Engineering Statement for radio Station KDAG (FM), Farmington New Mexico. Statement in support of Special operating conditions for Permit number BPH-20030109afm

Condition 1, Measurements to establish compliance with spurious emission requirements.

Attached as exhibit A is a report from Electronic Research Incorporated stating the findings that this facility was found to meet the FCC requirements of 73.317 (B) through (d). There for the conditions of Special operating condition 1 are met.

Condition 2, RF Hazard Warning signs, site security and protective measures.

Measurements were made at this site to determine if the RF exposure levels present exceed those outlined in Docket 93-62 no. 86 as adopted in October 15 1997. Separate limits apply for occupational and public exposure conditions with the public conditions 5 times more restrictive in general terms.

Site Description

This site is on leased land Owned by the State of New Mexico and managed by the San Juan County Communications center. It is known as the Knickerbocker communications site. This site is the location for numerous communications towers.

There is a north site and a south site Separated by approximately 1000 meters. The access to both locations is through a single locked gate. There are no other access roads or trails to or through this site. It is posted no trespassing and by its remote location is considered inaccessible other than through the access road. The location for the KDAG, KAZX and KTRA diplexed transmission site is the "North" site location of the Knickerbocker RF site. The distance from the Locked gate to the North site is one half Miles. And you pass no less than 3 RF warning signs on this corridor. There is no other known Broadcast or high power system at this site. The locked gate at the main site access point to both sites is secured at all times unless personnel are passing through. This Locked Gate is posted with RF hazard signs warning the public to stay out. The road to the North site is also posted with Warning signs. There is a gated locked fence surrounding the Base of the tower the FM antennas are mounted on restricting access to this tower to all but station personnel with the appropriate keys. As such this site was treated as an occupational site during the RF survey and the measurements described will only address occupational levels.

Measurement Equipment description and Procedure

The primary instrument used to measure these levels was a Narda Model 8718B meter with a model A8742D probe calibrated to read up to 600% of occupational level from 300 KHz to 3 GHz. This probes frequency response is shaped to reflect the occupational limits of FCC 1997 standards. Transmitters for Radio Stations KDAG, KAZX and KTRA were operating at 100 % of the rated TPO to achieve the authorized ERP during these measurement tests. The meter reads directly in % of occupational exposure limits. Making the Survey a simple go, no-go measurement process. The survey area was walked in a radial pattern from the tower base extending outward looking for areas that approached the limits to a point where RF levels had dropped off due to distance from the

radiation source. If an area was found to approach the limits then closer attention was given to that area to detect any “hotspots”. If any areas were found to exceed the limit at a single point then spatial averaging was used to determine the average exposure level from a distance of 1.5 CM to 2 meters above ground level. As allowed for in the rules. The Narda meter used for this survey has a spatial averaging feature so this makes this procedure efficient and easy for the operator. Giving an averaged reading at the end of the test for the point measured.

Results of Measurements

There were no areas found that exceeded the occupational limits on the ground at this site using the methods outlined above.

Condition 3, Site Coordination for work.

The applicant agrees and certifies that it will coordinate with others on site to power down or cease operations as required to protect persons having authorized access to the site.

Condition 4, Allotment Downgrade.

The applicant agrees and will accept the change of KDAG from a class C to a C0 as a condition of this grant.

Report Of Intermodulation Product Findings

KDAG ~ KTRA ~ KAZX FM BROADCAST FACILITY
FARMINGTON, NEW MEXICO

November 2001

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

TABLE OF CONTENTS
Farmington, New Mexico

Report of Findings for Intermodulation Product Measurements

Exhibits Accompanying This Report

REPORT OF FINDINGS
KDAG / KTRA/ KAZX BROADCAST FACILITY
FARMINGTON, NEW MEXICO

Introduction : This report of findings is based on data collected at the FM broadcast facility located in Farmington, N.M. The report includes measurements offered as proof that the combined operations of KDAG, KTRA and KAZX 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 second 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). Mark Steapleton of Electronics Research, Inc. located in Chandler, Indiana performed the measurements summarized herein on November 20, 2001.

The following exhibits are provided:

Exhibit A:

A-1 Drawing Depicting Antenna.
A-2 SHPX-10AC6-SP Antenna Specification Sheet.
A-3 Drawing Depicting Multiplexing Scheme.
A-4 TB 963-11/6 Branch Combiner Multiplexer 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 Second 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 second 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 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.

The Multiplexed System : At the time of my measurements, three FM stations were operating from the combined antenna system. The KDAG, KTRA and KAZX multiplexed system is fundamentally comprised of antenna, feed line and multiplexer unit. The SHPX-10AC6-SP antenna and TB 963-11/6 Branch Combiner units are products of Electronics Research, Inc, whereas the feed line is manufactured by Myat, Refer to Exhibit B-2, for an illustration of the Broadcasting Scheme of these stations.

To accomplish the aggregation of transmitter signals into a common antenna feed and provide transmitter-to-transmitter isolation, a multiplexing scheme consisting of a Branch Combiner module was installed. Specifically, two of the branches of this combiner utilizes four ERI Model 963 Bandpass filters using nonadjacent coupling and Group Delay compensating module for each transmitter. The third branch utilizes three ERI 963 standard Bandpass filters for their transmitter. An interconnecting TEE's are required to complete the branch multiplexer module. The branch combiner is illustrated in the attached Exhibit A-3. 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. 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 multiplexers 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 insure 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 33 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 FIM71 to ensure an adequate signal level for measurements without overloading the measurement equipment. A Potomac Instruments FIM-71 Field Strength Receiver was employed to record the level of all signals investigated. To facilitate the selective tuning of the Receiver and Band Pass Filter a Wavetek Model 3000 signal generator was used. 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)	Full Scale Range (dBµ)	Scale Reading (dB)	**Adjusted Level (dBµ)**	Notes
KDAG (96.9)	---	---	120	-1.0	**119.0**	
KTRA (102.1)	---	---	120	-1.7	**118.3**	
KAZX (102.9)	10	---	120	-11.1	**118.9**	

Predictable second-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 - Second order Products.

	Carrier Frequency (MHz)		
Interfering Frequency (MHz)	**KDAG 96.9**	**KTRA 102.1**	**KAZX 102.9**
KDAG 96.9	**---**	**107.3**	**108.9**
KTRA 102.1	**91.7**	**---**	**103.7**
KAZX 102.9	**90.9**	**101.3**	**---**

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 for a layout of the measurement equipment.

Table 3 Intermodulation Measurements

Product Frequency (MHz)	Carrier Frequency (MHz)	Interfering Frequency (MHz)	Pad (dB)	Bandpass Filter Loss (dB)	Full Scale Range (dBµ)	Scale reading (dB)	Adjusted Level (dBµ)	Carrier Reference Level (dBµ) (See Table 1)	**Level Referenced to Carrier (dB)**	Notes*
90.9	96.9	102.9	3	7.1	40	-17.5	32.6	119.0	**86.4**	1
91.7	96.9	102.1	10	7.1	20	-0.5	36.6	119.0	**82.4**	2
101.3	102.1	102.9	10	6.9	20	- 9.5	27.4	118.3	**90.9**	
103.7	102.9	102.1	10	6.7	20	- 9.2	27.5	118.9	**91.4**	
107.3	102.1	96.9	0.0	6.3	20	-14.2	12.1	118.3	**106.2**	
108.9	102.9	96.9	0.0	6.8	20	-16.5	10.3	118.9	**108.6**	

*** NOTES**

1) Measured signal is a local carrier KSJE transmitting at 90.9 MHz: No discernable signal was measured.

2) Measured signal is a local carrier KTGW transmitting at 91.7 MHz: No discernable signal was measured.

An Anritsu, Model S114B Sitemaster Spectrum Analyzer was used to check the close in spectral attenuation of each carrier to confirm the operation of all transmitters, operating into the combined antenna system, are 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 Potomac FIM71 Detector. 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 November 20, 2001 as summarized in this document, I, Mark Steapleton, find the subject multiplexed system - specifically the transmitters and combiner system for the operation of the KDAG, KTRA and KAZX into the SHPX-10AC6 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 generated from or within the stations operating on the installed system. Also, based on this recorded data. I conclude that KDAG, KTRA and KAZX 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.

By _____
Mark Steapleton Field Technician

AFFIDAVIT

I, Mark Steapleton, 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 21 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.

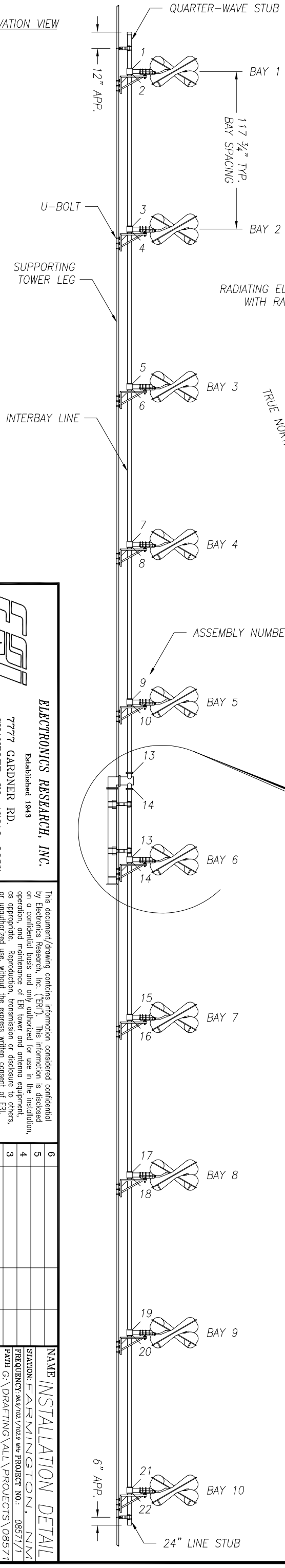
3.) ERI has been requested by Clear Channel Communications on behalf of radio Stations KDAG, KTRA and KAZX in Farmington, N.M. to prepare this Report Of Findings.

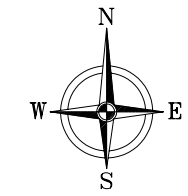
Mark Steapleton; Field Technician

Subscribed and sworn to before me on this 28th. day of November 2001.

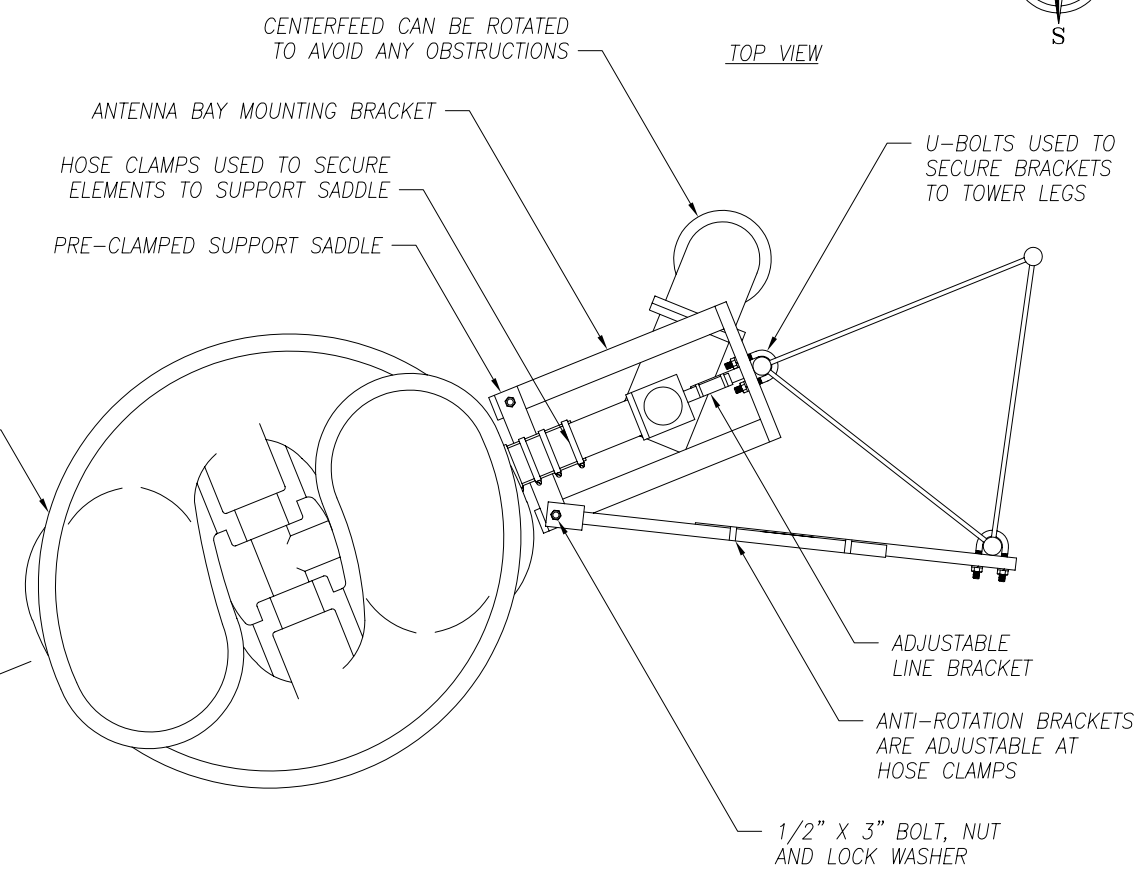
Jacquelyn Kinney; Notary Public
My commission expires July 5, 2007

ELEVATION VIEW

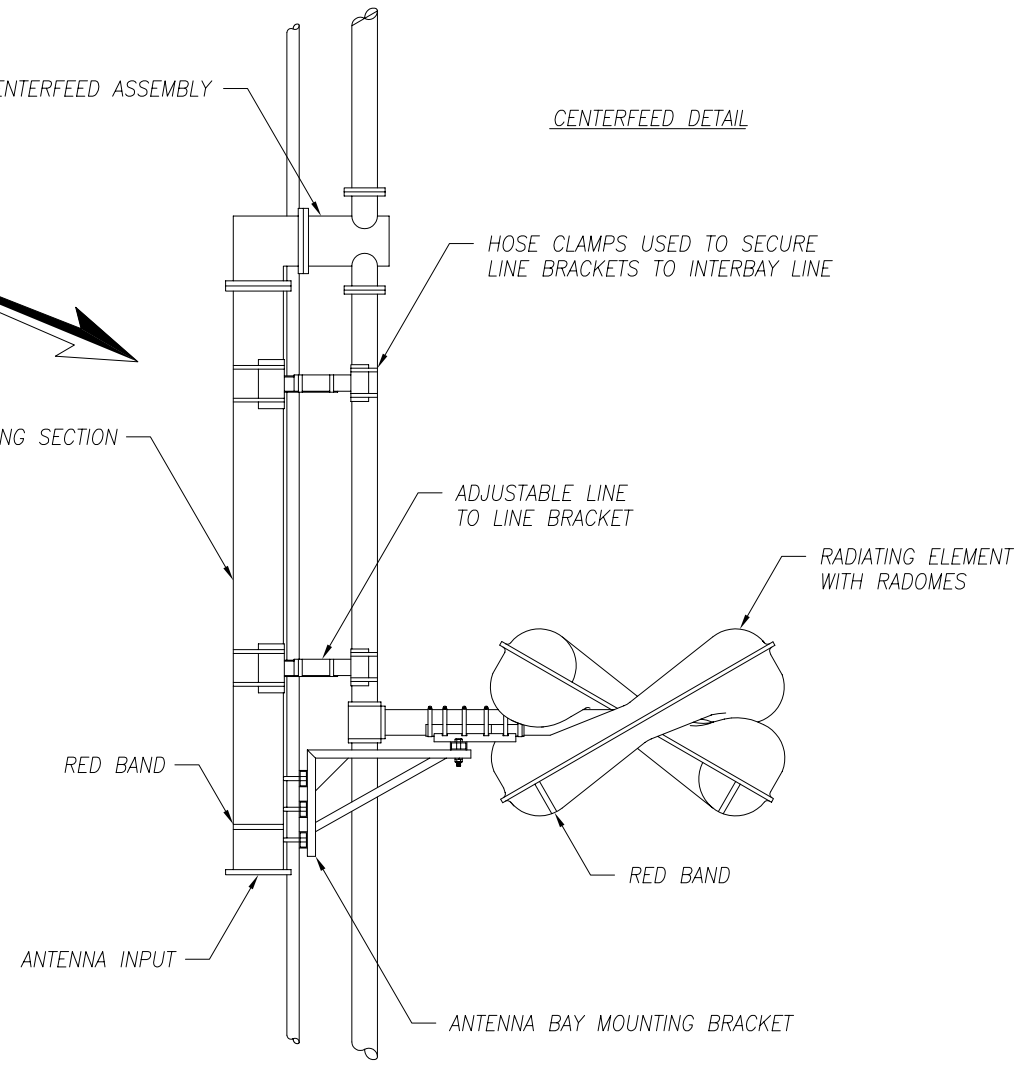




TOP VIEW



CENTERFEED DETAIL



NOTES:

1. ALL RED BANDS DESIGNATE SIDE TO BE MOUNTED DOWNWARD.
2. ASSEMBLE ANTENNA SYSTEM BY MATING CORRESPONDING NUMBERS.
3. OVERALL LENGTH OF ANTENNA SYSTEM IS 92'–11" APPROXIMATE.
4. ENSURE TO PLUMB ANTENNA VERTICALLY BY LOOSENING HOSE CLAMPS ON PRE–CLAMPED SUPPORT SADDLES AND ADJUSTABLE LINE BRACKETS.
5. ROTATE CENTERFEED ASSEMBLY AS CLOSE TO TOWER AS POSSIBLE.
6. ANTI–ROTATION BRACKETS HAVE BEEN OMITTED FROM ELEVATION VIEW FOR CLARITY.
7. FINAL ORIENTATION TO BE DETERMINED BY STATION PERSONNEL.

ELECTRONICS RESEARCH, INC.
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NAME INSTALLATION DETAIL

STATION: FARMINGTON, NM

FREQUENCY: 98.9/102.1/102.9 MHz PROJECT NO.: 08571/1

PATH G:\DRAFTING\ALL\PROJECTS\08571

FILE	DRAWN
IA — 7	J.B.F.
DATE	APP'D
05/22/01	
MODEL	FACTOR
SHPX–10AC6–SP	NTS
DWG. NO.	
IA — 7	

SHPX-10AC-SP ERI Antenna Specification Sheet

KDAG ~ KTRA ~ KAZX Farmington, New Mexico

General Specifications

Antenna Type . . . . . High Power FM-Broadcast, Suitable For Diplexing
Model Number SHPX-10AC6-SP
Number Of Bay Levels . . . . . Ten
Polarization . . . . . Right Hand Circular

Electrical Specifications

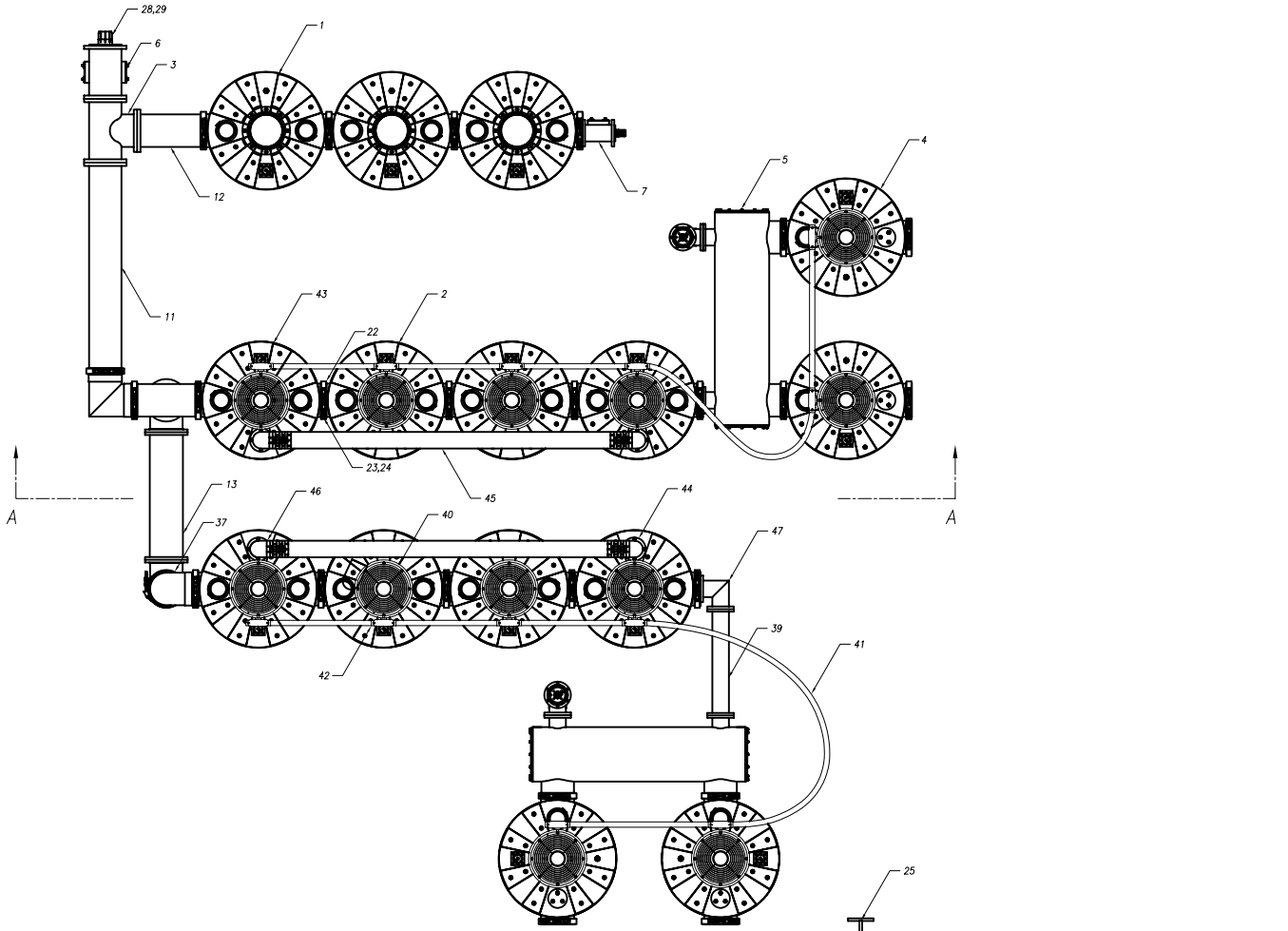
Antenna Input Power Capability . . . . . 64 KW. Maximum (1)
Operating Frequency Band . . . . . 96.9, 102.1 and 102.9 Megahertz.
VSWR . . . . . 1.10 : 1 @ Operating Frequencies.(2)
Azimuthal Pattern Circularity . . . . . +/- 2dB From RMS (Free Space)
Power Split . . . . . 50/50 (Horizontal & Vertical)
Quarter Wave Shorting Stub . . . . . Yes
Frequency Specific Information:

Frequency	Station ERP	Beam Tilt	First Null Fill	Second Null Fill	Power Gain Horizontal	Power Gain Maximum	Line Loss (3)	Filter Loss (4)	Computed TPO
96.9	**100 KW**	**-0.0°**	**19 %**	**1%**	**5.269**	**5.269**	**.16146 dB**	**0.13 dB**	**20.29 KW**
102.1	**100 KW**	**-0.0°**	**14 %**	**0 %**	**5.338**	**5.338**	**.16560 dB**	**0.44 dB**	**21.54 KW**
102.9	**100 KW**	**-0.0°**	**19 %**	**1 %**	**5.099**	**5.099**	**.16629 dB**	**0.41 dB**	**22.39 KW**

Mechanical Specifications

Antenna Feed System . . . . . Fed With Single Feed Line
Input Connector . . . . . 6 1/8" 50- Ohm EIA Flanged
Interbay Line size . . . . . 3" Rigid
Element Deicing . . . . . Radomes
Interbay Spacing . . . . . 117.75 Inch Center to Center
Array Length . . . . . 92 Feet - 11 Inch
Construction Material (Antenna) . . . . . All Noncorrosive
Construction Material (Mounting) . . . . . Stainless Steel
Mounting . . . . . Leg Mounted
Weight (Antenna With Radomes No Ice) . . . . . 1719 Lbs.
CaAa Wind Load (Antenna With Radomes No Ice) . . . . . 97.66 sq. ft.(5)

NOTES:
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 230 Feet, Myat Type 401 Rigid 4 1/8" Coax.
4) Losses Taken From Actual Multiplexer Measurements.
5) The surface area is calculated per EIA standard RS-222-F (CaAa).



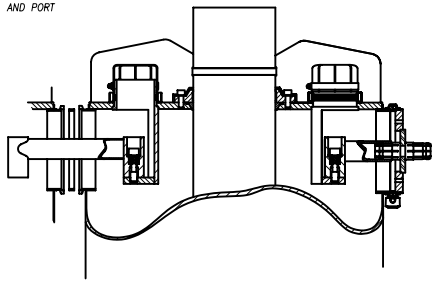
SECTION A–A

BILL OF MATERIAL

NO.	STOCK NO.	DESCRIPTION	QTY.
1	FI0075	963 TYPE BAND PASS FILTER W/ DOUBLE & TRIPLE LOOP	2
2	FI0073	963 TYPE BAND PASS FILTER W/ DOUBLE LOOP	5
3	N/A	6-1/8" EIA TEE	1
4	FI0076	963 TYPE GROUP DELAY FILTER W/ 1 TRIPLE LOOP	4
5	HY0041	10" HYBRID	2
6	DC6002	6-1/8" DUAL DIRECTIONAL COUPLER	1
7	DC3003	3-1/8" SINGLE DIRECTIONAL COUPLER	3
8	CE6024	6-1/8" 90° MITERED ELBOW MARMAN TO MARMAN FLG.	2
9	CE6022	6-1/8" 90° MITERED ELBOW RSF TO RSF	2
10	CT6005	3 WAY TEE EIA TO MARMAN	1
11	CL6182-50A	6-1/8" LINE SECTION MARMAN TO EIA (39-1/4" LONG)	1
12	CL6182-50A	6-1/8" LINE SECTION MARMAN TO EIA (12-1/2" LONG)	1
13	CL6182-50A	6-1/8" LINE SECTION (24" LONG)	1
14	FI0147	INNER CONNECTING ASSEMBLY	8
15	FI0145	3" INNER PORT CONNECTOR	3
16	FI0001	6" CONTACT RING	13
17	CF0099	6" MARMAN TO 3-1/8" EIA PORT ADAPTER	3
18	FI0148	6" INNER PORT CONNECTOR	7
19	FI0220	1/2"-13 X 2" LONG STEPPED BOLT	26
20	SG0001	SPRING	26
21	WF08SSA	1/2" FLATWASHER	26
22	CM0036	6" MARMAN CLAMP	19
23	SC0518T0450	5/16"-18 X 4-1/2" LONG "T" BOLT	19
24	NU0518BZ	5/16"-18 BRONZE HEX NUT	19
25	FI0004	"T" HANDLE TOOL, 1/2" SOCKETHEAD	1
26	CO0073	3" SPLIT LINE CAP	26
27	HC0044	B44 HOSE CLAMP	26
28	CC0033	6-1/8" IN-LINE BULLET	5
29	IN0029	6-1/8" "S" SPLIT WAFER INSULATOR	5
30	CC0021	3-1/8" IN-LINE BULLET	5
31	IN0021	3-1/8" "S" SPLIT WAFER INSULATOR	5
32	SC0616H0100	3/8"-16 X 1" LONG HEX HEAD BOLT	18
33	SC0616H0150	3/8"-16 X 1-1/2" LONG HEX HEAD BOLT	36
34	SC0616H0175	3/8"-16 X 1-3/4" LONG HEX HEAD BOLT	84
35	NU0616	3/8"-16 HEX NUT	120
36	WL06SS	3/8" LOCKWASHER, SPLIT TYPE	138
37	CL6182-50A	6-1/8" LINE SECTION MARMAN TO EIA (11-7/16" LONG)	1
38	CL6182-50A	6-1/8" LINE SECTION (9-3/4" LONG)	1
39	CL3182-50A	3-1/8" LINE SECTION (20" LONG)	1
40	FI0100	FILTER COOLING UNIT ASSEMBLY	12
41	ED0050F-PVC	1/2" FLEXIBLE CONDUIT	24'
42	EF0036	1/2" FLEXIBLE CONDUIT ADAPTER	24
43	N/A	COUPLED 963 TYPE FILTER	4
44	CF0257	3-1/8" FIELD FLANGE	4
45	CL3180-50A	3-1/8" SPECIAL LENGTH LINE SECTION NO FLANGES (64")	2
46	CE3021	3-1/8" FLANGED TO UNFLANGED ELBOW	4
47	CE3022	3-1/8" FLANGED TO FLANGED ELBOW	3

FILTER ADJOINING DETAIL

DETAIL TYPICALLY DEPICTS ASSEMBLY METHOD AT FILTER INTERCONNECTION AND PORT



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NO	REVISION	APP'D	DATE
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NAME: COMBINER ASSEMBLY DETAIL
STATION: FARMINGTON, N.M.
FREQUENCY: 96.9,102.1,102.9 MHz. PROJECT NO.: 08571/2
PATH: G:\DRAFTING\ALL\PROJECTS\08571\2
FILE: IM — 1 DRAWN: BAM FACTOR: NTS
DATE: 4/23/01 APP'D
MODEL: NON APPLICABLE DWG. NO.: IM — 1

TB 63-11/6 ERI Branch Combiner Specification Sheet

KDAG / KTRA /KAZX Farmington, New Mexico

General Specifications:

Multiplexer Type . . . . . TB 63-11/6 Branch Combiner
Number Of Combining Units . . . . . Three
Injected Port to Injected Port Isolation . . . . . - 55 dB
Output Connector . . . . . 6 1/8 " 50 Ohm EIA (Flanged)
Output Power . . . . . 65 KW
Combiner Units, Size and Weight :(1)

Type 963-3 Tuned To 96.9 MHz. . . . . 58" ht. X 4"' wd. X 100" lng. & 585 Lbs.
Type 963-4-GD Tuned To 102.1 MHz . . . . . 58" ht. X 75" wd. X 120" lng. & 1,250 Lbs.(2)
Type 963-4-GD Tuned To 102.9 Mhz. . . . . 58" ht. X 53" wd. X 150" lng. & 1,250 Lbs.(2)

Heat Removal (96.9 MHz. Multiplexer Components) . . . . . Natural Convection
Heat Removal (102.1 and 102.9 Mhz. Multiplexer Components) . . . . . Forced Air
Physical Arrangement . . . . . All Components Floor Standing

Injected Port Specifications:

Frequency Assignment . . . . . 96.9, 102.1, And 102.9 MHz.
Power Rating, Each Injected Port (Maximum) . . . . . 30 KW
Input Connector . . . . . 3-1/8" 50 Ohm EIA (Flanged)
VSWR . . . . . Less than 1.07:1 @ +/-150 KHz(3)
Group Delay . . . . . Less than 50 ns Overall Variation, Carrier @ +/- 150 KHz

Insertion Loss (Measured):

Frequency	Insertion Loss
96.9 MHz.	- 0.13 dB
102.1 MHz.	- 0.44 dB
102.9 Mhz.	- 0.41 dB

Notes:
1) Filter Modules Size and Weight are Approximate.
2) These Filter Modules Utilize Nonadjacent Coupling and Group Delay Compensation Modules.
3) When Terminated in 50 Ohm Resistive Load.
4) The Combiner room ambient temperature should be maintained between 60 and 70 degrees Fahrenheit.

ELECTRONICS RESEARCH, INC.
7777 GARDNER ROAD
CHANDLER, IN. 47610

FIGURE 1

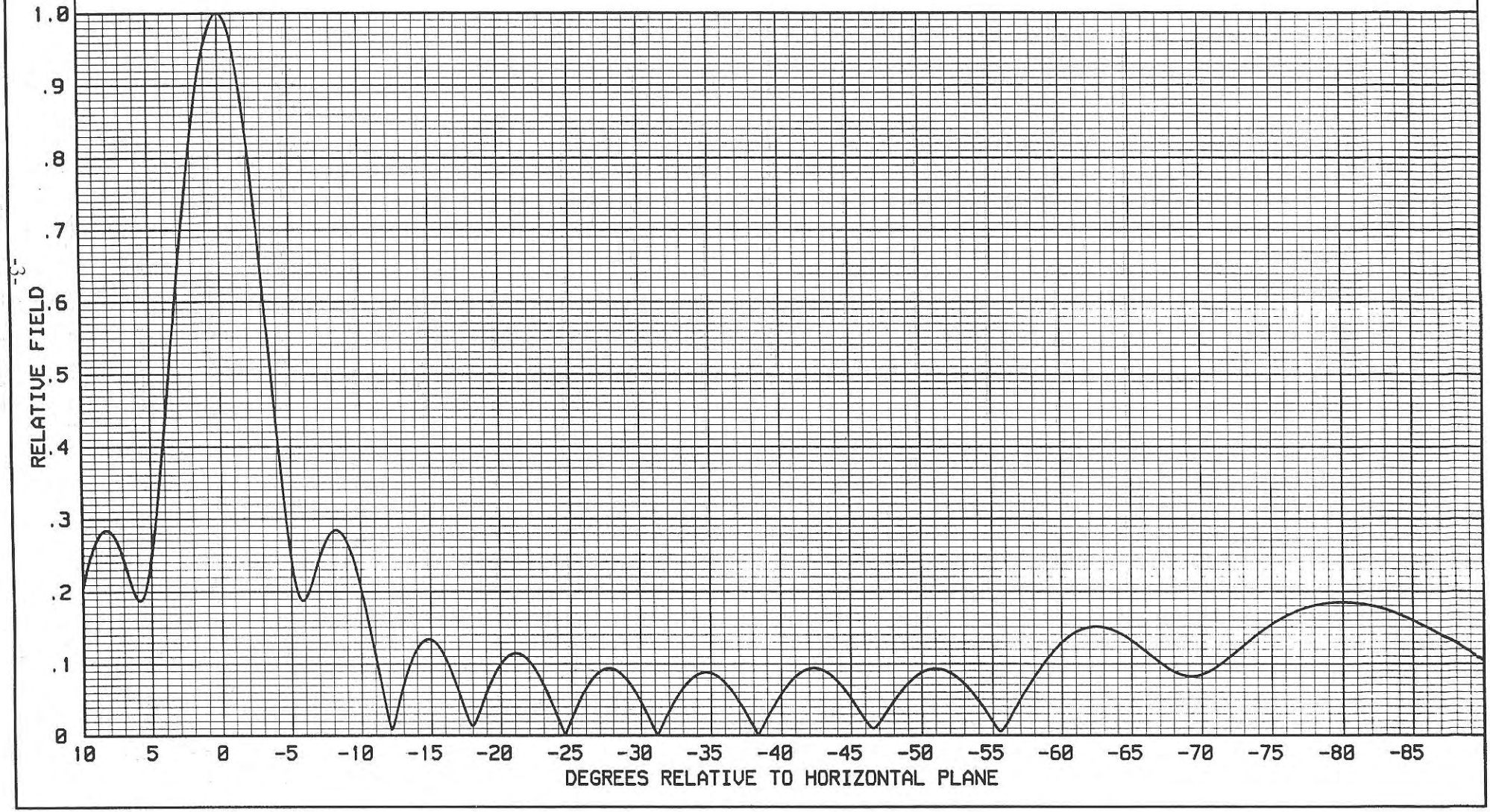
----THEORETICAL----
VERTICAL PLANE RELATIVE FIELD

10 ERI TYPE SHP, SHPX, LP, OR LPX ELEMENTS
+0.00 DEGREE(S) ELECTRICAL BEAM TILT
19 PERCENT FIRST NULL FILL
1 PERCENT SECOND NULL FILL
POWER GAIN IS 5.269 IN THE HORIZONTAL PLANE(5.269 IN THE MAX.)

FEBRUARY 23, 2001

96.9 MHz

ELEMENT SPACING
117.75 INCHES



ELECTRONICS RESEARCH, INC.
7777 GARDNER ROAD
CHANDLER, IN. 47610

FIGURE 2

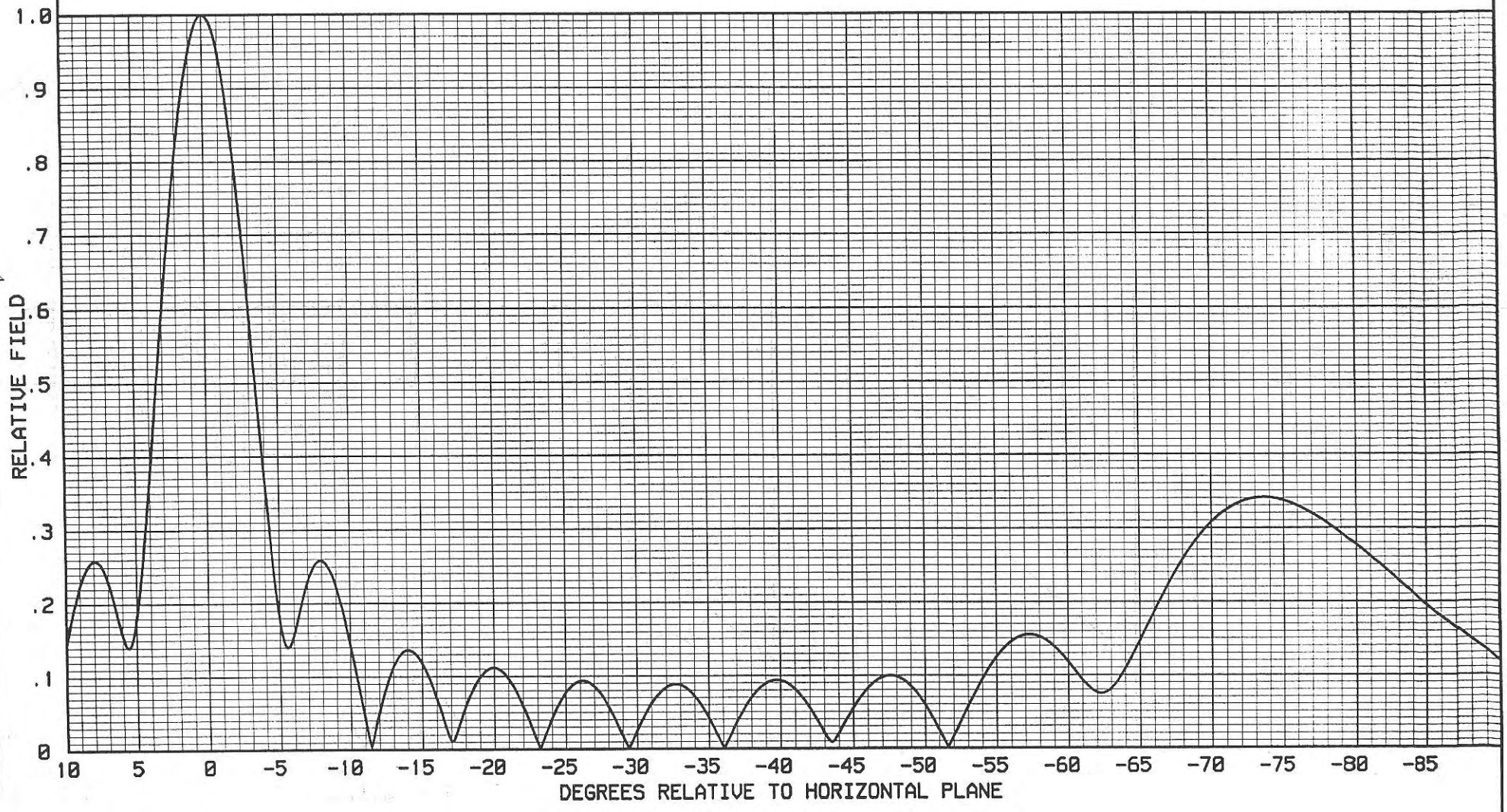
----THEORETICAL----
VERTICAL PLANE RELATIVE FIELD

10 ERI TYPE SHP, SHPX, LP, OR LPX ELEMENTS
+0.00 DEGREE(S) ELECTRICAL BEAM TILT
14 PERCENT FIRST NULL FILL
0 PERCENT SECOND NULL FILL
POWER GAIN IS 5.338 IN THE HORIZONTAL PLANE(5.338 IN THE MAX.)

FEBRUARY 23, 2001

102.1 MHz

ELEMENT SPACING
117.75 INCHES



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7777 GARDNER ROAD
CHANDLER, IN. 47610

FIGURE 3

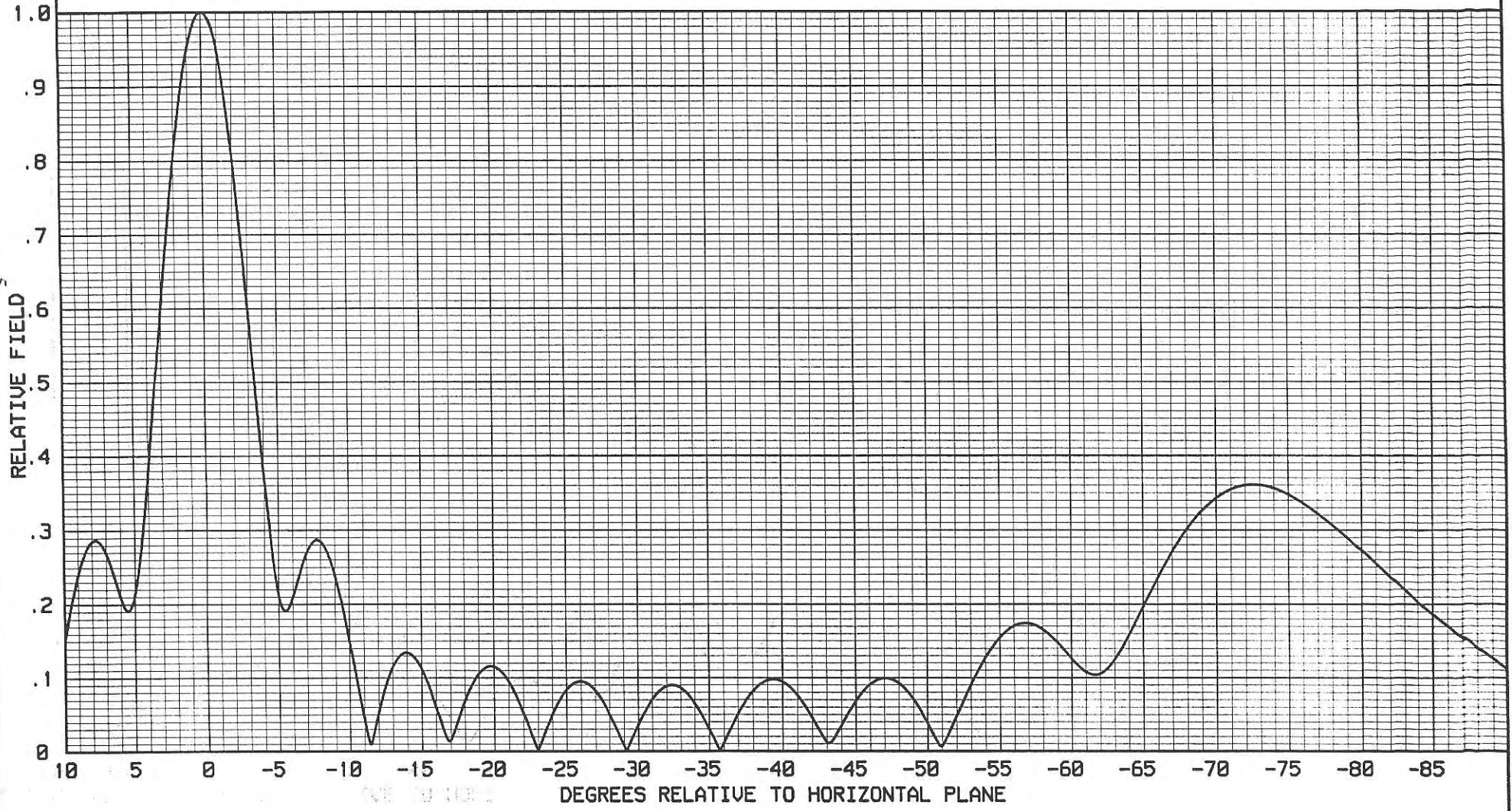
----THEORETICAL----
VERTICAL PLANE RELATIVE FIELD

10 ERI TYPE SHP, SHPX, LP, OR LPX ELEMENTS
+0.00 DEGREE(S) ELECTRICAL BEAM TILT
19 PERCENT FIRST NULL FILL
1 PERCENT SECOND NULL FILL
POWER GAIN IS 5.099 IN THE HORIZONTAL PLANE(5.099 IN THE MAX.)

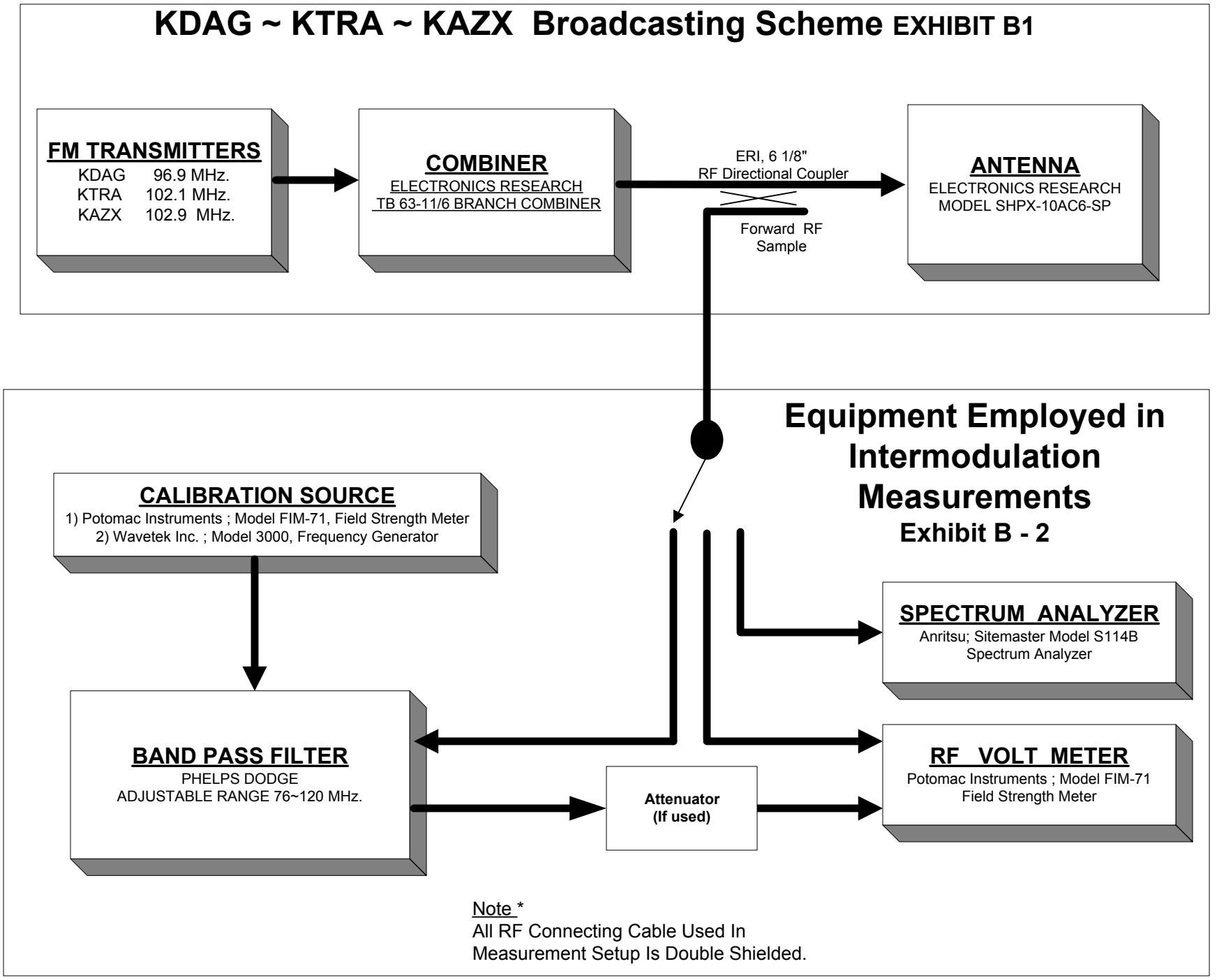
FEBRUARY 23, 2001

102.9 MHz

ELEMENT SPACING
117.75 INCHES



KDAG ~ KTRA ~ KAZX Broadcasting Scheme EXHIBIT B1



Broadcasting Scheme and Equipment Employed in Intermodulation Measurements

EXHIBIT B