

ENGINEERING STATEMENT
DISPLACEMENT TRANSLATOR APPLICATION
ON BEHALF OF
KTVQ COMMUNICATIONS, INC.
K18EF, HARDIN, MONTANA
CHANNEL 24 (+) 1.34 KW MAX 1010.3 METERS RCAMSL

FEBRUARY 2003

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

This engineering statement has been prepared on behalf of KTVQ Communications, Inc, licensee of translator-low power television station K18EF, Hardin, Montana, and is in support of its displacement application requesting a change from Channel 18 to Channel 24 (+). K18EF is displaced by the Channel 18 DTV allotment assigned to KSVI-DT by the Federal Communications Commission. K18EF is authorized to operate on Channel 18 with a non-directional ERP of 1.27 kW. K18EF proposes to operate from the existing site on Channel 24 (+ offset) with a maximum ERP of 1.34 kW max., using a Scala, Type SL-8 directional antenna. The proposed Channel 24 F(50,50) coverage contours are depicted in Exhibit E-3.

The NAD-27 geographic coordinates of the site (unchanged) are as follows:

North Latitude: 45° 44' 39"

West Longitude: 107° 32' 08"

Since no change in site is proposed, the 7.5 minute USGS topographical map is not being resubmitted, nor considered necessary. The tower registration number is 1062459.

Allocation Situation

An allocation study, performed in accordance with Sections 74.705, 74.706, and 74.707 of the FCC Rules indicates that the proposed Channel 24 operation will not cause objectionable interference to any authorized or proposed full-service, analog, or digital operation or authorized LPTV / TV translator stations. Table I provides the distances along each radial at intervals of 10 degrees in azimuth to the predicted F(50,50) 74 dBu contour, the average elevations, and the effective antenna heights. Table II lists pertinent stations considered in the study and shows the distances to pertinent interfering and coverage contours.

Transmitting Equipment

The following equipment will be used for the proposed operation.

Transmitter: Larcan, TTC Translator or equivalent

Antenna: Scala, SL-8 or equivalent¹

Transmission Line: Andrew, Type LDF4-50, 23 feet (7 meters) in length

The transmitter will be operated at a power output of 100 watts to achieve a maximum ERP of 1.34 kW. The antenna will be top-mounted and will replace the existing antenna with the same length on the existing tower at the 12.2 meter level, as shown in Exhibit E-1. The overall tower height above ground level remains unchanged at 18.9 meters and 1012.2 meters above mean sea level, therefore, no increase in overall height will result.

Unattended Operation

The applicant will comply with the requirements of Section 74.734 of the FCC Rules concerning unattended operation of the LPTV transmitter. A qualified person is designated to suspend operation of the translator station should this be deemed necessary.

Environmental Statement

The proposed UHF-TV antenna will be mounted at the 12.2 meter level of an existing communications tower. The tower is precluded from public access by a security fence and a locked gate.

The proposed Channel 24 operation of K18EF is a minor environmental action under Section 1.1305(d) of the FCC Rules. The predicted power density at 2 meters above ground level for a

¹Exhibit E-2: Antenna details and specifications.

downward radiation factor of 0.2 is $3.98 \mu\text{W}/\text{cm}^2$, based on the methods contained in the FCC OET Bulletin 65 (Edition 97-01 and is in compliance with permissible levels for both controlled and uncontrolled environments. With respect to work performed near the radiating elements, the licensee indicates it now complies and will comply with FCC guidelines by reducing power or by ceasing operation, in order that workers are not exposed to power density levels above those prescribed by the FCC. Since this does not require any new tower or building construction, there is no change in the other environmental categories.

For reasons stated above as indicated by the licensee, this proposal does not involve any action specified in Section 1.1306 (a) and (b) of the FCC Rules: therefore, under Section 1.1306, it is categorically excluded from the environmental processing.

TABLE I
COMPUTED COVERAGE DATA
FOR THE PROPOSED OPERATION OF
K18EF, HARDIN, MONTANA
CHANNEL 24 1.34 KW ERP 1010.3 METERS RCAMSL
FEBRUARY 2003

<u>Radial</u> <u>Bearing</u> N ° E, T	<u>Average*</u> <u>Elevation</u> <u>3.2 to 16.1 km</u> meters	<u>Effective</u> <u>Height</u> meters	<u>Depression</u> <u>Angle</u>	<u>ERP at</u> <u>Radio</u> <u>Horizon</u> kW	<u>Distance</u> <u>to Contour</u> <u>F(50,50)</u> <u>74 dBu</u> km
0	914.5	95.8	0.271	0.6	7.1
10	932.8	77.5	0.244	0.6	6.3
20	965.2	45.1	0.186	0.6	4.8
30	989.9	20.4	0.125	0.6	4.0
40	1004.4	5.9	0.067	0.6	4.0
50	1008.9	1.4	0.033	0.7	4.0
60	1010.4	-0.1	-0.008	0.7	4.1
70	1000.7	9.6	0.086	0.7	4.1
80	1003.2	7.1	0.074	0.7	4.1
90	1010.4	-0.1	-0.007	0.7	4.1
100	1012.6	-2.3	-0.042	0.7	4.1
110	1021.0	-10.7	-0.090	0.7	4.0
120	1025.7	-15.4	-0.109	0.6	4.0
130	1013.1	-2.8	-0.046	0.6	4.0
140	959.9	50.4	0.197	0.6	5.1
150	924.4	85.9	0.257	0.6	6.6
160	922.9	87.4	0.259	0.6	6.7
170	930.9	79.4	0.247	0.6	6.6
180	949.9	60.4	0.215	0.7	5.9
190	968.7	41.6	0.179	0.8	5.1
200	964.7	45.6	0.187	1.0	5.5
210	931.2	79.1	0.246	1.1	7.4
220	898.4	111.9	0.293	1.2	9.1
230	898.1	112.2	0.293	1.3	9.2
240	903.2	107.1	0.287	1.3	9.1
250	905.4	104.9	0.284	1.3	9.0
260	908.4	101.9	0.280	1.3	8.9
270	912.2	98.1	0.274	1.3	8.7
280	907.3	103.0	0.281	1.3	8.9

TABLE I
COMPUTED COVERAGE DATA
FOR PROPOSED OPERATION OF
K18EF, HARDIN, MONTANA
CHANNEL 24 1.34 KW ERP 1010.3 METERS RCAMSL
FEBRUARY 2003
 (continued)

Radial <u>Bearing</u> N ° E, T	Average* Elevation <u>3.2 to 16.1 km</u> meters	Effective <u>Height</u> meters	Depression <u>Angle</u>	ERP at Radio <u>Horizon</u> kW	Distance to Contour F(50,50) <u>74 dBu</u> km
290	908.6	101.7	0.279	1.3	8.8
300	901.6	108.7	0.289	1.2	9.0
310	890.1	120.2	0.304	1.1	9.2
320	891.5	118.8	0.302	1.0	8.9
330	887.0	123.3	0.308	0.8	8.7
340	887.0	123.3	0.308	0.7	8.4
350	903.9	106.4	0.286	0.6	7.6

Proposed Operation of K18EF-TX

Channel: 24 Latitude: 45°, 44', 39" Max HAAT: 123.03 m Call: K18EF
 Application ID: 703 Longitude: 107°, 32', 8" ERP: 1.34 kW OffSet: +

<u>CALL</u> <u>City, State</u> <u>OWNER</u>	<u>Status</u>	<u>CH</u>	<u>ERP</u> <u>Offset Zone</u>	<u>R/C</u> <u>HAAT</u>	<u>Latitude</u> <u>Longitude</u>	<u>ARN</u> <u>Antenna ID</u> <u>Comments</u>	<u>App ID</u> <u>Facility ID</u>	<u>Sep. Dist</u> <u>Req. Dist</u> <u>Azimuth</u>	<u>Max. QRM</u> <u>QRM</u> <u>Bearin</u>
NEW TX BILLINGS, MT PRISM BROADCASTING NEWWORK, INC.	APP	23	40.0 kW - 0	1,275.00 n	45° 43' 44.0" 108° 23' 44.	BNPTTL20000829AFB 40879 Sum of Contours < Sep. Dist.	577993 126881	66.96 km 121.00 km 268.85°	
NEW TX BILLINGS, MT PRISM BROADCASTING NEWWORK, INC.	APP	23	40.0 kW Z 0	1,275.00 n	45° 43' 44.0" 108° 23' 44.	BNPTTL20000829AFB 43593 Sum of Contours < Sep. Dist.	604433 126881	66.96 km 121.00 km 268.85°	
NEW TX SHERIDAN, WY AMANDA ORRICK	APP	24	7.080 kW N 0	1,417.00 n	44° 47' 11.0" 106° 53' 8.0"	BNPTTL20000817AFE 20734 No QRM	571252 135828	118.04 km 338.00 km 154.24°	Rcvd: 7.11 dB Rcvd: 334.70°
K24FL TX COLUMBUS, MT KULR CORPORATION, L.L.C.	CP	24	0.680 kW - 0	1,261.00 n	45° 38' 34.0" 109° 18' 0.0"	BNPTT20000831BTJ 39518 Sum of Contours < Sep. Dist.	560709 129406	137.90 km 338.00 km 265.93°	
NEW TX HARDIN, MT KULR CORPORATION, L.L.C.	APP	24	1.030 kW N 0	1,017.00 n	45° 44' 44.0" 107° 32' 9.0"	BNPTT20000831BTK 16237 Within Protected Contour	530533 129410	0.16 km 338.00 km 352.05°	
K24DD TX PLEVNA, MT PLEVNA PUB. SCH. TRUSTEES DIST. #55	LIC	24	0.246 kW N 0	857.00 m	46° 25' 6.0" 104° 31' 3.0"	BLTTL19930111IL 52827 Sum of Contours < Sep. Dist.	180542 52827	245.18 km 338.00 km 71.07°	
K22AD TX GILLETTE, WY RAPID BROADCASTING COMPANY	APP	24	27.5 kW N 0	1,465.00 n	44° 14' 53.0" 105° 29' 40.	BMJPTTL20000830BSA 37898 Sum of Contours < Sep. Dist.	541657 63720	231.41 km 338.00 km 135.30°	
K22AD TX GILLETTE, WY RAPID BROADCASTING COMPANY	CP	24	27.5 kW N 0	1,465.00 n	44° 14' 53.0" 105° 29' 42.	BPTTL20010620ABA 16707 Sum of Contours < Sep. Dist.	572592 63720	231.38 km 338.00 km 135.31°	
NEW TX GILLETTE, WY TRINITY CHRISTIAN CENTER OF SANTA ANA, INC.		24	10.000 kW + 0	1,586.00 n	44° 14' 53.0" 105° 29' 40.	BNPTTL20000831AQY 16352 Sum of Contours < Sep. Dist.	523543 128081	231.41 km 338.00 km 135.30°	
K24FR TX MILES CITY, MT CHARLES C. TOWNSEND, III	CP	24	1.000 kW + 0	885.60 m	46° 29' 24.0" 105° 40' 3.0"	BNPTTL20000828AXL 42362 Sum of Contours < Sep. Dist.	592832 128084	166.51 km 338.00 km 59.39°	

<u>CALL</u>		<u>Status</u>	<u>CH</u>	<u>ERP</u>	<u>R/C</u>	<u>Latitude</u>	<u>ARN</u>	<u>App ID</u>	<u>Sep. Dist</u>	<u>Max. QRM</u>
<u>City, State</u>			<u>Offset</u>	<u>Zone</u>	<u>HAAT</u>	<u>Longitude</u>	<u>Antenna ID</u>	<u>Facility ID</u>	<u>Req. Dist</u>	<u>QRM Bearin</u>
<u>OWNER</u>							<u>Comments</u>		<u>Azimuth</u>	
NEW TX APP 24 25.0 kW					1,763.50 n	44° 36' 33.0"	BNPTTL20000828BAH	524476	134.99 km	
SHERIDAN, WY			Z	0		106° 55' 26.	35907	128270	338.00 km	
CHARLES C. TOWNSEND, III							Sum of Contours < Sep. Dist.		158.98°	
NEW TX APP 24 25.0 kW					1,763.00 n	44° 36' 33.0"	BNPTTL20000828AGW	515376	134.99 km	
SHERIDAN, WY			Z	0		106° 55' 26.	34643	126380	338.00 km	
DEAN M. MOSELY							Sum of Contours < Sep. Dist.		158.98°	
K25BP TX LIC 25 14.0 kW					1,161.00 n	45° 46' 4.0"	BLTTL19990723JD	287356	71.78 km	
BILLINGS, MT			N	0		108° 27' 27.	21152	5244	121.00 km	
QUORUM OF MONTANA LICENSE, LLC							Sum of Contours < Sep. Dist.		272.43°	
NEW TX APP 39 10.000 kW					1,266.00 n	45° 48' 26.0"	BNPTTL20000824AEC	535446	62.96 km	
BILLINGS, MT			-	0		108° 20' 24.	16352	130269	121.00 km	
ESI BROADCASTING CORPORATION							Sum of Contours < Sep. Dist.		276.70°	
NEW TX APP 39 10.000 kW					1,026.00 n	45° 44' 35.1"	BNPTTL20000830BAR	530837	78.44 km	
BILLINGS, MT			Z	0		108° 32' 36.	20751	129490	121.00 km	
TELECOM WIRELESS, LLC.							Sum of Contours < Sep. Dist.		270.27°	
NEW TX APP 39 14.5 kW					1,183.00 n	45° 45' 48.0"	BNPTTL20000828BDI	530002	71.62 km	
BILLINGS, MT			Z	0		108° 27' 20.	17797	129280	121.00 km	
JOHN D TOMS							Sum of Contours < Sep. Dist.		272.04°	

ABOVE MEAN SEA LEVEL

ABOVE GROUND

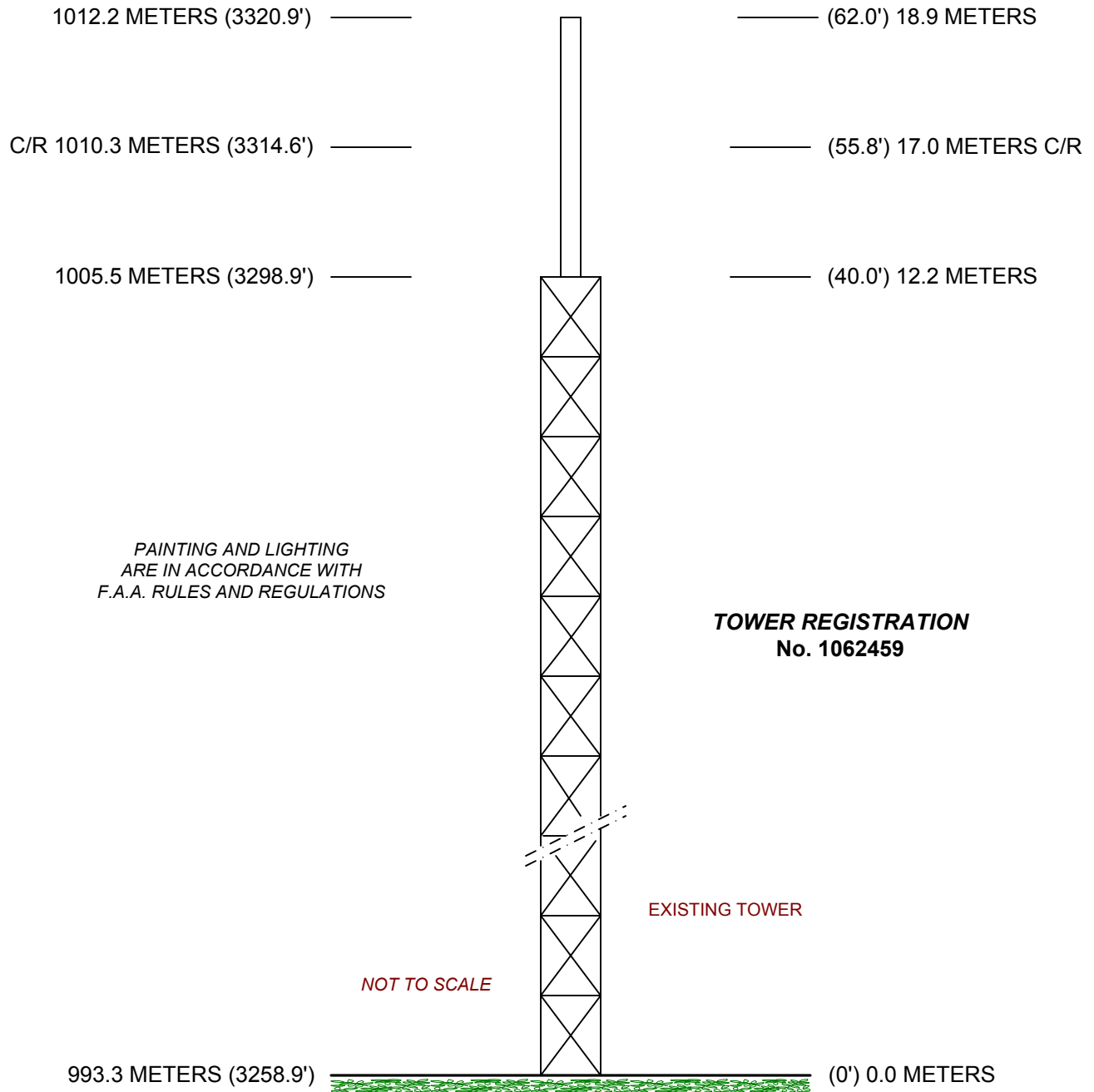


EXHIBIT E-1
VERTICAL SKETCH
FOR THE PROPOSED
LOW POWER TV OPERATION OF
K18EF, HARDIN, MONTANA

FEBRUARY 2003

COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.

SL-8
UHF-TV PARASLOT® ANTENNA
 11.4 dBd Gain
 470 to 862 MHz (Channels 14–69*)
 Horizontally polarized

The Kathrein Scala Division SL-8 Paraslot UHF-TV antenna is a high performance slot array offering excellent performance in UHF-TV transmit applications requiring omnidirectional coverage. The SL-8 is available in single and multichannel models with a 1,000 watt power rating and optional null-fill.

Kathrein Scala Division's patented symmetrical parallel feed system is completely housed within the center of the antenna, and resists changes in radiation pattern caused by ice or snow buildup on the periphery of the antenna.

The standard SL-8 is a single-channel slot array with a power input rating of 1000 watts, VSWR of 1.1:1 maximum, 1.75 degrees of electrical beamtilt, and 7/8" EIA flange or 7/16 DIN female termination. Options include null-fill and additional beamtilt.

The SL-8-2 is designed for wideband performance over two alternate nonadjacent 6 MHz UHF-TV channels (e.g. Channels 60 and 62) permitting two transmitters to be diplexed into a single antenna. The SL-8-2 provides VSWR of 1.15:1 or better across the two specified channels.

The SL-8-3 Paraslot provides coverage of three 6 MHz alternate nonadjacent UHF-TV channels (e.g. Channels 60, 62, and 64). This arrangement allows three UHF-TV transmitters to be multiplexed into a single antenna. VSWR is held to 1.25:1 or better over the three specified channels.

*Available for 6, 7, or 8 MHz channels in accordance with various international channel allocation plans.



10479-D

PARASLOT is a registered trademark of Kathrein Inc., Scala Division.

SL-8

UHF-TV PARASLOT® ANTENNA

11.4 dBd Gain
470 to 862 MHz (Channels 14–69*)
Horizontally polarized

Specifications: One UHF-TV Channel (up to 8 MHz bandwidth)

Frequency range (MHz)	470 to 548	548 to 650	650 to 782	782 to 862
Maximum gain (dBd)	11.4 dBd	11.4 dBd	11.4 dBd	11.4 dBd
VSWR	< 1.1:1	< 1.1:1	< 1.1:1	< 1.1:1

Specifications: One UHF-TV Channel with Null Fill (up to 8 MHz bandwidth)

Frequency range (MHz)	470 to 554	554 to 686	686 to 800	800 to 862
Maximum gain (dBd)	10.5 dBd	10.5 dBd	10.5 dBd	10.5 dBd
VSWR	< 1.1:1	< 1.1:1	< 1.1:1	< 1.1:1

Specifications: Two UHF-TV Channels (up to 24 MHz bandwidth)

Frequency range (MHz)	470 to 554 MHz	542 to 680 MHz	668 to 794 MHz	782 to 862 MHz
Maximum gain (dBd)	10.5 dBd	10.5 dBd	10.5 dBd	10.5 dBd
VSWR				
18 MHz band	< 1.15:1	< 1.15:1	< 1.15:1	< 1.15:1
24 MHz band	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1

Specifications: Three UHF-TV Channels (up to 40 MHz bandwidth)

Frequency range (MHz)	470 to 566	542 to 692	668 to 862	
Maximum gain (dBd)	10.5 dBd	10.5 dBd	10.5 dBd	
VSWR				
30 MHz band	< 1.25:1	< 1.25:1	< 1.25:1	
40 MHz band	< 1.3:1	< 1.3:1	< 1.3:1	

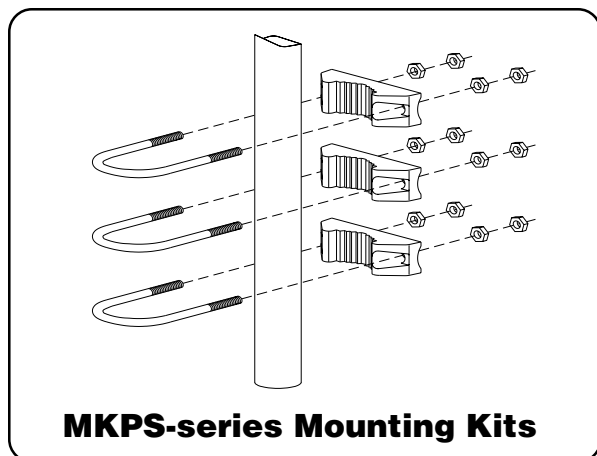
Mechanical Specifications:

Weight	95 lb (44 kg)	75 lb (34 kg)	65 lb (30 kg)	35 lb (16 kg)
Height	288 inches (732 cm)	240 inches (610 cm)	216 inches (549 cm)	180 inches (457 cm)
Diameter	4 inches (102 mm)	3.5 inches (89 mm)	2.875 inches (73 mm)	2.375 inches (60 mm)
Equivalent flat plate area	8 ft² (0.743 m²)	5.83 ft² (0.542 m²)	4.31 ft² (0.401 m²)	2.97 ft² (0.276 m²)
Wind survival rating	80 mph (130 kph)	90 mph (145 kph)	90 mph (145 kph)	80 mph (130 kph)
Shipping dimensions	302 x 9 x 7 inches (767 x 23 x 18 cm)	280 x 9 x 7 inches (711 x 23 x 18 cm)	254 x 9 x 7 inches (645 x 23 x 18 cm)	193 x 7 x 7 inches (490 x 18 x 18 cm)
Shipping weight	210 lb (96 kg)	170 lb (78 kg)	130 lb (59 kg)	70 lb (32 kg)

*Available for 6, 7, or 8 MHz channels in accordance with various international channel allocation plans.

All specifications are subject to change without notice

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone:(541) 779-6500 Fax:(541) 779-3991



Mounting Options:

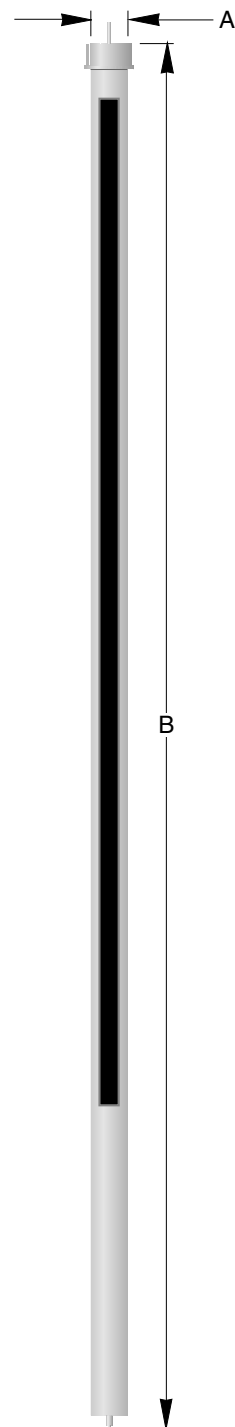
Model	Description
2.375 inch (60 mm) diameter antennas (788–862 MHz)	
MKPS-12	Mounting Kit for mounting to a flat plate
MKPP-23*	Mounting Kit for 2.375–3.5 inch (60–89 mm) OD mast.
MKPP-25*	Mounting Kit for 3.5–6.5 inch (89–165 mm) OD mast.
MKGK-1	Guy Kit
MKSK-1	Spreader Kit
2.875 inch (73 mm) diameter antennas (674–788 MHz)	
MKPS-13	Mounting Kit for mounting to a flat plate
MKPP-23*	Mounting Kit for 2.375–3.5 inch (60–89 mm) OD mast.
MKPP-25*	Mounting Kit for 3.5–6.5 inch (89–165 mm) OD mast.
MKGK-2	Guy Kit
MKSK-2	Spreader Kit
3.5 inch (89 mm) diameter antennas (548–674 MHz)	
MKPS-14	Mounting Kit for mounting to a flat plate
MKPP-23*	Mounting Kit for 2.375–3.5 inch (60–89 mm) OD mast.
MKPP-25*	Mounting Kit for 3.5–6.5 inch (89–165 mm) OD mast.
MKGK-3	Guy Kit
MKSK-3	Spreader Kit
4 inch (102 mm) diameter antennas (470–548 MHz)	
MKPS-15	Mounting Kit for mounting to a flat plate
MKPP-24*	Mounting Kit for 4–6.5 inch (102–165 mm) OD mast.
MKGK-4	Guy Kit
MKSK-4	Spreader Kit

*Pipe mounting kits for SL-8 antennas permit the installation of the antenna to a variety of pipe mast OD's. The range of OD is not intended to qualify those pipe support masts as being structurally adequate to support the antenna and in all cases, qualified structural engineering consultants should be engaged to design an adequate mount for all prevailing conditions at the installation site.

SL-8

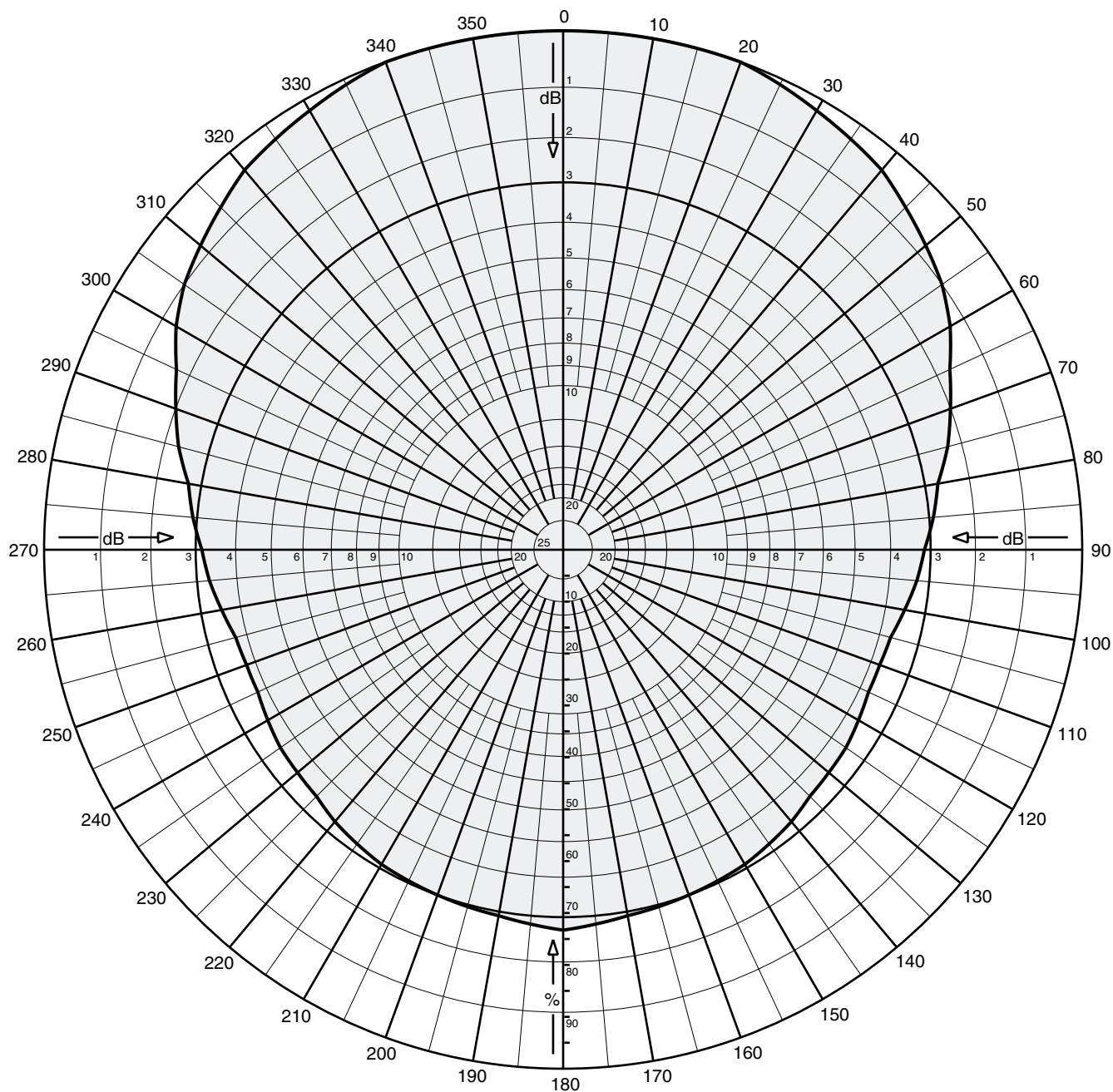
UHF-TV PARASLOT® ANTENNA

11.4 dBd Gain
470 to 862 MHz (Channels 14–69*)
Horizontally polarized



A	B
2.375 inches (60 mm)	180 inches (457 cm)
2.875 inches (73 mm)	216 inches (549 cm)
3.5 inches (89 mm)	240 inches (610 cm)
4 inches (102 mm)	288 inches (732 cm)

All specifications are subject to change without notice



ONE SL-8 PARASLOT OMNI ANTENNA
CHANNEL 24
ORIENTED AT 0 DEGREES
MAXIMUM GAIN: 11.4 dBd
POWER MULTIPLIER: 13.8
HORIZONTAL POLARIZATION
HORIZONTAL RADIATION PATTERN



ONE SL-8 PARASLOT OMNI ANTENNA
 CHANNEL 24
 ORIENTED AT 0 DEGREES
 MAXIMUM GAIN: 11.4 dBd

POWER MULTIPLIER: 13.8
 HORIZONTAL POLARIZATION
 HORIZONTAL RADIATION PATTERN

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.0	11.4	13.804	45	0.933	-0.6	10.8	12.023
1	1.000	0.0	11.4	13.804	46	0.929	-0.6	10.8	12.023
2	1.000	0.0	11.4	13.804	47	0.925	-0.7	10.7	11.749
3	1.000	0.0	11.4	13.804	48	0.920	-0.7	10.7	11.749
4	1.000	0.0	11.4	13.804	49	0.916	-0.8	10.6	11.482
5	1.000	0.0	11.4	13.804	50	0.912	-0.8	10.6	11.482
6	1.000	0.0	11.4	13.804	51	0.908	-0.8	10.6	11.482
7	1.000	0.0	11.4	13.804	52	0.904	-0.9	10.5	11.220
8	1.000	0.0	11.4	13.804	53	0.899	-0.9	10.5	11.220
9	1.000	0.0	11.4	13.804	54	0.895	-1.0	10.4	10.965
10	1.000	0.0	11.4	13.804	55	0.891	-1.0	10.4	10.965
11	1.000	0.0	11.4	13.804	56	0.885	-1.1	10.3	10.715
12	1.000	0.0	11.4	13.804	57	0.879	-1.1	10.3	10.715
13	1.000	0.0	11.4	13.804	58	0.873	-1.2	10.2	10.471
14	1.000	0.0	11.4	13.804	59	0.867	-1.2	10.2	10.471
15	1.000	0.0	11.4	13.804	60	0.861	-1.3	10.1	10.233
16	1.000	0.0	11.4	13.804	61	0.853	-1.4	10.0	10.000
17	1.000	0.0	11.4	13.804	62	0.845	-1.5	9.9	9.772
18	1.000	0.0	11.4	13.804	63	0.838	-1.5	9.9	9.772
19	1.000	0.0	11.4	13.804	64	0.830	-1.6	9.8	9.550
20	1.000	0.0	11.4	13.804	65	0.822	-1.7	9.7	9.333
21	0.998	0.0	11.4	13.804	66	0.816	-1.8	9.6	9.120
22	0.996	0.0	11.4	13.804	67	0.811	-1.8	9.6	9.120
23	0.993	-0.1	11.3	13.490	68	0.805	-1.9	9.5	8.913
24	0.991	-0.1	11.3	13.490	69	0.800	-1.9	9.5	8.913
25	0.989	-0.1	11.3	13.490	70	0.794	-2.0	9.4	8.710
26	0.987	-0.1	11.3	13.490	71	0.789	-2.1	9.3	8.511
27	0.984	-0.1	11.3	13.490	72	0.783	-2.1	9.3	8.511
28	0.982	-0.2	11.2	13.183	73	0.778	-2.2	9.2	8.318
29	0.979	-0.2	11.2	13.183	74	0.772	-2.2	9.2	8.318
30	0.977	-0.2	11.2	13.183	75	0.767	-2.3	9.1	8.128
31	0.975	-0.2	11.2	13.183	76	0.760	-2.4	9.0	7.943
32	0.973	-0.2	11.2	13.183	77	0.753	-2.5	8.9	7.762
33	0.970	-0.3	11.1	12.882	78	0.747	-2.5	8.9	7.762
34	0.968	-0.3	11.1	12.882	79	0.740	-2.6	8.8	7.586
35	0.966	-0.3	11.1	12.882	80	0.733	-2.7	8.7	7.413
36	0.964	-0.3	11.1	12.882	81	0.730	-2.7	8.7	7.413
37	0.962	-0.3	11.1	12.882	82	0.726	-2.8	8.6	7.244
38	0.959	-0.4	11.0	12.589	83	0.723	-2.8	8.6	7.244
39	0.957	-0.4	11.0	12.589	84	0.719	-2.9	8.5	7.079
40	0.955	-0.4	11.0	12.589	85	0.716	-2.9	8.5	7.079
41	0.951	-0.4	11.0	12.589	86	0.712	-3.0	8.4	6.918
42	0.946	-0.5	10.9	12.303	87	0.708	-3.0	8.4	6.918
43	0.942	-0.5	10.9	12.303	88	0.704	-3.0	8.4	6.918
44	0.937	-0.6	10.8	12.023	89	0.700	-3.1	8.3	6.761



ONE SL-8 PARASLOT OMNI ANTENNA
 CHANNEL 24
 ORIENTED AT 0 DEGREES
 MAXIMUM GAIN: 11.4 dBd

POWER MULTIPLIER: 13.8
 HORIZONTAL POLARIZATION
 HORIZONTAL RADIATION PATTERN

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
90	0.696	-3.1	8.3	6.761	135	0.672	-3.5	7.9	6.166
91	0.694	-3.2	8.2	6.607	136	0.674	-3.4	8.0	6.310
92	0.691	-3.2	8.2	6.607	137	0.677	-3.4	8.0	6.310
93	0.689	-3.2	8.2	6.607	138	0.679	-3.4	8.0	6.310
94	0.686	-3.3	8.1	6.457	139	0.682	-3.3	8.1	6.457
95	0.684	-3.3	8.1	6.457	140	0.684	-3.3	8.1	6.457
96	0.681	-3.3	8.1	6.457	141	0.686	-3.3	8.1	6.457
97	0.678	-3.4	8.0	6.310	142	0.687	-3.3	8.1	6.457
98	0.674	-3.4	8.0	6.310	143	0.689	-3.2	8.2	6.607
99	0.671	-3.5	7.9	6.166	144	0.690	-3.2	8.2	6.607
100	0.668	-3.5	7.9	6.166	145	0.692	-3.2	8.2	6.607
101	0.665	-3.5	7.9	6.166	146	0.694	-3.2	8.2	6.607
102	0.662	-3.6	7.8	6.026	147	0.695	-3.2	8.2	6.607
103	0.659	-3.6	7.8	6.026	148	0.697	-3.1	8.3	6.761
104	0.656	-3.7	7.7	5.888	149	0.698	-3.1	8.3	6.761
105	0.653	-3.7	7.7	5.888	150	0.700	-3.1	8.3	6.761
106	0.652	-3.7	7.7	5.888	151	0.701	-3.1	8.3	6.761
107	0.651	-3.7	7.7	5.888	152	0.702	-3.1	8.3	6.761
108	0.651	-3.7	7.7	5.888	153	0.702	-3.1	8.3	6.761
109	0.650	-3.7	7.7	5.888	154	0.703	-3.1	8.3	6.761
110	0.649	-3.8	7.6	5.754	155	0.704	-3.0	8.4	6.918
111	0.649	-3.8	7.6	5.754	156	0.705	-3.0	8.4	6.918
112	0.649	-3.8	7.6	5.754	157	0.706	-3.0	8.4	6.918
113	0.649	-3.8	7.6	5.754	158	0.706	-3.0	8.4	6.918
114	0.649	-3.8	7.6	5.754	159	0.707	-3.0	8.4	6.918
115	0.649	-3.8	7.6	5.754	160	0.708	-3.0	8.4	6.918
116	0.651	-3.7	7.7	5.888	161	0.709	-3.0	8.4	6.918
117	0.652	-3.7	7.7	5.888	162	0.710	-3.0	8.4	6.918
118	0.654	-3.7	7.7	5.888	163	0.710	-3.0	8.4	6.918
119	0.655	-3.7	7.7	5.888	164	0.711	-3.0	8.4	6.918
120	0.657	-3.6	7.8	6.026	165	0.712	-3.0	8.4	6.918
121	0.659	-3.6	7.8	6.026	166	0.713	-2.9	8.5	7.079
122	0.660	-3.6	7.8	6.026	167	0.714	-2.9	8.5	7.079
123	0.662	-3.6	7.8	6.026	168	0.714	-2.9	8.5	7.079
124	0.663	-3.6	7.8	6.026	169	0.715	-2.9	8.5	7.079
125	0.665	-3.5	7.9	6.166	170	0.716	-2.9	8.5	7.079
126	0.666	-3.5	7.9	6.166	171	0.718	-2.9	8.5	7.079
127	0.666	-3.5	7.9	6.166	172	0.719	-2.9	8.5	7.079
128	0.667	-3.5	7.9	6.166	173	0.721	-2.8	8.6	7.244
129	0.667	-3.5	7.9	6.166	174	0.722	-2.8	8.6	7.244
130	0.668	-3.5	7.9	6.166	175	0.724	-2.8	8.6	7.244
131	0.669	-3.5	7.9	6.166	176	0.726	-2.8	8.6	7.244
132	0.670	-3.5	7.9	6.166	177	0.728	-2.8	8.6	7.244
133	0.670	-3.5	7.9	6.166	178	0.729	-2.7	8.7	7.413
134	0.671	-3.5	7.9	6.166	179	0.731	-2.7	8.7	7.413



ONE SL-8 PARASLOT OMNI ANTENNA
 CHANNEL 24
 ORIENTED AT 0 DEGREES
 MAXIMUM GAIN: 11.4 dBd

POWER MULTIPLIER: 13.8
 HORIZONTAL POLARIZATION
 HORIZONTAL RADIATION PATTERN

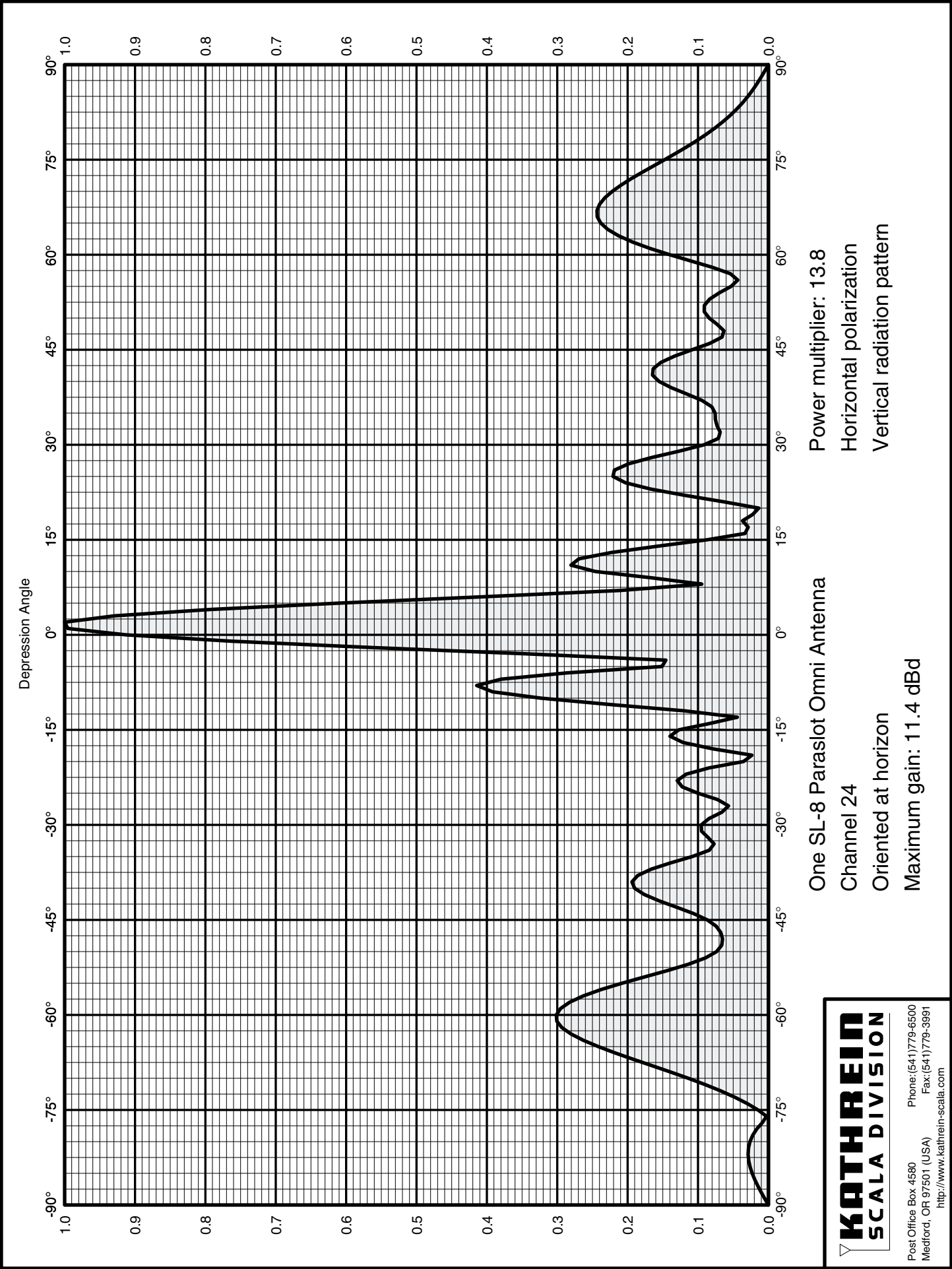
Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
180	0.733	-2.7	8.7	7.413	225	0.672	-3.5	7.9	6.166
181	0.731	-2.7	8.7	7.413	226	0.671	-3.5	7.9	6.166
182	0.729	-2.7	8.7	7.413	227	0.670	-3.5	7.9	6.166
183	0.728	-2.8	8.6	7.244	228	0.670	-3.5	7.9	6.166
184	0.726	-2.8	8.6	7.244	229	0.669	-3.5	7.9	6.166
185	0.724	-2.8	8.6	7.244	230	0.668	-3.5	7.9	6.166
186	0.722	-2.8	8.6	7.244	231	0.667	-3.5	7.9	6.166
187	0.721	-2.8	8.6	7.244	232	0.667	-3.5	7.9	6.166
188	0.719	-2.9	8.5	7.079	233	0.666	-3.5	7.9	6.166
189	0.718	-2.9	8.5	7.079	234	0.666	-3.5	7.9	6.166
190	0.716	-2.9	8.5	7.079	235	0.665	-3.5	7.9	6.166
191	0.715	-2.9	8.5	7.079	236	0.663	-3.6	7.8	6.026
192	0.714	-2.9	8.5	7.079	237	0.662	-3.6	7.8	6.026
193	0.714	-2.9	8.5	7.079	238	0.660	-3.6	7.8	6.026
194	0.713	-2.9	8.5	7.079	239	0.659	-3.6	7.8	6.026
195	0.712	-3.0	8.4	6.918	240	0.657	-3.6	7.8	6.026
196	0.711	-3.0	8.4	6.918	241	0.655	-3.7	7.7	5.888
197	0.710	-3.0	8.4	6.918	242	0.654	-3.7	7.7	5.888
198	0.710	-3.0	8.4	6.918	243	0.652	-3.7	7.7	5.888
199	0.709	-3.0	8.4	6.918	244	0.651	-3.7	7.7	5.888
200	0.708	-3.0	8.4	6.918	245	0.649	-3.8	7.6	5.754
201	0.707	-3.0	8.4	6.918	246	0.649	-3.8	7.6	5.754
202	0.706	-3.0	8.4	6.918	247	0.649	-3.8	7.6	5.754
203	0.706	-3.0	8.4	6.918	248	0.649	-3.8	7.6	5.754
204	0.705	-3.0	8.4	6.918	249	0.649	-3.8	7.6	5.754
205	0.704	-3.0	8.4	6.918	250	0.649	-3.8	7.6	5.754
206	0.703	-3.1	8.3	6.761	251	0.650	-3.7	7.7	5.888
207	0.702	-3.1	8.3	6.761	252	0.651	-3.7	7.7	5.888
208	0.702	-3.1	8.3	6.761	253	0.651	-3.7	7.7	5.888
209	0.701	-3.1	8.3	6.761	254	0.652	-3.7	7.7	5.888
210	0.700	-3.1	8.3	6.761	255	0.653	-3.7	7.7	5.888
211	0.698	-3.1	8.3	6.761	256	0.656	-3.7	7.7	5.888
212	0.697	-3.1	8.3	6.761	257	0.659	-3.6	7.8	6.026
213	0.695	-3.2	8.2	6.607	258	0.662	-3.6	7.8	6.026
214	0.694	-3.2	8.2	6.607	259	0.665	-3.5	7.9	6.166
215	0.692	-3.2	8.2	6.607	260	0.668	-3.5	7.9	6.166
216	0.690	-3.2	8.2	6.607	261	0.671	-3.5	7.9	6.166
217	0.689	-3.2	8.2	6.607	262	0.674	-3.4	8.0	6.310
218	0.687	-3.3	8.1	6.457	263	0.678	-3.4	8.0	6.310
219	0.686	-3.3	8.1	6.457	264	0.681	-3.3	8.1	6.457
220	0.684	-3.3	8.1	6.457	265	0.684	-3.3	8.1	6.457
221	0.682	-3.3	8.1	6.457	266	0.686	-3.3	8.1	6.457
222	0.679	-3.4	8.0	6.310	267	0.689	-3.2	8.2	6.607
223	0.677	-3.4	8.0	6.310	268	0.691	-3.2	8.2	6.607
224	0.674	-3.4	8.0	6.310	269	0.694	-3.2	8.2	6.607



ONE SL-8 PARASLOT OMNI ANTENNA
 CHANNEL 24
 ORIENTED AT 0 DEGREES
 MAXIMUM GAIN: 11.4 dBd

POWER MULTIPLIER: 13.8
 HORIZONTAL POLARIZATION
 HORIZONTAL RADIATION PATTERN

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
270	0.696	-3.1	8.3	6.761	315	0.933	-0.6	10.8	12.023
271	0.700	-3.1	8.3	6.761	316	0.937	-0.6	10.8	12.023
272	0.704	-3.0	8.4	6.918	317	0.942	-0.5	10.9	12.303
273	0.708	-3.0	8.4	6.918	318	0.946	-0.5	10.9	12.303
274	0.712	-3.0	8.4	6.918	319	0.951	-0.4	11.0	12.589
275	0.716	-2.9	8.5	7.079	320	0.955	-0.4	11.0	12.589
276	0.719	-2.9	8.5	7.079	321	0.957	-0.4	11.0	12.589
277	0.723	-2.8	8.6	7.244	322	0.959	-0.4	11.0	12.589
278	0.726	-2.8	8.6	7.244	323	0.962	-0.3	11.1	12.882
279	0.730	-2.7	8.7	7.413	324	0.964	-0.3	11.1	12.882
280	0.733	-2.7	8.7	7.413	325	0.966	-0.3	11.1	12.882
281	0.740	-2.6	8.8	7.586	326	0.968	-0.3	11.1	12.882
282	0.747	-2.5	8.9	7.762	327	0.970	-0.3	11.1	12.882
283	0.753	-2.5	8.9	7.762	328	0.973	-0.2	11.2	13.183
284	0.760	-2.4	9.0	7.943	329	0.975	-0.2	11.2	13.183
285	0.767	-2.3	9.1	8.128	330	0.977	-0.2	11.2	13.183
286	0.772	-2.2	9.2	8.318	331	0.979	-0.2	11.2	13.183
287	0.778	-2.2	9.2	8.318	332	0.982	-0.2	11.2	13.183
288	0.783	-2.1	9.3	8.511	333	0.984	-0.1	11.3	13.490
289	0.789	-2.1	9.3	8.511	334	0.987	-0.1	11.3	13.490
290	0.794	-2.0	9.4	8.710	335	0.989	-0.1	11.3	13.490
291	0.800	-1.9	9.5	8.913	336	0.991	-0.1	11.3	13.490
292	0.805	-1.9	9.5	8.913	337	0.993	-0.1	11.3	13.490
293	0.811	-1.8	9.6	9.120	338	0.996	0.0	11.4	13.804
294	0.816	-1.8	9.6	9.120	339	0.998	0.0	11.4	13.804
295	0.822	-1.7	9.7	9.333	340	1.000	0.0	11.4	13.804
296	0.830	-1.6	9.8	9.550	341	1.000	0.0	11.4	13.804
297	0.838	-1.5	9.9	9.772	342	1.000	0.0	11.4	13.804
298	0.845	-1.5	9.9	9.772	343	1.000	0.0	11.4	13.804
299	0.853	-1.4	10.0	10.000	344	1.000	0.0	11.4	13.804
300	0.861	-1.3	10.1	10.233	345	1.000	0.0	11.4	13.804
301	0.867	-1.2	10.2	10.471	346	1.000	0.0	11.4	13.804
302	0.873	-1.2	10.2	10.471	347	1.000	0.0	11.4	13.804
303	0.879	-1.1	10.3	10.715	348	1.000	0.0	11.4	13.804
304	0.885	-1.1	10.3	10.715	349	1.000	0.0	11.4	13.804
305	0.891	-1.0	10.4	10.965	350	1.000	0.0	11.4	13.804
306	0.895	-1.0	10.4	10.965	351	1.000	0.0	11.4	13.804
307	0.899	-0.9	10.5	11.220	352	1.000	0.0	11.4	13.804
308	0.904	-0.9	10.5	11.220	353	1.000	0.0	11.4	13.804
309	0.908	-0.8	10.6	11.482	354	1.000	0.0	11.4	13.804
310	0.912	-0.8	10.6	11.482	355	1.000	0.0	11.4	13.804
311	0.916	-0.8	10.6	11.482	356	1.000	0.0	11.4	13.804
312	0.920	-0.7	10.7	11.749	357	1.000	0.0	11.4	13.804
313	0.925	-0.7	10.7	11.749	358	1.000	0.0	11.4	13.804
314	0.929	-0.6	10.8	12.023	359	1.000	0.0	11.4	13.804



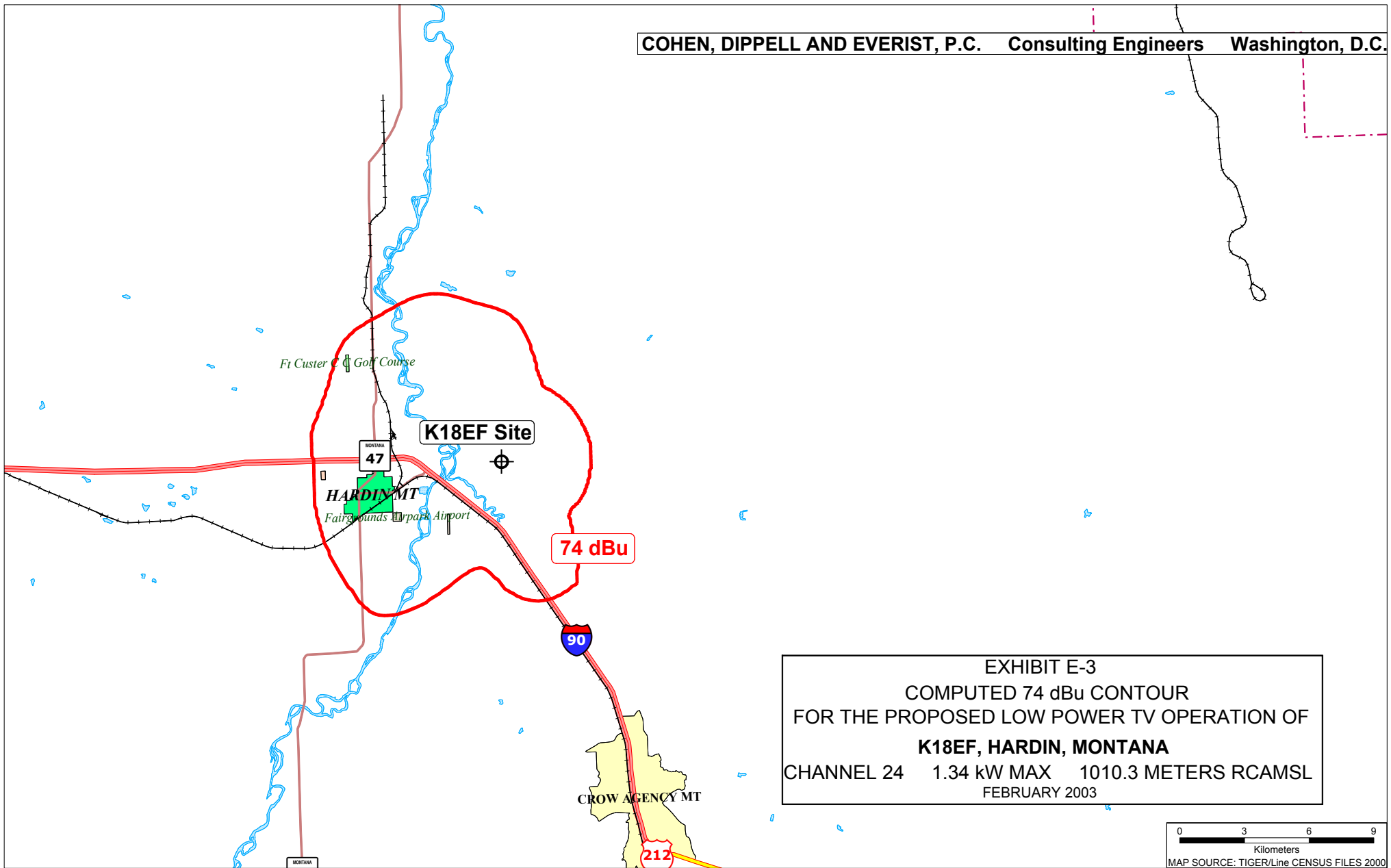
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One SL-8 Paraslot Omni Antenna
Channel 24
Oriented at horizon
Maximum gain: 11.4 dBd
Power multiplier: 13.8
Horizontal polarization
Vertical radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.000	-99.9	-88.5	0.000	-6	0.285	-10.9	0.5	1.122
-88	0.010	-39.8	-28.4	0.001	-4	0.146	-16.7	-5.3	0.295
-86	0.019	-34.3	-22.9	0.005	-2	0.565	-5.0	6.4	4.365
-84	0.026	-31.7	-20.3	0.009	0	0.913	-0.8	10.6	11.482
-82	0.029	-30.8	-19.4	0.011	2	1.000	0.0	11.4	13.804
-80	0.026	-31.6	-20.2	0.010	4	0.793	-2.0	9.4	8.710
-78	0.016	-35.7	-24.3	0.004	6	0.407	-7.8	3.6	2.291
-76	0.003	-51.7	-40.3	0.000	8	0.095	-20.5	-9.1	0.123
-74	0.030	-30.5	-19.1	0.012	10	0.246	-12.2	-0.8	0.832
-72	0.068	-23.4	-12.0	0.063	12	0.269	-11.4	0.0	1.000
-70	0.114	-18.9	-7.5	0.178	14	0.157	-16.1	-4.7	0.339
-68	0.166	-15.6	-4.2	0.380	16	0.033	-29.6	-18.2	0.015
-66	0.218	-13.2	-1.8	0.661	18	0.037	-28.7	-17.3	0.019
-64	0.263	-11.6	-0.2	0.955	20	0.014	-37.3	-25.9	0.003
-62	0.293	-10.6	0.8	1.202	22	0.118	-18.6	-7.2	0.191
-60	0.301	-10.4	1.0	1.259	24	0.203	-13.9	-2.5	0.562
-58	0.282	-11.0	0.4	1.096	26	0.219	-13.2	-1.8	0.661
-56	0.238	-12.5	-1.1	0.776	28	0.165	-15.6	-4.2	0.380
-54	0.176	-15.1	-3.7	0.427	30	0.091	-20.8	-9.4	0.115
-52	0.114	-18.9	-7.5	0.178	32	0.068	-23.3	-11.9	0.065
-50	0.074	-22.7	-11.3	0.074	34	0.075	-22.5	-11.1	0.078
-48	0.065	-23.7	-12.3	0.059	36	0.080	-21.9	-10.5	0.089
-46	0.074	-22.6	-11.2	0.076	38	0.116	-18.7	-7.3	0.186
-44	0.106	-19.5	-8.1	0.155	40	0.155	-16.2	-4.8	0.331
-42	0.155	-16.2	-4.8	0.331	42	0.164	-15.7	-4.3	0.372
-40	0.190	-14.4	-3.0	0.501	44	0.133	-17.5	-6.1	0.245
-38	0.186	-14.6	-3.2	0.479	46	0.083	-21.6	-10.2	0.095
-36	0.139	-17.1	-5.7	0.269	48	0.063	-24.0	-12.6	0.055
-34	0.084	-21.5	-10.1	0.098	50	0.084	-21.5	-10.1	0.098
-32	0.086	-21.4	-10.0	0.100	52	0.091	-20.8	-9.4	0.115
-30	0.095	-20.4	-9.0	0.126	54	0.070	-23.2	-11.8	0.066
-28	0.066	-23.6	-12.2	0.060	56	0.044	-27.2	-15.8	0.026
-26	0.072	-22.8	-11.4	0.072	58	0.079	-22.0	-10.6	0.087
-24	0.122	-18.2	-6.8	0.209	60	0.140	-17.1	-5.7	0.269
-22	0.117	-18.6	-7.2	0.191	62	0.193	-14.3	-2.9	0.513
-20	0.035	-29.0	-17.6	0.017	64	0.228	-12.8	-1.4	0.724
-18	0.079	-22.1	-10.7	0.085	66	0.243	-12.3	-0.9	0.813
-16	0.140	-17.1	-5.7	0.269	68	0.240	-12.4	-1.0	0.794
-14	0.084	-21.6	-10.2	0.095	70	0.222	-13.1	-1.7	0.676
-12	0.119	-18.5	-7.1	0.195	72	0.195	-14.2	-2.8	0.525
-10	0.323	-9.8	1.6	1.445	74	0.163	-15.7	-4.3	0.372
-8	0.414	-7.7	3.7	2.344	76	0.132	-17.6	-6.2	0.240
					78	0.102	-19.8	-8.4	0.145
					80	0.076	-22.4	-11.0	0.079
					82	0.054	-25.3	-13.9	0.041
					84	0.037	-28.8	-17.4	0.018
					86	0.022	-33.0	-21.6	0.007
					88	0.010	-39.6	-28.2	0.002
					90	0.000	-99.9	-88.5	0.000

KATHREIN
SCALA DIVISION

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Section III - Engineering

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1. Channel: _____

2. Frequency Offset:

☐

No offset

☐

Zero offset

☐

Plus offset

☐

Minus offset

3. Translator Input Channel No. _____

4. Primary station proposed to be rebroadcast:

Call Sign	City	State	Channel
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5. Antenna Location Coordinates: (NAD 27)

_____ ° _____ ' _____ " ☐ N ☐ S Latitude
_____ ° _____ ' _____ " ☐ E ☐ W Longitude

6. Antenna Structure Registration Number: _____

☐

Not applicable

☐

FAA Notification Filed with FAA

7. Antenna Location Site Elevation Above Mean Sea Level: _____ meters

8. Overall Tower Height Above Ground Level: _____ meters

9. Height of Radiation Center Above Ground Level: _____ meters

10. Maximum Effective Radiated Power (ERP) Towards Radio Horizon: _____ kW

11. Maximum ERP in any Horizontal and Vertical Angle: _____ kW

12. Transmitting Antenna: ☐ Nondirectional ☐ Directional "Off-the-shelf" ☐ Directional composite

Manufacturer	Model
--------------	-------

Directional Antenna Relative Field Values:

Rotation: _____ ° ☐ No rotation ☐ N/A (Nondirectional)

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0		60		120		180		240		300	
10		70		130		190		250		310	
20		80		140		200		260		320	
30		90		150		210		270		330	
40		100		160		220		280		340	
50		110		170		230		290		350	
Additional Azimuths											

NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

CERTIFICATION

13. **Interference.** The proposed facility complies with all of the following applicable rule sections. Check all those that apply. ☐ Yes ☐ No See Explanation in Exhibit No.

TV broadcast analog system protection.

- a. ☐ 47 C.F.R. Section 74.705.

Digital TV station protection.

- b. ☐ 47 C.F.R. Section 74.706.

Low Power TV and TV translator station protection.

- c. ☐ 47 C.F.R. Section 74.707.

14. **Environmental Protection Act.** The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306 (*i.e.*, the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance. An **Exhibit is required.** ☐ Yes ☐ No See Explanation in Exhibit No.

Exhibit No.

By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

PREPARER'S CERTIFICATION ON PAGE 6 MUST BE COMPLETED AND SIGNED.

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name		Relationship to Applicant (e.g., Consulting Engineer)	
Signature		Date	
Mailing Address			
City		State or Country (if foreign address)	ZIP Code
Telephone Number (include area code)		E-Mail Address (if available)	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001),
AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)),
AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).