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BEFORE THE
Federal Communications Commission
WASHINGTON, D.C.

In the Matter of)
)
Telephone Number Portability) CC Docket No. 95-116
)

TO: CHIEF, WIRELESS TELECOMMUNICATIONS BUREAU

**PETITION FOR EXTENSION OF IMPLEMENTATION DEADLINES OF
THE CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

The Cellular Telecommunications Industry Association ("CTIA")¹ submits its Petition for an extension of the implementation deadlines applicable to wireless carriers in the above-captioned proceeding.

INTRODUCTION

In the First Report and Order² the Commission established rules mandating number portability for both LECs and CMRS providers. A separate time-table was established for CMRS providers, requiring them to implement service provider number portability by June 30, 1999. The Commission noted that although

¹ CTIA is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the association covers all Commercial Mobile Radio Service ("CMRS") providers, including 48 of the 50 largest cellular and broadband personal communications service ("PCS") providers. CTIA represents more broadband PCS carriers and more cellular carriers than any other trade association.

² Telephone Number Portability, First Report and Order and Further Notice of Proposed Rulemaking in CC Docket No. 95-116, 11 FCC Rcd 8352 (1996) ("First Report and Order").

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the Communications Act of 1934 ("Act") does not expressly mandate CMRS number portability, it would be an important service to promote competition between CMRS providers.³

Even before the release of the First Report and Order the wireless industry was taking steps to solve the unique difficulties CMRS providers face in implementing number portability.⁴ Consistent with the First Report and Order, industry working groups had set June 30, 1999 as their deadline.⁵ The process, however, has proven more complex than originally anticipated. Among other things, the industry has had to develop a means of allowing subscribers to keep their telephone number and separate the Mobile Identification Number ("MIN") in the handset. This is critical to meeting the Commission's directive

³ See First Report and Order at ¶ 157 ("[T]he inability of customers to keep their telephone numbers when switching carriers also hinders the successful entrance of new service providers into the cellular, broadband PCS, and SMR markets.") Although this may be true in a wireline model, it is not clear that these principles apply in a wireless context as evidenced by the success of all CMRS carriers.

In addition, the Commission stated that "service provider portability will promote competition between existing cellular carriers, as well as facilitate the viable entry of new providers of innovative service offerings, such as PCS and covered SMR providers." First Report and Order at ¶ 157. This too may go too far in applying a wireline paradigm to wireless competition. On a cost/benefit basis, CMRS licensees may be more interested in devoting their resources to improving network coverage.

⁴ Declaration of Arthur L. Prest at ¶ 5.

⁵ Id.

and the industry's support for nationwide roaming.⁶ Industry working groups agreed that this could best be accomplished by splitting the MIN from the Mobile Directory Number ("MDN"). Creating a second ten-digit number, which must be treated separately in all network functions, however, is a complex task. The industry is now in the process of developing standards so that all carriers will operate efficiently and consistently in this new network architecture. Once standards have been developed and tested, every CMRS provider will have to change both its calling networks and customer service/back office support systems to distinguish between the MIN and the MDN.

In addition, CMRS providers are dependent upon the implementation of wireline number portability to develop compatible systems between wireless and wireline carriers. Until wireline number portability standards are established, the wireless industry cannot complete certain final provisions that are critical to its deployment of number portability.

The industry recognizes today that it will not be able to provide service provider number portability by June 30, 1999. While the MIN/MDN separation has been agreed to, the industry has not yet arrived at final standards. Once this is resolved, the standards must endure extensive testing and then be implemented by every carrier nationwide. CTIA therefore requests that the

⁶ First Report and Order at ¶ 166 (requiring all CMRS providers to maintain nationwide roaming in a number portability environment).

WTB invoke its authority immediately and extend the deadlines for wireless number portability.

I. THE WIRELESS TELECOMMUNICATIONS BUREAU SHOULD STAY THE EFFECTIVE DATES OF THE IMPLEMENTATION SCHEDULE FOR WIRELESS NUMBER PORTABILITY BY NINE MONTHS.

When the Commission mandated wireless number portability it expressly delegated to the Chief of the Wireless Telecommunication Bureau ("WTB") authority to delay the implementation deadlines of the First Report and Order for nine months.⁷ The Commission recognized that the wireless industry faced unique technical obstacles in developing the necessary standards and protocols as well as the challenges of supporting nationwide roaming.⁸ On reconsideration, the Commission maintained the implementation deadlines, while also reiterating its intention that the Bureau have the flexibility to stay the deadlines "[i]f it becomes apparent that the wireless industry is not progressing as quickly as necessary to meet the deadlines for providing querying capability and service provider portability."⁹

It has become apparent that the industry cannot meet the June 30, 1999 deadline for service provider number portability.¹⁰ As demonstrated by the attached declaration, a series of

⁷ First Report and Order at ¶ 167.

⁸ Id. at ¶ 166.

⁹ Telephone Number Portability, First Memorandum Opinion and Order on Reconsideration in CC Docket No. 95-116, 12 FCC Rcd 7236 at ¶ 134 (1997) ("First Memorandum Opinion and Order").

¹⁰ See Declaration of Arthur L. Prest at ¶¶ 6, 15.

important issues concerning standards, nationwide roaming, and customer service/back office support remain unresolved.

The fact that the Commission's deadline is not technically feasible creates something of a dilemma for wireless licensees by confronting them with regulatory obligations that cannot be accomplished, despite their best efforts. Although the Commission imposed deadline is more than a year away, the WTB can ameliorate this conflict by establishing a new implementation date for March 31, 2000.

The uncertainty created by the conflict affects various aspects of carriers' activities, most notably in their capital budgeting. Prompt WTB decision-making would assure carriers that they do not need to presently allocate funds for a number portability solution that is not attainable until at least 2000. As long as a difference persists between regulatory requirements and technical feasibility for implementing wireless number portability, carriers will not be able to efficiently allocate their resources. This problem is most significant for PCS licensees who are in the process of constructing their networks and need to devote substantial resources to building-out and extending system coverage. Prematurely dedicating resources for number portability implementation before a fully vetted and documented solution exists unnecessarily diverts available funds from network build-out plans. Thus, WTB action extending the deadline is urgently required.

II. THE WIRELESS INDUSTRY IS WORKING TO OVERCOME THE OBSTACLES TO NUMBER PORTABILITY.

As evidenced by the attached declaration of Arthur L. Prest, the CMRS industry has been working to meet the Commission's June 30, 1999 deadline for wireless service provider number portability. The industry has reached a consensus on the general architecture and is now in the process of developing the necessary standards and protocols to be used by all carriers. The standards setting process, however, is not yet complete. These processes are complicated by the fact that the MIN, which today is also the MDN, is used for a variety of other functions, including roaming and customer services. Once standards are developed, it will take additional time to implement them in every carrier's network.¹¹

Not surprisingly, one of the most important issues for both the Commission and CMRS providers is maintaining nationwide roaming in a number portability environment. By separating the MIN from the MDN, the industry has ensured that nationwide roaming will remain in effect. When a subscriber is roaming, the MIN is used by the visiting carrier to identify the user. The MIN permits the carrier in the visiting market to identify the subscriber's home market and to communicate with the subscriber's carrier for validation and fraud prevention purposes. Today, the

¹¹ Although the First Memorandum Opinion and Order requires that number portability only be deployed in the largest 100 MSAs, every carrier nationwide will have to upgrade its systems to support roaming and distinguish between the MIN and the MDN. Without this upgrade ported subscribers will not be able to roam outside of the 100 largest MSAs.

MIN and the MDN are the same number and therefore both are associated with a particular carrier. In a number portability environment, however, every MIN will be associated with a carrier but the MDN will move with the ported user. Once they are separated, subscribers will be generally unaware that such a distinction exists. Carriers, on the other hand, must be acutely aware of this change and implement protocols to distinguish between the two numbers.¹²

The MIN/MDN split will also require carriers to make extensive changes to their customer service/back office support architectures. Carriers currently utilize the MIN as a means of identifying subscribers for a variety of purposes including billing and caller identification. Once the MIN can no longer be used for this purpose, carriers must implement new software and other changes to accommodate the split.

By separating the MIN from the MDN, the industry has developed a number portability solution that will be transparent to subscribers and still permit them to use their wireless telephones everywhere. It is, however, incumbent upon the Commission to accord the wireless industry sufficient time to implement the solution in an orderly manner.

¹² See Declaration of Arthur L. Prest at ¶¶ 9-11.

IV. CONCLUSION

For these reasons CTIA respectfully requests that the Chief, Wireless Telecommunications Bureau, stay the implementation schedule for wireless number portability for nine months.

Respectfully submitted,

**CELLULAR TELECOMMUNICATIONS
INDUSTRY ASSOCIATION**



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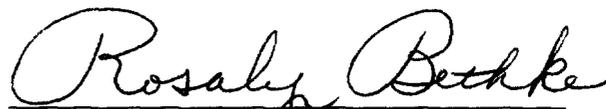
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DECLARATION OF ARTHUR L. PREST

ON BEHALF OF THE CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION

1. I, Arthur L. Prest, do hereby declare as follows:
2. My name is Arthur L. Prest. My business address is 1250 Connecticut Avenue, N.W., Suite 200, Washington, D.C. 20036. I am employed by the Cellular Telecommunications Industry Association ("CTIA") as Vice President of Science and Technology. I have served in my current role since 1994.
3. I oversee all of CTIA's number portability activities and am personally an active participant in industry standards groups developing wireless number portability standards. In addition, I am involved in developing standards relating to network interworking, interoperability, and reliability.
4. The purpose of this declaration is to provide input to the Chief of the Wireless Telecommunications Bureau on the status of the wireless industry's ability to meet the June 30, 1999 number portability implementation deadline established by the Federal Communications Commission ("FCC"). I will discuss the efforts that the industry has already made and the obstacles which remain for wireless number portability implementation.
5. The wireless industry began working on number portability prior to the release of the FCC's First Report and Order in CC Docket No. 95-116. The order mandates that all CMRS providers establish the capability to deliver calls from their network to ported wireline telephone numbers anywhere in the United States by December 31, 1998. In addition, the

order mandates that these providers offer wireless number portability, including support for roaming, by June 30, 1999.

6. From a technical perspective, it is clear today that the wireless industry will not be able to meet the CMRS number portability deadline. As an industry, wireless carriers and vendors have been working in standards committees, open fora facilitated by CTIA, and North American Numbering Council working groups and task forces. Provisioning our systems for national roaming and separating the Mobile Identification Number (MIN) from the Mobile Directory Number (MDN) have proven to be among the most complicated issues for wireless number portability. These issues are also unique to CMRS providers.
7. CTIA maintains a Numbering Advisory Group (NAG) comprised of wireless service providers from all wireless technologies which seeks consensus positions and solutions for wireless numbering issues. Soon after the release of the First Report and Order, in August 1996, CTIA NAG released a Request for Information (RFI) to the wireless industry. The goal of the RFI was to solicit potential methods to implement wireless number portability consistent with the First Report and Order. CTIA received several substantive responses serving as the basis for a Number Portability Forum held in October 1996. This forum was open to both wireless and wireline participants and was used to discuss the wireless number portability implementation strategy.

This forum resulted in industry consensus agreements on issues critical to the wireless industry. Most importantly, the wireless industry agreed in this forum that the best method of realizing wireless number portability would be to separate the MIN from the MDN.

8. The CTIA NAG subsequently created a Number Portability Sub Task Group, open to both members and non-members of CTIA, to facilitate and promote the development of wireless number portability standards. The Sub Task Group was charged with drafting a *Wireless Standards Requirements Document*, providing the appropriate committees with an initial look into the requirements of wireless number portability on current and future standards. On January 22, 1997, CTIA released to both TIA and Committee T1 standards committees this document. The Sub Task Group also drafted the *CTIA Wireless Number Portability Report*, attached hereto, which characterizes the network architecture and operational procedures necessary to support wireless number portability. This report was submitted to industry standards bodies in April 1997 and the North American Numbering Council in May 1997.
9. As noted above, the separation of the MIN from the MDN raises significant challenges to the implementation of wireless number portability. In North America, the MIN is generally used as the MDN. However, in order to support wireless number portability and minimize impacts on the existing wireless network infrastructure, the wireless

industry determined that it is necessary to separate the MIN from the MDN. This separation will significantly affect the wireless industry. Service providers use this single MIN for such tasks as performing registration, call processing, provisioning, customer care, and billing.

10. In a number portability environment, the MDN will be portable while the MIN will remain in the phone as a 10 digit non-dialable number associated with a specific service provider and unique to the mobile station. This separation represents a significant departure from the current wireless call structure. Every ported subscriber will require a new MIN from the new carrier which will require reprogramming the subscriber's wireless unit with every move. The subscriber, however, will retain the MDN, the ported telephone number.
11. While this method will be transparent to the subscriber and provides benefits in the long-term, numerous details still must be resolved by the industry standard setting bodies for this structure to work effectively. For example, many older analog cellular phones display their MINs but have no ability to display or recognize their own directory number. This means that after a subscriber ports the ten-digit telephone number, the newly displayed ten-digit MIN is not the subscriber's telephone number, and might actually be another subscriber's telephone number. In addition to customer confusion, the separation of the MIN from the MDN will require modification to all network and back office

systems. Most network elements (i.e., Mobile Switching Center (MSC), Home Location Register (HLR), Visiting Location Register (VLR), Signal Transfer Point (STP), etc.) will need to have the capability to support both the MIN and MDN parameters where appropriate.

12. While the benefits of this method will be realized in the long term, resolving the details for this structure to work effectively have taken longer than anticipated. The Standards Requirements Document released in January 1997 by CTIA has resulted in one standard currently in the ballot process. However, additional work is incomplete for Phase II wireless number portability implementation. In addition to the technical standards, the separation of the MIN and MDN will cause many older analog cellular phones to display their MINs but will not display or recognize their own directory number. Industry groups are working to ease subscriber confusion by resolving this matter as well.
13. In addition to customer confusion, the separation of MIN and MDN impacts all network and back office systems. Customer care and billing systems must be redesigned to recognize this change, and, in large part, are dependent upon the output of the standards bodies. In a large distributed network environment it can take up to 24 months to integrate new applications from the planning through roll-out phases. Considering the standards that remain to be agreed upon, a highly compressed delivery schedule is unlikely to be achieved without adversely affecting current subscribers.

14. Concurrent with addressing the impacts of the MIN and MDN split, the wireless industry is also developing guidelines to manage the assignment of MINs among all carriers nationwide. This, too, is a complicated process because MIN management has both domestic and global implications. MINs must be unique for international roaming to work properly. The industry has written an initial draft proposal which still must be adopted as an industry consensus practice.
15. The wireless industry has worked steadfastly and continues to work with the June 30, 1999 deadline in mind. However, the implementation obstacles faced by the wireless industry are unique and require additional time to reach industry consensus on critical items which will maintain the integrity and interoperability of the wireless networks in a national and international roaming environment. It is very clear today that the implementation of number portability by the CMRS industry is not attainable by June 30, 1999.



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Cellular Telecommunications
Industry Association



CTIA-Building the Wireless Future

CTIA
Report on
Wireless Number Portability

Created by the Number Portability Sub-task Group
on behalf of the
Cellular Telecommunications Industry Association
Number Advisory Group

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REVISION HISTORY

<i>Version</i>	<i>Date</i>	<i>Remarks</i>
1.0	April 14, 1997	Initial Publication

1. INTRODUCTION

1.1 Purpose and Scope

The purpose of this document is to characterize the network architecture and operational procedures necessary for the support of Number Portability (NP) in the wireless industry per Federal Communications Commission (FCC) order *Number Portability Report and Order, CC Docket 95-116*. This document represents consensus agreements among members of the Cellular Telecommunications Industry Association (CTIA). This document is applicable to analog Advanced Mobile Phone System (AMPS), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA), and Global System for Mobile Communications (GSM) providers (including digital Specialized Mobile Radio (SMR) providers), alike. Differences among Wireless Service Providers (WSP) technologies and implementation strategies are noted where appropriate. Proprietary implementations are outside the scope of this document.

This document focuses only on Wireless Number Portability (WNP), mainly on the case of a subscriber porting to a WSP. WSPs have some fundamental differences with regard to service and network operations as compared to wireline service providers; therefore, certain aspects of NP concepts and definitions have different relevance to WSPs. This document will explain how the wireless solution will account for such differences.

The primary audience for this document is WSPs and wireless equipment and service vendors who assist in the definition, development and deployment of WNP. This document may also benefit other groups such as the wireline industry. It assumes the reader is familiar with the wireless telecommunications technologies.

The remaining sections of the introduction present necessary background information to establish a foundation for the WNP architecture, including the following:

- WNP goals,
- NP history,
- NP definitions and interpretations for WNP, and
- WNP assumptions as applicable to this document.

1.2 Solution Goals

The WNP solution as documented here has been developed in accordance with the following significant goals in order to uphold wireless call processing and mobility management:

- Minimize impact on existing networks.

- Continue to allow for roaming and roaming agreements with more than one service provider in any serving area per negotiated business arrangements.
- Do not inhibit the future growth of wireless technology.
- Support the long-term efficient use of numbering resources.
- Support wireless existing and changing service areas without inhibiting competition.

1.3 Definitions

Readers should use the following definitions when reading this document:

- *Service Provider Portability* is defined by the FCC as “the ability of end users to retain the same telephone numbers as they change from one service provider to another.”¹
- *Location Portability* is defined by the FCC as “the ability of users of telecommunications services to retain existing telecommunications numbers without impairment of quality, reliability, or convenience when moving from one physical location to another.”²

Location portability should be distinguished from the inherent mobility of wireless communication. Location portability in a wireless environment refers to a subscriber’s ability to retain his/her directory number when moving from the serving area of one home system to another or changing the wireline rate center associated with the mobile directory number. (Refer to Section 1.6 for more details.)

- *Service Portability* is defined by the FCC as “the ability of users of telecommunications services to retain existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications service to another service provided by the same telecommunications service provider.”³
- *Home Serving Area* - the geographic area of coverage provided by a WSP where subscribers may originate and terminate calls without incurring roaming charges.
- *Mobility* - the ability of a mobile station (and thus subscriber)
 - to move temporarily from one location to another and still obtain telecommunication services (i.e., roaming); and
 - to be in motion while continually accessing telecommunication services (i.e., hand-off).

¹ FCC *Number Portability Report and Order*, CC Docket 95-116, July 2, 1996 paragraph 172.

² *ibid.*, paragraph 174.

³ *ibid.*, paragraph 172.

- *Number Portability Administration Center Service Management System (NPAC-SMS)* - a Service Management System (SMS) responsible for storing and broadcasting to service providers NP data updates within a region for ported DNs. The NPAC-SMS(s) is owned and maintained by a neutral, third-party.
- *Local Service Management System (LSMS)* - an SMS responsible for distributing the NP data updates from the NPAC-SMS to the service provider's NP-SCP, typically is owned and maintained by the service provider.
- *Mobile Station (MS)* "is the interface equipment used to terminate the radio path at the user side. It provides the capabilities to access network services by the user." ⁴
- *Mobile Directory Number (MDN)* - a 10-digit North American Numbering Plan (NANP) directory number assigned to address a wireless service subscriber.
- *Directory Number (DN)* - any E.164 10-digit dialable number assigned to address a wireline or a wireless subscriber. DNs are inclusive of MDNs.
- *Mobile Station Identifier (MSID)* - either a 15-digit E.212 formatted International Mobile Station Identification (IMSI) or 10-digit Mobile Identification Number (MIN).
 - *International Mobile Station Identifier (IMSI)* - a 15-digit non-dialable number associated with a specific service provider and unique to each mobile station. It is programmed into the mobile station and used to identify the mobile, its home network, and its country. ⁵
 - *Mobile Identification Number (MIN)* - a 10-digit non-dialable number associated with a specific service provider and unique to each mobile station (as an MSID). It is programmed into the mobile station and is designed to contain a NANP-formatted number (e.g., NPA-NXX-XXXX). This number, as an MSID, may be equivalent to the value of a dialable MDN. MIN is the prevalent identifier in AMPS networks.
- *Donor Network* - the network from which a subscriber ports. If the subscriber has ported more than once, the first network to release the subscriber is referred to as the original donor network. The original donor network is also the original owner of the number.
- *Recipient Network* - the network to which a subscriber ports.

⁴ IS-41.1 Rev C

⁵ *International Mobile Station Identity (IMSI) Assignment Guidelines and Procedures*, Prepared by a Wireless Industry Forum, Sponsored by CTIA and PCIA, Version 1, February 12, 1996.

1.4 Background

1.4.1 The FCC Order

The FCC *Number Portability Report and Order*, CC Docket 95-116, dated July 2, 1996, mandates that all Commercial Mobile Radio Service (CMRS) providers provide the capability to deliver calls from their network to ported numbers anywhere in the United States by December 31, 1998. Furthermore, the order mandates that these providers offer service provider portability, including support for roaming, by June 30, 1999.⁶

The following are some key excerpts from the original FCC report and order:

- “We require all cellular, broadband PCS, and covered SMR carriers to have the capability of querying appropriate number portability database systems in order to deliver calls from their networks to ported numbers anywhere in the country by December 31, 1998.”⁷
- “We require all cellular, broadband PCS, and covered SMR carriers to offer service provider portability through out their networks, including the ability to support roaming, by June 30, 1999. ... We believe a nationwide implementation date for number portability for cellular, broadband PCS, and covered SMR providers is necessary to ensure that validation necessary for roaming can be maintained.”⁸
- Interim number portability measures are not required for WSPs.⁹
- Service and Location portability are not required at this time.¹⁰ In addition, changes between wireline service providers and broadband CMRS providers or among broadband CMRS providers are considered changing service providers and not service. Thus, service provider portability includes wireless to wireless, wireline to wireless as well as wireless to wireline.¹¹ As mentioned in the introduction, this document focuses on those scenarios in which a subscriber ports to a wireless provider.
- Customers may need to purchase new equipment (e.g. mobile station) when switching among CMRS providers.¹²
- The issue of regional number portability databases and their content and administration is assigned to the North American Numbering Council (NANC).¹³

⁶ FCC *Number Portability Report and Order*, CC Docket 95-116, July 2, 1996, paragraph 172.

⁷ *ibid.*, paragraph 165.

⁸ *ibid.*, paragraph 166.

⁹ *ibid.*, paragraph 169.

¹⁰ *ibid.*, paragraph 181.

¹¹ *ibid.*, paragraph 172.

¹² *ibid.*, paragraph 157.

The FCC did not mandate a specific method for number portability but has recognized that the Location Routing Number (LRN) method is currently preferred by much of the industry, although not tested.¹⁴ A field test of LRN as it applies to the wireline industry is scheduled for execution in Chicago through the summer of 1997.¹⁵ ¹⁶ The intent of the test is to prepare for the wireline implementation and currently does not include the wireless solution. Refer to Section 1.7 regarding trial report availability.

The FCC, in its original order, established a list of nine performance criteria which must be met by any number portability method:

- (1) "support existing network services, features, and capabilities;
- (2) efficiently use numbering resources;
- (3) not require end users to change their telecommunications numbers;
- (4) not require telecommunications carriers to rely on databases, other network facilities, or services provided by other telecommunications carriers in order to route calls to the proper termination point;
- (5) not result in unreasonable degradation in service quality or network reliability when implemented;
- (6) not result in any degradation of service quality or network reliability when customers switch carriers;
- (7) not result in a carrier having a proprietary interest;
- (8) be able to accommodate location and service portability in the future; and
- (9) have no significant adverse impact outside the areas when number portability is deployed."¹⁷

On March 6, 1997, the FCC issued its *First Memorandum Opinion and Order on Reconsideration*, CC Docket No. 95-116 to further clarify and rule on several outstanding inquiries regarding NP. The following points are notable:

¹³ *ibid.*, paragraphs 91-102.

¹⁴ *ibid.*, paragraph 46.

¹⁵ *ibid.*, paragraph 79.

¹⁶ FCC *First Memorandum Opinion and Order on Reconsideration*, CC Docket 95-116, March 6, 1997, paragraph 79.

¹⁷ FCC *Number Portability Report and Order*, CC Docket 95-116, July 2, 1996, paragraphs 48-59.