FCC CERTIFICATION

TEST/MEASUREMENT REPORT

Product Name: SeaBeacon 2 System 6 Racon

Model: SeaBeacon 2 System 6 Racon

Applicant/Manufacturer: Tideland Signal Corporation
4310 Directors Row
P.O. Box
Houston, Texas 77052-2430

Tested By Request of: Tideland Signal Corporation
Paul Mueller

Testing Laboratory:
Wayne Langston, Inc.
P.O. Box 1377, League City, Texas 77574-1377
Tel: 281-337-6785; Fax: 281-337-7217; email: langstoninc@msn.com

Test Results:

I certify that I am the technically qualified person responsible for preparation of the technical information contained in this application, and that it is complete and accurate to the best of my knowledge.

Tested By: Date: 11-20-2002
Wayne P. Langston

TABLE OF CONTENTS

1. INTRODUCTION

The following is a test and measurement report for Tideland Signal Corporation, Model SeaBeacon 2 System 6 Racon, 1m27pon The system 6 is a dual band frequency agile marine radar beacon (Racon) . The frequencies are derived from a Voltage controlled OSC resident on the VCO board

As radar signals are detected on the RCV board and an appropriate response is generated based upon the frequency amplitude and pulse width of the received signal. Based upon this information the transmitter board is then instructed to respond with an appropriate transmit signal including the morse code selected by software option this function is field programmable by an authorized agent. All controls that are certification critical are made at the factory and the internal workings of the racon are nitrogen purged. The only software field programmable options are self-test and response code character and length.

1.1 Test Facility:

Noted and Complies.

This test site is located adjacent to the building in League City, Texas, 77573. All equipment is calibrated, and the calibration period is 1 year. Wayne Langston, Inc. has received NVLAP Accreditation, Certificate No. 200021-0.

1.2 Test Samples:

A representative sample of the Equipment Under Test (EUT), was tested and the test results for this sample provided are located in Appendix(s).

1.3 Test Results:

The results from this testing apply only to the sample that was tested The findings do not

make any suggestions about how the product is to be used nor does Wayne Langston, Incorporated make any recommendations regarding the product's usage

2. INFORMATION REQUIRED FOR TYPE ACDEPTANCE PER PART 2

2.1033(a) A completed FCC Form 731 is included with this application.

2.1033(1) Applicant/Vendor/Manufacturer:
Tideland Signal Corporation
4310 Directors Row
Houston , Texas 77092

2.1033(2) This equipment is identified as:

SeaBeacon 2 System 6 Racon

FCC ID: FAZSBCN2SYS6A

2.1033(3) Installation manual is not available to the user. A copy has been attached as a reference only

2.1033(4) The circuit functions are described in the Appendix

2.1033(5) The frequency range of the Racon on "S" band is 2900-3100 MHZ and on "X" band is 9400-9400 MHZ.

2.1033(6) The output power level is +30 dbm for "S: band and +30 dbm for "X" band

2.1033(7) The maximum rated power of + 30 dbm. The maximum output power described in 80 215 n (3) max output power equal to 20 watts or 43 dbm

2.1033(8) The DC hookup voltage is + 9 volts to a max of + 36

2.1033(9) All tune-up procedures are made at the factory. There is no power adjustments made during the installation of the equipment.

2.1033(10) Complete circuit diagram is attached to this application.

2.1033(11) Exhibit 1 is a label drawing

2.1033(12) Photographs are included in the photograph section.

2.1033(13) N/A

2.1033(14) The data required by Paragraph 2.1046 through 2.1057 are included with this report

MEASUREMENT REQUIREMENTS (Paragraphs 2.985 et.seq)

This section contains the results of measurements taken to demonstrate compliance with the conditions defined in the Commission's Rules, Part 80. The measurements were made using several different methods. The nature of the operation of the Racon precludes a normal test methodology. Each method is outlined at the beginning of the test paragraph. A summary follows:

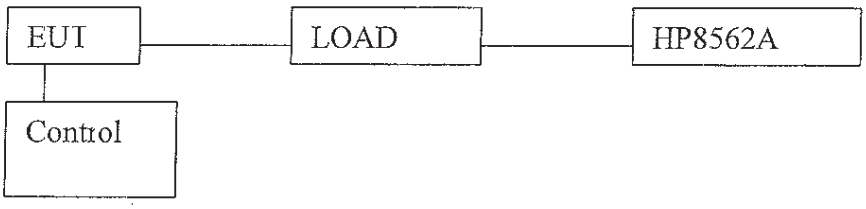
Occupied bandwidth measurements were made with a test fixture to prevent frequency jumping. Output power was verified while the transmitter was allowed to operate receiving a signal and re-transmitting it in normal operation. Because of this some of the transmissions pictures show aliasing.

2.1046 Power Output

The following power measurements were made at 3.0014 GHZ and 9.39982 GHZ.

The test set-up is as follows:

Appendix E has the printouts of the output power measurements



2.1047 Noted Modulation Characteristics

Pseudo digital technique is employed as the carrier is pulsed on and off to produce the complete set of Morse code telegraphy Note: (only characters that start in a dash are transmitted in the US) Only one character is generated per transmission.

2.1049 Occupied Bandwidth

The occupied bandwidth is define by the NTIA document "Manual of Regulations and Procedures for Federal Radio Frequency Management", 1/2000 as defined in Appendix J, Paragraph 3.1.

Bandwidth calculation

B (-20db)=6.36/t=1.272 MHz and 79.5 kHz respectfully.

Using the pulse width as variable from 5usec to 80 usec.

Occupied Bandwidth /Emissions mask

Under the NTIA document, page 5-9 paragraph 5.2.2.2: General standards for the above 29.7 MHZ States: (ref 80.211 (f) 1,2,and 3)

The mean power of any emission supplied to the antenna transmission line, as compared to the fundamental, shall be in accordance with the following :

1) On any frequency removed from the assigned frequency by more than 75% and up to 150% of the authorized bandwidth at least 25 db of attenuation.
2) On any frequency removed more than 150% up to 300% at least 35db attenuation.
3) On any frequency removed by more than 300 % not exceed 50 μ watts (43+10 log py)

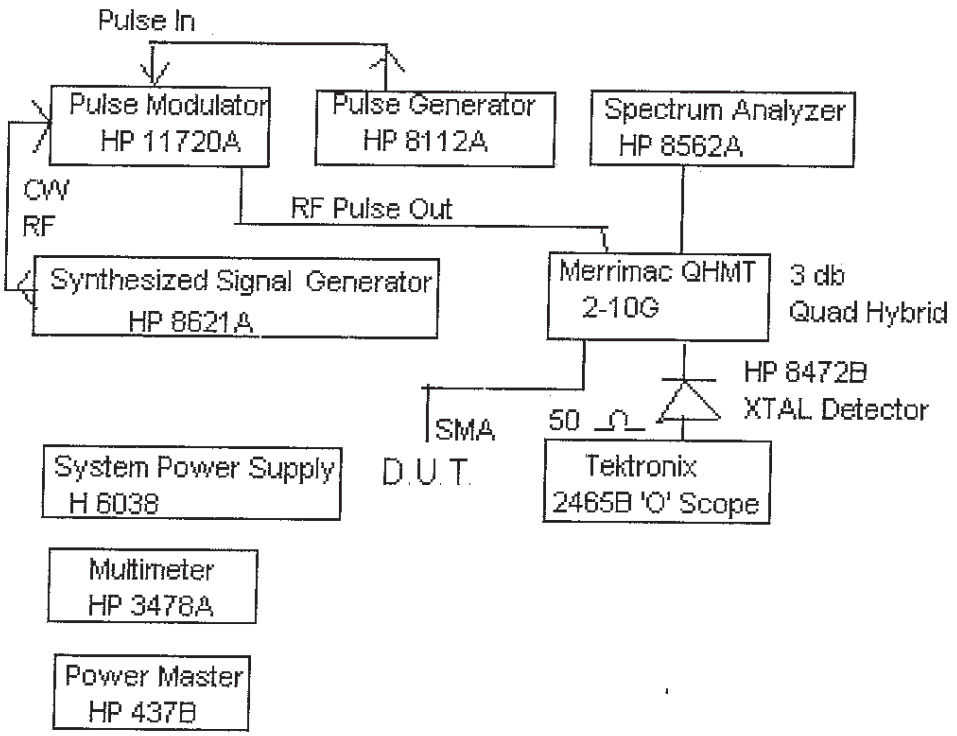
Paragraphs 1,2,and 3 do not apply.

During occupied bandwidth measurements, the EUT was forced to transmit on one continuous frequency The graphs are contained Appendix C

2.1051 Spurious Emissions

Appendix D describes spurious emissions out to a span of 250 MHZ of each transmitted frequency. The method used in the description was with the following test setup No attempt was made to manually force the transponder to a single frequency The measurements were made using a received signal that was in turn retransmitted on the appropriate frequency. All parameters are described on each graph

Test Setup



2.1053 Field Strength of Spurious Radiated

Field strength measurements of radiated spurious emissions were made on a three-meter range maintained by Wayne Langston, Incorporated, at the League City, Texas facility Complete description and measurement data have been placed on file with the Commission. The equipment was scanned for radiated emissions in a Semi Anechoic Chamber prior to open-field testing.

The Racon was place on a rotating wooden test stand approximately one meter in height. The Racon's output was terminated with a 50 ohm dummy load on both the S band and X band Outputs. The emission spectrum was examined up to 20 Gig using a TEK 491/HP 8591 Spectrum Analyzer down converter and WLI log periodic antenna and appropriate horizontal antennae. A Mini Circuits broadband amplifier was used to provide approximately 10 db or 20 db gain when necessary At each frequency, the device was rotated through 360 degrees, and the antenna was raised and lowered from one to three meters. Measurements were made using both vertically and horizontally polarized antennas. In each case, only the maximum radiation measured was recorded for this report. All emissions not reported were more than 20 dB below the specified limit The reference level for spurious radiation's was taken at an ideal dipole excited by the rated output power according to the following relationship. The transmissions were pared to both the 43 + 10 log (py) or 80. and the Part 15 intentional radiator limit to 15.249

Note: level = measured value + mixer/pad loss – preamp gain all other emissions were greater than 20 db under the limit.

2.1055 Frequency stability

No frequency stability measurements were made. However, the manufacturers specification is: ± 1 MHz Long Pulse, ± 2 MHz Short Pulse, and is 100% verified.

Part 80 other special measurements

80.213 (h) Radar transponder coast stations using the 2.92 to 3.1 GHz or 9.32 to 9.5 GHz Band must operate in a variable frequency mode and respond on their operating frequencies with a max error equivalent to 100 meters (667Ns). Additionally, their response must be encoded with a morse character starting with dash. The duration of a dot is defined as equal to the width of the space and 1/3 the width of a morse dash. The duration of the response code must not exceed 50 exceed 50 micro-seconds The sensitivity of the station must be adjustable so that received signals below –10 dbm at the antennae will not activate the transponder.

	Measured	Spec	Results
Max error equivalent	Actual 630 NS	667NS max	Complies
Characters start with a dash	(only character that start with a dash used in U.S.)		Complies
Dash 13.5 µsec			Complies
Dot 4.5 µsec (Dot is 1/3 of the dash) This is equal to the length of the space			Complies
Width of the characters			Complies
Duration of the response code	5-80 Micro-seconds		Complies
Receiver sensitivity	-5.5 db		Complies

Part 80.215(n) (3)

For all other transponder stations the output power must not exceed 20 watts.

Power Limitations: The rated output power +30 dbm or 1watt Complies

Appendix A

Measurement Uncertainty

MEASUREMENT UNCERTAINTY

Normal distribution was assigned to uncertainties derived from multiple contributions. The standard uncertainty of a contribution to uncertainty with assumed normal distribution is found by dividing the uncertainty by the coverage factor k, appropriate to the stated level of confidence. Strictly speaking for a level of confidence of 95%, k = 1.96, we used k = 2.

Rectangular distribution means that there is equal probability of the true value lying anywhere between the prescribed limits. A rectangular distribution was assigned where a manufacturer's specification limits are used as the uncertainty.

Radiated Emissions

Measurement of vertically polarized radiated field strength over the frequency range 30 MHz to 1 GHz on an open area test site at 3m and 10m includes following uncertainty:

Contribution	Probability Distribution	Uncertainty (dB)
Antenna factor calibration	Normal (k=2)	±1.0
Cable loss calibration	Normal (k=2)	±0.2
Receiver specification	Rectangular	±1.0
Antenna directivity	Rectangular	±0.1
Antenna factor variation		

with height	Rectangular	±2.0
Antenna factor frequency		
interpolation	Rectangular	±0.1
Measurement distance		
variation	Rectangular	±0.2
Site Imperfections	Rectangular	±1.5

Combined standard uncertainty $u_c(y)$ is

$$U_c(Y) = \pm\sqrt{\left(\frac{1.0}{2}\right)^2+\left(\frac{0.2}{2}\right)^2+\frac{1.0^2+0.1^2+2.0^2+0.2^2+1.5^2}{3}} = \pm 1.6\ \text{dB}$$

It is probable that $u_c(y) / s(q_k)>3$, where $s(q_k)$ is estimated standard deviation from a sample of n readings

$$s(q_k) = \sqrt{\frac{1}{(n-1)}\sum_{k-1}^{n}(q_k-\bar{q})^2}$$

unless the repeatability of the EUT is particularly poor, and a coverage factor of k = 2 will ensure that the level of confidence will be approximately 95%, therefore:

$$U = 2\ u_c(y) = 2 \times \pm 1.6\ \text{dB} = \pm 3.2\ \text{dB}$$

Notes:

1.1 Uncertainties for the antenna and cable were estimated, based on a normal probability distribution with k = 2.

1.2 The receiver uncertainty was obtained from the

manufacturer's specification for which a rectangular distribution was assumed.

1.3 The antenna factor uncertainty does not take account of antenna directivity.

1.4 The antenna factor vary with height and since the height was not always the same in use as when the antenna was calibrated an additional uncertainty is added.

1.5 The uncertainty in the measurement distance is relatively small but have some effect on the received signal strength. The increase in measurement distance as the antenna height is increased is an inevitable consequence of the test method and is therefore not considered to be a contribution to uncertainty.

1.6 Site imperfections are difficult to quantify but may Include the following contributions:

- unwanted reflections from adjacent objects.
- ground plane imperfections: reflection coefficient, flatness and edge effects.
- losses or reflections from "transparent" cabins for the EUT or site coverings.
- earth currents in antenna cables (mainly effects Biconnical antennas).

The specified limits for the difference between measured site attenuation and the theoretical value (±4 dB) were not included in total since the measurement of site attenuation includes uncertainty contributions already allowed for in this budget, such as antenna factor.

Conducted Emissions

Measurement of conducted emissions over the frequency range 9 kHz to 30 MHz includes following uncertainty:

Contribution	Probability Distribution	Uncertainty (dB)
Receiver specification	Rectangular	±1.5
LISN coupling specification	Rectangular	±1.5
Cable and input attenuator calibration	Normal (k=2)	±0.5

Combined standard uncertainty $u_c(y)$ is

$$U_c(Y) = \pm\sqrt{\frac{1.5^2 + 1.5^2}{3} + \left(\frac{0.5}{2}\right)^2} = \pm 1.2\ \text{dB}$$

As with radiated field strength uncertainty, it is probable That $u_c(y) / s(q_k) > 3$ and a coverage factor of k=2 will suffice, therefore:

$$U = 2\,u_c(y) = 2 \times \pm 1.2\ \text{dB} = \pm 2.4\ \text{d}$$

Appendix B

Radiated Interference Measurement Data

WAYNE LANGSTON, INC.

Model: SeaBeacon 2 System 6 Racon
Date: 11-20-2002

FCC ID:FAZSBCN2SYS6A
Appendix
WLI Project: 20021807

TEST: Check One	Test Type: Check One	End Results: Check One
FCC (Part 80) [x]	Radiated [x]	Pass [ ]
EN550 22/Cispr 22 [ ]	Conducted [ ]	Fails [ ]
Immunity: IEC 801- [ ]	Both [ ]	
Other (please define): Part 80 Scan		

EUT Model #/Name: SeaBeacon 2 System 6 Racon
EUT Description: Refer to Manufacturer's User/Operations Manual

EUT Support Equipment:	Serial #	Model #	FCC ID #
Idle State			

Software: Client provided (if any)
EUT Classification: Class "A" [ ]; Class "B" [ ]

Test Equipment/Model #	Serial #	Cal. Date
[ ] AH Systems/SAS-200/S12	303	08/02
[ ] Compliance Design/Lisn		08/02
[ ] Rhode & Schwarz	879691/09	Daily
[x] Hewlett Packard 8591E	3501A03599	08/02
[ ] Hewlett Packard 8640B	1532A03642	08/02
[ ] Roberts Tuned Dipoles Std.	N/A	Per ANSI Ref. Std.
[x] Rhode & Schwarz	HL023	08/02
[ ] Rhode & Schwarz/ESH3	872318/03	08/02
[ ] Polard/ESH3-Z2	N/A	08/02
[ ] Polard/HFH2-Z2	N/A	08/02
[ ] Electro-Metrics/ESA-100	307	08/02
[x] Electro-Metrics Biconical	BIA 3432	08/02
[ ] TEM Chamber/None	none	Per IEC 801-3
[ ] Mini-Circuits Power Amp/None	100102	08/02
[ ] Mini-Circuits/AFL-1000LN	10093	08/02
[ ] Mini-Circuits/CAT-3(3dB,500Ohm Pad)	None	08/02
[ ] HP Oscilloscope/54600A	3134A04619	08/02
[ ] Mini-Circuits 50 dB Pad/NTRM 50	10018	None Required
[ ] Schaffner NSG433		08/02
[ ] Schaffner NSG1046		
[x] Mini Circuit Pre-Amp	1023	08/02
[x] Mini Circuit Down Converter	1042	08/02

Miscellaneous Support Equipment

Equipment/Model	Serial	FCC ID
[ ] Dell 320 SLi PC	1Y10Y	EZK320SLi
[ ] Epson LX 800 Printer	011216166	BKM5VEP70RA
[ ] IBM Thinkpad	None	AN02618M481

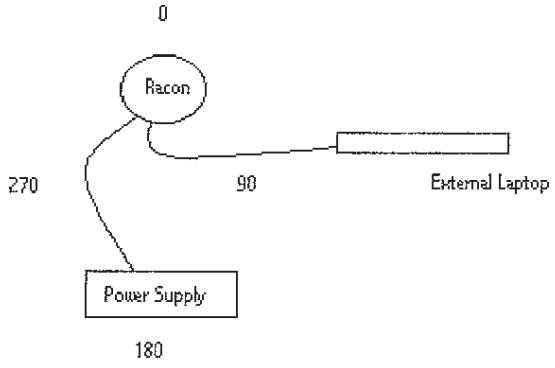
WAYNE LANGSTON, INC.

Model: SeaBeacon 2 System 6 Racon
Date: 11-20-2002

FCC ID:FAZSBCN2SYS6A
Appendix
WLI Project: 20021807

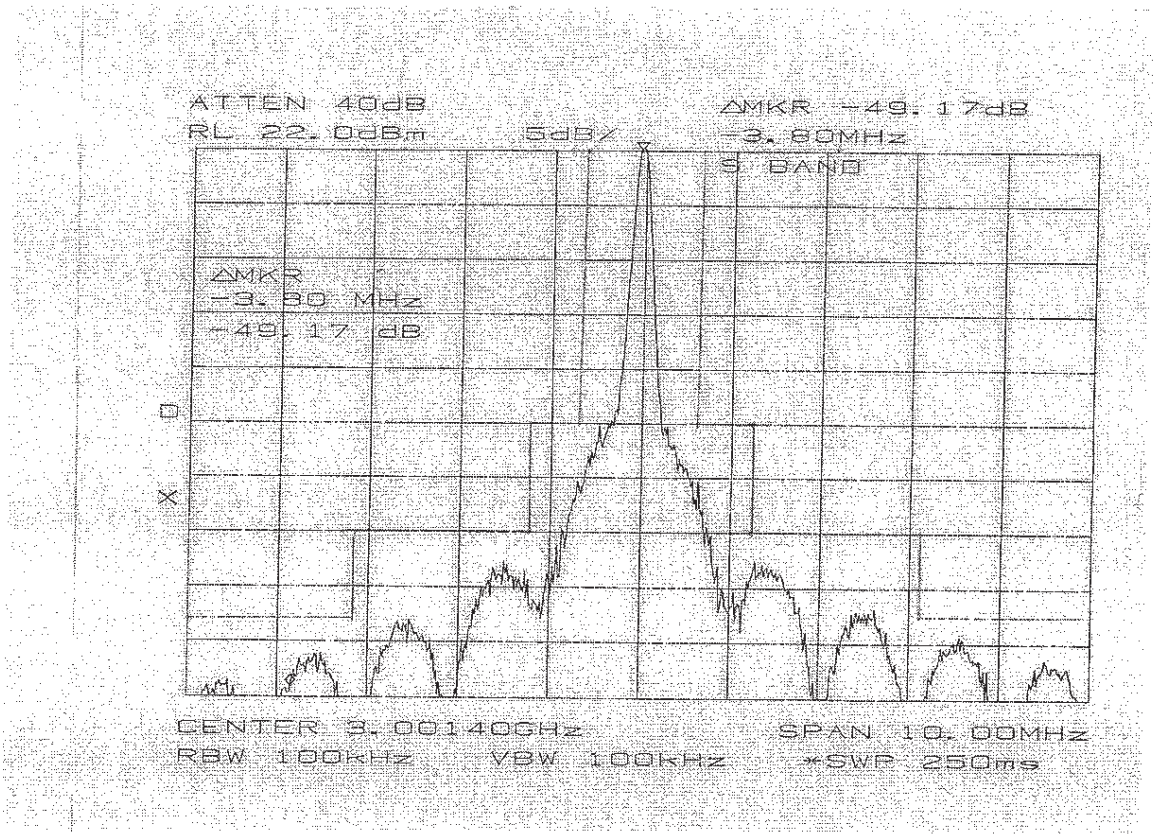
TEST RESULTS

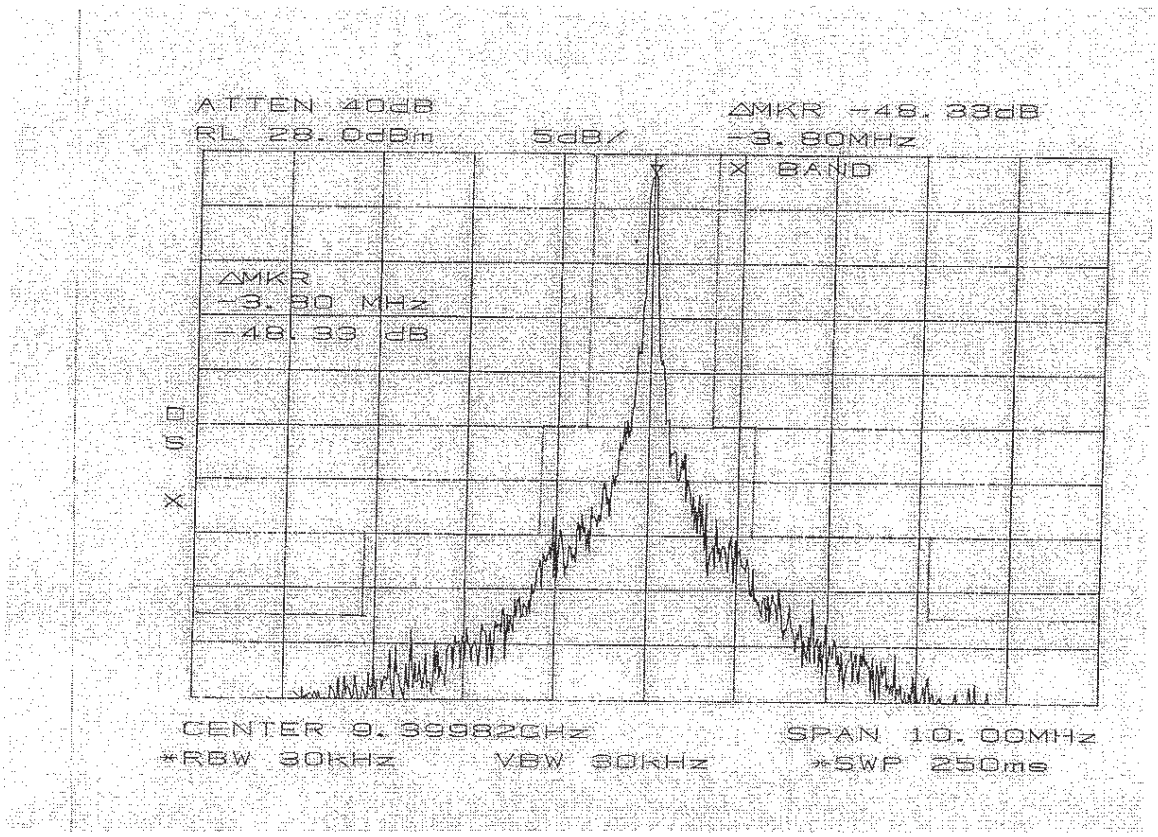
Freq (MHz)	Level (dB)	A_f/C_L (dB)	H_A(M) Hor/Ver	Rotation □°	Results (dB)	Comments
125.6	5.1	16.0	1.0V	140	21.1	Limit 43
181.7	2.3	17.0	1.0V	180	19.3	Limit 43
211.3	1.4	21.0	1.0V	140	22.4	" "
472.3	4.0	29.0	1.5V	100	33.0	Limit 46
545.0	2.1	32.0	1.5V	180	34.1	" " (11.9 under)
623.8	-1.0	35.0	2.0V	180	34.0	Limit 46
1.7 Gig	-3.1	34.0	2.0V	140	30.9	Limit 54
8.8 Gig	-7.0	37.0	1.0V	140	30.0	Limit 54
66.8	2.1	12.0	1.5H	180	14.0	Limit 40
160	2.1	18.0	2.0H	140	20.1	Limit 43
481	1.3	32.0	2.5H	140	33.3	Limit 46
541.0	1.1	32.0	2.5H	180	33.1	Limit 46
624	-2.1	36.0	2.0H	180	34.0	Limit 46
2.4 Gig	-5-1	34.0	1.5H	180	28.9	Limit 54



APPENDIX C

Occupied Bandwidth Measurements


ATTEN 40dB
RL 22.0dBm
5dB/
ΔMKR -49.17dB
-3.80MHz
S BAND
ΔMKR
-3.80 MHz
-49.17 dB
D
X
CENTER 3.00140GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms


ATTEN 40dB
RL 28.0dBm
5dB/
ΔMKR -48.33dB
-3.80MHz
X BAND
ΔMKR
-3.90 MHz
-48.33 dB
CENTER 9.399820GHz
SPAN 10.00MHz
*RBW 30kHz
VBW 30kHz
*SWP 250ms

APPENDIX D

Spurious Emissions at Antenna Terminals

Power Level: +30 dbm

Frequency: 3.0 GHZ center

Frequency: agile

3.1 GHZ-2.9 GHZ

Frequency (MHz)	Emission Level (dBc)	Limit for (dBc)	Comments
304.9	-89.3	-43dbc	
609.9	-89.7	Dto	
762.8	-87.3	Dto	
1208.8	-80.3	Dto	
1702 50	-80.0	Dto	
3404	-87.0	Dto	

Power level +30 dbm

Frequency 9.4 GHZ center

Frequency: agile

9.320-9.5GHZ

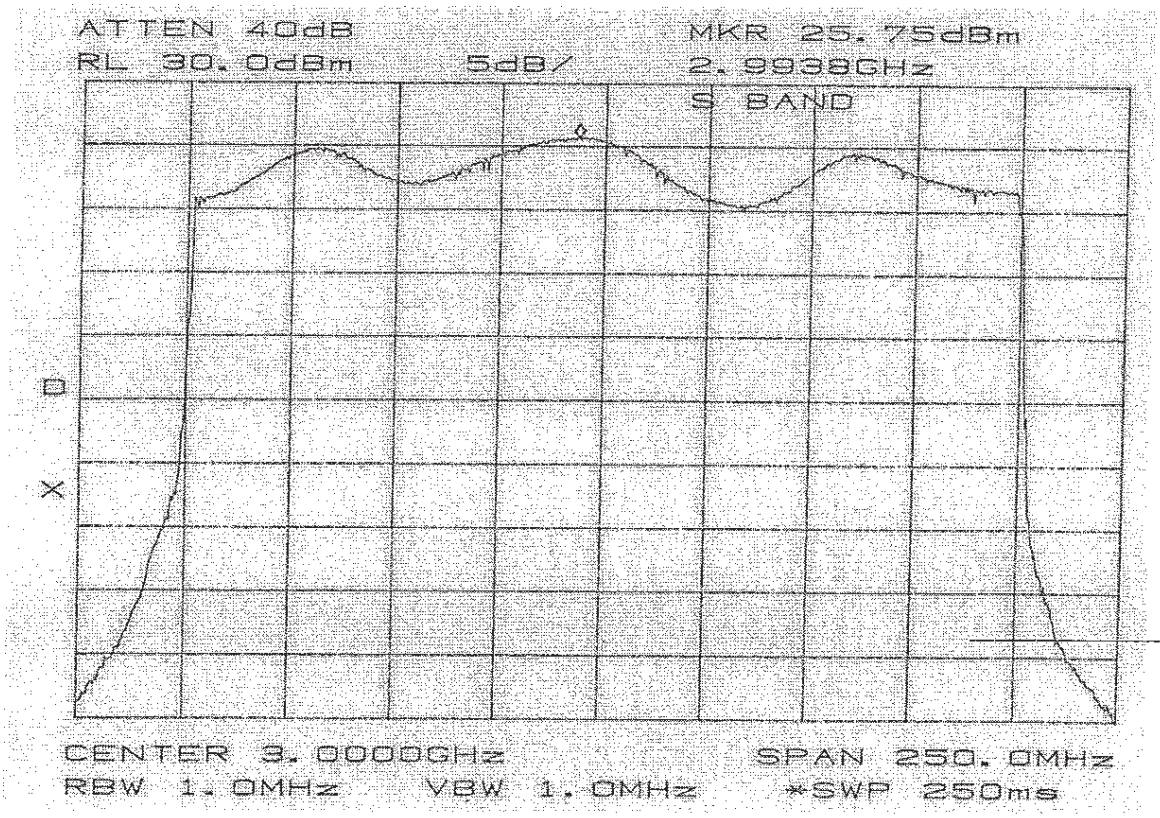
Frequency (MHz)	Emission Level (dBc)	Limit for (dBc)	Comments
304.6	-87.6	-43dbc	
609.7	-86.7	Dto	
732.5	-86.2	Dto	
1204.8	-81.4	Dto	
1301.50	-81.2	Dto	
3300	-84.9	Dto	

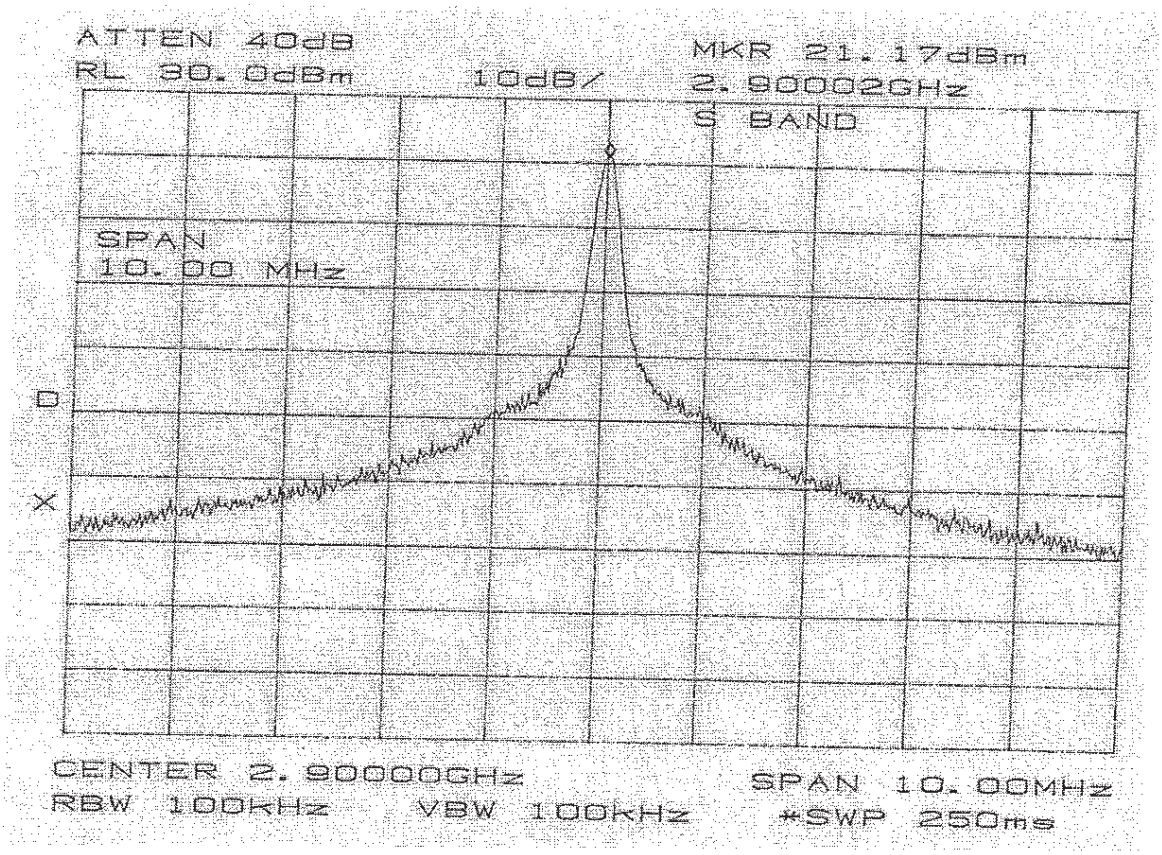
Power level +30 dbm

Emission Levels preceded by a "<" indicate frequencies which were found to be below the spectrum analyzer's noise as indicated.

APPENDIX E

OUTPUT POWER


ATTEN 40dB
RL 30.0dBm
5dB/
MKR 25.75dBm
2.9938GHz
S BAND
D
X
CENTER 3.0000GHz
SPAN 250.0MHz
RBW 1.0MHz
VBW 1.0MHz
*SWP 250ms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RL 30.0dBm
10dB/
MKR 21.17dBm
2.90002GHz
S BAND
SPAN
10.00 MHz
D
X
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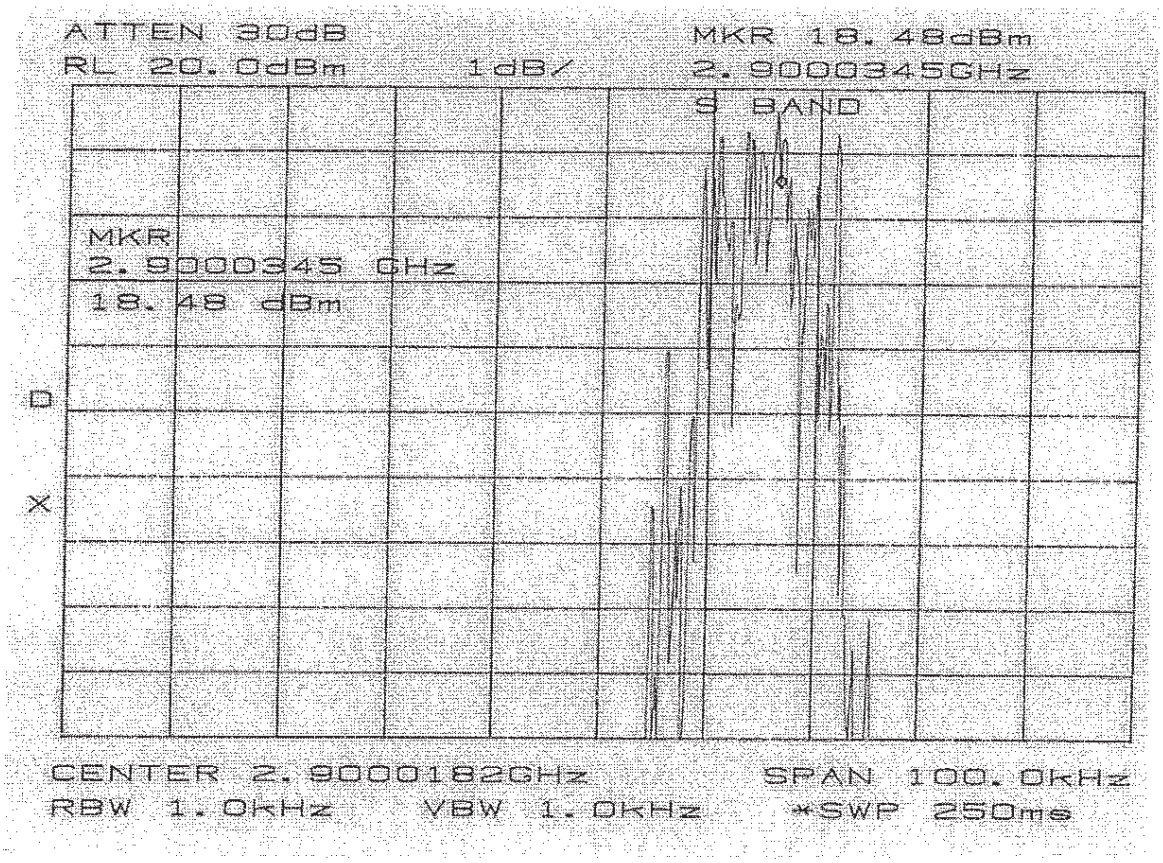
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms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1dB/
MKR 18.48dBm
2.9000345GHz
S BAND
MKR
2.9000345 GHz
18.48 dBm
D
X
CENTER 2.9000182GHz
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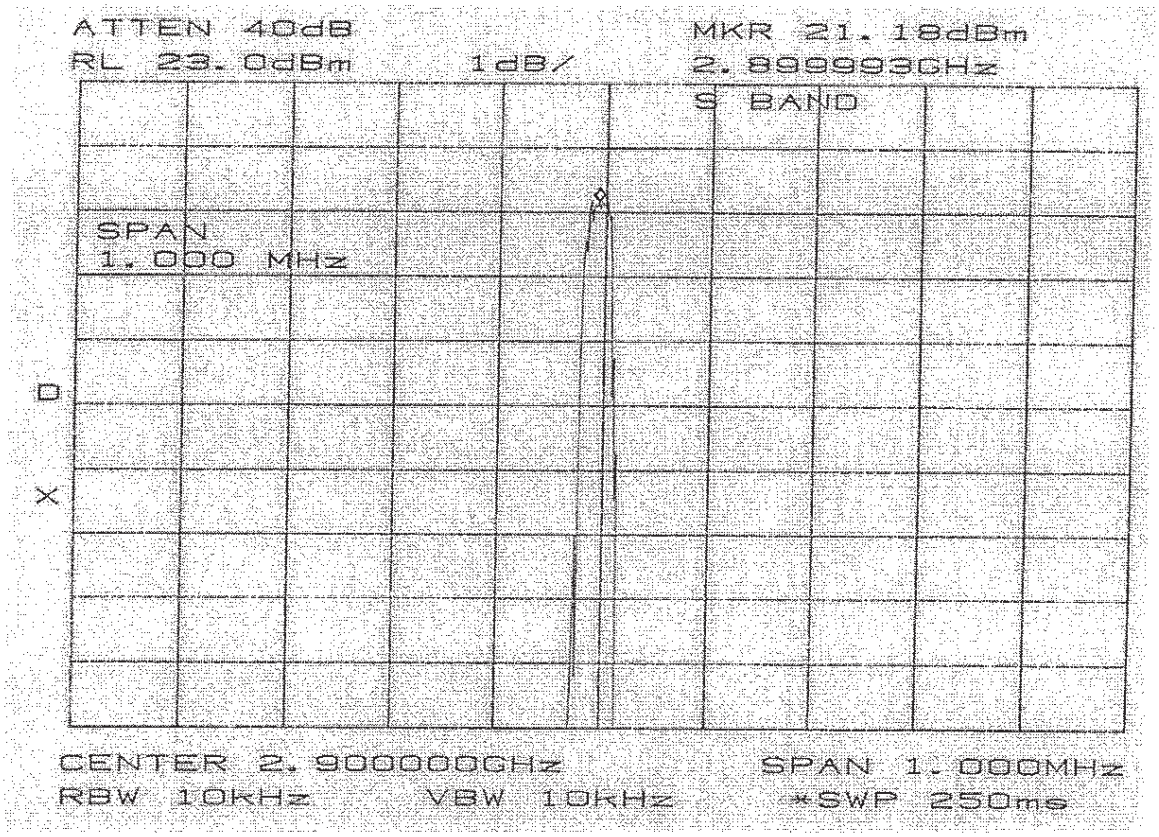
RBW 1.0kHz
VBW 1.0kHz
*SWP 250ms


ATTEN 40dB
RL 23.0dBm
1dB/
MKR 21.18dBm
2.899993GHz
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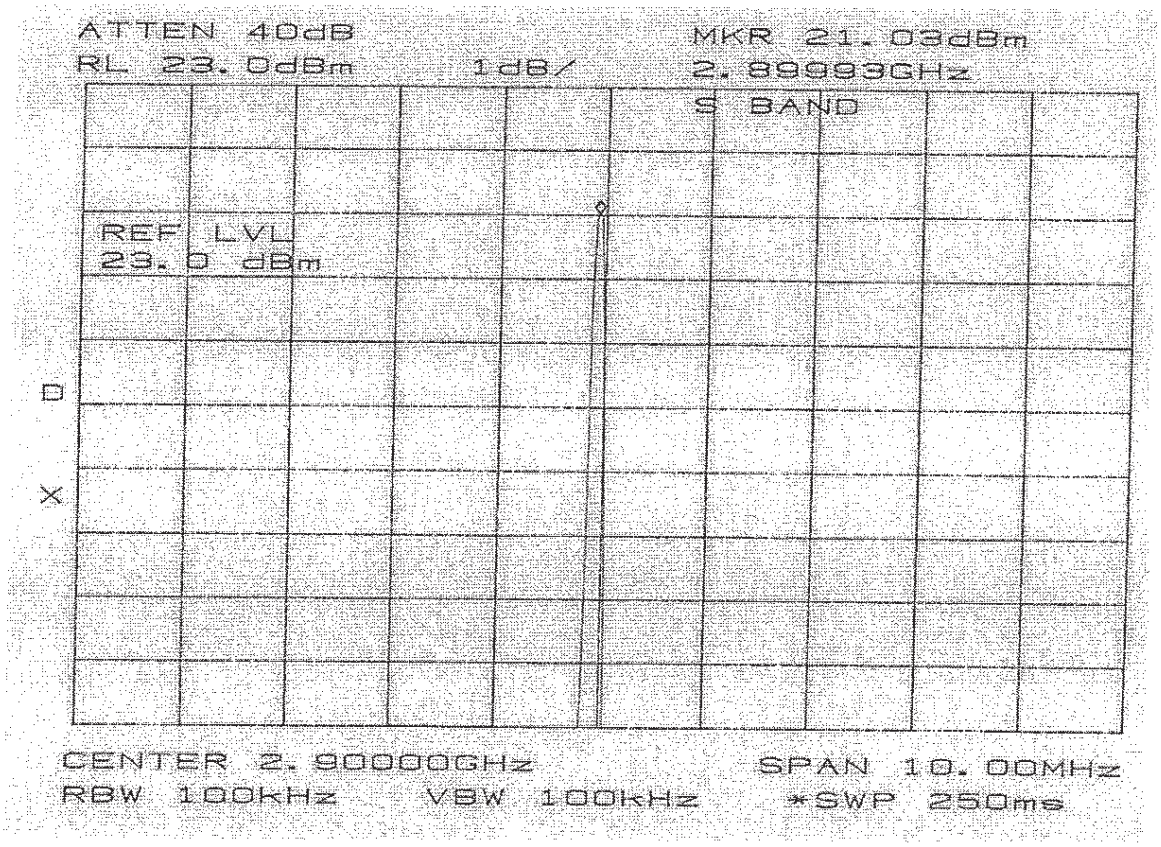
SPAN
1.000 MHz
D
X
CENTER 2.9000000GHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
*SWP 250ms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1dB/
MKR 21.03dBm
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D
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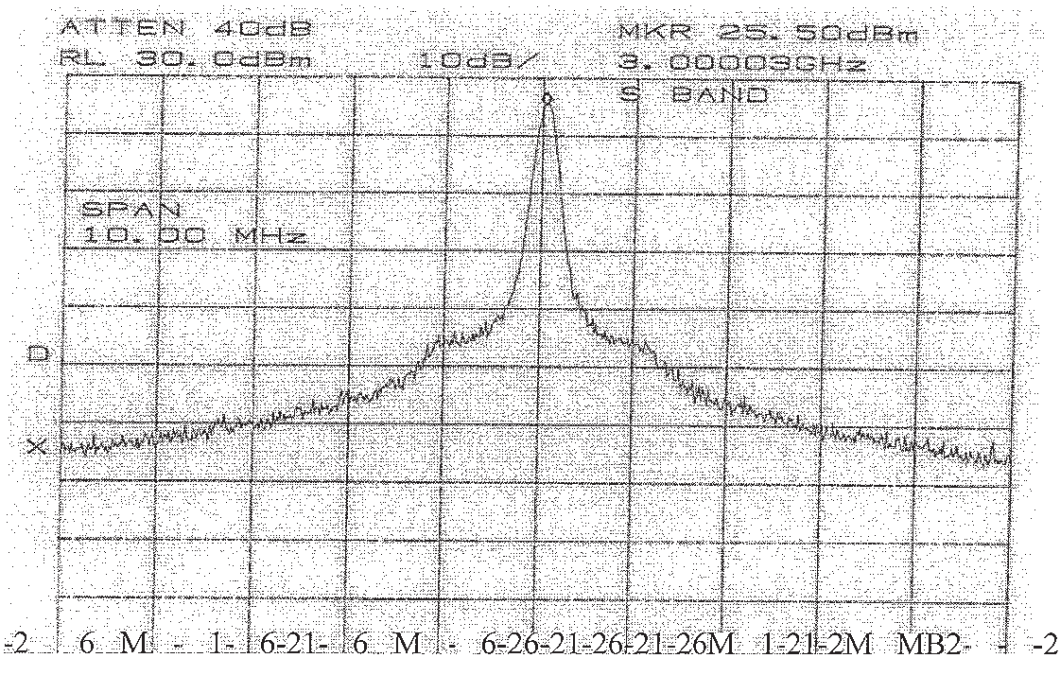
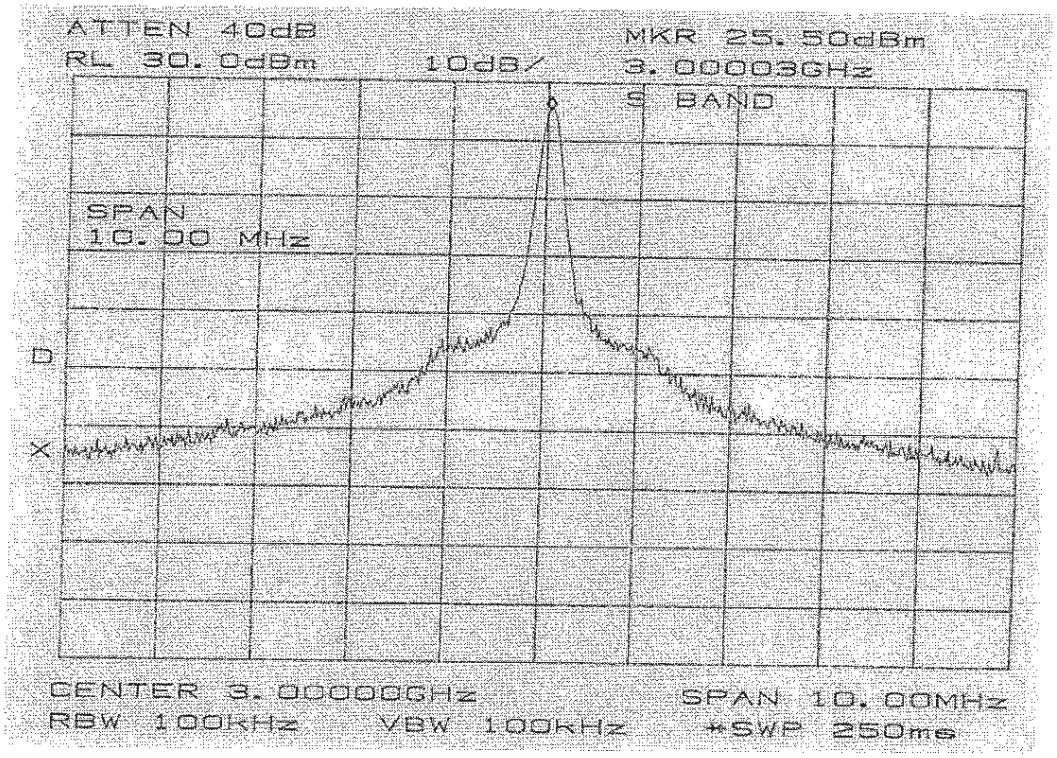
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms



-2 6 M - 1- 6-21- 6 M - 6-26-21-26-21-26M 1-21-2M MB2- - -2 2 2MP 2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RL 30.0dBm
10dB/
MKR 25.50dBm
3.000036Hz
S BAND
SPAN
10.00 MHz
D
X
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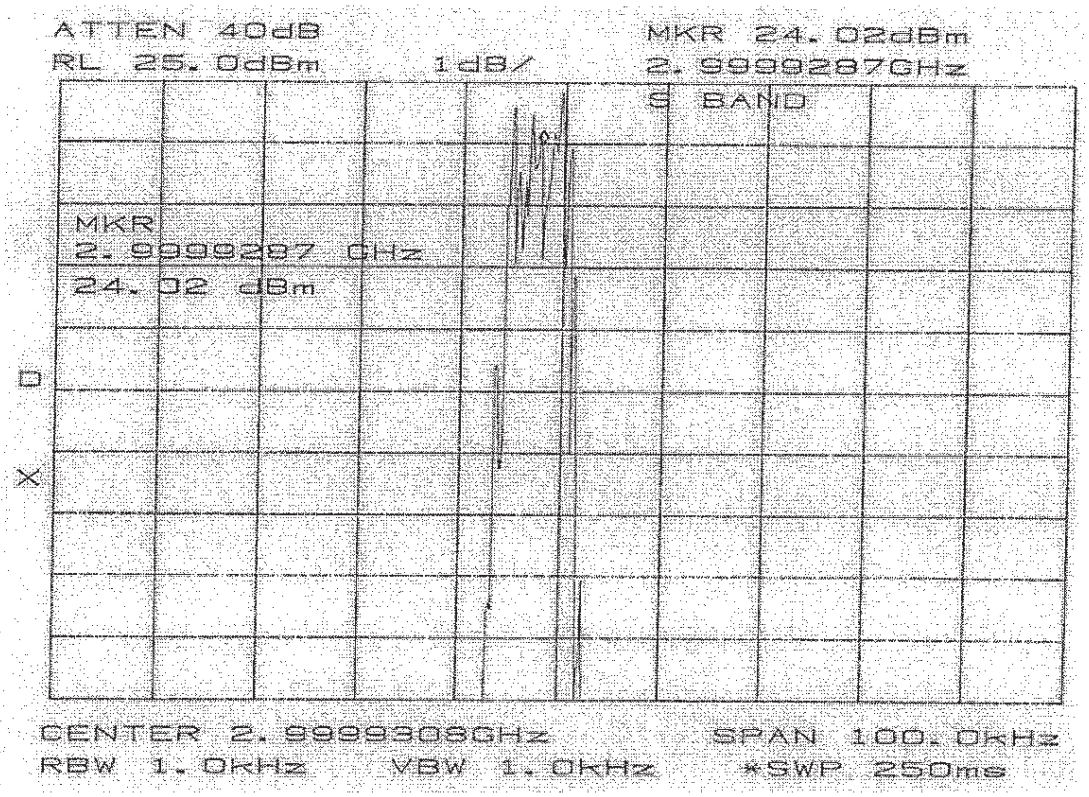
SPAN 10.00MHz
RBW 100KHz
VBW 100KHz
*SWP 250ms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RL 25.0dBm
1dB/
MKR 24.02dBm
2.9999287GHz
S BAND
MKR
2.9999287 GHz
24.02 dBm
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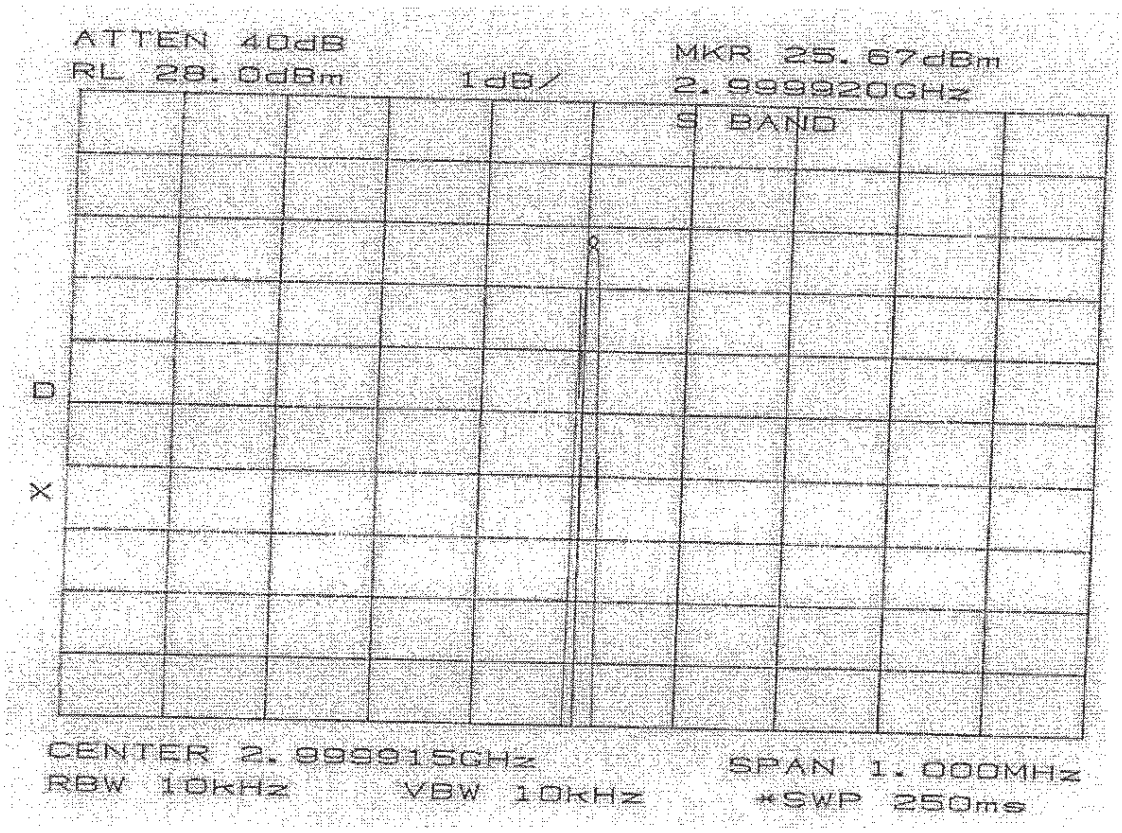
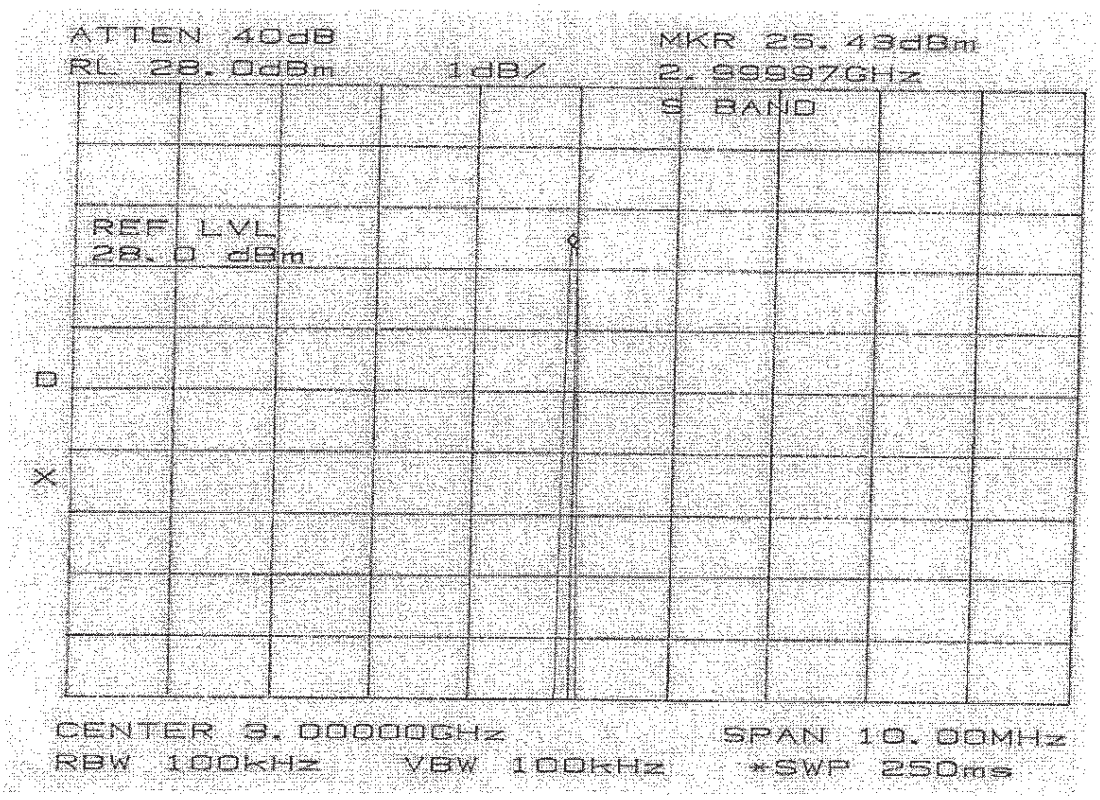
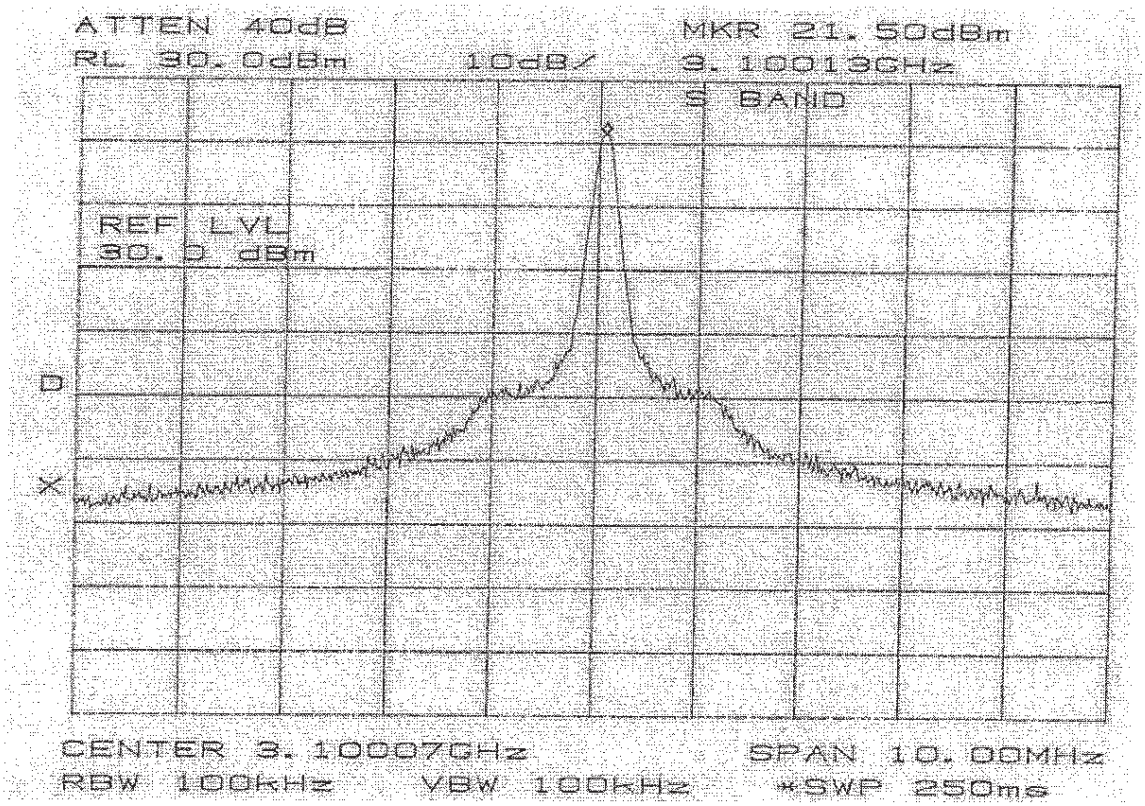
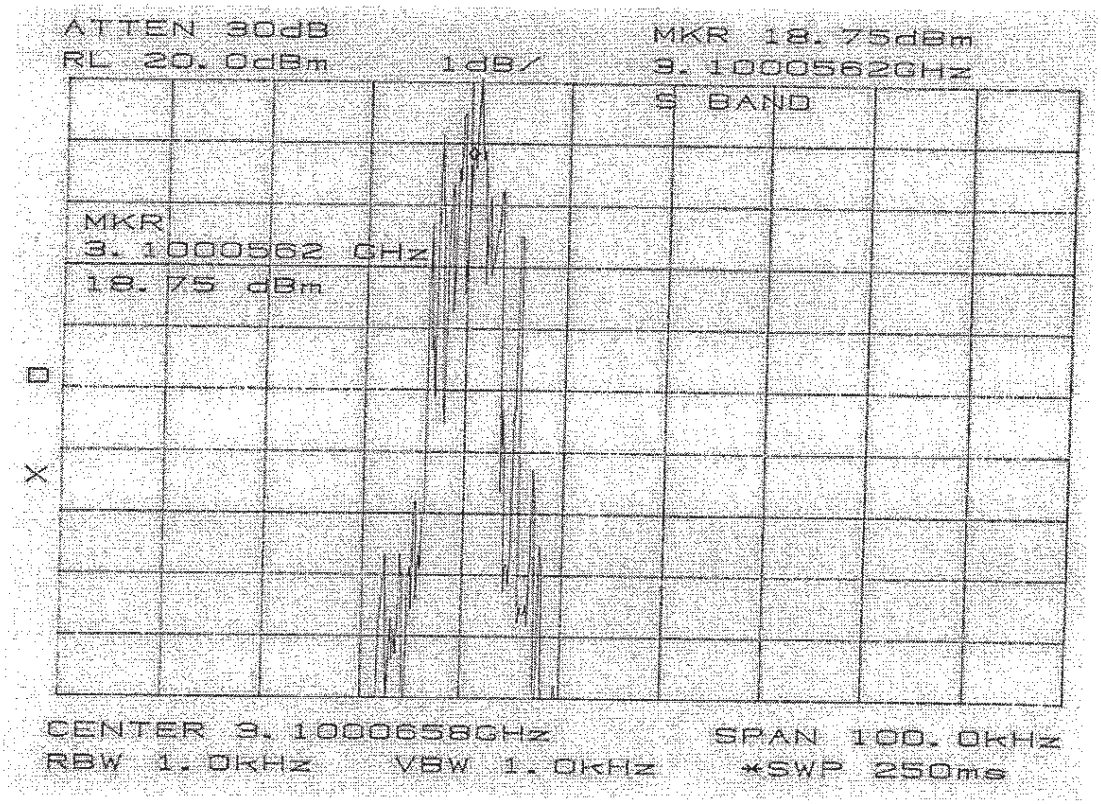
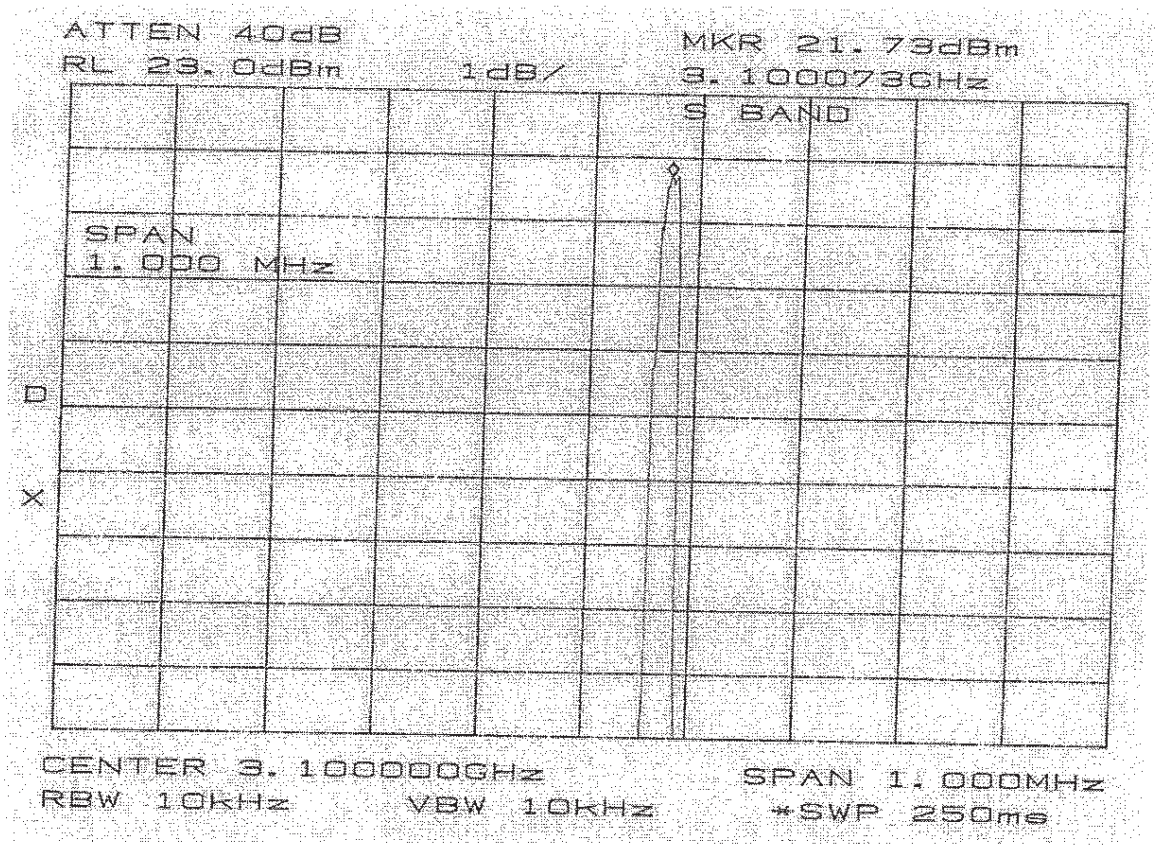
RBW 1.0kHz
VBW 1.0kHz
*SWP 250ms

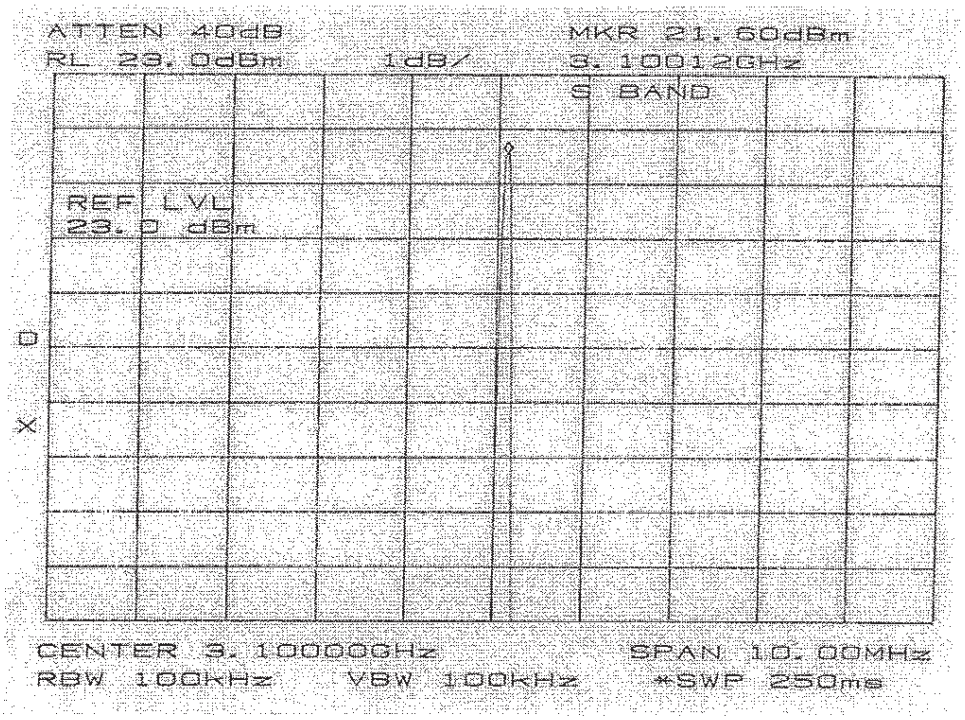

ATTEN 40dB
RL 28.0dBm
1dB/
MKR 25.67dBm
2.999920GHz
S BAND
D
X
CENTER 2.999915GHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
*SWP 250ms

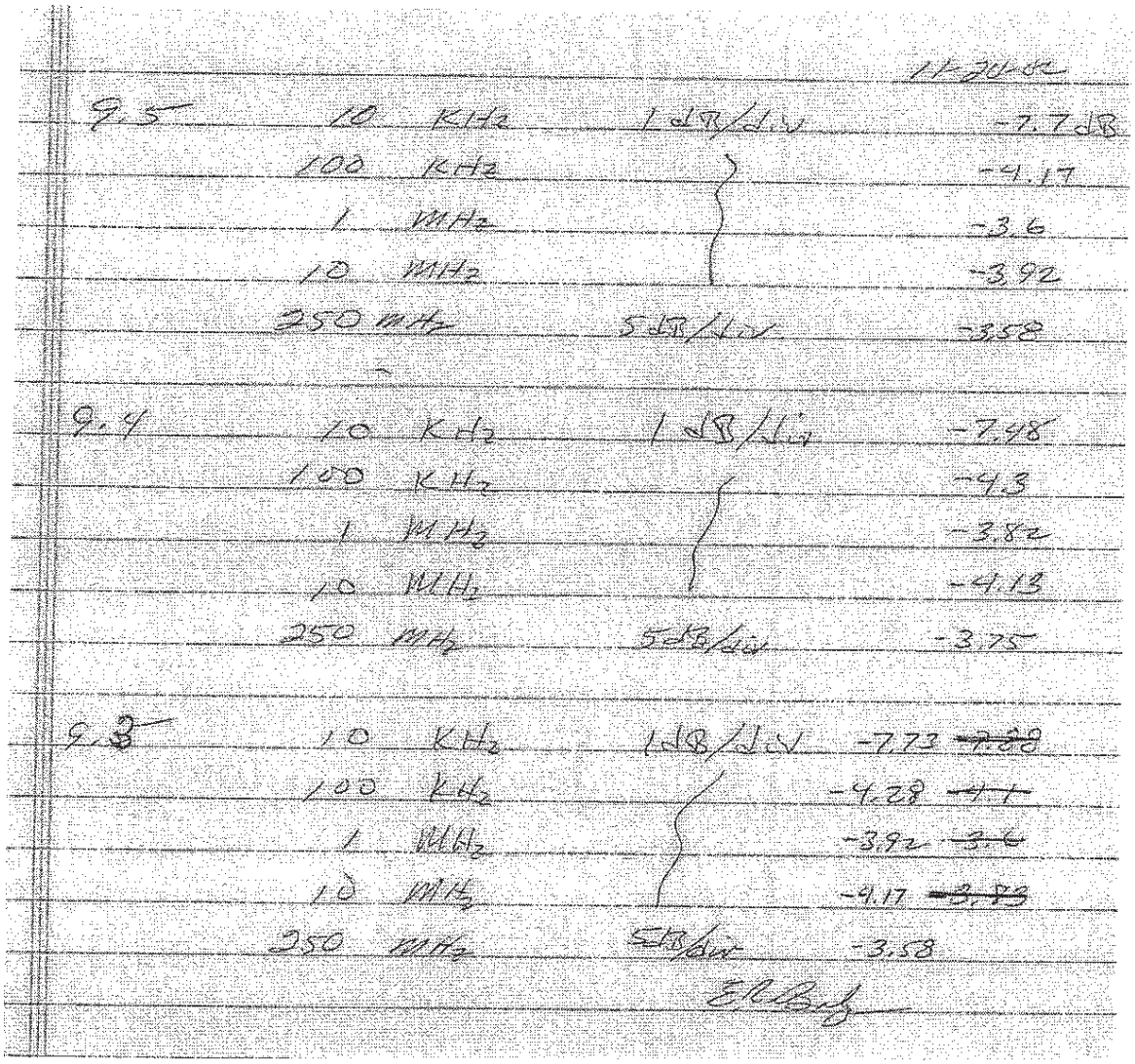

ATTEN 40dB
RL 28.0dBm
1dB/
MKR 25.43dBm
2.99997GHz
S BAND
REF LVL
28.0 dBm
D
X
CENTER 3.000000GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 21.50dBm
3.10013GHz
S BAND
REF LVL
30.0 dBm
D
X
CENTER 3.10007GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms


ATTEN 30dB
RL 20.0dBm
1dB/
MKR 18.75dBm
3.1000562GHz
S BAND
MKR
3.1000562 GHz
18.75 dBm
D
X
CENTER 3.1000658GHz
SPAN 100.0kHz
RBW 1.0kHz
VBW 1.0kHz
*SWP 250ms

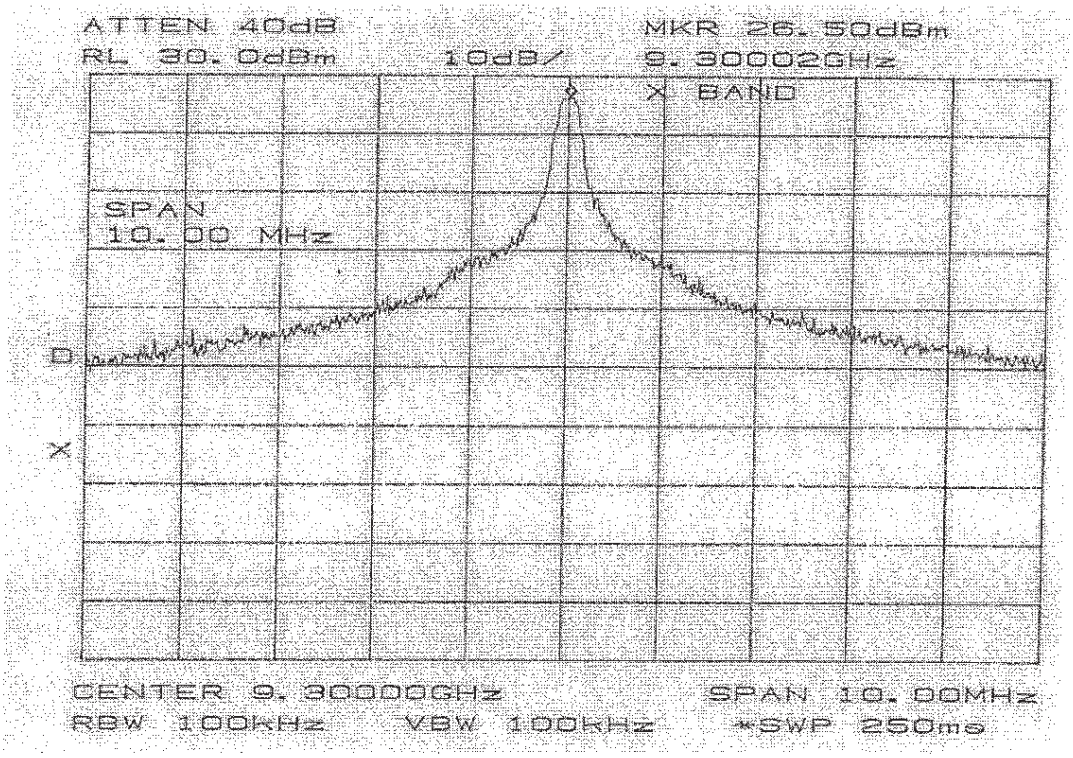

ATTEN 40dB
RL 23.0dBm
1dB/
MKR 21.73dBm
3.100073GHz
S BAND
SPAN
1.000 MHz
D
X
CENTER 3.1000000GHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
*SWP 250ms

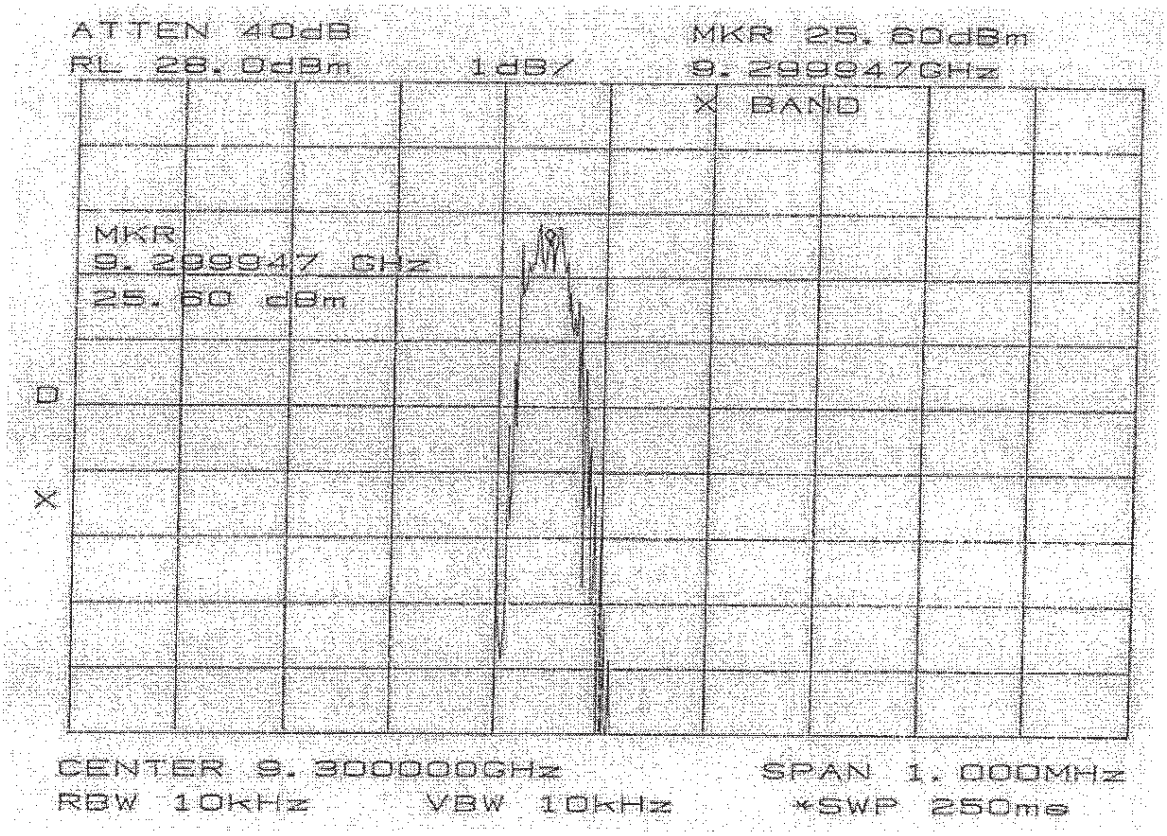

ATTEN 40dB
RL 29.0dBm
1dB/
MKR 21.60dBm
3.10012GHz
S BAND
REF LVL
23.0 dBm
CENTER 3.100000GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms

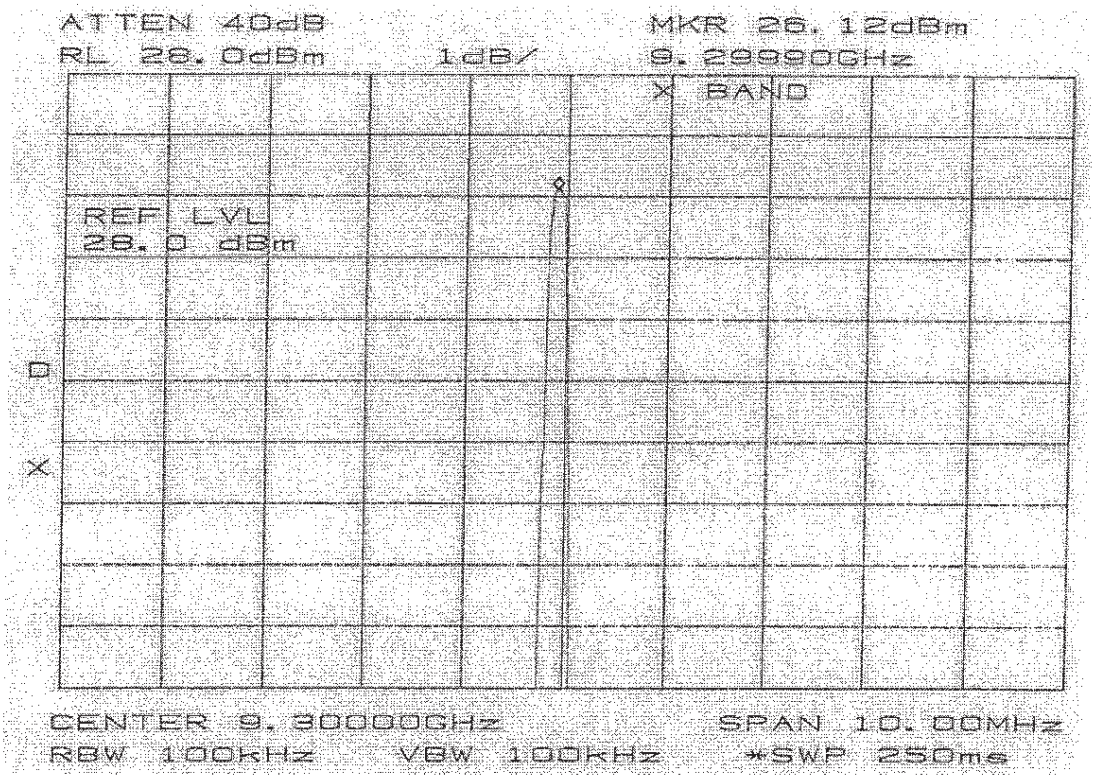


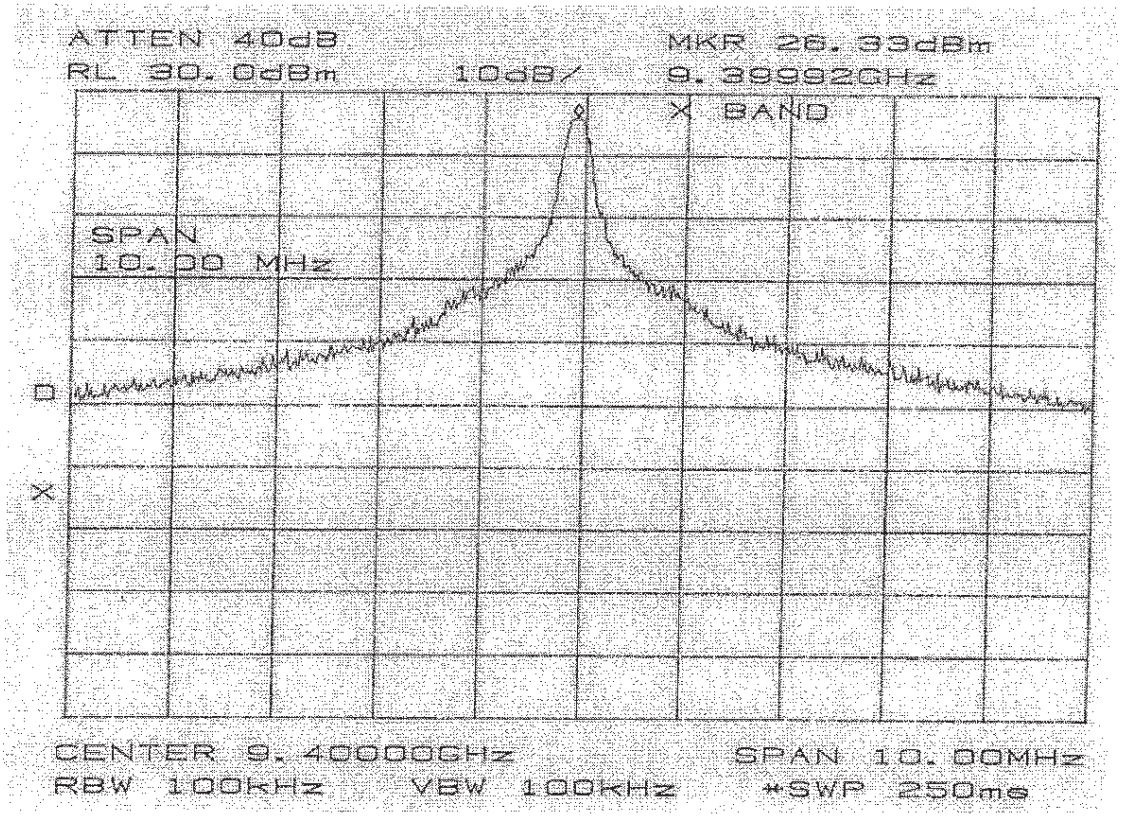
				1F 20.8Z
9.5	10	KHz	1dB/div	-7.78
	100	KHz		-4.17
	1	MHz		-3.6
	10	MHz		-3.92
	250	MHz	5dB/div	-3.58
9.4	10	KHz	1dB/div	-7.48
	100	KHz		-4.3
	1	MHz		-3.82
	10	MHz		-4.13
	250	MHz	5dB/div	-3.75
9.3	10	KHz	1dB/div	-7.73 ~~-7.88~~
	100	KHz		-4.28 ~~-4.1~~
	1	MHz		-3.82 ~~-3.6~~
	10	MHz		-9.17 ~~-3.83~~
	250	MHz	5dB/div	-3.58

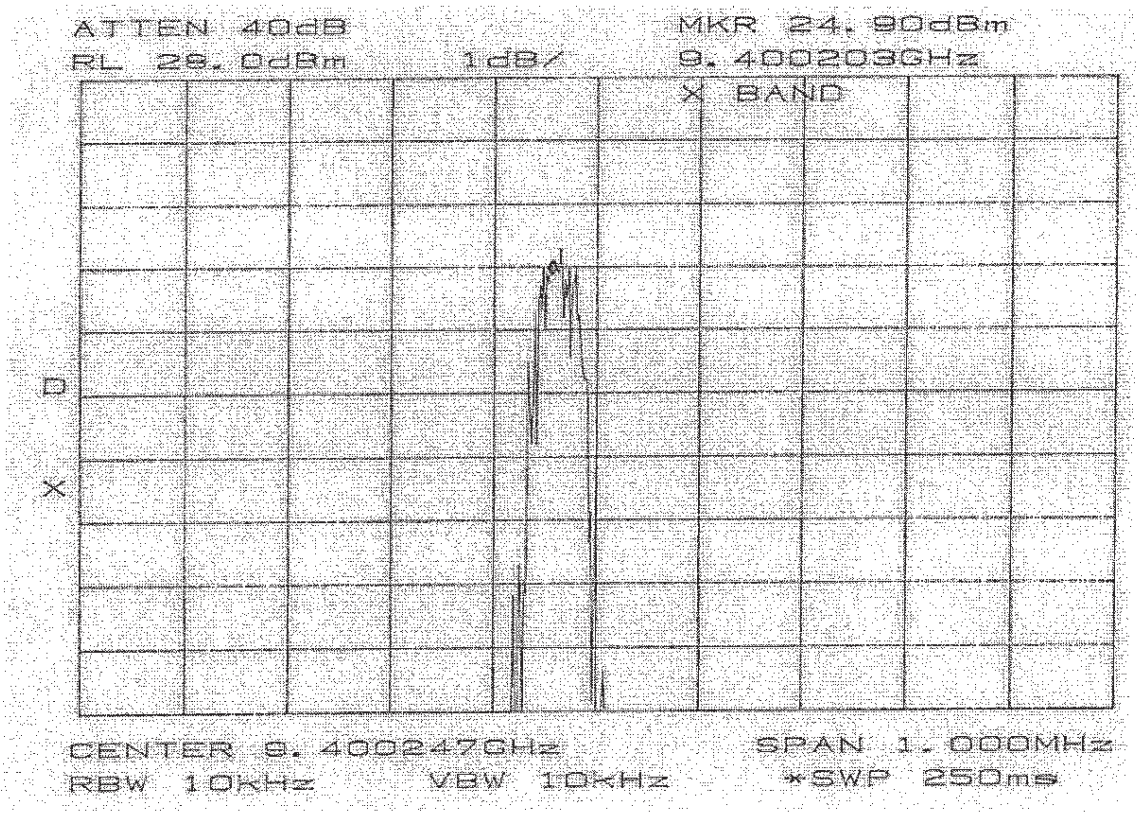
EL Bud

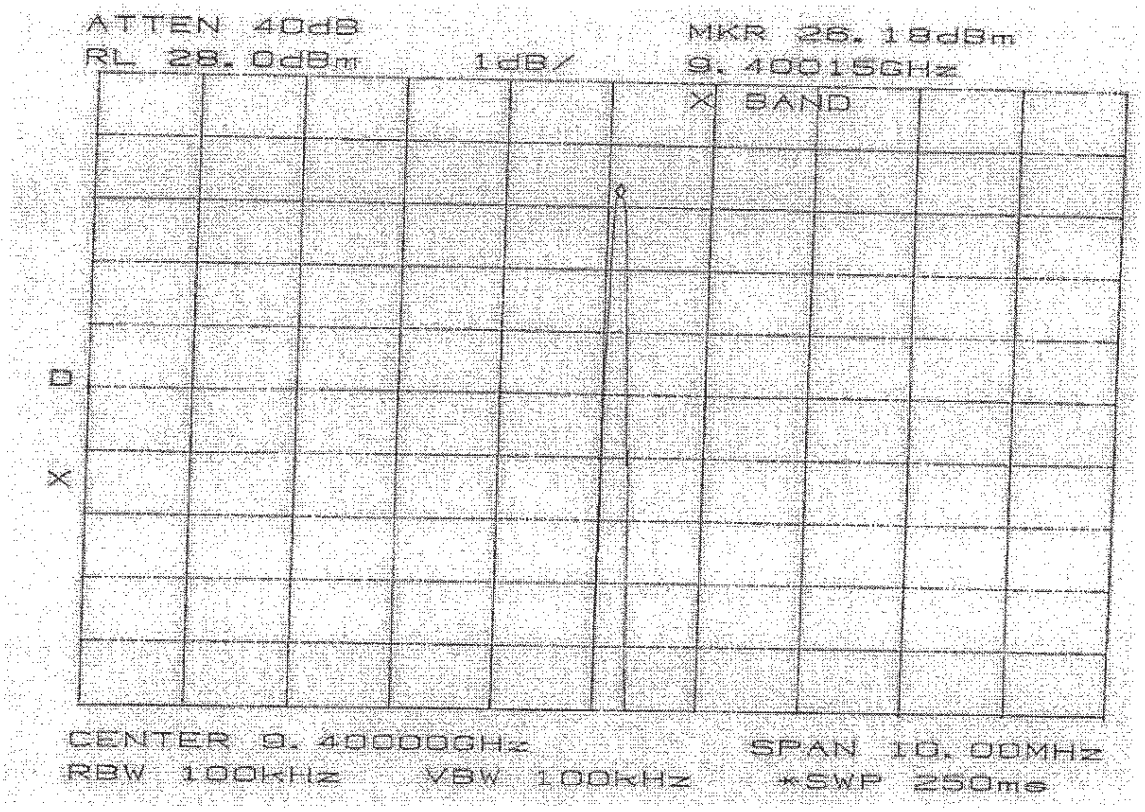

ATTEN 40dB
RL 30.0dBm
10dB/
MKR 26.50dBm
9.900026Hz
X BAND
SPAN
10.00 MHz
D
X
CENTER 9.900000GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms

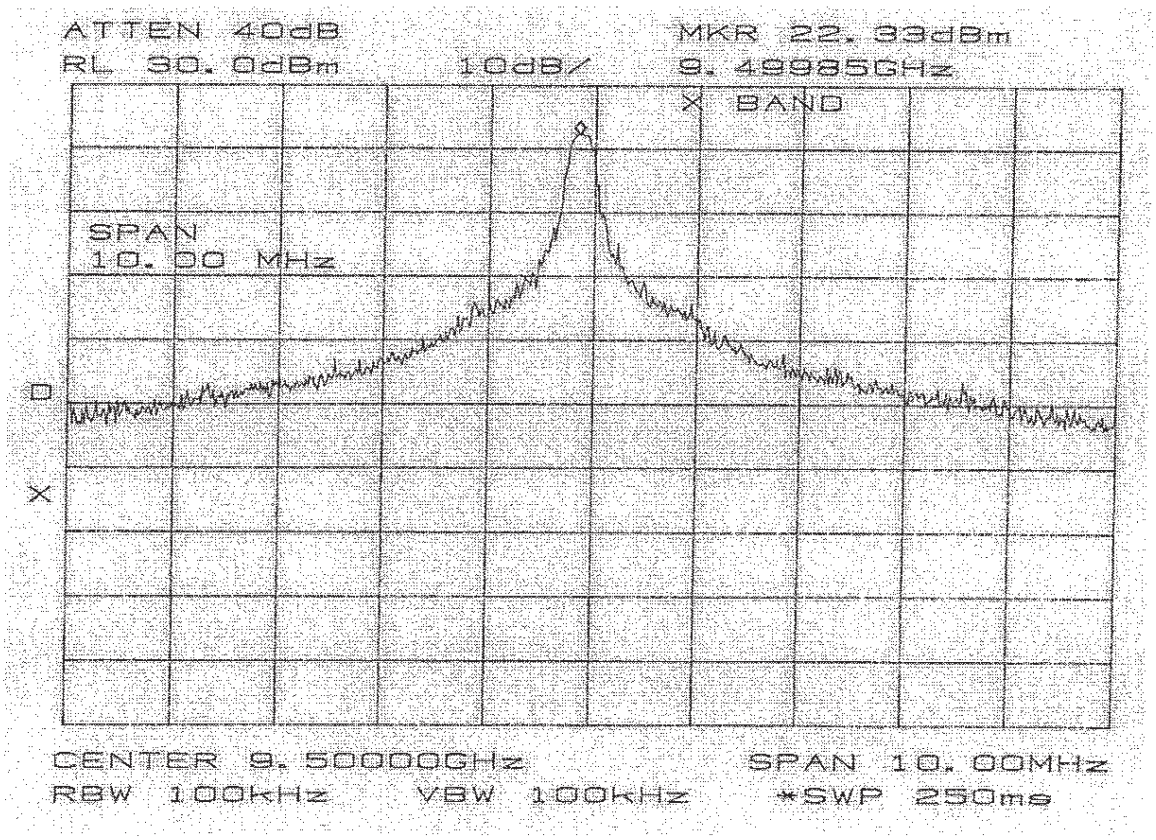

ATTEN 40dB
RL 28.0dBm
1dB/
MKR 25.60dBm
9.299947GHz
X BAND
MKR
9.299947 GHz
25.60 dBm
D
X
CENTER 9.300000GHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
*SWP 250ms

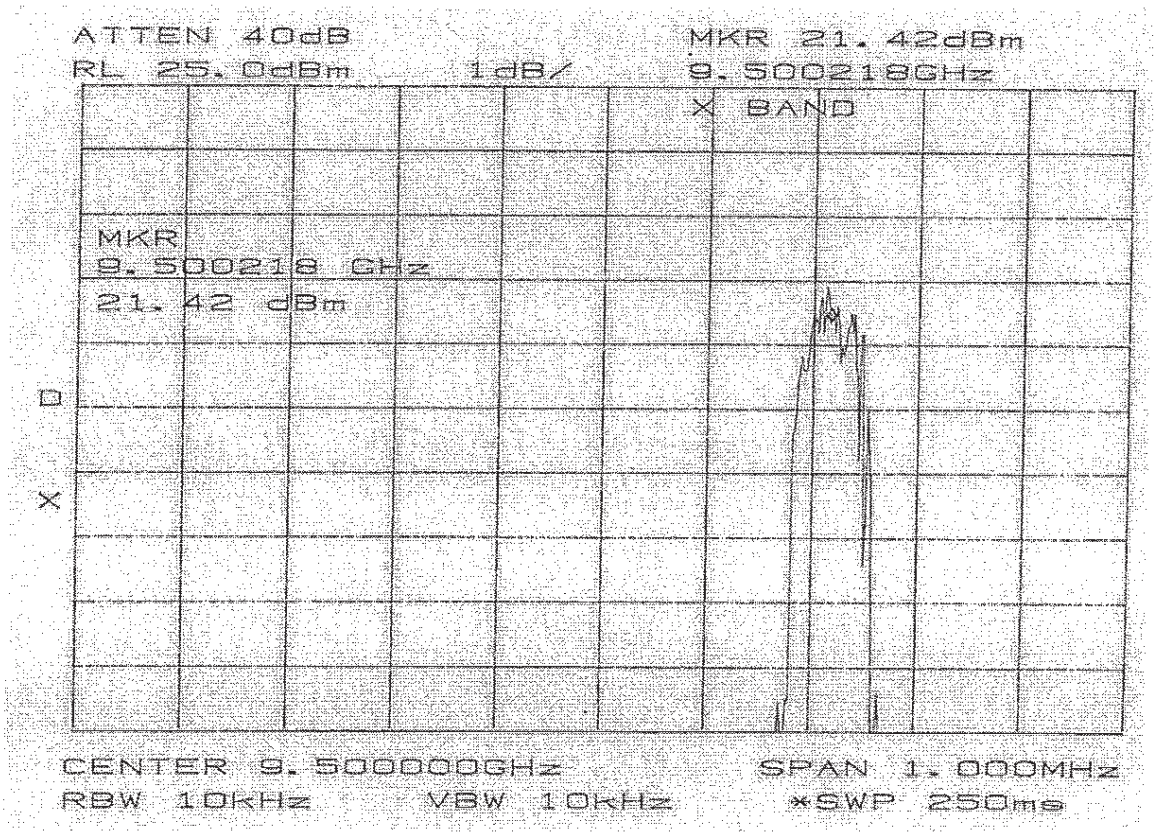

ATTEN 40dB
RL 28.0dBm
1dB/
MKR 26.12dBm
9.299900GHz
X BAND
REF LVL
28.0 dBm
D
X
CENTER 9.300000GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 26.33dBm
9.39992GHz
X BAND
SPAN
10.00 MHz
D
X
CENTER 9.400000GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms


ATTEN 40dB
RL 29.0dBm
1dB/
MKR 24.90dBm
9.400203GHz
X BAND
D
X
CENTER 9.400247GHz
SPAN 1.000MHz
RBW 10KHz
VBW 10KHz
*SWP 250ms


ATTEN 40dB
RL 28.0dBm
1dB/
MKR 26.18dBm
9.400156GHz
X BAND
D
X
CENTER 9.400000GHz
SPAN 10.000MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 22.33dBm
9.49985GHz
X BAND
SPAN
10.00 MHz
D
X
CENTER 9.50000GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms


ATTEN 40dB
RL 25.0dBm
1dB/
MKR 21.42dBm
9.5002180GHz
X BAND
MKR
9.500218 GHz
21.42 dBm
D
X
CENTER 9.5000000GHz
SPAN 1.000MHz
RBW 10kHz
VBW 10kHz
*SWP 250ms

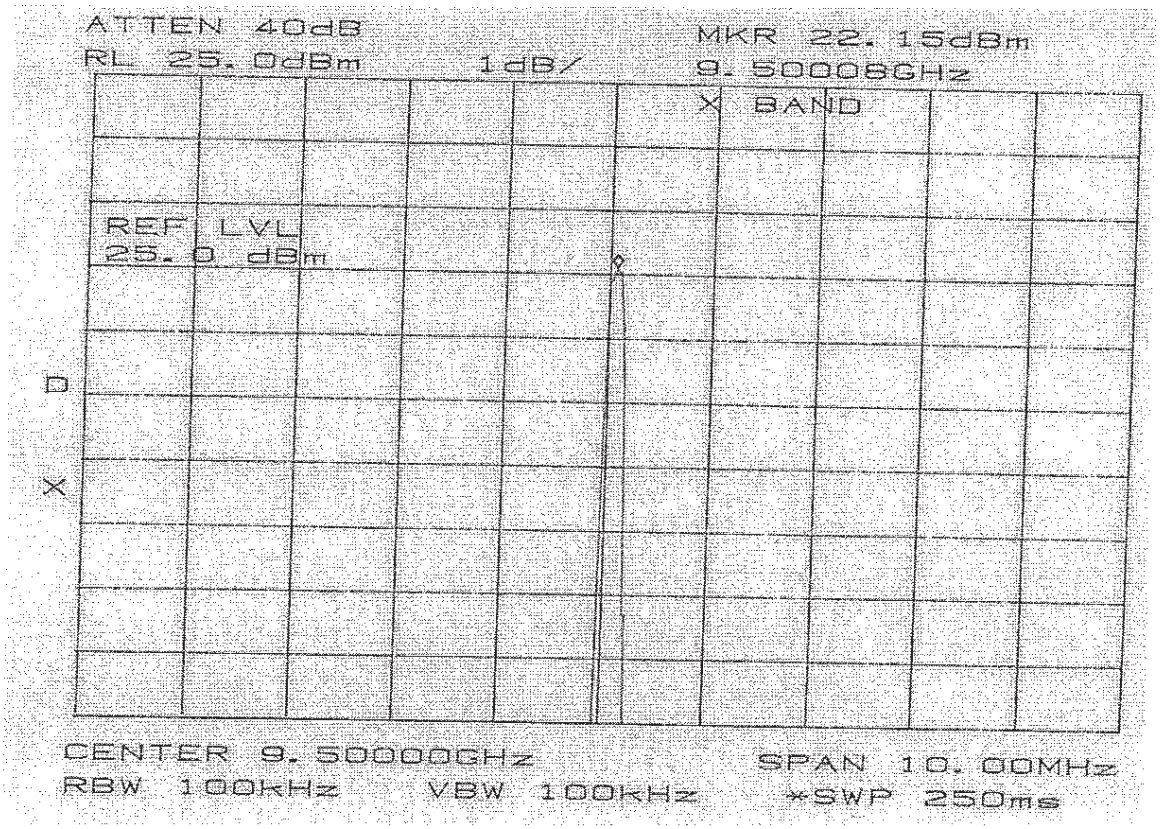

ATTEN 40dB
RL 25.0dBm
1dB/
MKR 22.15dBm
9.500086GHz
X BAND
REF LVL
25.0 dBm
D
X
CENTER 9.500000GHz
SPAN 10.00MHz
RBW 100kHz
VBW 100kHz
*SWP 250ms

EXHIBIT 1

FCC LABEL

As required by 2.983(f), a copy of a label containing the information which will be placed on the FCC label associated with this product is attached to this application.

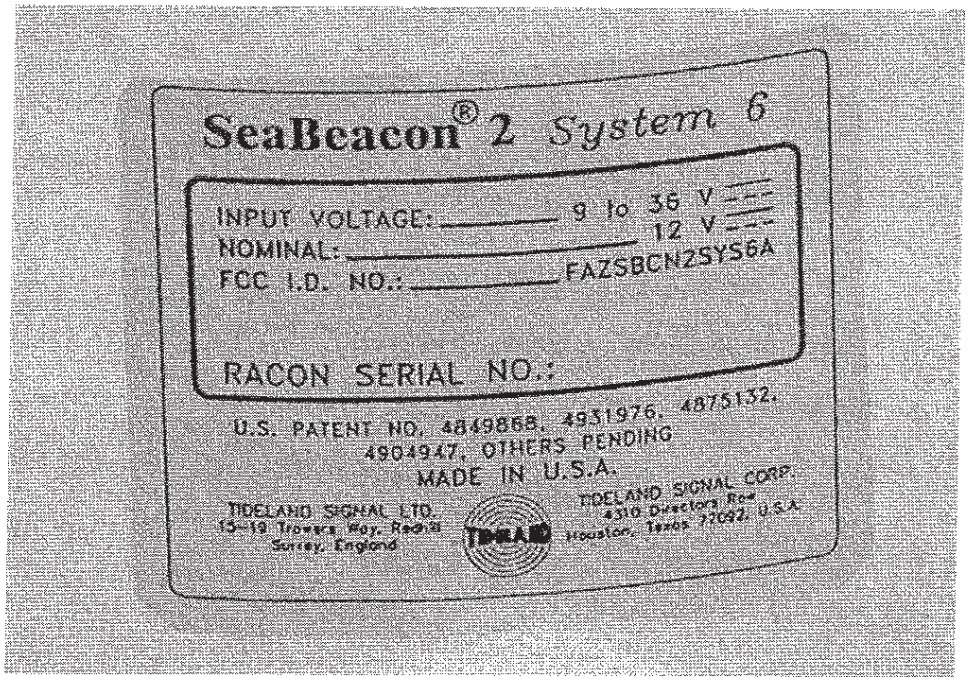
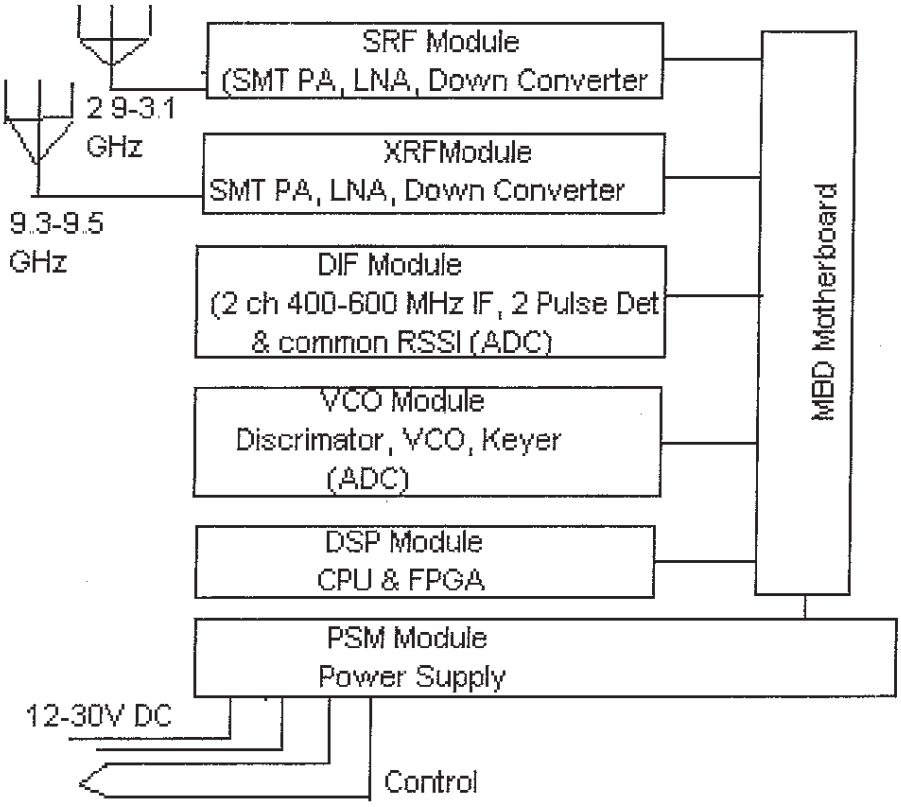


EXHIBIT 2

As required by 2.983(d)(7), the following is a copy of the block diagram and the complete circuit diagrams are an attachment to the application.



PHOTOGRAPHS

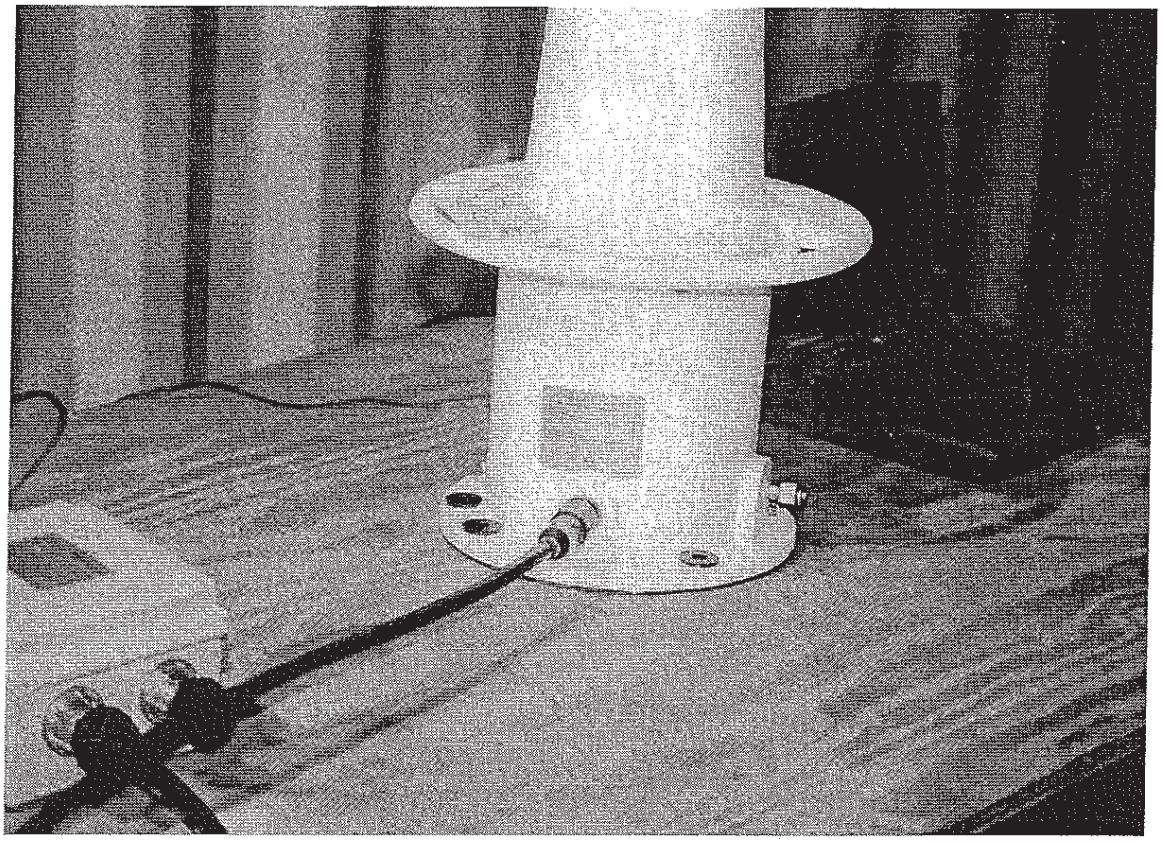
Attached are photos of the tested EUT.

WAYNE LANGSTON, INC.

Model: SeaBeacon 2 System 6 Racon
Date: 11-20-2002

FCC ID:FAZSBCN2SYS6A
Photographs
WLI Project: 20021807

Conducted Front View



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Model: SeaBeacon 2 System 6 Racon
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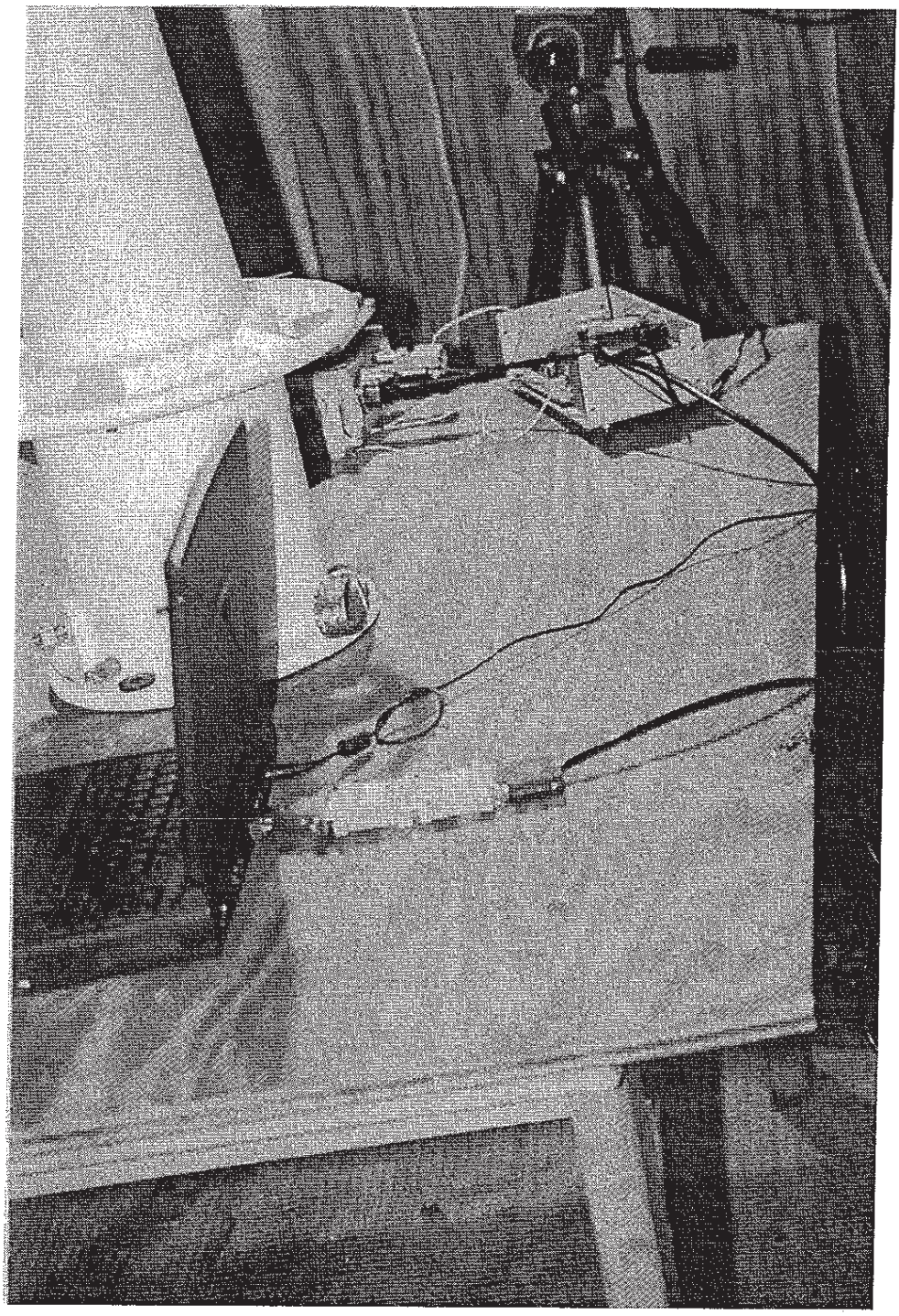
Conducted Rear View



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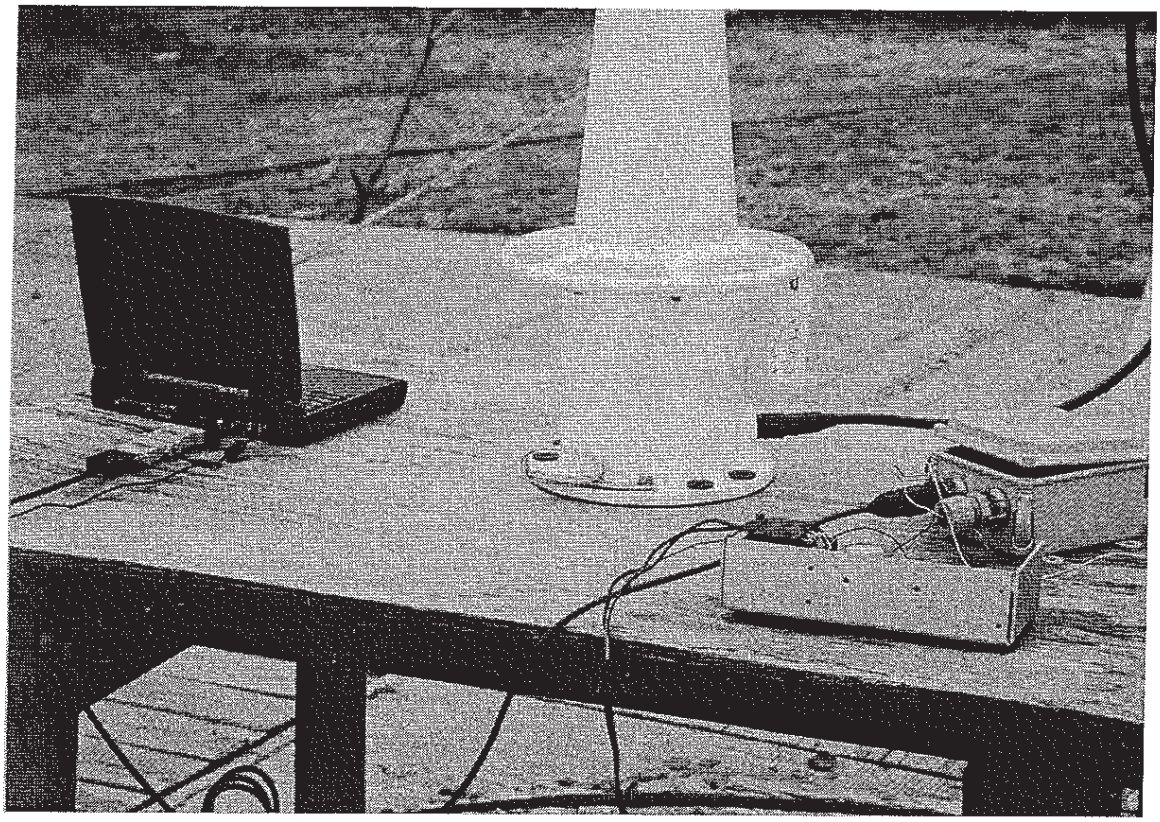
Radiated View



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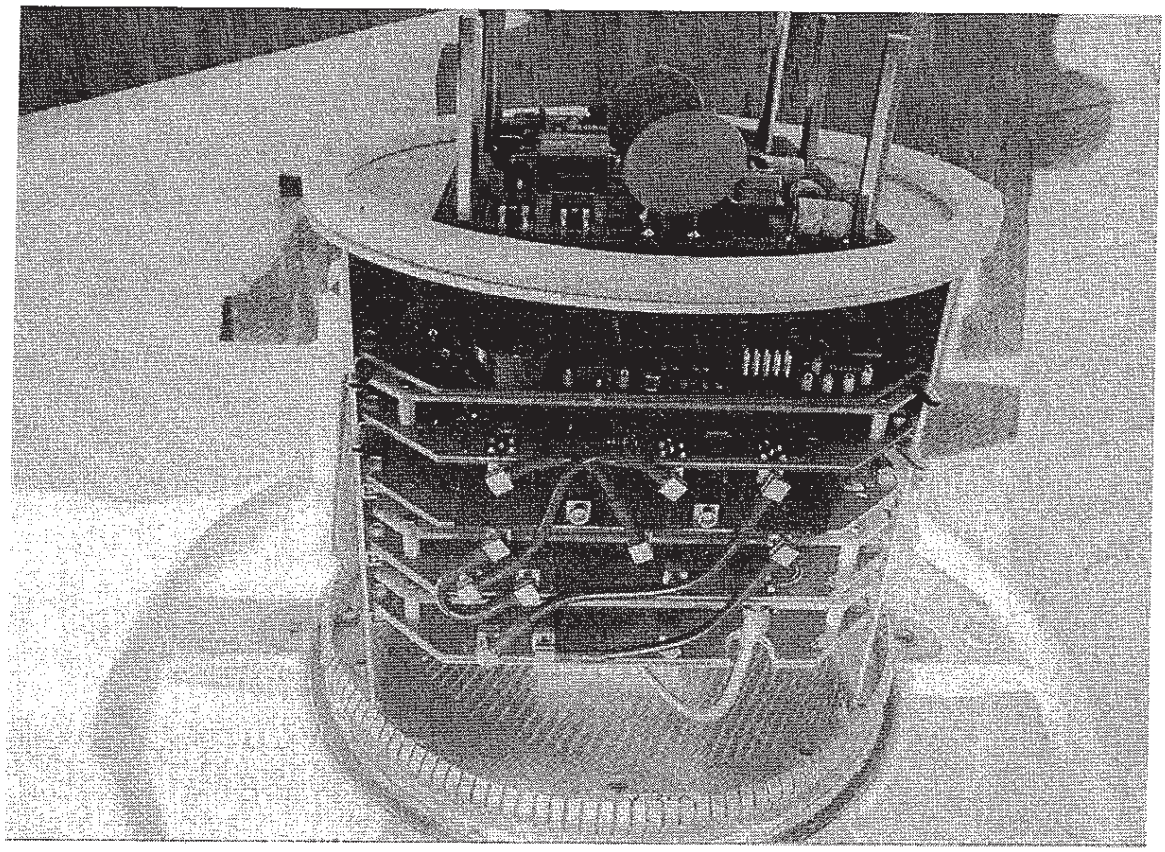
Internal View



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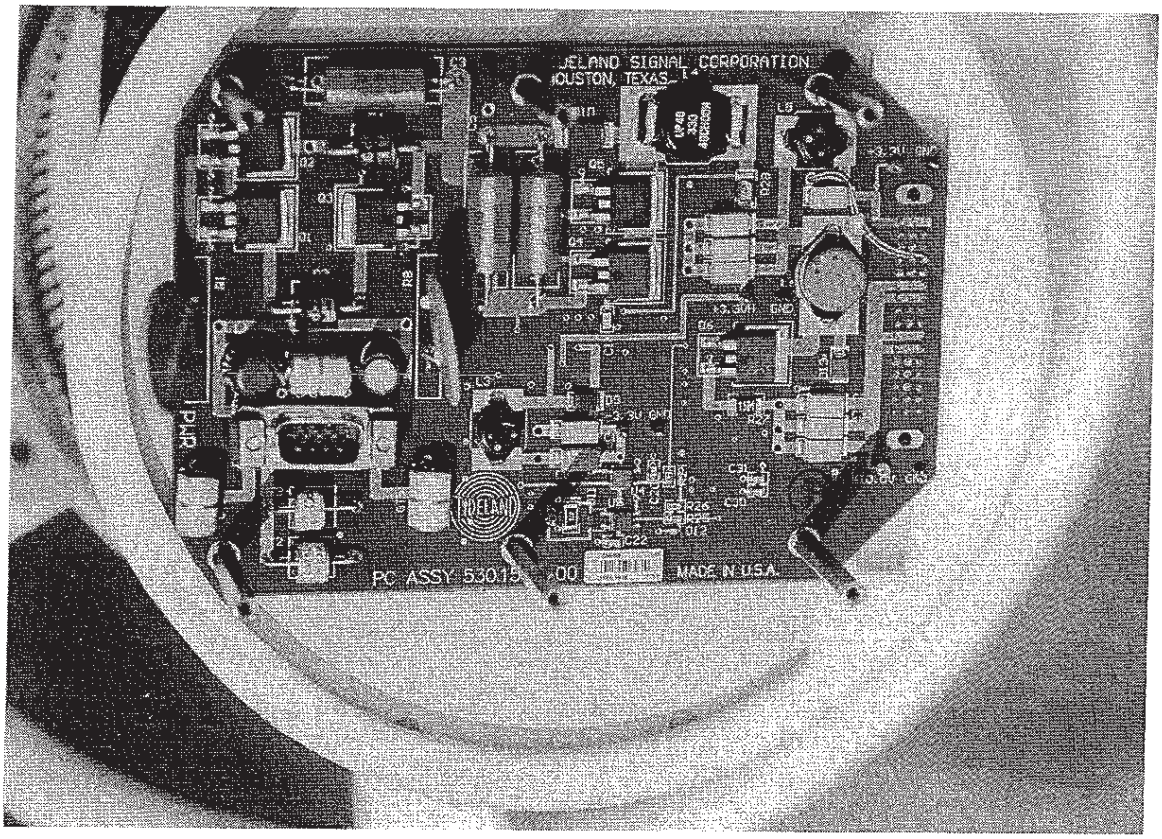
PC Board Views



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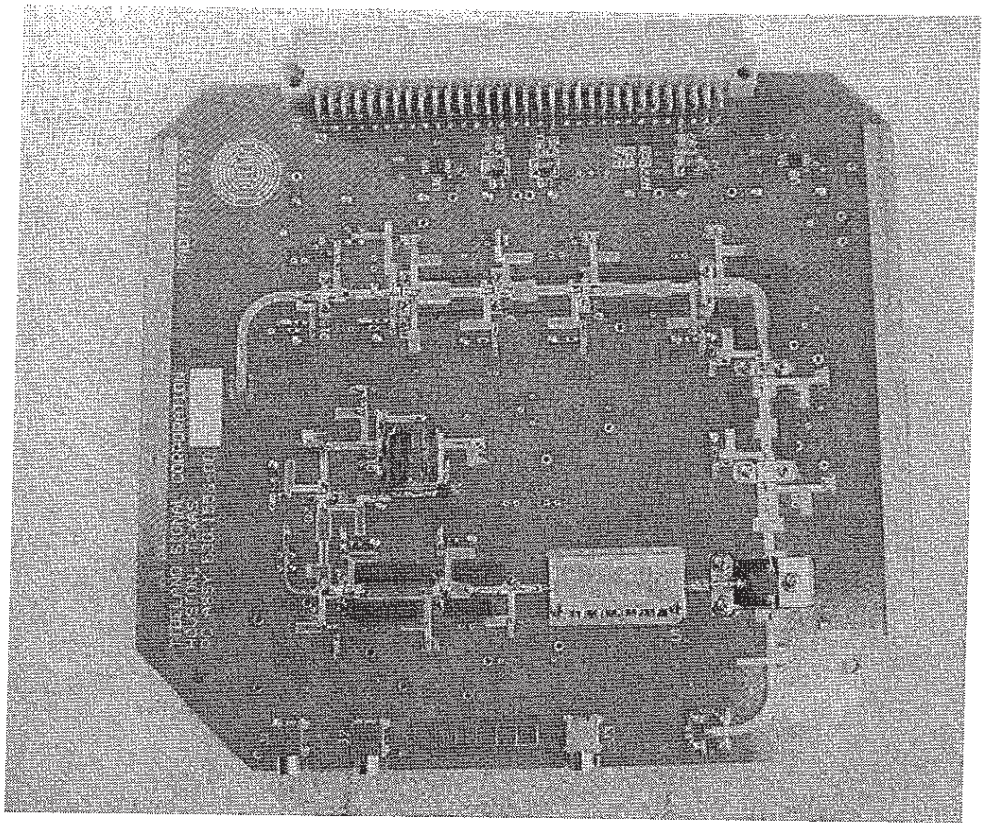

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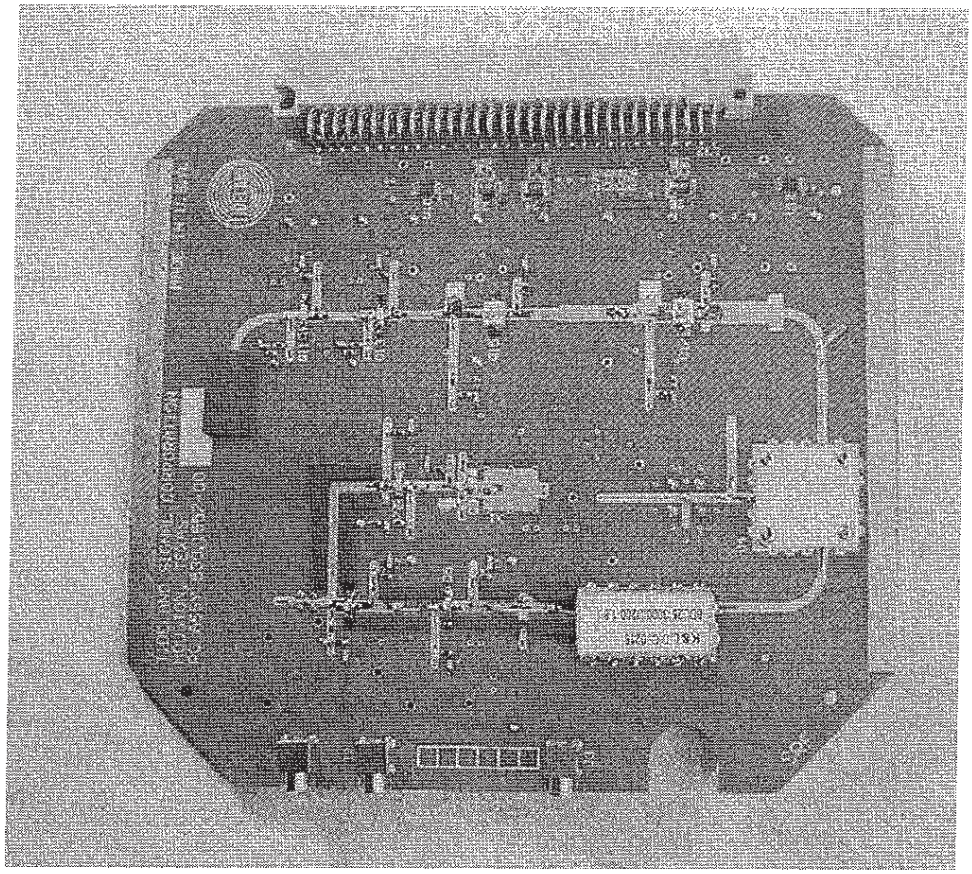

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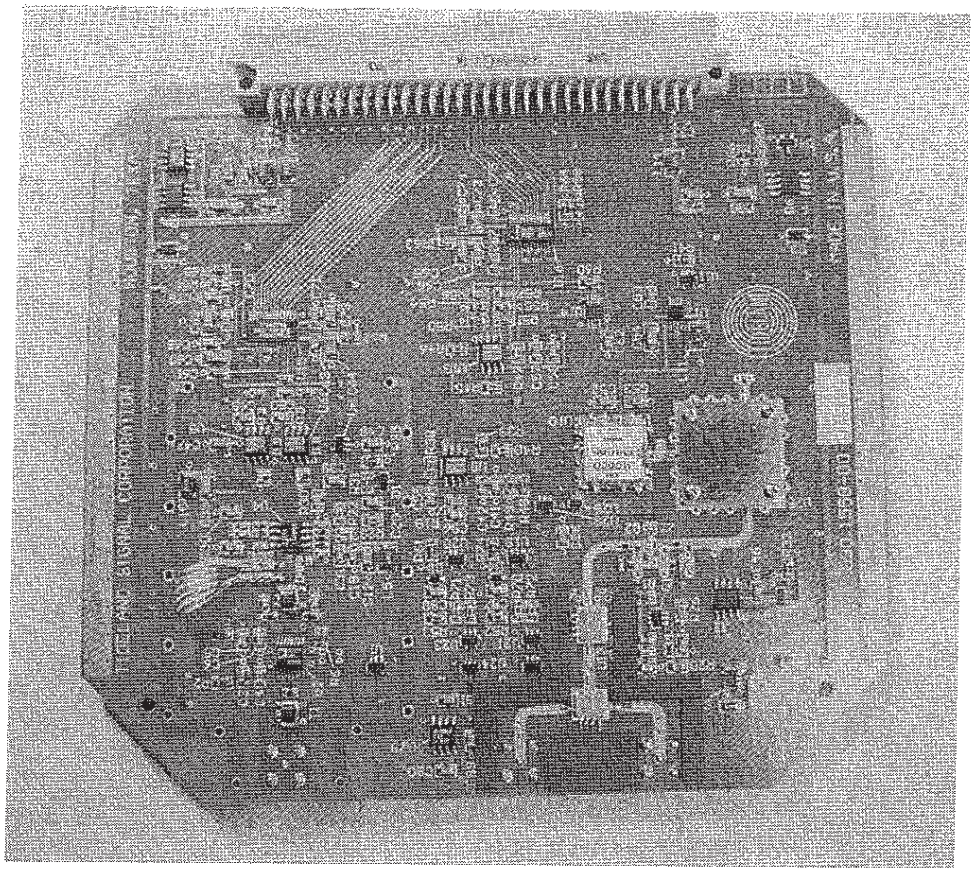

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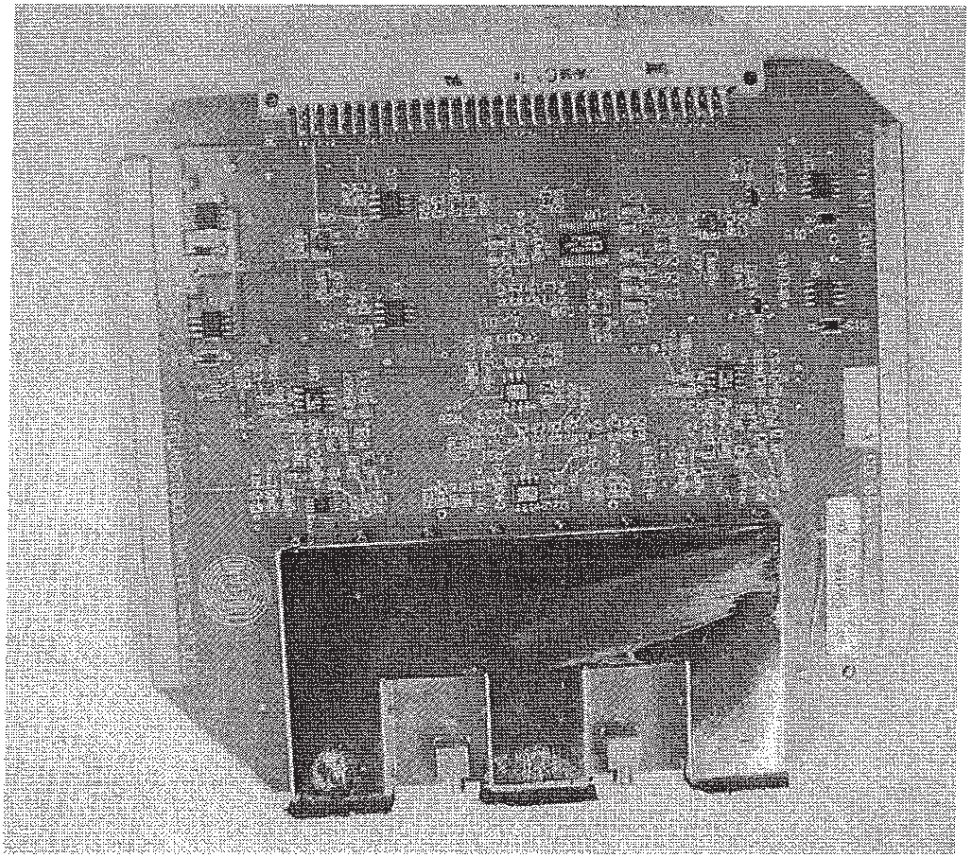
Model: SeaBeacon 2 System 6 Racon FCC ID:FAZSBCN2SYS6A

Date: 11-20-2002 Photographs

WLI Project: 20021807



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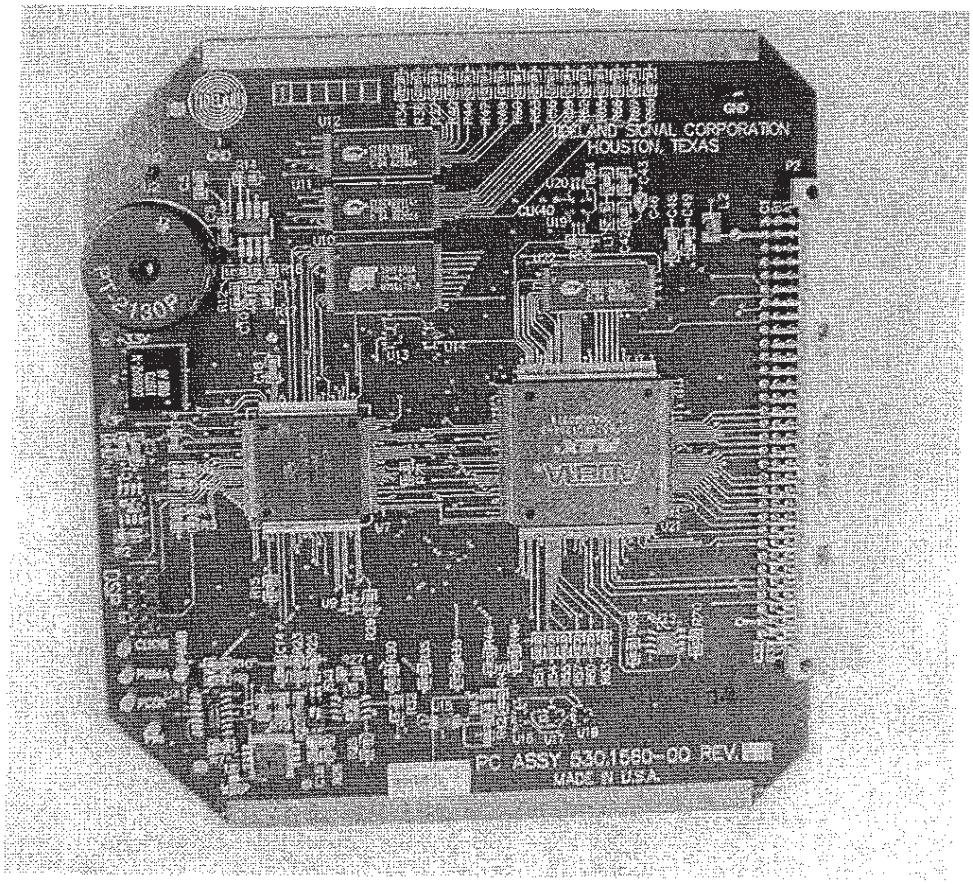

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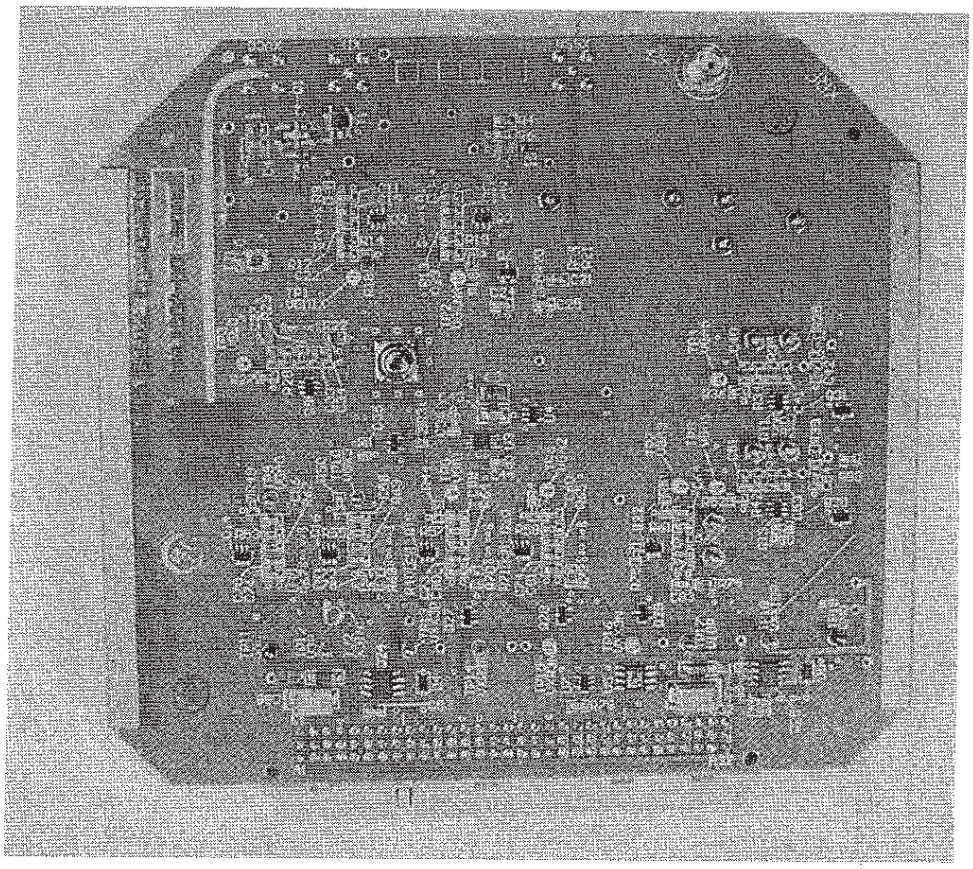

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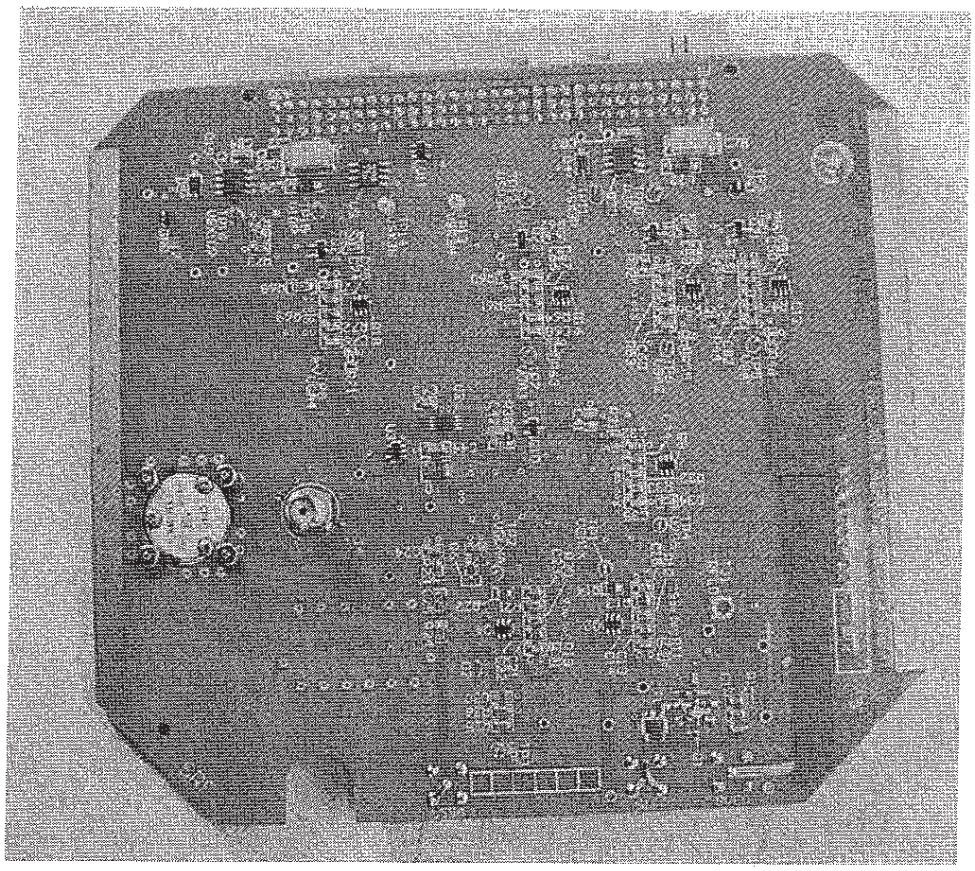

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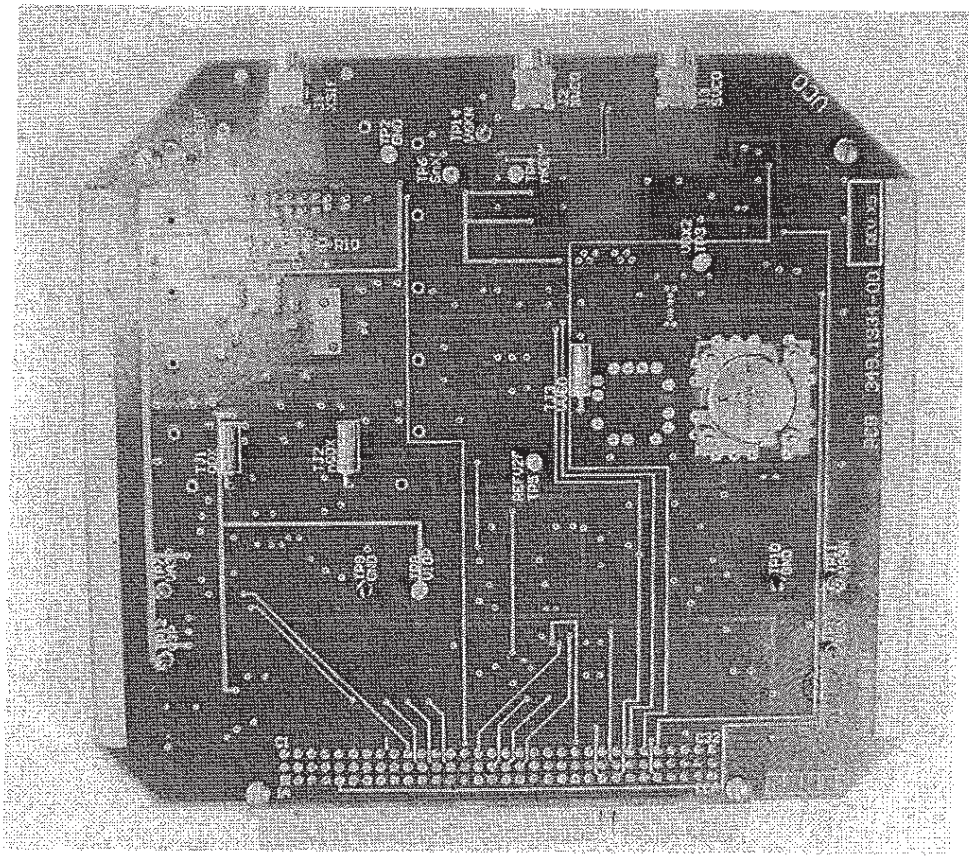

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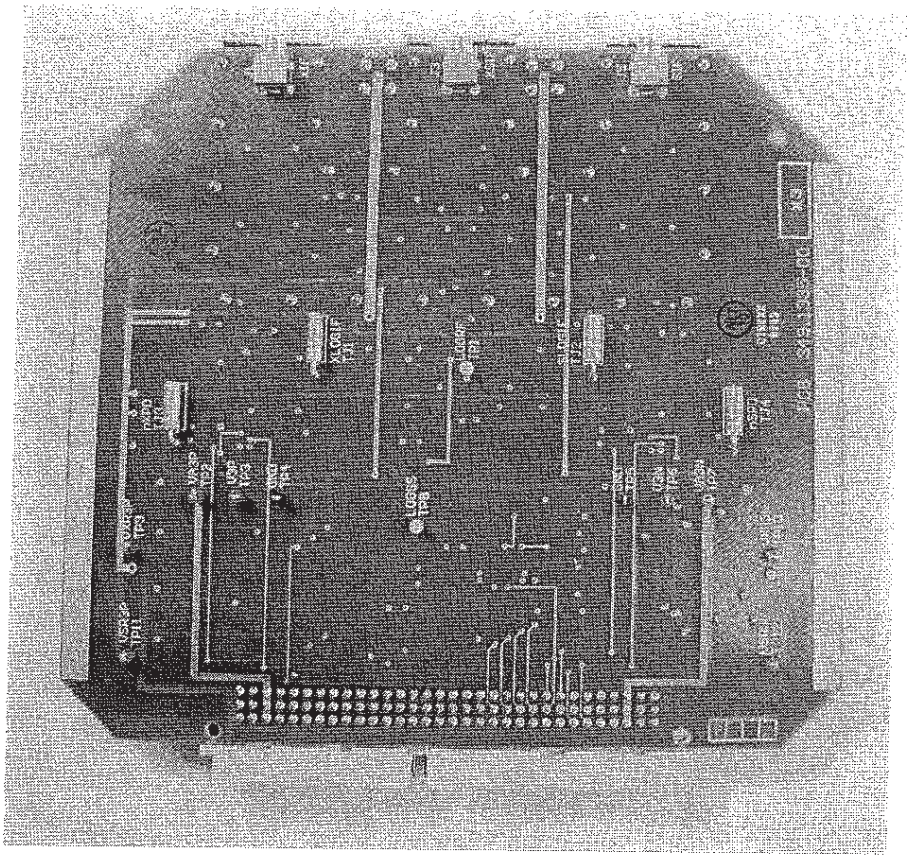

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