

LUKAS, NACE GUTIERREZ & SACHS

CHARTERED

1650 TYSONS BOULEVARD, SUITE 1500

MCLEAN, VIRGINIA 22102

703 584 8678 • 703 584 8696 FAX

WWW.FCCLAW.COM

RUSSELL D. LUKAS*
DAVID L. NACE*
THOMAS GUTIERREZ*
ELIZABETH R. SACHS*
GEORGE L. LYON, JR.
PAMELA L. GIST*
DAVID A. LAFURIA
B. LYNN F. RATNAVALE*
TODD SLAMOWITZ*
STEVEN M. CHERNOFF*

CONSULTING ENGINEERS
ALI KUZEHKANANI
LEROY A. ADAM
LEILA REZANAVAZ
SUMEET K. BHALOTIA
OF COUNSEL
JOHN J. MCAVOY*
J.K. HAGE III*
LEONARD S. KOLSKY*
HON. GERALD S. MCGOWAN*

*NOT ADMITTED IN VA
Writer's Direct Dial
(703) 584-8661
dnace@fcclaw.com

October 5, 2005

VIA ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Room TW-B204
Washington, DC 20554

**Re: Notice of Oral *Ex Parte* Communication,
WT Docket No. 04-296 – Review of the Emergency Alert System**

Dear Madam Secretary:

In accordance with Section 1.1206 of the Commission's rules, 47 C.F.R. Section 1.1206, we hereby provide you with notice of oral *ex parte* presentations in connection with the above-captioned proceeding. The meetings occurred on October 4 and October 5, 2005 with the following:

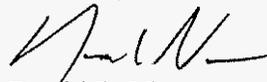
- Office of Chairman Martin: Heather Dixon, on October 4, attended by Arthur L. Prest of Prest & Associates on behalf of the Rural Cellular Association ("RCA");
- Office of Commissioner Adelstein: Barry J. Ohlson, Senior Legal Advisor, on October 4, attended by Arthur L. Prest and David L. Nace on RCA's behalf;
- Office of Commissioner Abernathy: Lauren Belvin, Acting Senior Legal Advisor, on October 5, attended by Arthur L. Prest, David L. Nace and Tom Attar (of Highland Cellular), on RCA's behalf; and
- Office of Commissioner Copps: John Giusti, Legal Advisor, on October 5, attended by Arthur L. Prest, David L. Nace and Tom Attar, on RCA's behalf.

October 5, 2005
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Discussion in meetings referred to RCA's Comments in response to the Commission's Notice of Proposed Rulemaking in this matter. The limitations to use of Short Messaging Service or "SMS" and of Cell Broadcast technology were discussed. Mr. Prest illustrated the capacity limitations on transmission of text messages by SMS and Cell Broadcast technology by reviewing the weekly National Weather Service ("NWS") test message and indicating how much (or little) of that message would be received by the public if transmitted over SMS or by Cell Broadcast. The attached materials were provided to each of the Commission staff members during the meetings.

During the meetings Mr. Prest demonstrated a portable radio tuned to the NWS "NOAA" warning system. As described in its Comments, RCA urges study of a concept that involves integration into the cellular handset of a supplemental reception capability so that subscribers that "opt-in" to the service may receive messages that are broadcast through the existing national weather alert radio network. Messages of importance to all would be receivable by all; messages of a local character such as severe weather alerts would be received from the NWS station in nearest proximity to the cell phone user. Such a delivery system would be most effective if the wireless network would dynamically program the Specific Area Message Encoding ("SAME") code that corresponds to the area being sent an alert by a local national weather station into the supplemental NWS receiver in the handset as that handset moves from cell to cell.

Sincerely,



David L. Nace
Counsel for Rural Cellular Association

cc: Best Copy and Printing, Inc. (by email)

RCA

Issues Surrounding Wireless Emergency Alert Systems



Art Prest
For RCA

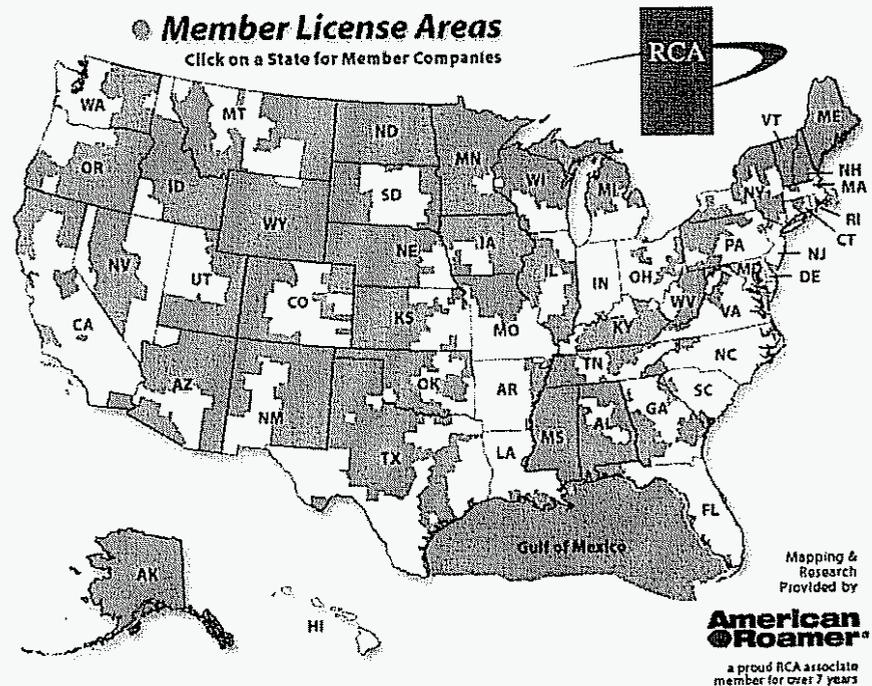


April 26, 2005

RCA

RCA: Rural Cellular Association

- ~100 Tier III Wireless Carriers
- Covering about 15 Million POPS
- Operating in Some of the Most Rural Areas of the US
- Focused on Needs of Rural Customers
- Wireless Technologies:
 - Analog
 - TDMA
 - CDMA - existing & planned
 - GSM - mostly planned



April 26, 2005

RCA

Emergency Alert Service (EAS)

- FCC August 2004 NPRM on Emergency Alert System
 - Joint effort with DHS/FEMA
 - Driven by terrorist threat & tsunami fear
 - Senator Stevens (R-Alaska) is an advocate
 - Partnership for Public Warning and the Media Security & Reliability Council recommend upgrading not replacing existing EAS system
- Alternatives being discussed:
 - SMS
 - Cell Broadcast
 - New Technologies

RCA's Comments & Message

- **SMS Text Based EAS Issues:**
 - Does not have capacity for ubiquitous EAS
 - Message are not geographically specific
 - Message length too short (~160 characters will lead to unintended consequences)
- **Cell Broadcast EAS Issues:**
 - Standards exist, products do not
 - Would require change out of handsets (all CDMA; some GSM)
 - Existing Cell Broadcast technology reduces battery "talk time"
 - Interface from Cell Broadcast Center to BSC not standardized or developed
 - High Carrier Involvement: wireless carrier would have to parse EAS messages and distribute them to the appropriate cell sites as required
 - Message length limited (256 characters for CDMA & 1395 for GSM)
 - High cost and no revenue potential by itself (message sent to all handsets & acknowledged by none)

RCA

RCA Proposed Alternative

- Integrate NOAA NWS Public Alert Radio Receiver Capability Into Cell Phone:
 - Backward compatible with existing EAS system
 - 97% of population of US, Puerto Rico, Virgin Islands, and Guam covered
 - Messages can be geographic specific using SAME codes
 - Specific Area Message Encoding uses a Six digit code based on FIPS (Federal Information Processing Standard) codes
 - Possible to define ~9,000 specific geographic areas per State
 - Audio message length unlimited
 - Carrier is not responsible for disseminating EAS messages
 - Minimal impact on network

RCA Proposed Alternative

- **Development & Changes Required:**
 - Develop and implement EAS radio chip sets into phones (other market potential for chipsets)
 - Develop standards to dynamically program SAME codes into phone as it moves through network
 - Change-out of handsets: allow churn to drive replacement
 - Additional cell sites could be constructed at key/strategic locations at the behest of government agencies
- **Cost recovery is required regardless of how EAS is implemented!**

RCA

NOAA NWS All Hazards* Radio

- Includes 7 channel NOAA weather radio
- SAME Code Programmable
 - Up to 6 SAME codes
 - e.g., **051013** VA Arlington County
 - ~9,000 geographic areas per state possible
- Size: 5.48" x 3.96" x 1.4" 4.59 oz
- Three AA batteries last ~4 weeks



RCA NWS All Hazards Radio Demo



April 26, 2005

RCA

NOAA NWS Test Message

Entire 39 Second 782 Character Audi Message

This is a test of the NOAA radio warning device. During potentially dangerous weather situations, specially built weather radios will be automatically activated to warn of the impending hazards. Tests of these radios and the warning system will be conducted by the National Weather Service every Wednesday between 11 AM and Noon. Reception of this broadcast, and the warning alarm, will vary at any given location. This variability, normally more noticeable at greater distances from the transmitter will occur even though you are using a good quality receiver in perfectly good working order. To provide the most consistent warning service possible, the warning alarm will be activated only for warnings and selected watches affecting the listening area.

160 characters and spaces (typical SMS text message limit):

This is a test of the NOAA radio warning device. During potentially dangerous weather situations, specially built weather radios will be automatically activa

Rural Cellular Association EAS Proposal

(July 28, 2005)

Currently there are efforts in Congress, at the Department of Homeland Security (DHS), and at the Federal Communications Committee (FCC) that may result in a new mandate for wireless service providers to provide emergency alert messages via wireless phones. Up until recently, the discussion as to how emergency alert messages might be delivered to wireless phones has centered on text-based messages delivered using Short Message Service (SMS) or Cell Broadcast technologies. RCA believes that such text based messages will probably prove to be ineffective in dissemination of meaningful wide-scale text-based messaging in the case of a Presidential emergency or for tsunami, tornado or other types of local emergencies. Instead of text based messaging RCA is proposing the integration of cell phones with receivers that can monitor National Oceanic and Atmospheric Administration (NOAA) Public Alert audio broadcasts that provide audio messages that could be short but still contain sufficient information to be meaningful regarding the emergency and instructions as to what the recipient should do.

Issues Regarding Dissemination of Emergency Alert Messages on Wireless Phones

1. SMS text messaging has significant network capacity limitations that prevent timely delivery of emergency alert messages to all of a wireless carrier's subscribers. Wireless networks were designed to provide point to point (e.g., subscriber to subscriber) voice and text based communications. Although such networks can become congested when too many people attempt to make voice call, the existing networks have been shown to be quite robust in handling large volumes of point to point text messages. These wireless networks were not designed to provide point to multipoint (e.g., government to citizens) voice or text messaging and can be quite easily congested if a text message is sent to a large number of recipients and could result in delays of many hours before all persons receive the message.
2. SMS technology lacks geographic-specificity that will be important so as to target messages only to those persons located in the areas under an emergency alert. For example subscribers from Virginia roaming in California would receive messages for emergency alerts in Virginia. And roamers from California who are in Virginia would never receive the emergency alerts when in Virginia.
3. Both SMS and Cell Broadcast technologies cap the number of transmittable characters thereby cutting short emergency alert messages and preventing the transmission of instructions or other useful information in an emergency. RCA believes that any form of text based messaging is not appropriate for disseminating EAS messages such as Presidential emergency messages or tsunami, tornado or other types of local disasters. The amount of meaningful

useful content that can be contained in a typical text messages of one hundred and sixty characters (see Attachment A for a comparison of what portion of a NOAA audio test message would be transmitted using various for of text messaging) is not sufficient to inform people as to what to do in an emergency situation and is likely to lead to unintended consequences including causing recipients to immediately make calls on their wireless phones to find out what is happening. Such calls will lead to severe network blockages in which no one will be able to make a call similar to what happened on 9-11.

4. Although Cell Broadcast can provide geographic specific delivery of emergency alert messages and is less affected by the capacity limitations of wireless networks, there are drawbacks to Cell Broadcast as well. In addition to it being complex and costly, Cell Broadcast text messaging has never been deployed commercially in the United States on GSM or CDMA networks. In addition to implementation issues, Cell Broadcast requires significant investment (in network upgrades plus the change out of all CDMA handsets) and significant ongoing involvement of the wireless carrier to ensure that emergency alert messages are delivered to the correct geographic area. There are also liability issues for the wireless carrier if such messages are not delivered to the correct geographic area. Finally, Cell Broadcast does not sufficiently solve the message length limitations inherent in text-based messaging approaches.

Rural Cellular Association Proposal

As compared to limited length text-based Emergency Alert messages, unlimited length audio-based Emergency Alert messages from wireless phones integrated with receivers that can monitor National Oceanic and Atmospheric Administration (NOAA) All-Hazards “Public Alert” audio broadcasts could provide sufficient and meaningful life saving information to all recipients who are in the path of danger. All-Hazards radio receivers are available today that monitor NOAA Public Alert broadcasts and turn on automatically when receiving messages pinpointed to a small geographic area when the receiver is programmed by the user to receive messages using Specific Area Message Encoding (SAME) codes¹. Wireless phones with integrated NOAA All Hazards receivers could turn on automatically during an emergency broadcast and could be programmed to receive audio messages of any length targeted to a small geographic area using the Specific Area Message Encoding (SAME) codes. By developing new wireless phone and network standards, SAME codes could be dynamically programmed by the wireless network thus allowing alerts to follow the caller as they move from place to place. In the near term, simpler versions that could be manually programmed with SAME codes (as are existing

¹ A digital encoding system incorporating technology known as Specific Area Message Encoding (SAME) allows receivers equipped with the SAME feature to sound an alert for only certain weather conditions or within a limited geographic area such as a county. A SAME code is a six digit number that is digitally broadcast as the beginning of an alert message. The six digit code is based on the Federal Information Processing Standard and identifies a specific geographic area.

NOAA Public Alert radios) could be developed and produced. Given that many wireless phones already contain an FM stereo radio it is believed that the addition of NOAA Public Alert radio capabilities to wireless phones would cost only a few dollars per phone.

RCA believes that such an approach is far superior to using any form of text based messaging for EAS messages and has the following advantages:

1. Message length is unlimited because EAS messages are audio based and the message is essentially a government radio broadcast that is being received by a radio receiver integrated into a wireless phone
2. NOAA Public Alert radio broadcasts cover 97% of the population of the entire United States including Guam, Puerto Rico, and the Marianna Islands
3. The audio message is not being transmitted through the wireless network thus avoiding bandwidth limitations of wireless networks
4. Wireless carriers are not responsible for disseminating EAS messages
5. By using SAME codes, EAS messages can be delivered to very discrete geographic areas (almost 9,000 geographic specific areas per state are possible). At the request of government entities, cell sites having discrete SAME codes could be built at critical state and federal government locations such as the Capitol, Pentagon, nuclear power plants, airports etc.
6. Fast ubiquitous delivery of EAS messages to discrete geographic areas is possible
7. Unlike Cell Broadcast technology where there is a significant difference in what is available for GSM technology versus CDMA technology, such an approach is technologically neutral
8. According to a recent Consumer Electronics Association survey, 65% of the population surveyed are interested in owning portable Public Alert radio capability. It is believed that such interest would motivate subscribers to buy new handsets that include NOAA Public Alert radios

To push this concept forward, Congress should provide the funding for wireless industry network standards development that would allow the wireless network to dynamically program SAME codes into the NOAA Public Alert radio as it moves from place to place, and the development of the NOAA receiver chips that can be dynamically programmed by the wireless network with SAME codes.

There should be no forced change-out of wireless phones. On average, customers are replacing their phones every two to three years. The recent survey by the Consumer Electronic Association suggests that subscribers will quickly adopt new wireless phones that offer the safety advantages of a combined wireless phone/NOAA Public Alert Radio.

Issues To Be Explored and Resolved

There are several potential issues that need be resolved:

1. *Battery Life: what might the integration of NOAA All-Hazards radio technology have on battery life of the wireless phones?* It should be noted that an Oregon Scientific Model WR-102 All-Hazards pocket size radio lasts about four weeks in monitor mode on three AA batteries. In this mode, the radio monitors for the broadcast of the six-digit SAME code and only turns on when one of the SAME codes that have been programmed into memory. It should also be noted that a Nokia 3205 CDMA wireless phone containing an FM stereo radio ran for more than twelve hours continuously with the radio playing at full volume through the built-in speaker.
2. *Antenna Size: what size antenna will be required to receive the 162 MHz NOAA EAS radio broadcast?* It should be noted that the Oregon Scientific WR-102 All-Hazards radio (see full size picture in Attachment B) is about the size of large wireless phone and has an antenna that protrudes about 1.125 inch above the top of the radio (about the same size as the antenna for an LG VX 6000 CDMA dual-band wireless phone. It is not clear how large the concealed section of the antenna is in the WR-102 radio.
3. *Cost: how much will the integrated radio increase the cost of a wireless phone?* It should be noted that the Oregon Scientific Model WR-102 All-Hazards radio can be purchased from Amazon.com for less than \$28 including three AA batteries and shipping. This radio is a six band Weather Radio as well as an All-Hazards radio receiver. Since most of the radio (case, display, battery compartment, buttons etc.) will not have to be duplicated in a wireless phone and the six-band Weather Radio is not needed, it is believed that increased cost of a wireless phone containing an integrated NOAA All-Hazards radio should be less than \$10.00. Since many new wireless phones already contain a stereo FM radio the increased cost for such phones should be a few dollars. In any case a survey by the Consumer Electronics Association indicated that 65% of those surveyed are interested in buying a portable device having NOAA All-Hazards radio capability. This interest suggests that wireless subscribers would be will to pay more for the safety factor offered by a wireless phone having NOAA All-Hazards radio capabilities.
4. *Could the integrated NOAA radio be designed to receive All-Hazards alerts using the Digital Emergency Alerts being broadcast over the Public Television digital channels in the FEMA pilot program?* Since such audio broadcasts have already been shown being received by XM satellite radios, this good prove to be of great interest assuming that such broadcast could be geo-targeted using SAME codes or GIS.
5. *How long will it take to introduce integrated NOA All-Hazard wireless phones to market?* This could be down in two steps. In the near term, simpler versions that could be manually programmed with SAME codes (as are existing NOAA Public Alert radios) could be developed and produced in

two to three years. With the development of new wireless phone containing programmable All-Hazards radio chips and new network standards, SAME codes could be dynamically programmed by the wireless network thus allowing alerts to follow the caller as they move from place to place. This effort would probably take four to six years.

Attachment A:
NOAA NWS Test Message

Entire Audio Message:

This is a test of the NOAA radio warning device. During potentially dangerous weather situations, specially built weather radios will be automatically activated to warn of the impending hazards. Tests of these radios and the warning system will be conducted by the National Weather Service every Wednesday between 11 AM and Noon. Reception of this broadcast, and the warning alarm, will vary at any given location. This variability, normally more noticeable at greater distances from the transmitter will occur even though you are using a good quality receiver in perfectly good working order. To provide the most consistent warning service possible, the warning alarm will be activated only for warnings and selected watches affecting the listening area.

STATS:

39 seconds of audio

122 words

661 characters

782 characters including spaces

160 characters and spaces (typical SMS text message limit²):

This is a test of the NOAA radio warning device. During potentially dangerous weather situations, specially built weather radios will be automatically active

256 characters and spaces (CDMA Cell Broadcast message limit):

This is a test of the NOAA radio warning device. During potentially dangerous weather situations, specially built weather radios will be automatically activated to warn of the impending hazards. Tests of these radios and the warning system will be conducted

1395 characters and spaces (GSM Cell Broadcast message limit):

GSM Cell Broadcast capacity provides 88 message characters including spaces. However 15 groups can be concatenated and sent thus increasing the total message length to 1395 characters. These messages can only be received by a mobile that is turned on and not in use (N.B., also true for CDMA), and it would take about 30 seconds to send all 1395 characters.

² Many wireless carriers limit text messages to 160 characters and spaces including the "from". Thus this EAS SMA text message from "NWS" would look like this: This is a test of the NOAA radio warning device. During potentially dangerous weather situations, specially built weather radios will be automatically activa

Attachment B

Oregon Scientific Model WR-102 SAME Weather Radio
(shown ~ actual size)

