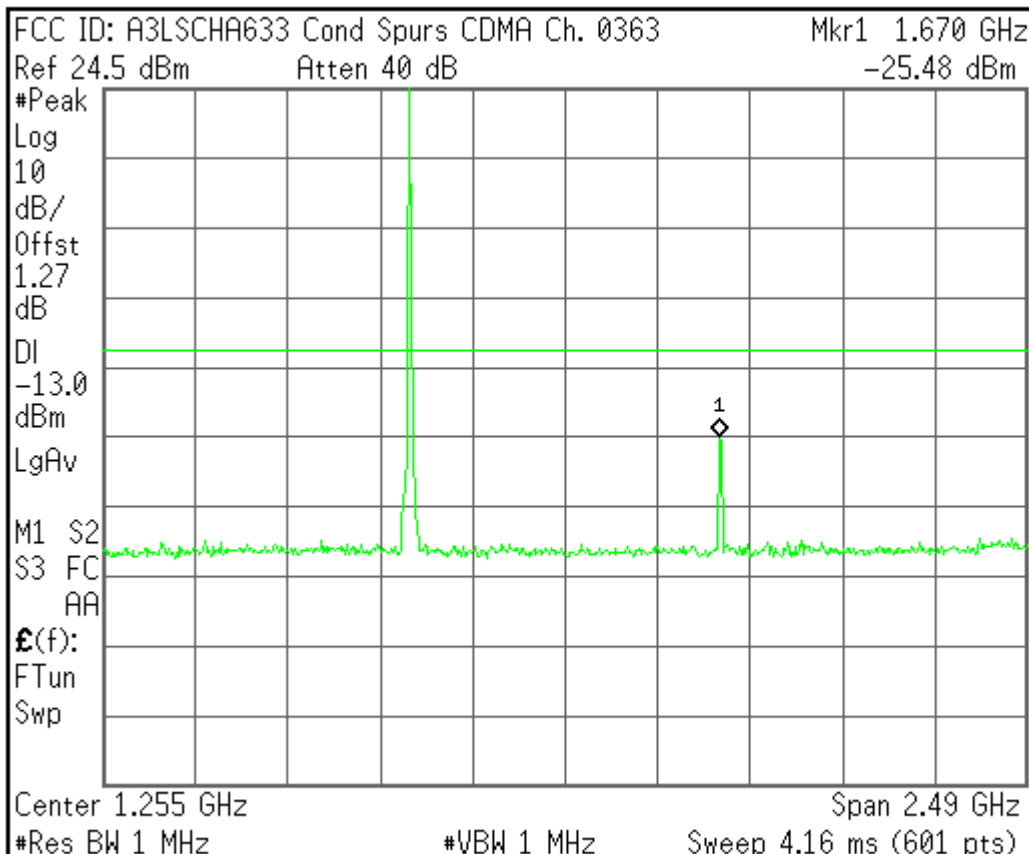
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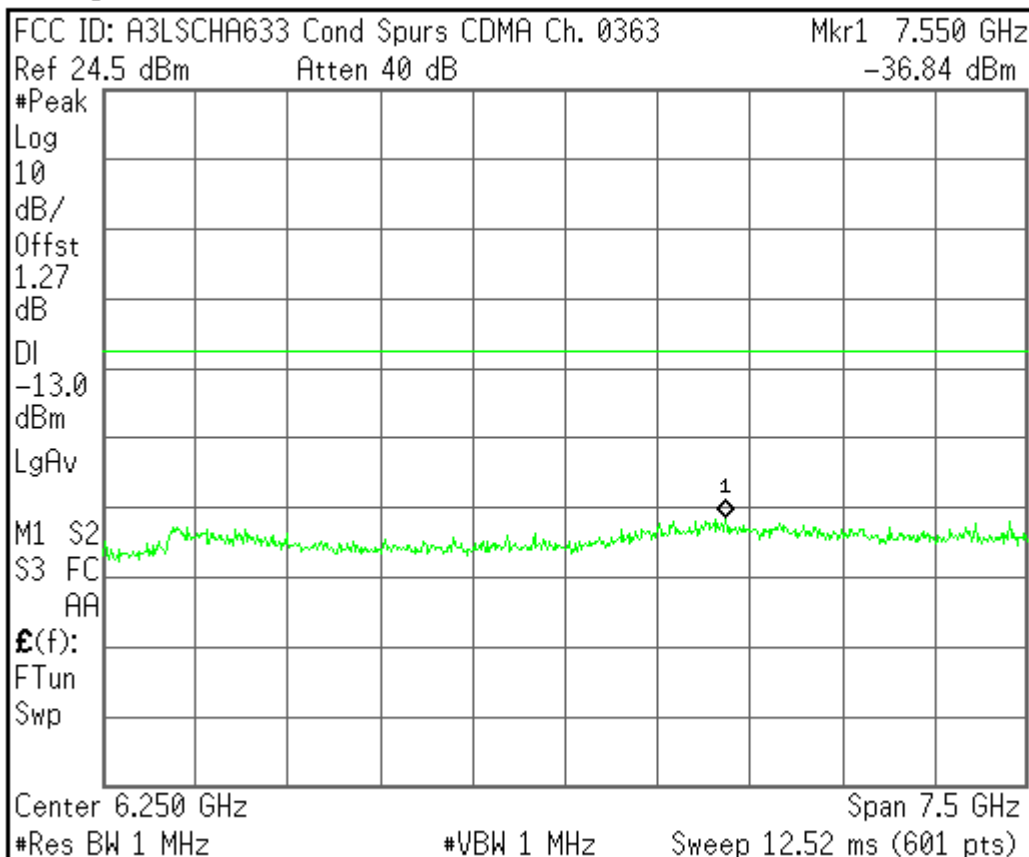
Freq/Channel

Center Freq
1.25500000 GHzStart Freq
10.0000000 MHzStop Freq
2.50000000 GHzCF Step
249.000000 MHz
Auto ManFreq Offset
0.00000000 HzSignal Track
On Off

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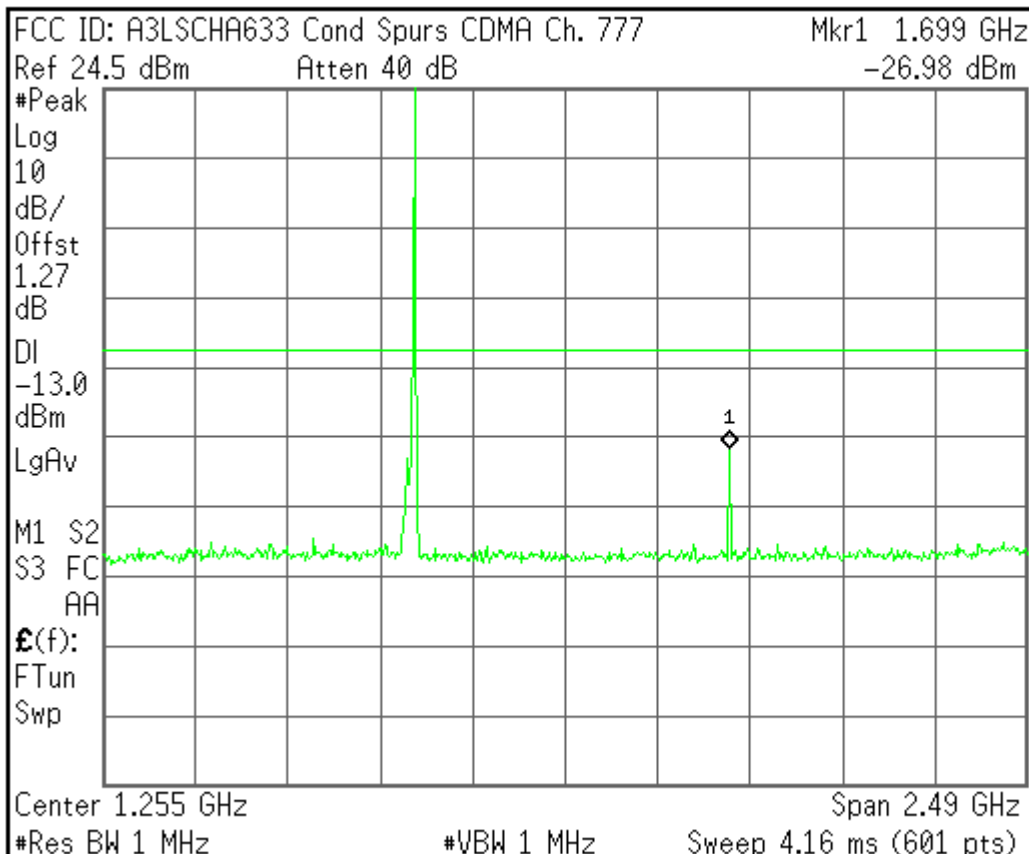
Freq/Channel

Center Freq
6.25000000 GHzStart Freq
2.50000000 GHzStop Freq
10.0000000 GHzCF Step
750.000000 MHz
Auto ManFreq Offset
0.00000000 HzSignal Track
On Off

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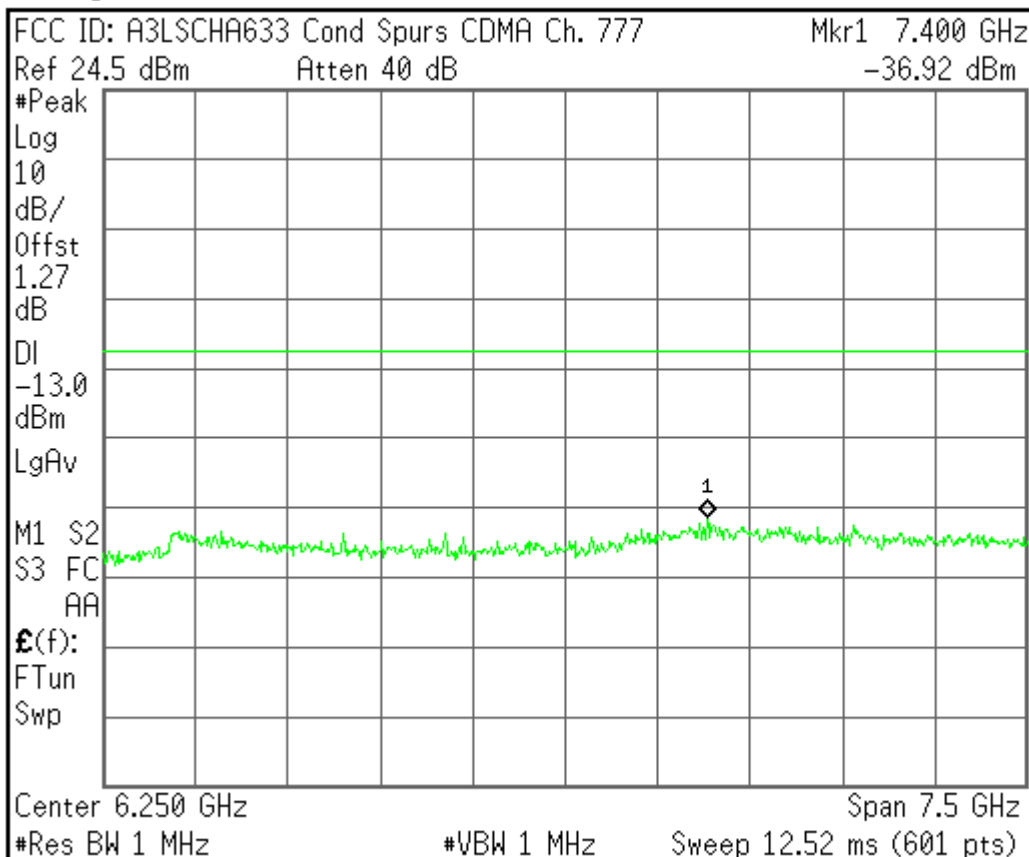
Freq/Channel

Center Freq
1.25500000 GHzStart Freq
10.0000000 MHzStop Freq
2.50000000 GHzCF Step
249.000000 MHz
Auto ManFreq Offset
0.00000000 HzSignal Track
On Off

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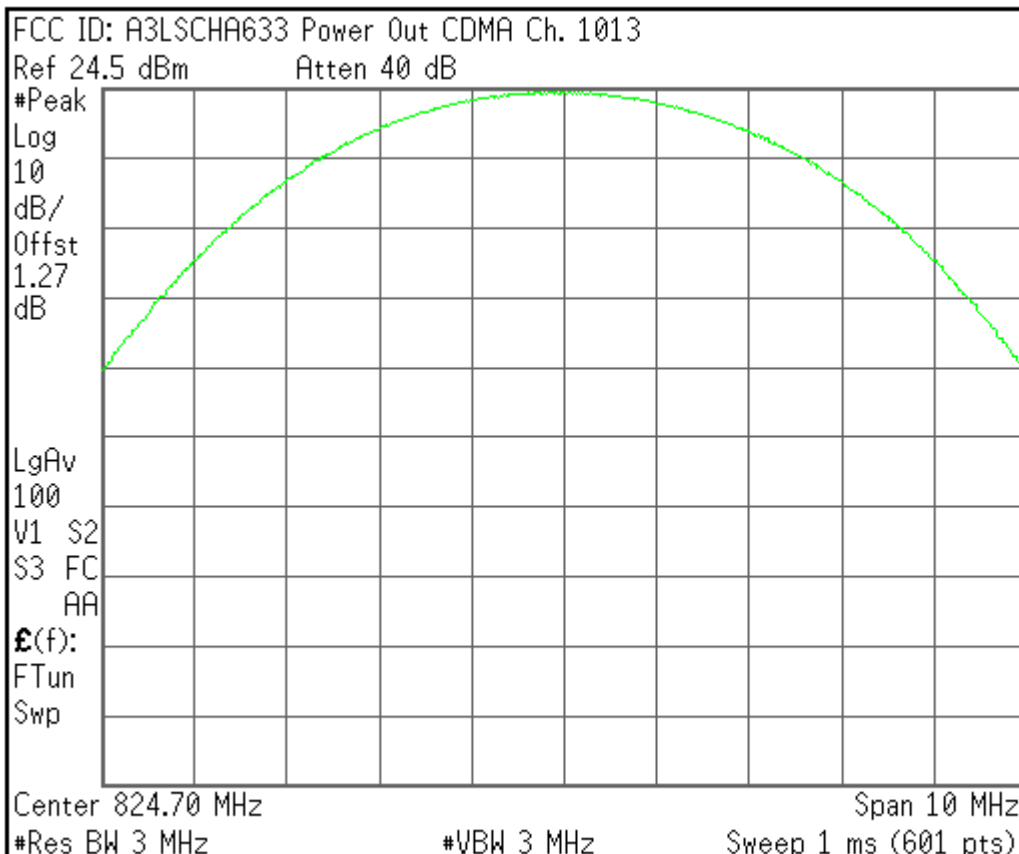


Freq/Channel

Center Freq
6.25000000 GHzStart Freq
2.50000000 GHzStop Freq
10.0000000 GHzCF Step
750.000000 MHz
Auto ManFreq Offset
0.00000000 HzSignal Track
On Off

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Trace

Trace

1 2 3

Clear Write

Max Hold

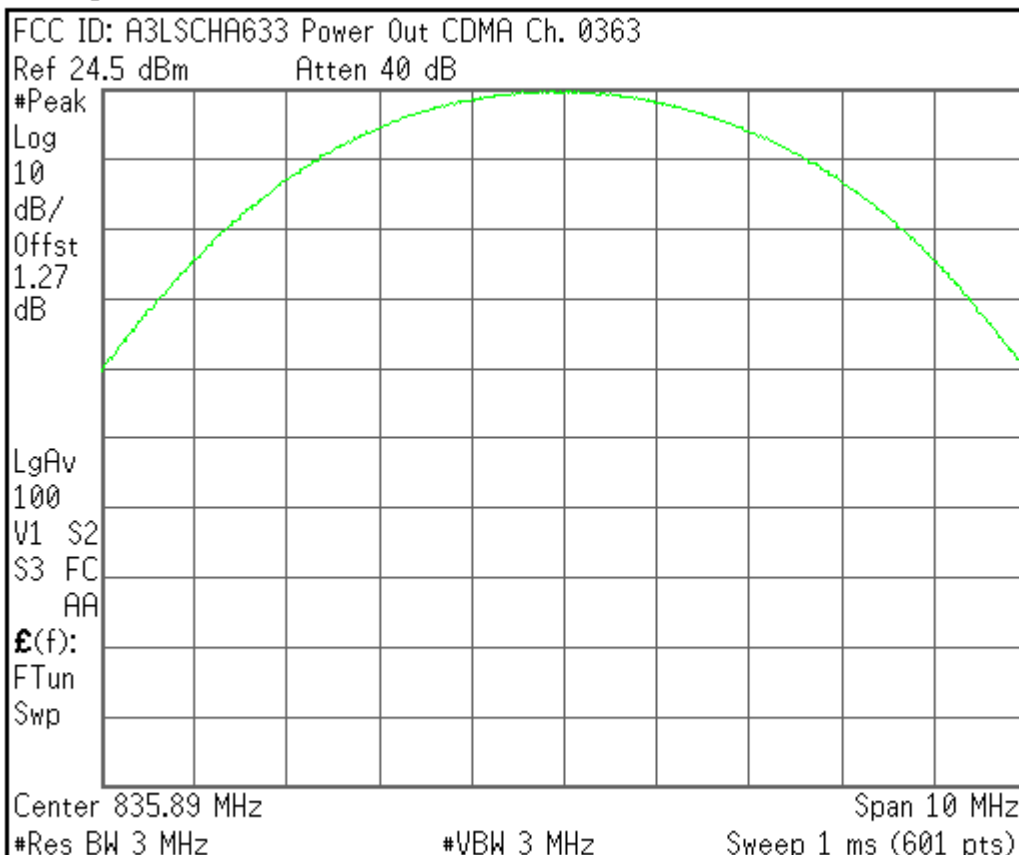
Min Hold

View

Blank

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Freq/Channel

Center Freq

835.890000 MHz

Start Freq

830.890000 MHz

Stop Freq

840.890000 MHz

CF Step

1.00000000 MHz

Auto Man

Freq Offset

0.00000000 Hz

Signal Track

On Off

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Freq/Channel

FCC ID: A3LSCHA633 Power Out CDMA Ch. 0777

Ref 24.5 dBm

Atten 40 dB

#Peak

Log

10

dB/

Offst

1.27

dB

LgAv

100

V1 S2

S3 FC

AA

E(f):

FTun

Swp

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

Center 848.31 MHz

Span 10 MHz

#Res BW 3 MHz

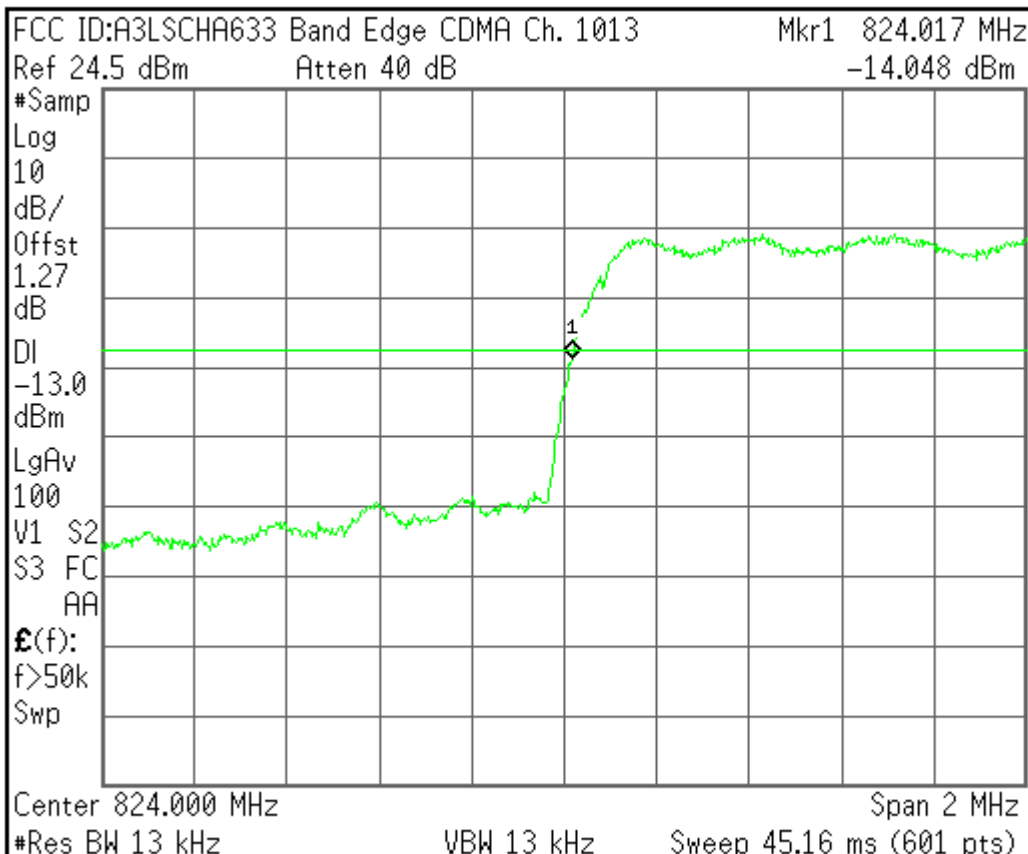
#VBW 3 MHz

Sweep 1 ms (601 pts)

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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

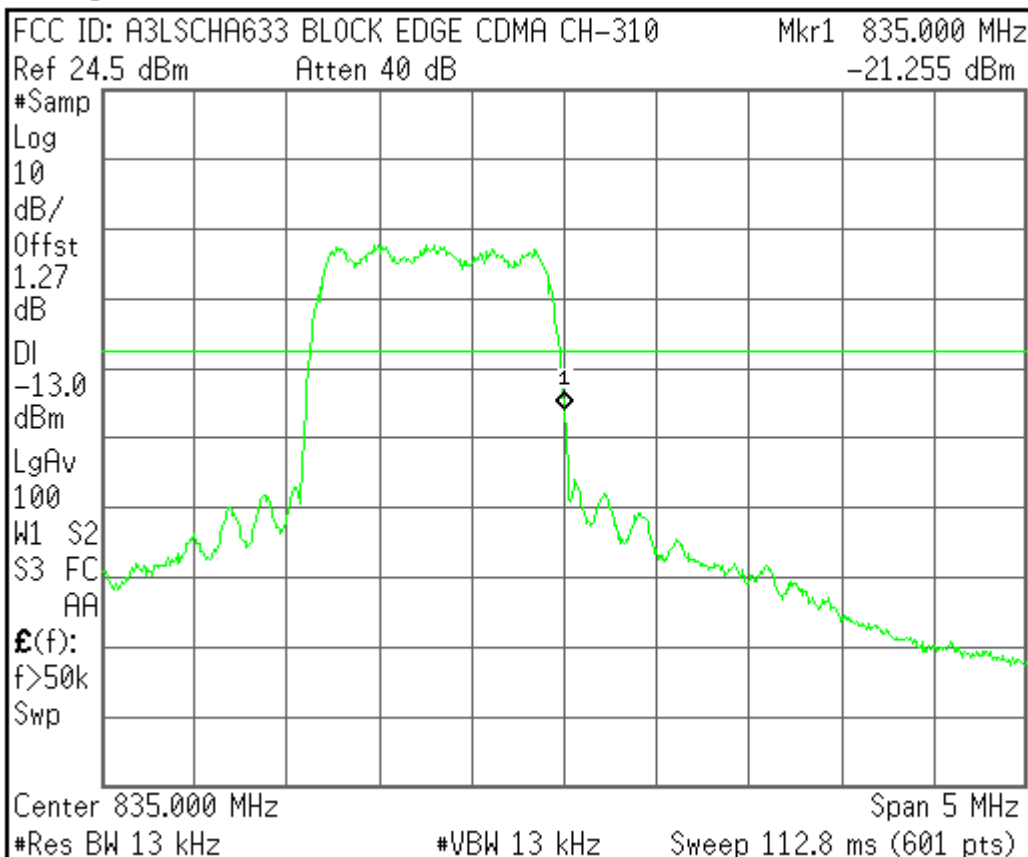
On

Off

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Freq/Channel

Center Freq

835.000000 MHz

Start Freq

832.500000 MHz

Stop Freq

837.500000 MHz

CF Step

500.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

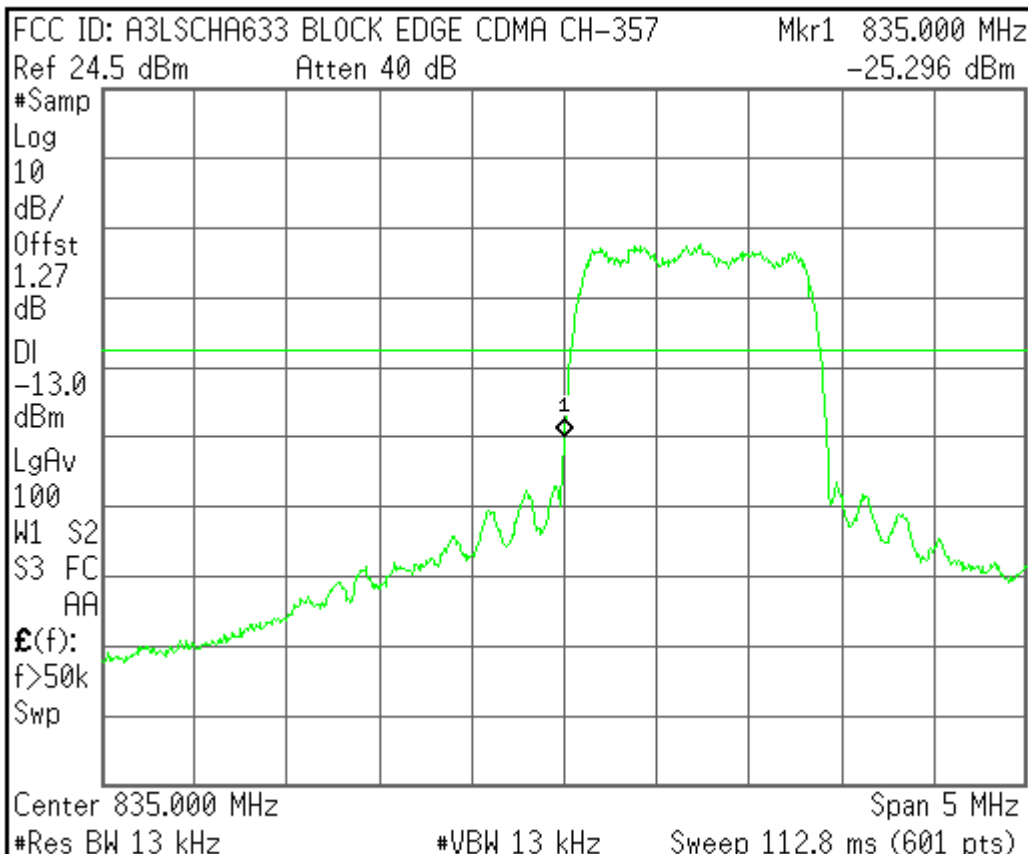
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Off

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Freq/Channel

Center Freq

835.000000 MHz

Start Freq

832.500000 MHz

Stop Freq

837.500000 MHz

CF Step

500.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

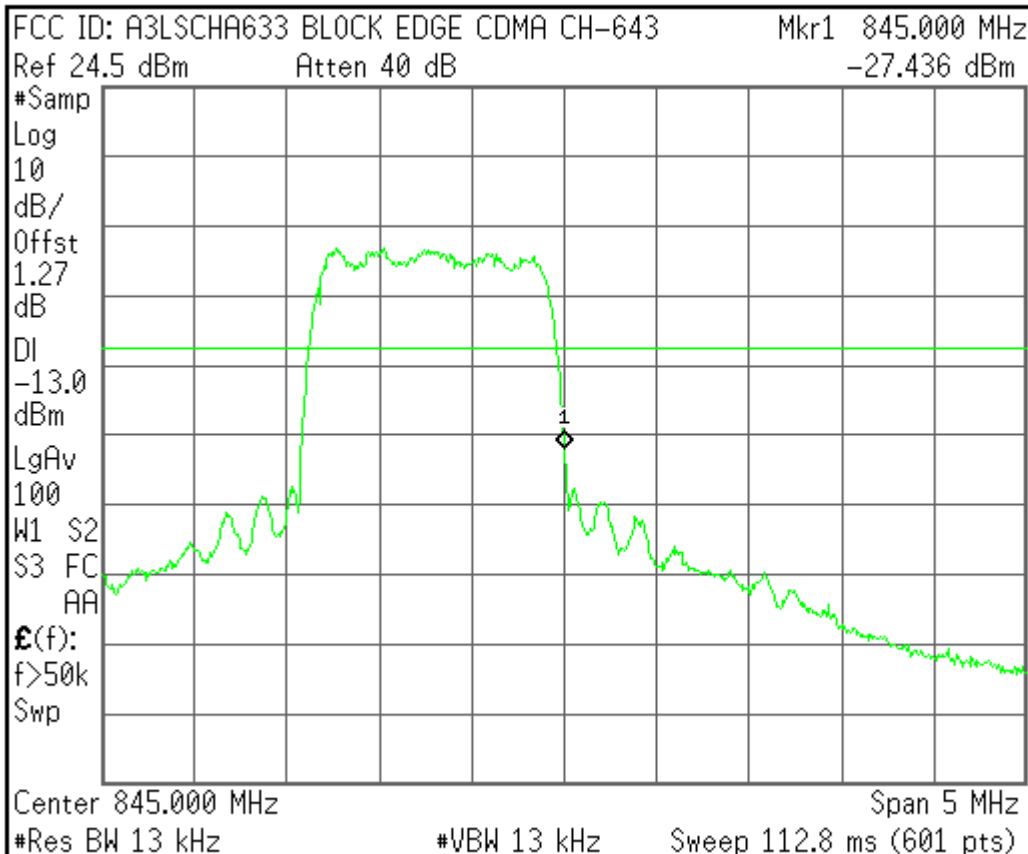
On

Off

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Freq/Channel

Center Freq

845.000000 MHz

Start Freq

842.500000 MHz

Stop Freq

847.500000 MHz

CF Step

500.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

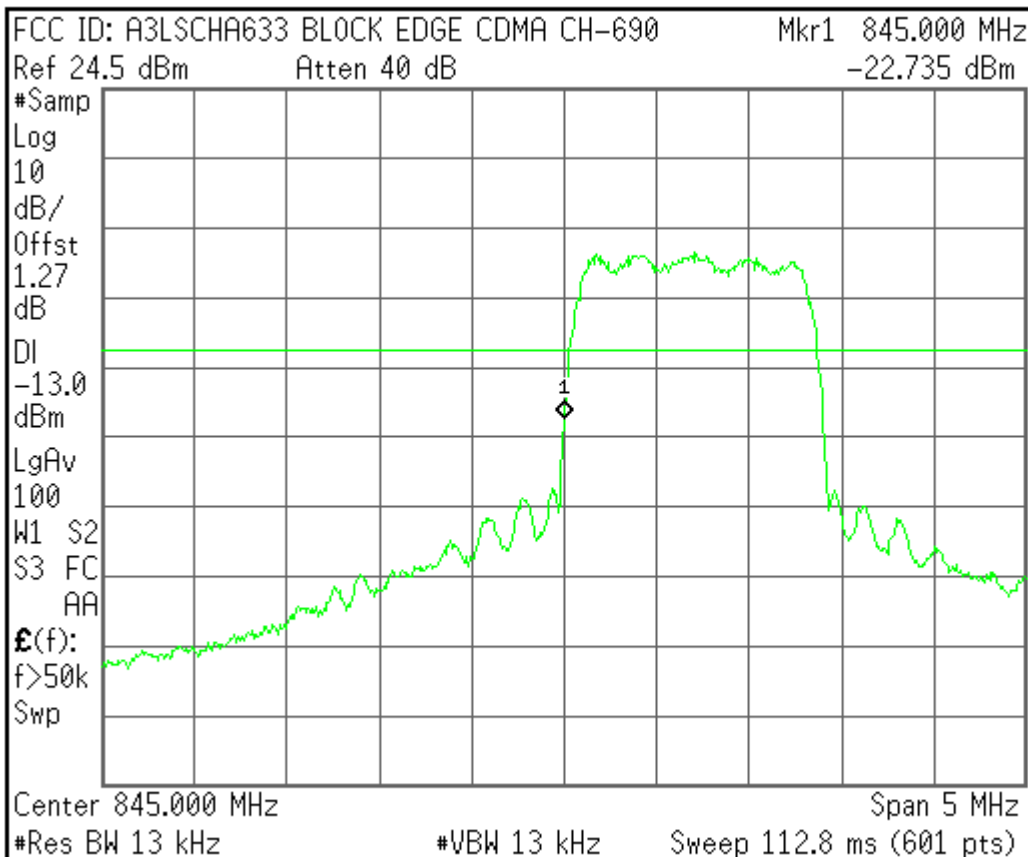
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Off

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Freq/Channel

Center Freq

845.000000 MHz

Start Freq

842.500000 MHz

Stop Freq

847.500000 MHz

CF Step

500.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

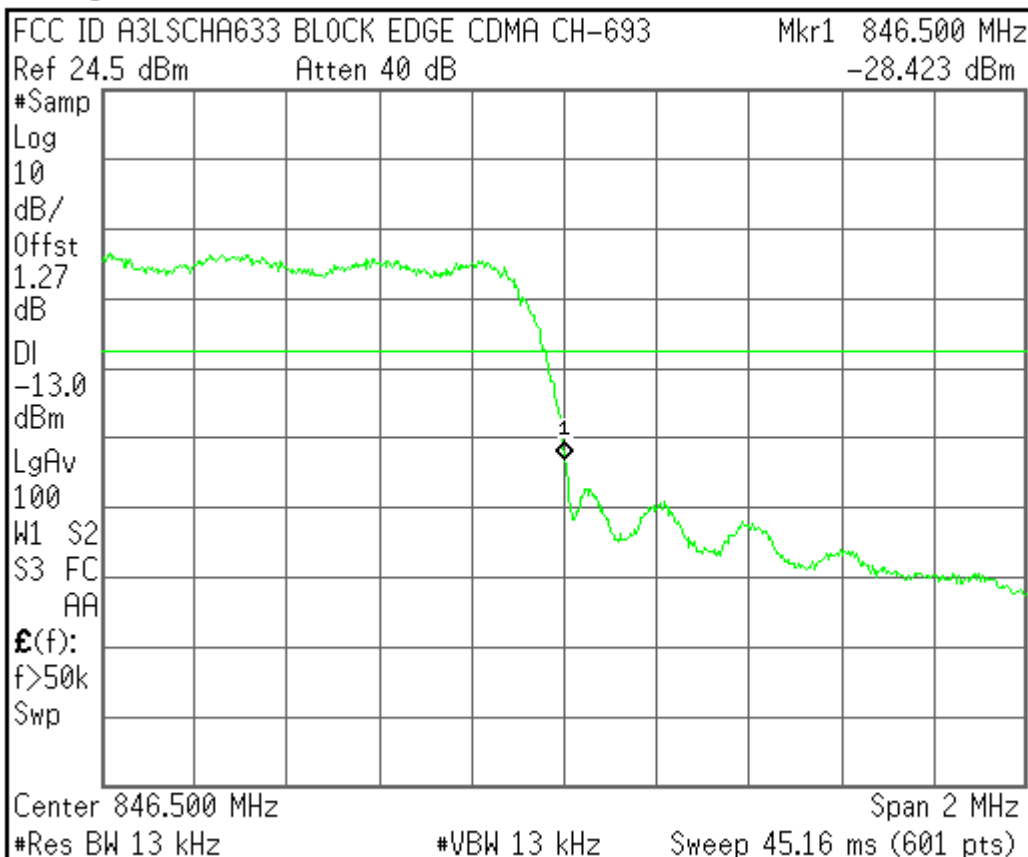
On

Off

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Freq/Channel

Center Freq

846.500000 MHz

Start Freq

845.500000 MHz

Stop Freq

847.500000 MHz

CF Step

200.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

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Freq/Channel

FCC ID: A3LSCH633 BLOCK EDGE CDMA CH-740 Mkr1 846.500 MHz

Ref 24.5 dBm Atten 40 dB -23.085 dBm

#Samp

Log

10

dB/

Offst

1.27

dB

DI

-13.0

dBm

LgAv

100

W1 S2

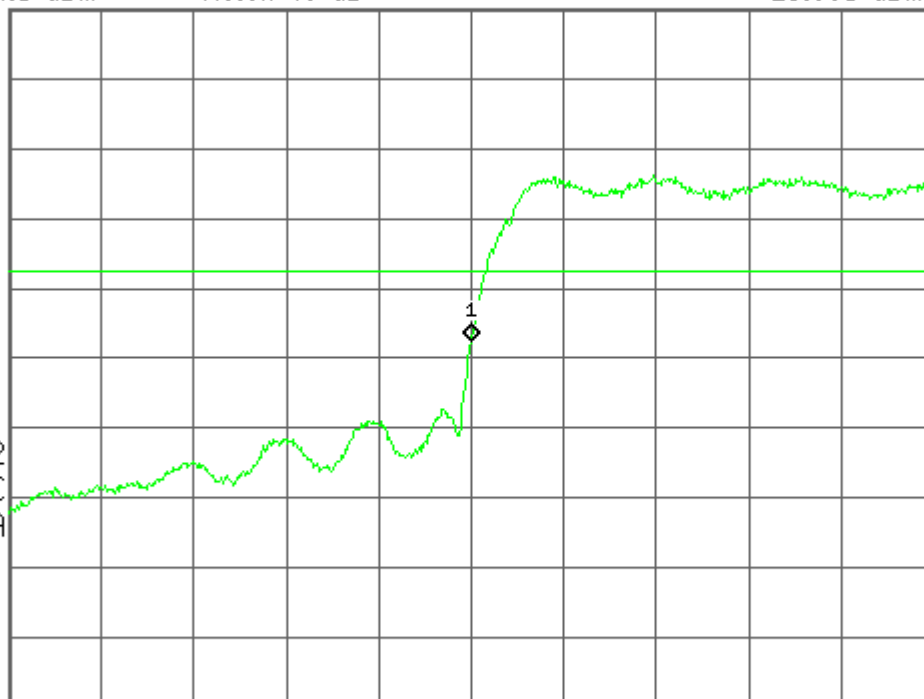
S3 FC

AA

 $\mathcal{E}(f)$:

f>50k

Swp



Center 846.500 MHz

Span 2 MHz

#Res BW 13 kHz

#VBW 13 kHz

Sweep 45.16 ms (601 pts)

Center Freq

846.500000 MHz

Start Freq

845.500000 MHz

Stop Freq

847.500000 MHz

CF Step

200.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

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Alpha Editor

FCC ID: A3LSCHA633 Band Edge CDMA Ch. 0777

Mkr1 849.000 MHz

Ref 24.5 dBm Atten 40 dB

-20.664 dBm

#Samp

Log

10

dB/

Offst

1.27

dB

DI

-13.0

dBm

LgAv

100

W1 S2

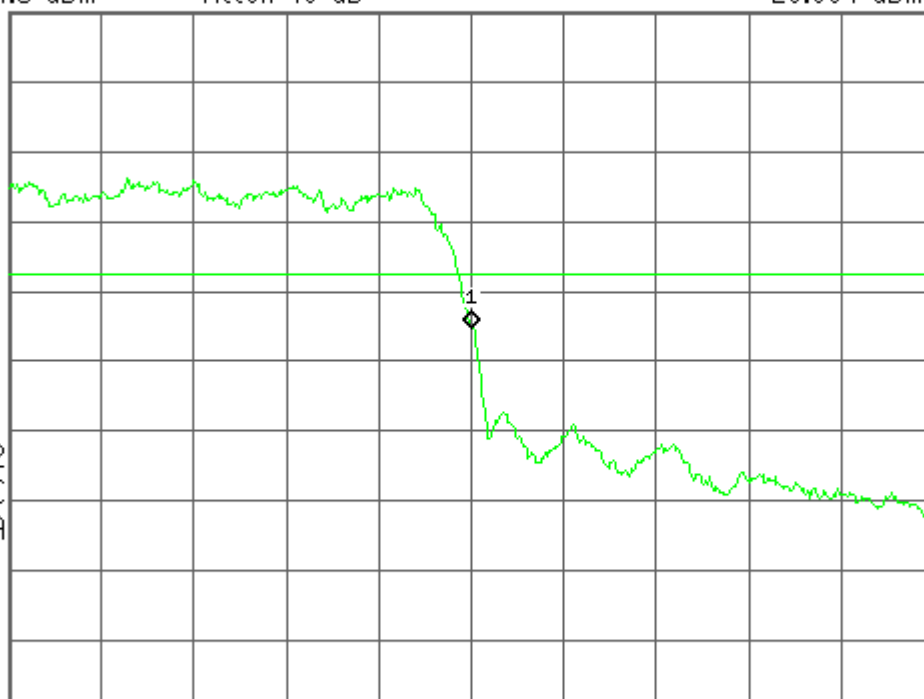
S3 FC

AA

 $\mathcal{E}(f)$:

f>50k

Swp



Center 849.000 MHz

Span 2 MHz

#Res BW 13 kHz

#VBW 13 kHz

Sweep 45.16 ms (601 pts)

a b c d e f g >

h i j k l m n >

o p q r s t u >

v w x y z >

π ρ τ ϑ

Space

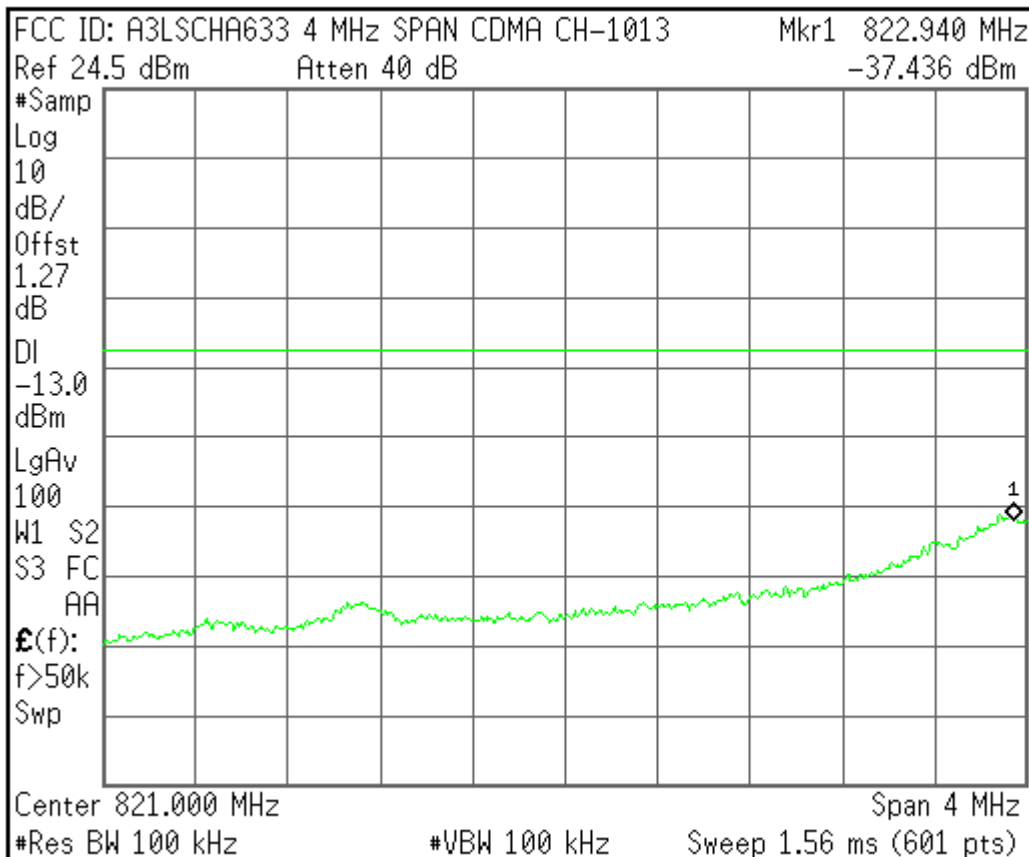
More

2 of 3

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Freq/Channel

Center Freq

821.000000 MHz

Start Freq

819.000000 MHz

Stop Freq

823.000000 MHz

CF Step

400.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

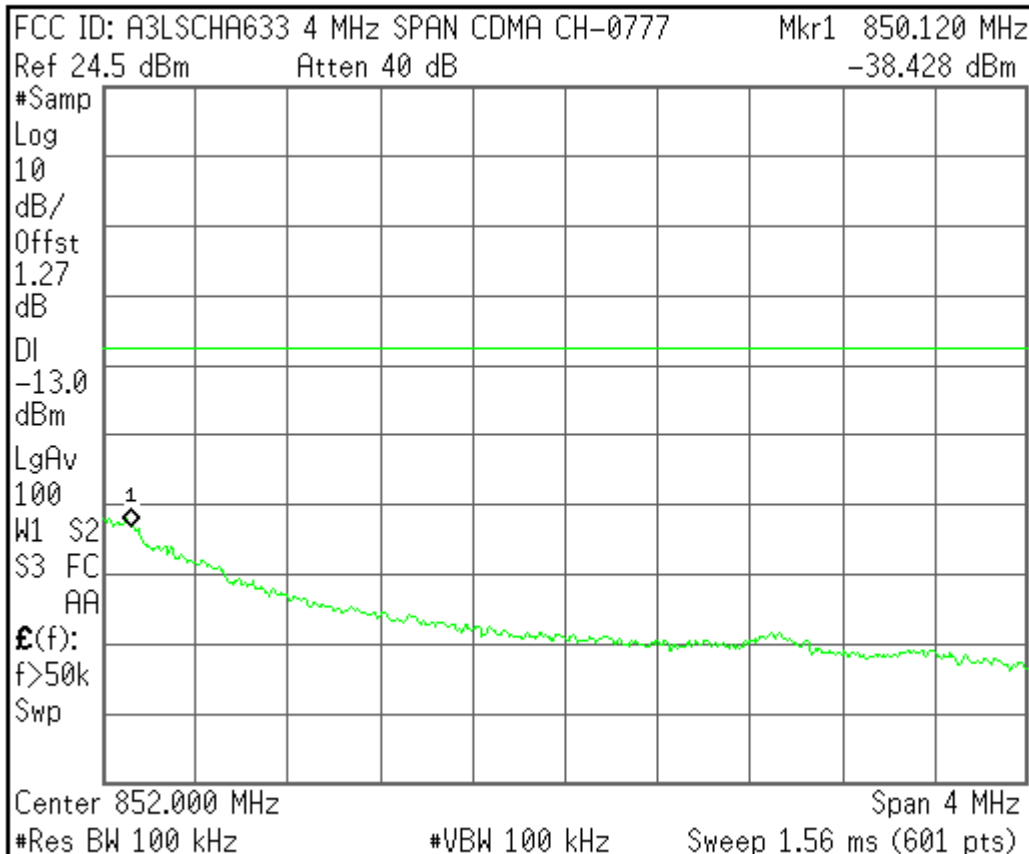
On

Off

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Freq/Channel

Center Freq

852.000000 MHz

Start Freq

850.000000 MHz

Stop Freq

854.000000 MHz

CF Step

400.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

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