JAMPRO ANTENNAS, INC.

Proposal prepared for:

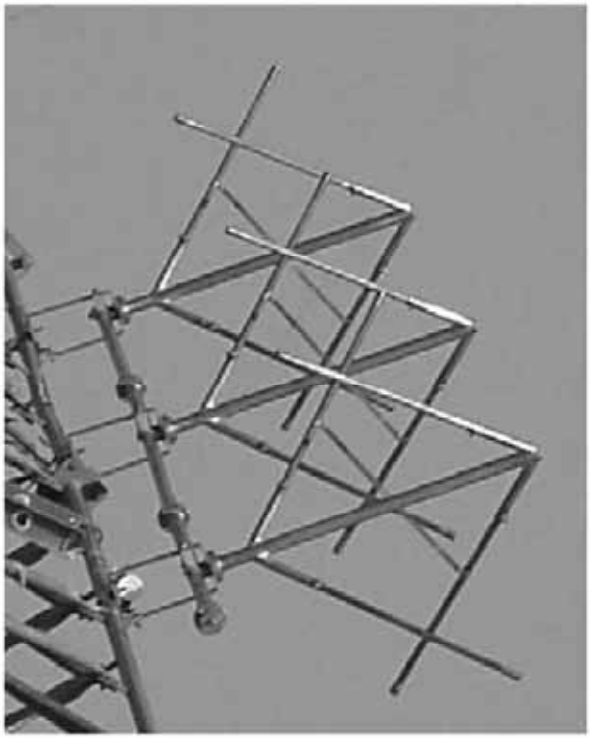
WXVS FM

November 26, 2007

JAMPRO ANTENNAS, INC.
6340 Sky Creek Drive
Sacramento, California 95828 USA
Telephone (916) 383-1177
Fax (916) 383-1182

JSCP Side Mount FM Antenna

The JAMPRO JSCP antenna is the PENETRATOR antenna which has become an industry standard for quality and performance. Rated at 40 kW maximum input, each bay consists of a PENETRATOR style radiating element with a 3-1/8" shunt feed line. Each JSCP is factory tuned to any frequency in the FM Band II (87.5 -108 MHz) rang on a tower structure that bests simulates the customer's actual tower. Multiple frequency design is also available. The true circular polarization of the JSCP antenna offers excellent performance for HD Radio, stereo and SCA operation. Typical VSWR is 1.20:1 ± 200 kHz.(optional 1.10:1).



Options Available:

- ✓ **Radomes**
- ✓ **Deicers**
- ✓ **FCC Directionalization**
- ✓ **Reduced RF Arrays**
- ✓ **Pattern Measurement Study**
- ✓ **Custom Mounting Brackets**
- ✓ **Electrical Beam Tilt**
- ✓ **Null Fill**
- ✓ **Multi Frequencies**

The JSCP antenna is constructed of the highest quality marine brass and copper. A hot dipped – galvanized steel mounting bracket for utmost grounding supports each bay. Standard round leg mounting brackets for uniform face towers are included with each antenna. Silver plated inner conductor connectors are used throughout for maximum contact life and minimum power loss. Each JHPC antenna is DC grounded at every bay for maximum lightning protection. This rugged mechanical construction and mounting ensure the long life and outstanding performance of each JSCP antenna system.

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JSCP Standard Penetrator

Number of Bays	Power Gain	dB Gain	FS @ 1 Mi.	Safe Input Power kW	Weight (lbs)	Wind load (lbs)
1	0.46	-3.37	93.2	10	35	41
Deicers					44	53
Radomes					65	164
2	1.00	0.00	136.7	20	155	210
Deicers					173	234
Radomes					215	449
3	1.50	1.76	168.4	30	250	341
Deicers					276	389
Radomes					340	699
4	2.10	3.22	199.2	40	346	471
Deicers					380	544
Radomes					466	950
5	2.70	4.31	225.2	40	441	602
Deicers					484	698
Radomes					591	1200
6	3.20	5.05	246.0	40	537	733
Deicers					588	854
Radomes					717	1451
8	4.30	6.34	285.2	40	728	995
Deicers					796	1164
Radomes					968	1952
10	5.50	7.40	322.4	40	919	1257
Deicers					1004	1475
Radomes					1219	2453
12	6.60	8.20	353.2	40	1110	1519
Deicers					1213	1785
Radomes					1,470	2954

Notes:

1. Weights and wind loads shown include standard leg mounting brackets and feed lines
2. Wind loads based on 50/33 PSF (98 MHz, midband)
3. Feed points, when end fed is 3 ft below bottom bay; when center fed is 9'. 6" below center
4. All inputs are EIA flange, female
5. Power derating occurs above 2,000 feet elevation. Contact factory for details
6. Power and dB gains are typical for horizontal and vertical components
7. Special mounting brackets are available
8. Other combinations of EIA inputs and power ratings available
9. Free space azimuth circularity is ± 2.0 dB
10. Polarization is right hand, clockwise circular
11. Power gain is based on half wave dipole in free space
12. Specifications based on one wave spaced bays, other spacing available

Since many factors contribute to a station's compliance with FCC exposure guidelines for radio frequency radiation, Jampro Antennas cannot accept any responsibility in this matter. The station must examine and determine its status based on each individual situation. For reduced low angle radiation near the tower, a low RFR configuration of this antenna is available. Contact the factory for pricing and further details.

All specifications subject to change without notice.

CETEC ANTENNAS
6939 POWER INN ROAD
SACRAMENTO, CA 95828
(916) 383-1177

DATE:

CIRCULARLY POLARIZED DIRECTIONAL
FM CP ANTENNA FOR:

ANTENNA	H	V
Gain in db:	6.25	6.18

STATION: WXGA-FM
LOCATION: Waycross, GA.
MODEL NUMBER: JSCP-4 (DA)
FREQUENCY AND ERP: 90.1 MHz 79kw
INPUT POWER FOR ERP: 18.72kw
ANTENNA BOOM HEADING: 4° True

	HPOL	VPOL
RMS OF PATTERN:	.71	.65

CERTIFICATION

THIS STATEMENT ALONG WITH THE ACCOMPANYING TECHNICAL SPECIFICATION SHEET, ANTENNA MOUNTING SKETCH, AND AZIMUTH AND ELEVATION PATTERNS CERTIFY THE CONSTRUCTION AND MEASUREMENT OF THE CETEC FM CP ANTENNA TO THE STATION'S REQUIREMENTS, AS MEASURED AT THE CETEC ANTENNAS SITE IN SACRAMENTO, CA. THE FOLLOWING IS AN OUTLINE OF CONTRUCTION METHODS FOLLOWED, PATTERN MEASUREMENTS, INSTALLATION REQUIREMENTS, RECOMMENDED MAINTENANCE AND EQUIPMENT USED.

CONSTRUCTION

A STANDARD CP FM ANTENNA MODEL WAS USED, AND PARASITIC REFLECTORS WERE ADDED TO EACH BAY TO CREATE THE REQUIRED DIRECTIONAL PATTERN. FROM EXPERIENCE AND BY FURTHER MEASUREMENTS THESE ELEMENTS WERE ADJUSTED AS TO POSITION AND LENGTH UNTIL THE FINAL CONFIGURATION WAS DETERMINED AND THE PATTERN REQUIREMENTS WERE MET. THESE ADDITIONAL ELEMENTS ARE STEEL, HOT DIPPED GALVANIZED, AND EITHER BOLTED OR WELDED IN PLACE. MEASUREMENTS TO ESTABLISH THEIR LOCATION EXACTLY ARE SHOWN IN THE ANTENNA MOUNTING SKETCH.

MEASUREMENT

A SINGLE BAY OF THE FULL SCALE SIZE ANTENNA WAS MOUNTED ON AN EXACT DUPLICATE OF ITS FINAL SUPPORT AT THE STATION. WE WERE CAREFUL TO DUPLICATE CONDUITS, CABLES AND ANYTHING PECULIAR TO THIS MOUNTING.

THIS WAS THEN PLACED ON A ROTATABLE TURNTABLE AT THE CETEC ANTENNA RANGE. THIS DIRECTIONAL ANTENNA WAS USED FOR RECEIVING THE RADIATION FROM A CORNER REFLECTOR ANTENNA LOCATED AT THE SAME HEIGHT ABOUT 20 WAVELENGTHS AWAY FROM IT, AND CAPABLE OF BEING ROTATED TO EITHER HORIZONTAL OR VERTICAL POLARIZATION. THE SIGNAL GENERATOR FREQUENCY WAS ACCURATELY SET TO STATION FREQUECY BY USE OF A FREQUENCY COUNTER. A FIELD INTENSITY METER WAS USED TO CONTINUOUSLY MEASURE FIELD STRENGTH AS THE DIRECTIONAL ANTENNA WAS ROTATED. FIELD STRENGTH WAS PLOTTED WITH REFERENCE TO AZIMUTH AT EACH TEN DEGREES, OR WHEREVER ANY ABNORMALITY OCCURED.

INSTALLATION

THE ANTENNA MUST BE INSTALLED IN EXACTLY THE MANNER IN WHICH IT WAS MEASURED AT THE FACTORY. THIS IS SHOWN IN DETAIL ON THE ANTENNA MOUNTING SKETCH, INCLUDING THE AZIMUTH BEARING OF THE MAIN BOOM OF THE ELEMENTS. THIS BOOM HEADING MUST BE VERIFIED BY A SURVEYOR AT THE SITE WHEN INSTALLATION IS BEING COMPLETED. GOOD ENGINEERING PRACTICE SHOULD BE FOLLOWED IN ANY DETAILS NOT COVERED BY SPECIFIC INSTRUCTIONS.

MAINTENANCE

ANNUAL OR REGULAR INSPECTION SHOULD BE MADE OF AN ANTENNA SYSTEM. AT THIS TIME TIGHTNESS OF U-BOLTS OR OTHER FASTENINGS SHOULD BE ROUTINELY CHECKED. ANY DETERIORATION OF THE ANTENNA DUE TO LIGHTNING OR OTHER CAUSES SHOULD BE PROMPTLY REPAIRED. OTHER THAN THESE INSTRUCTIONS, AND MAINTAINING THE ORIGINAL AZIMUTH HEADING, NOTHING SHOULD BE NECESSARY TO MAINTAIN THE PATTERN INITIALLY ACHIEVED.

EQUIPMENT

MODEL: 3000 Wavetec Signal Generator, Serial #66479, Calibrated 5/84

8555B H.P. Spectrum Analizer, Serial #1829A04558, Calibrated 3/84

Tuned Cavity Dipole

Scientific Atlanta Plotter 1581-4-7-9, Serial #471229, Calibrated 4/83

CONCLUSION

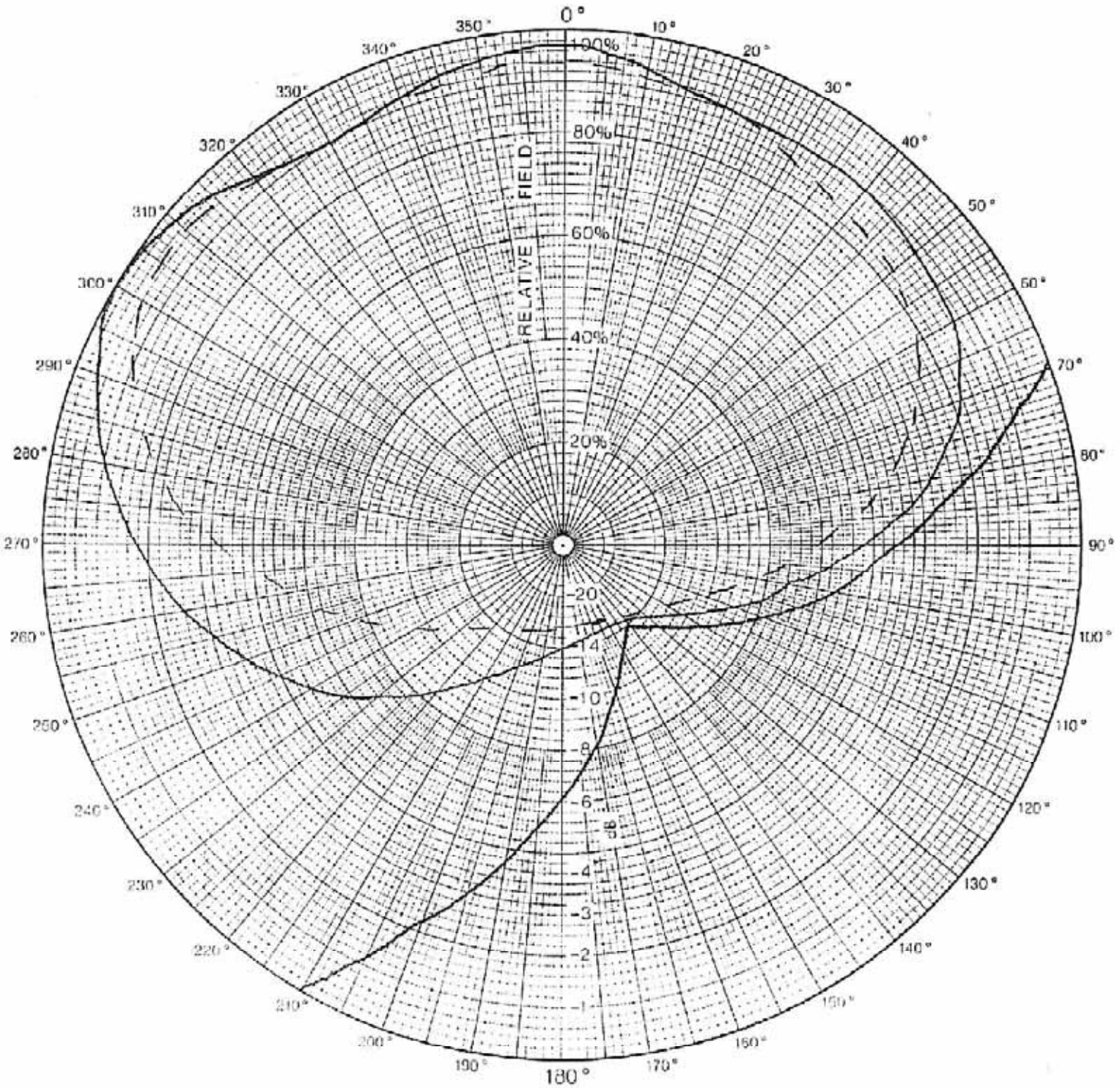
IN THE DEVELOPMENT OF THIS PATTERN CETEC ANTENNAS OBSERVED KNOWN REQUIREMENTS OF THE FCC AS STATED ON THE STATION CONSTRUCTION PERMIT. SUCH REQUIREMENTS AS THE MAXIMUM TO MINIMUM RATIO NOT EXCEEDING 15 DB, AND THE RATE OF CHANGE OF RADIATION NOT EXCEEDING 0.2 DB PER DEGREE OF AZIMUTH WERE OBSERVED. IN ADDITION, THE RMS OF THE VERTICALLY POLARIZED PATTERN DOES NOT EXCEED THE RMS OF THE HORIZONTALLY POLARIZED PATTERN, AND IF APPLICABLE TO THIS PERMIT, NOWHERE DOES THE VERTICALLY POLARIZED FIELD EXCEED THE HORIZONTALLY POLARIZED FIELD WITHIN THE ACCURACY OF THE CALIBRATED RANGE.

GAIN FIGURES AND REQUIRED INPUT POWER TO ACHIEVE STATION ERP, AS WELL AS OTHER DETAILS, ARE TO BE FOUND ON THE ACCOMPANYING PAGES.

THESE ADJUSTMENTS AND TESTS WERE PERFORMED BY OR UNDER THE SUPERVISION OF ALI REZA MAHNAD, DIRECTOR OF ENGINEERING, CETEC ANTENNAS.

EXECUTED THIS _____ DAY OF _____, 19____

BY _____



Azimuth pattern

Customer: WXGA-FM Type Number: JSCP-4 (DA)

Date: 2-11-86 Frequency: 90.1 Major Lobe Gain: 4.22 RMS Gain: 2.1

Notes: Final measured pattern.

Cetec Antennas

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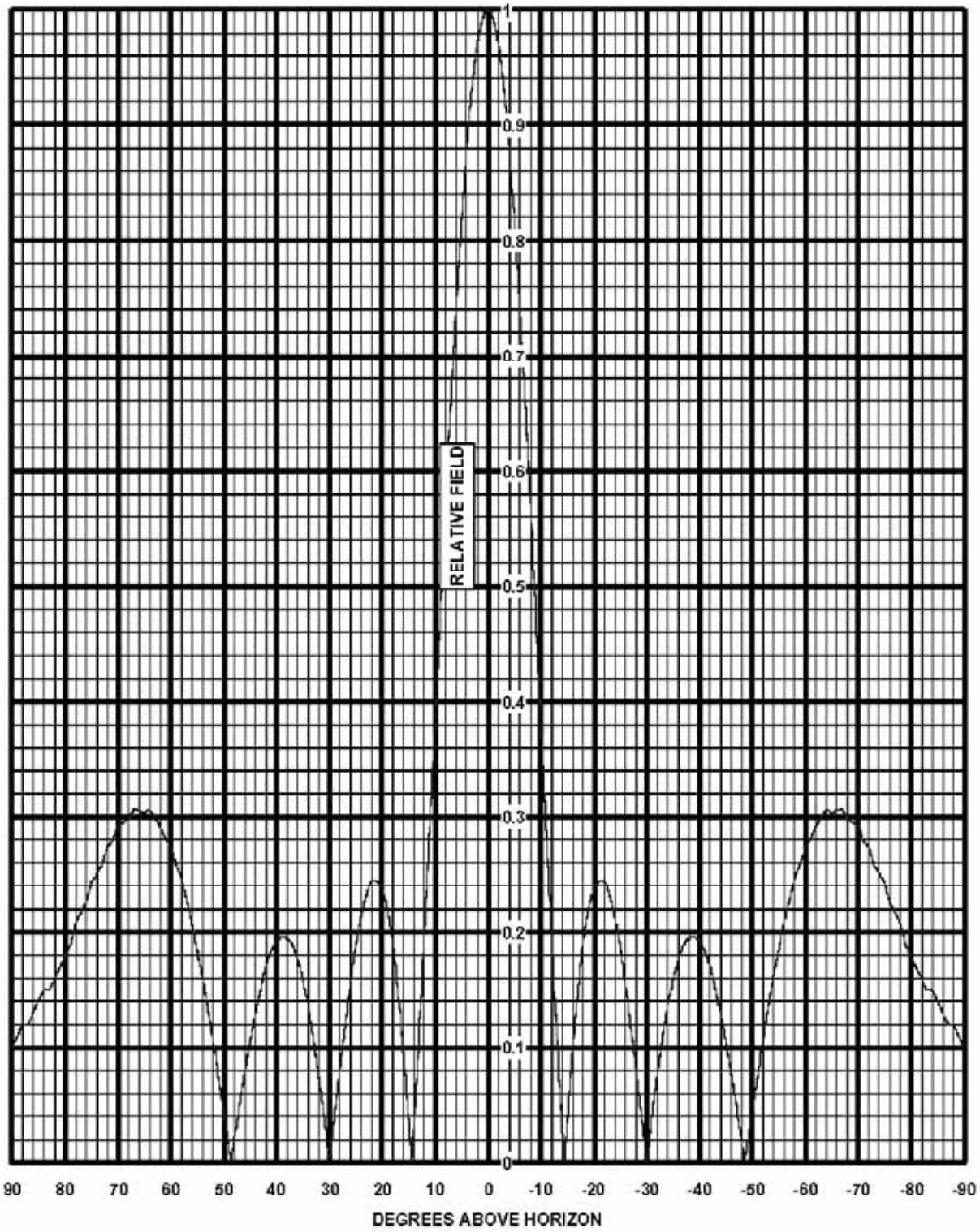
COMPUTED ELEVATION PATTERN



Customer: Georgia Public Broadcasting
Frequency: 90.1 MHz
Calls: WXGA

Model: JSCP-4 DA
Description: FM Sidemount Antenna
-0° Beam Tilt, 0% Null Fill

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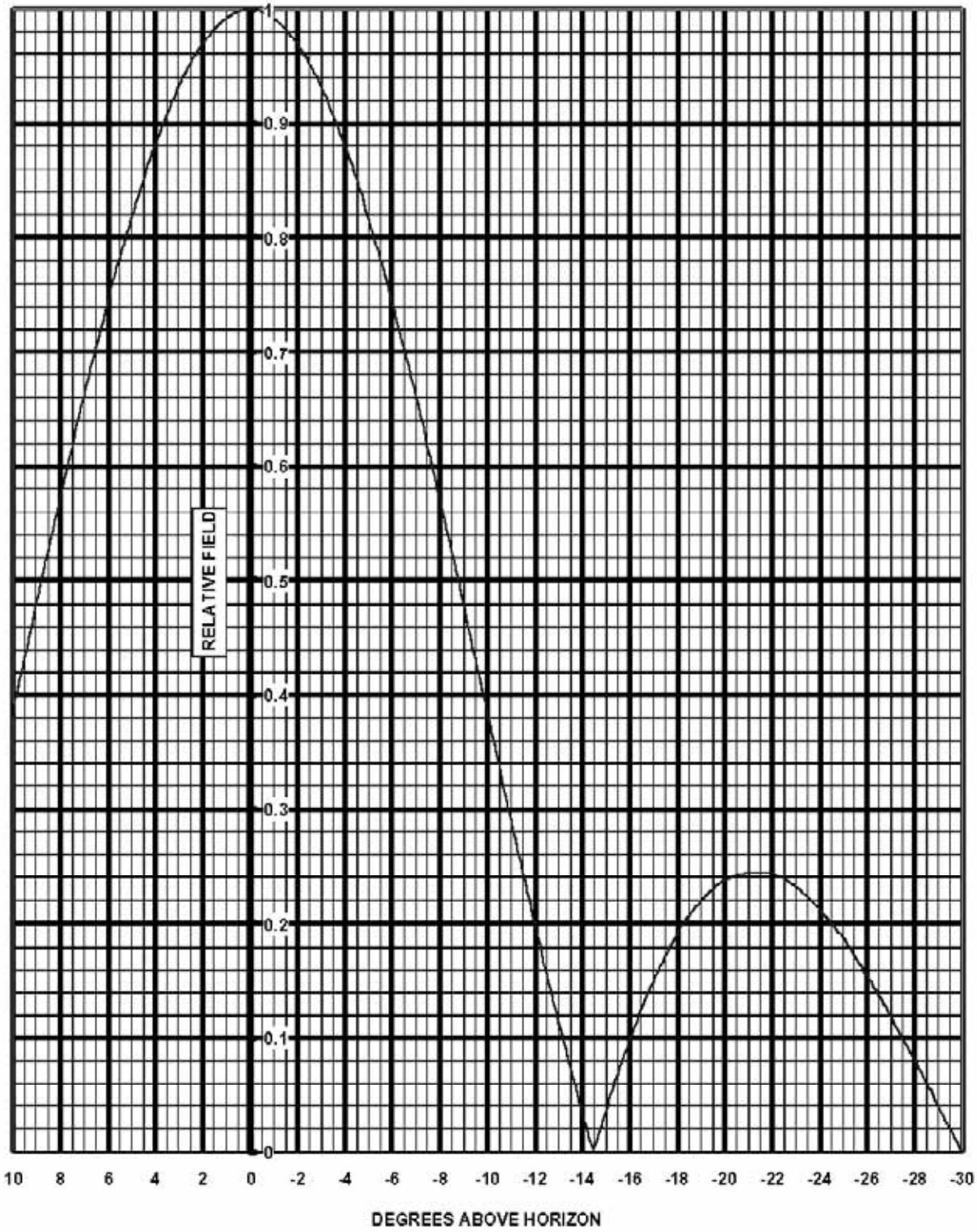
COMPUTED ELEVATION PATTERN



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Elevation Pattern Tabulation

ELEVATION PATTERN TABULATION

RELATIVE FIELD VS ELEVATION ANGLE

ELEVATION ANGLE	RELATIVE FIELD	ELEVATION ANGLE	RELATIVE FIELD	ELEVATION ANGLE	RELATIVE FIELD
10	0.385	-26	0.155	-61	0.280
9	0.479	-27	0.119	-62	0.291
8	0.572	-28	0.081	-63	0.299
7	0.661	-29	0.040	-64	0.306
6	0.743	-30	0.000	-65	0.302
5	0.817	-31	0.039	-66	0.305
4	0.880	-32	0.075	-67	0.306
3	0.932	-33	0.107	-68	0.297
2	0.969	-34	0.136	-69	0.295
1	0.992	-35	0.158	-70	0.292
0	1.000	-36	0.176	-71	0.278
-1	0.992	-37	0.189	-72	0.273
-2	0.969	-38	0.194	-73	0.257
-3	0.932	-39	0.196	-74	0.250
-4	0.880	-40	0.192	-75	0.243
-5	0.817	-41	0.183	-76	0.225
-6	0.743	-42	0.170	-77	0.216
-7	0.661	-43	0.150	-78	0.208
-8	0.572	-44	0.129	-79	0.188
-9	0.479	-45	0.105	-80	0.179
-10	0.385	-46	0.078	-81	0.169
-11	0.291	-47	0.049	-82	0.160
-12	0.199	-48	0.018	-83	0.150
-13	0.114	-49	0.013	-84	0.150
-14	0.035	-50	0.045	-85	0.140
-15	0.036	-51	0.075	-86	0.130
-16	0.098	-52	0.106	-87	0.120
-17	0.149	-53	0.133	-88	0.120
-18	0.190	-54	0.162	-89	0.110
-19	0.219	-55	0.185	-90	0.100
-20	0.237	-56	0.209		
-21	0.244	-57	0.227		
-22	0.244	-58	0.246		
-23	0.232	-59	0.258		
-24	0.212	-60	0.274		
-25	0.187				

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