

**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

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**CERTIFICATION**  
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**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<br>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

11/5/99 4:00PM  
SPAN 50.00KHZ

SWP 20sec

\*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 12:00:00

\*ATTEN 10dB  
RL -1.0dBm

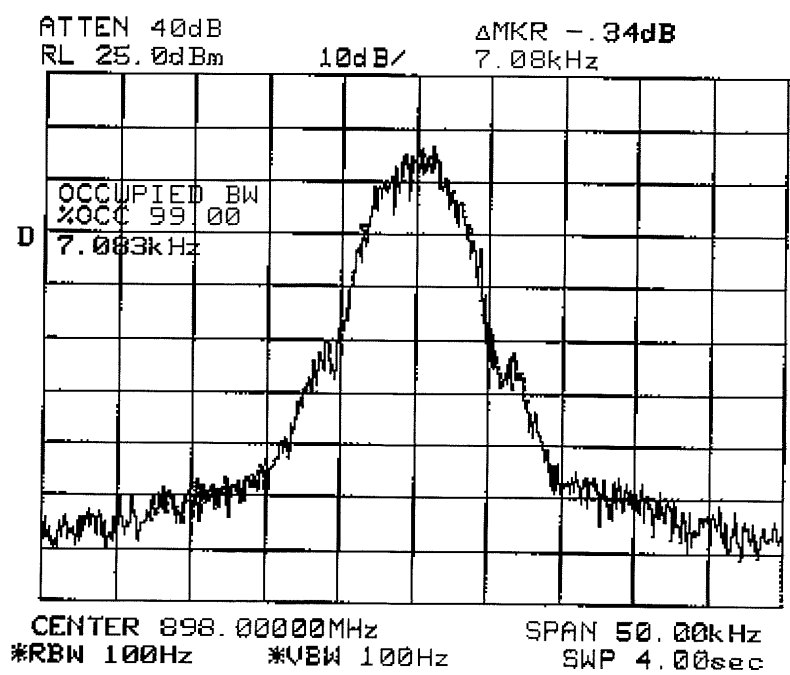
10dB/  
3COM FCC  
ID: DF63C80500

Occupied Bandwidth

Page 4

CENTER 898.0000MHZ  
\*RBW 300HZ \*VBW 300HZ  
SPAN 100.0KHZ SWP 3.0sec  
15/99 *William*

# Occupied Bandwidth



**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 =  $50 \text{ dB} + 10\text{Log}_{10} \text{ PO} =$  = 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

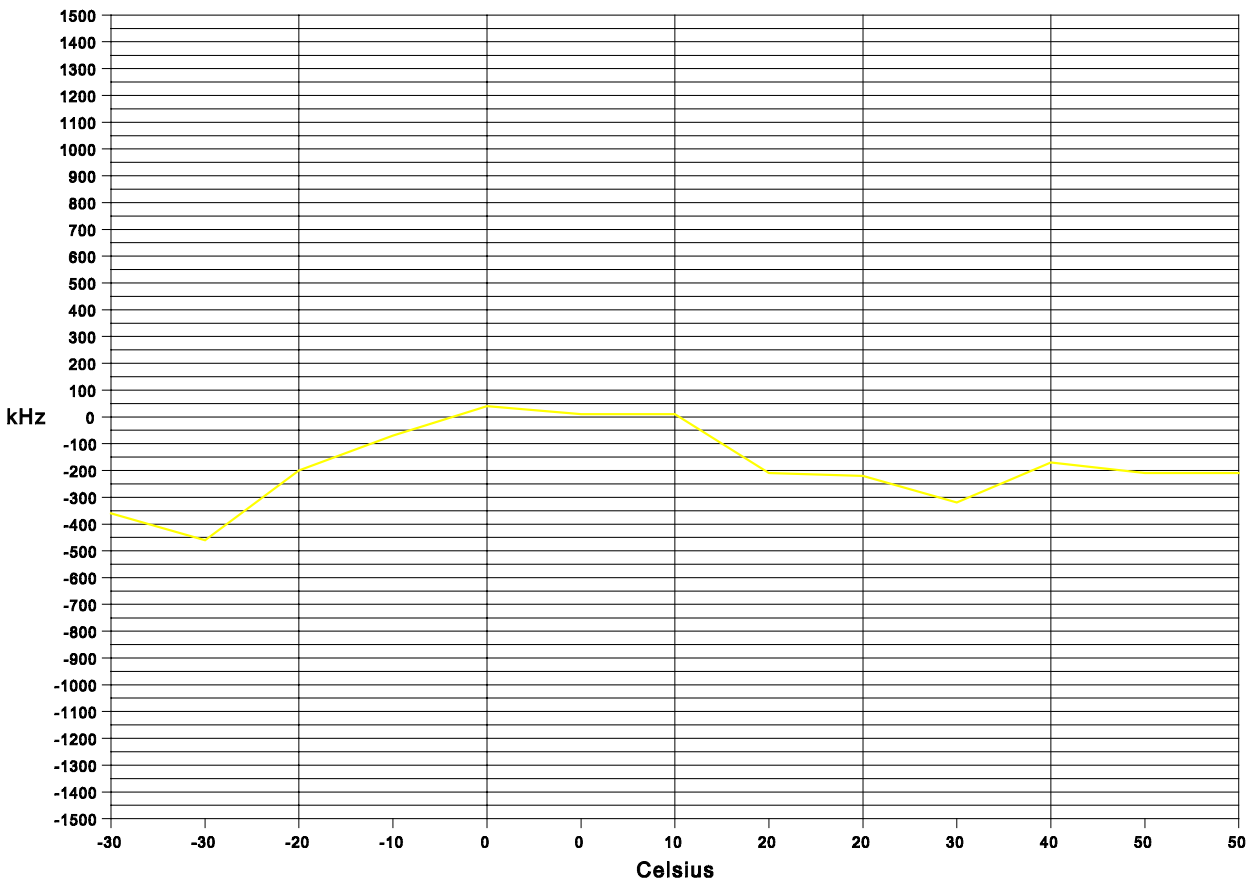
Model: Palm VII

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

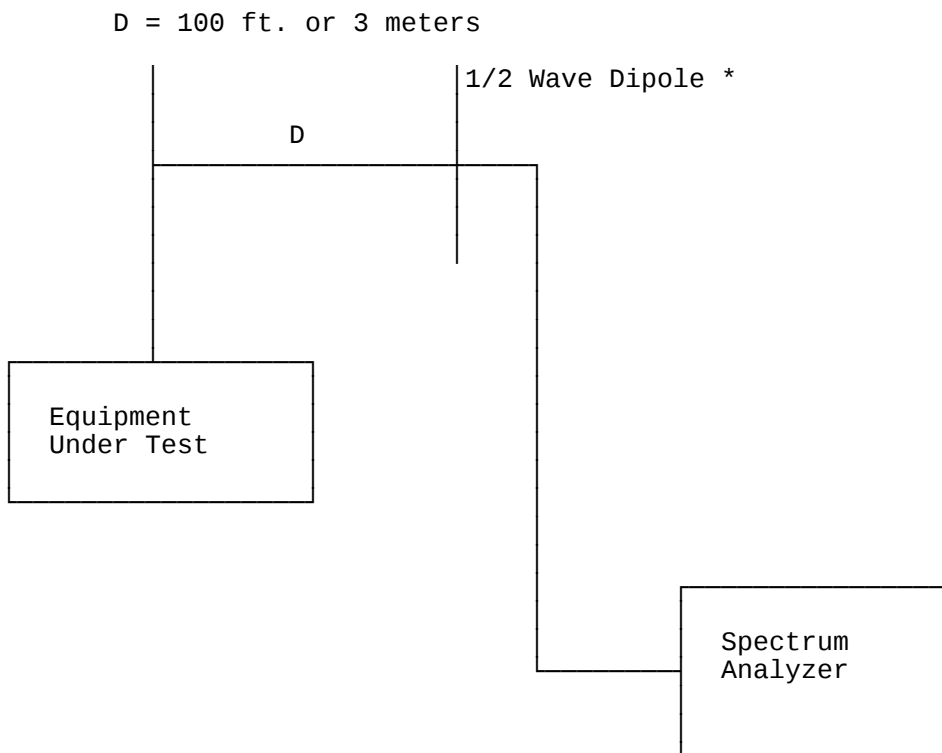
## Graph Of Frequency Stability



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<br>9 kHz-1300 MHz       | Hewlett-Packard 8447F<br>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<br>50 ohm/50 uH   | STI per MP-4                                                                                     | 02                   | 1/9/98 1/9/99            |
| Dual Phase LISN<br>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<br>Texscan FP45-10<br>Weinshel 40-10-33<br>Mini-Circuits CAT30<br>Pomona 4108-10 | CZ682<br>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           |