

July 16, 2001

Via Hand Delivery and Electronic Transmission

Ms. Magalie Roman Salas  
Secretary  
Federal Communications Commission  
445 – 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Re: TTY Status Report, CC Docket No. 94-102

Dear Ms. Salas:

Verizon Wireless hereby submits its quarterly status report of TTY-digital deployment as required by the Commission's *Fourth Report and Order* in the above referenced proceeding. In accordance with paragraph 18 of the *Fourth Report and Order*, an original and four copies of this report are enclosed for your office's records with additional copies for Kris Monteith, Chief of the Policy Division, Wireless Telecommunications Bureau, and Pam Gregory, Chief of the Disabilities Rights Office, Consumer Information Bureau. Additionally, this report was: provided on diskette to ITS, filed electronically through the Commission's Electronic Comment Filing System ("ECFS"), and electronically mailed to [mlittlell@fcc.gov](mailto:mlittlell@fcc.gov) as directed by the *Fourth Report and Order*. Should you need additional information, please contact the undersigned.

Sincerely,

John T. Scott, III

cc: Kris Monteith  
Pam Gregory

**TTY REPORT**  
**VERIZON WIRELESS**  
**July 16, 2001**

**I. INTRODUCTION**

Verizon Wireless (“VZW”) remains in contact with switch and handset vendors to ensure development, testing and commercial availability of a TTY solution in order to comply with the Commission’s rule.

**II. SWITCH VENDORS**

Verizon Wireless has three switch vendors whose products are used within our network. Each vendor’s switch platform requires different software and hardware modifications for TTY compliance.

**A. Lucent Technologies** – Lucent developed a solution for CDMA technology that is the basis of VZW’s compliance effort. Of two vocoder standards, VZW selected IS-127-2 as the appropriate standard for our infrastructure. The standard, as originally developed, was balloted and approved. However, as shortcomings were discovered in both vocoder standards, Lucent developed solutions or “fixes” to improve them. At the time of the April report, the improved standard, IS-127-3 was in the Validation and Verification stage, and the next step was submission for ballot. Since then, Verizon Wireless has learned that the newly revised standard will be published later this year.

**1) Infrastructure Status**

Currently, the Lucent systems within VZW markets require the same vocoder upgrade as do handsets. In order to accomplish this, the Lucent systems within VZW’s network must undergo both software and hardware upgrades. The software required for compliance is software release 16. The hardware required for compliance is the PHV 4 card that contains the vocoders for the network. The existing PHV cards in the network that are not compatible are currently being replaced in nine states, the remainder have already been changed.

**2) Testing**

- *Lucent Lab Testing*

At the time of the April report, Lucent indicated that development work on the feature set (which resides in software Release 16) to provide the TTY application was complete and that initial lab testing with prototype mobiles using the latest Qualcomm software updates was underway. Another round of testing, using field grade mobiles to further test software release 16, that was planned for completion in May occurred.

- *First Office Application (“FOA”) Testing*

FOA testing was delayed by the changes to the standard. FOA testing is now scheduled for the end of August.

- *Consumer/PSAP Testing*

With respect to testing with PSAPs, Lucent indicates that it can incorporate this type of testing as joint FOA test plans are being developed. VZW plans to arrange field tests and end to end tests with user groups from Galludet University and a PSAP upon the completion of FOA testing.

**B. Motorola** – TTY support on the Motorola CDMA network is implemented via feature 4454 and supported on CBSC software load 2.15.0.39.10.

1) Infrastructure Status

The only hardware requirement to support TTY is that the Motorola transcoder (HXCDR) board (SGLN4971xx) be in place because previous versions of the boards cannot support the modified vocoder. Motorola's software load became commercially available at the end of May. The Motorola transcoder boards are now in service within Verizon Wireless's network and are ready for testing.

2) Testing

- *Motorola Lab Testing*

Infrastructure lab testing is complete including interoperability testing with both Qualcomm and Motorola handsets. Motorola reports that its lab tests included all permutations of calls and all were successful.

- *FOA Testing*

Motorola has completed an FOA of its software, but has not conducted an FOA which tests the feature with a handset or from end-to-end. An FOA for testing the TTY feature with the Motorola infrastructure and compatible mobiles is in the process of being scheduled.

- *Consumer/PSAP Testing*

Motorola is willing to work with VZW to conduct testing with PSAPs, possibly as a controlled introduction deployment in a selected city.

**C. Nortel** – Nortel's solution will require software upgrades to the switch and to base stations. Nortel will deploy the enabling software for the switches as part of the MTX10 software load only; MTX10 is scheduled for General Availability 4Q2001. Verizon Wireless has received additional assurances that the software will be available in advance

of the December 31, 2001 deadline. The baseline requirement for the base stations is NBSS 10.1 or higher. Nortel will be unable to support the newly evolved IS-127-3 standard in this year's base station software release, but will support the new standard in next year's release. According to Nortel, Verizon Wireless will be able to deploy their TTY solution, based on the current IS-127-2 standard, to meet the FCC deadline for implementation.

1) Infrastructure Status

The infrastructure software is scheduled to be available in advance of the December 31, 2001 deadline and will be scheduled for deployment on specific VZW switches on a market-by-market basis.

2) Testing

- *Nortel Lab Testing*

For the April report, Nortel indicated that its development and product test to current standards was complete. Nortel completed testing using Qualcomm prototypes, which have shown positive results. Nortel does not anticipate performance issues with any other vendor's handsets once they become available. However availability of handsets has been delayed by revisions to the TTY standards. Nortel supports locking down the standards and any improvements for all vendors to design to a common standard and common code set.

- *FOA Testing/Consumer & PSAP Testing*

Regarding end-to-end consumer tests, Nortel and VZW discussed interoperability testing with the Nortel solution during initiation of the verification process with VZW in late June. VZW has scheduled an FOA for 1Q2002. Nortel has indicated its willingness to work with VZW to identify PSAPs for testing and recommends that such testing take place during the verification process.

### III. CHIPSET AND HANDSET VENDORS

**A. Qualcomm** – Qualcomm makes the chipsets used in various handsets designed for Verizon Wireless. As a practical matter, the availability of handsets from several handset vendors will depend in large part on the availability of the Qualcomm chipsets. The core phone vendors for VZW are Audiovox, Kyocera, LG Information & Communications ("LGIC"), and Motorola. All except for Motorola utilize the Qualcomm chipsets. Verizon Wireless has learned that all handset vendors relying on a Qualcomm chipset have received the software code that enables digital TTY functionality and are implementing this feature.

**B. Motorola** – expects to have the TTY solution in their product line in 2002.