

Sub-part 2.1033 (c):

**Equipment Identification**

FCC ID: OJYKAG9

**Date of Report**

Tuesday, September 10, 2002

Supervised By:  
RD:kg

Thomas J. Funk

The applicant has been cautioned as to the following:

15.21 Information to User.

The users manual or instruction manual for an intentional radiator shall caution the user that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27 (a) Special Accessories.

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

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**List of General Information Required for Type Acceptance**

In Accordance with FCC Rules and Regulations,  
Volume II, Part 2 and to  
Part 22 sub-part H

Sub-part

2.1033 (c)(1)	<u>Name and Address of Applicant:</u>  Ericsson Wireless Communications 6210 Spine Rd. Boulder, CO 80301  <u>Vendor:</u>  Applicant	
2.1033(c)(2):	<u>FCC ID:</u>	OJYKAG9
2.924	<u>Model No</u>	RBS1127XXYY XX= Cabinet type YY=Input Voltage type
	<u>Technical Description:</u>	
2.1033(c)(4):	<u>Type of Emission:</u>	1M25F9W
2.1033(c)(5)	<u>Frequency Range, MHz:</u>	800 MHz 880 MHz
2.1033(c)(6)	<u>Power Rating, Watts:</u> _____  Switchable _____ Adjustable x__ N/A _____	1, 20
2.1033(c)(7)	<u>Maximum Power Rating, Watts:</u>	20
2.1033(c)(8)	<u>Voltages &amp; Currents in all Elements in Final R.F. Stage, Including Final Transistor or Solid State Device:</u> Collector Current, A = per manual Collector Voltage, Vdc = per manual Supply Voltage, Vac = N/A	

Exhibits

- 2.1033      Block Diagram:  
Please see Attached Exhibit 1
- 2.1033      Circuit Diagram:  
Please see Attached Exhibit 2
- 2.1033      Parts List:  
Please see Attached Exhibit 3
- 2.1033      Manual:  
Please see Attached Exhibit 4
- 2.1033      Photographs:  
Please see Attached Exhibits 5
- 2.1033      Tune-Up Procedure/Alignment Procedure:  
Please see Attached Exhibit 6
- 2.1033      Label Information:  
Please see Attached Exhibit 7
  
- 2.1033(c)(14)      **Test Report:**  
  
Test Report Follows

Sub-part  
2.1033 (c) : Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.1046, 2.1049, 2.1051, 2.1053, 2.1055 and the following individual Parts:

<u>21</u>	Domestic Public Radio Services	___
<u>24</u>	Personal Communications Services	___
<u>22E</u>	Broadband PCS	___
22.901 (d)	Special Provisions for Alternative Cellular Technologies and and Auxiliary Services	<u>X</u>
<u>23</u>	International Fixed Public Radio Communications Service	___
<u>74</u>	Experimental, Auxiliary & Special Broadcast and Other Program Distribution Services	___
<u>74H</u>	Low Power Auxiliary Stations	___
<u>80</u>	Stations in the Maritime Service	___
<u>80.209 (5)(l)</u>	Transmitter Frequency Tolerances, 156–162 MHz, Coast Stations	___
<u>80K</u>	Private Coast Stations & Marine Utility Stations	___
<u>80S</u>	Compulsory R/T Installations for Small Passenger Boats	___
<u>80T</u>	Radio Telegraph Installation Required for Vessels on the Great Lakes	___
<u>80U</u>	Radio Telegraph Installation Required by the Bridge-to-Bridge Act	___
<u>87</u>	Aviation Services	___
<u>90</u>	Private Land Mobile Radio Services	___
<u>94</u>	Private Operational–Fixed microwave Services	___
<u>95</u>	General Mobile Radio Service	___

General Information

1. Spurious radiation was measured at three (3) meters.
  
2. The normal modes of modulation are:
  - (a) Voice \_\_\_\_\_
  - (b) Wideband Data \_\_\_\_\_
  - (c) SAT \_\_\_\_\_
  - (d) ST \_\_\_\_\_
  - (e) SAT + Voice \_\_\_\_\_
  - (f) SAT + DTMF \_\_\_\_\_
  - (g) 64-Ary Orthogonal CDMA   X
  - (h) Pi/4 DQPSK \_\_\_\_\_
  - (i) NAMPS Voice \_\_\_\_\_
  - (j) NAMPS DSAT \_\_\_\_\_
  - (k) NAMPS ST \_\_\_\_\_

Standard Test Conditions  
and  
Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

Room Temperature	= $25 \pm 5^\circ \text{C}$
Room Humidity	= 20–50%
D.C. Supply Voltage, Vdc	= - 48VDC or 24VDC
A.C. Supply Voltage, Vac	= 230 Vac
A.C. Supply Frequency, Hz	= 60Hz

Prior to testing, the E.U.T. was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.



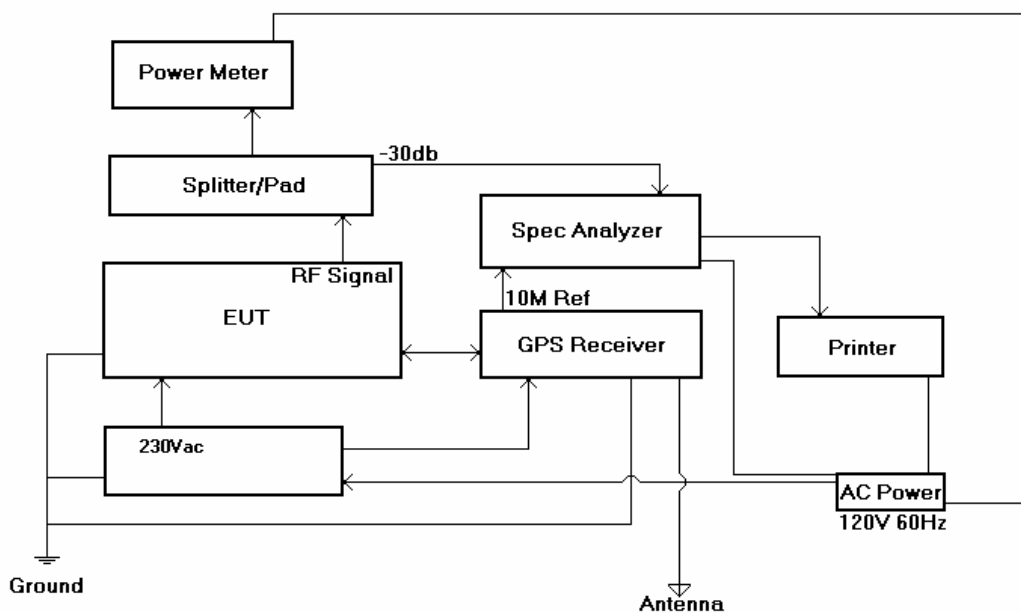
Name of Test: R.F. Power Output & Occupied Bandwidth  
Paragraph: 47 CFR 2.1046 & 2.1049  
Guide: EIA Standard RS 152B, Paragraph 3.3  
Test Condition: Standard Temperature & Humidity  
Test Equipment: As per Attached Appendix J

Measurement Procedures

1. The E.U.T. was connected to a directional coupler and a resistive coaxial attenuator of normal load impedance, and the modulated output power was measured by means of an R.F. power meter.
2. Measurement accuracy is  $\pm 3\%$ .

Measurement Results

Nominal, MHz	Channel	Band	R.F. Power Output, Watts	
			Low Power	High Power
869.700	1013		1.0	20.0
880.680	356		1.0	20.0
893.310	777		1.0	20.0





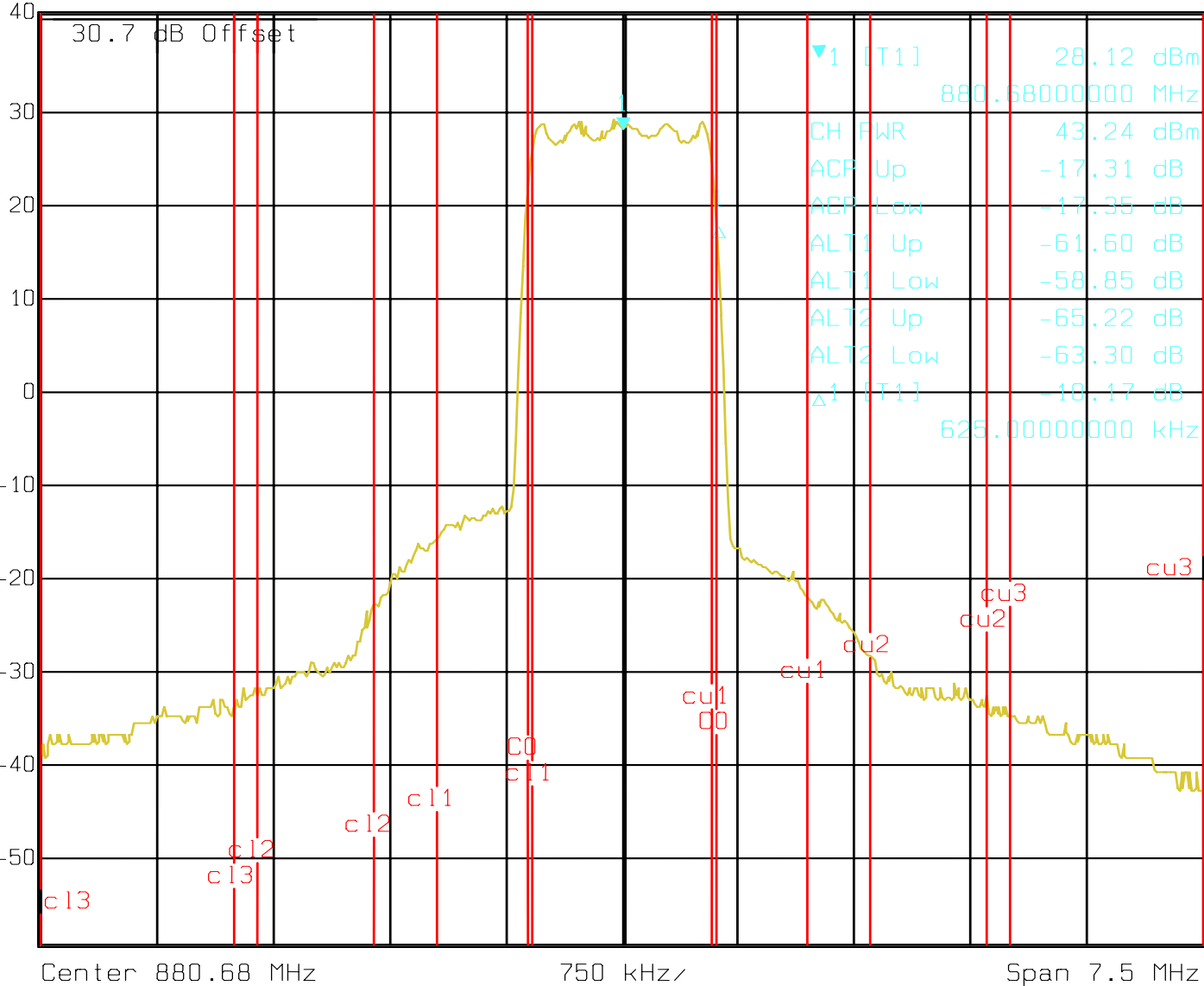


Marker 1 [T1]

RBW	30 kHz	RF Att	30 dB
VBW	300 kHz	Mixer	-10 dBm
SWT	2 s	Unit	dBm

Ref Lvl  
40.7 dBm

28.12 dBm  
880.68000000 MHz

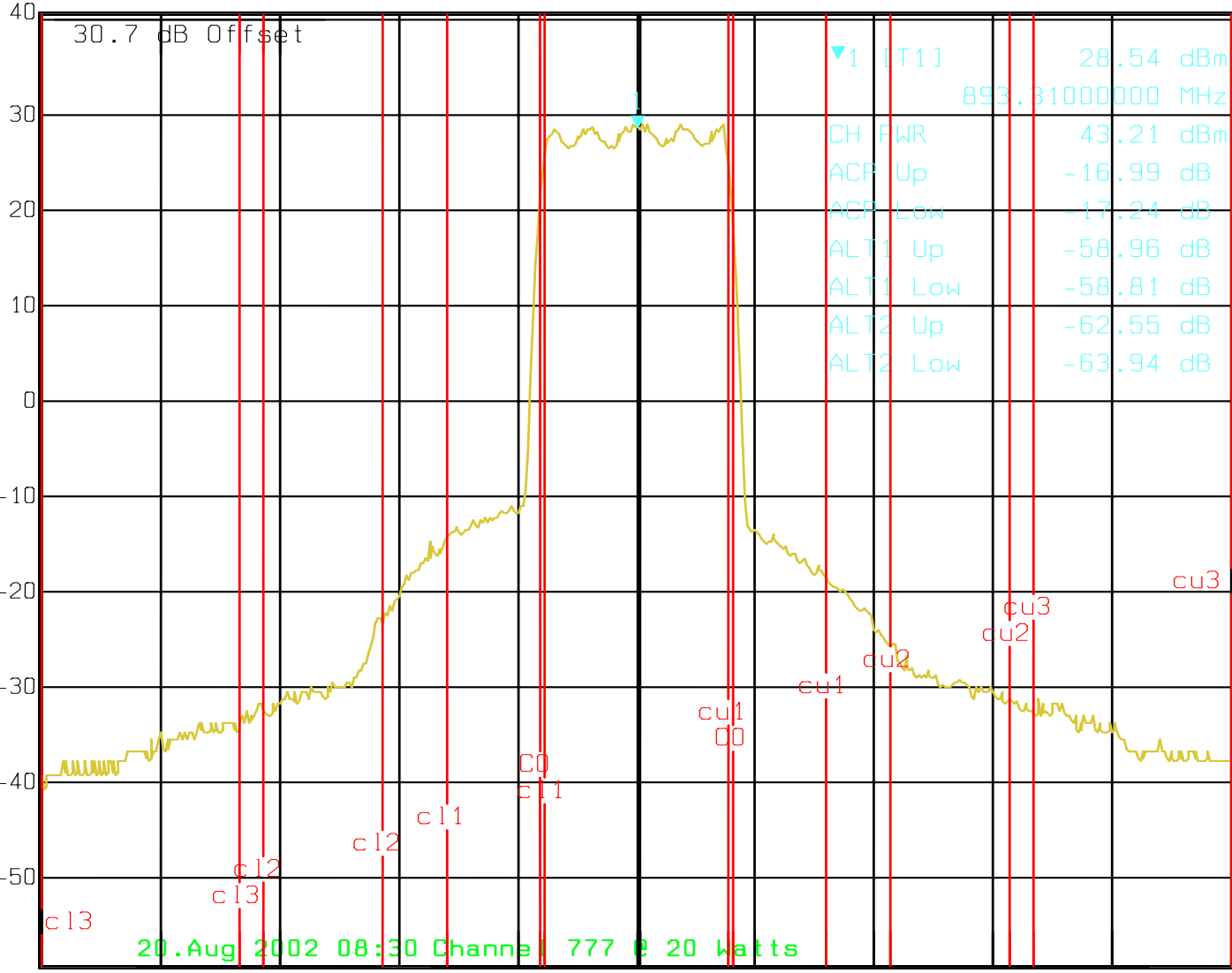




Marker 1 [T1]

RBW	30 kHz	RF Att	30 dB
VBW	300 kHz	Mixer	-10 dBm
SWT	2 s	Unit	dBm

Ref Lvl	28.54 dBm
40.7 dBm	893.3100000 MHz



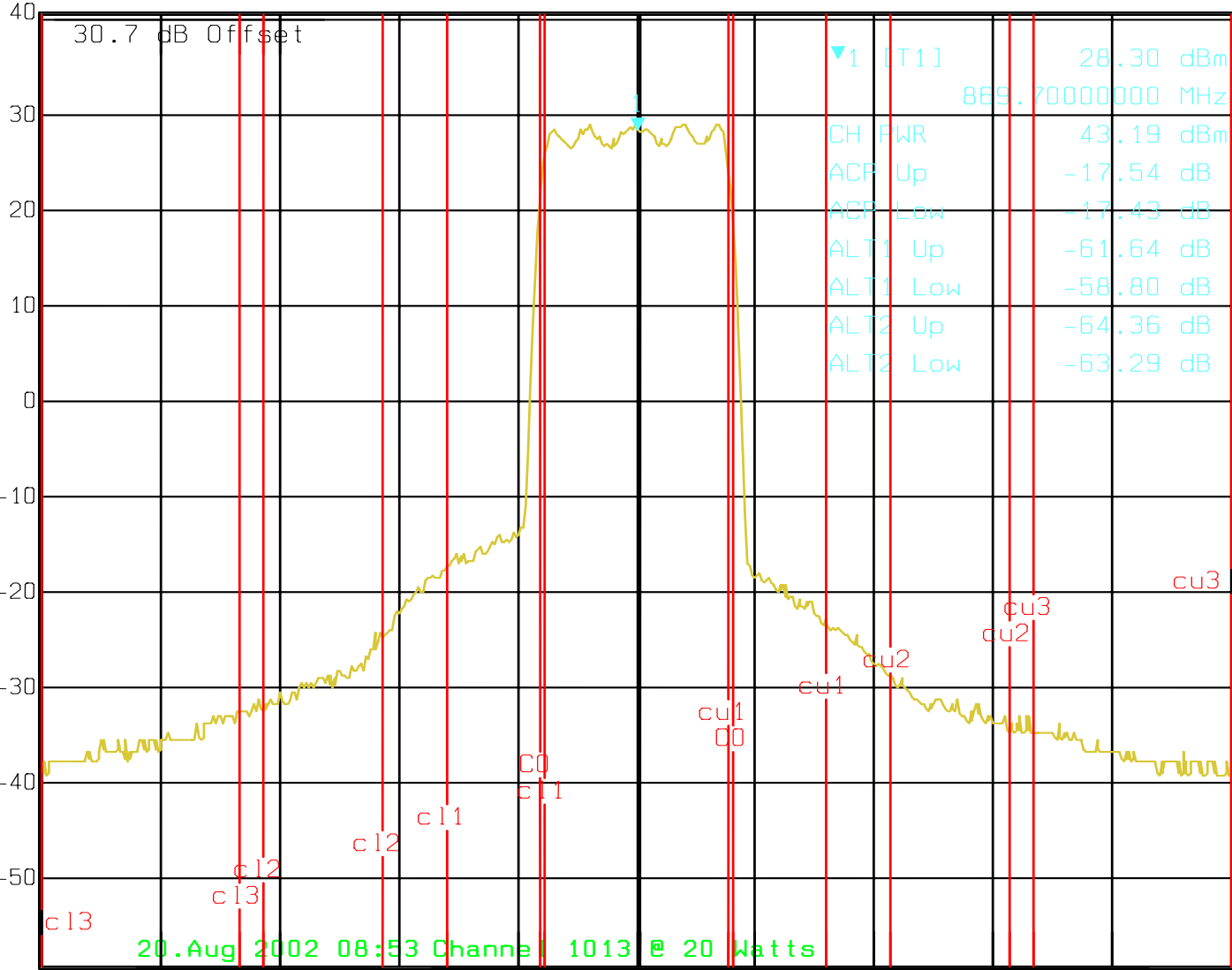
Center 893.31 MHz      750 kHz/      Span 7.5 MHz



Marker 1 [T1]

RBW	30 kHz	RF Att	30 dB
VBW	300 kHz	Mixer	-10 dBm
SWT	2 s	Unit	dBm

Ref Lvl	28.30 dBm
40.7 dBm	869.70000000 MHz



Center 869.7 MHz      750 kHz/      Span 7.5 MHz

Name of Test:

Spurious Emissions at Antenna Terminals

Paragraph:

47 CFR 2.1051, 22.917(e)

Guide:

EIA Standard RS 152B, Paragraph 17

Test Condition:

Standard Temperature &amp; Humidity

Test Equipment:

As per Attached Appendix J

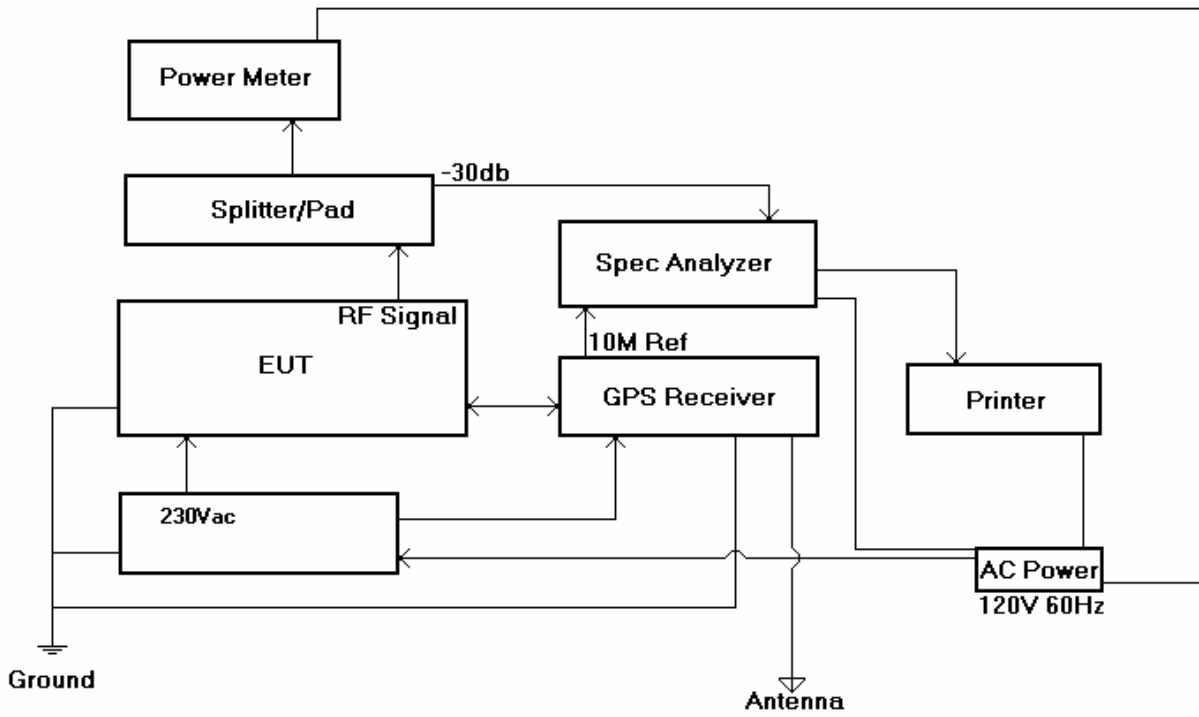
Measurement Procedures

1. The E.U.T. was connected, through a directional coupler, a 30 dB coaxial attenuator then to a Rohde & Schwarz Spectrum Analyzer.
2. Measurements were made over the range from 1Ghz to 12 Ghz for the worst case modulation at the highest R.F. power settings.
3. All other emissions were 20 dB or more below the limit.
4. Spectrum analyzer bandwidth was set to section 22.917 (h)(1) & (2) as applicable.
5. Measurement Results: ***All emissions are 30dB below and more.***

Spurious Emissions at Antenna Terminals

Test 1: Spurious Emissions at Antenna Terminals

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Name of Test: Field Strength of Spurious Radiation

Paragraph: 47 CFR 2.1053

Guide: See Measurement Procedure Below

Test Condition: Standard Temperature & Humidity

Test Equipment: As per Attached Appendix J

### Measurement Procedures

1. A description of the measurement facilities was filed with the F.C.C. and was found to be in compliance with the requirements of Section 15.38, by letter from the F.C.C.
2. In the field, the test sample was placed on a turntable at ten and three meters away from the search antenna. The test sample was connected to an R.F. wattmeter and a 50 ohm dummy load, and adjusted to its rated output.

In order to obtain the maximum response at each spurious frequency, the turntable was rotated. Also, the Search Antennas were raised and lowered vertically, and all cables were oriented. Excess power lead was coiled above the system.

### 3. Measurement Results:

Frequency	<b><i>dBμV/m Reading</i></b>	<b><i>Signal down from carrier</i></b>	<b><i>Conveted to dBm</i></b>	<b><i>Total Power</i></b>	<b><i>dBm down from Carrier</i></b>
<b><i>871.100 MHz</i></b>	<b><i>151.45 dBμV/m</i></b>	<b><i>00.00 μV/m</i></b>	<b><i>44.45 dBm</i></b>	<b><i>43.00 dBm</i></b>	<b><i>00.00 dB</i></b>
1742.2	62.60 dBμV/m	-88.85 μV/m	-44.40 dBm	43.00 dBm	88.85 dB
2613.3	61.18 dBμV/m	-90.27 μV/m	-45.82 dBm	43.00 dBm	90.27 dB
3484.4	60.52 dBμV/m	-90.93 μV/m	-46.48 dBm	43.00 dBm	90.93 dB
4355.5	60.94 dBμV/m	-90.51 μV/m	-46.06 dBm	43.00 dBm	90.51 dB
5226.6	64.91 dBμV/m	-86.54 μV/m	-42.09 dBm	43.00 dBm	86.54 dB
6097.7	72.13 dBμV/m	-79.32 μV/m	-34.87 dBm	43.00 dBm	79.32 dB
6968.8	74.00 dBμV/m	-77.45 μV/m	-33.00 dBm	43.00 dBm	77.45 dB
7839.9	74.18 dBμV/m	-77.27 μV/m	-32.82 dBm	43.00 dBm	77.27 dB
8711	77.15 dBμV/m	-74.30 μV/m	-29.85 dBm	43.00 dBm	74.30 dB

1. The field strength of spurious radiation over the above noted range measured 20 dB or more below the limit, except where noted.
2. Spurious emission bandwidth settings per 22.907 (j)(1) & (2) as applicable.



Name of Test: Frequency Stability – Temperature and Voltage Variation

Paragraph: 47 CFR 2.1055

Guide: EIA Standard RS 152B, Paragraph 10

Test Condition: Standard

Test Equipment: Fluke PM6681R

### 1. Measurement Results:

Temperature Stability:

Channel 1013= 30Hz

Channel 356 = 19Hz

Channel 777= 22Hz

Voltage Stability:

Channel 1013 = 9Hz

Channel 356 = 9Hz

Channel 777= 5Hz

	CHANNEL # 1013		CHANNEL # 356		CHANNEL # 777
	FREQUENCY @		FREQUENCY @		FREQUENCY @
<b>TEMPERATURE</b>	<b>869.70000MHz</b>		<b>880.68000MHz</b>		<b>893.31000MHz</b>
<b>-40°C</b>	869.7000450 MHz		880.6799986 MHz		893.3099973 MHz
<b>-30°C</b>	869.6999966 MHz		880.6799969 MHz		893.3099971 MHz
<b>-20°C</b>	869.6999972 MHz		880.6799980 MHz		893.3099981 MHz
<b>-10°C</b>	869.6999970 MHz		880.6799971 MHz		893.3099970 MHz
<b>0°C</b>	869.6999975 MHz		880.6799988 MHz		893.3099984 MHz
<b>10°C</b>	869.6999979 MHz		880.6799978 MHz		893.3099972 MHz
<b>20°C</b>	869.6999971 MHz		880.6799979 MHz		893.3099973 MHz
<b>30°C</b>	869.6999980 MHz		880.6799986 MHz		893.3099975 MHz
<b>40°C</b>	869.6999980 MHz		880.6799969 MHz		893.3099976 MHz
<b>50°C</b>	869.6999975 MHz		880.6799975 MHz		893.3099962 MHz
<b>60°C</b>					
<b>VOLTAGE</b>	<b>FREQUENCY</b>		<b>FREQUENCY</b>		<b>FREQUENCY</b>
<b>187VAC</b>	869.6999972 MHz		880.6799988 MHz		893.3099971 MHz
<b>220VAC</b>	869.6999979 MHz		880.6799979 MHz		893.3099973 MHz
<b>265VAC</b>	869.6999970 MHz		880.6799985 MHz		893.3099976 MHz

Name of Test: Necessary Bandwidth and Emission Bandwidth

Paragraph: 47 CFR 2.202 (g)

Modulation = CDMA (F9W)

Emission Bandwidth Calculation:

Necessary Bandwidth, kHz = 1250.00

***Justification for CDMA bandwidth of 1.25 Mhz***

Reference: TIA/EIA/IS-95

Chip rate is 1.228 Mhz (see page 6-10 of IS-95 {attached}). When we look 3 dB down from the signal we find 1.25 Mhz. Channel spacing is normally set at this 1.25 Mhz. Also, one can reference baseband filtering requirements for filtering frequency response limits.

Testimonial and Statement of Certification
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This is to certify:

1. That the application was prepared either by, or under the direct supervision of, the undersigned.
2. That the technical data supplies with the application was taken under my direction and supervision.
3. That the data was obtained on representative units, randomly selected.
4. That, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certifying Engineer:

### Radio Frequency Radiation Exposure Limits

The device is installed in a permanent location. It is not operator accessible, and is contained in a secured environment that is accessible by field service engineers or installation engineers only. The ERP of the device is less than 1000 Watts. The Antenna's used on this device are a typical 16dB gain antenna, with this configuration and the maximum RF output of the device set to 20 Watts the exposure limit is less than 1000 Watts.