Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	
To Ensure Compatibility with	)	CC Docket No. 94-102
Enhanced 911 Emergency Calling Systems	)	
	)	
AT&T Wireless Services, Inc.	)	
Petition for Limited Waiver of	)	
Section 20.18(c) of the Commission's Rules	)	

AT&T Wireless Services, Inc.
Petition for Limited Waiver

Pursuant to Section 1.3 of the Commission's Rules,[1] AT&T Wireless Services, Inc. ("AWS"), requests a limited waiver of the June 30, 2002 deadline for digital wireless systems to be capable of transmitting 911 calls from text telephone ("TTY") devices.[2] During the final field testing prior to full deployment, AWS experienced multiple, persistent fatal errors in one of its vendor's software releases containing the TTY solution.[3] This complication affects only a portion of the AWS GSM network; it does not affect TTY compatibility on the AWS TDMA network, which currently hosts the vast

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1 47 C.F.R. § 1.3.

2 Section 20.18(c) of the Commission's rules provides as follows:

> *TTY Access to 911 Services.* Licensees . . . 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 Devices (TTY).

A Note to this section, also codified in the C.F.R., indicates that operators of digital wireless systems must comply with this requirement on or before June 30, 2002. 47 C.F.R. § 20.18(c).

3 The TTY compatibility program has performed consistently throughout the testing. The errors exist within other functionalities in the software.

majority of AWS' subscribers. Thus, any customer seeking TTY compatibility will be able to receive nationwide service on AWS' comparably priced TDMA network.

In order to allow the GSM vendor to repair the fatal errors in the software release, AWS requests an extension for compliance with Section 20.18(c) in the affected GSM markets for three months beyond the date on which the vendor delivers a fully functional product for deployment. At the time of this filing, the vendor has represented it will deliver partially corrected software to AWS for lab testing on June 10, 2002. Should AWS and the vendor achieve this milestone, and should the corrected software then pass a series of critical lab and field tests, AWS anticipates that it could deploy the TTY solution in all of its operational GSM markets using the vendor's equipment by September 30, 2002. In order to assist the Commission, AWS provides below a detailed discussion of the milestones that must be met by AWS and the vendor in order to achieve a September 30 compliance date for this portion of the AWS network.

I. Introduction and Background

AWS has been in the unusual position of being required to make two networks compliant with the FCC's rules. The 2G Time Division Multiple Access ("TDMA") network has been in operation since 1996 and is the network servicing the overwhelming majority of AWS' approximately 20 million customers. In addition, AWS is now deploying a Global System for Mobile Communications ("GSM")/General Packet Radio Service ("GPRS") network as its platform for next generation services.

TDMA Compliance with TTY Compatibility

AWS has worked aggressively with its vendors and participated in the TTY Forum in an effort to find a technical solution to digital TTY compatibility. This effort

has clearly paid off. At the most recent TTY Forum, held earlier this week, AWS announced that deployment of TTY functionality throughout its TDMA network is nearing completion.[4] All of AWS' Lucent TDMA markets were fully enabled during the first quarter of this year. Likewise, all but two of AWS' Nortel markets have been fully enabled, with the remaining markets scheduled to receive the necessary upgrades within the next week. AWS' third TDMA infrastructure vendor, Ericsson, is approximately 70% deployed and expects to complete deployment within two weeks.

Accordingly, AWS anticipates that by June 30 it will offer TTY compatibility nationwide through its TDMA network. The company has already begun to offer TTY-compatible TDMA handsets at a range of price points and will be introducing additional models throughout the summer.

Progress With the Partially Deployed GSM Network

As indicated above, AWS' GSM network is partially deployed, with active markets dependant upon access infrastructure supplied by either Ericsson or Nokia. Ericsson's GSM TTY solution became Generally Available ("GA") in April 2002. AWS is now deploying the upgrades and foresees no impediment to meeting the June 30 deadline in its Ericsson GSM markets.[5]

GSM Markets Dependant Upon Nokia

Throughout the spring, Nokia appeared on target to meet its promised delivery dates for the GSM TTY solution.[6] The software release containing the solution --

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4 TTY Forum #22, Washington D.C., June 4, 2002.

5 Ericsson's GSM network is operational in the following major cities: Cleveland, Columbus, Dallas, Kansas City, and Indianapolis. Fresno, Reno and Sacramento will be operational, and TTY compatible, next week.

6 Provision of a TTY solution is a term of the 2.5 G contract signed by the companies on December 31, 2000. As indicated in its reports to the TTY Forum, Nokia continued to work on a solution

referred to as the "S10" release[7] -- successfully completed testing in the AWS lab during the latter half of March and entered field verification ("First Office Application," or "FOA") in Portland, Oregon, on April 10. Nokia anticipated that the FOA would conclude and the software would become GA by May 20, allowing for full deployment in Nokia's then-operational markets by June 30.[8]

Critically, the TTY compatibility portion of S10 has performed successfully at each stage of testing, including the FOA. Additional components of the S10 software release support E911 Enhanced Observed Time Difference ("E-OTD"), Enhanced Data for GSM Evolution ("EDGE"), and GPRS capabilities. Beginning on April 24 the FOA experienced a series of systematic fatal errors. By May 15, eight errors had been identified. Some of the bugs damaged network capacity or performance, directly impacting basic voice and data services for customers. Others created complete network failures.[9] In early May, when only a few problems had been identified, it still appeared possible to complete the FOA with sufficient time for deployment. It is not uncommon for a new bug to survive lab testing and reveal itself at a FOA, and vendors are

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throughout 2001. Nokia's most recent report, covering Q1, 2002, simply indicates "[l]ab testing continues with the major infrastructure with the [sic] excellent results." TTY Forum, *Meeting Summary Report*, CC Docket 94-102, at 82 (filed April 1, 2002).

7 Releases are commonly made in large batches because of the substantial amount of time and labor involved. The S10 is a major deployment, requiring a technician to load software and replace the physical memory cards at each base station controller ("BSC") throughout the network. The S10 release includes PU1E-1 and CX3L programs, with functionality for AWS' E-OTD (E911 Phase II), GPRS and EDGE capabilities.

8 Nokia's GSM network is expected to be operational in the following areas by June 30: Seattle, Spokane, Portland, Las Vegas, Phoenix, Detroit, Chicago, Miami/Ft. Lauderdale, Polk City, West Palm Beach, Grand Rapids/Lansing, St. Louis, San Diego, Bakersfield, Buffalo, Ft. Myers, Pensacola, Boise, and Albuquerque/El Paso.

9 Nokia classifies a problem identified at FOA according to the severity of its affect on the network: fatal, major, minor, or none. Fatal errors can disrupt the entire network. Major errors have a substantial effect upon customers, such as preventing call completion or terminating calls. Of the problems identified between April 24 and May 15, five were classified as fatal and one was classified as major. An additional major error was discovered over the weekend of June 1-2.

accustomed to immediately deploying resources to correct the error within 24-48 hours. During the second week of May, however, with three new problems identified on May 11 alone, and the earlier issues not yet resolved, AWS became concerned that the severity of the problems could put the June 30 compliance deadline in jeopardy and sought assurances from Nokia regarding delivery dates.[10] On May 30, AWS representatives discussed the FOA issues with Commission staff and outlined its plans to ensure that the remaining GSM markets were made TTY compatible as quickly as possible.

During the weekend of June 1-2, Nokia discovered an additional problem in the companion software for the base station transceiver. As of the time of this filing, the original eight bugs have been resolved and the fixes are being verified in Nokia's lab. This additional problem affecting base station operations is undergoing a root cause analysis.

AWS does not feel that it can deploy software with appreciable customer and network-impacting errors. Accordingly, AWS seeks a limited waiver to allow Nokia to complete its repairs to the S10 software release. Although AWS hopes that the necessary repair work can be completed within two weeks and the FOA resumed immediately thereafter, it is impossible to accurately establish GA until the root cause of the remaining issue is identified, new code is developed, and the repair passes lab and field tests. Once software has been made available for deployment, however, AWS is confident that it will be able to fully deploy the software, with the TTY capability, within 8 weeks.[11]

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[10] Among other contacts, on May 17 AWS Chairman John Zeglis communicated to Nokia Chairman Jorma Olilla his concern that Nokia's performance and continuing delay could prevent AWS from satisfying its regulatory obligations in a timely manner.

[11] New GSM markets are being deployed on almost a daily basis. Accordingly, deployment of TTY capability once the software is GA will cover significantly more markets than it would have had the software been delivered in time for a June 30 compliance date.

As an alternative measure, AWS did explore the option of temporarily halting all work on the S10 release, removing the TTY functionality, and developing a "TTY patch" to the previous software release, S9. This approach entails a number of technology and timing risks and was rejected for those reasons. The AWS lab – essentially a microcosm of the network used for testing – recently was upgraded from Nortel's GSM 13 to GSM 15 core network software load. Creation of an S9 patch for TTY compatibility would require AWS to turn back the clock by tearing out GSM 15 and reinstalling GSM 13 because the S9 release was tested and deployed against GSM 13 software without TTY functionality.[12] In essence, testing an S9 patch against GSM 15 in the lab, even if successful, would provide no assurance that the patch would interoperate with GSM 13 in the field.

Reversion to GSM 13 and S9 in the lab would have severe negative consequences: it would divert critical resources from the S10 program, which must be completed in order to provide the E911 Phase II capability required by FCC mandate.[13] In addition to the conversion and subsequent lab tests, a new FOA market would have to be identified and prepared because the existing FOA is, of course, prepared for S10. This diversion would introduce a series of significant contingencies and time delays, including vulnerabilities for E911 Phase II. When the risks inherent in this strategy were weighed against the clearer path offered by the S10 program, AWS concluded that these risks to

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[12] Although GSM 15, when deployed in the field, will be backward compatible with the functionalities of GSM 13, the beta version of GSM 15 installed in the lab does not incorporate a number of patches made to GSM 13 that affect its interoperability. Without those modifications GSM 15 could not interoperate with the S9 release or an S9 patch.

[13] The same employees working on the S10 program would be those reassigned to work on an S9 patch. Upon completion of a patch, those employees would return to square one to resolve the pending issues with the S10 release. AWS estimates that this would introduce an incremental eight-week period of jeopardy to the E911 Phase II program.

the network and E911 Phase II availability could not be justified by the uncertain possibility of speeding the availability of a TTY solution to the few affected GSM markets by only a matter of weeks.[14]

Bringing Nokia's GSM Markets into Compliance

AWS is committed to conducting the most aggressive TTY compatibility deployment possible in its remaining GSM markets, consistent with the best interests and safety of its customers who will use the TTY and E911 Phase II capabilities. Because a customer- and network-impacting error remains in the S10 companion software, and because the root cause of the error has not yet been isolated, AWS cannot today guarantee a date certain for completion of its GSM TTY deployment in Nokia markets. However, based upon Nokia's daily technical reports, if Nokia is able to meet a series of interim testing and production milestones, AWS believes it will be possible to bring its Nokia GSM markets into compliance with Section 20.18(c) by September 30, 2002. This schedule presumes the interim steps listed in the table represented below. If, in testing, the patch for the remaining problem has fatal consequences, or if additional bugs are uncovered during the resumed FOA, each subsequent stage in the program would be delayed, putting the September 30 date in jeopardy.

[14] Nor would pursuit of an S9 patch obviate the need for a waiver because reversion of the lab, lab testing and the FOA for a patch alone would surpass the June 30 compliance date.

Step	Date	Duration[15]
Nokia delivers partially corrected S10 release to AWS	June 10	
AWS loads, tests and verifies S10 functionality in AWS lab	June 10-16	1 week (abbreviated from usual 2-3 week testing period)
Nokia identifies root cause of remaining problem; develops patch and delivers to AWS	No later than June 17	
FOA preparation in Portland, OR	June 17-23	1 week
Start and complete FOA. Test and validate software corrections and re-test TTY functionality.	June 24 to August 4	6 weeks
General Availability (GA) and deployment in Nokia markets, including hardware and software upgrades.	August 5 to September 30	8 weeks

II. Legal Standard for Grant of a Waiver

When the public interest requires, the Commission has authority to temporarily waive application of a regulation, such as Section 20.18(c). Section 1.3 provides that the Commission may suspend or waive its rules, in whole or in part, for "good cause shown." In turn, the courts have found that waiver is appropriate "if special circumstances warrant a deviation from the general rule and such deviation will serve the public interest."[16]

[15] This schedule is typical for a program with the magnitude and dependencies of the S10 program. AWS has significantly curtailed its time for lab testing and will continue to expedite each phase wherever possible.

[16] *Northeast Cellular Tele. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

Importantly, the Commission has consistently concluded that waiver of a regulatory deadline is appropriate when noncompliance "is due to circumstances beyond the licensee's control."[17] In the context of other Section 20.18 regulations governing deployment of 911 location identification capabilities, the Commission has specifically recognized that "technology-related issues" delaying implementation could warrant grant of a waiver to allow for their resolution.[18]

III. AWS Has Satisfied the Standard and Grant of the Requested Waiver Is In the Public Interest

A limited waiver extending the time for compliance in AWS' Nokia GSM markets is warranted and would best serve the public interest. Despite diligent participation in the TTY Forum and careful management of its vendors, AWS has not had independent control over the development and deployment of a TTY compatible solution. At the end of the day, AWS, like any service provider, is dependent upon its vendors to supply the innovations necessary to meet the needs of its customers.

When the Commission adopted the June 30, 2002 deadline, it acknowledged that the standards setting and software development process was not yet complete.[19]

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[17] *E.g.*,Order, *McElroy Electronics Corp.; Request for Clarification of Commission Rules Regarding Section 22.911(a) in Relation to Construction of Cellular System for Market No. 15-A2*, 13 FCC Rcd. 7291, 7295, ¶ 8 (WTB 1998).

[18] *See* Fourth Memorandum Opinion and Order, *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems,* FCC 00-326, 15 FCC Rcd. 17442, 17459, ¶ 43 (2000) ("In the case of E911, we have recognized that there could be instances where technology-related issues or exceptional circumstances may mean that deployment of Phase II may not be possible by October 1, 2001, and indicated that these cases could be dealt with through individual waivers as these implementation issues are more precisely identified.").

[19] Indeed, throughout the history of this proceeding, the Commission has recognized the challenge of passing Baudot tones over digital systems. See Memorandum Opinion and Order, *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems,* FCC 97-402, 12 FCC Rcd. 22665, 22693-94, ¶¶ 55-57 (1997) (providing additional time to implement TTY over digital systems). When the Commission originally imposed the requirement, it acknowledged that no technical solution existed. Fourth Report and Order, *Revision of the Commission's Rules to*

Nonetheless, the Commission found that "[t]he record indicates that network infrastructure manufacturers should have software generally available to all carriers by December 31, 2001."[20] As an example, the Commission specifically observed that Nokia "expects GSM equipment to be available sometime in 2001, depending on when the GSM standard is finalized."[21] Had that expectation come to pass, AWS would not be before the Commission seeking this waiver. As the Commission has recognized in other contexts, modification of compliance deadlines is appropriate when necessary equipment is not available.[22] Based on this precedent and the Commission's analysis in the *Fourth Report and Order,* Nokia's present inability to produce essential software presents the "special circumstances" that justify the grant of a waiver.

Grant of the waiver is also in the public interest because it best serves public safety. By granting the waiver, the Commission will allow AWS and Nokia to proceed with the quickest and surest path to TTY compatibility in the Nokia GSM markets. In addition, it will indirectly promote the timeliest deployment of AWS' E911 Phase II enhancements. As discussed above, the S10 release contains programming supporting the E-OTD capability. A limited waiver to allow remediation of the release will ensure

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Ensure Compatibility with Enhanced 911 Emergency Calling Systems, FCC 00-436, 15 FCC Rcd. 25216, 25218 at ¶ 7 ("*Fourth Report and Order*") ("Because the technology did not exist to enable TTY signals to be transmitted over digital wireless systems at the time the rule was originally implemented, the Commission has suspended and waived the compliance obligation for these systems . . . ."). *See also* Report and Order and Further Notice of Proposed Rulemaking, *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems,* FCC 96-264, 11 FCC Rcd. 18676, 18701-02, ¶ 51 (1996).

20 *Fourth Report and Order* at ¶ 8.

21 *Id.* at ¶8, n.16.

22 *See, e.g.,* First Report and Order, *Implementation of Section 17 of the Cable Television Consumers Protection and Competition Act of 1992; Compatibility Between Cable Systems and Consumer Electronics Equipment*, FCC 94-80, 9 FCC Rcd. 1981, ¶¶ 76-77 (1994) (modifying proposed compliance deadline to account for unavailability of necessary equipment).

that the E-OTD capability is fully protected while minimizing the delay of its deployment as well.

IV. Scope of the Waiver Requested

The requested waiver is limited in scope and duration. As detailed above, should Nokia's current timetable hold, AWS would be able to come into compliance in Nokia's GSM markets by September 30, 2002.[23] During this brief period, AWS will offer TTY compatibility to all of its customers nationwide on its TDMA network, as well as in its Ericsson GSM markets. Because AWS has not marketed TTY compatible GSM handsets to date, there are no existing AWS GSM customers who could be adversely affected by this brief delay. Furthermore, to minimize any impact, AWS is in the process of educating its sales force about the delay and the affected markets. New subscribers seeking immediate, nationwide TTY compatibility during this period will be encouraged to subscribe to the TDMA network. In addition, during the period of the waiver, sale of TTY compatible GSM handsets will be tightly controlled through AWS' Accessibility Specialist. She will ensure that complete information on the status and anticipated delivery of TTY compatibility in each GSM market is provided to each potential customer.

[23] AWS receives daily written status reports from Nokia on resolution of the S10 issues. AWS will immediately inform the Commission if anything should occur to affect delivery or deployment of S10 within the time frame indicated.

V. Conclusion

For the reasons set forth above, AWS' Petition for Limited Waiver covering its Nokia-based GSM markets should be granted.

Respectfully submitted,

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