

Attachment 1

Record Supports Polygon and Alert Message in 360 Characters

Below are quotes from filings in the FCC record supporting including the polygon coordinates within the 360 characters of a WEA message:

3/19/16 Michael Gerber, NOAA: “The NWS cited a Carnegie Melon study that demonstrates how the warning polygon vertices which make up an NWS polygon can be compressed to a quarter of their size. This reduction in size would allow for valuable polygon information to be broadcast with the WEA message and further processing on the device. For example, the NWS could use the first 180 characters of a WEA message for the displayable alert message and the remaining 180 characters as hidden alphanumeric data, using the Carnegie Melon compression technique, which contains the warning polygon vertices. The device could then leverage this data in multiple ways to better convey the actual warning area to the recipient. The device could compare its location with the polygon and only render the alert if the device is inside the warning polygon. Also, the device could plot the polygon along with the device location on the device’s built-in maps or maps built-in to the WEA.”

5/30/2016 Dr. Martin Griss, Carnegie Mellon University researchers: “We have devised compression methods that can reduce the size of a geotarget polygon representation significantly (to 10 to 25% of its original size, or 9-61 characters, for polygons included in a corpus of over 10,000 National Weather Service WEA alerts). The compression is lossless and computationally efficient, making it feasible to embed the geotarget in the alert text at the origin and recover it without loss of any information at the device. Our experiments with the NWS corpus shows that this is possible even with the current 90-character limit, still leaving sufficient space for the message content for a majority of the NWS alerts.... An increase to 360 characters would thus make geotarget and other meta-data embedding completely practicable, enabling a whole host of WEA features on the client side.”

September 16, 2016 Joint filing from Mark D. Annas, Administrator, Riverside Fire Department Office of Emergency Management; Benjamin J. Krakauer, MPA Director, Watch Command, New York City Emergency Management; Brian Murray, Emergency Public Information Planner, Harris County Office of Homeland Security & Emergency Management; Jonathan W. Gaddy, Calhoun County EMA; William Hutchinson McClendon, CEO of AC&C, LLC; Mark A. Lucero, Chief, IPAWS Engineering, FEMA National Continuity Programs. All of the filers participated on the CSRIC V Geographic Targeting working group. ”While inclusion of the polygon coordinates will reduce available characters for the alert message, this is an acceptable tradeoff for Public Safety. The mix of polygon coordinates vs text message could be divided based on the desires of the alert originator. For example, the first 270 characters could be allocated for the WEA text message and the remaining 90 characters for polygon coordinates.”

September 2016 CSRIC WG2 Final Report Recommendation 3 page 31: "Use the polygon of the alert area embedded in the WEA message to help the device determine if it is inside the alert area. If the device is determined to be inside the alert area, the alert is rendered on the device depending on the configuration of the user location and alert preferences on the mobile device."

December 8, 2016 Attorneys for AT&T Services Inc.: "Using the new 360 character message length and a new message identification, the alert originator could craft a message for the managed WEA App that includes coordinates of the alert area. The managed WEA App could then take those messages and, if the user has enabled location services,⁴⁶ determine the handset's location using existing capabilities and APIs available in the mobile device OS.⁴⁷ Once the managed WEA App has identified the handset's location, it can determine whether the handset is in the alert area and display the message; if the handset is not in the area, it can ignore the message. If the location data are not available in the handset, the managed WEA App could default to displaying the message, which it has already received.

September 26, 2017 Brian Daly, Christi Shewman, Mike Tan and Joe Marx from AT&T Services Inc.: "AT&T believes it may be feasible to expedite this time table if the coordinate data for the polygon and the message content are sent in the same WEA Message."