

Exhibit 7 - Statement A  
**ENGINEERING STATEMENT - REPLACEMENT OF MAIN ANTENNA**  
prepared for  
**Liberman Broadcasting of Houston License Corp.**  
KTJM(FM) Port Arthur, Texas  
Facility ID 20489  
Ch. 253C 100 kW 595 m

*Liberman Broadcasting of Houston License Corp.* (“*Liberman*”) is the licensee of KTJM(FM), Channel 253C, Houston, TX (file number BLH-19890502KC). The instant application is submitted to request a modification of license for KTJM, to cover replacement of the main antenna system.

By way of background, *Liberman* became the licensee of KTJM in 2000 (see BALH-19991217ABT), and has made no changes to the transmitting antenna system. During recent license renewal application preparation (see BRH-20050330ADP), it was determined that the licensed antenna system does not match the antenna actually employed. The license specifies a Shively model 6014-8/3 antenna, while the actual antenna is an Electronics Research Inc. (“ERI”) model SHP-8BC6. Both are eight sections, and the ERI antenna is side-mounted at the same elevation (almost 2000 feet above ground level) as the former antenna (Shively). The antenna is employed as a “common” antenna by two other FM stations, KQBU-FM (Ch. 227C, Port Arthur, TX) and KKHT-FM (Ch. 264C, Winnie, TX).

Based on review of material on file at the FCC regarding KTJM, KQBU-FM, and KKHT-FM and discussions with local *Liberman* staff and ERI representatives, it was determined that KTJM commenced operation with the presently licensed facility in 1989 which did involve the Shively antenna. The ERI antenna replaced the Shively antenna within approximately one year of commencement of operation. The KQBU-FM facility began operation with the common antenna in 1990, and KKHT-FM was added in 1996. The licenses for both of these stations (BMLH-19950921KA and BLH-19961226KD, respectively) both specify the ERI common antenna system.

With the instant application, *Liberman* specifies operation of KTJM with the ERI common antenna and provides revised operating parameters herein. The instant application for modification of license is filed pursuant to §73.1690(c)(1) of the Commission’s Rules, which permits the

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**ENGINEERING STATEMENT - REPLACEMENT OF MAIN ANTENNA**  
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replacement of an omnidirectional antenna with another omnidirectional antenna. The replacement antenna system consists of eight antenna bays and is installed on the tower at the same elevation as the antenna specified in BLH-19890502KC. There is no change in the antenna's radiation center height or ERP. The Antenna Structure Registration number is 1045595.

The ERI antenna employs 0.7 degrees electrical beamtilt. The maximum ERP is 100 kW, circularly polarized, and the ERP at the horizontal is 96.7 kW. A vertical plane (elevation) radiation pattern is provided in the attached **Exhibit 7 – Figure 1** for KTJM's frequency (98.5 MHz). The attached **Exhibit 7 - Table 1** provides a summary of the various system gains and losses, and provides a summary of the calculation of the required 33.3 kW transmitter power output ("TPO") to achieve the licensed ERP of 100 kW.

The underlying Construction Permit (BPH-19881108IC) which led to the present KTJM license did not contain any condition requiring measurements of spurious emissions associated with the common antenna. However, the FM stations which subsequently commenced operation with this antenna were subject to such a condition. Since no actual change in the common antenna system is being made in association with the instant application, a new set of spurious measurements are not believed to be necessary. Included herewith as **Exhibit 7 – Attachment 1** is the measurement report when the KKHT-FM operation was added in 1996 (from BLH-19961226KD).<sup>1</sup>

#### **Human Exposure to RF Electromagnetic Field**

The modified operation was evaluated for human exposure to radiofrequency energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET 65"). OET 65 describes a means of determining whether a proposed facility exceeds the RF exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as

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<sup>1</sup> The 1996 report employs the former call signs for the three stations. KTJM(FM) (Ch. 253C, 98.5 MHz) was KHYS(FM), KQBU-FM (Ch. 227C, 93.3 MHz) was KLTN(FM), and KKHT-FM (Ch. 264C, 100.7 MHz) was KRTX(FM).

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demonstrated in the following, the licensed transmitting system will comply with the cited adopted guidelines.

As described herein, the KTJM transmitting antenna system's center of radiation is 594 meters above ground level. According to data provided by the antenna manufacturer, the maximum relative field value in nearby downward directions (between 10 and 90 degrees below the horizontal) is less than 0.4 on Channel 253 (98.5 MHz). Thus, a value of 40 percent relative field is used for this calculation. The "uncontrolled/general population" limit specified in §1.1310 for the FM radio band is 200  $\mu\text{W}/\text{cm}^2$ .

The formula used for calculating FM signal density in this analysis is essentially the same as equation (9) in OET-65.

$$S = (33.4098) (F^2) (ERP) / D^2$$

Where:

<i>S</i>	=	power density in microwatts/cm <sup>2</sup>
<i>ERP</i>	=	total (average) ERP in Watts (H + V)
<i>F</i>	=	relative field factor
<i>D</i>	=	distance in meters

Using this formula and the assumptions above, the facility would contribute a power density of 3.1  $\mu\text{W}/\text{cm}^2$  at two meters above ground level near the antenna support structure, or 1.55 percent of the general population/uncontrolled limit. At ground level locations away from the base of the tower, the calculated RF power density is even lower, due to the increasing distance from the transmitting antenna.

§1.1307(b)(3) states that facilities at locations with multiple transmitters (such as the case at hand) are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of any other facilities near this site may be considered independently from this facility. Accordingly, it is believed that the impact of the proposed operation should not be considered to be a factor at or near ground level as defined under §1.1307(b).

As demonstrated herein, excessive levels of RF energy attributable to the KTJM facility are not caused at publicly accessible areas at ground level near the antenna supporting structure. Nevertheless,

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tower access will continue to be restricted and controlled through the use of a locked fence. Additionally, appropriate RF exposure warning signs will continue to be posted.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure does not occur in areas at ground level. A site exposure policy will continue to be employed protecting maintenance workers from excessive exposure when work must be performed on the tower in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines will be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with any pertinent stations.

**Certification**

The undersigned hereby certifies that the foregoing statement was prepared by him or under his direction, and that it is true and correct to the best of his knowledge and belief.

Joseph M. Davis, P.E.  
April 6, 2005

Cavell, Mertz & Davis, Inc.  
7839 Ashton Avenue  
Manassas, VA 20109  
(703) 392-9090

List of Attachments:

Table 1	Antenna / Line System Gains and Losses
Figure 1	Antenna Vertical (Elevation) Pattern
Attachment 1	Common Antenna Spurious Emissions Report

Exhibit 7 - Table 1  
**ANTENNA / LINE SYSTEM GAINS AND LOSSES**  
prepared April, 2005 for  
**Liberman Broadcasting of Houston License Corp.**  
KTJM(FM) Port Arthur, Texas  
Facility ID 20489  
Ch. 253C 100 kW 595 m

Existing License File Number: BLH-19890502KC

<b>Authorized Effective Radiated Power:</b>	<b>100 kW</b>	<b>20.00 dBk</b>
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**Antenna System**

ERI SHP-8BC6	Max Power Gain:	4.043	6.07 dB
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<b>Antenna Input Power:</b>	<b>24.7 kW</b>
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**Line and Other Losses**

Line Segment 1

SWR 6" Rigid (50 Ohm)	Efficiency:	0.8022	
Length 1992 ft	Loss:		0.96 dB

Line Segment 2

Myat 4" Rigid (50 Ohm)	Efficiency:	0.9948	
Length 32 ft	Loss:		0.02 dB

Combiner

ERI Band Pass Constant Impedance

(as measured by ERI January 28, 2002)	Efficiency:	0.9311	
	Loss:		0.31 dB

<b>Total Losses:</b>	<b>1.29 dB</b>
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<b><u>Transmitter Power Output:</u></b>	<b>33.3 kW</b>	<b>15.22 dBk</b>
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ELECTRONICS RESEARCH, INC.  
100 MARKET STREET  
NEWBURGH, IN. 47630

-----THEORETICAL-----  
VERTICAL PLANE RELATIVE FIELD

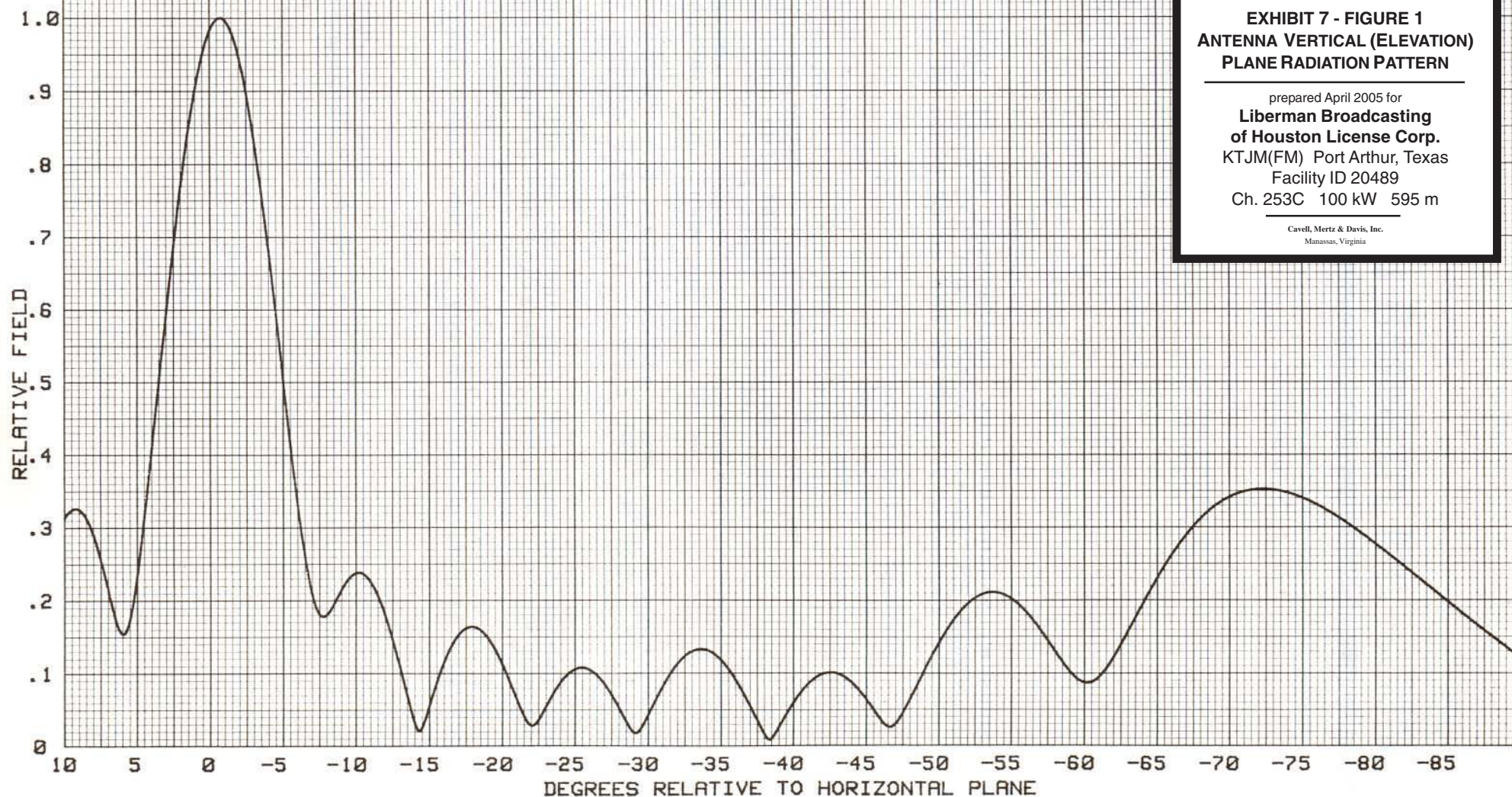
6/21/89

98.5 MHz. ON ANTENNA  
CUT FOR 95.3 MHz.

FIGURE 100

8 ROTOTILLER ELEMENTS WITH  $-.70$  DEGREE(S) BEAM TILT  
18 PERCENT FIRST NULL FILL  
2 PERCENT SECOND NULL FILL

POWER GAIN IS 3.911 IN THE HORIZONTAL PLANE (4.043 IN THE MAX.)



**EXHIBIT 7 - FIGURE 1**  
**ANTENNA VERTICAL (ELEVATION)**  
**PLANE RADIATION PATTERN**

prepared April 2005 for  
**Liberman Broadcasting**  
**of Houston License Corp.**  
KTJM(FM) Port Arthur, Texas  
Facility ID 20489  
Ch. 253C 100 kW 595 m

Cavell, Mertz & Davis, Inc.  
Manassas, Virginia

**EXHIBIT 7 - ATTACHMENT 1**  
**COMMON ANTENNA SPURIOUS EMISSIONS REPORT**

Exhibit 1  
June, 1996

**REPORT OF**  
**INTERMODULATION PRODUCT FINDINGS**  
*MULTIPLEXED BROADCAST FACILITY*  
*PORT ARTHUR, TEXAS*

Electronics Research, Inc.  
7777 Gardner Road Chandler, IN 47610  
Phone: (812) 925-6000 Fax: (812) 925-4030



# REPORT OF FINDINGS MULTIPLEXED BROADCAST FACILITY PORT ARTHUR, TEXAS

**Introduction :** This report of findings is based on data collected at an FM multiplexed broadcast facility located in Port Arthur, Texas. The report includes measurements that are offered as proof that the operation of KRTX, KHYS & KLTN are in compliance with *section 73.317(b) through (d) of the FCC Rules and Regulations*. In brief the information provided with this report shows that no Intermodulation Products ( IM's ) are generated by KRTX, KHYS and KLTN transmitters resulting from combined operation into a common antenna system.

The measured data exhibited within this report was prepared by Electronics Research, Inc. of Chandler, Indiana. The actual frequency response measurements were measured June 26, 1996, by Robert Rose of Electronics Research.

**The following exhibits are provided:**

- Exhibit A: Drawing Depicting Antenna.
- Exhibit B: SHP-8BC6 Antenna Specification Sheet.
- Exhibit C: Drawing Depicting Multiplexing Scheme.
- Exhibit D: Multiplexer Specifications Sheet.
- Exhibit E: Equipment Employed In Intermodulation Product Measurement
- Appendix F : Table Of Intermodulation Product Expected From Station Mixing.
- Appendix G: All IM Analysis Measurements.

**Exhibits Accompanying Report :** Exhibits A ~ D provide comprehensive information on both Antenna and Filters used by the radio station group. Exhibit E, titled Equipment Employed In Intermodulation Product Measurements, illustrates the method used to isolate and measure potential intermodulation products. Appendix F lists the calculated second order products that likely to be generated from FM transmitters broadcasting from the multiplexed system. The IM Analysis Measurements, located in Appendix G, provides detailed information obtained from the product frequency investigation. Also found within Appendix G, are the narrow band carrier frequency measurements which provide reference signal levels for the IM analysis.

**The Nature Of Intermodulation Products (IM) :** Intermodulation Products result from inadequate transmitter to transmitter isolation. Intermodulation Products are commonly generated from radio stations operating into multiplexed facilities and congested antenna broadcast sites. The mechanics associated with the phenomenon have been well documented. When two or more transmitters are coupled to each other, new spectral components are produced by the mixing of the station frequencies in the active circuits of each transmitter. The common term used to describe this phenomenon is second order product denoted by the mathematical expression  $[ 2(F_1)-(F_2) ]$ , where  $F_1$  signifies the frequency of the transmitter that is generating the intermodulation product, and  $F_2$  signifies the frequency causing the interference.

## REPORT OF FINDINGS (CONTINUED)

**The Multiplexed System :** At the time of my measurements there were three FM stations operating from the multiplexed system. The system is fundamentally comprised of Antenna, Feed Line and Multiplexer Unit. The SHP-8BC6 Antenna and the Multiplexer Unit are products of Electronics Research Inc. whereas the Feed Line is manufactured by SWR Inc.

To accomplish the aggregation of three transmitter signals into a common antenna feed and also to provide transmitter to transmitter isolation, a multiplexing scheme consisting of combiner modules and external filters was installed. Specifically, the Multiplexer utilizes two ERI Model 963-6 combiner modules and three ERI Model 945 notch filters. The Multiplexer fully assembled exhibited transmitter port-to-port isolation in excess of -55 db. Other performance measurements, such as match, loss, group-delay, etc, revealed that the Multiplexer Unit was in proper working condition.

**The IM Investigation :** Directional Couplers were placed at key locations throughout the Multiplexer to monitor and maintain the Multiplexers performance. All Couplers furnished with the Multiplexer are factory calibrated and capable of delivering accurate and repeatable RF measurements. To facilitate the taking of measurements the Coupler located at the output of the system was used. Care was taken in the selection of the measurement location to insure that the measurements would be made far removed from transmitters and any filtering use to reduce broadcast emissions. The Coupler selected would normally be used for antenna reflection measurements and thus would provide greater than 33 db directivity and a forward signal sample of -55 db.

The forward port of the coupler was used for sampling all outgoing carrier levels and IM products. The sampled signal was fed by shielded cable into a Band Pass Filter where all extraneous energy was steeply attenuated. This filtering also prevented front-end-overloading to the Spectrum Analyzer attached to the filter via shielded cable. The Spectrum Analyzer was employed to record the level of all signals investigated. To facilitate the selective tuning of the Band Pass Filter a Network Analyzer was used. Finally, a fixed attenuator was placed at the input to the Band Pass Filter for equipment impedance matching and to reduce the level of strong carrier energies when the sensitive IM measurements were made.

Prior to recording measurements all pertinent broadcasting equipment including Transmitters, Filter, Feed Line and Antenna were checked and adjusted, if necessary, to optimal performance. Also, it was confirmed before the taking of any measurements that all Stations of concern were operating at their full licensed power levels. From the equipment setup described above, a recording of each stations forward carrier level was made. This recorded level was necessary since the object of the measurements was to confirm that no significant levels of spurious energy, referenced to each carrier, is present from any transmitter operating from the Port Arthur system. Appendix G contains the measurement results obtained from the investigation.

Finally, as final proof of the Port Arthur systems Intermodulation Product performance, a wide band search was undertaken using the Tektronix 2710 Spectrum Analyzer. The purpose for this measurement was to look for any suspicious anomalies that may warrant further investigation. My search ranging the complete frequency span of the analyzer resulted in no additional investigations.

## REPORT OF FINDINGS (CONTINUED)

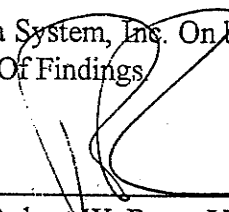
**Conclusion:** Based upon my observations and measurements, I find the Port Arthur Texas broadcast system including Transmitters, Mutiplexer, Antenna and Feed Line to be in proper working order. Furthermore, based on my measurements it is my opinion that there are no Intermodulation Products in excess of 80 db below station carrier levels generated from or within any station transmitter operating from the Multiplexed system and, in my opinion KRTX, KHYS and KLTN are in compliance with the requirements of the FCC Section 73.317 (b) through (d) of the Commissions rules and regulations.

Respectfully submitted,  
Electronics Research, Inc.

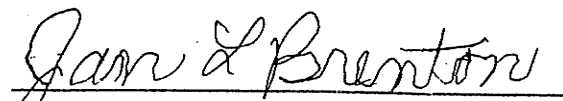
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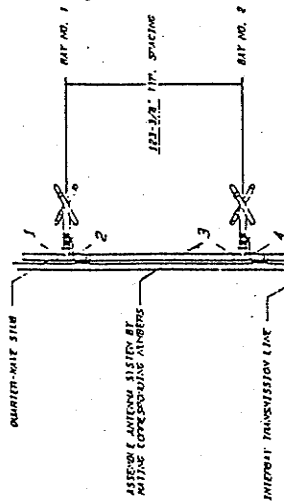
I, Robert Rose, hereby declare that the following statements are true and correct to the best of my knowledge and belief :

- 1.) I am Vice President of Engineering for Electronics Research, Inc ("ERI ") and have been employed by ERI for 24 years. I am familiar with and have assisted in the design, manufacturing and installation of FM Antennas and FM Multiplexers in my long tenure with ERI.
- 2.) I have either prepared and/or directly supervised the preparation of all technical information contained in the KRTX, KHYS & KLTN Report Of Findings and believe all information within to be accurate and true.
- 3.) ERI has been requested by Tichenor Media System, Inc. On behalf of Radio Station KRTX-FM Port Arthur, Texas, to prepare this Report Of Findings

  
Robert W. Rose, V.P. Of Engineering

*Subscribed and sworn to before me on this 11th day of November 1996.*

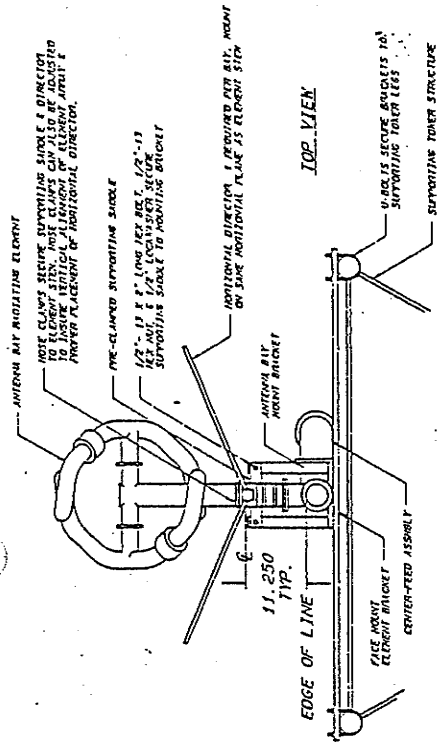
  
Jan L. Brenton; Notary Public  
My commission expires August 8, 1998



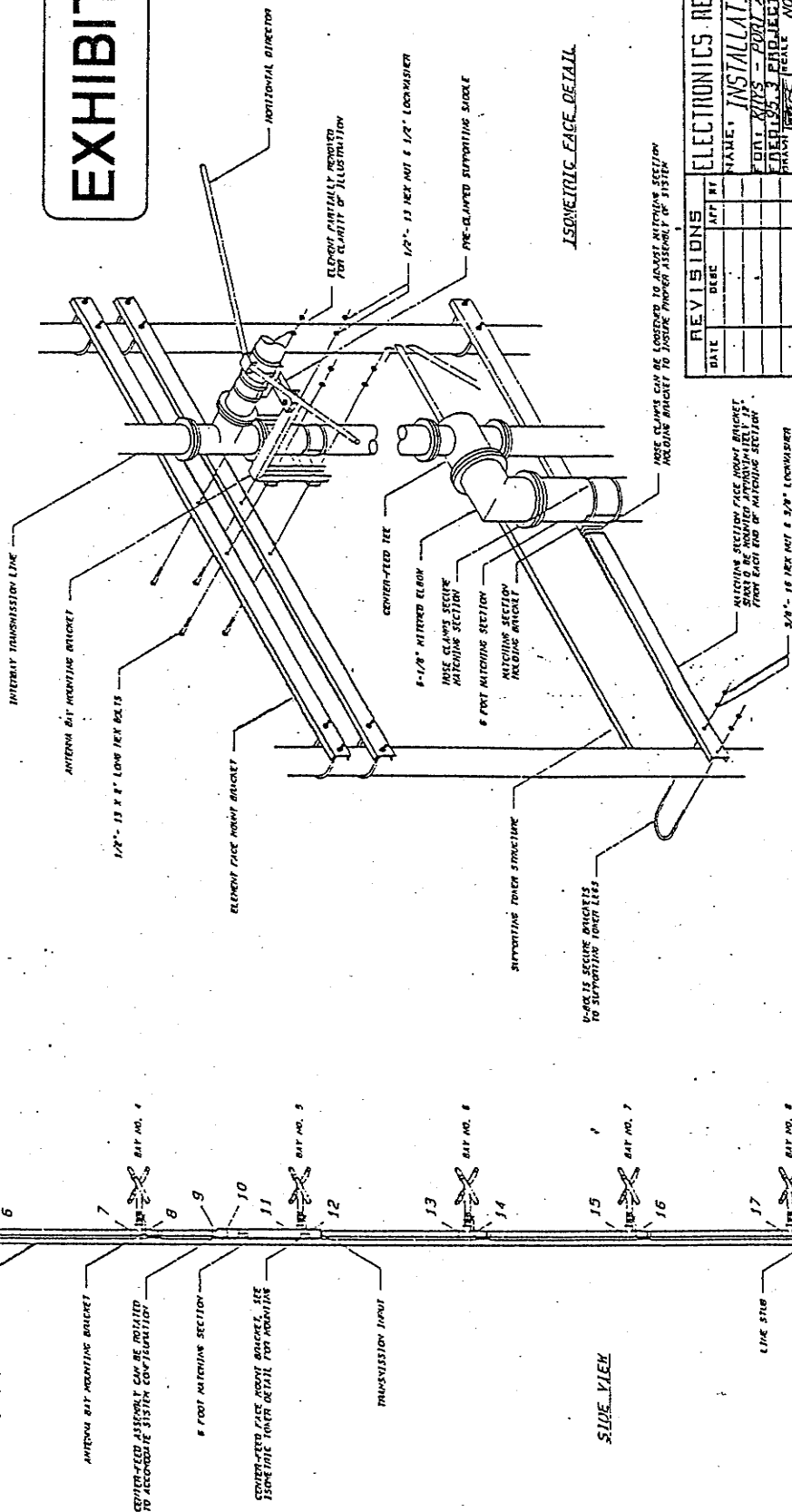
# NOTES:

- 1) ALL RED BANDS ON SYSTEM DESIGNATE SIDE TO BE MOUNTED CORRECTLY.
- 2) ALL DIRECTIONS ARE OBTAINED FROM SIDE VIEW FOR CLARITY OF ILLUSTRATION.

# TOP VIEW



# EXHIBIT A



# SIDE VIEW

ELECTRONICS RESEARCH INC.									
NAME: INSTALLATION DRAWING									
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**ERI ANTENNA SPECIFICATIONS**  
**KRTX ~ KHYS ~ KLTN PORT ARTHUR, TEXAS**

**General Specifications**

Antenna Type ..... FM-Broadcast, Suitable For Diplexing  
 Model Number ..... SHP-8BC6  
 Number Of Bay Levels ..... Eight  
 Polarization ..... Right Hand Circular

**Electrical Specifications**

Antenna Input Power Capability ..... 120 KW. Maximum  
 Operating Frequencies ..... 93.3, 98.5 & 100.7 Megahertz. ( 7.4 MHz. Span )  
 VSWR ..... Less Than 1.05 : 1 @ Operating Frequencies.<sup>(1)</sup>  
 Azimuthal Pattern Circularity ..... +/- 2 db From RMS (Free Space)  
 Power Split ..... 50/50 ( Horizontal & Vertical )  
 Frequency Specific Information:

<u>Frequency</u>	<u>Station ERP</u>	<u>Beam Tilt</u>	<u>First Null Fill</u>	<u>Gain (db)</u>	<u>Line Loss</u>	<u>Filter Loss</u>	<u>Computed TPO</u>
93.3 MHz.	100 KW	-0.7°	11 %	6.38 db	-0.96 db	-0.097db	29.3 KW
98.5 MHz.	100 KW	-0.7°	18 %	6.07 db	-0.96 db	-0.238db	32.5 KW
100.7 MHz.	100 KW	-0.7°	31 %	5.46 db	-0.96 db	-0.262db	37.7 KW

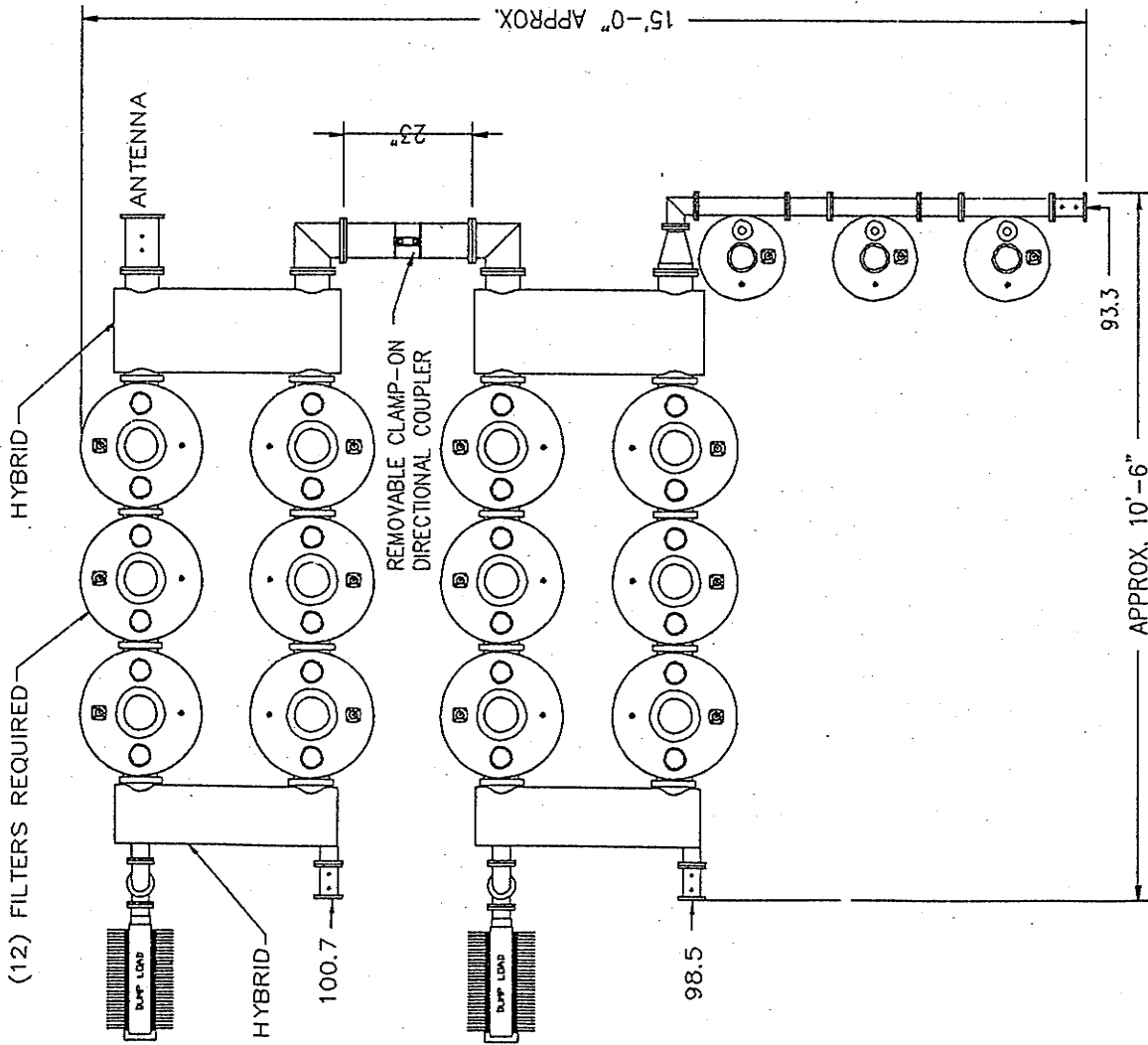
**Mechanical Specifications**

Calculated Weight ..... 1125 Pounds  
 Calculated Wind Load ( Excluding Ice ) ..... 65.12 Sq. Ft.<sup>(2)</sup>  
 Antenna Feed System ..... 4 1/8" Interbay Coax, 4 1/8 Elment Stem, 6 1/8 Center Feed  
 Input Connector ..... 6 1/8" 50- Ohm EIA Flanged  
 Element Deicing ..... Not Ordered<sup>(3)</sup>  
 Interbay Spacing ..... 123 3/8 Inch Center to Center  
 Array Length ( Over All ) ..... 76 Feet, 7 Inches  
 Tower Mounting ..... Face Mount On Stainless G-7 Tower  
 Construction Material (Antenna) ..... All Noncorrosive  
 Construction Material (Mounting) ..... Galvanized Plated Steel And Stainless Steel

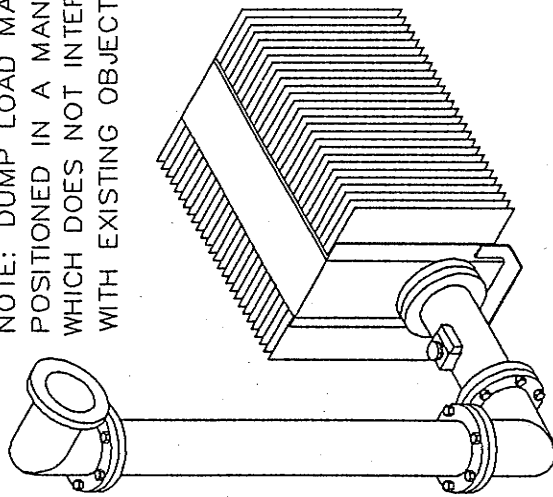
1) VSWR Performance Achieved After On Site Tuning.

2) Based On CaAa; EIA/TIA-222-F Standard.

3) With Low Q Element Design, Moderate Icing Will Not Cause Appreciable VSWR Rise.  
 However, Element Arm Radomes Are Available For The 1080 Antenna System .



NOTE: DUMP LOAD MAY BE POSITIONED IN A MANNER WHICH DOES NOT INTERFERE WITH EXISTING OBJECTS



ISOMETRIC VIEW OF  
DUMP LOAD

EXHIBIT C.

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Established 1913

No.	Revision	By	Date	Drawn by:	Checked by:	Scale:	Project No.:	Drawing No.:
5								
4								
3								
2								
1	FIXED OVERALL DIM.	SLC	4/96	Drawn by: SHER COPE	Checked by: NTS	Scale: NTS	Project No. 902/470	Drawing No. T-1

DRAWING FILTER INSTALLATION DETAIL

FOR PORT ARTHUR, TX

Date: 4-22-96

Drawn by: SHER COPE

Checked by: NTS

Scale: NTS

Project No. 902/470

Drawing No. T-1

## Table of Intermodulation Products Expected from Station Mixing

### Signal Causing Mix

Transmitter Frequency		Mix With 100.7 MHz KRTX	Mix With 98.5 MHz KHYS	Mix With 93.3 MHz KLTN
	KRTX 100.7 MHz		102.9 MHz. Product See Measurement A1	108.1 MHz. Product See Measurement A2
	KHYS 98.5MHz	96.3 MHz. Product See Measurement B1		103.7 MHz. Product See Measurement B2
	KLTN 93.3 MHz	85.9 MHz. Product See Measurement C1	88.1 MHz. Product See Measurement C2	

#### Notes;

- 1) The above represents a tabulation of likely second order products generated from stations operating at the Port Arthur, Texas facility.
- 2) A correlation of row and column (station frequencies) yields the likely IM mix.
- 3) Measurements of these frequencies can be found in Appendix G, labeled IM Analysis Measurements.



## IM Analysis Measurements

Measurements Taken In Port Arthur, Texas

Multiplexer Room On June 26, 1996

By: Robert Rose

### Measurement A (Carrier Reference)

- 1) KRTX Carrier Frequency : 100.7 MHZ.
  - 2) Level Taken From Spectrum Analyzer : 15.5 dBm
  - 3) Introduce Set-Up Losses ; (A) Band Pass Filter : -0.0 dB ~ (B) Fixed Attenuator : -3 dB
  - 4) Actual Level Adjusted for Extraneous Losses : 18.5 dBm
- 

### Measurement A1 (IM Measurement)

- 1) Plausible Product Frequency Mix With KHYS @ 98.5 MHZ.
  - 2) Product Frequency (Computed IM Between 100.7 & 98.5 MHZ.) = 102.9 MHZ.
  - 3) Level Taken @ 102.9 MHZ. From Spectrum Analyzer : -81.0 dBm
  - 4) Introduce Set-Up Losses ; (A) Band Pass Filter : -6.0 dB ~ (B) Fixed Attenuator : -3.0 dB
  - 5) Actual Level @ 102.9 MHZ. Adjusted for Extraneous Losses : - 72.0dB
  - 6) Adjusted Level, Referenced To KRTX ( 100.7 MHZ.) Carrier : -90.5 dB
- 

### Measurement A2 (IM Measurement)

- 1) Plausible Product Frequency Mix With KLTN @ 93.3 MHZ.
- 2) Product Frequency (Computed IM Between 100.7 & 93.3 MHZ.) = 108.1 MHZ.
- 3) Level Taken @ 108.1 MHZ. From Spectrum Analyzer : -71.7 dBm
- 4) Introduce Set-Up Losses ; (A) Band Pass Filter : -5.4 dB ~ (B) Fixed Attenuator : -3.0 dB
- 5) Actual Level Adjusted for Extraneous Losses : -63.3 dB
- 6) Adjusted Level, Referenced To KRTX ( 100.7 MHZ.) Carrier : -81.8 dB

## IM Analysis Measurements

Measurements Taken In Port Arthur, Texas

Multiplexer Room On June 26, 1996

By: Robert Rose

### Measurement B (Carrier Reference)

- 1) KHYS Carrier Frequency : 98.5 MHZ.
  - 2) Level Taken From Spectrum Analyzer : 15.5 dBm
  - 3) Introduce Set-Up Losses ; (A) Band Pass Filter : -0.0 dB ~ (B) Fixed Attenuator : -3 dB
  - 4) Actual Level Adjusted for Extraneous Losses : 18.5 dBm
- 

### Measurement B1 (IM Measurement)

- 1) Plausible Product Frequency Mix With KRTX @ 100.7 MHZ.
  - 2) Product Frequency (Computed IM Between 98.5 & 100.7 MHZ.) = 96.3 MHZ.
  - 3) Level Taken @ 96.3 MHZ. From Spectrum Analyzer : -81.7 dBm
  - 4) Introduce Set-Up Losses ; (A) Band Pass Filter : -6.5 dB ~ (B) Fixed Attenuator : -3.0 dB
  - 5) Actual Level @ 96.3 MHZ. Adjusted for Extraneous Losses : - 72.2dB
  - 6) Adjusted Level, Referenced To KHYS ( 98.5 MHZ.) Carrier : -90.7 dB
- 

### Measurement B2 (IM Measurement)

- 1) Plausible Product Frequency Mix With KLTN @ 93.3 MHZ.
- 2) Product Frequency (Computed IM Between 98.5 & 93.3 MHZ.) = 103.7 MHZ.
- 3) Level Taken @ 103.7 MHZ. From Spectrum Analyzer : -74.0 dBm
- 4) Introduce Set-Up Losses ; (A) Band Pass Filter : -6.0 dB ~ (B) Fixed Attenuator : -3.0 dB
- 5) Actual Level Adjusted for Extraneous Losses : -65.0 dB
- 6) Adjusted Level, Referenced To KHYS ( 98.5 MHZ.) Carrier : -83.5 dB

## IM Analysis Measurements

Measurements Taken In Port Arthur, Texas

Multiplexer Room On June 26, 1996

By: Robert Rose

### Measurement C (Carrier Reference)

- 1) KLTN Carrier Frequency : 93.3 MHZ.
  - 2) Level Taken From Spectrum Analyzer : 14.2 dBm
  - 3) Introduce Set-Up Losses ; (A) Band Pass Filter : -0.0 dB ~ (B) Fixed Attenuator : -3 dB
  - 4) Actual Level Adjusted for Extraneous Losses : 17.2 dBm
- 

### Measurement C1 (IM Measurement)

- 1) Plausible Product Frequency Mix With KRTX @ 100.7 MHZ.
  - 2) Product Frequency (Computed IM Between 93.3 & 100.7 MHZ.) = 85.9 MHZ.
  - 3) Level Taken @ 85.9 MHZ. From Spectrum Analyzer : -87.5 dBm
  - 4) Introduce Set-Up Losses ; (A) Band Pass Filter : -5.2 dB ~ (B) Fixed Attenuator : -3.0 dB
  - 5) Actual Level @ 85.9 MHZ. Adjusted for Extraneous Losses : -79.3 dB
  - 6) Adjusted Level, Referenced To KLTN (93.3 MHZ.) Carrier : -96.5 dB
- 

### Measurement C2 (IM Measurement)

- 1) Plausible Product Frequency Mix With KHYS @ 98.5 MHZ.
- 2) Product Frequency (Computed IM Between 93.3 & 98.5 MHZ.) = 88.1 MHZ.
- 3) Level Taken @ 88.1 MHZ. From Spectrum Analyzer : -72.3 dBm
- 4) Introduce Set-Up Losses ; (A) Band Pass Filter : -5.2 dB ~ (B) Fixed Attenuator : -3.0 dB
- 5) Actual Level Adjusted for Extraneous Losses : -64.1.0 dB
- 6) Adjusted Level, Referenced To KLTN (93.3 MHZ.) Carrier : -81.3 dB