M. Flom Associates, Inc. - Global Compliance Center
3356 North San Marcos Place, Suite 107, Chandler, Arizona 85224-1571
www.mflom.com general@mflom.com (602/480) 926-3100, FAX:-3598

TOTAL PAGES:	19
DATE:	April 9, 1999
VIA FAX:	1 301 344 2050
TO:	Federal Communications Commission,
ATTENTION:	GREG CZUMAK
APPLICANT:	NOKIA MOBILE PHONES, INC.
EQUIPMENT:	FCC ID: GMLNSD-1FX (Model 5170
SUBJECT:	Your fax messages 6959 and 6969 re: EA#93146

Greg: The following are in response to your fax messages for the referenced equipment.

1. Amended Page 2 of Form 731
2. Amended Page 2 of the Test Data Report
3. New CONFIDENTIALITY request, omitting reference to SAR data
4. Amended Pages 8, 12 to 15 inclusive that they are deliberately left blank.
5. Revised data pages 6, 10, 11, 16, and 17. and 28.
6. Attached copy of e-mail message from ERKKA SOINTULA, Head of RF Technology Group in San Diego, who addresses the items listed under FYI in the attached Fax regarding SAR measurements.

We trust the enclosed now meets the requirements of the Commission and that certification will follow A.S.A.P.

Personal regards,

MORTON FLOM, P. Eng.

mf;mgf
encs.
CC: Applicant c-o Marko Pistemma, San Diego Office

Please scan into test report Exhibit EA 93146

[redacted]26-3598 M.FLOM ASSOCIATES PAGE 02

[redacted]Apr 1999 14:06:57 -0500
[redacted]ch@fccsun07w.fcc.gov (OET)
[redacted]flom@goodnet.com

[redacted]om: Morton Flom, M. Flom Associates, Inc.
Greg Czumak
gczumak@fcc.gov
FCC Application Processing Branch

Re: FCC ID GMLNSD-1FX
Applicant: Nokia Mobile Phones Inc
Correspondence Reference Number: 6959
731 Confirmation Number: EA93146
Date of Original E-Mail: 04/01/1999

1. You are requesting SAR data and calibration method confidentiality. We do not grant confidentiality on these. Please submit a new confidentiality request which omits these references.

2. The SAR summary is indicating about 10 % margin for SAR. Please provide a confirmation that performance variations due to battery options (4 batteries) can be tolerated by the SAR Margin.

FYI:

1. Your SAR system validation protocol calls for 10% variation allowance, which should be followed in the future. The current validation has 13% variation. Due to adequate SAR margin provided by the higher tissue conductivity used in the tissue mixture for testing this phone, additional SAR tests are not requested. This should not be interpreted as 13% is acceptable for future SAR reports.

2. The lower figure (page 8) that corresponds to the 90 degree device position should be further clarified in future SAR reports, with respect to normal use positions. The mouthpiece should be aligned with the mouth of the phantom.

3. The grant will list an EIRP (measured) of 0.32 W.

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.

[redacted]6-3598 M.FLOM ASSOCIATES PAGE 03

[redacted]pr 1999 15:07:03 -0500
[redacted]ch@fccsun07w.fcc.gov (OET)
[redacted]lom@goodnet.com

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

Re: FCC ID GMLNSD-1FX
Applicant: Nokia Mobile Phones Inc
Correspondence Reference Number: 6969
731 Confirmation Number: EA93146
Date of Original E-Mail: 04/01/1999

One point which I forgot to include on my previous e-mail: conducted plots clearly indicate noncompliance at the frequency block edges. However, averaging may be used on a CDMA emission, therefore, please replot the frequency block edge channels using video averaging and submit test results which indicate compliance.

AMENDED PAGE 2: APRIL 9, 1999. MODEL 5170

SECTION IV - *Enter FCC ID from Page 1, Section I* ▶ GMLNSD-1FX

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.): 480 926 3100

(c) FAX No. (Area/Country/City code and No.): 480 926 3598

(d) Internet e-mail address: www.mflom.com general@mflom.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.): 480 926 3100

(g) FAX No. (Area/Country/City code and No.): 480 926 3598

(h) Internet e-mail address: www.mflom.com general@mflom.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)*
P U E Unlicensed Portable TX.held to EAR (Single Mode/Band PCS Cellular)

(b) Equipment will be operated under FCC Rule Part(s): Part 24

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

☑ 1. Original equipment *(See instructions)*

☐ 2. Change in identification of presently authorized equipment
ORIGINAL FCC ID | Grant date

☐ 3. Class II permissive change or modification of presently authorized equipment *(See instructions)*

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
1851.25-1908.75	.21 watts EIRP (+ 23.1) dbm	WITHIN BAND	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

PAGE NO. 2 of 28. AMENDED April 9, 1999

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

VENDOR:

Mailing: Nokia Mobile Phones, Inc.
9605 Scranton Rd., Suite 105
San Diego, CA 92121

(c)(2): FCC ID: GMLNSD-1FX

MODEL NO: 5170, Type NSD-1FX

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

PLEASE SEE ATTACHED EXHIBITS

(c)(4): TYPE OF EMISSION: 1M25F9W

(c)(5): FREQUENCY RANGE, MHz: 1851.25 to 1908.75

(c)(6): POWER RATING: 0.21 W EIRP, (+23.1 dBm)
___ Switchable ___ Variable _x_ N/A

(c)(7): MAXIMUM POWER RATING, Watts: 2 Watts, EIRP

NOKIA

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

5 April 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) (l) (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-1FX 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) (l) (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

NOKIA MOBILE PHONES 8-Apr-99

To: Mr. Greg Czumac
FCC Application Processing Branch

Subject: Nokia FCC ID: GMLNSD-1FX, your Reference Number 6959

In reply to: your letter to M. Flom concerning SAR measurement position and SAR values with different battery options.

1. The original SAR measurements are measured with the mostly used battery option, BLS-2. This typically gives the highest SAR values according our testing. Below the today measured SAR values for different battery options using NMP San Diego Dazy3 system at 1851MHz (ch. 600). There results are relative only because these are not measured using the NMP's official measurement system in Salo, Finland. However, these correlate very well with the original measurements in our FCC filing.

Battery	SAR/mW/g
BLS-2	1.45
BLS-4	1.34
BMS-2S	1.45
BMS-2V	1.39

These values were obtained using a production test sample with +24.5 dBm loaded on the antenna. This represents the absolute maximum levels, while actual power levels have typically more than 1dB safety margin. Factory tuning targets are +22.5 dBm +/- .4 dB. Radiated EIRP values in the test report used +22.5 dBm conducted to the antenna.

2. Device position
The normal usage position according our studies is close to 80 deg position. The SAR values are decreasing in this case when moving from 90deg toward cheek, leaving even more safety margin.
In the future reports this will be further clarified.

Sincerely,

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

FCC ID: GMLNSD-1FX

PAGE NO. 6 of 28. AMENDED April 9, 1999

NAME OF TEST: Carrier Output Power (Radiated)

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

GUIDE: TIA/EIA/IS-137-A-1996

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

FREQUENCY OF CARRIER, MHz = 1850.04, 1879.98, 1909.92

TUNED, MHZ	EMISSION MHZ	LEVEL, dBuv/m	@ m	C.F. dB	CALC dBuV/m	@m	EIRP
1851.25	1851.300	77.1	3	41.2	118.2	3	23.1
1880.00	1880.080	76.1	3	41.5	117.6	3	22.4
1908.75	1908.780	76.2	3	41.8	118.0	3	22.7

1. Measured values are average values using 3 MHz RBW, 10 Hz VBW.

2. Radiated values reflect current factory tuning.

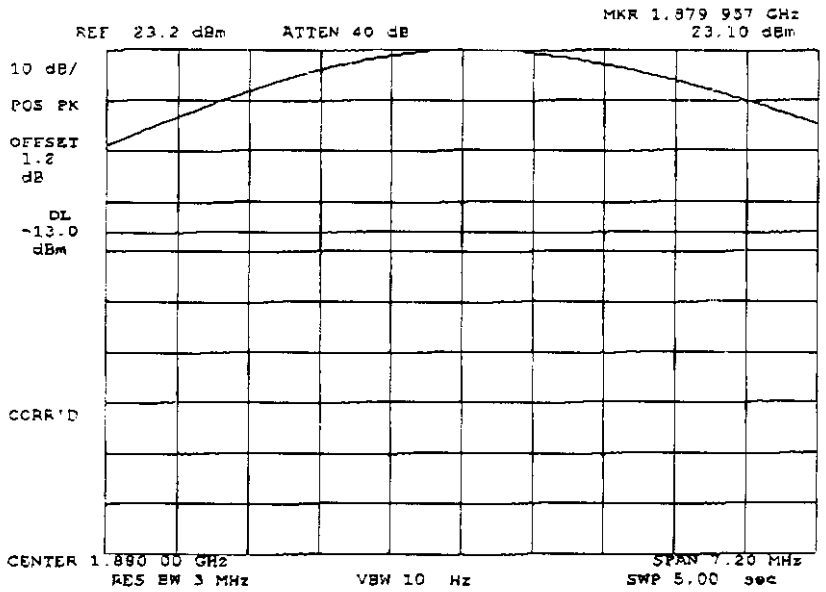
SUPERVISED BY: Morton Flom, P. Eng.

PAGE DELIBERATELY LEFT BLANK, APRIL 9, 1999 - NOT APPLICABLE.

FCC ID: GMLNSD-1FX

PAGE NO. 10 of 28. AMENDED April 9, 1999

NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940009: 1999-Apr-08 Thu 09:50:00
STATE: 2:High Power



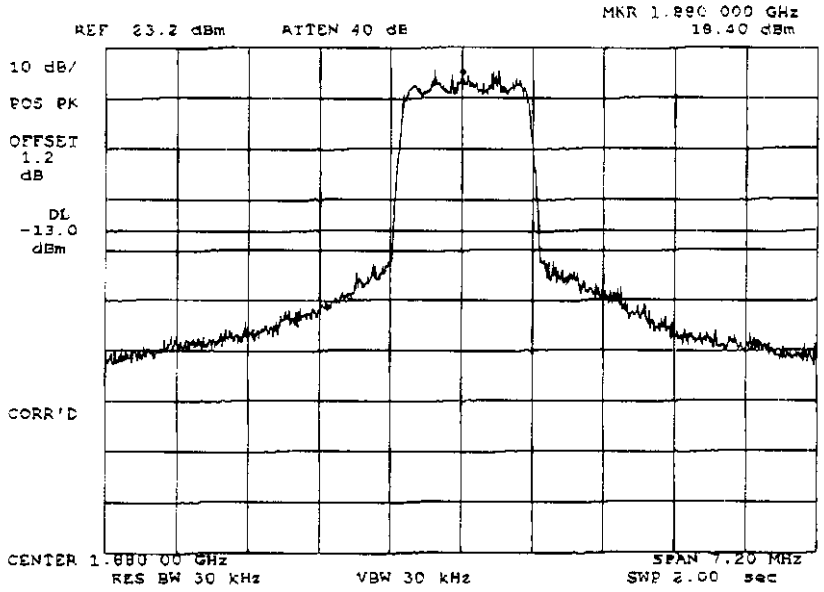
POWER: HIGH
MODULATION: CDMA
REFERENCE LEVEL SET

SUPERVISED BY: Morton Flom, P. Eng.

FCC ID: GMLNSD-1FX

PAGE NO. 11 of 28. AMENDED April 9, 1999

NAME OF TEST: Emission Masks (Occupied Bandwidth)
g9940010: 1999-Apr-08 Thu 09:51:00
STATE: 2:High Power



POWER: HIGH
MODULATION: CDMA
CH 600

SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 12 of 28.

PAGE DELIBERATELY LEFT BLANK, APRIL 9, 1999 - NOT APPLICABLE.

PAGE NO. 13 of 28.

PAGE DELIBERATELY LEFT BLANK, APRIL 9, 1999 - NOT APPLICABLE.

PAGE NO. 14 of 28.

PAGE DELIBERATELY LEFT BLANK, APRIL 9, 1999 - NOT APPLICABLE.

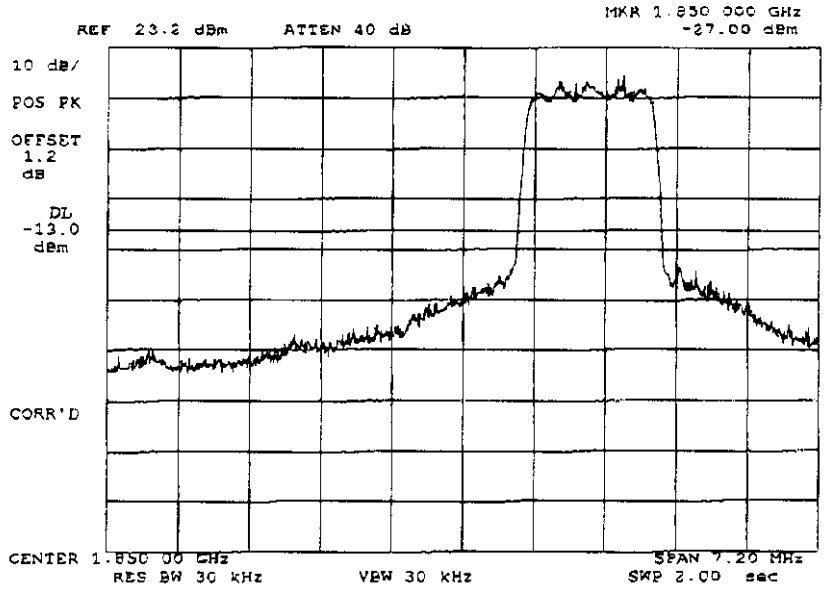
PAGE NO. 15 of 28.

PAGE DELIBERATELY LEFT BLANK, APRIL 9, 1999 - NOT APPLICABLE.

FCC ID: GMLNSD-1FX

PAGE NO. 16 of 28. AMENDED April 9, 1999

NAME OF TEST: Emission at Band Edges (Conducted)
g9940011: 1999-Apr-08 Thu 09:55:00
STATE: 2:High Power



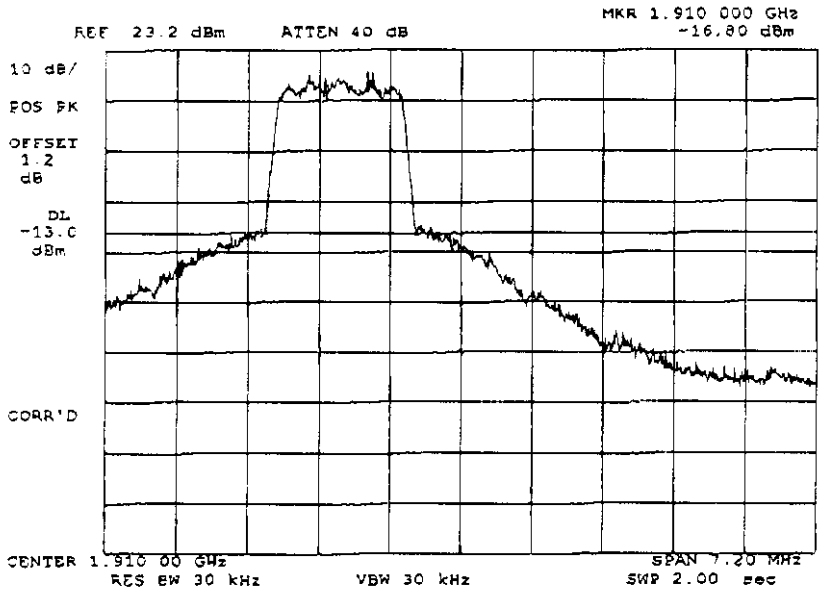
POWER: HIGH
MODULATION: CDMA
CH 025 LOWER BAND EDGE

SUPERVISED BY: Morton Flom, P. Eng.

FCC ID: GMLNSD-1FX

PAGE NO. 17 of 28. AMENDED APRIL 9, 1999

NAME OF TEST: Emission at Band Edges (Conducted)
g9940012: 1999-Apr-08 Thu 10:00:00
STATE: 2:High Power



POWER: HIGH
MODULATION: CDMA
CH 1175 UPPER BAND EDGE

SUPERVISED BY: Morton Flom, P. Eng.

PAGE NO. 18 of 28.

FCC ID: GMLNSD-1FX

PAGE NO. 28 of 28. AMENDED April 9, 1999

NAME OF TEST: Necessary Bandwidth and Emission Bandwidth

SPECIFICATION: 47 CFR 2.202(g)

MODULATION = 1M25F9W

NECESSARY BANDWIDTH:

NECESSARY BANDWIDTH (B_N), MHz = 1.25

(measured at the 99.75% power bandwidth)

SUPERVISED BY: Morton Flom, P. Eng.

New EAS Release GC

3-26-99 General Release 1.2.9

1. When an email correspondence is resent and the email address of the recipient has been changed from the original email, the new recipient email address will be used. A comment noting that the email address has been changed will be added to the comments tabpage.

2. On the exhibits tabpage, the left side of the page indicates how many exhibits are in each exhibit type folder. The right side of the page provides the detail of each exhibit. If a problem occurred when converting the exhibit into a format the sytem could read, there was possibility that the count on the left side would be different than the number of exhibits displayed. The exhibit count now reflects only those exhibits which were successfully converted.

4-9-99 General Release 1.2.10

1. A new form letter has been generated, RS-Monitoring. This letter is to implement a request for equipment samples from the applicant. When the RS-Monitoring letter is sent, the application status will change to RS and then immediately back to the status it had previous to RS.

2. When the RS-Monitoring letter is printed, it will automatically print 3 copies.

3. Two new search options have been added via check boxes to the Review Applications Search Window:

CheckBox 1	"All RS Status" - Will bring back all applications which has an RS in its status history, limited by other search criteria entered.
CheckBox 2	"RS Monitor Only" - Will bring back only those applications which had an "RS-Monitor" letter sent, limited by other search criteria entered.

4. When granting an application, there was a problem when exhibits were recieved but could not be converted for use within the EAS application. When the engineer would try to grant the application an error message would appear that not all exhibits were reviewed. The unreviewed exhibits would be any exhibits which were not converted so the engineer could not review it. The grant application validation process now only checks for unreviewed exhibits which have been converted.

5. On the Review Applications Search window, the EA number is now part of what is displayed as a result of the search.

6. Users are now able to save the result set of the Review Applications Search wUpon clicking the "Export" button, a diologue box will appear asking for : Where the file is to be stored; What the file name is; What file format should the file be saved in. The file format should be saved in "Excel with headers" or "CSV with headers". This will allow the users to save the result set to a

7. Users are now able to search for Permissive Change applications

8. The Fee Report now provides for the reporting / verifying of fees for all applications older than a user defined number of days.

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-1FX
Applicant: Nokia Mobile Phones Inc
Correspondence Reference Number: 7324
731 Confirmation Number: EA93146
Date of Original E-Mail: 04/20/1999

1. The EIRP level reported is an average value. Section 24.232(b) limits the PEAK EIRP, which is what is listed on the grant. Please remeasure the peak level and submit new data.
2. The SAR info is under review. I will send any questions/comments 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.

C:\MFA\FCC correspondence\FCC fax 5180 04201999.doc

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

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-1FX EA: 93146
SUBJECT:	Your correspondence of 4/20/1999

Greg,

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

1. The measured EIRP 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 EIRP value of .28 Watts using a power level conducted to the antenna of +22.5 dBm.
2. Refer to the 9 April 1999 letter from Mr. Erkka Sointula of Nokia Mobile Phones, San Diego. Please note the relative SAR values reflect worst case conditions across four possible battery options.

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
Director of Engineering
M. Flom Associates, Inc.

Cc: M Pistemaa, Paul Hung