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**Secretary
Federal Communications Commission
Washington, DC 20554**

In the Matter of Review of the Emergency Alert System

EB Docket No. 04-296
Notice of Proposed Rule Making
Adopted: August 8, 2004

Released: August 12, 2004

Digital Alert Systems, LLC Comments Concerning the FCC Review of the Emergency Alert System

Introduction

Digital Alert Systems, LLC (DAS) complements all EAS participants for installing and implementing EAS and extends further appreciation to the FCC for recognizing the current shortcomings of EAS and providing an opportunity to recommend improvements. DAS fully endorses the Partnership for Public warning (PPW) response and agrees it provides a complete working guideline to improve EAS. The following comments add to that endorsement.

DAS believes future rulings should, in the most positive way, completely involve the State Emergency Communication Committees (SECC) and local emergency managers. The 1994, EAS ruling required participation and compliance from both TV/radio broadcasters and cable TV systems. It did not define, or explicitly require, participation or qualifications for management at the local level. For future EAS efficiency, the commission should recognize the need to properly train and properly equip this vitally important segment.

This response specifically requests the commission consider a newly developed technology referred to as Textual Data eXchange (TDX), which is a text transmission technique developed by DAS that can vastly improve the current EAS operations without obsolescing the existing installed base of equipment or procedures. TDX provides enhanced functionality and operation of the EAS system addressing the major criticism of EAS by adding significant and important details to the standard EAS protocol.

Moving beyond basic alerting abilities, any future EAS additions should include as much event related detail as possible. Effective emergency communications alerts and informs – the greater the information, the more complete the message, the better will be the response and recognition

of EAS's merits. In 2001, the Society of Broadcast Engineers (SBE) noted that local authorities criticized EAS for not providing information. Adding details to the EAS message addresses this criticism and will encourage more active local participation. Local or state authorities are in the best position to recognize, coordinate and distribute local information.

TDX vastly improves the level of communication within the EAS infrastructure by adding details to the EAS message. Members of the SBE, SCTE, PPW, and various government agencies have encouraged the further consideration and implementation of this method.

Background for TDX development:

In 2001, the SBE emphasized the need for text transmission in EAS by stating:

"If included in the relevant equipment and utilized by entities participating in the EAS system, SBE suggests that a protocol for text transmission would improve the options available to those broadcasters and cable operators desiring to make greater use of already formatted text messages. This would include, according to SBE, those broadcasters wishing to include detailed disaster information updates in the next programming break or newscast rather than immediately upon reception. SBE maintains that the lack of a detailed text transmission capability has caused considerable criticism of EAS, particularly from the hearing impaired community and local emergency managers. SBE suggests that EAS would have "the ultimate capabilities of disaster warning as well as disaster follow up management if the proper means of text transmission were included in the protocol". Under SBE's suggestion---"¹

In 2002 the FCC stated,

*"We encourage the broadcast and cable industries to work with state and local EAS authorities, the hearing impaired community and other interested parties to evaluate different text transmission techniques and develop an industry standard for EAS text transmission."*²

Extending EAS with TDX responds directly to the FCC's 2002, encouragement to investigate and recommend a text transmission technique. Further, it addresses other criticisms from the hearing impaired community and local emergency managers as noted by the SBE, and is able to significantly improve the options available to those broadcasters and cable operators desiring to make greater use of already formatted or existing text messages. The TDX method exactly addresses the improvement requested in the NPRM.

Perhaps the greatest benefit of TDX is in providing a bridge between the current EAS protocol and developing communication technologies. This ability not only improves EAS, it extends the life of the installed base, augmenting its value to address other NPRM questions.

¹ NOTICE OF PROPOSED RULEMAKING - FCC 01-88 EB Docket 01-66 Released March 20, 2001. § 25

² REPORT & ORDER - FCC 02-64 EB Docket 01-66 Released February 26, 2002 § 55

TDX Defined:

TDX is a text transmission technique that allows event specific details to be included in the EAS message. The TDX process places a data packet within the audio envelope of the EAS protocol. The most important point is it *does not change* the existing EAS protocol and therefore *will not obsolete* the installed base of existing EAS equipment. The TDX packet contains event specific data and/or pointer (i.e. hypertext) information directing decoder sites to event related data in an associated emergency database. This makes all available information instantly and automatically accessible at the output of the EAS decoder. Accessing external emergency databases provides information to better address people of diverse language and/or with disabilities, including sensory disabilities.

The TDX packet, placed before, during, or after any associated audio message, is of short enough duration so as not to be objectionable when added to the normal EAS tones and will not limit the event related audio.

TDX can also act as a bridge between the advances created with new and emerging emergency alerting technologies and the existing base that uses the current EAS protocol. TDX is the conduit that adds digital information within EAS alerts for interfacing to a host of newer information technologies. For instance, the World Wide Web or FTP address information from new systems, such as CAP (Common Alert Protocol) can be included in the TDX packet. This allows the great cost saving potential of extending the effective life of the current EAS system by enhancing its usefulness.

Existing and installed EAS encoders can be TDX enabled either with new software/firmware within the encoder or in an associated computer. Presently installed decoders can be TDX enabled with software and/or firmware from the original equipment manufacturer. Enabling the encoder and decoder makes details available, as digital, at the output of the decoder. This then, forms a complete emergency message providing both the alert and the critical emergency related information in digital form for display or for further distribution to developing communications systems.

New equipment can be TDX enabled in the manufacturing process by merely placing additional audio in the audio envelope of the standard EAS protocol again, without changing the protocol or any of the existing EAS communication mechanisms. The TDX packet uses the same type of tones presently used in the EAS header and End of Message codes allowing EAS vendors to economically recognize the packet and extract the information without changing tone recognition methods.

Textual Data eXchange (TDX) features:

- TDX enhances the effectiveness of EAS by providing details that elicit a more informed response
- TDX provides details, where most needed, when most needed
- TDX adds significant details to the EAS message
- TDX directly addresses the FCC request for a text transmission method in EAS
- TDX directly addresses current EAS criticism cited by the SBE
- TDX does not change, nor require modification of the EAS protocol
- TDX is a text transmission technique fully compatible with existing EAS systems and equipment
- TDX does not obsolete the installed base
- TDX provides a bridge between the current EAS system and developing emergency communication methods
- TDX can be incrementally added to any EAS configuration
- Installed decoders can (in most cases) be TDX enabled by the original equipment manufacturer
- Installed encoders can be TDX enabled by adding software to the encoder or to an associated computer system

Broadcasts, Demonstration and Field Tests:

Included, as appendices are copies and comments of actual EAS Child Abduction Emergency (CAE) activations in Utah³, simulated EAS messages demonstrated at the NWS offices in Silver Spring, Maryland in March of 2004⁴, and actual field tests conducted on August 24th and 25th, 2004, in Salt Lake City, Utah.

Field tests in Salt Lake City field included broadcasters, cable systems, NOAA and the Department of Homeland Security (DHS). The primary broadcaster, KSL, added the TDX packet and issued the tests; they were received, decoded, re-encoded and forwarded by the local NOAA site and received, decoded and displayed by TDX enabled decoders at the DHS office in the Utah State Capital and at the DAS facility⁵.

Implementation:

Encoder application software with instructions is available to encoder sites desiring to TDX enable their encoder. This software may be loaded into the EAS encoder or into an associated computer. The aforementioned field tests created the TDX packets in a DASDEC-1EN (EAS encoder/decoder) and transferred the packets to digital audio storage at KSL in Salt Lake City. A SAGE Endec (EAS encoder) activated the EAS message containing the TDX packet.

TDX is transparent to any installed EAS equipment. In addition, to forward an encoded EAS message containing a TDX packet does not require that the forwarding unit be TDX enabled. To prove this point, a non-TDX enabled TFT 911 unit at the Salt Lake City NOAA facility demonstrated this transparent forwarding ability during the field test. Moreover, EAS decoders, not upgraded to TDX, continue to maintain their current EAS compliance status.

EAS participants desiring to TDX enable their decoders should contact the manufacturer of their specific EAS equipment. DAS will provide instruction, assistance and support to all EAS vendors desiring to develop and implement this upgrade.

TDX provides more detail than has been available in any prior EAS message and therefore may require some system changes to properly display, print, or communicate this new information. TDX data, in digital form, may contain text, pictures, audio, or any combination. This type of data, available in associated databases, is available in digital form at the output of the decoder and will require decisions on how to most effectively display, forward, or otherwise handle this additional information.

Proper implementation planning can provide the greatest effect for the least amount of change. To reflect the greatest value, the most active encoders and decoders with the broadest coverage,

³ Child Abduction Emergency (CAE) activation in Utah

⁴ TDX demonstration March 30, 2004

⁵ TDX Field Tests August 24 & 25, 2004

should add TDX first. Other participants can add TDX as planned. It may be prudent to not TDX enable a decoder having very limited coverage.

Field Tests:

Highly successful field tests conducted in Salt Lake City, Utah, on the evening of August 24, 2004, and the morning of August 25, 2004, proved the viability of TDX. The primary broadcaster, KSL Radio (AM 1160), encoded a TDX enabled EAS test message using a SAGE Endec and the local NWS office decoded and forwarded the test using a TFT 911. The tests consisted of an Administrative Message (ADR) and a Required Monthly Test (RMT) event codes with FIPS codes for the state of Utah and parts of Wyoming and Arizona. A decoder at the DHS facility in the Utah State Capital, monitoring the NOAA transmission, decoded and displayed the ADR and associated TDX packet. Data in the second test packet contained a Universal Resource Locator (URL), which allowed the downloading of event related details from an external database. The NWS forwarding site, decoder sites at DHS, KSL, NOAA and Comcast in Salt Lake City, Utah, KBYU in Provo, Utah and the Adelphia cable system in Evanston, Wyoming were queried and reported normal operation without problems during the testing. To independently verify and ensure successful operation, Utah Broadcast Association President Dale Zabriskie is issuing a letter requesting feedback on these tests to all Utah broadcasters.

The initial field tests were very successful and proved that TDX could be transmitted, forwarded, received, and decoded making enhanced message details available for final distribution without interfering with or changing the operation of non-enabled equipment. DAS feels that these test results substantiate declarations made in this response.

TDX technology licensing arrangements:

TDX is a proprietary product of Digital Alert Systems, LLC, and a patent application covering this invention is on file. To insure that the benefits of this technology can be widely used, DAS will offer this technology to all EAS participants at reasonable terms and conditions under a series of non-exclusive licenses.

DAS recognizes the concern in considering a proprietary product to enhance EAS, however significant discussions with all EAS equipment vendors has already taken place. Moreover, one certified EAS vendor's product is already TDX enabled. Four other EAS vendors; Sage, Hollyanne, Trilithic, and TFT, have indicated their ability to upgrade current equipment to enable TDX and manufacture new equipment with TDX as a standard configuration or as a selectable option.

To insure that the benefits of TDX are fully considered, the member/managers of DAS are available to conduct further tests, discuss licensing of this important technology, address groups regarding the implementation and benefits of TDX, and address any concerns the commission or associated groups may harbor. DAS looks forward to serving the betterment of EAS and the FCC and is eager to respond to questions or comments by phone or e-mail at any time.

Respectfully submitted,

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APPENDIX 1

Child Abduction Emergency (CAE) activations in Utah

EAS message broadcast - September 19, 2004

A CHILD ABDUCTION EMERGENCY HAS BEEN ISSUED FOR THE FOLLOWING COUNTIES/AREAS: Coconino, AZ; Uinta, WY; Salt Lake, UT; Utah; AT 1:29 PM ON SEP 19,2004 EFFECTIVE UNTIL 2:29 PM. MESSAGE FROM NWS/SLC.

This was a TEST coordinated by the SECC. The audio portion defined the fact that this was a test. This “cry wolf” example does not provide details. While it did test the CAE event code, it literally alerted people from Arizona to Wyoming to an event that did not exist. One should recognize how little important information the current EAS message actually communicates. TDX provides the details needed to immediately disclaim any non-real condition.

EAS message broadcast - October 6, 2004

A CHILD ABDUCTION EMERGENCY HAS BEEN ISSUED FOR THE FOLLOWING COUNTIES/AREAS: Coconino,AZ; Uinta,WY; Salt Lake,UT; Utah; AT 8:26 PM ON OCT 6, 2004 EFFECTIVE UNTIL 9:26 PM. MESSAGE FROM NWS/SLC .

This was an actual abduction. The associated audio provided details about the abduction, however; KJZZ (TV) Channel 14 with local coverage in Salt Lake City, Provo, and Ogden, Utah, crawled the message without audio. KJZZ viewers did not have information about the child, the abductor, or the exact location. If a station is not going to provide the audio details, TDX could provide the additional information as a part of the crawl message presentation. Fortunately, information on a highway sign led to recovery of the child.

APPENDIX 2

TDX demonstration March 30, 2004.

The following are simulated EAS messages demonstrated at the NWS offices in Silver Spring, Maryland. Normal EAS messages were activated first and the same EAS messages with TDX data was issued second.

Normal EAS message

A CHILD ABDUCTION HAS BEEN ISSUED FOR THE FOLLOWING COUNTIES/AREAS: Sweetwater, WY at 10:14 AM on Oct 10, 2004, EFFECTIVE UNTIL 11:14 AM. MESSAGE FROM EAS.

The same EAS message appended with TDX

*A CHILD ABDUCTION HAS BEEN ISSUED FOR THE FOLLOWING COUNTIES/AREAS: Sweetwater, WY at 10:14 AM on Oct 10, 2004, EFFECTIVE UNTIL 11:14 AM. MESSAGE FROM EAS. **Tammy Day was abducted at Fourth and Main at about 9:45 AM. The abductor was male about 6'3" tall wearing blue bib overalls and a red checkered shirt. He was driving a black older model Ford pickup. Tammy is 10 years old, blond, brown eyes, about 70 pounds and was wearing a Green Jacket with Yellow pants. They were last seen going north on Fifth Street. Any information will help. Please call 888-5555.***

Bolded emphasis above added to show how the TDX appends the original EAS message.

APPENDIX 2 (continued)

Normal EAS message

*IMMEDIATE EVACUATION WARNING POLK/SAN JACINTO COUNTY
LIVINGSTON/COLD SPRING TX AT 2:40PM EFFECTIVE UNTIL 4:40 PM CDT
SAT JUN 9 2001, ISSUED BY NATIONAL WEATHER SERVICE
HOUSTON/GALVESTON TX.*

The same EAS message appended with TDX

*IMMEDIATE EVACUATION WARNING POLK/SAN JACINTO COUNTY
LIVINGSTON/COLD SPRING TX AT 2:40PM EFFECTIVE UNTIL 4:40 PM CDT
SAT JUN 9 2001, ISSUED BY NATIONAL WEATHER SERVICE
HOUSTON/GALVESTON TX. **The following message is transmitted at the request of
the Polk and San Jacinto County offices of Emergency Management due to imminent
flooding based on National Weather Service warnings. The Mayors of Polk and San
Jacinto Counties recommend evacuation of the following locations immediately. The
subdivisions of - River Lake Estates - Creekwood - Siesta Country - Hoot Owl Hollow
- Holiday Lakes - Taylor Lakes - Wells Landing - Sprotsmans Retreat - Lake
Livingston Reel and Rod - Bentwood Bend - Triple Creek Marina - and the immediate
area off of FB 2969 in Polk County - and Camilla Twin Harbors in San Jacinto
County - and any persons in low lying or flood prone areas along the Trinity River and
surrounding creeks. Evacuees are advised that the American Red Cross has opened a
shelter at the Goodrich High School in Polk County. An additional shelter has been
opened at the First Baptist Church in Camilla. In addition - the Trinity River will be
closed to all boat traffic effective immediately. Contact numbers are the Polk County
Emergency Management at (123) 456- 7890 OR (890) 567-1234.***

Bolded emphasis above added to show how the TDX appends the original EAS message.

APPENDIX 3

TDX Field Tests – August 24th & 25th, 2004

Digital Alert Systems is pleased to announce successful field tests of the TDX (Textual Data eXchange) enhancement to EAS. Participants included KSL Broadcast, NOAA, Comcast cable, and DHS offices at the Utah State Capital. These participants noted no adverse effects. The test areas included all of Utah and parts of Arizona, and Wyoming. A letter to area broadcasters requested comments.

On the evening of August 24th, the ADR shown below was originated by KSL on a SAGE Endec, forwarded by NOAA on a TFT 911, and decoded by a TDX enabled decoder located at the Utah State Capital in Salt Lake City. Information beginning with: “This is a test -“ was placed as data in the TDX packet and is shown below as an appendage to the standard ADR text. The TDX message including the added detail was approximately 2.5 seconds in length.

ADR message

*AN ADMINISTRATIVE MESSAGE HAS BEEN ISSUED FOR THE FOLLOWING COUNTIES/AREAS: Utah; AT 9:05 PM ON AUG 24, 2004 EFFECTIVE UNTIL 10:05 PM. MESSAGE FROM NWS/SLC. **This is a test of Textual Data eXchange (TDX) enhanced EAS. TDX will provide extra details to EAS.***

Bolded emphasis above added to show how the TDX appends the original EAS message.

APPENDIX 3 (continued)

On the morning of August 25, 2004, KSL (AM 1160) in Salt Lake City, issued a RMT with TDX data packet consisting of the HTTP URL http://www.xmission.com/~wood/tdx_test.txt, using a TDX enabled SAGE Endec encoder. The TFT 911 at the NOAA facility automatically forwarded the RMT. A TDX enabled DASDEC EAS decoder located at the Digital Alert Systems facility in Salt Lake City, received and decoded the RMT and TDX data packet. The detailed information below starting with, "This is a test ---" was retrieved from the World Wide Web and appended to the standard EAS alert information.

This demonstrates TDX's ability to add details to the EAS protocol using IP based communications techniques. It also shows the transmission and forwarding of the TDX packet containing the URL.

RMT message

A REQUIRED MONTHLY TEST HAS BEEN ISSUED FOR THE FOLLOWING COUNTIES/AREAS: Coconino,AZ; Uinta,WY; Salt Lake,UT; Utah; AT 5:51 AM ON AUG 25, 2004 EFFECTIVE UNTIL 6:51 AM. MESSAGE FROM NWS/SLC . This is a test of the Textual Data eXchange (TDX) enhancement to the Emergency Alert System. This text information is provided via the World Wide Web at address http://www.xmission.com/~wood/tdx_test.txt. TDX encoding of this web address, into the audio portion of an EAS message, has provided the means to broadcast these details inside a standard EAS message. Custom EAS software on the Digital Alert Systems DASDEC-1EN EAS encoder/decoder supports TDX encoding and decoding. This has allowed the provided web address to be sent within an EAS message, and has allowed this message to be read via the provided web address. The result is the ability to quickly and greatly enhance details for any EAS message. This message edited on Aug 25, 2005.

Bold emphasis above shows information retrieved from the World Wide Web as directed by addressing (URL) placed in the TDX packet. The TDX packet did not adversely affect the TFT 911 located at the NOAA facility or the installed decoder (not TDX enabled) at the Comcast headend.

The TDX packet sounds like the addition of tones similar to the header or End of Message tones in a normal EAS message. The duration of the packet is of concern to broadcasters. Placing the URL in the packet provides all of the event related information available and keeps the duration short. Packet duration in the above example was approximately 2.5 seconds.