

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matter of)
Revision of the Commission's Rules)
To Ensure Compatibility with)
Enhanced 911 Emergency Calling Systems)
911 Call Processing Modes)

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

REQUEST OF MOTOROLA, INC. FOR
APPROVAL OF A MODIFIED 911 CALL PROCESSING MODE

Pursuant to Section 22.921 of the Commission's rules' and the delegated authority granted to the Wireless Telecommunications Bureau ("Wireless Bureau" or "Bureau") by the Commission,² Motorola, Inc. ("Motorola") respectfully requests the Wireless Bureau to approve the use of a modified 911 call processing mode. Grant of this request will permit the deployment of handsets utilizing a call processing system that facilitates PSAP call back capabilities and mitigates unintentional calls to 911. Moreover, Bureau approval of this call processing plan will facilitate the deployment of handsets that will aid Verizon Wireless in bringing to consumers the benefits of assisted GPS handsets as a major part of efforts to continue to meet the Commission's mandates for E-911 Phase II deployment.³

¹ See 47 C.F.R. § 22.921.

² See *Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, *Second Report and Order*, 14FCC Rcd 10954(1994) ("*Second Report and Order*") at ¶ 88.

³ Motorola has provided Verizon Wireless a copy of the instant filing and obtained confirmation of the relevant facts discussed herein. Verizon Wireless fully supports the instant request and urges expeditious action as well.

Background. In its *Second Report and Order*, the Commission sought to improve the ability of analog cellularphones to complete wireless 911 calls successfully? To accomplish this result, the Commission adopted Section 22.921 that required analog cellular phones to include a separate capability for processing 911 calls and approved three different procedures that would enable calls to be handled by either cellular carrier in an area, where necessary through overriding of “any programming in the mobile unit that determines the handling of a non-911 call and permit the call to be handled by other analog carriers.”⁵ Motorola, in meeting this Commission regulation, has employed the “Automatic A/B Roaming-Intelligent Retry (“IR”)” call process.

Under Automatic A/B Roaming, the handset overrides any “local” programming (such as subscriber programmed, preferred carrier only) and seeks a non-preferred carrier in the event the preferred carrier is unable to process the 9-1-1 call attempt. When IR is added, a 911 call is placed using alternate channels and systems until the call is successfully completed, if at all possible. Specifically, the handset overrides any features which prevent scanning of either the A side or the B side and default to A/B, B/A, depending on the handset’s preferred carrier setting. Initially, the handset seeks to complete the call with the preferred carrier. If the handset detects no decodable forward control channel signal from the preferred carrier, the handset then retries the call with the non-preferred carrier, as in the A/B, B/A mode. If the handset detects a forward control channel from the preferred carrier, it then attempts to complete the call with the preferred carrier. The number of attempted retries with the preferred carrier is limited to no more than **three**, and the length of time for each attempt would be limited to three seconds. Furthermore,

⁴ *Id.* at f 1.

⁵ *See Second Report and Order* at ¶2; 47 C.F.R. § 22.921.

the time limit established for attempting to **set** up a call with the preferred carrier is limited to no more than the Commission approved requirement of **17** seconds? If **this** initial call attempt via the preferred carrier should fail, the handset attempts to complete the call via the non-preferred carrier. If both call attempts fail, the handset continues to **rescan** and reattempt placing the call with both the preferred and the non-preferred carrier, using the same algorithms, until the call is completed, the user terminates the call, or the handset loses power. If a voice channel is established but the 911 call terminates for some reason other than the user ending the call or the base station releasing the call — for example, if the handset moves into a coverage gap or encounters some other transmission problem — **the** handset automatically reattempts the call using the same algorithm. Additionally, the user receives visual feedback (text messages) from the handset to indicate that this call set-up process is underway, also in accordance with Commission requirements.⁷

Heretofore, since February 13,2000, **with** the exception of multimode TDMA handsets and analog telematics products for which Motorola received waivers,⁸ Motorola has implemented this call processing procedure for all of its handsets, operating in both the digital and analog mode.

Modified Call Processing. Since the implementation of enhanced 911 call processing procedures, Motorola has been aggressively pursuing the implementation **of** automatic location identification (“ALI”) enabled handsets for its CDMA, multimode handsets to supply **U.S.** wireless carriers. These location-enabled handsets have recently been completed and are

⁶ *See Second Report and Order* at ¶ 41.

⁷ *Id.* at ¶ 39.

⁸ *See 911 Call Processing Modes*, WT Docket No. 99-328, **Order**, DA 00-324 (released February 18,2000); *911 Call Processing Modes*, WT Docket No. 99-328, **Order**, DA 00-1052 (released May 11,2000).

utilizing assisted Global Positioning System (“A-GPS”) chip and system technology to perform location calculations. These phones have been tested extensively by Motorola and its first intended customer, Verizon Wireless, and **through** this testing process an issue **arose** concerning a particular Verizon Wireless specification.’

This specification required that if **an** emergency call is currently in progress and is then terminated (ended) by the user or the Network or the call is dropped due to signal related issues, the phone should: (1) remain on the System that last served the call; (2) remain on the System that last served the call, for a time period no less than **5** minutes **after** the termination of the 911 call (to allow the 911 PSAP to call back the mobile); (3) after the 5 minute time period, return to the normal operation of scanning for service; (4) during the **5** minute period, if the user changes the System Select, the phone should scan for that selection, even if there is not service; and (5) during the 5 minute period, if the user places a call to a number, other than 911 and/or the emergency numbers stored in memory, the phone shall resume normal operation **of** scanning for service using the system select and PRL.

Remaining on the system, after a 911 call terminates for some reason other than the user ending the call or the base station releasing the call, varies from the Commission approved process for IR but offers significant benefits to the handset **user** and the **PSAP operators**.¹⁰ As such, Motorola respectfully requests that the Wireless Bureau approve and endorse the modified call processing system required by Verizon Wireless. Motorola’s A/B Automatic Roaming-IR process will be entirely consistent with all parameters approved by the Commission, with the

⁹ Verizon Wireless provided Motorola with its specification for emergency call processing (portions of which are set forth as Exhibit A to this filing).

¹⁰ See *Second Report and Order* at ¶¶ 35 (“IR should also offer another important improvement because the algorithm monitors the voice channel during the call. Thus, the handset would automatically and immediately seek to reinitiate the 911 call if it failed after initial setup.”).

exception of the requirement for the handset to redial 911 when a call is terminated for some reason other than the user ending the call or the base station releasing the call.

Justification for Modified Process. The assisted GPS technology being implemented to meet the Commission's Phase II requirements offers the advantage of quickly passing to the PSAP not only the number of the handset, but also location information. This information can even be received by the PSAP once the call has been connected but before conversation has begun. Once the PSAP has the handset number, it can quickly call back to the handset if the call is terminated involuntarily. The IR process, where "lost" calls automatically retry dialing 911 can impair this capability. Instead of enabling PSAPs to call back the number received from the 911 call, the mobile subscriber's handset would ring busy or push the PSAP into voice mail rather than enabling a call back. Another possibility would be that the mobile handset would initiate the call on an entirely new network that would not have call back number or location information associated with it. Further, the IR process could cause the handset to be routed to another PSAP, causing confusion to the subscriber and the PSAP, and possibly leading to an additional routing step to the appropriate PSAP. The new IR-based call could also originate on a new carrier's system, leading to a new Temporary Location Directory Number ("TLDN")¹¹ to be passed to the same PSAP and a second PSAP-reported emergency could occur. Moreover, it is conceivable that a new IR-based call could generate a new location **fix** for the 911 caller, further confusing rescue efforts, as the PSAP may not be certain where to send aid. Finally, given the increase in the past several years of unintentional wireless 911 calls to PSAPs, unintentional calls

¹¹ The TLDN is a temporary telephone number maintained in the VLR (Visitor Location Register) of the wireless provider in whose territory a caller is roaming. Through the TLDN, a wireless caller is recognized for purposes of delivering incoming calls.

that were disrupted would immediately attempt to redial, causing additional unintentional calls to occur.

To facilitate **the** ability of the PSAP to callback more quickly to the handset, **the** Verizon Wireless emergency call specification requires that the handset remain on the originating System for not less than 5 minutes, or unless **the user** decides to reinitiate a 911 or other call. In this way, the specification enhances the ability of the PSAP that was contacted to call back quickly any “lost” callers. Additionally, **this** modified system permits mobile units on Verizon Wireless’s digital network to continue to pass location information to the PSAP (where location has been enabled) and allow for the call back number passed to the PSAP to still be valid and usable for PSAP call back. **The** modified call process also eliminates the duplication of unintentional calls to 911. Furthermore, a wireless subscriber may at any time reinitiate a call to 911, restarting the Automatic A/B Roaming process, and enabling the 911 call completion process again. In light of these factors, Motorola believes that the modified 911 call processing method required by Verizon Wireless provides needed public benefits by enhancing 911 call completion, enabling location and call back data to continue to be gathered by **PSAPs**, and eliminating duplicative unintentional calls.

This modified proposal complies with the basic principles that **the** Commission determined any reasonable analog cellular 911 call processing mode should satisfy.¹² It improves the 911 call completion rate, not only for analog calls but also for digital CDMA calls, by permitting the scanning of all available networks, in rapid fashion, when trying to originate a 911 call. It also encourages the use of the preferred carrier to minimize delay in setting up **the** call and enables the provision of call back and location information to PSAPs. Further, it does

¹² See *Second Report and Order* at ¶¶ 28-29.

not disrupt the operations of the wireless carrier network or PSAPs –rather it facilitates better capabilities (call back and location) and avoids duplicative, unintentional 911 calls. Finally, it is clear that the modified proposal provides these benefits to the public safety community without consideration to the costs that the call processing system may entail. Additionally, although the modified call process described here does not include an automatic redial function, neither of the other two approved call processes have such a methodology.” Motorola, therefore, urges the Wireless Bureau to approve and endorse this modified system in an expeditious fashion.

Conclusion. In view of the above, Motorola submits that approval of its modified 911 call processing plan would be in the public interest. Motorola asks that the Bureau expeditiously approve this request.

Respectfully,

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See e.g., Second Report and Order at ¶¶ 43, 68, 69 for descriptions of Adequate/Strongest Signal and Selective Retry call processing plans.

Exhibit A

E911 Emergency Call Processing

When an emergency number such as 911 is dialed, (manually dialed or any number stored in the Emergency Number memory storage is dialed) the call is processed by the mobile phone in the following manor:

1. The phone must process the 911 or emergency call regardless of the System Select setting or the PRL list.
 1. If the phone currently has service when the call is made, the call should be processed immediately on that system.
 2. If the phone currently has NO service when the call is made, the phone should search for ANY SYSTEM available regardless of the System Select settings, PRL's and Negative SID lists.
2. If an emergency call is currently in progress and is then terminated (ended) by the user or the Network or the call is dropped due to signal related issues, the phone should:
 1. remain on the System that last served the call
 2. remain on the System, that last served the call, for a time period no less than 5 minutes after the termination of the 911 call. This allows for the 911 Public Service Access Point (PSAP) to call back if needed.
 3. after the 5 minute time period, return to the normal operation of scanning for service.
 4. during the 5 min. period, if the user changes the System Select, the phone should scan for that selection, even if there is no service.
 5. during the 5 min. period, if the user places a call to a number, other than 911 and/or the emergency numbers stored in memory, the phone shall resume the normal operation of scanning for service using the system select and PRL.
3. If an emergency call is originated from the phone in a service area that has weak signal:
 1. The phone should use the standard Retry mechanism to process the call on the current system that the phone is on. This is to process the call as quick as possible.
 2. If the phone FAILS to process the call on the current system, the phone should scan for ANY available system and process the call. The phone should continue to make attempts to process the call until the call goes through or until user intervention.

9 VERIZON Requirements for E-911

