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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

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

THIRD REPORT AND ORDER

Adopted: September 15, 1999

Released: October 6, 1999

By the Commission: Commissioner Tristani issuing a statement.

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I. INTRODUCTION

1. In this Order, the Commission takes another significant step towards enabling wireless callers to obtain emergency assistance more rapidly and efficiently by dialing 911. Wireless phones can be a vital, life-saving way to call for assistance in emergency situations. Indeed, the ability to reach 911 in an emergency is one of the most important reasons Americans give for purchasing wireless phones.¹ But, unlike most wireline phones, which are connected to Enhanced 911 (E911) service that automatically reports the caller's location, when a 911 call is placed using a wireless handset, the dispatcher at the 911 Public Safety Answering Point (PSAP) does not know where the caller is.

2. The life-saving advantage of being able to know accurately and quickly the location of an emergency is obvious. Emergency police, fire, and medical teams cannot assist a person they cannot find. Less obviously, automatic location identification (ALI) also allows PSAPs and emergency response teams to operate more efficiently. Wireless calls may be received by the carrier at an antenna some distance away from where the call is actually placed, because of the vagaries of radio transmission, terrain, or network congestion. ALI can be applied to route these calls immediately to the proper PSAP, normally that nearest the scene. ALI also allows PSAPs to handle wireless calls more quickly and efficiently, because the dispatcher need not question the caller about his or her location. Finally, ALI can help PSAPs deal with sudden bursts of calls, which often occur after incidents such as highway accidents. Knowing the location of the incoming calls, the PSAP can better distinguish redundant calls about a particular accident from calls concerning a different emergency.

3. Wireless subscribership continues to grow rapidly. From year end 1996 to year end 1998, the number of wireless subscribers grew from 44 million to 67 million, an increase

¹ Polk Public Opinion Strategies, National Survey, July 31-August 4, 1997 (last viewed Sept. 20, 1999) <<http://www.wow-com.com/consumer/highway/reference/e911poll.cfm>>.

of 52 percent. During that same period, wireless 911 calls grew even more rapidly, from 1.805 million per year (59,180 per day) in 1996 to 2.943 million (98,097 per day) in 1998, an increase of 63 percent.² The growing use of wireless phones to make 911 calls clearly represents an important advance in public safety. However, the growing number of wireless 911 calls exacerbates the limitations of wireless 911 service, in particular the continuing inability to automatically locate those calls. While most PSAP operators immediately know the location of wireline callers, because wireline E911 has been widely deployed, PSAPs do not know the location of wireless callers, except in a very general way in those PSAPs where Phase I (providing cell site or cell sector information) has been deployed. As a result, PSAP dispatchers must question all wireless callers to try to determine their location before any help can be sent. This process can delay significantly the arrival of help, especially if the call must be transferred to another PSAP that actually serves the location or if the caller does not know his or her location.

4. These 911 call location difficulties represent a significant public safety problem. Nearly 70 percent of auto accident fatalities occur within two hours after a crash and, according to a conservative estimate, 1,200 lives are lost each year because of delay in discovering accidents.³ Addressing this problem is especially important for rural areas. According to National Highway Traffic Safety Administration data, for example, emergency communications are most valuable, and improvements are most needed, in rural areas. In 1996, motor vehicle crashes in rural areas accounted for 59 percent of total motor vehicle fatalities that year, 25,000. The fatality rate is also twice as high on rural interstate highways as on urban ones per miles driven, and rural crashes are more severe, more likely to involve both multiple fatalities and severe vehicle damage.⁴ Overall, a person is as much as three times as likely to suffer a fatality in a rural crash.⁵

² CTIA, Cellular Carriers Association of California, California Highway Patrol, New York State Police, and others, Wireless 911 and Distress Calls (last viewed Sept. 20, 1999) <<http://www.wow-com.com/statsurv/e911>>.

³ American College of Emergency Physicians' Scientific Assembly, Cell Phones a Threat to 911 (Oct. 16, 1997) <<http://www.erwatch.com/cell.html>>.

⁴ National Highway Traffic Safety Administration (NHTSA), Traffic Safety Facts 1996, Rural Areas (last viewed Sept. 21, 1999) <<http://www.nhtsa.dot.gov/people/nca/FactPrev/Rural/96.html>>. According to the Department of Transportation Fatal Accident Reporting System (FARS), the average Emergency Medical Service (EMS) crash notification time is almost twice as long in rural areas (8.95 minutes) as in urban areas (4.85 minutes). In addition, the average response time for rural areas, 11.47 minutes, is also almost twice that of urban areas (based on 1992 data).

⁵ NHTSA, Research Note, Rural and Urban Crashes - A Comparative Analysis, Aug. 1996, at 2. <<http://www.nhtsa.dot.gov/people/nca/reports.html#1996>>.

5. To improve public safety and extend ALI to wireless callers, the Commission has established a schedule, subject to certain conditions, for deployment of E911 features by wireless carriers. In Phase I, which began on April 1, 1998, PSAPs were to receive a rough estimate of a caller's location and a dialable call-back number. In Phase II, scheduled for October 1, 2001, or six months after the service is requested, whichever is later, PSAPs are to receive a much more precise location identification, within 125 meters or about 410 feet of the caller's location.⁶

6. When the Commission adopted its Phase II rules in 1996, it was believed that location information could only be effectively provided by technologies based in or overlaid on carrier networks, using approaches such as triangulation of the handset's signal. Since that time, advancements in location technologies that employ new or upgraded handsets have demonstrated important progress. Competition in the development of network and handset-based technologies has yielded significant results. While it does not appear that any single network-based or handset-based location technology is perfect in all situations or for all wireless transmission technologies, both network and handset-based solutions may provide location information by 2001 that meets or exceeds our accuracy requirements.⁷ Each type of solution has its advantages and limitations. Each may also be improved or combined with other technologies in the future to support further improvements in 911 service and public safety.

7. The Commission's current rules, however, as a practical matter only permit network-based solutions to meet our Phase II requirements, because they require that ALI be provided for all 911 calls in a requesting PSAP's area as of a fixed date. It is not, we believe, economically or logistically feasible to expect or require that all current handsets be upgraded or replaced to meet that date. Rather, some form of phase-in of new or upgraded handsets is necessary if handset-based solutions are to be a viable competitor for initial deployment under Phase II. The statistical method the Commission adopted to measure location accuracy and reliability, Root Mean Square (RMS), also appears to be unworkable in some respects for both network-based and handset-based solutions.

8. In order to address these issues, we revise our rules in this Order to permit handset-based solutions, or hybrid solutions that require changes both to handsets and wireless networks, to compete in a reasonable way with network-based solutions in providing Phase II ALI. While we believe that the public safety is advanced by the actions we take today, we recognize that these rule revisions involve several trade-offs. Allowing a phase-in for handsets potentially can delay the full availability of Phase II location information for callers

⁶ 47 C.F.R. § 20.18(d).

⁷ *Id.*

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