Appendix B

Laboratory Measurements

Measured Test Data

A sample LC-800HP (Level 5) was tested as required by 47 CFR 2.1001, and 2.985 through 2.997 inclusive, in accordance with §2.999. The system was configured as follows:

- B-Block,
- Reverse link Diversity,
- 1:3 Distribution,
- AC power

2.985 RF Power Output

Requirement

For the power levels expected, the objective is to operate at power levels such that all spurious signals including intermodulation distortion tones are attenuated below the mean power of the carrier to a levels less than –13 dBm.

Test Method

Two scenarios were tested to establish CDMA power output power capability: Single mode CDMA, and Dual mode CDMA/AMPS.

For the dual mode test, one randomly chosen phase set was used. Half the power was put into the CDMA carrier, and the other half delegated to six equal-power CW carriers.

Test Equipment

The following equipment was utilized:

1. HP E2507B Multi-format Communications Signal Simulator (MCSS), Model 60
2. HP 8563A Spectrum Analyzer
3. HP 437B Power Meter, with HP8481A sensor
4. Trilithic HFP530/10 Attenuator, 10 dB 'N'
5. Narda 766-30 Attenuator, 30 dB 'N'

Test Results

See figures SC-1 and MC-1.

Conclusion:

The LC800HP continues to meet FCC intermodulation requirements for composite power levels not exceeding 25 Watts average.

9/9/98 H.N.
9/14/98 B.H. Annotations

FWD

p/o = +44dBM = 25W

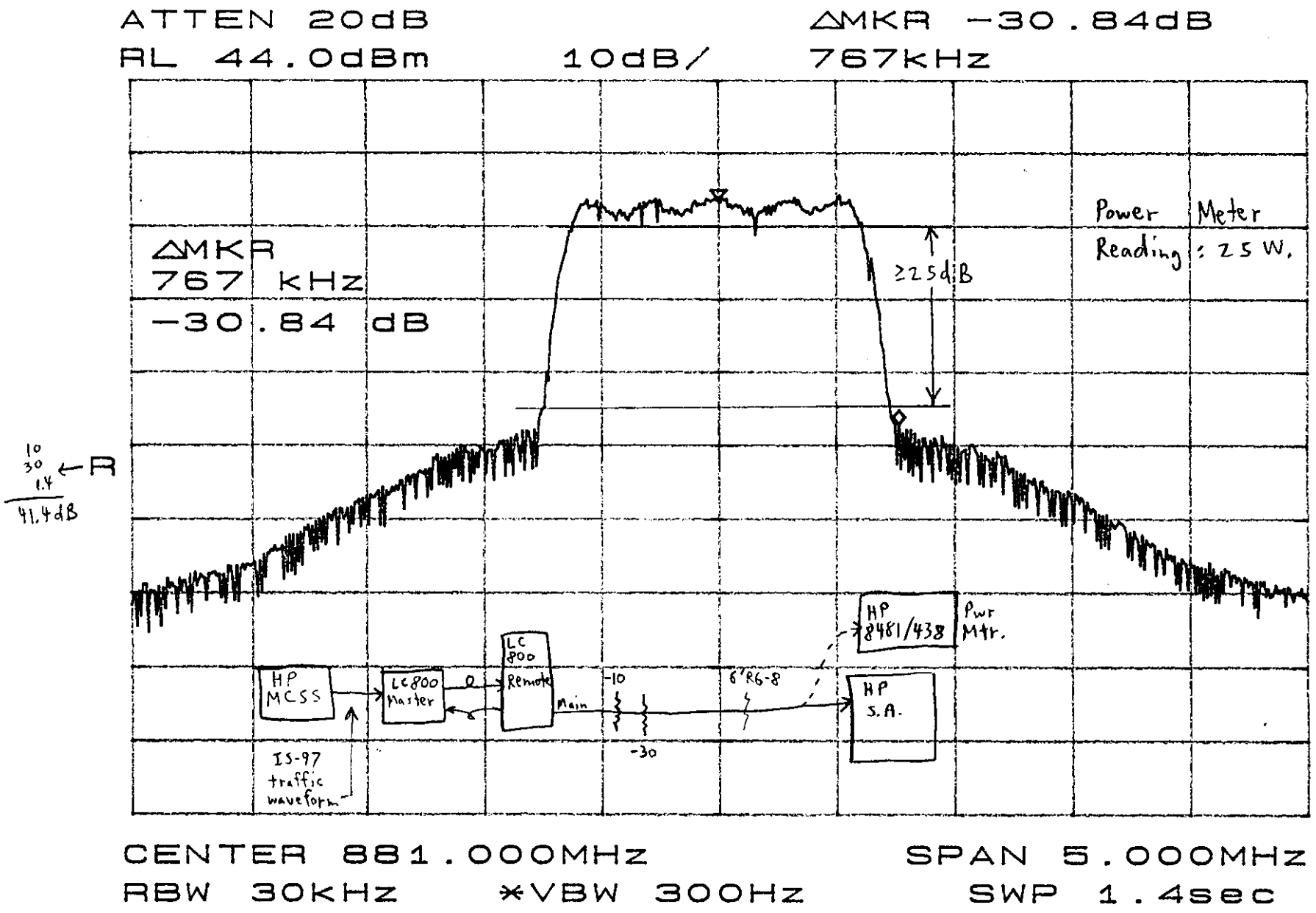


Fig. SC-1: SINGLE-CARRIER CDMA PERF.

BGH
9/15/98

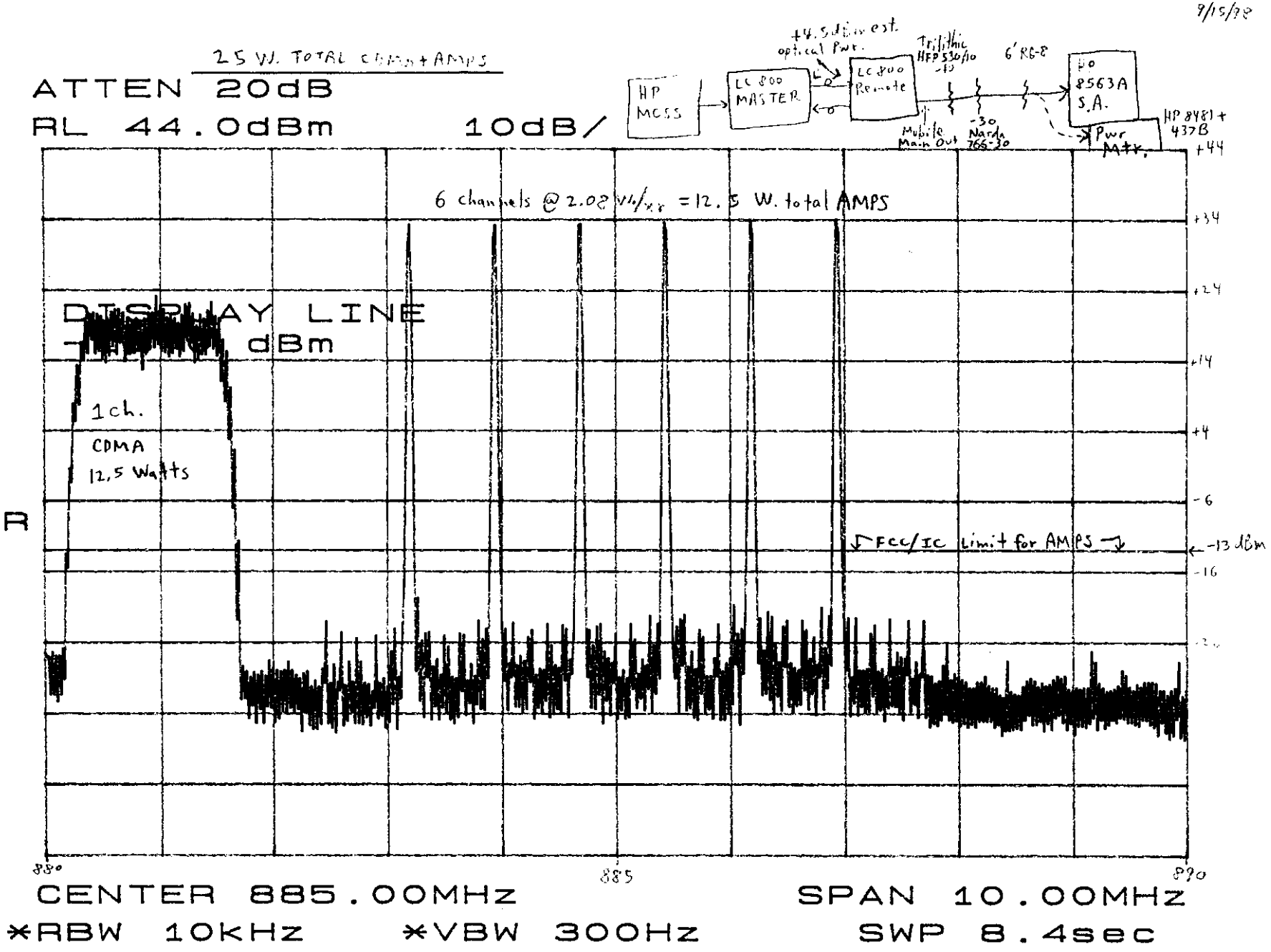


FIG. MC-1: MULTIPLE-CARRIER PERF.

Paragraph 2.987 Modulation Characteristics

Paragraph 2.989 Occupied Bandwidth

Requirements

The LC800HP does not create any modulation of its own, only amplification of input signals occurs.

For a CDMA input, changes to Modulation Characteristics or Occupied Bandwidth are not expected, and have not been observed.

Paragraph 2.991 Spurious Emissions at the Antenna Terminals

Requirements

Under §2.991, the radio frequency power generated within the equipment and appearing on a spurious frequency shall be checked at the output terminals. The frequency range of the measurement is to include harmonics. The spurious signal attenuation shall be at least 43 + 10log(output power), dB. The limit is -13 dBm.

For a CDMA input, changes to conducted Spurious Emissions are not expected, and have not been observed.

Paragraph 2.993: Field Strength of Spurious Emissions

Requirements

The LC800 is to be measured for spurious emissions to a frequency of at least 10 times the rated output frequency. All spurious and harmonic signals are to be less than –13 dBm.

For a CDMA input, changes to radiated Field Strength are not expected, and have not been observed.

Paragraph 2.995 Frequency Stability

Requirements

The output frequency of the LC800HP is to be measured vs. primary power supply voltage and variations in temperature. The primary power supply voltage is varied over –15% to +20% of nominal. The temperature is to be varied from –30 degree C to +50 deg. C.

For a CDMA input, changes to Frequency Stability are not expected, and have not been observed.

*ATTEN 20dB

RL -9.0dBm

10dB/

ΔMKR .67dB

1.258MHz

ΔMKR
1.258 MHz
.67 dB

D

Fig. 4.1-1. Local spectrum

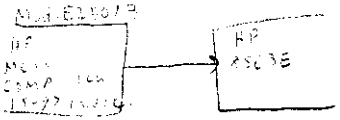
CENTER 880.000MHz

SPAN 5.000MHz

*RBW 30kHz

*VBW 100Hz

SWP 4.20sec



*ATTEN 20dB

ΔMKR .66dB

RL 44.0dBm 10dB/ 1.258MHz

ΔMKR
1.258 MHz
.66 dB

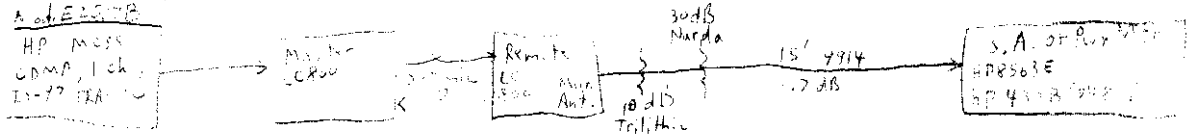
D

R

Fig. 4L-2. Receiver output spectrum.

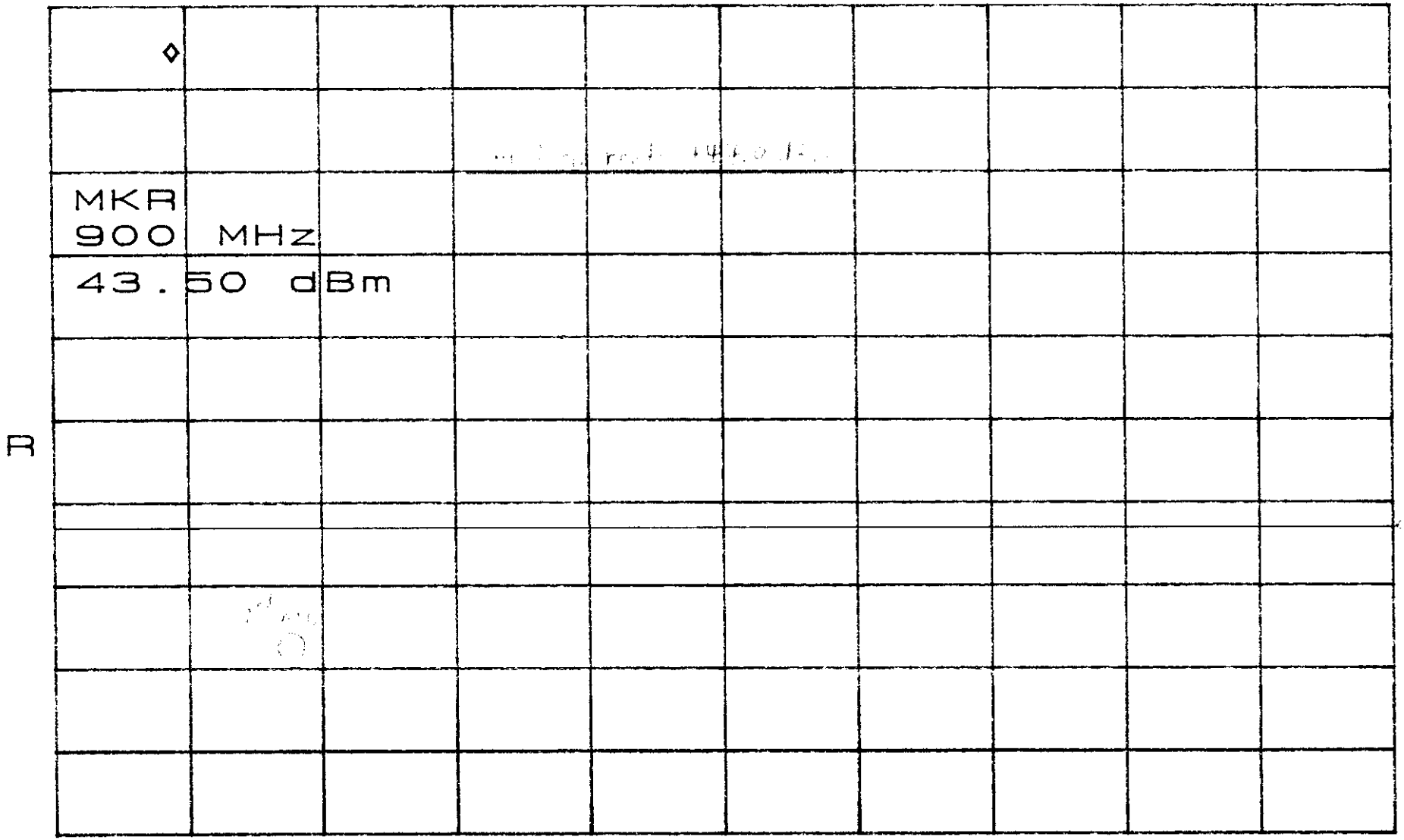
CENTER 880.000MHz SPAN 5.000MHz

*RBW 30KHz *VBW 100Hz SWP 4.20sec



*ATTEN 20dB MKR 43.50dBm

RL 50.0dBm 10dB/ 900MHz

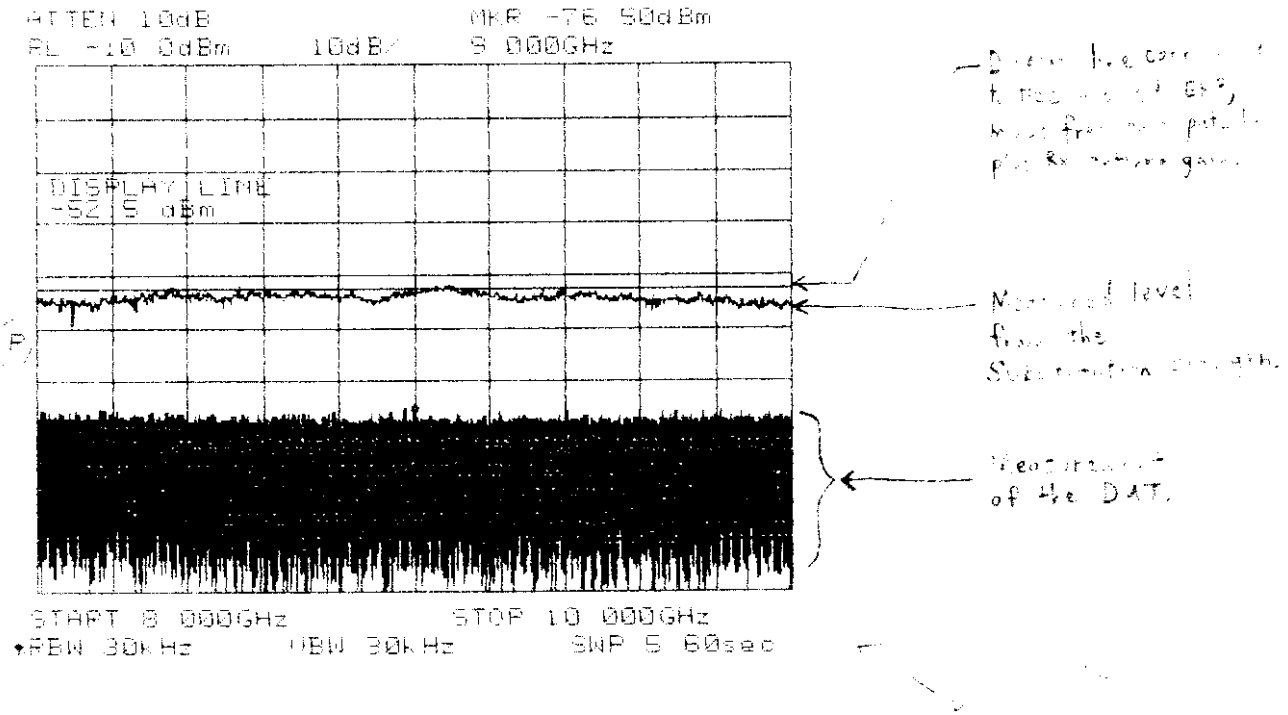


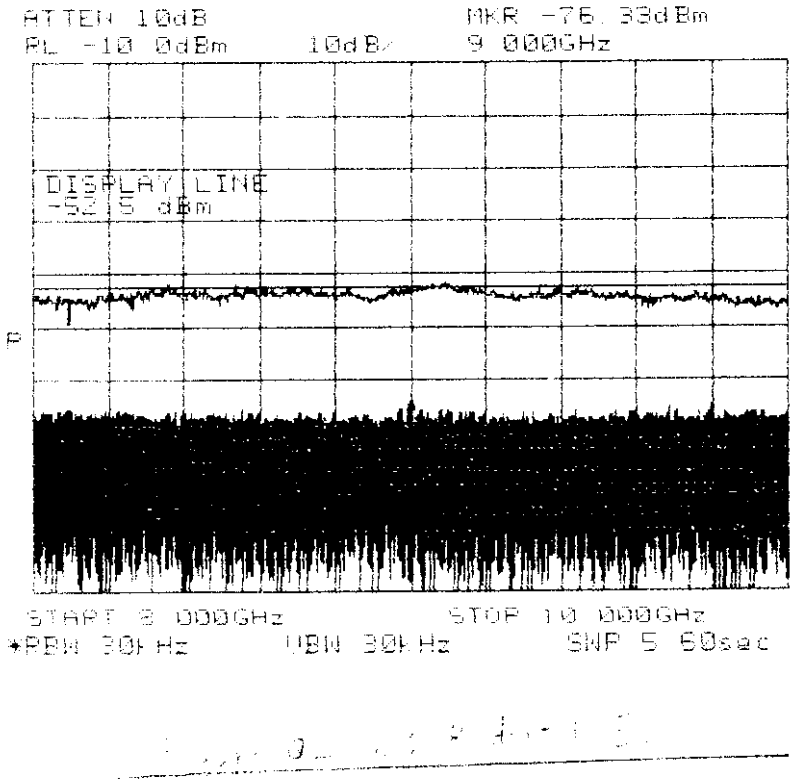
R

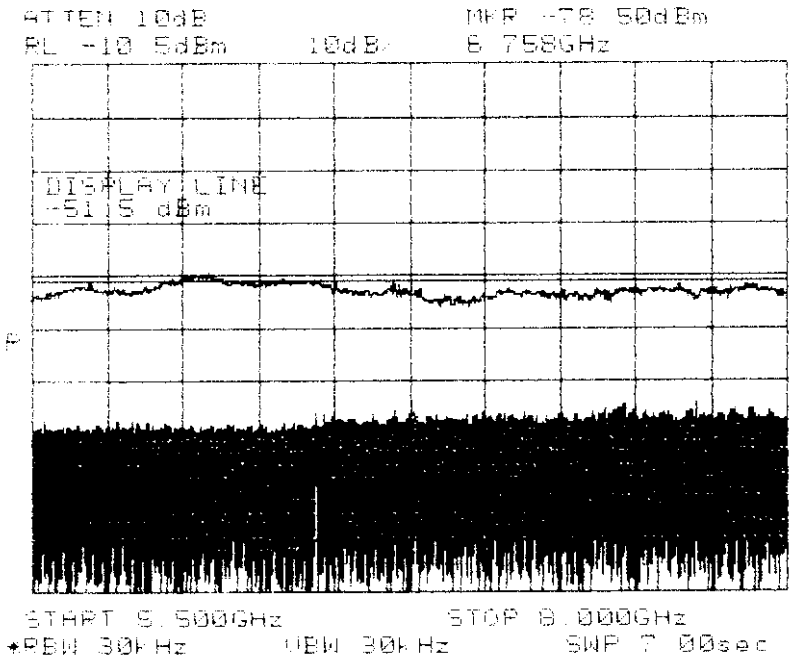
START 0Hz STOP 10.00GHz

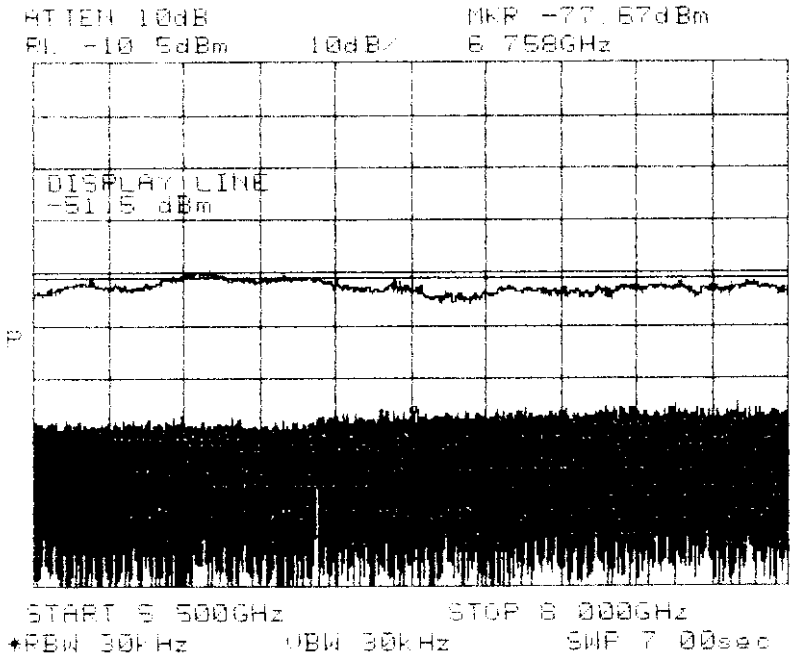
*RBW 10KHz VBW 10KHz SWP 250sec

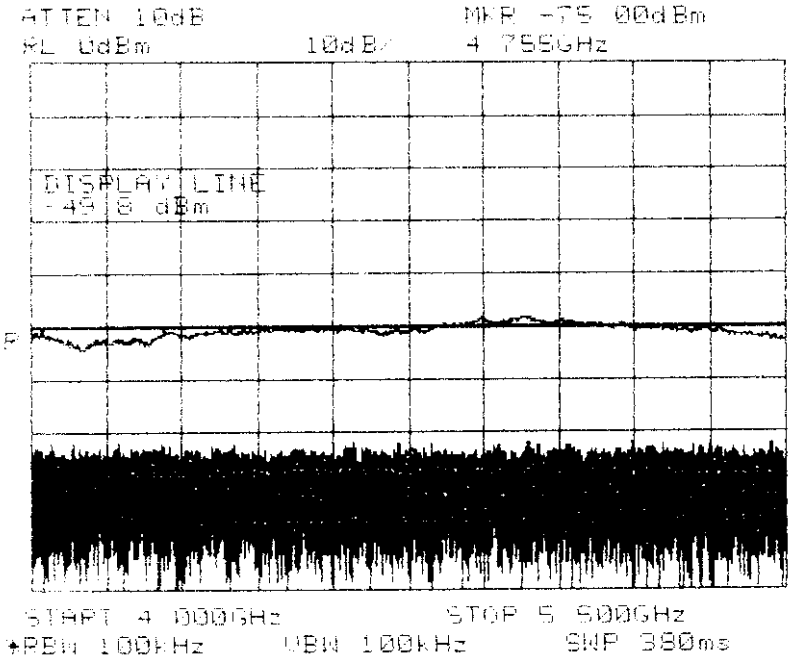
Freq. Band		Calculation method, based on path loss									Substitution method				
Figure number	Freq. range	Freq. for calc of path loss (geometric mean freq.), MHz	Base power level into dipole, dBm	Dist., DUT to Rx. antenna, m.	Free Space path loss, dB	Measurement Antenna	Rx. antenna gain, dBi	Transmission line, measurement antenna to measurement receiver	Cable loss (Spec Analyzer Ref. Level offset), dB	Max. Allowed Rx. level, dBm (Display line setting)	Base power level into dipole, dBm	Substitution antenna type	Gain of substitution antenna, dBd	Cable loss driving substitution antenna, dB	*Tx Power into substitution antenna, dBm (sweeper out Level)*
Q2-2	8 to 10 GHz	8900	-13	1	51.5	Electro-Metrics Horn, Double-ridged, RGA-60	12	6' RG-142	4	*-52.5*	-13	Coax to waveguide transition	4	0	*-17*
Q2-3	5.5 to 8 GHz	6600	-13	1	49.4	Electro-Metrics Horn, Double-ridged, RGA-60	10.9	6' RG-142	3.5	*-51.5*	-13	Coax to waveguide transition	4	0	*-17*
Q2-4	4 to 5.5 GHz	4700	-13	1	47.3	Electro-Metrics Horn, Double-ridged, RGA-60	10.5	6' RG-142	3	*-49.8*	-13	Coax to waveguide transition	4	0	*-17*
Q2-5	3 to 4 GHz	3500	-13	1	44.5	Electro-Metrics Horn, Double-ridged, RGA-60	9.4	6' RG-142	2.5	*-48.1*	-13	Watkins-Johnson Log-periodic	6	0	*-19*
Q2-6	1 to 3 GHz	1700	-13	1	38.5	Electro-Metrics Horn, Double-ridged, RGA-60	7.5	6' RG-142	2	*-44.0*	-13	Watkins-Johnson Log-periodic	7	0	*-20*
Q2-7	0.5 to 1.0 GHz	700	-13	1	31.5	Watkins-Johnson Log-periodic	5	6' RG-142	1	*-39.5*	-13	1/4 wave gnd plane cut to 0.8 GHz	0	0	*-13*
Q2-8	250 to 500 MHz	350	-13	3	34	Discone, with low-freq. extension whip, Diamond D-130	4	5' RG-58	1	*-43.0*	-13	1/4 wave Larsen gnd plane cut to 350 MHz	0	2	*-11*
Q2-9	60 to 250 MHz	110	-13	3	38.5	Discone, with low-freq. extension whip, Diamond D-130	2	5' RG-58	0.5	*-49.5*	-13	1/4 wave Larsen gnd plane cut to 120 MHz	0	1	*-12*
Q2-10	25 to 60 MHz	39	-13	3	24	Discone, with low-freq. extension whip, Diamond D-130	-5	5' RG-58	0	*-42.0*	-13	Lakeview Co. Inc model 9106, 1/4 wave gnd plane	-2	1	*-10*

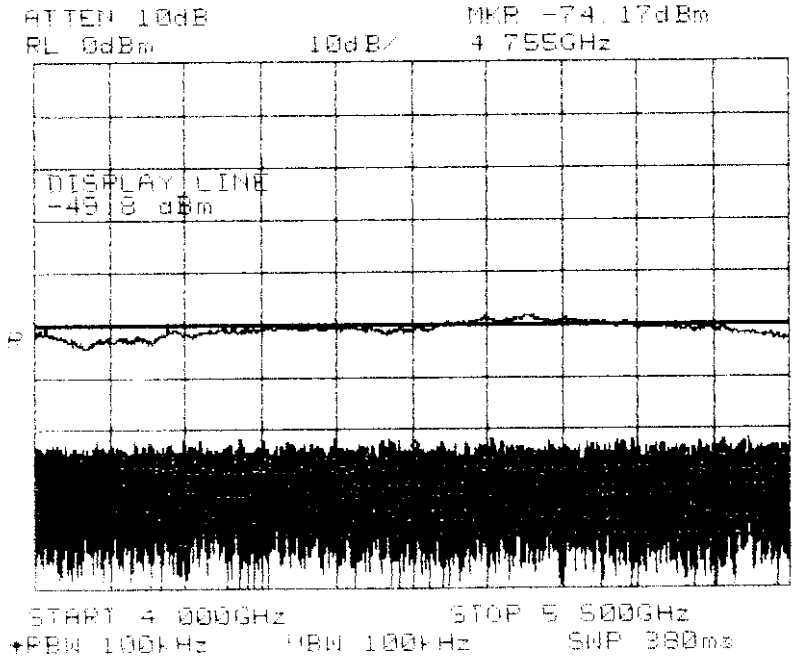

ATTEN 10dB
MKR -76.50dBm
RL -10.0dBm
10dB/
9.000GHz
DISPLAY LINE
-52.5 dBm
START 8.000GHz
STOP 10.000GHz
*RBW 30kHz
VBW 30kHz
SWP 5.60sec

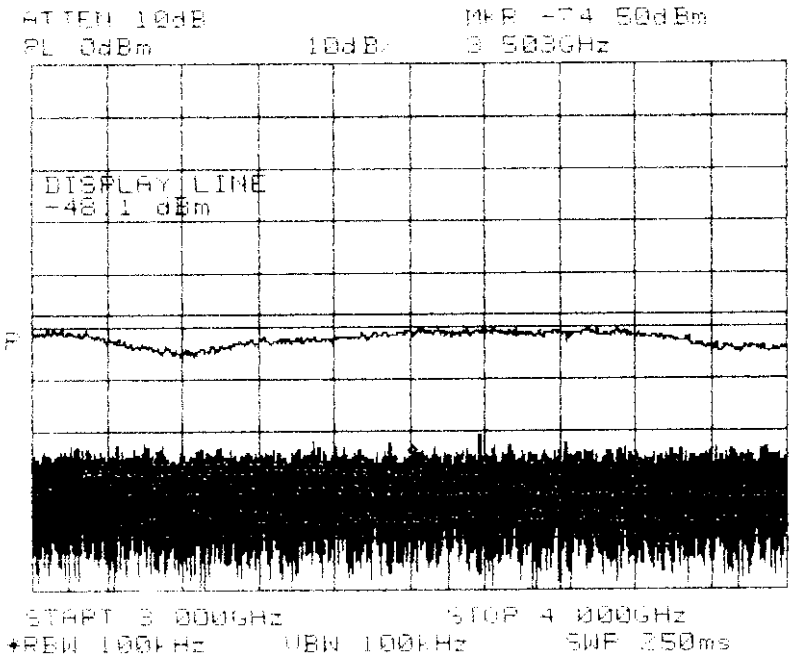

ATTEN 10dB
MKR -76.33dBm
RL -10.0dBm
10dB/
9.000GHz
DISPLAY LINE
-52.5 dBm
START 8.000GHz
STOP 10.000GHz
*RBW 30kHz
VBW 30kHz
SWP 5.60sec

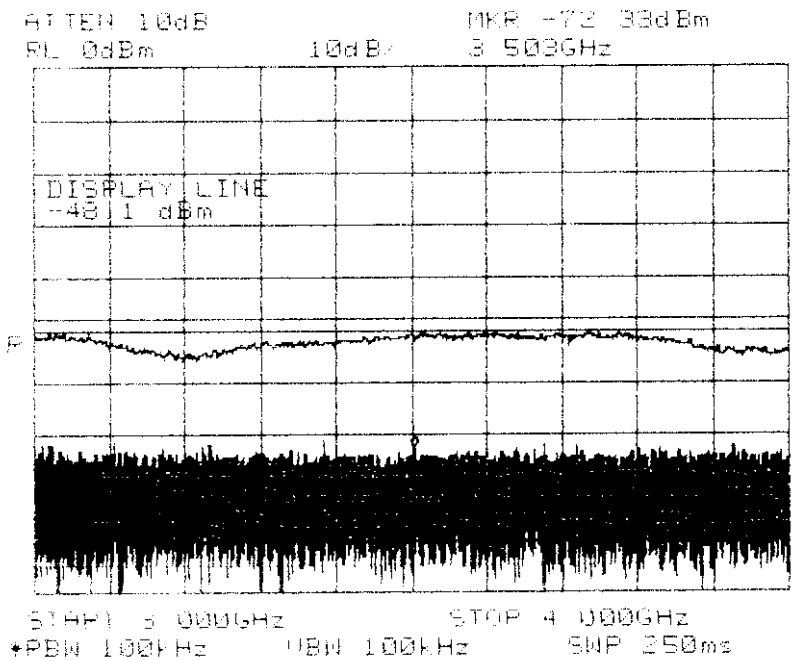

ATTEN 10dB
MKR -78.50dBm
RL -10.5dBm
10dB/
8.758GHz
DISPLAY LINE
-51.5 dBm
START 5.500GHz
STOP 8.000GHz
*RBW 30kHz
VBW 30kHz
SWP 7.00sec

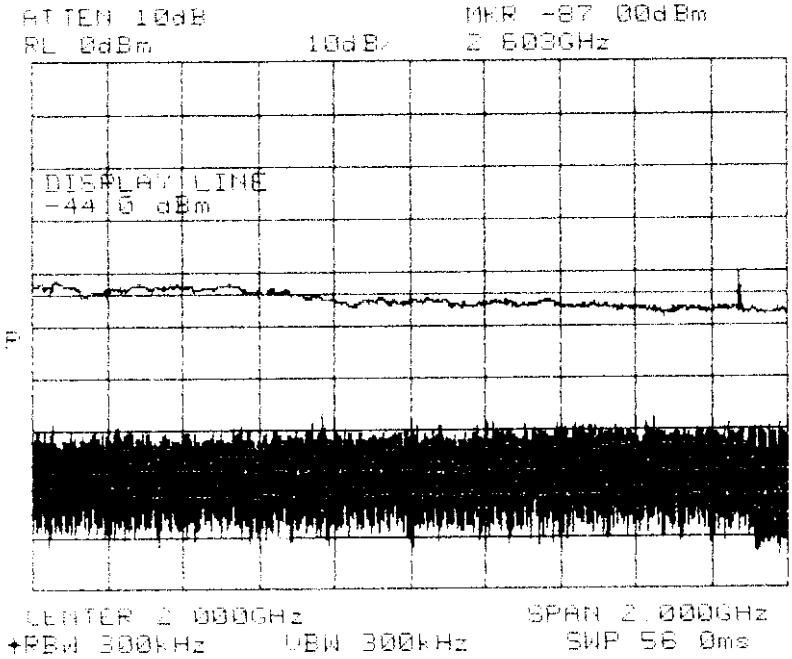

ATTEN 10dB
MKR -77.67dBm
RL -10.5dBm
10dB/
8.758GHz
DISPLAY LINE
-51.5 dBm
START 5.500GHz
STOP 8.000GHz
*RBW 30kHz
VBW 30kHz
SWP 7.00sec


ATTEN 10dB
MKR -75.00dBm
RL 0dBm
10dB/
4.755GHz
DISPLAY LINE
-49.8 dBm
P
START 4.000GHz
STOP 5.500GHz
#RBW 100kHz
VBW 100kHz
SWP 380ms


ATTEN 10dB
MKR -74.17dBm
RL 0dBm
10dB/
4.755GHz
DISPLAY LINE
-49.8 dBm
P
START 4.000GHz
STOP 5.500GHz
#RBW 100kHz
VBW 100kHz
SWP 380ms


ATTEN 10dB
MKR -74.50dBm
RL 0dBm
10dB/
3.503GHz
DISPLAY LINE
-48.1 dBm
START 3.000GHz
STOP 4.000GHz
*RBW 100kHz
VBW 100kHz
SWP 250ms


ATTEN 10dB
MKR -72.33dBm
RL 0dBm
10dB/
3.503GHz
DISPLAY LINE
-48.1 dBm
START 3.000GHz
STOP 4.000GHz
*RBW 100kHz
VBW 100kHz
SWP 250ms


ATTEN 10dB
RL 0dBm
10dB/
MKR -87.00dBm
2.603GHz
DISPLAY LINE
-44.0 dBm
CENTER 2.000GHz
SPAN 2.000GHz
*RBW 300kHz
VBW 300kHz
SWP 56.0ms

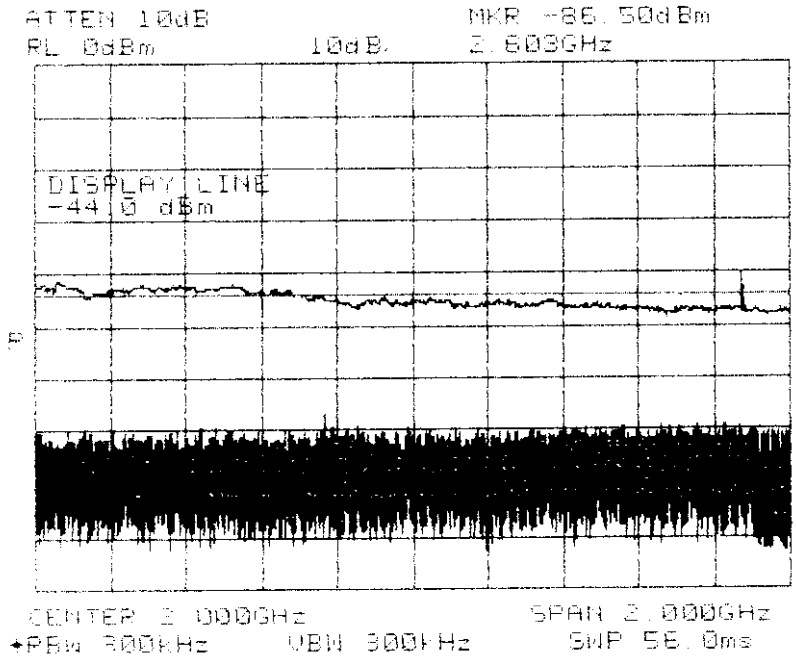
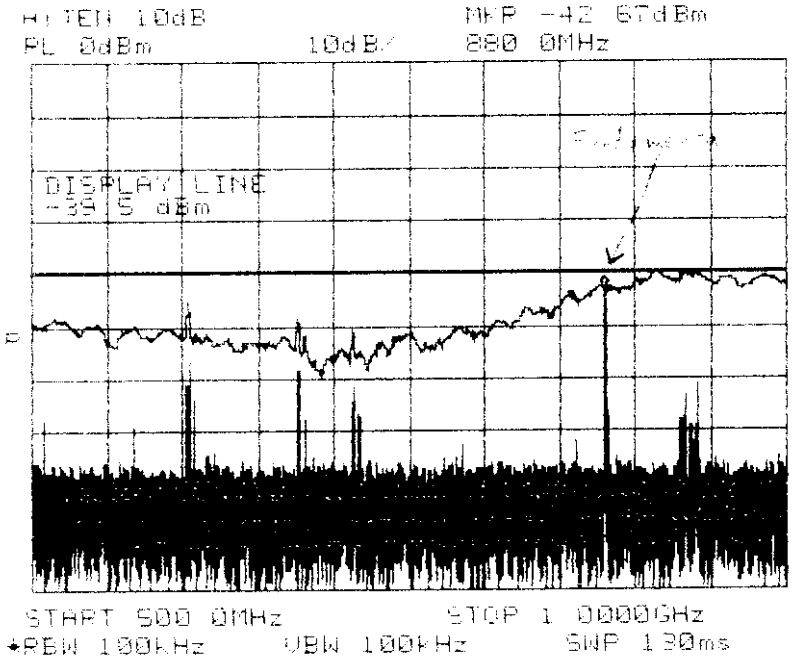
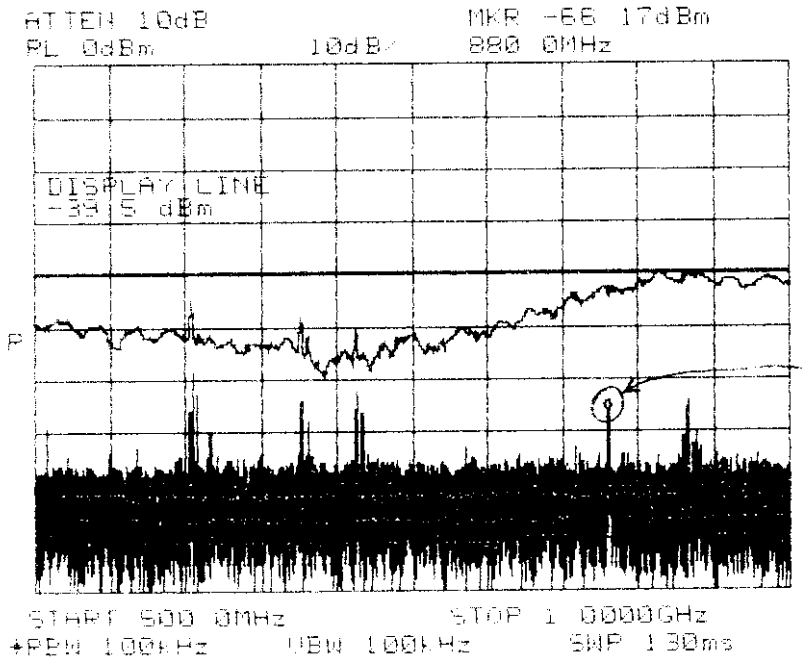
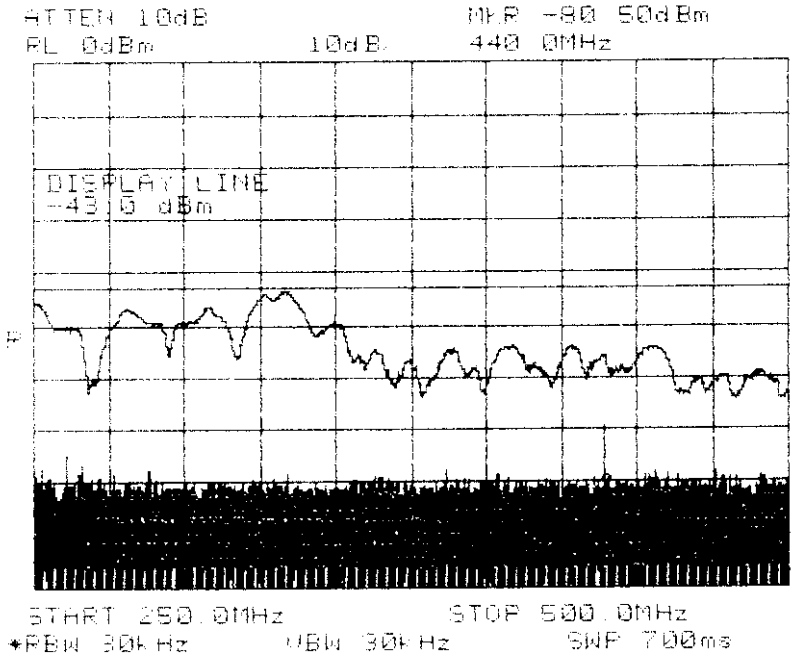
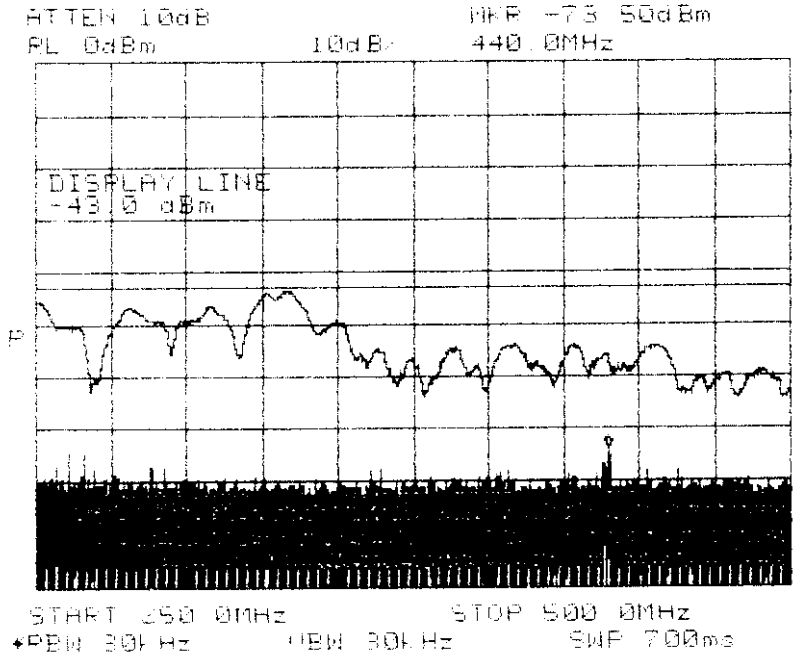

ATTEN 10dB
RL 0dBm
10dB/
MKR -86.50dBm
2.603GHz
DISPLAY LINE
-44.0 dBm
CENTER 2.000GHz
SPAN 2.000GHz
*RBW 300kHz
VBW 300kHz
SWP 56.0ms

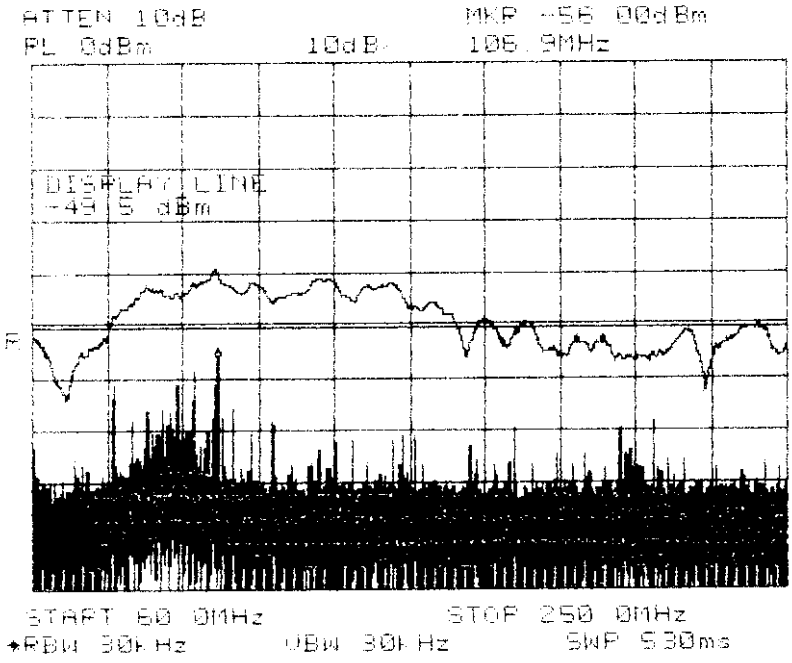
Fig. 4

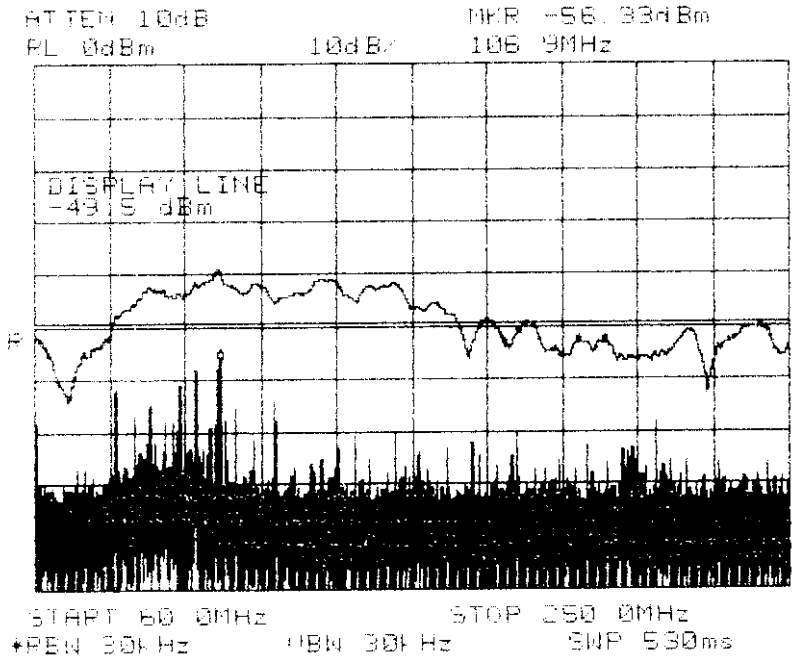

ATTEN 10dB
MKR -42.67dBm
PL 0dBm
10dB/
880.0MHz
DISPLAY LINE
-39.5 dBm
START 500.0MHz
STOP 1.0000GHz
*RBW 100kHz
VBW 100kHz
SWP 130ms

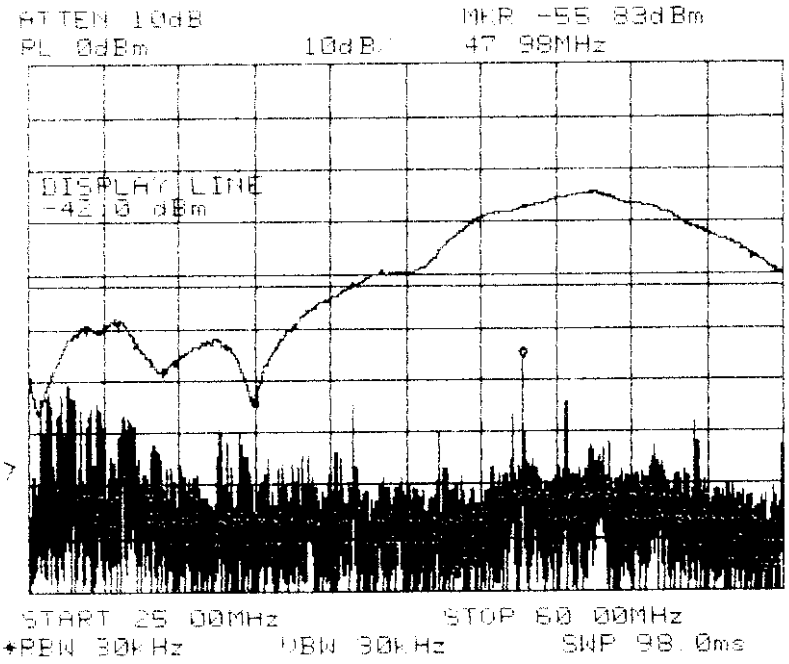

ATTEN 10dB
MKR -66.17dBm
PL 0dBm
10dB/
880.0MHz
DISPLAY LINE
-39.5 dBm
START 500.0MHz
STOP 1.0000GHz
*RBW 100kHz
VBW 100kHz
SWP 130ms

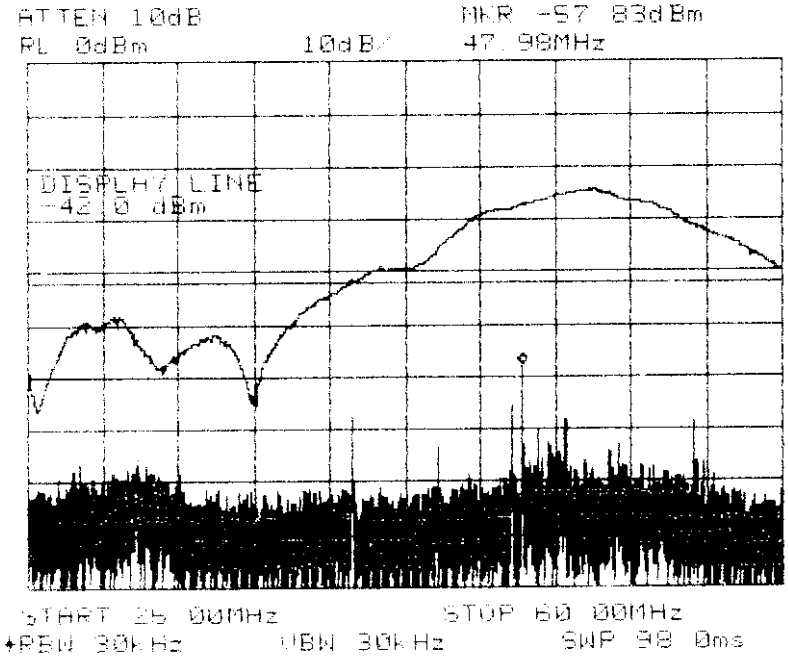

ATTEN 10dB
MKR -80.50dBm
RL 0dBm
10dB/
440.0MHz
DISPLAY LINE
-43.0 dBm
START 250.0MHz
STOP 500.0MHz
*RBW 30kHz
VBW 30kHz
SWP 700ms

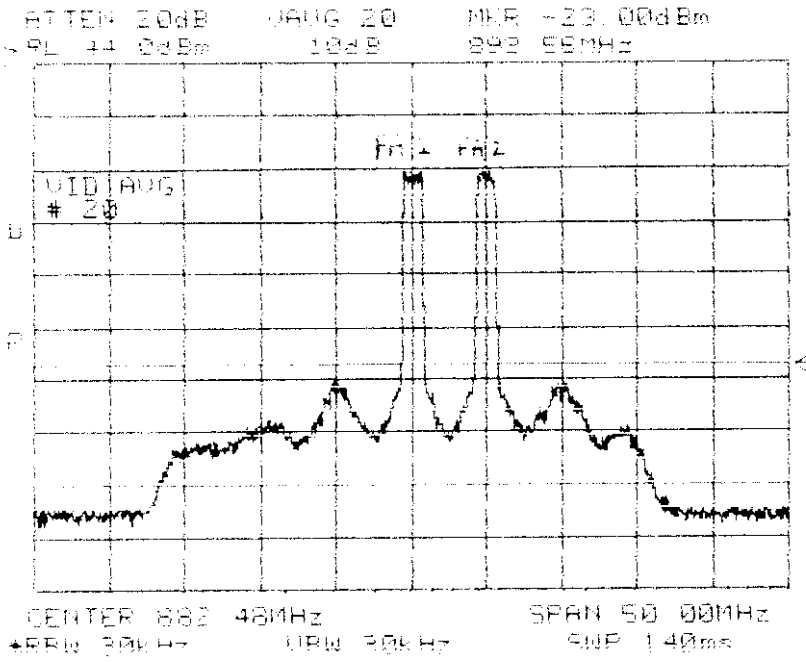

ATTEN 10dB
MKR -73.50dBm
RL 0dBm
10dB/
440.0MHz
DISPLAY LINE
-43.0 dBm
START 250.0MHz
STOP 500.0MHz
*RBW 30kHz
VBW 30kHz
SWP 700ms

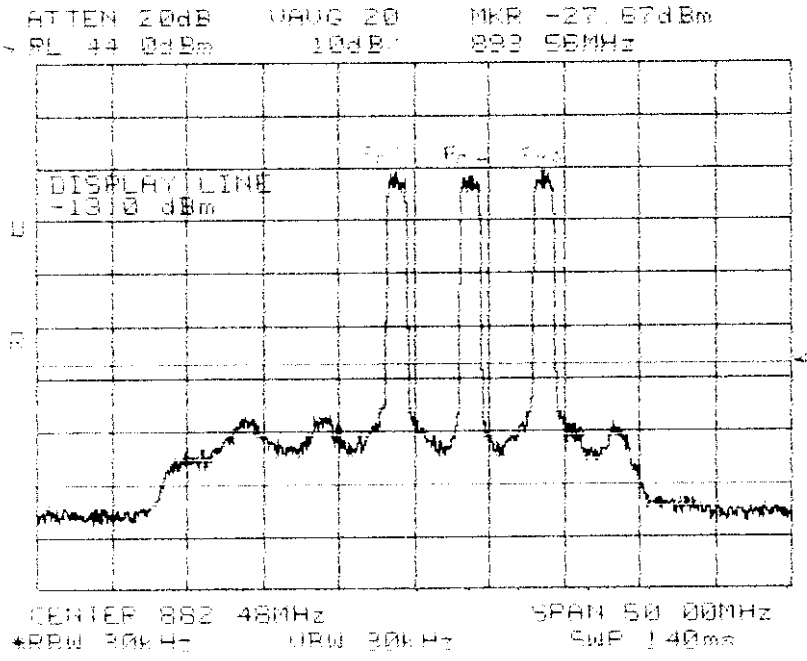

ATTEN 10dB
MKR -56.00dBm
RL 0dBm
10dB/
105.9MHz
DISPLAY LINE
-43.5 dBm
START 50.0MHz
STOP 250.0MHz
*RBW 30kHz
VBW 30kHz
SWP 530ms

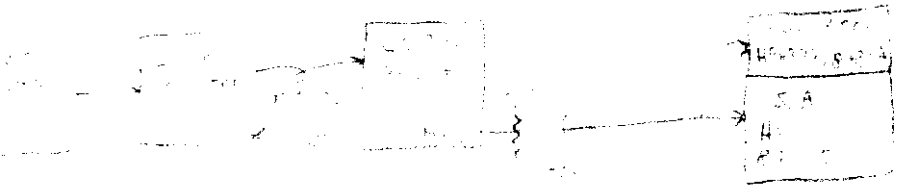

ATTEN 10dB
MKR -56.33dBm
RL 0dBm
10dB/
106.9MHz
DISPLAY LINE
-43.5 dBm
START 50.0MHz
STOP 250.0MHz
*RBW 30kHz
VBW 30kHz
SWP 530ms

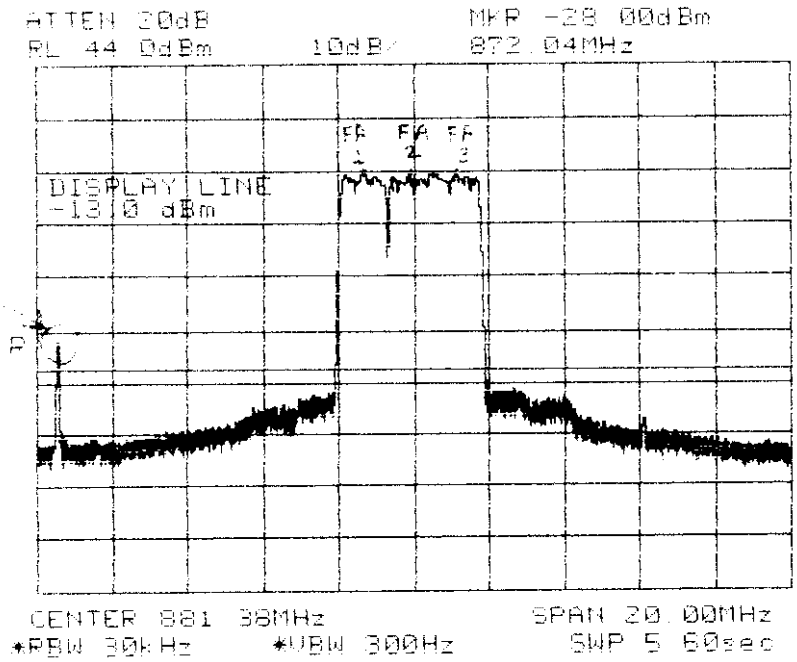

ATTEN 10dB
MKR -55.83dBm
RL 0dBm
10dB/
47.98MHz
DISPLAY LINE
-42.0 dBm
START 25.00MHz
STOP 60.00MHz
*RBW 30kHz
VBW 30kHz
SWP 98.0ms

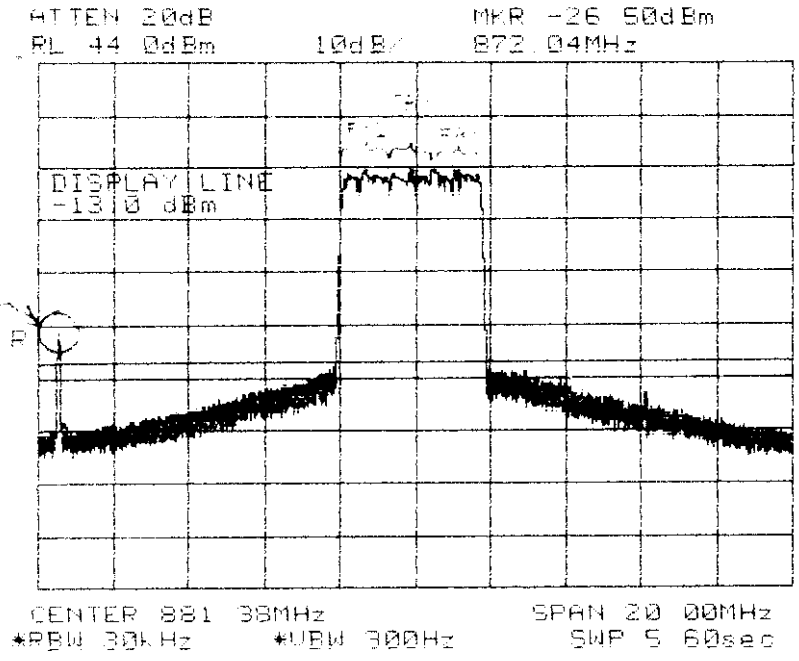

ATTEN 10dB
MKR -57.83dBm
RL 0dBm
10dB/
47.98MHz
DISPLAY LINE
-42.0 dBm
START 25.00MHz
STOP 60.00MHz
*RBW 30kHz
VBW 30kHz
SWP 98.0ms

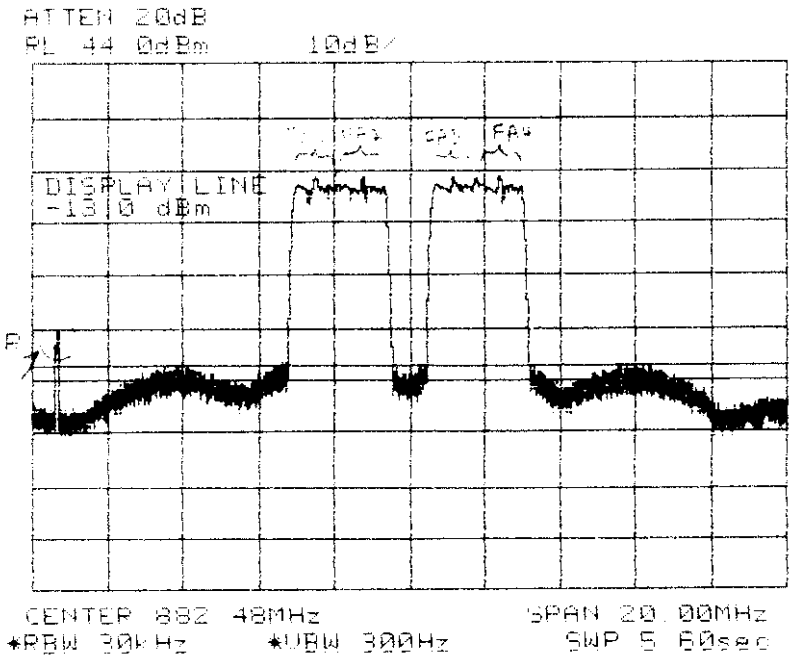

ATTEN 20dB
RL 44 0dBm
AUG 20
10dB/
MKR -23.00dBm
882.58MHz
VID AVG
28
CENTER 882.48MHz
SPAN 50.00MHz
*RBW 30kHz
VBW 30kHz
SWP 1.40ms

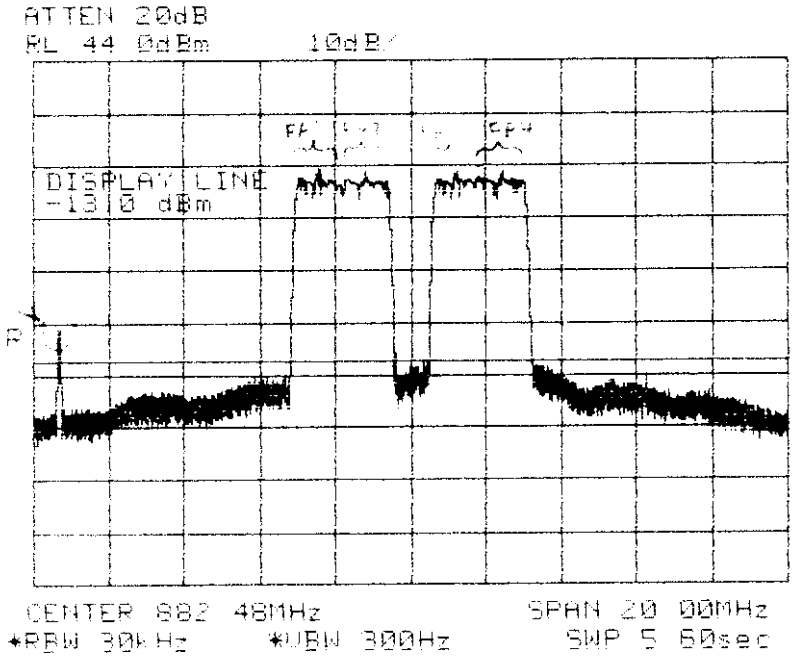

ATTEN 20dB
RL 44 0dBm
AUG 20
10dB/
MKR -27.67dBm
882.58MHz
DISPLAY LINE
-13.0 dBm
CENTER 882.48MHz
SPAN 50.00MHz
*RBW 30kHz
VBW 30kHz
SWP 1.40ms

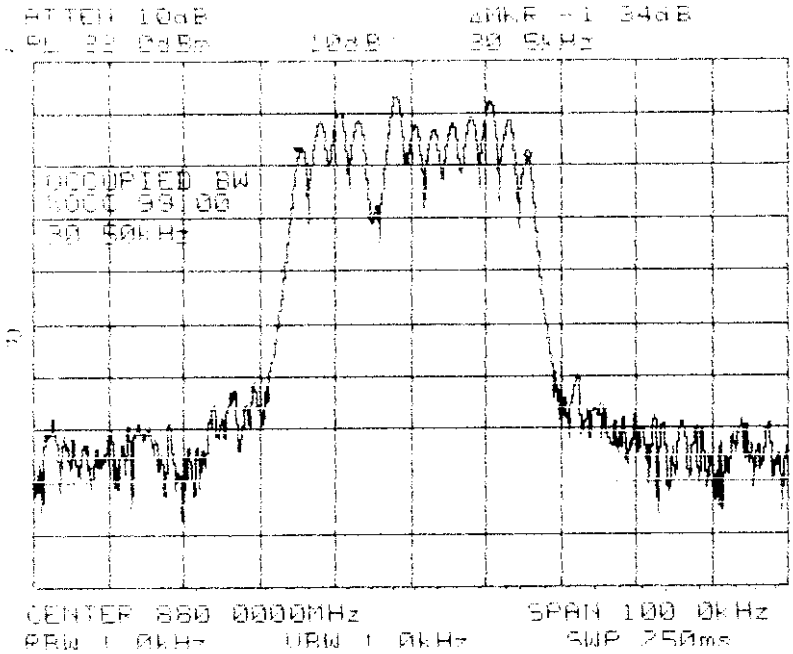


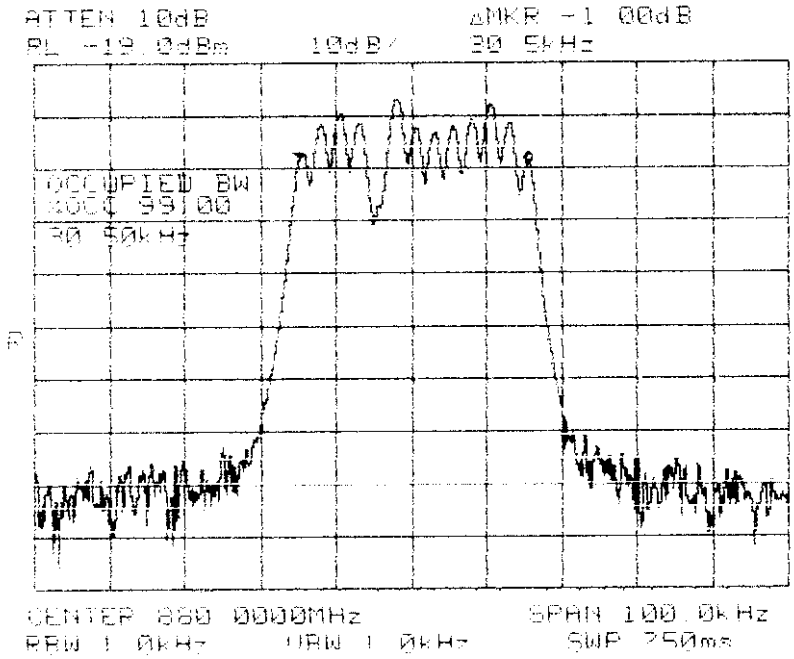

ATTEN 20dB
MKR -28 00dBm
RL 44 0dBm
10dB/
872 04MHz
DISPLAY LINE
-13 0 dBm
CENTER 881 38MHz
SPAN 20 00MHz
*RBW 30kHz
*VBW 300Hz
SWP 5 60sec

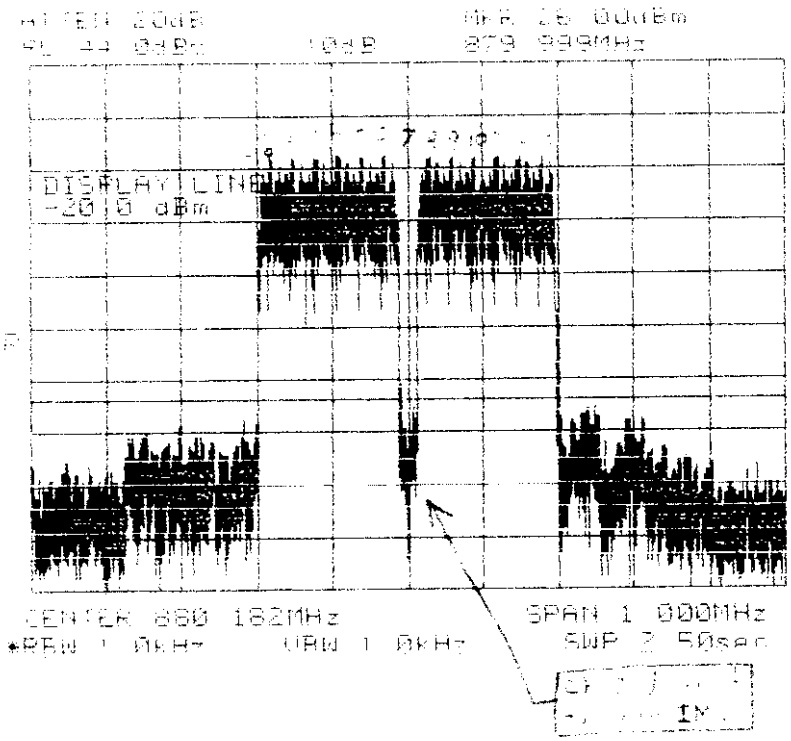

ATTEN 20dB
MKR -26 50dBm
RL 44 0dBm
10dB/
872 04MHz
DISPLAY LINE
-13 0 dBm
CENTER 881 38MHz
SPAN 20 00MHz
*RBW 30kHz
*VBW 300Hz
SWP 5 60sec

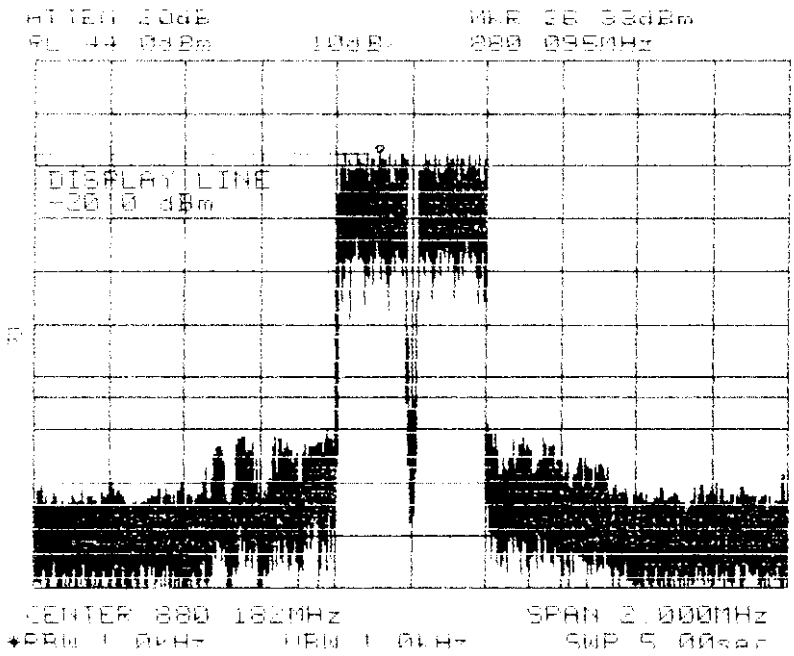

ATTEN 20dB
RL 44 0dBm
10dB/
DISPLAY LINE
-13 0 dBm
CENTER 882 48MHz
SPAN 20 00MHz
*RBW 30kHz
*VBW 300Hz
SWP 5 60sec

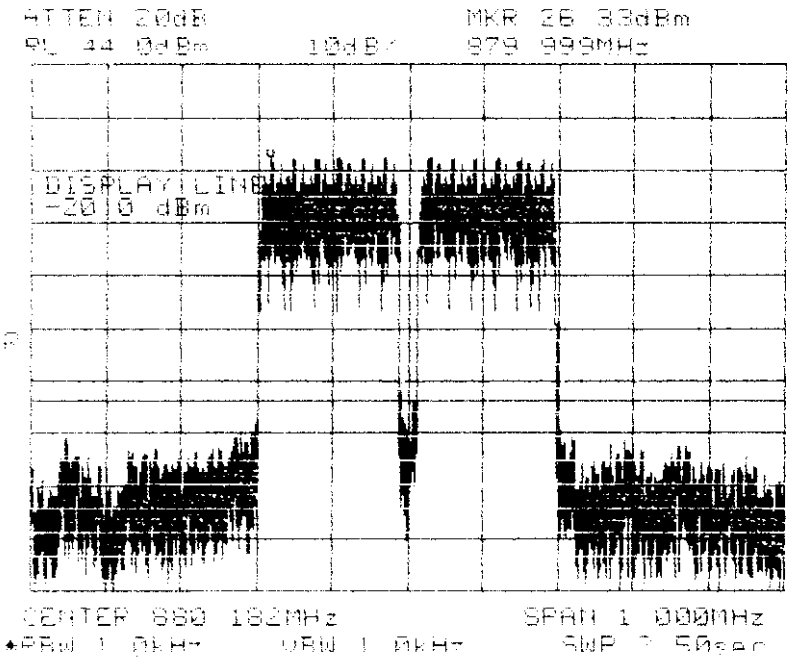

ATTEN 20dB
RL 44 0dBm
10dB/
DISPLAY LINE
-13 0 dBm
CENTER 882 48MHz
SPAN 20 00MHz
*RBW 30kHz
*VBW 300Hz
SWP 5 60sec


ATTEN 10dB
ΔMKR -1.34dB
RL 22.0dBm
10dB/
30.5kHz
OCCUPIED BW
99.00%
30.0kHz
CENTER 880.0000MHz
SPAN 100.0kHz
RBW 1.0kHz
VBW 1.0kHz
SWP 250ms


ATTEN 10dB
ΔMKR -1.00dB
RL -12.0dBm
10dB/
30.5kHz
OCCUPIED BW
99.00%
30.0kHz
CENTER 880.0000MHz
SPAN 100.0kHz
RBW 1.0kHz
VBW 1.0kHz
SWP 250ms


DISPLAY LINE
-20.0 dBm
CENTER 880.182MHz
SPAN 1.000MHz
SWP 2.50sec
IM


ATTEN 20dB
MKR 26.33dBm
10dB/
880.095MHz
DISPLAY LINE
-20.0 dBm
CENTER 880.182MHz
SPAN 2.000MHz
VBW 1.0kHz
SWP 5.00sec


ATTEN 20dB
MKR 26.33dBm
10dB/
879.999MHz
DISPLAY LINE
-20.0 dBm
CENTER 880.182MHz
SPAN 1.000MHz
VBW 1.0kHz
SWP 2.50sec