

Type Acceptance Test Report

**Multimode PCS Repeater
FCC Rule Parts: 2, 15 & 24**

ACS Report Number: 03-0089-24TA

Manufacturer: EMS Wireless
Model: Link2Cell

Intermodulation Test

**Two Tone Conducted
Spurious Emissions Test**

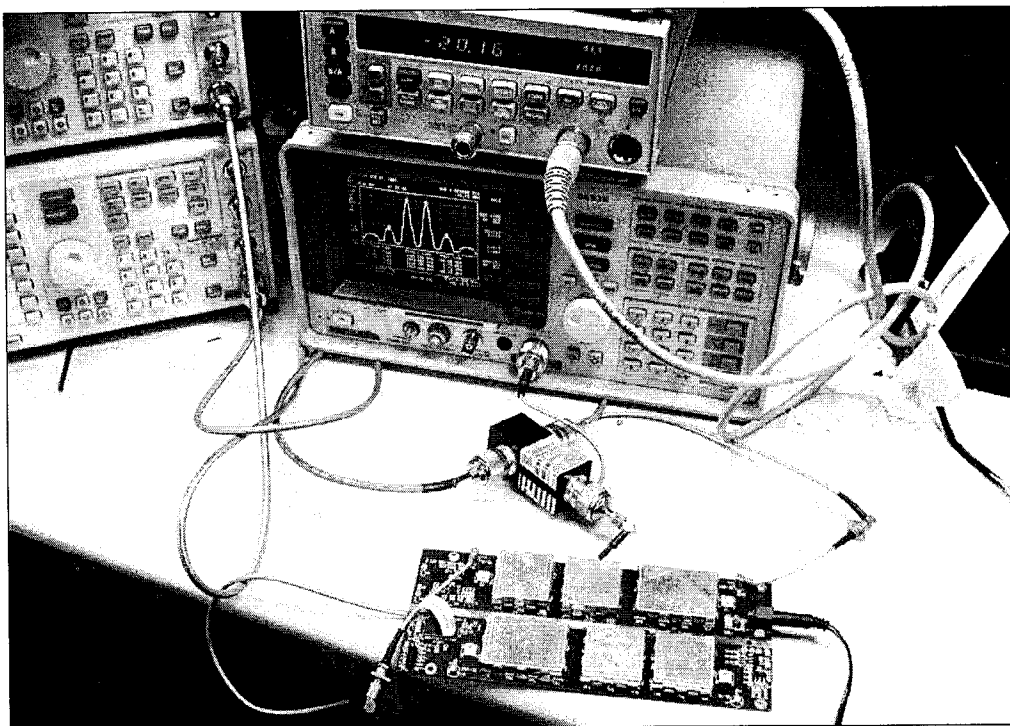
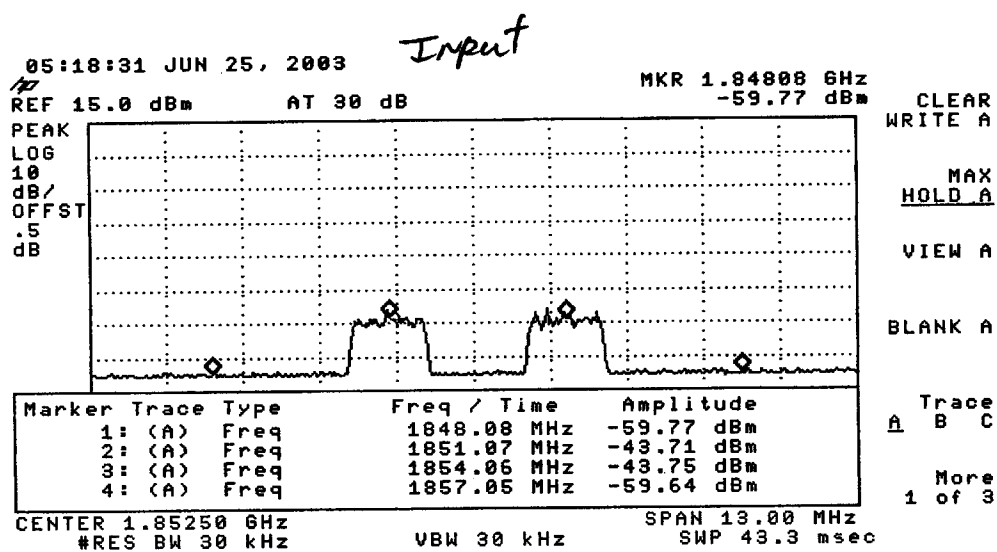
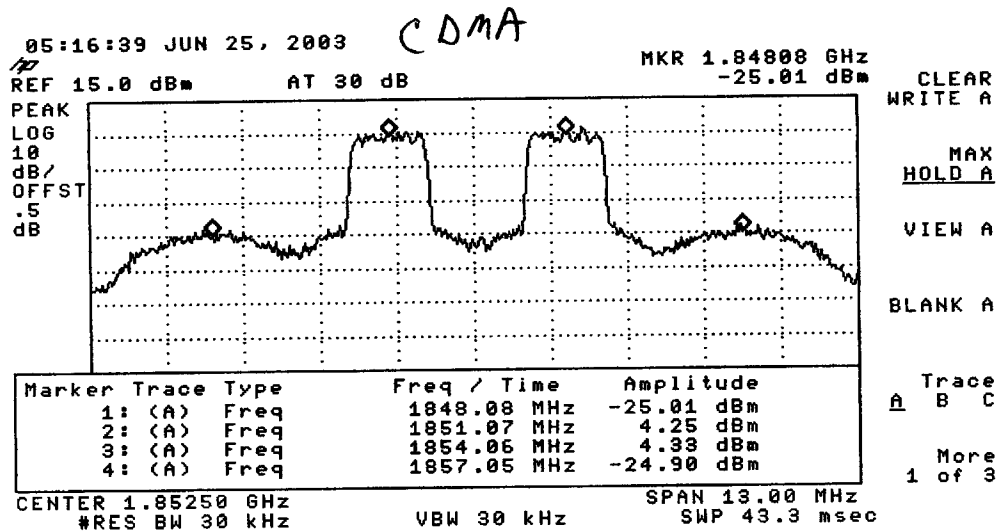
Test Setup**Test Equipment**

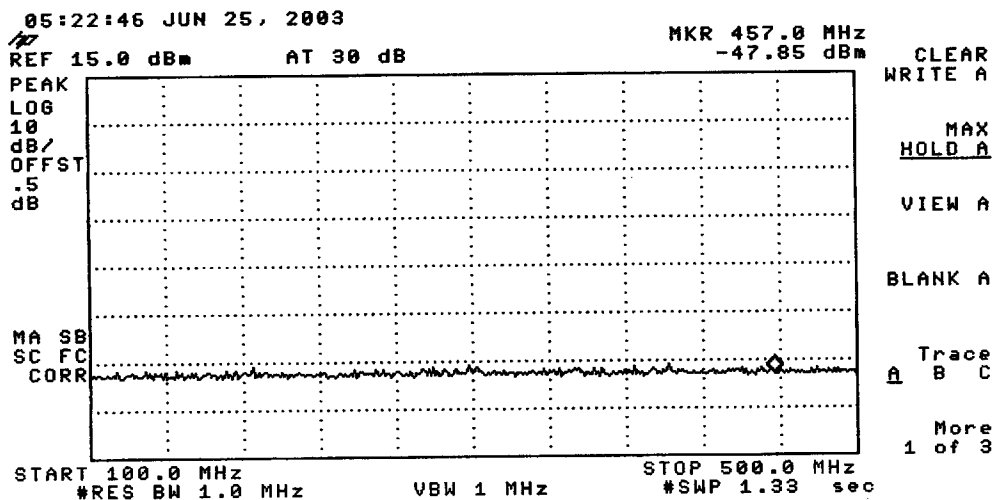
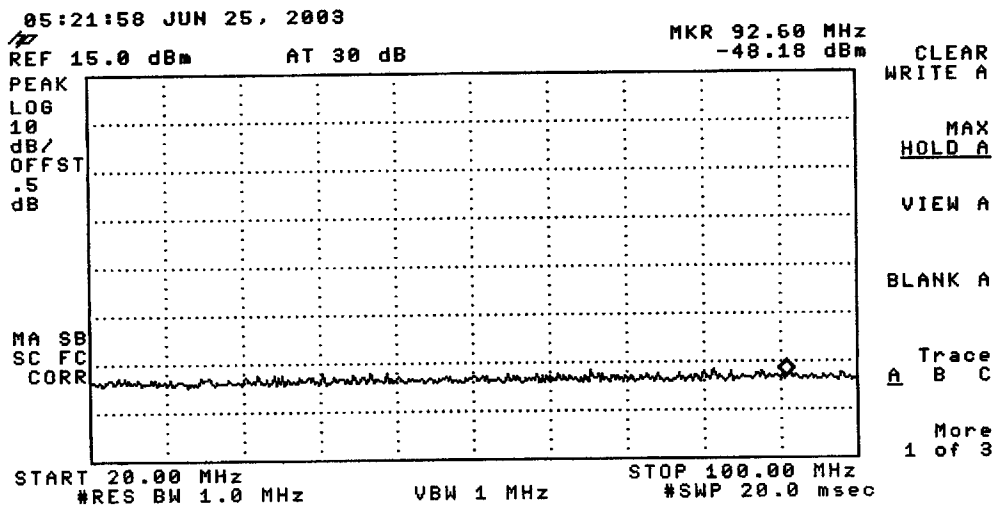
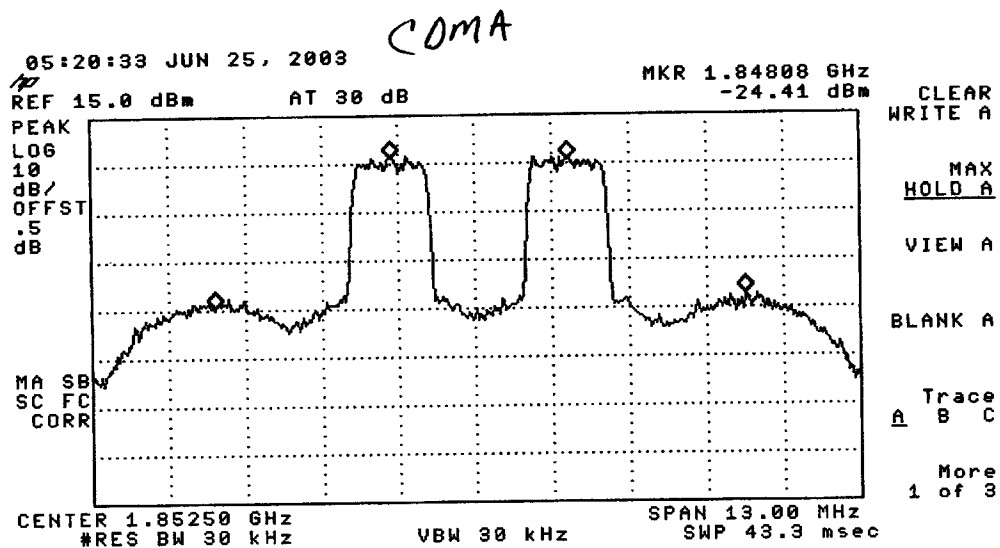
Diagram Number	Equipment Type	MFG	Model	Serial Number	Cal Date	Cal Due
1	RF Signal Generator	Agilent	E4432B	A55445-4	4/5/2003	4/5/2004
2	RF Signal Generator	Agilent	E4432B	A55445-4	4/5/2003	4/5/2004
3	Spectrum Analyzer	Agilent	8593E	A55445-1	4/5/2003	4/5/2004
4	Power Meter	Agilent	438A	A55444-1	4/5/2003	4/5/2004
5	Power Sensor	Agilent	8481A	A55444-2	4/5/2003	4/5/2004
6	Power Divider	Telwave	ANTPD218	N/A		

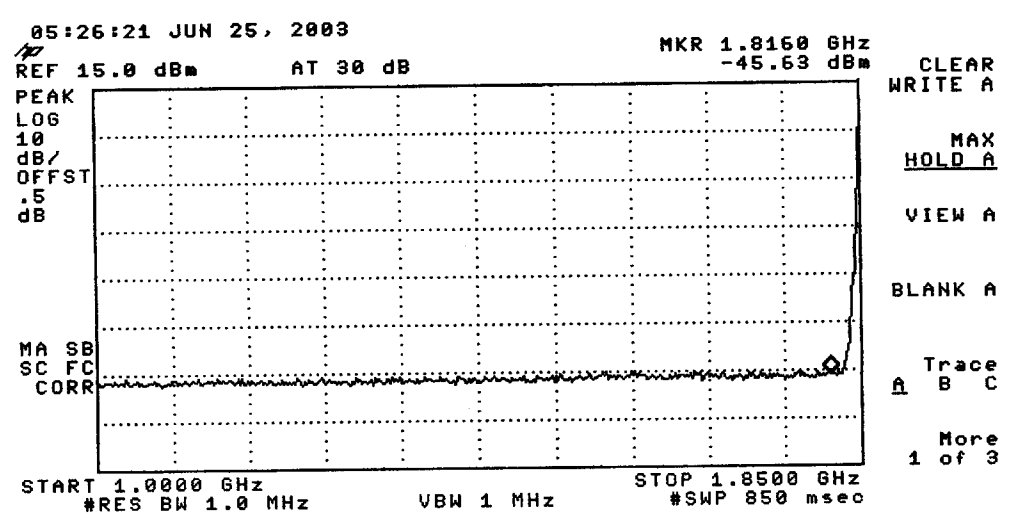
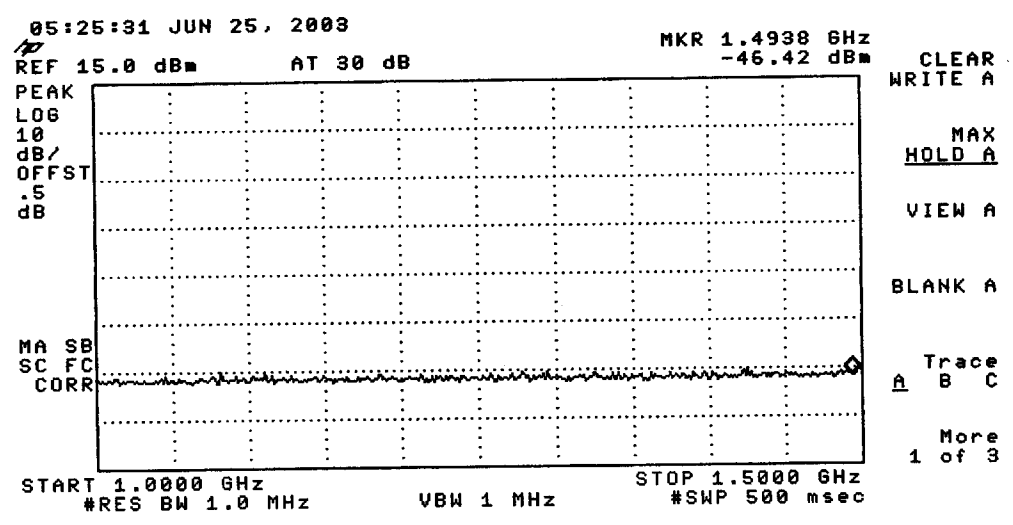
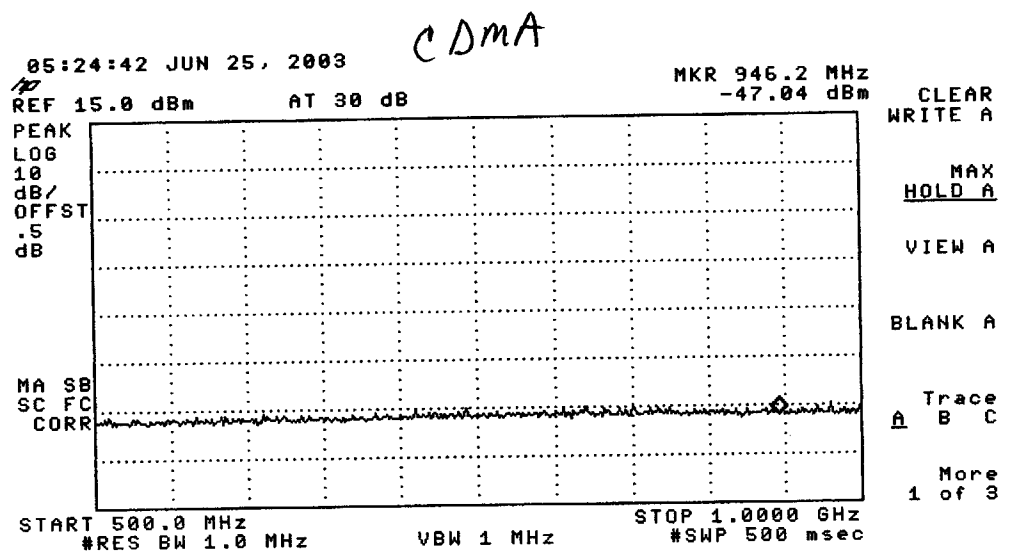
Test Results

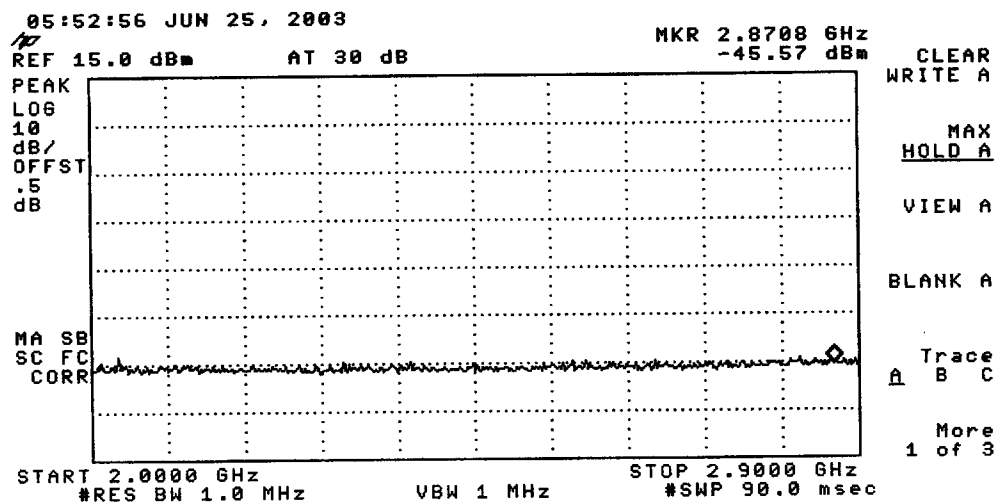
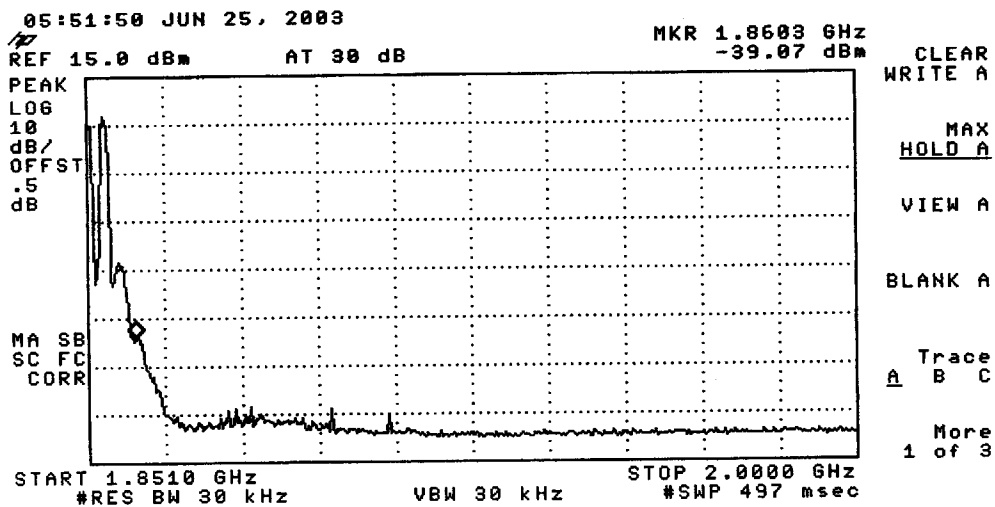
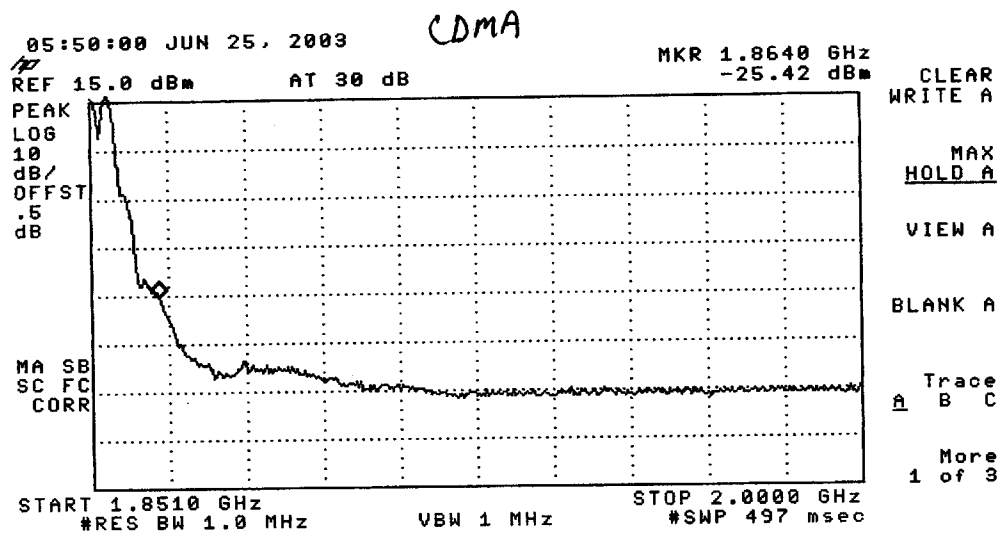
See following pages.

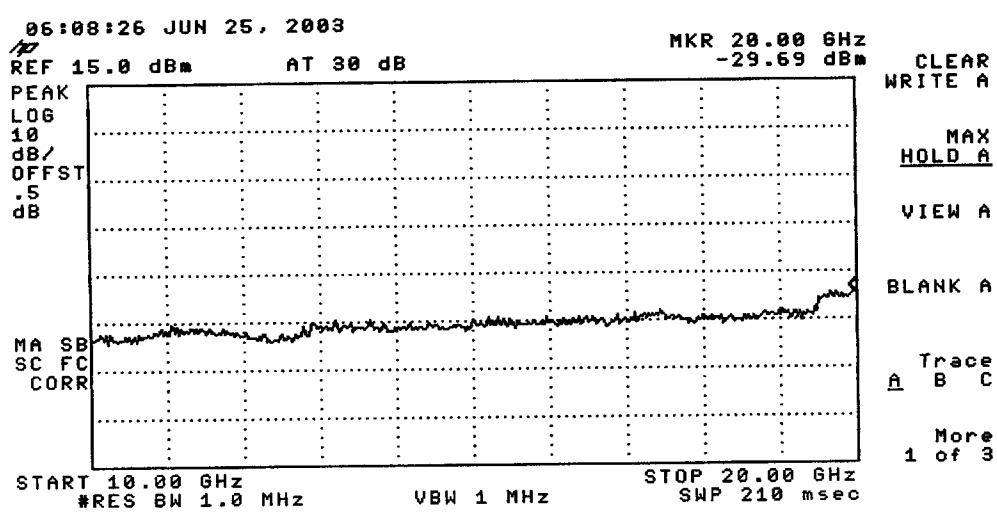
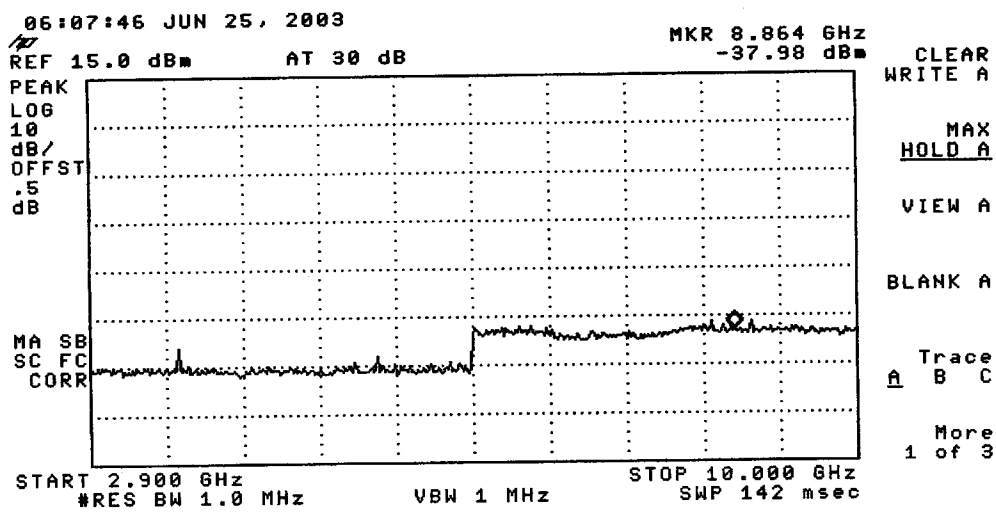
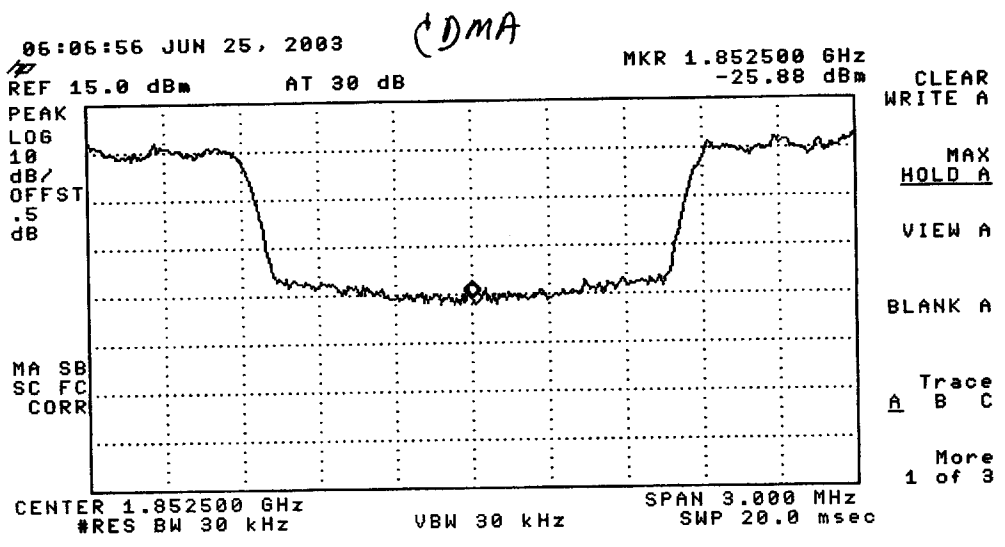
UPLINK

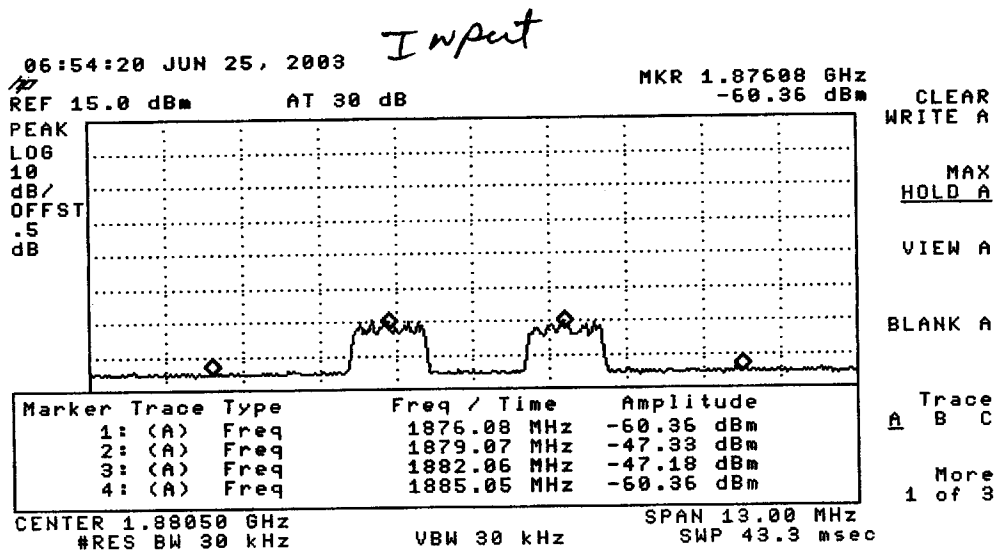
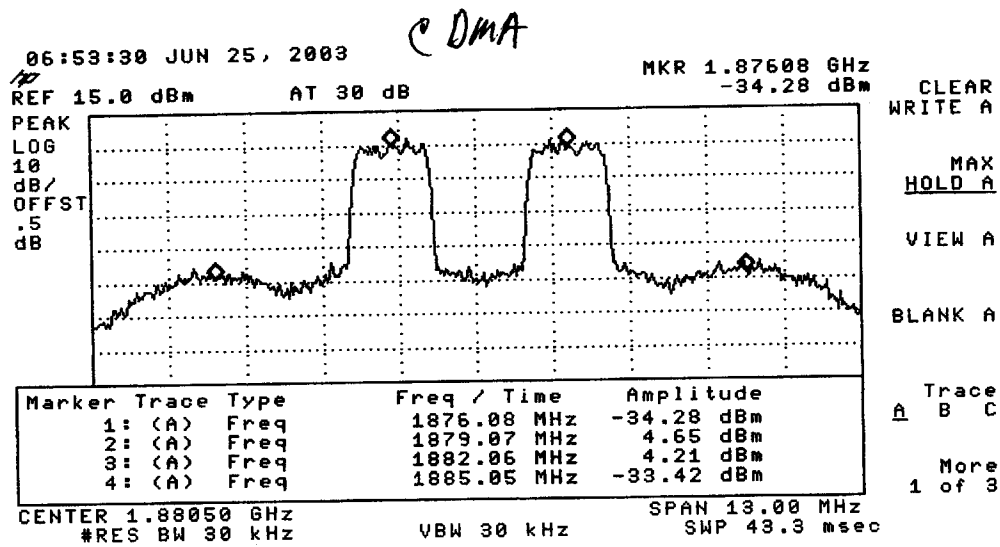


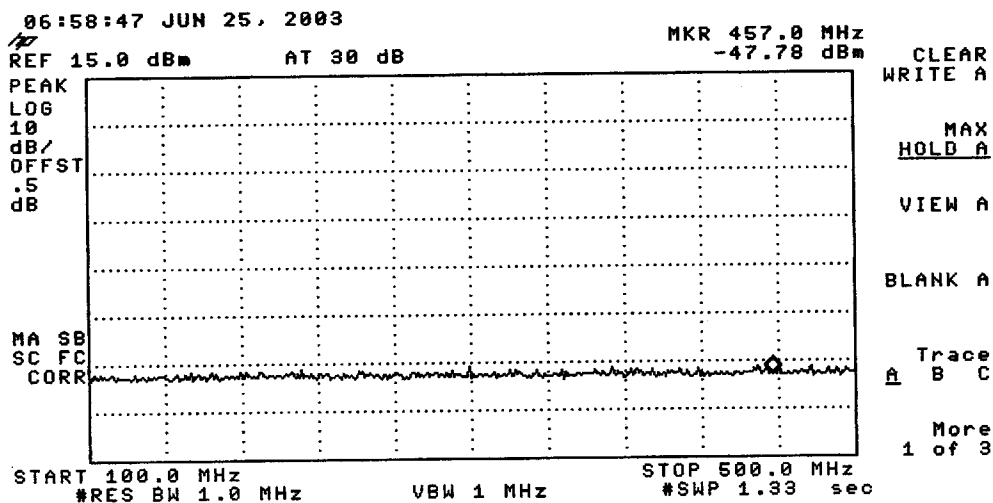
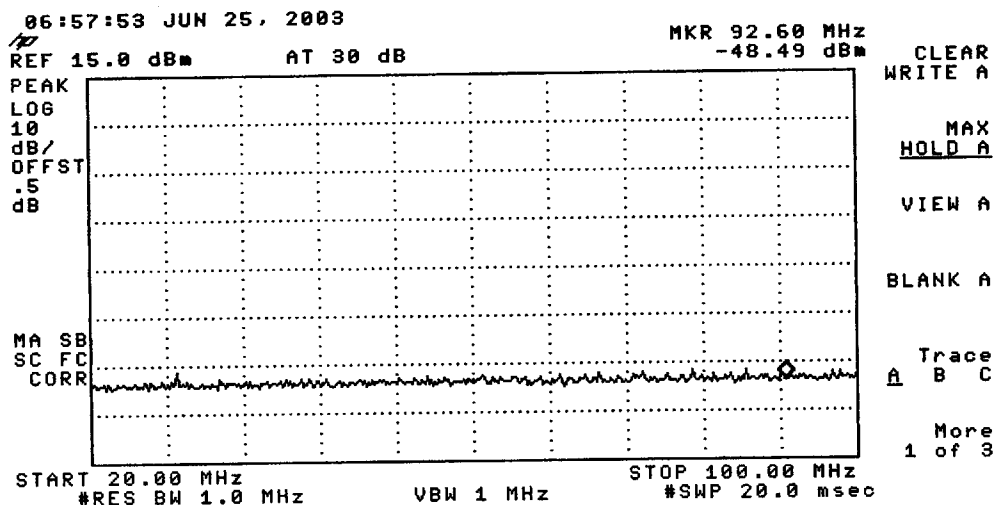
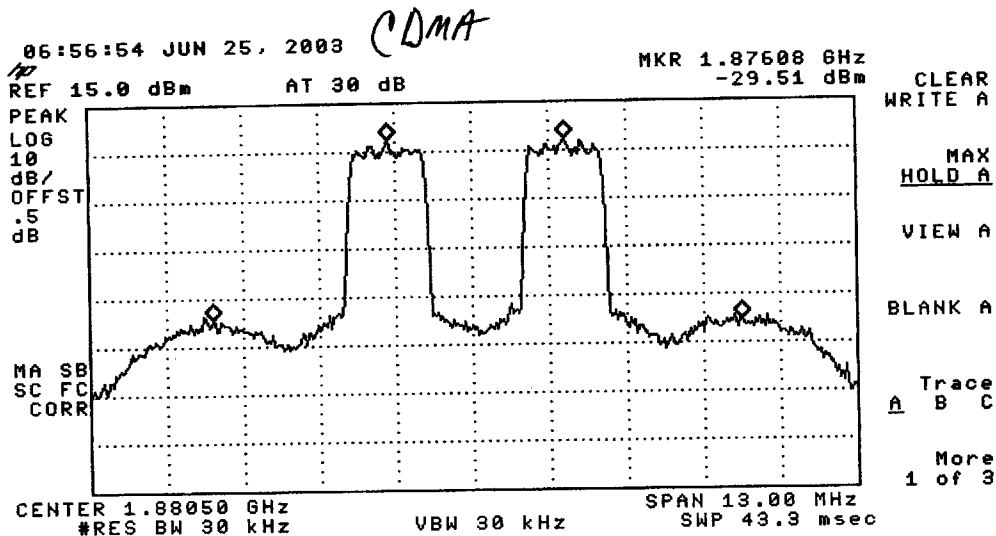


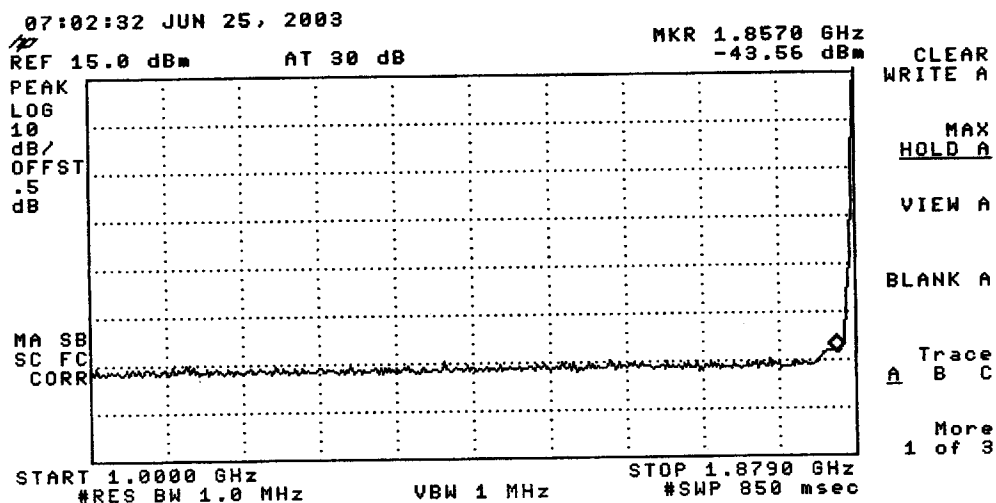
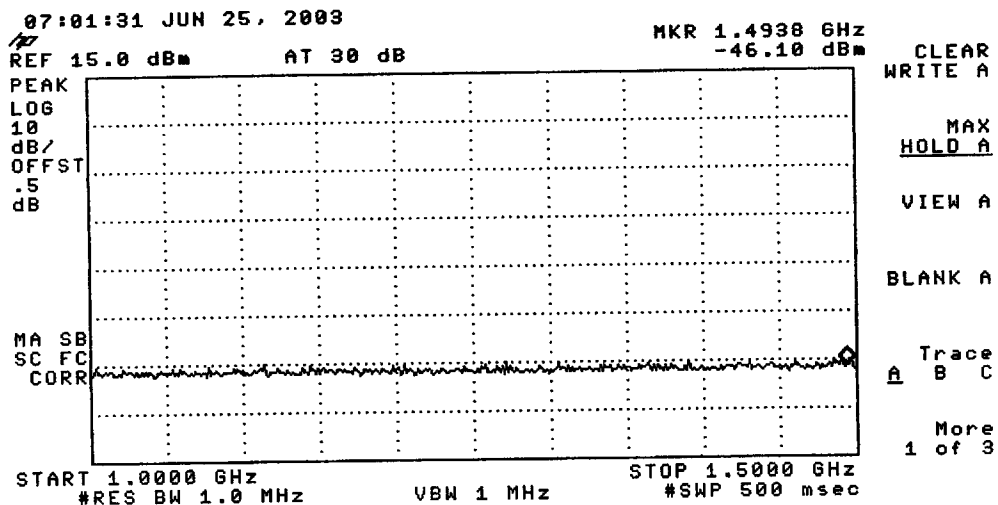
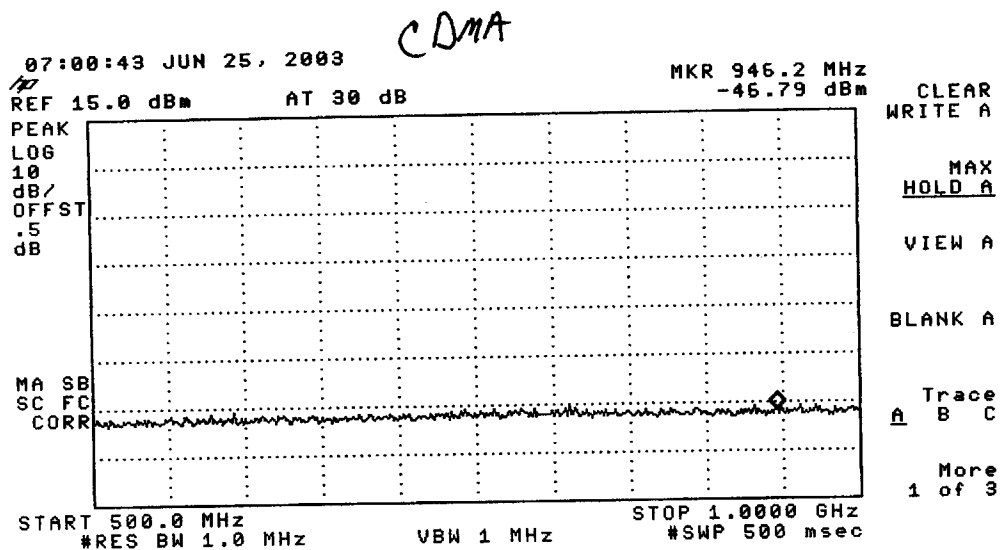


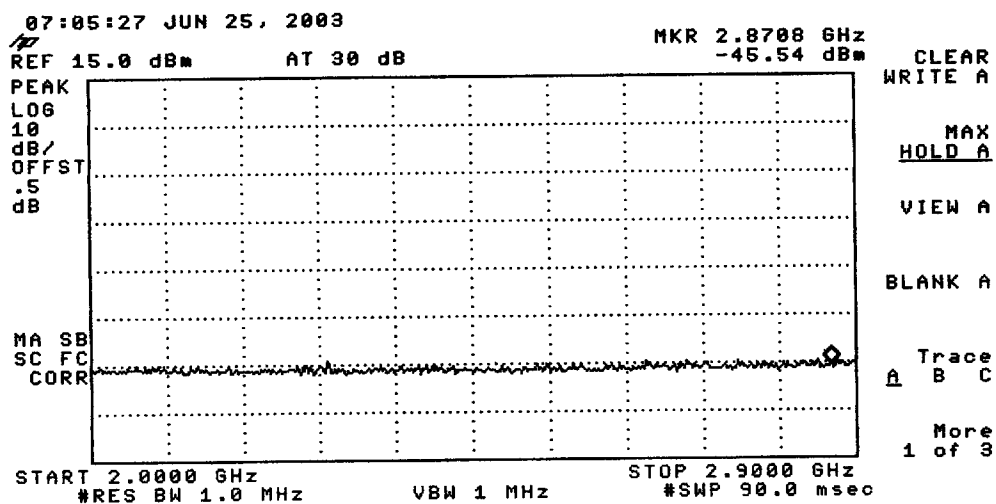
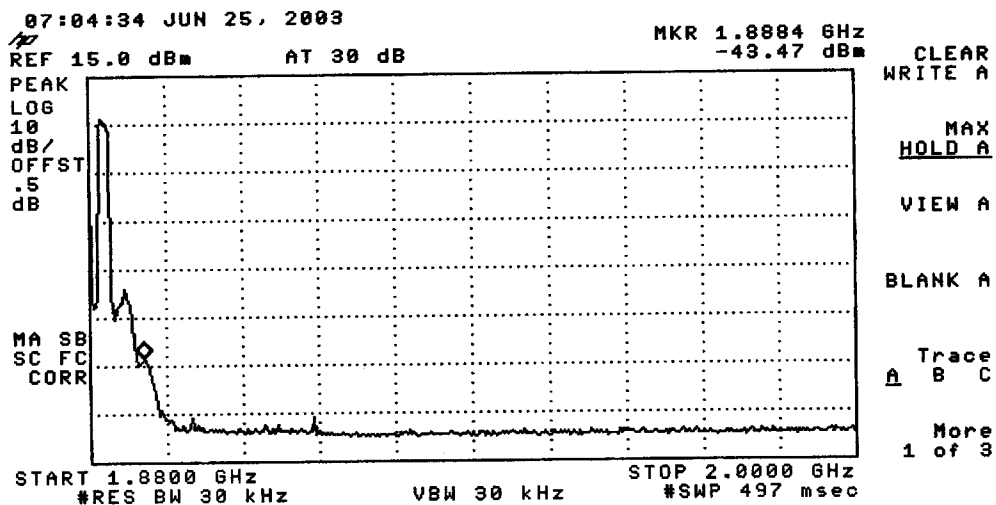
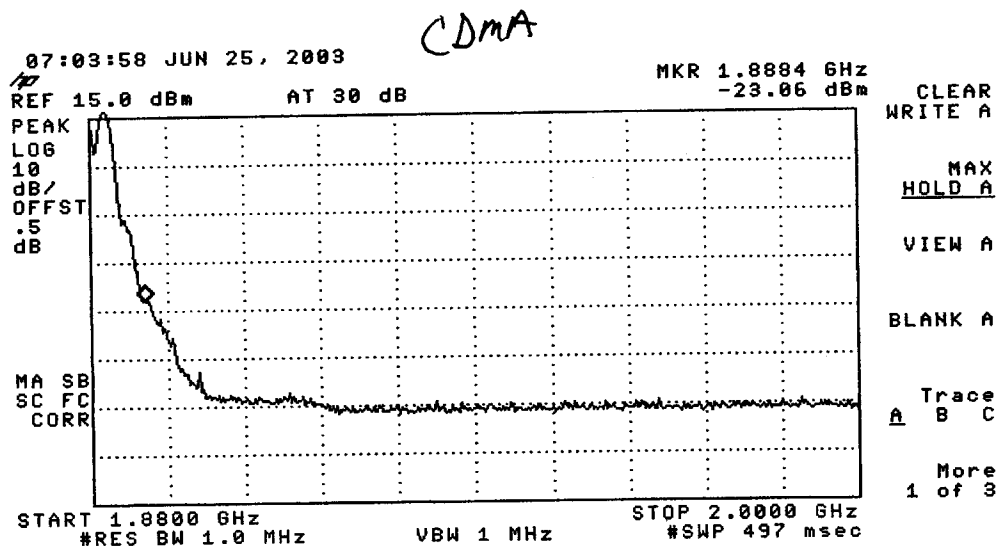












07:16:09 JUN 25, 2003

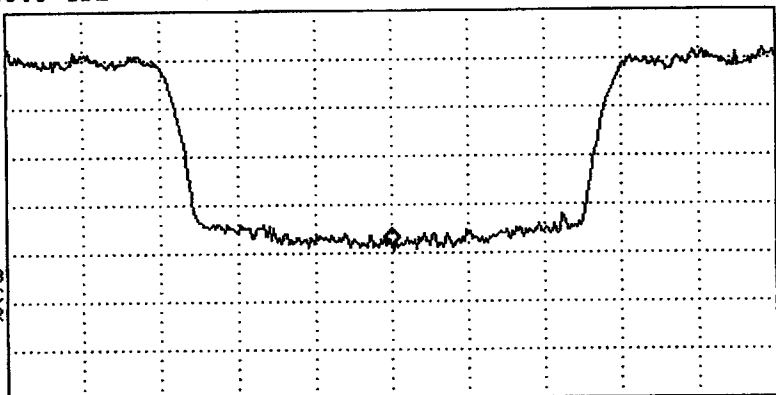
CDMA

REF 15.0 dBm AT 30 dB

MKR 1.880500 GHz
-33.34 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



CENTER 1.880500 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 3.000 MHz
#SWP 20.0 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

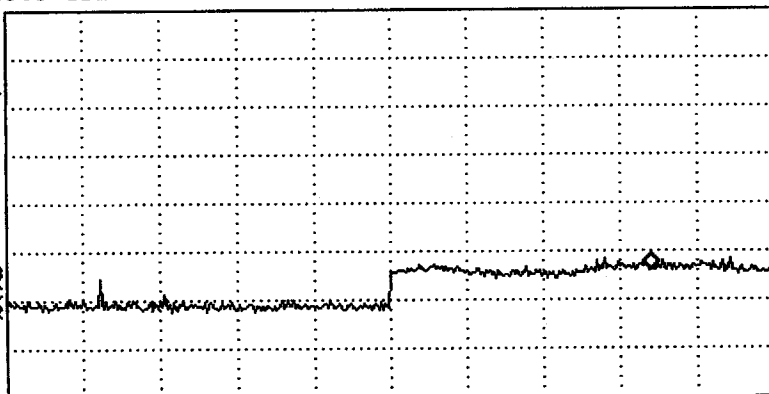
07:17:50 JUN 25, 2003

REF 15.0 dBm AT 30 dB

MKR 8.864 GHz
-38.88 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 2.900 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 10.000 GHz
SWP 142 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

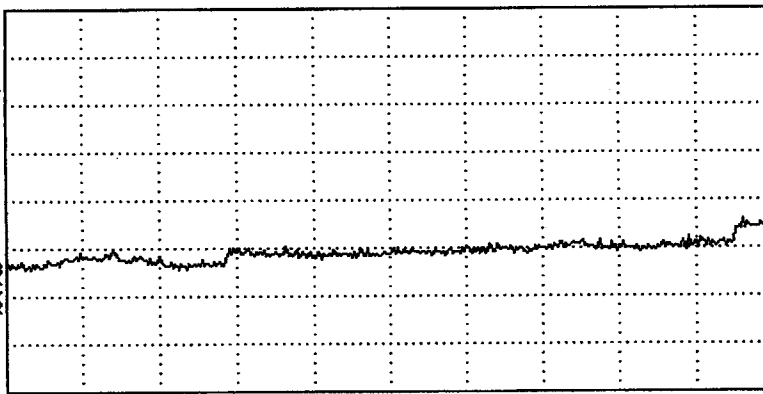
07:18:22 JUN 25, 2003

REF 15.0 dBm AT 30 dB

MKR 20.00 GHz
-29.93 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 10.00 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 20.00 GHz
SWP 210 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

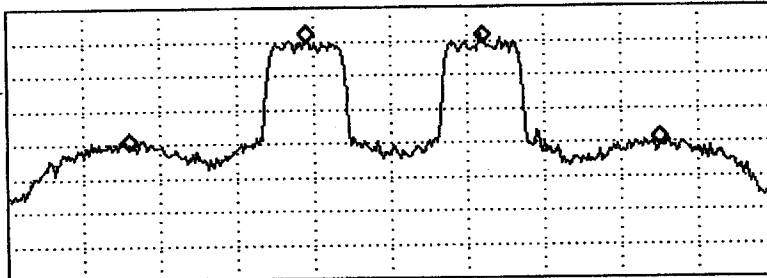
08:54:49 JUN 25, 2003

C DMA

REF 15.0 dBm AT 30 dB

MKR 1.91305 GHz
-26.18 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB



Marker	Trace	Type	Freq / Time	Amplitude
1:	(A)	Freq	1904.08 MHz	-26.40 dBm
2:	(A)	Freq	1907.07 MHz	4.64 dBm
3:	(A)	Freq	1910.06 MHz	4.18 dBm
4:	(A)	Freq	1913.05 MHz	-26.18 dBm

CENTER 1.90850 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 13.00 MHz
SWP 43.3 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

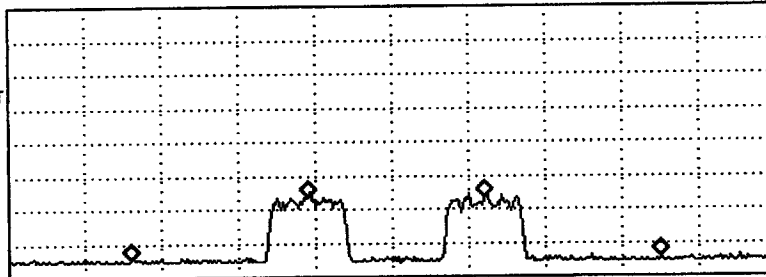
08:56:18 JUN 25, 2003

Input

REF 15.0 dBm AT 30 dB

MKR 1.91305 GHz
-59.32 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB



Marker	Trace	Type	Freq / Time	Amplitude
1:	(A)	Freq	1904.08 MHz	-59.86 dBm
2:	(A)	Freq	1907.07 MHz	-41.67 dBm
3:	(A)	Freq	1910.06 MHz	-41.38 dBm
4:	(A)	Freq	1913.05 MHz	-59.32 dBm

CENTER 1.90850 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 13.00 MHz
SWP 43.3 msec

CLEAR
WRITE A

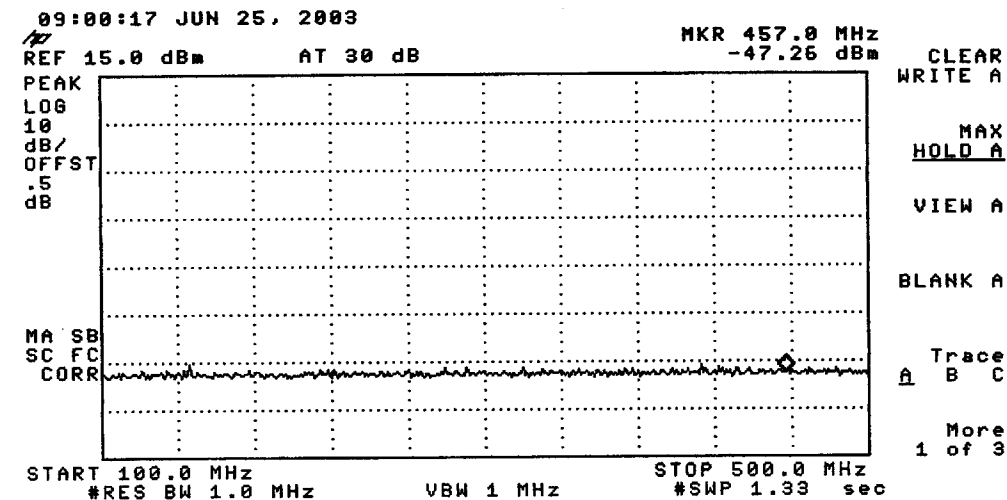
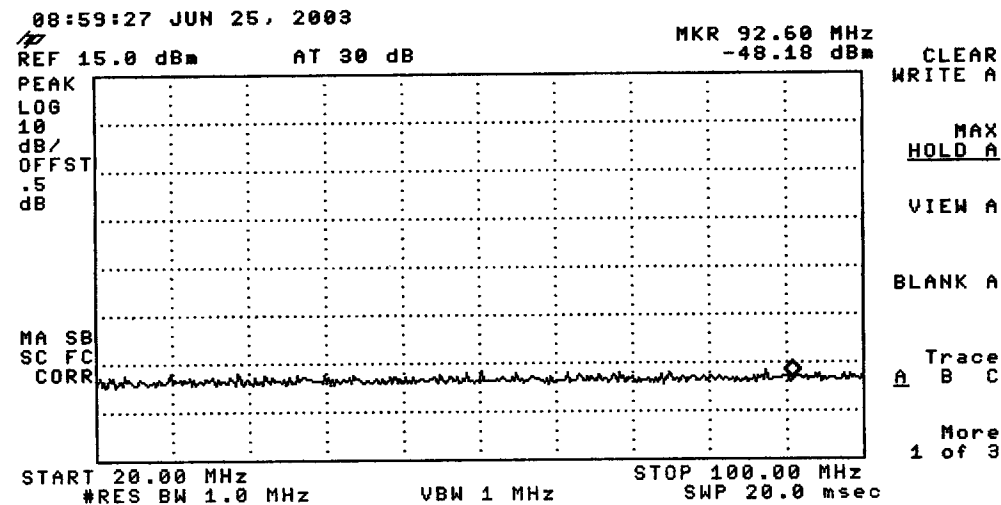
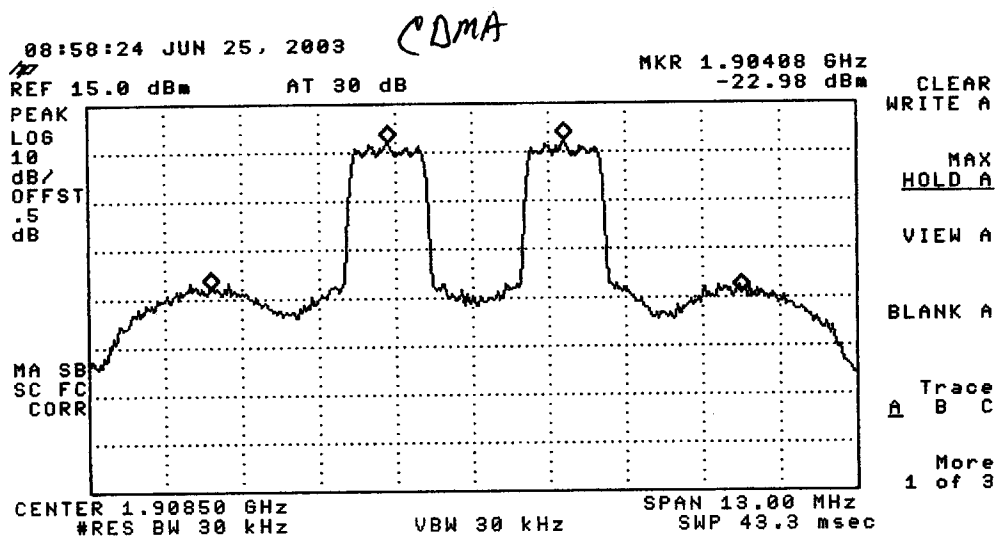
MAX
HOLD A

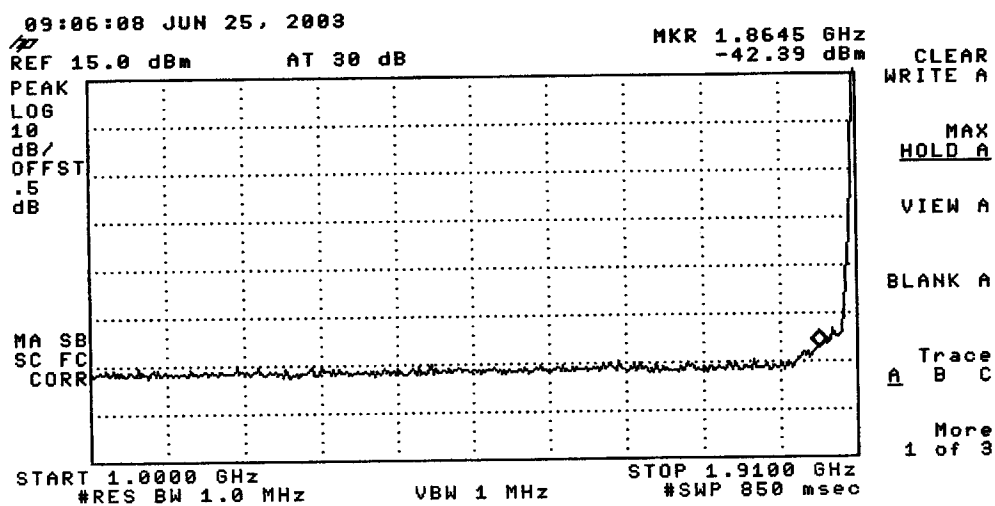
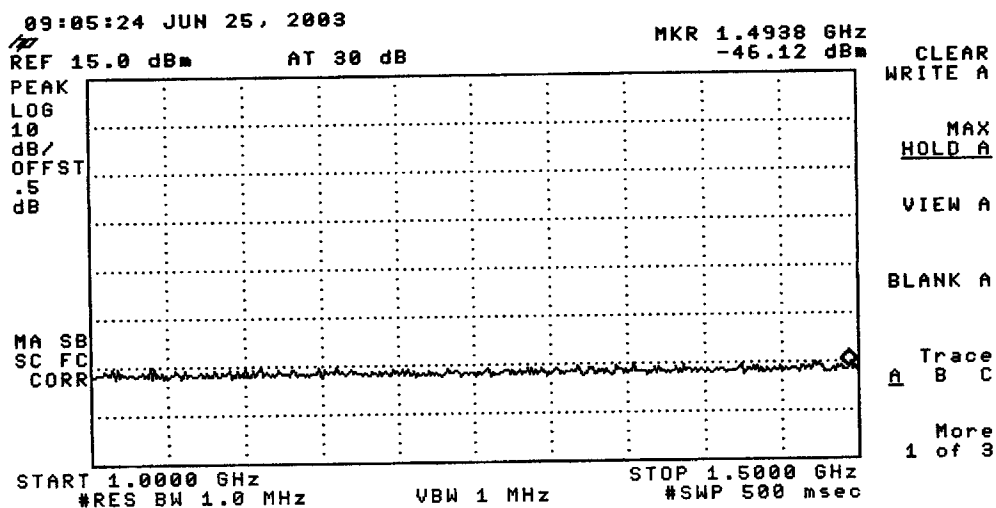
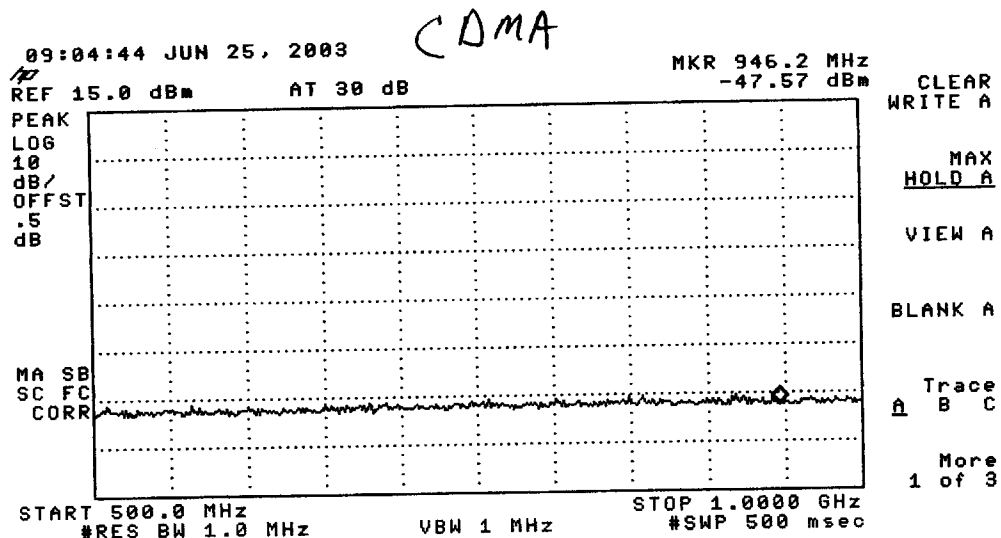
VIEW A

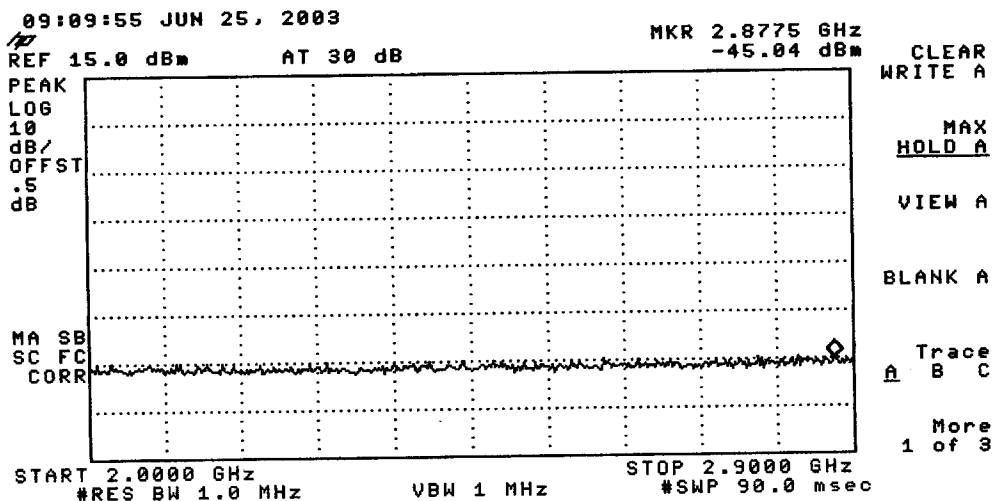
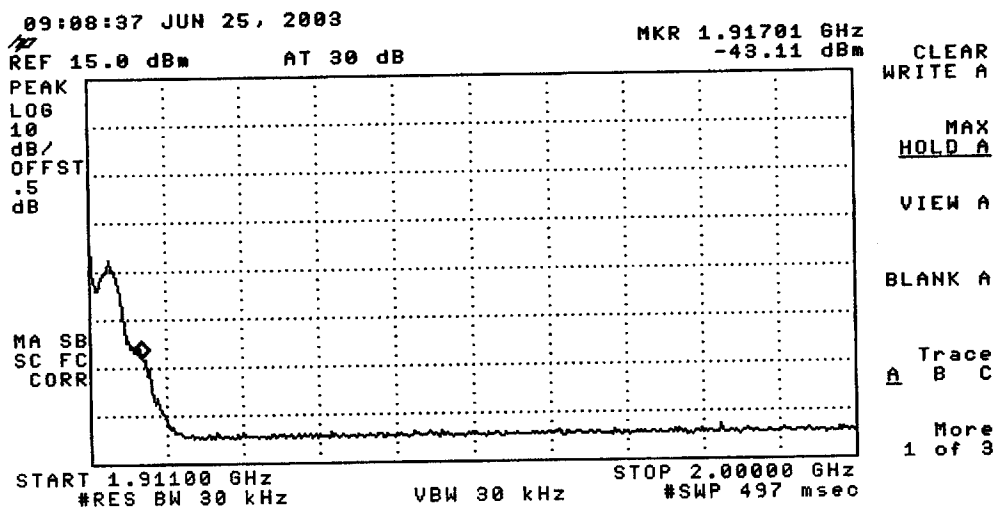
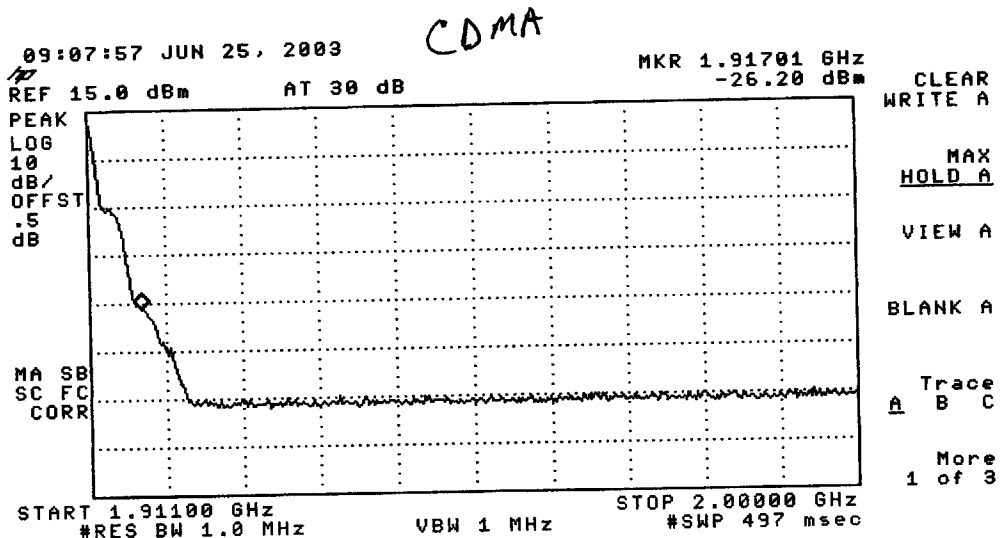
BLANK A

Trace
A B C

More
1 of 3







09:14:38 JUN 25, 2003

C D M A

MKR 1.908500 GHz
-27.13 dBm

REF 15.0 dBm AT 30 dB

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

CENTER 1.908500 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 3.000 MHz
#SWP 20.0 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

09:16:28 JUN 25, 2003

MKR 8.864 GHz
-38.41 dBm

REF 15.0 dBm AT 30 dB

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

START 2.900 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 10.000 GHz
#SWP 142 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

09:17:00 JUN 25, 2003

MKR 20.00 GHz
-29.71 dBm

REF 15.0 dBm AT 30 dB

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

START 10.00 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 20.00 GHz
#SWP 210 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

DOWNLINK

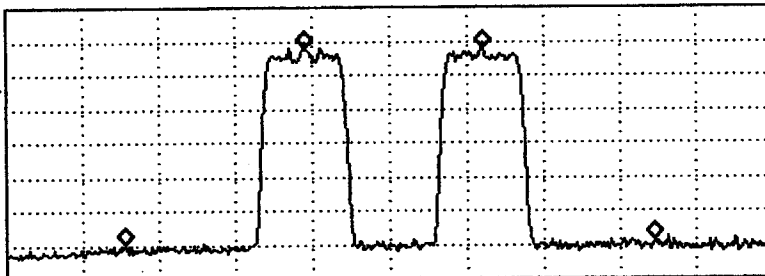
12:09:33 JUN 25, 2003

CDMA

REF 5.0 dBm AT 20 dB

MKR 1.93699 GHz
-63.43 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB



Marker	Trace	Type	Freq / Time	Amplitude
1:	(A)	Freq	1928.02 MHz	-64.96 dBm
2:	(A)	Freq	1931.07 MHz	-7.11 dBm
3:	(A)	Freq	1934.06 MHz	-6.98 dBm
4:	(A)	Freq	1936.99 MHz	-63.43 dBm

CENTER 1.93250 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 13.00 MHz
SWP 43.3 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

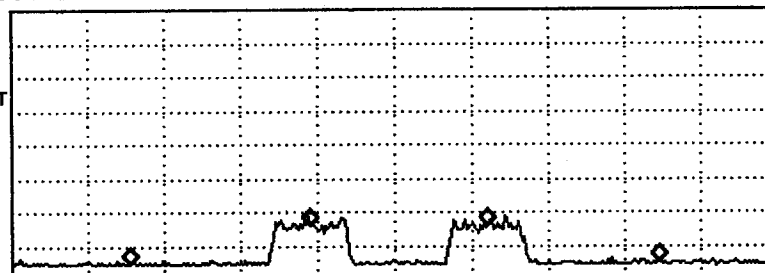
12:11:01 JUN 25, 2003

I nput

REF 5.0 dBm AT 20 dB

MKR 1.93699 GHz
-70.12 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB



Marker	Trace	Type	Freq / Time	Amplitude
1:	(A)	Freq	1928.02 MHz	-70.47 dBm
2:	(A)	Freq	1931.07 MHz	-59.03 dBm
3:	(A)	Freq	1934.06 MHz	-59.13 dBm
4:	(A)	Freq	1936.99 MHz	-70.12 dBm

CENTER 1.93250 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 13.00 MHz
SWP 43.3 msec

CLEAR
WRITE A

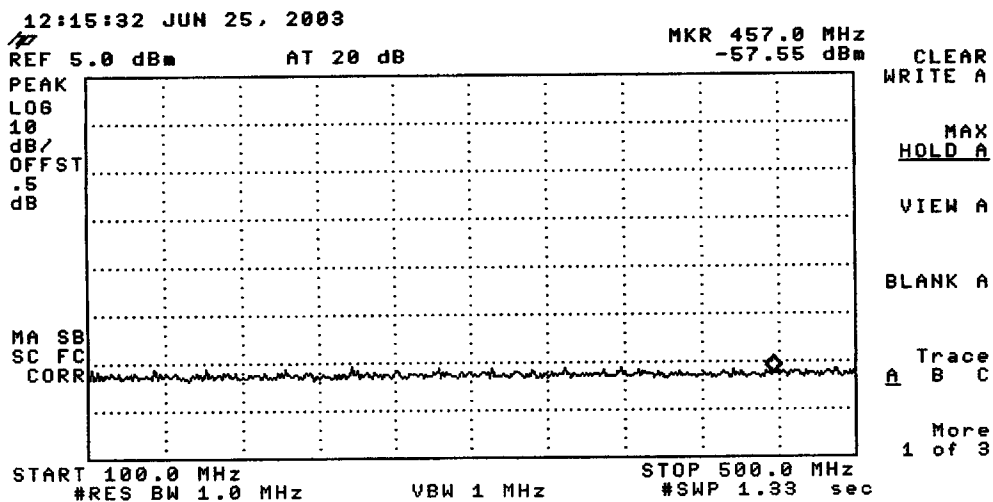
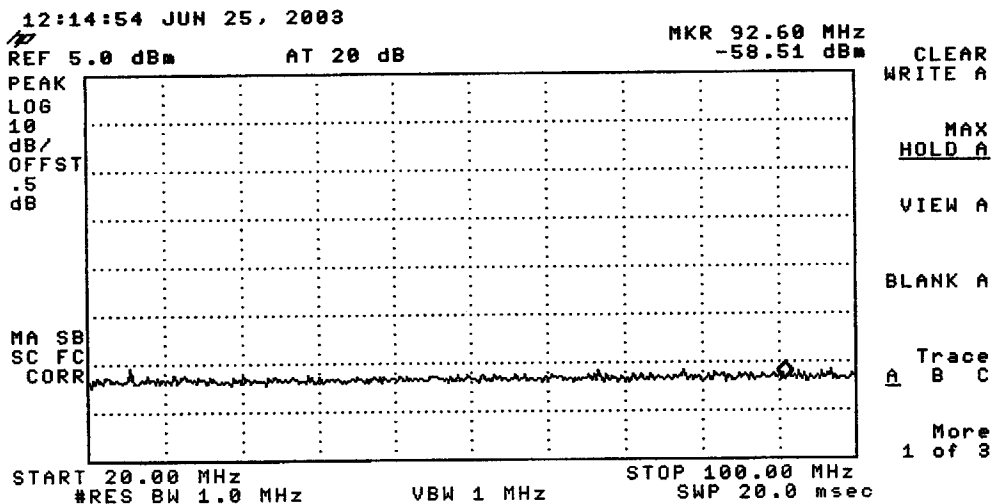
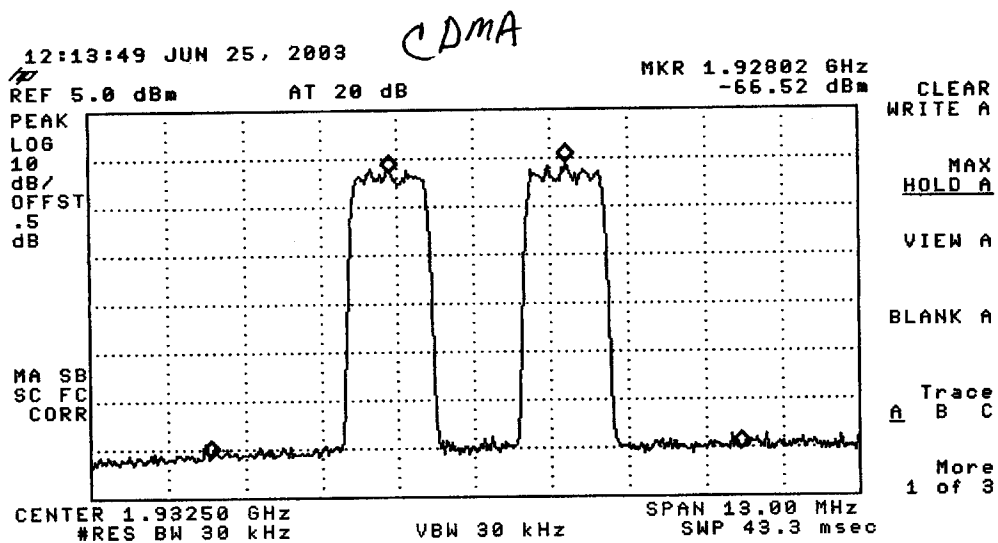
MAX
HOLD A

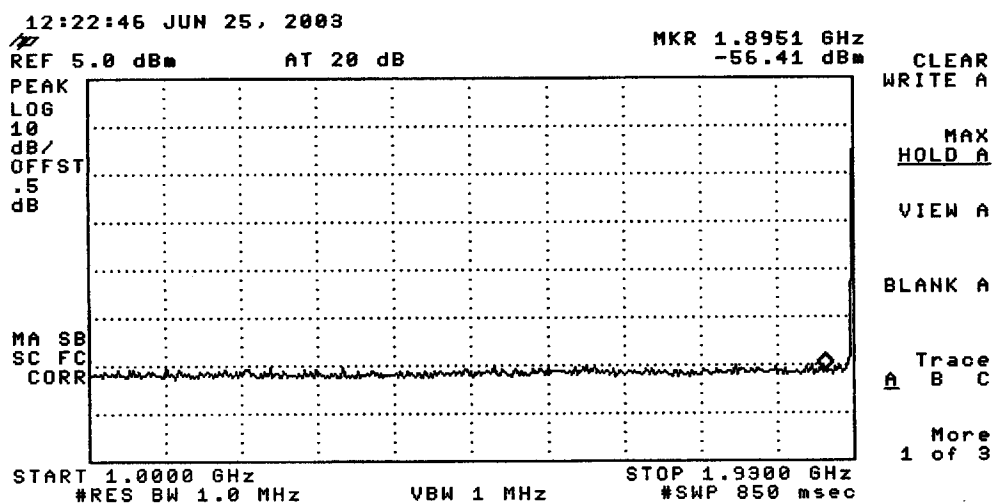
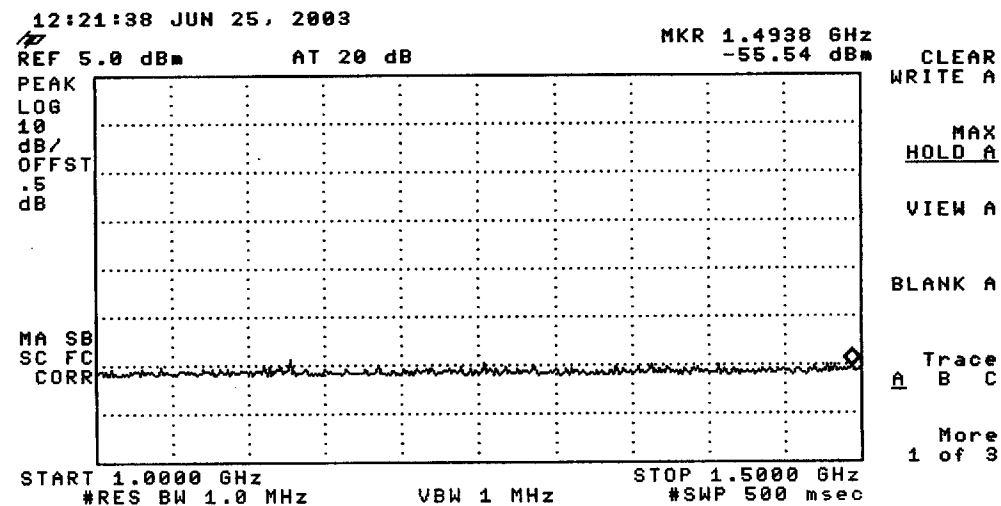
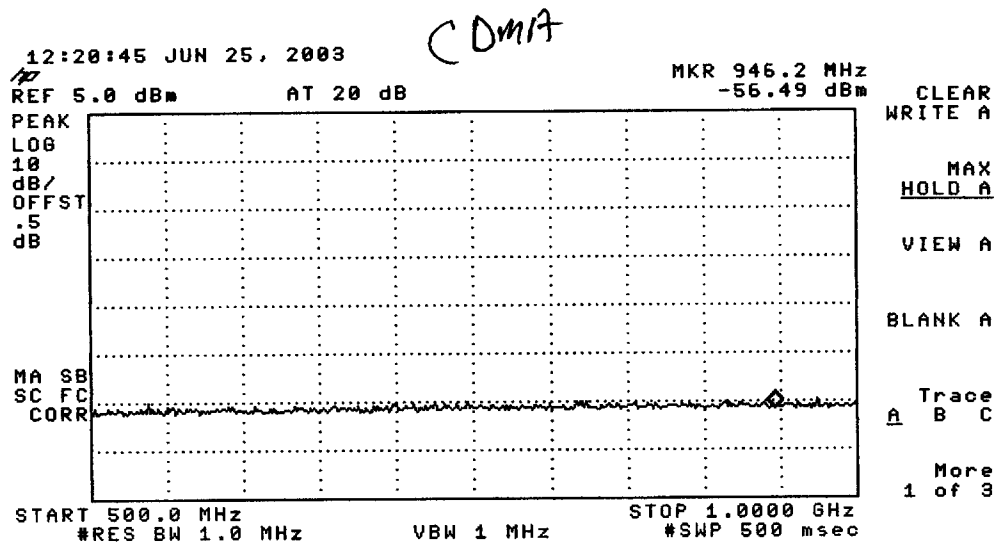
VIEW A

BLANK A

Trace
A B C

More
1 of 3





CDMA

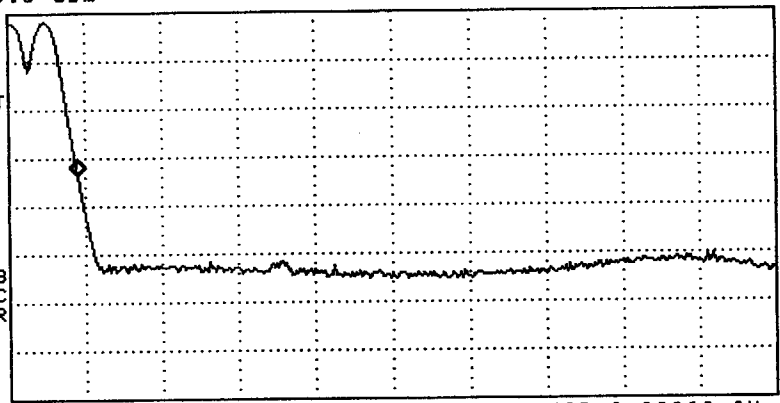
12:24:35 JUN 25, 2003

REF 5.0 dBm AT 20 dB

MKR 1.93721 GHz
-28.73 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 1.93100 GHz STOP 2.00000 GHz
#RES BW 1.0 MHz VBW 1 MHz #SWP 497 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

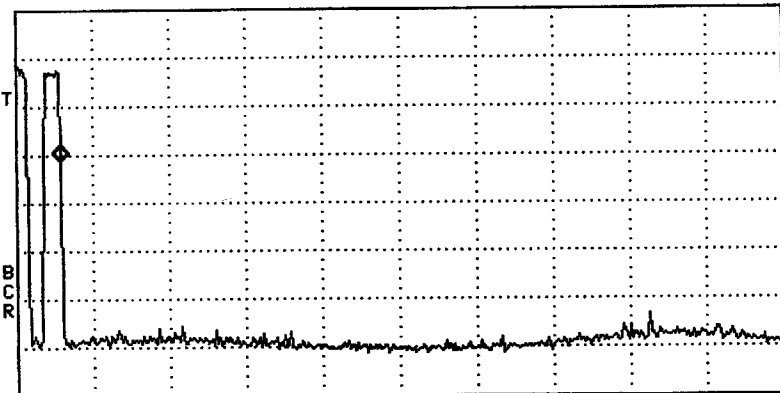
12:25:49 JUN 25, 2003

REF 5.0 dBm AT 20 dB

MKR 1.93497 GHz
-26.32 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 1.93100 GHz STOP 2.00000 GHz
#RES BW 30 kHz VBW 30 kHz #SWP 497 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

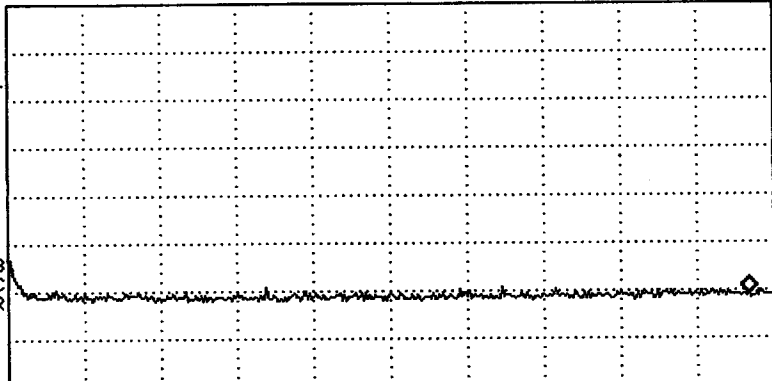
12:26:38 JUN 25, 2003

REF 5.0 dBm AT 20 dB

MKR 2.8708 GHz
-55.75 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 2.0000 GHz STOP 2.9000 GHz
#RES BW 1.0 MHz VBW 1 MHz #SWP 90.0 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

12:27:48 JUN 25, 2003

CDMA

MKR 1.932500 GHz
-65.42 dBm

REF 5.0 dBm AT 20 dB

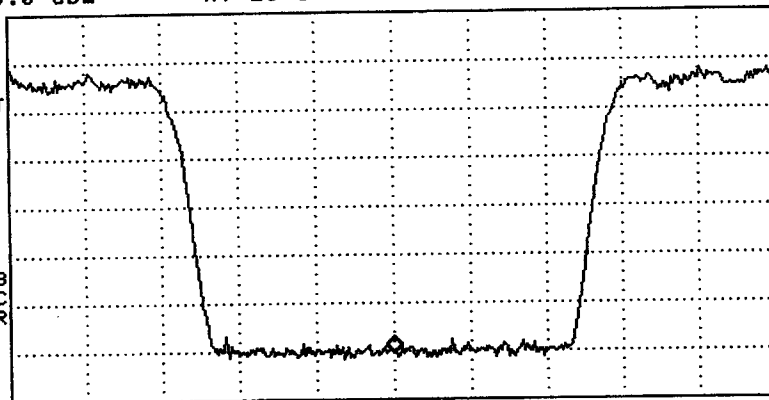
PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

CENTER 1.932500 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 3.000 MHz
#SWP 20.0 msec



CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

12:29:06 JUN 25, 2003

MKR 8.864 GHz
-47.79 dBm

REF 5.0 dBm AT 20 dB

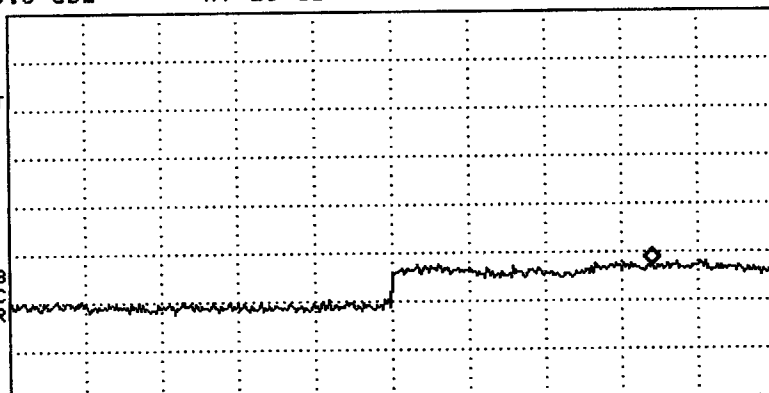
PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

START 2.900 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 10.000 GHz
SWP 142 msec



CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

12:29:38 JUN 25, 2003

MKR 20.00 GHz
-39.71 dBm

REF 5.0 dBm AT 20 dB

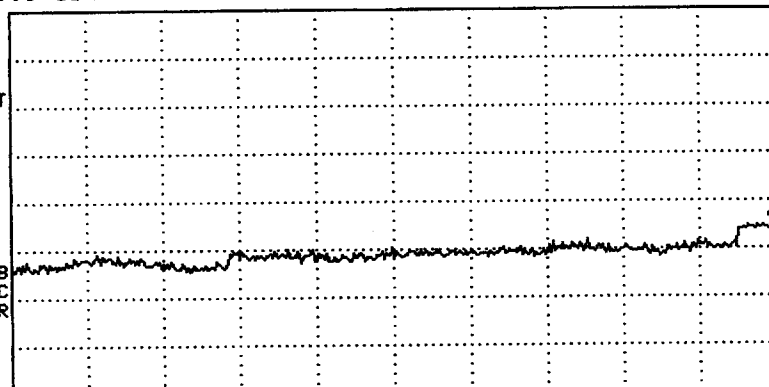
PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

START 10.00 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 20.00 GHz
SWP 210 msec



CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

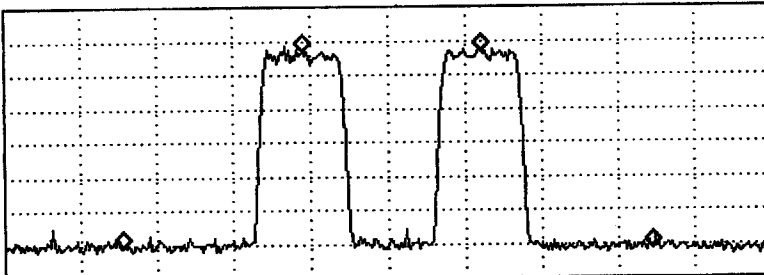
10:28:48 JUN 25, 2003

CDMA

REF 5.0 dBm AT 20 dB

MR 1.95602 GHz
-65.66 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB



Marker	Trace	Type	Freq / Time	Amplitude
1:	(A)	Freq	1956.02 MHz	-65.66 dBm
2:	(A)	Freq	1959.07 MHz	-8.19 dBm
3:	(A)	Freq	1962.06 MHz	-8.25 dBm
4:	(A)	Freq	1964.99 MHz	-66.36 dBm

CENTER 1.96050 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 13.00 MHz
SWP 43.3 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

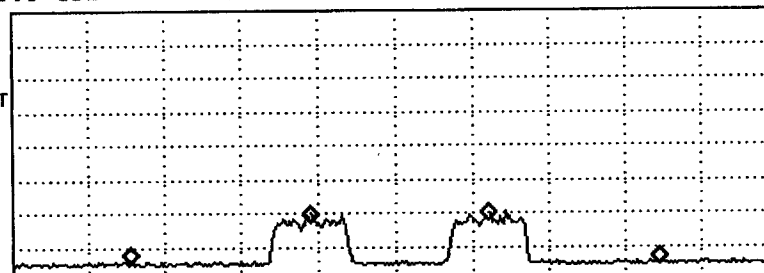
10:29:42 JUN 25, 2003

Input

REF 5.0 dBm AT 20 dB

MR 1.95602 GHz
-70.05 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB



Marker	Trace	Type	Freq / Time	Amplitude
1:	(A)	Freq	1956.02 MHz	-70.05 dBm
2:	(A)	Freq	1959.07 MHz	-57.81 dBm
3:	(A)	Freq	1962.06 MHz	-57.27 dBm
4:	(A)	Freq	1964.99 MHz	-70.32 dBm

CENTER 1.96050 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 13.00 MHz
SWP 43.3 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

10:31:11 JUN 25, 2003

REF 5.0 dBm

AT 20 dB

CDMA
MKR 1.95602 GHz
-63.24 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

CENTER 1.96050 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 13.00 MHz
SWP 43.3 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

10:32:03 JUN 25, 2003

REF 5.0 dBm

AT 20 dB

MKR 92.60 MHz
-56.60 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

START 20.00 MHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 100.00 MHz
SWP 20.0 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

10:32:46 JUN 25, 2003

REF 5.0 dBm

AT 20 dB

MKR 457.0 MHz
-55.82 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR

START 100.0 MHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 500.0 MHz
#SWP 1.33 sec

CLEAR
WRITE A

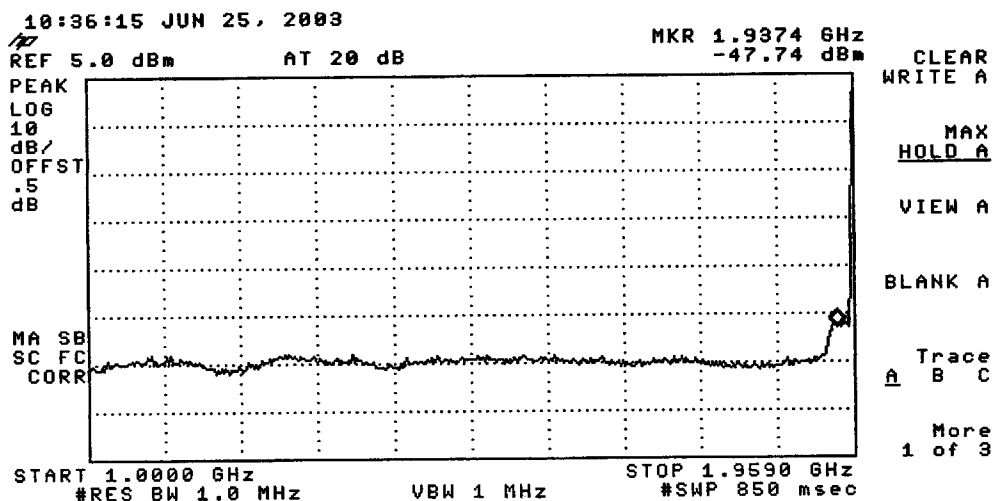
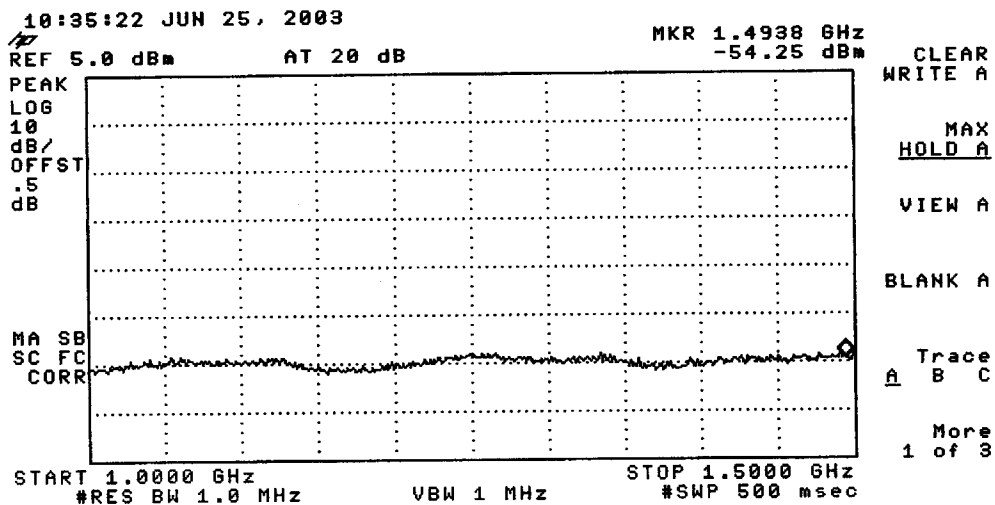
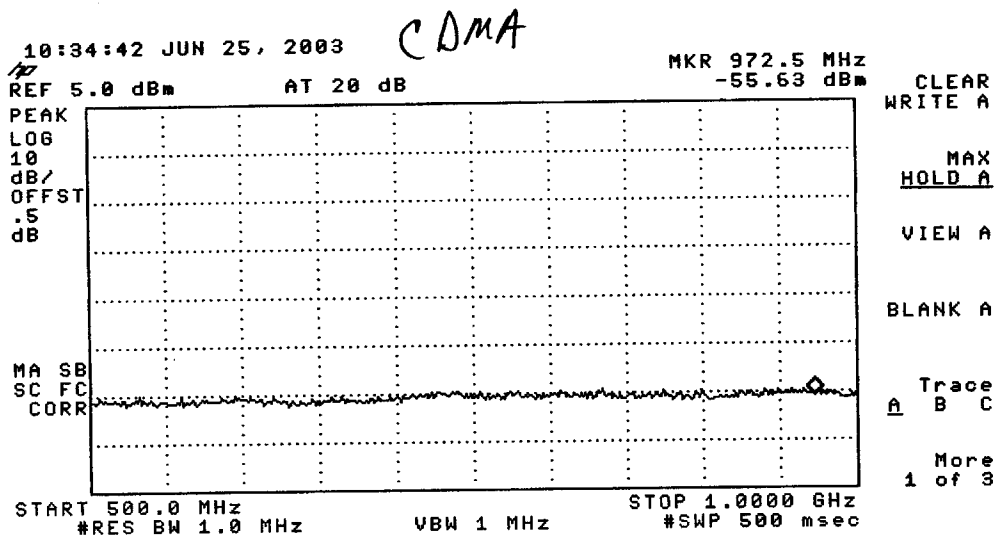
MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3



10:37:36 JUN 25, 2003

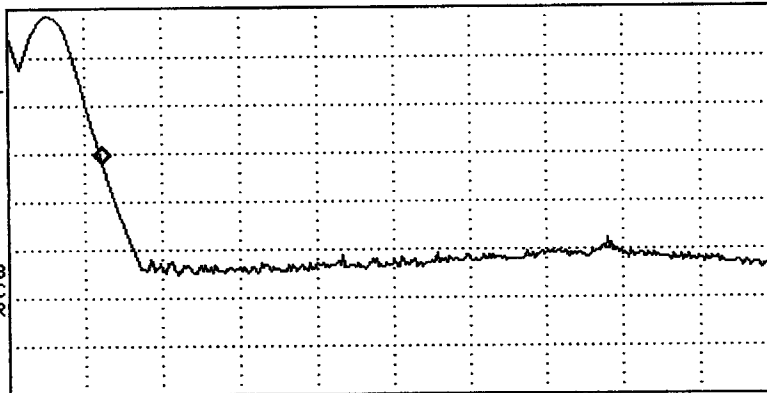
C DMA

REF 5.0 dBm AT 20 dB

MKR 1.96490 GHz
-27.17 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 1.96000 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 2.00000 GHz
#SWP 497 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

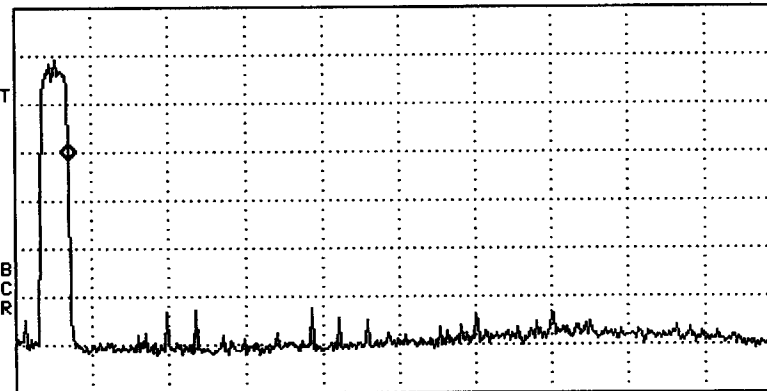
10:38:45 JUN 25, 2003

REF 5.0 dBm AT 20 dB

MKR 1.96280 GHz
-26.58 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 1.96000 GHz
#RES BW 30 kHz

VBW 30 kHz

STOP 2.00000 GHz
#SWP 497 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

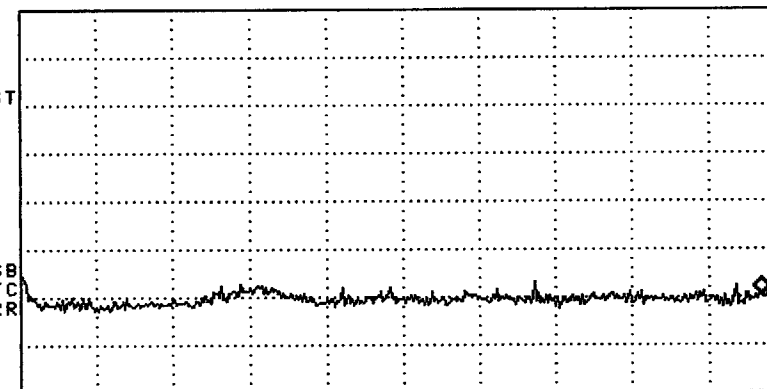
10:39:38 JUN 25, 2003

REF 5.0 dBm AT 20 dB

MKR 2.8708 GHz
-54.67 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 2.00000 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 2.90000 GHz
#SWP 90.0 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

11:38:52 JUN 25, 2003

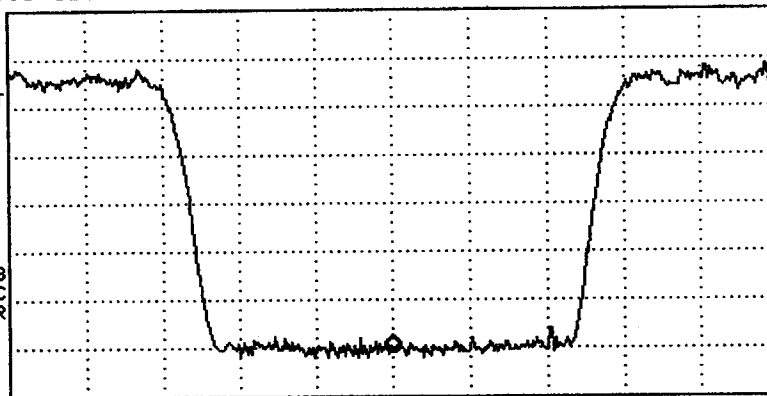
C/DMA

REF 5.0 dBm AT 20 dB

MR 1.960500 GHz
-65.68 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



CENTER 1.960500 GHz
#RES BW 30 kHz

VBW 30 kHz

SPAN 3.000 MHz
SWP 20.0 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

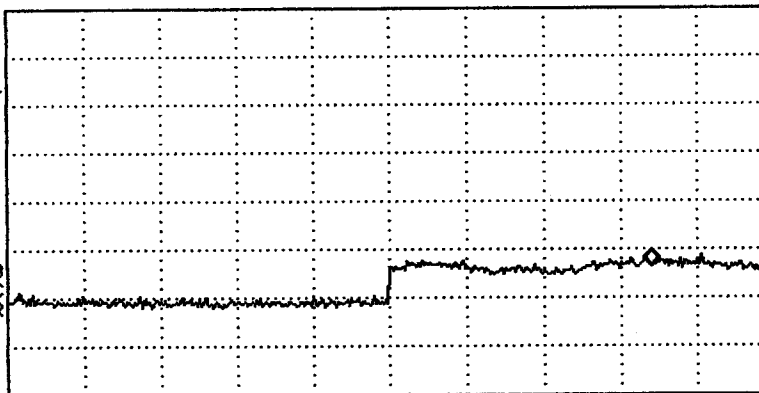
11:39:50 JUN 25, 2003

REF 5.0 dBm AT 20 dB

MR 8.864 GHz
-48.76 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 2.900 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 10.000 GHz
SWP 142 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

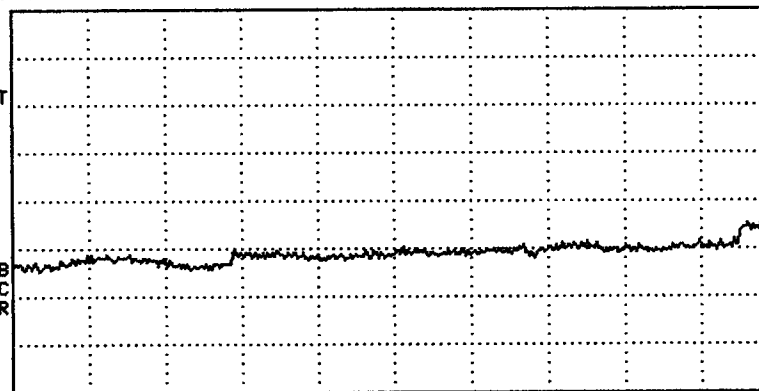
11:40:23 JUN 25, 2003

REF 5.0 dBm AT 20 dB

MR 20.00 GHz
-40.42 dBm

PEAK
LOG
10
dB/
OFFST
.5
dB

MA SB
SC FC
CORR



START 10.00 GHz
#RES BW 1.0 MHz

VBW 1 MHz

STOP 20.00 GHz
SWP 210 msec

CLEAR
WRITE A

MAX
HOLD A

VIEW A

BLANK A

Trace
A B C

More
1 of 3

