

5.2 Encoder Primary Supply Voltage Variation Verification

5.2.1 Test Objective

The objective of this test is to verify that both the encoder and decoder meet primary supply voltage variation requirements:

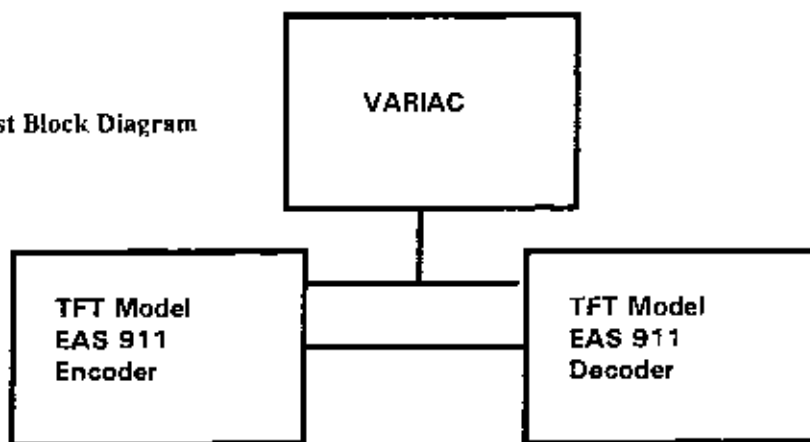
§11.32(c)

Primary Supply Voltage Variation. Encoders shall be capable of complying with the requirements of this section during a variation in primary supply voltage of 85 percent to 115 percent of its rated value.

§11.33(b)

Decoders shall be capable of operation within the tolerances specified in this section as well as those in §§ 11.32(b), (c), and (d).

5.2.2 Test Block Diagram



5.2.3 Test Methodology

The test message ZCZC-EAN-EAN-026000-026111+0015-0101700-WAAA/FM - is sent through from the encoder to decoder through audio channel 1. Successful encode and decode is verified at 102 VAC and 138 VAC.

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 5.2i

COMPLIANCE TEST RESULTS

102 V AC @ 60 HZ ENCODER

RECEIVING STATION
DECODES
PROPERLY

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A PRACTICE/DEMO
WARNING FOR THE
FOLLOWING
COUNTIES/AREAS: SAN
MATEO ON OCTOBER 31,
1995 AT 1:27 PM
EFFECTIVE UNTIL 1:42 PM.
MESSAGE TRANSMITTED ON
OCTOBER 31, 1995 AT 1:27
PM FROM KAAA/AM.

EAS PROTOCOL TEXT:
ZCZC-EAN-DMD-006081+0015
-3041827-KAAA/AM -

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
13:27.

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A PRACTICE/DEMO
WARNING FOR THE
FOLLOWING
COUNTIES/AREAS: SAN
MATEO ON OCTOBER 31,
1995 AT 1:27 PM
EFFECTIVE UNTIL 1:42 PM.
MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT 1:27
PM FROM KAAA/AM.

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-DMD-006081+0015
-3041827-KAAA/AM -

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
13:27.

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

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 5.2

COMPLIANCE TEST RESULTS 138 V AC @ 60HZ ENCODER

RECEIVING STATION
DECODES
PROPERLY

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A PRACTICE/DEMO
WARNING FOR THE
FOLLOWING
COUNTIES/AREAS: SAN
MATEO ON OCTOBER 31,
1995 AT 1:31 PM
EFFECTIVE UNTIL 1:46 PM.
MESSAGE TRANSMITTED ON
OCTOBER 31, 1995 AT 1:31
PM FROM KAAA/AM.

EAS PROTOCOL TEXT:
ZCZC-EAN-DMO-006081+0015
-3041831-KAAA/AM -

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

.....

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A PRACTICE/DEMO
WARNING FOR THE
FOLLOWING
COUNTIES/AREAS: SAN
MATEO ON OCTOBER 31,
1995 AT 1:31 PM
EFFECTIVE UNTIL 1:46 PM.
MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT 1:31
PM FROM KAAA/AM.

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-DMO-006081+0015
-3041831-KAAA/AM -

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

.....

TESTED BY 346, 21 ^{al} 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 5.2

DECODE @ 138 V AC

COMPLIANCE TEST RESULTS

DECODE @ 102 V AC

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 1:37 PM
EFFECTIVE UNTIL 1:52 PM.
MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT 1:37
PM FROM WAAA(FM).

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-TOR-024005+0015
-3041837-WAAA(FM)-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
13:37.

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 1:37 PM
EFFECTIVE UNTIL 1:52 PM.
MESSAGE TRANSMITTED ON
OCTOBER 31, 1995 AT 1:37
PM FROM WAAA(FM).

EAS PROTOCOL TEXT:
ZCZC-EAN-TOR-024005+0015
-3041837-WAAA(FM)-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
13:37.

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 1:40 PM
EFFECTIVE UNTIL 1:55 PM.
MESSAGE RECEIVED ON
OCTOBER 31, 1995 AT 1:40
PM FROM WAAA(FM).

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-TOR-024005+0015
-3041840-WAAA(FM)-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
13:40.

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED A TORNADO WARNING
FOR THE FOLLOWING
COUNTIES/AREAS:
BALTIMORE ON OCTOBER 31,
1995 AT 1:40 PM
EFFECTIVE UNTIL 1:55 PM.
MESSAGE TRANSMITTED ON
OCTOBER 31, 1995 AT 1:40
PM FROM WAAA(FM).

EAS PROTOCOL TEXT:
ZCZC-EAN-TOR-024005+0015
-3041840-WAAA(FM)-

PRINTED ON TUESDAY
OCTOBER 31, 1995 AT
13:40.

TESTED BY 34, 71 DATE 10/31/95

ce

5.3.1 Test Objective

The objective of this test is to verify that both the encoder and decoder meet electromagnetic field susceptibility requirements:

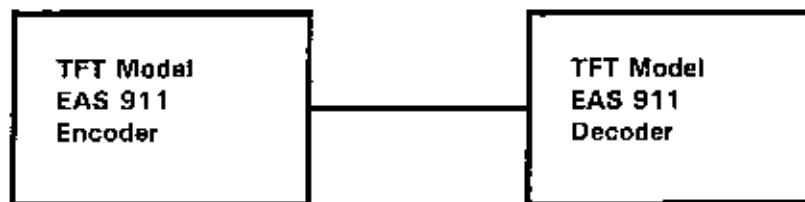
§11.32(d)

Testing Encoder Units. Encoders not covered by §11.34(e) of this part shall be tested in a 10 V/m minimum RF field at an AM broadcast frequency and a 0.5 V/m minimum RF field at an FM or TV broadcast frequency to simulate actual working conditions.

§11.33(b)

Decoders shall be capable of operation within the tolerances specified in this section as well as those in §§ 11.32(b), (c), and (d).

5.3.2 Test Block Diagram



5.3.3 Test Methodology

The test message ZCZC-EAN-EAN-026000-026111+0015-0101700-WAAA/FM - is sent through from the encoder to decoder through audio channel 1. Successful decode is verified at an AM broadcast transmission field site with RF field levels at or exceeding 10 V/m.

The test message ZCZC-EAN-EAN-026000-026111+0015-0101700-WAAA/FM - is sent through from the encoder to decoder through audio channel 1. Successful decode is verified at an FM broadcast transmission field site with RF field levels at or exceeding 0.5 V/m.

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 5.3 AM testing

TEST DESCRIPTION Encoder/Decoder Electromagnetic Field Susceptibility
Verification

DATE/TIME 11-7-95 9:30 AM PST

PERSON(S) PERFORMING TEST Tony Tam, Paul Black, Paul Marks

TEST SITE KVTO 1400 KHZ AM 1 KW

TEST EQUIPMENT Potomac Instruments, Inc.

Type: FIM-21 S/N: 944

TEST METHODOLOGY Measured field at greater than 10V/m
at 1 KW. Test site located at the base of vertical
radiator antenna.

EAN message sent on audio channel 1. Results
4 tapes observed. All seem normal.

Paul T Black

Tony Tam

Paul J. Marks

1. Verification of decode of EAN (Emergency Action Notification) event from EAN originator.

Test 5.3 (2m)

STIMULUS	EXPECTED RESPONSE	OBSERVED RESPONSE
Channel 1: [PREAMBLE] ZCZC-EAN-EAN-026000- 026111 + 0015-0101700- WAAA/FM - [repeated two more times with 1 second pause] 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: 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 pause] 8 second two tone. Followed by patch through of CH1 audio.	Channel 1 LED: ✓ Channel 2 LED: ✓ Speaker: ✓ LCD, Printer: ✓ <i>See tape</i> MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓
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 after sending EOM. ON-AIR Relay: Deactivates after sending EOM. XLR Audio Output: Goes silent after sending EOM 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: M

DATE: 11-7-95

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 5.3 AM Testing

COMPLIANCE TEST RESULTS

Encoder

Decoder

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON NOVEMBER 7,
1995 AT 9:30 AM
EFFECTIVE UNTIL 9:45 AM.
MESSAGE TRANSMITTED ON
NOVEMBER 7, 1995 AT 9:30
AM FROM WAAA/FM.

EAS PROTOCOL TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3111730-WAAA/FM
-

PRINTED ON TUESDAY
NOVEMBER 07, 1995 AT
09:30.

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON NOVEMBER 7,
1995 AT 12:30 PM
EFFECTIVE UNTIL 12:45
PM. MESSAGE RECEIVED ON
NOVEMBER 7, 1995 AT 9:30
AM FROM WAAA/FM.

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3111730-WAAA/FM
-

PRINTED ON TUESDAY
NOVEMBER 07, 1995 AT
09:30.

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON NOVEMBER 7,
1995 AT 12:30 PM
EFFECTIVE UNTIL 12:45
PM. MESSAGE TRANSMITTED
ON NOVEMBER 7, 1995 AT
9:30 AM FROM WAAA/FM.

EAS PROTOCOL TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3111730-WAAA/FM
-

PRINTED ON TUESDAY
NOVEMBER 07, 1995 AT
09:30.

TESTED BY 21 DATE 11-7-95

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 5.3 FM field testing *Field*
TEST DESCRIPTION Encoder/Decoder Electromagnetic Susceptibility
DATE/TIME 11-7-95 11:15 AM PST *Verification*
PERSON(S) PERFORMING TEST Tony Tam, Paul Black, Paul Marks
TEST SITE KBLX 102.9 FM, Mt. San Bruno, SF
TEST EQUIPMENT Potomac Instruments, Inc.
Type: FM-71 S/N: 239

TEST METHODOLOGY Measured KIOI at 1.4 V/m. *Ref*
Performed test at KBLX antenna site. KIOI antenna
is panel radiator. Power is 125KW.
EAN message sent and observed. Test's ok

Paul T. Black

Tony Tam

Paul J. Marks

1. Verification of decode of EAN (Emergency Action Notification) event from EAN originator.

Test 5.3 (FM)

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: (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 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: ✓ <i>See tapes</i> MSG WAITING LED: ✓ MESSAGE ALERT Relay: ✓ ON-AIR Relay: ✓ XLR Audio Output: ✓
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 after sending EOM. ON-AIR Relay: Deactivates after sending EOM. XLR Audio Output: Goes silent after sending EOM 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: M

DATE: 11-7-95

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 5.3 FM Testing

COMPLIANCE TEST RESULTS

Encoder

Decoder

ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON NOVEMBER 7,
1995 AT 11:15 AM
EFFECTIVE UNTIL 11:30
AM. MESSAGE TRANSMITTED
ON NOVEMBER 7, 1995 AT
11:15 AM FROM WAAA/FM.

EAS PROTOCOL TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3111915-WAAA/FM

PRINTED ON TUESDAY
NOVEMBER 07, 1995 AT
11:15.

DECODER RECEIVE LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON NOVEMBER 7,
1995 AT 2:15 PM
EFFECTIVE UNTIL 2:30 PM.
MESSAGE RECEIVED ON
NOVEMBER 7, 1995 AT
11:15 AM FROM WAAA/FM.

CHANNEL 1 EAS PROTOCOL
TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3111915-WAAA/FM

PRINTED ON TUESDAY
NOVEMBER 07, 1995 AT
11:15.

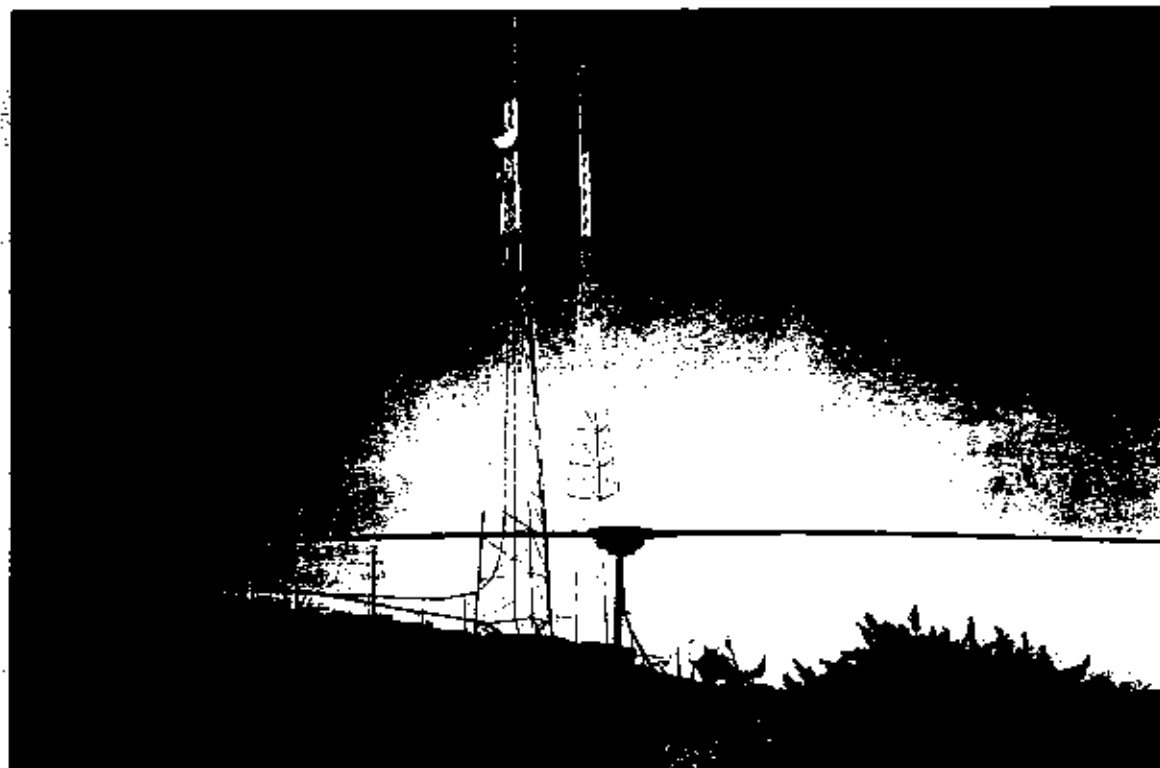
ENCODER TRANSMIT LOG:

THE EMERGENCY ACTION
NOTIFICATION NETWORK HAS
ISSUED AN EMERGENCY
ACTION NOTIFICATION FOR
THE USA ON NOVEMBER 7,
1995 AT 2:15 PM
EFFECTIVE UNTIL 2:30 PM.
MESSAGE TRANSMITTED ON
NOVEMBER 7, 1995 AT
11:15 AM FROM WAAA/FM.

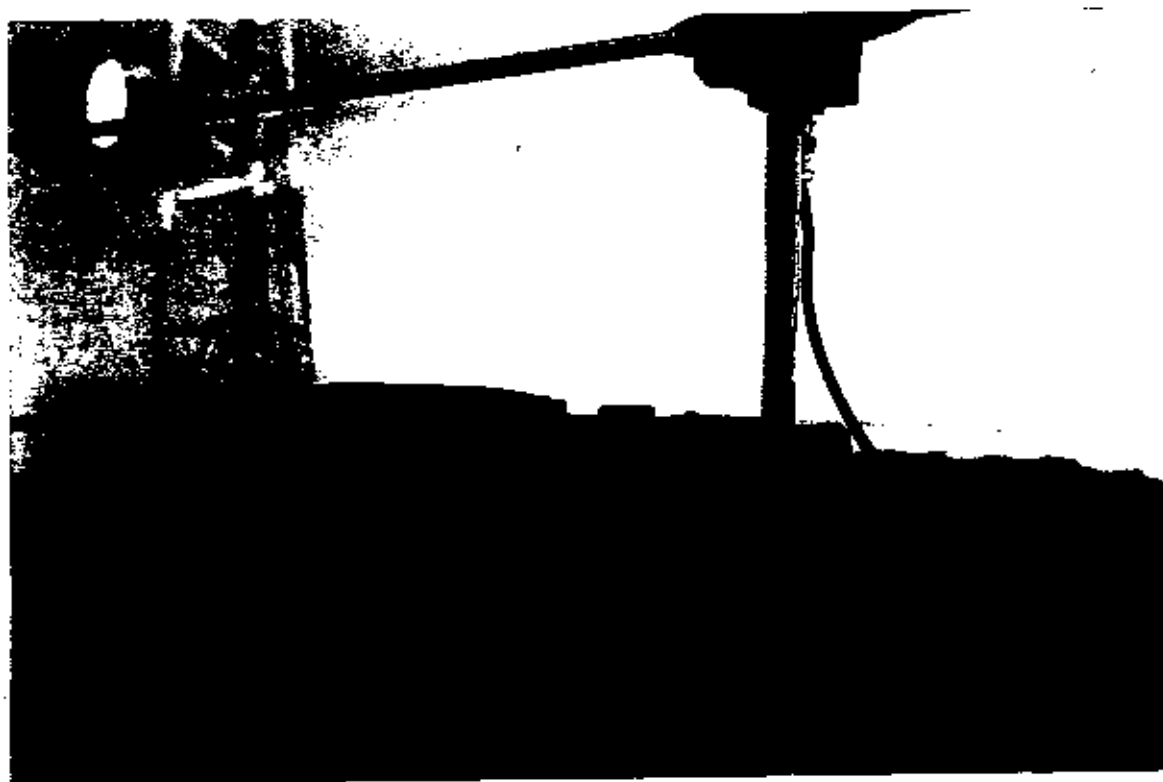
EAS PROTOCOL TEXT:
ZCZC-EAN-EAN-026000-0261
11+0015-3111915-WAAA/FM

PRINTED ON TUESDAY
NOVEMBER 07, 1995 AT
11:15.

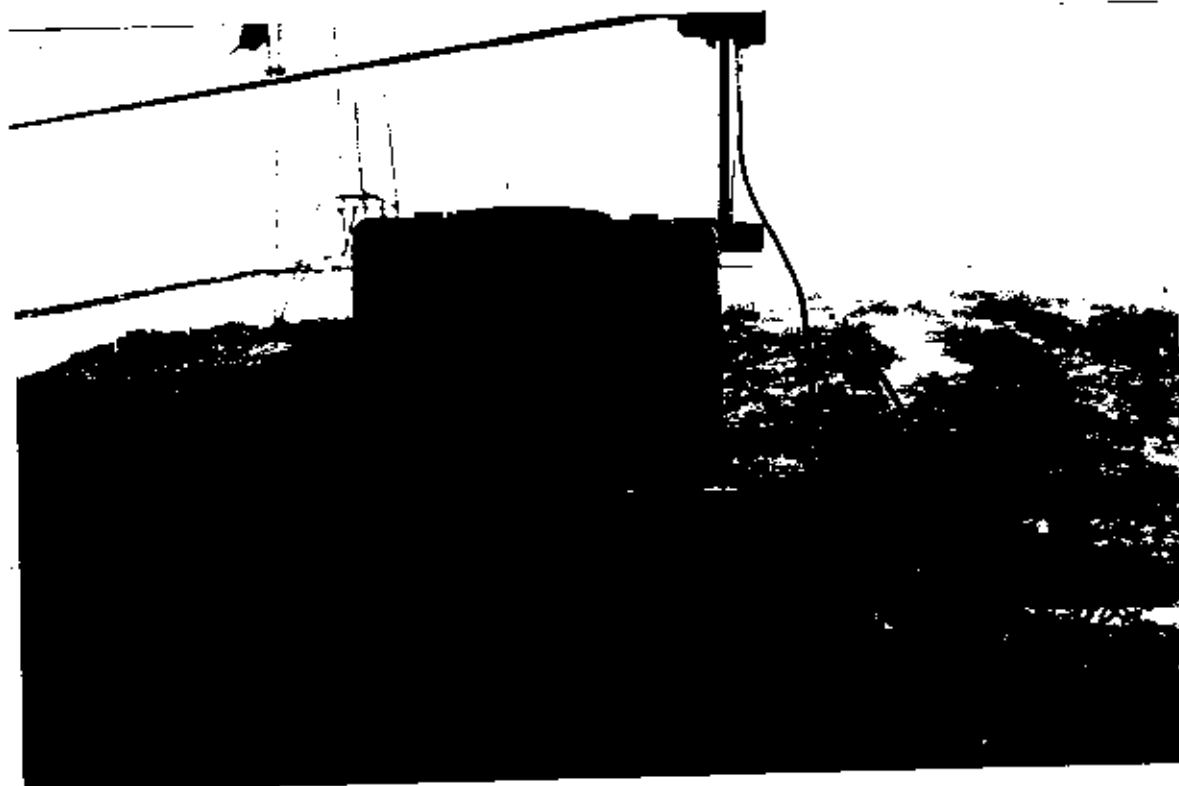
TESTED BY W DATE 11-7-95



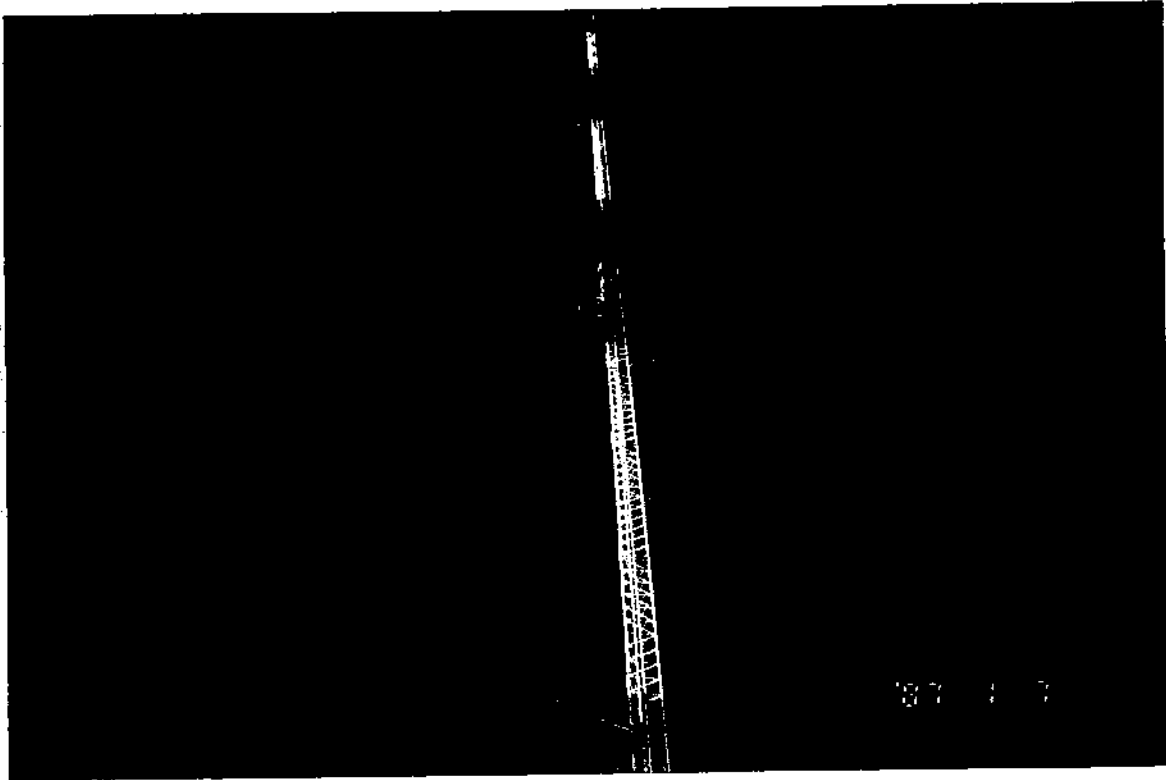
Transmission Tower - FM Testing



EAS911 and Field Strength Meter - FM Testing



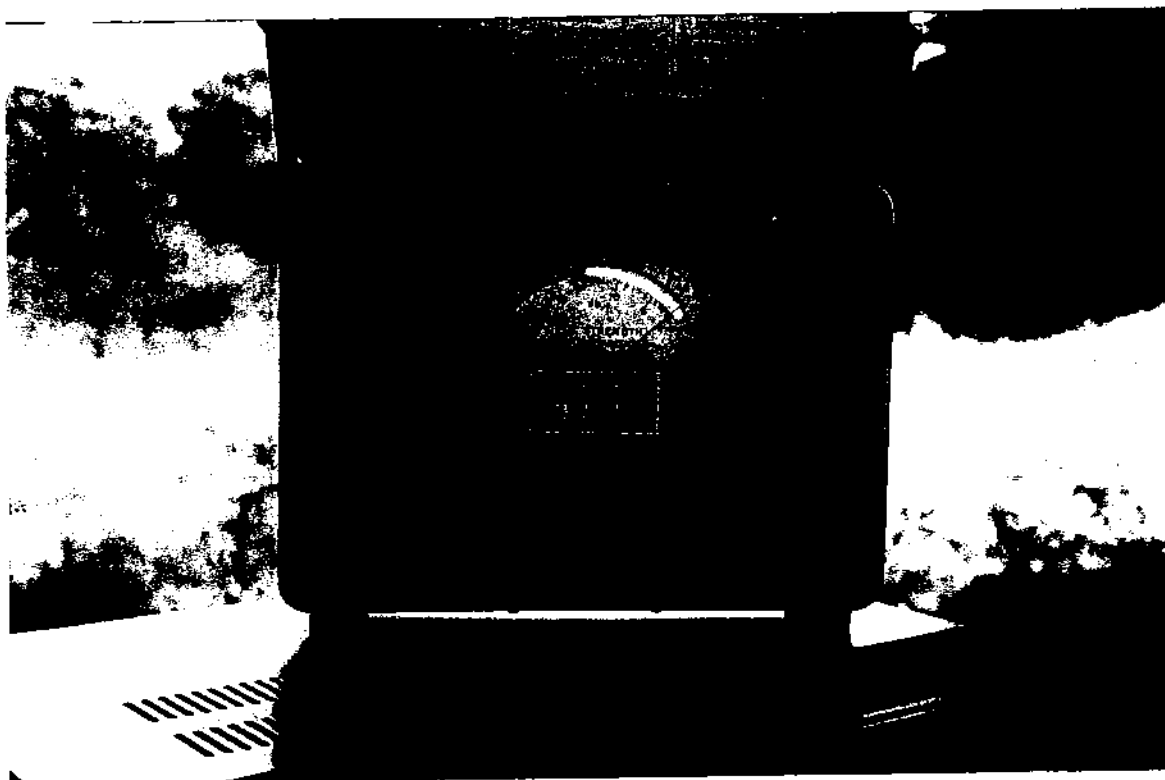
EAS911 and Field Strength Meter in Test Site - FM Testing



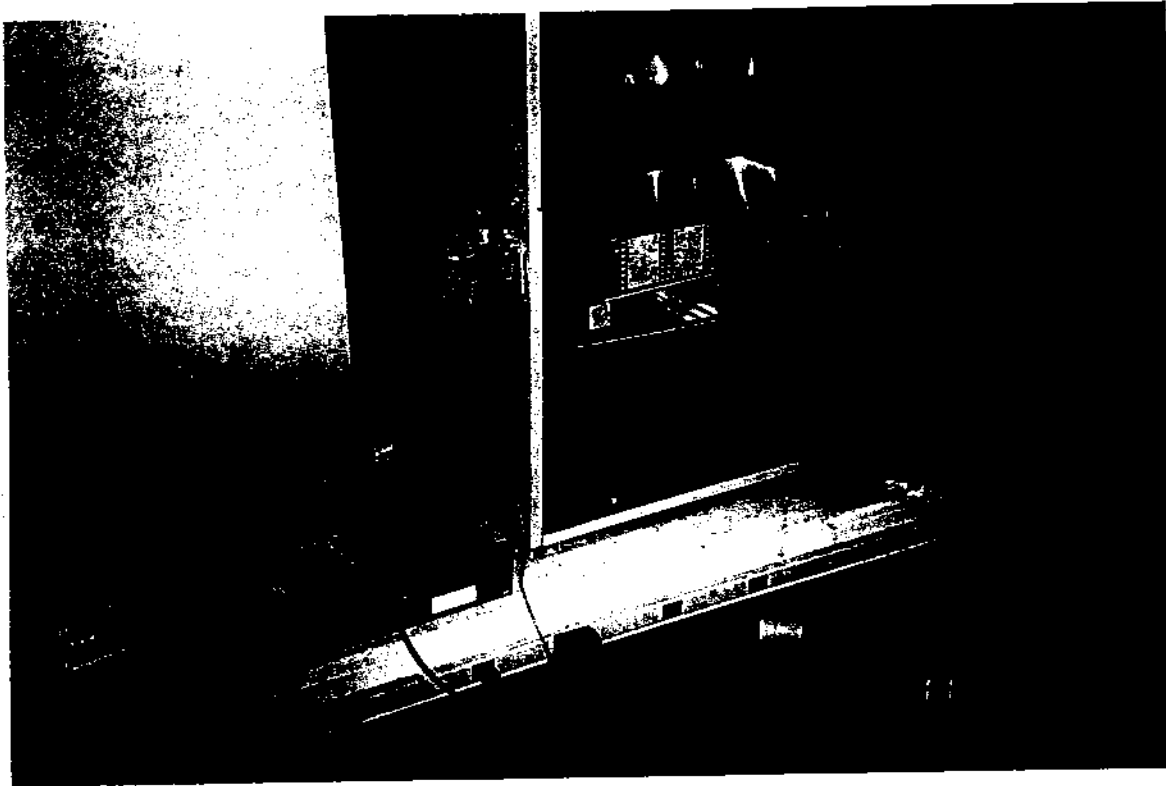
Transmission Tower - AM Testing



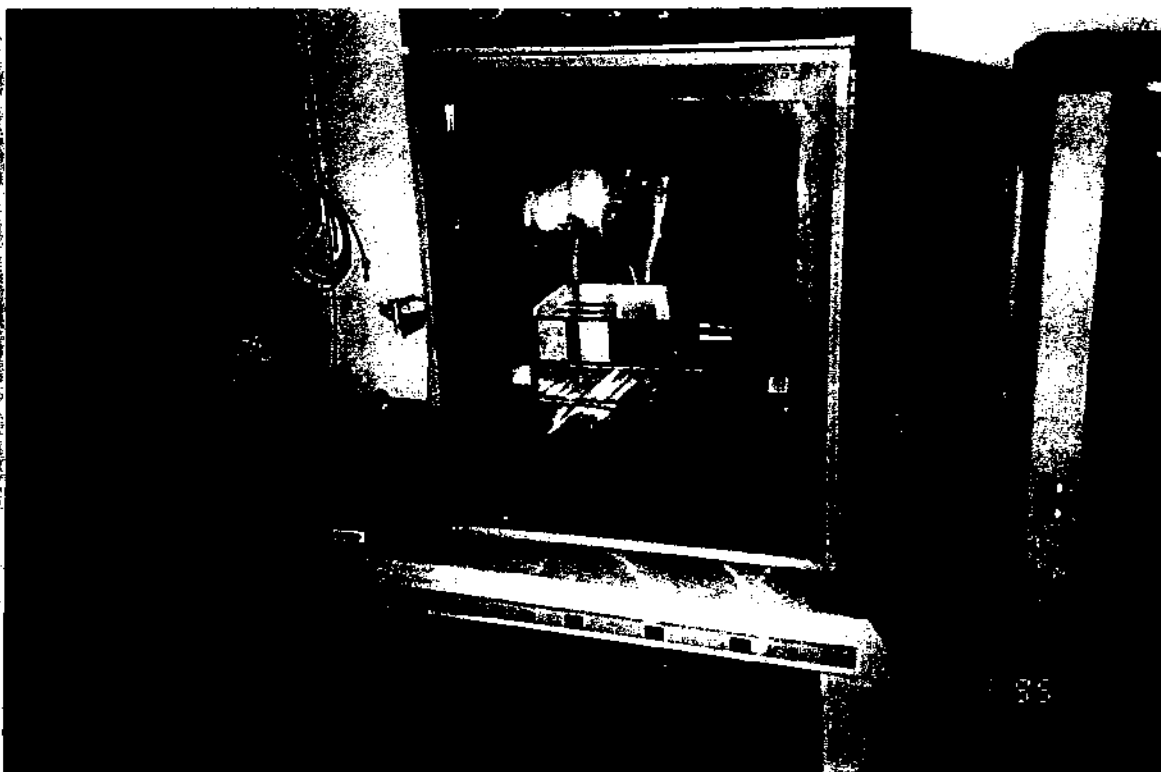
Test Site - AM Testing



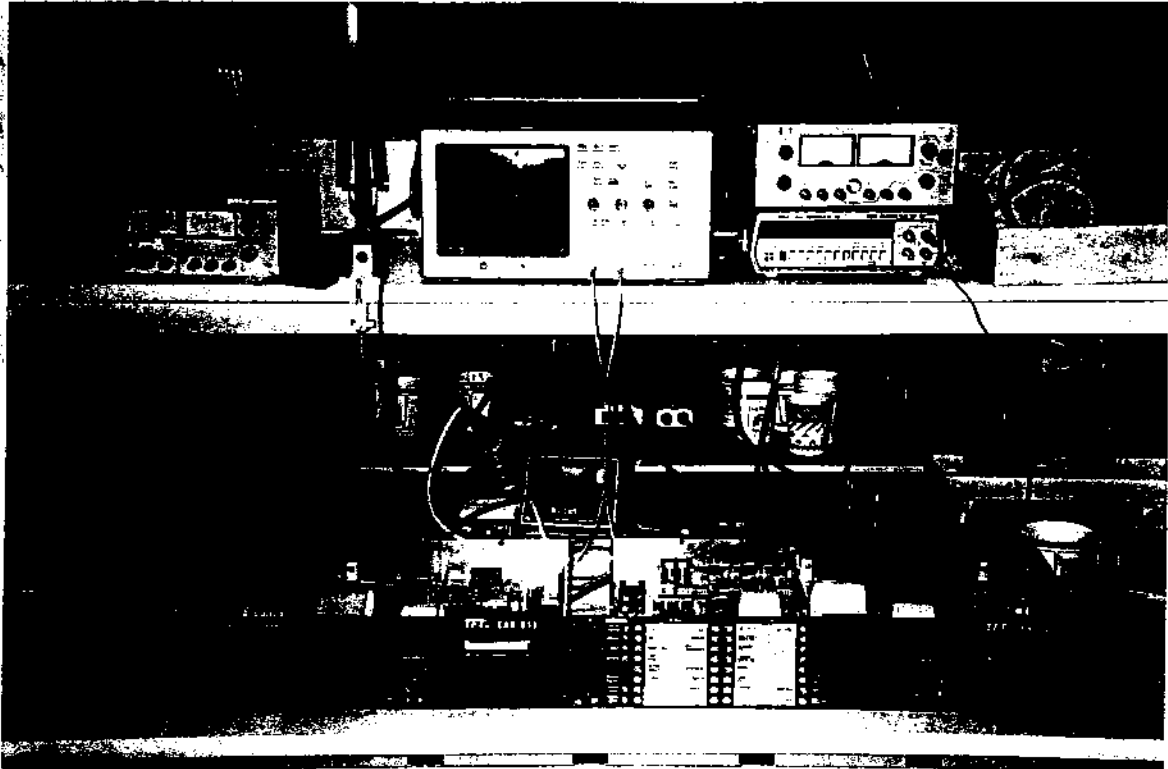
EAS911 and Field Strength Meter - AM Testing



EAS911 Before the Environmental Tests



EAS911 After the Environmental Tests



Typical Laboratory Test Bench