

LIST OF EXHIBITS  
(FCC **CERTIFICATION** (TRANSMITTERS) - REVISED 9/28/98)

APPLICANT: Ericsson Mobile Communications AB

FCC ID: IKTM3090-MOBITEX

BY APPLICANT:

1. LETTER OF AUTHORIZATION
2. IDENTIFICATION DRAWINGS, 2.1033(c)(11)
  - \_\_\_\_ LABEL
  - \_\_\_\_ LOCATION OF LABEL
  - \_\_\_\_ COMPLIANCE STATEMENT
  - \_\_\_\_ LOCATION OF COMPLIANCE STATEMENT
3. PHOTOGRAPHS, 2.1033(c)(12)
4. DOCUMENTATION: 2.1033(c)
  - (3) USER MANUAL
  - (9) TUNE UP INFO
  - (10) SCHEMATIC DIAGRAM
  - (10) CIRCUIT DESCRIPTION
5. PART 90.203(e) & (g) ATTESTATION

BY M.F.A. INC.

- A. TESTIMONIAL & STATEMENT OF CERTIFICATION
- B. STATEMENT OF QUALIFICATIONS



**M. Flom Associates, Inc. - Global Compliance Center**

3356 North San Marcos Place, Suite 107, Chandler, Arizona 85225-7176

www.mflom.com general@mflom.com (480) 926-3100, FAX: 926-3598

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Sub-part  
2.1033(c):

EQUIPMENT IDENTIFICATION

FCC ID: IKTM3090-MOBITEX

NAMEPLATE DRAWING

ATTACHED, EXHIBIT 1.

LOCATION

AS PER LABEL DRAWING(S)

DATE OF REPORT

October 26, 1999

SUPERVISED BY:

A handwritten signature in black ink, appearing to read "William H. Graff".

William H. Graff, Director  
of Engineering

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 modifications 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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*Required information per ISO/IEC Guide 25-1990, paragraph 13.2:*

a) TEST REPORT

b) Laboratory: M. Flom Associates, Inc.  
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107  
(Canada: IC 2044) Chandler, AZ 85224

c) Report Number: d99a0109

d) Client: Ericsson Inc.  
1 Mountain View Road  
Lynchburg, VA 24502

e) Identification: M3090  
Description: FCC ID: IKTM3090-MOBITEX  
Mobiltex Radio Modem

f) EUT Condition: Not required unless specified in individual tests.

g) Report Date: October 26, 1999  
EUT Received: October 20, 1999

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

l) Uncertainty: In accordance with MFA internal quality manual.

m) Supervised by:

William H. Graff, Director  
of Engineering

n) Results: The results presented in this report relate only to the item tested.

o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

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LIST OF GENERAL INFORMATION REQUIRED FOR CERTIFICATIONIN ACCORDANCE WITH FCC RULES AND REGULATIONS,  
VOLUME II, PART 2 AND TO

90

Sub-part 2.1033(c)(1): NAME AND ADDRESS OF APPLICANT:Ericsson Mobile Communications AB  
Torshamnsgatan 27  
5-164 80 Stockholm SwedenMANUFACTURER:

Applicant

(c)(2): FCC ID: IKTM3090-MOBITEXMODEL NO: M3090(c)(3): INSTRUCTION MANUAL(S):

PLEASE SEE ATTACHED EXHIBITS

(c)(4): TYPE OF EMISSION: 13K6F1D(c)(5): FREQUENCY RANGE, MHz: 896 to 902(c)(6): POWER RATING, Watts: 0.016 to 2  
\_\_\_\_ Switchable  Variable  N/A(c)(7): MAXIMUM POWER RATING, Watts: 100Please note that two antennas were tested with the product, i.e.  
SMA 900 and SN 8962N.

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M. Flom Associates, Inc. is accredited by the American Association for Laboratory Association (A2LA) as shown in the scope below.



THE AMERICAN  
ASSOCIATION  
FOR LABORATORY  
ACCREDITATION

### ACCREDITED LABORATORY

A2LA has accredited

**M. FLOM ASSOCIATES, INC.**

**Chandler, AZ**

for technical competence in the field of

#### Electrical (EMC) Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC Guide 25-1990 "General Requirements for the Competence of Calibration and Testing Laboratories" (equivalent to relevant requirements of the ISO 9000 series of standards) and any additional program requirements in the identified field of testing.

Presented this 24<sup>th</sup> day of November, 1998.



*Pete Flom*  
President  
For the Accreditation Council  
Certificate Number 1008.01  
Valid to December 31, 2000

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical (EMC) Scope of Accreditation



American Association for Laboratory Accreditation

#### SCOPE OF ACCREDITATION TO ISO/IEC GUIDE 25-1990 AND EN 45001

M. FLOM ASSOCIATES, INC.  
Electronic Testing Laboratory  
3356 North San Marcos Place, Suite 107  
Chandler, AZ 85224-1571  
Morton Flom Phone: 602 926 3100

#### ELECTRICAL (EMC)

Valid to: December 31, 2000

Certificate Number: 1008-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electromagnetic compatibility tests:

Tests	Standard(s)
RF Emissions	FCC Part 15 (Subparts B and C) using ANSI C63.4-1992; CISPR 11; CISPR 13; CISPR 14; CISPR 22; EN 55011; EN 55013; EN 55014; EN 55022; EN 50081-1; EN 50081-2; FCC Part 18; ICES-003; AS/NZS 1044; AS/NZS 1053; AS/NZS 3548; AS/NZS 4251.1
RF Immunity	EN 50082-1; EN 50082-2; AS/NZS 4251.1
Radiated Susceptibility	EN 61000-4-3; ENV 50140; ENV 50204; IEC 1000-4-3; IEC 801-3
ESD	EN 61000-4-2; IEC 1000-4-2; IEC 801-2
EFT	EN 61000-4-4; IEC 1000-4-4; IEC 801-4
Surge	EN 61000-4-5; ENV 50142; IEC 1000-4-5; IEC 801-5
47 CFR (FCC)	2, 21, 22, 23, 24, 74, 80, 87, 90, 95, 97

*Pete Flom*

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8307 • Phone: 301 644 3200 • Fax: 301 662 2974

"This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this report have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report."

Should this report contain any data for tests for which we are not accredited, or which have been undertaken by a subcontractor that is not A2LA accredited, such data would not be covered by this laboratory's A2LA accreditation.

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Subpart 2.1033 (continued)

(c)(8): VOLTAGES & CURRENTS IN ALL ELEMENTS IN FINAL R. F. STAGE,  
INCLUDING FINAL TRANSISTOR OR SOLID STATE DEVICE:

COLLECTOR CURRENT, A = per manual  
COLLECTOR VOLTAGE, Vdc = per manual  
SUPPLY VOLTAGE, Vdc = 9 to 6 Volts

(c)(9): TUNE-UP PROCEDURE:

PLEASE SEE ATTACHED EXHIBITS

(c)(10): CIRCUIT DIAGRAM/CIRCUIT DESCRIPTION:

Including description of circuitry & devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation and limiting power.

PLEASE SEE ATTACHED EXHIBITS

(c)(11): LABEL INFORMATION:

PLEASE SEE ATTACHED EXHIBITS

(c)(12): PHOTOGRAPHS:

PLEASE SEE ATTACHED EXHIBITS

(c)(13): DIGITAL MODULATION DESCRIPTION:

       ATTACHED EXHIBITS  
x N/A

(c)(14): TEST AND MEASUREMENT DATA:

FOLLOWS

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Sub-part

2.1033(c)(14): 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 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

- \_\_\_\_ 21 - Domestic Public Fixed Radio Services
- \_\_\_\_ 22 - Public Mobile Services
- \_\_\_\_ 22 Subpart H - Cellular Radiotelephone Service
- \_\_\_\_ 22.901(d) - Alternative technologies and auxiliary services
- \_\_\_\_ 23 - International Fixed Public Radiocommunication services
- \_\_\_\_ 24 - Personal Communications Services
- \_\_\_\_ 74 Subpart H - Low Power Auxiliary Stations
- \_\_\_\_ 80 - Stations in the Maritime Services
- \_\_\_\_ 80 Subpart E - General Technical Standards
- \_\_\_\_ 80 Subpart F - Equipment Authorization for Compulsory Ships
- \_\_\_\_ 80 Subpart K - Private Coast Stations and Marine Utility Stations
- \_\_\_\_ 80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
- \_\_\_\_ 80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
- \_\_\_\_ 80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
- \_\_\_\_ 80 Subpart V - Emergency Position Indicating Radiobeacons (EPIRB'S)
- \_\_\_\_ 80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
- \_\_\_\_ 80 Subpart X - Voluntary Radio Installations
- \_\_\_\_ 87 - Aviation Services
- 90 - Private Land Mobile Radio Services
- \_\_\_\_ 94 - Private Operational-Fixed Microwave Service
- \_\_\_\_ 95 Subpart A - General Mobile Radio Service (GMRS)
- \_\_\_\_ 95 Subpart C - Radio Control (R/C) Radio Service
- \_\_\_\_ 95 Subpart D - Citizens Band (CB) Radio Service
- \_\_\_\_ 95 Subpart E - Family Radio Service
- \_\_\_\_ 95 Subpart F - Interactive Video and Data Service (IVDS)
- \_\_\_\_ 97 - Amateur Radio Service
- \_\_\_\_ 101 - Fixed Microwave Services

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STANDARD TEST CONDITIONS  
and  
ENGINEERING PRACTICES

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

In accordance with ANSI C63.4-1992, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT 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.

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NAME OF TEST: Carrier Output Power (Conducted)

SPECIFICATION: 47 CFR 2.1046(a)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.1

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the unmodulated output power was measured by means of an R. F. Power Meter.
2. Measurement accuracy is  $\pm 3\%$ .

MEASUREMENT RESULTS  
(Worst case)

FREQUENCY OF CARRIER, MHz = 896.1, 900.9

POWER SETTING	R. F. POWER, WATTS
Low	0.016
High	2

SUPERVISED BY:

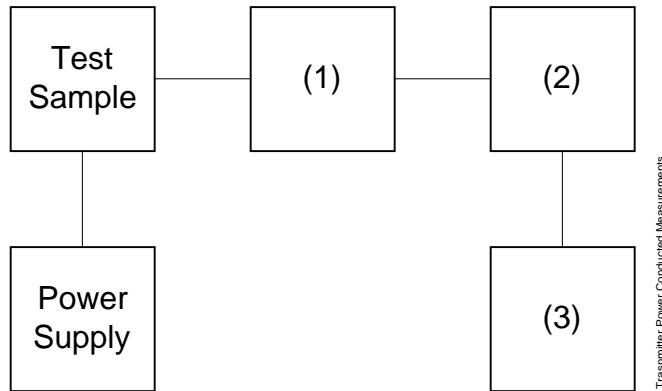
  
William H. Graff, Director  
of Engineering

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TRANSMITTER POWER CONDUCTED MEASUREMENTS

TEST 1: R. F. POWER OUTPUT  
 TEST 2: FREQUENCY STABILITY



Asset Description (as applicable)	s/n
(1) COAXIAL ATTENUATOR	
i00122 Narda 766-10	7802
i00123 Narda 766-10	7802A
i00069 Bird 8329 (30 dB)	1006
i00113 Sierra 661A-3D	1059
(2) POWER METERS	
i00014 HP 435A	1733A05836
i00039 HP 436A	2709A26776
i00020 HP 8901A POWER MODE	2105A01087
(3) FREQUENCY COUNTER	
i00042 HP 5383A	1628A00959
i00019 HP 5334B	2704A00347
i00020 HP 8901A FREQUENCY MODE	2105A01087

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NAME OF TEST: R. F. Power Output (Radiated)

SPECIFICATION: 47 CFR 2.1046(a)

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE (RADIATED)

1. The EUT was placed on an open-field site and its radiated field strength at a known distance was measured by means of a spectrum analyzer. Equivalent loading was calculated from the equation  $P_t=((E \times R)^2/49.2)$  watts, where  $R = 3m$ .
2. Measurement accuracy is  $\pm 1.5$  dB.

MEASUREMENT RESULTS

g99a0284: 1999-Oct-20 Wed 09:25:00

STATE: 2:High Power With SMA 900 Antenna

AMPS MODE:

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	METER, CF, dB dBuV/m	ERP, dBm	ERP, Watts
896.10000	896.091000	102.8	25.89	31.3
900.90000	900.896000	103.1	25.97	31.7

g99a0285: 1999-Oct-20 Wed 10:58:00

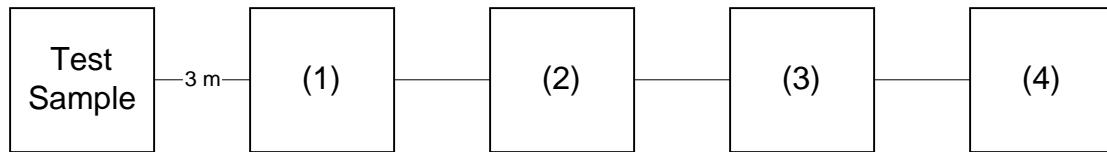
STATE: 2:High Power With SN8962N Antenna (Mobile)

AMPS MODE:

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	METER, CF, dB dBuV/m	ERP, dBm	ERP, Watts
896.10000	896.076000	97	30.19	29.8
900.90000	900.877000	97.5	30.29	30.4

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TRANSMITTER RADIATED MEASUREMENTS

Transmitter Radiated Measurements

Asset Description (as applicable)	s/n
(1) <u>TRANSDUCER</u> i00091 Emco 3115 i00089 Aprl Log Periodic	001469 001500
(2) <u>HIGH PASS FILTER</u> i00 Narda $\mu$ PAD (In-Band Only) i00 Trilithic (Out-Of-Band Only)	
(3) <u>PREAMP</u> i00028 HP 8449 (+30 dB)	2749A00121
(4) <u>SPECTRUM ANALYZER</u> i00048 HP 8566B i00057 HP 8557A i00029 HP 8563E	2511A01467 1531A00191 3213A00104

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)

SPECIFICATION: 47 CFR 2.1051

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.13

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The emissions were measured for the worst case as follows:
  - (a): within a band of frequencies defined by the carrier frequency plus and minus one channel.
  - (b): from the lowest frequency generated in the EUT and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.
2. The magnitude of spurious emissions that are attenuated more than 20 dB below the permissible value need not be specified.
3. MEASUREMENT RESULTS: ATTACHED FOR WORST CASE

FREQUENCY OF CARRIER, MHz = 896.1, 900.9  
SPECTRUM SEARCHED, GHz = 0 to  $10 \times F_c$   
MAXIMUM RESPONSE, Hz = N/A  
ALL OTHER EMISSIONS =  $\geq 20$  dB BELOW LIMIT  
LIMIT(S), dBc =  $43 + 10 \log P$

SUPERVISED BY:



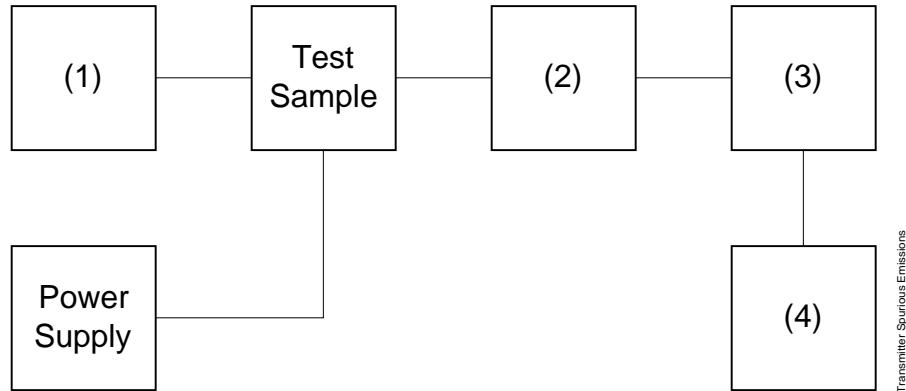
William H. Graff, Director  
of Engineering

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TRANSMITTER SPURIOUS EMISSION

TEST A. OCCUPIED BANDWIDTH (IN-BAND SPURIOUS)  
 TEST B. OUT-OF-BAND SPURIOUS



Asset Description (as applicable)	s/n
(1) AUDIO OSCILLATOR/GENERATOR	
i00010 HP 204D	1105A04683
i00017 HP 8903A	2216A01753
i00012 HP 3312A	1432A11250
(2) COAXIAL ATTENUATOR	
i00122 Narda 766-10	7802
i00123 Narda 766-10	7802A
i00069 Bird 8329 (30 dB)	1006
i00113 Sierra 661A-3D	1059
(3) FILTERS; NOTCH, HP, LP, BP	
i00126 Eagle TNF-1	100-250
i00125 Eagle TNF-1	50-60
i00124 Eagle TNF-1	250-850
(4) SPECTRUM ANALYZER	
i00048 HP 8566B	2511A01467
i00029 HP 8563E	3213A00104

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)

STATE: Low Power

FREQUENCY, MHz	LEVEL, dBm	LEVEL, dBc
1792.218	-64.5	-75
2688.336	-67.9	-78
3584.453	-69.2	-78
4480.570	-67.0	-78
5376.688	-65.5	-75
6272.688	-67.9	-78
7168.9	-68.7	-79
8065.04	-67.7	-77
8691.58	-67.7	-76

STATE: High Power

FREQUENCY, MHz	LEVEL, dBm	LEVEL, dBc
1792.202	-30.8	-63
2688.302	-21.4	-42
3584.403	-41.9	-62
4480.504	-28.5	-49
5376.605	-51.0	-70
6272.707	-60.8	-72
7168.806	-64.2	-76
8064.910	-61.3	-73
8691.008	-67.9	-78

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NAME OF TEST: Field Strength of Spurious Radiation

SPECIFICATION: 47 CFR 2.1053(a)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.12

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

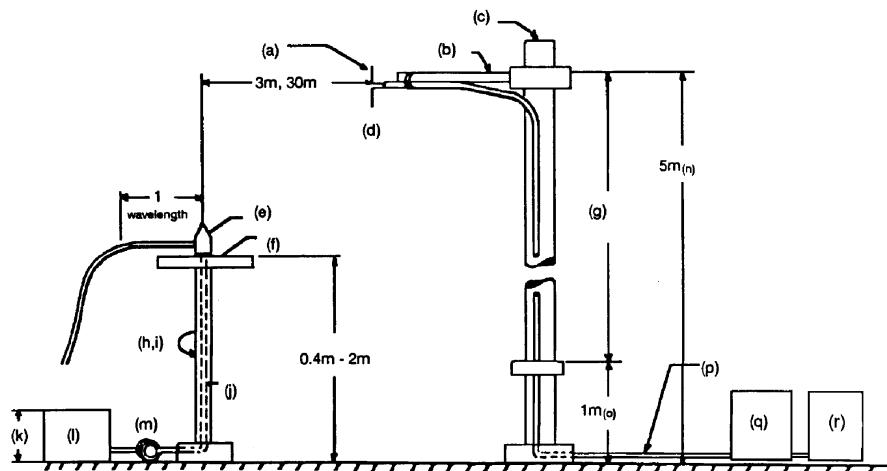
1. A description of the measurement facilities was filed with the FCC and was found to be in compliance with the requirements of Section 2.948, by letter from the FCC dated March 3, 1997, FILE 31040/SIT. All pertinent changes will be reported to the Commission by up-date prior to March 2000.
2. At first, in order to locate all spurious frequencies and approximate amplitudes, and to determine proper equipment functioning, the test sample was set up at a distance of three meters from the test instrument. Valid spurious signals were determined by switching the power on and off.
3. In the field, the test sample was placed on a wooden turntable above ground at three (or thirty) meters away from the search antenna. Excess power leads were coiled near the power supply.

The cables were oriented in order to obtain the maximum response. At each emission frequency, the turntable was rotated and the search antennas were raised and lowered vertically.

4. The emission was observed with both a vertically polarized and a horizontally polarized search antenna and the worst case was used.
5. The field strength of each emission within 20 dB of the limit was recorded and corrected with the appropriate cable and transducer factors.
6. The worst case for all channels is shown.
7. Measurement results: ATTACHED FOR WORST CASE

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RADIATED TEST SETUP

## NOTES:

- (a) Search Antenna - Rotatable on boom
- (b) Non-metallic boom
- (c) Non-metallic mast
- (d) Adjustable horizontally
- (e) Equipment Under Test
- (f) Turntable
- (g) Boom adjustable in height.
- (h) External control cables routed horizontally at least one wavelength.
- (i) Rotatable
- (j) Cables routed through hollow turntable center
- (k) 30 cm or less
- (l) External power source
- (m) 10 cm diameter coil of excess cable
- (n) 25 cm (V), 1 m-7 m (V, H)
- (o) 25 cm from bottom end of 'V', 1m normally
- (p) Calibrated Cable at least 10m in length
- (q) Amplifier (optional)
- (r) Spectrum Analyzer

Asset Description (as applicable)	s/n	Cycle	Last Cal
Per ANSI C63.4-1992, 10.1.4			
<b>TRANSDUCER</b>			
i00088 EMCO 3109-B 25MHz-300MHz	2336	12 mo.	Sep-99
i00065 EMCO 3301-B Active Monopole	2635	12 mo.	Sep-99
i00089 Aprel 2001 200MHz-1GHz	001500	12 mo.	Sep-99
i00103 EMCO 3115 1GHz-18GHz	9208-3925	12 mo.	Sep-99
<b>AMPLIFIER</b>			
i00028 HP 8449A	2749A00121	12 mo.	Mar-99
<b>SPECTRUM ANALYZER</b>			
i00029 HP 8563E	3213A00104	12 mo.	Aug-99
i00033 HP 85462A	3625A00357	12 mo.	May-99
i00048 HP 8566B	2511AD1467	6 mo.	May-99

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NAME OF TEST: Field Strength of Spurious Radiation

g99a0287: 1999-Oct-20 Wed 12:45:00

STATE: 2:High Power With SN 8962N Antenna

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	METER, dBuV	CF, dB	ERP, dBm	MARGIN, dB
0.000000	1801.800167	47.17	28.97	-21.2	-8.3
900.900000	2702.702451	50.67	2.25	-44.5	-31.5
900.900000	3603.603468	46.5	4.88	-46	-33
900.900000	4504.504735	50.83	6.86	-39.7	-26.7
900.900000	5405.406319	61.5	8.51	-27.4	-14.4
900.900000	6306.306736	53	10.61	-33.8	-20.8
900.900000	7207.206320	40.33	12.63	-44.4	-31.4
900.900000	8108.106737	48.33	12.39	-36.7	-23.7
900.900000	9009.014904	37.83	12.55	-47	-34

NAME OF TEST: Field Strength of Spurious Radiation

g99a0290: 1999-Oct-21 Thu 12:09:00

STATE: 2:High Power With SMA Antenna

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	METER, dBuV	CF, dB	ERP, dBm	MARGIN, dB
900.900000	1801.802318	41	32.38	-24	-11
900.900000	2702.704019	25.67	37.34	-34.4	-21.4
900.900000	3603.605086	52.17	9.19	-36	-23
900.900000	4504.504253	56	11.59	-29.8	-16.8
900.900000	5405.400670	61.83	13.97	-21.6	-8.6
900.900000	6306.307088	55.5	16.7	-25.2	-12.2
900.900000	7207.208838	46.5	19.48	-31.4	-18.4
900.900000	8108.102922	58.5	19.85	-19	-6.1
900.900000	9009.010673	42.33	20.56	-34.5	-21.5

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NAME OF TEST: Emission Masks (Occupied Bandwidth)

SPECIFICATION: 47 CFR 2.1049(c)(1)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.11

TEST EQUIPMENT: As per previous page

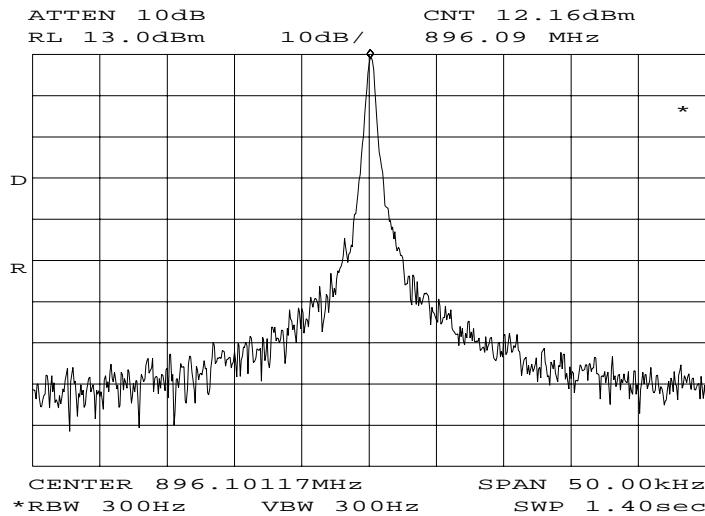
#### MEASUREMENT PROCEDURE

1. The EUT and test equipment were set up as shown on the following page, with the Spectrum Analyzer connected.
2. For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for  $\pm 2.5$  kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.
3. For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.
4. The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.
5. MEASUREMENT RESULTS: ATTACHED

PAGE NO.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g99a0297: 1999-Oct-22 Fri 10:16:00  
STATE: 1:Low Power



POWER: LOW  
MODULATION: NONE

SUPERVISED BY:

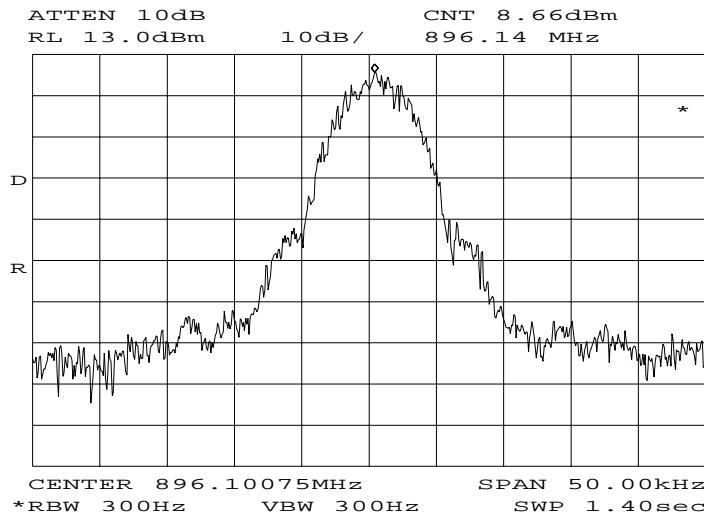


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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g99a0298: 1999-Oct-22 Fri 10:18:00  
STATE: 1:Low Power



POWER: LOW  
MODULATION: GMSK

SUPERVISED BY:

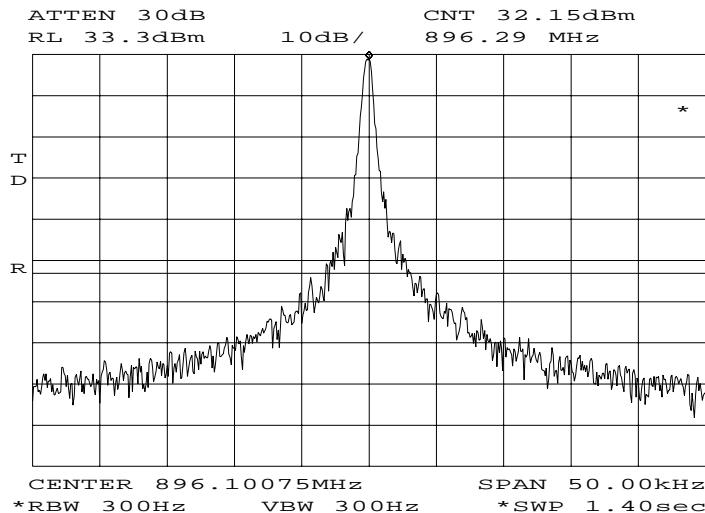


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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g99a0292: 1999-Oct-22 Fri 09:48:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: NONE

SUPERVISED BY:

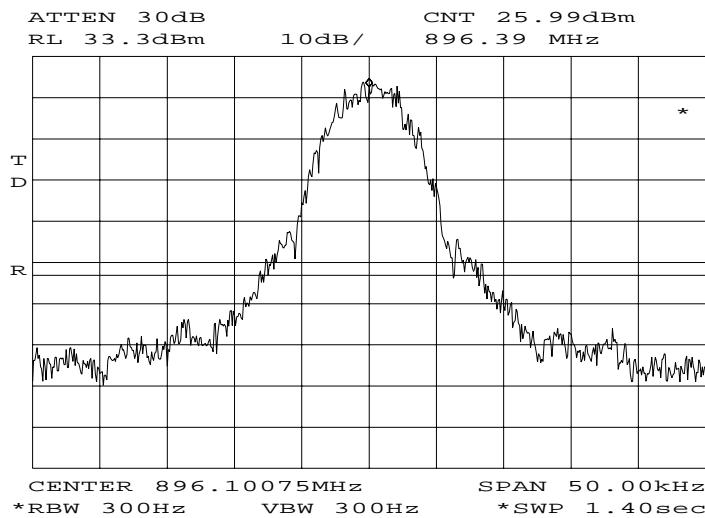


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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g99a0293: 1999-Oct-22 Fri 09:50:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: GMSK

SUPERVISED BY:



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NAME OF TEST: Frequency Stability (Temperature Variation)

SPECIFICATION: 47 CFR 2.1055(a)(1)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.2

TEST CONDITIONS: As Indicated

TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

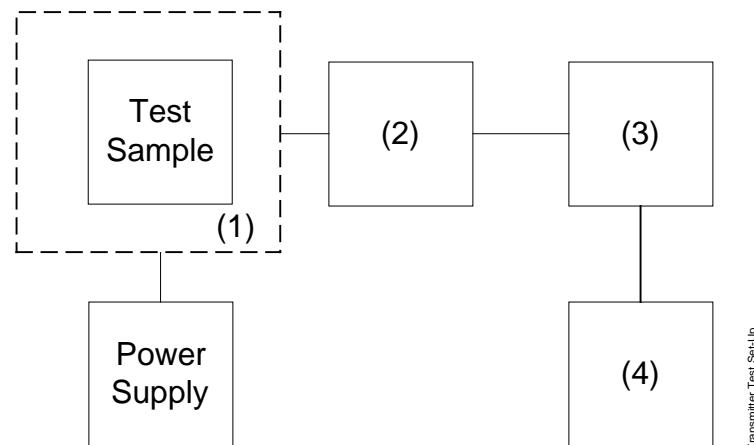
1. The EUT and test equipment were set up as shown on the following page.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The temperature tests were performed for the worst case.
5. MEASUREMENT RESULTS: ATTACHED

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TRANSMITTER TEST SET-UP

TEST A. OPERATIONAL STABILITY  
 TEST B. CARRIER FREQUENCY STABILITY  
 TEST C. OPERATIONAL PERFORMANCE STABILITY  
 TEST D. HUMIDITY  
 TEST E. VIBRATION  
 TEST F. ENVIRONMENTAL TEMPERATURE  
 TEST G. FREQUENCY STABILITY: TEMPERATURE VARIATION  
 TEST H. FREQUENCY STABILITY: VOLTAGE VARIATION



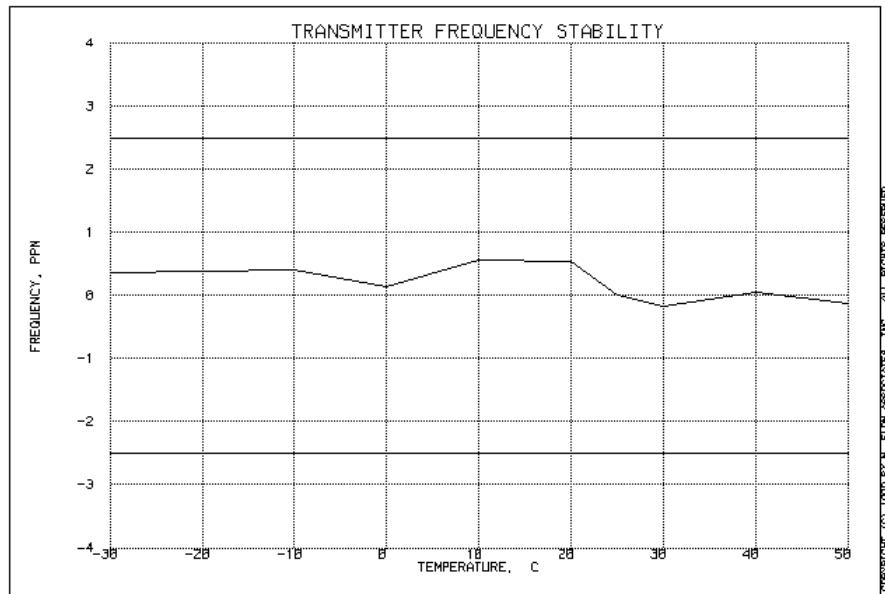
Transmitter Test Set Up

Asset Description (as applicable)		s/n
(1) TEMPERATURE, HUMIDITY, VIBRATION		
i00027 Tenny Temp. Chamber		9083-765-234
i00 Weber Humidity Chamber		
i00 L.A.B. RVH 18-100		
(2) COAXIAL ATTENUATOR		
i00122 NARDA 766-10		7802
i00123 NARDA 766-10		7802A
i00113 SIERRA 661A-3D		1059
i00069 BIRD 8329 (30 dB)		10066
(3) R.F. POWER		
i00014 HP 435A POWER METER		1733A05839
i00039 HP 436A POWER METER		2709A26776
i00020 HP 8901A POWER MODE		2105A01087
(4) FREQUENCY COUNTER		
i00042 HP 5383A		1628A00959
i00019 HP 5334B		2704A00347
i00020 HP 8901A		2105A01087

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NAME OF TEST: Frequency Stability (Temperature Variation)  
g99a0270: 1999-Oct-21 Thu 09:36:00  
STATE: 0:General



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°C	FREQUENCY, MHz	CHANGE, Hz	CHANGE, ppm
-30	896.100120	320.0	0.4
-20	896.100140	340.0	0.4
-10	896.100170	370.0	0.4
0	896.099920	120.0	0.4
10	896.100300	500.0	0.1
20	896.100290	490.0	0.6
25	896.099800	0.0	0.5
30	896.099650	-150.0	-0.2
40	896.099840	40.0	0.0
50	896.099680	-120.0	-0.1
60	896.099430	-370.0	-0.2

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NAME OF TEST: Frequency Stability (Voltage Variation)

SPECIFICATION: 47 CFR 2.1055(b)(1)

GUIDE: ANSI/TIA/EIA-603-1992, Paragraph 2.2.2

TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

1. The EUT was placed in a temperature chamber at  $25\pm5^{\circ}\text{C}$  and connected as for "Frequency Stability - Temperature Variation" test.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

RESULTS: Frequency Stability (Voltage Variation)

g99a0286: 1999-Oct-20 Wed 16:08:36

STATE: 0:General

LIMIT, ppm	=	2.5
LIMIT, Hz	=	2240
BATTERY END POINT (Voltage)	=	5.6

% of STV	Voltage	Frequency, MHz	Change, Hz	Change, ppm
85	6.12	896.099970	-30	-0.03
100	7.2	896.100000	0	0.00
115	8.28	896.100020	20	0.02
78	5.6	896.100060	60	0.07

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NAME OF TEST: Necessary Bandwidth and Emission Bandwidth

SPECIFICATION: 47 CFR 2.202(g)

MODULATION = 13K6F1D

NECESSARY BANDWIDTH:

NECESSARY BANDWIDTH ( $B_N$ ), kHz = 13.6  
(measured at the 99.75% power bandwidth)

SUPERVISED BY:



William H. Graff, Director  
of Engineering

TESTIMONIAL  
AND  
STATEMENT OF CERTIFICATION

THIS IS TO CERTIFY THAT:

1. THAT the application was prepared either by, or under the direct supervision of, the undersigned.
2. THAT the technical data supplied 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:



William H. Graff, Director  
of Engineering