Report Of

Intermodulation Product Findings

Atlanta, GA.
Axiom SHPXA-12BC-HW-SP Antenna
Constant Impedance Combiner

WSTR	**94.1 MHz.**
WUBL	**94.9 MHz.**
WWPW	**96.1 MHz.**
WWWQ	**99.7 MHz.**

May 6, 2019

Electronics Research Inc.
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Chandler, Indiana 47610
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TABLE OF CONTENTS

Atlanta, GA

Report of Findings for Intermodulation Product Measurements

Exhibits Accompanying This Report

REPORT OF FINDINGS
WSTR~WUBL~WWPW~WWWQ
94.1 MHz. ~ 94.9 MHz. ~ 96.1 MHz. ~ 99.7 MHz.

Introduction: This report of findings is based on data collected at the WSTR, WUBL, WWPW, and WWWQ broadcast facility located in Atlanta, Georgia. The report includes measurements offered as proof that the combined operations of WSTR (94.1 MHz.), WUBL (94.9 MHz.), WWPW (96.1 MHz.), WWWQ (99.7 MHz.) transmitters are in compliance with the FCC Rules and Regulations as required by the Code of Federal Regulations (CFR) Title 47 section 73.317 paragraph (b) through (d). In brief, the collection of measurements presented in this report shows that all possible third order inter-modulation (IM) products generated by this multiplex system are less than the maximum allowable level as required by section 73.317 (b) through (d). WRAS (88.5 MHz), operates into a separate antenna located on the same tower. Their effects on the stations operating from the multiplexed system are considered in this report. Jeff Taylor of Electronics Research, Inc. located in Chandler, Indiana performed the measurements summarized herein on May 6, 2019.

The following exhibits are provided:

Exhibit A:
- A-1 Drawing Depicting Antenna.
- A-2 SHPXA-12BC-HW-SP Antenna Specification Sheet.
- A-3 Drawing Depicting Multiplexing Scheme.
- A-4 ERI Constant Impedance Combiner Specification Sheet.
- A-5 Theoretical Vertical Plane Relative Field Antenna Plots

Exhibit B:
- B-1 Equipment Employed in Intermodulation Product Measurement.
- B-2 Broadcasting Scheme of the Multiplexed Systems.

Table 1. Carrier Reference Levels.
Table 2. Calculated Third Order Products.
Table 3. Intermodulation Analysis Measurements.

Exhibits Accompanying Report: Exhibit A provides comprehensive information on both antenna and filters used by these radio stations. Exhibit B illustrates the broadcasting scheme of each station, the layout of the equipment used to isolate and measure potential intermodulation products and forward carrier reference levels. Found within Table 1 are the narrow band carrier frequency measurements that provide relative output signal levels for the IM analysis. Table 2 lists the calculated third order products that can be generated from FM transmitters broadcasting from the multiplexed system. The IM Analysis Measurements, in Table 3, provides detailed information obtained from the product frequency investigation.

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 third 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 F2 signifies the frequency causing the interference.

The Multiplexed System: These measurements were taken with all FM stations operating from the combined antenna system**.** The WSTR, WUBL, WWPW, and WWWQ multiplexed system is fundamentally comprised of antenna, feed line and multiplexer unit. The SHPXA-12BC-HW-SP (antenna) and (3) ERI 973/978 constant impedance combiner units and feedline are products of Electronics Research, Inc, whereas the fourth combiner unit, WUBL, is a product of Dielectric.

To accomplish the aggregation of four transmitter signals into a common antenna feed and provide transmitter-to-transmitter isolation, a multiplexing scheme consisting of a Constant Impedance Combiner was installed. Specifically, the Multiplexer utilizes one ERI Model CI963-8, one ERI Model CI973-8, one ERI Model CI783-6, one Dielectric 8 cavity constant impedance module. The multiplexer, fully assembled, exhibited transmitter port-to-port isolation in excess of -58 dB. Other performance measurements, such as match, loss, group-delay, etc, revealed that the multiplexer unit was in proper working condition. Refer to Exhibit A-4 for the Combiner Specification Sheet.

The IM Investigation: Directional Couplers were placed at key locations throughout the combiner to monitor and maintain the multiplexer's performance. All couplers furnished with the system are factory calibrated and capable of delivering accurate and repeatable RF measurements. To facilitate the taking of the measurements, the coupler located at the antenna output of the multiplexed system was used. Care was taken in the selection of the measurement location to ensure that the measurements would be made far removed from transmitters and any filtering used to reduce broadcast emissions. The coupler selected would normally be used for antenna reflection measurements and thus would provide greater than -35 dB directivity and a forward signal sample of -60 dB.

The forward port of the coupler was used for sampling the outgoing carrier levels and IM products. The IM sampled signal was fed by shielded cable into a Band Pass Filter where all extraneous energy was steeply attenuated. Various attenuation pads were used, when needed, on the band pass filter and/or the Spectrum Analyzer to ensure an adequate signal level for measurements without overloading the measurement equipment. An IFR 2399A Spectrum Analyzer serial# 02113071 was employed to record the level of all signals investigated. A Copper Mountain S5048 Network Analyzer serial# 15077029 was used for selective tuning of the Band Pass Filter. The IFR Spectrum Analyzer was also used to measure the close in spectral attenuation of each carrier and wide band search for any anomalies that may need further investigation. See attached Exhibit B-1 for an illustration of the measurement equipment.

Prior to recording measurements, all pertinent broadcasting equipment including Transmitters, Multiplexer, Feed Line and Antenna were adjusted to optimal performance. Also, it was confirmed before taking any measurements that all stations of concern were operating at their full licensed power level. From the equipment setup described above, the relative output signal level of each stations forward carrier was made. The resulting signal levels of these measurements are listed in Table 1, column labeled "Adjusted Level". This level will be used as the reference level for possible IM products of each carrier and was necessary to confirm that no significant levels of spurious energy, referenced to each carrier, were present from any transmitter operating from the multiplexed system.

Table 1 – Carrier Reference Levels.

Carrier Frequency (MHz)	Pad One (dB)	Bandpass Filter Loss (dB)	Measured Level (dBm)	**Adjusted Level (dBm)**	Notes
WSTR 94.1 MHz.	**3**	**-**	**6.76**	**9.76**	
WUBL 94.9 MHz.	**3**	**-**	**6.62**	**9.62**	
WWPW 96.1 MHz.	**3**	**-**	**4.04**	**7.04**	
WWWQ 99.7 MHz.	**3**	**-**	**6.86**	**9.86**	

Predictable third-order products due to system harmonics mixed with all on-site interfering frequencies that could be generated from the multiplexed system are calculated and listed in Table 2.

Table 2 - Third Order Products.

	Carrier Frequencies			
Interfering Frequencies	**94.1**	**94.9**	**96.1**	**99.7**
WSRA 88.5 MHz.	99.7	101.3	103.7	110.9
WSTR 94.1 MHz.	----	95.7	98.1	105.3
WUBL 94.9 MHz.	93.3	----	97.3	104.5
WWPW 96.1 MHz.	92.1	93.7	----	103.3
WWWQ 99.7 MHz.	88.5	90.1	92.5	----

Using the equipment previously described the IM product measurements were recorded and are listed in Table 3. The signal levels referenced to the carriers are calculated and listed in the column labeled "Level Referenced to Carrier". Refer to Exhibit B-2 for a layout of the measurement equipment.

Table 3- Intermodulation Measurements

IM Measurements Taken in Atlanta, Georgia										
Product Frequency (MHz)	**Transmitter Frequency (MHz)**	**Interfering Frequency (MHz)**	**Pad (dB)**	**Bandpass Filter Loss (dB)**	**Total Loss**	**Measured Level (dBm)**	**Adjusted Level (dBm)**	**Carrier Reference Level (dBm)**	**Level Referenced to Carrier (dB)**	**Notes***
Transmitter Mixes										
	94.1	**Ref.**	3		3	6.76	9.76	**9.76**		
	94.9	**Ref.**	3		3	6.62	9.62	**9.62**		
	96.1	**Ref.**	3		3	4.04	7.04	**7.04**		
	99.7	**Ref.**	3		3	6.86	9.86	**9.86**		
88.5	94.1	99.7	3	11.4	14.4	-98.13	-83.73	9.76	**-93.49**	#1 88.5 Off
90.1	94.9	99.7	3	11.5	14.5	-97.5	-83	9.62	**-92.62**	
92.1	94.1	96.1	3	11.1	14.1	-97.35	-83.25	9.76	**-93.01**	
92.5	96.1	99.7	3	12.2	15.2	-98.1	-82.9	7.04	**-89.94**	
93.3	94.1	94.9	3	12.9	15.9	-96.94	-81.04	9.76	**-90.8**	
93.7	94.9	96.1	3	11.8	14.8	-98.11	-83.31	9.62	**-92.93**	
95.7	94.9	94.1	3	11.4	14.4	-98.13	-83.73	9.62	**-93.35**	#2 96.1 Off
97.3	96.1	94.9	3	11.8	14.8	-98.14	-83.34	7.04	**-90.38**	
98.1	96.1	94.1	3	12.1	15.1	-98.18	-83.08	7.04	**-90.12**	
99.7	94.1	88.5	3	11.3	14.3	-97.77	-83.47	9.76	**-93.23**	#3 99.7 Off
101.3	94.9	88.5	3	11.3	14.3	-97.61	-83.31	9.62	**-92.93**	
103.3	99.7	96.1	3	11.3	14.3	-99.13	-84.83	9.86	**-94.69**	
103.7	96.1	88.5	3	11.8	14.8	-97.16	-82.36	7.04	**-89.4**	
104.5	99.7	94.9	3	12.1	15.1	-97.22	-82.12	9.86	**-91.98**	
105.3	99.7	94.1	3	11.2	14.2	-98.13	-83.93	9.86	**-93.79**	
110.9	99.7	88.5	3	11.1	14.1	-98.55	-84.45	9.86	**-94.31**	

#1 88.5 MHz. off for this measurement.
#2 96.1 MHz. off for this measurement.
#3 99.7 MHz. off for this measurement.

The Spectrum Analyzer was used to check the close in spectral attenuation of the carrier to confirm the operation of the transmitter is in compliance with Sections (b) and (c) of the FCC Rules and Regulations.

As a final proof of the systems IM Product performance, a wide band search was undertaken using the Spectrum Analyzer. The purpose for this measurement was to look for suspicious anomalies that may warrant further investigation. My search ranged the complete frequency span of the receiver and resulted in no additional investigations.

Conclusion: Based upon my observations and measurements taken on May 6, 2019 as summarized in this document, I, Troy Knotts, find the subject system-specifically the transmitter and filter system for the operation of WSTR, WUBL, WWPW, and WWWQ into the antenna to be in proper working order. Furthermore, based on the measured data, it is my opinion that there are no inter-modulation products in excess of 80 dB below carrier levels. Based on this recorded data, I conclude that WSTR, WUBL, WWPW, and WWWQ are in compliance with the requirements of Section 73.317 paragraph (b) through (d) of the FCC Rules and Regulations.

Respectfully submitted,
Electronics Research, Inc.

Jeff Taylor, Field Technician

State of Indiana)
) SS:
County of Warrick)

AFFIDAVIT

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

1.) I am a Field Technician for Electronics Research, Inc ("ERI ") and have been employed by ERI for 22 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 this Report of Findings and to my knowledge to be accurate and true.

3.) ERI has been requested by Cumulus Media on behalf of radio Stations WSTR, WUBL, WWPW, and WWWQ in Atlanta, GA. to prepare this Report Of Findings.

Jeff Taylor; Field Technician

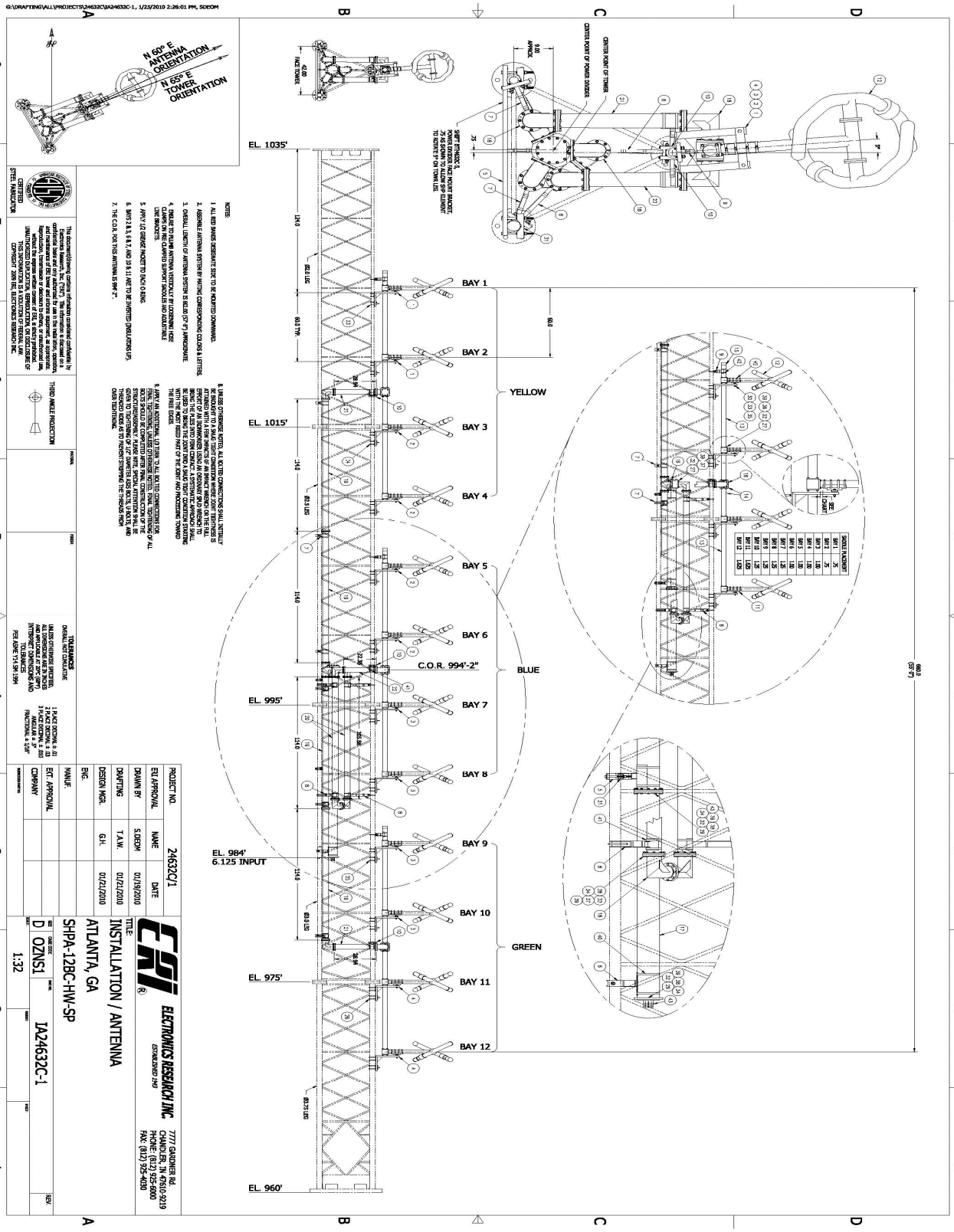
Jeff Taylor

Subscribed and sworn to before me on this 7th, day of May, 2019.

NOTARY PUBLIC SEAL INDIANA
TABITHA LYNNE HEILMAN
Notary Public, State of Indiana
Warrick County
Commission Number 649993
My Commission Expires
January 02, 2022

Tabitha Heilman; Notary Public
My commission expires January 2, 2022

Tabitha Heilman



NOTES:

1. ALL RED IMAGES DESIGNATE SIDE TO BE MOUNTED DOWNWARD.
2. ASSEMBLE ANTENNA SYSTEM BY MATING CORRESPONDING COLORS & LETTERS.
3. OVERALL LENGTH OF ANTENNA SYSTEM IS 660.00" (55'-0") APPROXIMATE.
4. ORIENT TO FRAME ANTENNA VERTICALLY BY LOOSENING HOSE CLAMPS ON PRE-CLAMPED SUPPORT SADDLES AND ADJUSTABLE LINE BRACKETS
5. APPLY 1/2 GREASE PACKET TO EACH O-RING.
6. BAYS 1 & 2, 6 & 7, AND 10 & 11 ARE TO BE INVERTED (OBSOLETION UP).
7. THE C.O.R. FOR THIS ANTENNA IS BAY 2".
8. UNLESS OTHERWISE NOTED, ALL BOLTED CONNECTIONS SHALL INITIALLY BE TIGHTENED TO A SNUG CONDITION (THE MAXIMUM EFFORT ATTAINED WITH A FEW STROKES OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN UNAIDED SKILLMAN USING AN ORDINARY SPUD WRENCH) TO BRING THE PLIES INTO FIRM CONTACT. THEN, EACH BOLT SHALL BE USED TO BRING THE JOINT INTO A SNUG-TIGHT CONDITION STARTING WITH THE MOST RIGID PART OF THE JOINT AND PROCEEDING TOWARD THE FREE EDGES.
9. APPLY AN ADDITIONAL 1/2 TURN TO ALL BOLTED CONNECTIONS FOR FINAL TIGHTENING. SPECIAL CARE SHOULD BE EXERCISED IN THE TIGHTENING OF ALL BOLTS SHOULD BE COMPLETED AFTER FINAL CONSTRUCTION OF THE STRUCTURE(ASSEMBLY). FLANGE MITTS, SPECIAL ATTENTION SHALL BE GIVEN TO ASSURE THAT ALL BOLTS ARE TIGHTENED AND THREADED SUCH AS TO PREVENT STRIPPING THE THREADS FROM OVER TIGHTENING.

TOLERANCES
ORIGINAL NOT CUMULATIVE
1 PLACE DECIMAL ± .01
2 PLACE DECIMAL ± .03
ALL DIMENSIONS ARE IN INCHES
ANGULAR ± 1/2°
INTERPRETATION OF DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994

MATERIAL
STEEL FABRICATOR

FINISH

THIRD ANGLE PROJECTION

	NAME	DATE
PROJECT NO.	24632C/1	
ENG APPROVAL		
DRAWN BY	S.DEOM	01/19/2010
DRAFTING	T.A.W.	01/21/2010
DESIGN MGR.	G.H.	01/21/2010
ERC		
MANUF.		
EXT. APPROVAL		
COMPANY		

ELECTRONICS RESEARCH INC.
ESTABLISHED 1945
7777 GARDNER Rd
CHANDLER, IN 47610-9219
PHONE: (812) 925-6000
FAX: (812) 925-4030

TITLE:
INSTALLATION / ANTENNA
ATLANTA, GA
SHPA-12BC-HW-SP

SIZE	CAGE CODE	DWG. NO.	REV.
D	0ZNS1	IA24632C-1	
SCALE: 1:32		WEIGHT:	SHEET

A-2 ERI Antenna Specification Sheet

Atlanta, Georgia

General Specifications

Antenna Type . . . . . High Power FM-Broadcast, Suitable for Multiplexing
Model Number SHPXA-12BC-HW-SP
Number of Bay Levels..... Twelve
Polarization..... Right Hand Circular

Electrical Specifications

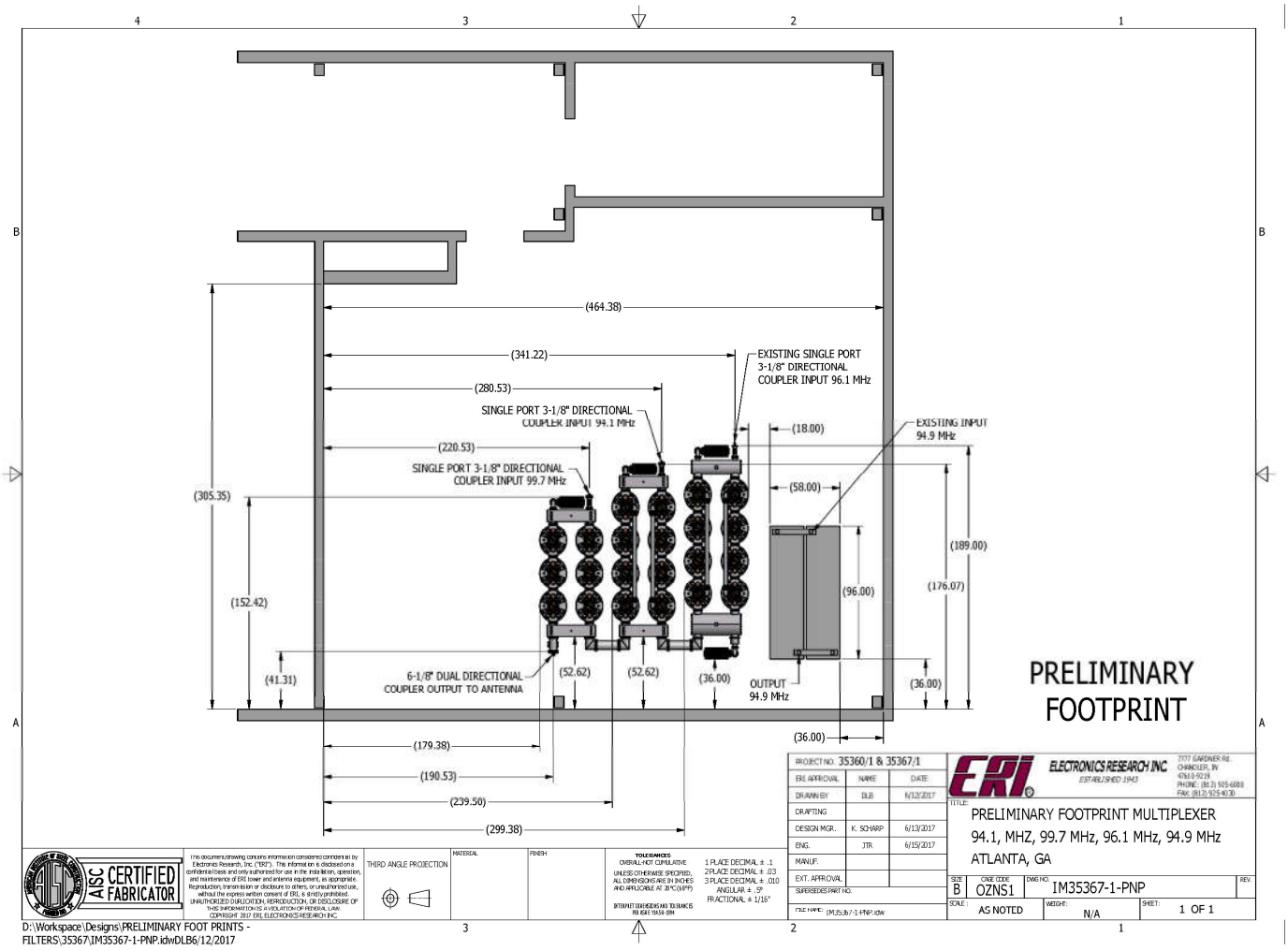
Antenna Input Power Capability . . . . . 74 KW Max (1)
Operating Frequency Band..... 94.1 ~ 99.7 Megahertz.
VSWR. . . . . <1.15:1 @ Operating Frequencies (2)
Azimuthal Pattern Circularity ..... Better Then +/- 1.5dB From RMS (Free Space)
Power Split ..... 50/50 (Horizontal & Vertical)
Frequency Specific Information:

Frequency	Station ERP	Beam Tilt	First Null Fill	Second Null Fill	Power Gain	Line Loss (3)	Filter Loss (4)	Computed TPO
94.1	**100 kW**	**0°**	**0 %**	**0%**	**3.581**	**.564 dB**	**.3152 dB**	**34.191 kW**
94.9	**37 kW**	**0°**	**0 %**	**0%**	**3.615**	**.564 dB**	**.5629 dB**	**13.267 kW**
96.1	**37 kW**	**0°**	**0 %**	**0 %**	**3.615**	**.576 dB**	**.2257 dB**	**12.155 kW**
99.7	**48 kW**	**0°**	**0 %**	**0%**	**3.792**	**.588 dB**	**.1610 dB**	**15.041 kW**

Mechanical Specifications

Antenna Feed System .....Fed with One Lines
Input Connector ..... . 6 1/8”-50 Ohm EIA Flanged
Element Deicing..... None
Interbay Spacing..... 60” Center to Center
Array Length..... 57.5 Feet
Construction Material (Antenna)..... All Noncorrosive
Construction Material (Mounting) ..... All Stainless Steel

1) Power Capability Has Been Rated Assuming an Operating Transmission VSWR of 1.5:1
2) VSWR Specification Achieved After on Site Tuning for User Specific Frequencies.
3) Line Loss Assumes A Feed Run of 1200 Feet, 6 1/8" ERI Macxline
4) Losses Taken from Actual Combiner.



PROJECT NO: 35360/1 & 35367/1		
ERI APPROVAL	NAME	DATE
DRAWN BY	DLB	6/12/2017
DRAFTING		
DESIGN MGR.	K. SCHARP	6/13/2017
ENG.	JTR	6/15/2017
MANUF.		
EXT. APPROVAL		
SUPERSEDES PART NO.		
FILE NAME: IM35367-1-PNP.IDW		

ELECTRONICS RESEARCH INC.
ESTABLISHED 1943
7777 GARDNER Rd.
CHANDLER, IN
47610-9219
PHONE: (812) 925-6000
FAX: (812) 925-4030

TITLE:
PRELIMINARY FOOTPRINT MULTIPLEXER
94.1, MHZ, 99.7 MHz, 96.1 MHz, 94.9 MHz
ATLANTA, GA

SIZE	CAGE CODE	DWG NO.	REV.
B	OZNS1	IM35367-1-PNP	
SCALE: AS NOTED	WEIGHT: N/A	SHEET: 1 OF 1	

AISC CERTIFIED FABRICATOR

THIRD ANGLE PROJECTION

MATERIAL

FINISH

TOLERANCES
OVERALL +/-0.1 CUMULATIVE
UNLESS OTHERWISE SPECIFIED,
ALL DIMENSIONS ARE IN INCHES
AND APPLICABLE AT 20°C (68°F)

INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994

1 PLACE DECIMAL ± .1
2 PLACE DECIMAL ± .03
3 PLACE DECIMAL ± .010
ANGULAR ± .5°
FRACTIONAL ± 1/16"

D:\Workspace\Designs\PRELIMINARY FOOT PRINTS - FILTERS\35367\IM35367-1-PNP.idwDLB6/12/2017

A-4 ERI Combiner Specification Sheet

Atlanta, Georgia

General Specifications:

Multiplexer Type ..... Constant Impedance
Number of Combining Units .....Four
Multiplexer Type ..... Constant Impedance Combiner
Injected Port to Injected Port Isolation..... < - 58 dB
Output Connector.....6 1/8 "50 Ohm EIA (Flanged)
Output Power (Designed) ..... 74 kW (1)

Heat Removal.....Natural Convection
Physical Arrangement .....All Components Floor standing

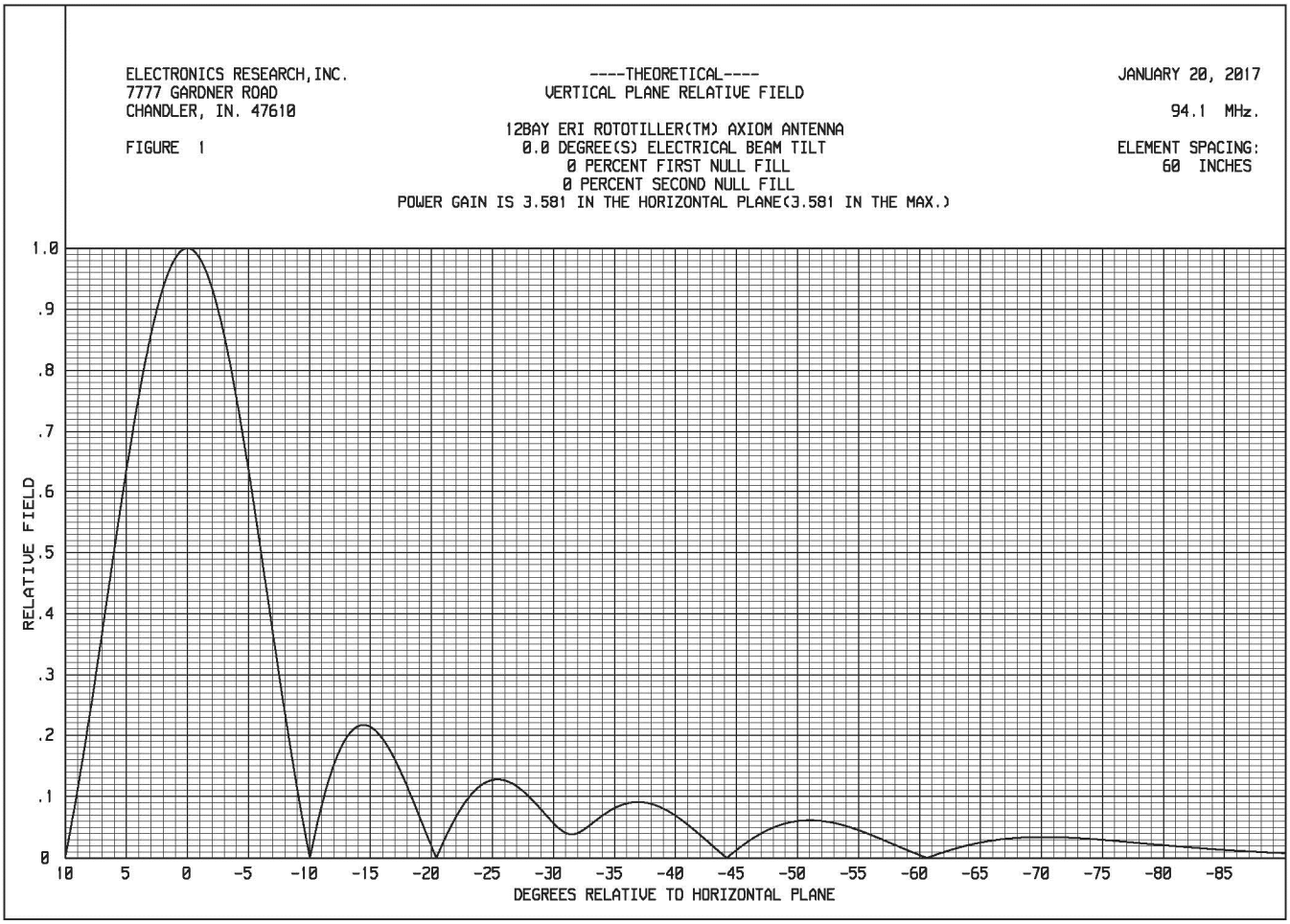
Injected Port Specifications:

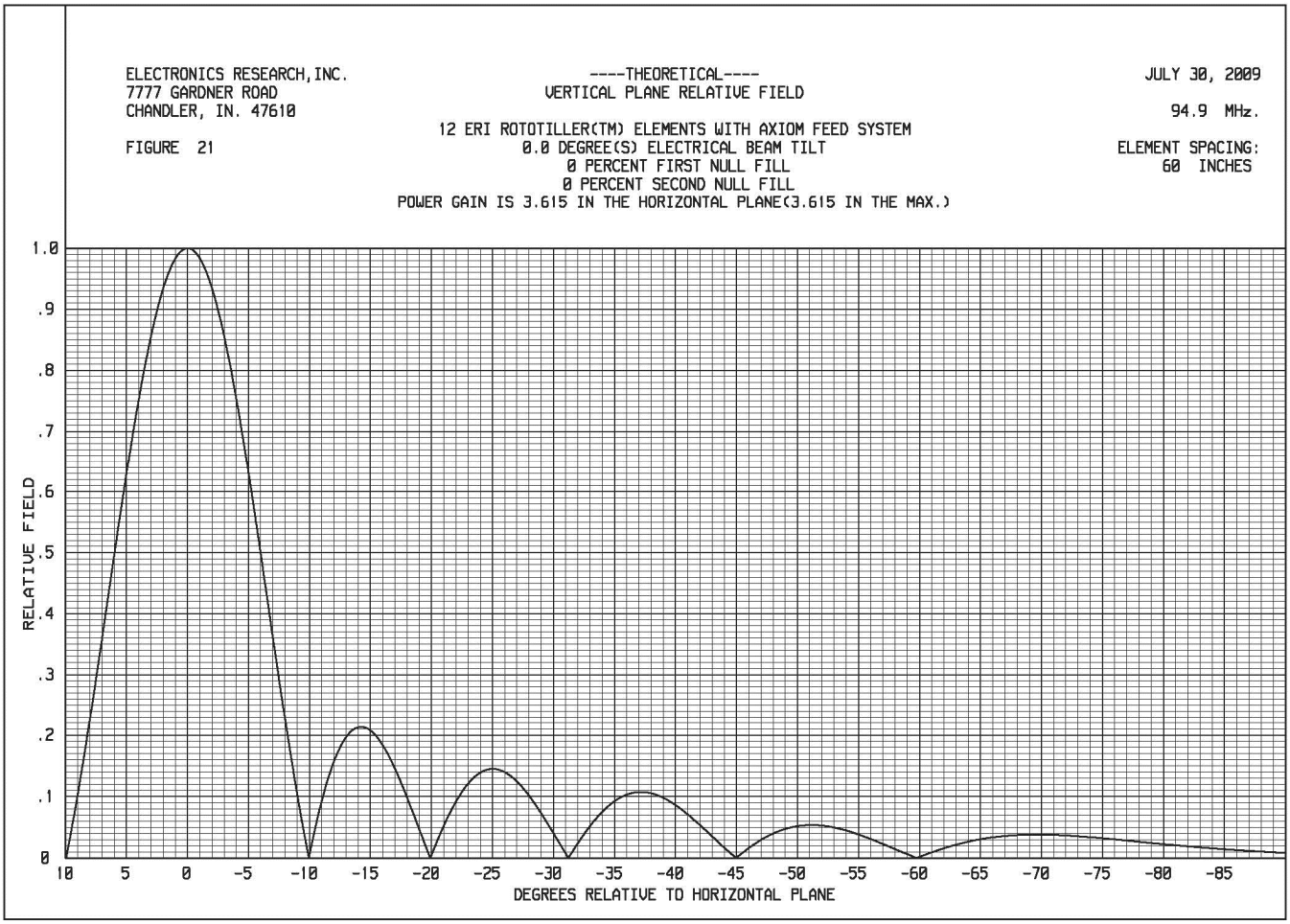
Frequency Assignment .....94.1, 94.9, 96.1, and 99.7 MHz.
Power Rating, Each Injected Port ..... 34.2 kW for 94.1 and 13.3kW for 94.9 MHz.
Power Rating, Each Injected Port ..... 12.2 kW for 96.1 and 15.1kW for 99.7 MHz.
Input Connector ..... 3-1/8" 50 Ohm EIA (Flanged)
VSWR.....< 1.09:1 @ +/-200 KHz. (2)
Group Delay..... Less than 200 ns Overall Variation, Carrier @ +/- 150 KHz.
Insertion Loss (Measured):

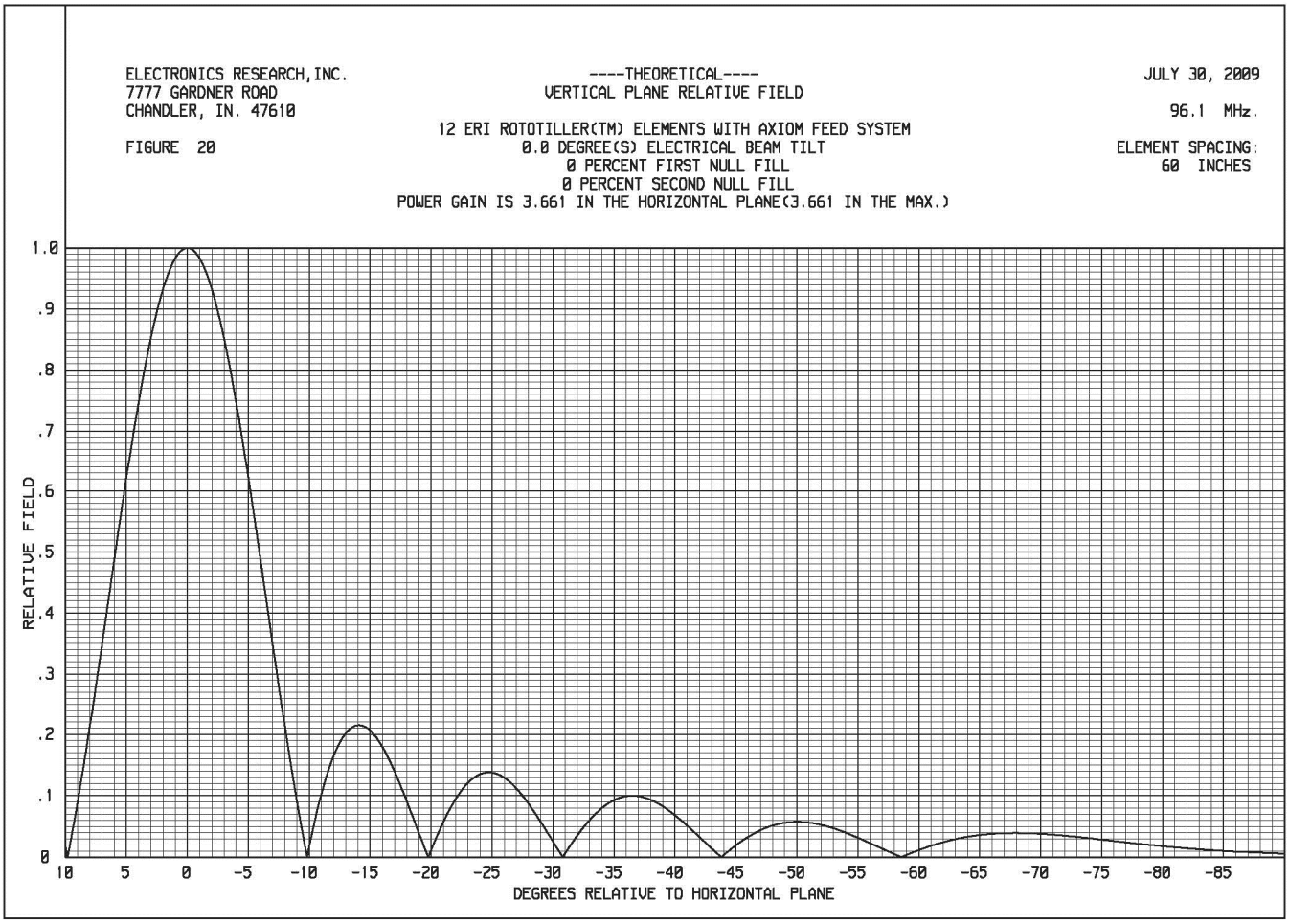
94.1 MHz..... - 0.3152 dB
94.9 MHz..... - 0.5629 dB
96.1 MHz..... - 0.2257 dB
99.7 MHz..... - 0.1610 dB

1) Power Rating Listed is as Designed Only. Actual Power Capabilities May Vary.
2) When Terminated in 50 Ohm Resistive Load.

EXHIBIT, A-5


ELECTRONICS RESEARCH,INC.
7777 GARDNER ROAD
CHANDLER, IN. 47610
FIGURE 1
----THEORETICAL----
VERTICAL PLANE RELATIVE FIELD
12BAY ERI ROTOTILLER(TM) AXIOM ANTENNA
0.0 DEGREE(S) ELECTRICAL BEAM TILT
0 PERCENT FIRST NULL FILL
0 PERCENT SECOND NULL FILL
POWER GAIN IS 3.581 IN THE HORIZONTAL PLANE(3.581 IN THE MAX.)
JANUARY 20, 2017
94.1 MHz.
ELEMENT SPACING:
60 INCHES
RELATIVE FIELD
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
0
10 5 0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50 -55 -60 -65 -70 -75 -80 -85
DEGREES RELATIVE TO HORIZONTAL PLANE


ELECTRONICS RESEARCH,INC.
7777 GARDNER ROAD
CHANDLER, IN. 47610
FIGURE 21
----THEORETICAL----
VERTICAL PLANE RELATIVE FIELD
12 ERI ROTOTILLER(TM) ELEMENTS WITH AXIOM FEED SYSTEM
0.0 DEGREE(S) ELECTRICAL BEAM TILT
0 PERCENT FIRST NULL FILL
0 PERCENT SECOND NULL FILL
POWER GAIN IS 3.615 IN THE HORIZONTAL PLANE(3.615 IN THE MAX.)
JULY 30, 2009
94.9 MHz.
ELEMENT SPACING:
60 INCHES
RELATIVE FIELD
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
0
10 5 0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50 -55 -60 -65 -70 -75 -80 -85
DEGREES RELATIVE TO HORIZONTAL PLANE


ELECTRONICS RESEARCH,INC.
7777 GARDNER ROAD
CHANDLER, IN. 47610
FIGURE 20
----THEORETICAL----
VERTICAL PLANE RELATIVE FIELD
12 ERI ROTOTILLER(TM) ELEMENTS WITH AXIOM FEED SYSTEM
0.0 DEGREE(S) ELECTRICAL BEAM TILT
0 PERCENT FIRST NULL FILL
0 PERCENT SECOND NULL FILL
POWER GAIN IS 3.661 IN THE HORIZONTAL PLANE(3.661 IN THE MAX.)
JULY 30, 2009
96.1 MHz.
ELEMENT SPACING:
60 INCHES
RELATIVE FIELD
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
0
10 5 0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50 -55 -60 -65 -70 -75 -80 -85
DEGREES RELATIVE TO HORIZONTAL PLANE

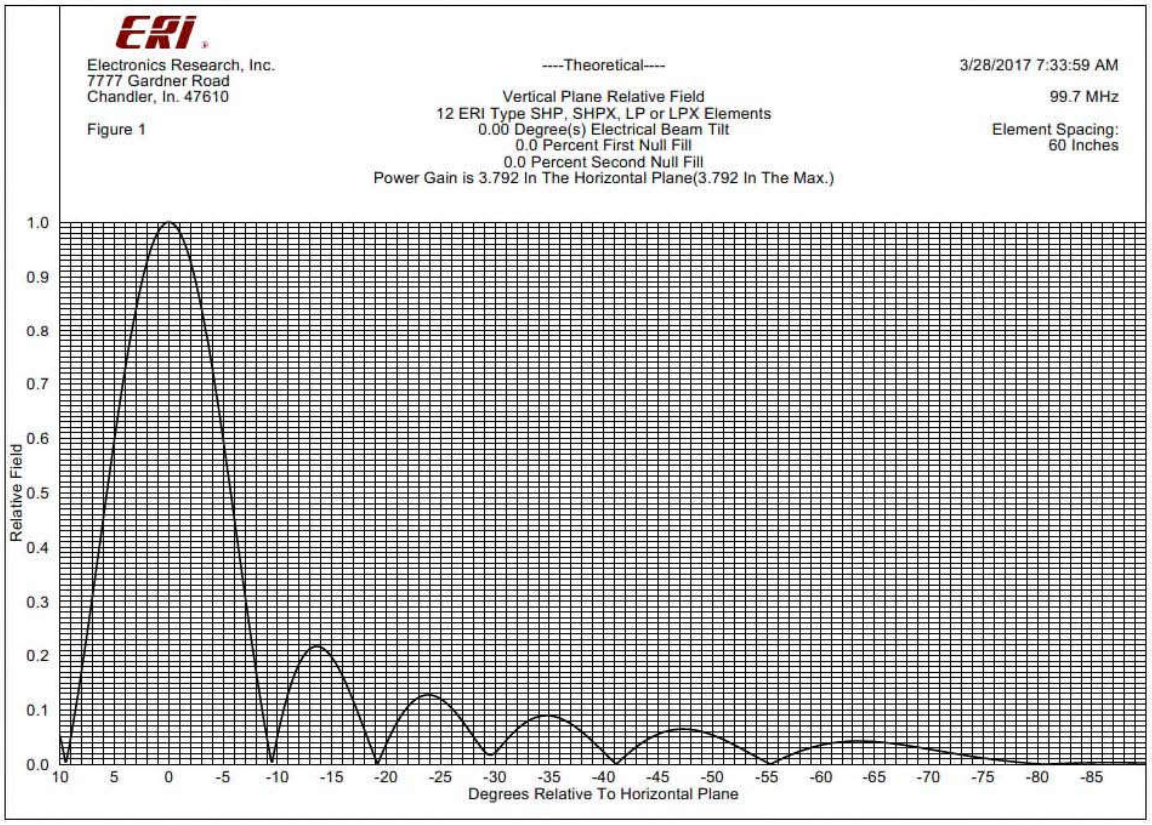

Electronics Research, Inc.
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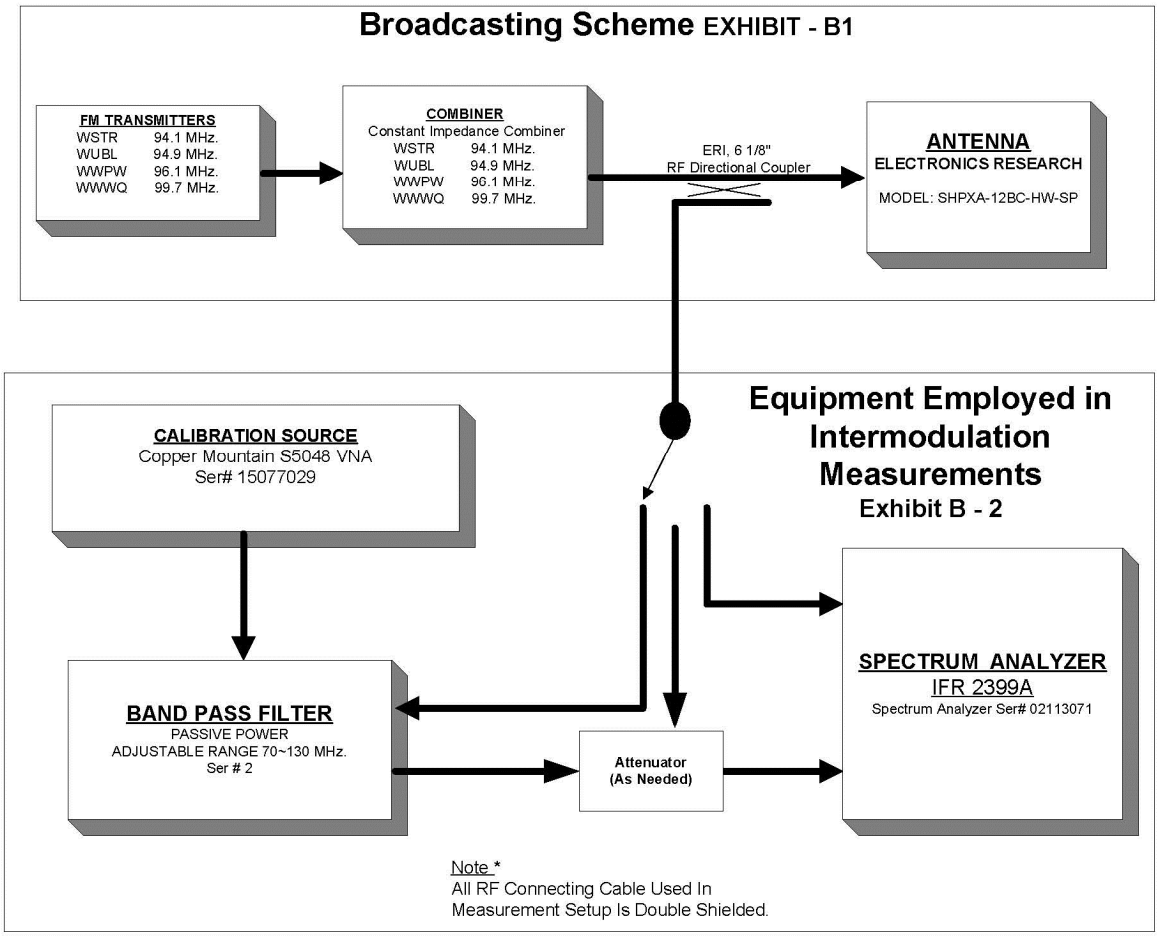
Figure 1
----Theoretical----
Vertical Plane Relative Field
12 ERI Type SHP, SHPX, LP or LPX Elements
0.00 Degree(s) Electrical Beam Tilt
0.0 Percent First Null Fill
0.0 Percent Second Null Fill
Power Gain is 3.792 In The Horizontal Plane(3.792 In The Max.)
3/28/2017 7:33:59 AM
99.7 MHz
Element Spacing:
60 Inches
Relative Field
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
10 5 0 -5 -10 -15 -20 -25 -30 -35 -40 -45 -50 -55 -60 -65 -70 -75 -80 -85
Degrees Relative To Horizontal Plane



Broadcasting Scheme and Equipment Employed in Intermodulation Measurements

EXHIBIT B