FCC CFR47 PART 22 SUBPART H CERTIFICATION

TEST REPORT

FOR

WIRELESS SUB-SYSTEM FOR CELLULAR OR PCS SYSTEM

MODEL: PICOBTS-800

FCC ID: NPVAVAL-PICO-800

REPORT NUMBER: 98U0033-1

ISSUE DATE: NOVEMBER 23,1998

Prepared for
AVAL COMMUNICATIONS INC.
Suite 300, 1777 N. California Blvd.
Walnut Creek, CA 94595-4173

Prepared by
COMPLIANCE ENGINEERING SERVICES, INC.
dBa
COMPLIANCE CERTIFICATION SERVICES
1366 BORDEAUX DRIVE
SUNNYVALE, CA 94089, USA
TEL: (408) 752-8166
FAX: (408) 752-8168

1. FCC CERTIFICATION INFORMATION

The following information is in accordance with FCC Rules, 47CFR Part 2, Subpart J, sections 2.983 - 2.999.

2.983(a) Applicant: AVAL COMMUNICATIONS INC.
Suite 300, 1777 N. California Blvd.
Walnut Creek, CA 94595-4173

2.983(b) FCC ID: NPVAVAL-PICO-800

2.983(c) Quantity production is planned.

2.983(d) **Technical Description**

The Picocell BTS includes 1 to 4 radio, one scanning receiver, a power supply module and master oscillator, and a BTS controller which includes T1 interface function. Only digital mode operation is supported, using full-rate traffic channels and a Digital Control Channel. The Wireless Station Base Unit is used in the 800 MHz Domestic Public Cellular Radiotelephone Communications Services. The system was tested using TIA/IS-136/IS-138, and will operate in digital mode at a maximum power output of 100 milliwatts. The system was tested for compliance with FCC Rule Part 15 and Part 22 Subpart H.

Each radio supports one RF carrier, which has 6 TDMA time slot. In the full-rate digital operation, slot 1&4 is designated as digital channel #1, slot 2&5 as digital channel #2, and slot 3&6 as digital channel #2 and #3 assigned as Digital Traffic Channels (DTCs). The DCCH shall support private system registration functions as specified in IS-136A

In call processing, whether it is origination or paging, the Wireless Base Station Unit (WBSU) is a slave unit under the control of the Wireless Office Service Controller (WOSC), which controls one or more Picocell BTSs. The WOSC communicates with each Picocell BTS using a dedicated control time slot (per Picocell BTS) on the T1 interface. This control interface is designated Abis, in that it is similar in nature to the interface between BTS and BSC in the GSM standard. The main duty of the controller function within the Picocell BTS is as a message translator between the air interface messages and the Abis interface messages.

For more information on the unit please refer to manual included.

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(1) Types of Emissions

DIGITAL= 40K0DXW {TDMA (π/4 DQPSK)}

(2) Frequency Range

Transmitter: 869.04 – 893.97 MHz
Receiver: 824.04 – 848.97 MHz

(3) Range of Operating Power

-8dBm to +20dBm (Maximum)
.158mW to 100mW (Maximum)

(4) Maximum Power Rating

Section 22.913(a); base transmitters and cellular repeaters must not exceed 500 Watts.

(5) Applied voltages and currents into the final transistor elements

6 Vdc @ 400 mA

(6) List of each Active Device:

10.1 DSP1: ADSP-2183-KST-210
10.2 DSP2: ADSP-2185L-KST-210 (presently unpopulated)
10.3 DSP3: TMS320LC548PGE-80
10.4 Digital to Analog converter: AD6582AR
10.5 Digital to Analog converter: TLC5615
10.6 Analog to Digital converter: TLC1196-2BCS8
10.7 I/Q modulator: AD7011ARS
10.8 Flash Memory: AM29LV004T-120
10.9 Bus Controller Buffer: SM74AHC244PW
10.10 Low Noise Amplifier: AM50-0001
10.11 Bus Controller Switch: IDT74FST3384PG
10.12 Switching Regulator: LT1507
10.13 OCXO: 970-2197-0 (+/- 0.25ppm)
10.14 RISC: IDT79R36100-25-MS
10.15 CPLD: EPM7128SQC100-15

(7) Complete Circuit Diagrams and Functional Block Diagram

Refer **Attachment: Schematics and Parts list.** Confidentiality is requested for these items.

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(8) Instructions/Installation Manual

Refer to **Attachment: Installation and Service manual.**

(9) Tune-up/Optimization Procedure

Refer to **Attachment: Installation and Service manual.**

(10) Means for Frequency Stabilization

A 9.6 MHz Ovenized reference Oscillator (OCXO) is used. The OCXO has frequency drift of +/- 0.25ppm

(11) Means for Limiting Modulation

DSP

(11) Means for Limiting Power

DSP

(11) Means for Attenuating Higher Audio Frequencies

Built-in filters in Radio and Branching Board.

(12) Description of Digital Modulation Techniques

Digital Mode: TDMA (π/4 DQPSK)

2.983(e) Standard Test Conditions

The transmitter was tested under the following conditions:

Room Temperature: 20 - 23 °C
Relative Humidity: 35 - 50%
DC Supply Voltage: 24 to 48Vdc

The transmitter was aligned and tuned up according to manufacturer's alignment procedure, prior to testing. All data presented represents the worst case parameter being measured.

Section 2.983(f) Equipment Identification

A drawing of the equipment identification nameplate appears under **Attachment: PROPOSED FCC ID LABEL FORMAT.**

Section 2.983(g) Photographs

Photographs of the equipment, internal and external views, are found in the **Attachment: Eut Photographs.**

Section 2.983 Description of Various Base Station Configurations

Not applicable.

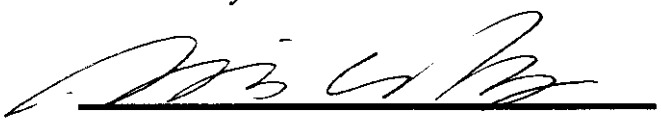
Section 2.983 Use of Various Power Supplies

Ac Adapter Input: 120Vac, 60Hz: Output: 48Vdc
Dc power supply form 24 to 48 Vdc

TYPE OF EQUIPMENT:	WIRELESS SUB-SYSTEM FOR CELLULAR OR PCS SYSTEM
MEASUREMENT DISTANCE:	3 METER
TECHNICAL LIMIT:	FCC 22.917, IS-138A
FCC RULES:	PART 2, PART 15, PART 22, and IS-138A
EQUIPMENT AUTHORIZATION PROCEDURE	CERTIFICATION
MODIFICATIONS MADE ON EUT	☐ YES (REFER TO PAGE 7) ☐ NO

The above equipment was tested by Compliance Certification Services for compliance with the requirements set forth in the FCC CFR 47, PART 15 AND 22. The results of testing in this report apply to the product/system, which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Reviewed By



MIKE C.I. KUO / VICE - PRESIDENT
COMPLIANCE CERTIFICATION SERVICES

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2. TEST FACILITY

The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

3. ACCREDITATION AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code:200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT(1300F2))

4. MEASUREMENT INSTRUMENTATION

Radiated emissions were measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, BI-log, ridged waveguide, and liner horn. EMI receivers were used for line conducted readings, spectrum analyzers with pre-selectors and quasi-peak detectors were used to perform radiated measurements. Receiving equipment (i.e., receiver, analyzer, quasi-peak adapter, pre-selector) and LISNs conform to CISPR specification for "Radio Interference Measuring Apparatus and Measurement Methods," Publication 16.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

5. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

6. UNITS OF MEASUREMENT

Measurements of radiated interference are reported in terms of dB(uV/m) at a specified distance. The indicated readings on the spectrum analyzer were converted to dB(uV/m) by

use of appropriate conversion factors. Measurements of conducted interference are reported in terms of dB(uV).

The field strength is calculated by adding the Antenna Factor and Cable Factors, then by subtracting the Amplifier Gain from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG

Where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor
CF = Cable Attenuation Factor
AG = Amplifier Gain

Assume a receiver reading of 52.5 dBuV is obtained. The Antenna Factor of 7.4dB/m and a Cable Factor of 1.1dB is added. The Amplifier Gain of 29 dB is subtracted, giving a field strength of 32 dBuV/m. The 32 dBuV/m value was mathematically converted to its corresponding level in uV/m.

FS = 52.5 + 7.4 + 1.1 - 29 = 32 dBuV/m

Level in uV/m = Common Antilogarithm [(32 dBuV/m)/20] = 39.8 uV/m

7. CLASSIFICATION OF DIGITAL DEVICE

Class A includes digital devices that are marketed for use in commercial, industrial or business environments, excluding devices which are marketed for use by the general public or are intended to be used in the home.

Class B includes digital devices that are marketed for use in residential environments, notwithstanding use in commercial, business and industrial environments.

Note: The responsible party may also qualify a device intended to be marketed in a commercial, business or industrial environment as Class B device, and in fact is encouraged to do so provided the device complies with the technical specifications for a Class B digital device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B digital device, regardless of its intended use.

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8. RADIATED EMISSION LIMITS

FCC PART 15 CLASS A

MEASURING DISTANCE OF 10 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBuV/m)
30-88	90	39.1
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

FCC PART 15 CLASS B

MEASURING DISTANCE OF 3 METER		
FREQUENCY RANGE (MHz)	FIELD STRENGTH (Microvolts/m)	FIELD STRENGTH (dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

FCC RADIATED EMISSION ALTERNATIVE METHOD
(CISPR 22/EN55022)

Limits for radiated disturbance of Class A ITE at
measuring distance of 10 m

Frequency range (MHz)	Quasi-peak limits dB(uV/m)
30 to 230	40
230 to 1000	47

NOTES
1. The lower limit shall apply at the transition frequency.
2. Additional provisions may be required for cases where interference occurs.

Limits for radiated disturbance of Class B ITE at
Measuring distance of 10 m

Frequency range (MHz)	Quasi-peak limits dB(uV/m)
30 to 230	30
230 to 1000	37

NOTES
1. The lower limit shall apply at the transition frequency.
2. Additional provisions may be required for cases where interference occurs.

9. RADIATED EMISSION TEST PROCEDURE

The EUT and all other support equipment are placed on a wooden table 80-cm above the ground screen. Antenna to EUT distance is 3 meters . During the test, the table is rotated 360 degrees to maximize emissions and the antenna is positioned from 1 to 4 meters above the ground screen to further maximize emissions. The antenna is polarized in both vertical and horizontal positions.

EUT test configuration is according to Section 8 of ANSI C63.4/1992.

Monitor the frequency range of interest at a fixed antenna height and EUT azimuth. Frequency span should be small enough to easily differentiate between broadcast stations and intermittent ambients. Rotate EUT 360 degrees to maximize emissions received from EUT. If emission increases by more than 1 dB, or if another emission appears that is greater by 1 dB, return to azimuth where maximum occurred and perform additional cable manipulation to further maximize received emission.

Move antenna up and down to further maximize suspected highest amplitude signal. If emission increased by 1 dB or more, or if another emission appears that is greater by 1dB or more, return to antenna height where maximum signal was observed and manipulate cables to produce highest emissions, noting frequency and amplitude.

10. CONDUCTED EMISSION LIMITS

FCC CLASS A

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBuV)/QP
450kHz-1.705MHz	1000	60
1.705MHz - 30MHz	3000	69.54

FCC CLASS B

FREQUENCY RANGE	FIELD STRENGTH (Microvolts)	FIELD STRENGTH (dBuV)/QP
450kHz-30MHz	250	48

FCC CONDUCTED EMISSION ALTERNATIVE METHOD (CISPR 22/EN55022)

Limits for conducted disturbance at the mains ports of Class A ITE

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	79	66
0.5 to 30	73	60
Note- The lower limit shall apply at the transition frequency.		

Limits of Conducted disturbance at the mains ports
of Class B ITE

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note
1.The lower limit shall apply at the transition frequencies
2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

11. CONDUCTED EMISSION TEST PROCEDURE

The EUT is located so that the distance between the boundary of the EUT and the closest surface to the LISN is 0.8m.

EUT test configuration is according to Section 7 of ANSI C63.4/1992.

Conducted disturbance shall be measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz (or 0.150 - 30 MHz in case of CISPR 22/EN55022 method) shall be investigated.

Set the EMI receiver to PEAK detector setting and sweep continuously over the frequency range to be investigated. Set resolution bandwidth to 9kHz minimum. Connect EMI receiver input cable to LINE 1 RF measurement connection on the LISN. Connect a 50ohm terminator to the unused RF connection on the LISN. For each mode of EUT operation, maximize emissions readings by manipulating cable and wire positions. Record the configuration for each EUT power cord, which produces emissions closest to the limit. Repeat the same procedure for LINE 2 of each EUT power cord.

12. AMBIENT CONDITIONS

The ambient conditions at the time of final tests were as follows:

	Radiated Emission	Conducted Emission
Temperature	17°C	21°C
Humidity	81%	62%

13. EQUIPMENT MODIFICATIONS

Not Applicable

14. A) TEST EQUIPMENT LIST

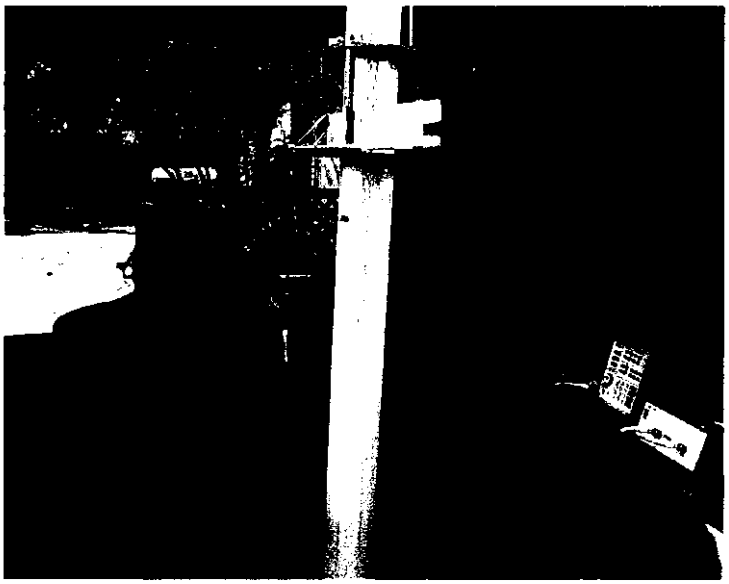
Equipment	Manufacturer	Model No.	Serial No.	Site	Cal Date	Due Date
Spectrum Analyzer	H.P.	8593EM	3710A00205	A	05/98	05/99
Antenna	Eaton	94455-1	1197	B	10/98	10/99
Antenna	Emco	3146	2120	B	10/98	10/99
Horn Antenna	EMCO	3115	9001-3245	A	12/97	12/00
Pre-Amp	H.P.(P2)	8447D	2944A06550	A	09/98	09/99
Pre-Amp	H.P. (1-26.5GHz)	8449B	3008A00369	A	04/98	04/99

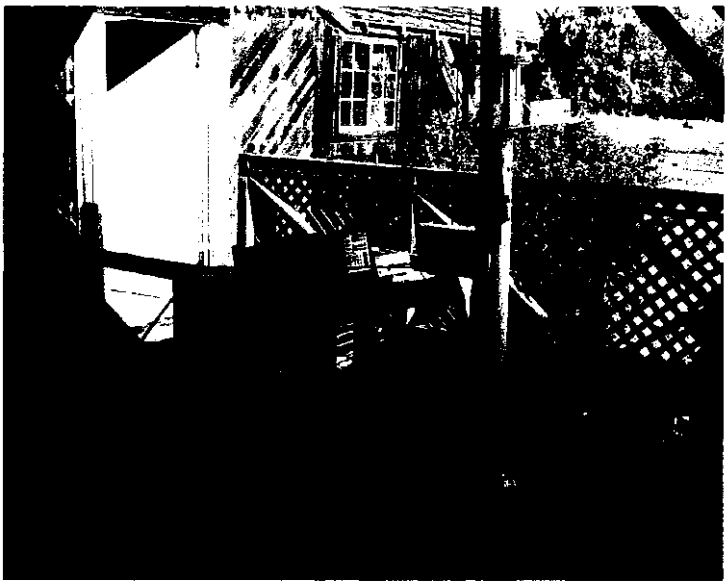
B) SUPPORT EQUIPMENT

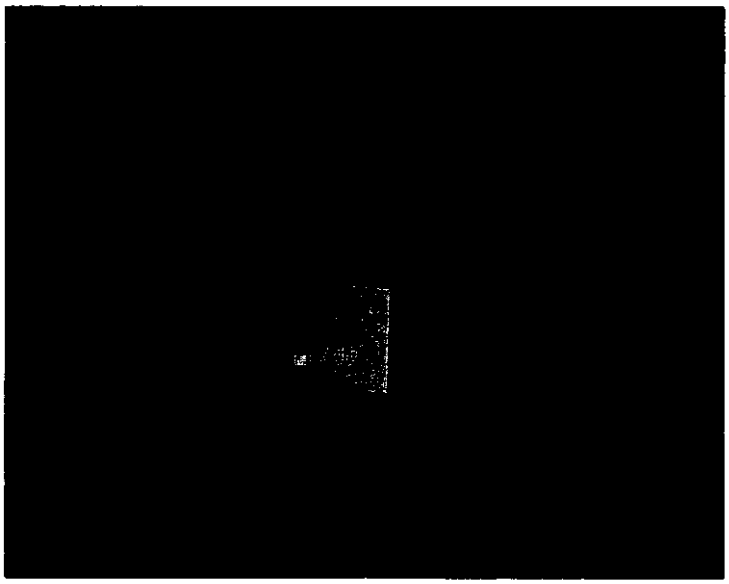
Device Type	Manufacturer	Model Number	Serial No.	FCC ID / DoC
LAPTOP	NEC	PC-6100-41402	5Y001048	A3DP8
HIGH POWER ATTENUATOR	NARDA	766-10	4800	N/A
AC POWER SUPPLY	AULT	PW102	N/A	N/A

15. EUT SETUP PHOTOS

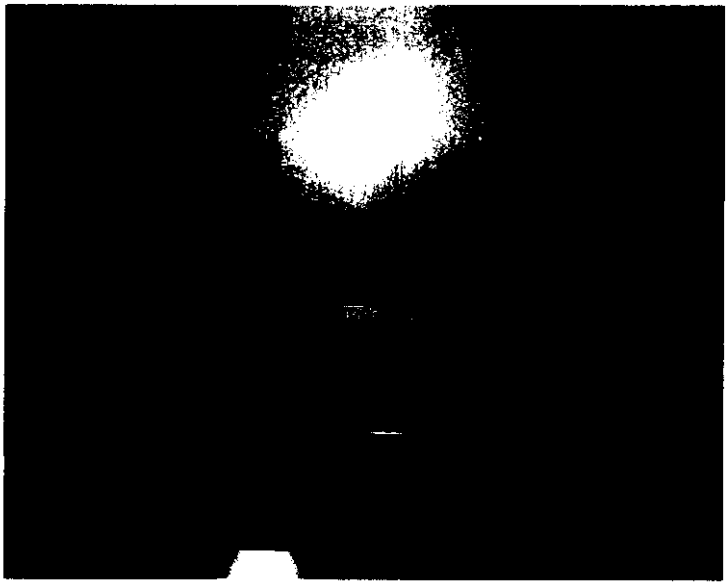
RADIATED EMISSION TEST SETUP

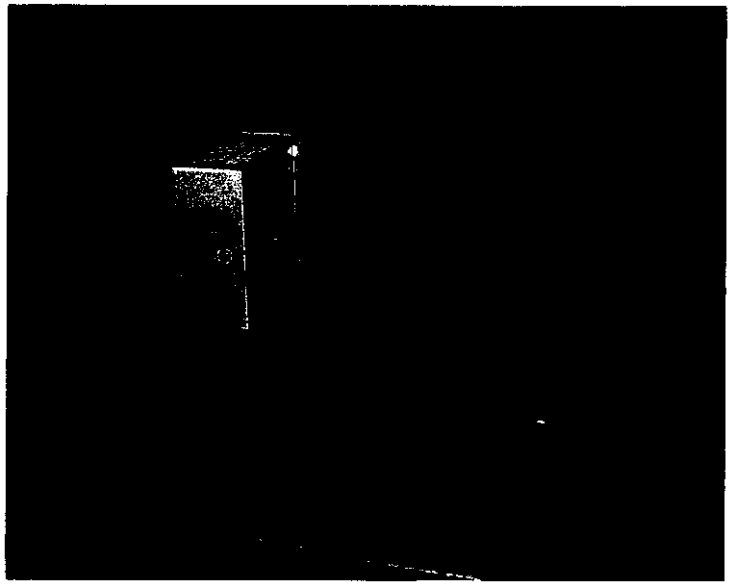




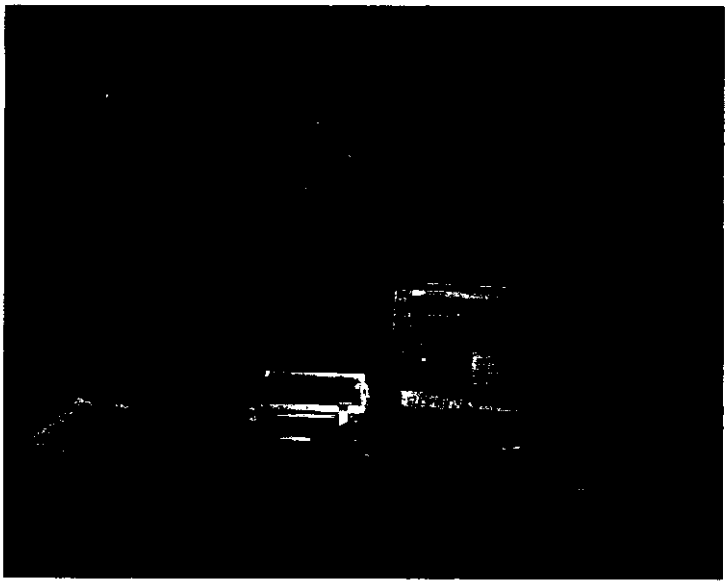


CONDUCTED EMISSION TEST SETUP





MAIN ANTENNA PORT



DVSTY ANTENNA PORT

16. TEST RESULT SUMMARY FOR PART 15.

FCC PART 15 Radiated Emission Test was conducted by operating the configuration as indicated below.

WIRELESS BASE STATION UNIT							
OATS No: B-SITE	Data Report No. 981123B1		Date 11/23/98		Tested By: JUAN MARTINEZ		
Six Highest Radiated Emission Readings							
Frequency Range Investigated			30 MHz TO 1000 MHz				
Freq. (MHz)	Meter Reading (dBuV)	C.F. (dB/m)	Corrected Reading (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Reading Type (P/Q/A)	Polar (H/V)
518.4	36.6	-4.84	31.76	37.0	-5.24	P	H
40.96	42.2	-14.94	27.26	30.0	-2.74	P	V
74.65	43.7	-19.29	24.41	30.0	-5.59	P	V
212.99	37.4	-12.24	25.16	30.0	-4.48	P	V
222.34	40.33	-12.64	27.69	30.0	-2.31	P	H
222.34	39.4	-12.0	27.40	30.0	-2.60	Q	V

C.F.(Correction Factor)=Antenna Factor + Cable Loss-Amplifier Gain
Corrected Reading = Metering Reading + C.F. Margin = Corrected Reading - Limits
P= Peak Reading H= Horizontal Polarization/Antenna
Q= Quasi-peak V= Vertical Polarization/Antenna
A= Average Reading
Comments: N/A

17. FCC PART 15 FINAL CONDUCTED EMISSION TEST was conducted by operating the configuration as indicated below.

Conducted Room	Plot No. N/A		Date 5/14/98		Tested By: Juan Martinez	
Six Highest Conducted Emission Readings						
Frequency Range Investigated			**450 kHz TO 30 MHz**			
Freq. (MHz)	**Meter Reading (dBuV)**	**C.F. (dB)**	**Corrected Reading (dBuV/m)**	**Limits (dBuV/m)**	**Margin (dB)**	**Reading Type (P/Q/A)**	**Line (L1/L2)**
.176	48.7	0	48.7	54.7	-6.0	P	L1
.221	42.9	0	42.9	52.8	-9.9	P	L1
3.95	41.7	0	41.7	46.0	-4.3	P	L1
3.77	39.8	0	39.8	46.0	-6.2	P	L1
.175	43.6	0	43.6	54.7	-11.1	P	L2
.151	40.4	0	40.4	55.9	-15.5	P	L2

C.F.(Correction Factor)=Insertion Loss + Cable Loss
Corrected Reading = Metering Reading + C.F.
Margin = Corrected Reading - Limits
P= Peak Reading L1=Hot
Q= Quasi-peak L2=Neutral
A= Average Reading

Comments: N/A

Compliance Engineering Services Inc.

Project No. : 98U0033-1
Report No. : 981123B1
Date : 11/23/1998
Time : 10:10
Test Engr : JUAN MARTINEZ

>> 10 M RADIATED EMISSION DATA <<

Company : AVAL COMMUNICATIONS INC
Equipment Under Test : WIRELESS BASE STATION UNIT
Test Configuration : EUT
Type of Test : EN55022 CLASS B
Mode of Operation : RX/T1

Freq.	dBuV	PreAmp	Ant	Cable	dBuV/m	Limit	Margin	Pol	Hgt(m)	Az
518.40	36.60	-27.90	17.67	5.39	31.76	37.00	-5.24	H	1.6	225
40.96	42.20	-27.72	11.17	1.61	27.26	30.00	-2.74	V	1.0	180
74.65	43.70	-27.62	6.36	1.96	24.41	30.00	-5.59	V	1.6	135
212.99	37.40	-27.07	11.47	3.36	25.16	30.00	-4.84	V	1.0	90
222.34	40.33	-27.01	10.95	3.42	27.69	30.00	-2.31	H	3.6	0
MEASUREMENT BELOW IS QUASI-PEAK:										
222.34	39.40	-27.01	11.59	3.42	27.40	30.00	-2.60	V	1.0	0

Total # of data 6
V. b2.2

J.M.

OMPLIANCE ENGINEERING SERVICES INC.

23. Nov 98 17:38

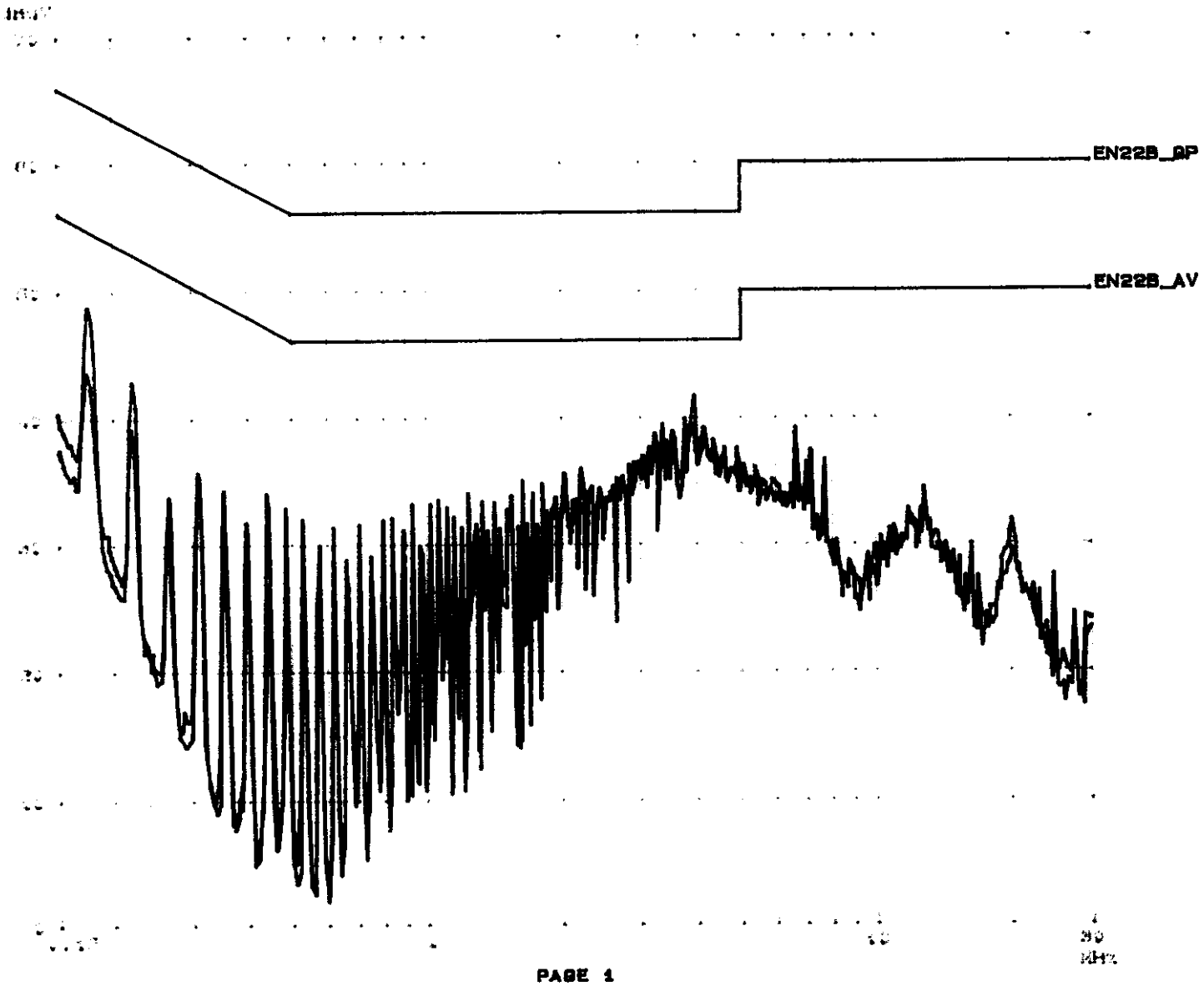
RFI VOLTAGE

EUT: WIRELESS BASE STATION UNIT (PICOBTS-800)
Manuf: AVAL COMMUNICATIONS
Op Cond: T1/NORMAL
Operator: JUAN MARTINEZ
Test Spec: EN55022 CLASS B
Comment: LINE: HOT (RED), NEUTRAL (BLUE)
120Vac, 60Hz

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	500k	1k	10k	PK	100ms	AUTO	LN OFF	80dB
500k	30M	10k	10k	PK	20ms	AUTO	LN OFF	80dB

Transducer No.	Start	Stop	Name
1	10k	30M	FISCHER



18. EXTERNAL I/O CABLE CONSTRUCTION DESCRIPTION

CABLE NO:1	
I/O Port: : TI	Number of I/O ports of this type:1
Number of Conductors: 8	**Connector Type: TI**
Capture Type: SNAP-IN	**Type of Cable used: SHIELDED**
Cable Connector Type: METAL	**Cable Length:30M (B-SITE UNDERGROUND)**
Bundled During Tests: NO	**Data Traffic Generated: YES**
Remark: B-SITE UNDERGROUND SHIELDED CABLE	

CABLE NO:2	
I/O Port:: DC-INPUT	Number of I/O ports of this type:1 (AC ADAPTOR)
Number of Conductors: 2	**Connector Type: USA POWER PLUG**
Capture Type: PUSH-IN	**Type of Cable used: UNSHIELDED**
Cable Connector Type: PLASTIC	**Cable Length:1.6M**
Bundled During Tests: NO-RADIATED YES- LINE CONDUCTED	**Data Traffic Generated: NO**
Remark: N/A	

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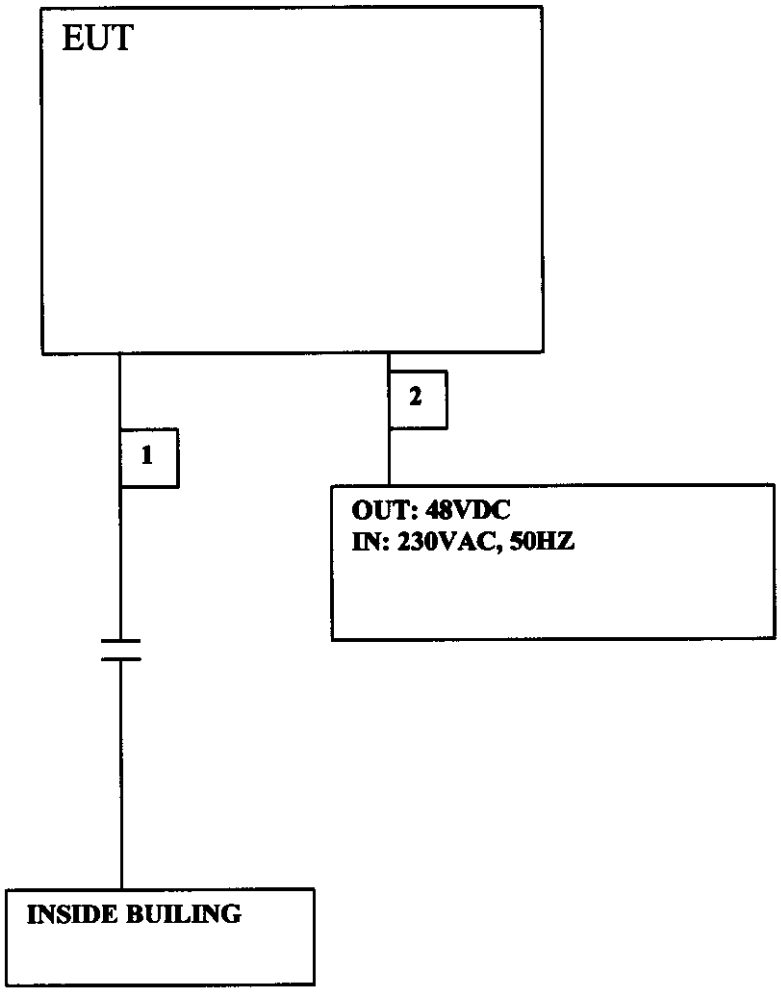
19. CONFIGURATION BLOCK DIAGRAM



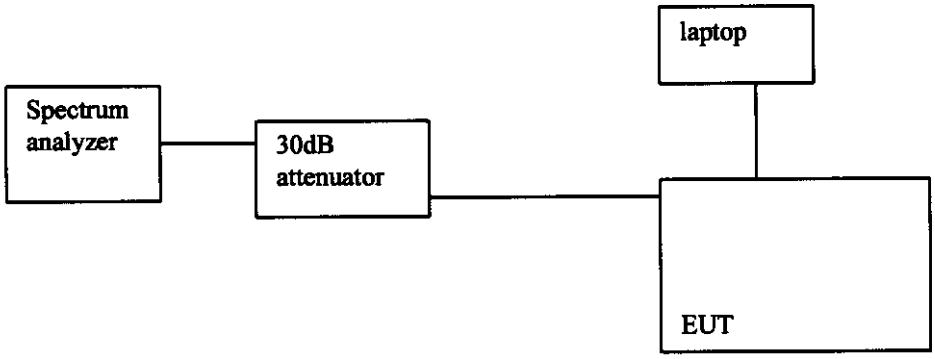
20. FCC PART 2 CERTIFICATION TEST RESULTS:

SECTION 2.1046 (was section 2.985): RF POWER OUTPUT

Equipment used.

HP Spectrum Analyzer/8593EM
Narda 30dB Attenuator
Flexco low loss cables, 9ft. (Loss: 0.85 dB/ft @ 26GHz)
NEC laptop computer.

TEST SETUP:



Minimum Requirement:

Section 22.913(a); Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

Test Procedure:
Turn on the EUT and connected the transmitter antenna output to spectrum analyzer using a low loss cable. RES b/w. was set to 30kHz or 100kHz and adjusted spectrum analyzer to center frequency at the highest amplitude appearing on spectral display. Then set spectrum analyzer frequency span to show signal on spectrum analyzer. This test was done for low, middle, and high channel at both the **MAIN** antenna port and **DVSTY** antenna port

Test Result:
Power was measured with Spectrum analyzer. Plots of power output are included

MAIN ANTENNA PORT

RF POWER OUPUT PLOTS		
		PLOT NUMBER
LOW:	20dBm (0.1 W)	1
MIDDLE:	20dBm	2
HIGH:	20dBm	3

DVSTY ANTENNA PORT

RF POWER OUPUT PLOTS		
		PLOT NUMBER
LOW:	20dBm (0.1 W)	4
MIDDLE:	20dBm	5
HIGH:	20dBm	6

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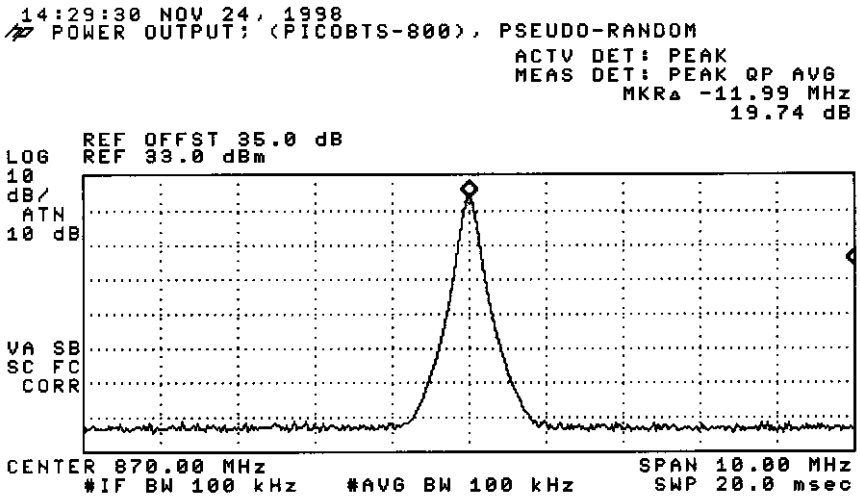
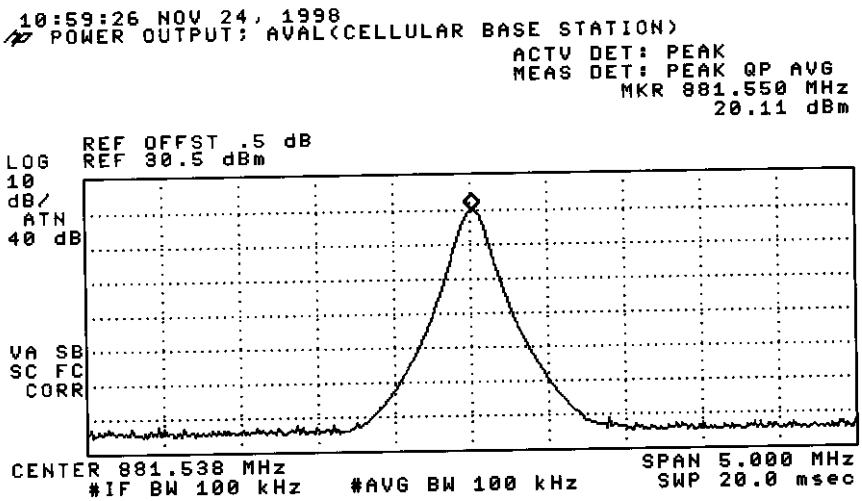
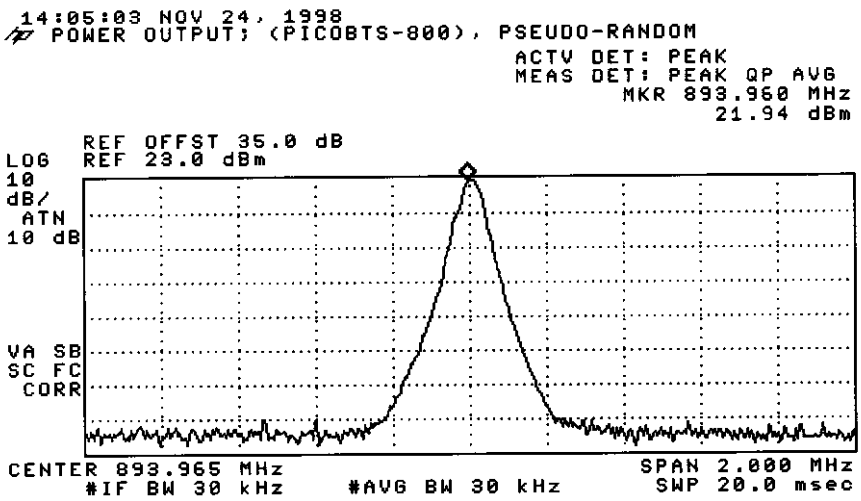
#1


14:29:30 NOV 24, 1998
POWER OUTPUT: (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -11.99 MHz
19.74 dB
REF OFFST 35.0 dB
LOG REF 33.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 870.00 MHz
SPAN 10.00 MHz
#IF BW 100 kHz
#AVG BW 100 kHz
SWP 20.0 msec

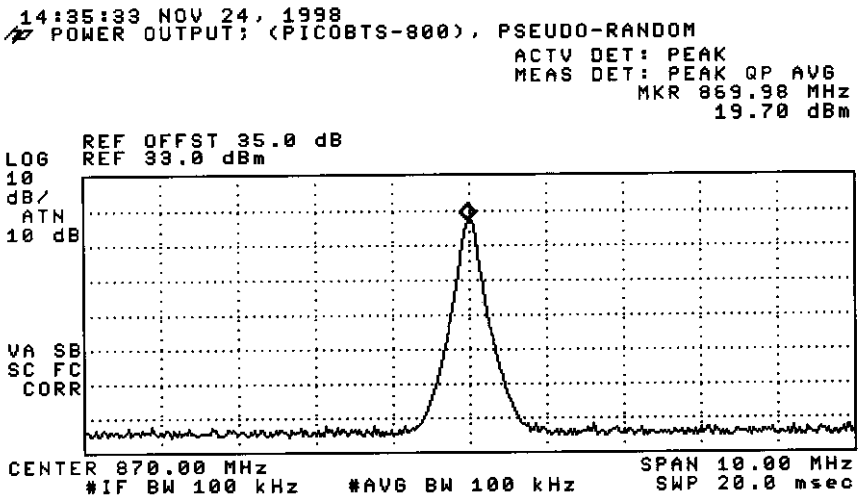
#2


10:59:26 NOV 24, 1998
POWER OUTPUT: AVAL(CELLULAR BASE STATION)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 881.550 MHz
20.11 dBm
REF OFFST .5 dB
LOG
REF 30.5 dBm
10
dB/
ATN
40 dB
VA SB
SC FC
CORR
CENTER 881.538 MHz
#IF BW 100 kHz
#AVG BW 100 kHz
SPAN 5.000 MHz
SWP 20.0 msec

#3

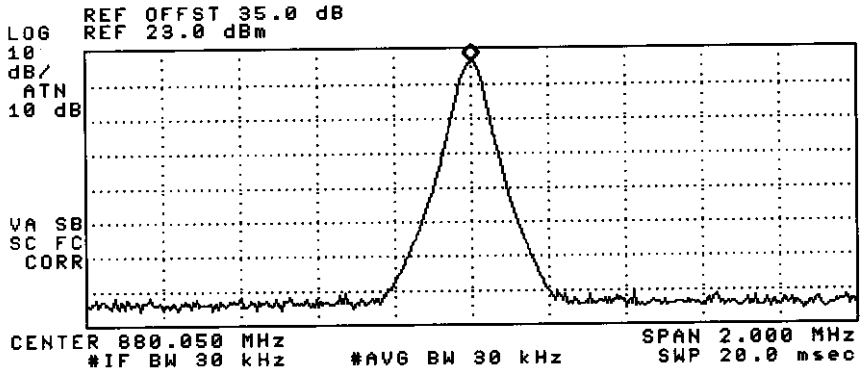

14:05:03 NOV 24, 1998
POWER OUTPUT; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 893.960 MHz
21.94 dBm
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 23.0 dBm
VA SB
SC FC
CORR
CENTER 893.965 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 2.000 MHz
SWP 20.0 msec

#4


14:35:33 NOV 24, 1998
POWER OUTPUT: (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 869.98 MHz
19.70 dBm
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 33.0 dBm
VA SB
SC FC
CORR
CENTER 870.00 MHz
SPAN 10.00 MHz
#IF BW 100 kHz
#AVG BW 100 kHz
SWP 20.0 msec

#5

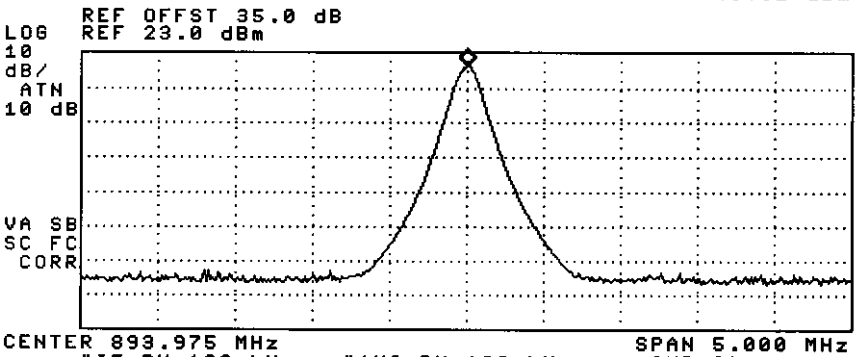
14:55:54 NOV 24, 1998
POWER OUTPUT: (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 880.050 MHz
19.20 dBm



CENTER 880.050 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 2.000 MHz
SWP 20.0 msec

#6

15:20:47 NOV 24, 1998
POWER OUTPUT; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 893.975 MHz
19.01 dBm



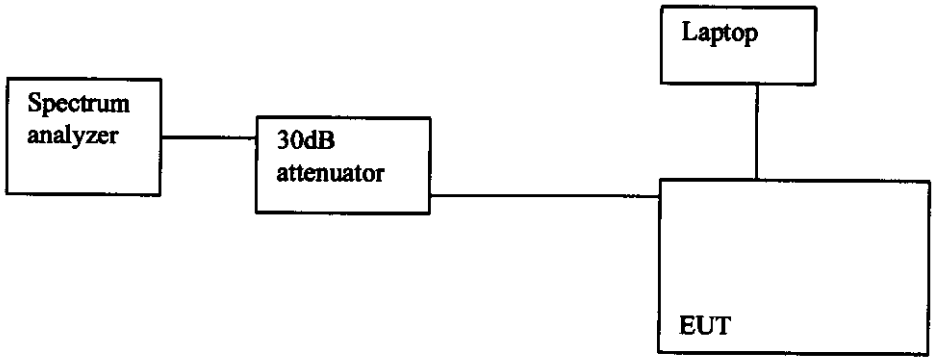
CENTER 893.975 MHz
#IF BW 100 kHz
#AVG BW 100 kHz
SPAN 5.000 MHz
SWP 20.0 msec

SECTION 2.1047(was Section2.987): MODULATION CHARACTERISTICS

Equipment used.

HP Spectrum Analyzer/8593EM
Narda 30dB Attenuator
Flexco low loss cables, 9ft. (Loss: 0.85 dB/ft @ 26GHz)
NEC Laptop Computer.

TEST SETUP:



Minimum requirement:

Section 2.987 (d), for other type of equipment, a curve or equivalent data which shows that equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

Test procedure:
For this device, only digital TDMA ($\pi/4$ DQPSK) is used by Eut. The RF carrier was modulated with a test software, TDMA ($\pi/4$ DQPSK) as specified in IS-138A. Since digital is used and no analog, frequency response of Eut was not performed. Test was performed both at **MAIN** and **DVSTY** antenna port.

Test result:
Included are plots of the digital TDMA modulation for low, middle, and high channel showing the 20dB bandwidth.

MAIN ANTENNA PORT

		PLOT NUMBER
LOW:	20dB BANDWIDTH	7
MIDDLE:	20dB BANDWIDTH	8
HIGH:	20dB BANDWIDTH	9

DVSTY ANTENNA PORT

		PLOT NUMBER
LOW:	20dB BANDWIDTH	10
MIDDLE:	20dB BANDWIDTH	11
HIGH:	20dB BANDWIDTH	12

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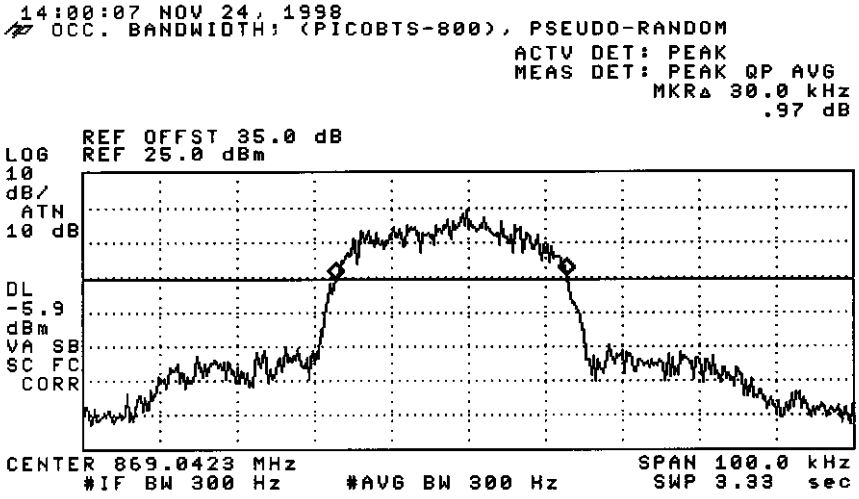
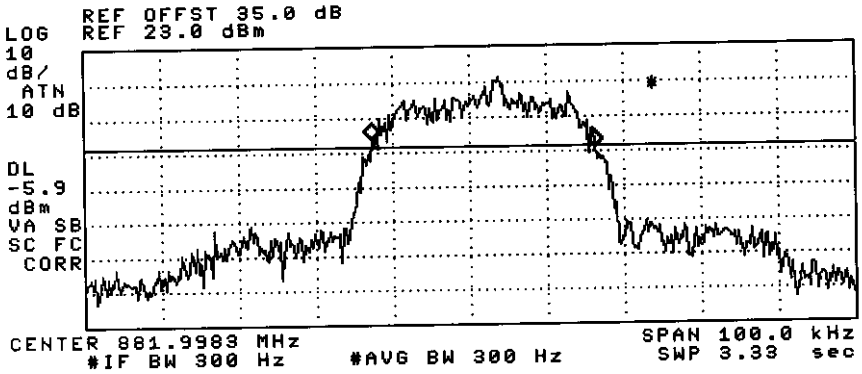
#7

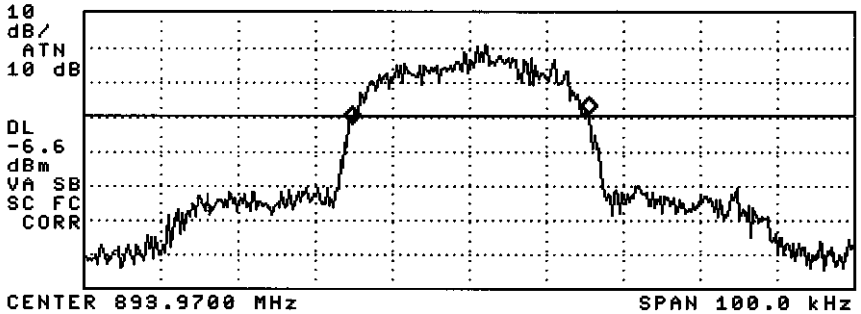

14:00:07 NOV 24, 1998
OCC. BANDWIDTH; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
.97 dB
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 25.0 dBm
DL
-5.9
dBm
VA SB
SC FC
CORR
CENTER 869.0423 MHz
SPAN 100.0 kHz
#IF BW 300 Hz
#AVG BW 300 Hz
SWP 3.33 sec

14:27:02 NOV 24, 1998
OCC. BANDWIDTH: (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 29.0 kHz
-2.79 dB



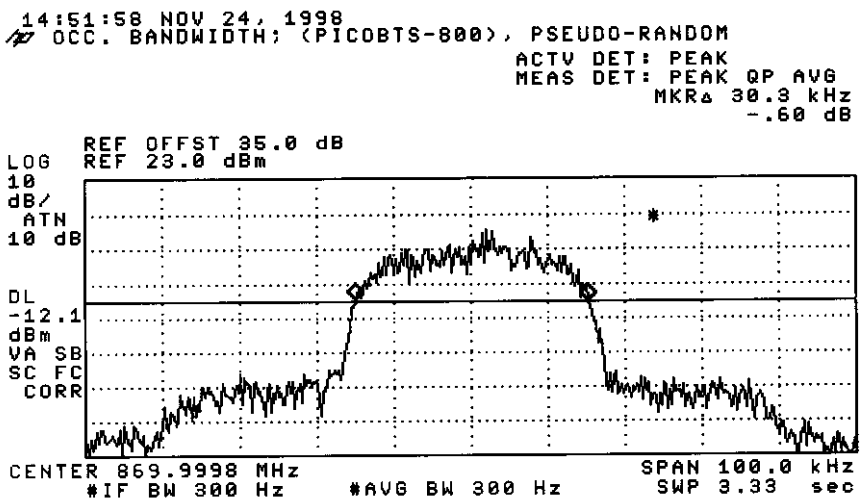
#9

14:16:59 NOV 24, 1998
OCC. BANDWIDTH; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.8 kHz
2.95 dB



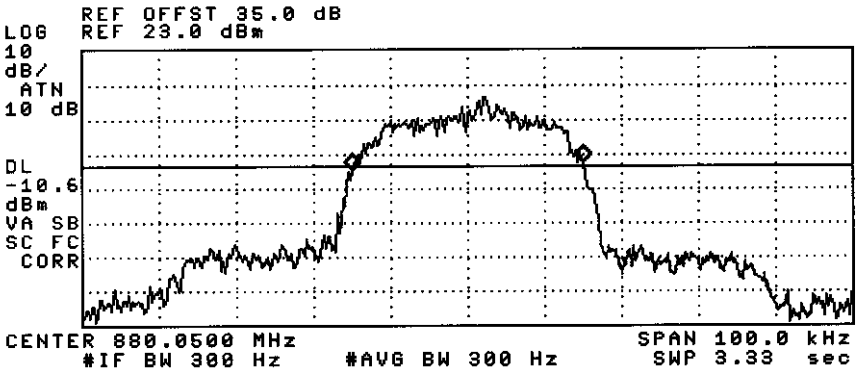
CENTER 893.9700 MHz
SPAN 100.0 kHz
#IF BW 300 Hz
#AVG BW 300 Hz
SWP 3.33 sec

#10


14:51:58 NOV 24, 1998
OCC. BANDWIDTH; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.3 kHz
-.60 dB
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 23.0 dBm
DL
-12.1
dBm
VA SB
SC FC
CORR
CENTER 869.9998 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 100.0 kHz
SWP 3.33 sec

#11

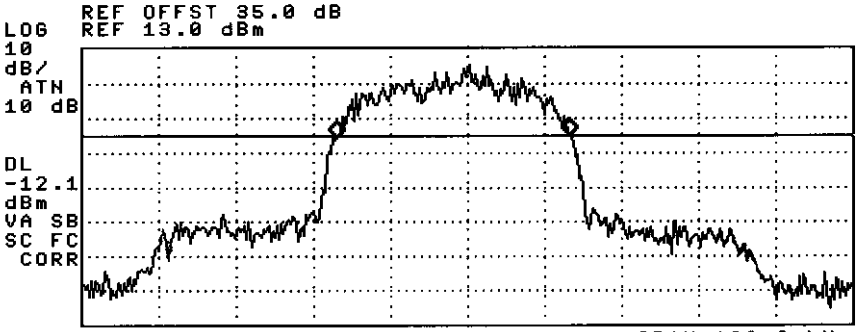
15:13:09 NOV 24, 1998
OCC. BANDWIDTH; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
2.25 dB



CENTER 880.0500 MHz
SPAN 100.0 kHz
#IF BW 300 Hz
#AVG BW 300 Hz
SWP 3.33 sec

#12

15:34:11 NOV 24, 1998
OCC. BANDWIDTH; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.3 kHz
.18 dB



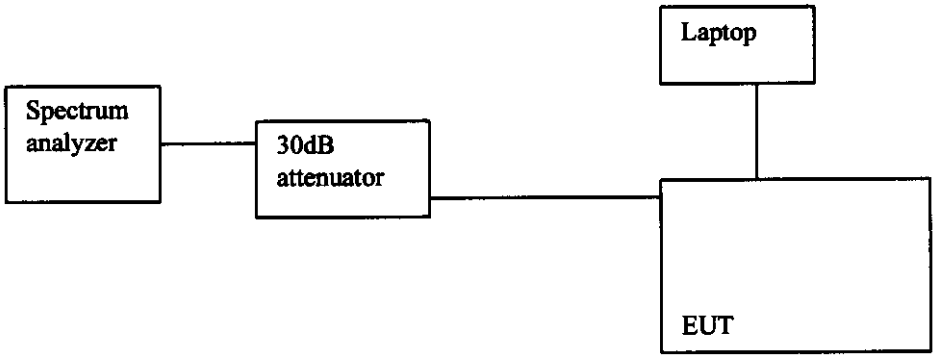
CENTER 893.9720 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 100.0 kHz
SWP 3.33 sec

SECTION 2.1049 (Was Section 2.989): OCCUPIED BANDWIDTH

Equipment used.

HP Spectrum Analyzer/8593EM
Narda 30dB Attenuator
Flexco low loss cables, 9ft. (Loss: 0.85 dB/ft @ 26GHz)
NEC Laptop Computer.

TEST SETUP:



Minimum Requirement:

Section 2.989 (I); Transmitters designed for other types of modulation –when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal should be supplied.

22.905; all channels have a bandwidth of 40kHz.

Test Procedure:

The device was modulated as manufacture specification. The RF carrier was modulated with a test software, TDMA ($\pi/4$ DQPSK) as specified in IS-138A. Since Eut is digital only, no other external signals were used. Test was performed both at **MAIN** and **DVSTY** antenna port.

Test Result:

Included are plots of TDMA's Occupied Bandwidth for low, middle, and high channel. Table shows the order of Occupied Bandwidth #13-18. Also, refer to plots # 7-12.

MAIN ANTENNA PORT

		PLOT NUMBER
LOW:	OCCUPIED BANDWIDTH	13
MIDDLE:	OCCUPIED BANDWIDTH	14
HIGH:	OCCUPIED BANDWIDTH	15

DVSTY ANTENNA PORT

		PLOT NUMBER
LOW:	OCCUPIED BANDWIDTH	16
MIDDLE:	OCCUPIED BANDWIDTH	17
HIGH:	OCCUPIED BANDWIDTH	18

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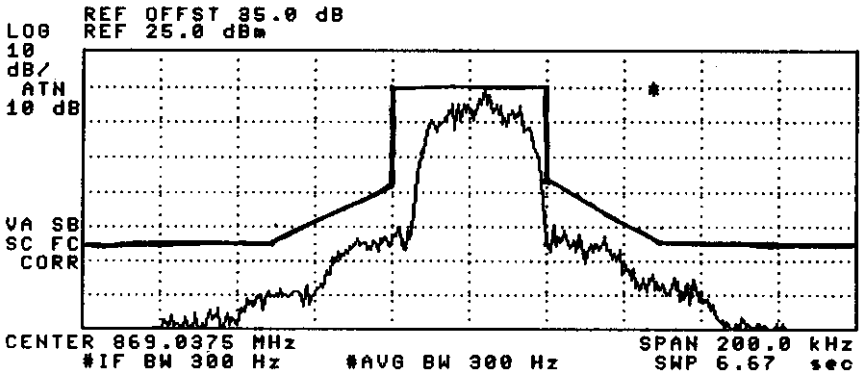
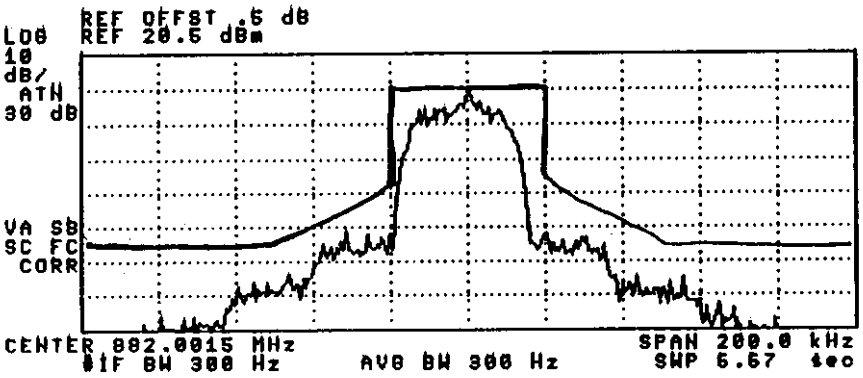
#13

13:57:34 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG



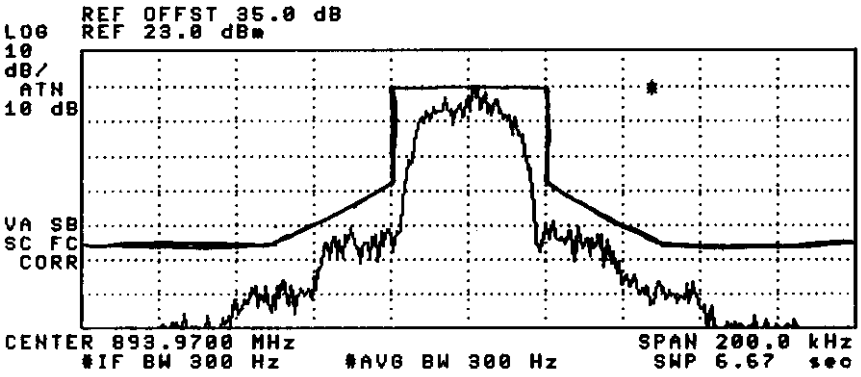
#14

11:27:06 NOV 24, 1998
IS-136A(3.4.1.2)) AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG



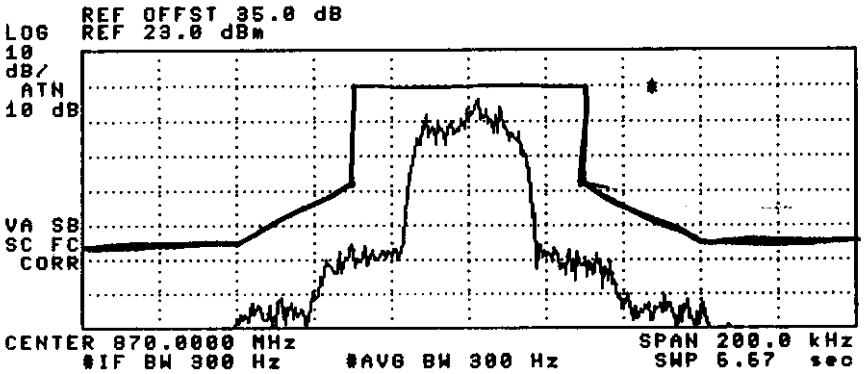
#15

14:15:29 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG



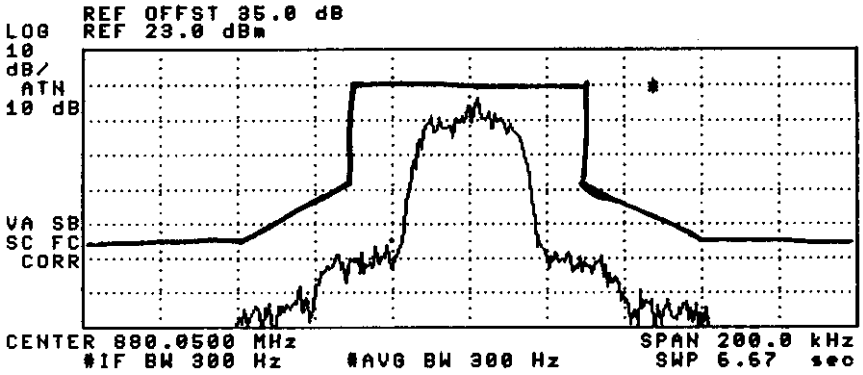
14:40:05 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#16



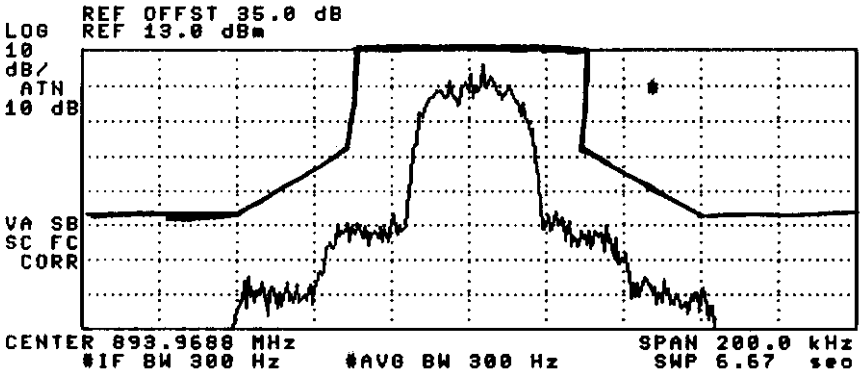
15:01:52 NOV 24, 1998
IS-136A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#17



15:25:07 NOV 24, 1998
IS-138A (3.4.1.2)) (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#18

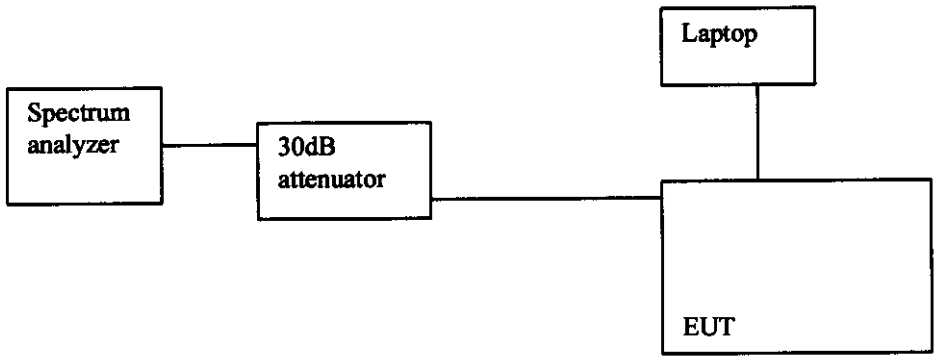


EMISSION LIMITATIONS FOR CELLULAR.

Equipment used.

HP Spectrum Analyzer/8593EM
Narda 30dB Attenuator
Flexco low loss cables, 9ft. (Loss: 0.85 dB/ft @ 26GHz)
NEC Laptop Computer.

TEST SETUP:



Minimum Requirement:
DIGITAL MODE:
22.917 (d) FD1 emission mask; FD1 emissions, the mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) as follows:

1) On any frequency removed from the carrier frequency by more than 20kHz, but no more than 45kHz: at least 26dB.

2) On any frequency removed from the carrier frequency by more than 45kHz, but no more than 90kHz: at least 45dB.

3) On any frequency removed from the carrier frequency by more than 90kHz, up to the first multiple of the carrier frequency: at least 60dB or 43 + log (P) dB, whichever is the lesser attenuation.

IS-138A (3.4) Digital Mode:
The emission power in either adjacent channel, centered $\pm$ 30 kHz from the carrier frequency, shall not exceed a level of 26dB below the mean output power.

The emission power in either alternate channel, centered $\pm$ 60 kHz from the carrier frequency, shall no exceed a level of 45dB below the mean output power.

For output powers 50 W or less, the emission power in either second alternate channel, centered $\pm$ 90 kHz from the carrier frequency, shall not exceed a level of 45 dB below the mean output power of –13 dBm.

Test Procedure:
Test was performed for both 22.917(d) and IS-138A (3.4) standards to show that both limits are meet. Measurements were made for low, middle, and high channel. Both **MAIN** and **DVSTY** antenna port were tested. Included are plots showing that RES BW: 30kHz cannot be used, instead a RES BW: 300Hz was used to measure signal.

Test Result:
Refer to plots. Table shows the order of plot.

SECTION 22.917 (D)

MAIN ANTENNA PORT	
	PLOT NUMBER
LOW: 30kHz	19
LOW	20
LOW	21
LOW	22
LOW	23
LOW	24
MIDDLE: 30kHz	25
MIDDLE	26
MIDDLE	27
MIDDLE	28
MIDDLE	29
MIDDLE	30
HIGH: 30kHz	31
HIGH	32
HIGH	33
HIGH	34
HIGH	35
HIGH	36

IS-138A (3.4) DIGITAL MODE:

MAIN ANTENNA PORT	
	PLOT NUMBER
LOW: 30kHz	37
LOW	38
LOW	39
LOW	40
LOW	41
LOW	42
MIDDLE: 30kHz	43
MIDDLE	44

MIDDLE	45
MIDDLE	46
MIDDLE	47
MIDDLE	48
HIGH: 30kHz	49
HIGH	50
HIGH	51
HIGH	52
HIGH	53
HIGH	54

SECTION 22.917 (D)

DVSTY ANTENNA PORT	
	PLOT NUMBER
LOW: 30kHz	55
LOW	56
LOW	57
LOW	58
LOW	59
LOW	60
MIDDLE: 30kHz	61
MIDDLE	62
MIDDLE	63
MIDDLE	64
MIDDLE	65
MIDDLE	66
HIGH: 30kHz	67
HIGH	68
HIGH	69
HIGH	70
HIGH	71
HIGH	72

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IS-138A (3.4) DIGITAL MODE:

DVSTY ANTENNA PORT	
	PLOT NUMBER
LOW: 30kHz	73
LOW	74
LOW	75
LOW	76
LOW	77
LOW	78
MIDDLE: 30kHz	79
MIDDLE	80
MIDDLE	81
MIDDLE	82
MIDDLE	84
MIDDLE	85
HIGH: 30kHz	86
HIGH	87
HIGH	88
HIGH	89
HIGH	90
HIGH	91

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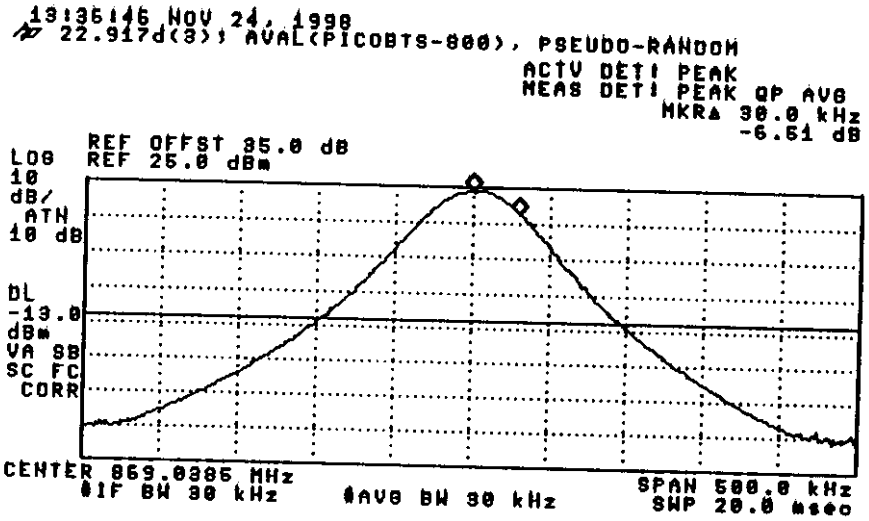
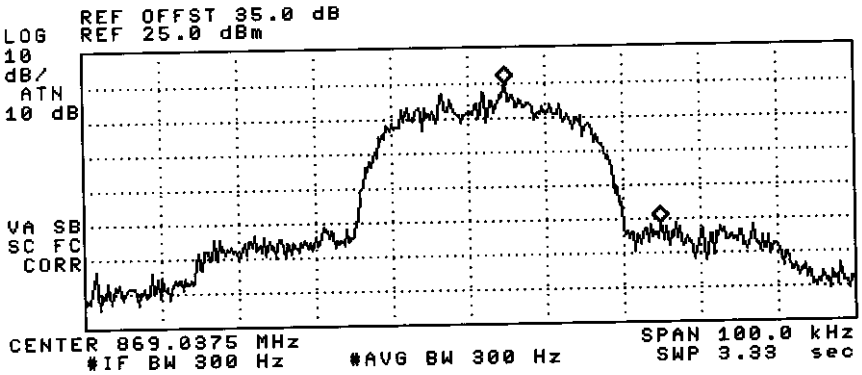
#19


13:35:46 NOV 24, 1998
22.917d(3): AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-6.51 dB
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
CENTER 869.0385 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 500.0 kHz
SWP 20.0 msec

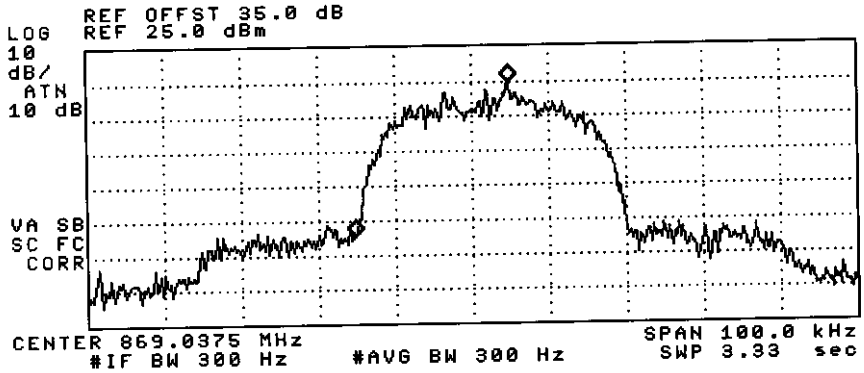
13:54:38 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 20.0 kHz
-40.91 dB

#20



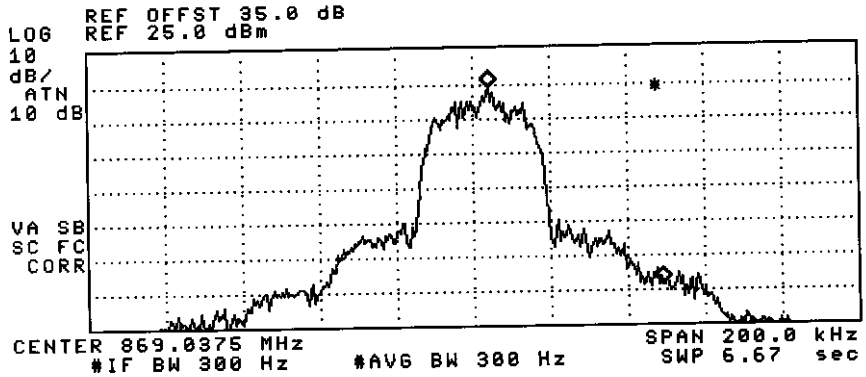
13:55:01 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -20.0 kHz
-43.88 dB

#21

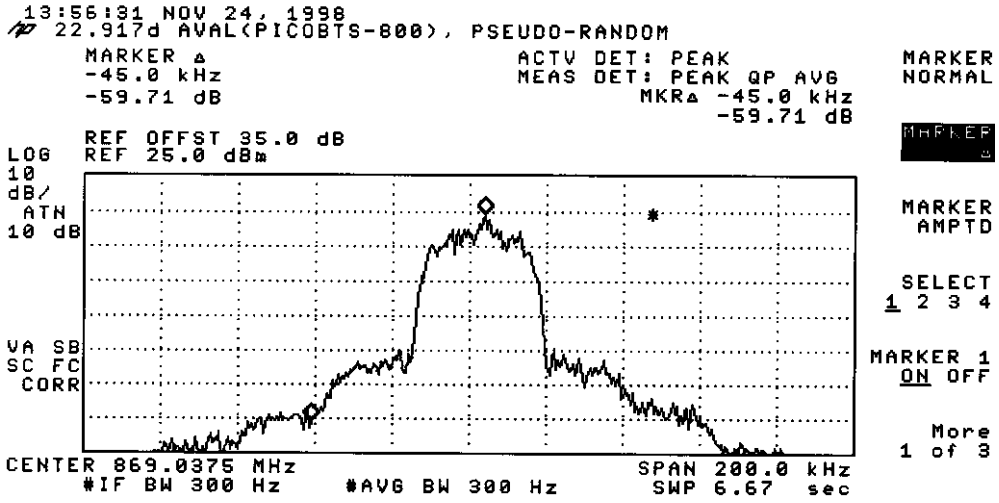


13:55:45 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 45.0 kHz
-57.38 dB

#22

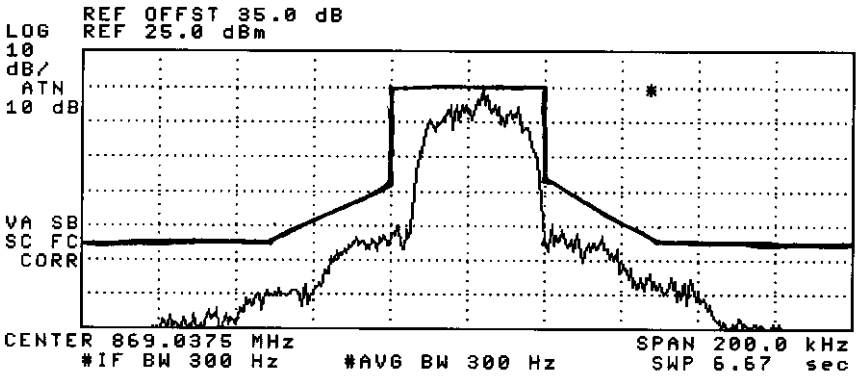


#23


13:56:31 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
MARKER Δ
-45.0 kHz
-59.71 dB
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -45.0 kHz
-59.71 dB
MARKER
NORMAL
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
MARKER
AMPTD
SELECT
1 2 3 4
VA SB
SC FC
CORR
MARKER 1
ON OFF
More
1 of 3
CENTER 869.0375 MHz
SPAN 200.0 kHz
#IF BW 300 Hz
#AVG BW 300 Hz
SWP 6.67 sec

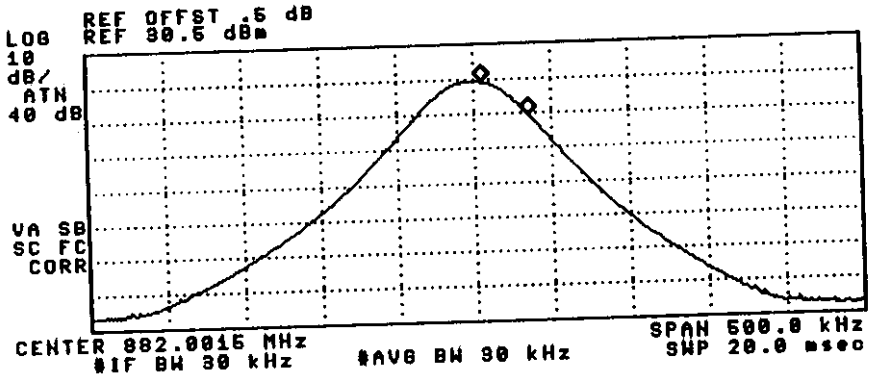
13:57:34 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#24

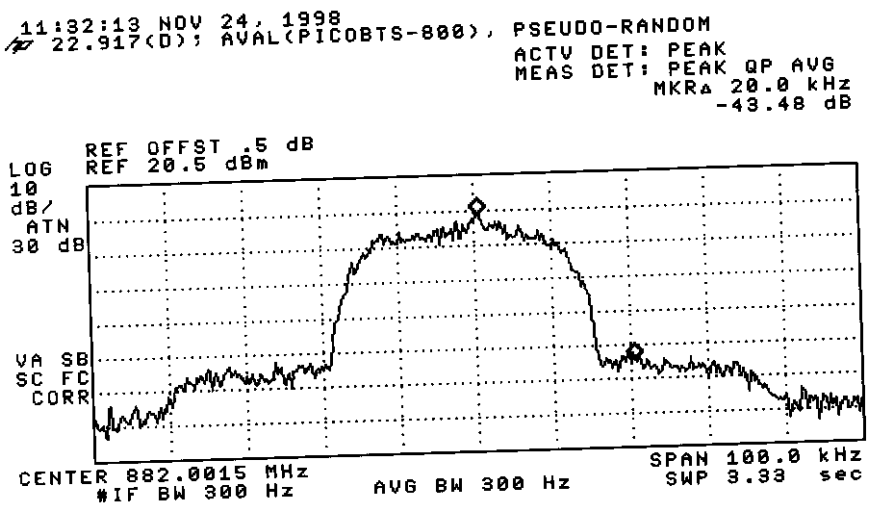


#25

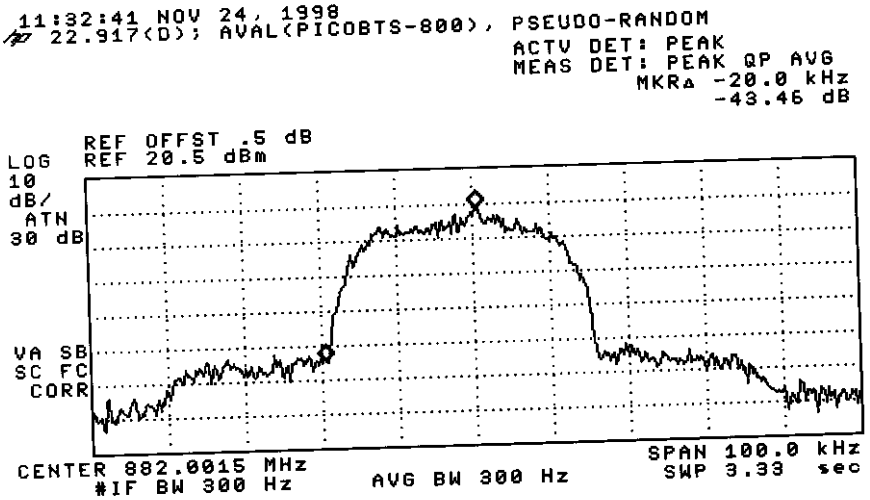
11:11:09 NOV 24, 1998 AVAL(PICOBTS-800)
22.9dBm
ACTV DET: PEAK
MEAS DET: PEAK @P AVG
MKRΔ 30.0 kHz
-9.58 dB



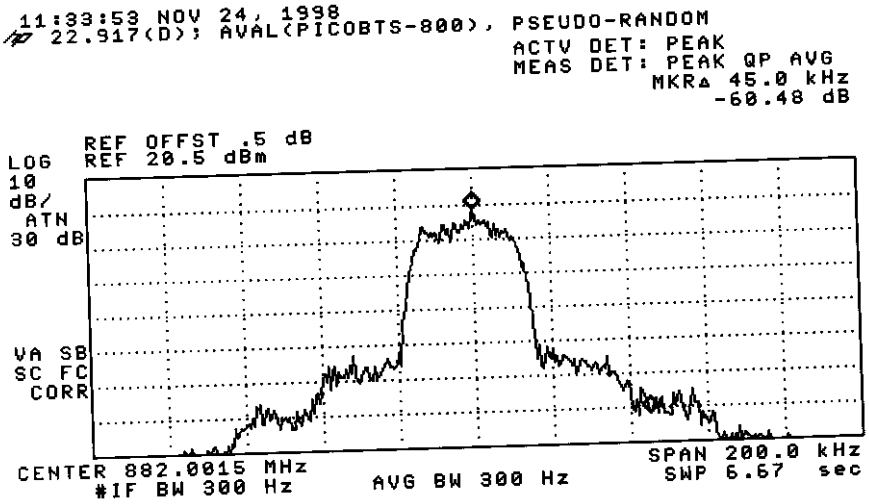
#26

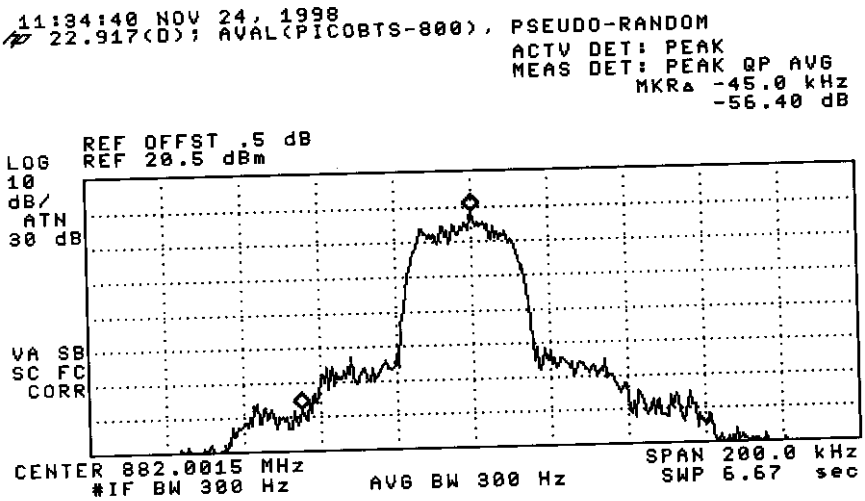

11:32:13 NOV 24, 1998
22.917(D); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 20.0 kHz
-43.48 dB
REF OFFST .5 dB
LOG REF 20.5 dBm
10
dB/
ATN
30 dB
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 300 Hz
AVG BW 300 Hz
SPAN 100.0 kHz
SWP 3.33 sec

#27


11:32:41 NOV 24, 1998
22.917(D); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -20.0 kHz
-43.46 dB
REF OFFST .5 dB
LOG REF 20.5 dBm
10
dB/
ATN
30 dB
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 300 Hz
AVG BW 300 Hz
SPAN 100.0 kHz
SWP 3.33 sec

#28


11:33:53 NOV 24, 1998
22.917(D); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 45.0 kHz
-60.48 dB
REF OFFST .5 dB
LOG REF 20.5 dBm
10
dB/
ATN
30 dB
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 300 Hz
AVG BW 300 Hz
SPAN 200.0 kHz
SWP 6.67 sec

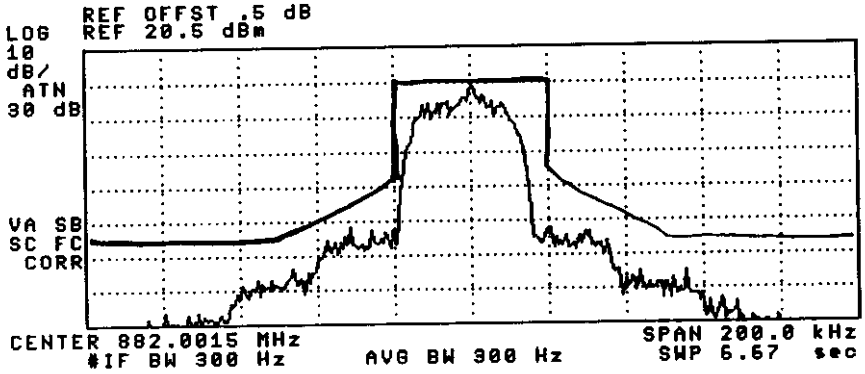

11:34:40 NOV 24, 1998
22.917(D); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -45.0 kHz
-56.40 dB
REF OFFST .5 dB
LOG REF 20.5 dBm
10
dB/
ATN
30 dB
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 300 Hz
AVG BW 300 Hz
SPAN 200.0 kHz
SWP 6.67 sec

H29

11:27:06 NOV 24, 1998
[redacted]; AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

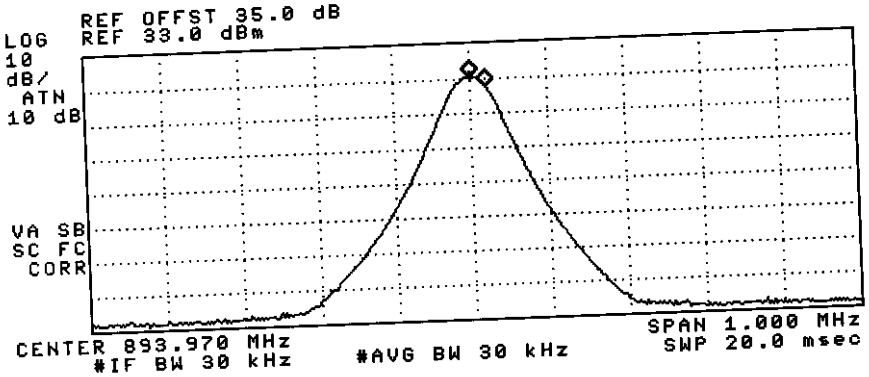
229170

#30



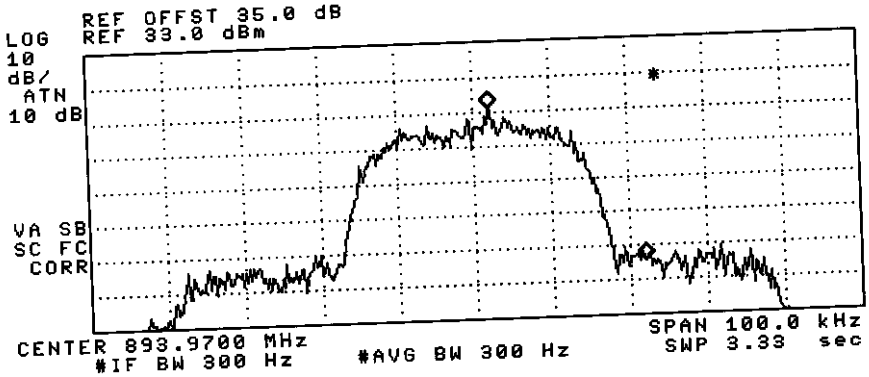
14:11:26 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 20 kHz
-2.89 dB

#31



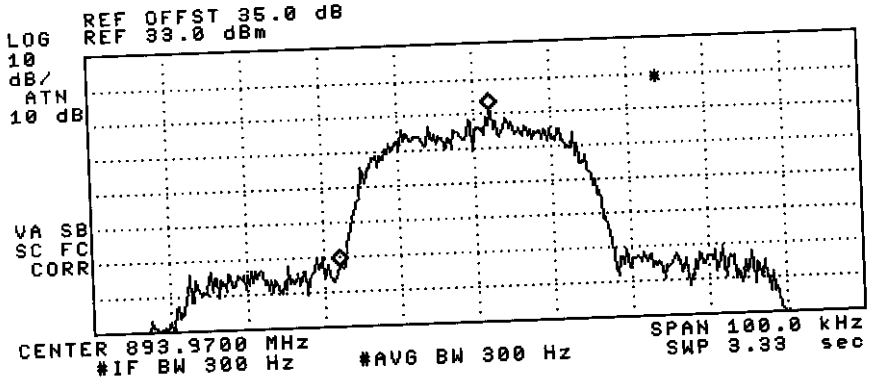
14:12:12 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 20.0 kHz
-45.24 dB

#32



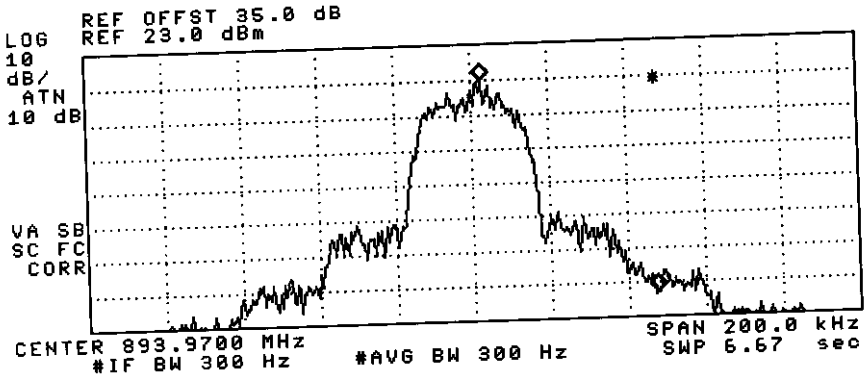
14:12:41 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -20.0 kHz
-43.39 dB

#33



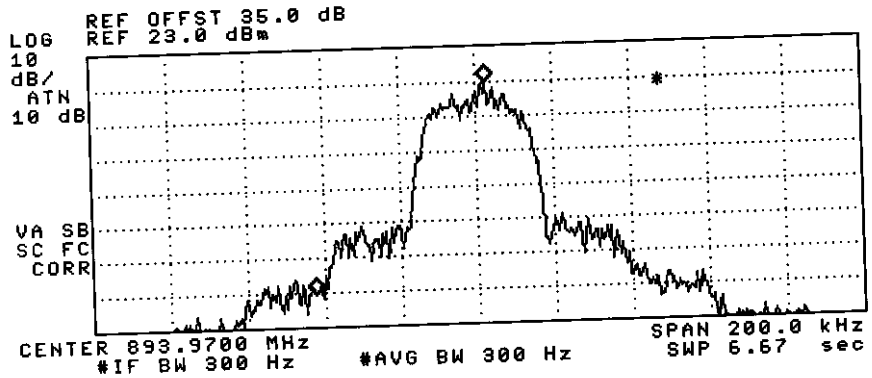
14:14:27 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 45.0 kHz
-62.51 dB

#34



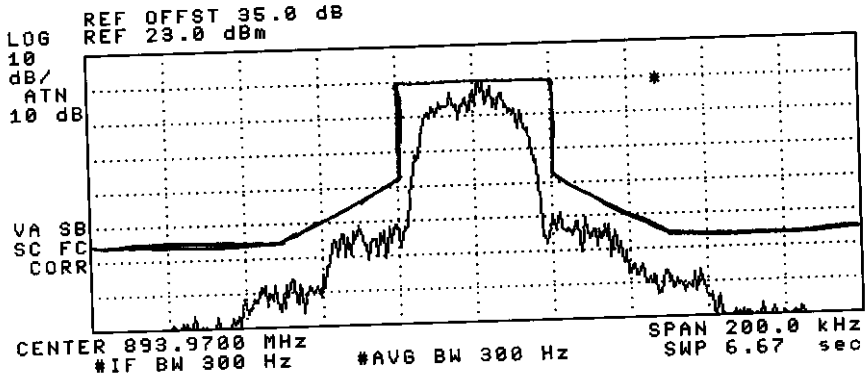
14:14:52 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -45.0 kHz
-60.17 dB

#35



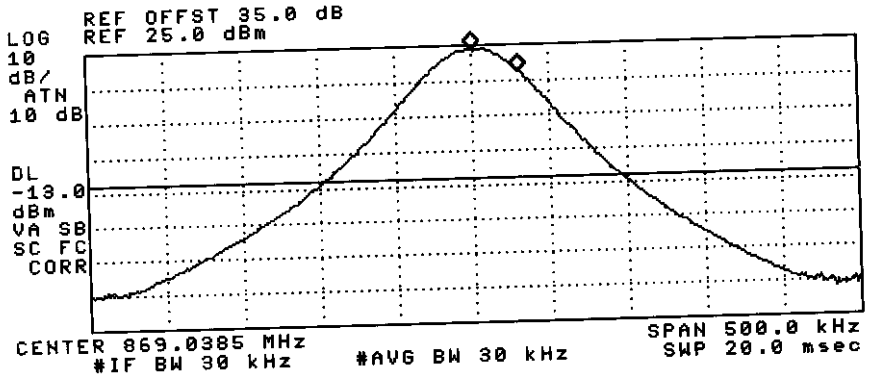
#36

14:15:29 NOV 24, 1998
22.917d AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG



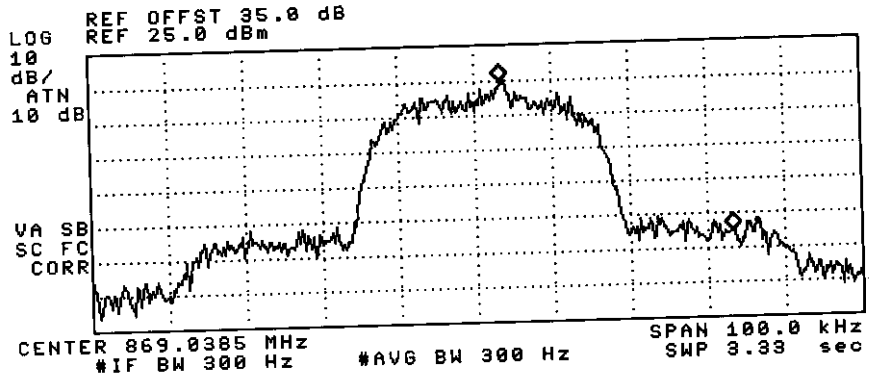
13:36:46 NOV 24, 1998
2[redacted]; AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-6.51 dB

#137



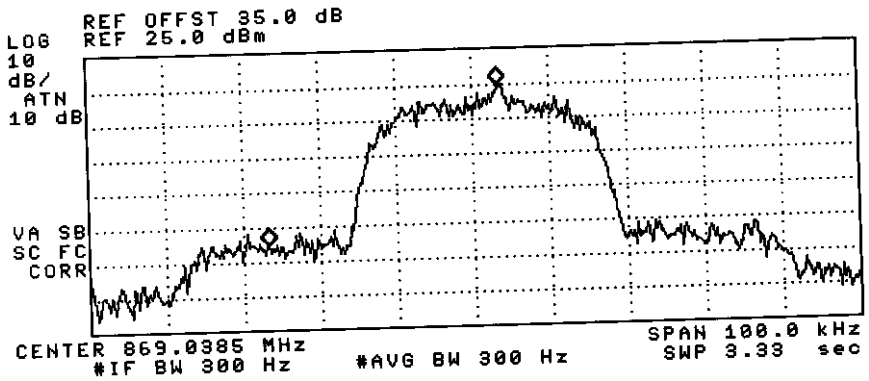
13:38:26 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-44.60 dB

#138

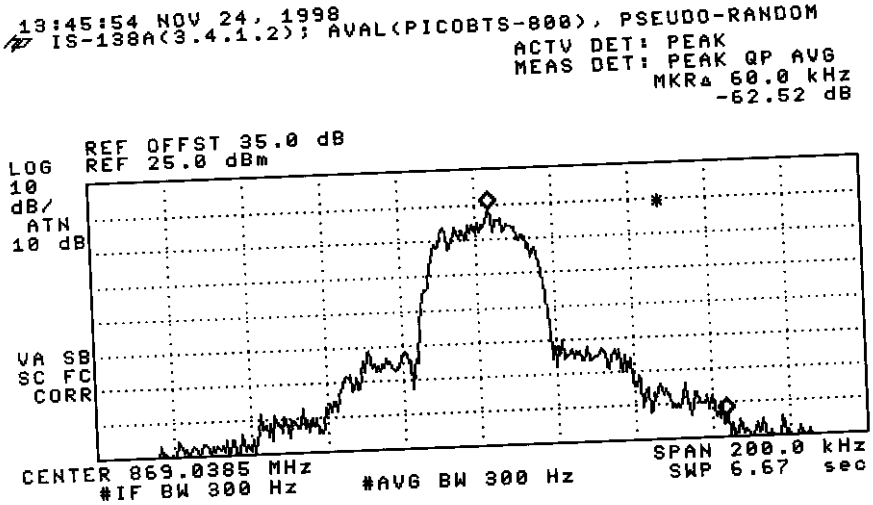


13:38:46 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -30.0 kHz
-44.77 dB

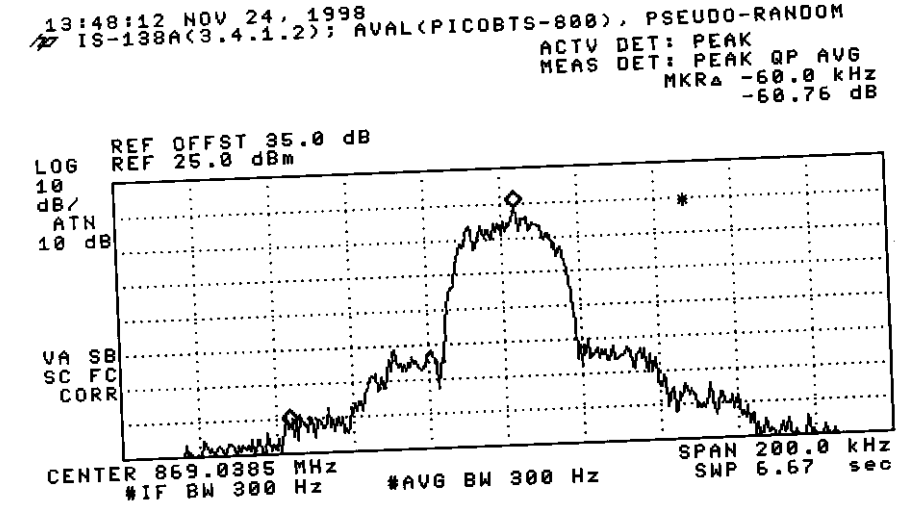
#139



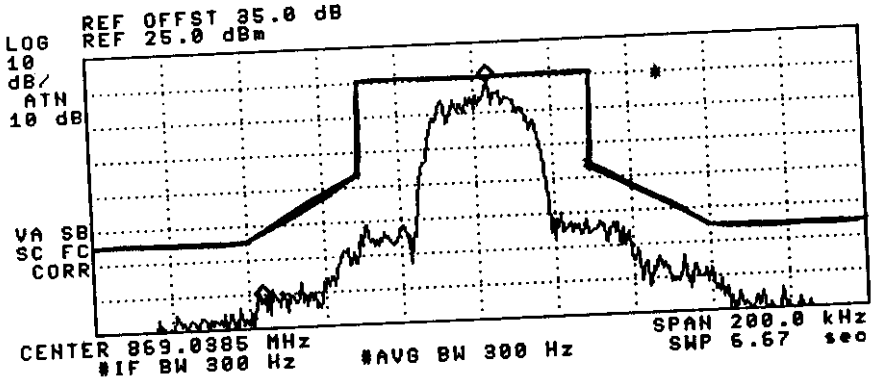
#40


13:45:54 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 60.0 kHz
-62.52 dB
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 25.0 dBm
VA SB
SC FC
CORR
CENTER 869.0385 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 200.0 kHz
SWP 6.67 sec

#41

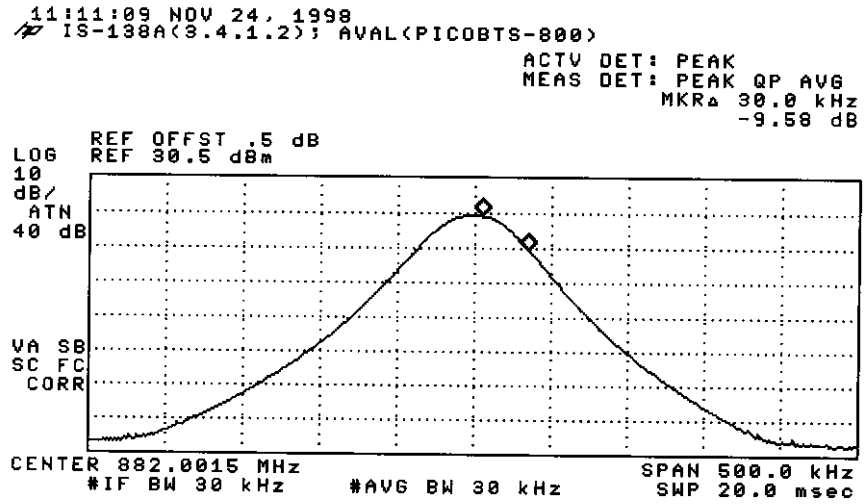

13:48:12 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -60.0 kHz
-60.76 dB
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 25.0 dBm
VA SB
SC FC
CORR
CENTER 869.0385 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 200.0 kHz
SWP 6.67 sec

13:48:12 NOV 24, 1998
IS-138A(3.4.1.2): AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -60.0 kHz
-60.76 dB

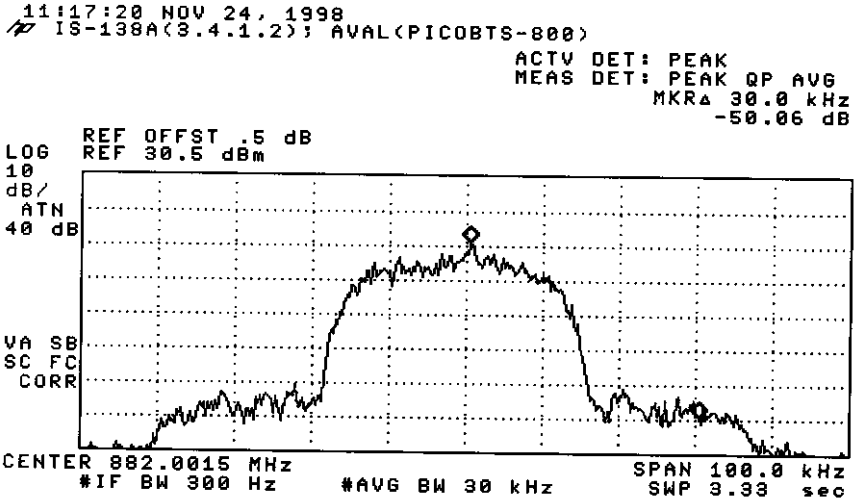


#42

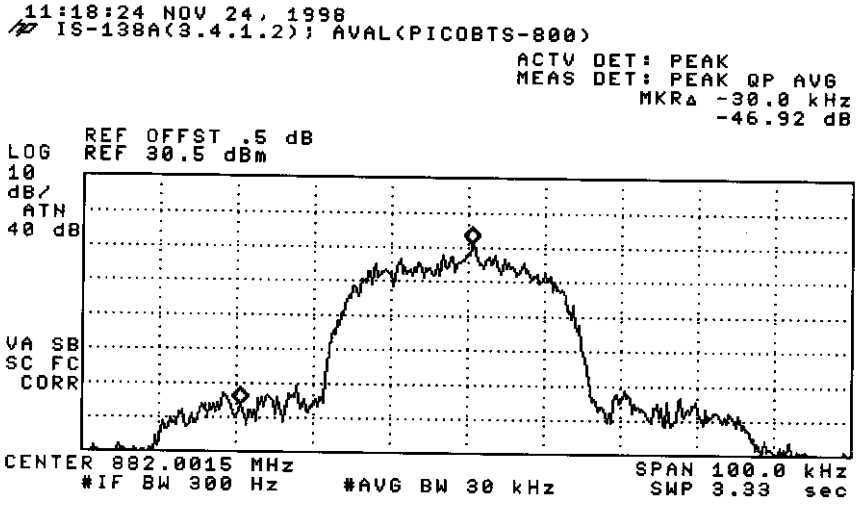
#43


11:11:09 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-9.58 dB
REF OFFST .5 dB
LOG
10
dB/
ATN
40 dB
REF 30.5 dBm
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 500.0 kHz
SWP 20.0 msec

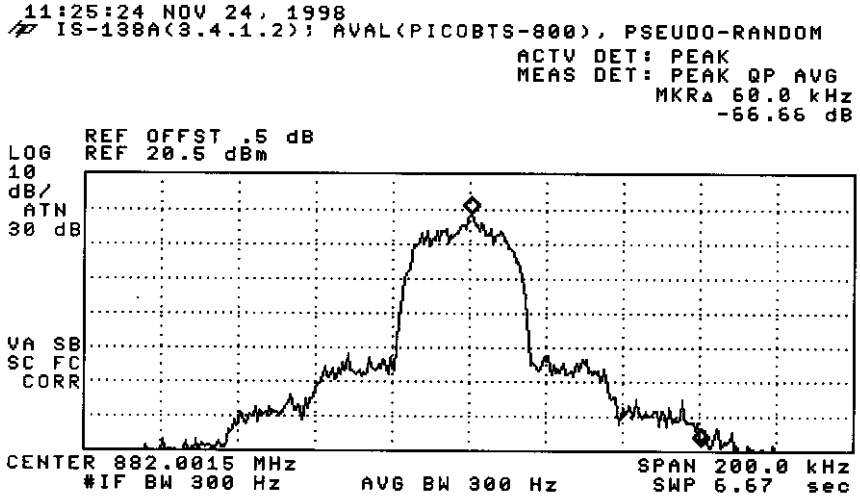
#44


11:17:20 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-50.06 dB
REF OFFST .5 dB
LOG
10
dB/
ATN
40 dB
REF 30.5 dBm
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 300 Hz
#AVG BW 30 kHz
SPAN 100.0 kHz
SWP 3.33 sec

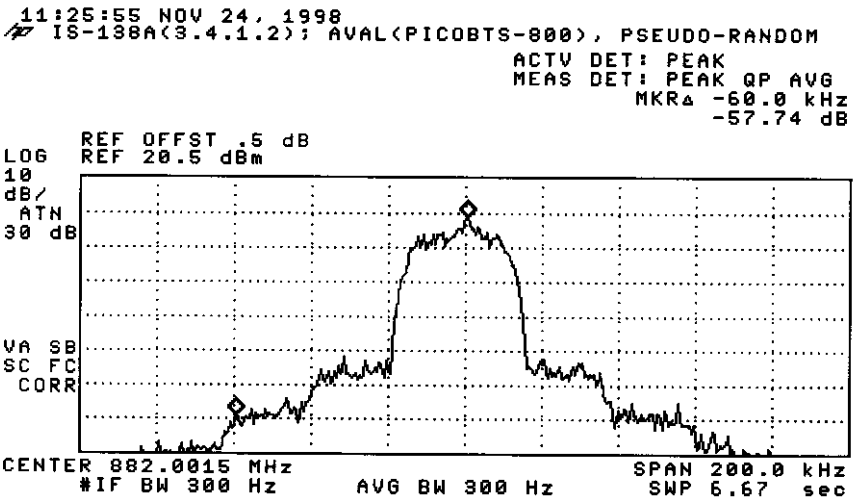
#45


11:18:24 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -30.0 kHz
-46.92 dB
REF OFFST .5 dB
LOG
10
dB/
ATN
40 dB
REF 30.5 dBm
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 300 Hz
#AVG BW 30 kHz
SPAN 100.0 kHz
SWP 3.33 sec

#46

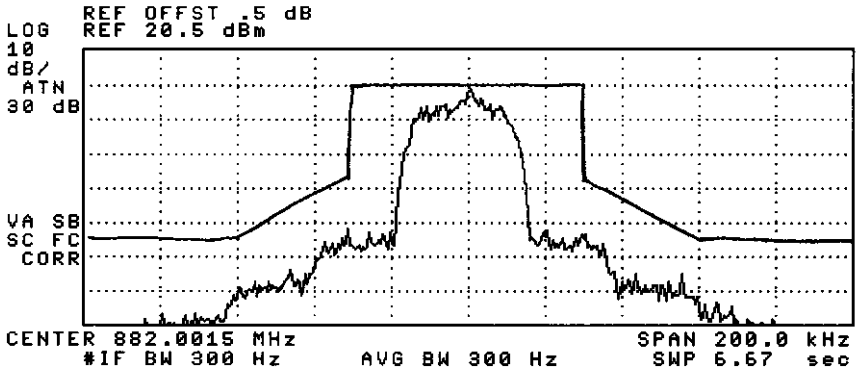

11:25:24 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 60.0 kHz
-66.66 dB
REF OFFST .5 dB
LOG
10
dB/
ATN
30 dB
REF 20.5 dBm
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 300 Hz
AVG BW 300 Hz
SPAN 200.0 kHz
SWP 6.67 sec

#47


11:25:55 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -60.0 kHz
-57.74 dB
REF OFFST .5 dB
LOG
10
dB/
ATN
30 dB
REF 20.5 dBm
VA SB
SC FC
CORR
CENTER 882.0015 MHz
#IF BW 300 Hz
AVG BW 300 Hz
SPAN 200.0 kHz
SWP 6.67 sec

11:27:06 NOV 24, 1998
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#48



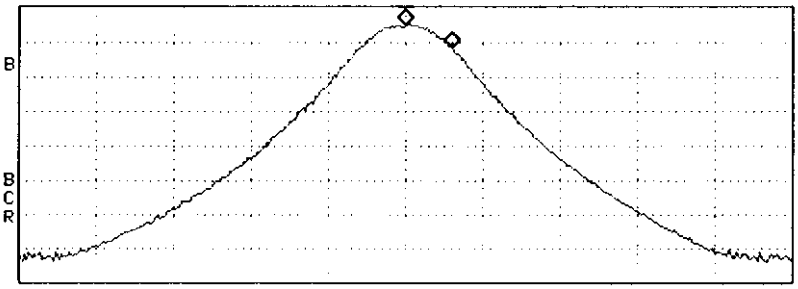
#49

15:22:13 NOV 24, 1998
IS-138A (3.4.1.2): (PICOBTS-800), PSEUDO-RANDOM

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-6.80 dB

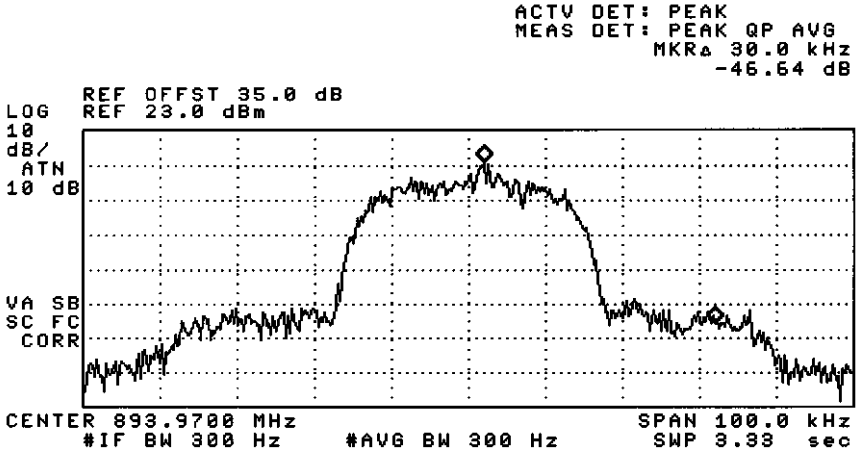
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB

VA SB
SC FC
CORR

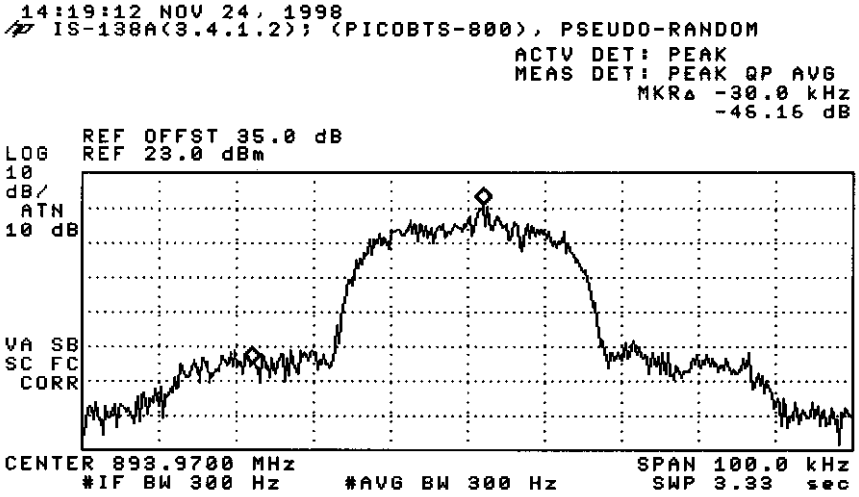


CENTER 893.9688 MHz
SPAN 500.0 kHz
#IF BW 30 kHz
#AVG BW 30 kHz
SWP 20.0 msec

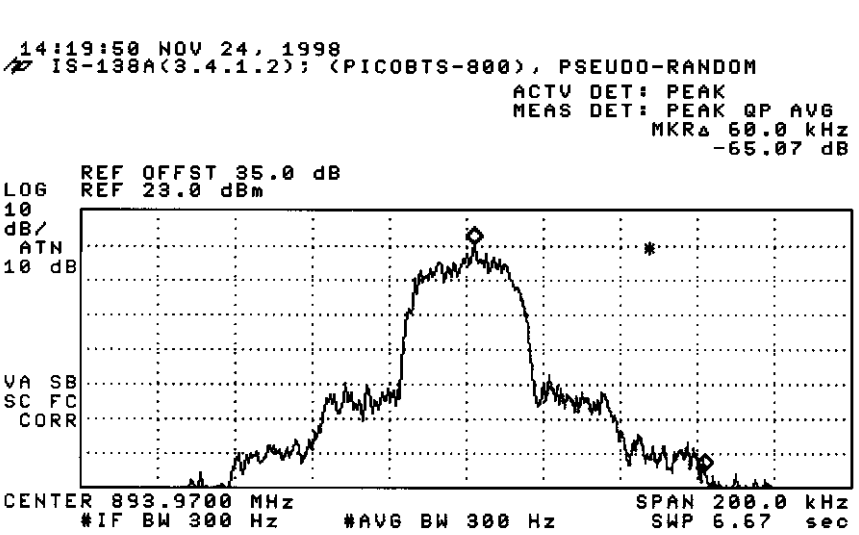
#50


14:18:49 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-46.64 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 893.9700 MHz
SPAN 100.0 kHz
#IF BW 300 Hz
#AVG BW 300 Hz
SWP 3.33 sec

#51


14:19:12 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -30.0 kHz
-46.16 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 893.9700 MHz
SPAN 100.0 kHz
#IF BW 300 Hz
#AVG BW 300 Hz
SWP 3.33 sec

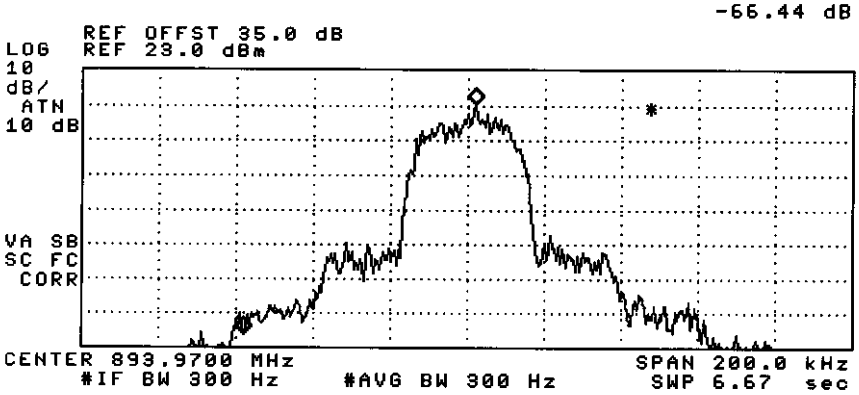
#52


14:19:50 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 60.0 kHz
-65.07 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 893.9700 MHz
SPAN 200.0 kHz
#IF BW 300 Hz
#AVG BW 300 Hz
SWP 6.67 sec

14:20:12 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -60.0 kHz
-66.44 dB

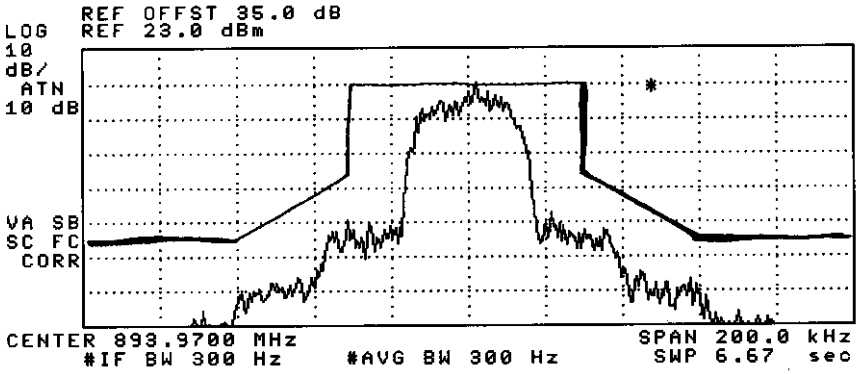
#1 53



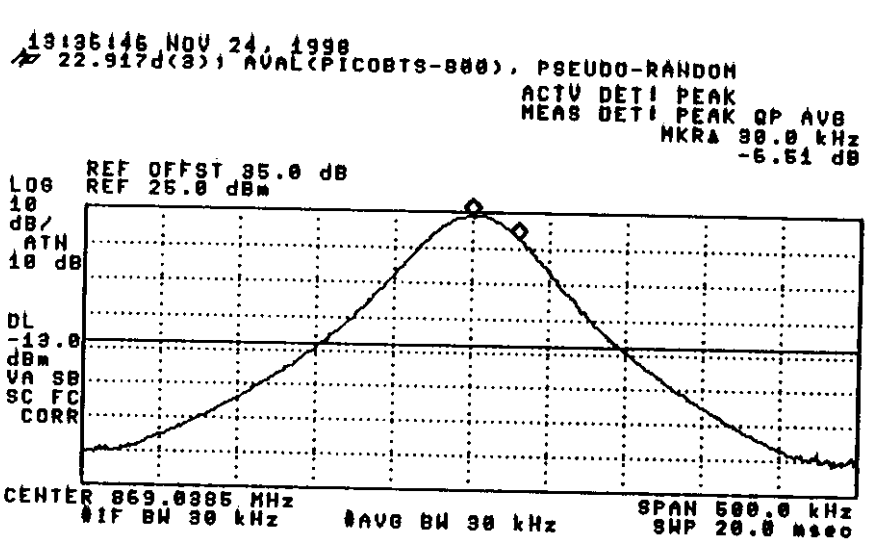
DEC 21 1998

14:20:43 NOV 24 1998
IS-138A(3.4.1.2) (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#54



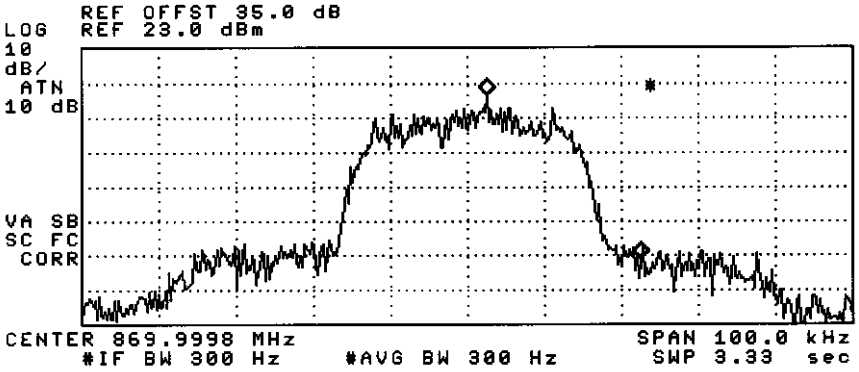
#55


13:36:46 NOV 24, 1998
22.917d(3): AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 90.0 kHz
-6.51 dB
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
CENTER 869.0385 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 500.0 kHz
SWP 20.0 msec

14:46:00 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 20.0 kHz
-47.13 dB

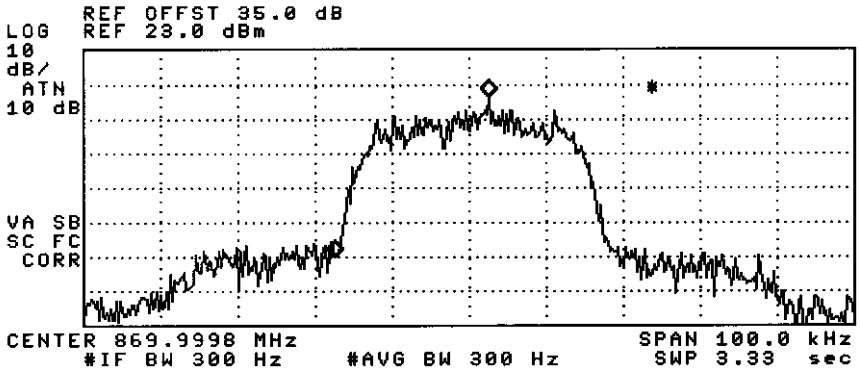
#56



14:46:18 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -20.0 kHz
-46.09 dB

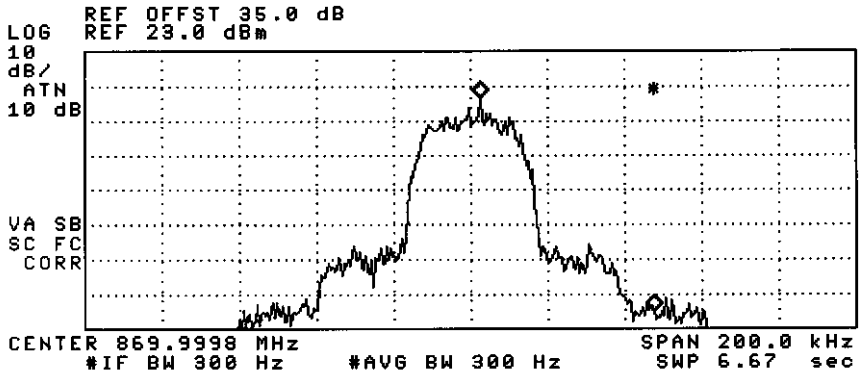
#57



14:47:00 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 45.0 kHz
-60.88 dB

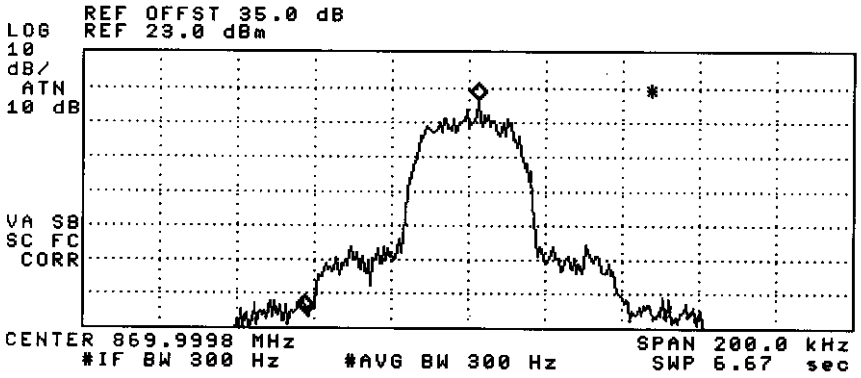
#59



14:47:42 NOV 24, 1998 OUT OF BAND
22.917D: (PICOBTS-800), PSEUDO-RANDOM

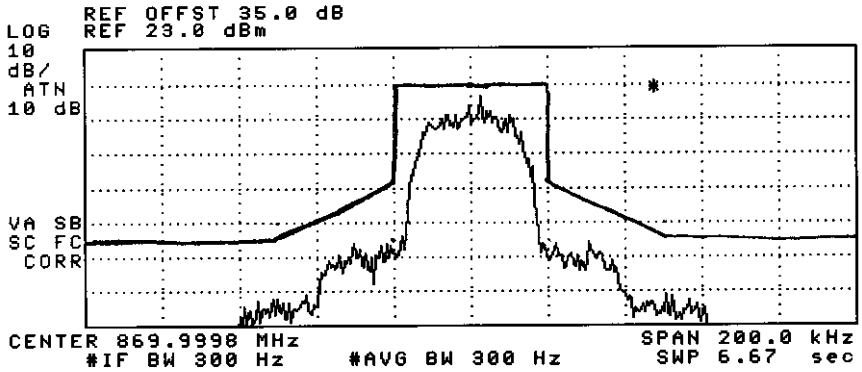
#60

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -45.0 kHz
-61.63 dB



14:49:02 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

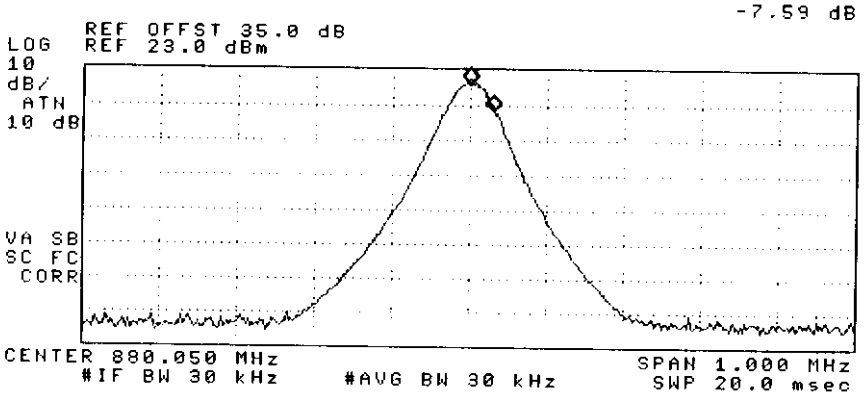
#61



14:58:18 NOV 24, 1998
~~FCC 15.247 (9.4.1.2)~~ ; (PICOBTS-800), PSEUDO-RANDOM
22.917(d)

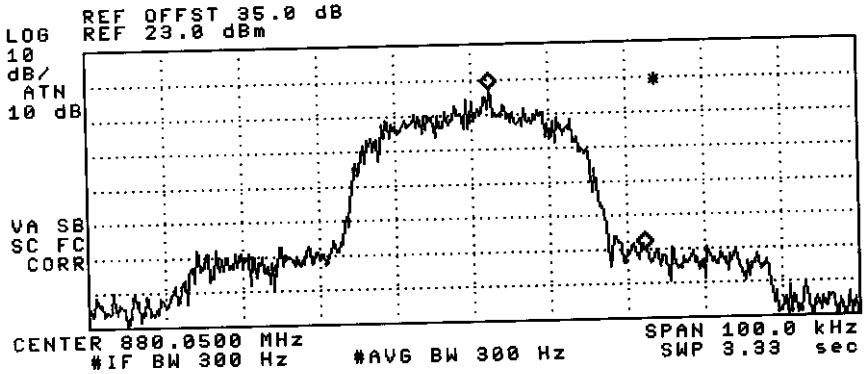
#61

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30 kHz
-7.59 dB



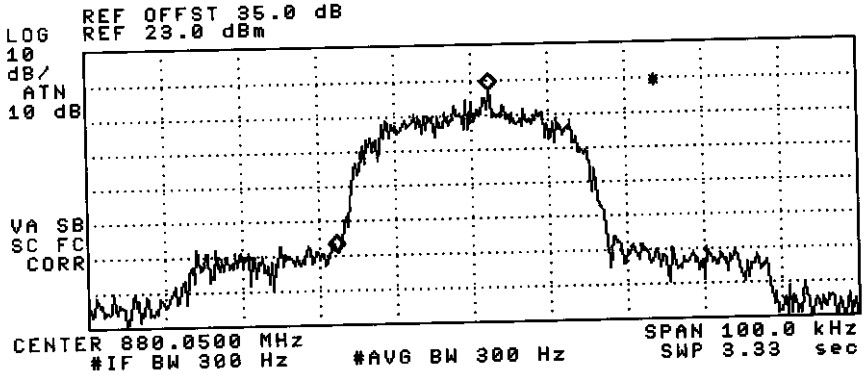
#62

15:07:30 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 20.0 kHz
-46.90 dB



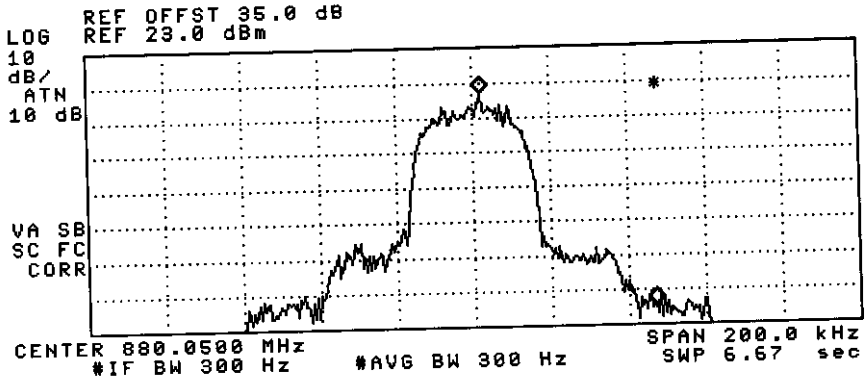
#63

15:07:52 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -20.0 kHz
-45.31 dB



#64

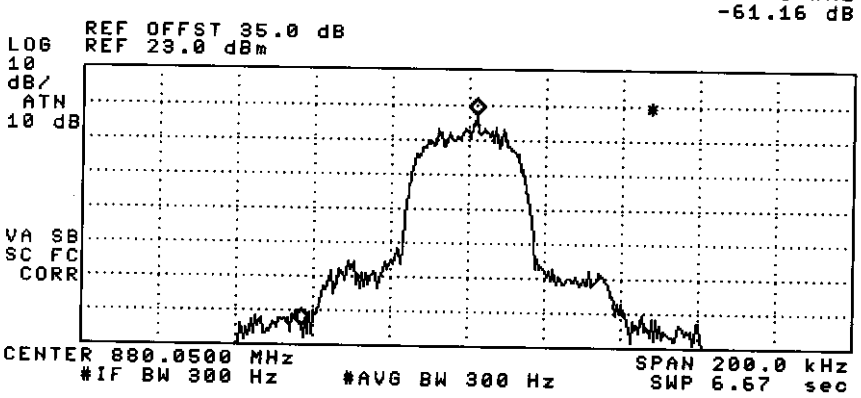
15:08:36 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 45.0 kHz
-60.92 dB



15:09:11 NOV 24, 1998 OUT OF BAND
22.917D: (PICOBTS-800), PSEUDO-RANDOM

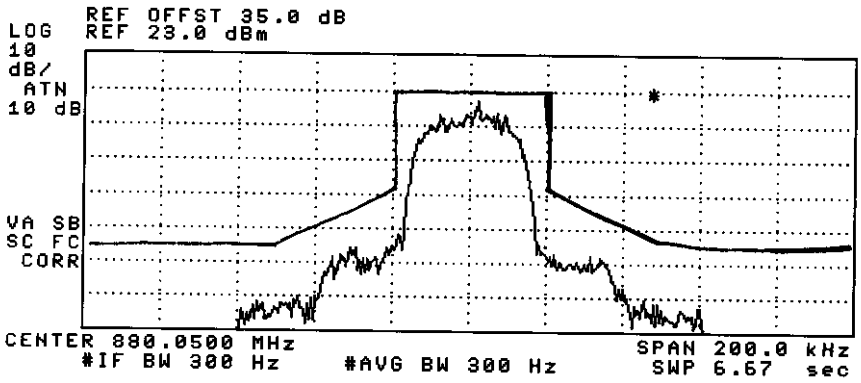
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -45.0 kHz
-61.16 dB

#65



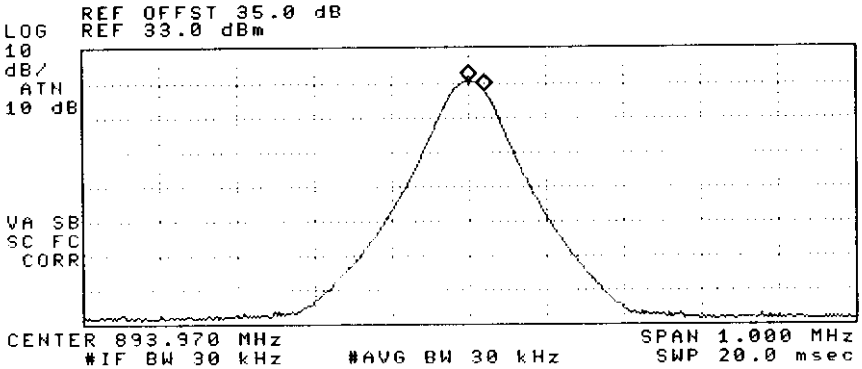
15:10:36 NOV 24, 1998 OUT OF BAND
22.917Ω; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#66



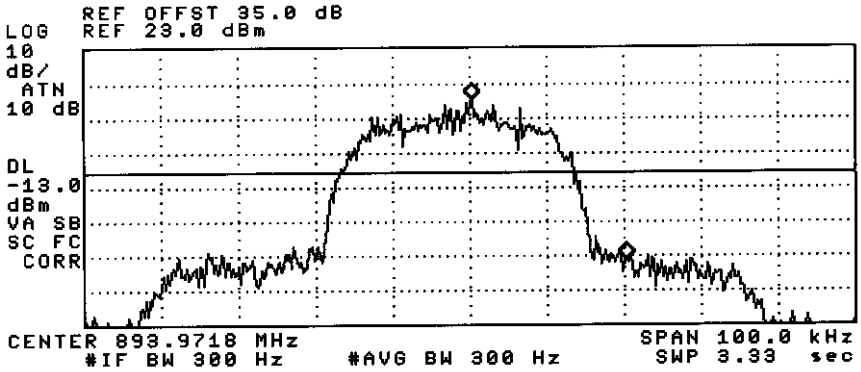
#67

14:11:26 NOV 24, 1998
22.917d AVAL(PICOBTS-800). PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 20 kHz
-2.89 dB



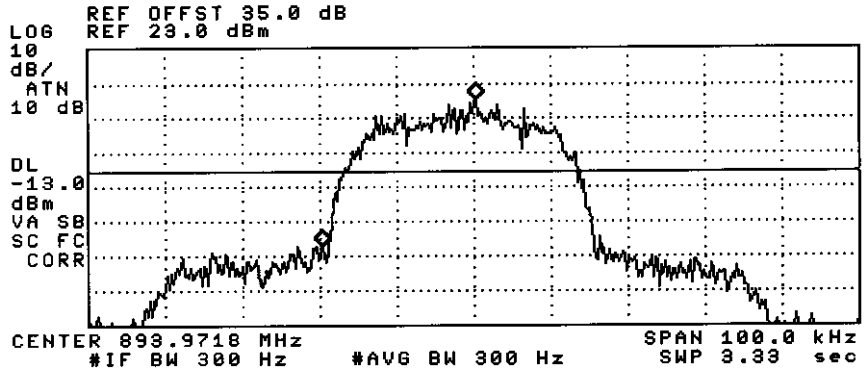
#68

15:30:22 NOV 24, 1998 OUT OF BAND
22.917D: (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 20.0 kHz
-46.22 dB



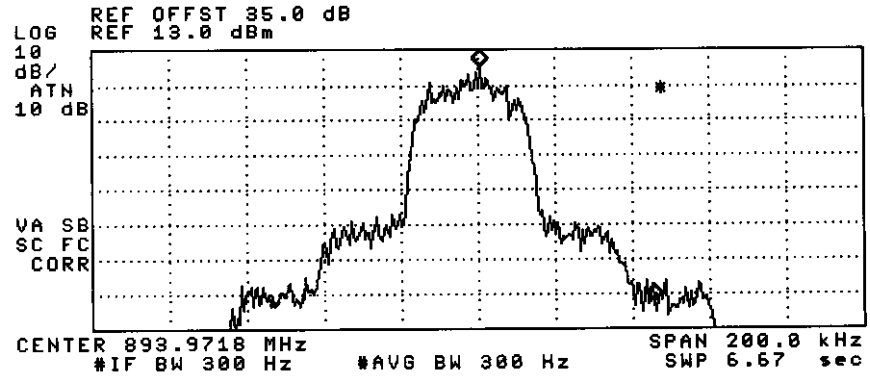
#69

15:30:41 NOV 24, 1998 OUT OF BAND
22.917D: (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -20.0 kHz
-42.42 dB



#70

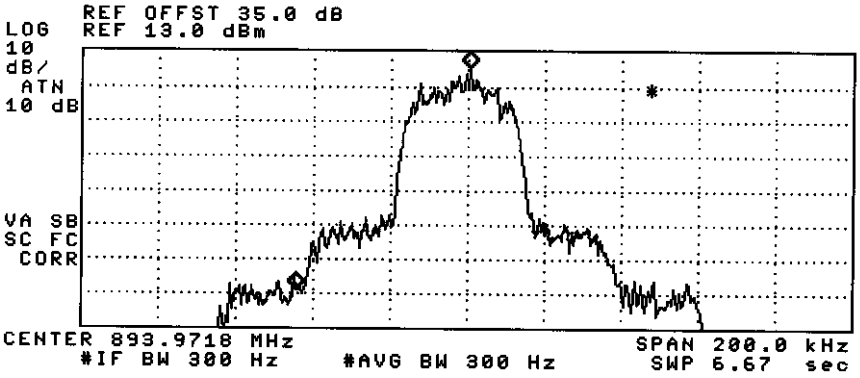
15:31:30 NOV 24, 1998 OUT OF BAND
22.917D: (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 45.0 kHz
-67.17 dB



#71

15:31:51 NOV 24, 1998 OUT OF BAND
22.9170: (PICOBTS-800), PSEUDO-RANDOM

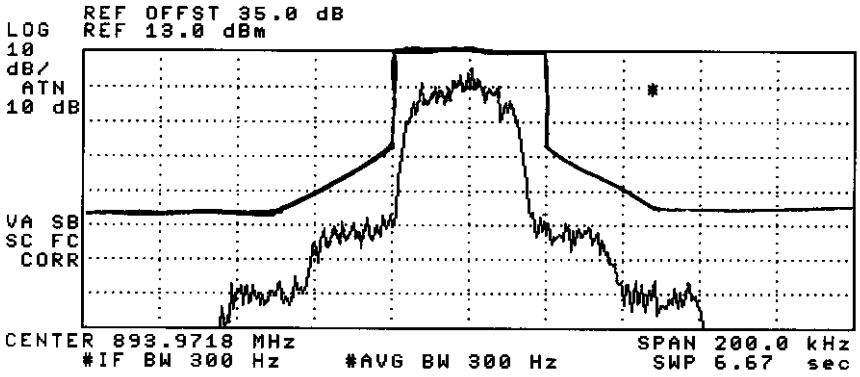
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -45.0 kHz
-63.72 dB



CENTER 893.9718 MHz
SPAN 200.0 kHz
#IF BW 300 Hz
#AVG BW 300 Hz
SWP 6.67 sec

15:32:23 NOV 24, 1998 OUT OF BAND
22.917Ω; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

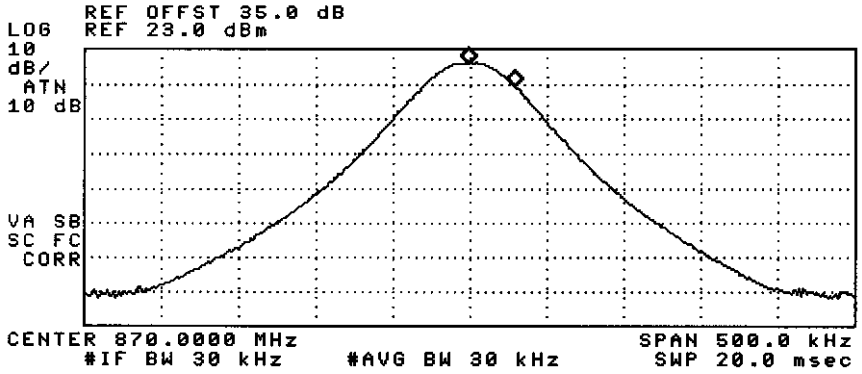
#72



14:37:03 NOV 24, 1998
(PICOBTS-800), PSEUDO-RANDOM

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-6.46 dB

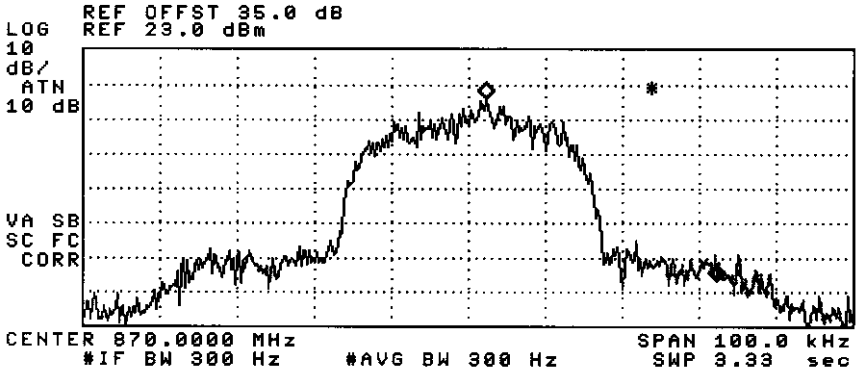
#73



14:38:02 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-52.24 dB

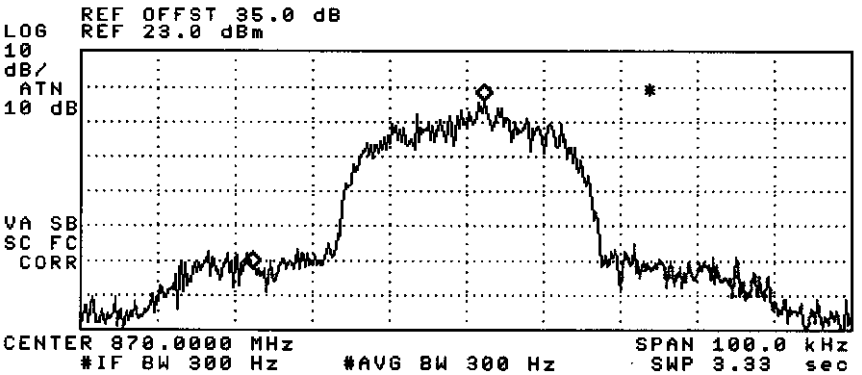
#72

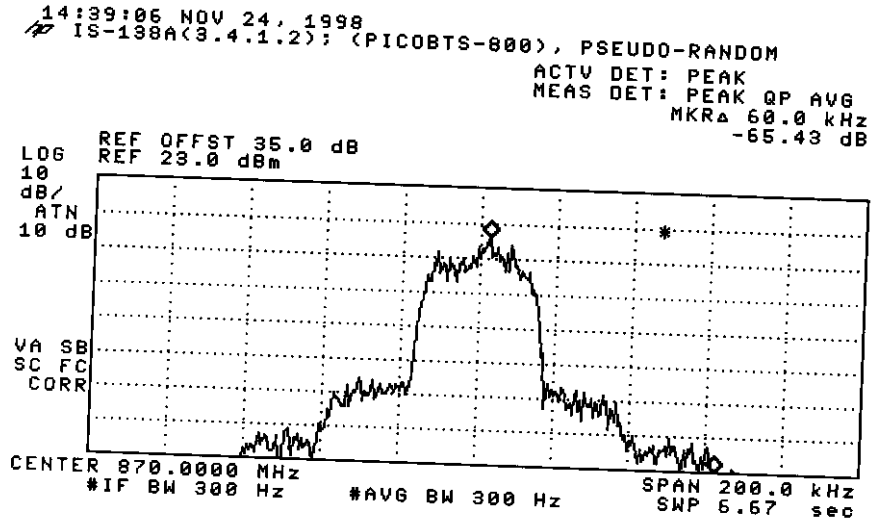


14:38:24 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM

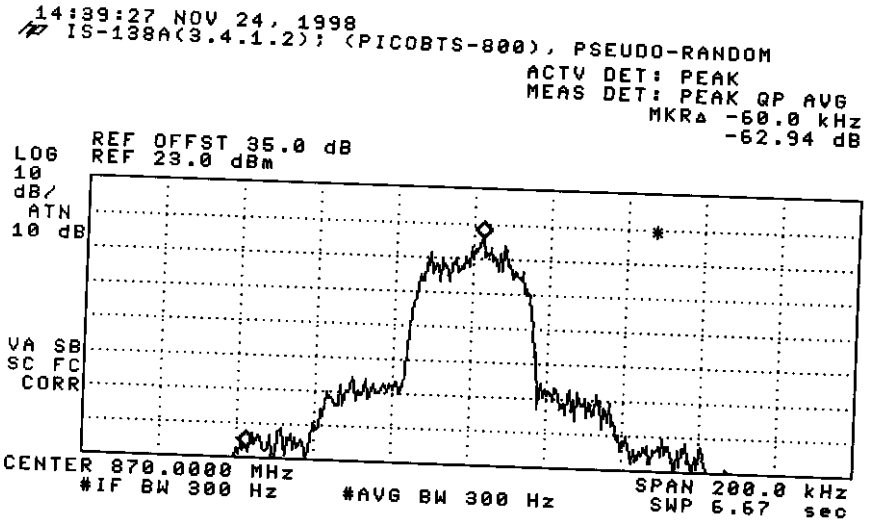
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -30.0 kHz
-48.09 dB

#75




14:39:06 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 60.0 kHz
-65.43 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 870.0000 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 200.0 kHz
SWP 6.67 sec

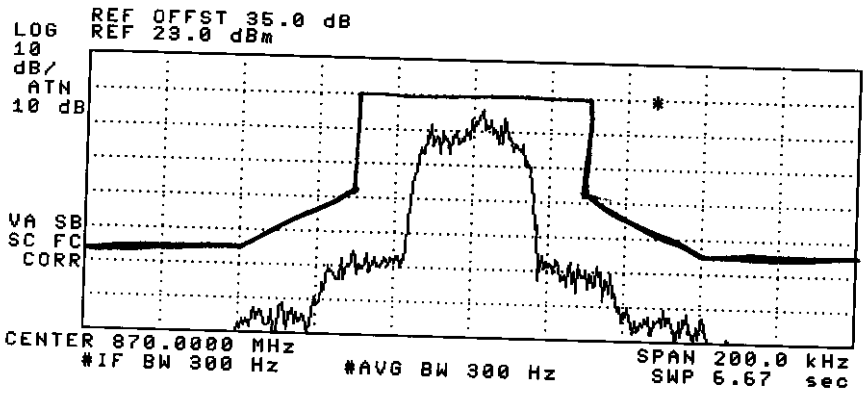
#76

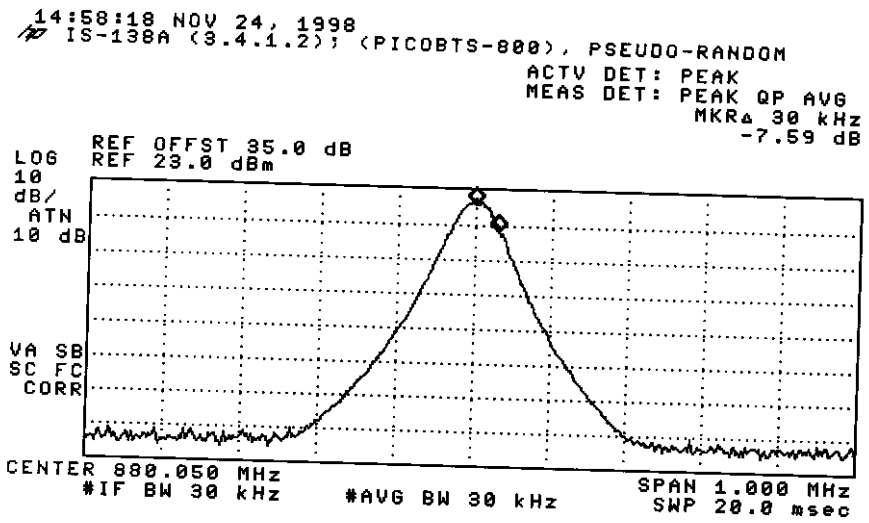

14:39:27 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -60.0 kHz
-62.94 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 870.0000 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 200.0 kHz
SWP 6.67 sec

#77

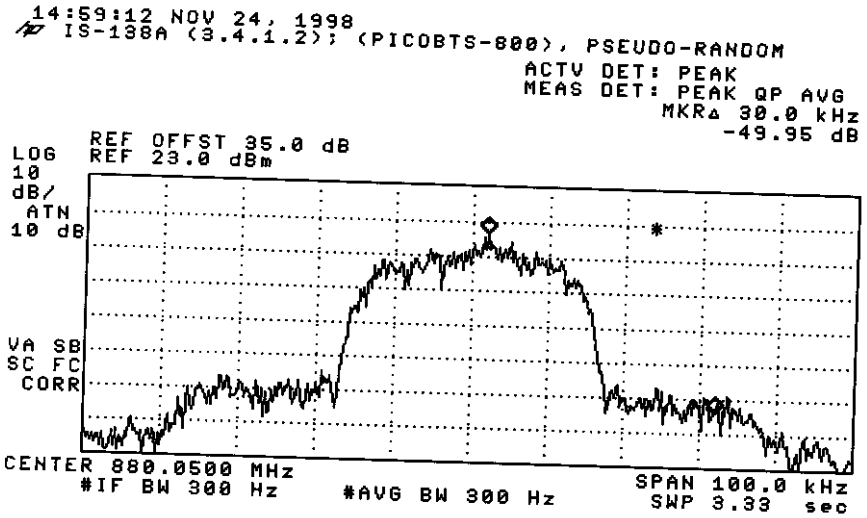
14:40:05 NOV 24, 1998
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#78

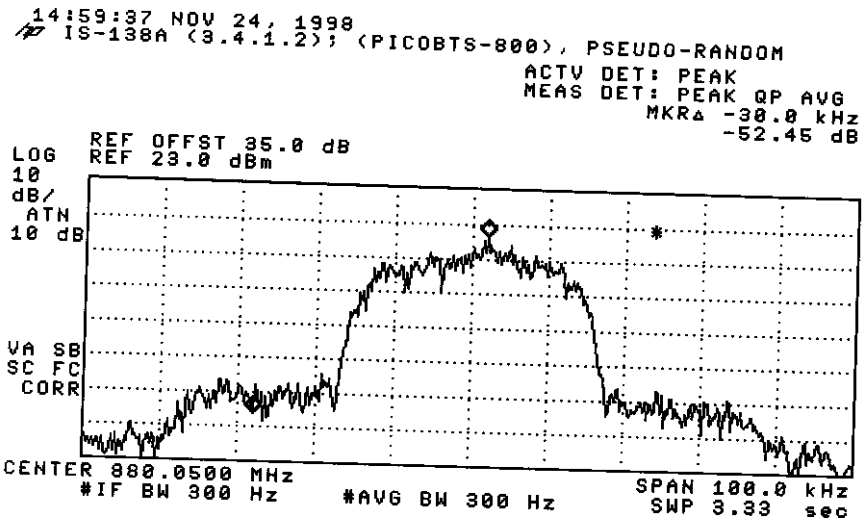



14:58:18 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30 kHz
-7.59 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 880.050 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 1.000 MHz
SWP 20.0 msec

#179


14:59:12 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-49.95 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 880.0500 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 100.0 kHz
SWP 3.33 sec

#180

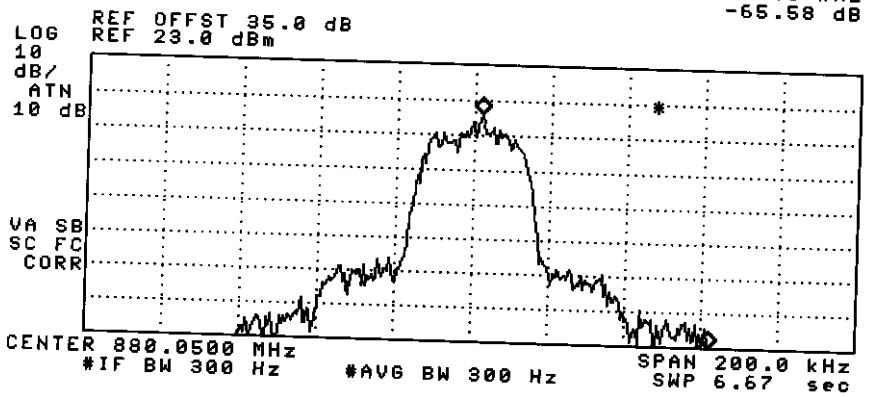

14:59:37 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -30.0 kHz
-52.45 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
VA SB
SC FC
CORR
CENTER 880.0500 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 100.0 kHz
SWP 3.33 sec

#181

15:01:13 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 60.0 kHz
-65.58 dB

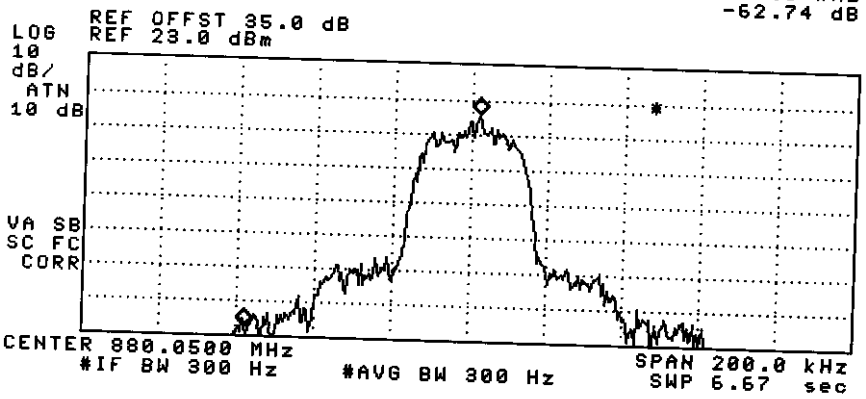
#182



15:01:31 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM

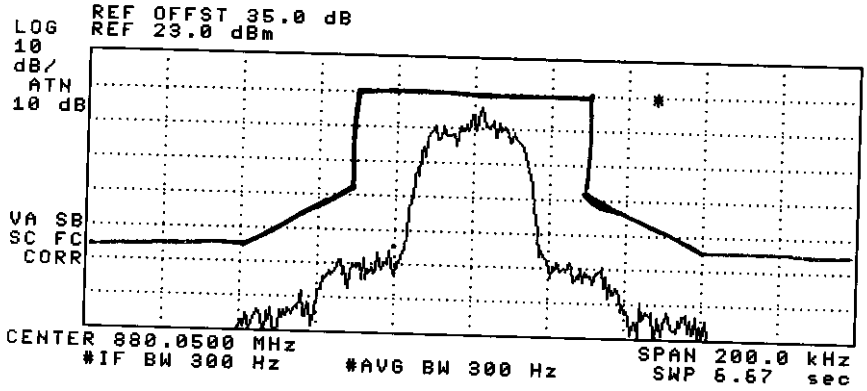
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -60.0 kHz
-62.74 dB

#183

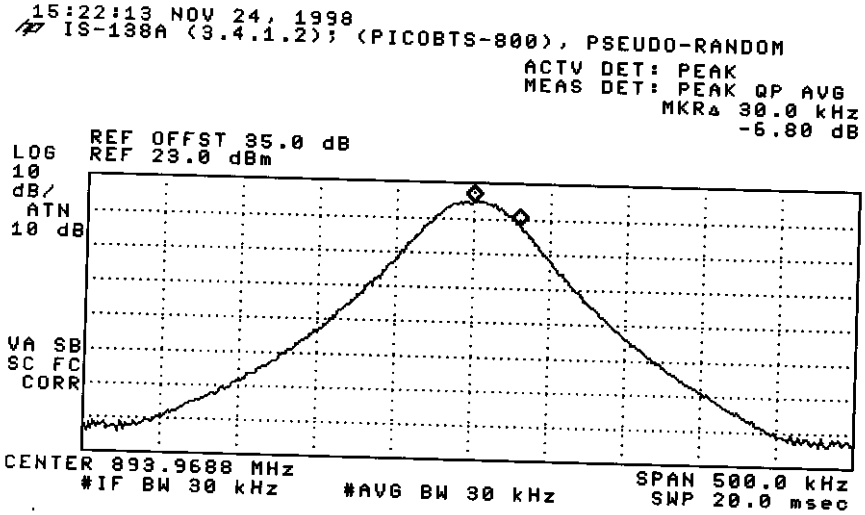


15:01:52 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

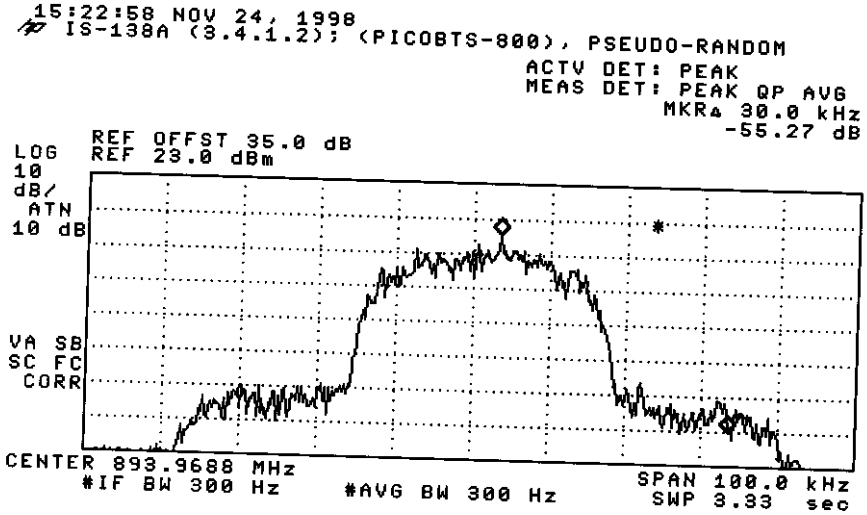
#64



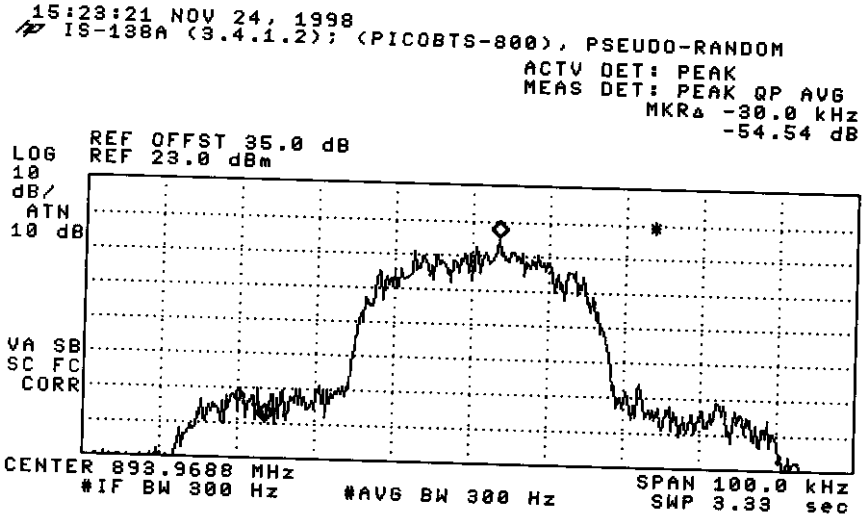
#86


15:22:13 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-6.80 dB
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 23.0 dBm
VA SB
SC FC
CORR
CENTER 893.9688 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 500.0 kHz
SWP 20.0 msec

#87

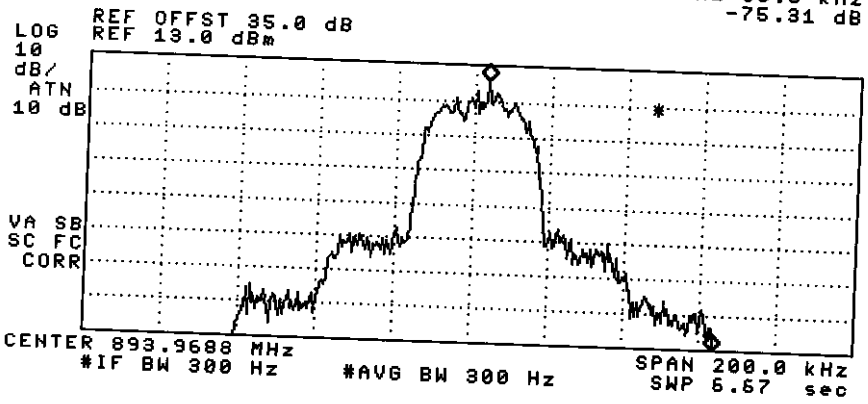

15:22:58 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 30.0 kHz
-55.27 dB
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 23.0 dBm
VA SB
SC FC
CORR
CENTER 893.9688 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 100.0 kHz
SWP 3.33 sec

#88


15:23:21 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -30.0 kHz
-54.54 dB
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 23.0 dBm
VA SB
SC FC
CORR
CENTER 893.9688 MHz
#IF BW 300 Hz
#AVG BW 300 Hz
SPAN 100.0 kHz
SWP 3.33 sec

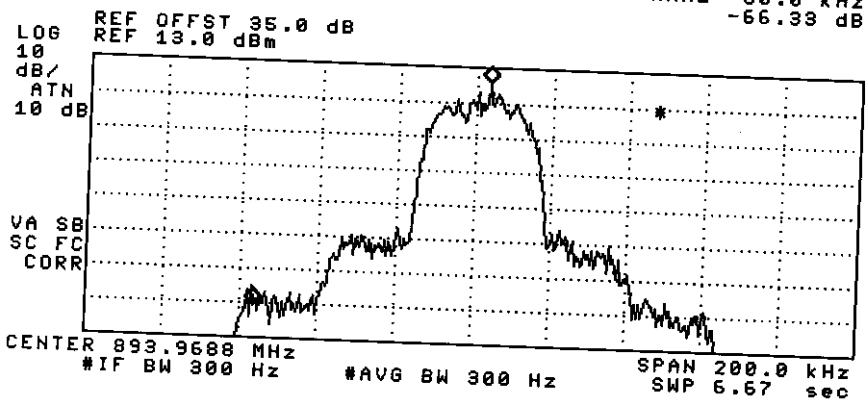
15:24:27 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 60.0 kHz
-75.31 dB

#89



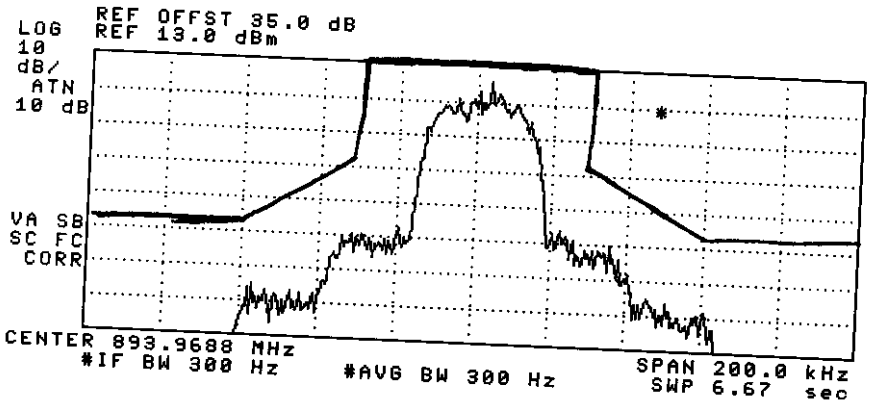
15:24:48 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -60.0 kHz
-66.33 dB

#90



15:25:07 NOV 24, 1998
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG

#191

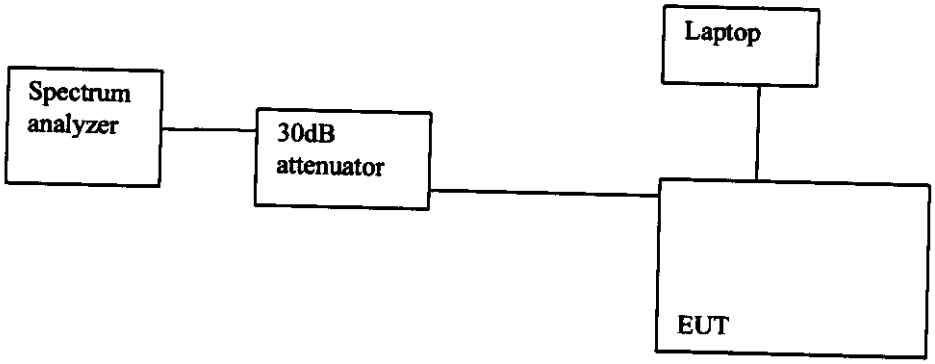


SECTION 2.1051 (2.991): SPURIOUS EMISSION AT ANTENNA TERMINAL.

Equipment used.

HP Spectrum Analyzer/8593EM
Narda 30dB Attenuator
Flexco low loss cables, 9ft. (Loss: 0.85 dB/ft @ 26GHz)
NEC Laptop Computer.

TEST SETUP:



Minimum Requirement:

22.917(e) Out of Band emissions:
The magnitude of each spurious and harmonic emissions that can be detected when the equipment is operated under conditions specified in the instruction manual and/or alignment procedure, shall not be more than 43 + log (mean output power) dBc below the mean power output, which is equivalent to –13 dBm.

IS-138A (3.4.1.2) Digital Mode:
The magnitude of each spurious and harmonic emissions that can be detected when the equipment is operated under conditions specified in the instruction manual and/or alignment procedure, shall not be more than 43 + log (mean output power) dBc below the mean power output, which is equivalent to –13 dBm.

Test Result:
Refer to spectrum plots attached. Plots are 5MHz to 10th harmonic of the carrier frequency. Table shows the order of plots.

SECTION 22.917 (D)

MAIN ANTENNA PORT	
	PLOT NUMBER
LOW	92
LOW	93
MIDDLE	94
MIDDLE	95
HIGH	96
HIGH	97

IS-138A (3.4) DIGITAL MODE:

MAIN ANTENNA PORT	
	PLOT NUMBER
LOW	98
LOW	99
MIDDLE	100
MIDDLE	101
HIGH	102
HIGH	103

SECTION 22.917 (D)

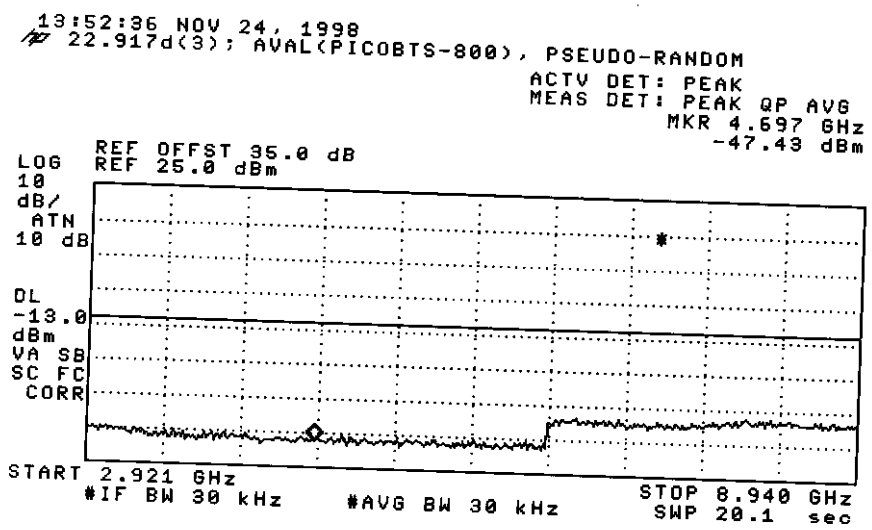
DVSTY ANTENNA PORT	
	PLOT NUMBER
LOW	104
LOW	105
MIDDLE	106
MIDDLE	107
HIGH	108
HIGH	109

COMPLIANCE CERTIFICATION SERVICES
1366 BORDEAUX DRIVE SUNNYVALE, CA 94089 USA
TEL:(408) 752-8166 FAX:(408) 752-8168

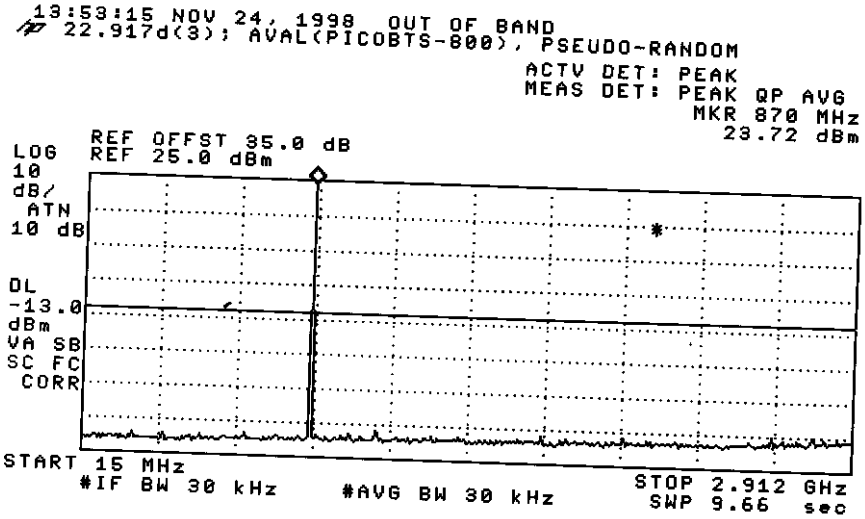
IS-138A (3.4) DIGITAL MODE:

DVSTY ANTENNA PORT	
	PLOT NUMBER
LOW	**110**
LOW	**111**
MIDDLE	**112**
MIDDLE	**113**
HIGH	**114**
HIGH	**115**

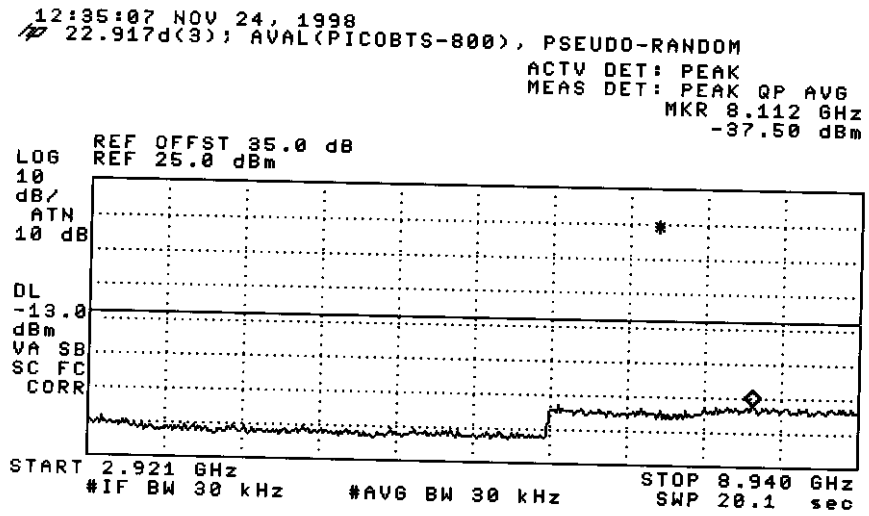
COMPLIANCE CERTIFICATION SERVICES DOCUMENT NO:CCSUP4031A
1366 BORDEAUX DRIVE SUNNYVALE, CA 94089 USA TEL:(408) 752-8166 FAX:(408) 752-8168


13:52:36 NOV 24, 1998
22.917d(3); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 4.697 GHz
-47.43 dBm
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 25.0 dBm
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

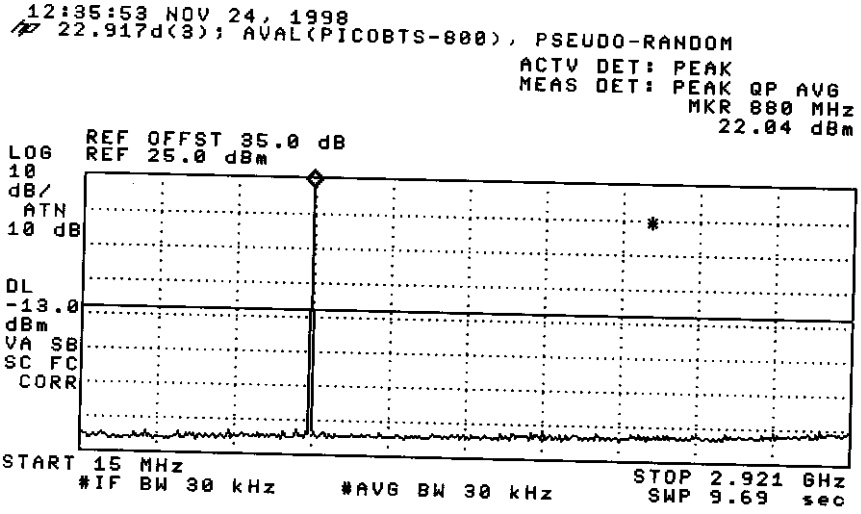
#192


13:53:15 NOV 24, 1998 OUT OF BAND
22.917d(3); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 870 MHz
23.72 dBm
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 25.0 dBm
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.912 GHz
SWP 9.66 sec

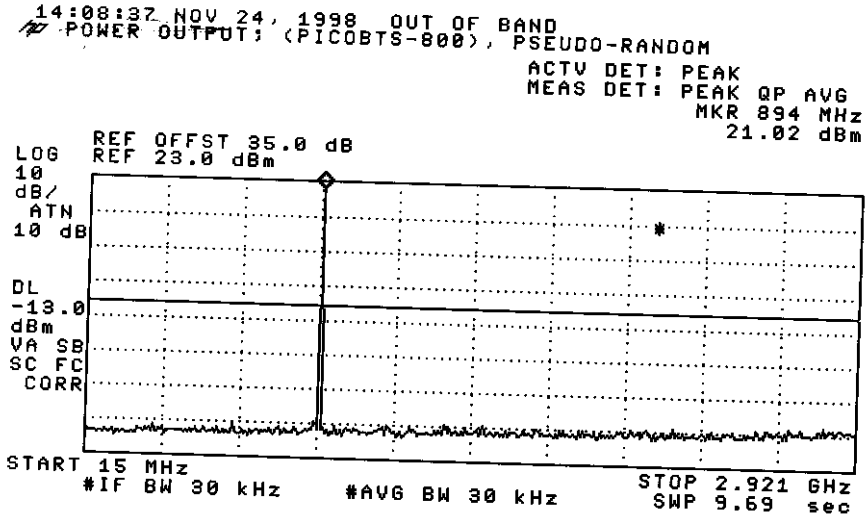
#193


12:35:07 NOV 24, 1998
22.917d(3); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.112 GHz
-37.50 dBm
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

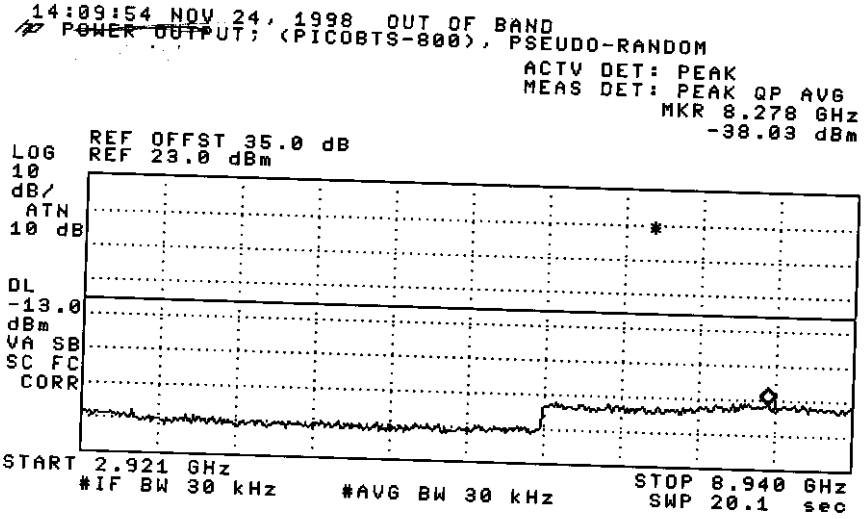
#94


12:35:53 NOV 24, 1998
22.917d(3); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 880 MHz
22.04 dBm
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

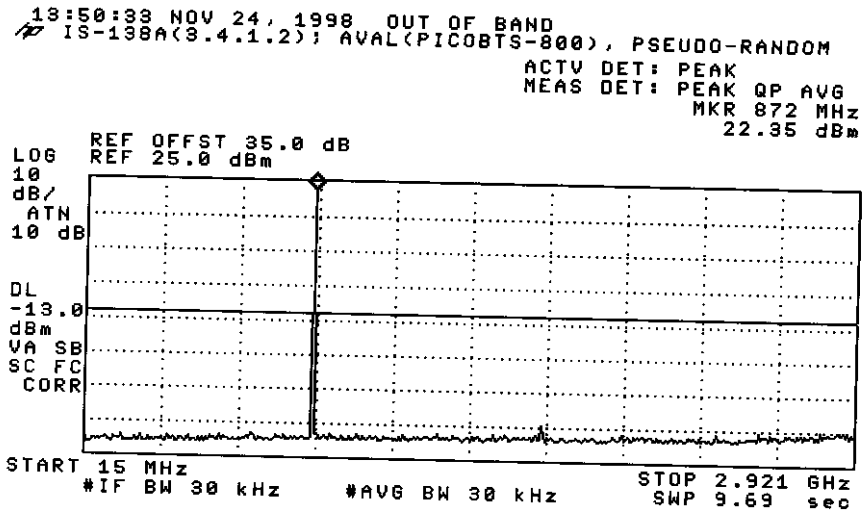
#95


14:08:37 NOV 24, 1998 OUT OF BAND
POWER OUTPUT; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 894 MHz
21.02 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

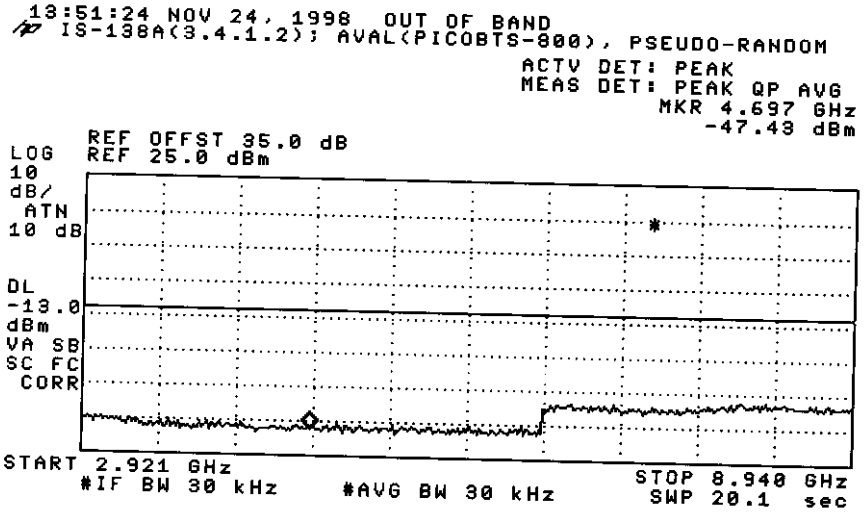
HG6


14:09:54 NOV 24, 1998 OUT OF BAND
POWER OUTPUT; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.278 GHz
-38.03 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

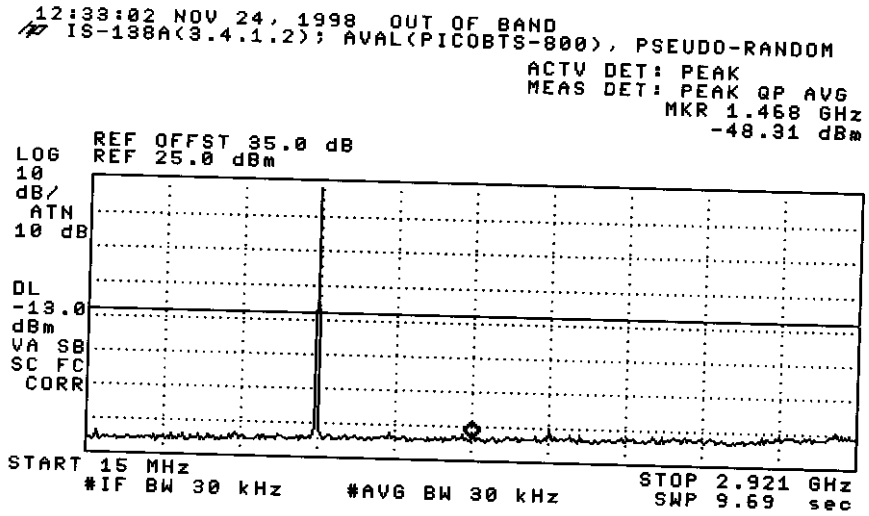
#97


13:50:33 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 872 MHz
22.35 dBm
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

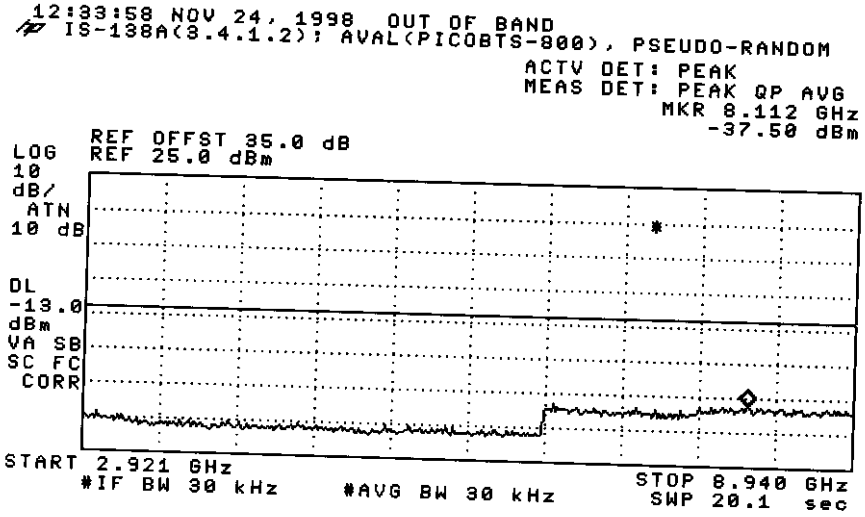
H 98


13:51:24 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 4.697 GHz
-47.43 dBm
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

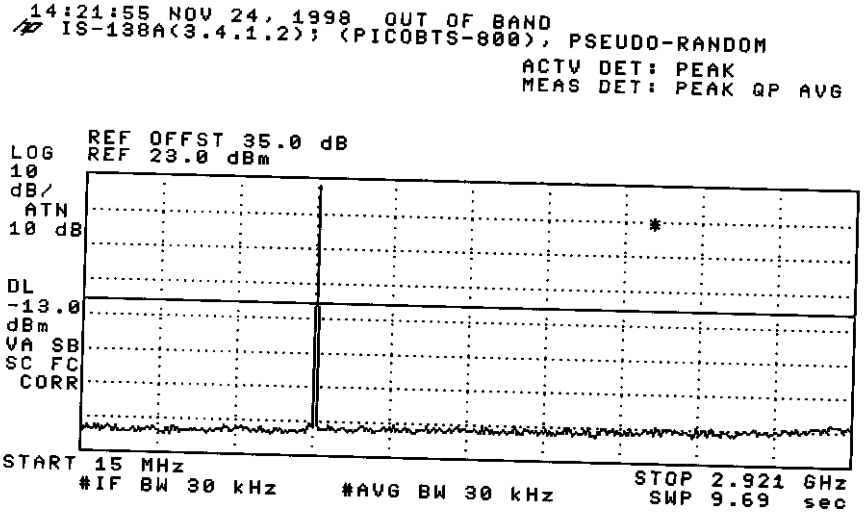
H 99


12:33:02 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.468 GHz
-48.31 dBm
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

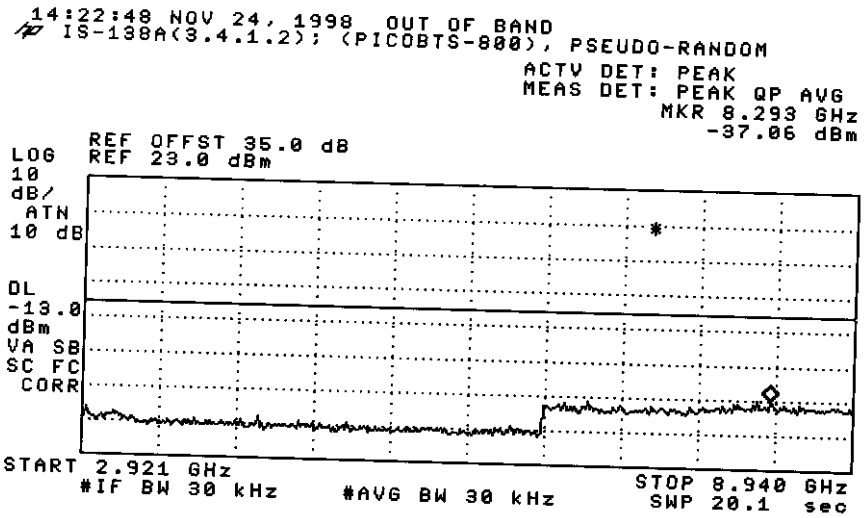
#100


12:33:58 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.1.2); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.112 GHz
-37.50 dBm
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

#101


14:21:55 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 23.0 dBm
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

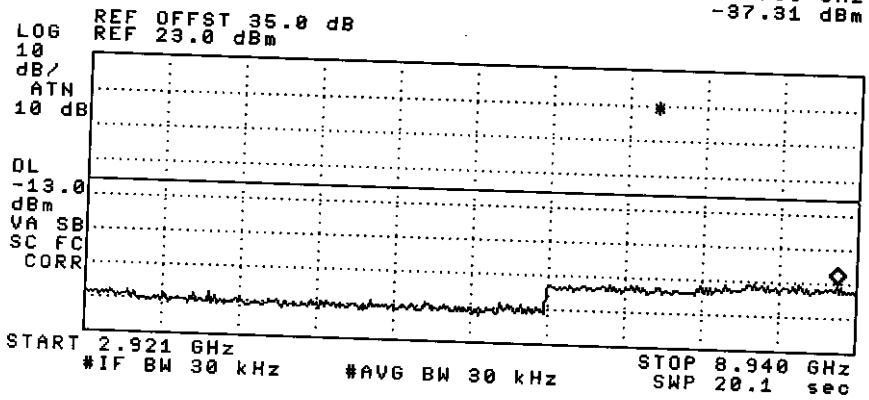
#102


14:22:48 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.293 GHz
-37.06 dBm
REF OFFST 35.0 dB
LOG
10
dB/
ATN
10 dB
REF 23.0 dBm
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

#103

14:44:20 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM

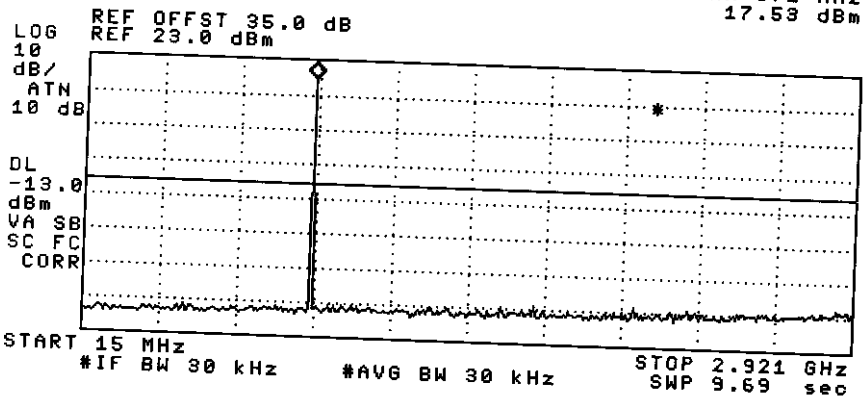
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.790 GHz
-37.31 dBm



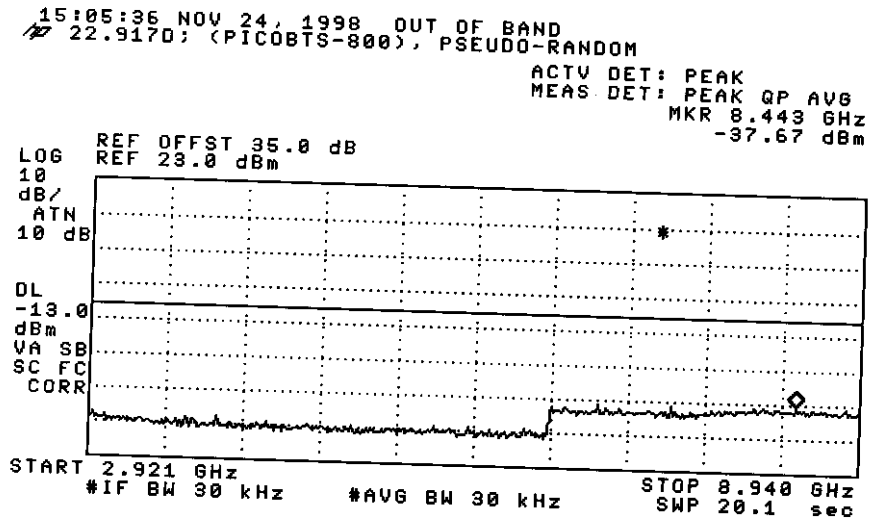
#104

14:44:59 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM

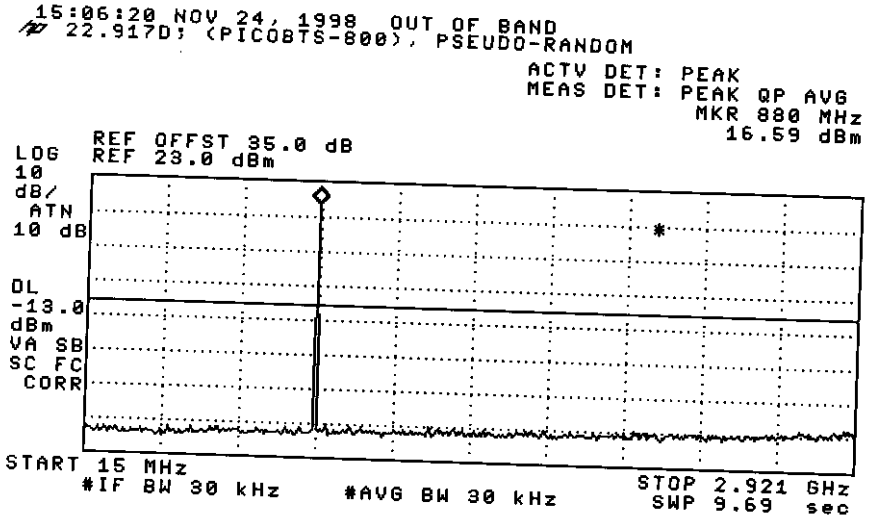
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 872 MHz
17.53 dBm



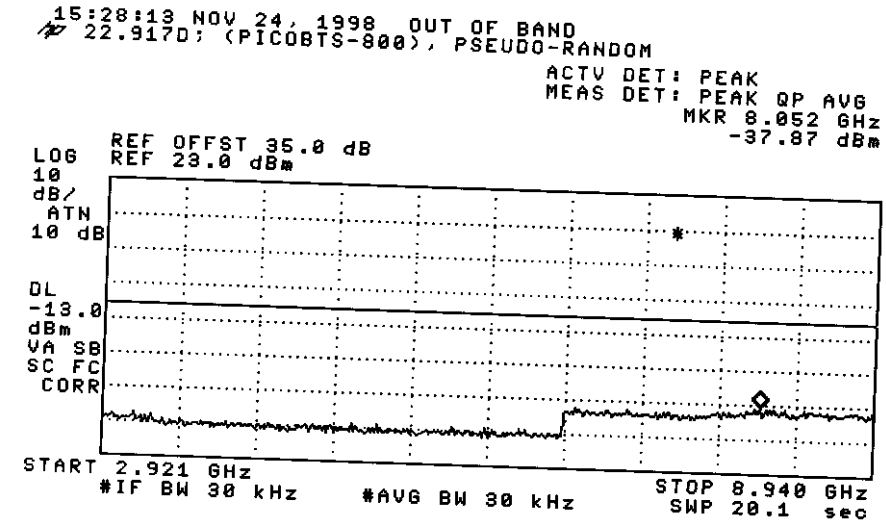
#105


15:05:36 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.443 GHz
-37.67 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

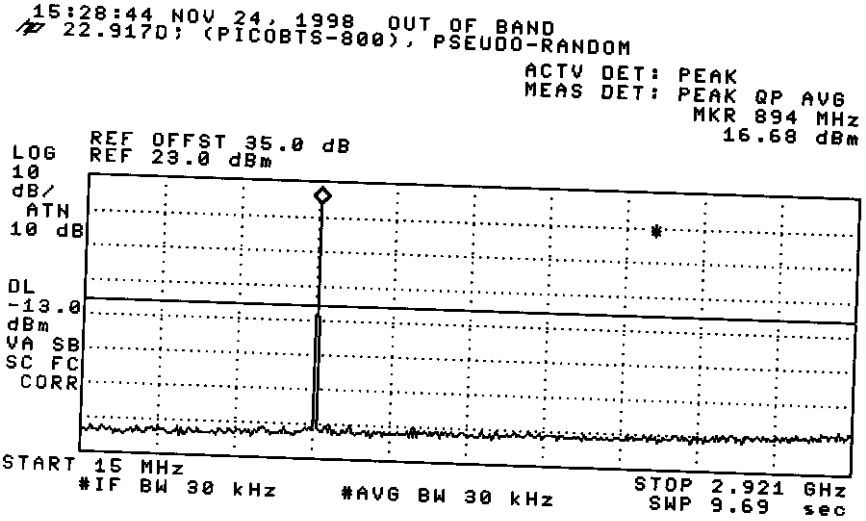
#106


15:06:20 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 880 MHz
16.59 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

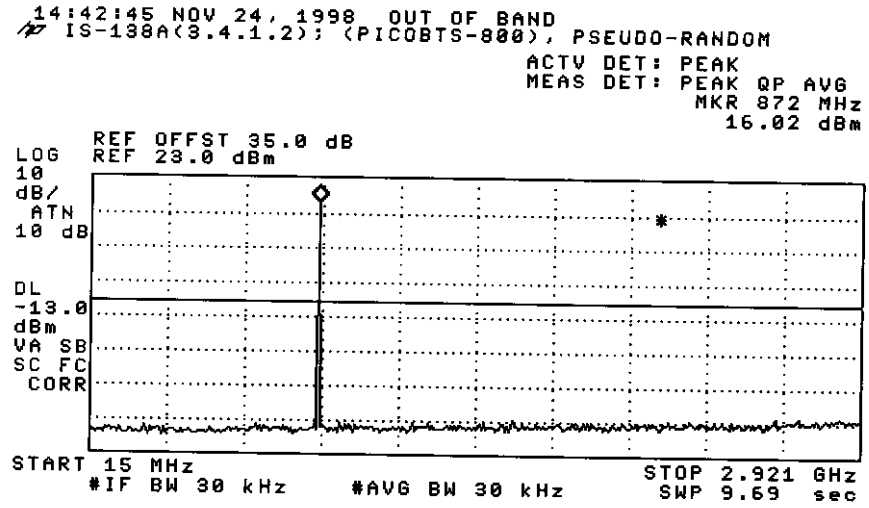
#107


15:28:13 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.052 GHz
-37.87 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

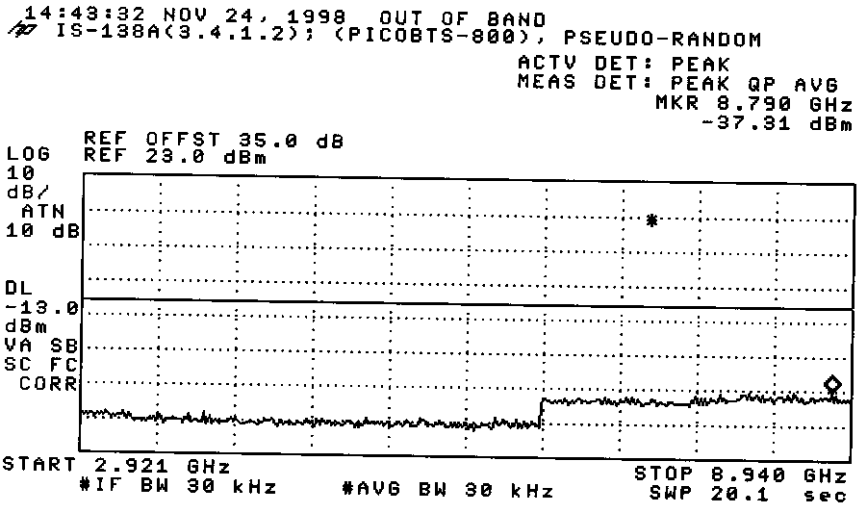
#108


15:28:44 NOV 24, 1998 OUT OF BAND
22.917D; (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 894 MHz
16.68 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

#109

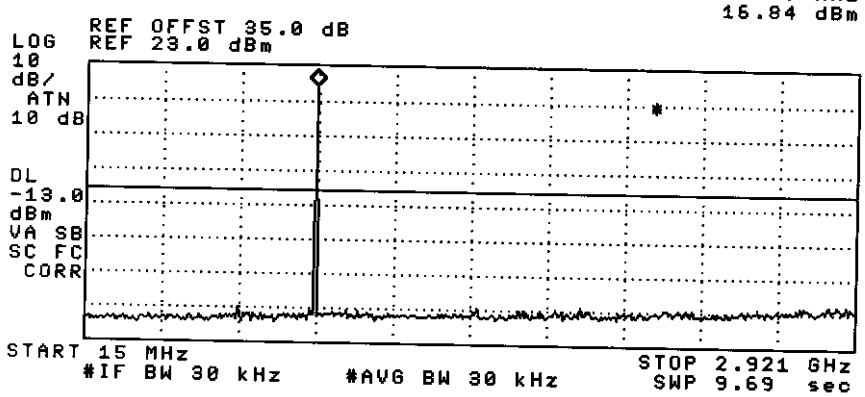

14:42:45 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 872 MHz
16.02 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

H 110


14:43:32 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.790 GHz
-37.31 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

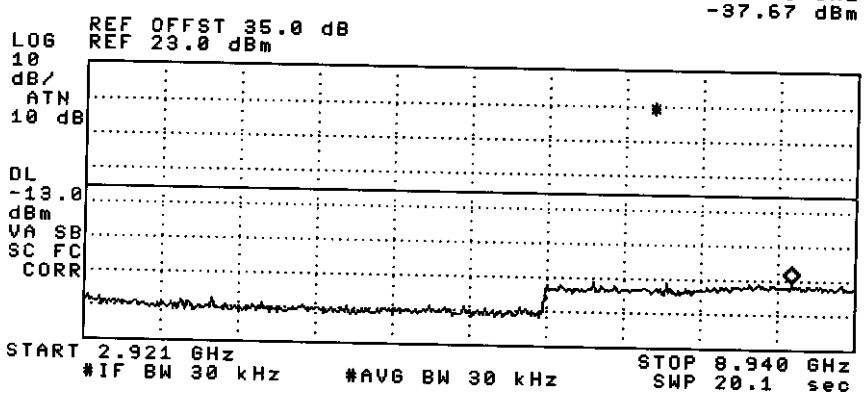
H 111

15:03:21 NOV 24, 1998 OUT OF BAND
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 880 MHz
16.84 dBm



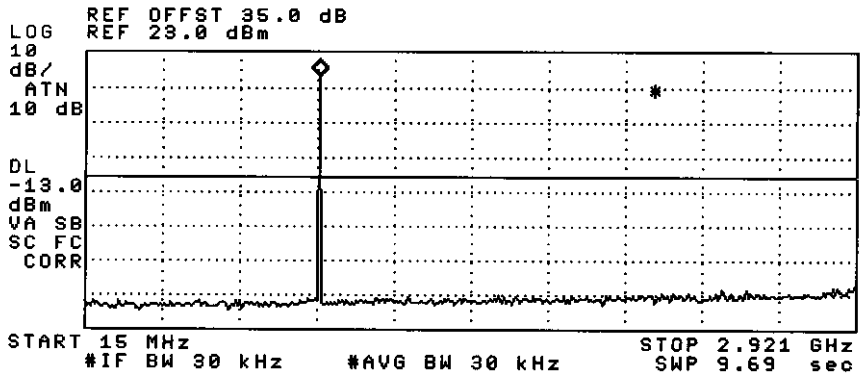
#1.2

15:04:22 NOV 24, 1998 OUT OF BAND
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.443 GHz
-37.67 dBm



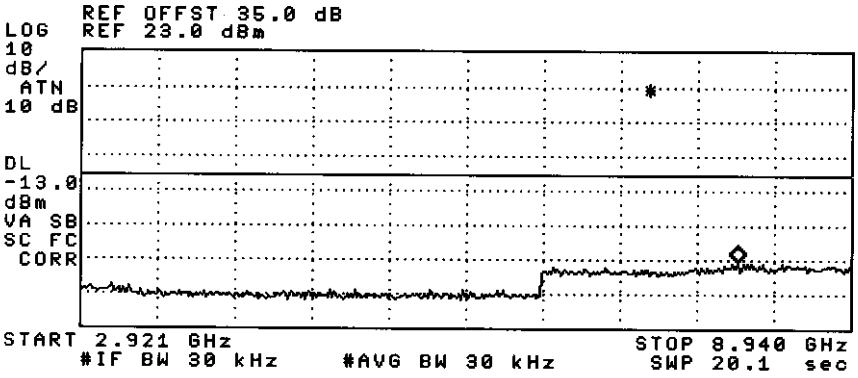
#1.3

15:26:27 NOV 24, 1998 OUT OF BAND
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 894 MHz
15.69 dBm



#114

15:27:18 NOV 24, 1998 OUT OF BAND
IS-138A (3.4.1.2); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.052 GHz
-37.87 dBm



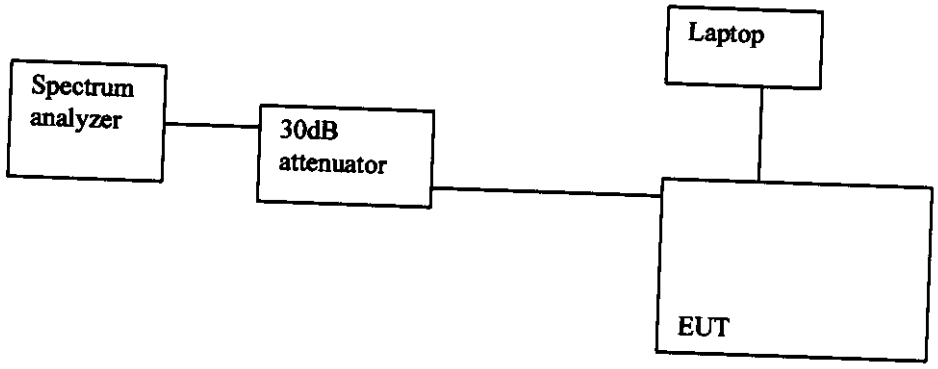
#115

TWO-TONE TEST (spurious emissions at attenna terminal)

Equipment used.

HP Spectrum Analyzer/8593EM
Narda 30dB Attenuator
Flexco low loss cables, 9ft. (Loss: 0.85 dB/ft @ 26GHz)
NEC Laptop Computer.

TEST SETUP:



Minimum Requirement:
IS-138A (3.4.4):
Intermodulation products must be attenuated below the rated power of the Eut by at least 43 + 10Log (P), or 60 dB, whichever is lesser attenuation. Equivalent to –13 dBm.

Test Procedure:
A) Tested both the **DVSTY** and **MAIN**, so that the two input signals are equal in level (and can be raised equally).

When testing two-tone one intermodulation product is outside the passband and the other intermodulation product is inside the passband.

Example:

Eut frequency passband range: 869 to 894 MHz.

To calculate f3 and f4 use: $f3 = 2(f1) - f2$
$f4 = 2(f2) - f1$

For example:

f1= 870 MHz
f2= 880 MHz

f3 = 2(870) – 880 = 860 MHz (it is outside the passband)
f4 = 2(880) – 870 = 890 MHz (it is inside the passband)

So, the first radio was be set to 870 MHz and the second radio was set to 880 MHz.

Set the REW BW: 30 kHz and SPAN enough to show both the two-tone and intermodulation products. Using the DISPLAY LINE place it at –13 dBm. Use enough attenuation to prevent overload at spectrum analyzer input

With the same setup as above scan from 1MHz to 10th harmonic of carrier, while ignoring the two-tone and intermodulation products

Test Result:
Make Plots of the Two-Tone test and Out-of-Band emission. Table shows the order of plots.

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DIGITAL MODE:

MAIN ANTENNA PORT	
TWO-TONE TEST	PLOT NUMBER
OUT-OF –BAND	116
OUT-OF-BAND	117
	118

DVSTY ANTENNA PORT	
TWO-TONE TEST	PLOT NUMBER
OUT-OF –BAND	119
OUT-OF-BAND	120
	121

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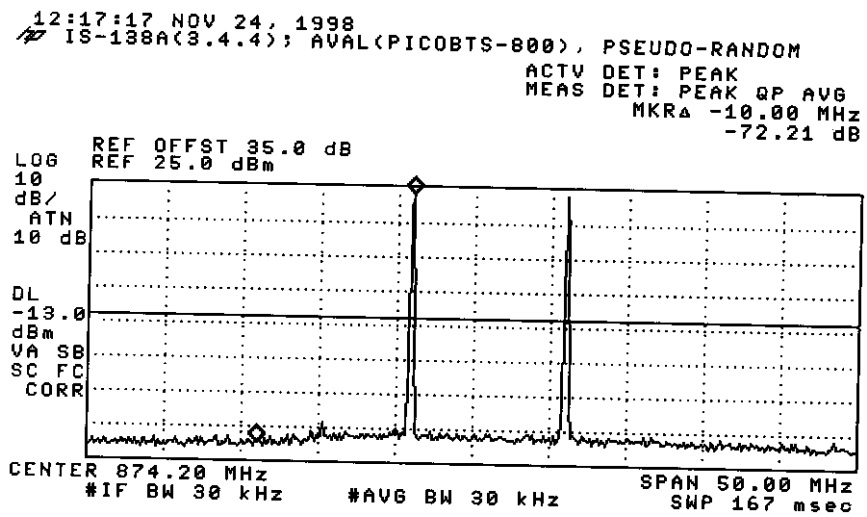
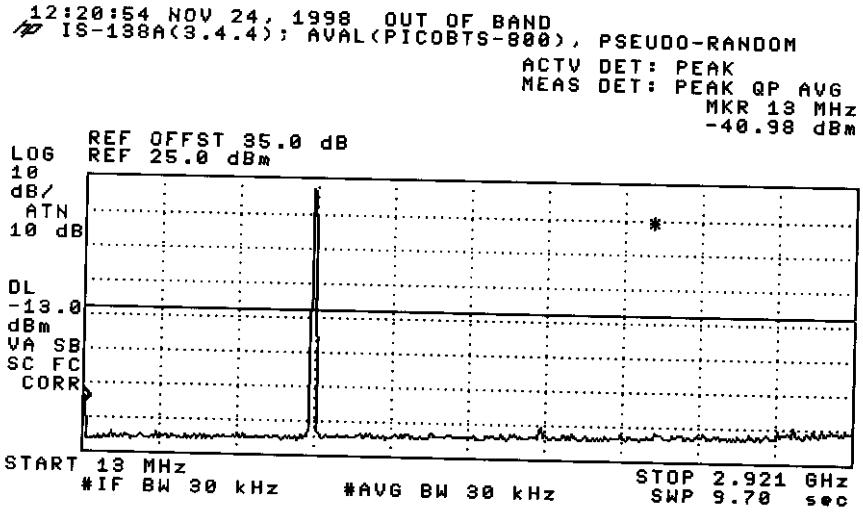
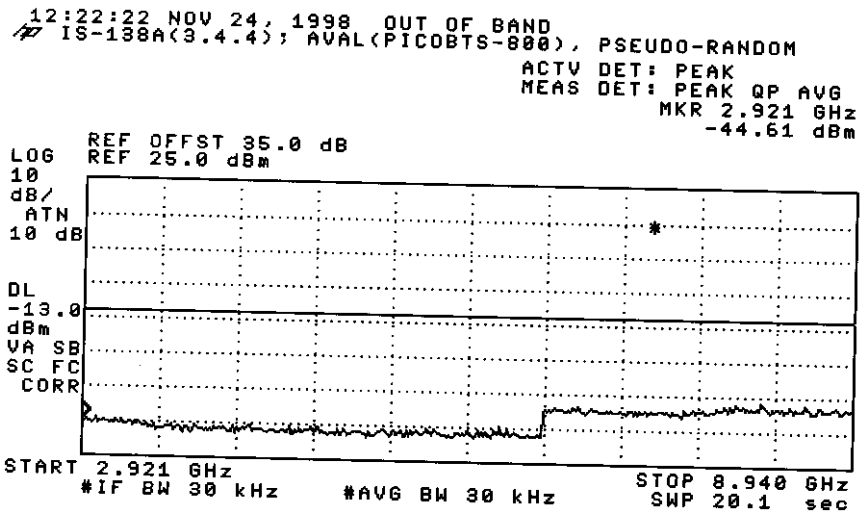

12:17:17 NOV 24, 1998
IS-138A(3.4.4); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -10.00 MHz
-72.21 dB
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10 dB/
ATN 10 dB
DL -13.0 dBm
VA SB
SC FC
CORR
CENTER 874.20 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 50.00 MHz
SWP 167 msec

#116

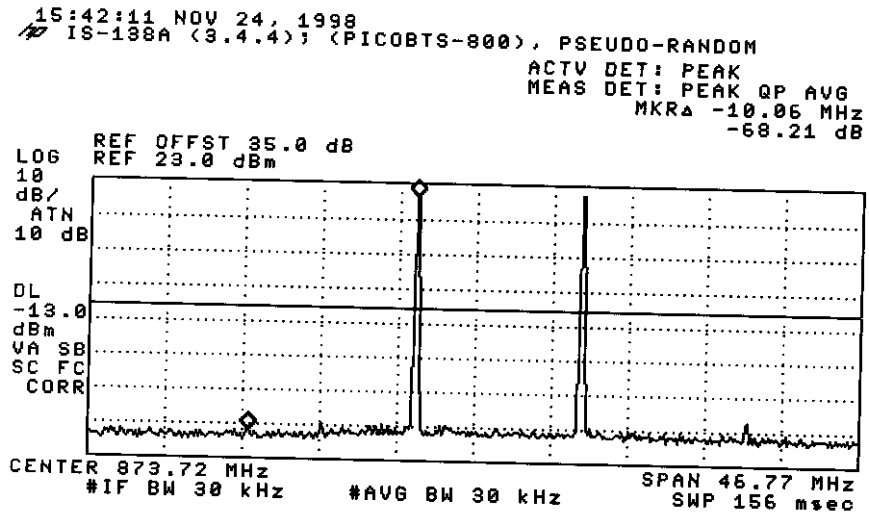

12:20:54 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.4); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 13 MHz
-40.98 dBm
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10 dB/
ATN 10 dB
DL -13.0 dBm
VA SB
SC FC
CORR
START 13 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.70 sec

#117

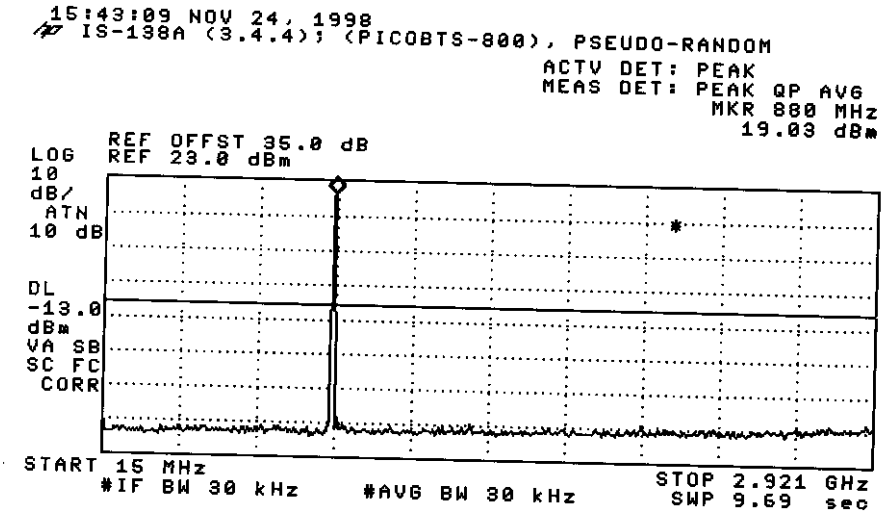

12:22:22 NOV 24, 1998 OUT OF BAND
IS-138A(3.4.4); AVAL(PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.921 GHz
-44.61 dBm
REF OFFST 35.0 dB
LOG REF 25.0 dBm
10 dB/
ATN 10 dB
DL -13.0 dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

#118

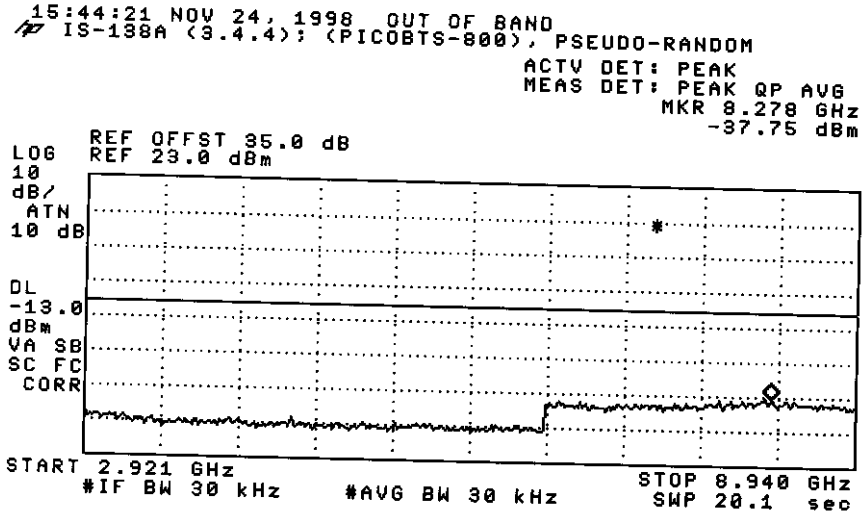
#119


15:42:11 NOV 24, 1998
IS-138A (3.4.4); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ -10.06 MHz
-68.21 dB
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
CENTER 873.72 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
SPAN 46.77 MHz
SWP 156 msec

#120


15:43:09 NOV 24, 1998
IS-138A (3.4.4); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 880 MHz
19.03 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

#121

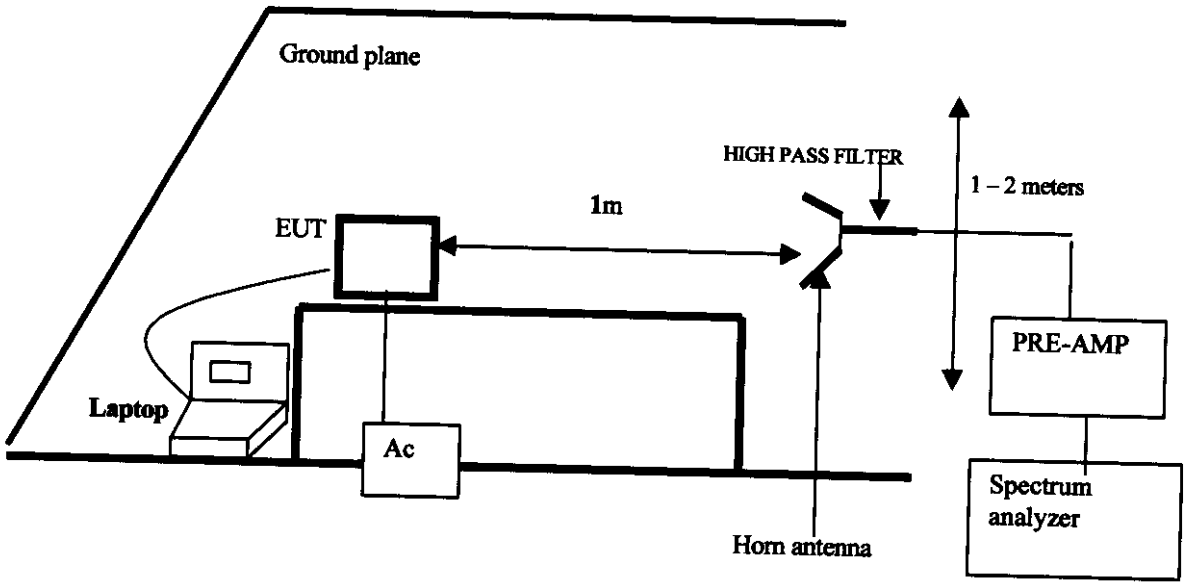

15:44:21 NOV 24, 1998 OUT OF BAND
IS-138A (3.4.4); (PICOBTS-800), PSEUDO-RANDOM
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.278 GHz
-37.75 dBm
REF OFFST 35.0 dB
LOG REF 23.0 dBm
10
dB/
ATN
10 dB
DL
-13.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.940 GHz
SWP 20.1 sec

SECTION 2.1053 (2.993): FIELD STRENGTH OF SPURIOUS RADIATION.

Equipment used.

Emco Horn Antenna/3146
HP Pre-Amp (1 – 26.5 GHz)/8449B
HP Spectrum Analyzer/8593EM
FSY High Pass Filter (1.802GHz)/001
FLEXCO cable/20761; 19ft. coaxial cable (loss: .9dB/ft @ 26GHz)

Test setup



Minimum Requirement:
The magnitude of each spurious and harmonic emissions detected as being radiated from the EUT must be at a level no more than 43 + 10 log (mean output power, watts) dB below the mean power output (-13dBm).
Resultant radiated field at 3 meters from –13dBm source feeding isotropic antenna: 82 dBuV/m.

Test procedure:
EUT antenna output was terminated with a 50-ohm terminator. The EUT was placed on a wooden table on the outdoor ground plane. The search antenna was placed 3 ft from the EUT. With the transmitter operating at full power the turntable was slowly rotated to locate the direction of maximum emission once maximum direction was determined; the search antenna was raised and lowered in both vertical and horizontal polarization.

Test Result:
The maximum readings so obtained are recorded in a spreadsheet attached.

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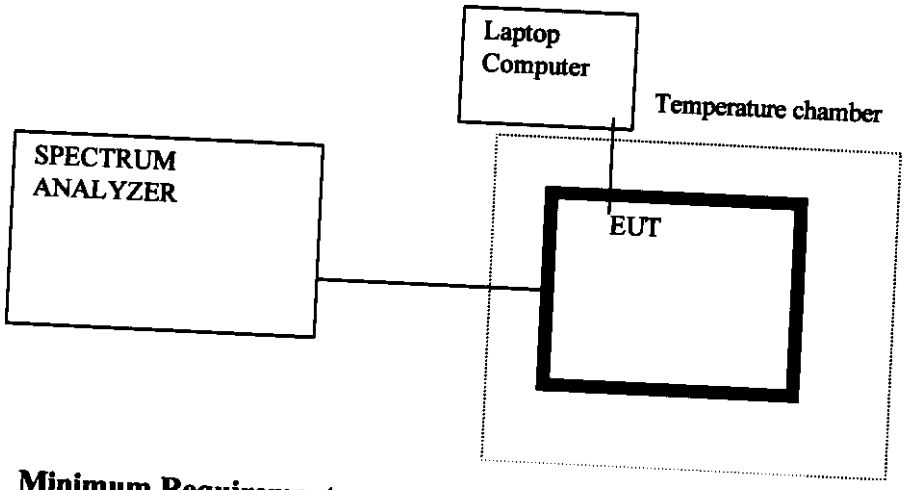
Compliance Certification Services												
IS-138A(3.4.2.2) AND FCC 22.917(E)									11/24/1998			
									Juan Martinez			
Aval Commnications									(1Meter)			
Wireless Base Station Unit.												
*f*o=881.5MHz												
F(MHz)	***PK***	**AF**	**CL**	**AMP**	**DIST**	**OTHER**	**TOTAL**		**LIMIT**		**MARGIN**	
	dBuv	(dB)	(dB)	(dB)	(dB)	(dB)	(dBuV/m)		(dBuV/m)		(dBuV/m)	
							PK		***PK***		***PK***	
1763	64.53	26	2.34	-35.5	-9.5	0	47.87		82		-34	
2644	65.47	29.9	2.88	-35.5	-9.5	1	54.25		82		-28	
3526	54.43	33.1	4.68	-35.5	-9.5	1	48.21		82		-34	
4407n.f.	43.78	32.3	5.22	-35.5	-9.5	1	37.3		82		-45	
5289n.f.	44.21	34.7	5.4	-35.5	-9.5	1	40.31		82		-42	
6171n.f.	43.87	35.5	5.58	-35.5	-9.5	1	40.95		82		-41	
7047n.f.	47.2	36.2	6.48	-35.5	-9.5	1	45.88		82		-36	
7932n.f.	48.6	37	6.84	-35.5	-9.5	1	48.44		82		-34	
8810n.f.	48.17	38.1	7.38	-35.5	-9.5	1	49.65		82		-32	
n.f.: Noise Floor			DIST: Distance Correction(-9.5dB, 3ft.)							**RES**	**VBW**	
AF: Antenna Factor			OTHER: High pass filter insertion loss						**PK:**	1MHz	1MHz	
AMP: Pre-amp gain			*FSY Microwave high pass filter (*f*o=1.804MHz)						**PK: Peak**			
CL: Cable loss												

SECTION 2.1055 (Was Section 2.995): FREQUENCY STABILITY

Test Equipment:

HP Spectrum Analyzer/8593EM
FLEXCO cable; 1ft. coaxial cable (loss: .9dB/ft @ 26GHz)
NEC laptop computer

Test Setup:



Minimum Requirement:

IS-138A (3.1.2) Digital Mode:

TDMA: Within ± 0.25 ppm of assigned carrier

Test Method

Temperature: Vary the ambient temperature from -30 to +50°C, in 10 degree increments, allowing the EUT to stabilize at each temperature.

Primary Supply Voltage: Vary the supply voltage from 85% to 115% of the nominal operating voltage

Test Results

TX Output: 881.550000 MHz (Ch 385) .25 ppm: ± 220.4 Hz

Temp°C	F(Hz)
+50	881.550045
+40	881.550011
+30	881.550011
+20	881.550054
+10	881.550033
0	881.550069
-10	881.550026
-20	881.550089

-30 881.550016

TX Output: 881.550088 MHz (Ch 385) .25 ppm: ± 220.4 Hz

Voltage Stability reference voltage 24Vdc:

881.550088 :85% **(20.4 VDC)** **881.550088** :115%: **(27.6 VDC)**

Voltage Stability reference voltage 48Vdc:

881.550088:85% **(40.8 VDC)** **881.550032**:104% **(50 VDC)**

Note: for reference 48Vdc only 104 percent was tested, because Eut will shut down at 50Vdc, which is the manufactures stated maximum voltage level for this Eut.

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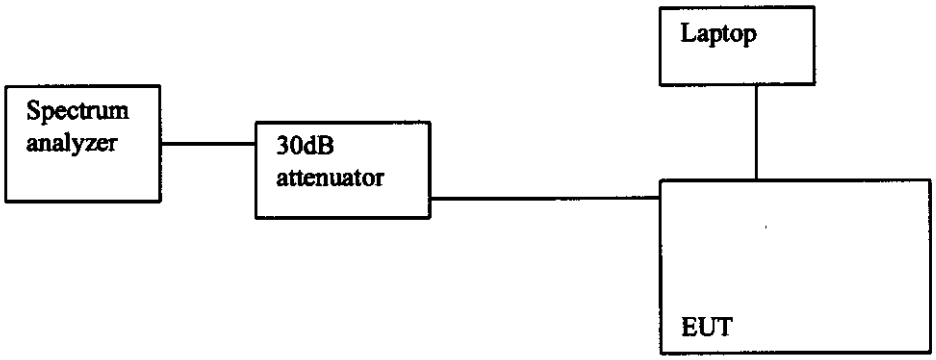
21. RECEIVER SECTION

Equipment used.

HP Spectrum Analyzer/8593EM
Narda 30dB Attenuator
Flexco low loss cables, 9ft. (Loss: 0.85 dB/ft @ 26GHz)
NEC Laptop Computer.

TEST SETUP:



Minimum Requirement:
IS-138A (2.4) Conducted Spurious Emissions:

A) No spurious-output signals appearing at the antenna terminals shall exceed 1000uV across 50 ohm (or equivalent output power of – 47 dBm).

B) No spurious-output signals appearing at the antenna terminals and falling within the associated base station receive band shall exceed 22.4uVacross 50 ohm (or equivalent output power of – 80 dBm).

C) No spurious-output signals appearing at the antenna terminals and falling within the base station transmit band shall exceed 224uVacross 50 ohm (or equivalent output power of – 60 dBm).

15.111; Conducted Spurious Emissions
No spurious-output signals appearing at the antenna terminals shall exceed 2nW across 50 ohm (or equivalent output power of – 57 dBm).

Test Result:
Plots of A, B, C, and 15.111 are included for low, middle, and high modes. Table shows the order of plots.

IS-138A (2.4)

824MHz(LOW)	
	PLOT NUMBER
A	122
A	123
B	124
C	125

836MHz(MIDDLE)	
	PLOT NUMBER
A	126
A	127
B	128
C	129

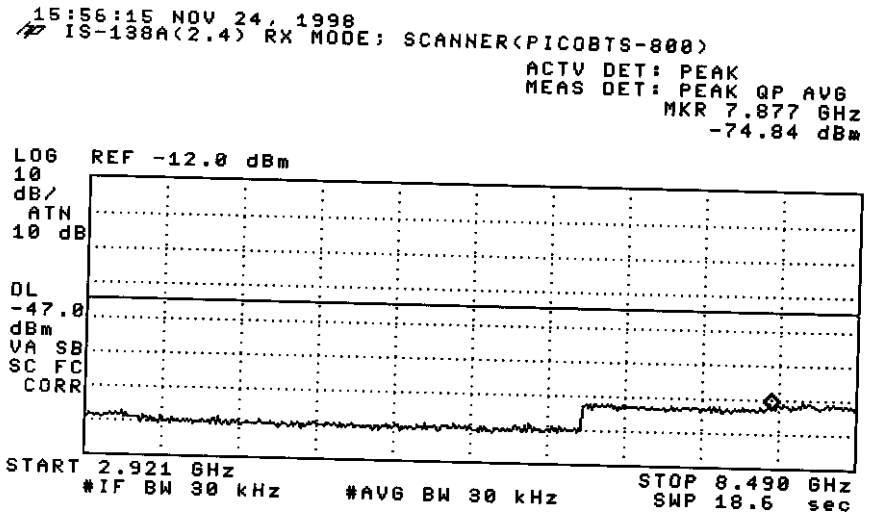
849MHz(HIGH)	
	PLOT NUMBER
A	130
A	131
C	132
B	133

15.111; CONDUCTED

824MHz(LOW)	
	PLOT NUMBER
	134
	135

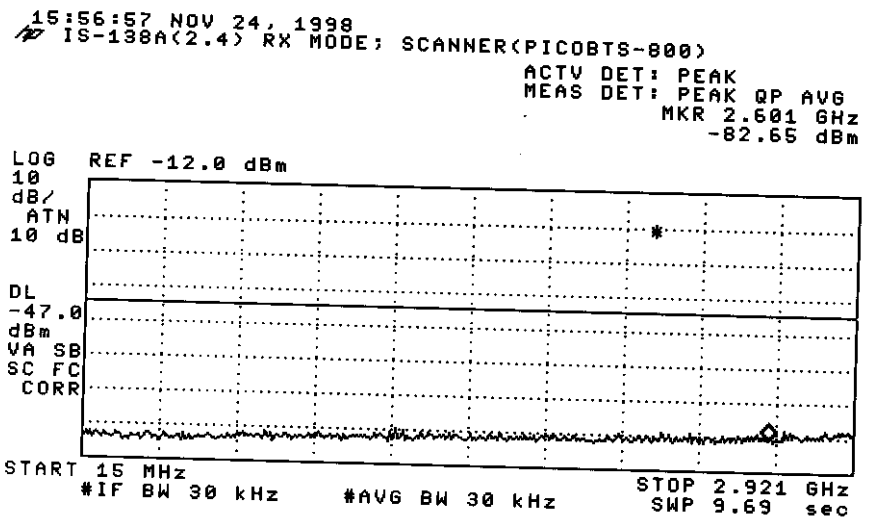
836MHz(MIDDLE)	
	PLOT NUMBER
	136
	137

849MHz(HIGH)	
	PLOT NUMBER
	138
	139


15:56:15 NOV 24, 1998
IS-138A(2.4) RX MODE; SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 7.877 GHz
-74.84 dBm
LOG
10
dB/
ATN
10 dB
REF -12.0 dBm
DL
-47.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.490 GHz
SWP 18.6 sec

A)

H 122

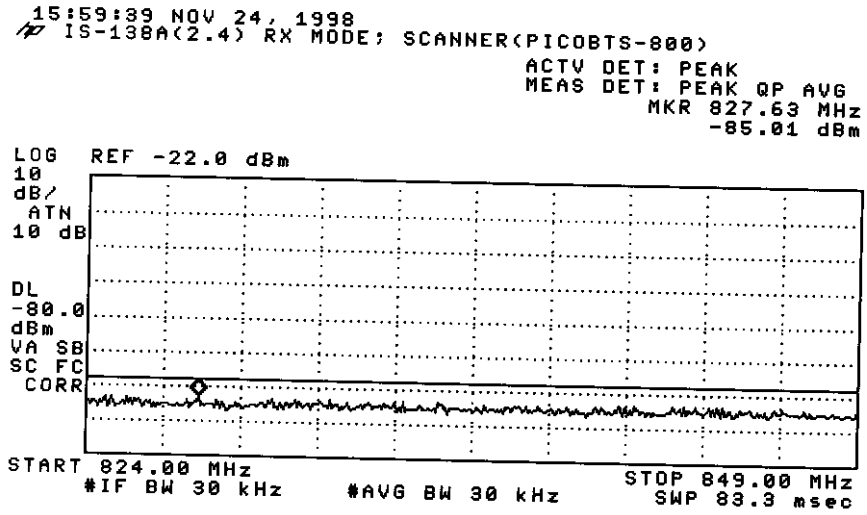

15:56:57 NOV 24, 1998
IS-138A(2.4) RX MODE; SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.601 GHz
-82.65 dBm
LOG
10
dB/
ATN
10 dB
REF -12.0 dBm
DL
-47.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

A)

H 123

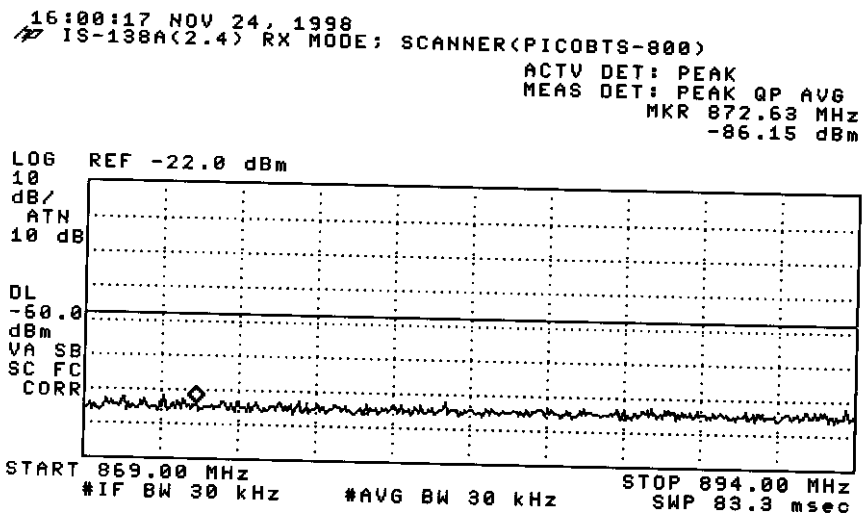
B)

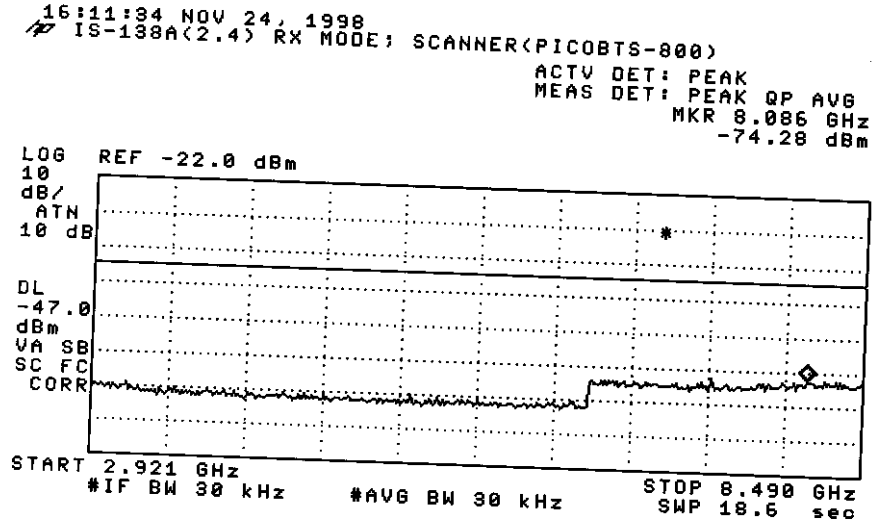
#124


15:59:39 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 827.63 MHz
-85.01 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-80.0
dBm
VA SB
SC FC
CORR
START 824.00 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 849.00 MHz
SWP 83.3 msec

C)

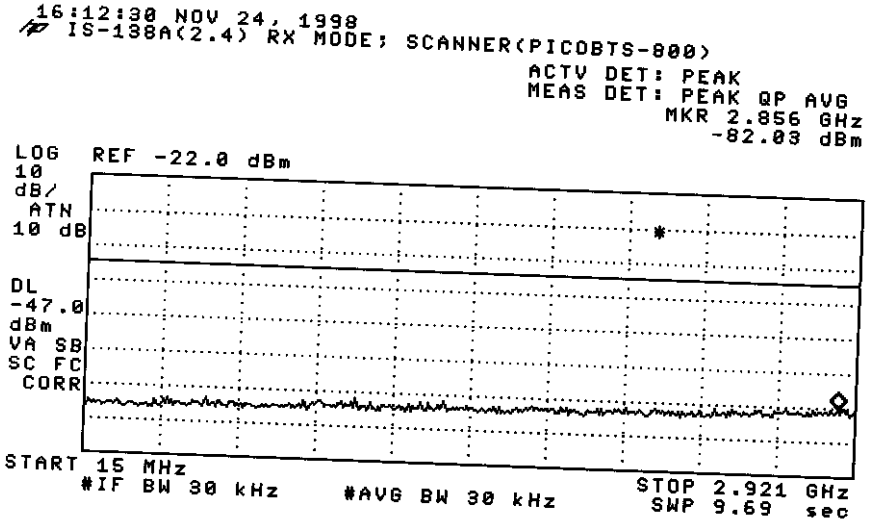
#125


16:00:17 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 872.63 MHz
-86.15 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-60.0
dBm
VA SB
SC FC
CORR
START 869.00 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 894.00 MHz
SWP 83.3 msec


16:11:34 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.086 GHz
-74.28 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-47.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.490 GHz
SWP 18.6 sec

A)

#126

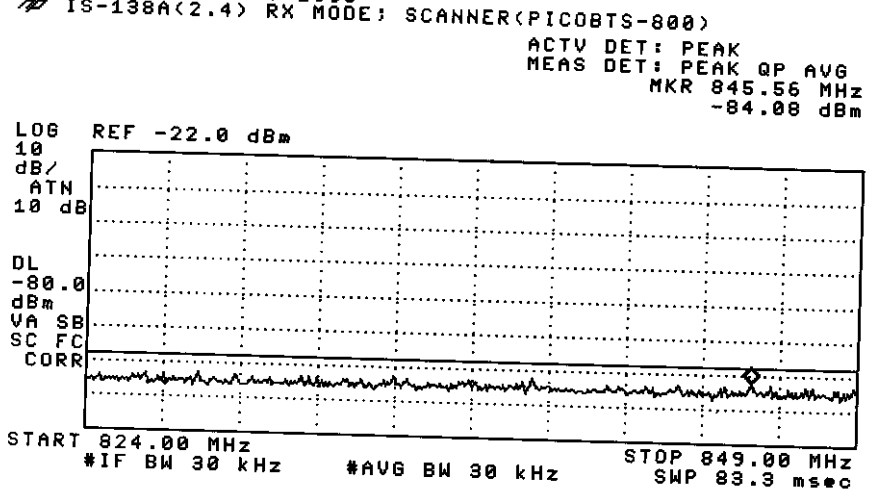

16:12:30 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.856 GHz
-82.03 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-47.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

A)

#127

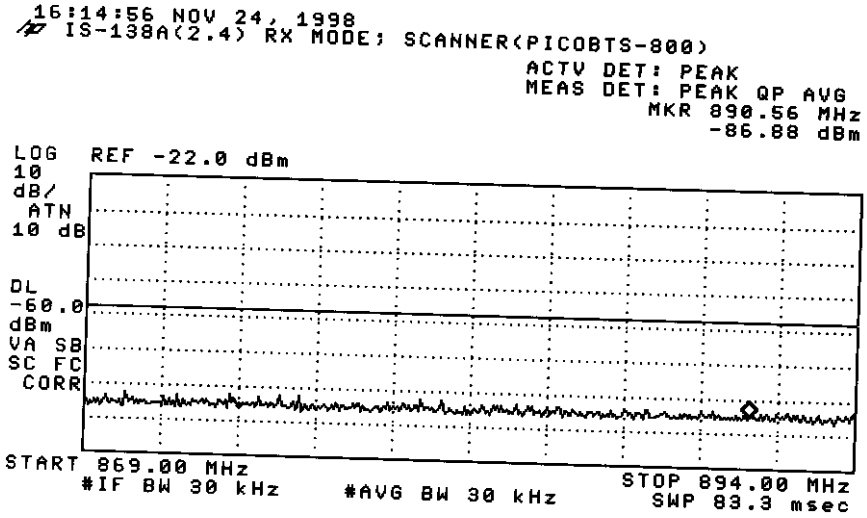
B)

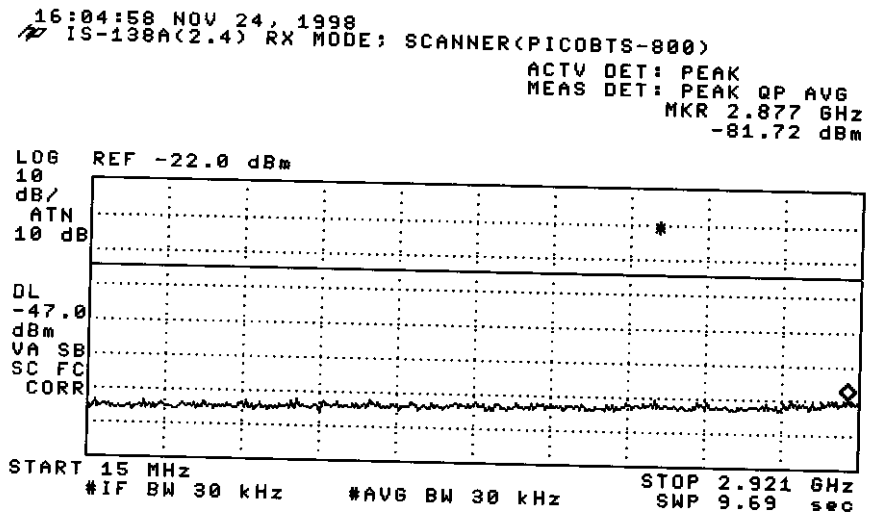
#128


16:14:25 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 845.56 MHz
-84.08 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-80.0
dBm
VA SB
SC FC
CORR
START 824.00 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 849.00 MHz
SWP 83.3 msec

C)

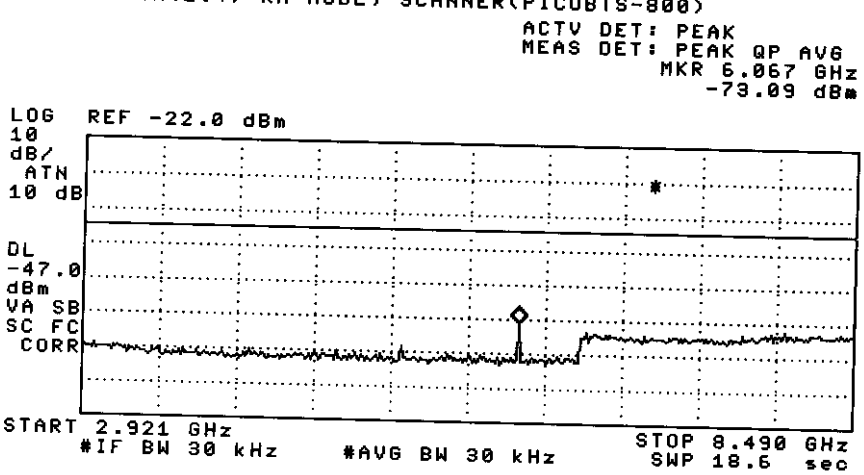
#129


16:14:56 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 890.56 MHz
-86.88 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-60.0
dBm
VA SB
SC FC
CORR
START 869.00 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 894.00 MHz
SWP 83.3 msec


16:04:58 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.877 GHz
-81.72 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-47.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

A)

#130

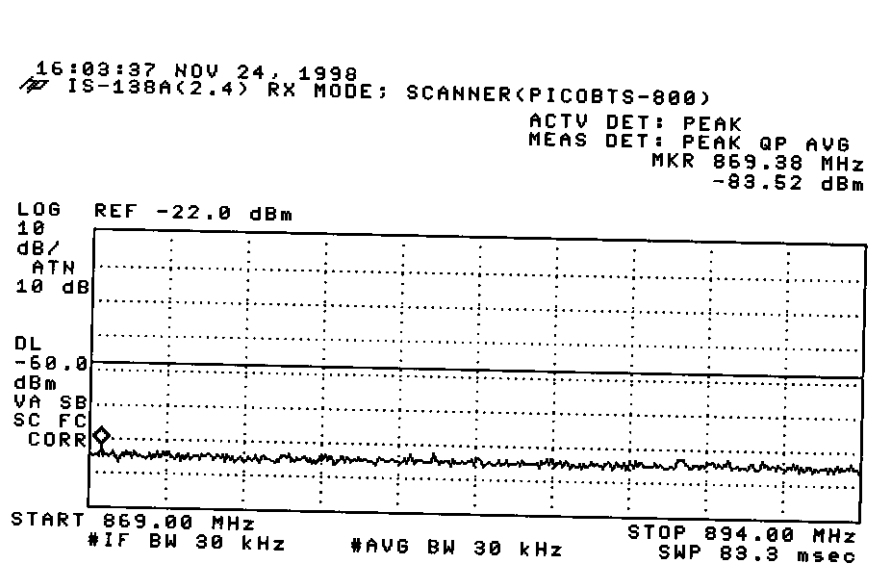

16:06:54 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 6.067 GHz
-73.09 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-47.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.490 GHz
SWP 18.6 sec

A)

#131

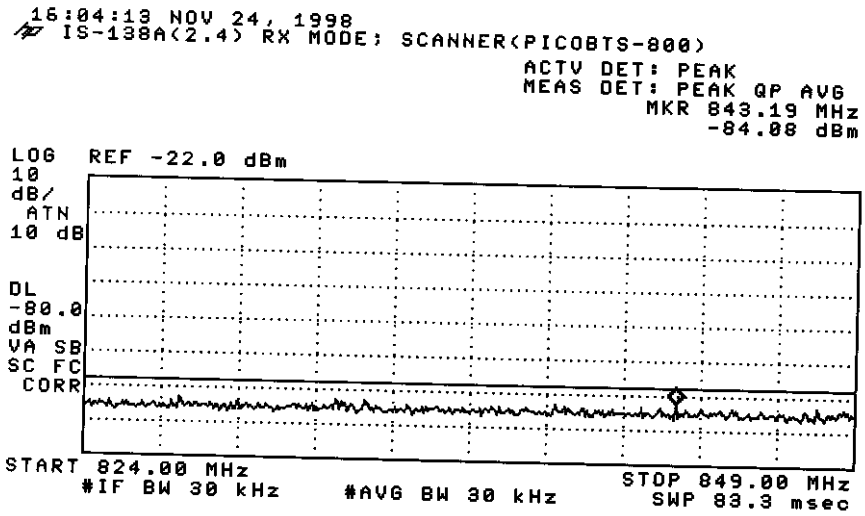
C)

#132


16:03:37 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 869.38 MHz
-83.52 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-50.0
dBm
VA SB
SC FC
CORR
START 869.00 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 894.00 MHz
SWP 83.3 msec

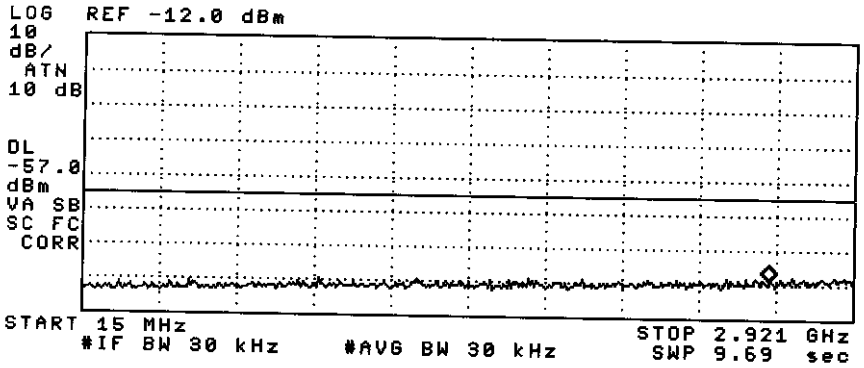
B)

#133


16:04:13 NOV 24, 1998
IS-138A(2.4) RX MODE: SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 843.19 MHz
-84.08 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-80.0
dBm
VA SB
SC FC
CORR
START 824.00 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 849.00 MHz
SWP 83.3 msec

15:50:47 NOV 24, 1998
15.111 (RX MODE); (PICOBTS-800) SCANNER

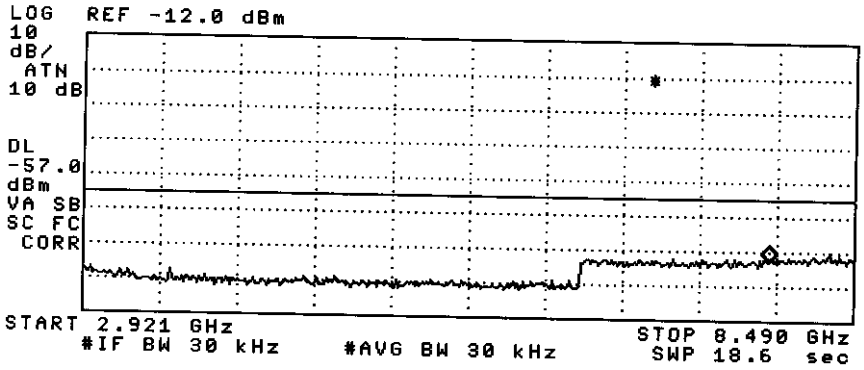
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.601 GHz
-80.83 dBm



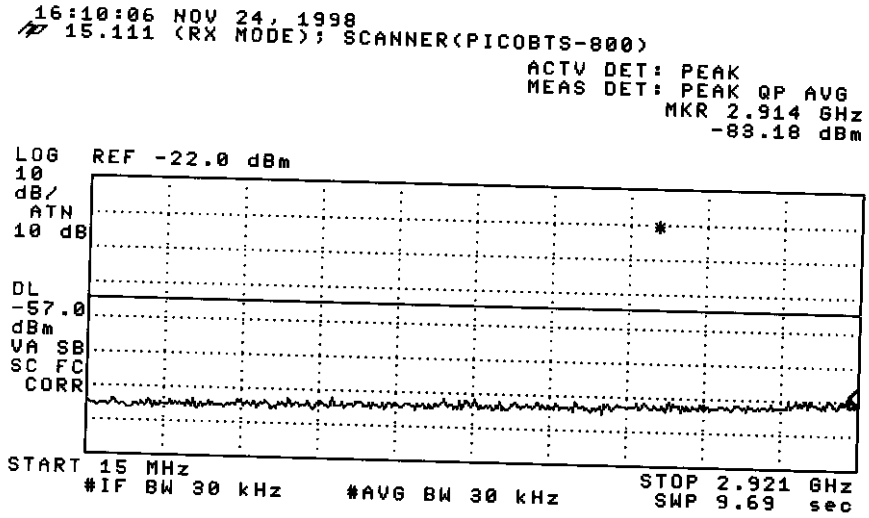
H134

15:51:56 NOV 24, 1998
15.111 (RX MODE); (PICOBTS-800) SCANNER

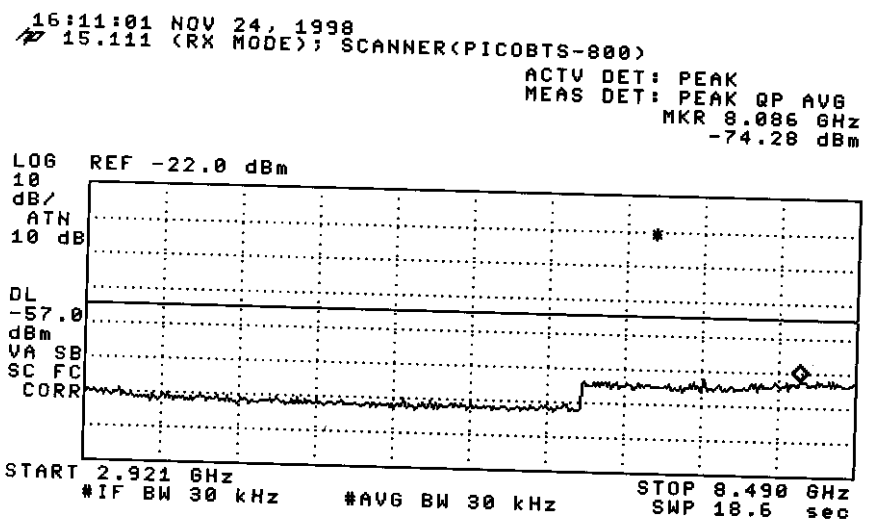
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 7.877 GHz
-74.65 dBm



E135


16:10:06 NOV 24, 1998
15.111 (RX MODE); SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.914 GHz
-88.18 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-57.0
dBm
VA SB
SC FC
CORR
START 15 MHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 2.921 GHz
SWP 9.69 sec

136

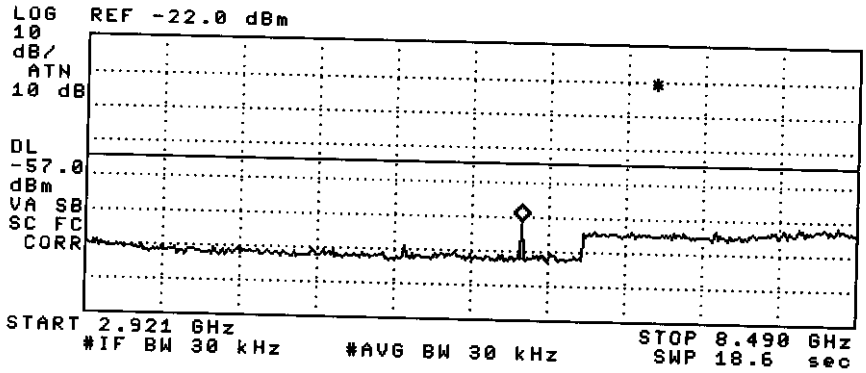

16:11:01 NOV 24, 1998
15.111 (RX MODE); SCANNER(PICOBTS-800)
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 8.086 GHz
-74.28 dBm
LOG
10
dB/
ATN
10 dB
REF -22.0 dBm
DL
-57.0
dBm
VA SB
SC FC
CORR
START 2.921 GHz
#IF BW 30 kHz
#AVG BW 30 kHz
STOP 8.490 GHz
SWP 18.6 sec

#139

16:07:52 NOV 24, 1998
15.111 (RX MODE); SCANNER(PICOBTS-800)

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 6.067 GHz
-73.44 dBm

#138



16:08:36 NOV 24, 1998
15.111 (RX MODE); SCANNER(PICOBTS-800)

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.914 GHz
-81.58 dBm

#139