MFA 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

Date: April 23, 1999

Federal Communications Commission
EQUIPMENT APPROVAL SERVICES
P.O. Box 358315
Pittsburgh, PA 15251-5315

Attention: Authorization & Evaluation Division

Applicant: Nokia Mobile Phones, Inc.
Equipment: 7190, Type NSB-5NX
FCC ID: GMLNSB-5NX
FCC Rules: 24, Confidentiality

Gentlemen:

On behalf of the Applicant, enclosed please find Application Form 731, Engineering Test Report and all pertinent documentation, the whole for approval of the referenced equipment as shown.

Filing fees are attached.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,

Morton Flom, P. Eng.

enclosure(s)
CERTIFIED MAIL, R.R.R.

cc: Applicant
MF/cvr

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3356 North San Marcos Place, Suite 107, Chandler, Arizona 85225-7176
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Attention: Authorization & Evaluation Division

Applicant: Nokia Mobile Phones, Inc.
Equipment: 7190, Type NSB-5NX
FCC ID: GMLNSB-5NX

Gentlemen:

As per instructions received, enclosed herewith please find completed Remittance Advice Form 159 for the referenced equipment, bearing original signature, and the application having been electronically filed.

Sincerely yours,

Morton Flom, P. Eng.

enclosure(s)
CERTIFIED MAIL, R.R.R.
cc: Visa
cc: File
MF/cvr

MFA p9940010, d9940048

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

APPLICANT: Nokia Mobile Phones, Inc.

FCC ID: GMLNSB-5NX

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. CONFIDENTIALITY REQUEST: 0.457 and 0.459

5. DOCUMENTATION: 2.1033(c)
   (3) INSTALLATION/OPERATING MANUAL
   (9) TUNE-UP/ALIGNMENT PROCEDURE
   (10) SCHEMATIC DIAGRAM
   (10) CIRCUIT DESCRIPTION

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

Sub-part
2.1033(c):

EQUIPMENT IDENTIFICATION

FCC ID: GMLNSB-5NX

NAMEPLATE DRAWING

ATTACHED, EXHIBIT 1.

LOCATION

AS PER LABEL DRAWING(S)

DATE OF REPORT

April 23, 1999

SUPERVISED BY: Morton Flom, P. Eng.

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.

TABLE OF CONTENTS

PAGE NO. 1 of 22.

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: d9940048

d) Client: Nokia Mobile Phones
2300 Valley View Lane, Suite 100
Irving, TX 75062

e) Identification: 7190, Type NSB-5NX
FCC ID: GMLNSB-5NX
Description: PCS Band GSM Cellular Telephone

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

g) Report Date: April 23, 1999
EUT Received: April 19, 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:

Morton Flom, P. Eng.

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.

PAGE NO. 2 of 22.

LIST OF GENERAL INFORMATION REQUIRED FOR CERTIFICATION

IN ACCORDANCE WITH FCC RULES AND REGULATIONS,
VOLUME II, PART 2 AND TO

24, Confidentiality

Sub-part 2.1033

(c)(1): NAME AND ADDRESS OF APPLICANT:

Nokia Mobile Phones, Inc.
6200 Courtney Campbell Causeway, Suite 900
P.O. Box 30730
Tampa, Florida 33630-3730

MANUFACTURER:

Nokia Manufacturing Inc., U.S.A.
4201 Diplomacy Road
Centreport 2
Fort Worth, TX 76155

(c)(2): FCC ID: GMLNSB-5NX

MODEL NO: 7190, Type NSB-5NX

(c)(3): INSTRUCTION MANUAL(S):

PLEASE SEE ATTACHED EXHIBITS

(c)(4): TYPE OF EMISSION: 256KG1D

(c)(5): FREQUENCY RANGE, MHz: 1850.2 to 1909.8

(c)(6): POWER RATING, Watts: 0.001 to 1, EIRP
___ Switchable x Variable ___ N/A

(c)(7): MAXIMUM POWER RATING, Watts: 1

PAGE NO. 3 of 22.

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 = 3.6

(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

PAGE NO. 4 of 22.

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
_x_ 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)
____ 101 – Fixed Microwave Services

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.

FOR PCS EQUIPMENT:

Pursuant to Section 24.51(d), the EUT complies with IEEE C95.1-1991, "IEEE Standards for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz."

The EUT uses digital modulation, as such, measurements of the modulation characteristics are not applicable. The applicant has provided a description of the modulation particular to the EUT.

Pursuant to Section 24.238(c), the EUT was tested at it's lowest and highest possible tuned frequencies.

GUIDES:

This device was tested using the following Guide(s):

ETS 300 607-1-1998

PAGE NO. 6 of 22.

NAME OF TEST: Carrier Output Power (Radiated)

SPECIFICATION: 47 CFR 2.1046(a), 24.232(b)

GUIDE: As indicated on page 5

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 $P_t=((E \times R)^2/30)$ watts, where R = 3m.

2. Measurement accuracy is ±1.5 dB.

MEASUREMENT RESULTS

g9940111: 1999-Apr-19 Mon 16:24:00
STATE: 1:Low Power

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	METER, dBuV/m	CF, dB	uV/m @ 3m	EIRP, dBm	EIRP, Watts
1850.200000	1850.130000	52.56	41.19	48696.75	-1.5	0.0007
1880.000000	1879.935000	52.34	41.51	49260.63	-1.4	0.0007
1909.800000	1909.775000	51.28	41.8	45081.67	-2.1	0.0006

g9940108: 1999-Apr-19 Mon 10:28:00
STATE: 2:High Power

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	METER, dBuV/m	CF, dB	uV/m @ 3m	EIRP, dBm	EIRP, Watts
1850.200000	1850.178000	82.70	41.19	1564948.32	28.7	0.74
1880.000000	1880.005000	82.70	41.51	1623678.35	29	0.80
1909.800000	1909.778000	80.47	41.8	1298673.56	27	0.50

SUPERVISED BY: Morton Flom, P. Eng.

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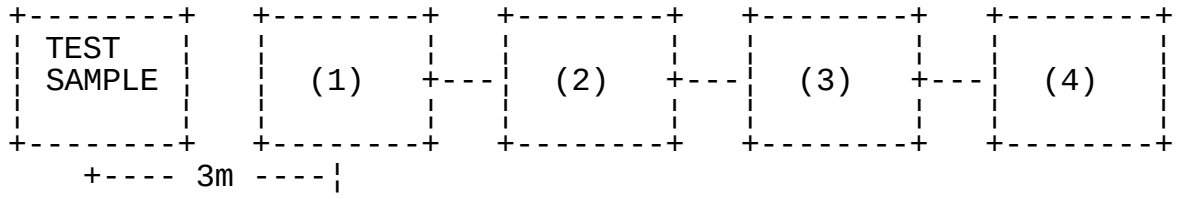
TRANSMITTER RADIATED MEASUREMENTS



	Asset	Description	s/n
(1) TRANSDUCER			
x	i00091	Emco 3115	001469
x	i00089	Aprel Log Periodic	001500
(2) HIGH PASS FILTER			
x	i00	Narda µPAD (In-Band Only)	
x	i00	Trilithic (Out-Of-Band Only)	
(3) PREAMP			
x	i00028	HP 8449 (+30 dB)	2749A00121
(4) SPECTRUM ANALYZER			
x	i00048	HP 8566B	2511A01467
	i00043	HP 8558B	2004A02076
	i00057	HP 8557A	1531A00191
x	i00029	HP 8563E	3213A00104

PAGE NO. 8 of 22.

NAME OF TEST: Transmitter Conducted Measurements

SPECIFICATION: 47 CFR 2.1051: Unwanted (spurious) Emissions
2.1049(c), 24.238(b): Occupied Bandwidth

GUIDE: As indicated on page 5

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The EUT and test equipment were set up as shown on the following page with the Spectrum Analyzer connected.

2. The low and high channels for all RF powers within the designated frequency block(s) were measured.

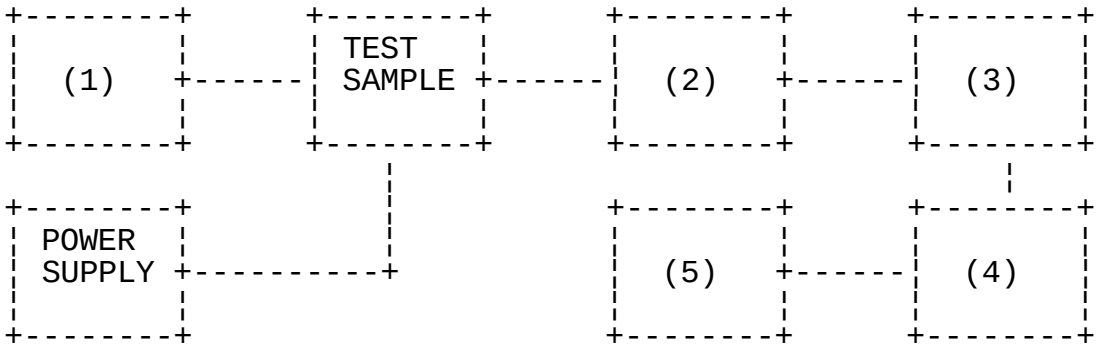
3. MEASUREMENT RESULTS: ATTACHED

SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 9 of 22.

TRANSMITTER SPURIOUS EMISSION

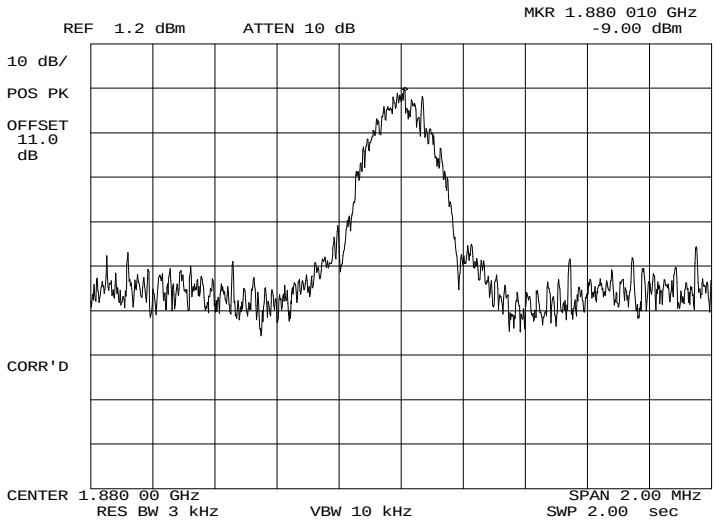
TEST A. OCCUPIED BANDWIDTH (IN-BAND SPURIOUS)
TEST B. OUT-OF-BAND SPURIOUS



	Asset	Description	s/n
(1)		AUDIO OSCILLATOR/GENERATOR	
	i00010	HP 204D	1105A04683
	i00017	HP 8903A	2216A01753
x	i00012	HP 3312A	1432A11250
(2)		COAXIAL ATTENUATOR	
	i00122	Narda 766-10	7802
	i00123	Narda 766-10	7802A
x	i00069	Bird 8329 (30 dB)	1006
x	i00113	Sierra 661A-3D	1059
(3)		FILTERS; NOTCH, HP, LP, BP	
x	i00126	Eagle TNF-1	100-250
x	i00125	Eagle TNF-1	50-60
x	i00124	Eagle TNF-1	250-850
(4)		SPECTRUM ANALYZER	
x	i00048	HP 8566B	2511A01467
	i00029	HP 8563E	3213A00104
(5)		SCOPE	
	i00058	HP 1741A	2251A09356
	i00030	HP 54502A	2927A00209
	i00071	Tektronix 935	1935-B011343

PAGE NO. 10 of 22.

NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940117: 1999-Apr-20 Tue 13:56:00
STATE: 1:Low Power

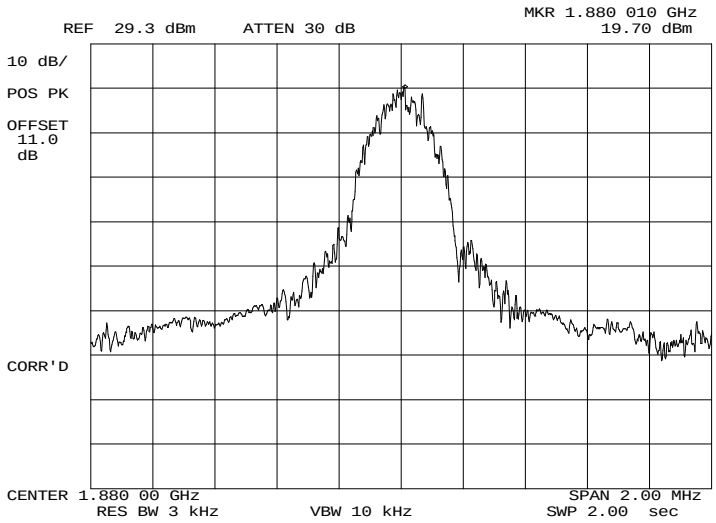


POWER: LOW
MODULATION: GSM

SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 11 of 22.

NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940113: 1999-Apr-20 Tue 13:37:00
STATE: 2:High Power

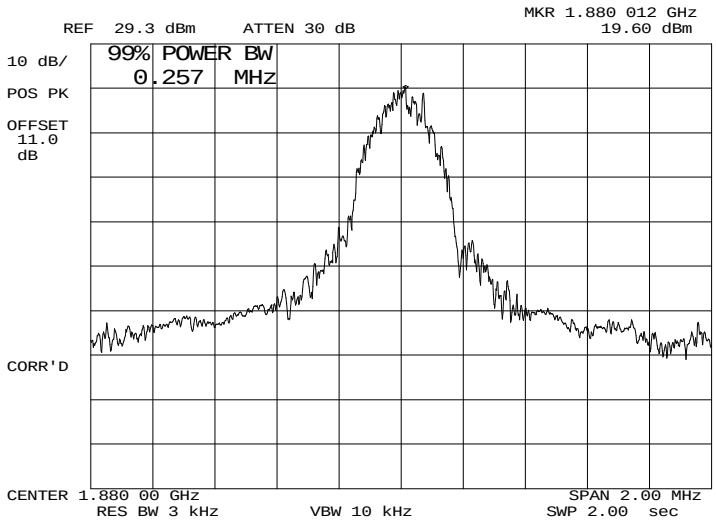


POWER: HIGH
MODULATION: GSM

SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 12 of 22.

NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940114: 1999-Apr-20 Tue 13:39:00
STATE: 2:High Power

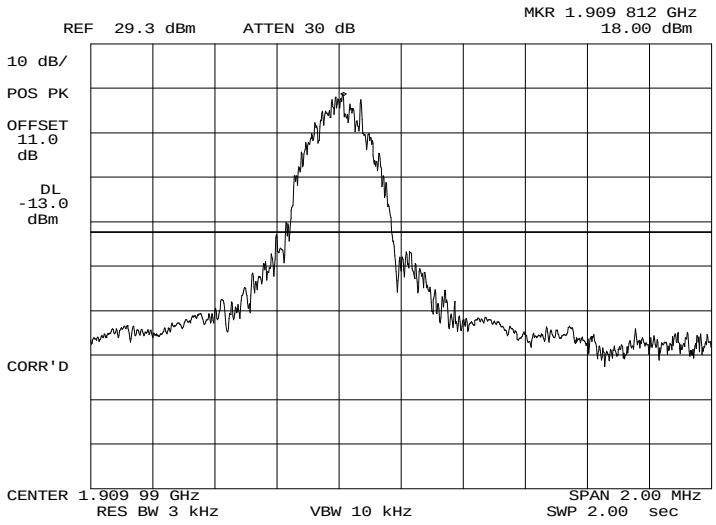


POWER: HIGH
MODULATION: GSM
99 % POWER BANDWIDTH

SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 13 of 22.

NAME OF TEST: Emission at Band Edges (Conducted)
g9940115: 1999-Apr-20 Tue 13:47:00
STATE: 2:High Power

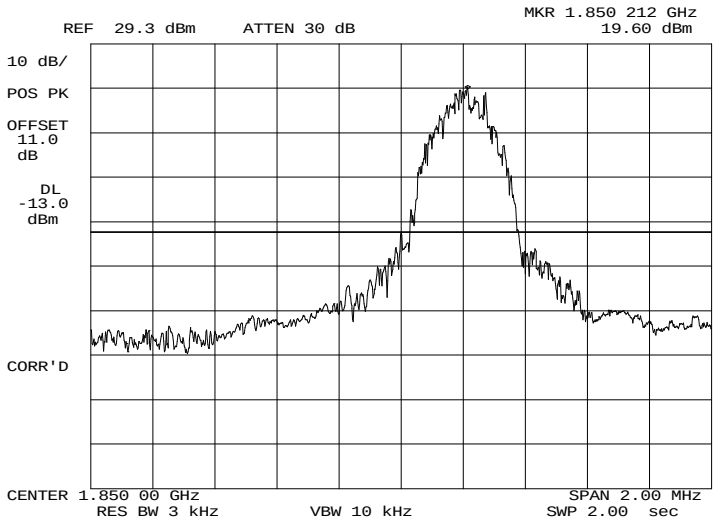


POWER: HIGH
MODULATION: GSM
UPPER BAND EDGE CH 810

SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 14 of 22.

NAME OF TEST: Emission at Band Edges (Conducted)
g9940116: 1999-Apr-20 Tue 13:49:00
STATE: 2:High Power



POWER: HIGH
MODULATION: GSM
LOWER BAND EDGE CH 512

SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 15 of 22.

NAME OF TEST: Field Strength of Spurious Radiation

SPECIFICATION: 47 CFR 2.1053(a)

GUIDE: As indicated on page 5

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 15.38, 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.

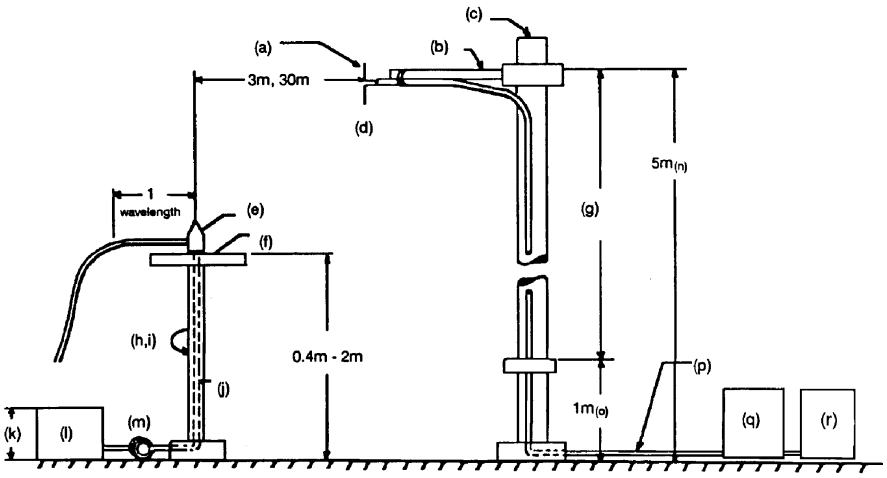
6. The field strength of each emission within 20 dB of the limit was recorded and corrected with the appropriate cable and transducer factors.

7. The worst case for all channels is shown.

8. Measurement results: ATTACHED FOR WORST CASE

PAGE NO. 16 of 22.

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	s/n	Cycle (Per ANSI C63.4-1992, 10.1.4)	Last Cal
TRANSDUCER					
	i00065	EMCO 3109B 100Hz-50MHz	2336	12 mo.	
	i00033	Singer 94593-1 10kHz-32MHz	0219	12 mo.	
x	i00088	EMCO 3109-B 25MHz-300MHz	2336	12 mo.	Oct-98
x	i00089	Aprel 2001 200MHz-1GHz	001500	12 mo.	Oct-98
x	i00103	EMCO 3115 1GHz-18GHz	9208-3925	12 mo.	Oct-98
	i00085	EMCO 3116 10GHz-40GHz	2076	12 mo.	
AMPLIFIER					
	i00028	HP 8449A	2749A00121	12 mo.	Mar-98
SPECTRUM ANALYZER					
	i00029	HP 8563E	3213A00104	12 mo.	Aug-98
x	i00033	HP 85462A	3625A00357	12 mo.	Dec-98
	i00048	HP 8566B	2511AD1467	6 mo.	Dec-98

PAGE NO. 17 of 22.

NAME OF TEST: Field Strength of Spurious Radiation
g9940110: 1999-Apr-19 Mon 14:52:00
STATE: 1:Low Power

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	METER, dBuV	CF, dB	uV/m @ 3m	EIRP, dBm	MARGIN, dB
1880.000000	3759.966667	50	6.47	666.04	-38.8	-25.7
1880.000000	5640.083333	53.33	9.71	1419.06	-32.2	-19.2
1880.000000	7520.166667	44.17	12.41	674.53	-38.6	-25.6
1880.000000	9400.016667	39.5	13.87	466.12	-41.9	-28.8
1880.000000	11280.016667	39.67	14.78	527.84	-40.8	-27.8
1880.000000	13160.016667	38.83	16.1	557.83	-40.3	-27.3
1880.000000	15040.016667	40	17.08	714.5	-38.1	-25.1
1880.000000	16920.016667	38.67	18.47	719.45	-38.1	-25.1

NAME OF TEST: Field Strength of Spurious Radiation
g9940109: 1999-Apr-19 Mon 12:48:00
STATE: 2:High Power

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	METER, dBuV	CF, dB	uV/m @ 3m	EIRP, dBm	MARGIN, dB
1880.000000	3759.860000	57.33	6.47	1548.82	-31.4	-18.4
1880.000000	5639.796667	67.83	9.7	7524.89	-17.7	-4.7
1880.000000	7519.766667	54.67	12.41	2259.44	-28.1	-15.1
1880.000000	9399.716667	46.33	13.87	1023.29	-35	-22
1880.000000	11280.000000	43.5	14.78	820.35	-36.9	-23.9
1880.000000	13160.000000	39.5	16.1	602.56	-39.6	-26.6
1880.000000	15040.000000	41.17	17.08	817.52	-37	-24
1880.000000	16920.000000	39.33	18.47	776.25	-37.4	-24.4

PAGE NO. 18 of 22.

NAME OF TEST: Frequency Stability (Temperature Variation)

SPECIFICATION: 47 CFR 2.1055(a)(1), 24.235

GUIDE: As indicated on page 5

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.

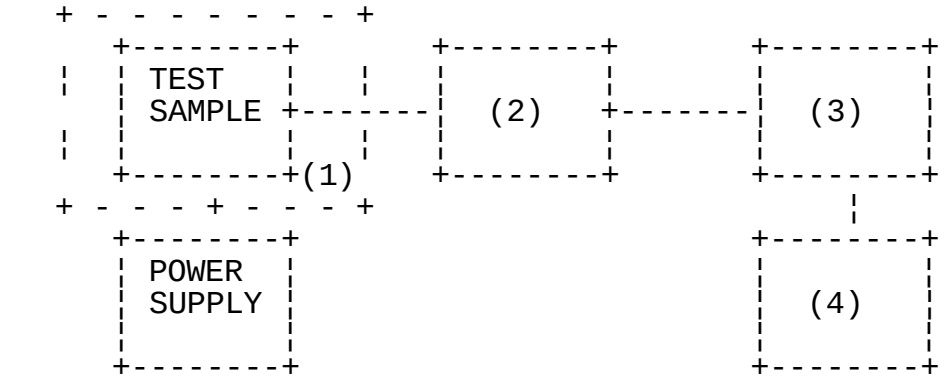
5. MEASUREMENT RESULTS: ATTACHED

DATA PROVIDED BY CLIENT

PAGE NO. 19 of 22.

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



	Asset	Description	s/n
(1)		TEMPERATURE, HUMIDITY, VIBRATION	
x	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
x	i00113	SIERRA 661A-3D	1059
	i00069	BIRD 8329 (30 dB)	10066
(3)		R.F. POWER	
	i00014	HP 435A POWER METER	1733A05839
x	i00039	HP 436A POWER METER	2709A26776
x	i00020	HP 8901A POWER MODE	2105A01087
(4)		FREQUENCY COUNTER	
	i00042	HP 5383A	1628A00959
x	i00019	HP 5334B	2704A00347
x	i00020	HP 8901A	2105A01087

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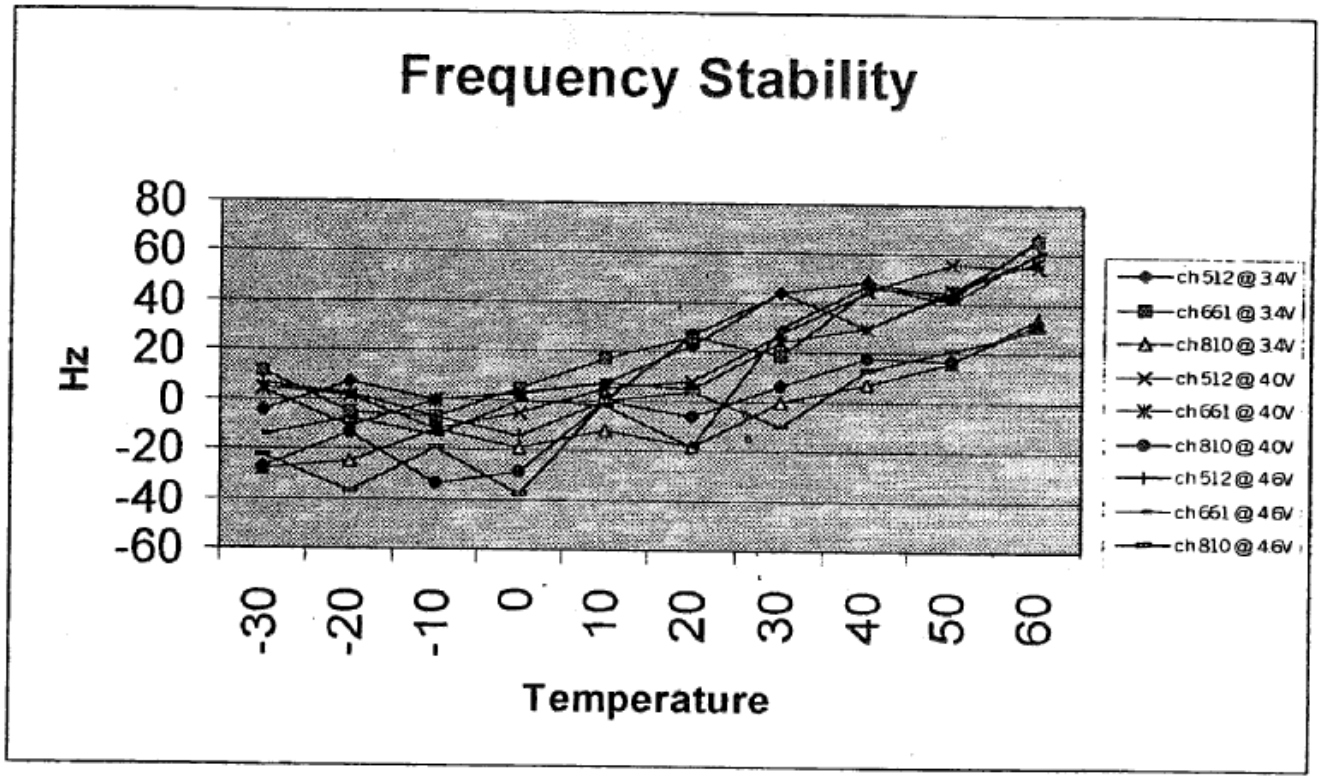
NAME OF TEST: Frequency Stability (Temperature Variation)

STATE:



SUPERVISED BY: Morton Flom, P. Eng.

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NAME OF TEST: Frequency Stability (Voltage Variation)

SPECIFICATION: 47 CFR 2.1055(b)(1)

GUIDE: As indicated on page 5

TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

1. The EUT was placed in a temperature chamber at 25±5°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)

LIMIT: Must remain within authorized frequency block.

BATTERY END POINT (Voltage) = 3.4

% of STV	Voltage	Frequency, MHz	Change, Hz
85	3.4	1850.200044	44
100	4.0	1850.200028	28
115	4.6	1850.200044	44

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NAME OF TEST: Necessary Bandwidth and Emission Bandwidth

SPECIFICATION: 47 CFR 2.202(g)

MODULATION = 256KG1D

NECESSARY BANDWIDTH:

NECESSARY BANDWIDTH (B_N), MHz = 0.257

(measured at the 99.75% power bandwidth)

SUPERVISED BY: Morton Flom, P. Eng.

END OF TEST REPORT

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: Morton Flom, P. Eng.