

PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHN170

SAMSUNG

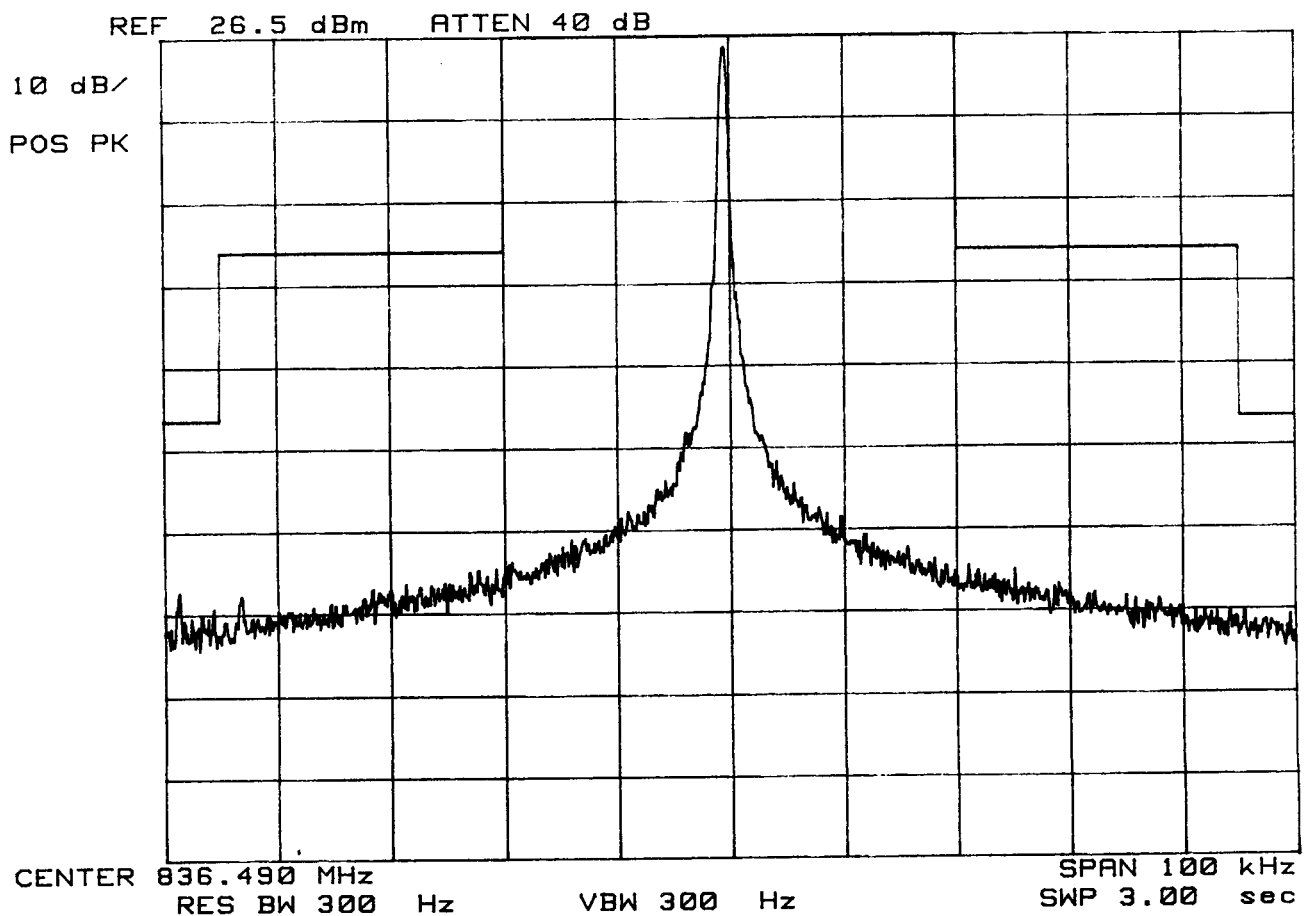
TRI-MODE PHONE

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.5 dBm

Test Mode:Unmodulated Signal



PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHN170

SAMSUNG

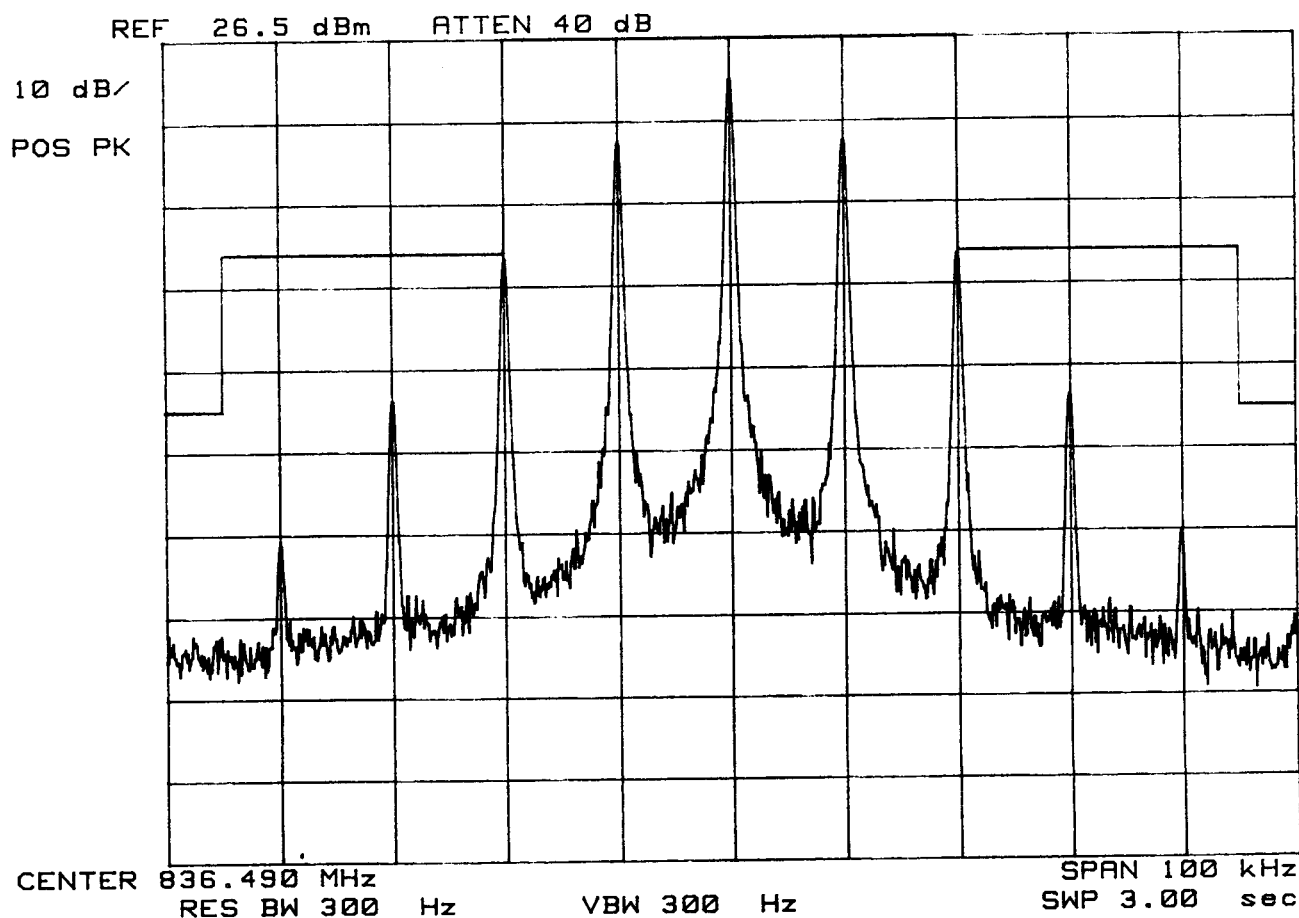
TRI-MODE PHONE

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.5 dBm

Test Mode:ST



PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHN170

SAMSUNG

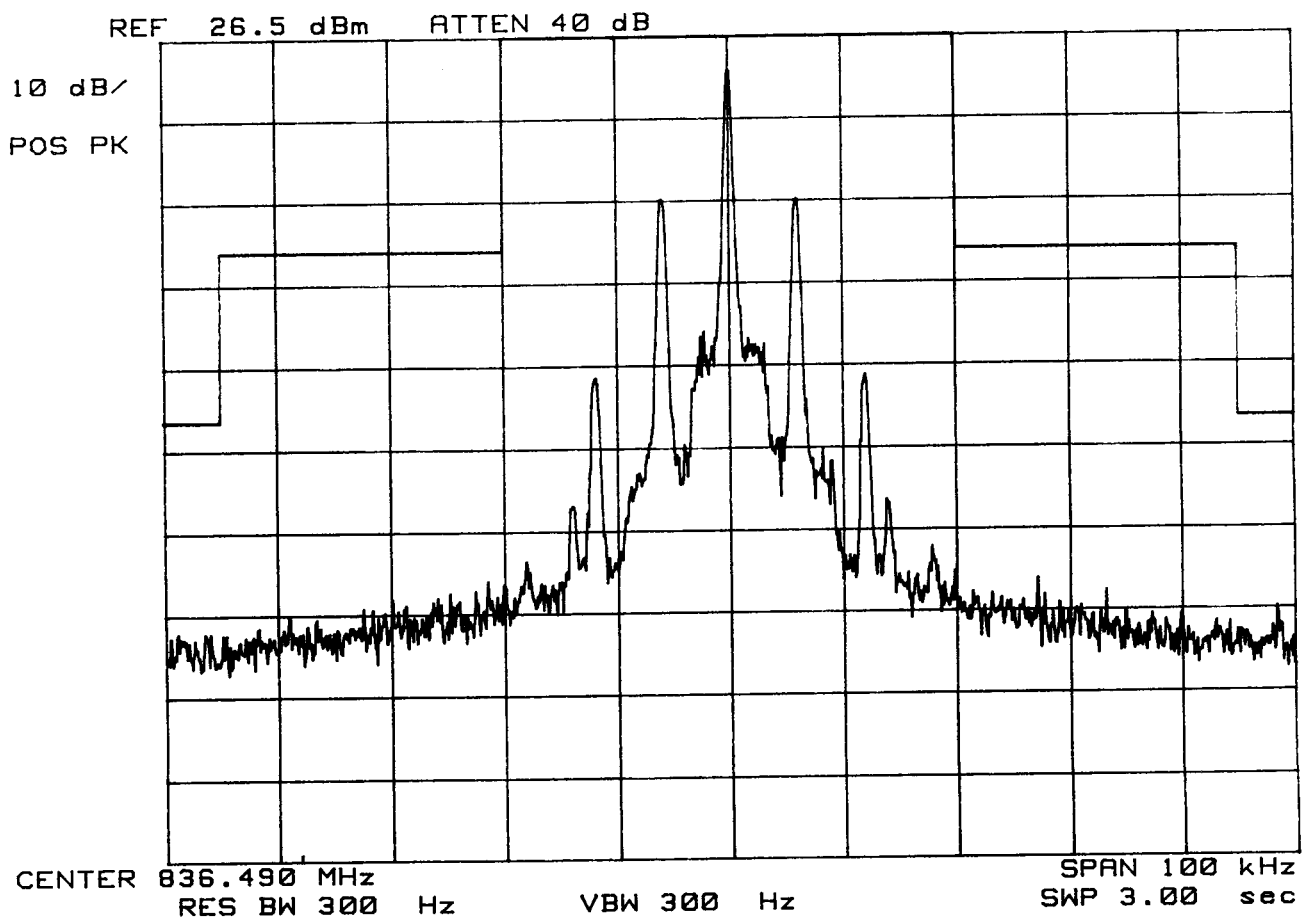
TRI-MODE PHONE

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.5 dBm

Test Mode:SAT



PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHN170

SAMSUNG

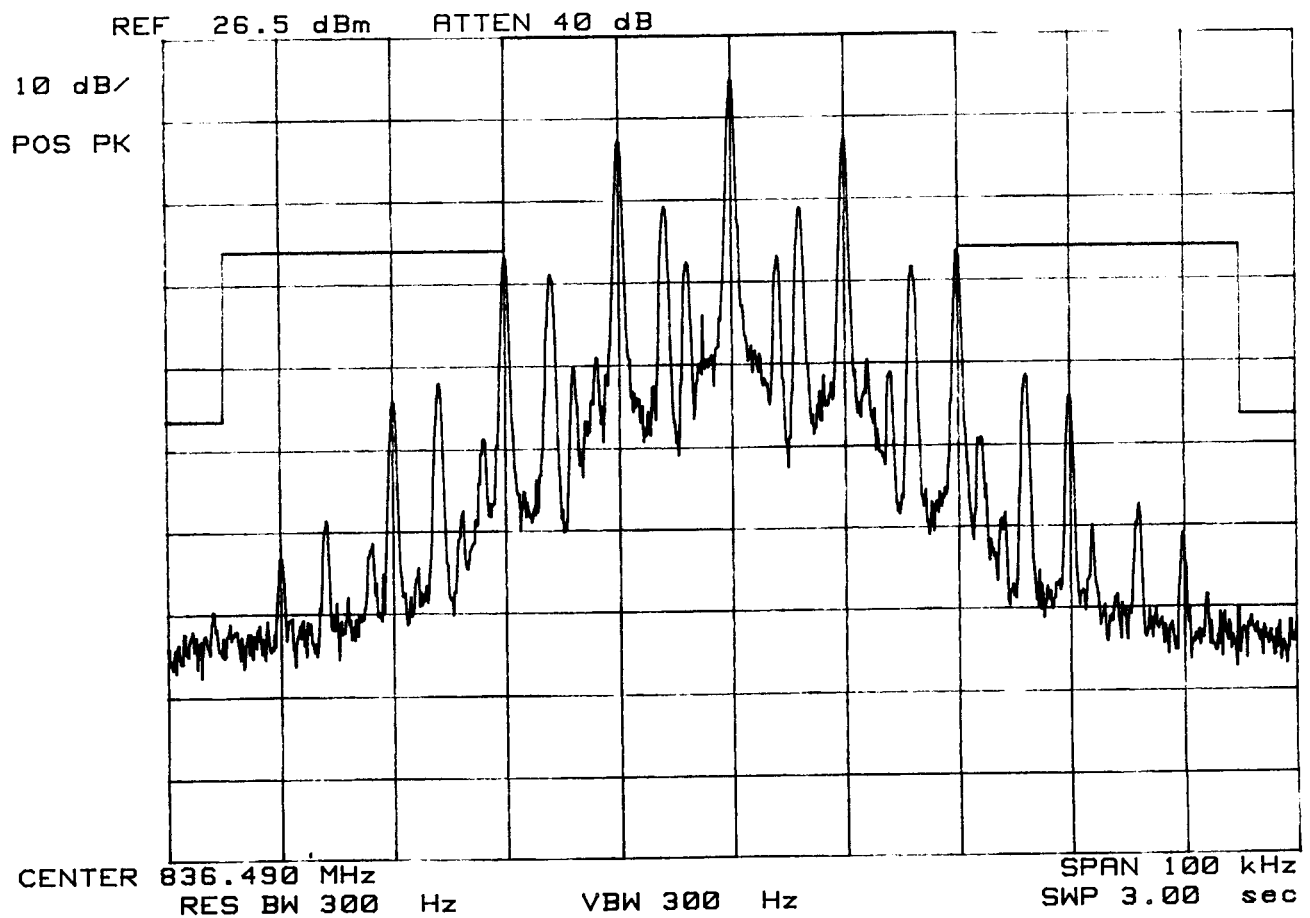
TRI-MODE PHONE

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.5 dBm

Test Mode:SAT + ST



PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHN170

SAMSUNG

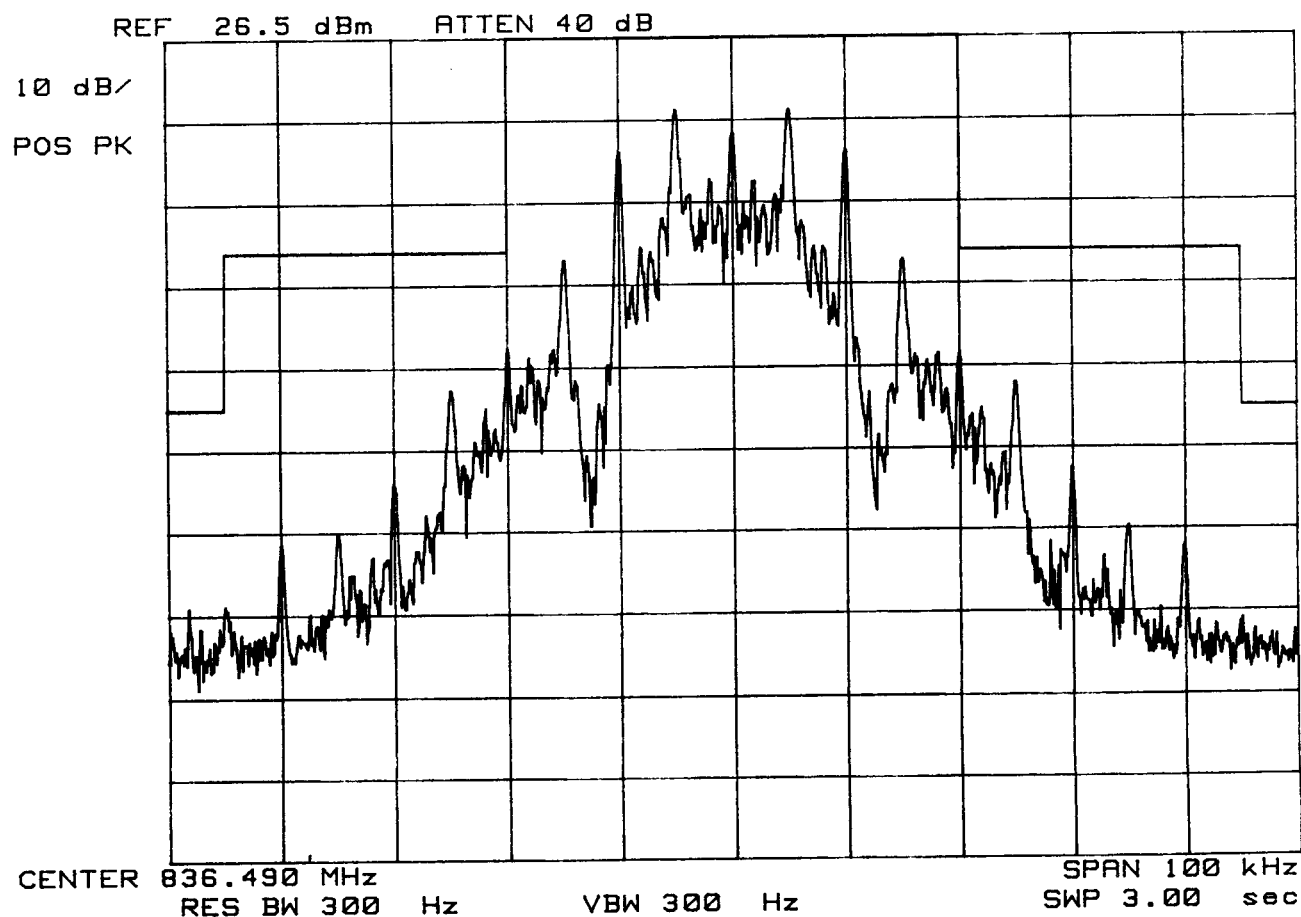
TRI-MODE PHONE

FM Channel 0383

Operating Frequency: 836.490 MHz

Output Power : 26.5 dBm

Test Mode:Wide Band Data



PCTEST Engineering Lab.

SPECTRUM ANALYZER PRESENTATION

FCC ID:A3LSPHN170

SAMSUNG

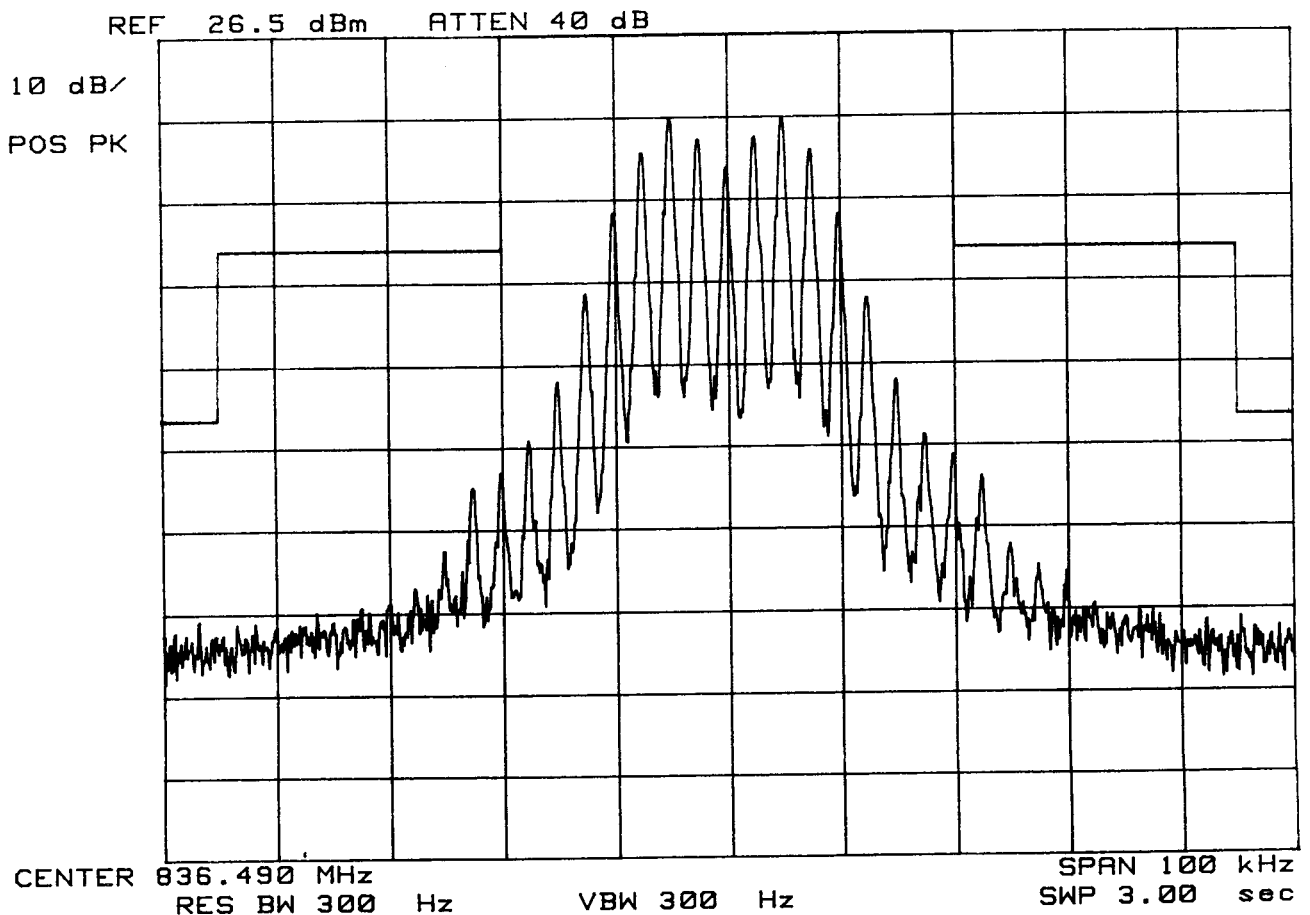
TRI-MODE PHONE

FM Channel 0383

Operating Frequency: 836.490 MHz

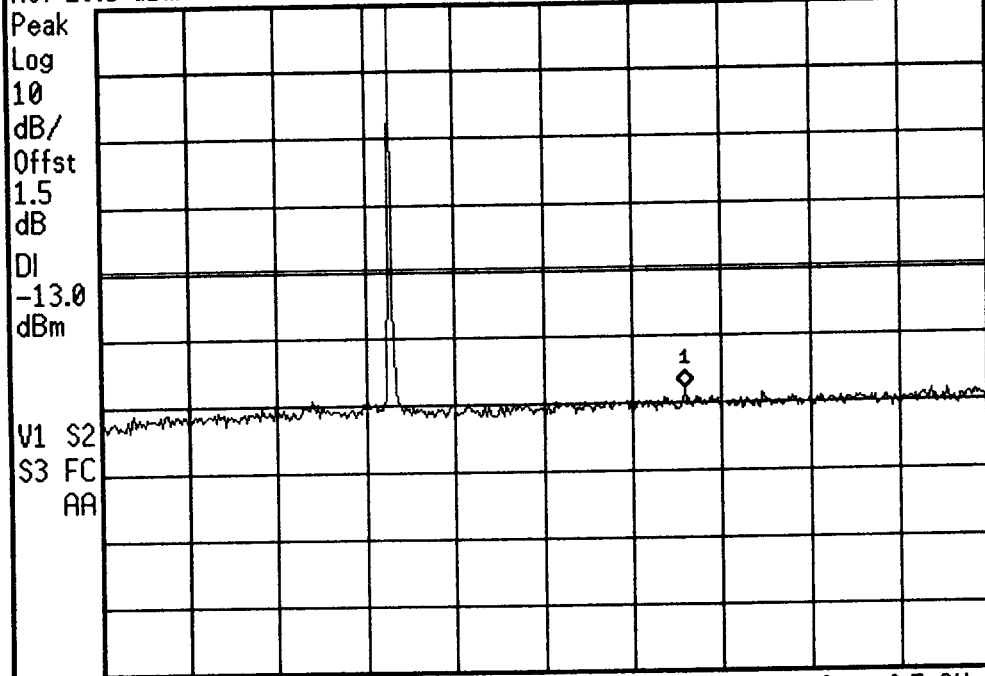
Output Power : 26.5 dBm

Test Mode:Voice



* Agilent 05:56:55 Apr 24, 2001

FCC ID: A3LSPHN170 Cond Spurs FM Ch. 0991 Mkr1 1.647 GHz
Ref 26.5 dBm Atten 35 dB -31.17 dBm



Start 10 MHz Stop 2.5 GHz
*Res BW 1 MHz VBW 1 MHz Sweep 6.225 ms (401 pts)

Freq/Channel

Center Freq
1.25500000 GHz

Start Freq
10.0000000 MHz

Stop Freq
2.50000000 GHz

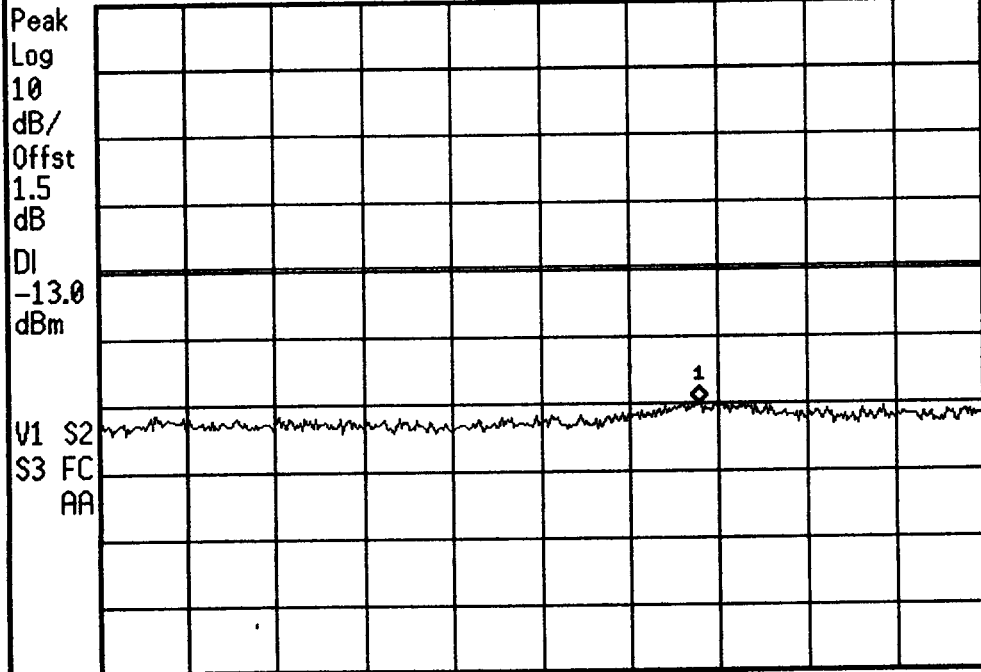
CF Step
249.000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

* Agilent 05:58:14 Apr 24, 2001

FCC ID: A3LSPHN170 Cond Spurs FM Ch. 0991 Mkr1 7.58 GHz
Ref 26.5 dBm Atten 35 dB -33.49 dBm



Start 2.5 GHz Stop 10 GHz
*Res BW 1 MHz VBW 1 MHz Sweep 18.75 ms (401 pts)

Freq/Channel

Center Freq
6.25000000 GHz

Start Freq
2.50000000 GHz

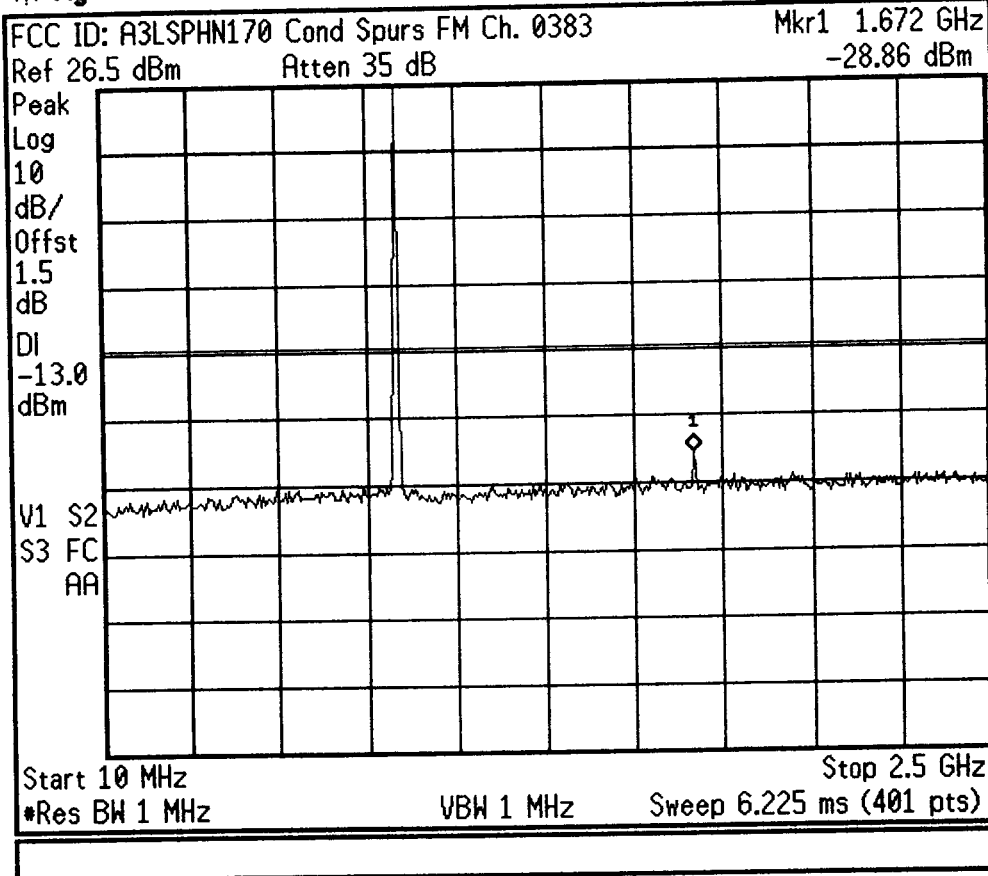
Stop Freq
10.0000000 GHz

CF Step
750.000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

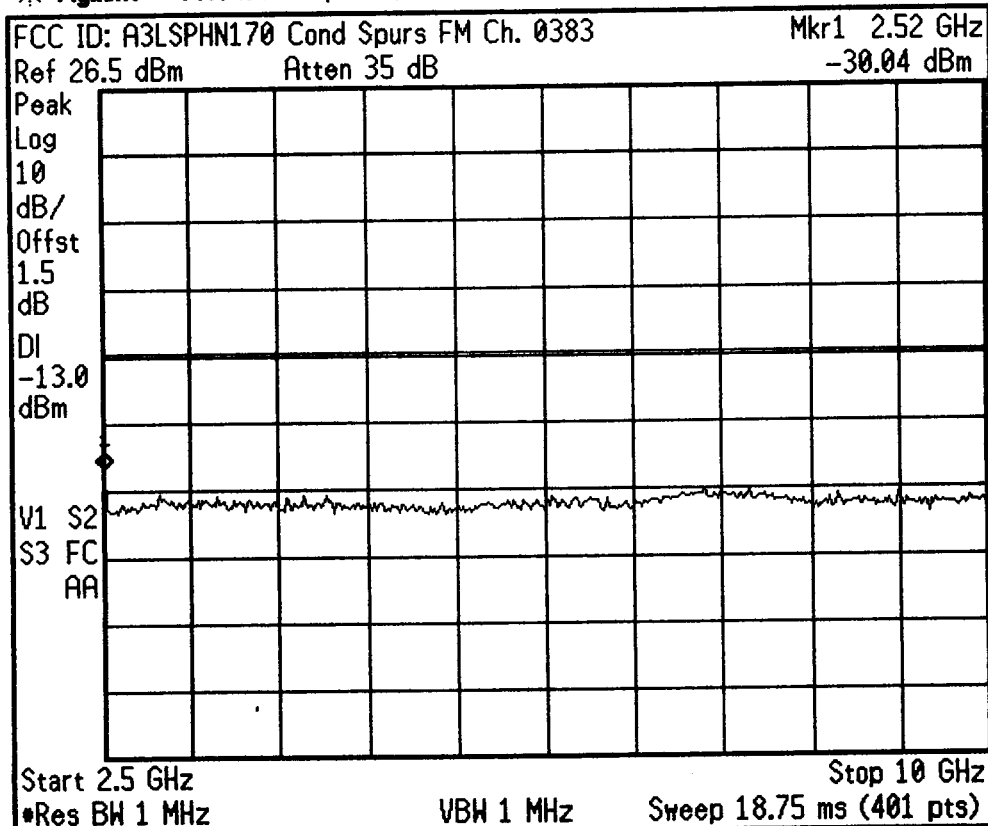
Signal Track
On Off

* Agilent 06:03:13 Apr 24, 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

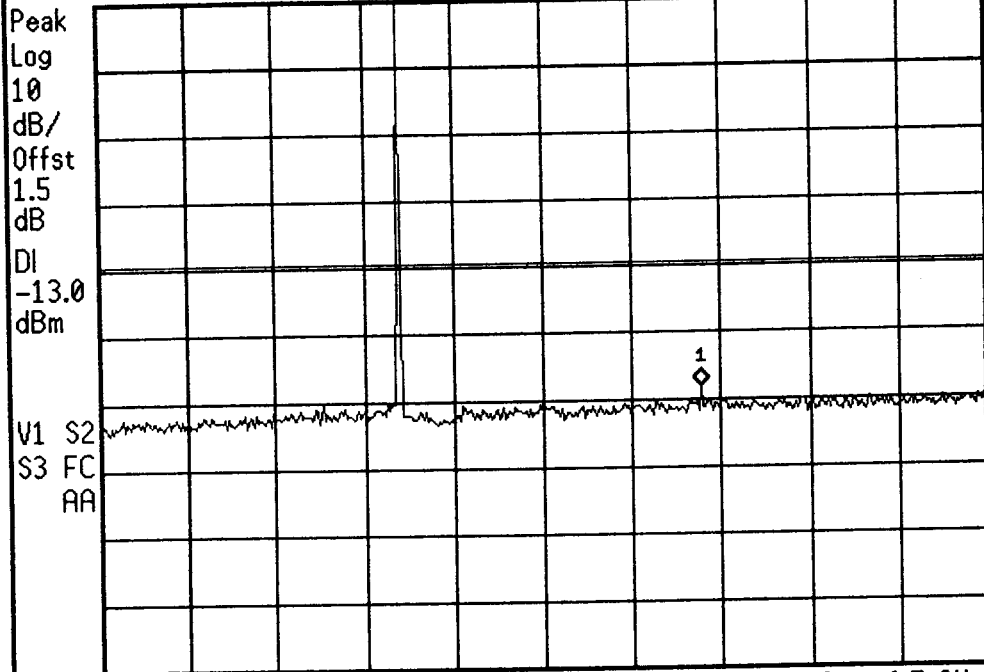
* Agilent 06:04:44 Apr 24, 2001



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 06:08:12 Apr 24, 2001

FCC ID: A3LSPHN170 Cond Spurs FM Ch. 0799 Mkr1 1.697 GHz
 Ref 26.5 dBm Atten 35 dB -31.39 dBm



Start 10 MHz Stop 2.5 GHz
 *Res BW 1 MHz VBW 1 MHz Sweep 6.225 ms (401 pts)

Freq/Channel

Center Freq
1.25500000 GHz

Start Freq
10.0000000 MHz

Stop Freq
2.50000000 GHz

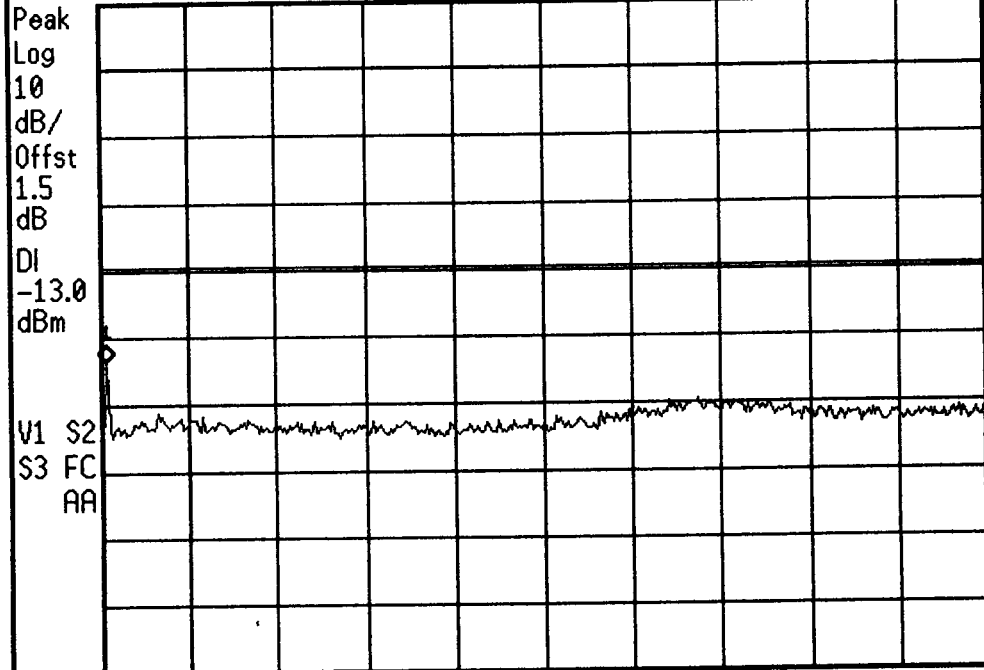
CF Step
249.000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

* Agilent 06:08:50 Apr 24, 2001

FCC ID: A3LSPHN170 Cond Spurs FM Ch. 0799 Mkr1 2.56 GHz
 Ref 26.5 dBm Atten 35 dB -26.88 dBm



Start 2.5 GHz Stop 10 GHz
 *Res BW 1 MHz VBW 1 MHz Sweep 18.75 ms (401 pts)

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

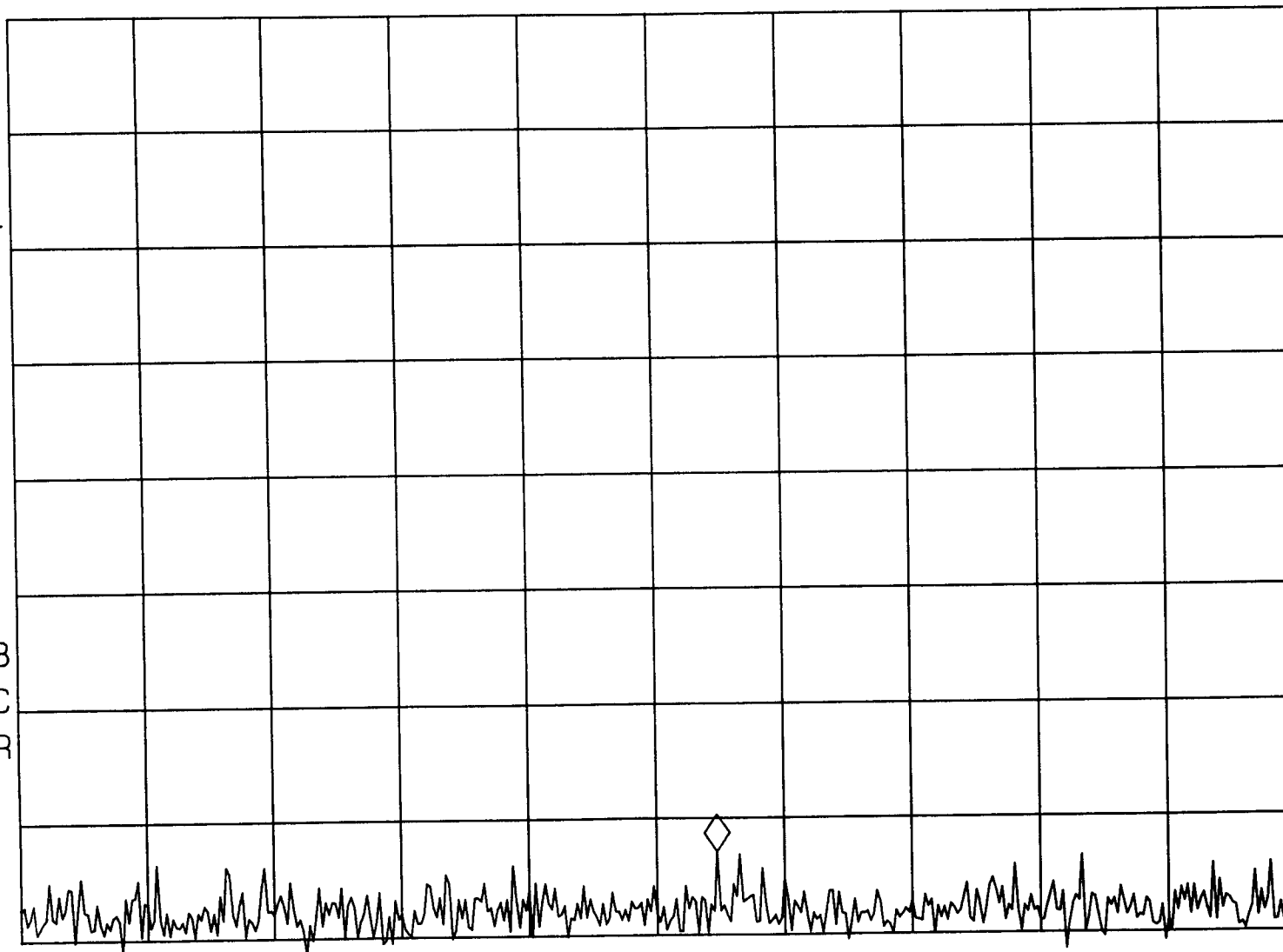
Signal Track
On Off

~~h~~ FCC ID: A3LSPHN170 FM MODE
REF -60.0 dBm #ATTEN 10 dB PG 25.0 dB

MKR 882.69 MHz
-96.43 dBm

PEAK
LOG
5
dB/
OFFST
6.0
dB

VA SB
SC FC
CORR



CENTER 881.50 MHz

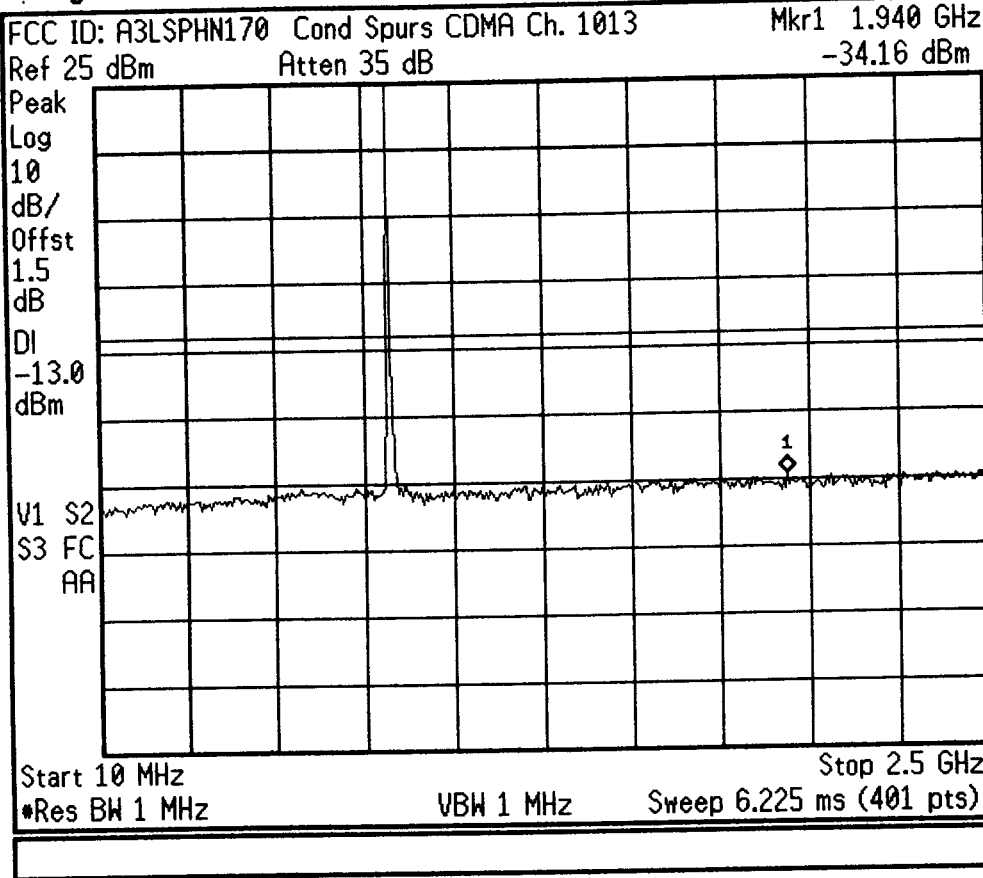
#RES BW 100 kHz

#VBW 300 kHz

SPAN 25.00 MHz

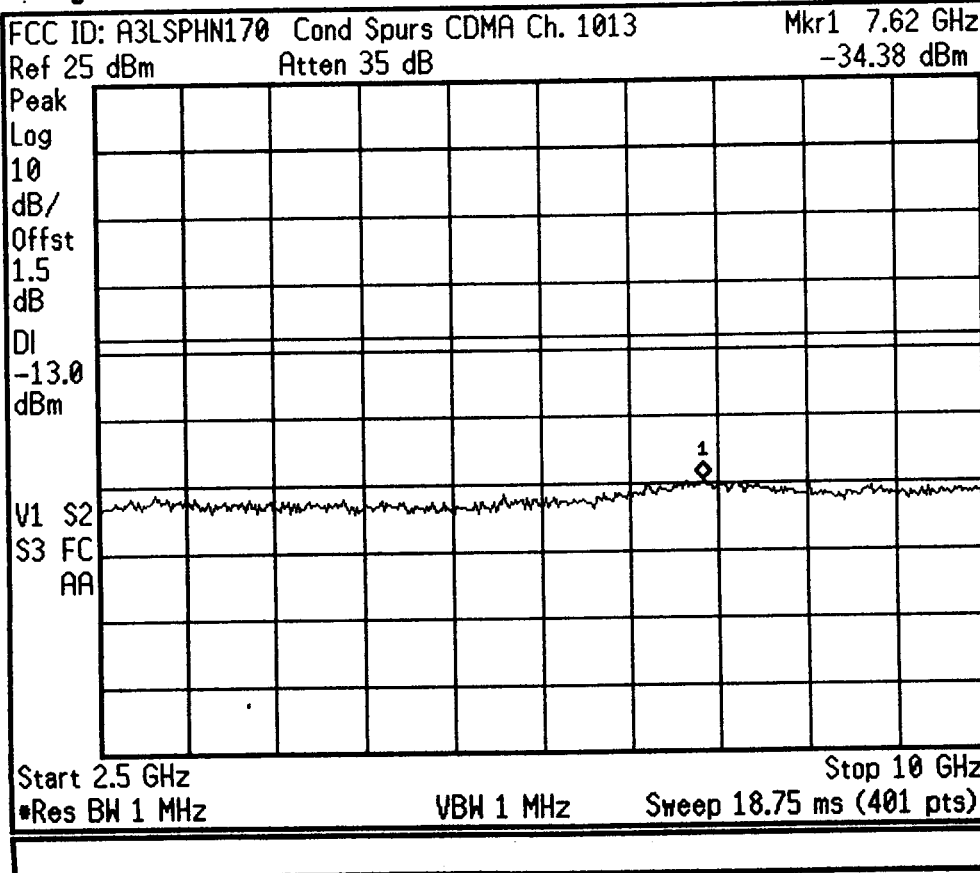
SWP 20 msec

Agilent 06:59:19 Apr 24, 2001



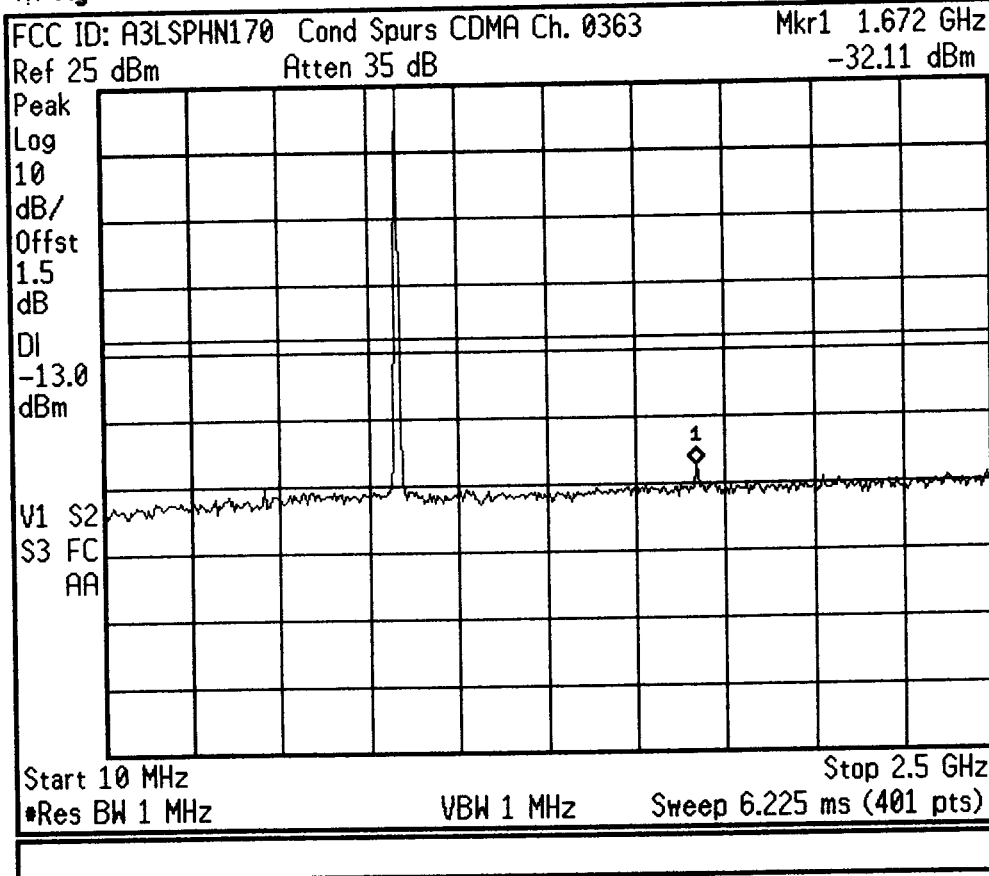
Freq/Channel
Center Freq 1.25500000 GHz
Start Freq 10.0000000 MHz
Stop Freq 2.50000000 GHz
CF Step 249.000000 MHz Auto Man
Freq Offset 0.00000000 Hz
Signal Track On Off

Agilent 07:00:03 Apr 24, 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 07:01:13 Apr 24, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

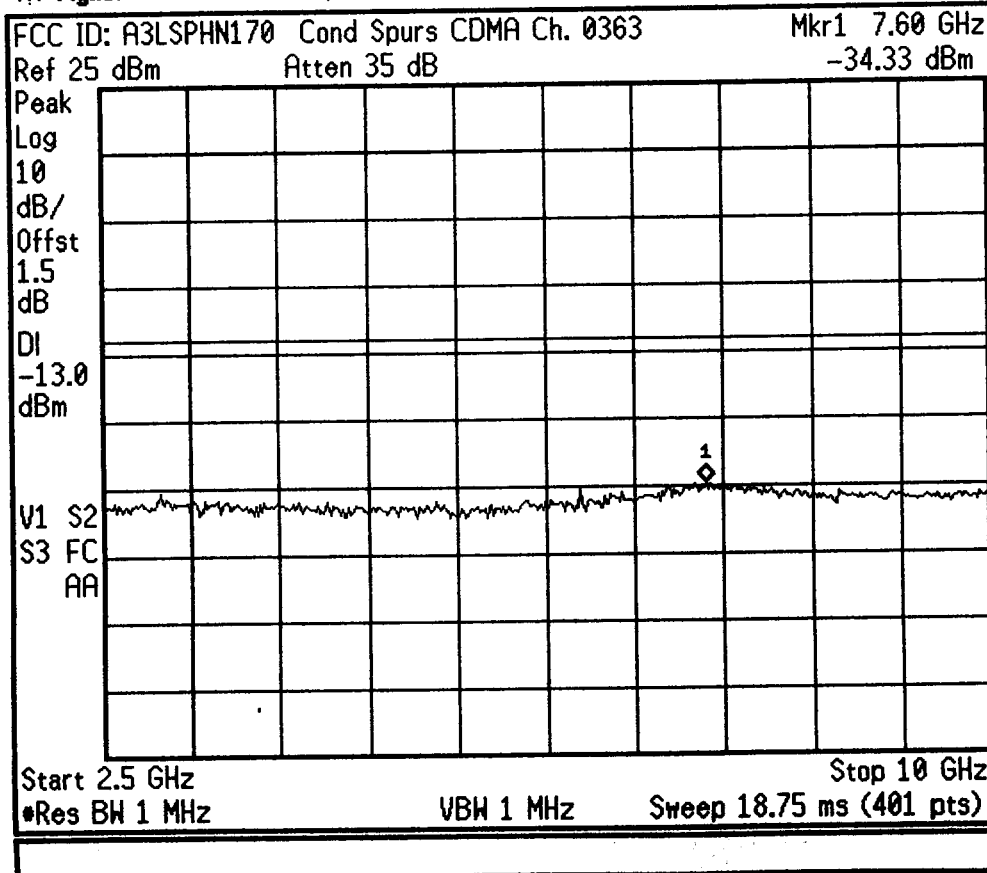
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:01:44 Apr 24, 2001



Freq/Channel

Center Freq
 6.25000000 GHz

Start Freq
 2.50000000 GHz

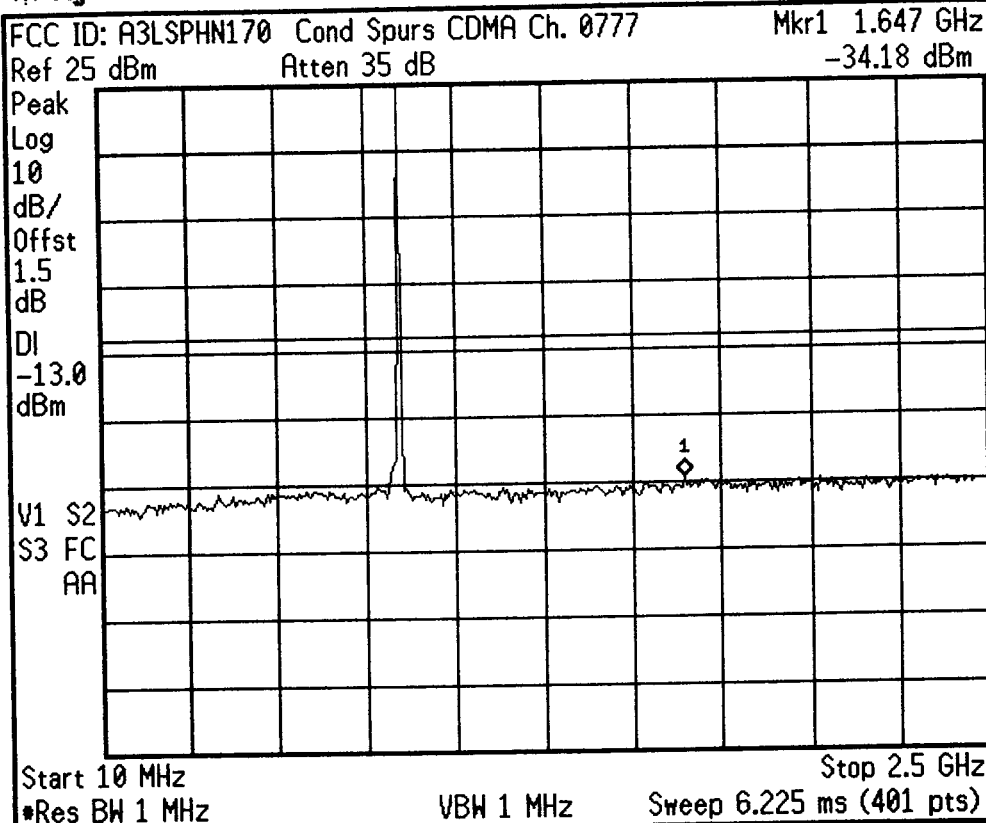
Stop Freq
 10.0000000 GHz

CF Step
 750.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:02:48 Apr 24, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

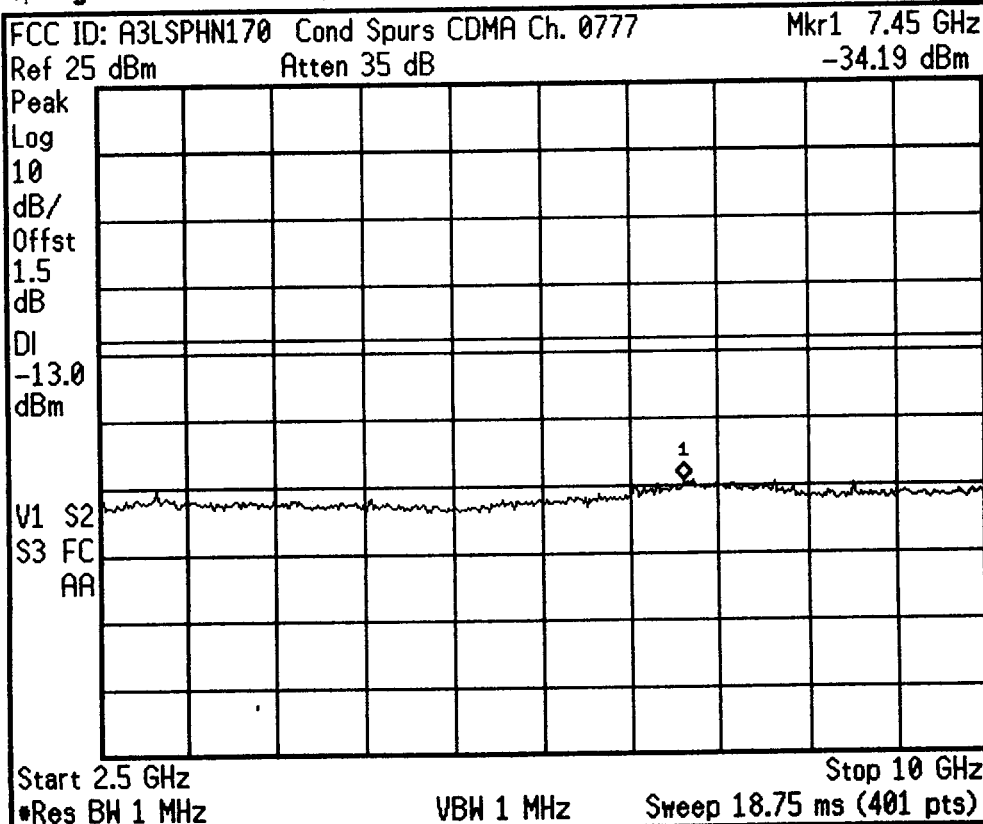
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:03:42 Apr 24, 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 06:49:01 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT CDMA Ch. 1013

Ref 25 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
1.5
dB

V1 S2
S3 FC
AA

Center 824.7 MHz

*Res BW 3 MHz

VBW 3 MHz

Span 10 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 06:49:55 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT CDMA Ch. 0777

Ref 25 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
1.5
dB

V1 S2
S3 FC
AA

Center 848.3 MHz

*Res BW 3 MHz

VBW 3 MHz

Span 10 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 06:40:17 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT CDMA Ch. 0363

Ref 25 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
1.5
dB

V1 S2
S3 FC
AA

Center 835.9 MHz

*Res BW 3 MHz

VBW 3 MHz

Span 10 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 06:47:07 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT CDMA Ch. 0363

Ref 25 dBm

Atten 35 dB

Samp
Log
10
dB/
Offst
1.5
dB

Center 835.9 MHz

*Res BW 30 kHz

*VBW 300 kHz

Span 3 MHz
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
25.01 dBm

Integration BW 2.000 MHz

Density -38.00 dBm/Hz

* Agilent 07:08:14 Apr 24, 2001

FCC ID: A3LSPHN170 BAND EDGE CDMA Ch. 1013

Ref 25 dBm

Atten 35 dB

Peak

Log

10

dB/

Offst

1.5

dB

DI

-13.0

dBm

V1 S2

S3 FC

AA

Center 824 MHz

*Res BW 30 kHz

VBW 30 kHz

Span 5 MHz
Sweep 13.89 ms (401 pts)

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 07:10:08 Apr 24, 2001

FCC ID: A3LSPHN170 BAND EDGE CDMA Ch. 0777

Ref 25 dBm

Atten 35 dB

Peak

Log

10

dB/

Offst

1.5

dB

DI

-13.0

dBm

V1 S2

S3 FC

AA

Center 849 MHz

*Res BW 30 kHz

VBW 30 kHz

Span 5 MHz
Sweep 13.89 ms (401 pts)

Freq/Channel

Center Freq
849.000000 MHz

Start Freq
846.500000 MHz

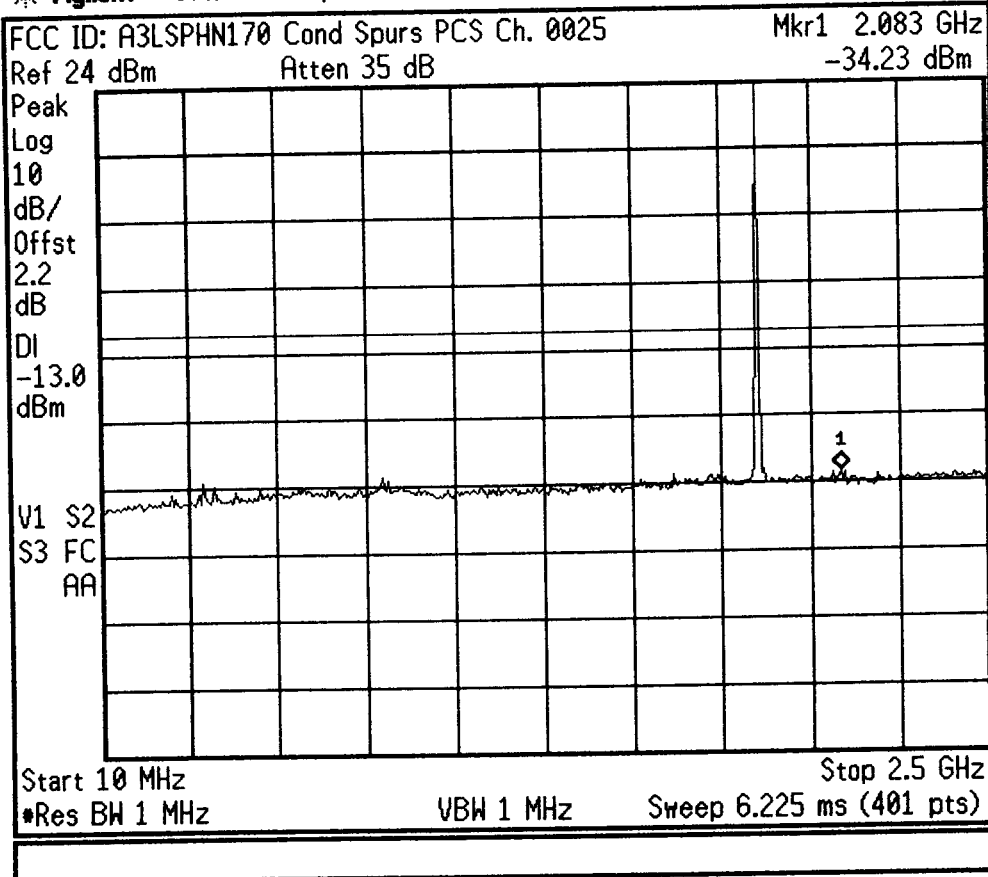
Stop Freq
851.500000 MHz

CF Step
500.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

* Agilent 07:25:31 Apr 24, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

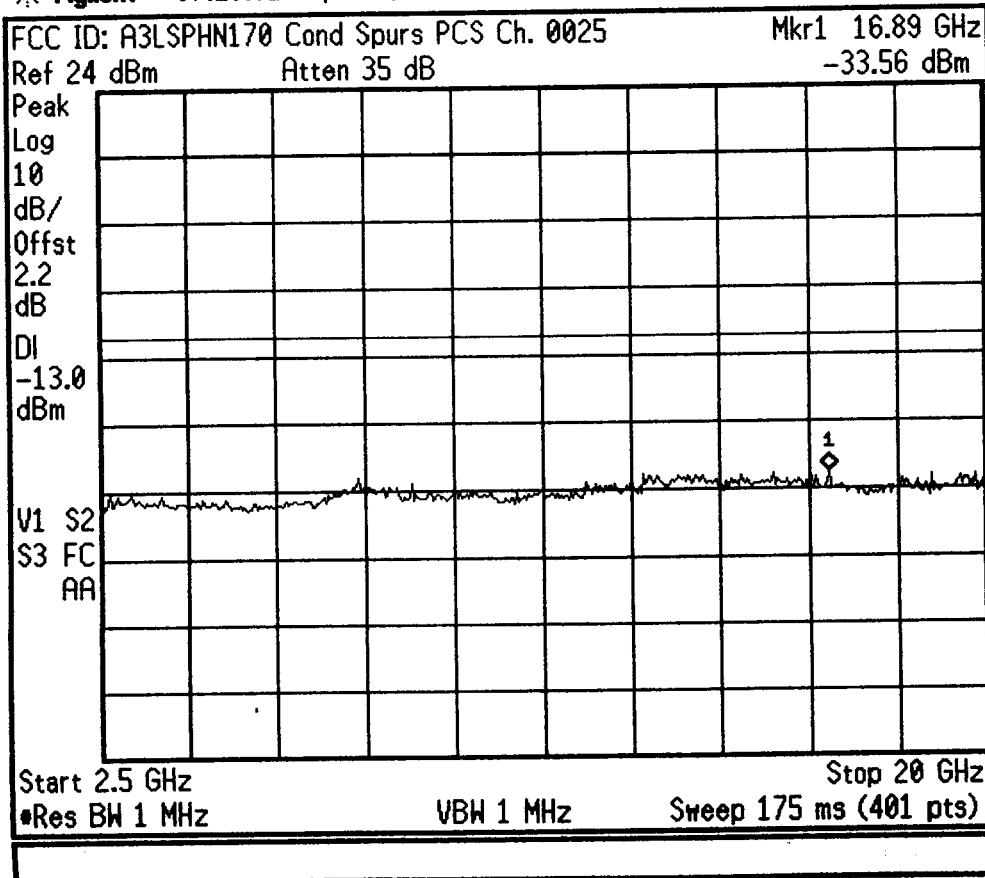
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:26:02 Apr 24, 2001



Freq/Channel

Center Freq
 11.2500000 GHz

Start Freq
 2.50000000 GHz

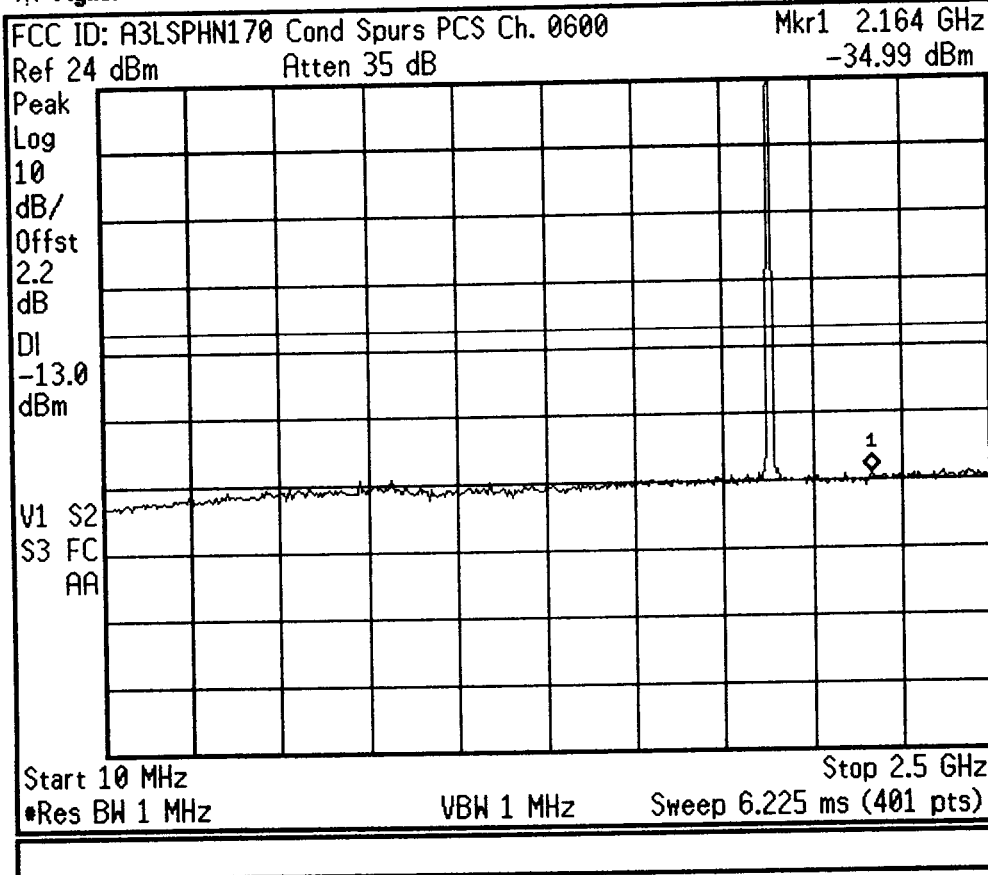
Stop Freq
 20.0000000 GHz

CF Step
 1.75000000 GHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

Agilent 07:27:55 Apr 24, 2001



Freq/Channel

Center Freq
 1.25500000 GHz

Start Freq
 10.0000000 MHz

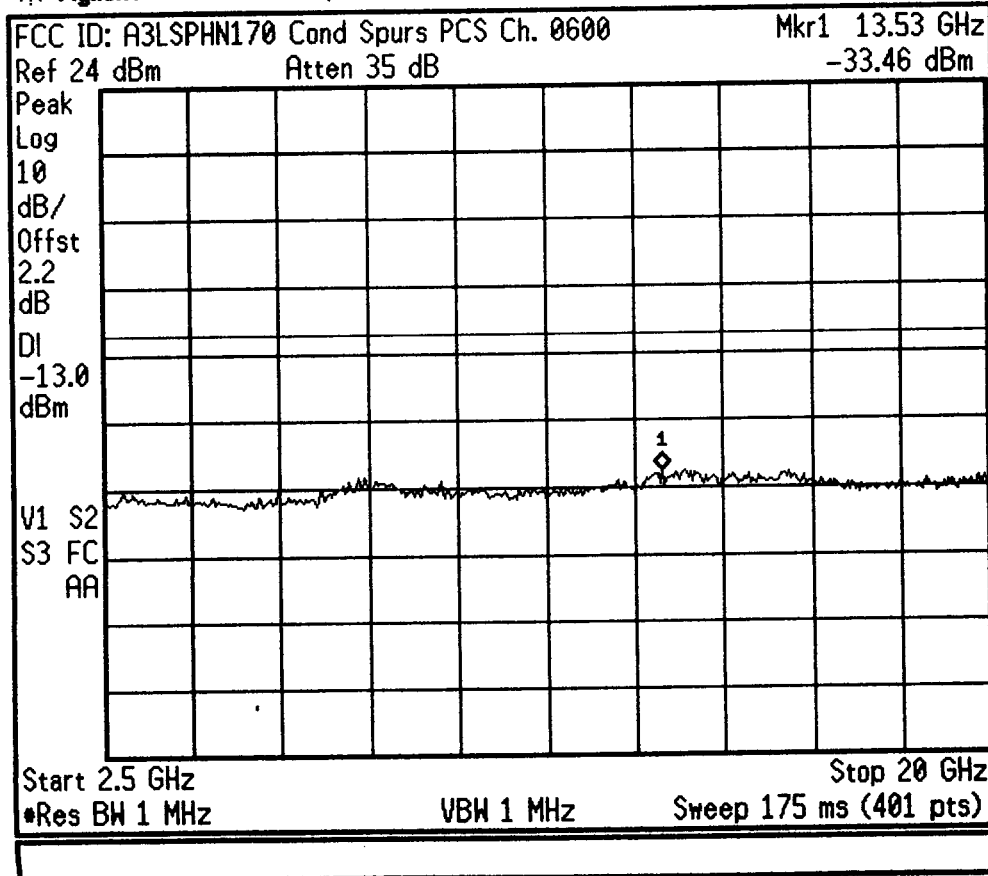
Stop Freq
 2.50000000 GHz

CF Step
 249.000000 MHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

Agilent 07:28:43 Apr 24, 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 07:30:11 Apr 24, 2001

FCC ID: A3LSPHN170 Cond Spurs PCS Ch. 1175

Mkr1 2.226 GHz

Ref 24 dBm

Atten 35 dB

-34.42 dBm

Peak

Log

10

dB/

Offst

2.2

dB

DI

-13.0

dBm

V1 S2

S3 FC

AA

Start 10 MHz

*Res BW 1 MHz

VBW 1 MHz

Stop 2.5 GHz
Sweep 6.225 ms (401 pts)

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 07:30:46 Apr 24, 2001

FCC ID: A3LSPHN170 Cond Spurs PCS Ch. 1175

Mkr1 14.18 GHz

Ref 24 dBm

Atten 35 dB

-33.35 dBm

Peak

Log

10

dB/

Offst

2.2

dB

DI

-13.0

dBm

V1 S2

S3 FC

AA

Start 2.5 GHz

*Res BW 1 MHz

VBW 1 MHz

Stop 20 GHz
Sweep 175 ms (401 pts)

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 07:33:25 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT PCS Ch. 0600

Ref 24 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
2.2
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 07:34:22 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT PCS Ch. 1175

Ref 24 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
2.2
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 07:35:32 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT PCS Ch. 0025

Ref 24 dBm

Atten 35 dB

Peak
Log
10
dB/
Offst
2.2
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 07:37:44 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT PCS Ch. 0025

Ref 24 dBm

Atten 35 dB

Samp
Log
10
dB/
Offst
2.2
dB

Center 1.851 GHz

*Res BW 30 kHz

*VBW 300 kHz

Span 3 MHz
Sweep 9.167 ms (401 pts)

Trace

Trace

1 2 3

Clear Write

Max Hold

Min Hold

View

Blank

More
1 of 2

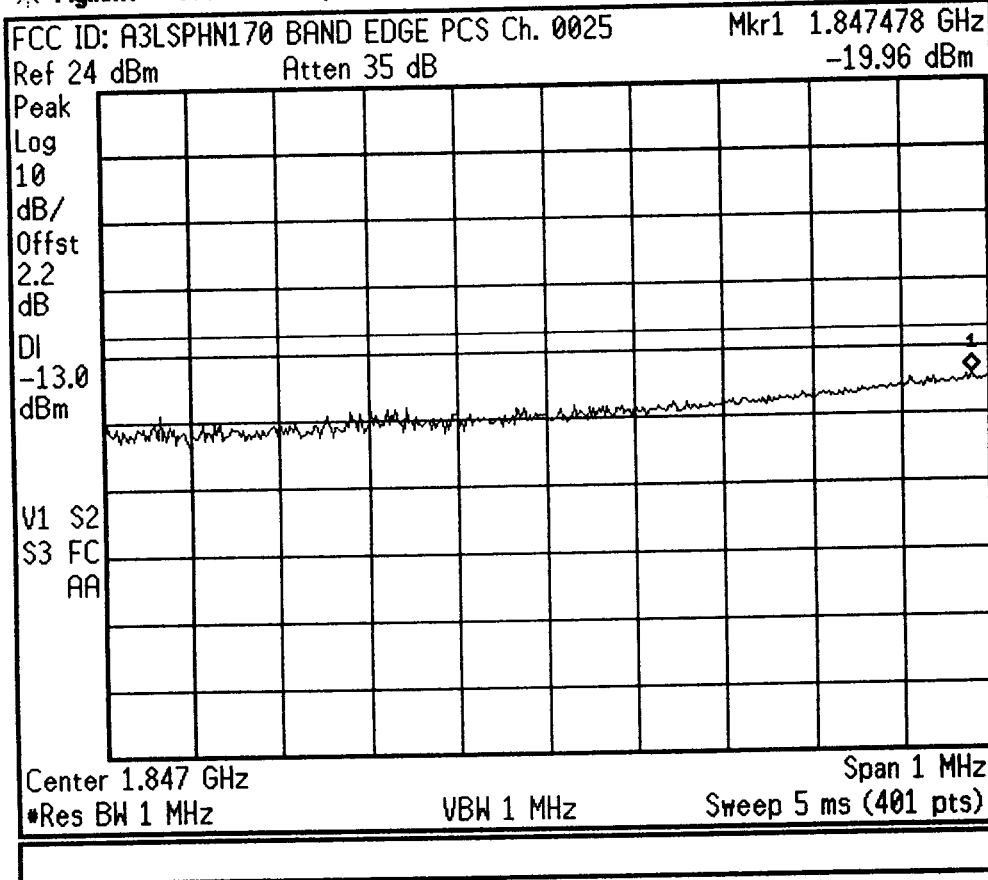
Channel Power Results (idle)

Channel Power
24.00 dBm

Integration BW 2.000 MHz

Density -39.01 dBm/Hz

* Agilent 07:45:18 Apr 24, 2001



Freq/Channel

Center Freq
 1.84700000 GHz

Start Freq
 1.84650000 GHz

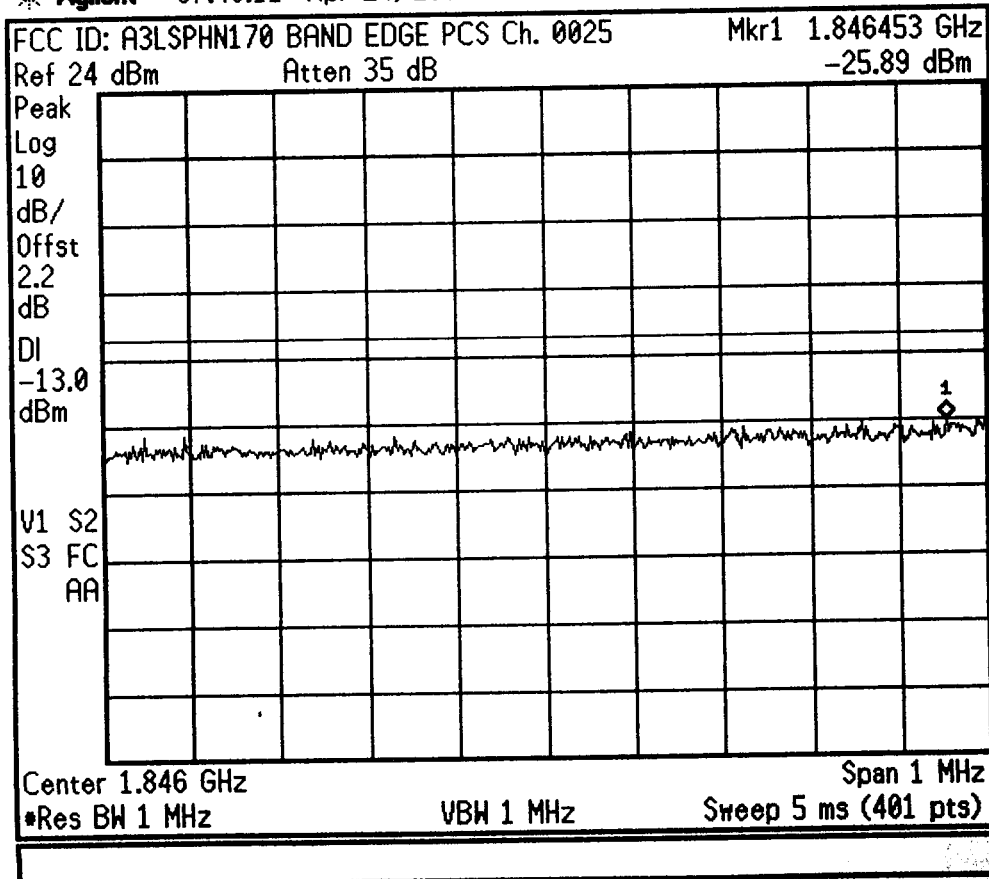
Stop Freq
 1.84750000 GHz

CF Step
 100.000000 kHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:46:11 Apr 24, 2001



Freq/Channel

Center Freq
 1.84600000 GHz

Start Freq
 1.84550000 GHz

Stop Freq
 1.84650000 GHz

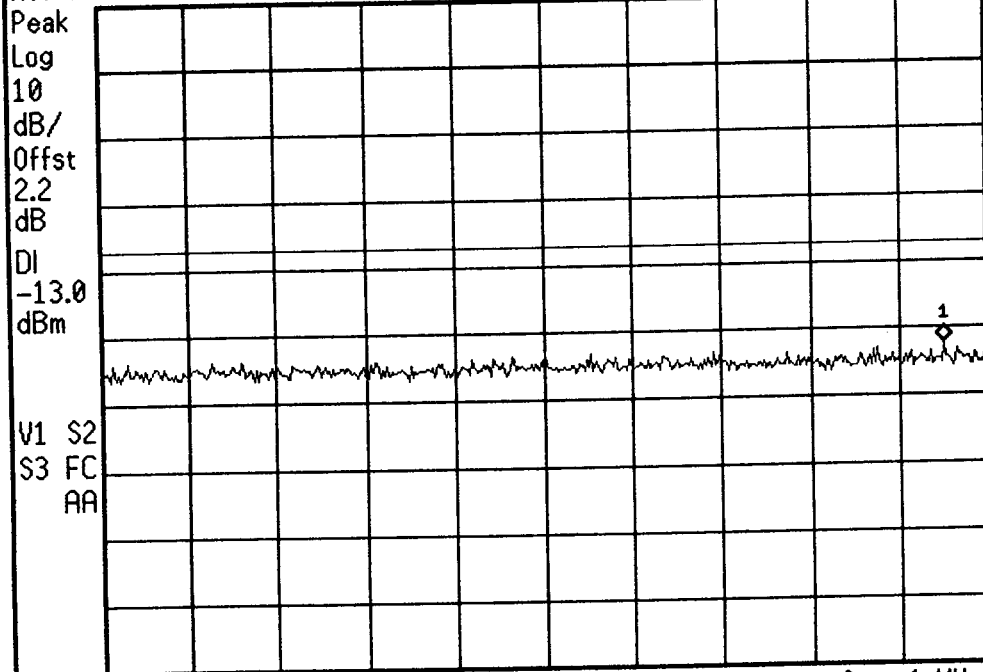
CF Step
 100.000000 kHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:46:49 Apr 24, 2001

FCC ID: A3LSPHN170 BAND EDGE PCS Ch. 0025 Mkr1 1.845450 GHz
 Ref 24 dBm Atten 35 dB -28.37 dBm



Center 1.845 GHz Span 1 MHz
 •Res BW 1 MHz VBW 1 MHz Sweep 5 ms (401 pts)

Freq/Channel

Center Freq
 1.84500000 GHz

Start Freq
 1.84450000 GHz

Stop Freq
 1.84550000 GHz

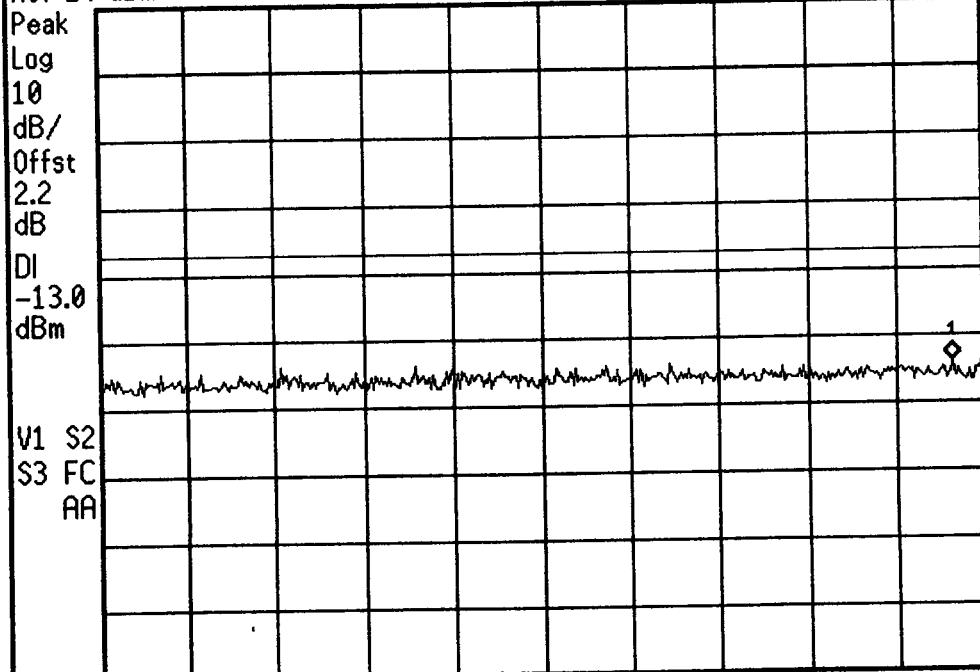
CF Step
 100.000000 kHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:47:55 Apr 24, 2001

FCC ID: A3LSPHN170 BAND EDGE PCS Ch. 0025 Mkr1 1.844463 GHz
 Ref 24 dBm Atten 35 dB -29.61 dBm



Center 1.844 GHz Span 1 MHz
 •Res BW 1 MHz VBW 1 MHz Sweep 5 ms (401 pts)

Freq/Channel

Center Freq
 1.84400000 GHz

Start Freq
 1.84350000 GHz

Stop Freq
 1.84450000 GHz

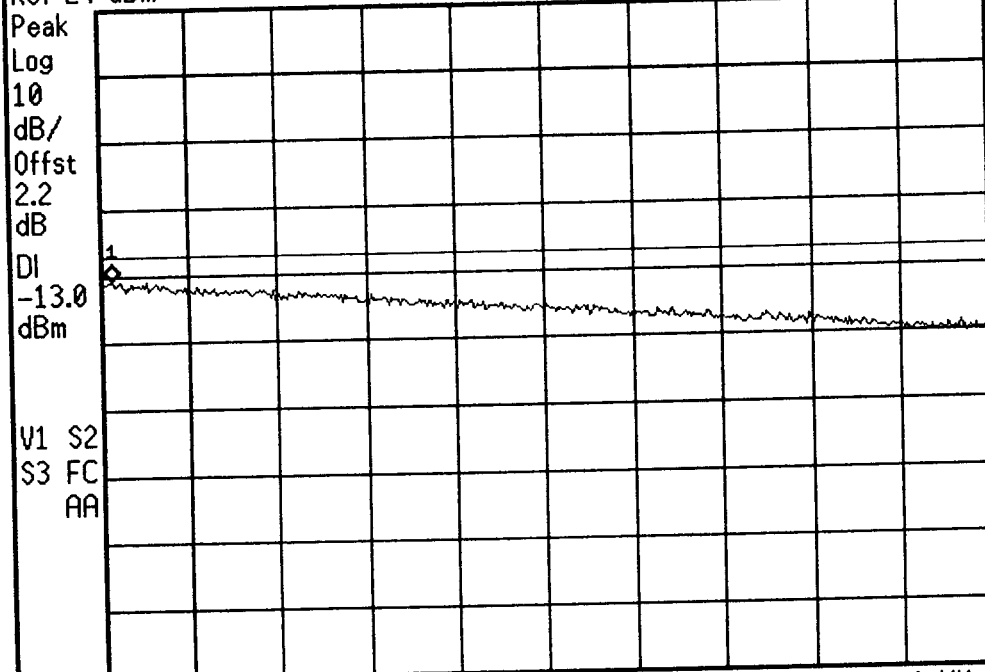
CF Step
 100.000000 kHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:49:07 Apr 24, 2001

FCC ID: A3LSPHN170 BAND EDGE PCS Ch. 1175 Mkr1 1.912513 GHz
Ref 24 dBm Atten 35 dB -16.68 dBm



Center 1.913 GHz Span 1 MHz
*Res BW 1 MHz VBW 1 MHz Sweep 5 ms (401 pts)

Freq/Channel

Center Freq
1.91300000 GHz

Start Freq
1.91250000 GHz

Stop Freq
1.91350000 GHz

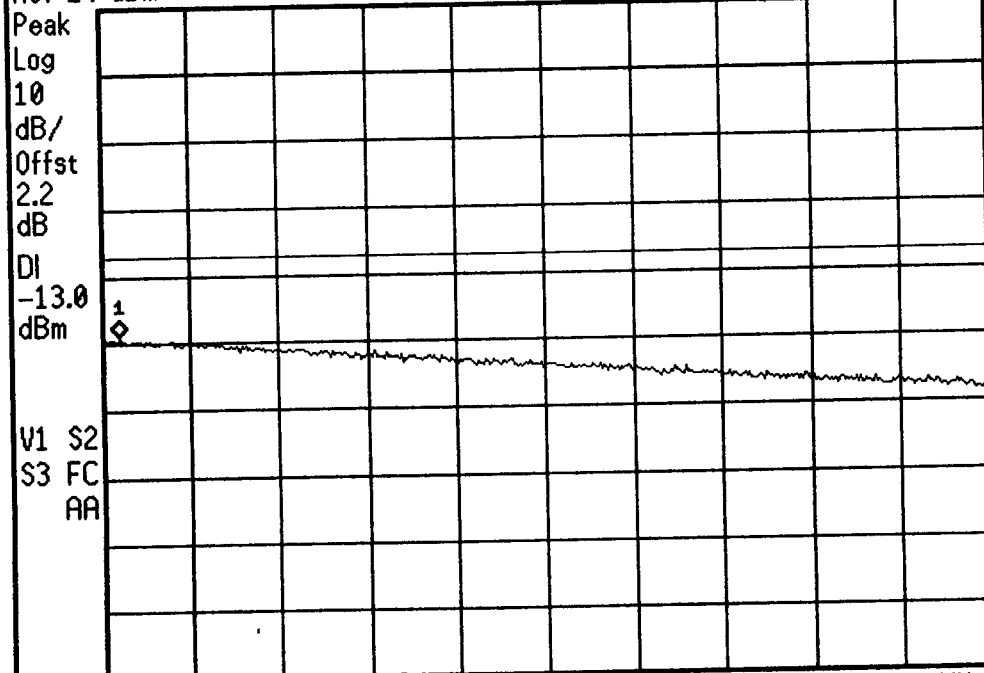
CF Step
100.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

* Agilent 07:49:43 Apr 24, 2001

FCC ID: A3LSPHN170 BAND EDGE PCS Ch. 1175 Mkr1 1.913520 GHz
Ref 24 dBm Atten 35 dB -24.84 dBm



Center 1.914 GHz Span 1 MHz
*Res BW 1 MHz VBW 1 MHz Sweep 5 ms (401 pts)

Freq/Channel

Center Freq
1.91400000 GHz

Start Freq
1.91350000 GHz

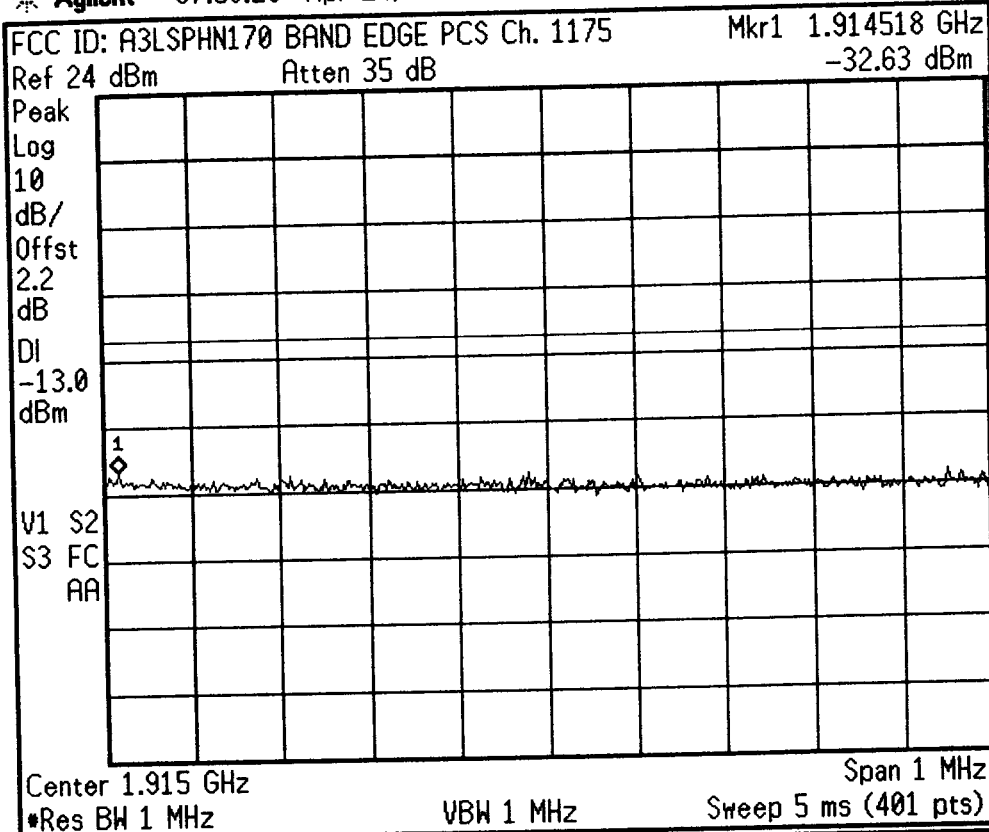
Stop Freq
1.91450000 GHz

CF Step
100.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

* Agilent 07:50:20 Apr 24, 2001



Freq/Channel

Center Freq
 1.91500000 GHz

Start Freq
 1.91450000 GHz

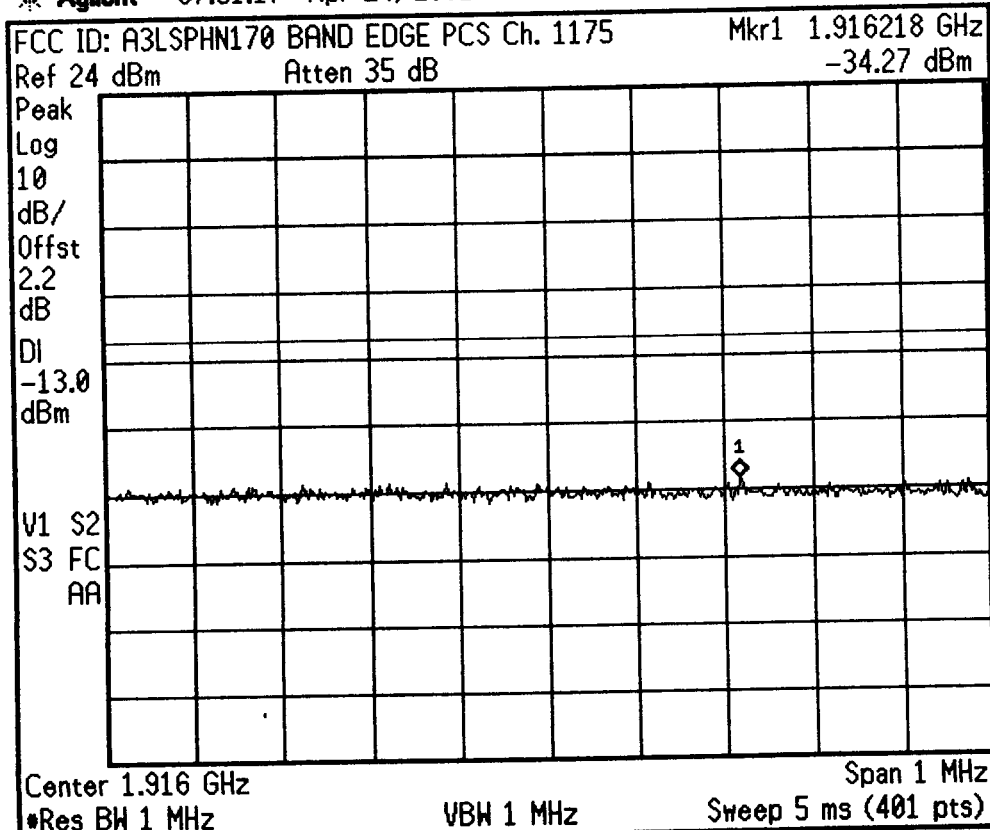
Stop Freq
 1.91550000 GHz

CF Step
 100.000000 kHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:51:17 Apr 24, 2001



Freq/Channel

Center Freq
 1.91600000 GHz

Start Freq
 1.91550000 GHz

Stop Freq
 1.91650000 GHz

CF Step
 100.000000 kHz
 Auto Man

Freq Offset
 0.00000000 Hz

Signal Track
 On Off

* Agilent 07:55:14 Apr 24, 2001

FCC ID: A3LSPHN170 POWER OUT PCS Ch. 0600

Ref 24 dBm

Atten 35 dB

Samp

Log

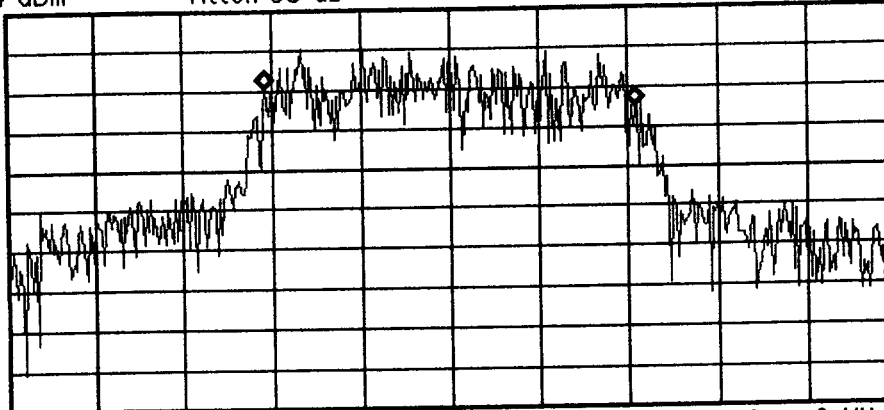
10

dB/

Offst

2.2

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 880.8 Hz

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

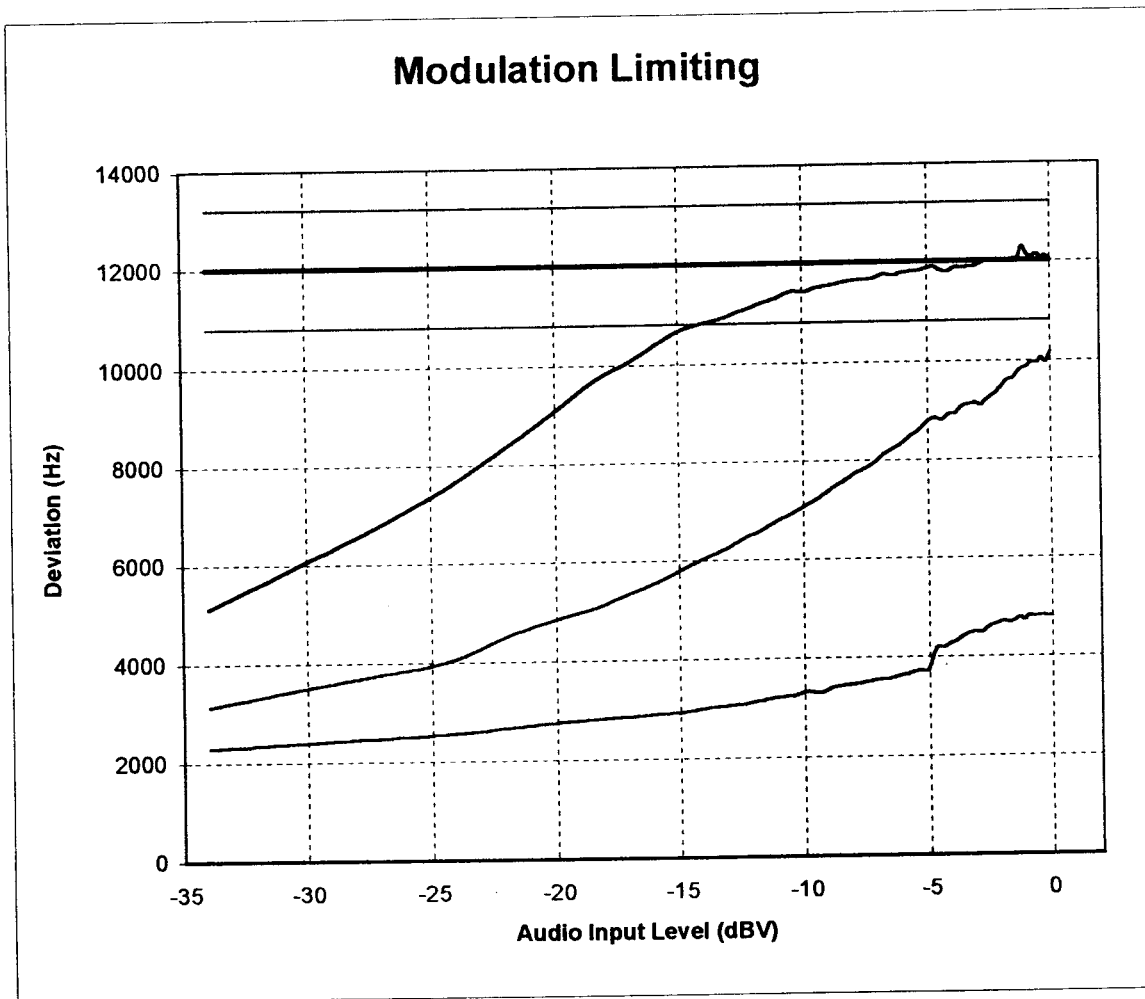
Off

SUBJECT: Modulation Characteristics
FCC Part 24/22

Test Report No.: 24/22.210419232 A3L
Test Date: 04.19.2001

EUT: SAMSUNG Tri-Mode Dual-Band Analog/PCS Phone (AMPS/CDMA)
Model: SPH - N170
FCC ID: A3LSPHN170

REFERENCE: 1 kHz = 0 dB



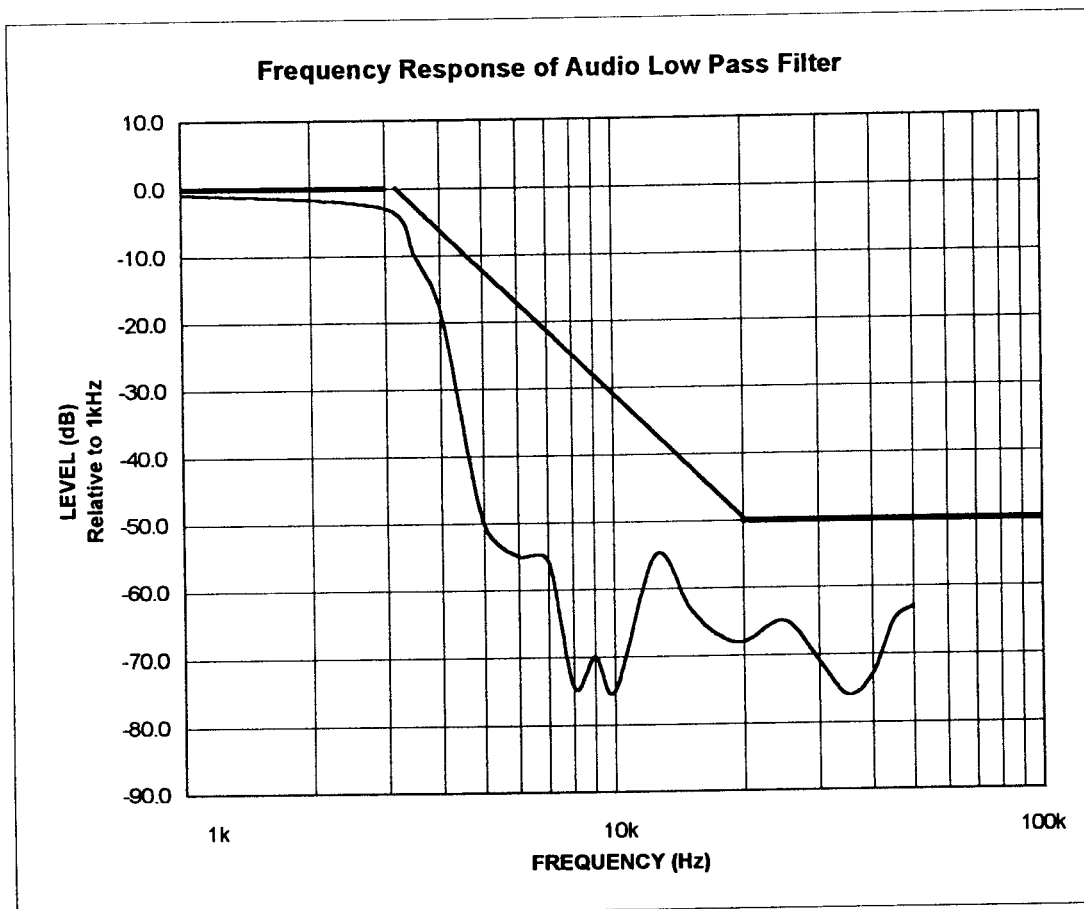
SAMSUNG Tri-Mode Dual-Band ANALOG/PCS Phone (AMPS/CDMA)
FCC ID: A3LSPHN170

SUBJECT: Modulation Characteristics
FCC Part 24/22

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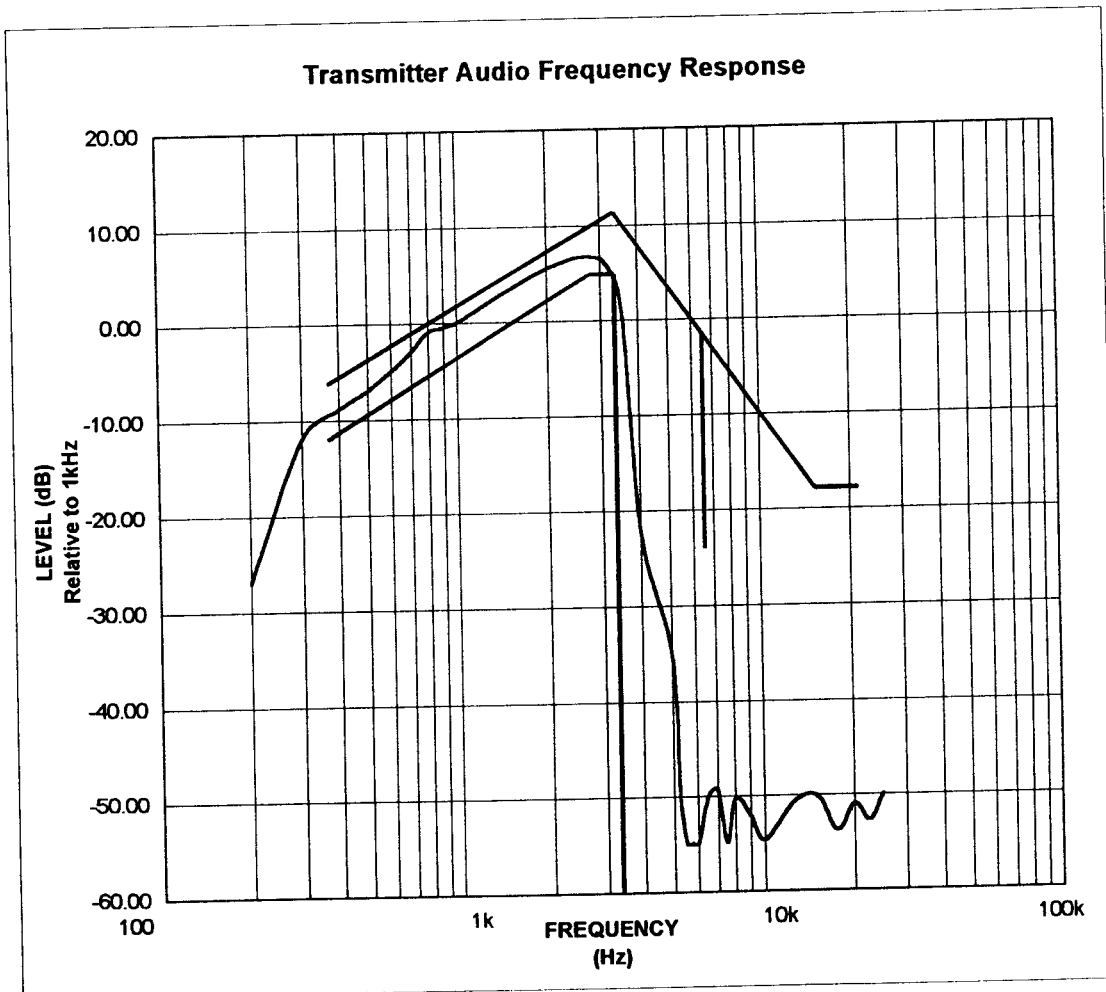
SAMSUNG Tri-Mode Dual-Band ANALOG/PCS Phone (AMPS/CDMA)
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FCC ID: A3LSPHN170