

Sub-part 2.1033 (c):

Equipment Identification

FCC ID: OJYKAG10

Date of Report

Friday, September 20, 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.

Table of Contents

<u>Rule</u>	<u>Description</u>
2.1033	List of General Information Required
2.1046	R.F. Power Output
2.1049	Occupied Bandwidth
22.917	Emission Requirements
2.1051 22.917 (e)	Spurious Emissions at Antenna Terminals
2.1053	Field Strength of Spurious Radiation
2.1055	Frequency Stability - Temperature & Voltage Variation
2.202 (g)	Necessary Bandwidth and Emission Bandwidth
2.906	Testimonial & Statement of Certification
	Radio Frequency Radiation Exposure Limits
	Exhibits:
	Appendix:

List of General Information Required for Type Acceptance

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and to
Part 24 sub-part E

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>	OJYKAG10
2.924	<u>Model No:</u>	RBS1127XXYY XX= Cabinet Type YY= Input Voltage
	<u>Technical Description:</u>	
2.1033(c)(4):	<u>Type of Emission:</u>	1M25F9W
2.1033(c)(5)	<u>Frequency Range, MHz:</u>	1930 MHz 1990 MHz
2.1033(c)(6)	<u>Power Rating, Watts:</u>	1, 20
	Switchable _____ Adjustable x _____ N/A	_____
2.1033(c)(7)	<u>Maximum Power Rating, Watts:</u>	20
2.1033(c)(8)	<u>Voltages & 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>X</u>
<u>22E</u>	Broadband PCS	—
22.901 (d)	Special Provisions for Alternative Cellular Technologies and and Auxiliary Services	—
<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)(I)</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

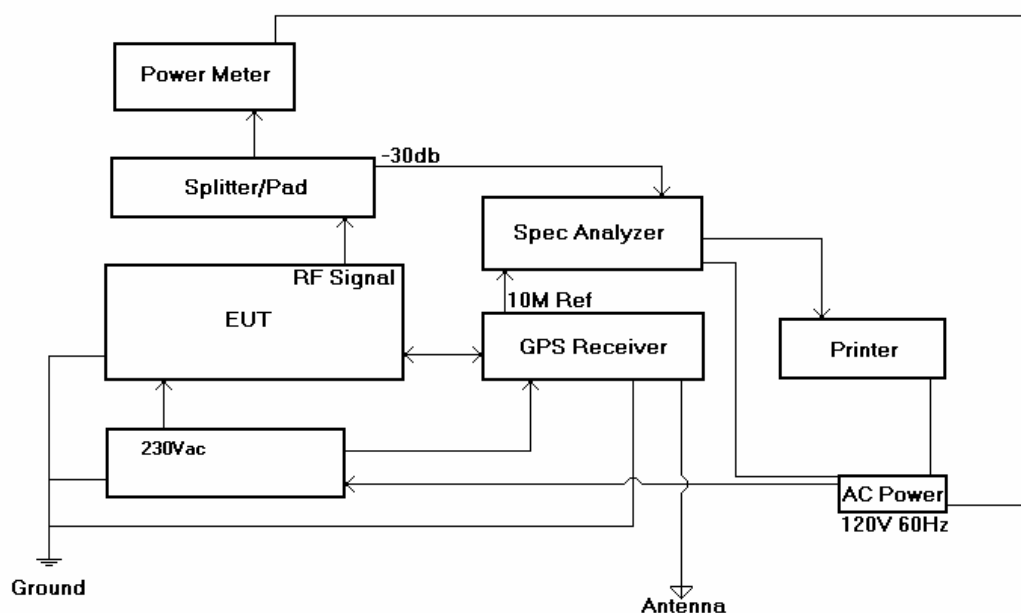
Test Equipment: As per Attached Appendix J

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
1931.250	25	A	1.0	20.0
1964.950	699	B	1.0	20.0
1988.750	1175	C	1.0	20.0



Supervised By:

Charles Beehler



Marker 1 [T1]

Ref Lvl 40.7 dBm

RBW 30 kHz

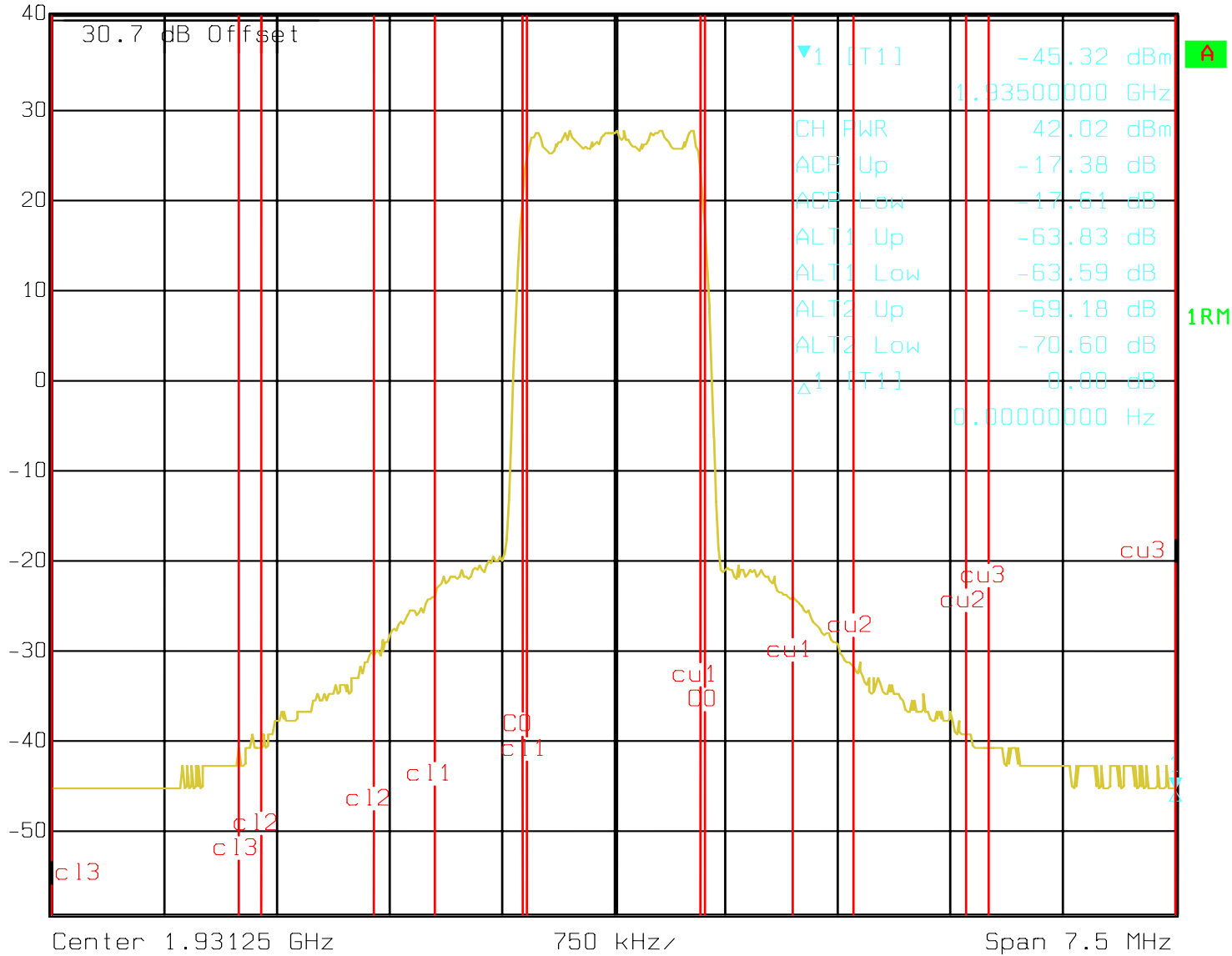
VBW 300 kHz

SWT 2 s

RF Att 20 dB

Mixer -10 dBm

Unit dBm





Marker 1 [T1]

RBW

30 kHz

RF Att

20 dB

Ref Lvl

-45.32 dBm

VBW

300 kHz

Mixer

-10 dBm

40.7 dBm

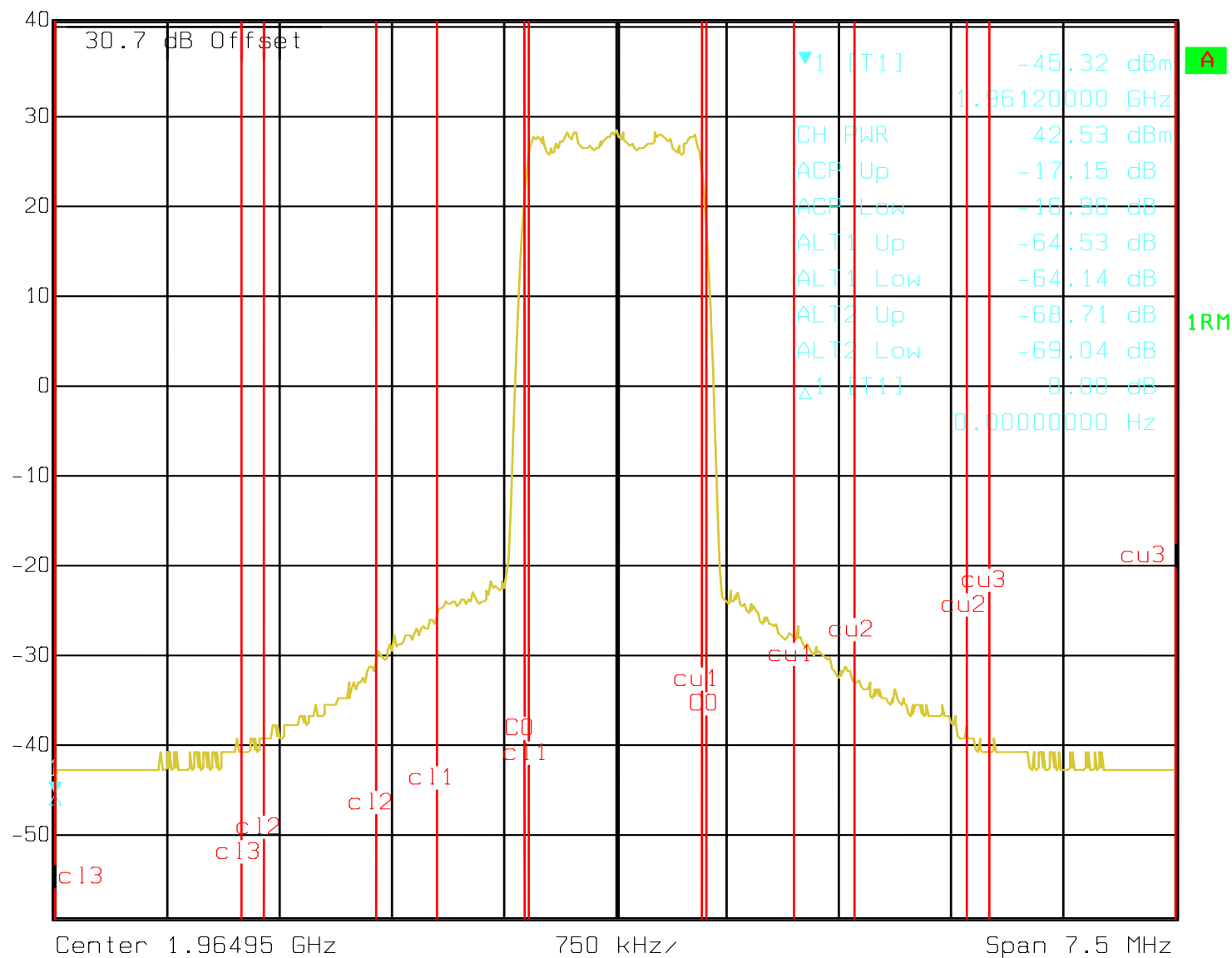
1.96120000 GHz

SWT

2 s

Unit

dBm



Date: 3.OCT.2002 11:37:58



Marker 1 [T1]

RBW

30 kHz

RF Att

20 dB

Ref Lvl

-45.32 dBm

VBW

300 kHz

Mixer

-10 dBm

40.7 dBm

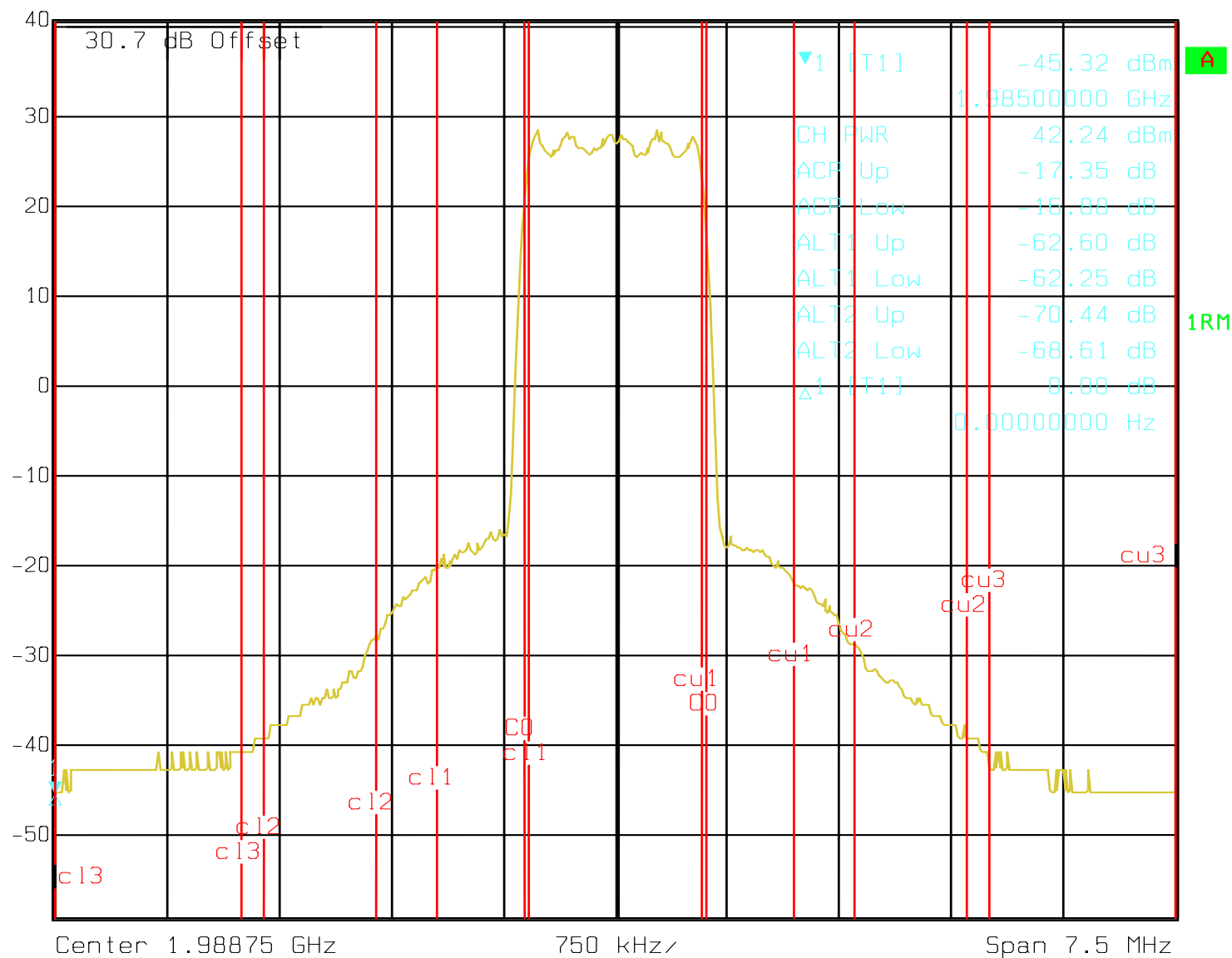
1.98500000 GHz

SWT

2 s

Unit

dBm



Date: 3.OCT.2002 15:06:29

Name of Test: Spurious Emissions at Antenna Terminals

Paragraph: 47 CFR 2.1051, 22.917(e)

Guide: EIA Standard RS 152B, Paragraph 17

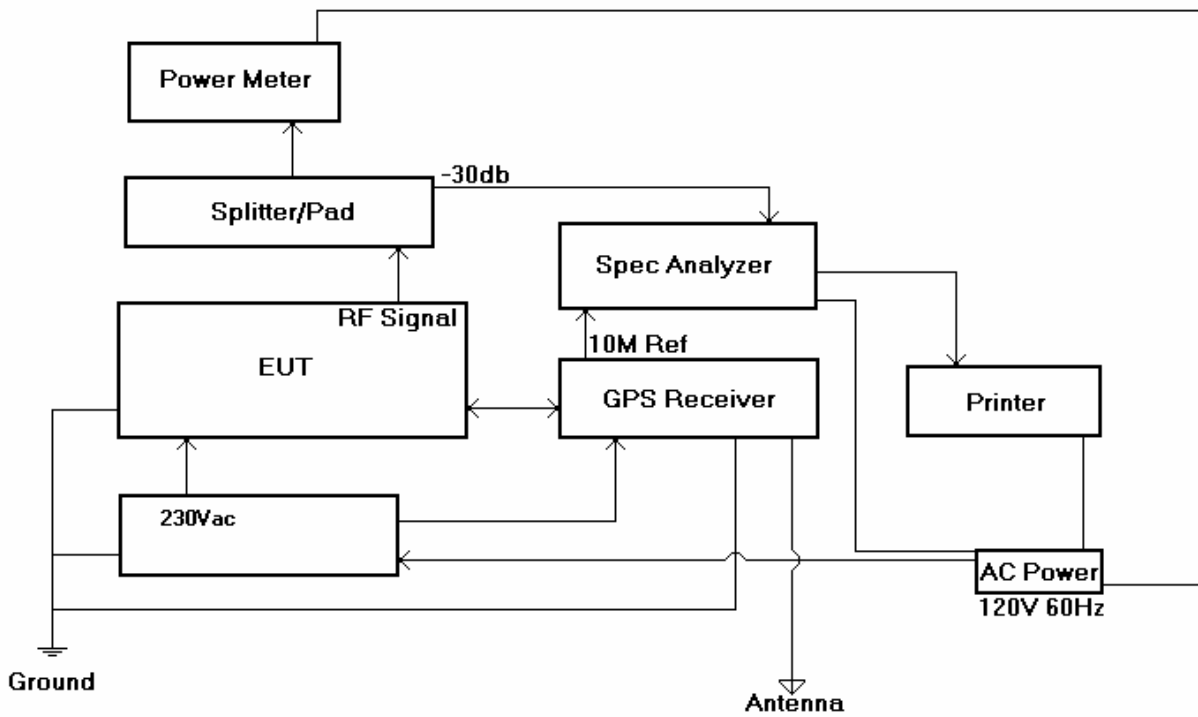
Test Condition: Standard Temperature & Humidity

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 TerminalsTest 1: Spurious Emissions at Antenna Terminals



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	dB μ V/M Reading	Signal down from carrier	Conveted to dBm	Total Power	dBm down from Carrier
1945.630 MHz	147.37 dBμV/m	00.00 μV/m	40.37 dBm	43.00 dBm	00.00 dB
1022.700 MHz	55.10 dB μ V/m	-92.27 μ V/m	-51.90 dBm	43.00 dBm	92.27 dB
1028.500 MHz	55.00 dB μ V/m	-92.37 μ V/m	-52.00 dBm	43.00 dBm	92.37 dB
1042.800 MHz	71.20 dB μ V/m	-76.17 μ V/m	-35.80 dBm	43.00 dBm	76.17 dB
1080.800 MHz	80.20 dB μ V/m	-67.17 μ V/m	-26.80 dBm	43.00 dBm	67.17 dB
1085.500 MHz	89.20 dB μ V/m	-58.17 μ V/m	-17.80 dBm	43.00 dBm	58.17 dB
1236.600 MHz	71.95 dB μ V/m	-75.42 μ V/m	-35.05 dBm	43.00 dBm	75.42 dB
1519.700 MHz	71.75 dB μ V/m	-75.62 μ V/m	-35.25 dBm	43.00 dBm	75.62 dB
1623.200 MHz	76.50 dB μ V/m	-70.87 μ V/m	-30.50 dBm	43.00 dBm	70.87 dB
2329.300 MHz	54.00 dB μ V/m	-93.37 μ V/m	-53.00 dBm	43.00 dBm	93.37 dB
2711.000 MHz	47.60 dB μ V/m	-99.77 μ V/m	-59.40 dBm	43.00 dBm	99.77 dB
3977.400 MHz	94.60 dB μ V/m	-52.77 μ V/m	-12.40 dBm	43.00 dBm	52.77 dB
3977.600 MHz	95.80 dB μ V/m	-51.57 μ V/m	-11.20 dBm	43.00 dBm	51.57 dB
5965.800 MHz	51.20 dB μ V/m	-96.17 μ V/m	-55.80 dBm	43.00 dBm	96.17 dB
5966.300 MHz	50.20 dB μ V/m	-97.17 μ V/m	-56.80 dBm	43.00 dBm	97.17 dB
7229.800 MHz	69.18 dB μ V/m	-78.19 μ V/m	-37.82 dBm	43.00 dBm	78.19 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 25 = 13Hz

Channel 669 = 16Hz

Channel 1175 = 16Hz

Voltage Stability:

Channel 25 = 5Hz

Channel 669 = 7Hz

Channel 1175 = 7Hz

	CHANNEL # 1175		CHANNEL # 669		CHANNEL # 25
	FREQUENCY @		FREQUENCY @		FREQUENCY @
TEMPERATURE					
-40°C	1.988749997		1.963450009		1.931250008
-30°C	1.988750002		1.963450002		1.931250002
-20°C	1.988749999		1.963449996		1.931249994
-10°C	1.988749992		1.963449999		1.931249997
0°C	1.988749996		1.963449998		1.931250002
10°C	1.988749999		1.963450003		1.931250001
20°C	1.988749991		1.963449992		1.931250007
30°C	1.98875		1.963449997		1.931249995
40°C	1.988749989		1.963449995		1.931249998
50°C	1.988749981		1.963449993		1.931249992
60°C	1.988749998		1.963450		1.931249996
VOLTAGE	FREQUENCY		FREQUENCY		FREQUENCY
187VAC	1.988749992		1.963449991		1.931250007
220VAC	1.988749996		1.963449995		1.93125001
265VAC	1.988749997		1.963449998		1.93125

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 (page 6-27 TIA/EIA/IS-95 {attached}) for filtering frequency response limits.

§ 15.205 Restricted Bands of Operation.

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505 ¹	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 Mhz.

² Above 38.6

Testimonial and Statement of Certification
--

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.