

Sub-part 2.1033 (c):

Equipment Identification

FCC ID: OJYKAG8

Date of Report

May 29, 2001

Supervised By:
RD:kg

Charles Beehler

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 24 sub-part E

Sub-part

2.1033 (c)(1)	<u>Name and Address of Applicant:</u>	
	Ericsson Wireless Communications 6455 Lusk Blvd. San Diego, CA 92121-1617	
	<u>Vendor:</u>	
	Applicant	
2.1033(c)(2):	<u>FCC ID:</u>	OJYKAG8
2.924	<u>Model No:</u> Where X can be either 0 or 2	RBS11X7
	<u>Technical Description:</u>	
2.1033(c)(4):	<u>Type of Emission:</u>	1M25F9W
2.1033(c)(5)	<u>Frequency Range, MHz:</u>	869 MHz 894 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>22E</u>	Broadband PCS	<u>X</u>
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)(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	= N/A
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

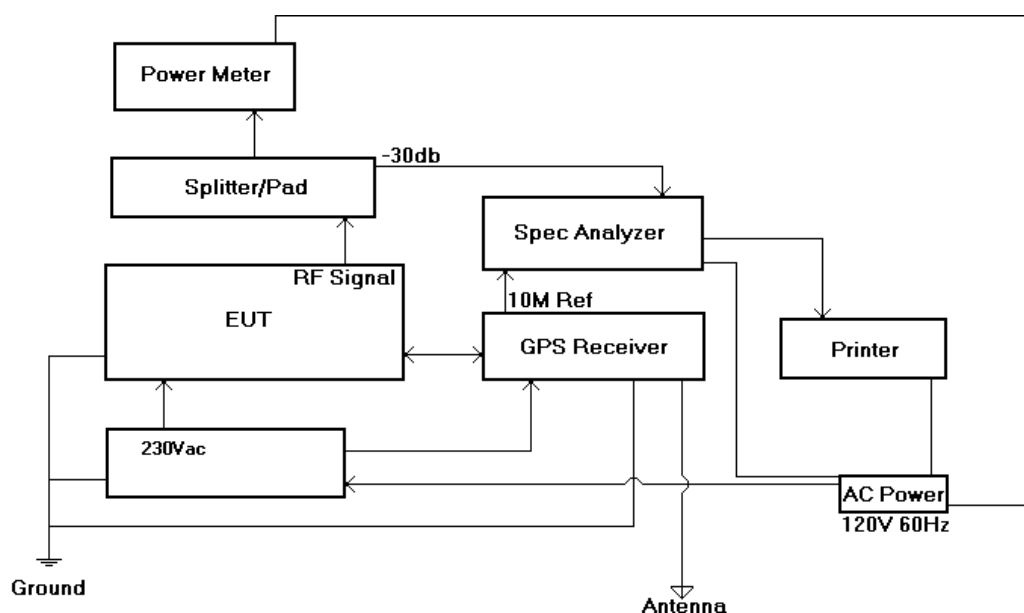
Test Equipment: As per Attached Appendix J

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
880.68	356		1.0	20.0
893.31	777		1.0	20.0
869.70	1013		1.0	20.0



Supervised By:

Charles Beehler



Marker 1 [T1]

OJYKAG8

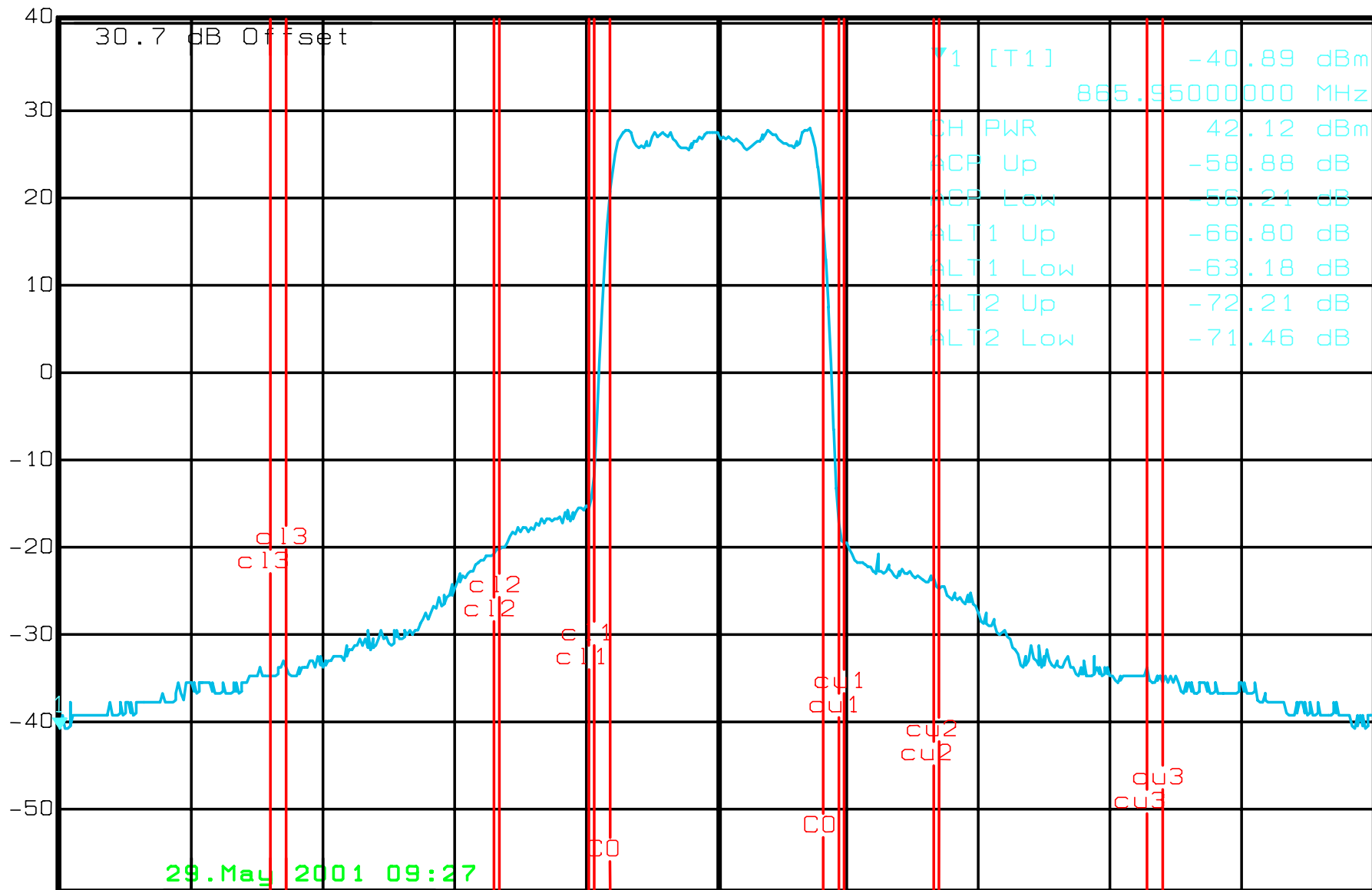
RBW	30 kHz	RF Att	30 dB
VBW	300 kHz	Mixer	-10 dBm
SWT	2 s	Unit	dBm

Ref Lvl

40.7 dBm

-40.89 dBm

865.9500000 MHz



Date: 29.MAY.2001 10:35:49

Channel 1013 at 20 Watts



Ref Lvl

40.7 dBm

Marker 1 [T1]

-45.32 dBm

RBW

30 kHz

RF Att

30 dB

VBW

300 kHz

Mixer

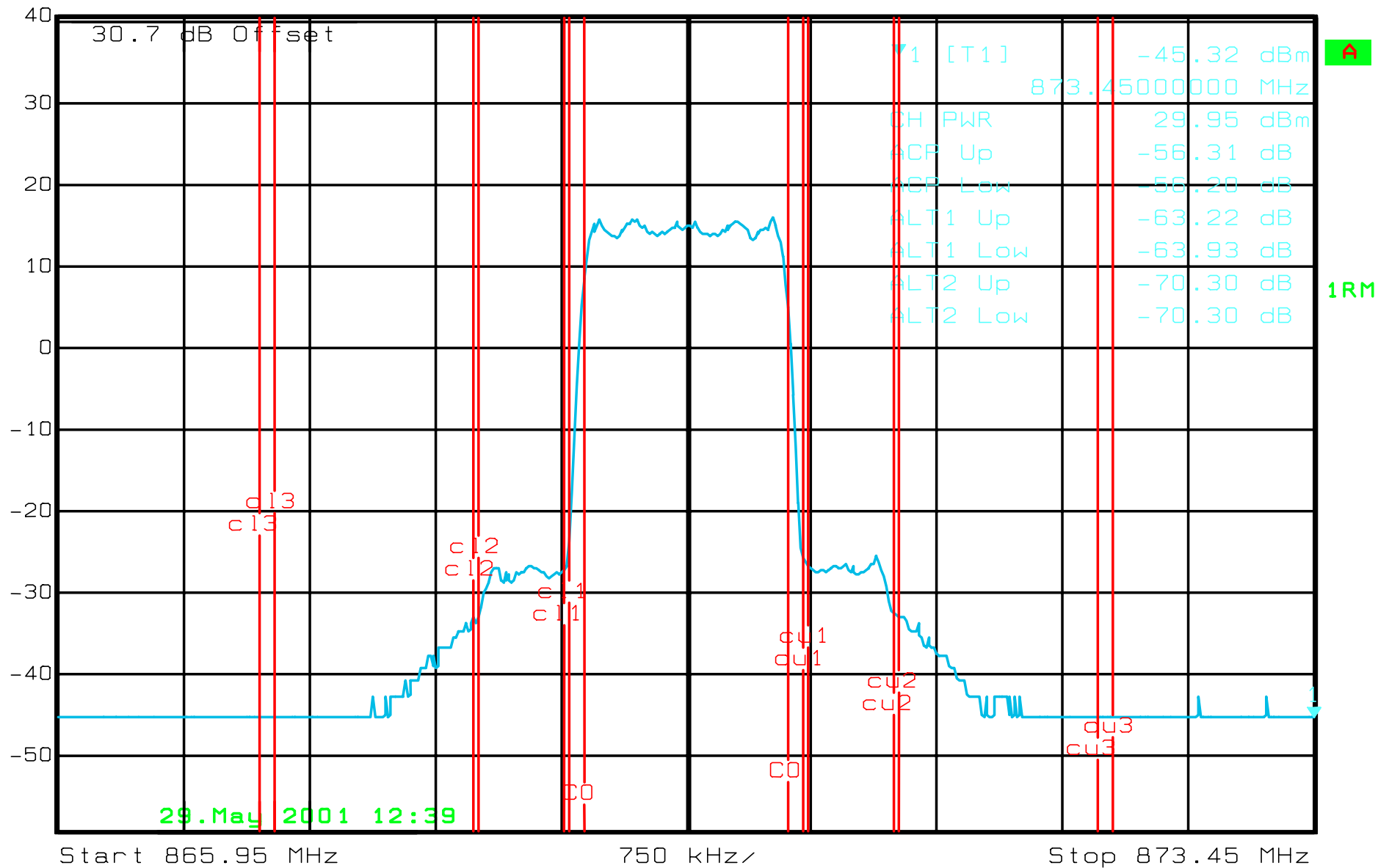
-10 dBm

SWT

2 s

Unit

dBm



Date: 29.MAY.2001 12:48:43

Channel 1013 at 1 Watt



Ref Lvl

40.7 dBm

Marker 1 [T1]

27.34 dBm

RBW

30 kHz

RF Att

30 dB

VBW

300 kHz

Mixer

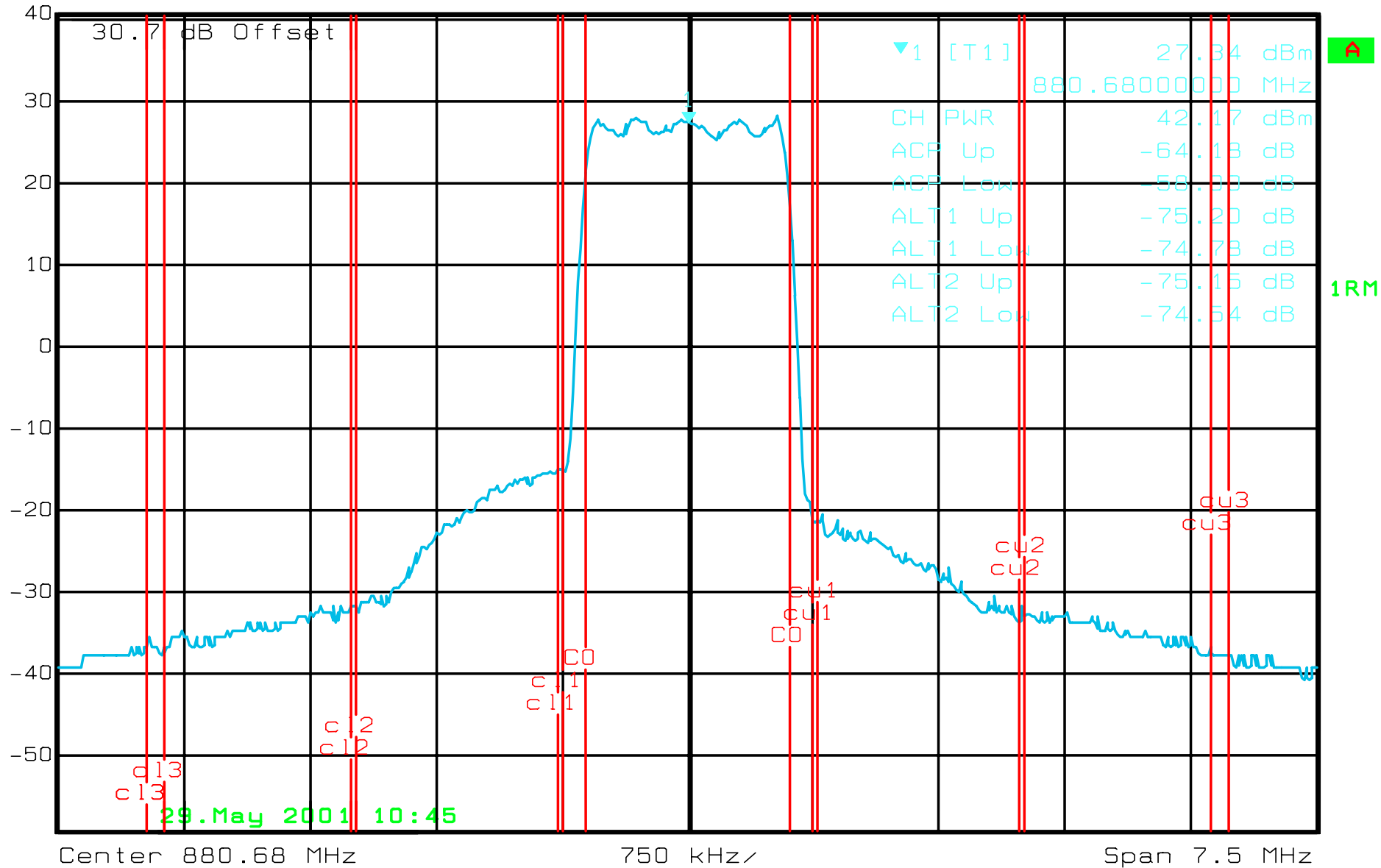
-10 dBm

SWT

2 s

Unit

dBm



Date: 29.MAY.2001 11:04:37

Channel 356 at 20 Watts



Ref Lvl

40.7 dBm

Marker 1 [T1]

15.18 dBm

RBW

30 kHz

RF Att

30 dB

VBW

300 kHz

Mixer

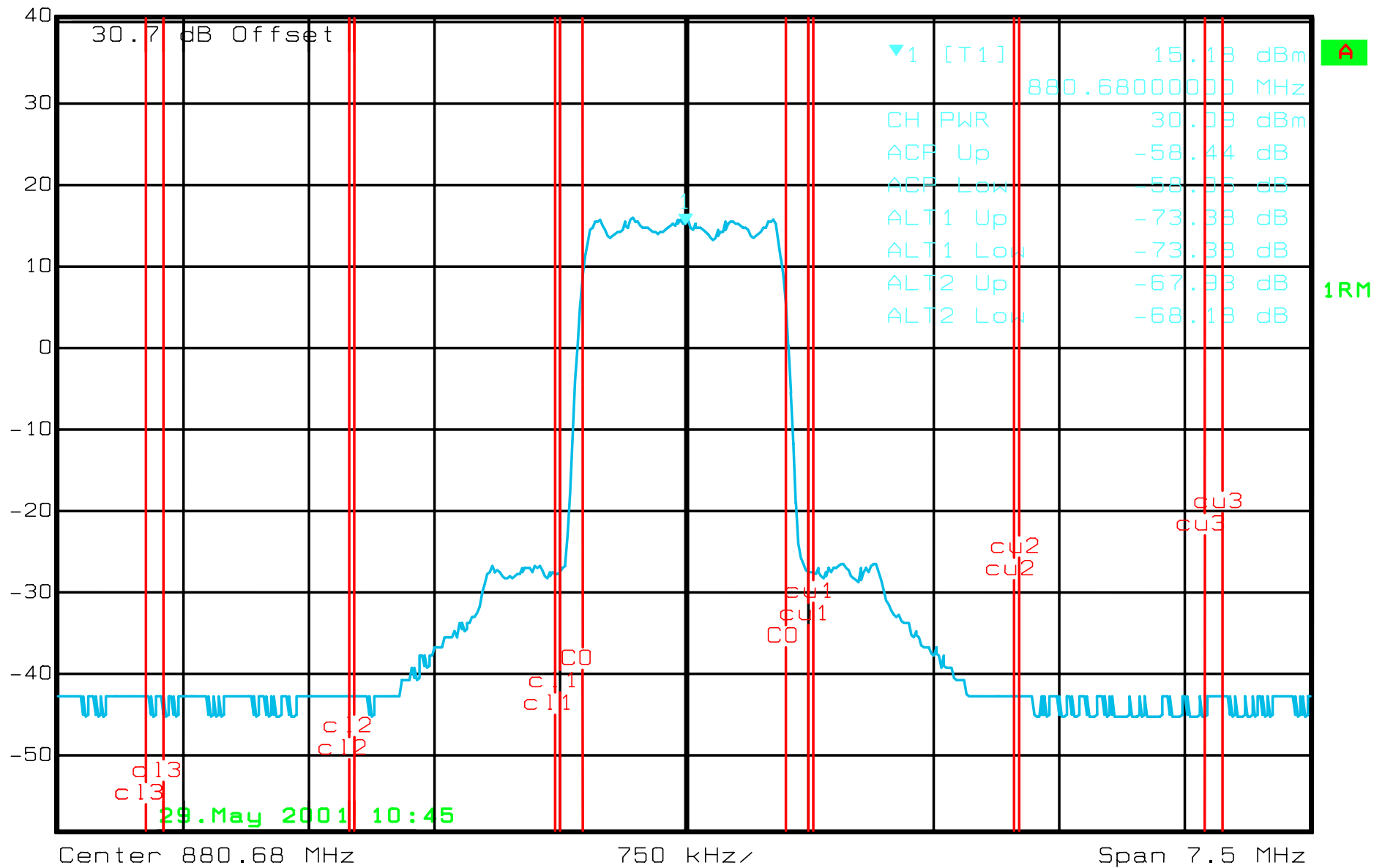
-10 dBm

SWT

2 s

Unit

dBm



Date: 29.MAY.2001 12:25:13

Channel 356 at 1 Watt



Ref Lvl

40.7 dBm

Marker 1 [T1]

-39.30 dBm

889.56000000 MHz

RBW

30 kHz

RF Att

30 dB

VBW

300 kHz

Mixer

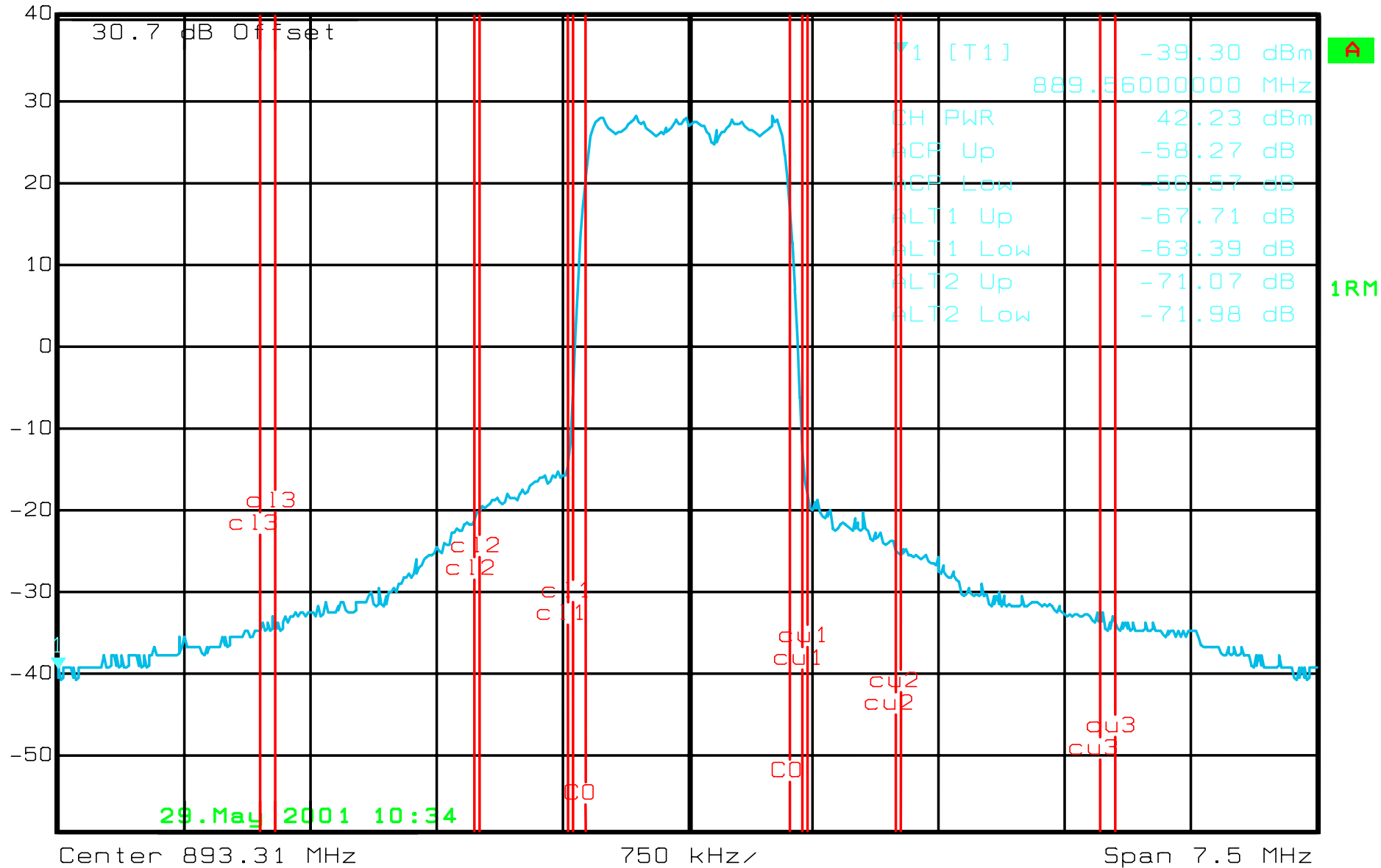
-10 dBm

SWT

2 s

Unit

dBm



Date: 29.MAY.2001 10:46:11

Channel 777 at 20 Watts

Channel 777 at 1 Watt

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

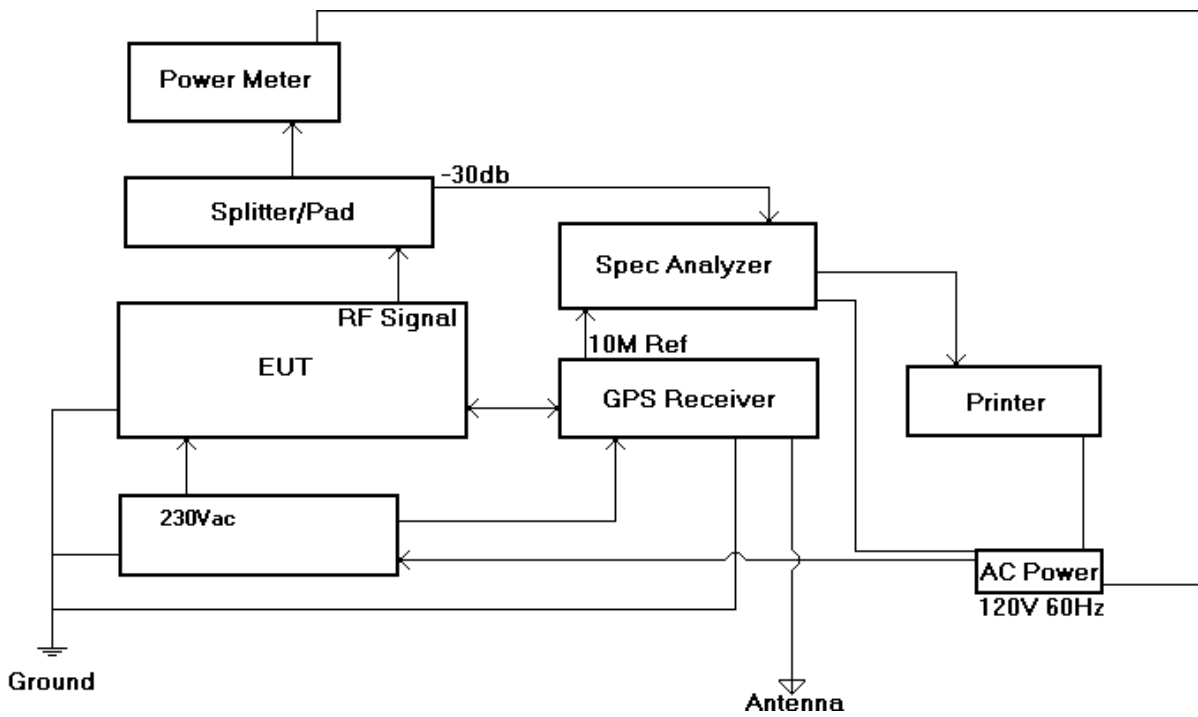
Test Equipment:

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	RBW	dB μ V/M Reading	Signal down from carrier μ V/m	Convrt dB μ V/M to dBm	Total O/P Power	dBm down from Carrier
875.930 MHz		140.65 dBμV/m	00.00 μV/m	33.65 dBm	33.65 dBm	00.00 dB
1751.480 MHz		39.86 dB μ V/m	-100.79 μ V/m	-67.14 dBm	33.65 dBm	100.79 dB
2625.000 MHz		35.54 dB μ V/m	-105.11 μ V/m	-71.46 dBm	33.65 dBm	105.11 dB
3500.000 MHz		32.90 dB μ V/m	-107.75 μ V/m	-74.10 dBm	33.65 dBm	107.75 dB
4375.000 MHz		33.84 dB μ V/m	-106.81 μ V/m	-73.16 dBm	33.65 dBm	106.81 dB
5250.000 MHz		37.03 dB μ V/m	-103.62 μ V/m	-69.97 dBm	33.65 dBm	103.62 dB
6125.000 MHz		43.94 dB μ V/m	-96.71 μ V/m	-63.06 dBm	33.65 dBm	96.71 dB
7000.000 MHz		45.55 dB μ V/m	-95.10 μ V/m	-61.45 dBm	33.65 dBm	95.10 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 356 = 9.9Hz

Channel 777 = 16.6Hz

Channel 1013= 8.4Hz

Voltage Stability:

Channel 356 = 1.3Hz

Channel 777 = 1.5Hz

Channel 1013= 1.5Hz

	FREQUENCY @ 869.700000 MHz CHANNEL # 1013	DELTA F	FREQUENCY @ 893.310000 MHz CHANNEL # 777	DELTA F	FREQUENCY @ 880.680000 MHz CHANNEL # 356	DELTA F
TEMPERATURE						
-40°C	869.7000017 MHz	1.7 Hz	893.3099984 MHz	-1.6 Hz	880.6800016 MHz	1.6 Hz
-30°C	869.6999925 MHz	-7.5 Hz	893.3100008 MHz	0.8 Hz	880.6799985 MHz	-1.5 Hz
-20°C	869.7000028 MHz	2.8 Hz	893.3100023 MHz	2.3 Hz	880.6800027 MHz	2.7 Hz
-10°C	869.7000074 MHz	7.4 Hz	893.3099853 MHz	-14.7 Hz	880.6800062 MHz	6.2 Hz
0°C	869.6999996 MHz	-0.4 Hz	893.3099853 MHz	-14.7 Hz	880.6800025 MHz	2.5 Hz
10°C	869.7000084 MHz	8.4 Hz	893.3099954 MHz	-4.6 Hz	880.6800090 MHz	9.0 Hz
20°C	869.7000072 MHz	7.2 Hz	893.3099834 MHz	-16.6 Hz	880.6800099 MHz	9.9 Hz
30°C	869.6999933 MHz	-6.7 Hz	893.3099905 MHz	-9.5 Hz	880.6800036 MHz	3.6 Hz
40°C	869.7000049 MHz	4.9 Hz	893.3099984 MHz	-1.6 Hz	880.6800046 MHz	4.6 Hz
50°C	869.7000075 MHz	7.5 Hz	893.3100011 MHz	1.1 Hz	880.6800036 MHz	3.6 Hz
55°C	869.7000031 MHz	3.1 Hz	893.3100032 MHz	3.2 Hz	880.6800039 MHz	3.9 Hz
VOLTAGE	FREQUENCY	DELTA F	FREQUENCY	DELTA F	FREQUENCY	DELTA F
187VAC	869.7000004 MHz	0.4 Hz	893.3099985 MHz	-1.5 Hz	880.6799987 MHz	-1.3 Hz
220VAC	869.7000003 MHz	0.3 Hz	893.3100003 MHz	0.3 Hz	880.6800010 MHz	1.0 Hz
265VAC	869.7000015 MHz	1.5 Hz	893.3100012 MHz	1.2 Hz	880.6799997 MHz	-0.3 Hz

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
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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.