

MFA **M. Flom Associates, Inc. - Global Compliance Center**
3356 North San Marcos Place, Suite 107, Chandler, Arizona 85224-1571
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TOTAL PAGES:	20 + 1
DATE:	April 16, 1999
VIA FAX:	1 301 344 2050
TO:	FEDERAL COMMUNICATIONS COMMISSION
ATTENTION:	Greg Czumak, Electronics Engineer
APPLICANT:	NOKIA MOBILE PHONES INC.
EQUIPMENT:	FCC ID: GMLNSD-1GX Confirm.EA93140 (5180)
SUBJECT:	Your e-mail 04/05/99

Hi Greg: This will address the items of your e-mail.

1. SAR DATA: Attached please find letter from ERKKA SOINTULA Head of the RF Technology Group, R & D of S.D. which we trust answers your questions.
2. (a) See above letter
(b) Attached revised Page 2 of Form 731, Page 2 and 7.1 of 57 of Test Data Report
(c) The radiated ERP were taken using the conducted power output values listed on Page 7.1 of 57.
(d) Please refer to the attached revised pages 7.1 et al
3. Please again refer to Page 7.1. These values reflect the current factory tuning specifications
4. Please find revised CONFIDENTIALITY request omitting reference to SAR methodology, data etc.
5. The new data pages addresses and confirms the above.

As with all manufacturer and applicants, speed is of the utmost importance. Please do everything possible to expedite the granting of certification of this unit.

Have a Great weekend!

mf;mgt

MORTON FLOM, P. Eng.

cc: Applicant: FAX 1 619 450 3168 Att: M. PISTEMAA/PAUL HUNG
DATA BY MAIL TO SAN DIEGO, CERTIFIED, R.R.R.

REVISED: APRIL 16.99

Model 5180

SECTION IV - Enter FCC ID from Page 1, Section I

GMLNSD-1GX

1.(a) Instead of Applicant, FCC is authorized to mail original Grant to: (See instructions)

Firm name, number, street, City, State/Country, ZIP/Postal Code
M. FLOM ASSOCIATES, INC.
3356 N. San Marcos Place, Suite 107
CHANDLER, ARIZONA, U.S.A.
85224-1571

(b) Name, Title and Mail Stop, if any, of person at above address to receive Grant: (If 1.(a) is completed, this item must be completed)

MORTON FLOM, P. Eng., President

2.(a) Technical contact:

Firm name, contact person, number, street, City, State/Country, ZIP/Postal Code
M. FLOM ASSOCIATES, INC.
MORTON FLOM, President
3356 No. San Marcos Place, #107
CHANDLER, ARIZONA, U.S.A.
85224 1571

(b) Telephone No. (Area/Country/City code, No. and Ext.)

602 926 3100

(c) FAX No. (Area/Country/City code and No.)

602 926 3598

(d) Internet e-mail address:

mflom@goodnet.com

(e) Non-Technical contact:

Firm name, contact person, number, street, City, State/Country, ZIP/Postal Code
M.FLOM ASSOCIATES, INC.
MORTON FLOM, President
3356 No. San Marcos Place, #107
CHANDLER, ARIZONA, U.S.A.
85224 1571

(f) Telephone No. (Area/Country/City code, No. and Ext.)

602 926 3100

(g) FAX No. (Area/Country/City code and No.)

602 926 3598

(h) Internet e-mail address:

mflom@goodnet.com

3. Does this application include a request for confidentiality for any portion(s) of the data contained in this application pursuant to 47 CFR §0.459 of the Commission's Rules? If "Yes" see instructions.

☒ Yes ☐ No

4. Does the applicant request that the Commission defer grant of this application pursuant to 47 CFR §0.457(d)(1)(ii)? (See instructions)

☐ Yes ☒ No

5. Type of equipment authorization requested: (check one box only)

☒ Certification☐ Type Acceptance☐ Notification

6.(a) Equipment Code and description: (See instructions, page 4)

T N E Non-Broadcast Transmitter EAP**(Dual Mode, Single Freq. Cellular)**

(b) Equipment will be operated under FCC Rule Part(s):

22.901, 22H & CONFIDENTIALITY

7. Application is for: (Check one box only)

☒ 1. Original equipment
(See instructions)☐ 2. Change in identification of presently authorized equipment☐ 3. Class II permissive change or modification of presently authorized equipment

(See instructions)

ORIGINAL FCC ID

Grant date

8. EQUIPMENT SPECIFICATIONS: (See instructions)

(a) Frequency range in MHz

(b) Rated RF power output in watts

(c) Frequency tolerance %, Hz, ppm

(d) Emission designator (See 47 CFR §2.201 and §2.202)

(e) Microprocessor model number

824.04-848.97

MEASURED: AMPS-FM
.38 W ERP

±2.5

40K0F1D

824.73-848.19

AMPS-CDMA *
.21 W ERP40K0F8W
* 1M25F9W

9. Is the equipment in this application:

(a) a composite device subject to more than one type of equipment authorization?

☐ Yes ☒ No

(b) part of a system that operates with, or is marketed with, another device that requires an equipment authorization?

☐ Yes ☒ No

If either of the above questions is answered "Yes" complete items 10.(a) and (b). (See instructions)

COMPLETE, SIGN and DATE Page 3

FCC Form 731 - Page 2 of 3

March 1997

NOKIA MOBILE PHONES

12-Apr-99

To: Mr. Greg Czumac
FCC Application Processing Branch

Subject: Nokia FCC ID: GMLNSD-1GX, your Reference Number: 7045

In reply to: your letter to M. Flom concerning SAR values for Cellular CDMA mode.

1. Below the today measured SAR values for CDMA mode using NMP San Diego Dazy3 system at 836MHz (ch. 384) and with BMS-2 battery. These results are relative only because these are not measured using the NMP's official measurement system in Salo, Finland. However, these correlate again well with the original AMPS measurements in our FCC filing. The measured CDMA SAR values are "~1dB" lower than AMPS, as expected from the different power levels.

	Mode	P (conducted) /dBm	SAR/mW/g
Unit1	AMPS	25.5	1.20
	CDMA	24.5	0.96
Unit2	AMPS	25.5	1.21
	CDMA	24.5	0.94
Unit3	AMPS	25.5	1.18
	CDMA	24.5	0.91

These values were obtained using production test samples tuned to conducted power levels +25.5dBm (AMPS) and +24.5dBm (CDMA) for this test purpose.

Sincerely,

Erkka Sointula
Head of RF Technology Group
R&D San Diego
Nokia Mobile Phones
Email: erkka.sointula@nmp.nokia.com

NOKIA

NOKIA MOBILE PHONES INC.
9605 Scranton Road
Suite 150
San Diego, CA 92121
Tel. (619) 587 5500

5 April 1999

REVISED: APRIL 12.1999

Federal Communications Commission,
Authorisation & Evaluation Division,
7435 Oakland Mills Road,
Columbia, MD 21046

Attention: Equipment Authorisation Branch

REQUEST FOR CONFIDENTIALITY

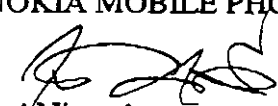
Pursuant to Sections 0.457 (d) (I) (ii) and 0.459 of the Commission's Rules, the Applicant hereby requests confidential treatment of some of the information accompanying this Application of FCC ID:GMLNSD-1GX and as outlined below:

- block diagram
- schematic diagrams
- description of circuitry / theory of operation
- list of active devices
- tune-up procedures

These materials contain trade secrets and proprietary information not customarily released to the public and the public disclosure of these matters might be harmful to the Applicant and provide unjustified benefits to its competitors.

The Applicant understands that pursuant to Rule 0.457 (d) (I) (ii) disclosure of this Application and all accompanying documentation will not be made before the date of the Grant for this Application.

NOKIA MOBILE PHONES INC.



Jari Niemelä

Product Project Manager, Product Development, San Diego

FCC ID: GMLNSD-1GX

PAGE NO.

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

22.901, 22H, 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 33630-3730VENDOR:Nokia Mobile Phones
9605 Scranton Rd., Suite 105
San Diego, CA 92121(c) (2): FCC ID: GMLNSD-1GXMODEL NO: 5180(c) (3): INSTRUCTION MANUAL(S):

PLEASE SEE ATTACHED EXHIBITS

(c) (4): TYPE OF EMISSION: 40K0F1D, 1M25F9W, 40K0F8W(c) (5): FREQUENCY RANGE, MHz: 824.04 to 848.97 AMPS
848.19 to 824.73 CDMA(c) (6): POWER RATING, Watts: 0.38 W ERP, AMPS-FM
0.21 W ERP, AMPS-CDMA
___ Switchable ___ x Variable ___ N/A(c) (7): MAXIMUM POWER RATING, Watts: 7

FCC ID: GMLNSD-16X

PAGE NO. 7.1 of 57. AMENDED April 12, 1999

NAME OF TEST: Carrier Output Power

SPECIFICATION: 47 CFR 2.1046(a)

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, CONDUCTED

NOMINAL, MHz		CHANNEL	R. F. POWER, WATTS		R. F. POWER, dbm	
			Lo	Hi	Lo	Hi
AMPS MODE	824.040	991	0.003	0.263	4.8	25.5
	836.400	380	0.003	0.354	4.8	25.5
	848.970	799	0.003	0.295	4.0	25.5
CDMA MODE	825.290	995	0.0006	0.251	-2.2	24.5
	836.400	380	0.0006	0.281	-2.2	24.5
	847.720	795	0.0006	0.223	-2.2	24.5

MEASURED VALUES, RADIATED

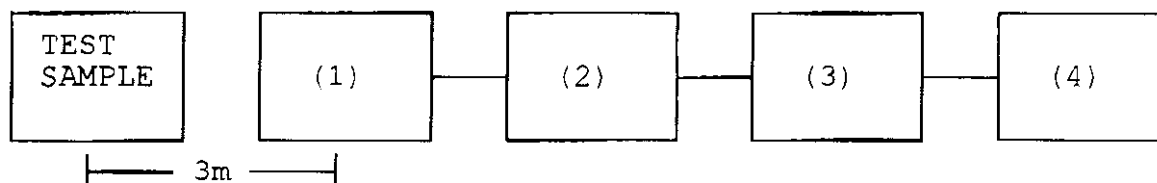
TUNED MHz	EMISSION MHz	LEVEL dBuV/m	@ m	C.F. dB	CALC dBuV/m	@ m	EIRP dBm	ERP dBm	ERP Watts
AMPS LOW									
824.04	824.038	73.2	3	30.7	103.9	3	8.7 P	6.55	0.00450
836.40	836.398	74.4	3	30.7	105.1	3	9.9 P	7.75	0.00575
848.97	848.973	74.4	3	30.7	105.2	3	9.9 P	7.75	0.00575
AMPS HIGH									
824.04	824.038	93.2	3	30.0	123.2	3	27.9 P	25.80	0.380
836.40	836.398	92.0	3	30.0	122.0	3	26.7 P	24.60	0.288
848.97	848.968	91.9	3	30.0	121.9	3	26.6 P	24.50	0.281
CDMA LOW									
824.04	824.040	43.6	3	30.7	74.2	3	-21.0 P	-23.15	0.0046
836.40	836.400	44.3	3	30.7	75.5	3	-20.2 P	-22.35	0.0055
848.97	848.830	43.7	3	30.7	74.4	3	-20.8 P	-22.95	0.0048
CDMA HIGH									
824.73	824.880	90.4	3	30.0	120.3	3	25.1 P	22.90	0.195
836.00	836.400	90.5	3	30.0	120.5	3	25.4 P	23.20	0.209
848.19	848.240	90.3	3	30.0	120.4	3	25.2 P	23.00	0.200

SUPERVISED BY:

Morton Flom, P. Eng.

PAGE NO.

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TRANSMITTER RADIATED MEASUREMENTS

Asset	Description	s/n
-------	-------------	-----

(1) TRANSDUCER

<u>x</u>	i00091	Emco 3115	001469
<u>x</u>	i00089	Aprel Log Periodic	001500

(2) HIGH PASS FILTER

<u>x</u>	i00	Narda μ PAD (In-Band Only)
<u>x</u>	i00	Trilithic
<u> </u>		(Out-Of-Band Only)

(3) PREAMP

<u>x</u>	i00028	HP 8449 (+30 dB)	2749A00121
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(4) SPECTRUM ANALYZER

<u>x</u>	i00048	HP 8566B	2511A01467
<u> </u>	i00043	HP 8558B	2004A02076
<u> </u>	i00057	HP 8557A	1531A00191
<u>x</u>	i00029	HP 8563E	3213A00104

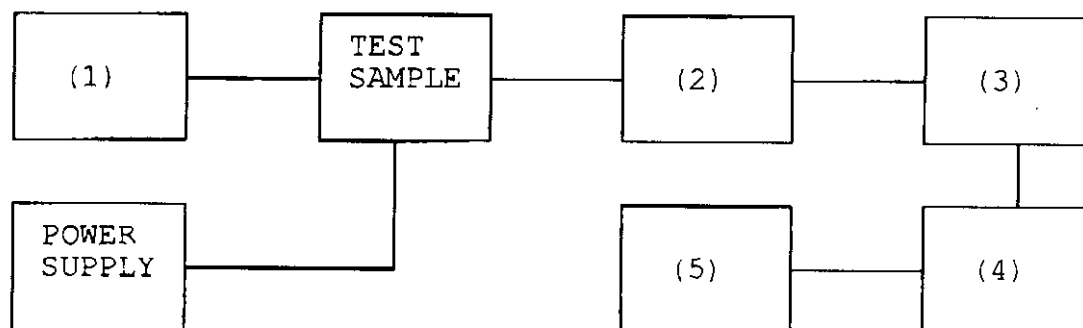
FCC ID: GMLNSD-1GX

PAGE NO.

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TRANSMITTER TEST SET-UP

TEST A. MODULATION CAPABILITY/DISTORTION
 TEST B. AUDIO FREQUENCY RESPONSE
 TEST C. HUM AND NOISE LEVEL
 TEST D. RESPONSE OF LOW PASS FILTER
 TEST E. MODULATION LIMITING



Asset Description

s/n

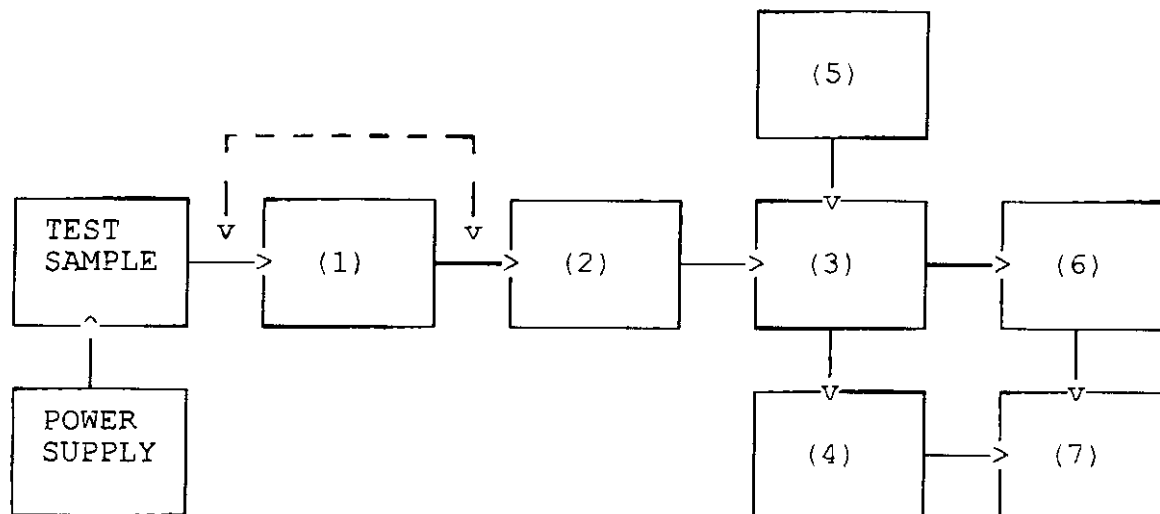
(1) <u>AUDIO GENERATOR</u>	
i00010 HP 204D	1105A04683
<u>x</u> i00017 HP 8903A	2216A01753
i00118 HP 33120A	US36002064
(2) <u>COAXIAL ATTENUATOR</u>	
i00122 NARDA 766-10	7802
<u>x</u> i00123 NARDA 766-10	7802A
i00113 SIERRA 661A-3D	1059
i00069 BIRD 8329 (30 dB)	10066
(3) <u>MODULATION ANALYZER</u>	
<u>x</u> i00020 HP 8901A	2105A01087
(4) <u>AUDIO ANALYZER</u>	
<u>x</u> i00017 HP 8903A	2216A01753
(5) <u>SCOPE</u>	
i00058 HP 1741A	2215A09356
i00071 Tektronix 935	1935-B011343

FCC ID: GMLNSD-1GX

PAGE NO.

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Measurement Of Maximum Deviation



Asset Description

s/n

(1) AUDIO OSCILLATOR/GENERATOR

i00010 HP 204D

1105A04683

x i00017 HP 8903A

2216A01753

(2) COAXIAL ATTENUATOR

i00122 Narda 766-10

7802

x i00123 Narda 766-10

7802A

i00113 Sierra 661A-3D

1059

(3) FILTERS; NOTCH, HP, LP, BP

i00126 Eagle TNF-1

100-250

i00125 Eagle TNF-1

50-60

x i00124 Eagle TNF-1

250-850

(4) SPECTRUM ANALYZERx i00048 HP 8566B

2511A01467

i00029 HP 8563E

3213A00104

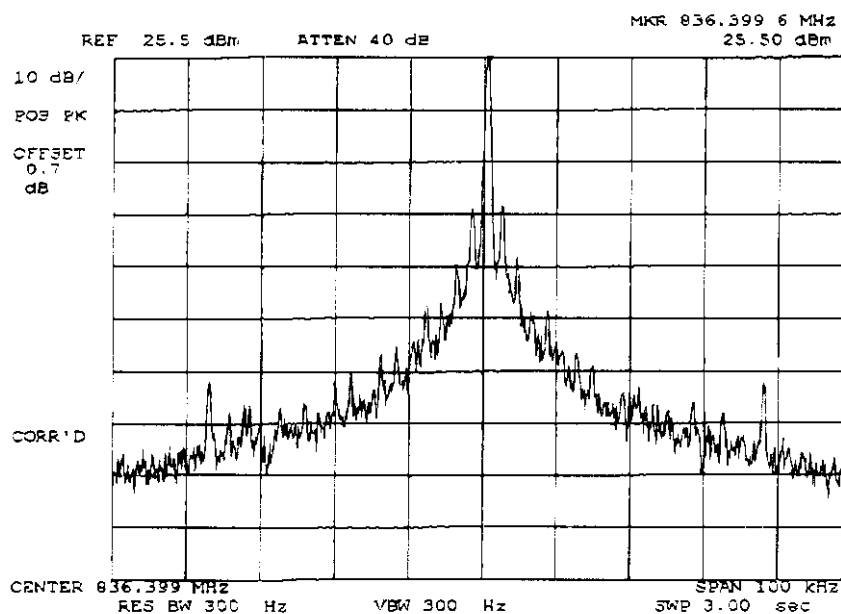
(5) SCOPEx i00030 HP 54502A

2927A00209

FCC ID: GMLNSD-1GX

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NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940029: 1999-Apr-08 Thu 10:48:00
STATE: 2:High Power



POWER:

HIGH

MODULATION:

NONE

REFERENCE LEVEL SET

SUPERVISED BY:

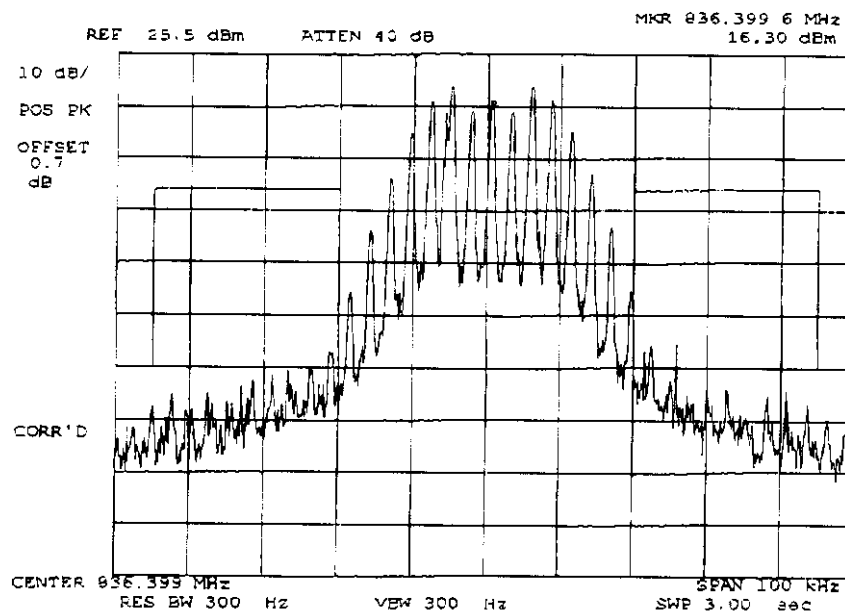
M. Flom P. Eng.

Morton Flom, P. Eng.

FCC ID: GMLNSD-1GX

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NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940033: 1999-Apr-08 Thu 12:00:00
STATE: 2:High Power



POWER:
MODULATION:

HIGH
VOICE: 2500 Hz SINE WAVE
MASK: AMPS CELLULAR,
F3E/F3D w/LPF

SUPERVISED BY:

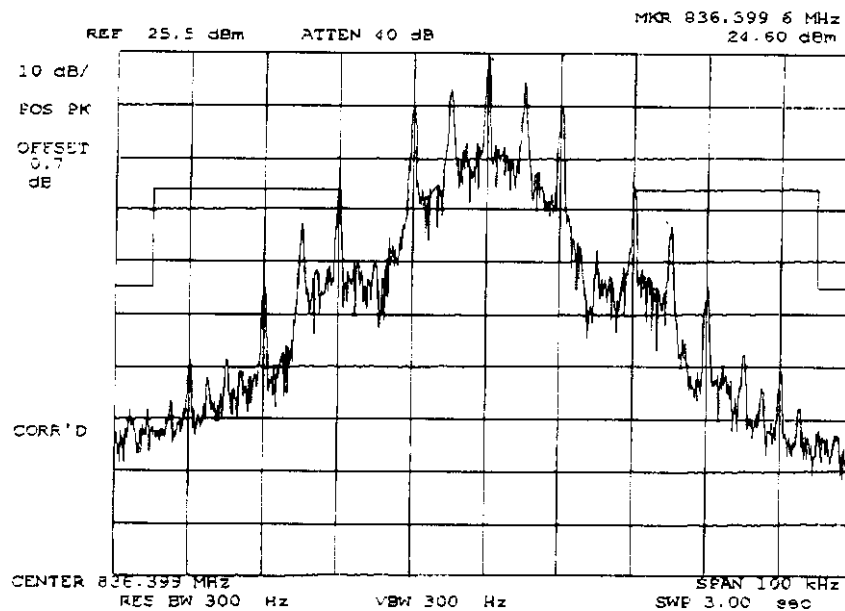
Morton Flom P. Eng.
Morton Flom, P. Eng.

FCC ID: GMLNSD-1GK

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NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940030: 1999-Apr-08 Thu 10:52:00
STATE: 2:High Power



POWER:
MODULATION:

HIGH
WIDEBAND DATA
REFERENCE LEVEL SET

SUPERVISED BY:

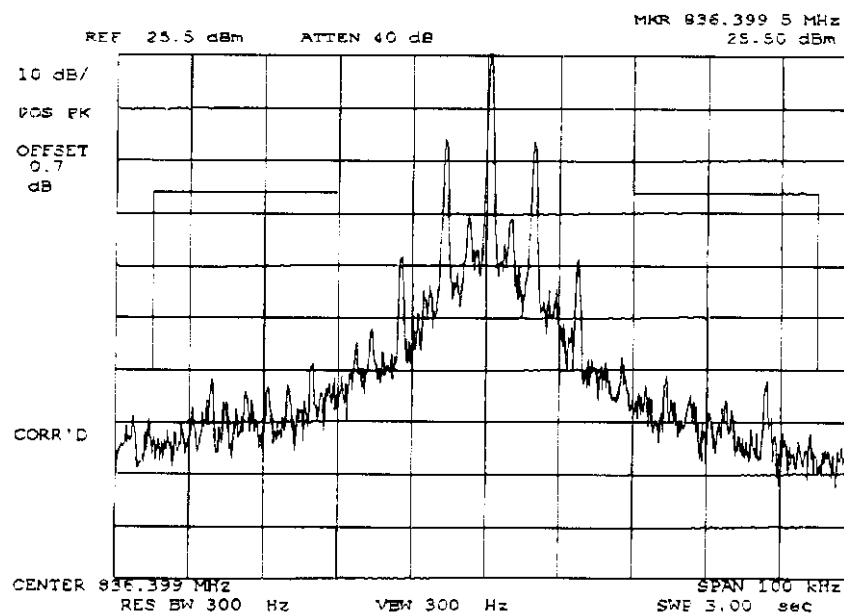
M. Flom P. Eng.
Morton Flom, P. Eng.

FCC ID: GMLNSD-1GX

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NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940032: 1999-Apr-08 Thu 10:58:00
STATE: 2:High Power



POWER:
MODULATION:

HIGH
SAT
MASK: AMPS CELLULAR,
F3E/F3D w/LPF

SUPERVISED BY:

Morton Flom, P. Eng.

FCC ID: GMLNS0-1GX

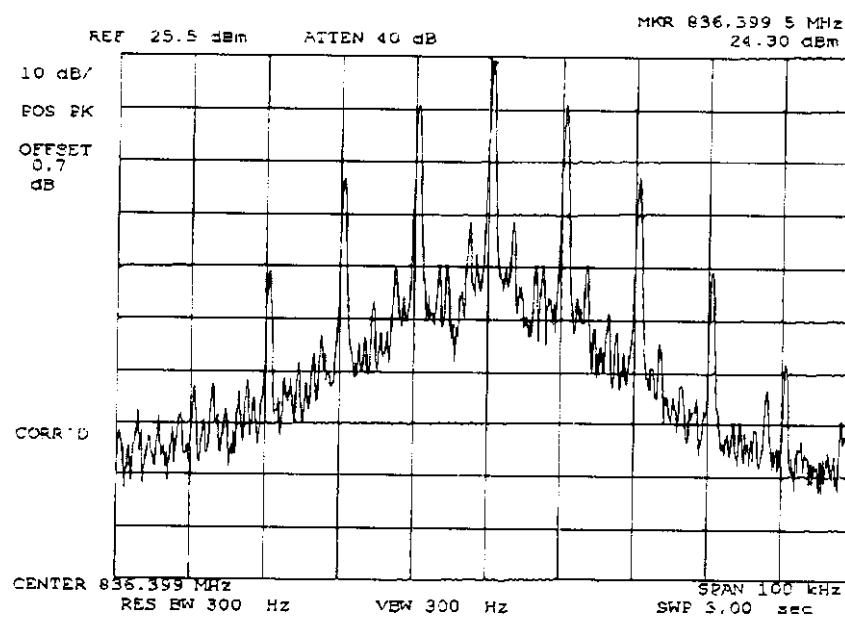
PAGE NO.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)

g9940031: 1999-Apr-08 Thu 10:56:00

STATE: 2:High Power

POWER:
MODULATION:HIGH
ST

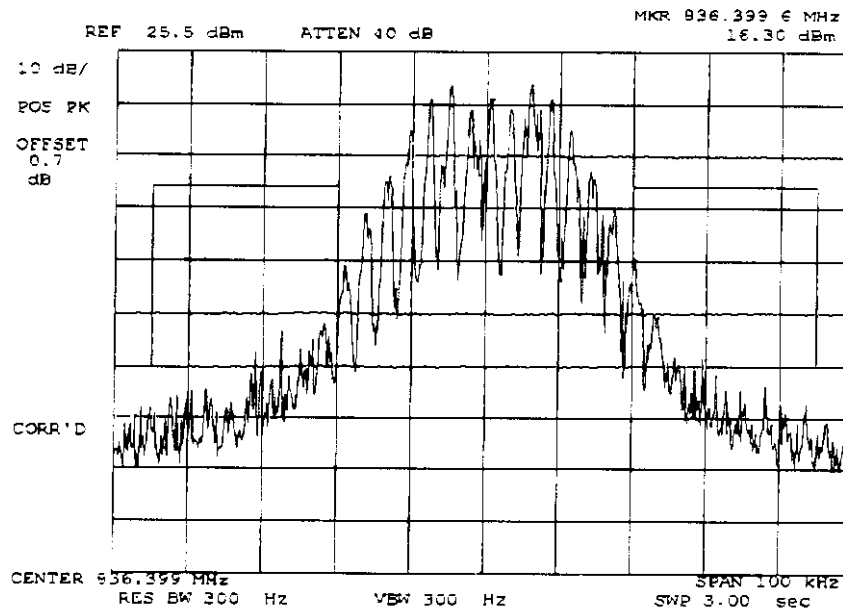
SUPERVISED BY:

M. Flom P. Eng.
Morton Flom, P. Eng.

FCC ID: GMLNSD-1GX

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NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940034: 1999-Apr-08 Thu 12:02:00
STATE: 2:High Power



POWER:
MODULATION:

HIGH
SAT+VOICE
MASK: AMPS CELLULAR,
F3E/F3D w/LPF

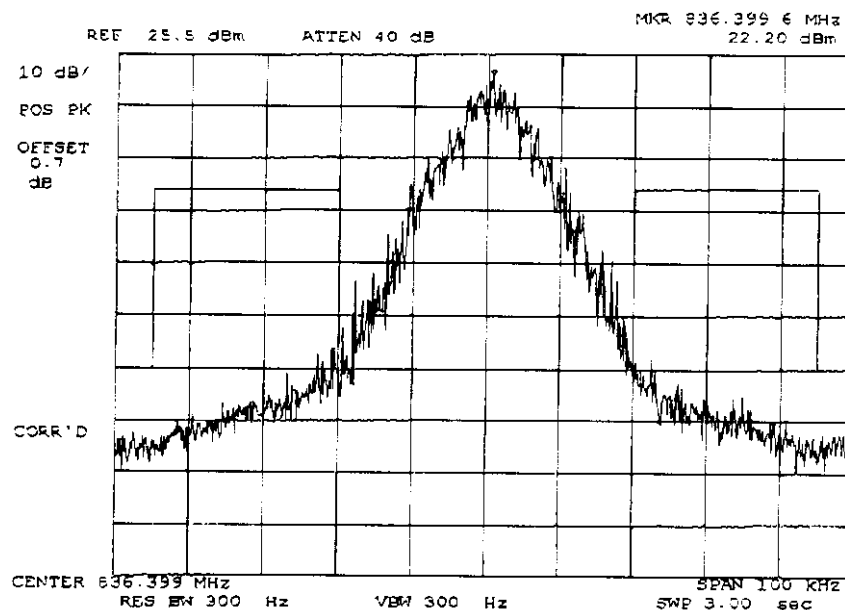
SUPERVISED BY:

Morton Flom P. Eng.
Morton Flom, P. Eng.

FCC ID: GMLNSD-1GX

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NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940035: 1999-Apr-08 Thu 12:13:00
STATE: 2:High Power



POWER:
MODULATION:

HIGH
SAT+DTMF
MASK: AMPS CELLULAR,
F3E/F3D w/LPF

SUPERVISED BY:

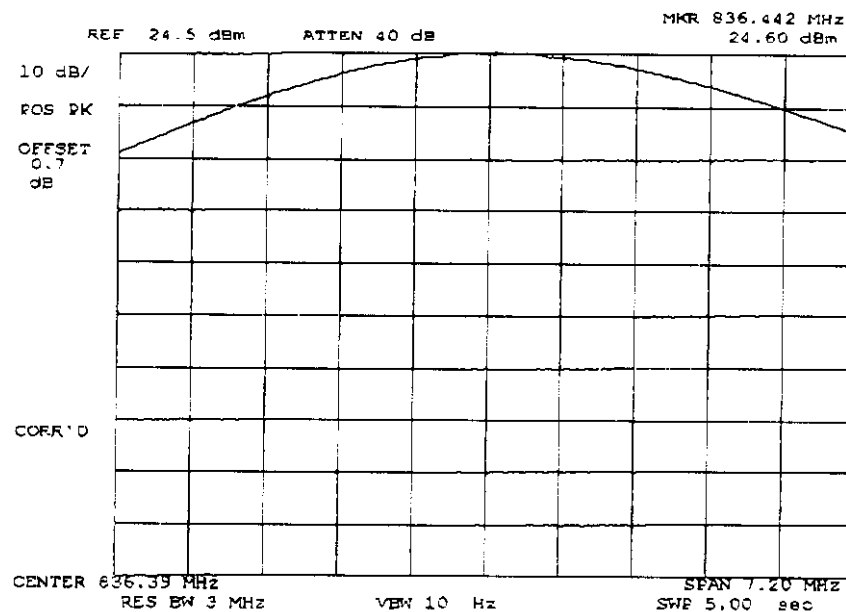
Morton Flom P. Eng.
Morton Flom, P. Eng.

FCC ID: GMLNSD-1GX

PAGE NO.

39.1 of 57. AMENDED April 12, 1999

NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940036: 1999-Apr-08 Thu 12:20:00
STATE: 2:High Power



POWER:
MODULATION:

HIGH
CDMA
REFERENCE LEVEL SET

SUPERVISED BY:

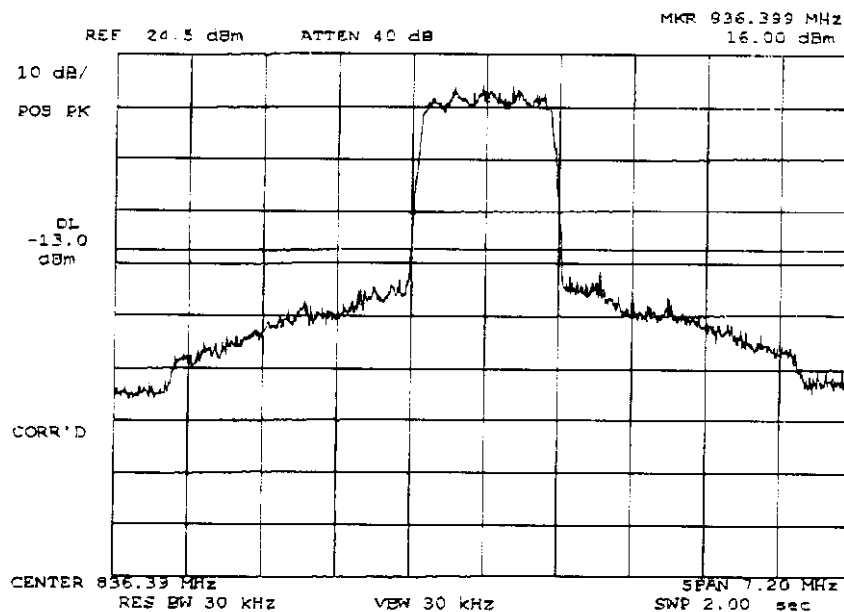
M. Flom P. Eng.
Morton Flom, P. Eng.

FCC ID: GMLNSD-1GX

PAGE NO.

39.2 of 57. AMENDED April 12, 1999

NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940037: 1999-Apr-08 Thu 12:21:00
STATE: 2:High Power



POWER:
MODULATION:

HIGH
CDMA
CH 380

SUPERVISED BY:

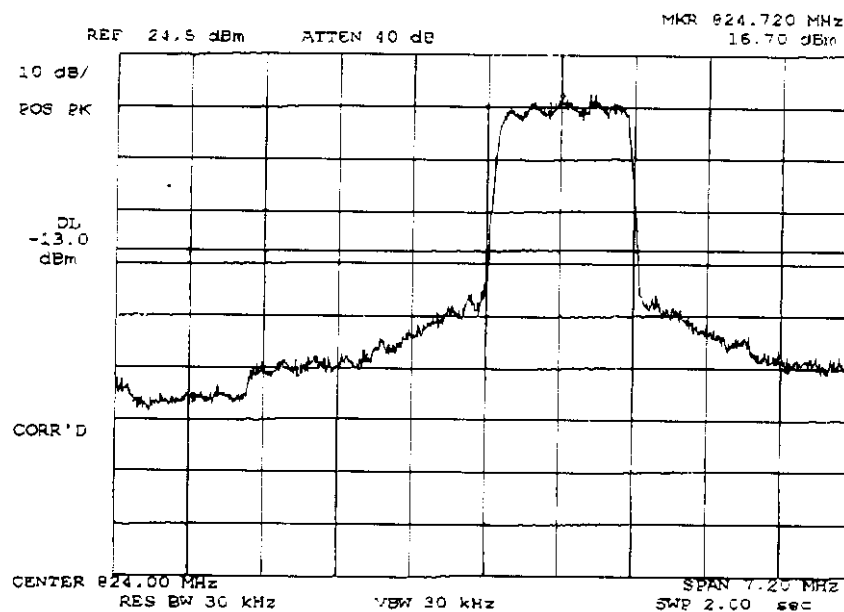
Morton Flom P. Eng.
Morton Flom, P. Eng.

FCC ID: GMLNSD-1GX

PAGE NO.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940041: 1999-Apr-08 Thu 12:29:00
STATE: 2:High Power



POWER:
MODULATION:

HIGH
CDMA
CH 1014 - LOWER BAND EDGE

SUPERVISED BY:

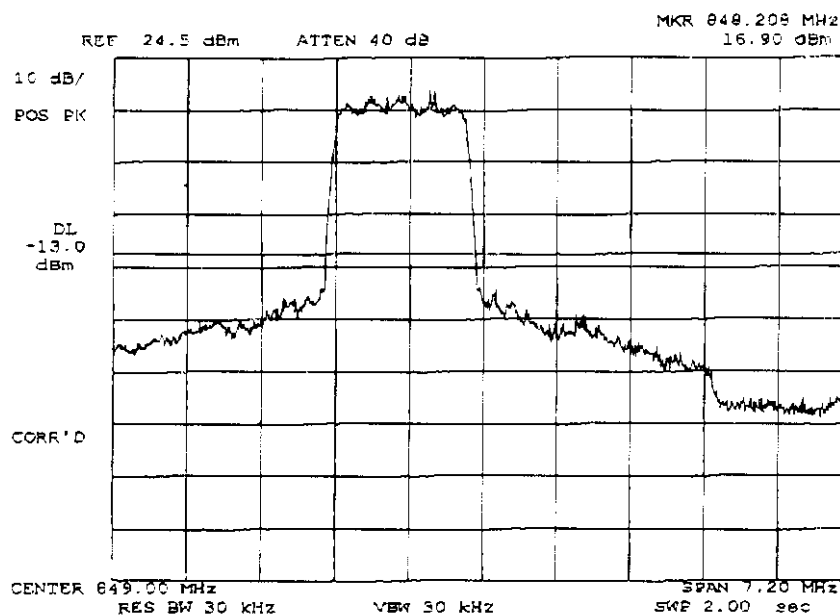
M. Flom P. Eng.
Morton Flom, P. Eng.

FCC ID: GMLNSD-1GX

PAGE NO.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940043: 1999-Apr-08 Thu 12:34:00
STATE: 2:High Power



POWER:

MODULATION:

HIGH

CDMA

CH 773 - UPPER BAND EDGE

SUPERVISED BY:



Morton Flom, P. Eng.

Subject:**Date:** Tue, 20 Apr 1999 16:32:48 -0400**From:** oetech@fccsun07w.fcc.gov (OET)**To:** mflom@goodnet.com

To: Morton Flom, M. Flom Associates, Inc.
From: Greg Czumak
gczumak@fcc.gov
FCC Application Processing Branch

Re: FCC ID GMLNSD-1GX

Applicant:**Correspondence Reference Number:**

7323

Nokia Mobile Phones Inc

731 Confirmation Number:

EA93140

Date of Original E-Mail:

04/20/1999

1. Are the measured ERP levels for CDMA operation peak or average? We list peak levels on the grant. If the reported values are average, please submit the peak levels.
2. The SAR information recently submitted is under review. I will send to you any comments/questions wrt the SAR data ASAP.

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 60 days of the original e-mail date may result in application dismissal pursuant to Section 2.917 (c) and forfeiture of the filing fee pursuant to section 1.1108.

DO NOT reply to this e-mail by using the Reply button. In order for your response to be processed expeditiously, you must upload your response via the Internet at www.fcc.gov, Electronic Filing, OET Equipment Authorization Electronic Filing. If the response is submitted through Add Attachments, in order to expedite processing, a message which informs the processing staff that a new exhibit has been submitted must also be submitted via Submit Correspondence. Also, please note that partial responses increase processing time and should not be submitted.

Any questions about the content of this correspondence should be directed to the e-mail address listed below the name of the sender.

**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

C:\MFA\fa.doc

TOTAL PAGES:	2
DATE:	April 20, 1999
VIA FAX:	(301) 344-2050
TO:	FCC Laboratory
ATTENTION:	Greg Czumak
APPLICANT:	Nokia Mobile Phones, Inc.
EQUIPMENT:	GMLNSD-1GX EA: 93140
SUBJECT:	Your correspondence of 4/20/1999

FILED

Greg,

This is in response to today's request for information.

1. The measured ERP values for CDMA were average values using a spectrum analyzer, a 3 MHz measurement bandwidth, and a 10 Hz video bandwidth. Measurements at mid-channel produced our maximum peak ERP value of .28 Watts using a power level conducted to the antenna of +24.5 dBm.
2. Please note the SAR values reflect worst case conditions with RF power levels conducted to the antenna in excess of production tuning levels.

Please give this your immediate attention. As with all manufacturer and applicants, speed is of the utmost importance. Please do everything possible to expedite this submission.

Thanks for your consideration,

William H. Graff
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