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OFFICE OF THE SECRETARY

verizon wireless

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April 16, 2001

Via Hand Delivery and Electronic Transmission

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 - 12th 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 mlittell@fcc.gov as directed by the *Fourth Report and Order*. Should you need additional information, please contact the undersigned.

Sincerely,

John T. Scott, III

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cc: Kris Monteith
Pam Gregory

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

I. INTRODUCTION

On March 5, 2001 and March 7, 2001, Verizon Wireless (“VZW”) sent letters to our switch and handset vendors requesting information by March 23, 2001. Verizon Wireless is dependent upon vendors to develop, test and make available to it a TTY solution in order to comply with the Commission’s rule. The responses to our requests are summarized below to indicate the progress of VZW’s three switch vendors and core handset vendors. VZW will continue to monitor vendors’ progress in order to ensure our ability to comply with the FCC’s deadlines.

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. Currently, the improved IS-127-2 standard is in the Validation and Verification stage, and the next step is submission for ballot.

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.

2) Testing

- *Lucent Lab Testing*

Lucent indicates that development work on the feature set (which resides in software Release 16) to provide the TTY application is complete and that initial lab testing with prototype mobiles using the latest Qualcomm software updates is underway. Those tests have not revealed any significant impairment. In fact, the mobiles equipped

with the latest version of Qualcomm software corrected an earlier problem of dropped characters. Another round of testing, using field grade mobiles to further test software release 16, is planned for completion in May. Availability of field grade mobiles could possibly accommodate TTY feature testing with software release 17.

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

Given Lucent contracts with mobile vendors, FOA testing could begin in May or June.

- *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 has advised that the software load referenced above will be commercially available by May 31, 2001.

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*

No update provided.

- *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. The baseline requirement for the base stations is NBSS 10.1 or higher. That software will be available during the same timeframe. The requirement for the Nortel's CDMA TTY solution does not require any new hardware besides what is currently available (*i.e.*, ESEL cards-13K, EVRC and SEL cards-13K). The network provisioning must be done the same way as for voice subscribers.

1) Infrastructure Status

Software is scheduled to be available 4Q2001 and will be scheduled for deployment on specific VZW switches on a market-by-market basis.

2) Testing

- *Nortel Lab Testing*

Nortel's development and product test to current standards is complete. Nortel has tested with Qualcomm prototypes, as they were the only handsets available during Nortel's testing window. However, Nortel states that even though the infrastructure software is scheduled well in advance of the December 31, 2001 deadline, commercial handset general availability dates have not been scheduled by handset vendors. Nortel attributes this fact to the frequent changes to 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 will be discussing interoperability testing with the Nortel solution during initiation of the verification process with VZW (approx. May/June 2001). Similarly, Nortel is willing 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. The vendors are aware of the need for TTY compliance, are closely monitoring the issue, and most are relying on Qualcomm to provide the solution.

Qualcomm's chipset software was released before the TTY standards were finalized; thus, the software implemented the standards as they then existed. With subsequent updates to TTY standards, Qualcomm is addressing those changes. For its MSM3100 software, Qualcomm will release a software patch in May. For its MSM5105 software, Qualcomm plans to release updated software in April. The company is in the process of planning similar updates to MSM3300 and MSM5100 to accommodate the updates to the TTY standards.

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

C. Kyocera – is in the process of developing the TTY feature. Kyocera plans to have completed development in time for the TTY feature to be available on commercial handset offerings in the first half of 2002. Apart from the commercial product development for new phones, Kyocera plans to develop TTY feature support in an existing, approved, handset platform that can be used for testing.

With respect to standards, Kyocera is tracking the development of the latest software changes being implemented by Qualcomm to support Lucent's changes to the two TTY infrastructure standards (IS-733-1 and IS-127-2) for CDMA. Kyocera is coordinating with switch vendors regarding their schedules and plans for TTY feature completion. In this manner, Kyocera intends to have its TTY feature developed to the extent necessary for testing with VZW's network. Kyocera anticipates that this will occur in the 4Q2001 timeframe. In support of the planned testing, Kyocera has procured TTY devices manufactured by Ultratec and Ameriphone.

D. Samsung – has a product that is nearly complete and will be TTY compatible. They have been performing testing at Lucent Interoperability Lab. The product has one issue that needs to be resolved by the Qualcomm chipset vendor. They are waiting for Qualcomm to respond to the issue.

E. Audiovox – To date, VZW has not received the requested responses to its March 5th letter of inquiry.

F. LGIC – To date, VZW has not received the requested responses to its March 5th letter of inquiry.

IV. OTHER ACTIVITIES

- Balloting and approval of the standards for the equipment that connects the TTY device to the handset and for the headset plug have been submitted for balloting.