

**CERTIFICATION**

TEST REPORT PREPARED ON BEHALF OF

3COM CORPORATION

FOR THE

**FCC ID: DF63C80500**

Under Part 90

Prepared

By

SPECTRUM TECHNOLOGY, INC  
209 Dayton Street, Suite 205  
Edmonds, WA 98020  
425 771-4482

March 22, 1999

**CERTIFICATION**  
**TABLE OF CONTENTS**

RF Power Output (2.985)	1
Occupied Bandwidth (2.989)	2
Plot           Span 50 kHz	3
Plot           Span 100 kHz	4
Plot of 99 % Occupied Bandwidth	5
Spurious Emissions at Antenna Terminals (2.991)	N/A Antenna non removeable
Field Intensity Measurements of Spurious Radiation (2.993)	6
Operational Frequency Stability Performance (2.995)	7 - 8
Block Diagram Of Test Set Up	9
Test Equipment List	10

**TEST: RF POWER OUTPUT**

FCC ID: DF63C80500  
Grantee: 3COM  
Serial No.: none  
Manufacture Rating: 2 Watt peak  
Equipment Authorization Procedure: Para. 2.985 (a)  
Test Equipment: See Block Diagram  
Duty Cycle: Query Response Type Device  
Please refer to SAR details related to this issue  
Frequency Measured: 898.000 MHz

**FINAL RADIO FREQUENCY AMPLIFYING DEVICE**

Power Amplifier is an Alpha AP112-79, a two-stage GaAs MMIC power amplifier IC and associated matching circuitry.

The standard model has a permanently attached antenna. An engineering sample with a SMA adapter soldered into the circuit instead of the antenna was used for measurements.

Measured Power Output: 2 Watt 33 dBm

Note: Due to the product design it was not possible to physically measure the collector current (IC) and collector voltage (VC) directly for the exciter input.

**TEST: OCCUPIED BANDWIDTH**

FCC ID: DF63C80500

Grantee: 3COM Corporation

Serial No.: none

Minimum Standard Specified: Para. 90.211 (f)

Test Results: Equipment is Compliant with Standard

Equipment Authorization Procedure: Para. 2.989 (c)(1)

Test Equipment Set Up: Please refer to Block Diagram #1

**MEASUREMENT DATA**

Spectrum Analyzer: Hewlett Packard 8562A

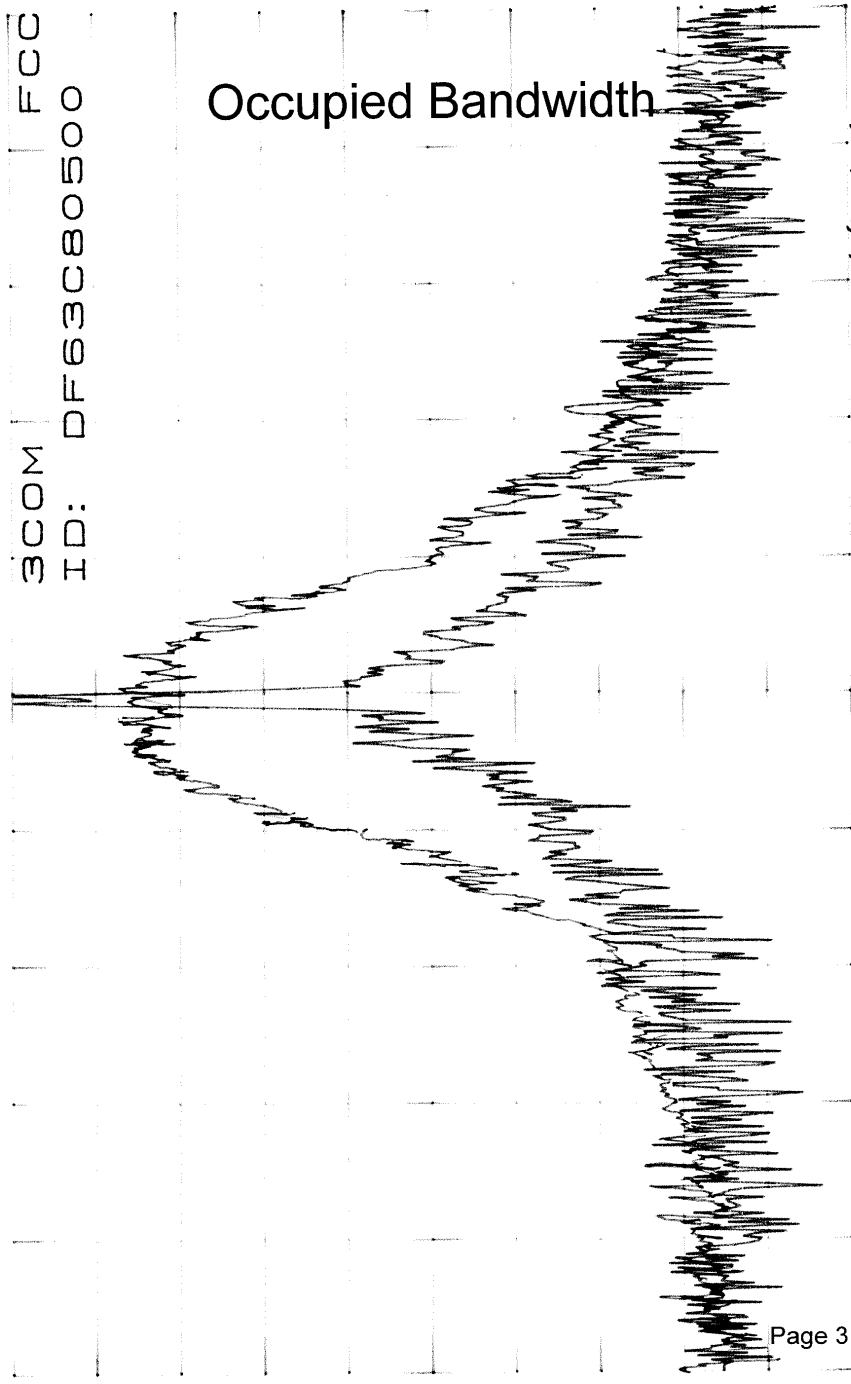
Test Plots Located	Pg 3	Pg 4	Pg 5
Settings: Resolution Bandwidth:	100	300	100 kHz
Video Filter:	100	300	100 kHz
Scan Time:	4.0	3.0	4.0 sec.
Scan Width:	50	100	50 kHz
Center Frequency:	898.0000	same	same MHz

The transmitter was modulated with Mobitex data and modulated at its maximum designed data rate.

\*ATTEN 10dB  
RL -1.0dBm

10dB/  
3COM FCC  
ID: DF63C80500

Occupied Bandwidth



D

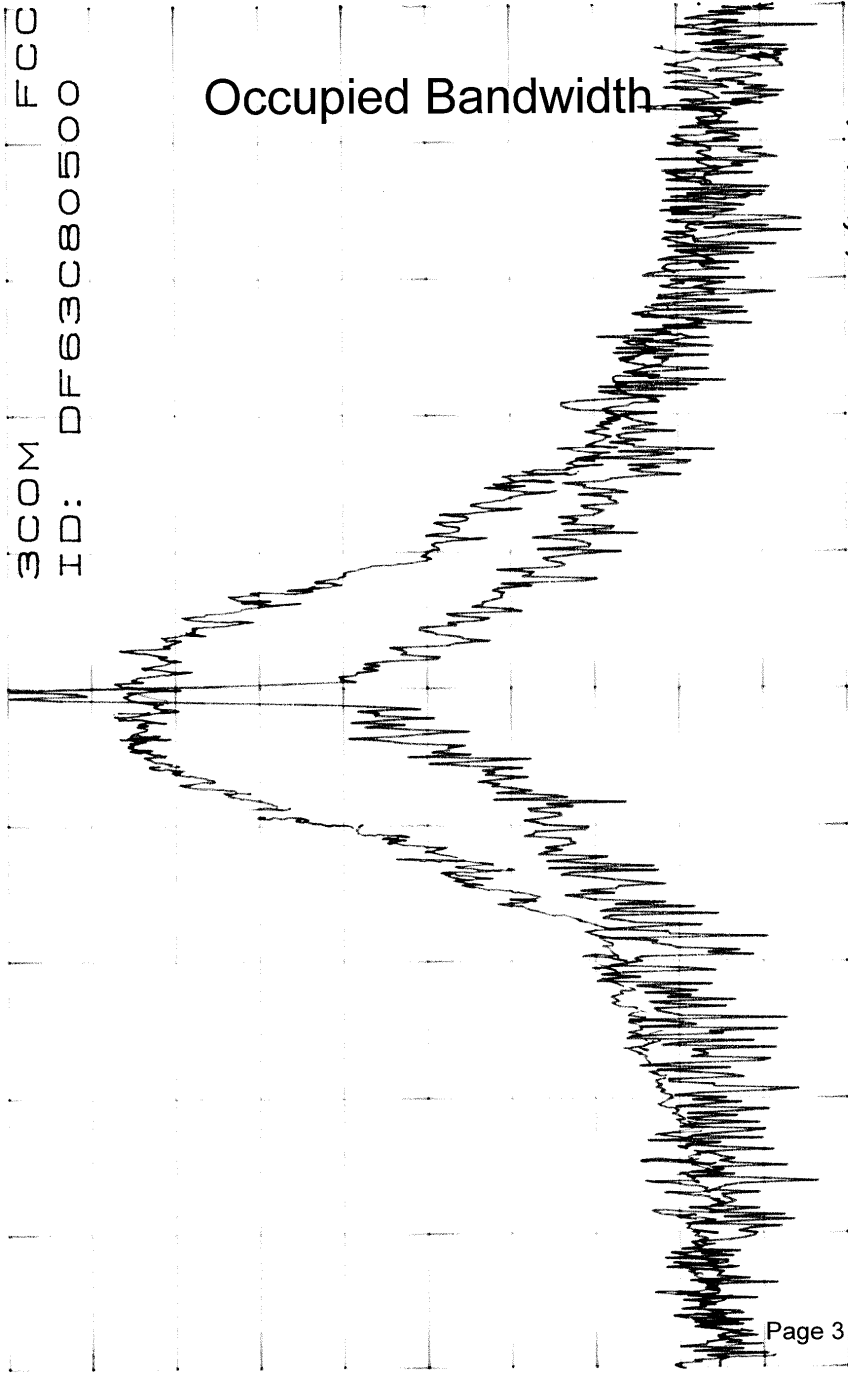
Page 3

CENTER 898.00000MHZ  
\*RBW 100HZ VBW 100HZ  
SPAN 50.000KHZ SWP 20sec  
11/5/99

\*ATTEN 10dB  
RL -1.0dBm

10dB/  
3COM FCC  
ID: DF63C80500

# Occupied Bandwidth

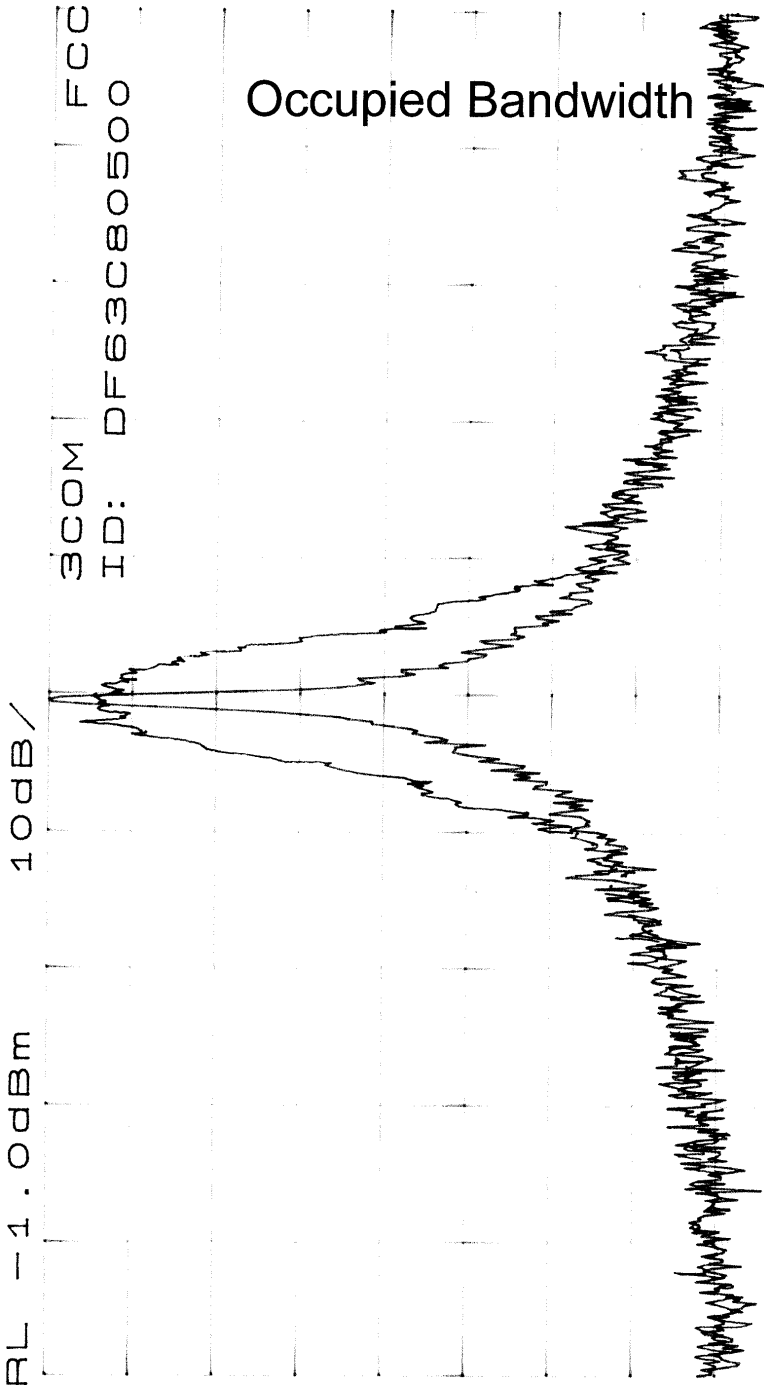


D

Page 3

CENTER 898.00000MHZ  
\*RBW 100HZ VBW 100HZ  
SPAN 50.000KHZ SWP 20sec  
1/5/99 6:00PM

\*ATTEN 10dB  
RL -1.0dBm



Page 4

CENTER 898.0000MHZ *15199* *6000000*  
\*RBW 300HZ \*VBW 300HZ SPAN 100.0KHZ SWP 3.0sec





**TEST: FIELD INTENSITY MEASUREMENTS OF SPURIOUS RADIATION**

FCC ID: DF63C80500  
 Manufacturer: 3COM Corporation  
 Serial No.: none  
 Minimum Standard Specified: Para. 90.210 (j)  
 Test Results: Equipment complies with standard  
 Equipment Authorization Procedure: Para. 2.993 & 2.989  
 Test Equipment Set Up: See Block Diagram  
 Frequency Range Observed: 0 to 10 GHz  
 Operating Frequency: 898.0000 MHz  
 Crystal Frequency: 13 MHz Reference, 44.55 MHz 2<sup>nd</sup> LO  
 Power Output: 2 Watt power (peak)  
 Spurious Limit = 50 dB + 10Log<sub>10</sub> PO = = 53.01 dB below the carrier

Original	Class II PC
1/5/99	2/3/99
Rev. J11	Rev. J13

<u>FORMULA</u>	<u>FREQUENCY IN MHz</u>	<u>Level (dB below carrier)</u>	
Fo	898.0	-0-	-0-
2Fo	1796.0	56.3	60.63
3Fo	2694.0	59.25	64.45
4Fo	3592.0	64.66	60.99

All other radiated emissions measured were more than 20 dB below the spurious limit when measured at three meters EUT to antenna spacing.

**TEST: OPERATIONAL FREQUENCY STABILITY PERFORMANCE**

FCC ID:	DF63C80500	
Grantee:	3COM Corporation	
Serial No:	none	
Minimum Standard Specified:	Para. 90.213	Limit +/- .00015%
Equipment Authorization Procedure:	Para. 2.995	-30 to +50 C
Test Frequency:	898.000 MHz	1.5 ppm = +/- 1497 Hz

The measurement data graphically reported on the following page displays the frequency observed when the transmitter was keyed immediately following power up the Palm VII. This value was recorded and is reported. Measurements at -30, 0 and +50 degrees C showed that the transmitter was well within the 1.5 ppm limit. The equipment power was off during changes in ambient temperature.

Two temperature probes connected to a Fluke 52, were used during the measurements. The first probe was inserted through a small opening in the transceiver cover and placed in contact with the largest internal mass inside the transceiver. The other probe was left outside of the transmitter within the chamber at a location with good air circulation to accurately measure the internal chamber temperature for comparison the internal transmitter temperature and insure that the equipment was stabilized at a given temperature.

The voltages used for measurements at -30, 0, & +50 degrees Celsius:

- + 15 % battery powered n/a
- Nominal 3.0 VDC
- 15 % 1.7 VDC

**TEST: OPERATIONAL FREQUENCY STABILITY PERFORMANCE**

FCC ID: DF63C80500

Grantee: 3COM Corporation

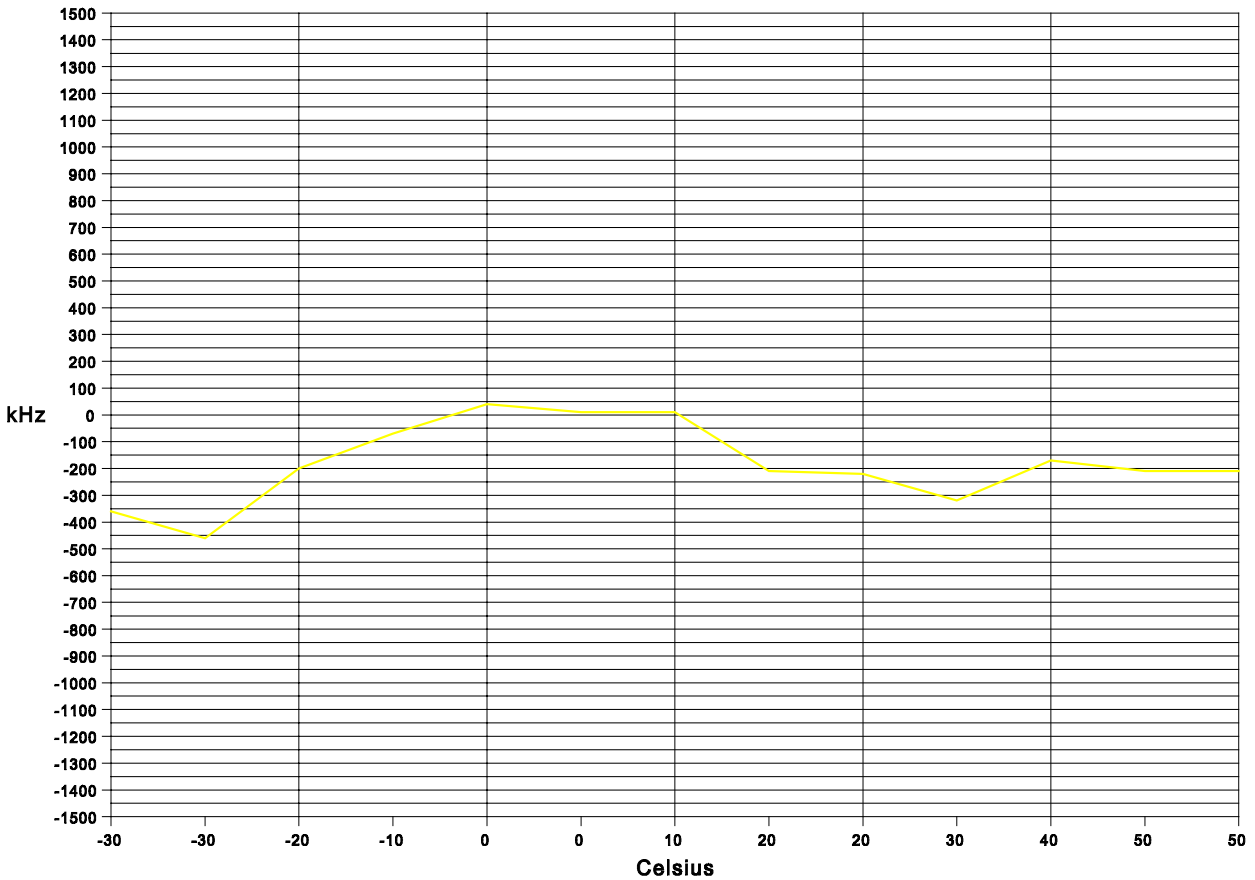
Model: Palm VII

Minimum Standard Specified: Para. 90.213 .00015% 1.5 ppm  
@ 998 MHz = +/-1497 Hz

Equipment Authorization Procedure: Para. 2.995

Test Frequency: 898.000 MHz 896 - 901 MHz Band

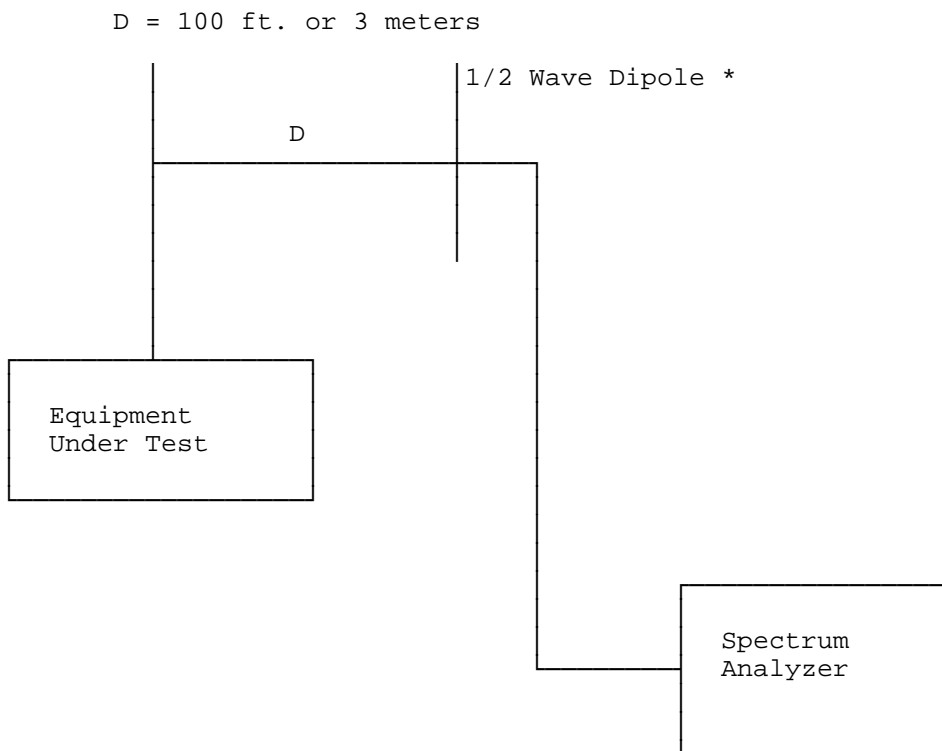
## Graph Of Frequency Stability



The variation in voltage is shown on the plot above for +50, +20, 0 and -30 C. Two readings are shown at each of these four temperatures. The left-hand reading is the - 15 % VDC and the right hand reading is Nominal 3.0 VDC. The other reported readings are at the nominal operating voltage.

# BLOCK DIAGRAM #1

Field Intensity Measurement Of  
Spurious Radiation Test Set Up



See Equipment List  
for Equipment Specifications

\* 1/2 Wave Dipole 30-1000 MHz  
Dual Ridged Guide Antenna or Broadband Log Periodic 1-10 GHz

**TEST EQUIPMENT LIST A  
SPECTRUM TECHNOLOGY, INC.**

<u>Equipment</u>	<u>Manufacturer</u>	<u>Serial Number</u>	<u>Cal Date/Due Date</u>
Spectrum Analyzer	Hewlett-Packard 8562A	08562-60062	9/14/98 9/14/99
Amplifier 9 kHz-1300 MHz	Hewlett-Packard 8447F OPT H64	2727A02208	9/14/98 9/14/99
RF Signal Gen.	Fluke 6071A	2915016	8/11/98 5/11/99
Service Monitor	IFR FM/AM 500A	4103	---
Oscilloscope	Kikusui C055060	6132295	---
Power Supply	Astron VS35	8601266	---
Voltmeter	Fluke 8020A	N2420658	---
Multimeter	Fluke 25	3710310	---
Wattmeter	Bird 43	56227	---
RF Termination	Bird 8135	10004	---
Dual Phase LISN 50 ohm/50 uH	STI per MP-4	02	1/9/98 1/9/99
Dual Phase LISN 50 ohm/50 uH	Compliance Design	8012-50R-24-BNC	1/9/98 1/9/99
Audio Generator	Hewlett-Packard 205-AG	8689	---
Attenuators:	Texscan FP45-20 Texscan FP45-10 Weinshel 40-10-33 Mini-Circuits CAT30 Pomona 4108-10	CZ682 8419 01	
Thermometer	Fluke 52	3965185	---
Test Line Simulator Teltone TLS-2		none	---
Turn Table, RC	EMCO 1060-2M	8912-1415	---
Antenna Mast, RC	Compliance Design, Inc.	M100	---
Antennas:			
DiPole Set	EMCO Model: 3121C	1335	9/18/97 3/18/99
Diploe Set	EMCO Model: 3121C	1336	9/18/97 3/18/99
Bi-Conical	EMCO 3104	3763	reference only
Bi-Conical	EMCO 3104C	9401-4635	6/20/97 1/20/99
Log-Periodic	EMCO 3146	1754	6/15/98 6/15/99
Active Loop	EMCO 6502	9107-2645	reference only