



**Certification**

**Antenna Model: PSIFMR-2-HWS-DA**

**Frequency: 100.5 MHz**

**Moon Holdings**

**KMQA**

**East Porterville, CA**

**Ref: J807FM-614**



# Propagation Systems, Inc.

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Quality Broadcast Antenna Systems

**Directional FM Antenna**

**KMQA**

**MBP Licensee, LLC**

**East Porterville, CA**

A standard model PSIFMR antenna with parasitic elements was used in conjunction with the customer's 12.25" triangular face tower to create the necessary directional radiation pattern. The final antenna consists of two radiating elements each secured to the northwest tower leg with a custom-mounting bracket. The antenna bays are half wave spaced and there is one horizontal and one vertical parasitic element per bay. The antenna array is end fed from a 7/8" air flexible transmission line. Each radiating element receives equal power and phase.

Pattern testing was performed using a 1/3 scale model element and tower. The azimuth plane measurements were taken on a ground reflection test range. This type of test range utilizes the reflected signal and direct signal from the source antenna to form an interference pattern on the antenna under test. The antenna and tower under test was mounted to a turntable that allowed the structure to be rotated 360° in the azimuth plane. The source antenna was located approximately 75 ft. from the antenna under test. The source height above ground was adjusted to peak the first lobe of the interference pattern at the antenna under test.

The test antenna was mounted in the center of rotation of the turntable. The antenna and mounting structure were rotated clockwise while data was recorded in a counter clockwise direction. All feed cables to the antenna were secured and grounded during pattern measurements. A Hewlett Packard 8753A-network analyzer operating at 301.5 MHz was used as both the source and receiver. The level of the received signal was compared with a standard dipole to establish the directivity of the final pattern. The final pattern measured does not exceed the envelope pattern and is 88% of the envelope RMS.

The antenna is to be mounted 12.2 meters (40.3 ft) above ground level on the northwest tower leg. At this elevation the antenna will be within the allowed +2m/-4m tolerance. No other antenna can be installed within 10 ft of any radiating element. The antenna is to be positioned 349.1° True when installed in accordance with the attached instructions and drawings. It is recommended that a broadcast engineer be present to supervise the installation of the antenna and that he or she certifies the antenna has been installed according to the enclosed instructions.

An input power level of 1.85 kW will be required at the antenna input in order to reach the licensed 2.0 kW ERP. The transmitter output power requirements are dependent upon the transmission line size and length used to feed the antenna. The antenna was supplied with 35 ft. of 7/8" air dielectric transmission line. The efficiency for this length and size of transmission line is 96.35%. The resulting transmitter output power is 1.92 kW.

#### Antenna Specifications

Model	PSIFMR-2-HWS-DA
Description	2-Bay Medium "Power-Tiller" FM Directional Antenna
Frequency	100.5 MHz
Bay spacing	Half-wave
Polarization	Circular
Envelope RMS	.979
Composite RMS	.868
Gain H-pol	1.08 (.33 dB)
RMS H-pol	.80
Gain V-pol	1.07 (.30 dB)
RMS V-pol	.79
Input	1-5/8" EIA end fed
Rating	9 kW
Length	16.5 ft.
Antenna Weight	177 lbs.
Wind Area	16.05 sq. ft.

#### Transmission Line Specifications

Model	Andrew model HJ5-50
Description	7/8" Air dielectric coaxial cable
Frequency	100.5 MHz
Length	35 ft.
Efficiency	96.35%
Rating	7.5 kW

#### Transmitter Output Requirement

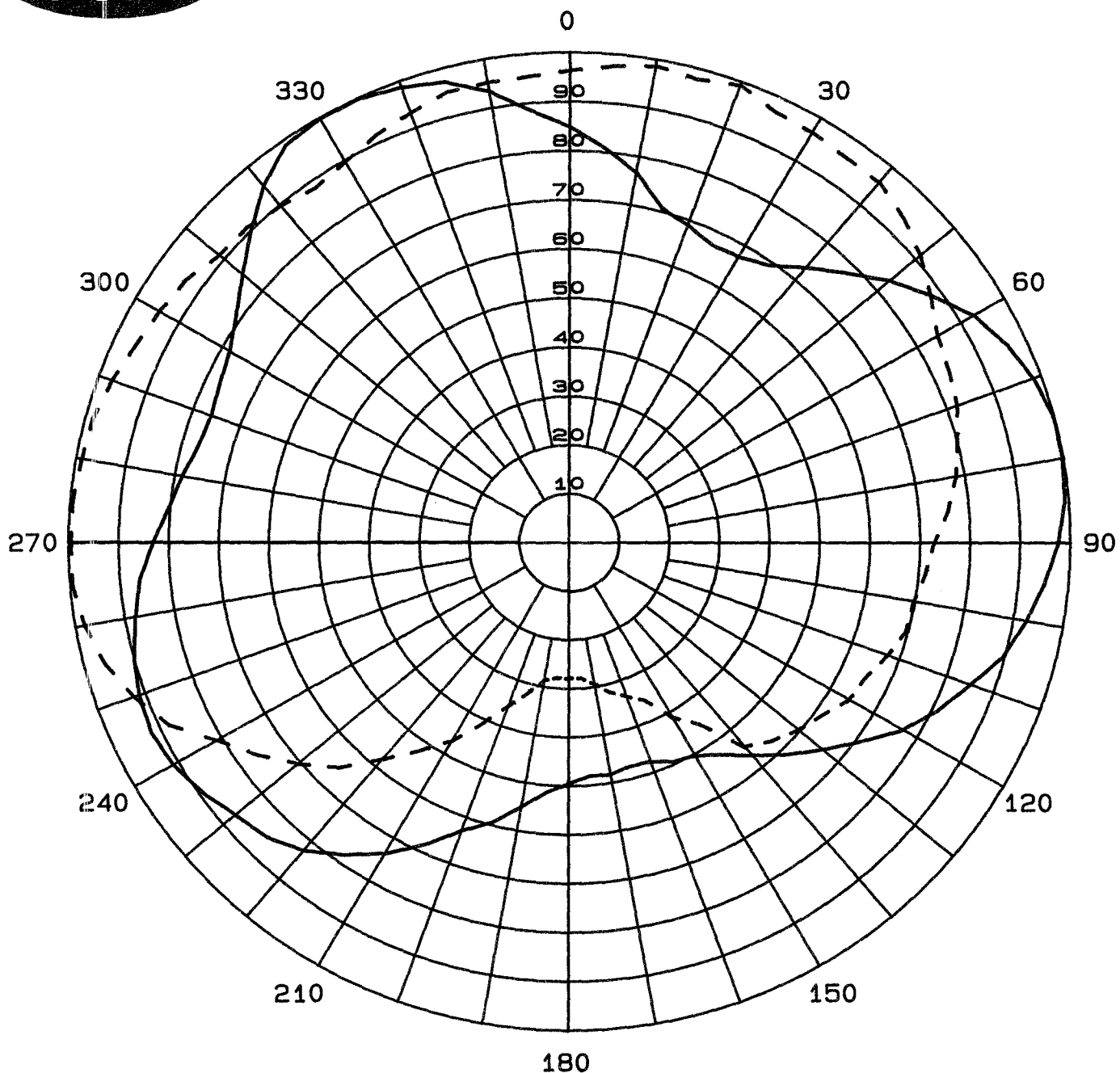
Transmitter output	1.92 kW (2.83 dBk)
Power into antenna	1.85 kW (2.67 dBk)
Antenna gain	1.08 (.33 dB)
ERP	2.0 kW (3.01 dBk)

#### Statement of Certification

This is to certify the antenna has been designed, fabricated and tested under my supervision and it meets the required envelope pattern limitations set forth in the stations construction permit.



Douglas A. Ross  
President  
Propagation Systems Inc.



Measured Relative Field  
Azimuth Plane Pattern  
Antenna: PSIFMR-2-HWS-DA  
Type: 2-Bay Directional FM  
H-pol Gain (solid): 1.08 (.33 dB)  
V-pol Gain (dash): 1.07 (.30 dB)  
Frequency: 100.5 MHz  
KMQA East Porterville, CA

**Propagation Systems Inc.**  
**PO Box 113**  
**Ebensburg, PA 15931**

## Measured Relative Field Tabulation

Antenna: PSIFMR-2-HWS-DA

MBP Licensee, LLC

Station: KMQA

Frequency: 100.5 MHz

Location: East Porterville, CA

### Horizontal Polarization

Angle	Relative Field	Power Gain	Gain (dB)
0	0.851	0.78	-1.07
10	0.768	0.64	-1.96
20	0.691	0.52	-2.88
30	0.676	0.49	-3.07
40	0.736	0.59	-2.33
50	0.835	0.75	-1.23
60	0.932	0.94	-0.28
70	0.985	1.05	0.20
80	0.999	1.08	0.33
90	0.976	1.03	0.12
100	0.925	0.92	-0.34
110	0.848	0.78	-1.10
120	0.765	0.63	-1.99
130	0.657	0.47	-3.31
140	0.566	0.35	-4.61
150	0.501	0.27	-5.67
160	0.474	0.24	-6.15
170	0.480	0.25	-6.04
180	0.492	0.26	-5.83
190	0.547	0.32	-4.91
200	0.626	0.42	-3.73
210	0.734	0.58	-2.35
220	0.822	0.73	-1.37
230	0.867	0.81	-0.91
240	0.911	0.90	-0.48
250	0.913	0.90	-0.46
260	0.880	0.84	-0.78
270	0.832	0.75	-1.26
280	0.786	0.67	-1.76
290	0.763	0.63	-2.02
300	0.784	0.66	-1.78
310	0.853	0.79	-1.05
320	0.952	0.98	-0.09
330	1.000	1.08	0.33
340	0.990	1.06	0.25
350	0.937	0.95	-0.23

#### Maximum Value

Field 1.00

Gain 1.08 (.33 dB)

Azimuth Bearing 75,330-335 degrees

#### Minimum Field

Field 0.472

Gain .24 (-6.19 dB)

Azimuth Bearing 165 degrees

### Vertical Polarization

Angle	Relative Field	Power Gain	Gain (dB)
0	0.965	1.00	-0.02
10	0.989	1.05	0.20
20	0.995	1.06	0.25
30	0.968	1.00	0.01
40	0.961	0.99	-0.05
50	0.913	0.89	-0.50
60	0.848	0.77	-1.14
70	0.823	0.72	-1.40
80	0.783	0.66	-1.83
90	0.727	0.57	-2.48
100	0.697	0.52	-2.84
110	0.674	0.49	-3.13
120	0.642	0.44	-3.56
130	0.595	0.38	-4.22
140	0.544	0.32	-4.99
150	0.411	0.18	-7.43
160	0.333	0.12	-9.26
170	0.292	0.09	-10.40
180	0.275	0.08	-10.92
190	0.283	0.09	-10.67
200	0.352	0.13	-8.78
210	0.465	0.23	-6.36
220	0.576	0.36	-4.50
230	0.703	0.53	-2.77
240	0.809	0.70	-1.55
250	0.922	0.91	-0.41
260	0.980	1.03	0.12
270	0.995	1.06	0.25
280	0.989	1.05	0.20
290	0.973	1.01	0.06
300	0.946	0.96	-0.19
310	0.914	0.89	-0.49
320	0.899	0.86	-0.63
330	0.899	0.86	-0.63
340	0.935	0.94	-0.29
350	0.954	0.97	-0.12

#### Maximum Value

Field 0.995

Gain 1.06 (.25 dB)

Azimuth Bearing 20,265-275 degrees

#### Minimum Field

Field 0.275

Gain .08 (-10.92 dB)

Azimuth Bearing 175-185 degrees

## ERP Tabulation

Antenna: PSIFMR-2-HWS-DA

MBP Licensee, LLC

Station: KMQA

Frequency: 100.5 MHz

Location: East Porterville, CA

Maximum ERP: 2.0 kW (3.01 dBk)

### Horizontal Polarization

Angle	Relative Field	ERP (kW)	ERP (dBk)
0	0.851	1.45	1.61
10	0.768	1.18	0.72
20	0.691	0.95	-0.20
30	0.676	0.91	-0.39
40	0.736	1.08	0.35
50	0.835	1.39	1.44
60	0.932	1.74	2.40
70	0.985	1.94	2.88
80	0.999	2.00	3.00
90	0.976	1.91	2.80
100	0.925	1.71	2.33
110	0.848	1.44	1.58
120	0.765	1.17	0.68
130	0.657	0.86	-0.64
140	0.566	0.64	-1.93
150	0.501	0.50	-2.99
160	0.474	0.45	-3.47
170	0.480	0.46	-3.36
180	0.492	0.48	-3.15
190	0.547	0.60	-2.23
200	0.626	0.78	-1.06
210	0.734	1.08	0.32
220	0.822	1.35	1.31
230	0.867	1.50	1.77
240	0.911	1.66	2.20
250	0.913	1.67	2.22
260	0.880	1.55	1.90
270	0.832	1.38	1.41
280	0.786	1.24	0.92
290	0.763	1.16	0.66
300	0.784	1.23	0.90
310	0.853	1.46	1.63
320	0.952	1.81	2.58
330	1.000	2.00	3.01
340	0.990	1.96	2.92
350	0.937	1.76	2.45

#### Maximum Value (H-pol)

Field 1.00

ERP 2.0 kW (3.01 dBk)

Azimuth Bearing 75,330-335 degrees

#### Minimum Field (H-pol)

Field 0.472

ERP .45 kW (-3.51 dBk)

Azimuth Bearing 165 degrees

### Vertical Polarization

Angle	Relative Field	ERP (kW)	ERP (dBk)
0	0.965	1.86	2.70
10	0.989	1.96	2.91
20	0.995	1.98	2.97
30	0.968	1.87	2.73
40	0.961	1.85	2.66
50	0.913	1.67	2.22
60	0.848	1.44	1.58
70	0.823	1.35	1.32
80	0.783	1.23	0.89
90	0.727	1.06	0.24
100	0.697	0.97	-0.13
110	0.674	0.91	-0.42
120	0.642	0.82	-0.84
130	0.595	0.71	-1.50
140	0.544	0.59	-2.28
150	0.411	0.34	-4.71
160	0.333	0.22	-6.54
170	0.292	0.17	-7.68
180	0.275	0.15	-8.20
190	0.283	0.16	-7.95
200	0.352	0.25	-6.06
210	0.465	0.43	-3.64
220	0.576	0.66	-1.78
230	0.703	0.99	-0.05
240	0.809	1.31	1.17
250	0.922	1.70	2.30
260	0.980	1.92	2.83
270	0.995	1.98	2.97
280	0.989	1.96	2.91
290	0.973	1.89	2.77
300	0.946	1.79	2.53
310	0.914	1.67	2.23
320	0.899	1.62	2.09
330	0.899	1.62	2.09
340	0.935	1.75	2.43
350	0.954	1.82	2.60

#### Maximum Value (V-pol)

Field 0.995

ERP 1.98 kW (2.97 dBk)

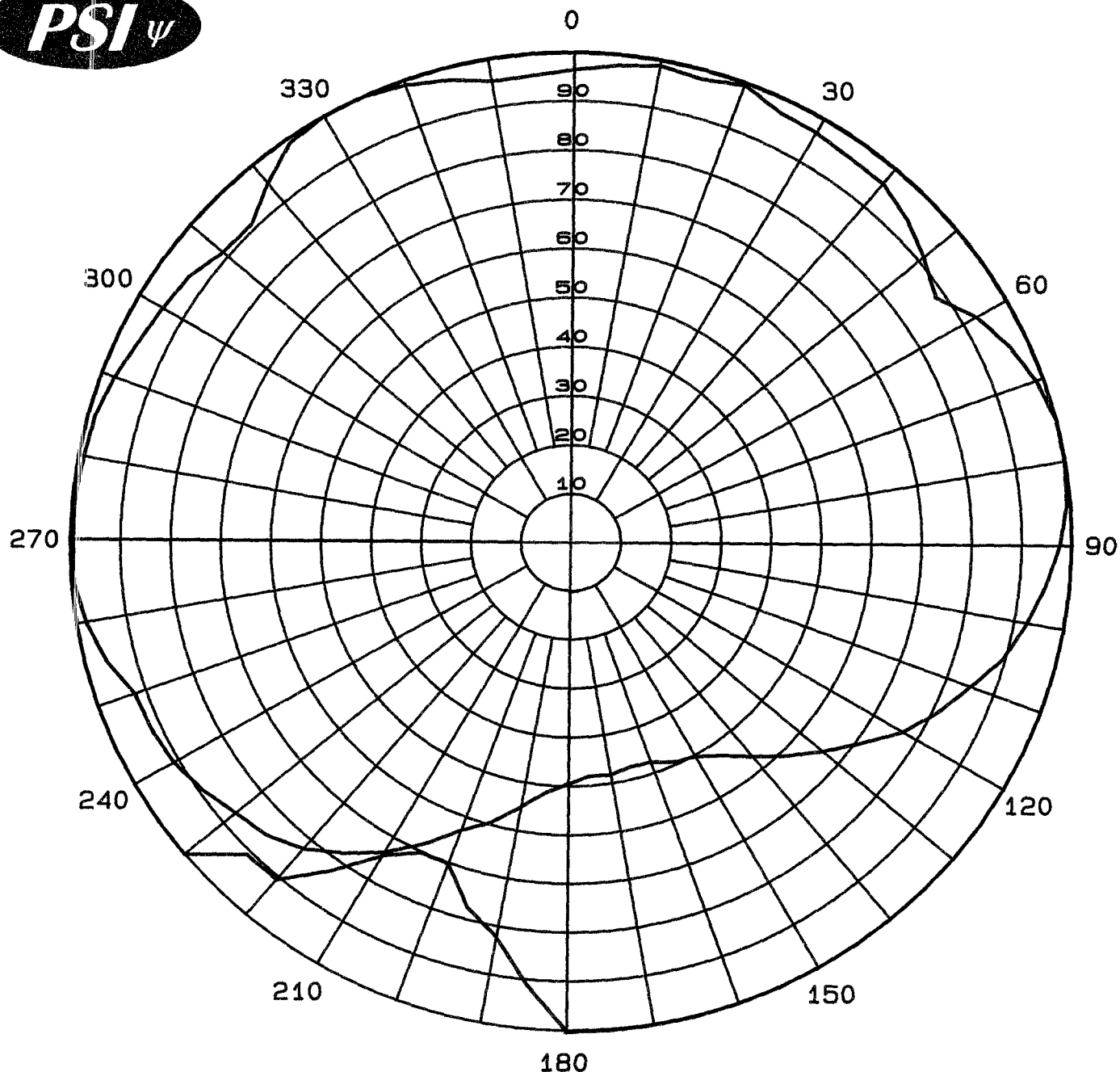
Azimuth Bearing 20,265-275 degrees

#### Minimum Field (V-pol)

Field 0.275

ERP .15 kW (-8.2 dBk)

Azimuth Bearing 175-185 degrees



Measured Composite and  
Maximum Envelope Pattern  
Antenna: PSIFMR-2-HWS-DA  
Type: 2-Bay Directional FM  
Composite RMS: .868  
Envelope RMS: .979  
ERP: 2.0 kW (3.01 dBk)  
Frequency: 100.5 MHz

**Propagation Systems Inc.**  
**PO Box 113**  
**Ebensburg, PA 15931**

KMQA East Porterville, CA

## Composite Pattern Tabulation

Antenna: PSIFMR-2-HWS-DA

MBP Licensee, LLC

Station: KMQA

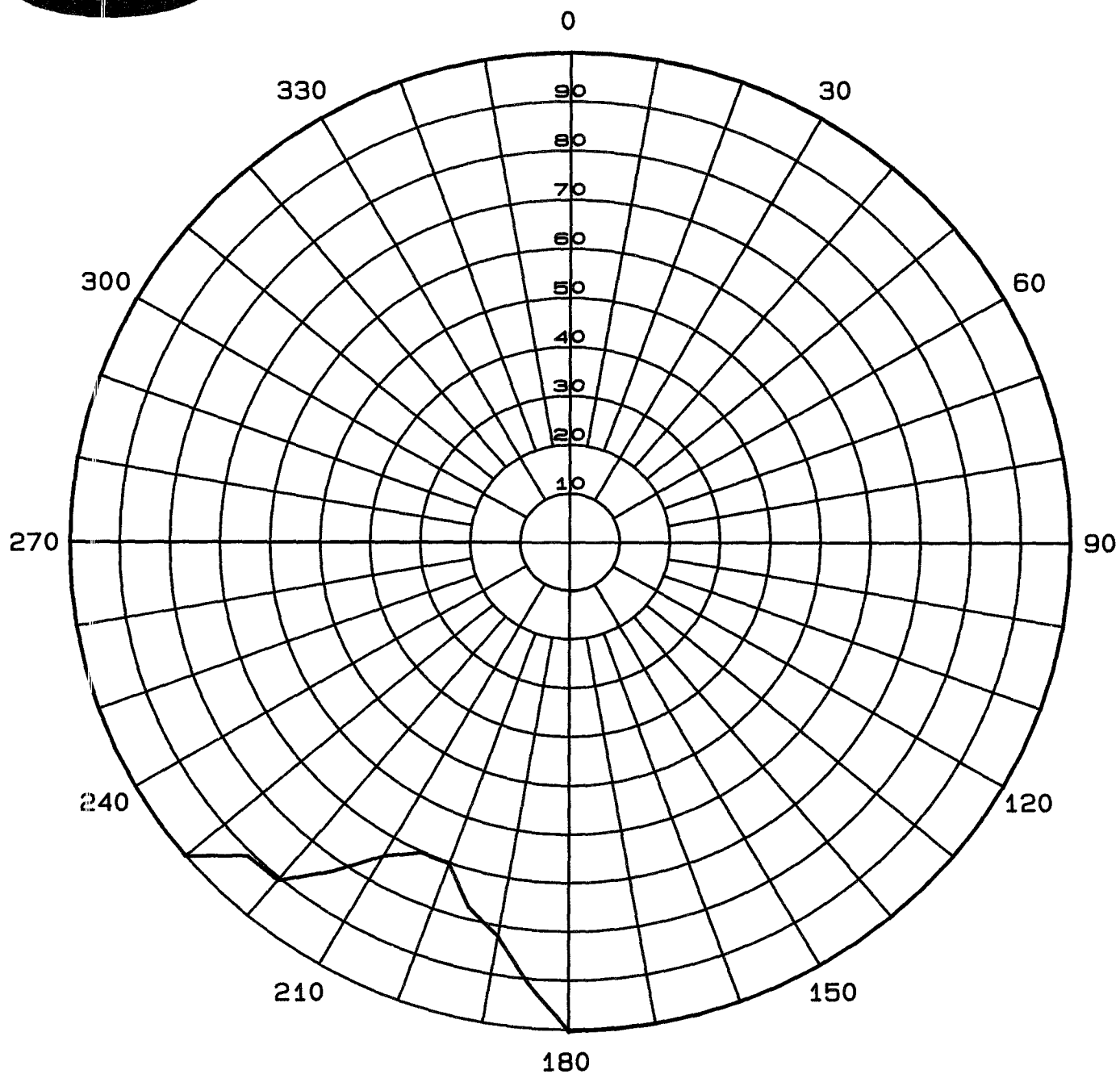
Frequency: 100.5 MHz

Location: East Porterville, CA

Maximum ERP: 2.0 kW (3.01 dBk)

Angle	Relative Field	ERP (kW)	ERP (dBk)
0	0.965	1.86	2.70
10	0.989	1.96	2.91
20	0.995	1.98	2.97
30	0.968	1.87	2.73
40	0.961	1.85	2.66
50	0.913	1.67	2.22
60	0.932	1.74	2.40
70	0.985	1.94	2.88
80	0.999	2.00	3.00
90	0.976	1.91	2.80
100	0.925	1.71	2.33
110	0.848	1.44	1.58
120	0.765	1.17	0.68
130	0.657	0.86	-0.64
140	0.566	0.64	-1.93
150	0.501	0.50	-2.99
160	0.474	0.45	-3.47
170	0.480	0.46	-3.36
180	0.492	0.48	-3.15
190	0.547	0.60	-2.23
200	0.626	0.78	-1.06
210	0.734	1.08	0.32
220	0.822	1.35	1.31
230	0.867	1.50	1.77
240	0.911	1.66	2.20
250	0.922	1.70	2.30
260	0.980	1.92	2.83
270	0.995	1.98	2.97
280	0.989	1.96	2.91
290	0.973	1.89	2.77
300	0.946	1.79	2.53
310	0.914	1.67	2.23
320	0.952	1.81	2.58
330	1.000	2.00	3.01
340	0.990	1.96	2.92
350	0.954	1.82	2.60





Maximum Envelope  
Relative Field Pattern  
Antenna: PSIFMR-2-HWS-DA  
Type: 2-Bay Directional FM  
ERP: 2.0 kW (3.01 dBk)  
Envelope RMS: .979  
Frequency: 100.5 MHz  
KMQA East Porterville, CA

**Propagation Systems Inc.**  
**PO Box 113**  
**Ebensburg, PA 15931**

### Maximum Envelope Tabulation

Antenna: PSIFMR-2-HWS-DA

MBP Licensee, LLC

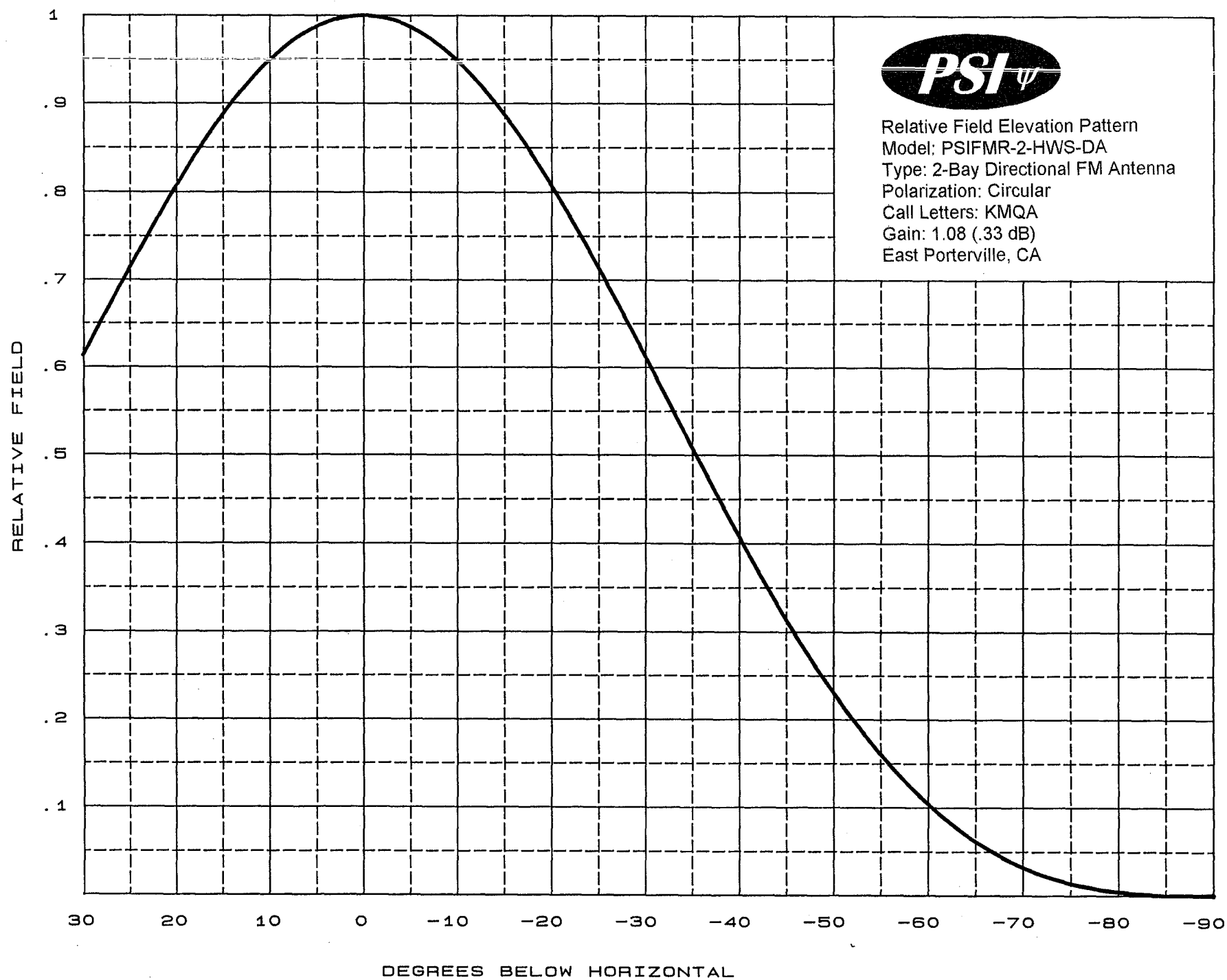
Station: KMQA

Frequency: 100.5 MHz

Location: East Porterville, CA

Maximum ERP: 2.0 kW (3.01 dBk)

Angle	Relative Field	ERP (kW)	ERP (dBk)
0	1.000	2.00	3.01
10	1.000	2.00	3.01
20	1.000	2.00	3.01
30	1.000	2.00	3.01
40	1.000	2.00	3.01
50	1.000	2.00	3.01
60	1.000	2.00	3.01
70	1.000	2.00	3.01
80	1.000	2.00	3.01
90	1.000	2.00	3.01
100	1.000	2.00	3.01
110	1.000	2.00	3.01
120	1.000	2.00	3.01
130	1.000	2.00	3.01
140	1.000	2.00	3.01
150	1.000	2.00	3.01
160	1.000	2.00	3.01
165	1.000	2.00	3.01
170	1.000	2.00	3.01
180	1.000	2.00	3.01
190	0.820	1.34	1.29
200	0.700	0.98	-0.09
210	0.740	1.10	0.39
220	0.905	1.64	2.14
230	1.000	2.00	3.01
240	1.000	2.00	3.01
250	1.000	2.00	3.01
260	1.000	2.00	3.01
270	1.000	2.00	3.01
280	1.000	2.00	3.01
290	1.000	2.00	3.01
300	1.000	2.00	3.01
310	1.000	2.00	3.01
320	1.000	2.00	3.01
330	1.000	2.00	3.01
340	1.000	2.00	3.01
350	1.000	2.00	3.01



**INSTRUCTION MANUAL**  
KMQA  
MBP Licensee, LLC  
East Porterville, CA  
100.5 MHz  
Antenna Model: PSIFMR-2-HWS-DA

**Uncrating**

When uncrating the antenna system, open each crate carefully so that the crates may be used to return any merchandise that may have been damaged in shipping. Separate all parts and confirm that all items on the packing list have been received. If any parts are missing, notify PSI or it's agent prior to assembling the antenna. If any parts are damaged through shipment or are missing, promptly notify the shipping carrier and PSI.

**General Notes:**

1. Review antenna elevation and plan the installation. The antenna brackets have been designed for tower leg mount and must be installed on the northwest tower leg. Be aware of possible mounting conflicts such as other antennas, guy wires, tower leg flanges, conduits etc. and plan accordingly.
2. All bays are to be aligned to the same azimuth angle.
3. Use only the supplied hardware and O-ring at all 1-5/8" flange connections.
4. Exercise care when assembling the inner conductors of the coaxial line. The bullet should fit firmly in the inner conductor in order to assure a proper connection.
5. Check a bracket on the tower for proper fit.
6. Install one bay/inter-bay assembly at a time.
7. Keep all transmission lines free from dirt and moisture. All Teflon insulators must be clean and dry.
8. The antenna must be pressurized with dry air or nitrogen.
9. The antenna has been tuned at the factory and should not require field adjustment.
10. The antenna system should be tested before the erector leaves the premises to insure that the complete antenna system is functioning properly.

**Installation Procedure**

Step One

The antenna is to mount to the northwest tower leg with the antenna boom positioned parallel to the southwest face. This will position the element at 349 degrees; see drawing J807FM-614-002 for an overview. The antenna center of radiation is to be 40.3 ft (12.3 m) above ground level. Begin by attaching bay one to inter-bay one. Inter-bay one and the shorting stub have been shipped assembled.

Connect bay one to the inter-bay block using the supplied 5/6-18 x 7/8" bolts, locks and O-ring. The bay must be installed with the insulators positioned up. Refer to drawing J807FM-614-015. Attach the horizontal parasitic to the inter-bay block using the supplied 5/16-18 x 1" bolts and locks. Position the parasitic with the black band west.

Next attach a bay-mounting bracket to the boom of bay one using the supplied #28 hose clamps. Bay one with inter-bay is now ready to be installed on the tower. **Use caution when erecting the assembly. The inter-bay inner conductor is not captivated. Secure the inter-bay inner conductor before erecting.** Hoist the assembly and secure the bracket to the northwest tower

leg. Use the supplied inter-bay bracket as a guide for the proper spacing from the tower leg to the inter-bay line. Secure the bay bracket to the tower leg with the supplied ½-13 x 6” bolts and back-plates.

Next attach the vertical parasitic using the supplied 3/8-16 x 1-3/8” ID U-bolt to the tower leg behind the inter-bay and ¾” above the center-line of the element boom. Position the vertical parasitic as shown in drawing J807FM-614-002. The vertical and horizontal parasitic elements must not touch.

### Step Two

Assemble the input section and fine matcher using the supplied 5/16-18 x 1-1/4” bolts, nuts, locks and O-ring. Position the fine matcher with the black band up. Next attach bay two to the inter-bay block with the 5/16-18 x 7/8” bolts, locks and O-ring. The element insulators must be positioned down. Refer the drawing J807FM-614-016 for an overview. Attach the horizontal parasitic to the inter-bay block using the supplied 5/16-18 x 1” bolts and locks. Position the parasitic with the black band west.

Next attach a bay-mounting bracket to the boom of bay two using the supplied #28 hose clamps. Attach an inter-bay bracket between probe 3 and the 1-5/8” EIA input flange of the tuner using the supplied #28 hose clamps. Hoist the assembly, connect to inter-bay one and secure the brackets to the northwest tower leg using the supplied ½-13 x 6” bolts and back-plates.

Next attach the vertical parasitic using the supplied 3/8-16 x 1-3/8” ID U-bolt to the tower leg behind the inter-bay and ¾” below the centerline of the element boom. Position the vertical parasitic as shown in drawing J807FM-614-002. The two vertical parasitic elements must not touch and the vertical and horizontal parasitic elements must not touch.

### Step Three

**Check all bolted connections for tightness.** Connect the main transmission line to the antenna input located at the base of the input section. Do not allow the weight of the feed line to be supported by the antenna. It is recommended the antenna system be pressurized to a maximum of 5 lbs. with dry air or nitrogen. If the VSWR is greater than 1.15:1 contact the factory, phone number 814-472-5540, for instructions before applying power to the antenna. An input power of 1.85 kW into the antenna is required to reach the desired 2 kW ERP.

## **Drawing Index**

<u>Drawing</u>	<u>Title</u>
J807FM-614-001	Antenna Elevation
J807FM-614-002	Antenna Orientation
J807FM-614-015	Bay 1 Elevation
J807FM-614-016	Bay 2 Elevation with Fine Matcher
J807FM-614-013	Horizontal Parasitic
J807FM-614-014	Parasitic Attachment
J807FM-614-012	Vertical Parasitic
J807FM-614-007	Shorting Stub
J807FM-614-011	Bay Mounting Bracket
33-00030	Inter-Bay Mounting Bracket
33-00006	Tuner/Fine Matcher

## Antenna Specifications

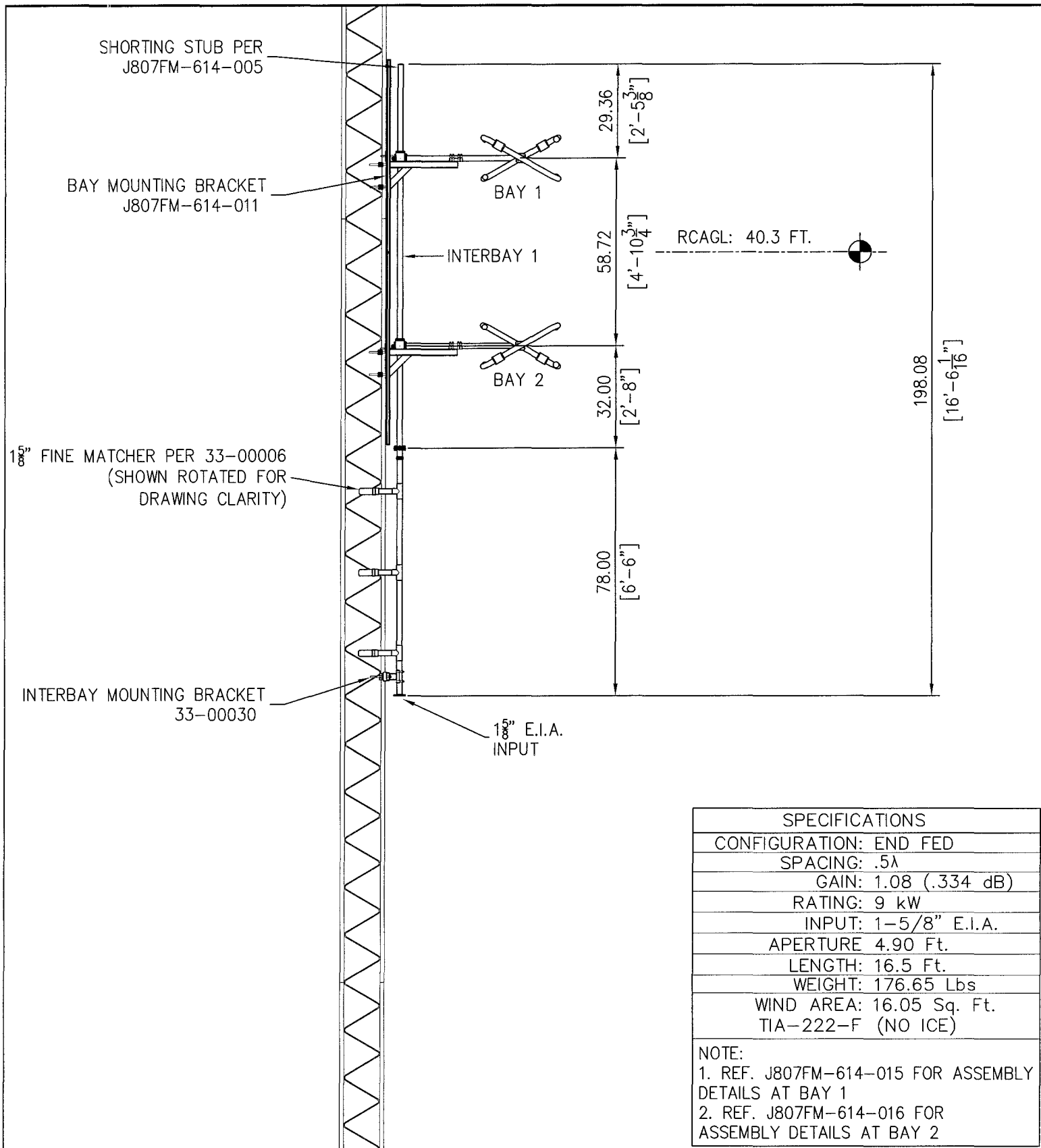
Model	PSIFMR-2-HWS-DA
Description	2-Bay Medium "Power-Tiller" FM Directional Antenna
Frequency	100.5 MHz
Bay spacing	Half-wave
Polarization	Circular
Envelope RMS	.979
Composite RMS	.868
Gain H-pol	1.08 (.33 dB)
RMS H-pol	.80
Gain V-pol	1.07 (.30 dB)
RMS V-pol	.79
Input	1-5/8" EIA end fed
Rating	9 kW
Length	16.5 ft.
Antenna Weight	177 lbs.
Wind Area	16.05 sq. ft.

## Transmission Line Specifications

Model	Andrew model HJ5-50
Description	7/8" Air dielectric coaxial cable
Frequency	100.5 MHz
Length	35 ft.
Efficiency	96.35%
Rating	7.5 kW

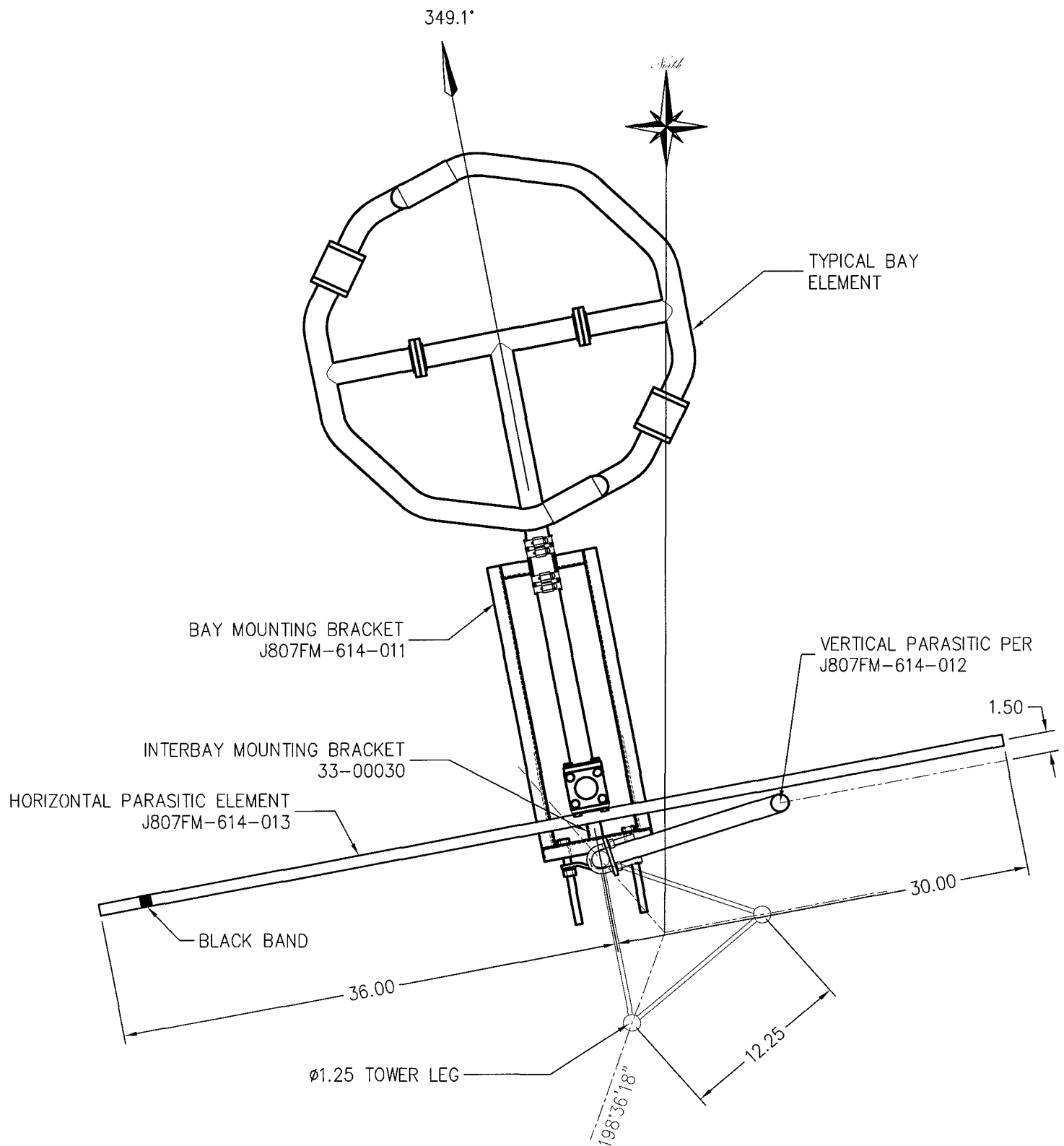
## Transmitter Output Requirement

Transmitter output	1.92 kW (2.83 dBk)
Power into antenna	1.85 kW (2.67 dBk)
Antenna gain	1.08 (.33 dB)
ERP	2.0 kW (3.01 dBk)



SPECIFICATIONS
CONFIGURATION: END FED
SPACING: .5λ
GAIN: 1.08 (.334 dB)
RATING: 9 kW
INPUT: 1-5/8" E.I.A.
APERTURE 4.90 Ft.
LENGTH: 16.5 Ft.
WEIGHT: 176.65 Lbs
WIND AREA: 16.05 Sq. Ft.
TIA-222-F (NO ICE)
NOTE:
1. REF. J807FM-614-015 FOR ASSEMBLY DETAILS AT BAY 1
2. REF. J807FM-614-016 FOR ASSEMBLY DETAILS AT BAY 2

REV.		MADE BY	CHECKED BY	DATE	CHANGE
This drawing is loaned subject to the express understanding and agreement that the drawing and information therein contained are, and shall remain the property of PSI, and will not be otherwise utilized or disposed of, directly or indirectly, and will not be used in whole or in part or assist in making or finish any information for the making of drawings, prints or other reproductions hereof, or for the design or making of any item, parts, object, apparatus or parts thereof, except upon the written permissions of PSI first obtained. The acceptance of this drawing will be construed as an acceptance of the forgoing agreement.					
<b>PROPAGATION SYSTEMS, INC.</b> Ebensburg, Pennsylvania USA 814-472-5540					SIZE
ANTENNA ARRAY ELEVATIONS AND SPECIFICATIONS					MODEL: PSIFMR-2-HWS-DA CHANNEL/FREQUENCY: 100.5 MHz SCALE: 1:40
DRAWN BY: D.G. Kellar APPROVED BY: DRAWING NO.: J807FM-614-001					DATE: 8/02/07 REV. 0



REV.	MADE BY CHECKED BY	DATE	CHANGE

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SIZE

A

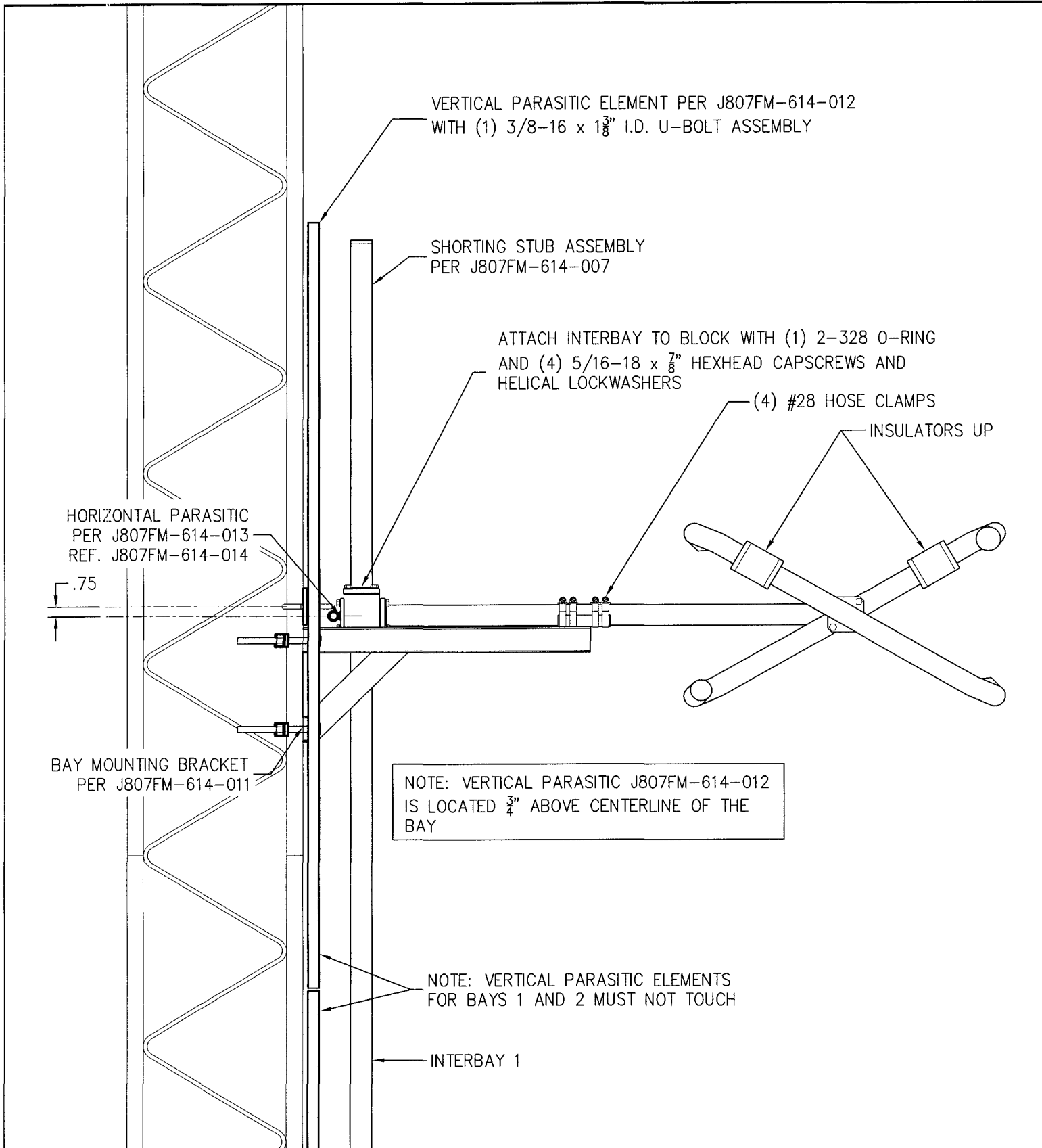
# **PROPAGATION SYSTEMS, INC.**

Ebensburg, Pennsylvania USA 814-472-5540

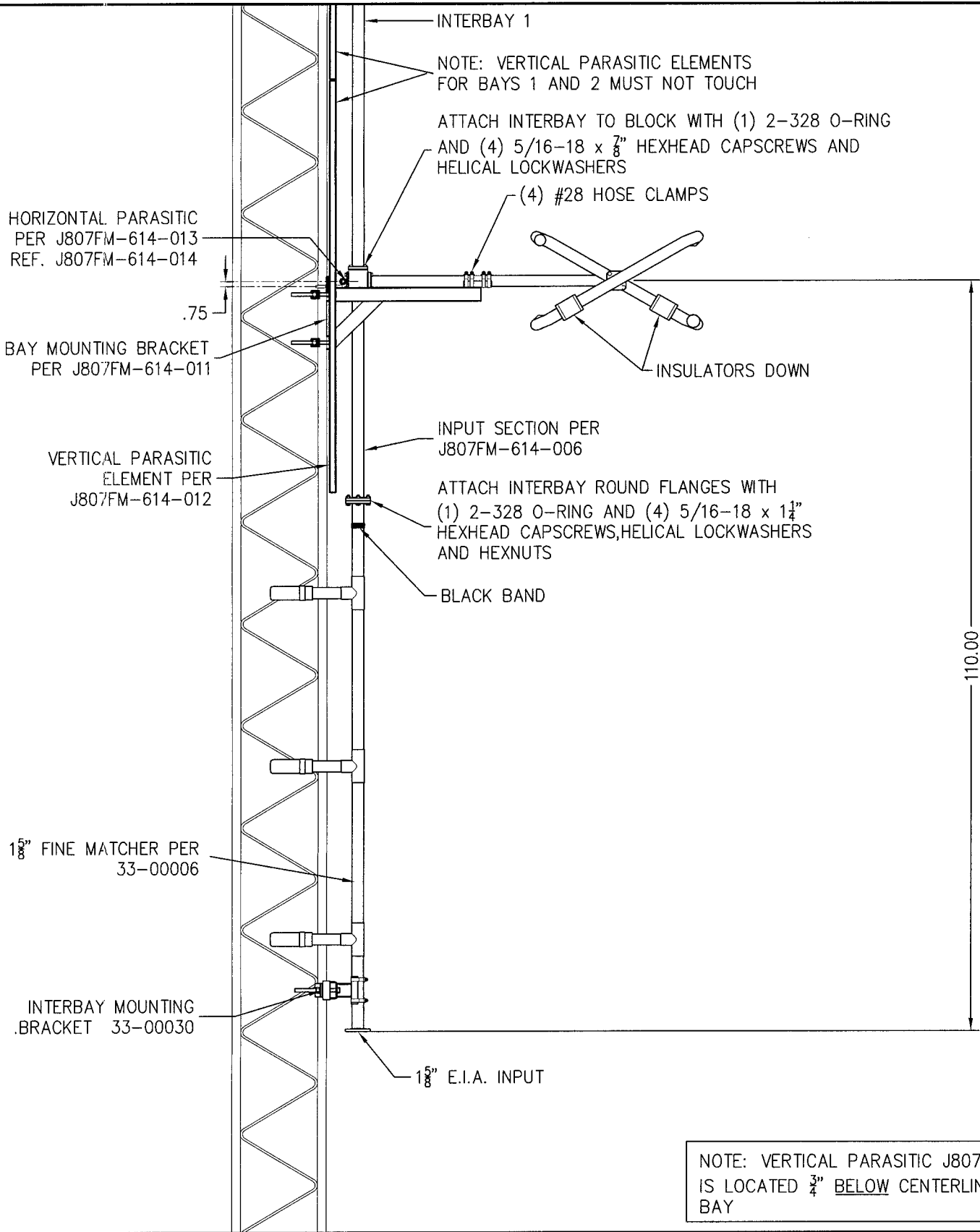
## **ANTENNA PLAN VIEW AND ORIENTATION**

MODEL: PSIFMR-2-HWS-DA	DRAWN BY: D.G. Kellar	DATE: 8/31/07
CHANNEL/ FREQUENCY: 100.5 MHz	APPROVED BY:	DATE:
SCALE: 1:10	DRAWING NO.: J807FM-614-002	REV.: 0



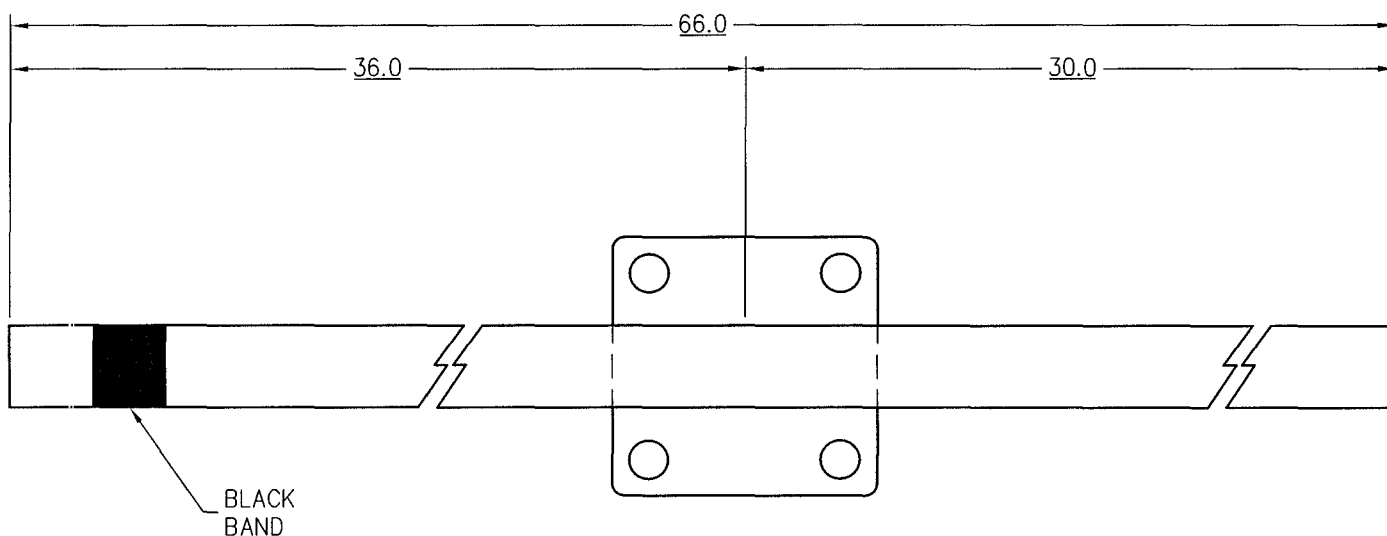


<b>PROPAGATION SYSTEMS, INC.</b> Ebensburg, Pennsylvania USA 814-472-5540			
ANTENNA ELEVATIONS @ BAY 1			
REV.	MADE BY CHECKED BY	DATE	CHANGE
This drawing is loaned subject to the express understanding and agreement that the drawing and information therein contained are, and shall remain the property of PSI, and will not be otherwise utilized or disposed of, directly or indirectly, and will not be used in whole or in part to assist in making or finish any information for the making of drawings, prints or other reproductions hereof, or for the design or making of any item, parts, object, apparatus or parts thereof, except upon the written permissions of PSI first obtained. The acceptance of this drawing will be construed as an acceptance of the forgoing agreement.			SIZE  <b>A</b>
MODEL: PSIFMR-2-HWS-DA		DRAWN BY: D.G. Kellar	DATE: 10/08/07
CHANNEL/ FREQUENCY: 100.5 MHz		APPROVED BY:	DATE:
SCALE: 1:10		DRAWING NO.: J807FM-614-015	REV. 0



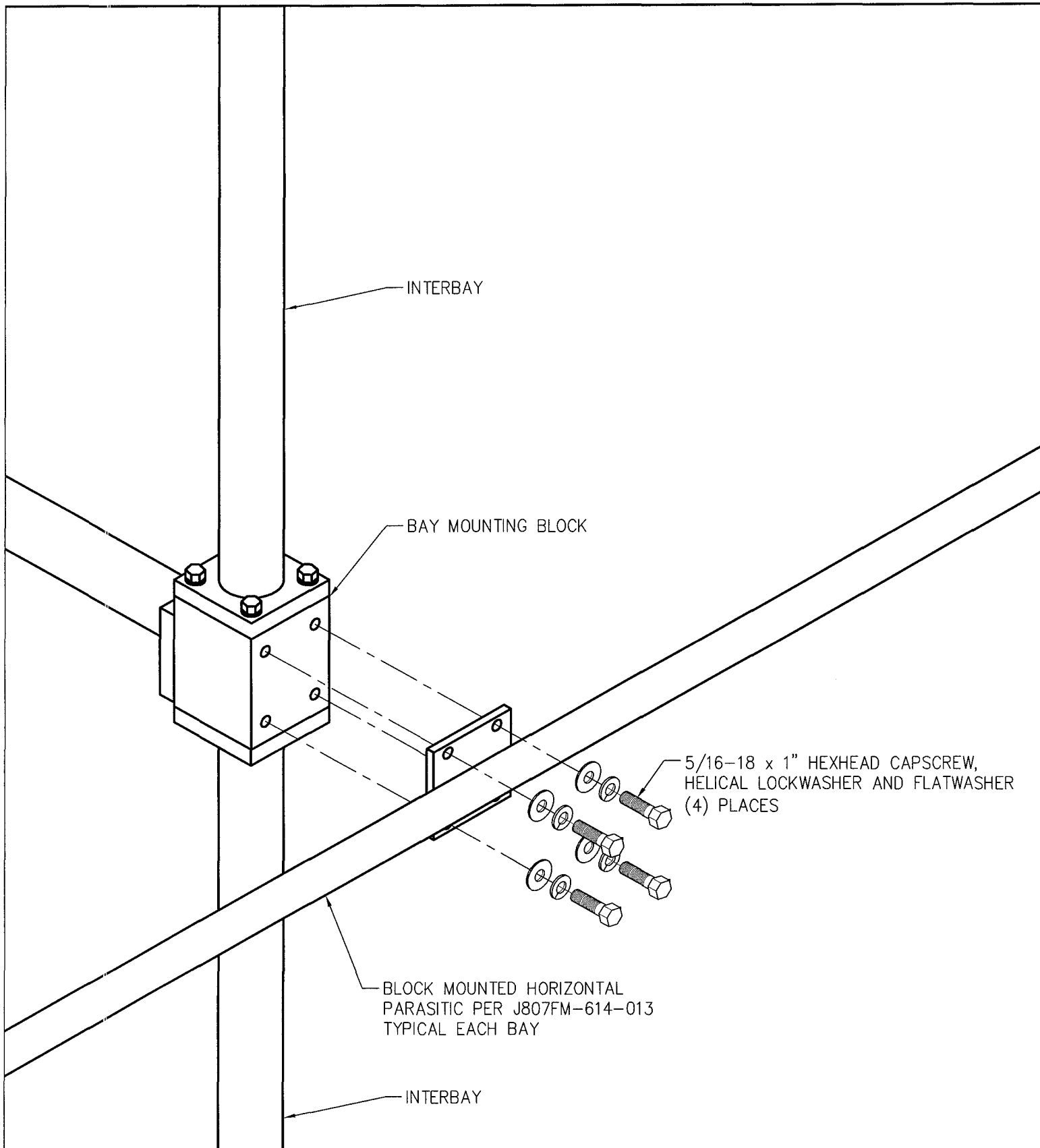
NOTE: VERTICAL PARASITIC J807FM-614-012 IS LOCATED  $\frac{3}{4}$ " BELOW CENTERLINE OF THE BAY

REV.		MADE BY	CHECKED BY	DATE	CHANGE	
This drawing is loaned subject to the express understanding and agreement that the drawing and information therein contained are, and shall remain the property of PSI, and will not be otherwise utilized or disposed of, directly or indirectly, and will not be used in whole or in part or assist in making or finish any information for the making of drawings, prints or other reproductions hereof, or for the design or making of any item, parts, object, apparatus or parts thereof, except upon the written permissions of PSI first obtained. The acceptance of this drawing will be construed as an acceptance of the forgoing agreement.						
SIZE		A				
<b>PROPAGATION SYSTEMS, INC.</b>						
Ebensburg, Pennsylvania USA 814-472-5540						
ANTENNA ELEVATIONS @ BAY 2						
MODEL:		PSIFMR-2-HWS-DA		DRAWN BY:	D.G. Kellar	
CHANNEL / FREQUENCY:		100.5 MHz		APPROVED BY:		
SCALE:		1:10		DRAWING NO.:	J807FM-614-016	
					DATE:	10/08/07
					REV.	0



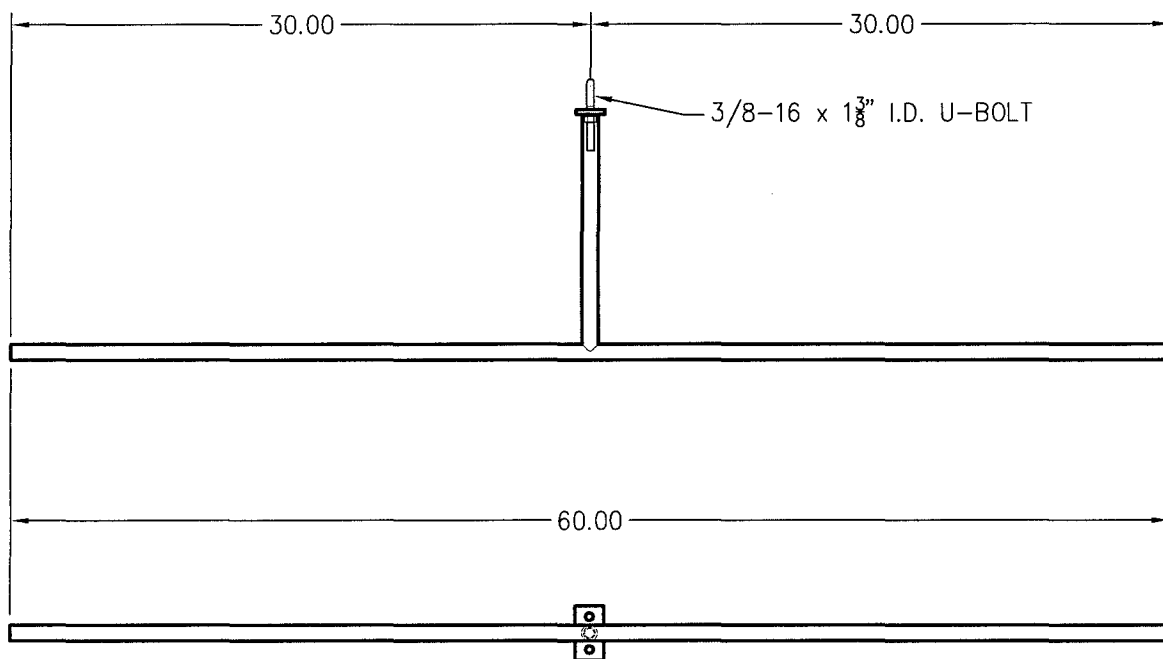
NOTES:  
1. (2) ASSEMBLIES REQUIRED

<b>PROPAGATION SYSTEMS, INC.</b> Ebensburg, Pennsylvania USA 814-472-5540 INTERBAY BLOCK MOUNTED HORIZONTAL PARASITIC			
REV.	MADE BY CHECKED BY	DATE	CHANGE
This drawing is loaned subject to the express understanding and agreement that the drawing and information therein contained are, and shall remain the property of PSI, and will not be otherwise utilized or disposed of, directly or indirectly, and will not be used in whole or in part or assist in making or finish any information for the making of drawings, prints or other reproductions hereof, or for the design or making of any item, parts, object, apparatus or parts thereof, except upon the written permissions of PSI first obtained. The acceptance of this drawing will be construed as an acceptance of the forgoing agreement.			SIZE  A
MODEL: PSIFMR-2-HWS-DA		DRAWN BY: D.G. Kellar	DATE: 10/03/07
CHANNEL/FREQUENCY: 100.5 MHz		APPROVED BY:	DATE:
SCALE: 1:2		DRAWING NO.: J807FM-614-013	REV. 0



<b>PROPAGATION SYSTEMS, INC.</b> Ebensburg, Pennsylvania USA 814-472-5540			
HORIZONTAL PARASITIC ELEMENT MOUNTING ISOMETRIC			
MODEL: PSIFMR-2-HWS-DA	DRAWN BY: D.G. Kellar	DATE: 10/03/07	
CHANNEL/FREQUENCY: 100.5 MHz	APPROVED BY:	DATE:	
SCALE: 1:4	DRAWING NO.: J807FM-614-014	REV. 0	SIZE A

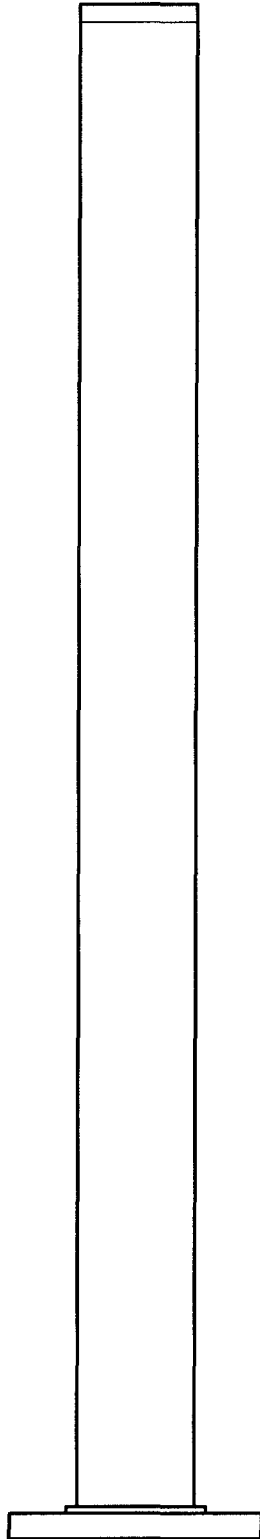
This drawing is loaned subject to the express understanding and agreement that the drawing and information therein contained are, and shall remain the property of PSI, and will not be otherwise utilized or disposed of, directly or indirectly, and will not be used in whole or in part or assist in making or finish any reproductions hereof, or for the design or making of any item, parts, object, apparatus or parts thereof, except upon the written permissions of PSI first obtained. The acceptance of this drawing will be construed as an acceptance of the forgoing agreement.



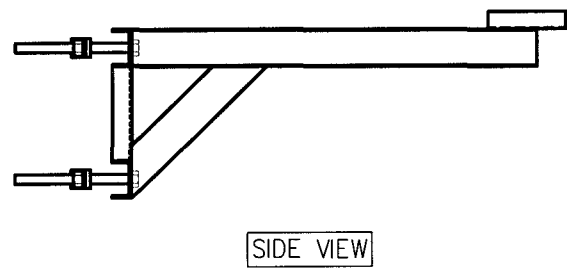
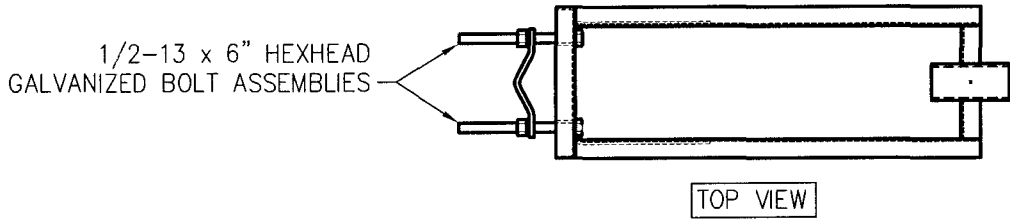
**NOTES:**

1. (2) REQUIRED
2. HOT DIP GALVANIZE
3. WEIGHT: 6.1 LB/EACH
4. WINDAREA: .53 SQ. FT./EACH

<h2 style="margin: 0;">PROPAGATION SYSTEMS, INC.</h2> <p style="margin: 0;">Ebensburg, Pennsylvania USA 814-472-5540</p>			
REV.	MADE BY CHECKED BY	DATE	CHANGE
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<div style="font-size: 2em; font-weight: bold;">A</div>		<div style="font-size: 1.5em; font-weight: bold;">SIZE</div>	
<b>LEG MOUNTED VERTICAL PARASITIC</b>			
MODEL: PSIFMR-2-HWS-DA		DRAWN BY: D.G. Kellar	DATE: 10/3/07
CHANNEL/FREQUENCY: 100.5 MHz		APPROVED BY:	DATE:
SCALE: 1:10		DRAWING NO.: J807FM-614-012	
			REV. 0

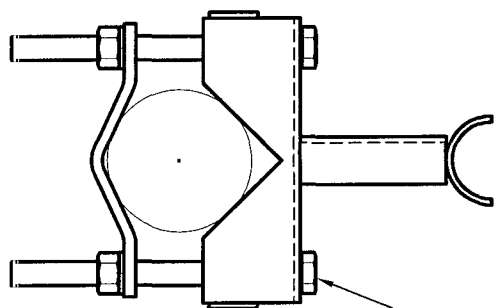


			<b>PROPAGATION SYSTEMS, INC.</b>				
			Ebensburg, Pennsylvania USA 814-472-5540				
REV.	MADE BY CHECKED BY	DATE	CHANGE				
<p>This drawing is loaned subject to the express understanding and agreement that the drawing and information therein contained are, and shall remain the property of PSI, and will not be otherwise utilized or disposed of, directly or indirectly, and will not be used in whole or in part or assist in making or finish any information for the making of drawings, prints or other reproductions hereof, or for the design or making of any item, parts, object, apparatus or parts thereof, except upon the written permissions of PSI first obtained. The acceptance of this drawing will be construed as an acceptance of the forgoing agreement.</p>			SHORTING STUB OUTLINE				
			MODEL: PSIFMR-2-HWS-DA			DRAWN BY: D.G. Kellar	
			CHANNEL/ FREQUENCY: 100.5 MHz			DATE: 8/02/07	
			SCALE: NONE			APPROVED BY:	
						DATE:	
A			DRAWING NO.: J807FM-614-007		REV. 0		



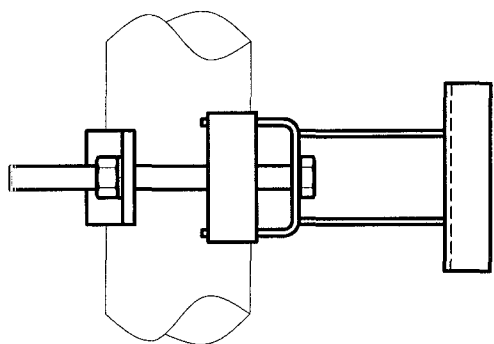
NOTES:  
1. APPROXIMATE WEIGHT: 12.8 Lbs/Each  
2. HOT DIP GALVANIZED

				<b>PROPAGATION SYSTEMS, INC.</b>			
				Ebensburg, Pennsylvania USA 814-472-5540			
				BAY MOUNTING BRACKET			
REV.	MADE BY CHECKED BY	DATE	CHANGE	MODEL:	DRAWN BY:	DATE:	
				PSIFMR-2-HWS-DA	D.G. Kellar	9/10/07	
This drawing is loaned subject to the express understanding and agreement that the drawing and information therein contained are, and shall remain the property of PSI, and will not be otherwise utilized or disposed of, directly or indirectly, and will not be used in whole or in part or assist in making or finish any reproductions hereof, or for the design or making of any item, parts, object, apparatus or parts thereof, except upon the written permissions of PSI first obtained. The acceptance of this drawing will be construed as an acceptance of the forgoing agreement.				CHANNEL/ FREQUENCY:	APPROVED BY:		DATE:
				100.5 MHz			
				SCALE:	DRAWING NO.:		REV.
				1:10	J807FM-614-011		0

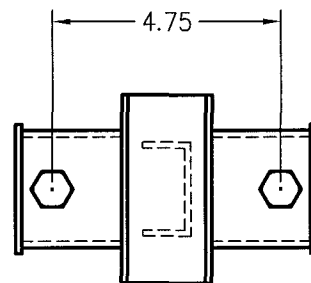


PLAN VIEW

1/2-13 x 6" GALVANIZED HEXHEAD BOLT  
HEXNUT AND HELICAL LOCKWASHERS  
(2) PLACES EACH BRACKET



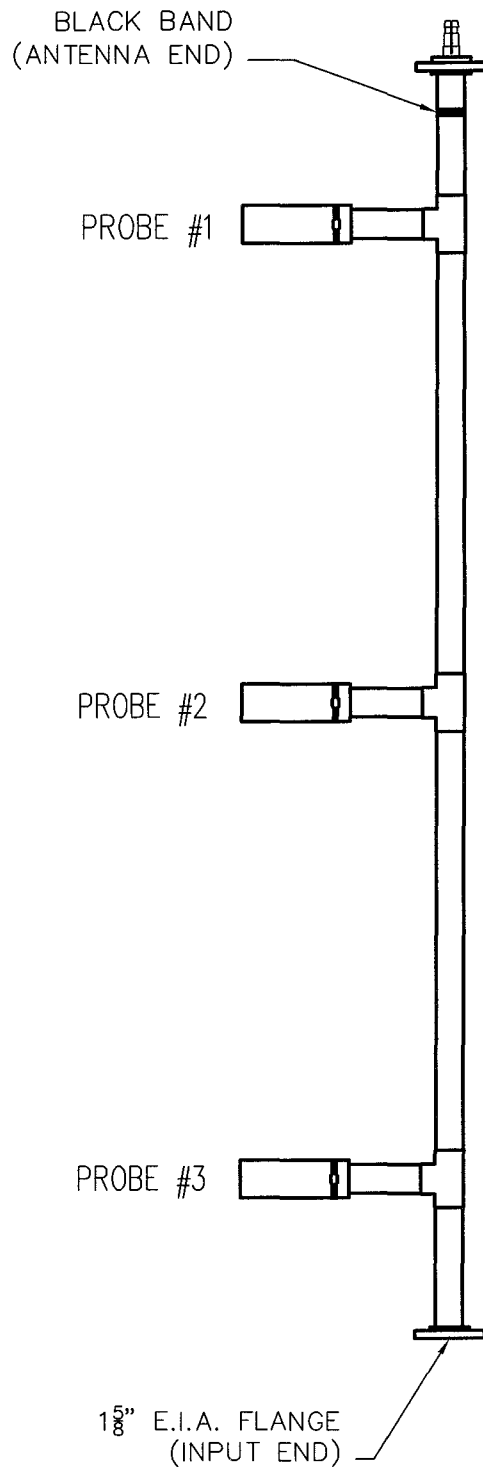
SIDE VIEW



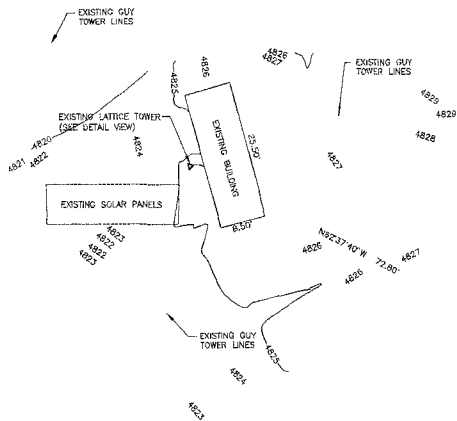
FRONT VIEW

				<b>PROPAGATION SYSTEMS, INC.</b>			
				Ebensburg, Pennsylvania USA 814-472-5540			
				SUPPORT BRACKET OUTLINE			
REV.	MADE BY	CHECKED BY	DATE	CHANGE	MODEL:	DRAWN BY:	DATE:
						P. MCINTOSH	12-19-00
This drawing is loaned subject to the express understanding and agreement that the drawing and information therein contained are, and shall remain the property of PSI, and will not be otherwise utilized or disposed of, directly or indirectly, and will not be used in whole or in part or assist in making or finish any information for the making of drawings, prints or other reproductions hereof, or for the design or making of any item, parts, object, apparatus or parts thereof, except upon the written permissions of PSI first obtained. The acceptance of this drawing will be construed as an acceptance of the forgoing agreement.					CHANNEL/FREQUENCY:	APPROVED BY:	DATE:
					SCALE:	DRAWING NO.:	REV.
					1: 4	33-00030	0

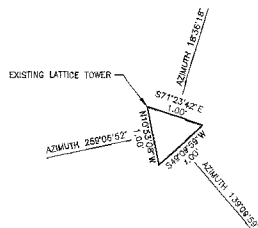




<table border="1"> <tr> <td>REV.</td> <td>MADE BY CHECKED BY</td> <td>DATE</td> <td>CHANGE</td> </tr> </table>			REV.	MADE BY CHECKED BY	DATE	CHANGE	<b>PROPAGATION SYSTEMS, INC.</b> Ebensburg, Pennsylvania USA 814-472-5540		
REV.	MADE BY CHECKED BY	DATE	CHANGE						
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			MODEL:		DRAWN BY: D. RICHEY				
			CHANNEL/FREQUENCY:		APPROVED BY:				
			SCALE: 1:16		DRAWING NO.: 33-00006				
SIZE: A			DATE: 1-28-98		REV. 0				



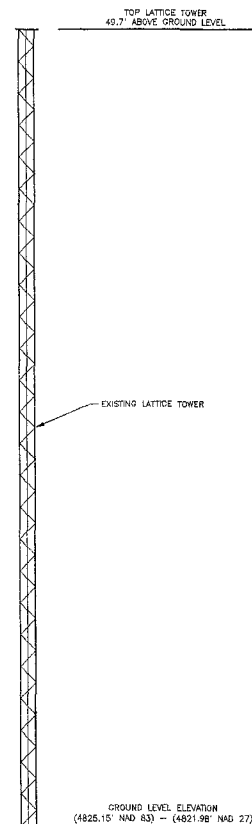
PLAN VIEW  
1" = 10'



TOWER DETAIL VIEW  
1" = 1'

N.T.S. CONTROL POINT  
DESIGNATION = BLUE  
PD = FJ0512  
NAD 83  
LATITUDE = 35-45-36  
LONGITUDE = 118-45-34  
ELEVATION = 4829.00  
NAD 27  
LATITUDE = 35-45-36  
LONGITUDE = 118-45-31  
ELEVATION = 4825.83

TOWER INFORMATION  
CENTER OF TOWER  
NAD 83  
LATITUDE = 35-45-36  
LONGITUDE = 118-45-35  
ELEVATION = 4825.15  
NAD 27  
LATITUDE = 35-45-36  
LONGITUDE = 118-45-32  
ELEVATION = 4821.98



ELEVATION VIEW  
N.T.S.

<p><b>ATTENTION:</b></p> <p>ALL UNDERGROUND UTILITIES AND SUBSTRUCTURES SHOWN HEREIN WERE OBTAINED FROM THE SOLE AND/OR OTHER SOURCES AND ARE PROVIDED TO THE ENGINEER AND CONTRACTOR FOR INFORMATION ONLY. THE ENGINEER AND CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DEPTH, AND CHARACTERISTICS OF ALL UTILITIES AND SUBSTRUCTURES SHOWN ON ANY DESIGN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DEPTH, AND CHARACTERISTICS OF ALL UTILITIES AND SUBSTRUCTURES SHOWN ON ANY DESIGN.</p> <p>CALL UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA TOLL FREE AT 1-800-433-4155 TWO WORKING DAYS BEFORE YOU DIG.</p>		<p><b>UNAUTHORIZED CHANGES &amp; USES</b></p> <p><b>CAUTION:</b> The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.</p>		<p><b>PROJECT DESIGNER</b></p> <p>MBP LICENSEE, LLC MOON BROADCASTING</p>		<p><b>WORK ORDER NO.</b> 30-00031</p>	
<p><b>SOLE:</b></p> <p>VARIES</p>		<p><b>WARNING</b></p> <p>0 1/2</p> <p>IF THIS BAR DOES NOT REMAIN IN THE OPENING IS NOT TO SCALE</p>		<p><b>ENGINEER'S SIGNATURE</b></p> <p>ENGINEER'S SIGNATURE</p> <p>DATE</p>		<p><b>PROJECT MANAGER</b></p> <p>PROJECT MANAGER</p> <p>DATE</p>	
<p><b>DATE</b></p> <p>DATE</p>		<p><b>DATE</b></p> <p>DATE</p>		<p><b>DATE</b></p> <p>DATE</p>		<p><b>DATE</b></p> <p>DATE</p>	

J 807 FM - 614  
FMR-DIT-AWS-2

FINAL

CH1 MEM log MAG 10 dB/ REF 0 dB 1: -51.561 dB

