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

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	
To Ensure Compatibility with	)	CC Docket No. 94-102
Enhanced 911 Emergency	)	RM-8143
Calling Systems	)	

## ORDER

**Adopted:** September 30, 1998; **Released:** September 30, 1998

By the Chief, Wireless Telecommunications Bureau:

1. The Cellular Telecommunications Industry Association (CTIA) and the Personal Communications Industry Association (PCIA), in a letter sent to the Wireless Telecommunications Bureau (Bureau) on September 11, 1998,<sup>1</sup> have requested that the Bureau grant a three-month extension of the deadline for compliance with the provisions of Section 20.18(c) of the Commission's Rules, relating to the transmission of 911 calls through the use of TTY devices.<sup>2</sup> For the reasons discussed below, we deny this request, but grant a more limited suspension of the enforcement of the rule for purposes of accomplishing the objectives we discuss in this Order.

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<sup>1</sup> Letter from A. Williams, Assistant General Counsel, Cellular Telecommunications Industry Association, and M. Madigan Jones, Vice President of External Affairs, Personal Communications Industry Association, to D. Phythyon, Chief, Wireless Telecommunications Bureau, Sept. 11, 1998 (September 11 Letter).

<sup>2</sup> 47 C.F.R. § 20.18(c).

2. The Commission adopted a rule in the *E911 First Report and Order* in the above captioned rulemaking proceeding requiring that, as of October 1, 1997, all covered carriers must be capable of transmitting 911 calls from individuals with speech or hearing disabilities through means other than mobile radio handsets, *e.g.*, through the use of text telephone (TTY) devices.<sup>3</sup> The Commission, in adopting the rule, also recognized certain potential technical difficulties raised in the record. Nonetheless, in light of a consensus agreement among public safety and wireless industry representatives addressing this and other issues in the proceeding, the Commission adopted the requirement to take effect one year after the effective date of the rules and urge all parties to work together to resolve any technical difficulties. Several parties filed petitions for reconsideration of the TTY requirements for digital mobile radio systems because of their claim that digital systems may not be compatible with TTY devices.

3. On December 1, 1997, in adopting the *E911 Reconsideration Order*, the Commission affirmed its decision that licensees providing wireless services would be required to transmit 911 calls made by individuals with speech or hearing disabilities.<sup>4</sup> Recognizing the technical difficulties associated with transmitting TTY calls on *digital* wireless systems, however, the Commission suspended enforcement of this requirement until October 1, 1998, for all TTY/911 calls made on digital systems.<sup>5</sup> In making this decision, the Commission indicated that the additional time would "allow the wireless industry — working with organizations representing individuals with hearing and speech disabilities — to overcome technical barriers and compatibility problems involved in implementing solutions for TTY users on digital wireless systems."<sup>6</sup> The Commission, in its decision, also delegated to the Bureau the authority to grant up to a three-month extension of the October 1, 1998, deadline (*i.e.*, to January 1, 1999).<sup>7</sup>

4. Since September, 1997, the Wireless TTY Forum (Forum) — an organization consisting of wireless carriers and equipment manufacturers, manufacturers of TTY equipment, emergency and relay service providers, and consumer organizations representing individuals who are deaf or hard-of-hearing — has met on seven occasions in an effort to

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<sup>3</sup> Section 20.18(c) of the Commission's Rules, 47 C.F.R. § 20.18(c), *adopted in* Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 18676 (1996) (*E911 First Report and Order*), *recon.*, FCC 97-402, 12 FCC Rcd 22665 (1997) (*E911 Reconsideration Order*), *further recon. pending*.

<sup>4</sup> *E911 Reconsideration Order*, 11 FCC Rcd at 22694-95 (para. 58).

<sup>5</sup> *Id.* at 22695 (para. 59). *See also* Section 20.18(c) of the Commission's Rules, 47 C.F.R. § 20.18(c).

<sup>6</sup> *Id.* at 22695 (para. 59).

<sup>7</sup> *Id.*

develop solutions that will enable TTY users to make 911 calls on digital networks. The Forum, however, has thus far been unable to achieve such solutions. Consequently, CTIA and PCIA, in the September 11 Letter, have requested that the Bureau grant a three-month extension of the deadline. In their letter, CTIA and PCIA note that "CMRS carriers offering digital wireless services will not be able to comply with the FCC's rules governing TTY access to 9-1-1 over digital wireless systems by October 1, 1998."<sup>8</sup>

5. In support of their request, CTIA and PCIA briefly discuss certain conclusions reached by the Forum during the past year, and provide a draft workplan for the Forum's future activities. In particular, the draft workplan identifies actions that are intended to result in the development of "short-term" and "long-term" solutions.<sup>9</sup> Unfortunately, the draft workplan does not provide specific estimates for when such solutions might be implemented.<sup>10</sup> In addition, CTIA and PCIA acknowledge that the workplan has not been reviewed by the various groups participating in the Forum, *i.e.*, consumer organizations, TTY manufacturers, public safety answering point (PSAP) organizations, and wireless equipment manufacturers.<sup>11</sup>

6. The Bureau does not believe that CTIA and PCIA have provided adequate justification for granting the requested extension. While we recognize that the members of the Forum must resolve difficult issues before solutions can be achieved and that efforts have been made by Forum participants in this regard, we also cannot ignore the fact that the Forum has been in existence for a full year, and only in the past month has it been able to develop a draft plan for the testing of digital wireless phones, as a first step in defining the scope of the problems to be solved.

7. The Bureau does not believe that this action by the Forum demonstrates sufficient progress to warrant the granting of the requested three-month extension. Moreover, it is not readily apparent to us what might be expected to be accomplished by the granting of the

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<sup>8</sup> September 11 Letter at 1.

<sup>9</sup> Short-term solutions would achieve "backward" compatibility with existing TTY devices (which transmit information using Baudot-coded audio tones). Long-term solutions would involve the sending of 911 calls over digital wireless networks in the form of data transmissions.

<sup>10</sup> For example, the dates for the completion of short-term solutions are indicated in the draft workplan as "To Be Discussed."

<sup>11</sup> CTIA and PCIA indicate that the "proposed workplan of the wireless telecommunications industry . . . does not necessarily reflect the views of the consumer advocacy groups, TTY manufacturers, or the PSAP organizations." However, it is not entirely clear whether – in referring to the draft workplan as being the "proposed workplan of the wireless industry" and *not* including wireless equipment manufacturers among those groups whose views may not be reflected in the workplan – CTIA and PCIA are indicating that the draft workplan does, in fact, reflect the views of such manufacturers. *See* September 11 Letter at 3.

extension request, in light of the fact that: (1) the only further progress of the Forum before the end of this year is likely to be the completion of equipment testing; (2) CTIA and PCIA have conceded that "there is the likelihood that the equipment necessary to provide TTY access to 9-1-1 over digital wireless systems will not be commercially available until after January 1, 1999;"<sup>12</sup> and (3) the draft workplan gives no indication as to how soon solutions will be implemented.

8. The Bureau understands, however, the complexity of the technical obstacles facing the Forum, as well as the difficulty of developing solutions that are acceptable to multiple carrier, manufacturing, government, and consumer groups. We will therefore grant a limited extension of the deadline — until November 15, 1998 — in order to provide additional time for the deficiencies in the draft workplan to be addressed, and to enable the Forum to complete certain activities currently underway and to demonstrate a degree of progress that would justify a further extension.

9. Specifically, we adopt the following requirements in this Order:

- (1) The current draft plan for the testing of digital wireless equipment must be finalized.
- (2) The draft workplan must be finalized, and approval of the workplan must be obtained from all groups participating in the Forum.<sup>13</sup> We note, in this regard, that it will be necessary for the workplan to address consumer concerns. For example, consumer representatives recently provided to the Forum member groups a list of criteria that the consumer representatives would like to be incorporated into any solutions implemented by the Forum.<sup>14</sup> See Appendix.
- (3) The test plan and the workplan must be submitted to the Bureau by October 30, 1998.

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<sup>12</sup> *Id.* at 3 n.7.

<sup>13</sup> Groups participating in the Forum are identified in paragraph 4, *supra*.

<sup>14</sup> These criteria include, for example, that the character error rate for digital transmissions should approximate that of AMPS, and that TTY callers must be able to visually monitor all aspects of call progress provided to voice users (*e.g.*, ring, busy, answered-in-voice).

Based on our review of these documents, the Bureau will decide whether a further extension of the deadline, to January 1, 1999, is warranted.<sup>15</sup> We also recognize, of course, that, given the admission made by CTIA and PCIA regarding the status of compliance efforts,<sup>16</sup> further action by the Commission will be necessary to determine whether there is any basis to continue the Commission's suspension of its enforcement of Section 20.18(c) beyond January 1, 1999.

10. To help inform our decisionmaking and to advise the Commission, we also need to gather as much information as possible regarding the Forum's past progress and future activities, as well as the work being undertaken by individual wireless equipment manufacturers and carriers. We wish to underscore that we anticipate that information we obtain will play an important role by informing subsequent decisions regarding the advisability of continuing the suspension of the Commission's enforcement of the provisions of Section 20.18(c) of the Commission's Rules. Thus, we request that CTIA, PCIA, and other industry member groups represented in the Forum respond to the questions listed in this paragraph. We request that responses to the questions be submitted to the Bureau by October 30, 1998. In addition, wireless equipment manufacturers and carriers who are not participating in the Forum may also provide related information, so that we will be able to evaluate their efforts to comply with our rules.

- What specific actions are being taken by individual carriers to comply with the notification requirements outlined in the *E911 Reconsideration Order* (i.e., the requirement that carriers "make every reasonable effort to notify current and potential subscribers that they will not be able to use TTYs to call 911 with digital wireless devices and services")?<sup>17</sup>
- Has any carrier been able to meet the October 1, 1998, deadline? If so, what steps has the carrier taken that led to its ability to meet the deadline?
- For each of the digital technologies (i.e., TDMA, CDMA, GSM, and iDEN), have manufacturers been able to determine the root technical causes for the incompatibility between TTY devices and their systems? If so, what is the nature of these root technical causes, for each technology?

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<sup>15</sup> In examining the workplan, we will, for example, decide whether it provides what we would consider reasonable timeframes for the implementation of solutions.

<sup>16</sup> See note 12, *supra*, and accompanying text. See also September 11 Letter at 3 n.7 (CTIA and PCIA "will also seek an additional extension of time from the full Commission.").

<sup>17</sup> *E911 Reconsideration Order*, 11 FCC Rcd at 22695 (para. 60).

- What potential solutions have been submitted to appropriate standard-setting bodies or forums for their review and analysis?
- Are there any segments of the wireless industry that might be crucial to the development of the potential solutions that are not represented in the Forum, *e.g.*, manufacturers of Inter-Working Functions (IWF), who would have to modify IWF software as part of a "data" solution) and is their representation necessary for implementation of such solutions?
- Explain the possible negative consequences of any potential solutions for TTY users, *e.g.*, the reduction in throughput that would result from the insertion of additional bits between transmitted characters.
- For each of the digital technologies, what would be the timetable for implementation of a "data" solution on an equitable basis with voice services offered?
- If an extension were granted in order to reach a long-term solution to the problem of incompatibility between TTY devices and various digital systems, what could each carrier do in the interim to accommodate TTY users on wireless systems?
- At what laboratory location will the upcoming testing of digital wireless phones be conducted? Will carriers ensure that representatives from all Forum member groups participate in the testing?
- Will field tests be conducted, including tests involving actual TTY users, following completion of the laboratory tests?
- Have carriers provided equipment and wireless service to TTY users so that users can conduct their own field tests? If equipment and service have not been provided, what obstacles have prevented carriers from doing so? What are the carriers' plans for providing equipment and service to facilitate future field tests by TTY users?

11. Accordingly, IT IS ORDERED that the request submitted by the Cellular Telecommunications Industry Association and the Personal Communications Industry Association for an extension of the October 1, 1998, deadline to January 1, 1999, for compliance with Section 20.18(c) of the Commission's Rules IS DENIED.

12. It is FURTHER ORDERED that an extension of the suspension of enforcement of Section 20.18(c) of the Commission's Rules in the case of digital wireless systems, from October 1, 1998, to November 15, 1998, IS GRANTED for the purposes described in this Order.

13. This action is taken pursuant to delegated authority under Section 0.331 of the Commission's Rules<sup>18</sup> and paragraph 158 of the *E911 Reconsideration Order*.<sup>19</sup>

FEDERAL COMMUNICATIONS COMMISSION



Daniel B. Phythyon  
Chief, Wireless Telecommunications Bureau

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<sup>18</sup> 47 C.F.R. § 0.331.

<sup>19</sup> 12 FCC Rcd at 22739.

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**APPENDIX**

September 10, 1998

To: TTY Forum

Fr: Consumer Representatives

The CTIA has said that most of the consumer criteria previously submitted were not usable by the TTY Forum because the criteria covered marketing and distribution as well as design. Marketing and distribution issues for a possible "one-phone-model-per-technology" short-term plan will be taken up with CTIA's senior management, as suggested by them.

This contribution is a new set of criteria to address only functional characteristics of the solutions. The new criteria also reflect new information from the Forum since the first list was drawn up. It is intended to cover any solution.

1. The character error rate should approximate that of AMPS, which has been demonstrated at < 1% for stationary calls. More research on AMPS performance with TTY would be useful to assist in specifying a range of conditions.
2. The TTY caller must be able to visually monitor all aspects of call progress provided to voice users. Specifically, the ability to pass through sounds on the line to the TTY (so that the user can monitor ring, busy, answered-in-voice, etc.) should be provided.
3. There must be a visual indication when the call has been disconnected.
4. A volume control should be provided.
5. The TTY user must have a means of tactile (vibrating) ring signal indication.
6. The caller must be able to transmit TTY tones independent of the condition of the receiving modem. (This is to permit baudot signalling by pressing a key, to let a hearing person know that the incoming call is from a TTY.)

7. The *landline* party's TTY must not require retrofitting in order to achieve the desired error rate.
8. The *wireless* party's TTY may require retrofitting, or a new model TTY to be developed, or the use of a portable data terminal such as a personal digital assistant.
9. VCO and HCO should be supported where possible.
10. Reduction of throughput (partial rate) on Baudot is highly undesirable and should not be relied upon to achieve compliance (see #7). It may be useful as a user-selectable option to improve accuracy on a given call.
11. Call information such as ANI and ALI, where provided in wireless voice, should also be provided for TTY calls.
12. The solution need not support little-used or obsolete TTY models, but in general should support the embedded base of TTYs sold over the past ten years. The landline equipment supported must not be limited to that used in Public Service Answering Points (911 centers).
13. Drive conditions must be supported, again using AMPS as a benchmark.