

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Northern Telecom Inc.)	File No. NSD-L-98-135
)	
Petition for Waiver of the Signal Power))	
Limitations Contained in)	
Section 68.308(e)(1) of the)	
Commission's Rules)	
)	
)	

MEMORANDUM OPINION AND ORDER

Adopted: July 12, 1999

Released: July 30, 1999

By the Chief, Network Services Division, Common Carrier Bureau:

I. INTRODUCTION AND BACKGROUND

1. Northern Telecom Inc. ("Nortel") has filed a Petition for Waiver of Section 68.308(e)(1) of the Commission's Rules ("Petition") so that it may register its 1-Meg Modem under Part 68 of the Commission's Rules. The 1-Meg Modem is a high-speed asymmetrical digital product that operates within the existing local loop infrastructure to deliver advanced services. Section 68.308 signal power limitations protect the network from crosstalk¹ and other interference caused by excessive analog signal power in the PSTN.² Section 68.308(e) limits the power level of signals in the 4 kHz to 6 MHz frequency range. The limits of Section 68.308(e) are intended to ensure that signals transmitted from terminal equipment above voiceband (above 4 kHz) do not interfere with telephone company transmission systems or services that function at frequencies above 4 kHz.³

¹ Crosstalk is caused by nonlinearities in circuits within frequency-division multiplex carrier systems and by electric and magnetic coupling between circuits within various transmission media and may be manifested as line noise and third party conversations.

² The potential harms include electrical hazards to telephone company personnel and equipment, degradation of telecommunications services to users of the network, and malfunctioning of billing equipment. *See* 47 C.F.R. 63.308.

³ These limitations can be critical for multichannel analog carrier systems. Multichannel analog carrier

2. BellSouth filed comments opposing the granting of Nortel's Petition. Ameritech, Bell Atlantic, and Lucent filed comments supporting a conditional granting of the Petition. Transwire filed comments supporting an unconditional granting of the Petition. For the reasons discussed below, we grant Nortel's Petition for Waiver, subject to the condition contained in this Order.

II. DISCUSSION

3. *Nortel's Petition.* In its Petition, Nortel contends that the 1-Meg Modem benefits the public interest, enhancing consumer choice and value by encouraging the deployment of advanced telecommunications capabilities in a reasonable and timely manner. Nortel claims that the 1-Meg Modem conforms to Part 68 of the Commission's rules, except for section 68.308(e)(1).⁴ Nortel states that the 1-Meg Modem equipment poses no risk of harm to the public switched telephone network (PSTN) because it complies with the ANSI T1.413 issue 2, an industry standard for Interfaces Relating to Carrier to Customer Connection of Asymmetrical Digital Subscriber Line (ADSL) Equipment.⁵ This standard provides the minimal set of requirements for satisfactory transmission between the network and a customer's installation. Consequently, Nortel seeks a waiver of section 68.308(e) to permit Part 68 registration of its 1-Meg Modem.

4. *Waiver Standard.* In analyzing Nortel's Petition, we consider the well established legal standard for waiver of the Commission's rules. The Commission will adhere strictly to its rules unless a party can demonstrate that "in the public interest the rule should be waived."⁶

systems use frequency division multiplexing to concentrate multiple subscribers' signals onto a single wire pair. Each direction of transmission for each subscriber uses either 4 kHz (single sideband) or 8 kHz (double sideband) of frequency spectrum. Generally, the carrier systems most susceptible to crosstalk are those that use double sideband modulation methods, 8 kHz of spectrum for each direction of transmission per channel.

Telecommunications Industry Association, *TIA Technical Systems Bulletin, Part 68 Rationale and Measurement Guidelines*, TSB31-B p.161, at 8.17.1 (1998).

⁴ Section 68.308(e) provides the signal power limitations for voltage in the 4 kHz to 6 MHz frequency range. 47 C.F.R. 68.308(e).

⁵ ANSI T1, "Draft Proposed Revision of ANSI T1.413-1995 Network and Customer Installation Interfaces Asymmetrical Digital Subscriber Line (ADSL) Metallic Interface," as approved by Committee T1E1 and forwarded to the American National Standards Institute (ANSI) for publication. This specification contains the power spectral density (PSD) masks for spectral compatibility of ADSL equipment with other services in the local loop. This document is available on the Internet at <ftp://ftp.t1.org/pub/t1e1/e1.4/dir98/8e140075.pdf>.

⁶ *FPC v. Texaco Inc.*, 377 U.S. 33, 39 (1964).

Furthermore, the Commission may only waive a provision of its rules for good cause.⁷ The Commission must take a "hard look" at applications for waiver⁸ and must consider all relevant factors when determining if good cause exists.⁹ The party petitioning the Commission for a waiver bears the heavy burden of showing good cause: "[a]n applicant [for a waiver] faces a high hurdle even at the starting gate."¹⁰ In addition, "[t]he agency must explain why deviation better serves the public interest, and articulate the nature of the special circumstances, to prevent discriminatory application and to put future parties on notice as to its operation."¹¹

5. On March 29, 1999, the Commission's Common Carrier Bureau, Network Services Division, released an Order granting waiver of section 68.310(e) of the Commission's rules to permit Paradyne Corporation to register its Hotwire MVL equipment.¹² In that proceeding, we formulated a two-part analysis to determine the merits of a request for waiver of section 68.308(e) to permit registration of non-conforming customer premises equipment (CPE). The first element of that analysis is an evaluation of the CPE's benefit to the public interest, with an emphasis on the potential gain in consumer choice and value.¹³ The second element of that analysis is an evaluation of the CPE's potential for causing network harm.¹⁴ The issues raised by Nortel's Petition are substantially similar to those raised by the *Paradyne* proceeding. Accordingly, we will consider the merits of Nortel's Petition through the same two-part analysis that we developed in the *Paradyne* proceeding.

6. *Public Interest - New Products and Innovation.* The first branch of our analysis considers whether granting Nortel's Petition will serve the public interest including the promotion of greater consumer choice and value. In its Petition and *ex parte* pleadings, Nortel argues that its 1-Meg Modem is a new and innovative product offering consumers additional

⁷ 47 C.F.R. 1.3.

⁸ *Pikes Peak Broadcasting v. FCC*, 422 F.2d 671, 682 (D.C. Cir. 1969).

⁹ *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971).

¹⁰ *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969).

¹¹ *Northeast Cellular Telephone Company, L.P. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

¹² Paradyne Corporation Petition for Waiver of the Signal Power Limitations Contained in Section 68.308(e) of the Commission's Rules, *Order*, 14 FCC Rcd 4496 (Com.Car.Bur.Network Servs. Div. 1999) ("*Paradyne Order*").

¹³ *Paradyne Order*, 14 FCC Rcd at 7.

¹⁴ *Id.*

choice and value. Nortel describes the 1-Meg Modem as high-speed asymmetrical digital CPE that is designed to utilize the copper wire local loop and that may be customer-installed using existing home wiring. The 1-Meg Modem enables a dedicated data connection of up to 1.28 Mb/s downstream to the end user and up to 320 Kb/s upstream, concurrent with voice service, from the end user. Nortel states that equipment supporting xDSL services operate over the same twisted copper pair local access loops currently used for analog transmission services.¹⁵ Finally, Nortel reports that xDSL is currently available in limited areas of the United States, and that the telecommunications industry is gearing up for widespread deployment.

7. Transwire agrees with Nortel that grant of the Petition will serve the public interest. Specifically, Transwire refers to the Commission's statements supporting the speedy deployment of new telecommunications technologies, including advanced services such as xDSL systems.¹⁶ Transwire argues that Nortel's inability to register its 1-Meg Modem effectively denies consumer access to xDSL technology and frustrates the deployment of advanced telecommunications capability.¹⁷ No commenters objected to the concept that the 1-Meg Modem offers increased choice and value to consumers.

8. Based on our review of the record, we agree that granting Nortel's Petition would serve the public interest by promoting new products and innovation. Nortel's 1-Meg Modem will permit consumers to use the high-speed digital transmission capability of the local loop. Accordingly, we find that Nortel's Petition meets the first criterion for grant of a waiver.

9. *Public Interest - Harm to the Network.* The second branch of our analysis considers whether the connection and use of the 1-Meg Modem would harm the PSTN. In support of its waiver request, Nortel argues that the 1-Meg Modem's compliance with T1.413 issue 2 will assure that the product will not disturb the operation of other services by generating cross-talk, or otherwise cause harm to the PSTN.¹⁸

10. In particular, Nortel explains that Technical Subcommittee T1E1 has recently

¹⁵ Nortel notes that the local loops must be "reasonably free of inductive and capacitive devices." Petition at 2.

¹⁶ Transwire Comments at 4-5; *see also* Deployment of Wireline Services Offering Advances Telecommunications Capability, *et al.*, Memorandum Opinion and Order, and Notice of Proposed Rulemaking, CC Docket Nos. 98-147, et al., 13 FCC Rcd 24011 (1998).

¹⁷ Transwire Comments at 4-5.

¹⁸ Petition at 5-6.

approved a revised ADSL specification, T1.413 issue 2, for ANSI Publication.¹⁹ In that work, Subcommittee T1E1 determined the power spectral density (PSD) limits necessary to eliminate cross-talk interference in the specified ADSL system.²⁰ Those limits are presented in T1.413 in the form of PSD masks for the signals transmitted by the transceiver at the central office and the transceiver at the customer premises. Nortel observes that its adherence to the limits of those masks permits innovative modulation and data-encoding techniques while still avoiding interference with other services.²¹ Accordingly, Nortel argues, its 1-Meg Modem will not harm the PSTN.

11. In the *Paradyne Order*, we found that both ANSI T1.413 and T1.601 reflect a reasonable level of industry consensus on CPE output limitations intended to protect the viability of the PSTN as a transmission media for currently deployed and nascent digital transmission technologies. Our confidence in these industry standards is based on the fact that ATIS Committee T1²² uses an open, industry consensus-building process. In the *Paradyne Order*, we found that by meeting the T1.601 standard, Paradyne had satisfied the second criteria for its waiver request. In this order, we find that by meeting the T1.413 standard, NORTEL will satisfy the second criteria for its waiver request.

12. We cannot agree with Bell South's arguments that the waiver should not be granted because Nortel fails to address the 1-Meg Modem's potential for causing downstream, or central office to CPE, cross-talk.²³ We note that Nortel indicates its 1-Meg Modem complies with both the upstream and downstream power spectral limits specified by T1.413 issue 2, thus complying with our second criteria for waiver of Part 68 rules. Likewise, we do not agree with BellSouth's argument that Nortel's waiver request should be held in abeyance pending a rulemaking proceeding to address Part 68, rather than inviting de facto rulemaking through an ad hoc waiver process.²⁴ We believe that the public interest favors not delaying innovative technology that meets our requirements for waiver pending the more lengthy rulemaking process. We also note that, in light of our prior action with regard to the *Paradyne Petition*,

¹⁹ *Id.*

²⁰ *Id.* at 7.

²¹ *Id.*

²² ATIS T1 membership includes common carriers, manufacturers, and other telecommunications service and equipment suppliers.

²³ *Id.* at 2-3.

²⁴ BellSouth comments at 4.

withholding consideration of Nortel's Petition would be treating similarly situated parties unequally.²⁵

13. Finally, we do not find merit in BellSouth's argument that registration is not a necessary precondition to connection, so that a waiver is not needed. Our rules do not support such action. We agree with Nortel that such an approach would cause delays and confusion while each carrier makes its own determination, perhaps on an inconsistent basis.²⁶ Variation among carrier standards would likely result in restrictions upon the portability of CPE. Moreover, such an approach directly contradicts the intent of the Part 68 program: the creation of national standards and norms.

14. Although generally supporting the Petition, Bell Atlantic advises restricting 1-Meg Modem deployment solely to customer premises installations, though qualified metallic loops, in conjunction with companion equipment deployed in the serving central office.²⁷ Nortel argues in response that restricting the 1-Meg Modem to only qualified local loops could unnecessarily impede product deployment. Nortel states that it designed the 1-Meg Modem for customer premises deployment only, using almost any non-loaded, unconditioned²⁸ local loop. We agree with Nortel that requiring ILEC determination that the local loop is qualified before every installation would create substantial and needless delays.²⁹ Accordingly, we deny Bell Atlantic's request to restrict Nortel's 1-Meg Modem deployment in the manner described.

15. Ameritech also supports the Petition, but notes that other services sharing the same cable bundle could be adversely affected by excessive periodic changes in the signal power generated by the 1-Meg Modem.³⁰ To mitigate this possibility, Ameritech recommends that the

²⁵ See *New York Telephone Company and New England Telephone and Telegraph Company, Nonrecurring Charges for Reconfiguration of Circuits*, 13 FCC Rcd 8324, 8335 (1998) ("the Commission's decision to grant a waiver must be based on articulated, reasonable standards that are predictable, workable, and not susceptible to discriminatory application").

²⁶ Nortel reply comments at 5-6.

²⁷ *Id.*

²⁸ *I.e.*, the local loop is not specially modified, but is free from loading coils and similar impediments to digital transmission.

²⁹ Nortel indicates that there are only a limited, and diminishing, number of analog transmission systems deployed in the local loop plant. Nortel recommends addressing these specific instances on a case-by-case basis, rather than placing a wholesale burden on the 1-Meg Modem deployment process. Nortel reply comments at 4.

³⁰ Ameritech comments at 1.

Commission should specifically condition grant of Nortel's Petition to preclude periodic changes in transmitted signal power exceeding of 3 dB.³¹ Nortel's response indicates that the 1-Meg Modem employs power management technology to optimize data throughput while minimizing the risk of harm, and that Ameritech's suggested limitation on period transmitted signal power changes would restrict this ability, but not necessarily provide additional network protection.³²

16. *Conclusion.* Thus, we grant Nortel's Petition for waiver of Section 68.308(e)(1) of the Commission's Rules, with the condition that the NORTEL 1 MEG MODEM continue to comply with the signal power limitations contained in the T1.413 standard, Issue 2. We conclude that Petitioners have shown good cause for granting this Petition, and that grant of this petition will not result in harm to the PSTN.³³ We emphasize the limited scope and condition for grant of this waiver. We also note that a carrier need not connect, or remain connected, to any device that the carrier reasonably suspects will cause harm to the PSTN. Section 68.108 of our rules affords carriers certain self-help privileges, enabling them to take necessary actions to protect the PSTN.³⁴ These actions include temporarily disconnecting or refusing to connect inside wiring or CPE that is likely to cause harm to the PSTN. Carriers seeking to utilize those self-help privileges must notify the customer of their intended action, give the customer an opportunity to correct problems, and inform the customer of his right to complain to the Commission should the carrier act improperly.³⁵

IV. ORDERING CLAUSE

17. Accordingly, IT IS HEREBY ORDERED, pursuant to authority delegated in Sections 0.91 and 0.291 of the Commission's Rules, 47 C.F.R. 0.91, 0.291, and Section 1.3 of the Commission's Rules, 47 C.F.R. 1.3, that Northern Telecom, Inc.'s, Petition for Waiver of Section 68.308(e) of the Rules, 47 C.F.R. 68.308(e), IS GRANTED to the extent stated herein.

³¹ *Id.*

³² Nortel reply comments at 3.

³³ 47 C.F.R. 68.108.

³⁴ Carriers reasonably determining that CPE, plugs, jacks, inside wiring, etc. will cause harm to the PSTN may discontinue service, but must first notify the customer, if practicable, afford the customer the opportunity to correct the situation, and inform the customer of his or her right to bring a complaint to the Commission. 47 C.F.R. 68.108.

³⁵ *Id.*

18. It is further ordered that this grant is given with the condition that the NORTEL 1 MEG MODEM continue to comply with the T1.413 standard.

FEDERAL COMMUNICATIONS COMMISSION

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