



**Wireless Communications Association International**

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December 17, 2007

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 Twelfth Street, SW  
Washington, DC 20554

Re: *IP-Enabled Services; Implementation of Sections 255 and 251(a)(2) of The Communications Act of 1934, as Enacted by The Telecommunications Act of 1996: Access to Telecommunications Service, Telecommunications Equipment and Customer Premises Equipment by Persons with Disabilities; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities; The Use of N11 Codes and Other Abbreviated Dialing Arrangements.* – WC Docket No. 04-36 *et al.*

Dear Ms. Dortch:

The Wireless Communications Association International, Inc. (“WCA”) hereby submits its reply in connection with the Commission’s October 9, 2007 *Order and Public Notice Seeking Comment* (“*Order and Public Notice*”) in the above-referenced proceeding.<sup>1</sup>

For the reasons set forth in WCA’s prior filings in this proceeding, WCA continues to believe that good cause exists for the Commission to grant WCA’s request that providers of wireless interconnected VoIP service be afforded a one-year extension of the October 5, 2007 deadline by which all providers of interconnected VoIP services were required to comply with the Commission’s Telecommunications Relay Services (“TRS”) requirements.<sup>2</sup> The Voice on the Net Coalition (“VON Coalition”) has supported WCA’s request, noting the unavoidable and, thus far, unresolved technical difficulties wireless interconnected VoIP providers face when attempting to deliver reliable TTY capability over their networks. As the VON Coalition rightly noted:

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<sup>1</sup> See *IP-Enabled Services et al.*, Order and Public Notice Seeking Comment, 22 FCC Rcd 18319, 18325 (CGB, rel. Oct. 9, 2007) [*“Order and Public Notice”*].

<sup>2</sup> See Letter from Andrew Kreig, President, Wireless Communications Ass’n Int’l to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 04-36 *et al.* (filed Oct. 1, 2007) [*“WCA Extension Request”*]; Letter from Andrew Kreig, President, Wireless Communications Ass’n Int’l, to Marlene H. Dortch, Secretary, Federal Communications Commission, WC Docket No. 04-36 *et al.* (filed Dec. 3, 2007) [*“WCA December 3 Letter”*]. Where not repeated herein, the arguments set forth in the WCA Extension Request and in the WCA December 3 Letter are incorporated by reference.

Much of the Internet's traffic involves non-real time applications such as e-mail, web surfing, or file transfer. Such applications generally are not impacted by a momentary hiccup in the flow of data because the application retransmits the dropped packets. However, VoIP utilizes Real-time Transmission Protocol ("RTP") which, as WCA points out, does not have a mechanism to recover lost packets or insert exceptionally late packets. Thus, VoIP services often require a stream of packets which must arrive with almost uniform spacing, very little delay and virtually no loss of the transmitted packets. . . . When utilizing an analog TTY system over a digital VoIP service, a significant amount of dropped packets or jitter can lead to a garbled message and the possibility of a garbled TTY digit.<sup>3</sup>

The VON Coalition also points out that, according to some reports, "well engineered broadband networks can support TTY over VoIP, while networks with more than 0.12 percent packet loss can result in greater than one percent Total Character Error Rate (TCER), which will make the network unusable for TTY devices."<sup>4</sup> While true, this highlights the need for the Commission to recognize the difficulties facing nascent wireless broadband networks in providing TTY service. To put that problem in perspective, it is WCA's understanding that many wired broadband networks experience packet losses far in excess of what may be considered "acceptable" for TTY purposes. In fact, even some of the largest wired carriers do not guarantee service levels that will always accommodate analog TTY.<sup>5</sup> Due to the inherent difficulties of operating in an RF environment, even a well-designed mobile wireless broadband network will experience varying levels of packet loss over time. The amount of packet loss may be marginal (*i.e.*, less than 1%) or quite significant (*i.e.*, greater than 5%), depending on factors such as RF signal strength and interference that, in turn, will constantly change as users move throughout their service areas.

Ultimately, the pertinent issue here is one of feasibility – given the current state of technology, it simply is not commercially viable for a wireless broadband network provider to support a requirement of less than 0.1% packet loss, as such a requirement would more than double the provider's network deployment costs. WCA wishes to reemphasize that it is *not* suggesting that providers of wireless interconnected VoIP services be relieved of their TRS-

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<sup>3</sup> Comments of the Voice on the Net Coalition, WC Docket No. 04-36 *et al.*, at 6 (filed Dec. 3, 2007) ["VON Coalition Comments"]. See also WCA December 3 Comments at 1-2.

<sup>4</sup> VON Coalition Comments at 8 (footnote omitted).

<sup>5</sup> Furthermore, a broadband provider will design and operate its network as necessary to satisfy the quality of service requirements in its service level agreements with its customers. As a matter of industry practice, however, those agreements often only address potential packet losses that may occur during transmissions between the network's major edge nodes. They do not account for packet losses that may occur in the "last mile," *i.e.*, delivery to customer premises or hand-offs to one or more third party networks that may be required to terminate a data transmission. Again, this highlights why it is extremely difficult to ensure that a TTY device will work consistently on *any* broadband network, regardless of the underlying technology involved.

related obligations generally or for an indefinite period of time. Rather, WCA only urges the Commission to recognize the inherent limitations such providers face when attempting to integrate TRS into their networks, and that those providers be afforded a sufficient amount of time to identify and test possible alternative solutions that can be implemented without the imposition of crushing costs on a nascent industry.<sup>6</sup> WCA believes that a one-year extension of the Commission's October 5, 2007 compliance deadline is a reasonable compromise.<sup>7</sup>

Should there be any questions concerning this submission, please contact the undersigned.

Respectfully submitted,

*/s/ Andrew Kreig*

Andrew Kreig  
President

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<sup>6</sup> See, e.g., VON Coalition Comments at 9 (discussing Department of Education text over IP (ToIP) solution that is “being designed as a replacement for TTY/TDDs when using IP-based networks”) (footnote omitted).

<sup>7</sup> See WCA December 3 Comments at 2 (“Until [the technical] issues are resolved, wireless interconnected VoIP service providers should be encouraged to offer hearing and speech-disabled consumers the type of relay solution, e.g., IP-Relay, that would best ensure that communications from or to the hearing or speech-impaired individual is transmitted or received in an intelligible format.”).