Application for Certification
For an RF Transmitter

Elite Entry Phone, Inc.
25741 Commercentre Dr.
Lake Forest, CA 92630

Product: RF Transmitter

Model: Elite Impulse System
Impulse Energy (Interrogator)

FCC ID: NIFI900

REPORT # RC054761/00069

This report was prepared in accordance with the requirements of the FCC Rules and Regulations Part 2, Subpart J, 2.981 through 2.1005, Part 90 and other applicable sections of the rules as indicated herein.

Prepared By:

Jake Tynes

DNB Engineering, Inc.
3535 W. Commonwealth Ave.
Fullerton, CA 92833

04 FEBRUARY 2000

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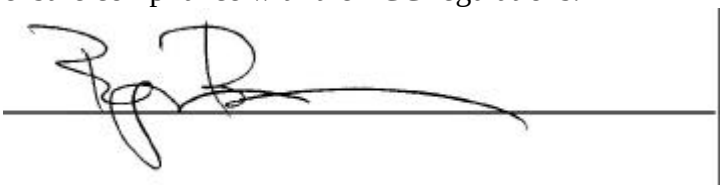
1.0 ADMINISTRATIVE DATA

1.1 Certifications and Qualifications

I certify that DNB Engineering, Inc conducted the tests performed in order to obtain the technical data presented in this application. Also, based on the results of the enclosed data, I have concluded that the equipment tested meets or exceeds the requirements of the Rules and Regulations governing this application.

1.2 Measurement Repeatability Information

The test data presented in this report has been acquired using the guidelines set forth in FCC Part 2.981 through 2.1005, and Part 90. The test results presented in this document are valid only for the equipment identified herein under the test conditions described. Repeatability of these test results will only be achieved with identical measurement conditions. These conditions include: The same test distance, EUT Height, Measurement Site Characteristics, and the same EUT System Components. The system must have the same Interconnecting Cables arranged in identical placement to that in the test set-up, with the system and/or EUT functioning in the identical mode of operation (i.e. software and so on) as on the date of the test. Any deviation from the test conditions and the environment on the date of the test may result in measurement repeatability difficulties.
All changes made to the EUT during the course of testing as identified in this test report must be incorporated into the EUT or identical models to ensure compliance with the FCC regulations.



Bryan Broaddus (Para. 1.1)
Manager, Test Dept.
DNB Engineering, Inc.
Tel. (714) 870-7781 FAX (714 870-5081

2.983(a) Request for Type Acceptance

Name of Applicant:		Elite Entry Phone, Inc. 25741 Commercentre Dr. Lake Forest, CA 92630
Applicant is:	X	Manufacturer Vendor Licensee Prospective Licensee Other
Name of Manufacturer:		Elite Entry Phone, Inc.

2.983(b) Equipment Description

The EUT is an RF Transmitter

Product: Elite Impulse System

Model: Impulse Energy (Interrogator)

FCC ID: NIFI900

2.983(c) Anticipated Production Quantity

	One Unit
X	Multiple Units

2.983(d) Technical Description

See Appendix B for the Technical Description of the EUT (Equipment Under Test).

2.983(d)(1) Type of Emissions

N0N

2.983(d)(2) Frequency Range

902.5 MHz to 920.5 MHz (Switch Selectable)

2.983(d)(3) Operating Power Level

5.0 Watts (Maximum)

2.983(d)(4) Maximum Power Allowed in Applicable Part(s) of the Rules

RULES PART	MAXIMUM POWER (WATTS)
Part 90.205(j)	30 Watts ERP from 902 to 927.25 MHz

2.983(d)(5) Final RF Transmitter Input Power

N/A

2.983(d)(6) Function of all Active Circuit Devices

Please Refer to Appendix B.

2.983(d)(7) Circuit Diagram

Refer to Figure in Appendix B.

2.983(d)(8) Instruction Book

Refer to Appendix B.

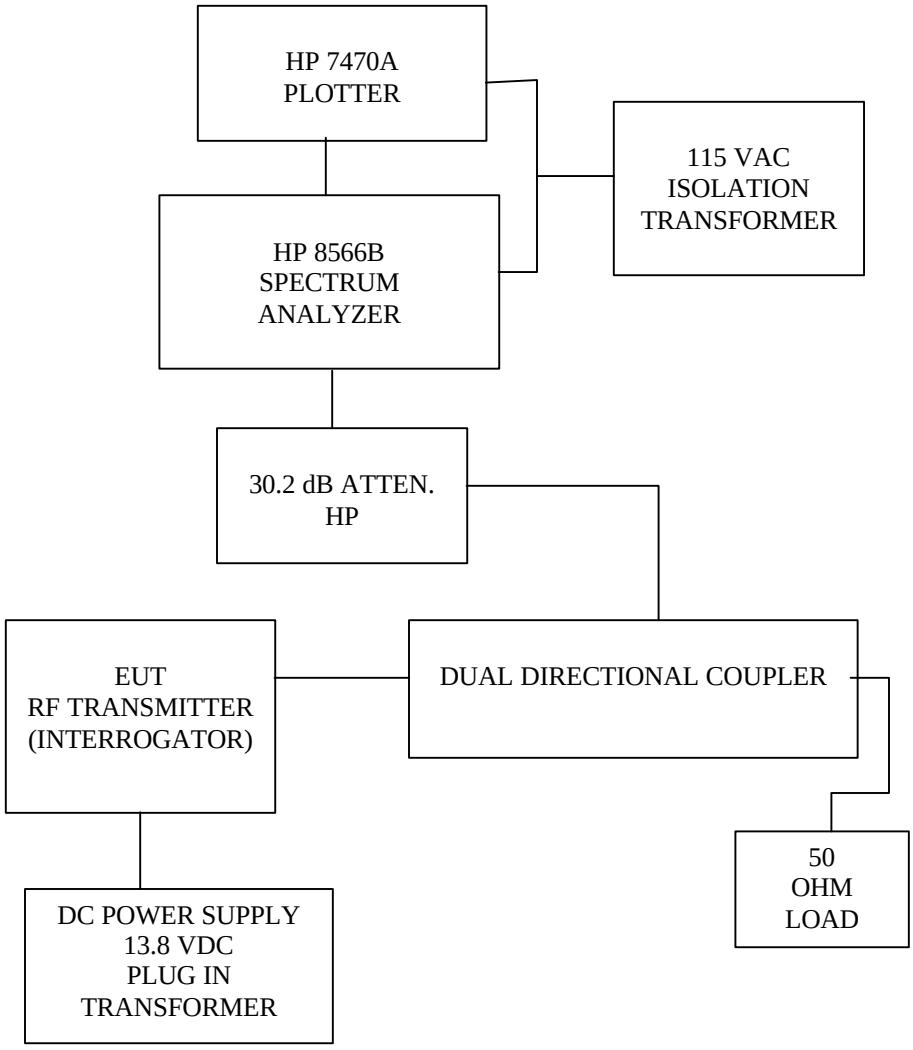
2.983(d)(9) Tune-Up Procedure

Refer to Appendix B.

FIGURE 1: Circuit Diagram 2.983(d) (7)

SEE FIGURE IN APPENDIX B.

FIGURE 2: Block Diagram (Power Input/Output tests)



2.983(e) Test Data

Refer to 2.983(e) (1) through 2.983(e) (7).

2.983(e)(1) Measurement of RF Power Output per 2.985

Definition: For RF Transmitter.

Test Method: See FIGURE 2.

Output Power is measured across a precision 50 ohm load with a directional coupler and a spectrum analyzer.

Test Results:

The measured RF power into 50 ohms is 2.45 Watts (33.9 dBm). The supplied antenna has a gain of 8.5 dBi or 6.35 dBd. Therefore, the ERP is 40.25 dBm or 10.6 W ERP.
This complies with the required limit of 30 Watts ERP maximum from 902 to 927.25 MHz.

2.983(e)(2) Measurement of Modulation Characteristics per 2.987(b) (1)

This EUT is an RF Continuous wave (CW) Transmitter and contains no circuitry to modulate the carrier

2.983(e)(3) Measurement of Occupied Bandwidth per 2.989

Definition:
Occupied Bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission.

Test Method: Connect the Equipment per FIGURE 3.

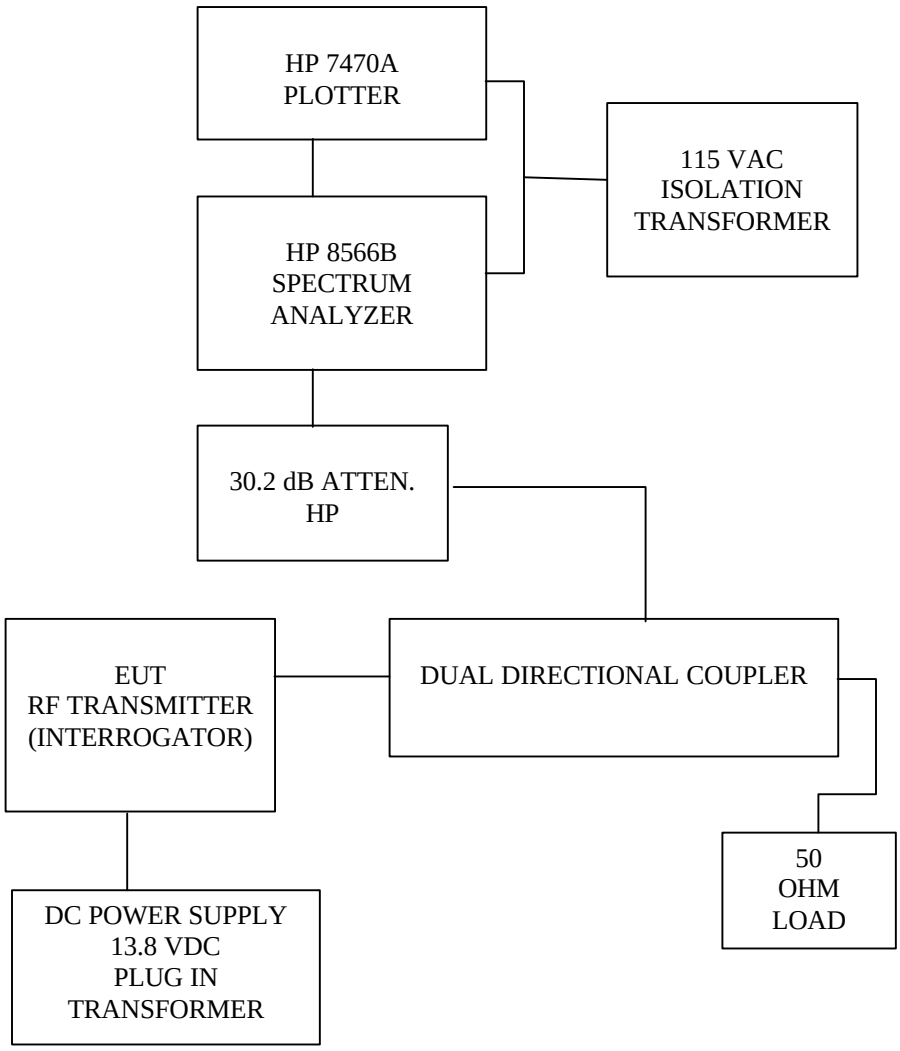
Test Results: See Plots following FIGURE 3.

The Spectrum Bandwidth was well within the limits specified in the FCC Regulations.

Notes:

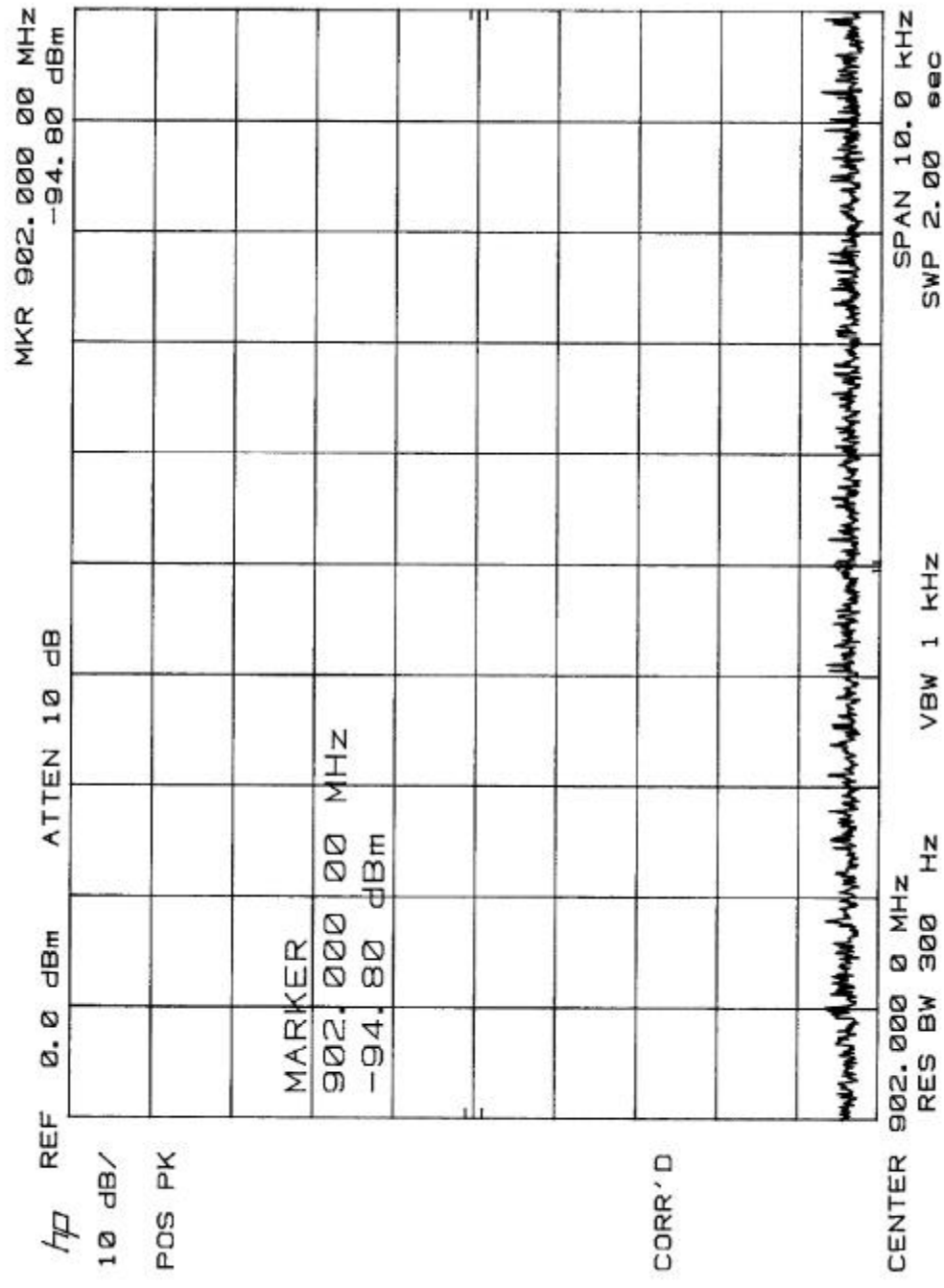
Transmitter was adjusted to the lowest frequency using the selector switch (902.5 MHz) while the spectral signature was examined at 902.0 MHz and at 928.0 MHz as well as 902.5 MHz (see plots herein). No emissions were Recorded at the band edges.

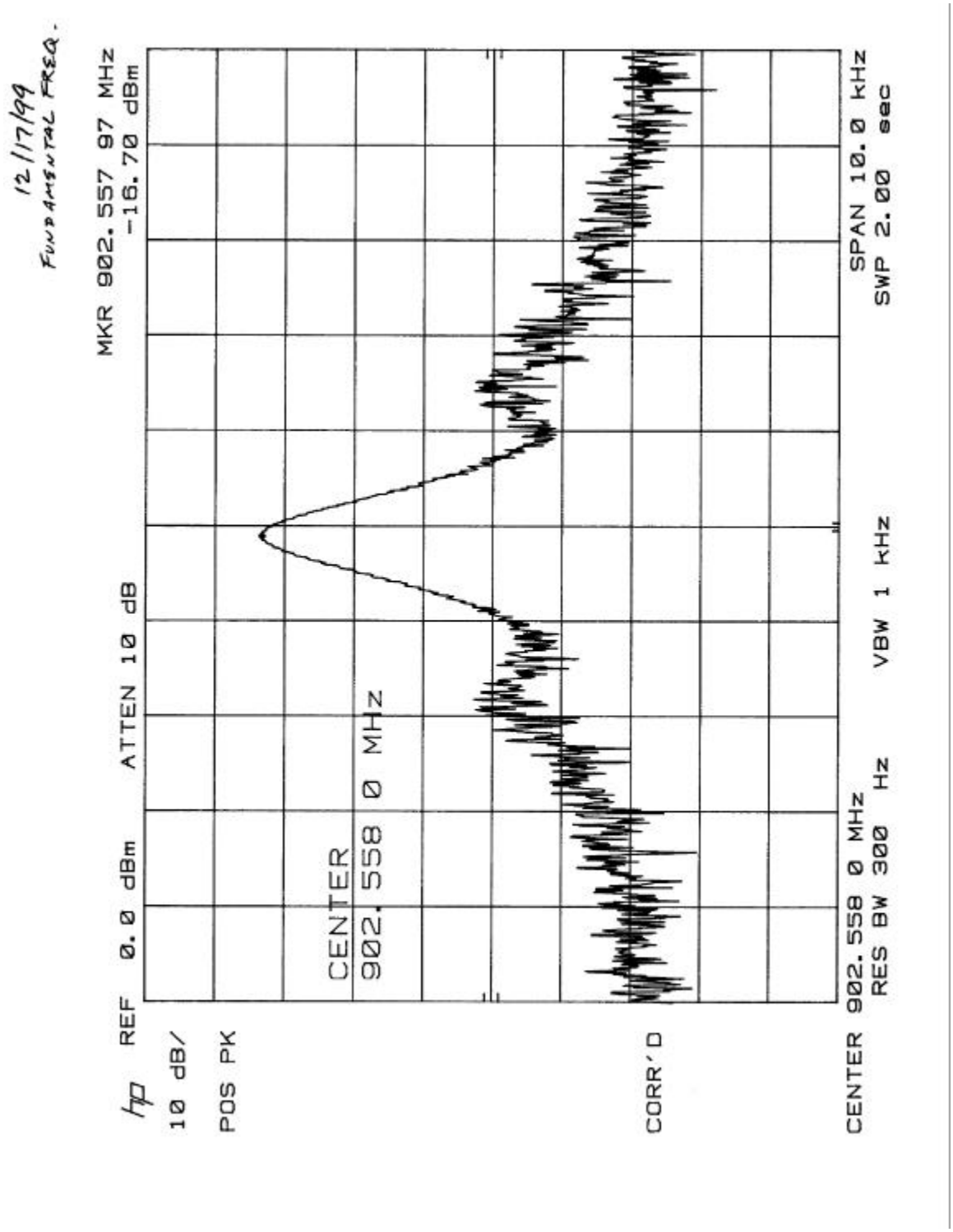
FIGURE 3: Block Diagram
(Occupied Bandwidth tests)

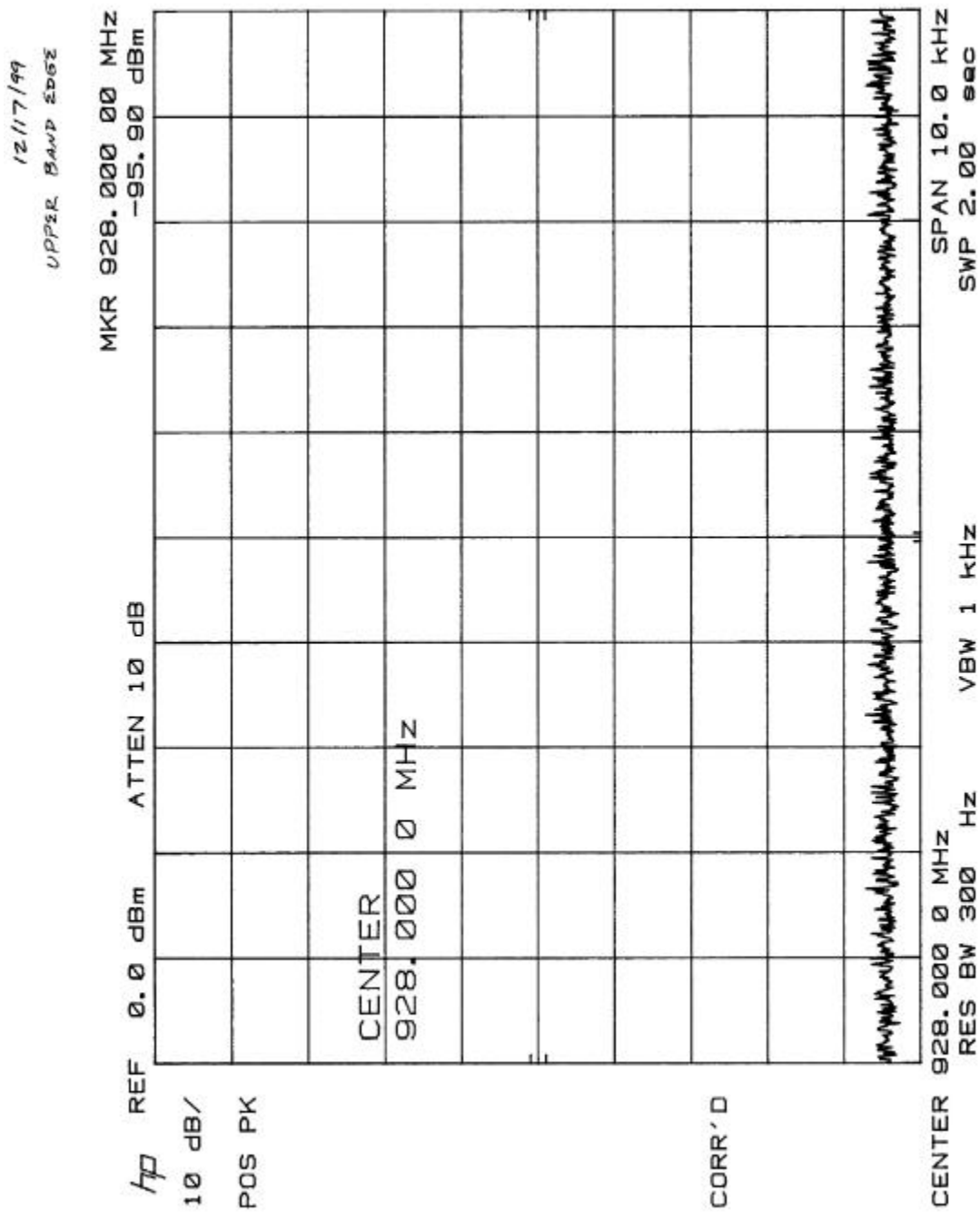


12/17/99

LOWER BAND EDGE




12/17/99
FUNDAMENTAL FREQ.
MKR 902.557 97 MHz
-16.70 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
CENTER
902.558 0 MHz
CORR'D
CENTER 902.558 0 MHz
RES BW 300 Hz
VBW 1 kHz
SPAN 10.0 kHz
SWP 2.00 sec


12/17/99
UPPER BAND EDGE
MKR 928.000 00 MHz
-95.90 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
CENTER
928.000 0 MHz
CORR'D
CENTER 928.000 0 MHz
RES BW 300 Hz
VBW 1 kHz
SPAN 10.0 kHz
SWP 2.00 sec

Intermodulation Tests

N/A

FIGURE 4: Block Diagram (Intermodulation tests)

N/A

2.983(e)(4) Measurement of Antenna Conducted Spurious Emissions per 2.991 and 90.210

Definition:
Conducted Spurious Emissions are emissions at the antenna terminals on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communication desired. The reduction in the level of these spurious emissions will not affect the quality of the information being transmitted.

Conducted Spurious Emissions shall be attenuated below the maximum level of the carrier frequency in accordance with the following formula:

Spurious attenuation in dB = $55 + 10 \log_{10} Po$

Where Po = Output in Watts

$= 55 + 10 \log_{10} (2.45)$

= 58.9 dBc

The Power output of the RF Transmitter was measured at the fundamental frequency using the test set-up shown in Figure 2.

Measured Output	-16.7	dBm
Coax Loss	0.70	dB
Directional Coupler Loss	19.7	dB
Ext. Attenuator	30.2	dB
Total Correction Factor	50.6	dB
Corrected Power Level	33.9	dBm
Power Level	3.90	dBW
Power Level	2.45	W

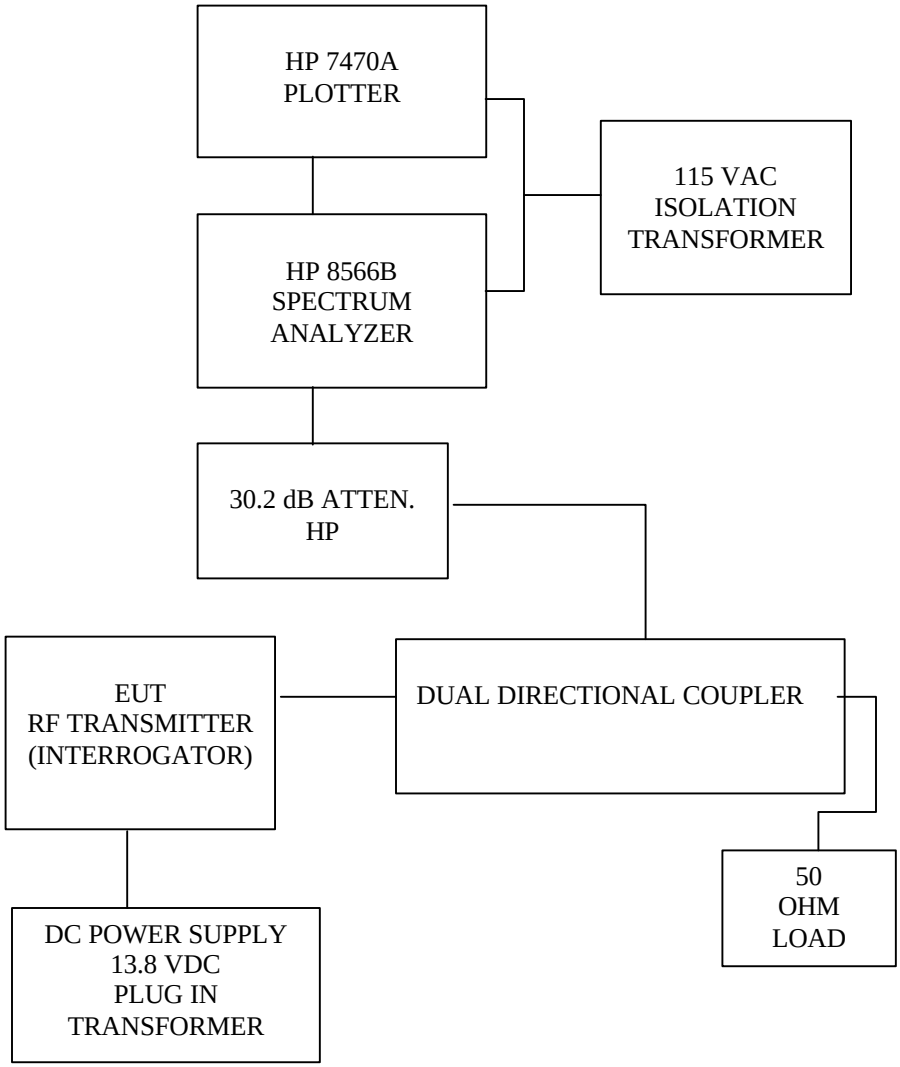
Test Method: Per EIA RS 152-B, Paragraph 4.

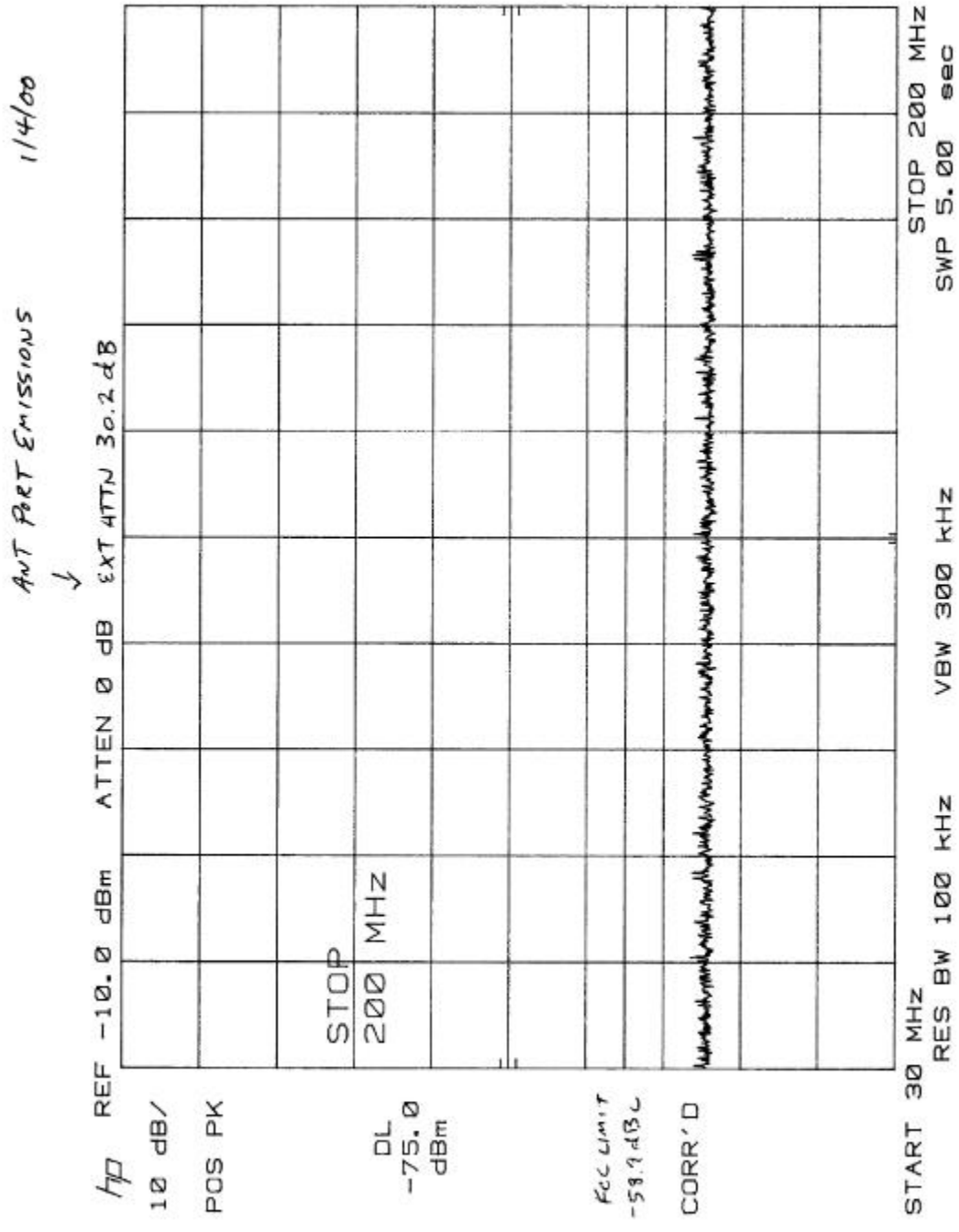
Connect the equipment as shown in FIGURE 4. Adjust the Spectrum Analyzer to display the carrier frequency.
Scan the frequency spectrum from the lowest radio frequency generated in the equipment through the 10^{th} harmonic of the carrier frequency.

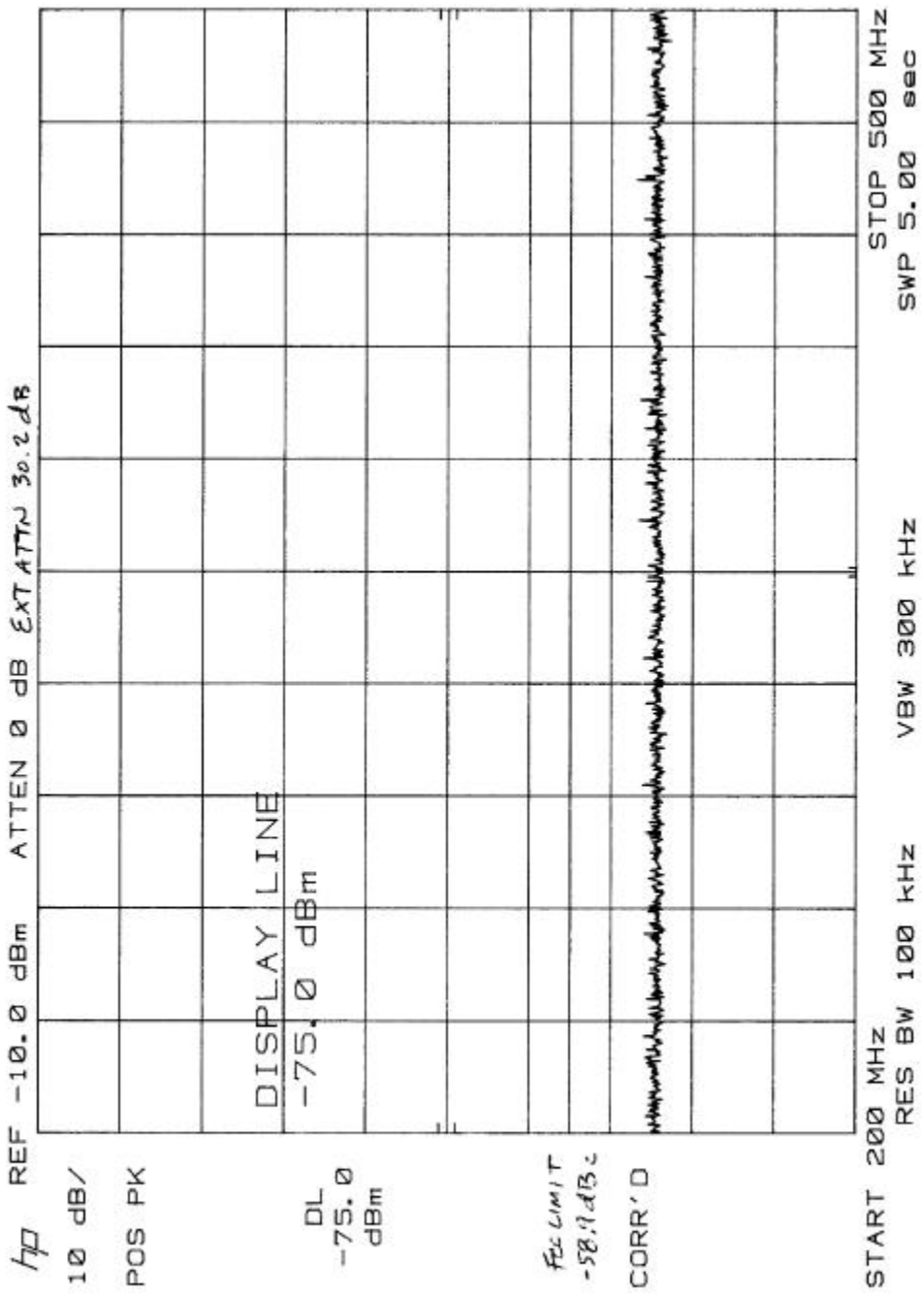
Test Results: See Plots following FIGURE 4.

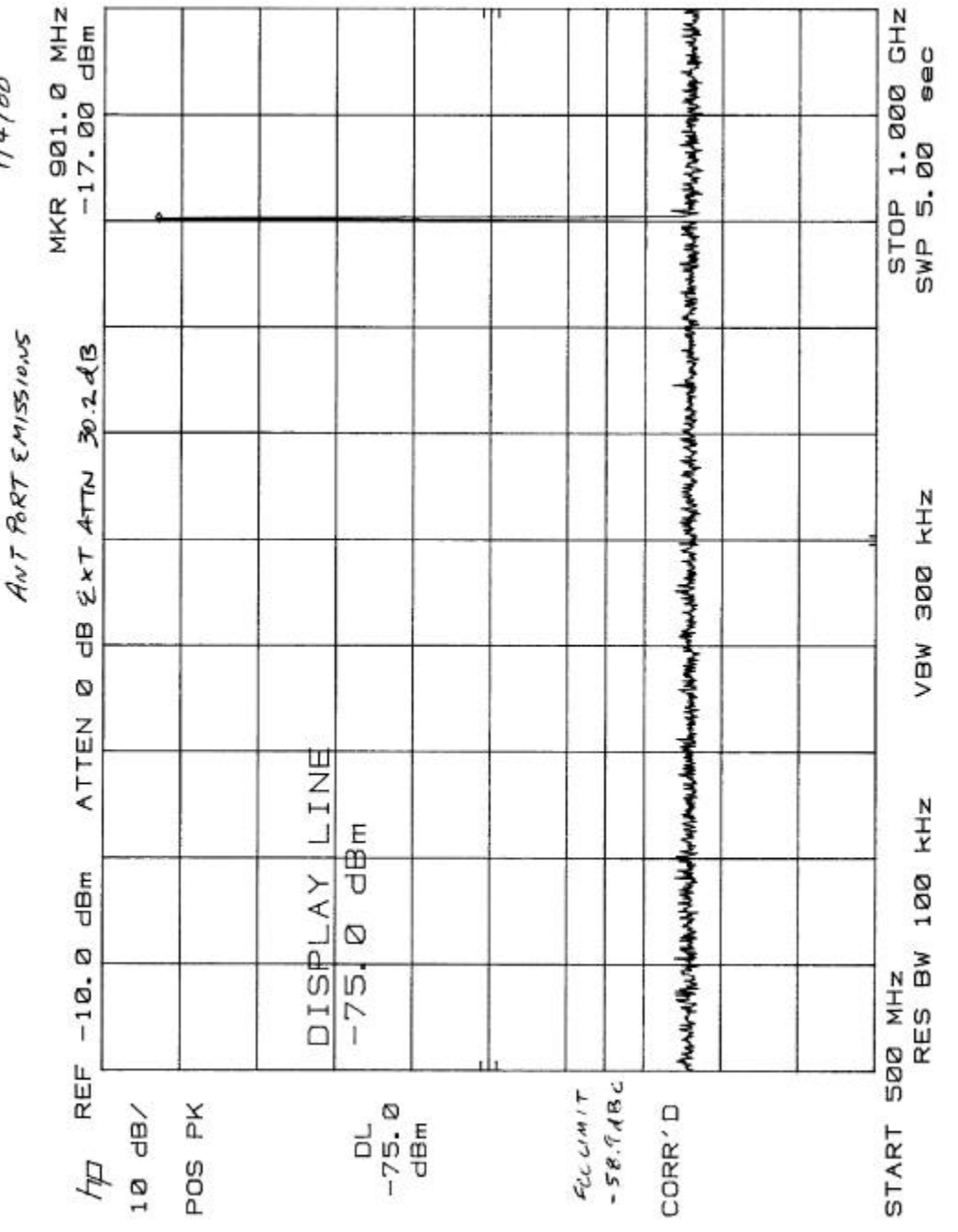
All spurious antenna conducted emissions are below the FCC Specifications.

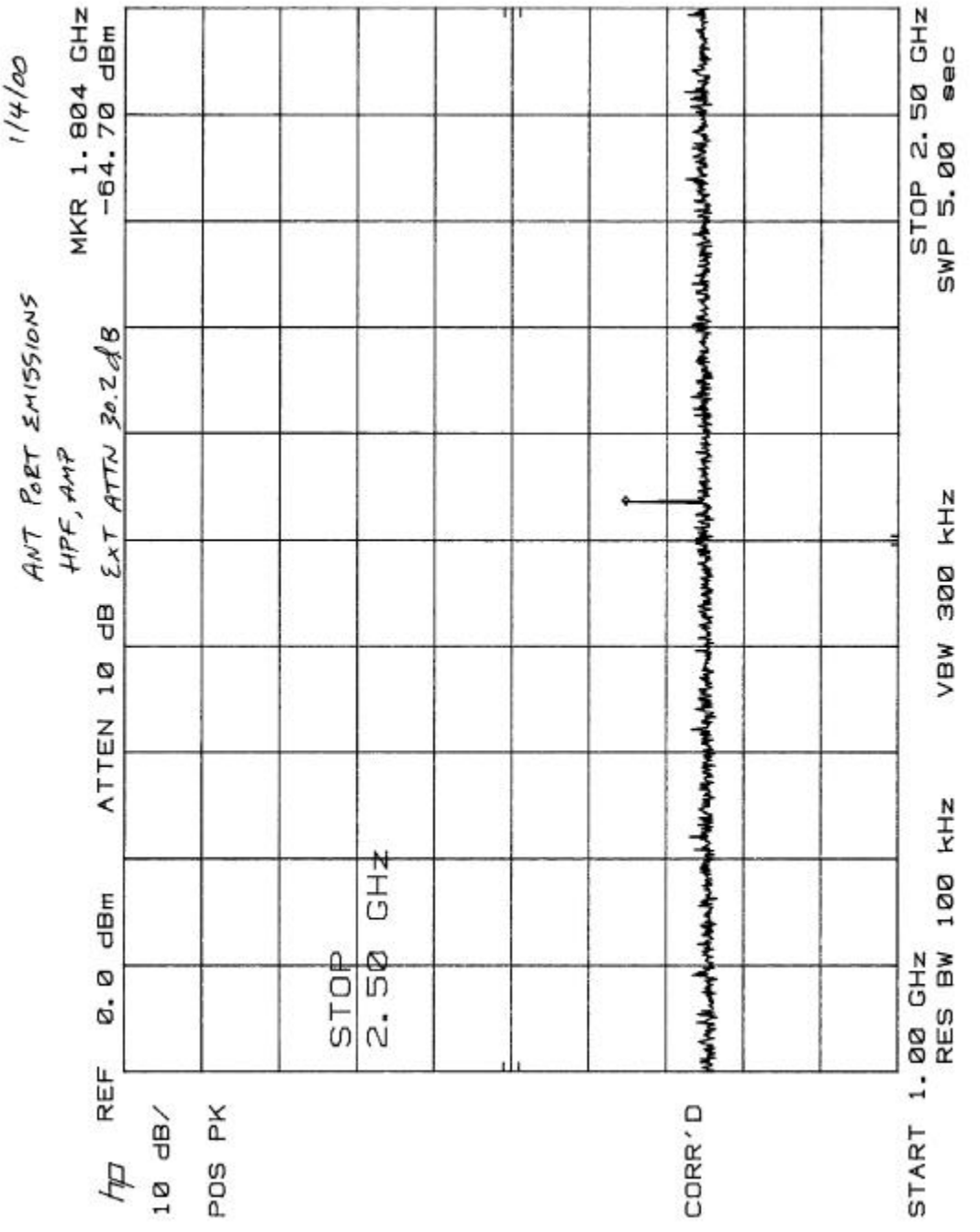
FIGURE 5: Block Diagram (Spurious Emissions tests)

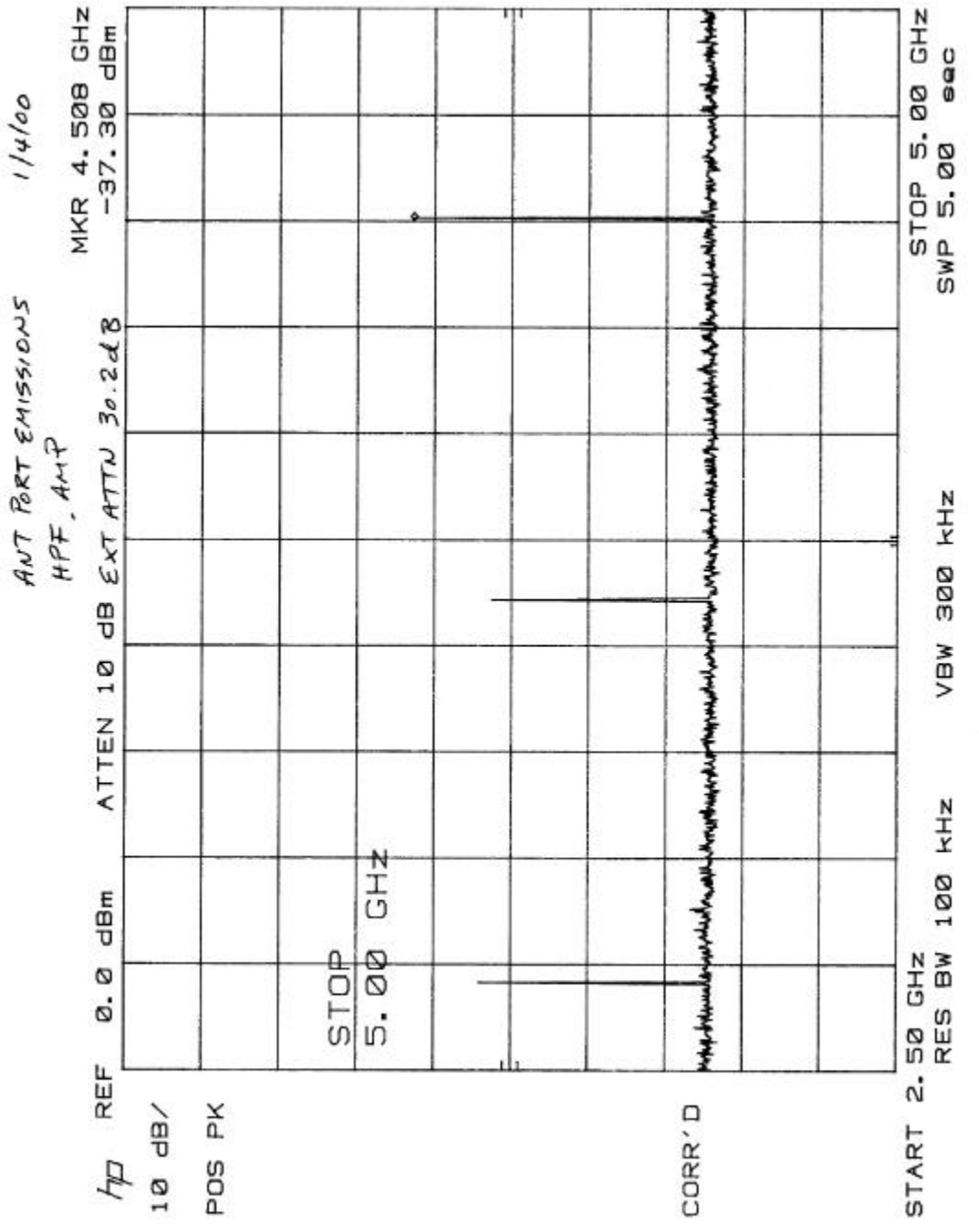


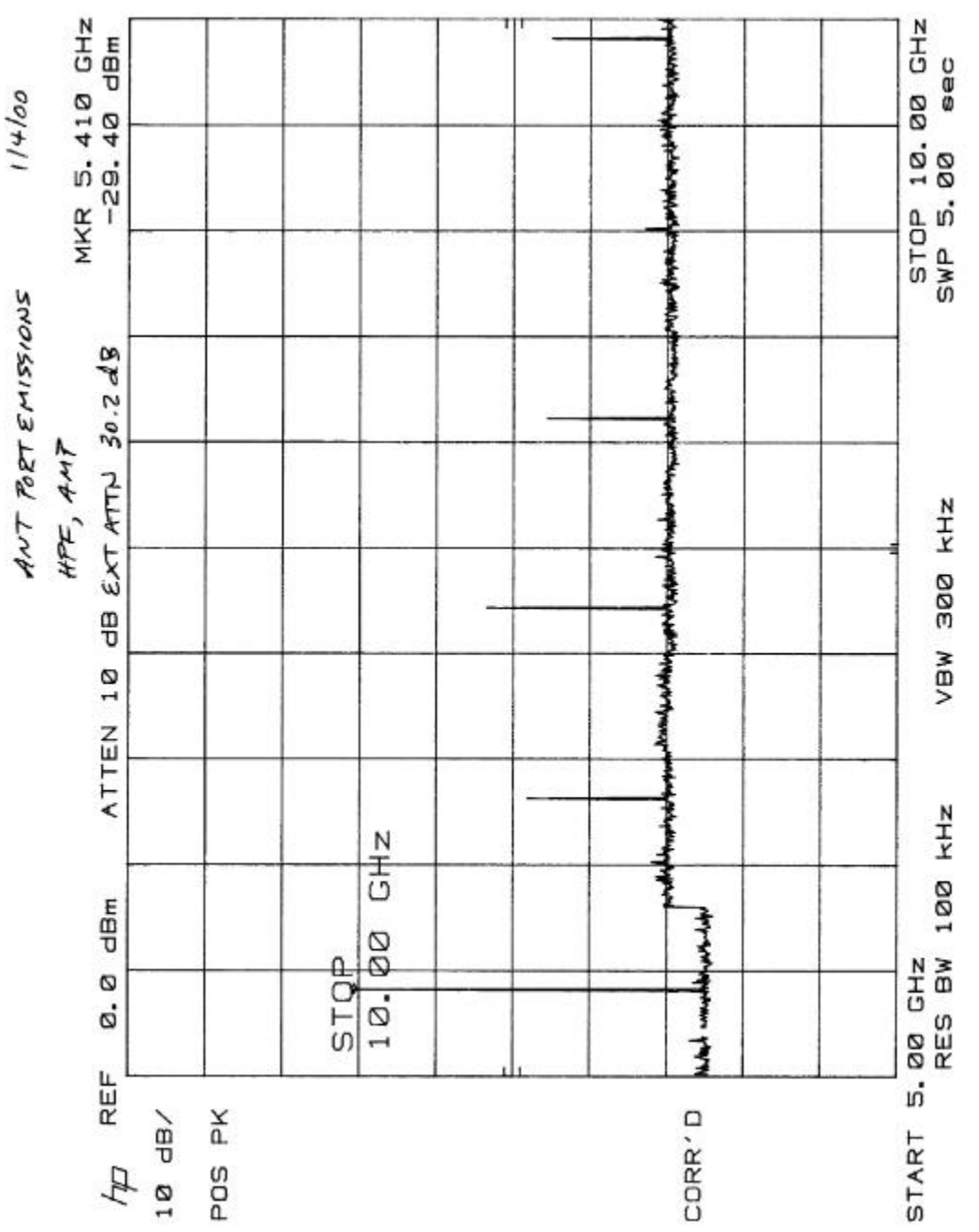

ANT PORT EMISSIONS
1/4/00
hp
REF -10.0 dBm
ATTEN 0 dB
EXT ATTN 30.2 dB
10 dB/
POS PK
STOP
200 MHz
DL
-75.0
dBm
FCC LIMIT
-53.9 dBc
CORR'D
START 30 MHz
RES BW 100 kHz
VBW 300 kHz
STOP 200 MHz
SWP 5.00 sec


ANT PORT EMISSIONS
1/4/00
REF -10.0 dBm
ATTEN 0 dB EXT ATTN 30.2 dB
10 dB/
POS PK
DISPLAY LINE
-75.0 dBm
DL
-75.0
dBm
FCC LIMIT
-58.1 dBuV
CORR'D
START 200 MHz
RES BW 100 kHz
VBW 300 kHz
STOP 500 MHz
SWP 5.00 sec


ANT PORT EMISSIONS
1/4/00
REF -10.0 dBm
ATTEN 0 dB EXT ATTN 30.2 dB
MKR 901.0 MHz
-17.00 dBm
10 dB/
POS PK
DISPLAY LINE
-75.0 dBm
DL
-75.0
dBm
LIMIT
-58.7 dBc
CORR'D
START 500 MHz
RES BW 100 kHz
VBW 300 kHz
STOP 1.000 GHz
SWP 5.00 sec

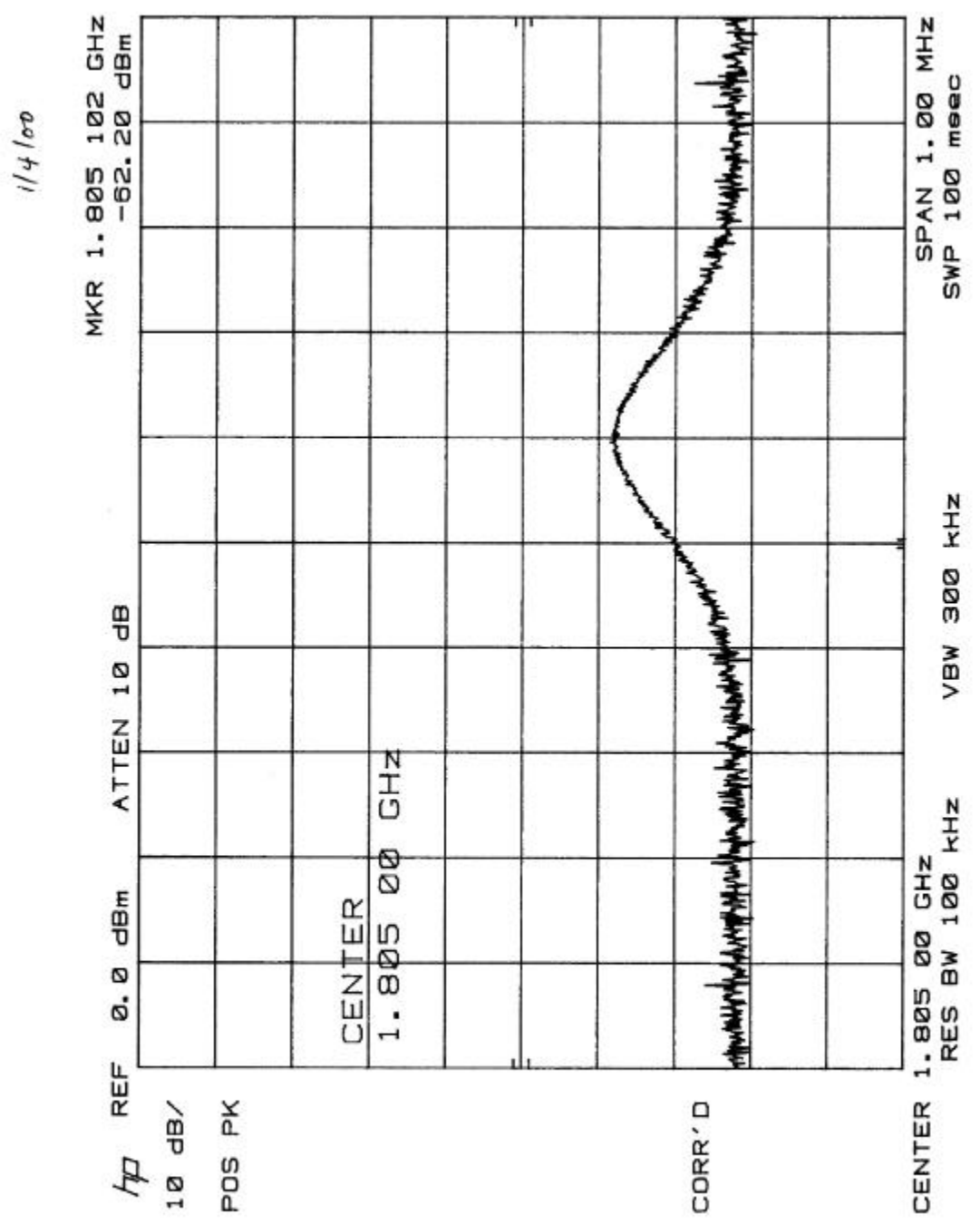

ANT PORT EMISSIONS
1/4/00
HPF, AMP
MKR 1.804 GHz
-64.70 dBm
REF 0.0 dBm
ATTEN 10 dB
EXT ATTN 30.2dB
10 dB/
POS PK
STOP
2.50 GHz
CORR'D
START 1.00 GHz
RES BW 100 kHz
VBW 300 kHz
STOP 2.50 GHz
SWP 5.00 sec

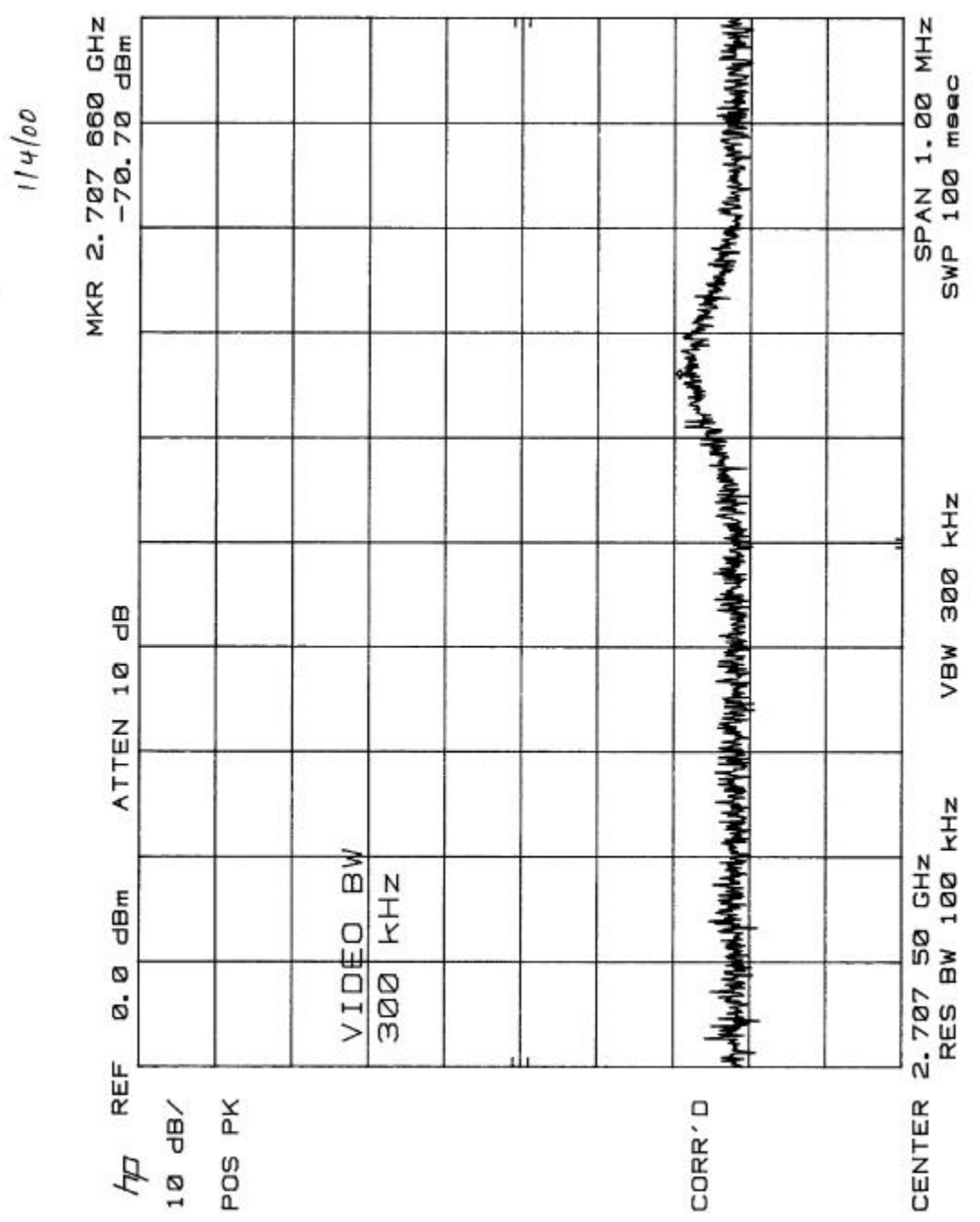

ANT PORT EMISSIONS 1/4/00
HPF, AMP
MKR 4.508 GHz
-37.30 dBm
REF 0.0 dBm
ATTEN 10 dB EXT ATTN 30.2dB
10 dB/
POS PK
STOP
5.00 GHz
CORR'D
START 2.50 GHz
RES BW 100 kHz
VBW 300 kHz
STOP 5.00 GHz
SWP 5.00 sec

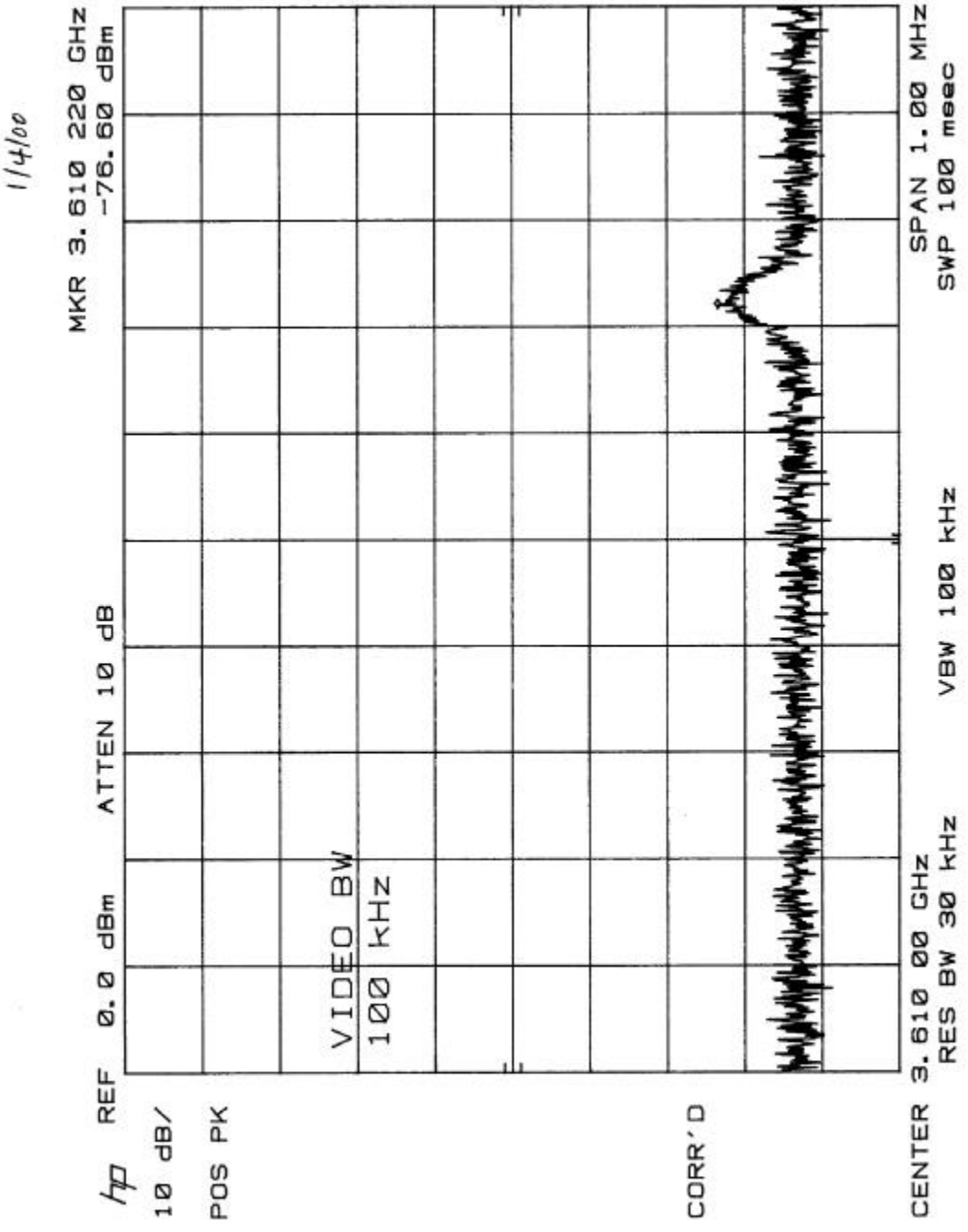

ANT PORT EMISSIONS 1/4/00
HPE, ANT
MKR 5.410 GHz
-29.40 dBm
REF 0.0 dBm
ATTEN 10 dB EXT ATTN 30.2 dB
10 dB/
POS PK
STOP
10.000 GHz
CORR'D
START 5.00 GHz
RES BW 100 kHz
VBW 300 kHz
STOP 10.00 GHz
SWP 5.00 sec

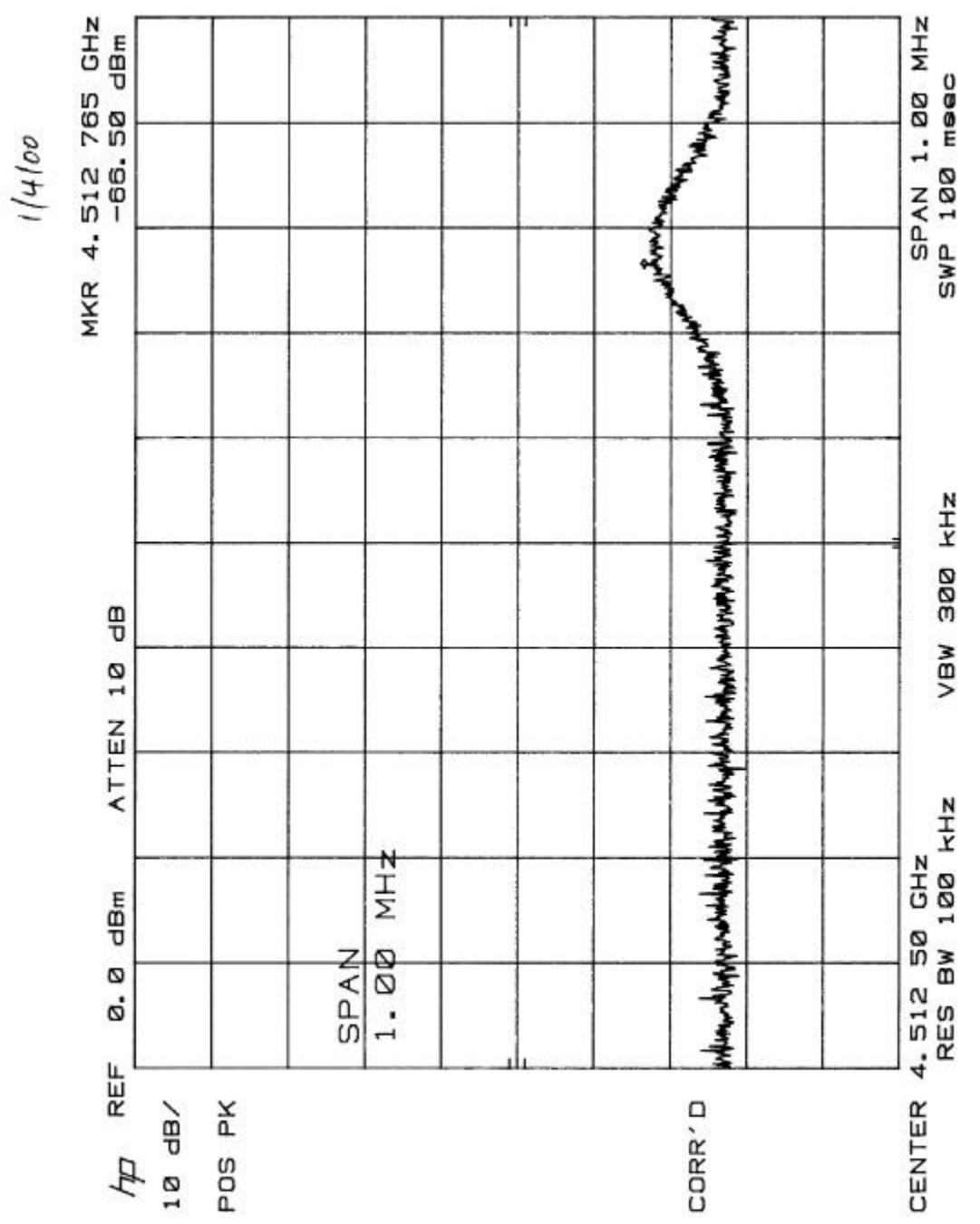
ANTENNA CONDUCTED SPURIOUS - HARMONICS

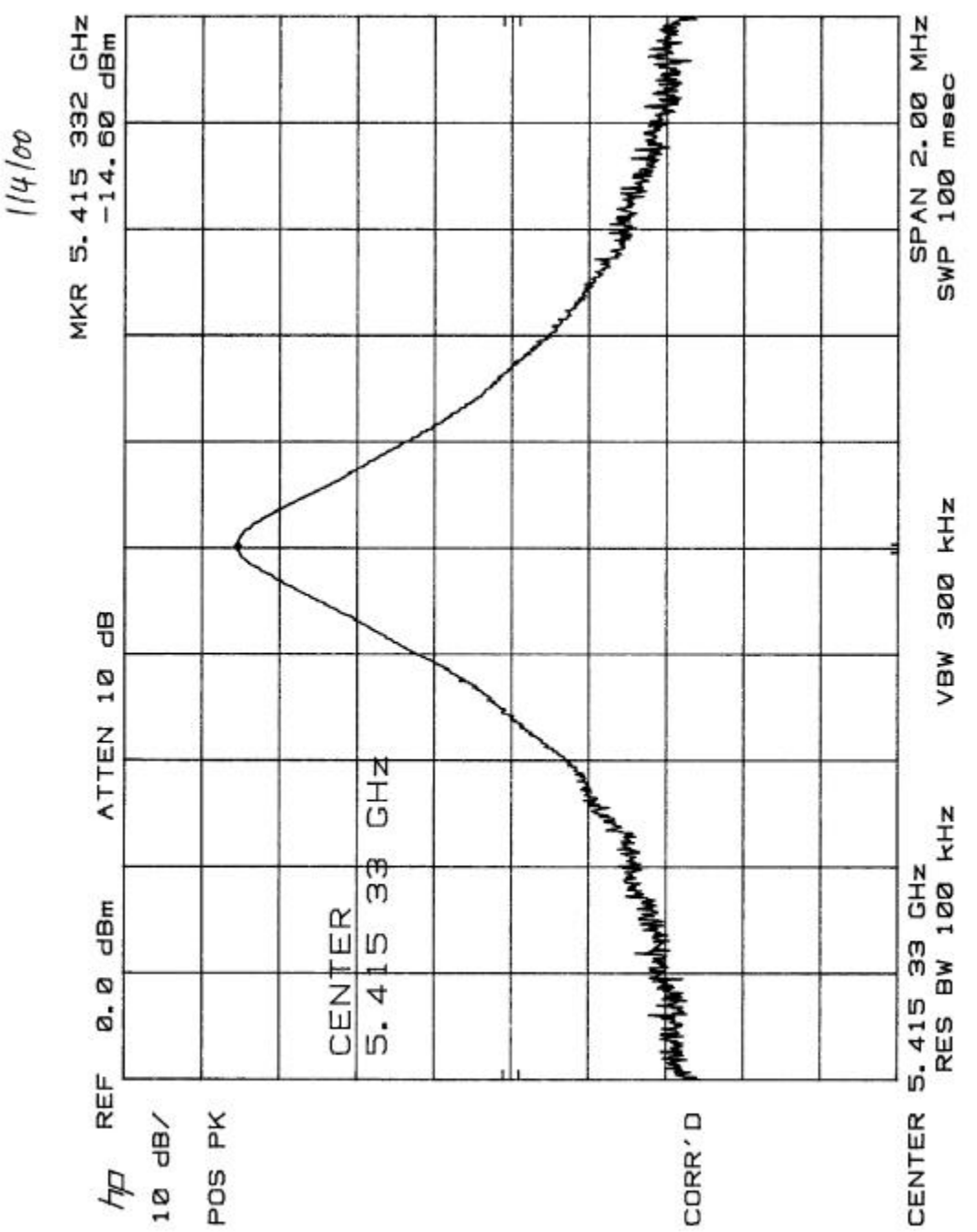
Frequency (GHz)	1805.1	2707.7	3610.2	4512.8	5415.3	6317.9	7220.4	8123.0	9025.5	9928.1
Generator Output (dBm)	0.0	-15.0	-19.9	-20.0	-55.7	-56.1	-51.9	-50.0	-50.0	-46.9
Measured Output (thru coax, DC, HPF, Preamp)	-34.0	-45.5	-53.4	-49.0	-30.2	-35.7	-33.6	-24.4	-36.6	-37.3
Total Loss (dB)	34.0	30.5	33.5	29.0	-25.5	-20.4	-18.3	-25.6	-13.4	-9.6
Measured EUT Output (dBm)	-62.2	-70.7	-76.6	-66.5	-14.6	-7.1	-17.1	-16.4	-25.2	-21.4
Corrected EUT Output (dBm)	-28.2	-40.2	-43.1	-37.5	-40.1	-27.5	-35.4	-42.0	-48.6	-31.0
Carrier Output Reference	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9	33.9
Difference (must be >58.9 dBc)	62.1	74.1	77.0	71.4	74.0	61.4	69.3	75.9	82.5	64.9
Pass/Fail	P	P	P	P	P	P	P	P	P	P
Preamp Used (Y/N)	N	N	N	N	Y	Y	Y	Y	Y	Y

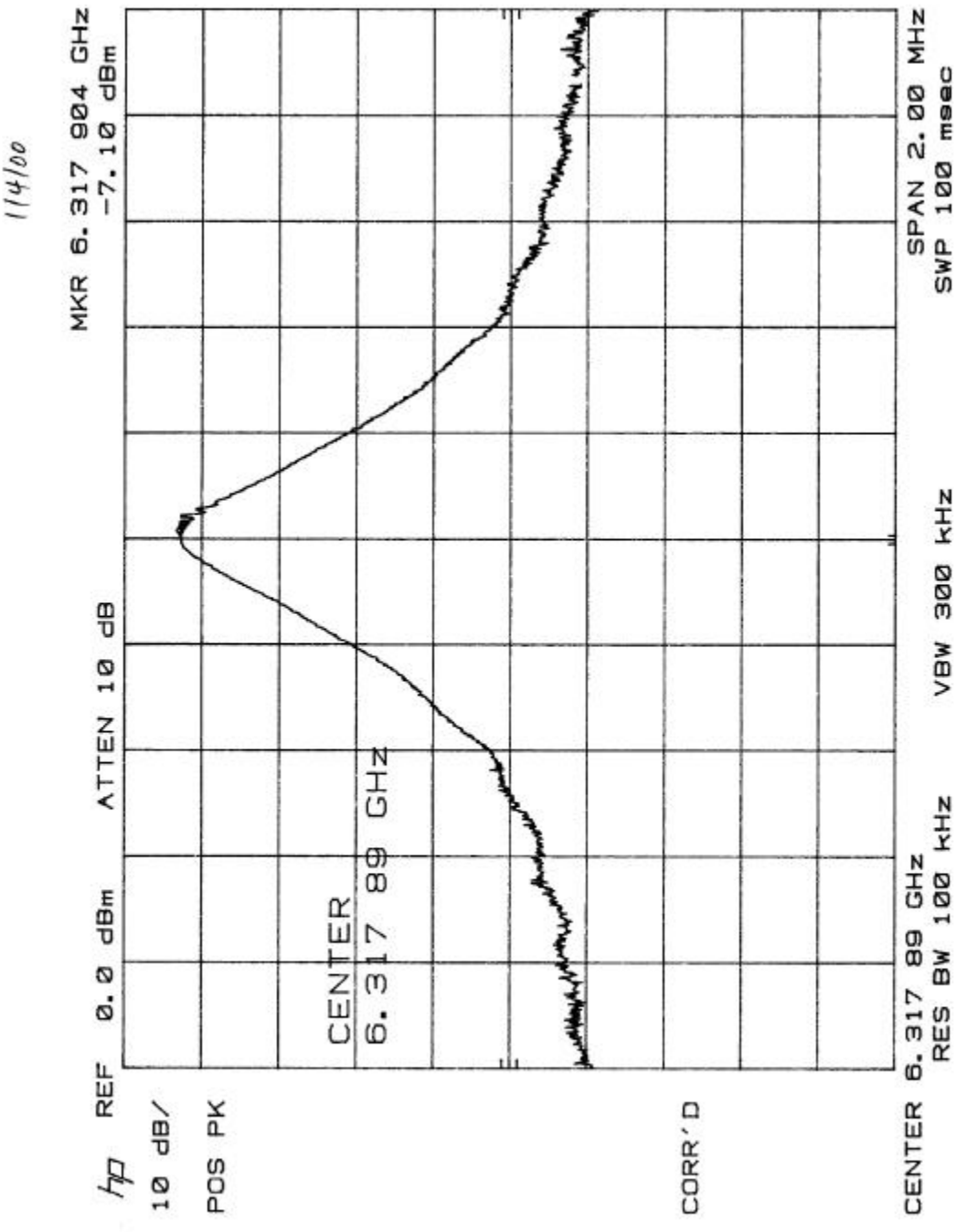

MKR 1.805 102 GHz
-62.20 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
CENTER
1.805 00 GHz
CORR'D
CENTER 1.805 00 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 1.00 MHz
SWP 100 msec

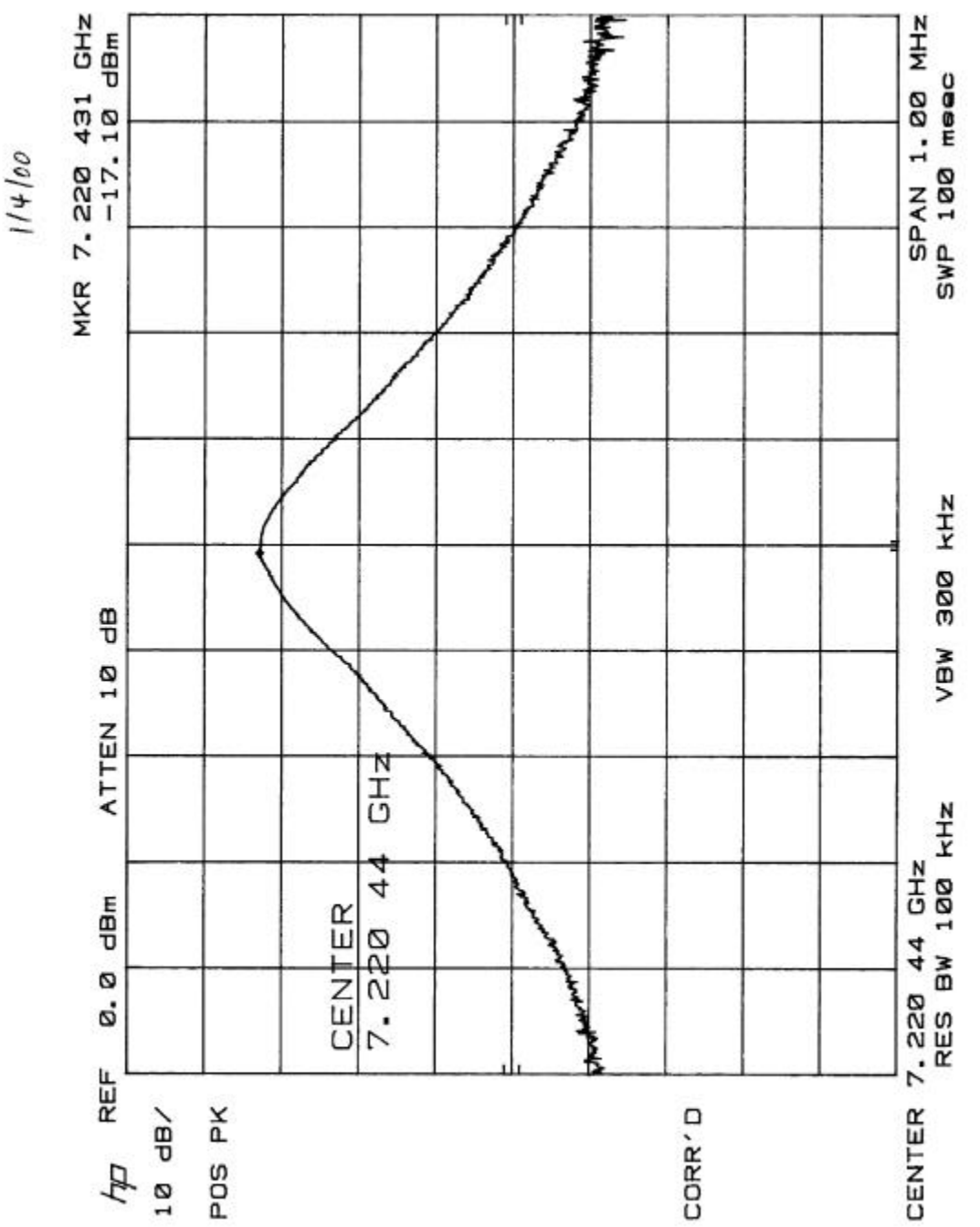

11/4/00
MKR 2.707 660 GHz
-70.70 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
VIDEO BW
300 kHz
CORR'D
CENTER 2.707 50 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 1.00 MHz
SWP 100 msec

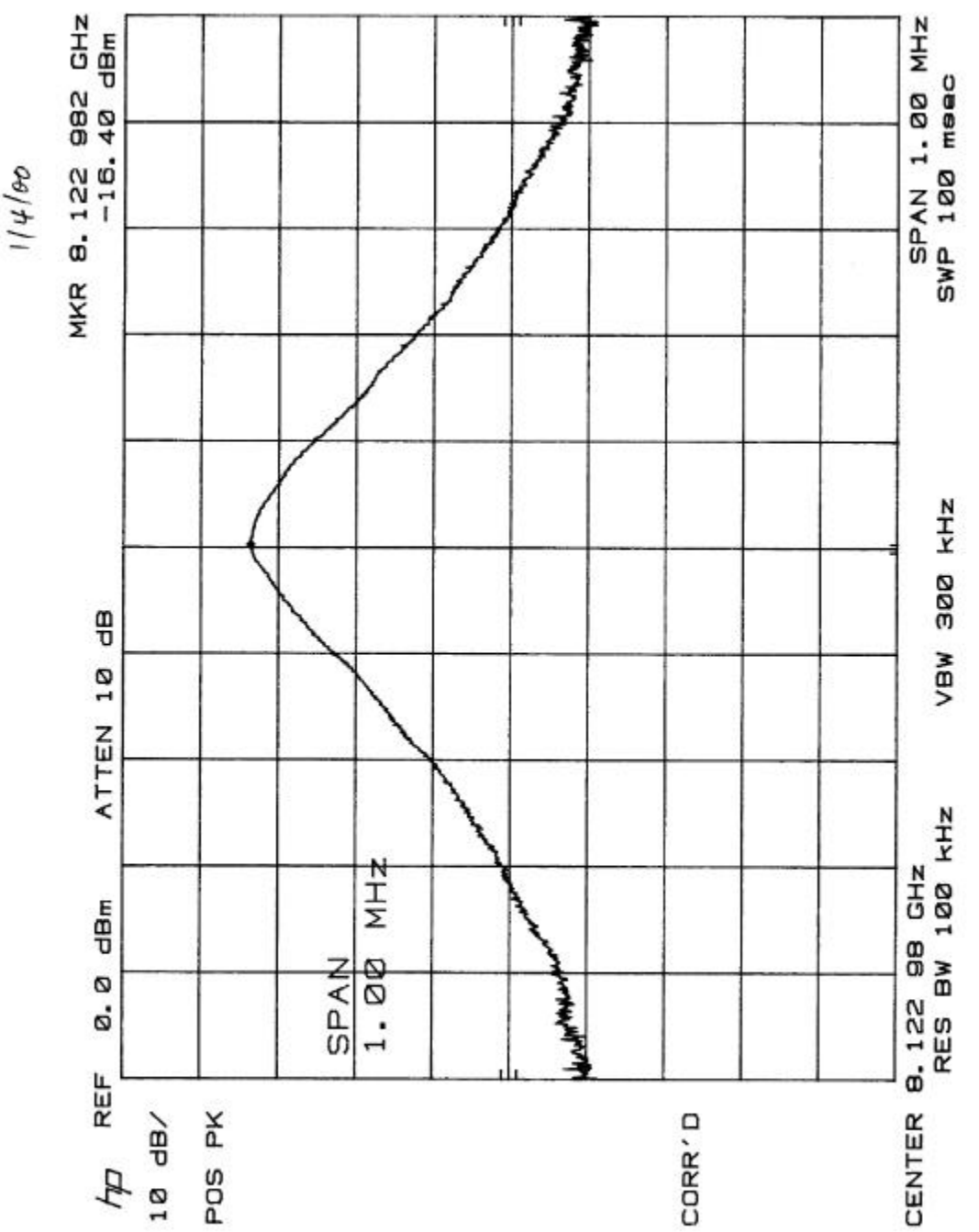

1/4/00
MKR 3.610 220 GHz
-76.60 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
VIDEO BW
100 kHz
CORR'D
CENTER 3.610 00 GHz
RES BW 30 kHz
VBW 100 kHz
SPAN 1.00 MHz
SWP 100 msec


1/4100
MKR 4.512 765 GHz
-66.50 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
SPAN
1.00 MHz
CORR'D
CENTER 4.512 50 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 1.00 MHz
SWP 100 msec

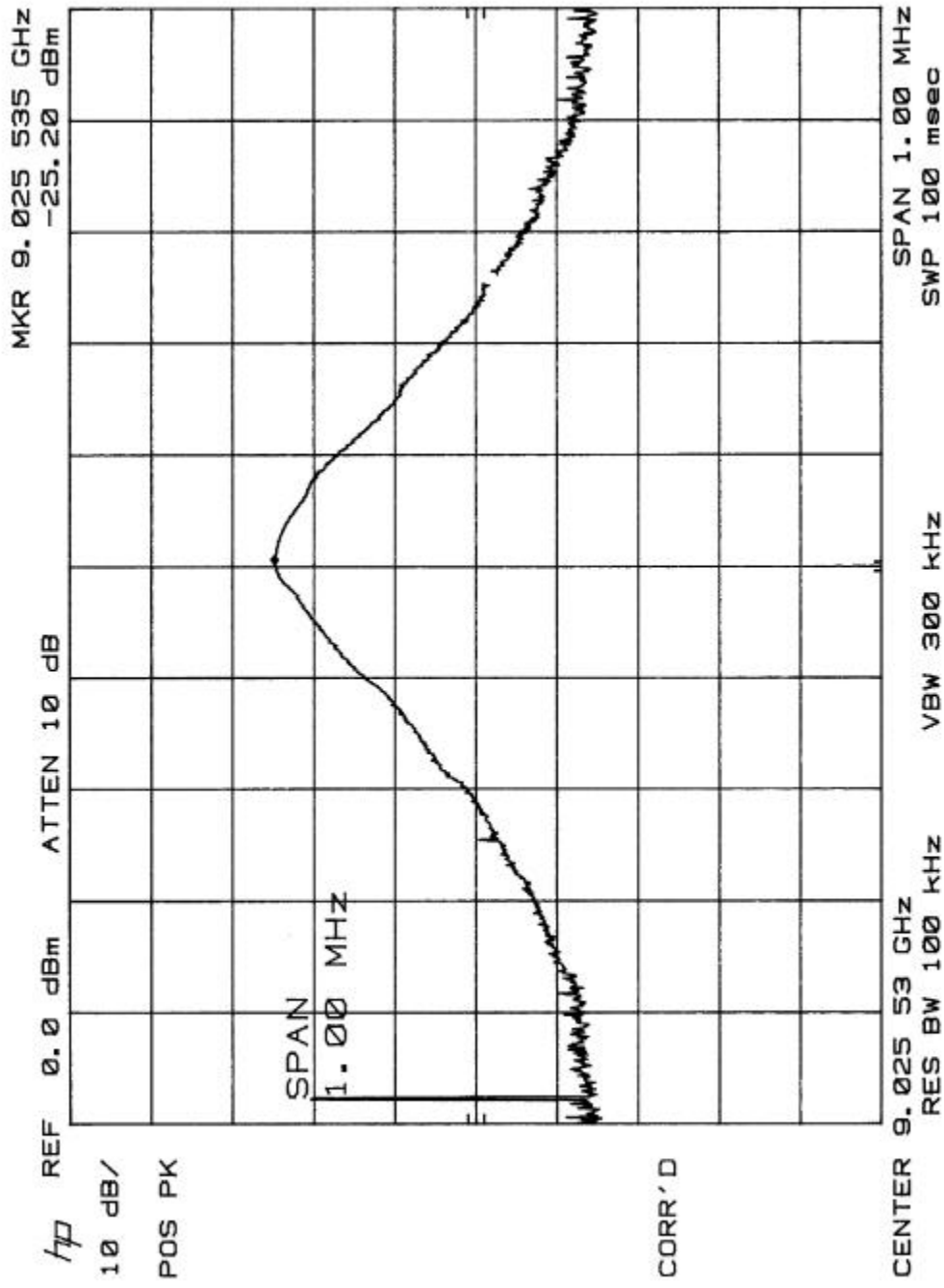

1/4/00
MKR 5.415 332 GHz
-14.60 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
CENTER
5.415 33 GHz
CORR'D
SPAN 2.00 MHz
SWP 100 msec
CENTER 5.415 33 GHz
RES BW 100 kHz
VBW 300 kHz

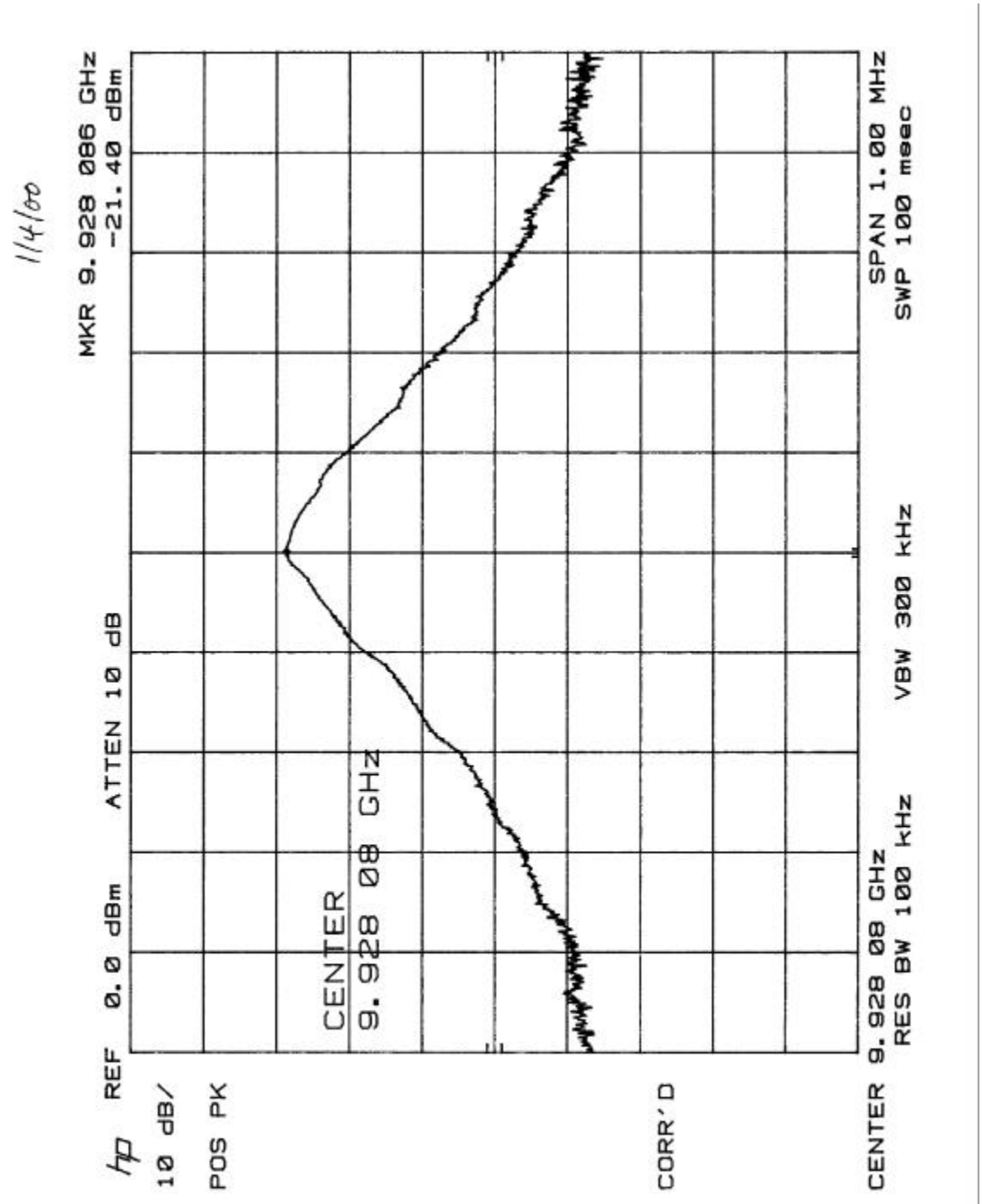

11/4/00
MKR 6.317 904 GHz
-7.10 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
CENTER
6.317 89 GHz
CORR'D
SPAN 2.00 MHz
SWP 100 msec
CENTER 6.317 89 GHz
RES BW 100 kHz
VBW 300 kHz


11/4/00
MKR 7.220 431 GHz
-17.10 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
CENTER
7.220 44 GHz
CORR'D
SPAN 1.00 MHz
SWP 100 msec
VBW 300 kHz
CENTER 7.220 44 GHz
RES BW 100 kHz


11/4/00
MKR 8.122 982 GHz
-16.40 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
SPAN
1.00 MHz
CORR'D
CENTER 8.122 98 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 1.00 MHz
SWP 100 msec

1/4/00


MKR 9.025 535 GHz
-25.20 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
SPAN
1.00 MHz
CORR'D
CENTER 9.025 53 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 1.00 MHz
SWP 100 msec


1/4/00
MKR 9.928 086 GHz
-21.40 dBm
REF 0.0 dBm
ATTEN 10 dB
10 dB/
POS PK
CENTER
9.928 08 GHz
CORR'D
CENTER 9.928 08 GHz
RES BW 100 kHz
VBW 300 kHz
SPAN 1.00 MHz
SWP 100 msec

2.983(e)(5) Measurement of Radiated Spurious Emissions per 2.993 and 90.210

Definition:
Radiated Spurious Emissions are measured from the EUT with the Antenna Port terminated into a 50 ohm non-radiating load resistor.
All emissions shall be reduced at least 55 + 10 log (Po) where Po is the equivalent power delivered to a half-wave dipole antenna that produces the same signal levels as the EUT and associated antenna at the fundamental frequency.
The following signal levels were obtained at the fundamental frequency with the EUT driving the customer supplied antenna.

Frequency	902.55	MHz
Measured	84.8	dBuV
Cable/HPF Correction Factor	3.4	dB
AF	23	dB/m
Total Correction Factor	26.4	dB
External Attenuation	30.2	dB
Corrected Measured	141.4	dB
Power to coax/antenna for = signal level	35.8	dBm
Power to Ant. (Measured on S.A.)	2.8	dBm
External Attenuation on S.A. input	30.2	dB
Total Power to Ant. (Measured on S.A.)	33	dBm
Equivalent Power to Ant.	2.0	W
Log Periodic Antenna Gain	4	dBd
Equiv. Power into Half Wave Dipole	37	dBm
Equiv. Power into Half Wave Dipole	5.0	W

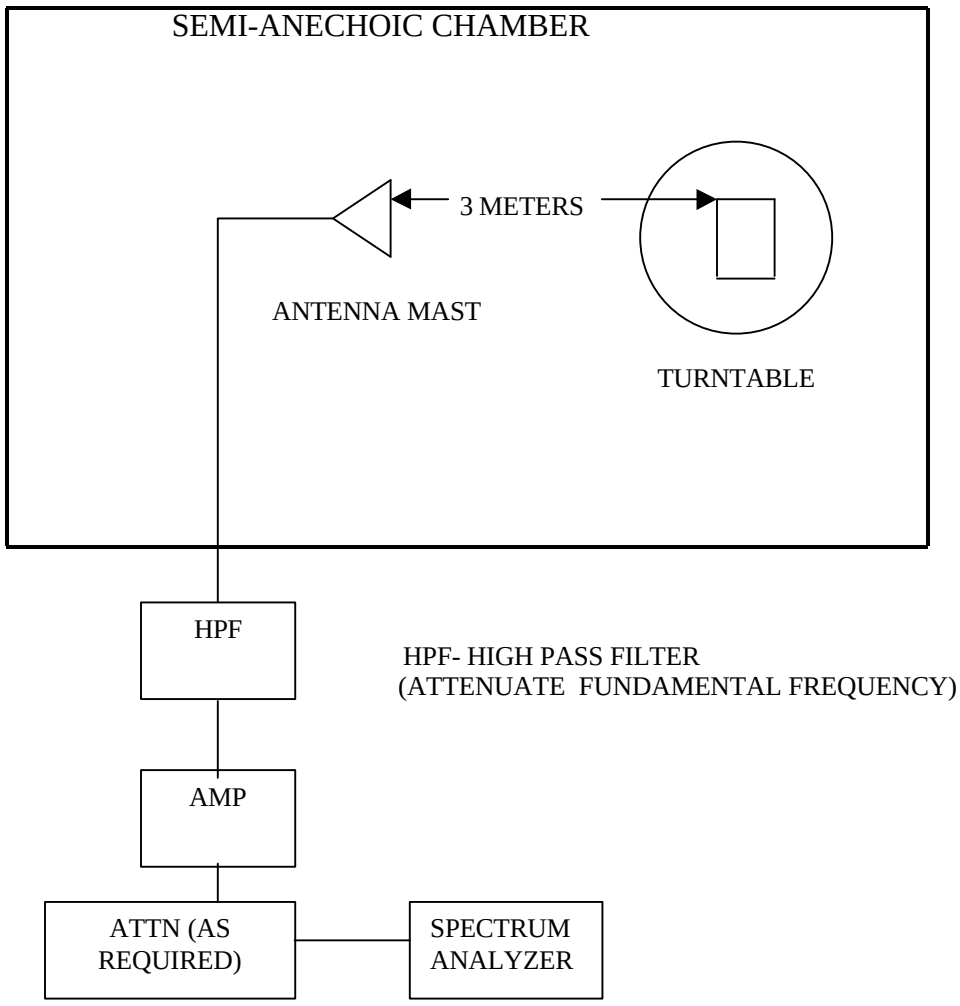
Test Method:

Connect the equipment as shown in Figure 6. Measure signal level at fundamental frequency with antenna connected to EUT. Peak signal by rotating turntable and adjusting height of the receiving antenna. Determine equivalent power using Signal Generator and log periodic antenna (gain referenced to a half-wave dipole). Measure emissions from 30 MHz up to the 10^{th} harmonic of the fundamental frequency. Compare measured levels to calculated FCC limit.

Test Results: (See TABLE I herein.)

All radiated spurious emissions observed and recorded were below the fundamental frequency or between the harmonics of the fundamental frequency that exceeded –62 dBc.

FIGURE 6: RF Spurious Radiated Setup



SPURIOUS RADIATED SIGNAL MEASUREMENTS

(Ref: Part 2, Subpart J, 2.991 & 2.993)

Date 12/23/99 Pass V Fail ____ (at Freq. ____)

EUT Interrogator Operating Power ____

Part No. ELITE 1900 Operating Mode CW (NON)

Serial No. 001 Test Engineer JOHN STANFORD

FREQUENCY TUNED TO 902.5 MHz

ANT POL	FREQ MHz	SPECTRUM ANALYZER (dBµV)	ANT. FACTOR (dB)	CABLE LOSS (dB) + HPF	AMP GAIN (dB)	dBµV/m	FUND FIELD STRENGTH dBµV/m	SPUR BELOW CARR-IER (dBc)
V	1805.1	51.7	30.5	21.4	42	61.6	141.4	79.8
V	2707.7	57.3	29.5	16.9		61.7		79.7
H	3610.2	44.9	32.0	23.8		58.7		82.7
V	4512.8	63.0	33.5	19.1		73.6		67.8
V	5415.3	65.4	34.5	17.4		75.3		66.1
V	6317.9	56.1	35.8	20.4		67.3		74.1
V	7220.4	47.0	37.2	21.0		63.2		78.2
V	8123.0	43.4	38.0	21.5		60.9		80.5
V	9025.5	36.2	38.1	25.3		57.6		83.8
V	9928.1	25.7	38.5	28.1	42	50.3	141.4	91.1

Fundamental Field Strength (V/m) = 1/3 (Ro x Po)$^{1/2}$ Measured w/supplied antenna

Ro = Amplifier Output Impedance (Ohms) 50

Po = Amplifier Output Power (Watts) 2.45W => 5.0 W ERUIVALENT INTO λ/2 DIPOLE

Conversion from µV/m to dBµV/m = (µV/m) log x 20

HPF - High Pass filter

Fcc Limit $55 + 10 \log_{10}(5.0) = 62.0$ dBc

2.983(e)(6) Measurement of Frequency Stability per 2.995

The EUT is an RF Transmitter and cannot transmit within 40 kHz of the 902 – 928 MHz band edges due to its limited switch selections and PLL circuitry

2.983(e)(7) Frequency Spectrum to be investigated per 2.997

The Frequency was searched from the lowest radio frequency generated in the equipment through the 10^{th} harmonic of the carrier frequency.

2.983(f) FCC ID: Label

ELITE ENTRY PHONE, INC.
ELITE IMPULSE SYSTEM IMPULSE ENERGY

FCC ID: NIFI900 SERIAL NO._____

NOTES:
Label will be constructed of 0.02 inch aluminum as shown on the equipment with permanent adhesive.

All information on the label will be etched or stamped. Both methods will exceed the expected lifetime of the equipment.

The label will be large enough to allow all information to be legible.

2.983(g) Photographs and/or Drawings showing equipment construction techniques

Note: The Circuit Board shown in these photos has no components on the reverse side unless shown.

Photo 1	OVERALL VIEW OF SYSTEM COMPONENTS
Photo 2	BOARD DETAIL
Photo 3	CONNECTOR DETAIL
Photo 4	ANTENNA DETAIL

Photo 1 VIEW OF TRANSMITTER AND POWER SUPPLY

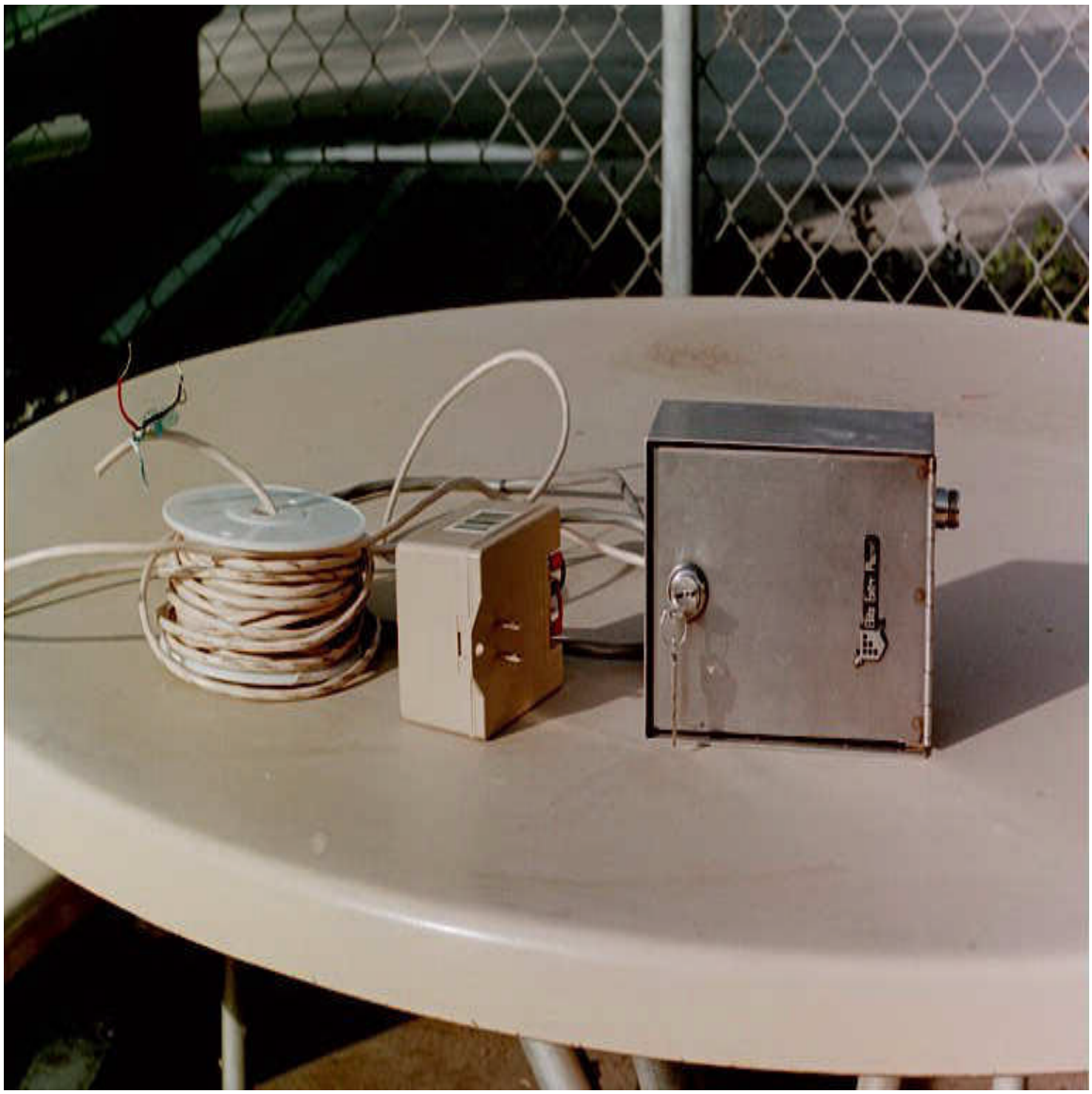


Photo 2 BOARD DETAIL

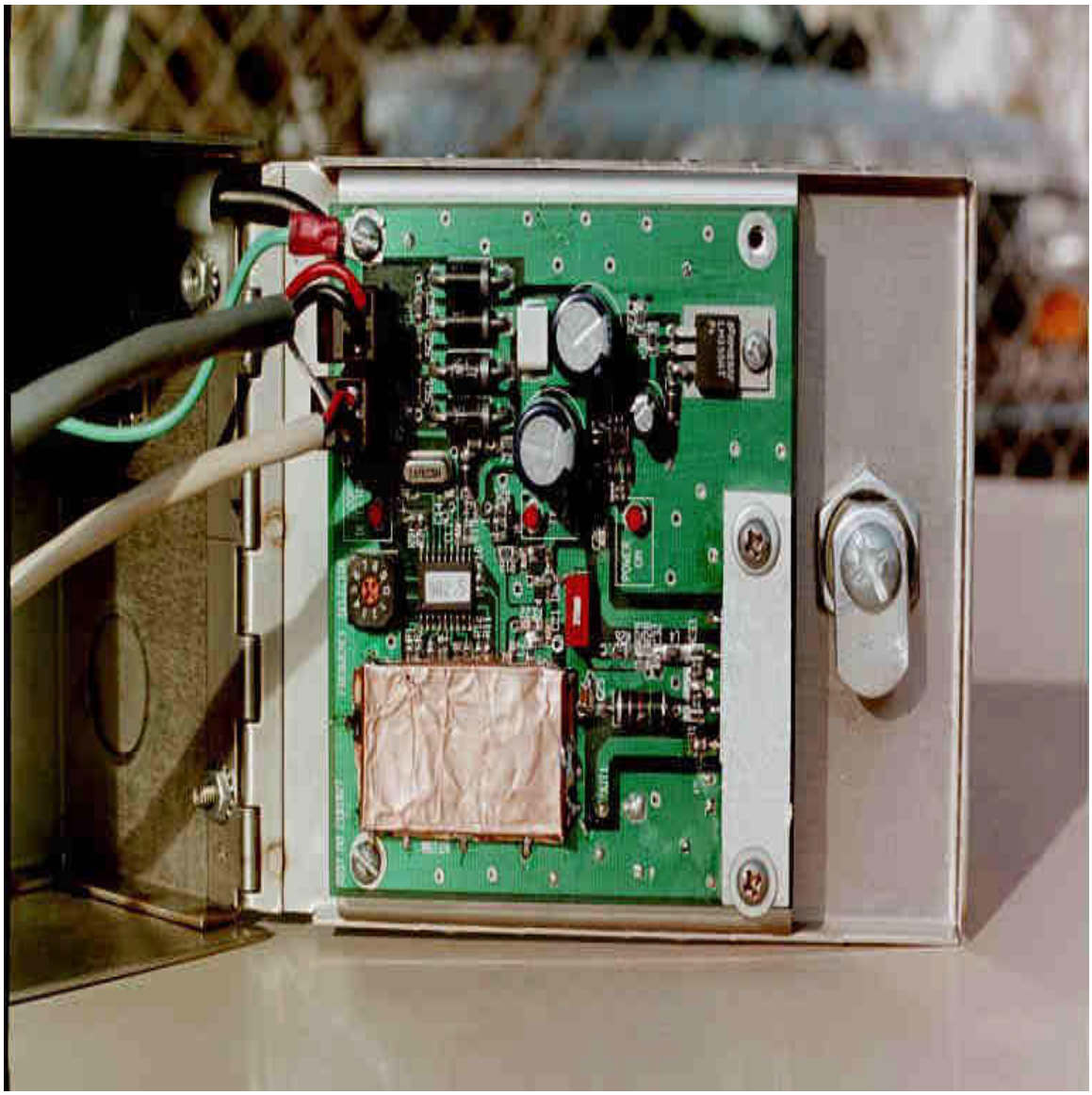


Photo 3 CONNECTOR DETAIL

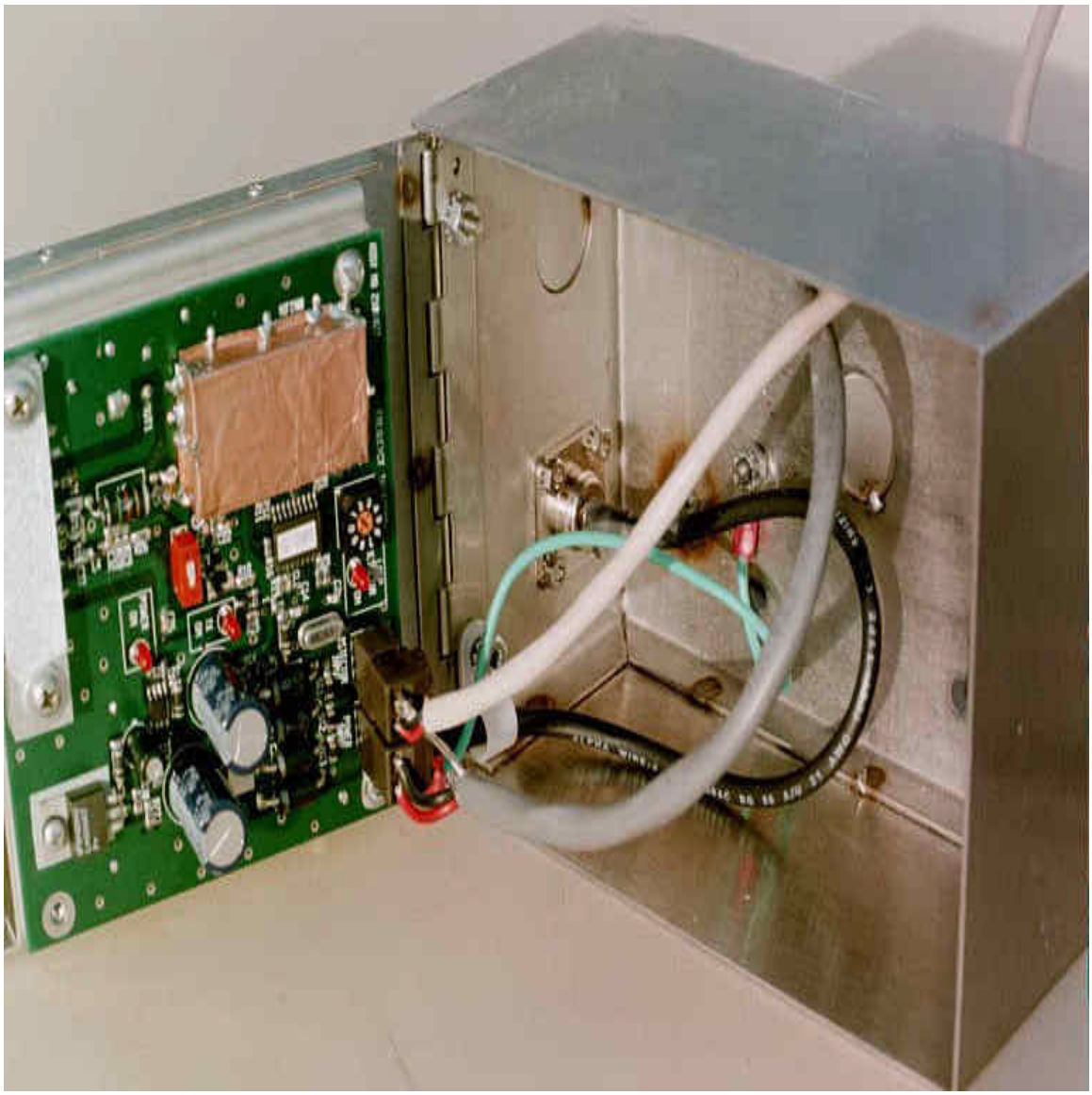


Photo 4 ANTENNA DETAIL

2.983(h) Description and Test Data for Encoding Device(s)

This section does not apply to the EUT.

2.983(i) Type Acceptance Data for an External Power Amplifier used in Amateur Radio Service – Part 97

This section does not apply to the EUT.

APPENDIX A
TEST EQUIPMENT

Appendix A

TEST EQUIPMENT LOG

Date: 12-20-99

Test Procedure: Part 90

EUT: Interrogator

Part #: Impulse Energy

Serial #: 001

Test Engineer: John Stanford

DESCRIPTION	MANUFACTURER	MODEL # / SERIAL #	CAL. DUE DATE
Amplifier	Avantek	SWL88-6176/1847 (2-20 GHz, 42 dB)	Cal prior to use
Antenna, Biconical	A.H. Systems	SAS 200/540/528	07-14-00
Antenna, Log-Periodic	A.H. Systems	SAS 200/512/347	12-15-00
Antenna, Log-Periodic	A.H. Systems	SAS 200/512/371	07-04-00
Antenna, DRG Horn	EMCO	3115/2280	01-08-00
Antenna, DRG Horn	Electro-Metrics	RGA-60	Reference
Attenuator	HP	30.2 dB Model # 11708A S/N 11030	Cal prior to use
Directional Coupler	Narda	3020A	Cal prior to use
Directional Coupler	HP	767D	Cal prior to use
Directional Coupler	Sage Laboratories	780-10	Cal prior to use
High Pass Filter	DNB	>50 dB attn at fundamental frequency	Cal prior to use
Non-Radiating Load	HP	10W	Cal prior to use
Signal Generator	Marconi	2024	Reference
Signal Generator	Hewlett-Packard	8620	Reference
Spectrum Analyzer	Hewlett Packard	8566B/970137-2	02-20-00
Tower	EMCO	1050/1196	N/A

APPENDIX B
OPERATING/SERVICE/INSTRUCTION MANUAL

Appendix B

Manufacturer Name:	**Elite Entry Phone Inc.**
Product:	**Elite Impulse System**
Model:	**Impulse Energy**
Product Description:	**Interrogator unit for access control to be use with an Impulse System and/or with a Phone Entry System in a gated community or like.**

25741 Conmmercentre Dr., Lake Forest, CA 92630 • (949) 580 1700 • FAX (949) 580 1816

Appendix B

Elite Entry Phone™

TECHNICAL DESCRIPTION:

ELITE Impulse System
Impulse Tag

The Elite Impulse Tag Transponder is an Active Transponder for the use with an Elite Impulse Access System or Elite Entry phone for an apartment building, gated community or like.

The basic elements of the Impulse Tag are:

The battery.(3VDC 23mm Coin type or similar)
The RF to Voltage Converter.
The Power Control Circuitry
The Encoder.
The Modulator and the Resonator.
The Antenna.

CONFIDENTIAL

The battery is to supply power to the electronics embody in the Impulse Tag.

The RF to Voltage Converter will pick-up radio frequencies that will convert into DC level signal. The DC level signal is proportional to the filed strength sensed by the converter. The Power Control Circuitry will provide voltage to the transmitter section of the transponder, upon sensing of a signal above a pre-set threshold point.

The Encoder, once being powered will provide a factory set code included in a frame of transmission. The encoder has a built in oscillator tune to 3KHz. Using this clock frequency the encoder will provide the frame as: A pilot period of 23 clocks followed by a start bit of 1 clock then the 24 bits of information finishing with the frame by an anti code period of 12 clocks. The encoder will modulate the with of the pulse to generate the data and the anti code period.
The Modulator will modulate the frame of transmission provided by the encoder, with a frequency of 418.0 MHz. The resulting modulating signal will be use for the antenna to create the transmission.

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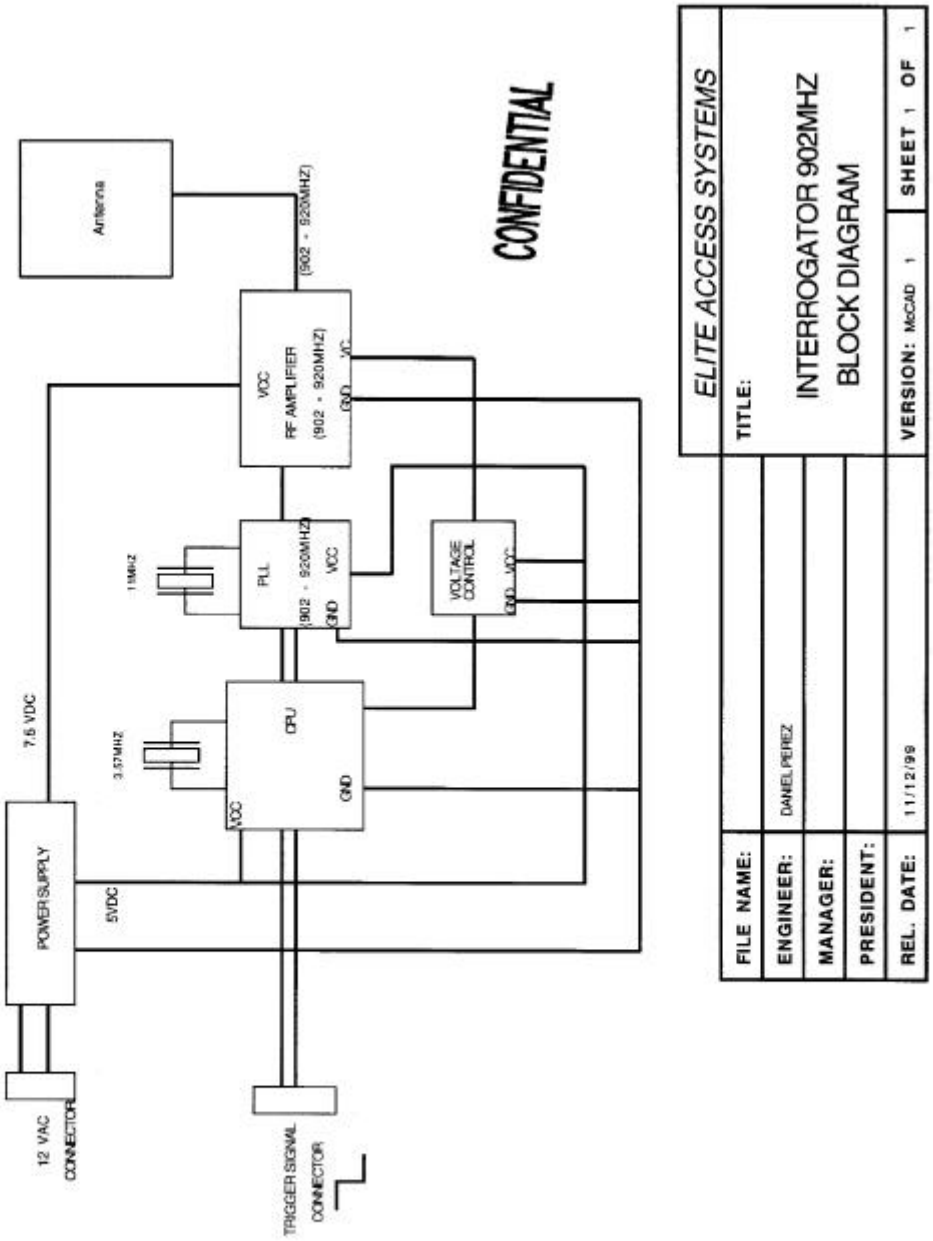
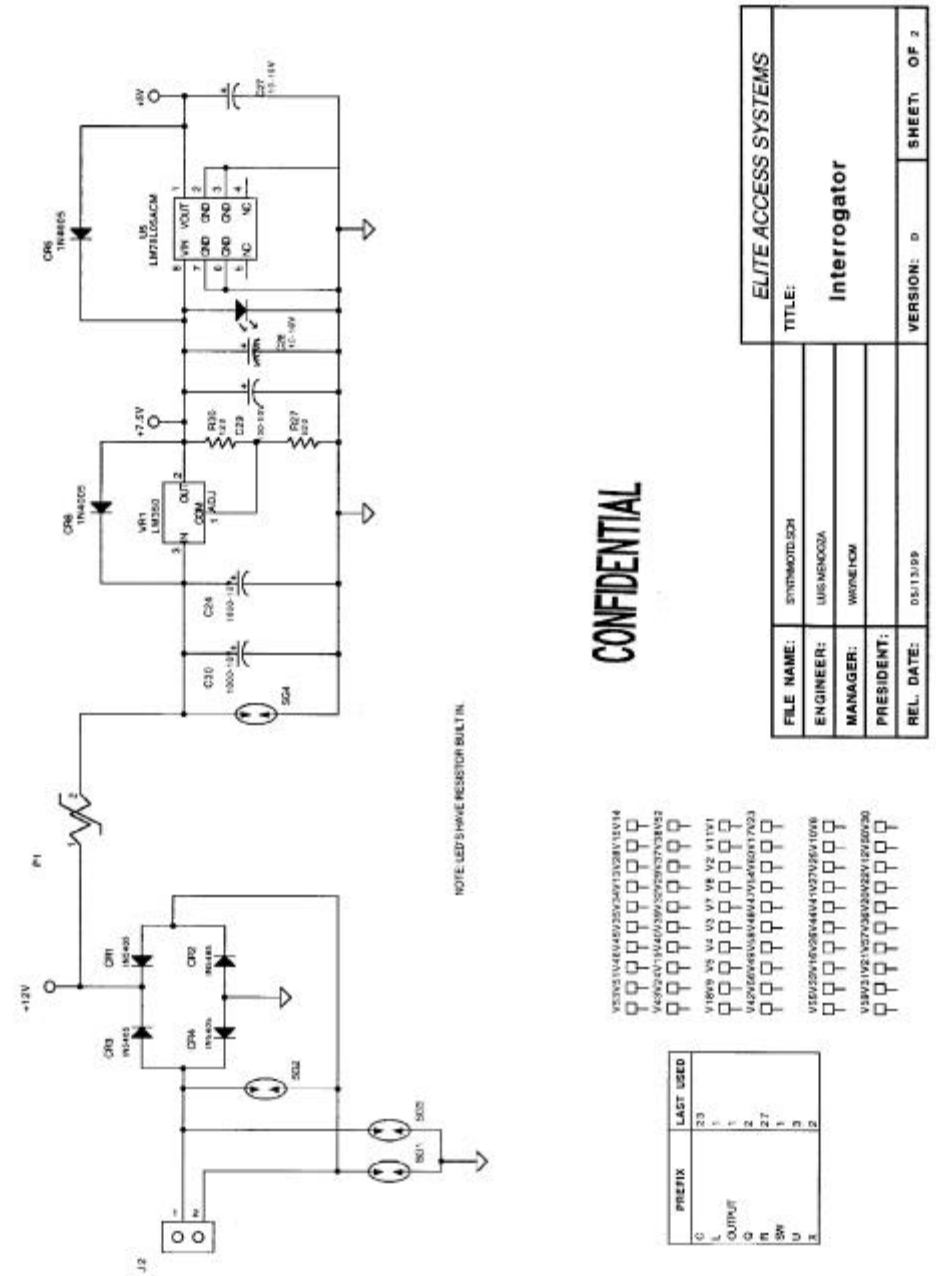
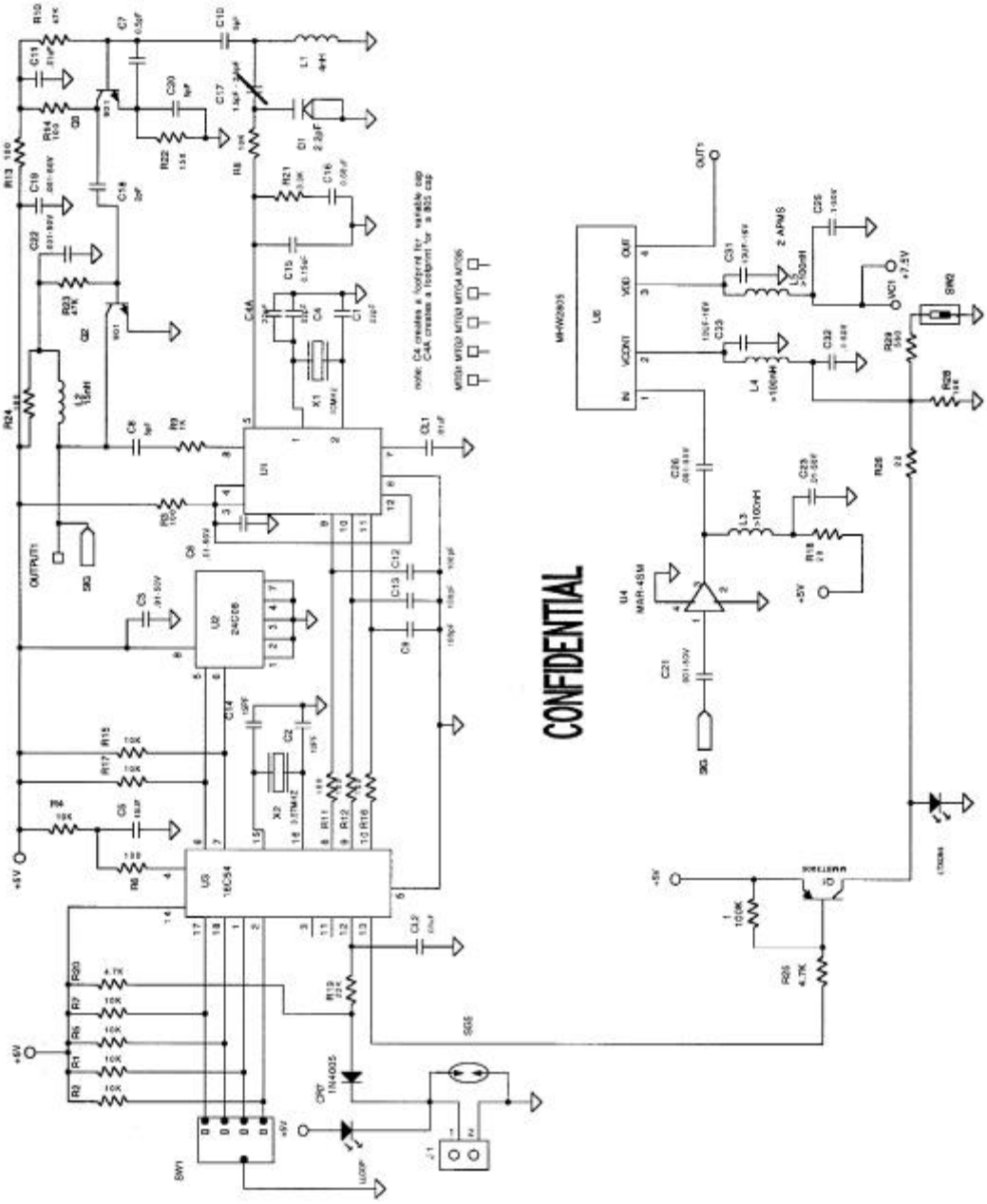
Appendix B


CONFIDENTIAL
Antenna
(902 - 920MHZ)
VCC
RF AMPLIFIER
(902 - 920MHZ)
GND
VC
PLL
(902 - 920MHZ)
VCC
GND
VOLTAGE CONTROL
VCC
GND
CPU
VCC
GND
11MHZ
3.57MHZ
7.5 VDC
5VDC
POWER SUPPLY
12 VAC CONNECTOR
TRIGGER SIGNAL CONNECTOR
ELITE ACCESS SYSTEMS
TITLE:
INTERROGATOR 902MHZ
BLOCK DIAGRAM
FILE NAME:
ENGINEER: DANIEL PEREZ
MANAGER:
PRESIDENT:
REL. DATE: 11/12/99
VERSION: McCAD 1
SHEET 1 OF 1

Appendix B


ELITE ACCESS SYSTEMS
TITLE:
Interrogator
FILE NAME: SYNERMOTD.SCH
ENGINEER: LUIS MENDOZA
MANAGER: WAYNE HOW
PRESIDENT:
REL. DATE: 05/13/99
VERSION: D
SHEET 1 OF 2
CONFIDENTIAL
NOTE: LED'S HAVE RESISTOR BUILT IN.
PREFIX
LAST USED
OUTPUT

Appendix B



Appendix B

PARTS LIST

		Elite Entry Phone		
		Impulse Energy B.O.M		
ITEM #	QTY	DESCRIPTION	SIZE	REF. DES.
	1	CAP, MUL, CER, CHIP, NPO 0.5PF +-.25PF, 50V		C7
1036	1	CAP, MUL, CER, CHIP, NPO 2PF +-.25PF, 50V	805	C18
1039	3	CAP, MUL, CER, CHIP, NPO 5PF +-.25PF, 50V	805	C8,C10,C20
	1	CAP,CER,CHIP,10PF,5%,50V,NPO	805	C2
	1	CAP,CER,CHIP,15PF,5%,50V,NPO	805	C14
1040	2	CAP, MUL, CER, CHIP, NPO 22PF +- 5%, 50V	805	C1,C4
1027	3	CAP, MUL, CER, CHIP, NPO 100PF +- 5%, 50V	805	C9,C12,C13
1043	4	CAP, MUL, CER, CHIP, NPO 0.001uF +- 5%, 50V	805	C19,C21,C22,C26
1028	4	CAP, MUL, CER, CHIP, X7R 0.01uF +- 10%, 50V	805	C3,C6,C11,C23
	4	CAP, MUL, CER, CHIP, X7R 0.1uF +- 10%, 50V	805	C25,C32
	1	CAP, MUL, CER, CHIP, X7R 0.15uF +- 10%, 50V	805	C15
	1	CAP, MUL, CER, CHIP, X7R 0.68uF +- 10%, 50V	805	C16
1013	5	CAP,TAN,10MF,10%, 16V,TE	EIA-B	C5,C27,C28
				C31,C33
	1	CAP,TAN, RAD, 100MF,10%, 16V	TH	C29
	2	CAP,TAN, RAD, 1000MF,10%, 25V	TH	C24,C30
	1	VARICAP 1.5pF - 2.5pF		C17
		RESISTOR		R26,R28,R29
	1	RESISTOR, 20 5% 1/8W	1206	R18
	8	RESISTOR, 100 5% 1/8W	805	R3,R6,R11,R12
				R13,R14,R16,R24
	1	RESISTOR, 120 5% 1/8W	1206	R30
	1	RESISTOR, 150 5% 1/8W	805	R22
	1	RESISTOR, 620 5% 1/8W	1206	R27
9	1	RESISTOR, 1K 5% 1/8W	805	R9
	1	RESISTOR, 3.3K 5% 1/8W	805	R21
11	1	RESISTOR, 4.7K 5% 1/8W	805	R25
13	9	RESISTOR, 10K 5% 1/8W	805	R1,R2,R4,R5,R7
				R8,R15,R17,R20
14	1	RESISTOR, 22K 5% 1/8W	805	R19
	2	RESISTOR, 47K 5% 1/8W	805	R10,R23
18	1	RESISTOR, 100K 5% 1/8W	805	r1
	1	INDUCTOR, 4uH +- 10%, Q=12	1206	L1
	1	INDUCTOR, 15nH +- 10%, Q=12	1206	L2
	2	INDUCTOR, 150nH +- 10%, Q=12	1206	L3,L4
	1	HI CURRENT RF CHOKE, 1.5uH, 3.1A	TH	L5
		DIODE, varicap at 2.2pF	SOT-23	D1
	2	DIODE, DL4004	MLL-41	CR5,CR6
	4	DIODE, 3 AMPS, 1N5405	DO-201AD	CR1,CR2
				CR3,CR4
	1	TRANSISTOR, PNP, MMBT3906LT1	SOT-23	Q1

Appendix B

1308	2	TRANSISTOR, NPN, RF, MMBR901LT1	SOT-23	Q2,Q3
	1	IC, micro-controller	SO-18	U3
	0	IC, EEPROM	SO-8	U2
	1	IC, PLL, LMX1501AMX	SO-16	U1
	1	IC, AMPLIFIER, MHW2805-2	420AB	U6
	1	IC, AMPLIFIER, MAR-04SM	WW	U4
	1	IC, LM350AT, 3 AMPS	TO-220	VR1
	1	IC, LM78L05ACM	SO-8	U5
	1	XTAL 3,579 MHz		X2
	1	XTAL 10 MHz		X1
	1	RESETABLE PTC, 3425L200 (2/4)	3425L	P1
	5	SMD VARISTOR, K50	M-1206	SG1,SG2
				SG3,SG4,SG5
	1	DIP SWITCH 1 POS	TH	
	1	ROTARY SWITCH	TH	
	2	EUROCONNECTOR 2 POS 31107102	TH	
	2	EUROCONNECTOR PIN 2 POS 31017102	TH	
2312	1	PCB		
		ASSEMBLY		