

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
ECC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 3.1 & 4.1

COMPLIANCE TEST RESULTS

Encoder

ENCODER TRANSMIT LOG:

THE NATIONAL WEATHER
SERVICE HAS ISSUED A
TORNADO WARNING FOR THE
FOLLOWING
COUNTIES/AREAS: HENRY,
FULTON, AND WOOD ON
OCTOBER 30, 1995 AT 4:50
PM EFFECTIVE UNTIL 5:20
PM. MESSAGE TRANSMITTED
ON OCTOBER 30, 1995 AT
4:50 PM FROM WAAA.

EAS PROTOCOL TEXT:
ZCZC-WXR-TOR-039069-0390
51-039173+0030-3032150-W
AAA -

PRINTED ON MONDAY
OCTOBER 30, 1995 AT
16:50.

.....

Decoder

DECODER RECEIVE LOG:

THE NATIONAL WEATHER
SERVICE HAS ISSUED A
TORNADO WARNING FOR THE
FOLLOWING
COUNTIES/AREAS: HENRY,
FULTON, AND WOOD ON
OCTOBER 30, 1995 AT 4:50
PM EFFECTIVE UNTIL 5:20
PM. MESSAGE RECEIVED ON
OCTOBER 30, 1995 AT 4:50
PM FROM WAAA.

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-WXR-TOR-039069-0390
51-039173+0030-3032150-W
AAA -

PRINTED ON MONDAY
OCTOBER 30, 1995 AT
16:50.

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TESTED BY EH, VI ^{ac} DATE 10-30-95

11. Verification of decode of CEM(Civil Emergency) event from CIV originator.

STIMULUS	EXPECTED RESPONSE	OBSERVED RESPONSE
Channel 1: [PREAMBLE] 3310900-WAAA/FM (repeated two more times with 1 second pauses) B second two tone Channel 2: (idle)	Channel 1 LED: ON while FSK transmitting. Channel 2 LED: OFF. Speaker: Open squelch to pass channel 1 after 2nd packet received and verified. LCD, Printer: A CIVIL AUTHORITY HAS ISSUED A CIVIL EMERGENCY MESSAGE FOR THE FOLLOWING COUNTIES/AREAS: BALDWIN ON NOVEMBER 27, 1995 AT 3:00 AM EFFECTIVE UNTIL 3:45 AM. MESSAGE RECEIVED ON NOVEMBER 27, 1995 AT 3:01 AM FROM WAAA/FM. CHANNEL 1 EAS PROTOCOL TEXT: ZCZC: CIV-CEM-001003 + 0045-3310900-WAAA/FM - MSG WAITING LED: Flashing. MESSAGE ALERT Relay: Activated after 2nd packet received and verified. ON-AIR Relay: No response. XLR Audio Output: No audio.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD, Printer: ✓ MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓ SEE TAPES
Channel 1: [PREAMBLE]NNNN (repeated two more times with 1 second pauses) Channel 2: (idle)	Channel 1 LED: ON while FSK transmitting. Channel 2 LED: OFF. Speaker: Squelched OFF after first packet decoded. LCD Display: Message scrolls until MSG WAITING push button is pressed. Printer: No action. MSG WAITING LED: Remains flashing until MSG WAITING push button is pressed. MESSAGE ALERT Relay: Deactivates on first EOM packet received. ON-AIR Relay: No response. XLR Audio Output: No audio.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD Display: ✓ Printer: ✓ MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓

Note: 1. Local time is Central Standard 2. Local station is KAAA/AM.

TESTED BY: Sh, N DATE: 10/30/95

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART II TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 3.1 + 4.i

COMPLIANCE TEST RESULTS

Encoder

Decoder

ENCODER TRANSMIT LOG:

A CIVIL AUTHORITY HAS
ISSUED A CIVIL EMERGENCY
MESSAGE FOR THE
FOLLOWING
COUNTIES/AREAS: BALDWIN
ON OCTOBER 30, 1995 AT
4:53 PM EFFECTIVE UNTIL
5:38 PM. MESSAGE
TRANSMITTED ON OCTOBER
30, 1995 AT 4:53 PM FROM
WAAA/FM.

EAS PROTOCOL TEXT:
ZCZC-CIV-CEM-001003+0045
-3032153-WAAA/FM -

PRINTED ON MONDAY
OCTOBER 30, 1995 AT
16:53.

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DECODER RECEIVE LOG:

A CIVIL AUTHORITY HAS
ISSUED A CIVIL EMERGENCY
MESSAGE FOR THE
FOLLOWING
COUNTIES/AREAS: BALDWIN
ON OCTOBER 30, 1995 AT
4:53 PM EFFECTIVE UNTIL
5:38 PM. MESSAGE
RECEIVED ON OCTOBER 30,
1995 AT 4:53 PM FROM
WAAA/FM.

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-CIV-CEM-001003+0045
-3032153-WAAA/FM -

PRINTED ON MONDAY
OCTOBER 30, 1995 AT
16:53.

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TESTED BY SH, M ac DATE 10-30-95

12. Verification of decode of CEM(Civil Emergency) event from EAS originator.

STIMULUS	EXPECTED RESPONSE	OBSERVED RESPONSE
Channel 1: (PREAMBLE) ZCZC-EAS-CEM-326139 + 0030-0721200-WAAA/FM - Repeated two more times with 1 second pauses) 8 second two tone Channel 2: (idle)	Channel 1 LED: ON while FSK transmitting. Channel 2 LED: OFF. Speaker: Open squelch to pass channel 1 after 2nd packet received and verified. LCD, Printer: A BROADCAST STATION OR CABLE SYSTEM HAS ISSUED A CIVIL EMERGENCY MESSAGE FOR THE FOLLOWING COUNTIES/AREAS: NORTHEAST OTTAWA ON MARCH 13, 1995 AT 7:00 AM EFFECTIVE UNTIL 7:30 AM. MESSAGE RECEIVED ON MARCH 13, 1995 AT 7:01AM FROM WAAA/FM. CHANNEL 1 EAS PROTOCOL TEXT: ZCZC-EAS-CEM-326139 + 0030-0721200-WAAA/FM - MSG WAITING LED: Flashing. MESSAGE ALERT Relay: Activated after 2nd packet received and verified. ON-AIR Relay: No response. XLR Audio Output: No audio.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD, Printer: ✓ MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓ SEE TAPES
Channel 1: (PREAMBLE)NNNN Repeated two more times with 1 second pauses) Channel 2: (idle)	Channel 1 LED: ON while FSK transmitting. Channel 2 LED: OFF. Speaker: Squelched OFF after first packet decoded. LCD Display: Message scrolls until MSG WAITING push button is pressed. Printer: No action. MSG WAITING LED: Remains flashing until MSG WAITING push button is pressed. MESSAGE ALERT Relay: Deactivates on first EOM packet received. ON-AIR Relay: No response. XLR Audio Output: No audio.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD Display: ✓ Printer: ✓ MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓

Note: 1. Local time is Eastern Standard 2. Local station is KAAA/AM.

TESTED BY: SLM ae DATE: 11-6-95

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART II TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 3.1 & 4.1

COMPLIANCE TEST RESULTS

Encoder

ENCODER TRANSMIT LOG:

A BROADCAST STATION OR
CABLE SYSTEM HAS ISSUED
A CIVIL EMERGENCY
MESSAGE FOR THE
FOLLOWING
COUNTIES/AREAS:
NORTHEAST OTTAWA ON
NOVEMBER 6, 1995 AT 1:59
PM EFFECTIVE UNTIL 2:29
PM. MESSAGE TRANSMITTED
ON NOVEMBER 6, 1995 AT
1:59 PM FROM WAAA(FM).

EAS PROTOCOL TEXT:
ZCZC-EAS-CEM-326139+0030
-3102159-WAAA(FM)-

PRINTED ON MONDAY
NOVEMBER 06, 1995 AT
13:59.

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Decoder

DECODER RECEIVE LOG:

A BROADCAST STATION OR
CABLE SYSTEM HAS ISSUED
A CIVIL EMERGENCY
MESSAGE FOR THE
FOLLOWING
COUNTIES/AREAS:
NORTHEAST OTTAWA ON
NOVEMBER 6, 1995 AT 4:59
PM EFFECTIVE UNTIL 5:29
PM. MESSAGE RECEIVED ON
NOVEMBER 6, 1995 AT 1:58
PM FROM WAAA(FM).

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAS-CEM-326139+0030
-3102159-WAAA(FM)-

PRINTED ON MONDAY
NOVEMBER 06, 1995 AT
13:58.

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TESTED BY EH, N ^{al} DATE 11-6-95

13. Verification of decode of TOR(Tornado Warning) event from WXR originator.

STIMULUS	EXPECTED RESPONSE	OBSERVED RESPONSE
Channel 1: (PREAMBLE) ZCZC-WXR-TOR-024005 + 0015- 1601000-WAAA/FM - (repeated two more times with 1 second pause) Channel 2: (idle)	Channel 1 LED: ON while FSK transmitting. Channel 2 LED: OFF. Speaker: Open squelch to pass channel 1 after 2nd packet received and verified. LCD, Printer: THE NATIONAL WEATHER SERVICE HAS ISSUED A TORNADO WARNING FOR THE FOLLOWING COUNTIES/AREAS: BALTIMORE ON JUNE 9, 1995 AT 6:00 AM EFFECTIVE UNTIL 6:15 AM. MESSAGE RECEIVED ON JUNE 9, 1995 AT 6:01 AM FROM WAAA/FM. CHANNEL 1 EAS PROTOCOL TEXT: ZCZC-WXR-TOR-024005 + 0015-1601000-WAAA/FM - MSG WAITING LED: Flashing. MESSAGE ALERT Relay: Activated after 2nd packet received and verified. ON-AIR Relay: No response. XLR Audio Output: No audio.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD, Printer: ✓ MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓ SEE TAPES
Channel 1: (PREAMBLE)NNNN (repeated two more times with 1 second pause) Channel 2: (idle)	Channel 1 LED: ON while FSK transmitting. Channel 2 LED: OFF. Speaker: Squelched OFF after first packet decoded. LCD Display: Message scrolls until MSG WAITING push button is pressed. Printer: No action. MSG WAITING LED: Remains flashing until MSG WAITING push button is pressed. MESSAGE ALERT Relay: Deactivates on first EDM packet received. ON-AIR Relay: No response. XLR Audio Output: No audio.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD Display: ✓ Printer: ✓ MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓

Note: 1. Local time is Eastern Daylight 2. Local station is KAAA/AM.

TESTED BY: Sh, M 02 DATE: 10/30/95

**CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
ECC ID: BIOEAS911D**

COMPLIANCE TEST NUMBER 3.1 & 4.1

COMPLIANCE TEST RESULTS

Encoder

Decoder

ENCODER TRANSMIT LOG:

THE NATIONAL WEATHER
SERVICE HAS ISSUED A
TORNADO WARNING FOR THE
FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 30,
1995 AT 4:58 PM
EFFECTIVE UNTIL 5:13 PM.
MESSAGE TRANSMITTED ON
OCTOBER 30, 1995 AT 4:58
PM FROM WAAA(FM).

EAS PROTOCOL TEXT:
ZCZC-WXR-TOR-024005+0015
-3032158-WAAA(FM)-

PRINTED ON MONDAY
OCTOBER 30, 1995 AT
16:58.

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DECODER RECEIVE LOG:

THE NATIONAL WEATHER
SERVICE HAS ISSUED A
TORNADO WARNING FOR THE
FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 30,
1995 AT 4:58 PM
EFFECTIVE UNTIL 5:13 PM.
MESSAGE RECEIVED ON
OCTOBER 30, 1995 AT 4:58
PM FROM WAAA(FM).

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-WXR-TOR-024005+0015
-3032158-WAAA(FM)-

PRINTED ON MONDAY
OCTOBER 30, 1995 AT
16:58.

.....

TESTED BY SH, M ^{al} DATE 10-31-95

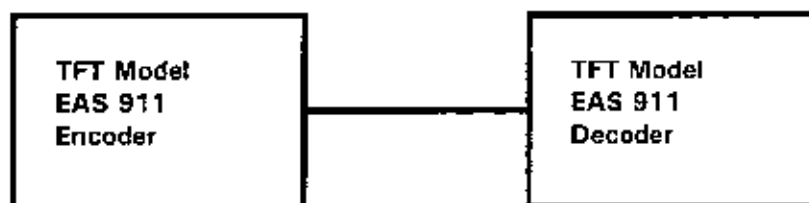
4.1.1 Test Objective

The objective of this test is to verify decoding of the EAS protocol as described in §11.31 as required in §11.33(a):

§11.33(a):

An EAS Decoder must at a minimum be capable of decoding the EAS protocol described in §11.31.

4.1.2 Test Block Diagram



4.1.3 Test Methodology

This test consists of decoding the 13 example FCC EAS messages. The stimulus is on audio channel 1 using a TFT Model EAS 911 encoder. The response to each message is given in detail as discussed in §11.33.

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: B10EAS911D

COMPLIANCE TEST NUMBER 4.1

TEST DESCRIPTION EAS Decoder Protocol Verification

DATE/TIME 10/30/95

PERSON(S) PERFORMING TEST ERIC HILF, TONY TAM

TEST SITE TFT INC SANTA CLARA CA

TEST EQUIPMENT

TEST METHODOLOGY PER 4.1.3

SEE RESULTS FOR COMPLIANCE TESTS 3.1 & 4.1

al
EH, TT

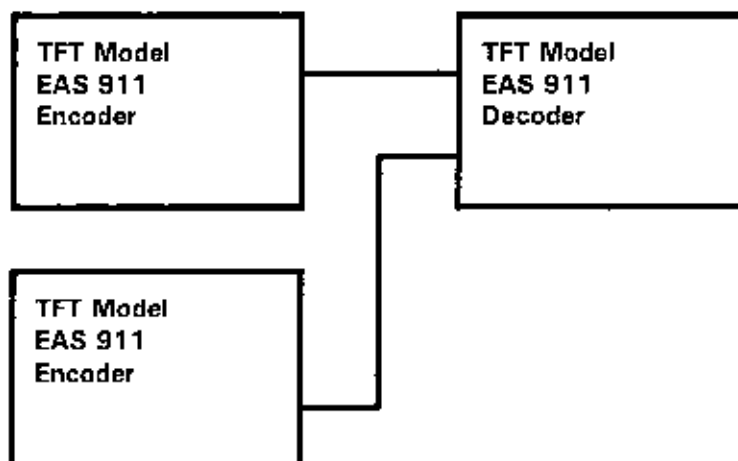
4.2.1 Test Objective

This test verifies the ability to decode two simultaneous incoming messages to demonstrate compliance with:

§11.33(a)(1)

Inputs. Decoders must have the capability to receive at least 2 audio inputs from EAS monitoring assignments, and one data input (RS-232C with standard protocol and 1200 baud rate). The data input may be used to monitor other communications modes such as Radio Broadcast Data System (RBDS), NWR, satellite, public switched telephone network, or any other source that uses the EAS protocol.

4.2.2 Test Block Diagram



4.2.3 Test Methodology

Messages are presented simultaneously on audio channel 1 and audio channel 2. Two EAS 911 encoders are used as audio sources.

Verification of decode of two channel simultaneous input.

Test 4.2

STIMULUS	EXPECTED RESPONSE	OBSERVED RESPONSE
Channel 1: [PREAMBLE] ZCZC-EAN-EAN-026000- 026111+0015-0101700- WAAA/FM - (repeated two more times with 1 second pauses) 8 second two tone Channel 2: [PREAMBLE] ZCZC-WXR-TOR-024005 + 0015- 1601000-WAAA/FM - (repeated two more times with 1 second pauses)	Channel 1 LED: ON while FSK transmitting. Channel 2 LED: ON while FSK transmitting. Speaker: Open squelch to pass channel 1 after 2nd packet received and verified. LCD, Printer: THE EMERGENCY ACTION NOTIFICATION NETWORK HAS ISSUED AN EMERGENCY ACTION NOTIFICATION FOR THE USA ON JANUARY 10, 1995 AT 12:00 PM EFFECTIVE UNTIL 12:15 PM. MESSAGE RECEIVED ON JANUARY 10, 1995 AT 12:01 PM FROM WAAA/FM. CHANNEL 1 EAS PROTOCOL TEXT: ZCZC-EAN-EAN-026000-026111 + 0015-0101700-WAAA/FM - MSG WAITING LED: Flashing. MESSAGE ALERT Relay: Activated after 2nd packet received and verified. ON-AIR Relay: Activated after 2nd packet received and verified. XLR Audio Output: One second of silence after ON-AIR Relay activates, followed by: [PREAMBLE] ZCZC-EAN-EAN-026000-026111 + 0015-0101700-KAAA/AM - (repeated two more times with 1 second pauses) 8 second two tone. Followed by patch through of CH1 audio.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD, Printer: ✓ MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓ SEE TAPES
Channel 1: [PREAMBLE]NNNN (repeated two more times with 1 second pauses) Channel 2: [PREAMBLE]NNNN (repeated two more times with 1 second pauses)	Channel 1 LED: ON while FSK transmitting. Channel 2 LED: ON while FSK transmitting. Speaker: Squelched OFF after first packet decoded. LCD Display: Message scrolls until MSG WAITING push button is pressed. Printer: No action. MSG WAITING LED: Remains flashing until MSG WAITING push button is pressed. MESSAGE ALERT Relay: Deactivates after sending EOM. ON-AIR Relay: Deactivates after sending EOM. XLR Audio Output: Goes silent on first EOM packet received.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD Display: ✓ Printer: ✓ MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓

Note: 1. Local time is Eastern Standard 2. Local station is KAAA/AM.

TESTED BY: ZH ad DATE: 10/31/95

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART II TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 4.2

COMPLIANCE TEST RESULTS

CHANNEL 1

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON OCTOBER 31,
1995 AT 10:12 AM
EFFECTIVE UNTIL 10:27
AM. MESSAGE TRANSMITTED
ON OCTOBER 31, 1995 AT
10:12 AM FROM WAAA/FM.

EAS PROTOCOL TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3041512-WAAA/FM
-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:12.

CHANNEL 2

ENCODER TRANSMIT LOG:

THE NATIONAL WEATHER
SERVICE HAS ISSUED A
TORNADO WARNING FOR THE
FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 10:13 AM
EFFECTIVE UNTIL 10:28
AM. MESSAGE TRANSMITTED
ON OCTOBER 31, 1995 AT
10:13 AM FROM WBBB/FM.

EAS PROTOCOL TEXT:
ZCZC-WXR-TOR-024005+0015
-3041813-WBBB/FM -

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:13.

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON OCTOBER 31,
1995 AT 10:12 AM
EFFECTIVE UNTIL 10:27
AM. MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT
10:12 AM FROM WAAA/FM.

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3041512-WAAA/FM
-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:12.

DECODER RECEIVE LOG:

THE NATIONAL WEATHER
SERVICE HAS ISSUED A
TORNADO WARNING FOR THE
FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 1:13 PM
EFFECTIVE UNTIL 1:28 PM.
MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT
10:12 AM FROM WBBB/FM.

CHANNEL 2 EAS PROTOCOL
TEXT:
ZCZC-WXR-TOR-024005+0015
-3041813-WBBB/FM -

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:12.

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON OCTOBER 31,
1995 AT 10:12 AM
EFFECTIVE UNTIL 10:27
AM. MESSAGE TRANSMITTED
ON OCTOBER 31, 1995 AT
10:12 AM FROM KAAA/AM.

EAS PROTOCOL TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3041512-KAAA/AM
-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:12.

TESTED BY ELM DATE 10/31/95

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4.3.1 Test Objective

The objective of this test is to verify valid EAS header codes have been received in accordance with the following paragraphs:

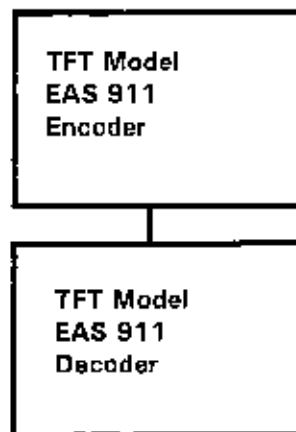
§11.33(a)(2)

Valid Codes. There must be a means to determine if valid EAS header codes are received and to determine if preselected header codes are received.

§11.33(a)(10)

Message Validity. An EAS Decoder must provide error detection and validation of the header codes of each message to ascertain if the message is valid. Header code comparisons may be accomplished through the use of a bit-by-bit compare or any other error detection and validation protocol. A header code must only be considered valid when two of the three headers match exactly.

4.3.2 Test Block Diagram



4.3.3 Test Methodology

By a special software procedure, a TFT Model EAS 911 is made to transmit headers containing random bit errors in one, two, or all three packets that comprise an EAS header. A header containing bit errors in just one packet must pass, but a header containing two or more packets with random bit errors must not pass.

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART II TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 4.3

TEST DESCRIPTION DECODER VALID CODE VERIFICATION

DATE/TIME 11/6/95 14:30

PERSON(S) PERFORMING TEST ERIC HILF, TONY TAM

TEST SITE TFT INC. SANTA CLARA CA

TEST EQUIPMENT

TEST METHODOLOGY PER 4.3.3

VERIFIED BY OBSERVATION THAT THE MODEL 911 WILL DECODE +
GENERATE AN ALERT FOR HEADERS WITH BIT ERRORS IN JUST ONE
PACKET, BUT WILL NOT GENERATE AN ALERT IF TWO OR MORE
PACKETS HAVE BIT ERRORS

EH, TT *al*

4.4.1 Test Objective

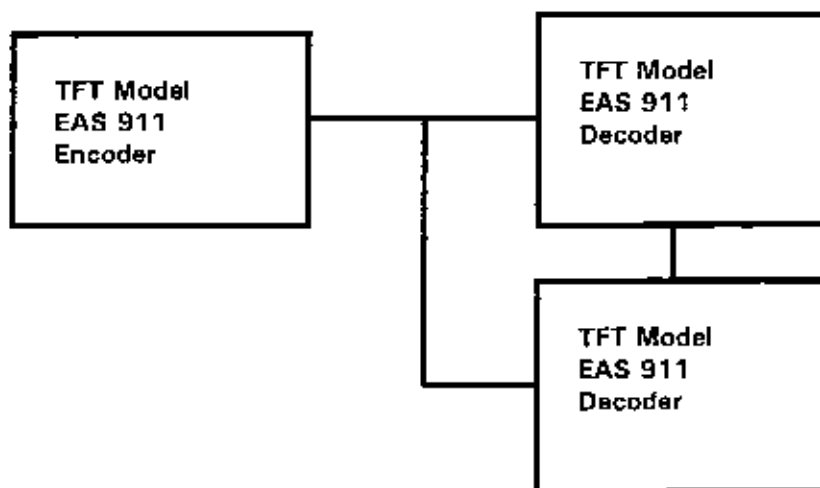
The objective of this test is to verify that means for message storage are provided in accordance with:

§11.33(a)(3)

Storage. Decoders must provide the means to:

- (i) Record and store at least two minutes of audio or text messages.*
- (ii) Store at least 10 preselected header codes for comparison with incoming header codes. A non-preselected header code that is manually transmitted must be stored for comparison with later incoming header codes. The header codes of the last ten received valid messages which still have valid time periods must be stored for comparison with the incoming valid header codes of later messages. The header codes will be deleted from storage as their valid time periods expire.*

4.4.2 Test Block Diagram



4.4.3 Test Methodology

For (i), verification of two minutes or more of audio or text transmission storage is performed in conjunction with an external tape recorder. The message alert relay is observed to activate upon successful decode and verification of an EAS message which in turn activates a remote tape recorder. A two minute voice message is produced that is followed by an EOM transmission. The EOM causes the message alert relay to deactivate and thereby stop the recorder.

For (ii), the capability to store 10 headers is verified in conjunction with compliance tests 3.1 and 4.1, and memory retention tests 3.6 and 4.7. To verify that stored headers are compared with incoming headers, three EAS 911 units are connected as shown in the block diagram above. An EAS 911 encoder is used to send a message to two EAS 911 decoders simultaneously, both of which are in auto mode and have been programmed to forward this message. It is verified that the third unit receives and decodes but does not forward the message forwarded to it, as it has just received and forwarded this same message.

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 4.4

TEST DESCRIPTION DECODER STORAGE VERIFICATION

DATE/TIME 10/31/95

PERSON(S) PERFORMING TEST ERIC HILF, TONY TAM

TEST SITE TFT INC SANTA CLARA CA

TEST EQUIPMENT _____

TEST METHODOLOGY PER 4.4.3

STORAGE OF IO HEADERS IS VERIFIED IN CONJUNCTION WITH
COMPLIANCE TESTS 3.1, 4.1

SEE FOLLOWING DATA FOR EVIDENCE OF MESSAGE COMPARISON.

EH, AT.

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 4.4

RECEIVE STATION #1

COMPLIANCE TEST RESULTS

TRANSMITTER

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 10:33 AM
EFFECTIVE UNTIL 10:48
AM. MESSAGE TRANSMITTED
ON OCTOBER 31, 1995 AT
10:33 AM FROM WAAA(FM).

EAS PROTOCOL TEXT:
ZCZC-EAN-TOR-024005+0015
-3041533-WAAA(FM)-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:33.

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FORWARD
→

TESTED BY SH.71 DATE 10/31/95

ce 10/31/95

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 10:33 AM
EFFECTIVE UNTIL 10:48
AM. MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT
10:33 AM FROM WAAA(FM).

CHANNEL 2 EAS PROTOCOL
TEXT:
ZCZC-EAN-TOR-024005+0015
-3041533-WAAA(FM)-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:33.

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 10:33 AM
EFFECTIVE UNTIL 10:48
AM. MESSAGE TRANSMITTED
ON OCTOBER 31, 1995 AT
10:34 AM FROM WBBB/FM.

EAS PROTOCOL TEXT:
ZCZC-EAN-TOR-024005+0015
-3041533-WBBB/FM -

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:34.

CERTIFIED REPORT OF MEASUREMENT FOR TET, INC.
FCC PART 11 TESTING
TET MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 4.4

COMPLIANCE TEST RESULTS

RECEIVED - STATION #2

FORWARDED

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 10:33 AM
EFFECTIVE UNTIL 10:48
AM. MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT
10:33 AM FROM WAAA(FM).

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-TOR-024005+0015
-3041533-WAAA(FM)-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:33.

RECEIVED BUT NOT
FORWARDED

(FROM RECEIVE STATION 1)

TESTED BY 3H, 71 DATE 10/31/95

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 10:33 AM
EFFECTIVE UNTIL 10:48
AM. MESSAGE TRANSMITTED
ON OCTOBER 31, 1995 AT
10:34 AM FROM KAAA/AM.

EAS PROTOCOL TEXT:
ZCZC-EAN-TOR-024005+0015
-3041533-KAAA/AM -

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:34.

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 10:33 AM
EFFECTIVE UNTIL 10:48
AM. MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT
10:34 AM FROM WBBB(FM).

CHANNEL 2 EAS PROTOCOL
TEXT:
ZCZC-EAN-TOR-024005+0015
-3041533-WBBB(FM) -

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
10:35.

4.5.1 Test Objective

This test verifies the requirement to produce a visible display of valid EAS messages in compliance with §11.33(a)(4):

§11.33(a)(4):

Display. A visual message shall be developed from any valid EAS header codes received. The message will include the Originator, Event, Location, the valid time period of the message and the local time the message was transmitted. The message shall be in the primary language of the broadcast station or cable system and be fully displayed on the decoder and readable in normal light and darkness.

4.5.2 Test Block Diagram



4.5.3 Test Methodology

This test follows the same procedure as described in section 4.1 "EAS Decoder Protocol Verification" with attention given to the back lit LCD and LED indicators on the front panel, and also to the printer.

**CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D**

COMPLIANCE TEST NUMBER 4.5

TEST DESCRIPTION DECODER DISPLAY VERIFICATION

DATE/TIME 10/31/95 10:45

PERSON(S) PERFORMING TEST ERIC HILF + TONY TAM

TEST SITE TFT INC SANTA CLARA CA

TEST EQUIPMENT _____

TEST METHODOLOGY LCD OBSERVED TO DISPLAY MESSAGE IN

PREVIOUS TESTS (3.1 + 4.1) - SEE DATA SHEETS

EH, M.

cel

4.6.1 Test Objective

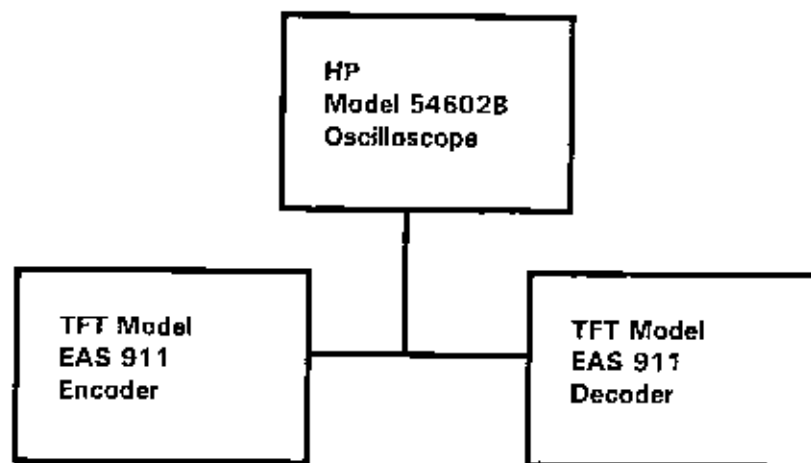
This test verifies the requirement to produce aural and visible indicators of EAS messages in compliance with §11.33(a)(5):

§11.33(a)(5)

Indicators. EAS Decoders must have a distinct aural or visible means to show that it is activated when:

- (i) any valid EAS header codes are received as specified in §11.33(a)(10).*
- (ii) preprogrammed header codes, such as those selected in accordance with §11.52(d) are received.*
- (iii) a signal is present at each audio input that is specified in §11.33(a)(1).*

4.6.2 Test Block Diagram



4.6.3 Test Methodology

The first test follows the same procedure as described in section 4.1 "EAS Decoder Protocol Verification" with attention given to the back-lit LCD, front panel LED indicators, and the printer. Proper response is observed and verified.

A second test is also performed on audio channel 1 and 2 to determine that signal energy present that is greater than 0.7 Vp-p causes the corresponding front panel indicator LED to illuminate. An alternating MARK-SPACE pattern is applied as the test tone.

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART II TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 4.6

TEST DESCRIPTION DECODED INDICATOR VERIFICATION

DATE/TIME 10/31/95

PERSON(S) PERFORMING TEST ERIC HILF & TONY TAM

TEST SITE TFT INC SANTA CLARA CA

TEST EQUIPMENT OSCILLOSCOPE, HP MODEL 54602B

TEST METHODOLOGY

(i) SEE PREVIOUS TEST DATA FOR VERIFICATION OF LCD, LED,
SPEAKER, & PRINTER ACTIVITY UPON RECEIPT OF A VALID
EAS MESSAGE (3.1 & 4.1)

(ii) SEE PREVIOUS DATA

(iii) VERIFIED THAT ACTIVITY LED FOR CHANNELS 1 & 2 IS LIT
WHEN A SIGNAL IS PRESENT WITH A LEVEL OF $V_{pp} \geq 0.7$

EH, TT

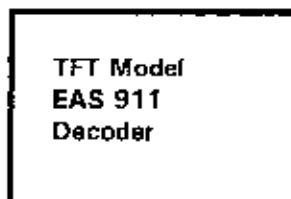
4.7.1 Test Objective

This test verifies the requirement to retain program data when power is removed:

§11.33(a)(6)

Program Data Retention. The program data must be retained even with power removed.

4.7.2 Test Block Diagram



4.7.3 Test Methodology

Data retention through power interruptions is verified by observing the last ten transmitted and received EAS messages as recorded on the printer and by review of the internal message log of the TFT Model EAS 911. The indicated time is also calibrated with local time and recorded. Power is then removed for 12 hours. When power is reapplied the last ten transmitted and received EAS messages are again reviewed and compared to the earlier data. The time is also recorded and compared with local time. The messages must match before and after power is removed and the time agree within 5 seconds of the correct time.

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: B10EAS911D

COMPLIANCE TEST NUMBER 4.7

TEST DESCRIPTION DECODER DATA RETENTION

DATE/TIME 10/30/95 - 10/31/95

PERSON(S) PERFORMING TEST ERIC HILF EH

TEST SITE TFT SANTA CLARA CA

TEST EQUIPMENT

TEST METHODOLOGY PER 4.7.3

POWER REMOVED @ 18:15 ON 10/30/95, AND THEN RE-APPLIED
@ 08:45 ON 10/31/95. ALL DATA VERIFIED SAME AS
BEFORE.

EH 10/31/95

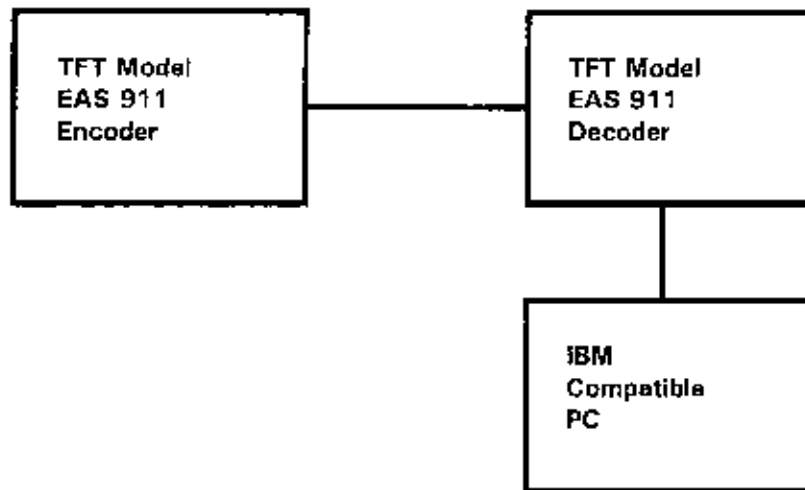
4.8.1 Test Objective

The objective of this test is to verify the required outputs of the decoder:

§11.33(a)(7)

Outputs. Decoders shall have the following outputs: a data port or ports (RS-232C with standard protocol and 1200 baud rate) where received valid EAS header codes and received preselected header codes are available; one audio port that is capable of monitoring each decoder audio input; and, an internal speaker to enable personnel to hear audio from each input.

4.8.2 Test Block Diagram



4.8.3 Test Methodology

This test follows a procedure similar to that described in section 3.4 "Encoder Output Verification". The test message ZCZC-EAN-RMT-026000-026111+0015-0101700-WAAA/FM - is sent from a TFT Model EAS 911 encoder. Successful audio decode is verified by another TFT Model EAS 911, and output from the data port of the receiving TFT Model EAS 911 is verified using an IBM compatible personal computer to capture RS232C output at 1200 baud.

Observations are made to confirm output from the speaker.

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 4.8

COMPLIANCE TEST RESULTS

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A REQUIRED
MONTHLY TEST FOR THE
FOLLOWING
COUNTIES/AREAS: MIDLAND
ON NOVEMBER 7, 1995 AT
5:55 PM EFFECTIVE UNTIL
6:10 PM. MESSAGE
RECEIVED ON NOVEMBER 7,
1995 AT 5:55 PM FROM
WAAA/FM.

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-RMT-026000-0261
11+0015-3112255-WAAA/FM
-

PRINTED ON TUESDAY
NOVEMBER 07, 1995 AT
17:55.

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A REQUIRED
MONTHLY TEST FOR THE
FOLLOWING
COUNTIES/AREAS: MIDLAND
ON NOVEMBER 7, 1995 AT
5:55 PM EFFECTIVE UNTIL
6:10 PM. MESSAGE
TRANSMITTED ON NOVEMBER
7, 1995 AT 5:56 PM FROM
WAAA/FM.

EAS PROTOCOL TEXT:
ZCZC-EAN-RMT-026000-0261
11+0015-3112255-WAAA/FM
-

PRINTED ON TUESDAY
NOVEMBER 07, 1995 AT
17:56.

SEE FOLLOWING PAGE FOR XTALK PC
CAPTURE OF DATA PORT OUTPUT

TESTED BY SH/V DATE 11/7/95

SEnding SENDEOM.PC:

[STX] [BEL] ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -[ETX] [STX] [BEL] ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -[ETX] [STX] [BEL] ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -ZCZC-EAN-RMT-026000-026111+0015-3112255-WAAA/FM -[ETX]

Esc for AtTention, Home to SWitch

□

Capture Off

□

Local

26, 71.

11/7/95

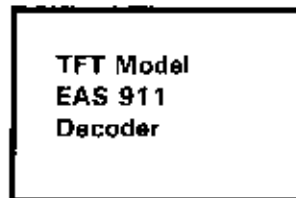
4.9.1 Test Objective

The objective of this test is to verify that access to decoder programming is protected:

§11.33(a)(8)

Decoder Programming. Access to decoder programming shall be protected by a lock or other security measures and be configured so that authorized personnel can readily select and program the EAS Decoder with preselected Originator, Event and Location Codes for either manual or automatic operation.

4.9.2 Test Block Diagram



4.9.3 Test Methodology

Password entry is verified for access to the encoder.

A second password is also verified for the user to gain access to both encoder and decoder programming functions.

Password changes require initial password entry, and this is also verified.

CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D

COMPLIANCE TEST NUMBER 4.9
TEST DESCRIPTION ENCODER / SETUP ACCESS VERIFICATION
DATE/TIME 10/30/95 17:10
PERSON(S) PERFORMING TEST ERIC HILF EH
TEST SITE TFT SANTA CLARA CA
TEST EQUIPMENT EAS 911

TEST METHODOLOGY PER 4.9.3
VERIFIED PRIMARY PASSWORD ENTRY REQUIRED TO ACCESS
ENCODER; VERIFIED 2ND SETUP PASSWORD ENTRY
REQUIRED TO ACCESS SETUP COMMANDS TO PROGRAM
DECODER

EH OK
10/30/95

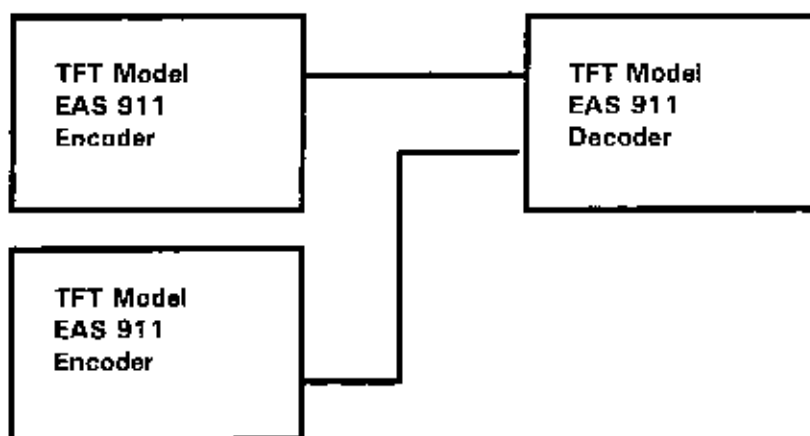
4.10.1 Test Objective

This objective of this test is to verify automatic and manual reset:

§11.33(a)(9)

Reset. There shall be a method to automatically or manually reset the decoder to the normal monitoring condition. If an end of message code (EOM) is not received for an EAS message, operators shall be able to select an automatic reset time which may not be less than two minutes. Messages received with the EAN Event codes shall disable the reset function so that lengthy audio messages can be handled. The last message received with valid header codes shall be displayed as required by §11.33(a)(4) of this section before the decoder is reset.

4.10.2 Test Block Diagram



4.10.3 Test Methodology

An EAN message is transmitted to the decoder on channel 1, and a lengthy delay follows before the EOM is sent. During this delay time other non-EAN messages are sent to the decoder on channel 2. It is verified that these messages are buffered but do not affect the automatic forwarding of the EAN message. The ON-AIR and MESSAGE ALERT relays are confirmed to stay active until the EOM is received on channel 1.

Manual reset on any received message in progress is verified by pressing the MSG WAITING key on the TFT Model EAS 911 front panel.

Automatic delayed reset of non-EAN messages is confirmed by sending a message with no following EOM. The decoder times out after the preprogrammed 120 second interval, and an automatic reset is observed and verified.

**CERTIFIED REPORT OF MEASUREMENT FOR TFT, INC.
FCC PART 11 TESTING
TFT MODEL EAS911D
EMERGENCY ALERT SYSTEM ENCODER/DECODER
FCC ID: BIOEAS911D**

COMPLIANCE TEST NUMBER 4.10

TEST DESCRIPTION DECODER RESET VERIFICATION

DATE/TIME 10/31/95 11:30

PERSON(S) PERFORMING TEST ERIC HILF & TONY TAM

TEST SITE TFT INC SANTA CLARA CA

TEST EQUIPMENT _____

TEST METHODOLOGY PER 4.10.3; MODEL 911 RECEIVED AN EAN MSG
ON CH1 WITHOUT EOM - THEN ANOTHER EAS MSG ARRIVED ON CH2
AND VERIFIED THAT THIS 2ND MSG DOES NOT DISTURB DISPLAY OR
FORWARDING OF EAN BUT IS LOGGED & PRINTED; VERIFIED AUTO
RESET AFTER 2 MIN TIMEOUT OF 'NON-EAN' MSG -> ALERT
RELAY SWITCHED OFF WHEN EOM NOT RECEIVED FOR 2 MIN;
MANUAL RESET OBSERVED WHEN MSG-WAITING KEY IS
PRESSED

EH, TT al

10/31/95

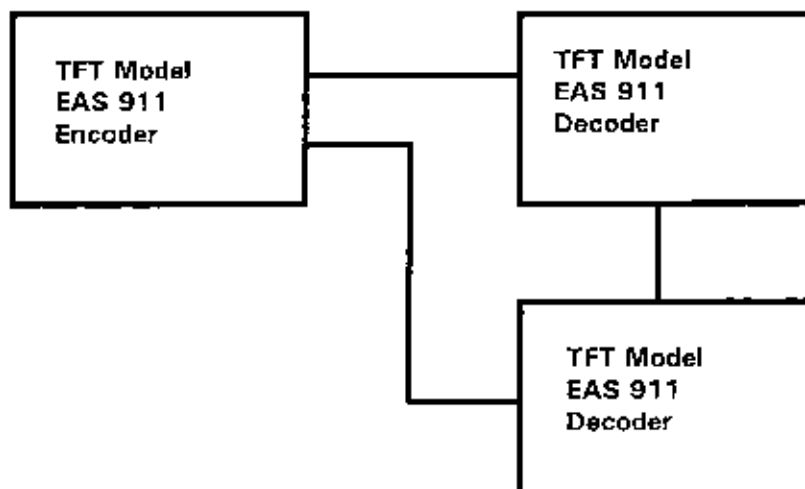
4.11.1 Test Objective

This test verifies duplicate message checking as specified in §11.33(a)(10):

§11.33(a)(10)

... Duplicate messages must not be relayed automatically.

4.11.2 Test Block Diagram



4.11.3 Test Methodology

This test to verify that duplicate messages are not forwarded automatically is identical to that described in 4.4.3.