

PCTEST Engineering Lab., Inc.

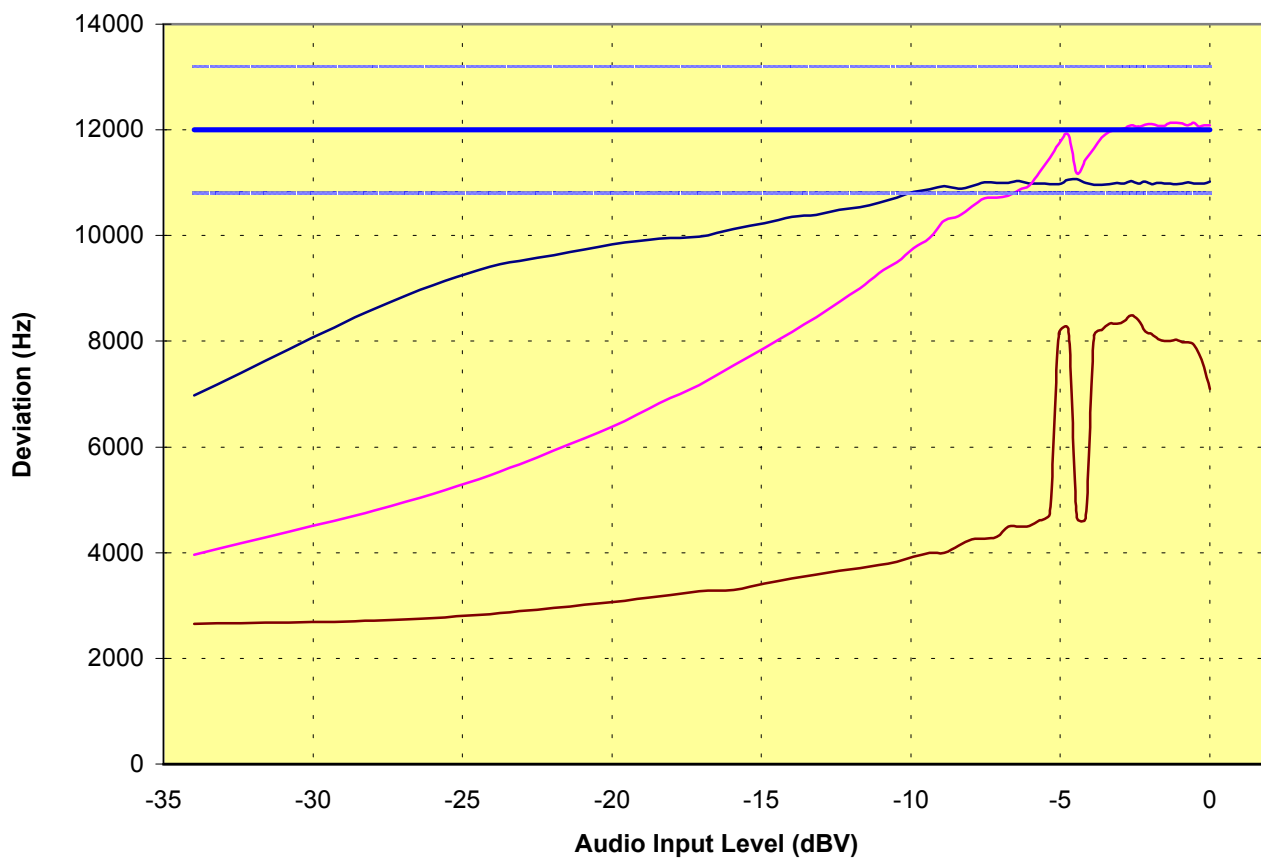
SUBJECT: Modulation Characteristics
FCC Part 24/22

Test Report No.: 24/22.210425234.A3L
Test Date: 04. 23-27. 2001

EUT: SAMSUNG Tri-Mode Dual-Band Analog/PCS Phone (AMPS/CDMA)
Model: SPH-A330
FCC ID: A3LSPHA330

REFERENCE: 1 kHz = 0 dB

Modulation Limiting



SAMSUNG Tri-Mode Dual-Band ANALOG/PCS Phone (AMPS/CDMA)
FCC ID: A3LSPHA330

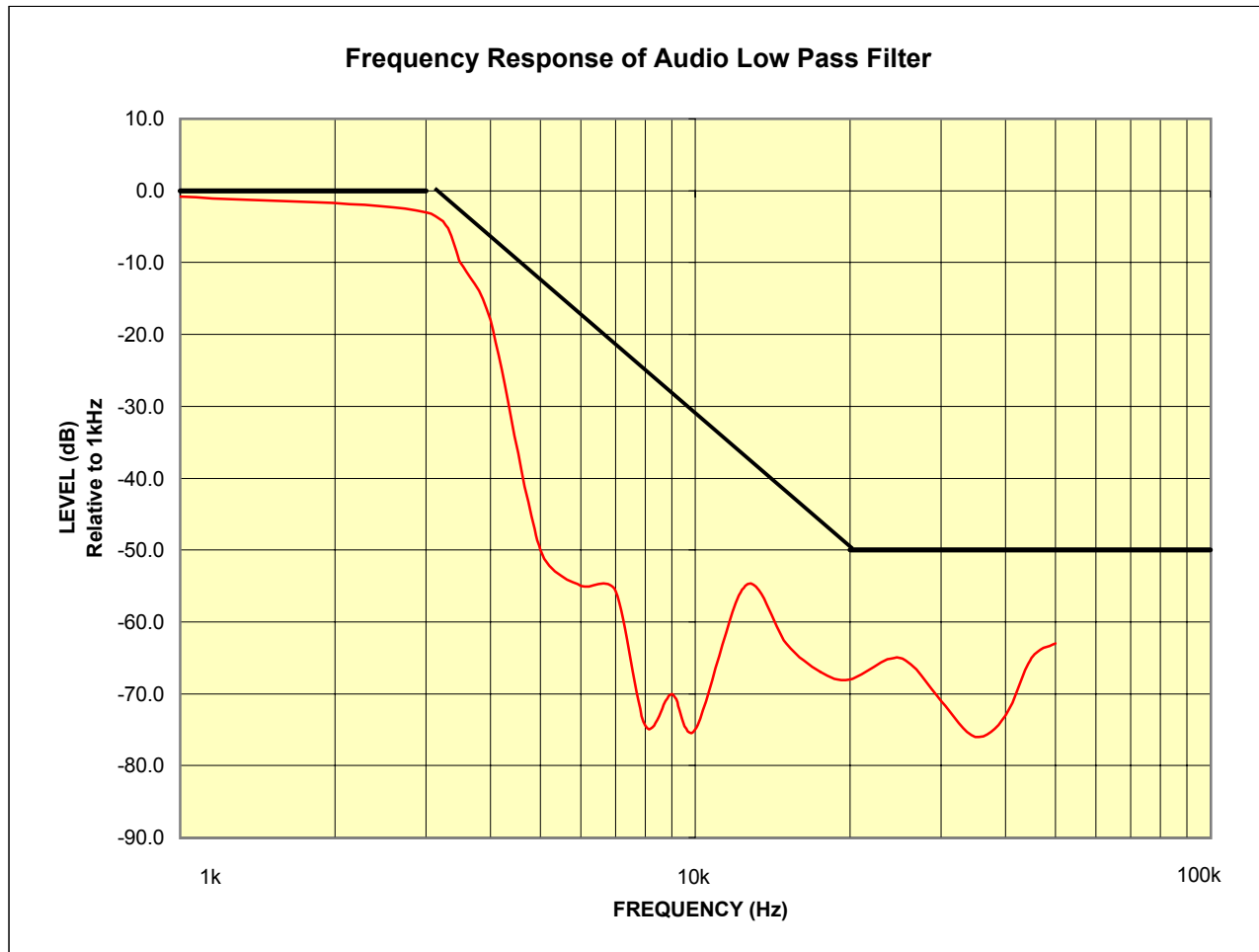
PCTEST Engineering Lab., Inc.

SUBJECT: Modulation Characteristics
FCC Part 24/22

Test Report No.: 24/22.210425234.A3L
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FCC ID: A3LSPHA330

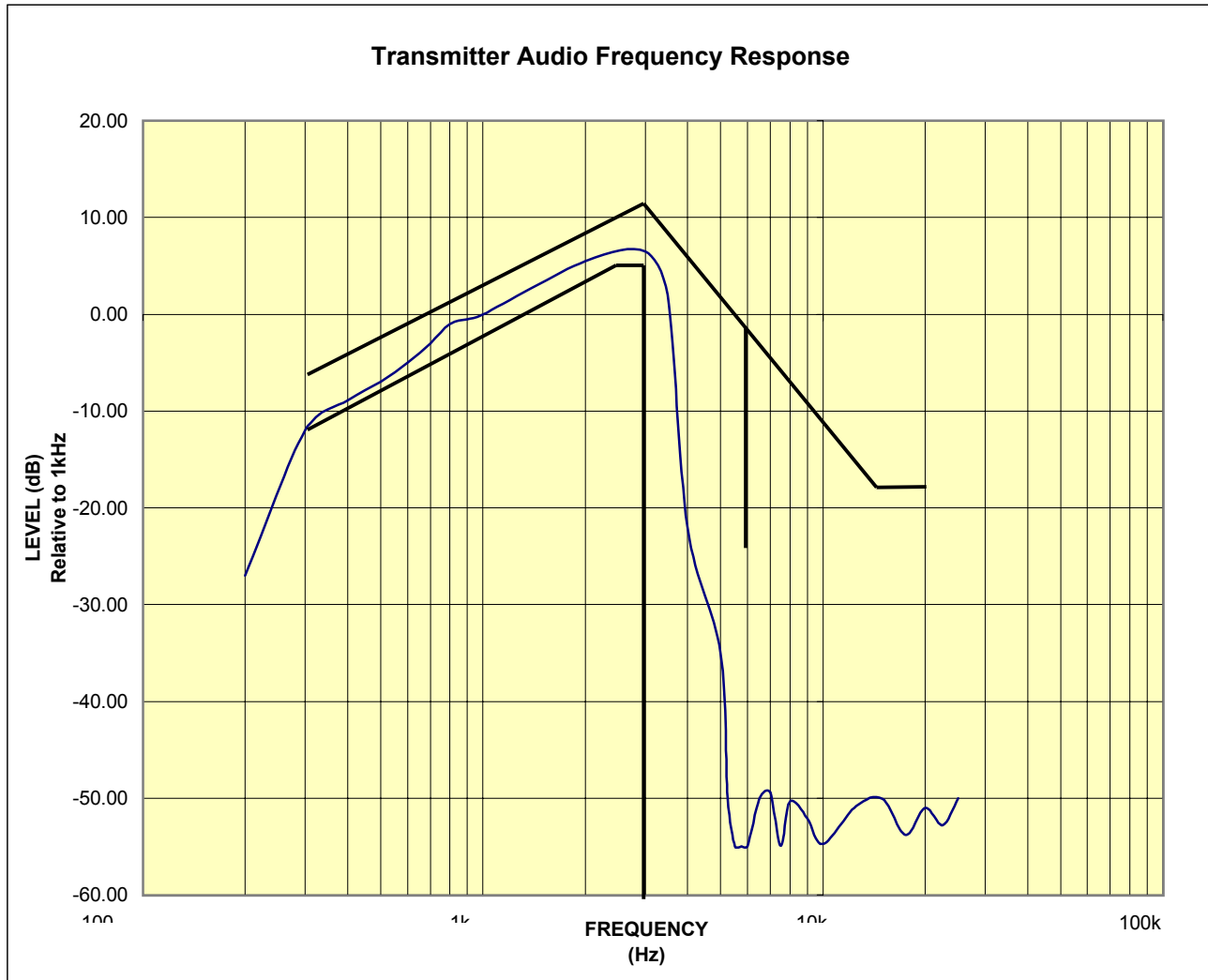
PCTEST Engineering Lab., Inc.

SUBJECT: Modulation Characteristics
FCC Part 24/22

Test Report No.: 24/22.210425234.A3L
Test Date: 04. 23-27. 2001

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Model: SPH-A330
FCC ID: A3LSPHA330

REFERENCE: 1 kHz = 0 dB



SAMSUNG Tri-Mode Dual-Band ANALOG/PCS Phone (AMPS/CDMA)
FCC ID: A3LSPHA330

PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHA330

SAMSUNG

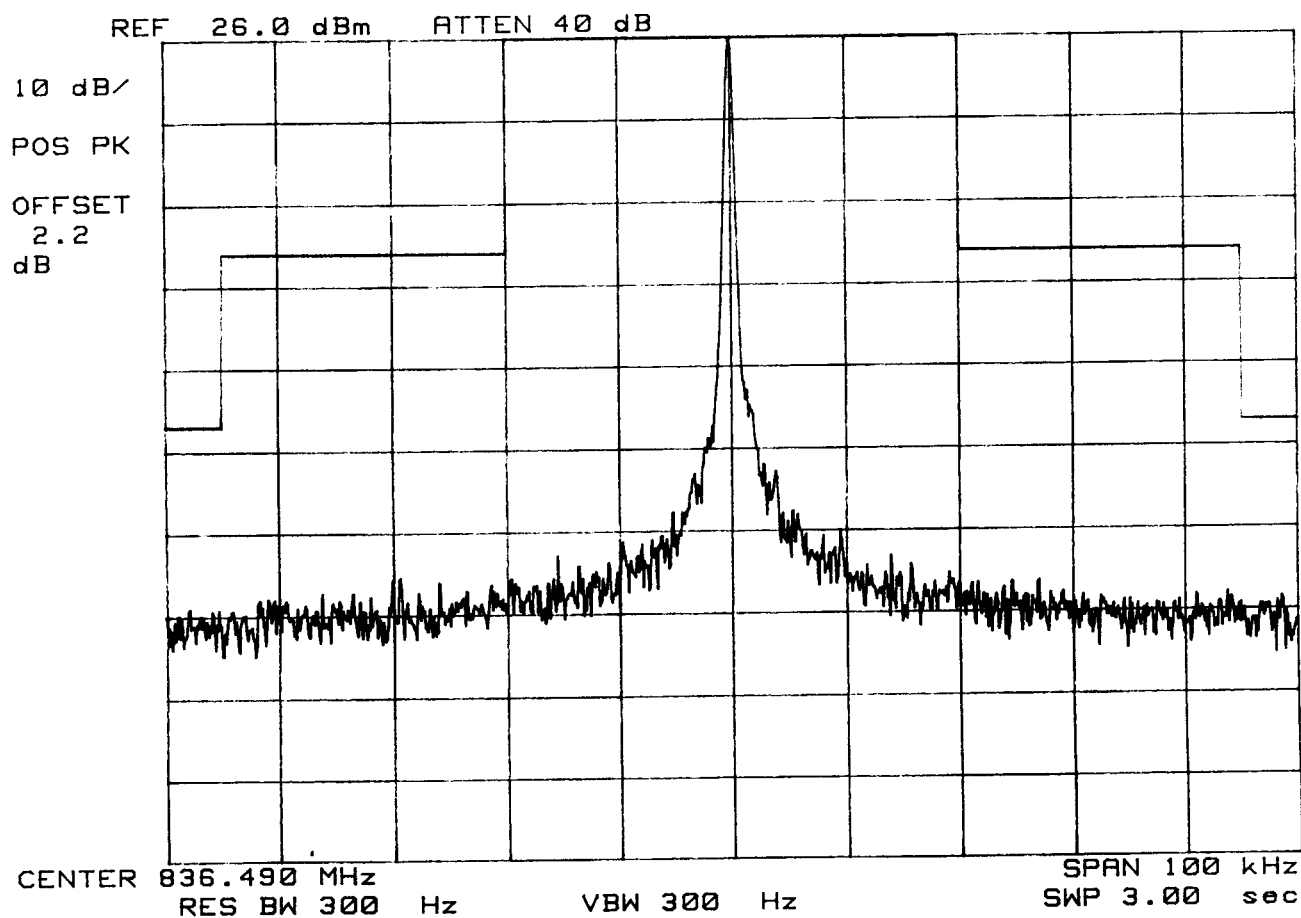
TRI-MODE Phone

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.0 dBm

Test Mode:Unmodulated Signal



PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHA330

SAMSUNG

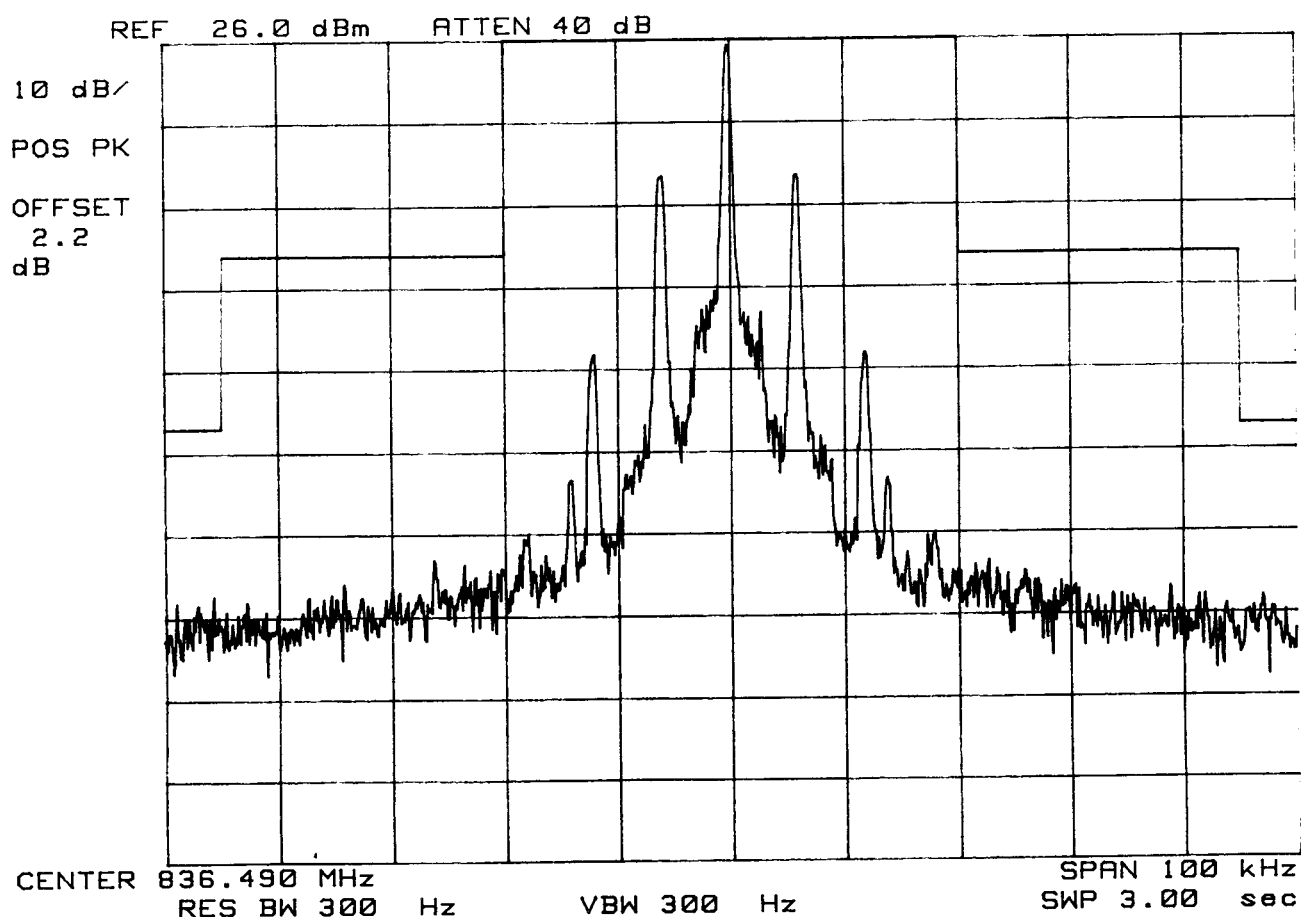
TRI-MODE Phone

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.0 dBm

Test Mode:SAT



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SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHA330

SAMSUNG

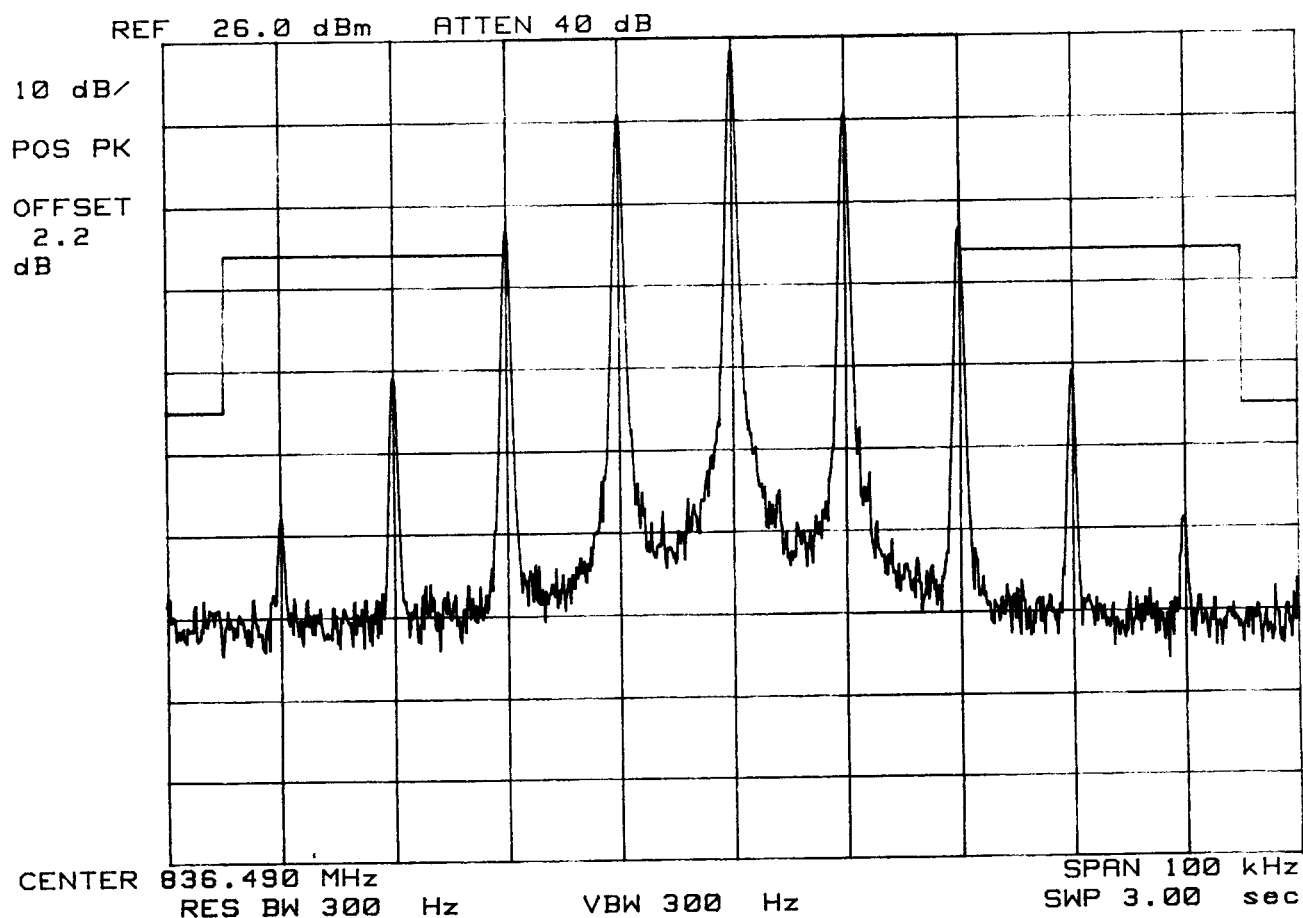
TRI-MODE Phone

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.0 dBm

Test Mode:ST



PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHA330

SAMSUNG

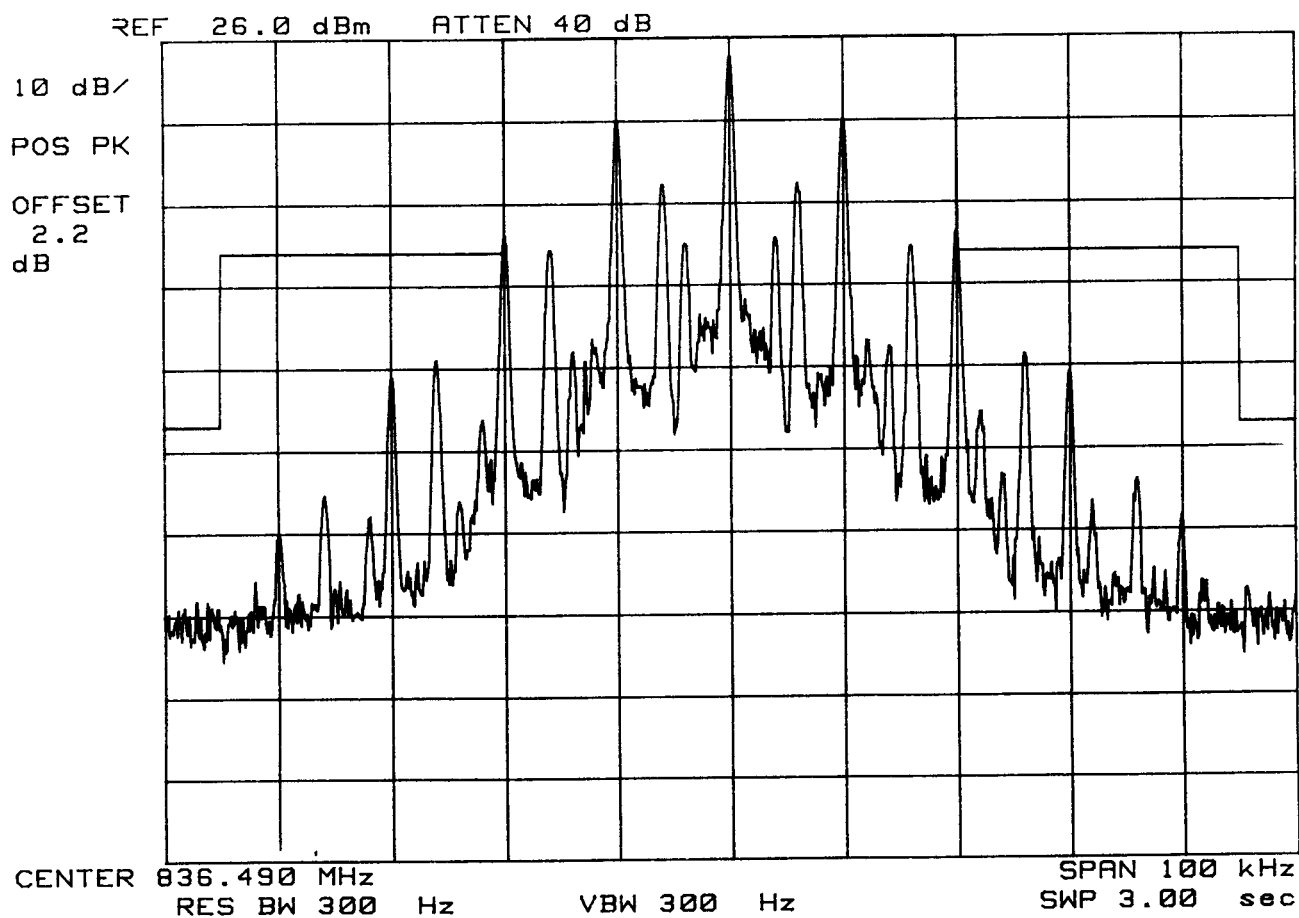
TRI-MODE Phone

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.0 dBm

Test Mode:SAT + ST



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SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHA330

SAMSUNG

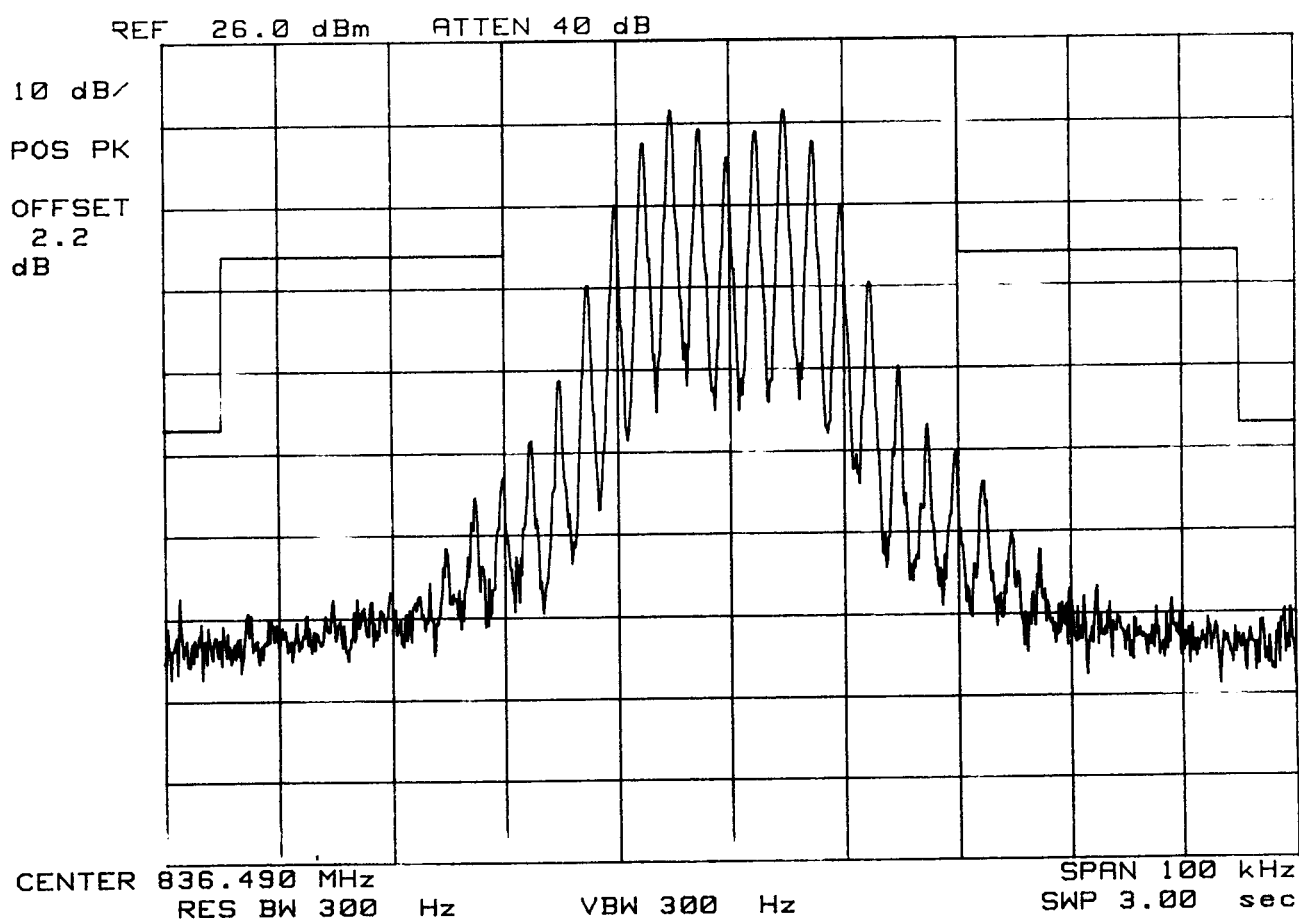
TRI-MODE Phone

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.0 dBm

Test Mode:Voice



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SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHA330

SAMSUNG

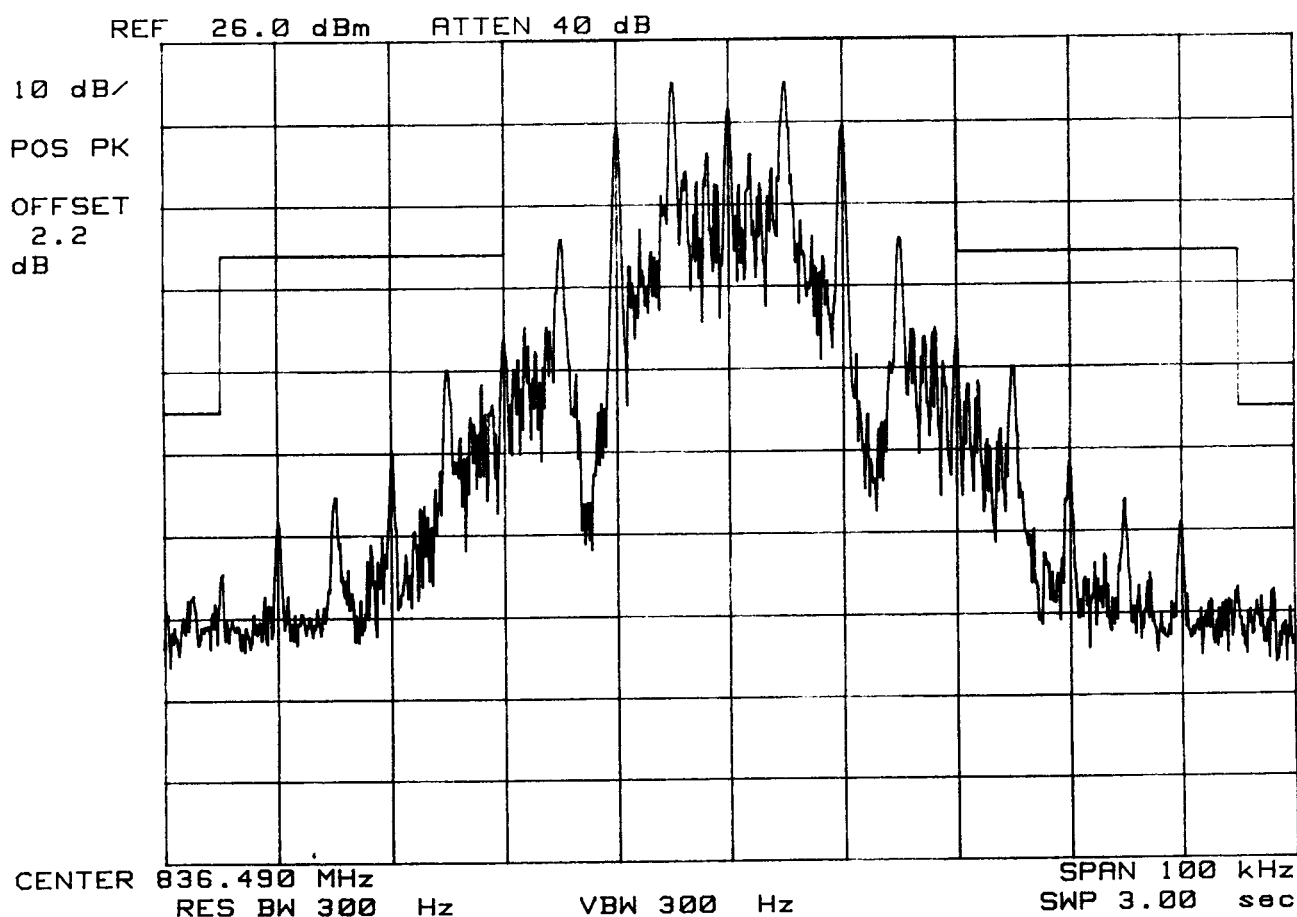
TRI-MODE Phone

FM Channel 0383

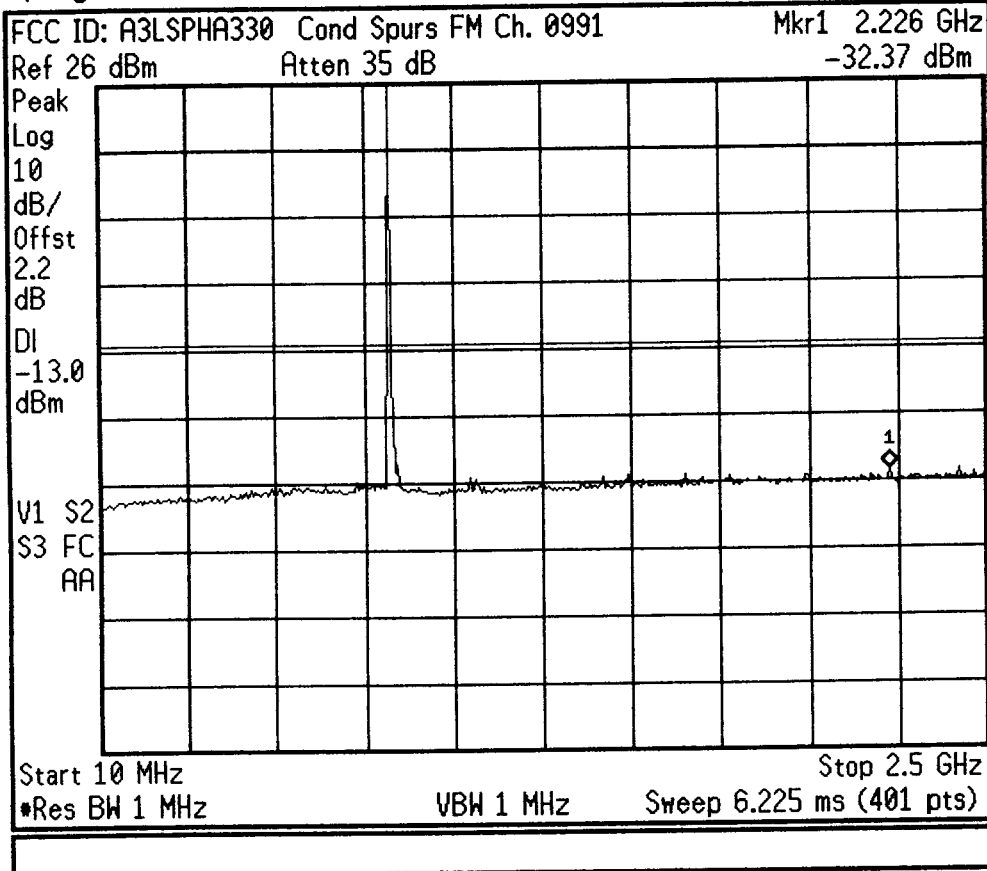
Operating Frequency: 836.490 MHz

Output Power : 26.0 dBm

Test Mode:Wide Band Data

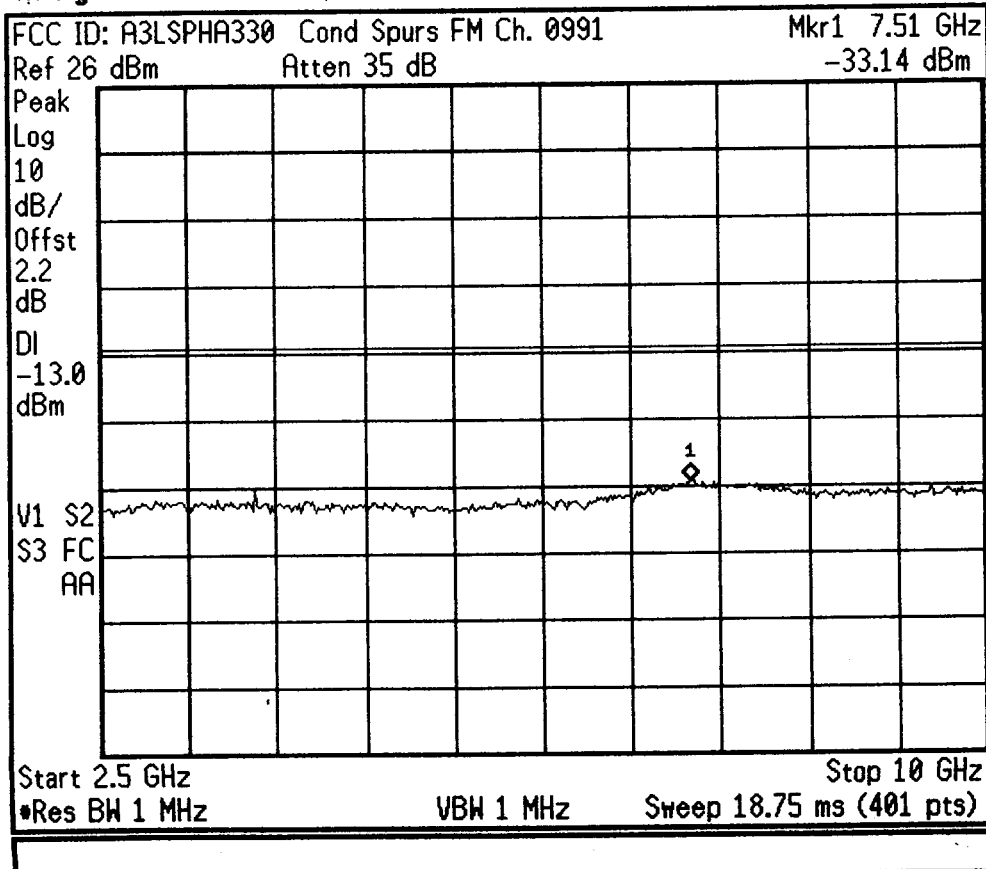


* Agilent 07:10:40 Apr 26, 2001



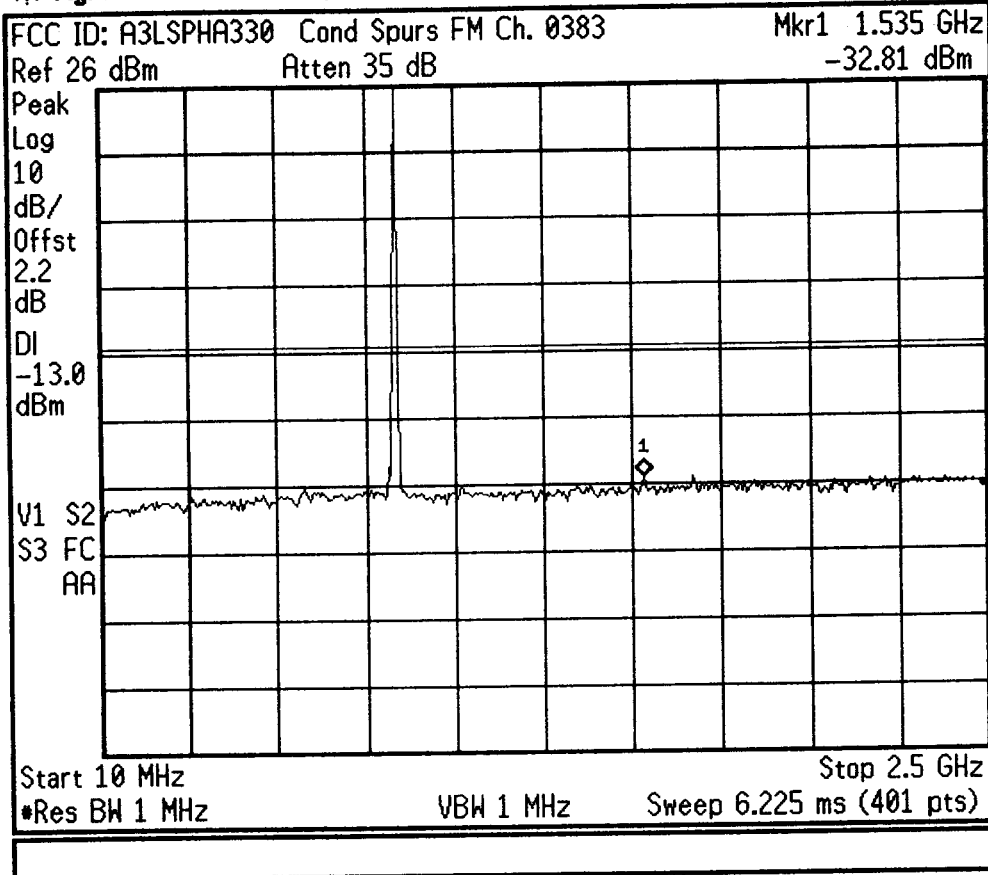
Freq/Channel
Center Freq 1.25500000 GHz
Start Freq 10.0000000 MHz
Stop Freq 2.50000000 GHz
CF Step 249.000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

* Agilent 07:11:21 Apr 26, 2001



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 On Off

* Agilent 07:14:32 Apr 26, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

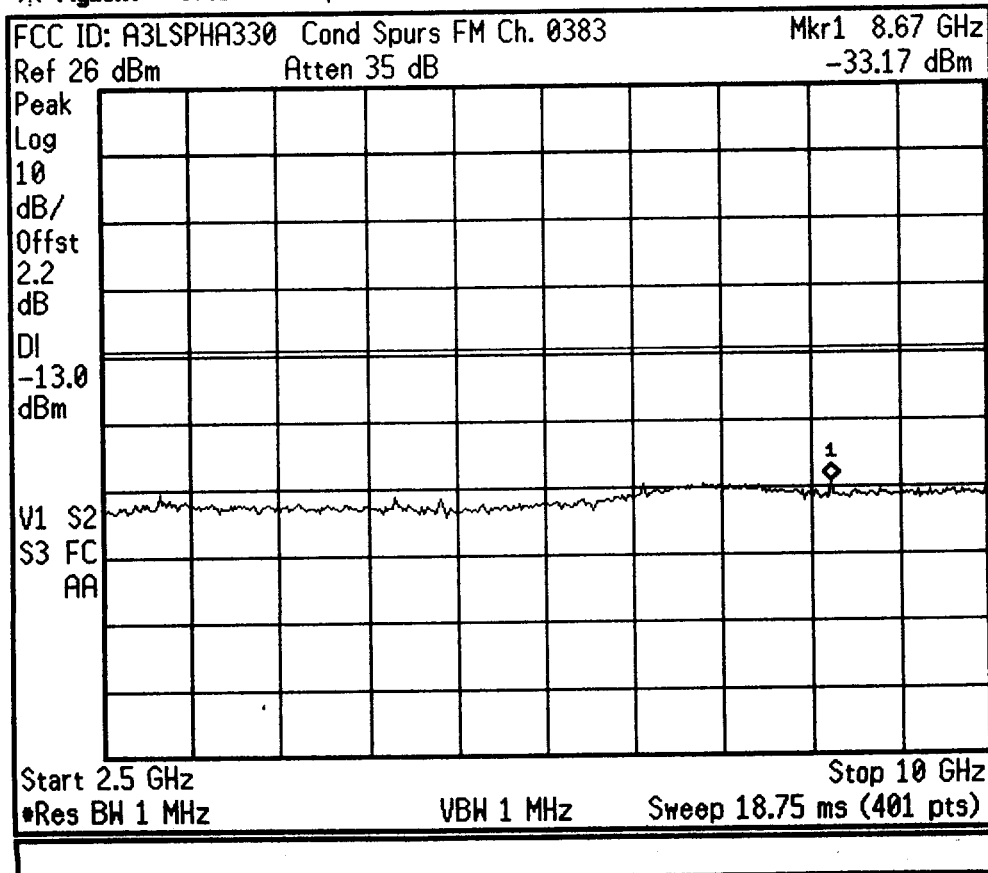
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:15:27 Apr 26, 2001



Freq/Channel

Center Freq
 6.25000000 GHz

Start Freq
 2.50000000 GHz

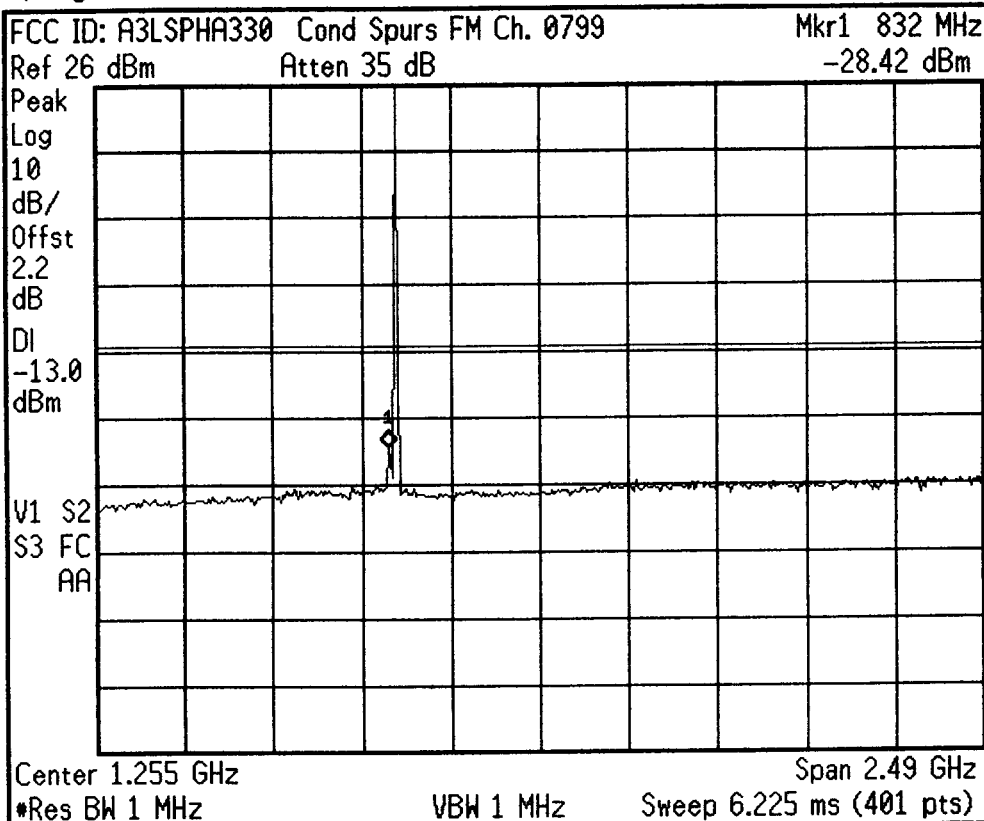
Stop Freq
 10.0000000 GHz

CF Step
 750.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

Agilent 07:17:47 Apr 26, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

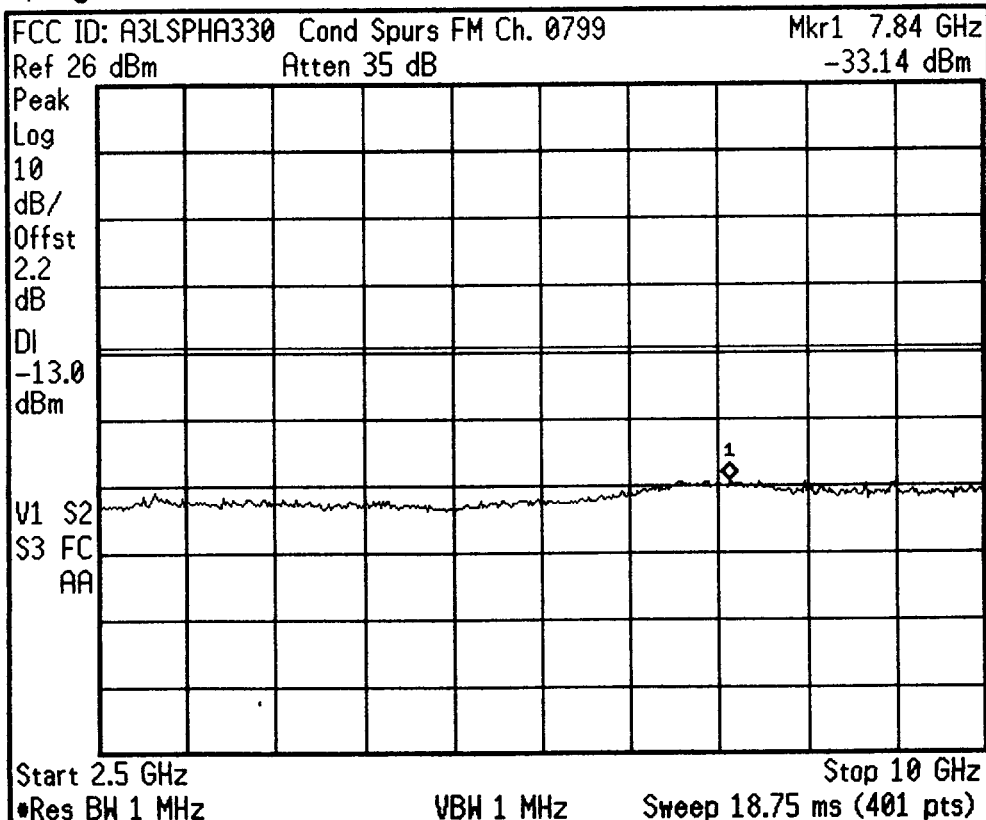
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

Agilent 07:18:39 Apr 26, 2001



Freq/Channel

Center Freq
 6.25000000 GHz

Start Freq
 2.50000000 GHz

Stop Freq
 10.0000000 GHz

CF Step
 750.000000 MHz
 Auto Man

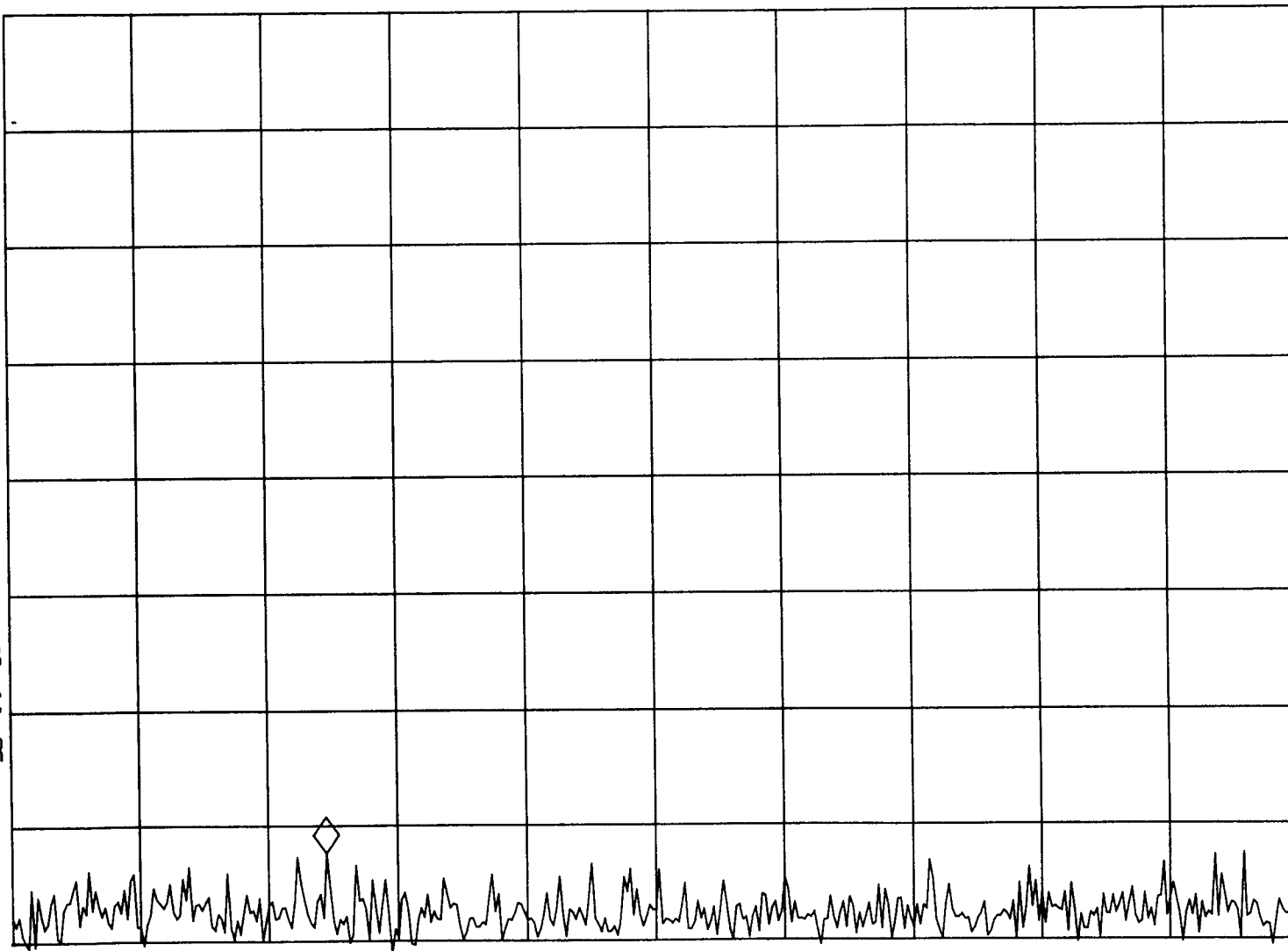
Freq Offset
 0.00000000 Hz

Signal Track
 On Off

hp FCC ID: A3LSPHA330 FM MODE MKR 875.12 MHz
REF -60.0 dBm #ATTEN 10 dB PG 25.0 dB -96.19 dBm

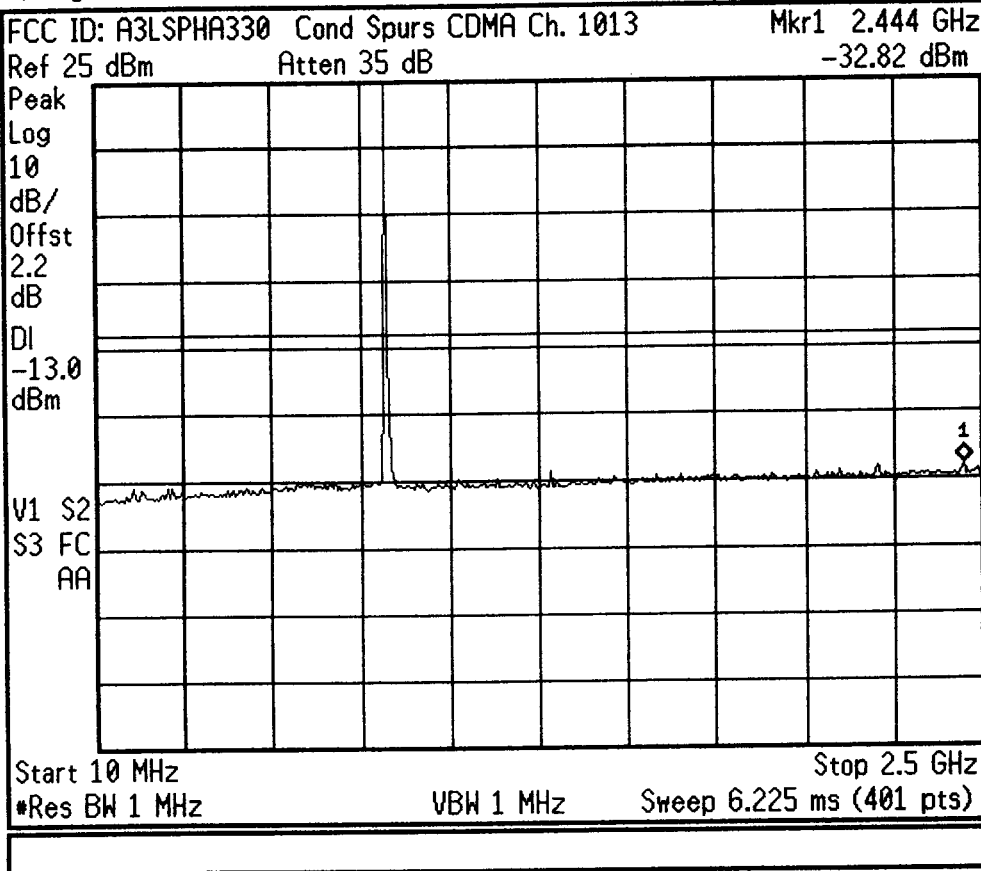
PEAK
LOG
5
dB/
OFFST
6.0
dB

VA SB
SC FC
CORR



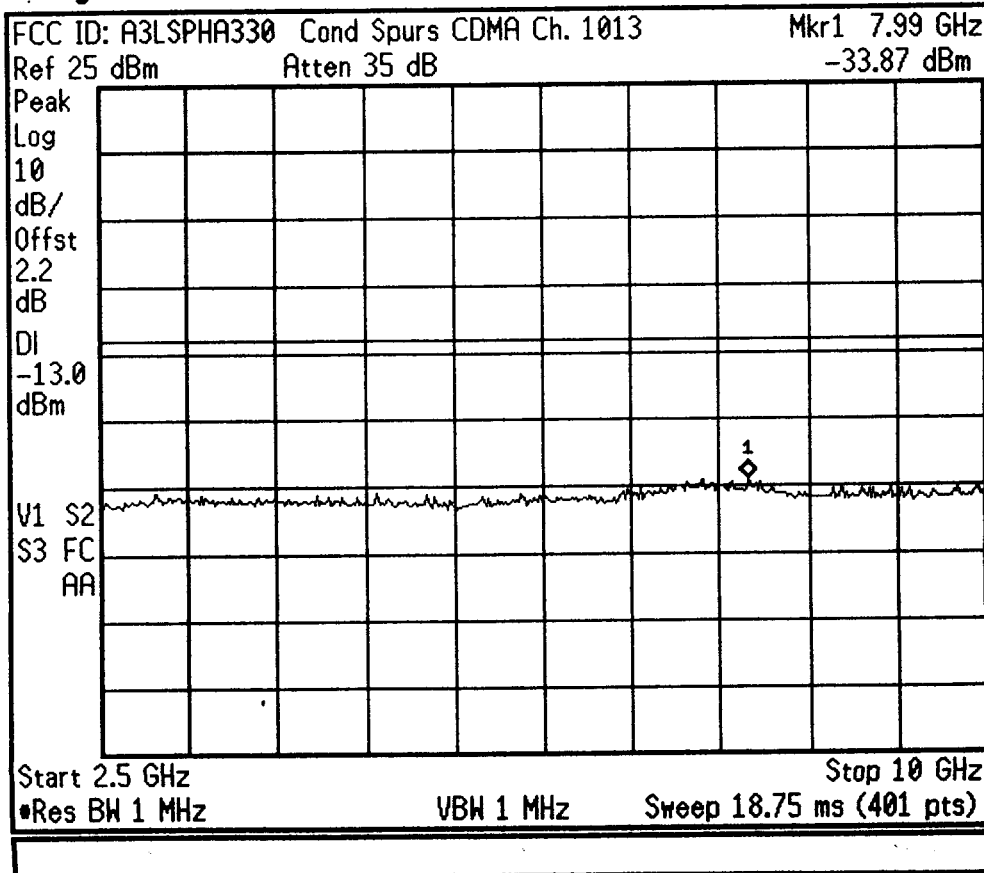
START 869.00 MHz STOP 894.00 MHz
#RES BW 100 kHz #VBW 300 kHz SWP 20 msec

* Agilent 07:28:18 Apr 26, 2001



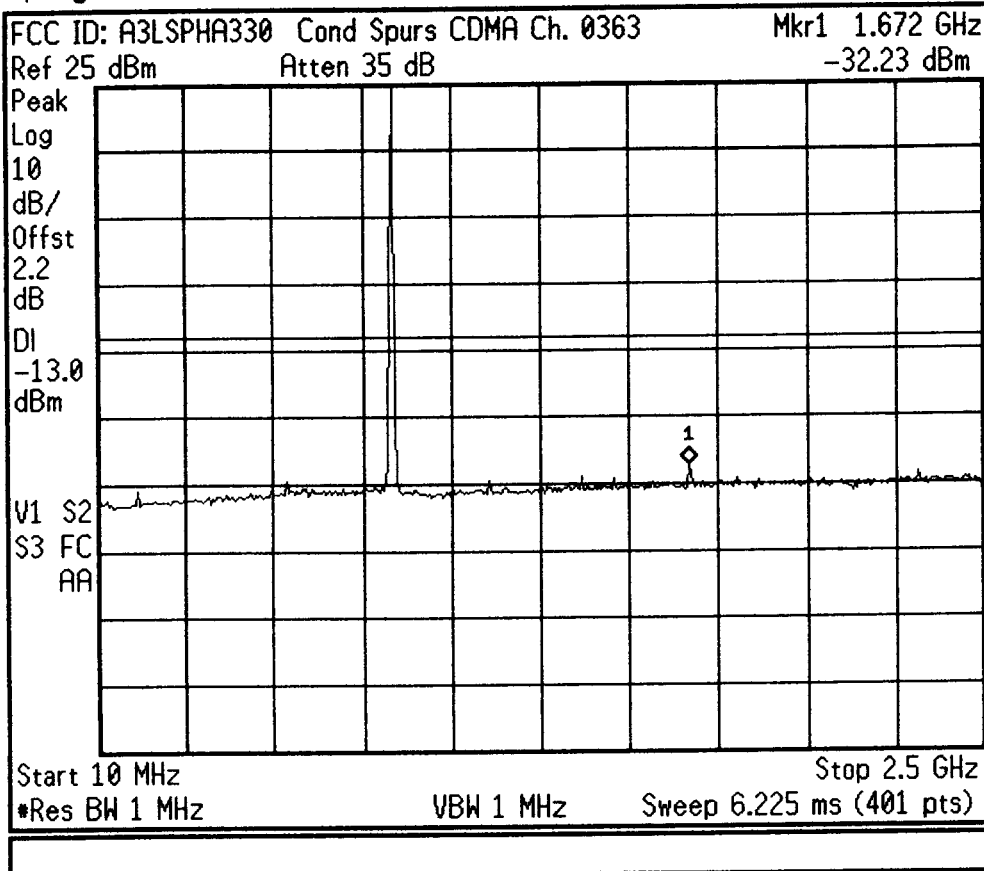
Freq/Channel
Center Freq 1.25500000 GHz
Start Freq 10.0000000 MHz
Stop Freq 2.50000000 GHz
CF Step 249.000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

* Agilent 07:29:28 Apr 26, 2001



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 On Off

* Agilent 07:35:37 Apr 26, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

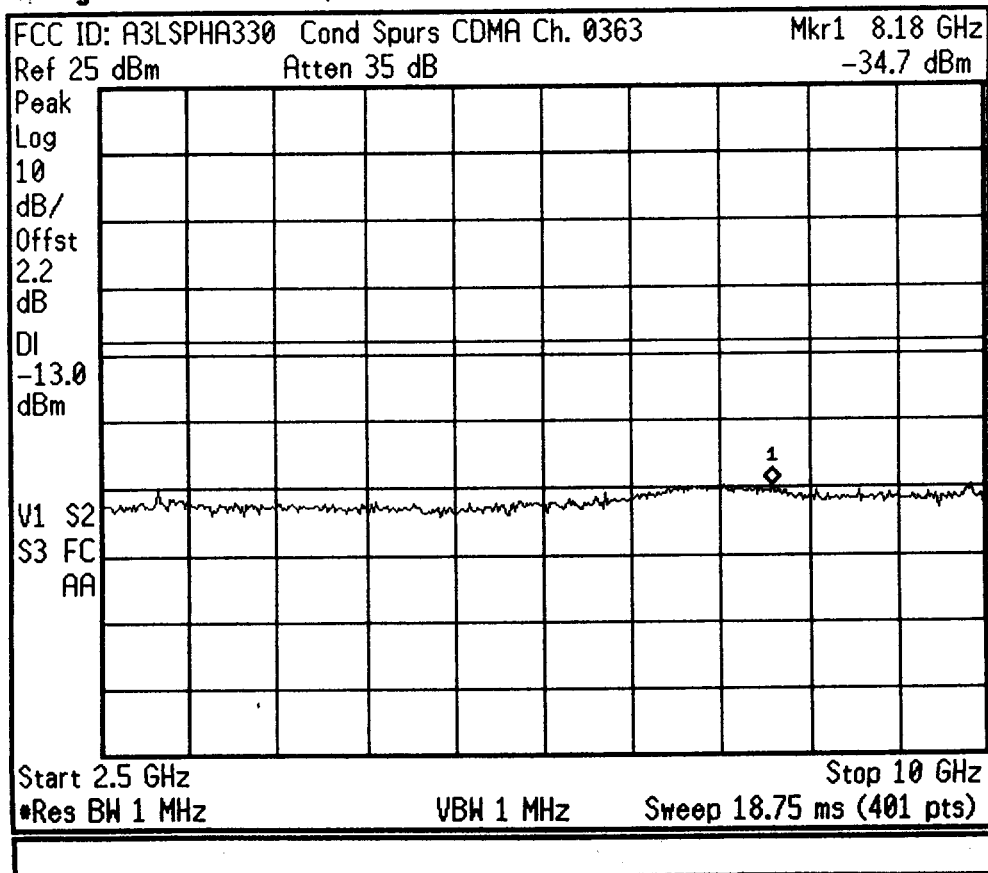
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:38:50 Apr 26, 2001



Freq/Channel

Center Freq
 6.25000000 GHz

Start Freq
 2.50000000 GHz

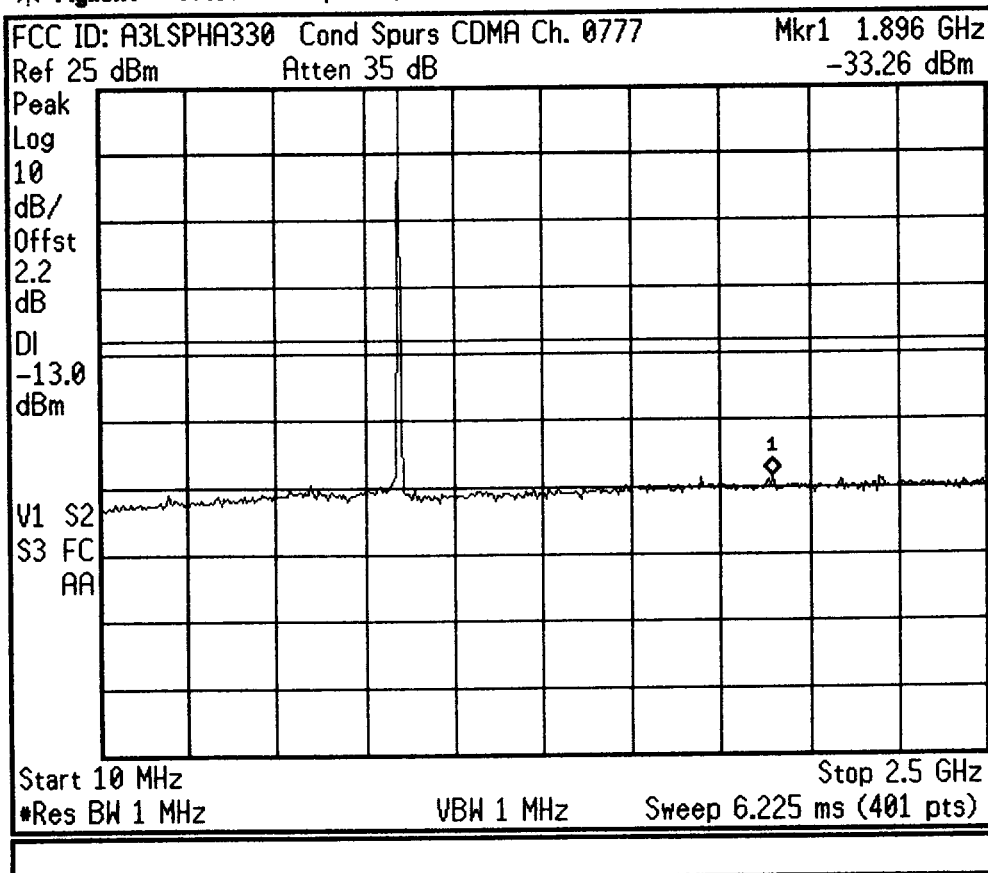
Stop Freq
 10.0000000 GHz

CF Step
 750.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:33:47 Apr 26, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

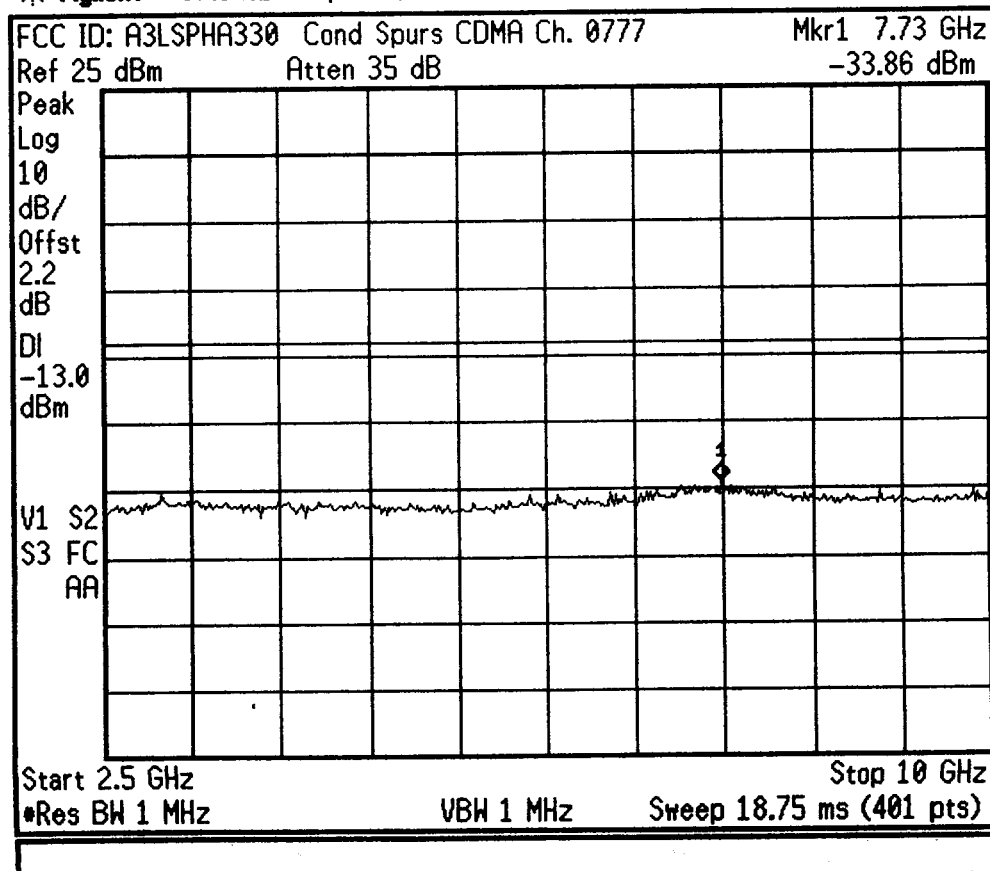
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:34:20 Apr 26, 2001



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
 On Off

* Agilent 07:41:28 Apr 26, 2001

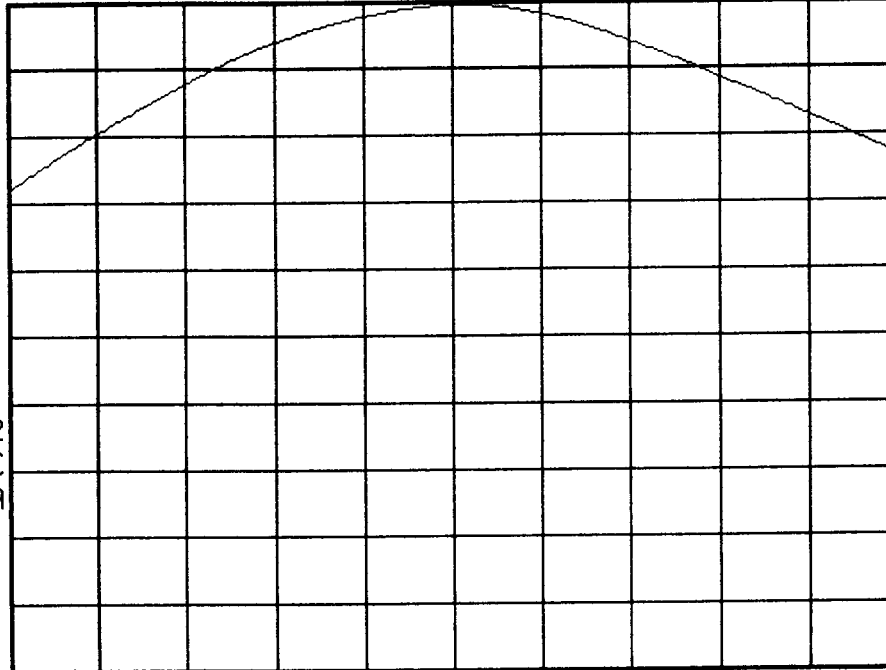
FCC ID: A3LSPA330 POWER OUT CDMA Ch. 1013

Ref 25 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
2.2
dB

V1 S2
S3 FC
AA



Center 824.7 MHz

Span 10 MHz

*Res BW 3 MHz

VBW 3 MHz

Sweep 5 ms (401 pts)

Freq/Channel

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

* Agilent 07:42:46 Apr 26, 2001

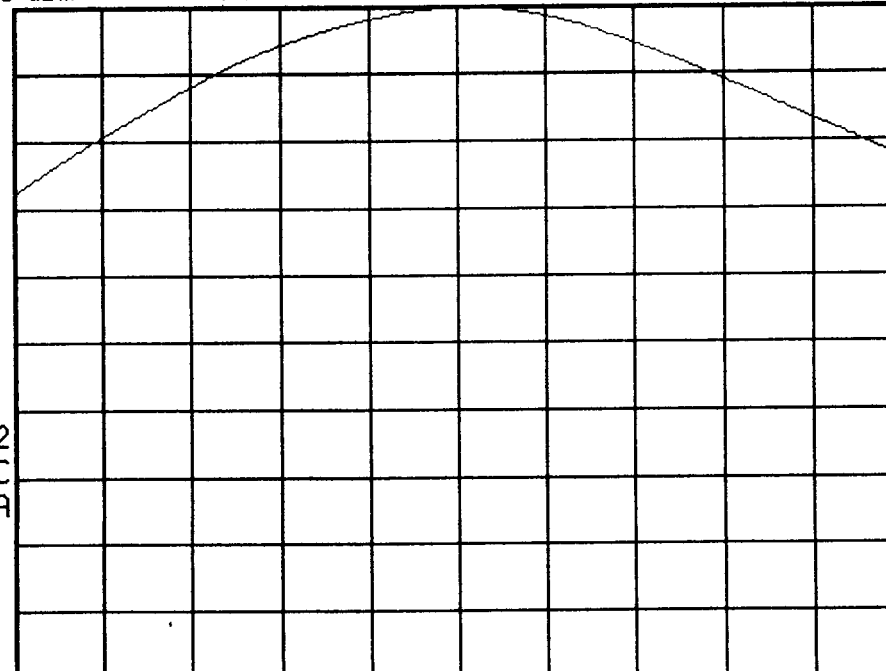
FCC ID: A3LSPA330 POWER OUT CDMA Ch. 0777

Ref 25 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
2.2
dB

V1 S2
S3 FC
AA



Center 848.3 MHz

Span 10 MHz

*Res BW 3 MHz

VBW 3 MHz

Sweep 5 ms (401 pts)

Freq/Channel

Center Freq

848.300000 MHz

Start Freq

843.300000 MHz

Stop Freq

853.300000 MHz

CF Step

1.00000000 MHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

* Agilent 07:50:07 Apr 26, 2001

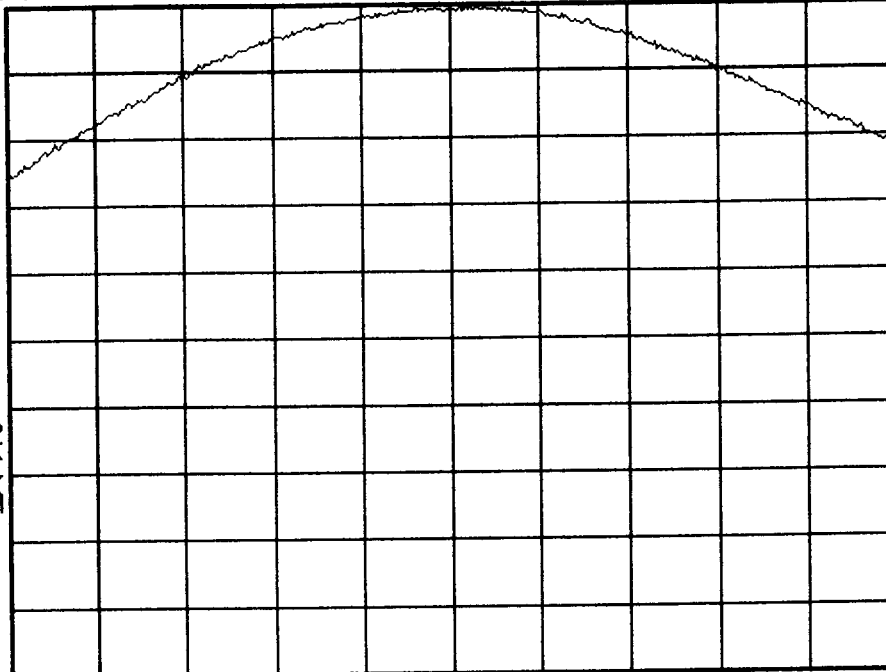
FCC ID: A3LSPHA330 POWER OUT CDMA Ch. 0363

Ref 25 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
2.2
dB

V1 S2
S3 FC
AA



Center 835.9 MHz

Span 10 MHz

*Res BW 3 MHz

VBW 3 MHz

Sweep 5 ms (401 pts)

Freq/Channel

Center Freq

835.900000 MHz

Start Freq

830.900000 MHz

Stop Freq

840.900000 MHz

CF Step

1.00000000 MHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

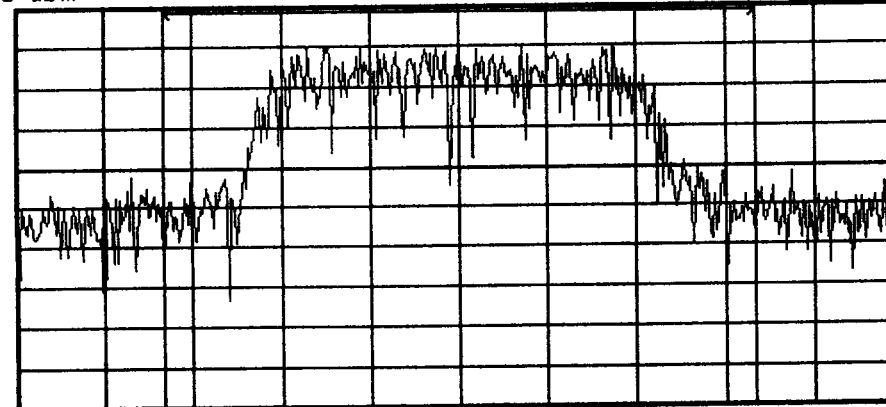
* Agilent 07:54:39 Apr 26, 2001

FCC ID: A3LSPHA330 POWER OUT CDMA Ch. 0363

Ref 25 dBm

Atten 35 dB

Samp
Log
10
dB/
Offst
2.2
dB



Center 835.9 MHz

Span 3 MHz

*Res BW 30 kHz

*VBW 300 kHz

Sweep 9.167 ms (401 pts)

Freq/Channel

Center Freq

835.900000 MHz

Start Freq

834.400000 MHz

Stop Freq

837.400000 MHz

CF Step

300.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

Channel Power Results (idle)

Channel Power

25.00 dBm

Integration BW 2.000 MHz

Density -38.01 dBm/Hz

* Agilent 08:05:22 Apr 26, 2001

FCC ID: A3LSPA330 BAND EDGE CDMA Ch. 1013

Ref 25 dBm

Atten 35 dB

Peak

Log

10

dB/

Offst

2.2

dB

DI

-13.0

dBm

V1 S2

S3 FC

AA

Center 824 MHz

*Res BW 30 kHz

VBW 30 kHz

Sweep 13.89 ms (401 pts)

Span 5 MHz

Freq/Channel

Center Freq

824.000000 MHz

Start Freq

821.500000 MHz

Stop Freq

826.500000 MHz

CF Step

500.000000 kHz

Auto

Man

Freq Offset

0.00000000 Hz

Signal Track

On

Off

* Agilent 08:06:43 Apr 26, 2001

FCC ID: A3LSPA330 BAND EDGE CDMA Ch. 0777

Ref 25 dBm

Atten 35 dB

Peak

Log

10

dB/

Offst

2.2

dB

DI

-13.0

dBm

V1 S2

S3 FC

AA

Center 849 MHz

*Res BW 30 kHz

VBW 30 kHz

Sweep 13.89 ms (401 pts)

Span 5 MHz

Freq/Channel

Center Freq

849.000000 MHz

Start Freq

846.500000 MHz

Stop Freq

851.500000 MHz

CF Step

500.000000 kHz

Auto

Man

Freq Offset

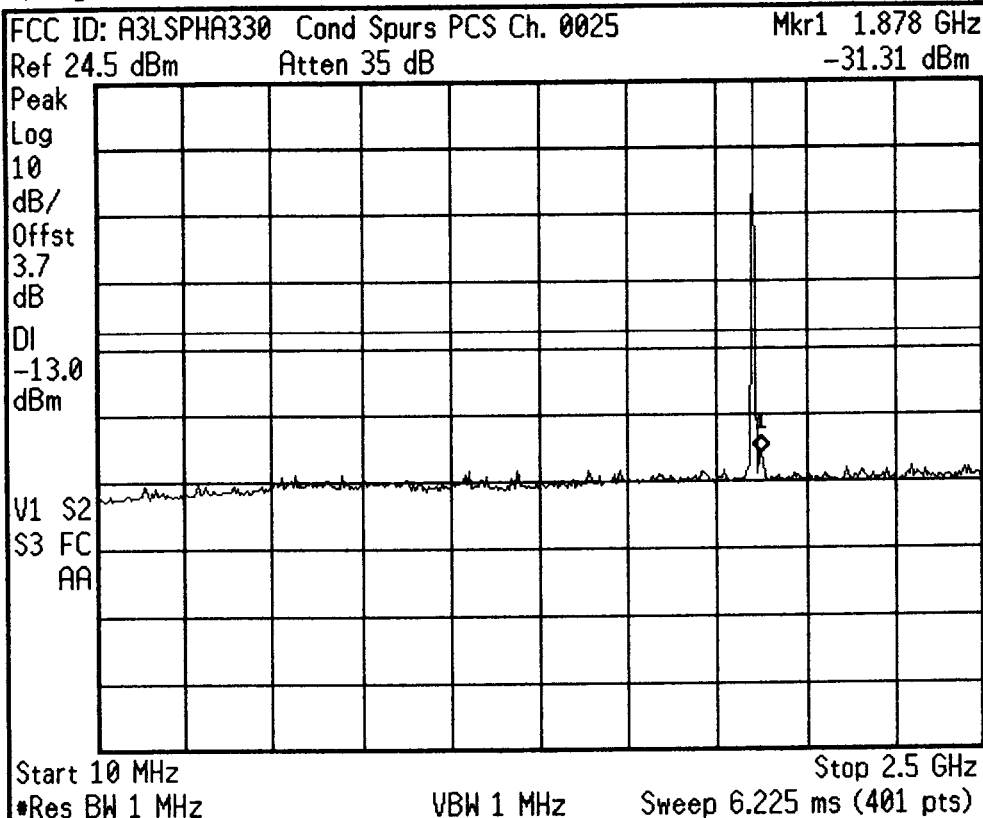
0.00000000 Hz

Signal Track

On

Off

* Agilent 08:17:43 Apr 26, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

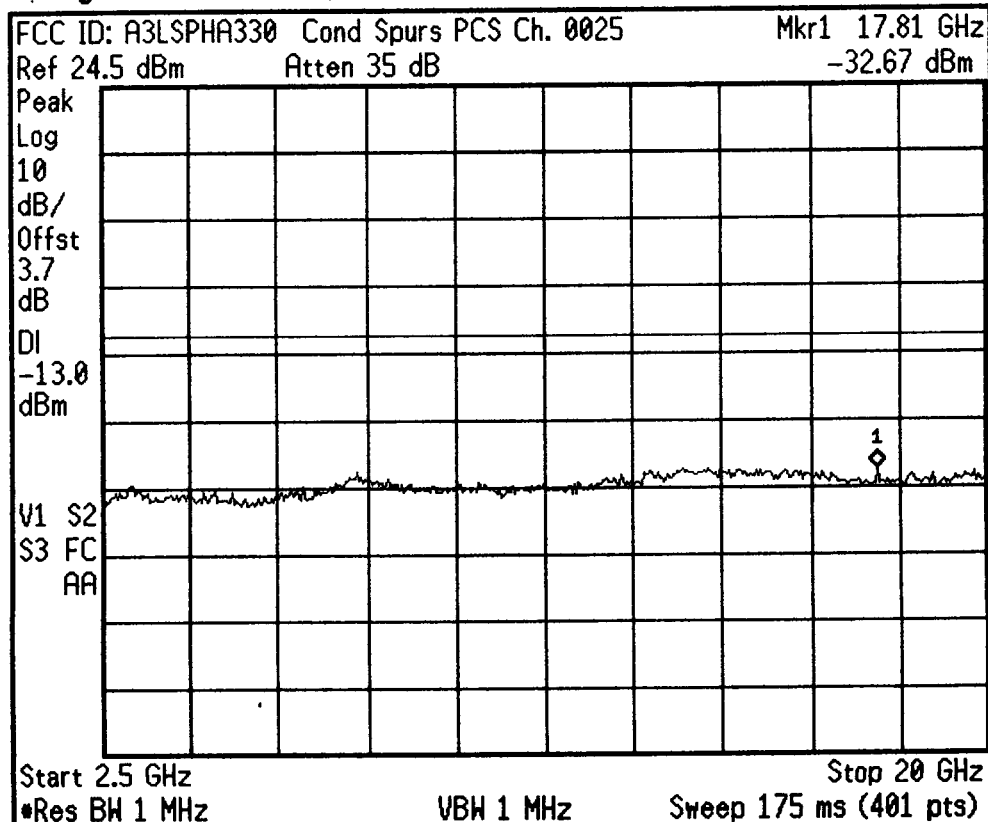
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 08:18:22 Apr 26, 2001



Freq/Channel

Center Freq
 11.2500000 GHz

Start Freq
 2.50000000 GHz

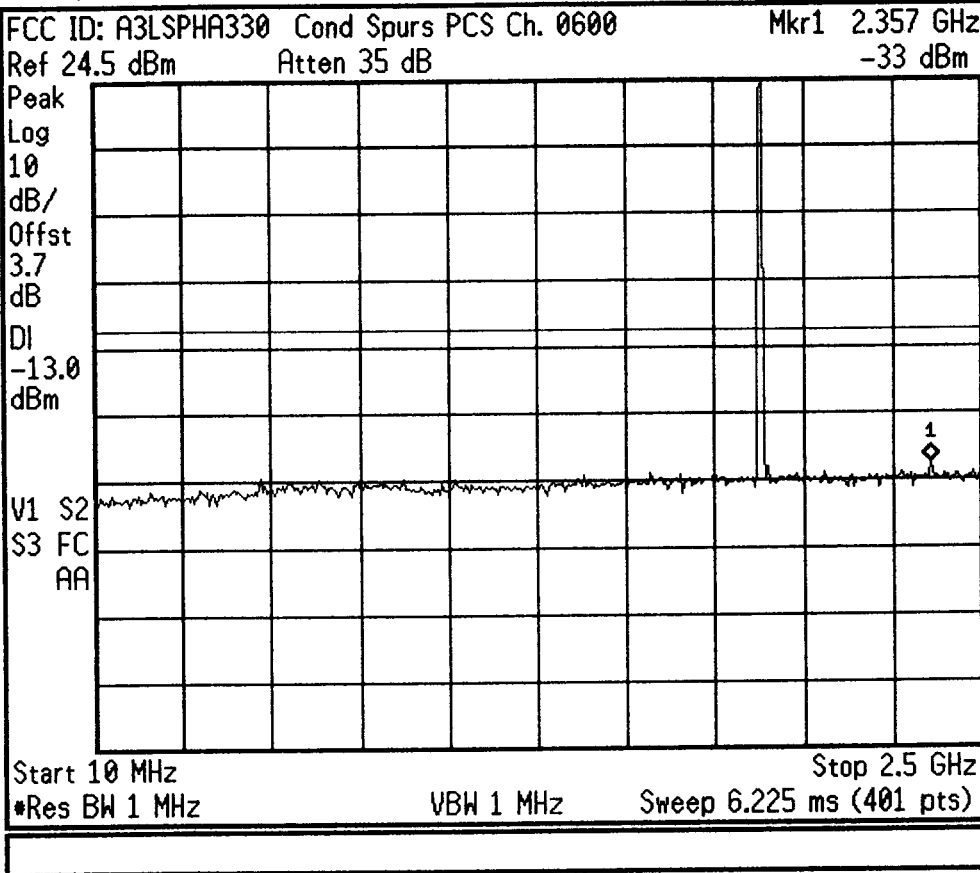
Stop Freq
 20.0000000 GHz

CF Step
 1.75000000 GHz
 Auto Man

Freq Offset
 0.00000000 Hz

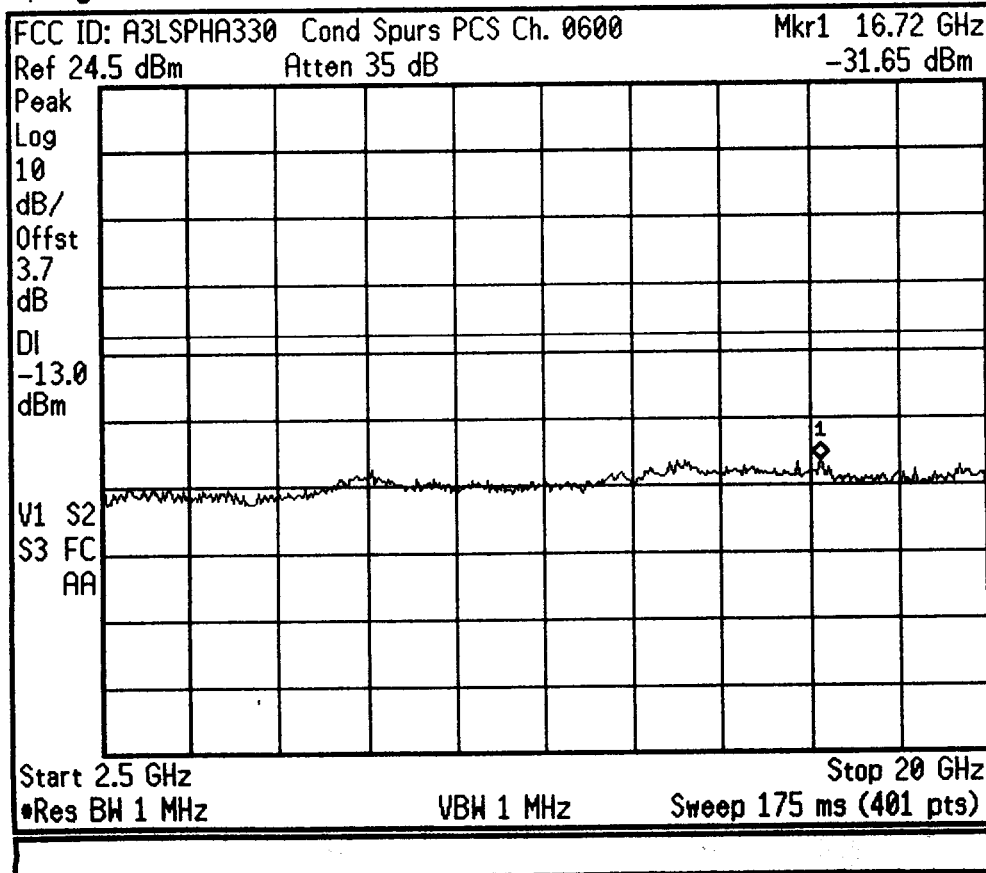
Signal Track
 On Off

* Agilent 08:15:41 Apr 26, 2001



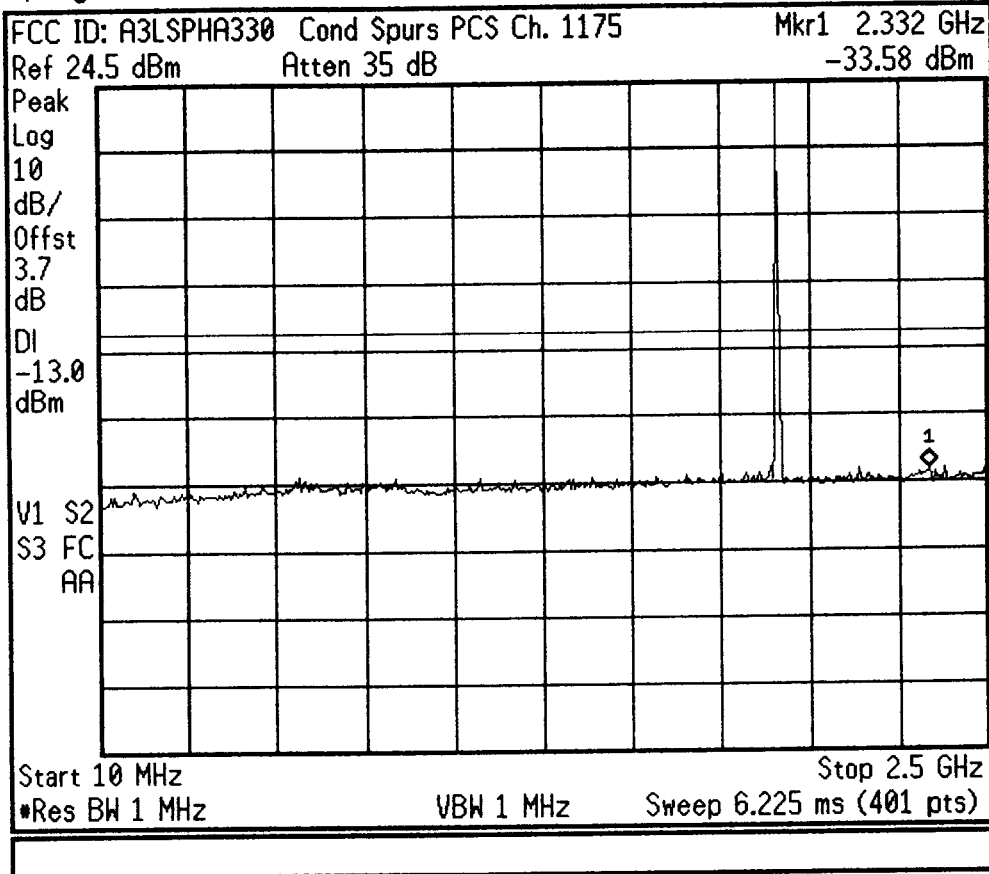
Freq/Channel
Center Freq 1.25500000 GHz
Start Freq 10.0000000 MHz
Stop Freq 2.50000000 GHz
CF Step 249.000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

* Agilent 08:16:18 Apr 26, 2001



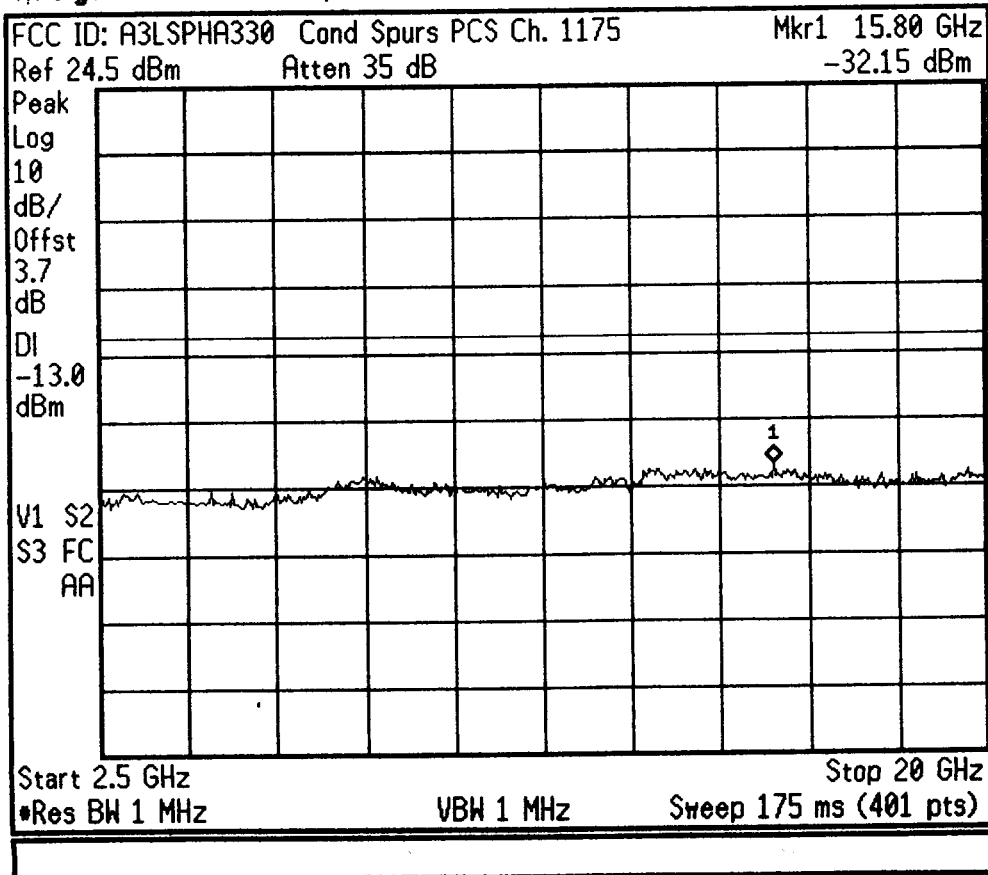
Freq/Channel
Center Freq 11.2500000 GHz
Start Freq 2.50000000 GHz
Stop Freq 20.0000000 GHz
CF Step 1.75000000 GHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

* Agilent 08:14:12 Apr 26, 2001



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

* Agilent 08:14:50 Apr 26, 2001



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

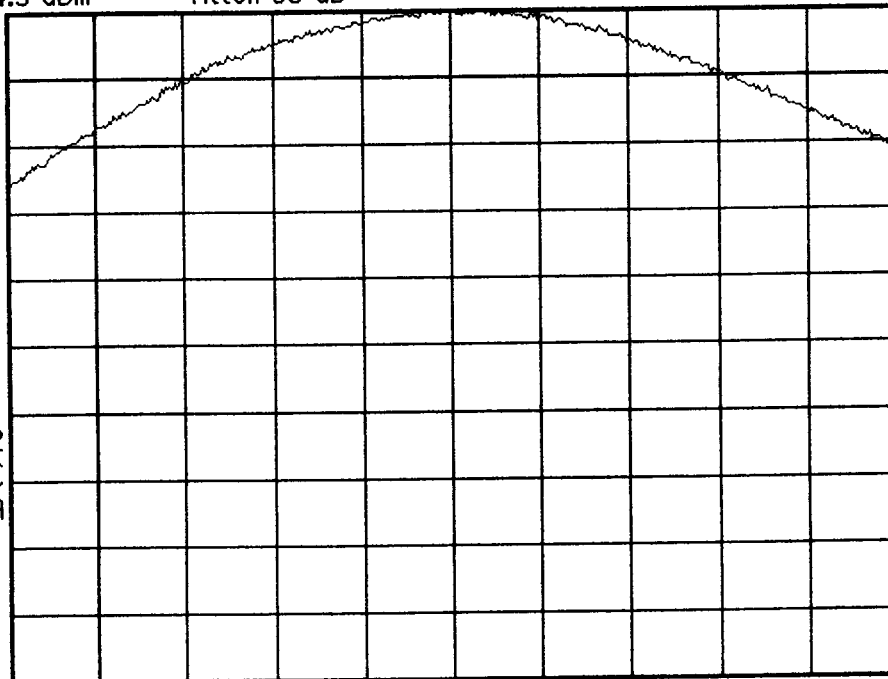
* Agilent 08:21:25 Apr 26, 2001

FCC ID: A3LSPHA330 POWER OUT PCS Ch. 0600

Ref 24.5 dBm Atten 35 dB

Peak
Log
10
dB/
Offst
3.7
dB

V1 S2
S3 FC
AA



Center 1.88 GHz

*Res BW 3 MHz

VBW 3 MHz

Span 10 MHz
Sweep 5 ms (401 pts)

Freq/Channel

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

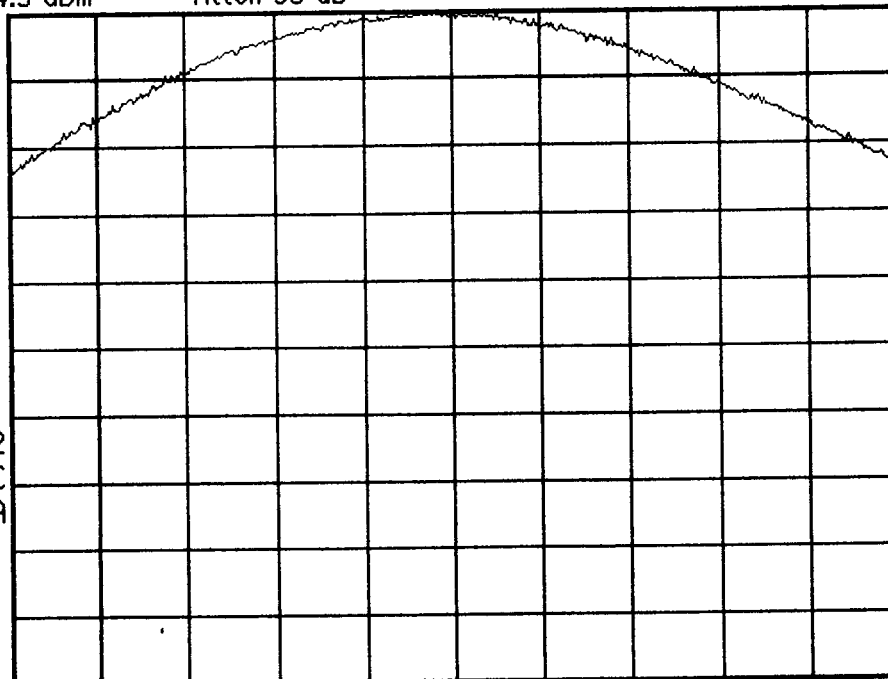
* Agilent 08:22:30 Apr 26, 2001

FCC ID: A3LSPHA330 POWER OUT PCS Ch. 1175

Ref 24.5 dBm Atten 35 dB

Peak
Log
10
dB/
Offst
3.7
dB

V1 S2
S3 FC
AA



Center 1.909 GHz

*Res BW 3 MHz

VBW 3 MHz

Span 10 MHz
Sweep 5 ms (401 pts)

Freq/Channel

Center Freq
1.90900000 GHz

Start Freq
1.90400000 GHz

Stop Freq
1.91400000 GHz

CF Step
1.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

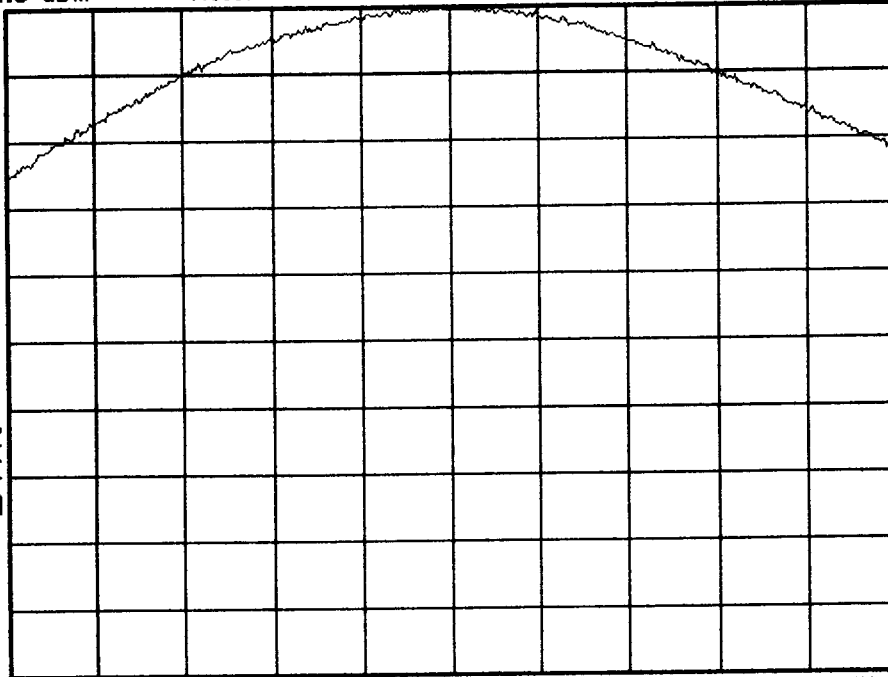
Agilent 08:29:33 Apr 26, 2001

FCC ID: A3LSPA330 POWER OUT PCS Ch. 0025

Ref 24.5 dBm Atten 35 dB

Peak
Log
10
dB/
Offst
3.7
dB

V1 S2
S3 FC
AA



Center 1.851 GHz

*Res BW 3 MHz

VBW 3 MHz

Span 10 MHz
Sweep 5 ms (401 pts)

Freq/Channel

Center Freq
1.85100000 GHz

Start Freq
1.84600000 GHz

Stop Freq
1.85600000 GHz

CF Step
1.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

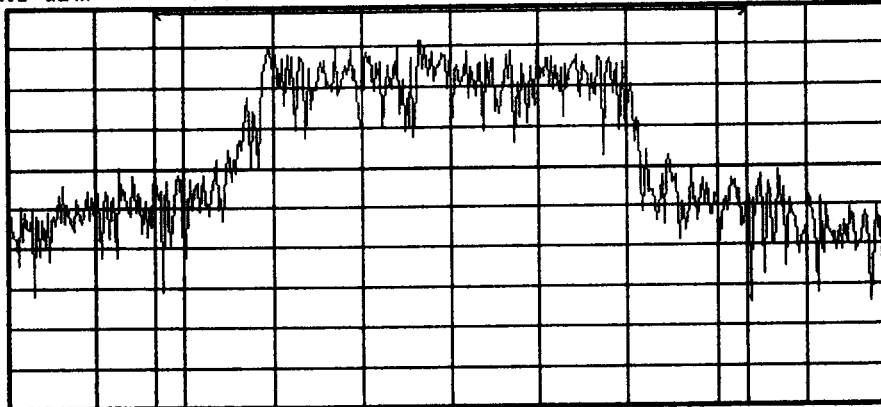
Signal Track
On Off

Agilent 08:30:44 Apr 26, 2001

FCC ID: A3LSPA330 POWER OUT PCS Ch. 0025

Ref 24.5 dBm Atten 35 dB

Samp
Log
10
dB/
Offst
3.7
dB



Center 1.851 GHz

*Res BW 30 kHz

*VBW 300 kHz

Span 3 MHz
Sweep 9.167 ms (401 pts)

Freq/Channel

Center Freq
1.85100000 GHz

Start Freq
1.84950000 GHz

Stop Freq
1.85250000 GHz

CF Step
300.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Channel Power Results (idle)

Channel Power
24.50 dBm

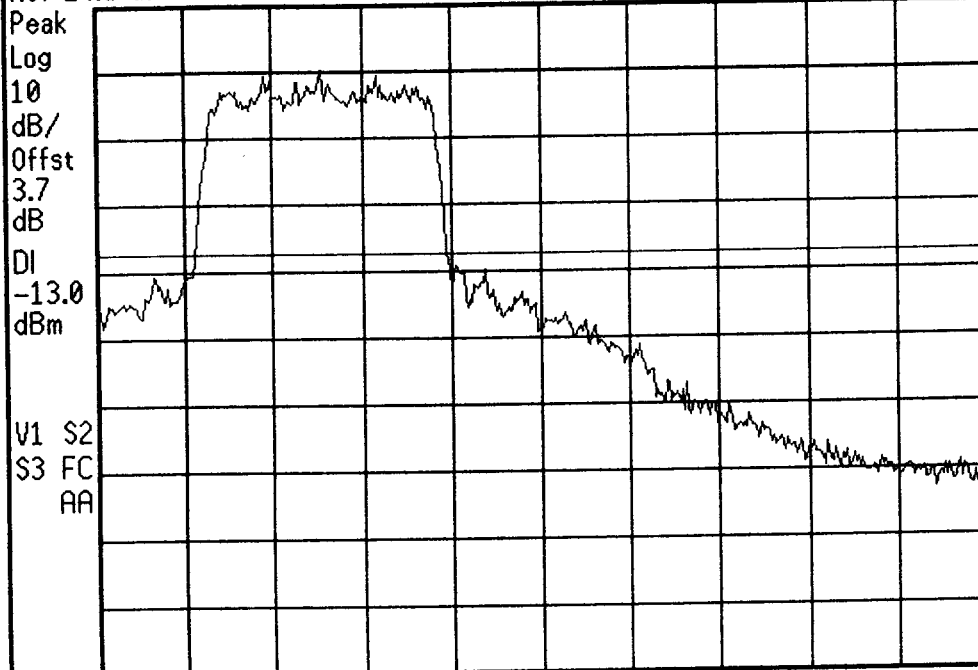
Integration BW 2.000 MHz

Density -38.51 dBm/Hz

* Agilent 08:35:11 Apr 26, 2001

FCC ID: A3LSPHA330 BAND EDGE PCS Ch. 1175

Ref 24.5 dBm Atten 35 dB



Center 1.91 GHz

*Res BW 30 kHz

VBW 30 kHz

Span 5 MHz
Sweep 13.89 ms (401 pts)

Freq/Channel

Center Freq
1.91000000 GHz

Start Freq
1.90750000 GHz

Stop Freq
1.91250000 GHz

CF Step
500.000000 kHz
Auto Man

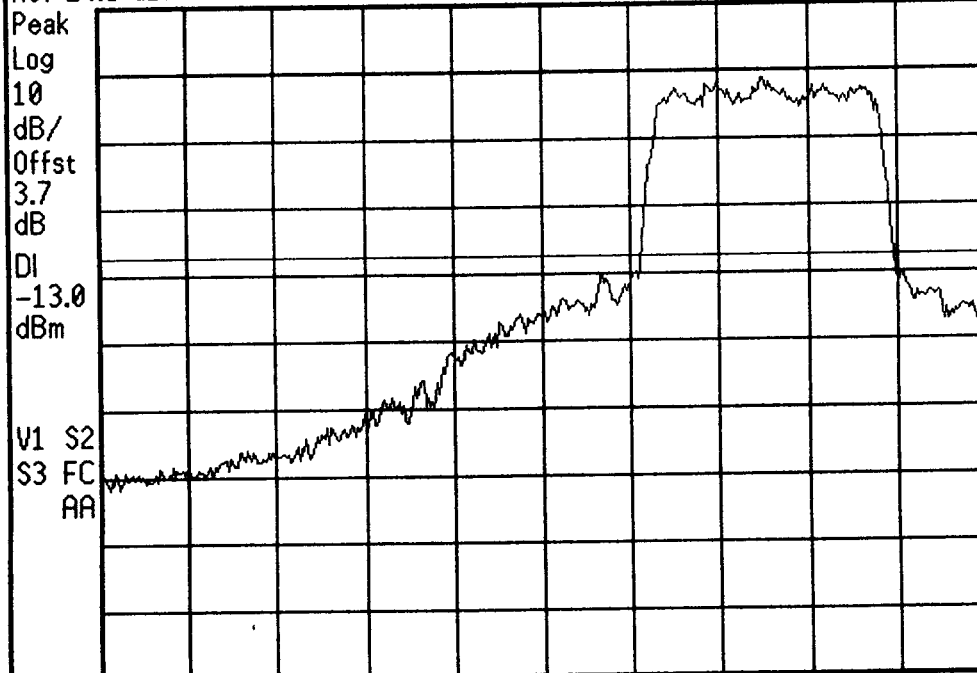
Freq Offset
0.00000000 Hz

Signal Track
On Off

* Agilent 08:36:23 Apr 26, 2001

FCC ID: A3LSPHA330 BAND EDGE PCS Ch. 0025

Ref 24.5 dBm Atten 35 dB



Center 1.85 GHz

*Res BW 30 kHz

VBW 30 kHz

Span 5 MHz
Sweep 13.89 ms (401 pts)

Freq/Channel

Center Freq
1.85000000 GHz

Start Freq
1.84750000 GHz

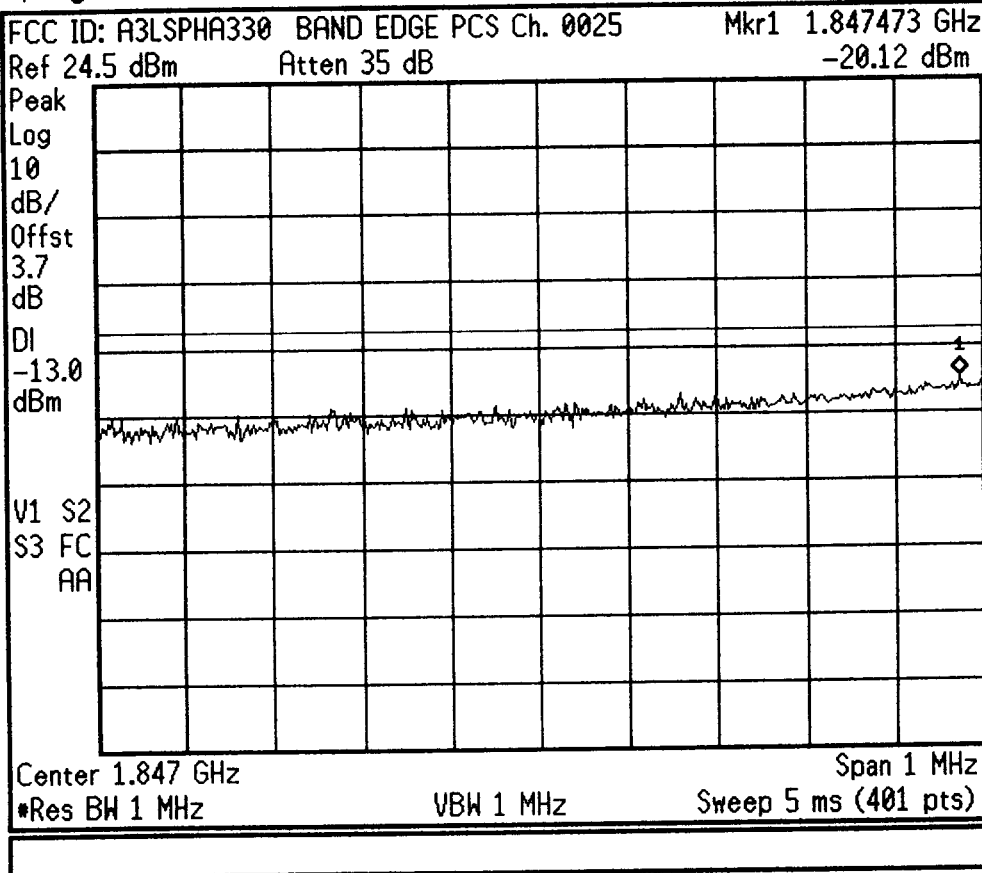
Stop Freq
1.85250000 GHz

CF Step
500.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

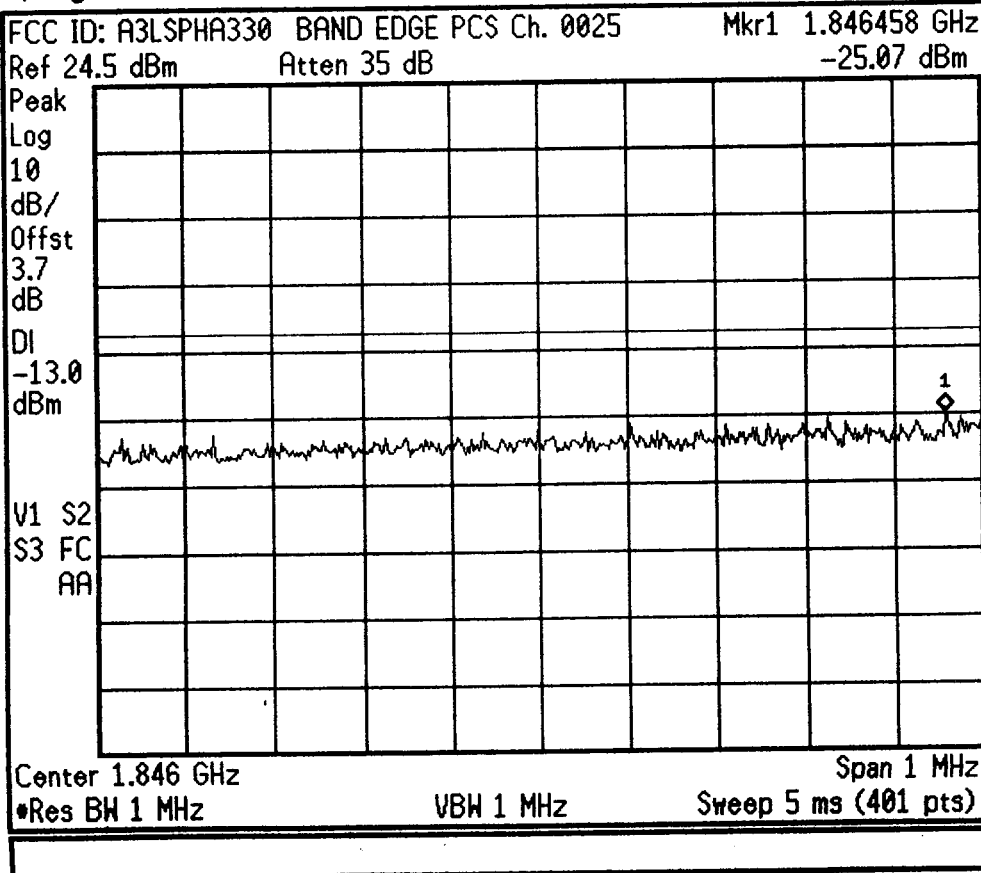
Signal Track
On Off

* Agilent 08:38:02 Apr 26, 2001



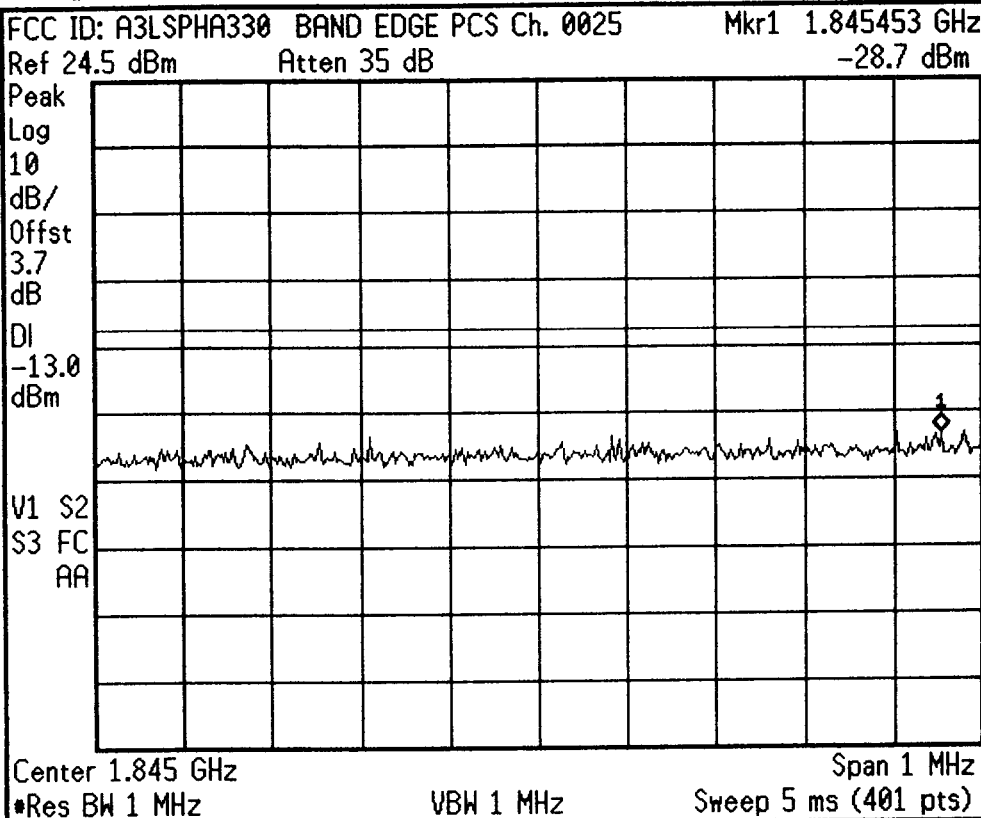
Freq/Channel
Center Freq 1.84700000 GHz
Start Freq 1.84650000 GHz
Stop Freq 1.84750000 GHz
CF Step 100.000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

* Agilent 08:38:40 Apr 26, 2001



Freq/Channel
Center Freq 1.84600000 GHz
Start Freq 1.84550000 GHz
Stop Freq 1.84650000 GHz
CF Step 100.000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

* Agilent 08:39:14 Apr 26, 2001



Freq/Channel

Center Freq
 1.84500000 GHz

Start Freq
 1.84450000 GHz

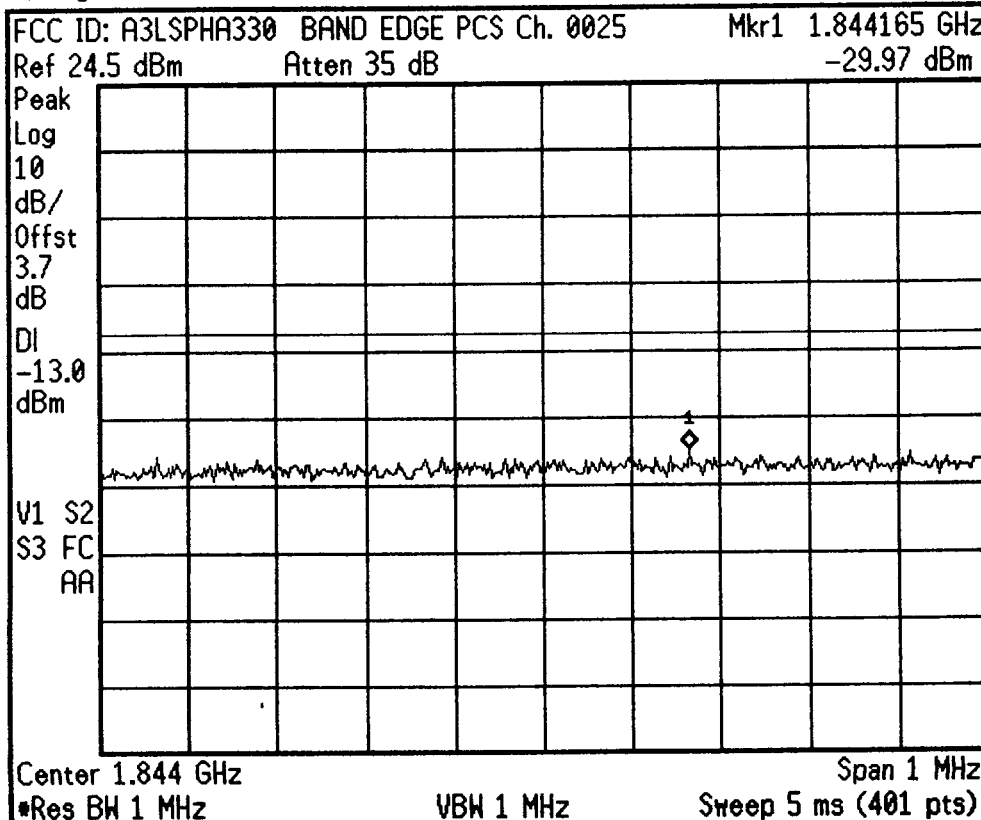
Stop Freq
 1.84550000 GHz

CF Step
 100.000000 kHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 08:40:22 Apr 26, 2001



Freq/Channel

Center Freq
 1.84400000 GHz

Start Freq
 1.84350000 GHz

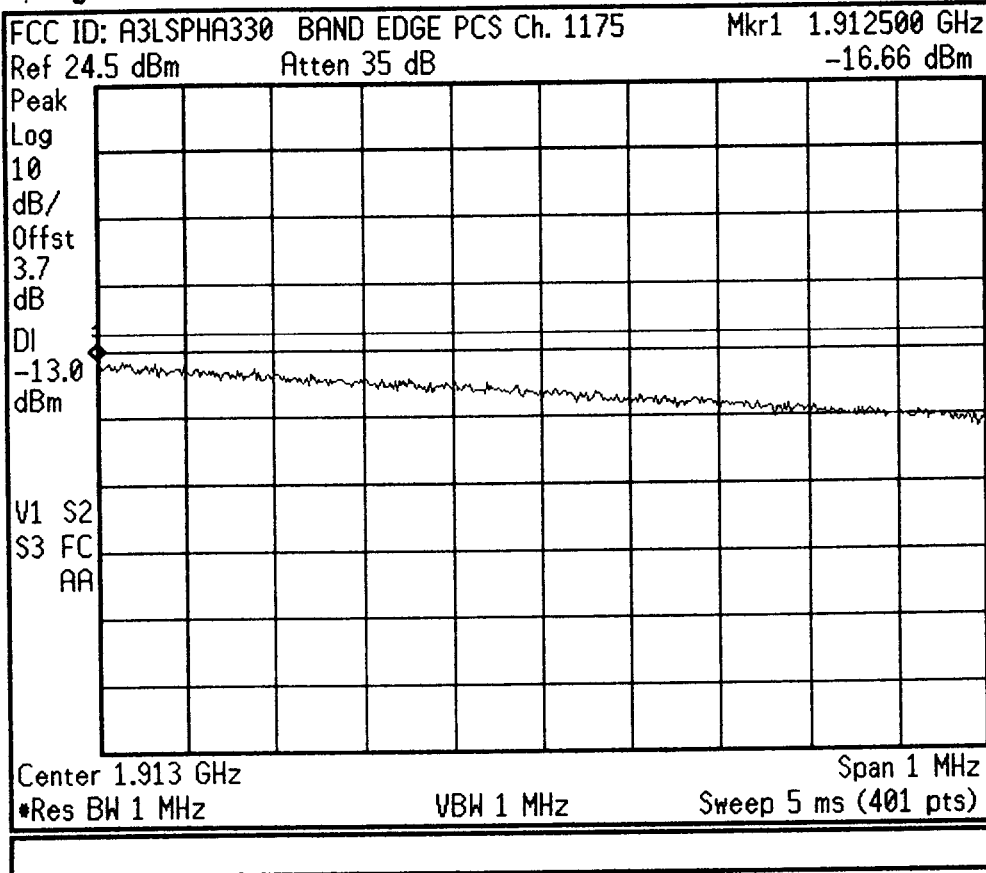
Stop Freq
 1.84450000 GHz

CF Step
 100.000000 kHz
 Auto Man

Freq Offset
 0.00000000 Hz

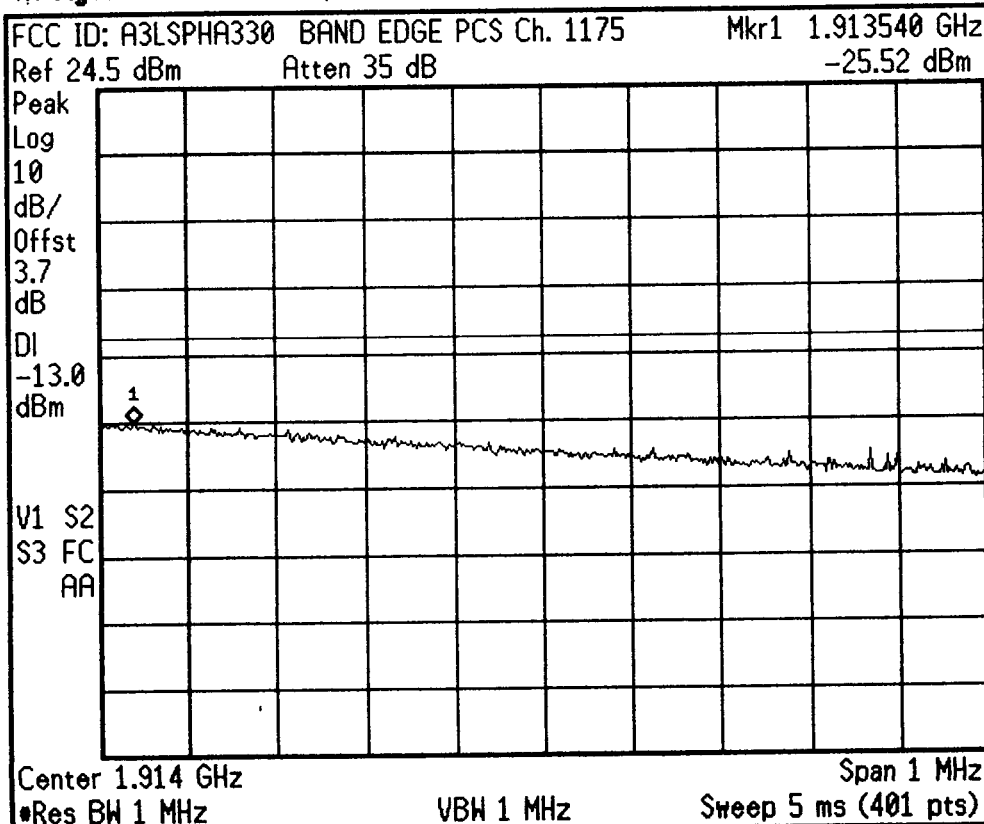
Signal Track
 On Off

Agilent 08:42:35 Apr 26, 2001



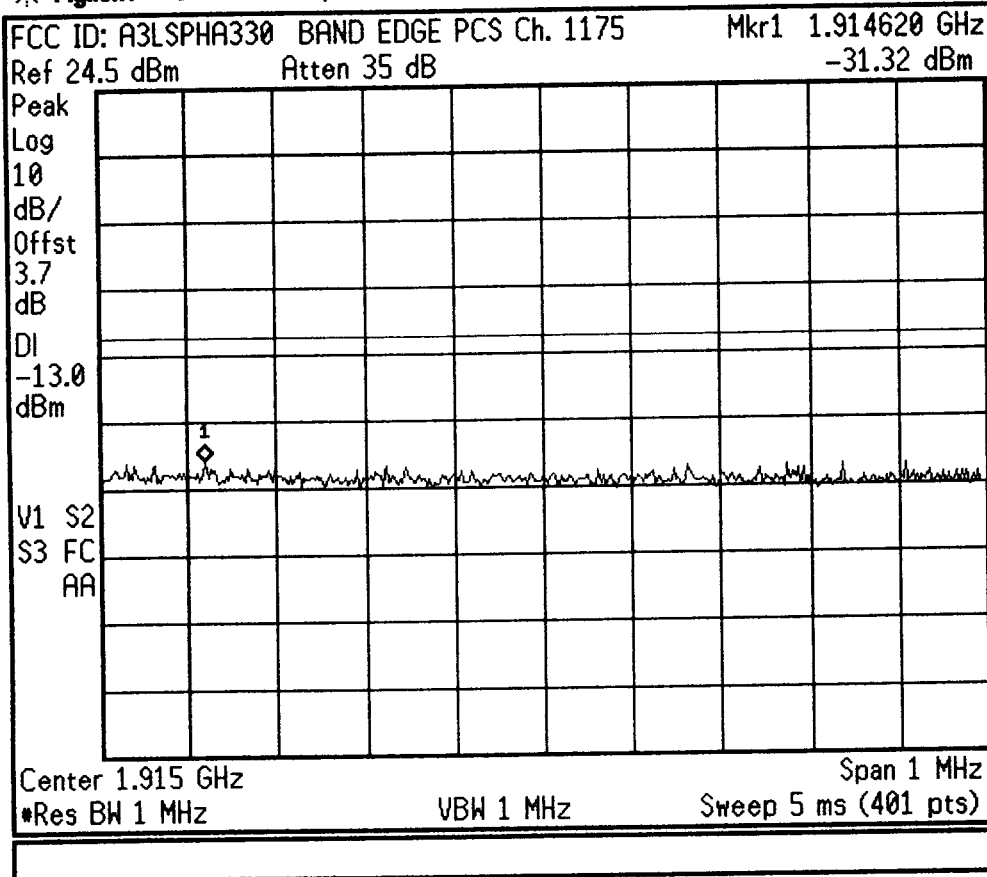
Freq/Channel
Center Freq 1.91300000 GHz
Start Freq 1.91250000 GHz
Stop Freq 1.91350000 GHz
CF Step 100.000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Agilent 08:43:06 Apr 26, 2001



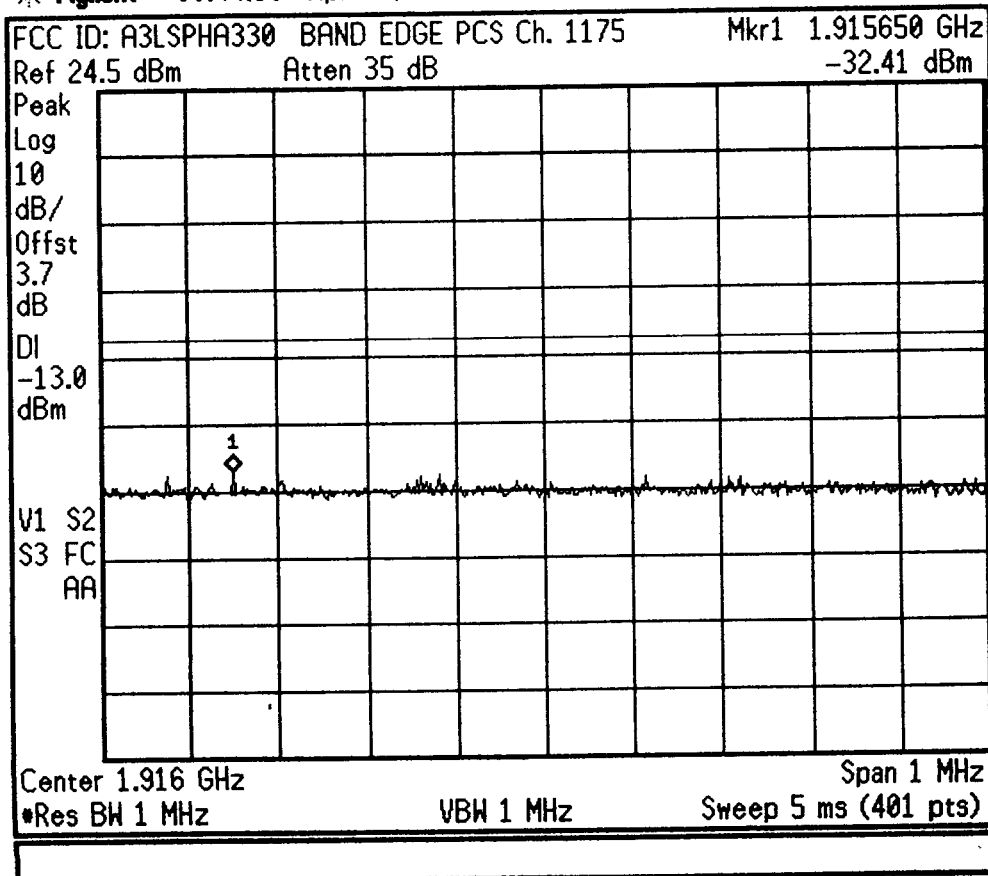
Freq/Channel
Center Freq 1.91400000 GHz
Start Freq 1.91350000 GHz
Stop Freq 1.91450000 GHz
CF Step 100.000000 kHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

* Agilent 08:43:48 Apr 26, 2001



Freq/Channel
Center Freq 1.9150000 GHz
Start Freq 1.9145000 GHz
Stop Freq 1.9155000 GHz
CF Step 100.000000 kHz Auto Man
Freq Offset 0.0000000 Hz
Signal Track On Off

* Agilent 08:44:39 Apr 26, 2001



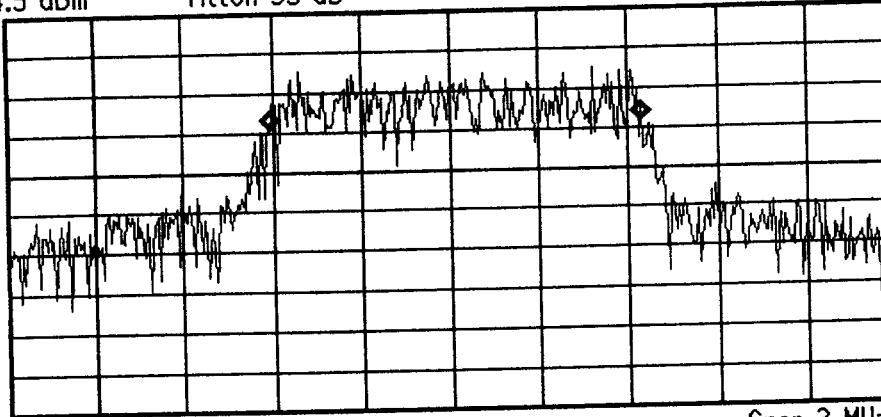
Freq/Channel
Center Freq 1.9160000 GHz
Start Freq 1.9155000 GHz
Stop Freq 1.9165000 GHz
CF Step 100.000000 kHz Auto Man
Freq Offset 0.0000000 Hz
Signal Track On Off

* Agilent 08:49:54 Apr 26, 2001

FCC ID: A3LSPA330 POWER OUT PCS Ch. 0600

Ref 24.5 dBm Atten 35 dB

Samp
Log
10
dB/
Offst
3.7
dB



Center 1.88 GHz

Span 3 MHz

*Res BW 30 kHz

*VBW 300 kHz

Sweep 9.167 ms (401 pts)

Occupied Bandwidth Results (idle)

Occupied Bandwidth

Occ BW % Pwr 99.00 %

1.250 MHz

Transmit Freq Error 16.75 kHz

Freq/Channel

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