Nokia Mobile Phones (USA) Inc.
12278 Scripps Summit Drive
San Diego, CA 92131
Tel (858) 831 5000

14 July 2003

Office of Engineering and Technology
Federal Communications Commission
7435 Oakland Mills Road
Columbia, MD 21046-1609

To: Office of Engineering and Technology Laboratory

Re: FCC ID: QMNRH-48
Applicant: Nokia Mobile Phones Inc.

REQUEST FOR CONFIDENTIALITY

Pursuant to Section 0.457 (d) (1)(ii) and 0.459 of the Commission's Rules, the Applicant hereby requests confidential treatment so some of the information accompanying this Application of FCC ID: QMNRH-48 and as outlined below:

- block diagrams
- schematic diagrams
- operational description (contains theory of operation, active circuit devices, description of circuits determining frequency, circuitry suppressing spurious emission, and frequency alignment/tuning procedure)
- parts list

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 the pursuant to Rule 0.457 (d) (1) (ii) disclosure of this Application and all accompanying documentation will not be made before the date of the Grant for this Application.

Klaus Kettunen

Klaus Kettunen
Product Certification Officer
Product Development, San Diego
NOKIA MOBILE PHONES

NOKIA

NOKIA MOBILE PHONES, Inc.
12278 Scripps Summit Drive
San Diego, CA 92131
Tel. (858) 831 5000

14 July 2003

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

Attention: Equipment Authorization Branch

I hereby certify that the transceiver FCC ID:QMNRH-48 Nokia model 3105, complies with ANSI/IEEE C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz.

Compliance was determined by testing appropriate parameters according to standard.

Sincerely,

Nina O'Hara
R& D Technical Manager
Product Development
NOKIA MOBILE PHONES

NOKIA

NOKIA MOBILE PHONES, Inc.
12278 Scripps Summit Drive
San Diego, CA 92131
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Federal Communications Commission,
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Attention: Equipment Authorisation Branch

COMPLIANCE STATEMENT OF NOKIA Model 3105, FCC ID: QMNRH-48

The compliance statement can be seen in user guide of NOKIA Model 3105 because the size of the hand-portable NOKIA Model 3105 and its identification label are so small that the compliance statement can not be printed visible enough.

Sincerely,

Klaus Kettunen
Product Certification Officer
NOKIA MOBILE PHONES

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
911 Call Processing Modes	)	WT Docket No. 99-328

ORDER

Adopted: January 27, 2000 **Released:** January 28, 2000

By the Chief, Wireless Telecommunications Bureau:

I. INTRODUCTION AND BACKGROUND

1. In its *Second Report and Order* in the Wireless E911 Rulemaking, CC Docket No. 94-102,[1] the Commission adopted Section 22.921 of its rules, 47 C.F.R.§ 22.921. To help improve 911 call completion, this rule requires new analog wireless handsets, and multimode handsets when operating in analog mode, to be able to complete 911 calls to either analog carrier in an area, regardless of the programming of the handset for non-911 calls. The rule takes effect on February 13, 2000.[2] Further, the Commission approved three proposed 911 call processing modes, while stating general principles for other acceptable modes and encouraging the development of further improvements in 911 call completion, including the extension of improved calling methods to digital services.[3] The Commission delegated authority to the Wireless Telecommunications Bureau (Bureau) to consider and approve, deny, or approve with modification new or revised 911 call processing modes.[4]

2. On October 27, 1999, Nokia, Inc. filed a letter with the Bureau requesting approval for an alternate 911 call completion method for Nokia's multi-mode products, including both digital and analog transmission technologies.[5] Nokia describes its method as based on the Automatic A/B Roaming-Intelligent Retry (A/B-IR) method approved in the *Second Report and Order*, but going further to attempt call completion on all systems on which a handset is capable of operating, including both analog and digital modes. Specifically, Nokia states that its multi-mode handsets will be programmed with the capability to access all systems on which they have the capacity for operating.[6] When a 911 call is dialed,

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[1] Revision of the Commission's Rules To Ensure Compatibility With Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Second Report and Order, 14 FCC Rcd 10954 (1999). (*Second Report and Order*).

[2] *Id.* at 10992. See also Revision of the Commission's Rules To Ensure Compatibility With Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, Third Memorandum Opinion and Order, FCC 00-7, released January 13, 2000 (*Third Memorandum Opinion and Order*) at paras. 5-8.

[3] *Second Report and Order*, 14 FCC Rcd at 10993.

[4] *Id.* at 10993, 10995.

[5] Letter from David Siddall, Counsel to Nokia, to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Oct. 27, 1999 (Nokia Request).

[6] Nokia Request at 3.

the Nokia handset will first attempt to complete the call with the "presently acquired system,"[7] *i.e.*, the system the handset is currently using for non-emergency calls, whether this system is analog or digital. If the call cannot be completed with that system, the handset will next attempt to complete the call using the handset's preferred roaming list (PRL). If the call cannot be completed on any of the preferred systems, the handset will attempt to complete the call on any and all additional systems on which it is capable of operating, analog or digital, regardless of the handset's programmed preferences.[8]

3. In a Public Notice in this docket, the Bureau sought comment on this proposal, in particular on whether the proposed method is consistent with the Commission's rules and the principles set out by the Commission for 911 call processing modes.[9] Comments supporting the proposal were filed by AT&T, Cellular Telecommunications Industry Association (CTIA), and the National Emergency Number Association (NENA). The Wireless Consumer's Alliance, Inc. (WCA) filed comments opposing the proposal, claiming that the Nokia proposal does not meet conditions adopted by the Commission to mitigate against "lock-in" of calls on the caller's preferred carrier and delays in 911 call processing.[10] In response to the WCA comments and to Bureau staff requests, Nokia supplied additional information to justify approval of its proposed 911 call completion method.[11] On December 30, 1999, Nokia requested a deferral of the February 13, 2000 deadline for Nokia's multi-mode handsets until four months after the Commission rules on its call completion proposal, to allow time to implement necessary changes in those handsets.[12] In response to Bureau staff requests, Nokia subsequently provided additional information to justify the requested extension.[13]

II. DISCUSSION

4. Based on our review of the Nokia request and the record, we approve Nokia's proposed 911 call completion method, subject to the same two conditions that the Commission imposed in the Second Report and Order to address lock-in concerns associated with the A/B-IR call completion method.[14] First, the handset must provide effective feedback to inform the user when 911 call processing is underway and has not finished, for example in the form of an audible tone or message in addition to a

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[7] *Id.,* Attachment at 4.

[8] *Id* at 3.

[9] Public Notice, "Comments Sought on 911 Call Processing Method Proposed by Nokia," DA 99-2508, released Nov.10, 1999.

[10] WCA Comments in Opposition to the Nokia Application (WCA Comments). See also Letter from Carl Hilliard, WCA, to Magalie Roman Salas, Secretary, FCC, January 11, 2000 (WCA January 11 Ex parte Letter).

[11] See Letter from David Siddall, Counsel to Nokia, to Magalie Roman Salas, Secretary, FCC, December 30, 2000 (Nokia December 30 *Ex Parte* Letter); Letter from David Siddall, Counsel to Nokia, to Magalie Roman Salas, Secretary, FCC, January 19, 2000 (Nokia January 19 *Ex Parte* Letter).

[12] Letter from David Siddall, Counsel to Nokia, to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, Dec. 30, 1999 (Nokia Waiver Letter) at 2.

[13] See Letter from David Siddall, Counsel to Nokia, to Kris Monteith, Chief, Policy Division, WTB, January 14, 2000 (Nokia January 14 *Ex Parte* Letter).

[14] For a discussion of the lock-in issue, see *Second Report and Order*, 14 FCC Rcd at 10961.

visual status report on the handset's screen.[15] Nokia included customer feedback regarding the status of the call until the call is completed as a feature in its proposed method.[16] Applying this condition thus ratifies and enforces the inclusion of this feature as part of Nokia's proposal.

5. Second, the Commission required that handsets employing A/B-IR seek to complete the call with the non-preferred cellular carrier if the preferred cellular carrier has not successfully delivered the call to the landline carrier within 17 seconds after the call is placed.[17] As WCA points out, however, Nokia's original proposal did not specifically provide that the call be delivered to the landline carrier within 17 seconds.[18] Rather, the duration of the call attempt with the preferred carrier would be specified by that carrier and could be set at up to 30 seconds.[19] Subsequently, Nokia clarified that its multi-mode handsets will comply with the time limits for access attempts approved by the Commission for the A/B-IR method, specifically the 17-second limit, whether the handset is operating in the digital or the analog mode.[20] Applying the same 17-second limit to Nokia's proposal as that applied by the Commission to the substantially similar A/B-IR method should similarly address lock-in concerns.

6. In addition, WCA raised concerns that Nokia's proposed method of attempting to complete 911 calls through digital channels in the PRL could delay call completion, especially when the handset is already operating in analog mode because, WCA argues, this likely means that an analog system is the only available preferred system in the area.[21] Specifically, WCA alleges that Nokia's method of processing 911 calls in accordance with the carrier's PRL could delay call completion by 120 to 150 seconds, by taking up to ten seconds to try to connect with each of the 12 to 15 systems typically present on a PRL.[22] After review of the record as supplemented, we conclude that Nokia's proposed method of 911 call completion will not delay call completion by anywhere close to 120 to 150 seconds, and, in fact, may speed the completion of 911 calls. Nokia explains that when the "presently acquired" system is analog, the handset will first try to complete a 911 call with that analog system. Only where the call cannot be completed via the presently acquired system will the handset attempt completion via digital systems identified by the PRL.

7. With respect to the time involved in attempting to complete 911 calls through digital channels, Nokia explains that, at a maximum, an initial scan to identify all digital channels available to complete the 911 call would require no more than 1.38 seconds, not the 120-150 seconds alleged by

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[15] *Second Report and Order*, 14 FCC Rcd at 10971.

[16] Nokia Request at 3.

[17] *Second Report and Order*, 14 FCC Rcd at 10971-72.

[18] Nokia did state generally that its method "will meet all timings as specified in the [Second Report and Order]." Nokia Request, Attachment at 4.

[19] WCA Comments at 8.

[20] Nokia December 30 *Ex Parte* Letter at 3, n.7.

[21] *See* WCA Jan. 11 *Ex Parte* Letter at 2.

[22] WCA Comments at 8. See also WCA January 11 *Ex Parte* Letter at 2.

WCA.[23] Our own review of cellular call completion processes supports Nokia's explanation.[24] Nokia further explains that once an available digital channel is identified, it typically takes 0.8 seconds for the handset to validate the channel and initiate the call.[25] Moreover, Nokia states that the handset will attempt to complete the call only with digital channels that are specified in the standards for each digital system, and will not recognize non-compatible digital signals.[26] The handset will not waste time seeking to complete calls with such systems. Thus, we are persuaded that any delays associated with attempting to complete 911 calls through the carrier's PRL, in those cases where the 911 call is not completed on the "presently acquired" system, should be brief, and multiple unsuccessful attempts to complete the call over digital channels should rarely occur.

8. In fact, we are persuaded that Nokia's proposed 911 call completion method should generally help improve and speed call completion. As discussed above, the Nokia handset first attempts to complete the 911 call with the carrier operating the presently acquired system. This carrier, normally the caller's preferred carrier when the caller is in the handset's home region, is likely to be the carrier best able to deliver the call quickly and reliably while supporting the handset's features, such as location capability when that feature becomes available. If a digital signal is available, the call will also normally be completed in that mode. Alternatively, that carrier will normally attempt to complete the call on its own analog channels if digital is not available, thus improving the chances of call completion.[27] Carriers on the PRL, selected by the customer's preferred carriers, are similarly likely to support the handset's features and able to complete the call effectively.

9. Even in the case where a handset is operating in the analog mode, the specific case WCA cites as a problem, the Nokia method appears reasonable. WCA asserts that when the handset is operating in the analog mode, the chances are that an analog system is the only available preferred system in that area and that searching for another digital system instead of switching to the other analog system is of very dubious benefit to the public.[28] We are not persuaded that this is necessarily true, or will be true in the future. Where a handset is operating in analog mode, it often is employing the preferred carrier's analog signal, even though other carriers' digital systems are available. These digital systems, though not selected for non-emergency calls, may nonetheless be available to complete a 911 call quickly. This may increasingly prove the case as digital networks expand. In addition, as we discussed above, only a brief period is needed to scan these digital channels in the PRL list.

10. Moreover, by attempting to complete 911 calls through digital channels, Nokia's method offers certain advantages associated with digital technology, such as improved capacity, call quality, and coverage, as well as increased talk time for portable phones, which may increase the likelihood of clear

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[23] Nokia Dec. 30 *Ex Parte* Letter at 4.

[24] Because information in a call origination access message from a handset is transmitted in 20 millisecond (ms) frames, it is possible to scan each PRL channel for availability in 20-30 ms, as stated by Nokia, and to scan the 42 potential PCS channels and 4 potential 800 MHz digital channels in a maximum total of 1.38 seconds.

[25] Nokia January 19 *Ex Parte* Letter at 1.

[26] *Id.* at 2.

[27] *Id.* at 2.

[28] WCA Jan. 11 *Ex Parte* Letter at 2.

and meaningful communication between the calling party and the Public Safety Answering Point (PSAP). In addition, for multimode phones, digital systems are more capable of maintaining conversations, because digital systems are capable of assigning analog voice channels when the caller moves outside the digital coverage area but analog systems do not automatically hand off to digital.[29] We note that NENA filed comments that specifically support trying to complete 911 calls first through digital frequencies before trying to pass them to analog channels.[30] NENA further expressed the view that formalizing this approach could be an important step forward in enhancing completion of 911 calls. In addition, with Nokia's proposed method, if attempts to complete the 911 call via the PRL list fail, the handset would then attempt to complete the call with non-preferred carriers, including the local non-preferred analog carrier. While in some cases it might be possible to complete the call a few seconds more quickly if the handset reverted first to the non-preferred analog carrier, we find that the other potential advantages of using available digital channels to complete the call make up for these relatively brief potential delays.

11. Subject to the two conditions, we find that Nokia's proposed method will satisfy both the Commission's general principles for 911 call processing modes and the specific conditions the Commission imposed upon the Automatic A/B Roaming-IR mode on which the Nokia proposal is based. We also find that extending this method to digital transmission technologies represents a meaningful improvement in 911 call processing technology that has the potential to help improve wireless 911 reliability. We agree with NENA that formalizing the appropriateness of employing digital frequencies to transmit 911 calls represents an important step forward.[31] This improvement should prove of growing importance if current trends continue - wireless customers are increasingly purchasing multimode handsets and wireless carriers are increasingly deploying digital transmission facilities. Efficient, coordinated use of both digital and analog services should help make 911 call completion more reliable and speedy. We also agree with NENA that it may be possible to improve the exact timing and sequencing of 911 calls from multimode phones.[32] We encourage efforts to give more study to these issues in a technical setting, as a means of further improving 911 call completion methods. We do not find, however, that such efforts should delay approval of Nokia's proposal.

12. Accordingly, we approve the proposed Nokia 911 call completion method for multimode handsets, subject to the conditions imposed by the Commission for feedback and time limits for the Automatic A/B Roaming-IR mode. We also find that the waiver requested by Nokia is justified, in view of the fact that four months appears a reasonable period to complete software changes, test, and begin manufacture of handsets incorporating the revised method[33] and that Nokia's alternate revised method is likely to promote the Commission's objectives of improving call completion. We therefore grant Nokia's request for waiver of the February 13, 2000 deadline for its multimode phones. Nokia will be required to implement its revised method for multimode phones and otherwise comply with the Commission's rules

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[29] *Id.* at 2, stating that digital systems are generally capable of assigning analog voice channels to continue the communication when the caller moves out of the digital coverage area.

[30] NENA Comments at 2. NENA stated that requiring Nokia's handsets to make 911 calls in the analog mode only would limit the ability to complete 911 calls on digital channels, which typically have greater capacity.

[31] NENA Comments.

[32] *Id*. at 2.

[33] *See* Nokia January 14 *Ex Parte* Letter.

no later than four months from the release date of this order.

13. Accordingly, IT IS ORDERED that Nokia's request for approval of its alternate 911 call completion method IS GRANTED SUBJECT TO CONDITIONS as described in this Order.

14. IT IS FURTHER ORDERED that Nokia's request for waiver of Section 22.921 of the Commission's Rules IS GRANTED to the extent indicated herein.

FEDERAL COMMUNICATIONS COMMISSION

Thomas J. Sugrue
Chief, Wireless Telecommunications Bureau