Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	PS Docket No. 07-287
The Commercial Mobile Alert System	)	
	)	

To Chief, Public Safety and Homeland Security Bureau:

REPLY COMMENTS OF GLOBAL SECURITY SYSTEMS, LLC

Paul C. Besozzi
Carly T. Didden
Patton Boggs LLP
2550 M Street NW
Washington, D.C. 20037
(202) 457-5292

Matthew Straeb
Executive Vice President
Global Security Systems, LLC
308 East Pearl Street, Suite 202
Jackson, Mississippi 39201
(954) 850-6606

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SUMMARY

Global Security Systems, LLC's ("GSS") strong interest in the outcome of this proceeding, both as a direct participant in the development of the Commercial Mobile Alert System ("CMAS") proposals reflected in the *NPRM* and as the developer and operator of existing systems, particularly its ALERT FM system, to address the emergency alert requirements of first responders and other interested parties, was reflected in the detailed Initial Comments that GSS filed in this proceeding.

A number of the other parties filing comments fully agreed with key points made by GSS concerning, for example, the limits of point-to-point transport technologies and the benefits of FM-radio-based, point-to-multipoint transport technologies based on the established Radio Broadcast Data System ("RBDS") standard. A number of filers also agreed with GSS' recommendation that the Federal Government be involved in managing CMAS, but only in conjunction with local and state homeland security and emergency management authorities.

GSS continues to believe that employment of FM-radio-based transport systems is superior to reliance on systems integrated with the Digital Emergency Alert System ("DEAS") for nationwide CMAS purposes, principally because of coverage limitations.

Those skeptical of the capabilities and benefits of radio-broadcast based systems ignore the endorsement of a number of emergency agencies already employing such transport technologies and fail to fully understand the capabilities of RBDS-based systems. In GSS' experience, broadcast technologies such as FM broadcast with data subcarrier do provide an efficient delivery mechanism for wireless alerts to large numbers of subscribers because fewer alerts need to be sent to reach the same number of subscribers. The Commission should base its

conclusions regarding FM-radio-based systems on the clear evidence of empirical success, not skeptical conjecture.

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Global Security Systems, LLC ("GSS" or "Company"), acting with counsel and pursuant to Section 1.415(b) of the Federal Communications Commission's ("FCC" or "Commission") Rules, 47 C.F.R. § 1.415(b), hereby respectfully submits its reply comments in connection with the Commission's Notice of Proposed Rulemaking (FCC 07-214), released in PS Docket No. 07-287 on December 14, 2007, concerning the development of a Commercial Mobile Alert System ("CMAS").[1]

I. INTRODUCTION – GSS' MAJOR POINTS

In its Initial Comments GSS focused on the limitations and capabilities of available transport technologies for use in the CMAS construct.[2] GSS also provided its observations on the

[1] *In the Matter of The Commercial Mobile Alert System*, Notice of Proposed Rule Making, 22 FCC Rcd 21975 (PS&HS Bur. 2007) ("*NPRM*"). GSS' comments are timely filed in accordance with the schedule established in the NPRM and as published in the Federal Register. 73 Fed. Reg. 546 (Jan. 3, 2008).

[2] *See NPRM*, ¶¶8-11.

potential Federal, State, and local government and agency roles in a CMAS, particularly as part of an aggregator concept.[3]

With respect to the former, GSS noted that not all existing transport technologies are equal and some have serious limitations. Point-to-point technologies rely on switched systems which transmit alerts sequentially or one at a time. During an emergency situation, this inherent feature will cause delay or loss of data due to buffer or data channel overload. In severe situations, it is possible that Short Message Service ("SMS") messages will cause interface congestion to the point of blocking voice calls.

Furthermore, there are also genuine security concerns with point-to-point systems. SMS does not have adequate security to protect CMAS from spoofing and denial of service attacks. This factor is not cured with third generation networks because the messages are still unidirectional.

GSS observed that in its experience broadcast technologies such as FM broadcast with data subcarrier do provide an efficient delivery mechanism for wireless alerts to large numbers of subscribers because fewer alerts need to be sent to reach the same number of subscribers. Alert mechanisms need to be designed to be delivered on a point-to-multipoint basis, but most wireless handsets currently do not have the capability to receive cell broadcast messages.

GSS expressed concern that a DEAS-based deployment was not sufficient for complete coverage of the public in real-world, unpredictable situations. From experience, GSS has learned that due to land and man-made obstructions (e.g., hills and buildings) coverage is much more robust when alert signals are transmitted from several geographic locations that surround or are near the middle of the population centers. FM-radio-based systems, compared to TV-tower-

[3] *Id.*, ¶¶12-13.

based systems, are better equipped to efficiently cover the maximum number of listeners in the most difficult environments.

Finally, GSS strongly recommended that the Federal government be involved in managing CMAS, but only in conjunction with local and State homeland security and emergency management authorities. The local portal is the gateway for the FM-based system that allows emergency management officials to quickly communicate directly with citizens and first responders using a digital network of FM transmitters. The local portal allows the authorized administrator to tailor the alert message to the appropriate audience or groups and deliver the message quickly, clearly, and simply.

II. FUNDAMENTAL ASPECTS OF GSS' COMMENTS SUPPORTED BY OTHERS

A number of entities joined GSS in fundamental aspects of its comments. For example organizations ranging from AT&T, Inc. and Alltel Communications, LLC to the Telecommunications Industry Association agreed that point-to-point technology should not be used for delivering CMAS alerts.[4] Network congestion and the insufficiency of SMS capacity, factors cited by GSS were also cited by others, such as Acision B.V./One2many B.V. and Alert Systems, Inc.[5]

In addition to GSS, point-to-multipoint technologies also were endorsed by the American Association of Paging Companies and CellCast Technologies, LLC.[6] Still other commenters,

[4] AT&T Inc. Comments, p. 5; Alltel Communications, LLC Comments, pp. 3-4; Telecommunications Industry Association Comments, p. 5.

[5] Acision B.V. and One2many B.V. Comments, p. 5; Alert Systems Inc. Comments, p. 9.

[6] American Association of Paging Companies Comments, p. 3; CellCast Technologies, LLC Comments, p. 14.

including the National Association of Broadcasters and DataFM, Inc., encouraged the use of FM-radio-based systems, relying on the Radio Broadcast Data Systems ("RBDS") standard.[7]

Finally, there was also additional support for the role of the Federal government serving as or overseeing the Alert Aggregator and the Alert Gateway. Some supporters would have the Federal government in an exclusive role, while others as part of a public private partnership.[8]

The confluence of comments on these key issues relating to transport technologies and CMAS governance only lends credibility to the points made originally by GSS. The Commission must give serious consideration to these recommendations as it formulates a final CMAS regime.

III. THE DEAS-BASED SYSTEM WOULD NOT BE COMPREHENSIVE IN COVERAGE

The Association Of Public Television Stations claims that "the Commission's role here is to adopt protocols for mobile service providers to opt in to the DEAS" and it would seem nothing more.[9] GSS respectfully submits that simply solving the CMAS question by such an opt in would ignore the limitations of the DEAS, television-tower-based network.

Based on GSS' own experience with radio-based broadcast alert systems, GSS does not believe that a DEAS-based deployment is sufficient for complete coverage of the public in real-world, unpredictable situations.[10] GSS has direct experience with not only the aggregate broadcast transmission environment, but also with the instant local reception conditions of consumers in the wide metropolitan areas in and around Jackson, Mississippi, Memphis,

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[7] National Association of Broadcasters and the Association For Maximum Service Television Comments, p. 3; DataFM, Inc. Comments, p. 9.

[8] *See* California Public Utilities Commission Comments, p. 5 (Federal government entity should be Alert Aggregator for CMAS); Purple Tree Technologies, p. 6 (Federal government advise public-private partnership serving as Alert Aggregator and Alert Gateway).

[9] Association of Public Television Stations Comments, p. 2.

[10] According to a recent Centris analysis, there will be little continuous DTV coverage beyond 35 miles. http://www.centris.com/pages/ViewNews.aspx?newsID=34&SiteID=9

Tennessee, and Mobile, Alabama (among others), where GSS is managing and operating FM-radio-based broadcast alert systems. In each of these locales, the television towers - which both locally and nationwide are far fewer in number than FM radio towers - are concentrated in one area, as compared with FM radio broadcast sites, where the FCC's multi-level power and height classification system for FM radio stations has generally resulted in a more distributed pattern of FM radio towers in and around metropolitan areas.

From this real world experience, GSS has found that due to the location and directional variability of land and man-made obstructions (e.g., hills and buildings) coverage is much more robust when alert signals are transmitted from several locations that are in different geographic directions from the reception point, optimally producing a mix of signals that both surround the area and are located near the middle of the population centers. GSS has found this to be particularly true when considering in-building reception on receivers with no significant external antenna.

FM radio transmission towers offer another benefit in difficult reception conditions due to the near-universal employment of circular polarization ("CP") in their transmitting antenna systems. GSS has used several single-polarization FM transmitters in its larger network, and it is the experience of GSS that signals from stations employing CP perform more effectively with small-antenna receivers, given roughly-equal transmit power and height. Indeed, it was just this desire to better serve a variety of receivers that caused FM operators to select the more expensive CP system.

Moreover, separate and apart from coverage issues, DEAS uses the public television transmitters to wirelessly distribute video streams and data files to computers and computer

networks. Such devices may fail due to power interruptions. Further, video versus data delivery is a more costly proposition, by as much as a factor of 20 to 1.

The characteristics of frequent availability of signals from many directions and the use of CP, among others, make FM-radio-based systems superior to DEAS in terms of reliable delivery of alert signals over the final mile to the consumer.[11]

DEAS-based systems are an acceptable alternative in certain limited environments, particularly where the reception is controlled (e.g., in an emergency and/or public service vehicle) with an external whip antenna or a fixed location with a fixed antenna. But in GSS' view, FM-radio-based systems are better equipped to efficiently cover the maximum number of listeners in the most difficult environments.

IV. SKEPTICISM ABOUT FM-RADIO-BASED SYSTEMS IS MISPLACED

Several commenters expressed skepticism about FM-radio-based alert systems using the RBDS standard, despite the fact that GSS and others are operating such systems successfully today.[12] The claims against systems using the RBDS standard are that: (a) employing the standard would require increased investment, and "would provide less coverage and reduced granularity of message delivery"[13] ; (b) the standard cannot be easily modified for nationwide use, would require a dedicated network be built or leased to be integrated with existing mobile networks, a costly effort that would extend beyond the two-year implementation period recommended by the Commercial Mobile Alert Service Advisory Committee ("Committee")[14] ;

[11] GSS is not alone in expressing concern about the effectiveness of the DEAS-based system. *See* DataFM Inc. Comments, p. 20 ("DEAS system has no demographic addressability feature and can only make information available on a broadcast basis.").

[12] *See e.g.,* Mississippi Emergency Management Agency Comments; Jefferson Davis Parish, Louisiana Comments; *see also* DataFM, Inc. Comments.

[13] CellCast Technologies, LLC Comments, p. 19.

[14] Sprint Nextel Corporation Comments, p. 5.

and (c) the RBDS model was tailored by the FCC to radio broadcast delivery model, as opposed to commercial mobile wireless, a different medium.[15] Upon closer examination, the Commission must conclude that these claims are unfounded or based on false or unsupported assumptions.

First, there is no need to build out or lease a nationwide network for cellular carriers to take advantage of the existing RBDS standard. Such a network already exists through FM stations throughout the country and GSS believes it only requires a minimal upgrade to satisfy the requirements of the WARN Act. It is already used for providing data. For example, over 2500 FM radio stations nationwide currently employ RBDS for sending song and title information to FM receivers.[16] Even those who criticize this existing network concede that it "does provide a similar capability" for providing "emergency message alerting to the masses."[17] Even AT&T concedes that while cell casting "appears to hold promise", the technology is not ready for prime time as a delivery method for delivery of emergency alerts.[18] On the other hand, FM-based-radio systems employing the RBDS standard have a demonstrated, "here-and-now" capability to provide such alerts.[19]

Existing emergency alert systems currently in use, such as GSS' ALERT FM, can seamlessly and simultaneously deliver alert messages by zip code or network wide. Moreover, satellite-based message delivery, directly to equipment installed on the FM radio towers avoids

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[15] Motorola, Inc. Comments, p. 5.

[16] FCC rules expressly authorize use of such subcarrier frequencies for RBDS. *See* 47 C.F.R. §73.293; http://www.fcc.gov/mb/audio/subcarriers/index.html.

[17] CellCast Technologies, LLC Comments, at p. 19.

[18] AT&T Inc. Comments, pp.3-4. As T-Mobile notes unequivocally "existing ...cell broadcast technologies cannot serve as a basis for a nationwide wireless alert system." T-Mobile, Carriers "will have to deploy and test next generation technology, which may take two years or longer." *Id.*, p. 21.

[19] RBDS is a proven technology that as long ago as 1994 was mentioned as a candidate for delivery of emergency alerts. *See* Consumer Electronics, December 26, 1994, Vol. 43, No. 52, p. 10, "This Week's News – Emergency Alert – Use of RBDS, Automatic Turn –On).

reliance on an existing cellular infrastructure of cell sites that are tied to, and rely upon, the landline telephone system or the Internet.[20]

Based on GSS' experience with its ALERT FM service, only an additional software installation would be required in a handset with an FM RBDS-based receiver attached. The additional software can be downloaded in the same way a software patch is downloaded to activate, for example, Google maps on a Blackberry device. Exhibit 1 hereto depicts such a commercially available handset with a working FM RBDS radio and the necessary software, in this case software necessary to employ the ALERT FM service.

Second, contrary to the assertion that RBDS-based systems are (or should be) limited in application to the radio broadcast industry, as opposed to commercial mobile wireless, GSS' experience is that there are common features between the two. FM-radio-based RBDS systems operate on a wireless basis, with proven geographic coverage and back up power sources. FM radio is not tied in to terrestrial phone lines or the internet, which are subject to potential failure. FM-radio-based systems also include audio capability, as well as digital messaging, with no buffering problems when using a standard FM RBDS chip. Finally, FM-radio-based RBDS systems, like those operated by GSS, work well with all wireless standards, especially Code Division Multiple Access, without being limited to 90 characters per message.

Again, in GSS' experience, broadcast technologies such as FM broadcast with data subcarrier do provide an efficient delivery mechanism for wireless alerts to large numbers of subscribers. The advantage of such delivery methods is that fewer alerts need to be sent to reach the same number of subscribers.

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[20] Such simultaneous delivery also avoids the vulnerability of a "daisy chain" infrastructure and the potential bottlenecks of telephone lines and the Internet.

Today, RBDS technology is incorporated in systems sending digital information using conventional FM-radio infrastructure to a targeted audience. Personal alert and messaging systems enable state and local government and private sector officials to create and send digital alerts and messages. Potential messages include tornado warnings, homeland security notices, hurricane evacuation instructions, utility notices, plant or school closings, employee notifications, and traffic alerts. First responders, school officials, and citizens can receive these alerts and messages based on geographic or organizational groupings through RBDS receivers or any device equipped with a standard FM/RBDS chip.

The reliability and redundancy of RBDS data delivery lies in its use of a pre-existing network of towers, which in turn provides overlapping coverage of an area. GSS' own ALERT FM system is a proven example of the benefits of such systems. This capability can be employed with wireless handsets through the inclusion of an FM chip in the equipment.

In the radio-based broadcast models, a multi-tiered protocol is layered into a sophisticated filtering and addressing scheme on both the transmission and receiving ends, allowing for unburdened point-to-multipoint transmissions. Some of the characteristics of an FM-radio-based broadcast alert system, like those developed and deployed by GSS, which are relevant to the Commission's inquiry are as follows:

a. Continuous communications between a central location and remote wireless devices (FM-based receivers) distributed throughout the coverage area, with clear text and encryption capability. The system can support non-encrypted devices for public and private use under a separate license agreement.

b. Web-based administrative portal to control message origination, recipient group creation and management, and sub-administrative capabilities to allow multiple users to use FM-based system. Administrative portals detail message delivery with the time, date and sender.

c. Single point messaging to multi-point end users simultaneously. This allows alert message sender to reach the entire city, a district, multiple districts or specific

neighborhoods with alerts and messages within mere seconds. Messages can also be sent to groups of emergency responders or commanding officers.

d. The wireless devices will be uniquely addressable allowing communications with a single device, all receivers in a single district or all receivers in a city and can be reprogrammable from the Command Control Center. FM-based receivers can store up to 30 separate group addresses and 30 separate services, such as automated weather warnings sent directly to FM-based receivers without action from command centers.

e. Uses existing FM broadcast network communications network through licenses obtained with FM broadcasters for countywide or citywide coverage footprint. The FM transmitter site is modified without disrupting the existing operations or system integrity. The modification includes the addition of emergency alerting encoder, receive-only satellite dish and associated communications equipment. FM stations are selected to ensure fully redundant coverage over served areas.

f. The propagation characteristics of the FM signal will provide reception inside buildings.

g. Encrypted messages accessible only on controlled "need to know" basis (programmable over-the-air by Command Center).

h. Defined geographical layered messaging – Grid Alerts whereby devices shall be able to enter or while within a specific geographic area shall be messaged by means of location specific messages and device knowledge of its location.

i. Simultaneous reception by target group or subgroups within seconds (defined by receiver battery charge preservation cycle) of transmission. No telephone network capacity issues limiting the number of calls per time frame.

i. FM-based systems use the Common Alerting Protocol for messaging, which can be integrated into existing Emergency Alert System capabilities, but distribute the alert to all FM stations without using a Primary Entry Point approach.

k. Wireless devices will be able to move between regions and communications areas, within the county, without losing the addressability and message receipt capability. FM receivers automatically tune to strongest FM signal in their location.

l. Multi-lingual messaging and hard of hearing visual display.[21]

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[21] The *NPRM* specifically seeks comment on technical/accessibility requirements to ensure that commercial mobile alerts can be received by people with disabilities and the elderly. *Id.*, ¶23. GSS believes that alerts should be available in multiple languages, specifically Spanish. In addition, for the elderly, who do not own a wireless phone or have Internet access, a simple, battery driven alert device should be available.

m. Option to add both SMS and email messaging capabilities out of the same FM-based message portal.

n. There is no requirement for entry of telephone numbers or links in alerts, thereby addressing potential privacy concerns.

V. CONCLUSION

A number of entities filing comments fully agreed with a number of the fundamental points made by GSS. These entities included organizations ranging from AT&T, Inc. to the National Association of Broadcasters. Point-to-multipoint transport technologies are the preferred construct for CMAS. The Federal government must play a role in administering any CMAS.

FM-radio-based alert technologies based on the RBDS standard have already successfully demonstrated their capabilities. These capabilities make such systems more effective in most alert contexts than systems relying on the DEAS. Skepticism of the viability of a CMAS relying on FM-radio-based systems using the RBDS standard is misplaced. The Commission should base its conclusions regarding FM-radio-based systems on the clear evidence of empirical success, not skeptical conjecture.

Respectfully submitted,

GLOBAL SECURITY SYSTEMS, LLC

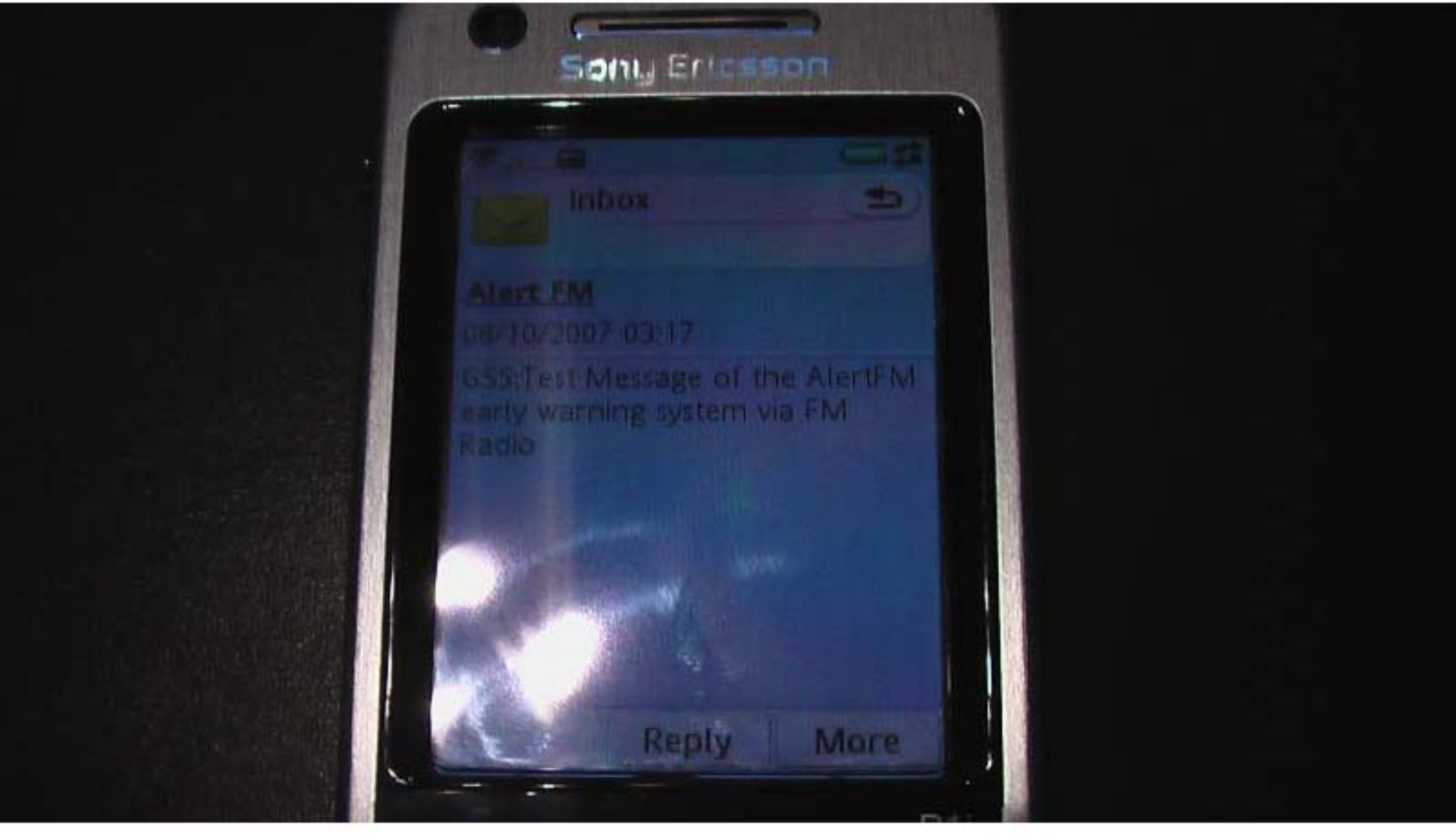
By: Matthew Straeb by PC

Matthew Straeb
Executive Vice President
Global Security Systems, LLC
308 East Pearl Street, Suite 202
Jackson, Mississippi 39201
(954) 850-6606

Paul C. Besozzi
Carly T. Didden
Patton Boggs LLP
2550 M Street NW
Washington, D.C. 20037
(202) 457-5292

Dated: February 19, 2008

EXHIBIT 1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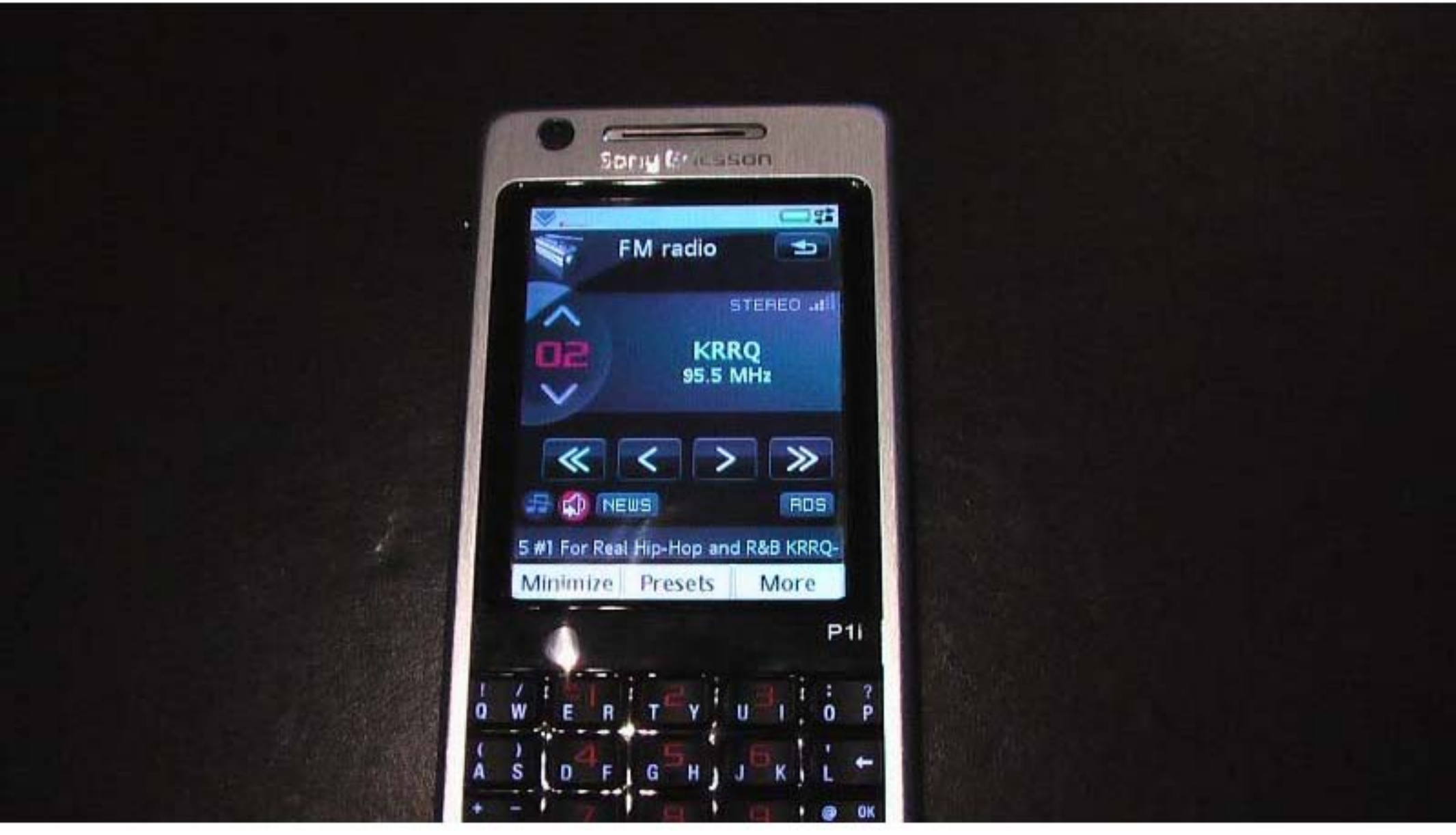
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CERTIFICATE OF SERVICE

I, Peter Andros, certify on this 19th day of February, 2008, a copy of the foregoing Reply Comments has been served via electronic mail or first class mail, postage pre-paid, to the following:

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20550
Marlene.dortch@fcc.gov

Patricia Paoletta
Chris Nierman
Harris, Wiltshire & Grannis LLP
1200 Eighteenth St., NW
Washington, D.C. 20036

Thomas Goode
Dierdre Cheek
Alliance for Telecommunications Industry Solutions
1200 G Street, N.W. Suite 500
Washington, D.C. 20005

Glen S. Rabin
Kimberly K. Cranford
Alltel Communications LLC
601 Pennsylvania Avenue, NW, Suite 720
Washington, D.C. 20004

Vic Jensen, Chairman
American Association of Paging Carriers
441 N. Crestwood Drive
Wilmington, NC 28405

Bryan Norcross
America's Emergency Network
4770 Biscayne Boulevard, Suite 940
Miami, FL 33137

Lonna M. Thompson
Malena F. Barzilai
Association of Public Television Stations
666 11th Street, N.W.
Suite 1100
Washington, D.C. 20001

Paul K. Mancini
Gary L. Phillips
Michael P. Goggin
M. Robert Sutherland
AT&T Inc.
1120 20th Street, NW
Washington, D.C. 20036

Christophe Poulain
Audemat Aztec
19595 NE 10th Avenue Ste A
Miami, FL 33179

Randolph Wu
Helen M. Mickiewicz
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

David L. Howard
Polster, Lieder, Woodruff & Lucchesi, LC
12412 Powerscourt Dr. Ste. 200
St. Louis, MO 63131

J. J. Richter
CEAS
17 Research Park Drive, Suite 200
St. Charles, MO 63304

Brian M. Josef
Michael F. Altschul
Christopher Guttman-McCabe
CTIA – The Wireless Association®
1400 16th Street, NW
Suite 600
Washington, D.C. 20036

George L. Lyon, Jr.
Lukas, Nace, Gutierrez & Sachs, Chartered
1650 Tysons Blvd., Suite 1500
McLean, VA 22102

Allison M. Ellis, Esq.
Ericsson Inc.
1634 I Street, N.W., Suite 600
Washington, D.C. 20006-4083

Pat Roberts
Florida Association of Broadcasters
201 South Monroe Street, Suite 201
Tallahassee, FL 32301

Max Mayfield
11812 S.W. 106 Avenue
Miami, FL 33176

Carl W. Northrop
J. Steven Rich
Paul, Hastings, Janofsky & Walker LLP
875 15th Street, NW 12th Floor
Washington, D.C. 20005

Jackie Lett
Mississippi Association of Broadcasters
855 S. Pear Orchard Road, Suite 403
Ridgeland, MS 391575

J.W. Ledbetter
Mississippi Office of Homeland Security
P.O. Box 958
Jackson, MS 39205

Thomas M. Womack
Mississippi Emergency Management Agency
P.O. Box 5644
Pearl, MS 39288

Mary E. Brooner
Motorola, Inc.
1455 Pennsylvania Avenue, NW
Suite 900
Washington, D.C. 20004

Marsha J. MacBride
Jane E. Mago
Ann West Bobeck
Kelly Williams
National Association of Broadcasters
1771 N Street, NW
Washington, D.C. 20036

James R. Hobson
Miller & Van Eaton, P.L.L.C.
1155 Connecticut Avenue, N.W.
Suite 1000
Washington, D.C. 20036-4320

Derek Khlopin
Nokia Inc. and Nokia Siemens Networks US LLC
1401 K Street, NW, Suite 450
Washington, D.C. 20005

Rickey L. Jaggers
Pontotoc County Emergency Management Agency
P.O. Box 109
Algoma, MS 38820 -0109

Bill Karl
Purple Tree Technologies
2511 Old 63 South
Columbia, MO 65201

David L. Nace
Pamela L. Gist
Lukas, Nace, Gutierrez & Sachs, Chartered
1650 Tysons Boulevard, Suite 1500
McLean, VA 22102

Christine M. Gill
Kevin M. Cookler
McDermott Will & Emery LLP
600 13th Street, NW
Washington, D.C. 20005 -3096

Laura H. Carter
Anna M. Gomez
Michael B. Fingerhut
Sprint Nextel Corporation
2001 Edmund Halley Drive
Reston, VA 20191

Tom Stroup, CEO
Square Loop, Inc.
1763 Fountain Dr., Ste. 101
Reston, VA 20190

Danielle Coffey
Patrick Donovan
Rebecca Schwartz
Telecommunications Industry Association
2500 Wilson Boulevard
Suite 300
Arlington, VA 22201

Lynn R. Charytan
Kenny A. Wright
Wilmer Cutler Pickering Hale & Dorr LLP
1875 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

John T. Scott III
Andre J. Lachance
Verizon Wireless
1300 I Street, NW - Suite 400 West
Washington, D.C. 20005

Helena Mitchell
Rehabilitation Engineering Research
Center for Wireless Technologies
500 Tenth St. NW
Atlanta, GA 30332

Karen Pasquale
County of Westchester, NY
148 Martine Avenue
White Plains, NY 10601

/s/ Peter Andros
Peter Andros