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Via Email
Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Ex Parte – PS Docket 16-32

Dear Ms. Dortch:

This letter provides additional details regarding the industry's work to examine technical issues associated with the potential development of an earthquake early warning system (EEWS) in the United States. This information supplements the information submitted previously on the record by the Alliance for Telecommunications Industry Solutions' (ATIS) Wireless Technologies and Systems Committee (WTSC) and is provided in response to questions posed by the Commission's Public Safety and Homeland Security Bureau.

(1) Currently, CMSP gateway processes alerts in a first-in, first-out (FIFO) queuing method, except for the Presidential alert, where Presidential alert preempts other alerts and is processed immediately. Can this prioritization and preemption be extended to earthquake alerts?

- ATIS believes any discussion on prioritization in the EEWS is premature until the architecture is defined. The industry continues to work with stakeholders, including state agencies, the U.S. Geological Survey, and academic institutions, to identify and define the architecture that can satisfy EEWS-specific requirements (including delivery latency requirements). Additionally, polices pertaining to any prioritization in the EEWS system would need to be clarified before a standards evaluation of such prioritization can occur.
- It should also be noted that commercial mobile service providers (CMSP) do not preempt alerts under the Wireless Emergency Alerts (WEA). Instead, WEA message are handled on a FIFO basis, with Presidential alerts placed at the top of the queue in the CMSP Gateway.
- As ATIS has stated previously to the Commission, ATIS continues to believe that WEA is not the appropriate platform on which to provide EEWS alerts, particularly given concerns related to the inherent latency of WEA.

(2) Currently, what happens to WEA alerts if the device is in Idle mode?

- In LTE networks, System Information Blocks (SIBs) will be received regardless of what state the device is in; therefore, the device will receive WEA notifications when in Idle mode.

(3) Assuming that the primary earthquake message would be a short message (< 90 characters), and given that SIB-12 period can be set to any of the following values: 80 msec, 160 msec,

320 msec, 640 msec, 1.28 sec, 2.56 sec and 5.12 sec, can we assume that cell broadcasting delay could be potentially less than or equal to 80 msec?

- The primary EEWS notification would not contain any "messages" under the approach being examined by ATIS with input from the relevant stakeholders. Instead, EEWS messages would be pre-loaded on devices for display when an EEWS notification is received.
- If a solution uses SIB-12 and the period is set to 80 msec, the following challenges need to be considered:
    - The change in cycle delay may take time to be implemented and, in fact, would need to wait until the next cycle;
    - The periodicity cannot be less than 80 msec;
    - There are potential implementation impacts to eNodeB;
    - Even with periodicity of 80 msec, there is no guarantee that messages will be repeated every 80 msec; and
    - Using 80 msec will have impacts on network and devices (including battery life).

(4) The ATIS Feasibility Study for Earthquake Early Warning System (ATIS-0700020) states that EEW over 3G is infeasible. Isn't it true that the Earthquake and Tsunami Warning System (ETWS) Standard was originally designed for 3G?

- Although ETWS was also specified for UMTS, it should be noted that ETWS for UMTS is completely different from ETWS in LTE. As noted in the ATIS Feasibility Study, ATIS believes that EEWS should be focused on LTE networks.

(5) The ATIS Feasibility Study states that: "…an EEW notification which is sent by the cellular network as a primary ETWS notification (Ref 3). The primary notification is broadcast via the cellular infrastructure in the affected area within 4-10 seconds of being received by the cellular network." Whereas Ref 3 (3GPP TS 22.168) states that: " … maximum delay from CMSP gateway to display of alert on the device should take no more than 4 seconds, even when the network is congested." How do you reconcile these two?

- The reference to the maximum delay of four (4) seconds in 3GPP TS 22.168 was a Stage 1 objective and a reasonable estimate based on the information available at the time. As work progresses in 3GPP to specify Stage 2 (architecture) and Stage 3 (interface protocols), this objective will be further evaluated and updated as necessary to reflect additional information/analysis. The "4-10 seconds" number specified in the ATIS Feasibility Study was similarly an educated estimate based on the information available at the time and will also need further study. These delay values are currently being discussed by ATIS and earthquake subject matter experts.
- ATIS also notes that the actual deployment of the system under extreme load, as the case may be during an emergency situation, must be considered.

(6) What is the meaning of the "between 5 and 30 seconds" caption in Fig 7.1 of the ATIS Feasibility Study? How was 5 seconds obtained?

- As mentioned before, ATIS is currently working with the relevant parties to update all the delay values.

Finally, ATIS notes that an additional question was posed regarding the average delays for specific WEA-related network functions (CMSP Gateway/CBE processing, CMSP Gateway/CBE to CBC transmission, CBC processing, CBC to MME transmission, etc.). ATIS believes that individual service providers are in better positions to provide this information pertaining to the operation of their networks.

A copy of this letter is being submitted on the record of the above-referenced docket. If there are any questions, please contact the undersigned.

Sincerely

Thomas Goode
ATIS General Counsel

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