

BENJAMIN F. DAWSON III, PE  
THOMAS M. ECKELS, PE  
STEPHEN S. LOCKWOOD, PE  
DAVID J. PINION, PE  
ERIK C. SWANSON, PE

THOMAS S. GORTON, PE  
MICHAEL H. MEHIGAN, PE

HATFIELD & DAWSON  
CONSULTING ELECTRICAL ENGINEERS  
9500 GREENWOOD AVE. N.  
SEATTLE, WASHINGTON 98103

TELEPHONE (206) 783-9151  
FACSIMILE (206) 789-9834  
E-MAIL [hatdaw@hatdaw.com](mailto:hatdaw@hatdaw.com)

JAMES B. HATFIELD, PE  
CONSULTANT

MAURY L. HATFIELD, PE  
(1942-2009)

PAUL W. LEONARD, PE  
(1925-2011)

## ENGINEERING REPORT

### APPLICATION for a NEW ANTENNA SITE

KIHM-AM  
920 kHz  
Reno, Nevada

Facility ID 53707

4.8 kW DAY, 0.85 kW NIGHT DA-N

IHR Educational Broadcasting, Inc.

April 2013

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Statement of Engineer

## Purpose of Application

This Engineering Report is part of an application by IHR Educational Broadcasting ("IHR") for a Construction Permit to relocate the transmitter site of KIHM-AM, Reno, Nevada. (Facility ID 53707)

The Regional Transportation Commission has notified IHR that the KIHM transmitter site, which is also used by KSGG-AM, would be condemned as part of a highway expansion project if IHR did not voluntarily agree to relocate. The proposed site for a new combined antenna system for KSGG and KIHM is located approximately 650 feet north of the presently licensed site.

## Allocation Considerations

### Daytime

The changes proposed for KIHM are minimal. The transmitter site is to be moved approximately 650 feet, while the RMS of the non-directional daytime antenna is reduced from 662.7 to 656.4 mV/m/km. The daytime allocation study maps included in this report show only the proposed KIHM contours, as the difference between the licensed and proposed contours is so slight as to be invisible at the map scales used. The allocation study contains no second or third adjacent channel maps, as there are no second adjacent facilities within 200 km, nor any third adjacent facilities within 90 km of Reno. All KIHM contours shown in this report are based on measured ground conductivity. Measurements of co-located KSGG (formerly KJFK) were taken by KIHM engineer Dale Harry in the spring of 2012 in preparation for the site change applications for the two stations. The same data is used for both the licensed and proposed operations of KIHM. Existing contour overlap is reduced by this proposal, as demonstrated in the table below. The daytime 5 mV/m contour will cover 96.7% of Reno, essentially unchanged from the coverage provided by the licensed operation.

Contour Overlap Reduction Showing  
Areas in km<sup>2</sup>

Station	Location	Licensed Received Overlap	Proposed Received Overlap	Licensed Caused Overlap	Proposed Caused Overlap
KVIN	Ceres, CA	3,691	3,641	11,936	11,752
KKXX	Paradise, CA	3,162	3,124	4,659	4,585
KKSF	Oakland, CA	457	433	366	338

Nighttime

The presently licensed nighttime operation of KIHM enters into the 25% RSS of the following stations:

KVIN Ceres, CA  
KVEL San Luis Obispo, CA  
KKSF Oakland, CA  
KBAD Las Vegas, NV  
KSHO Lebanon, OR  
KVEL Vernal, UT

The RSS contribution from KIHM toward each of these stations is reduced by this proposal, as demonstrated by the Site to Site RSS Calculations included in this application. This study includes calculations for all stations to which the proposed nighttime operation of KIHM will exceed the 10% RSS threshold, and calculations for both the licensed and proposed operations of KIHM for the stations listed above. The 9.7 mV/m NIF contour will cover 78% of Reno.

## Facilities Proposed

IHR proposes construction of a new two tower array for the diplexed operation of KIHM and KSGG. Both towers will be 240 feet in electrical height, 253 feet overall height above ground.

Waiver of §73.24(i) for both daytime and nighttime operation, as well as waiver of the so called “ratchet rule” provision of §73.182(q) are respectfully requested, and believed fully justified, given the de minimis nature of both the changes proposed and the deficiencies in coverage, and the fact that these changes are necessitated by a public works project beyond the control of the licensee.

## Blanketing Contour

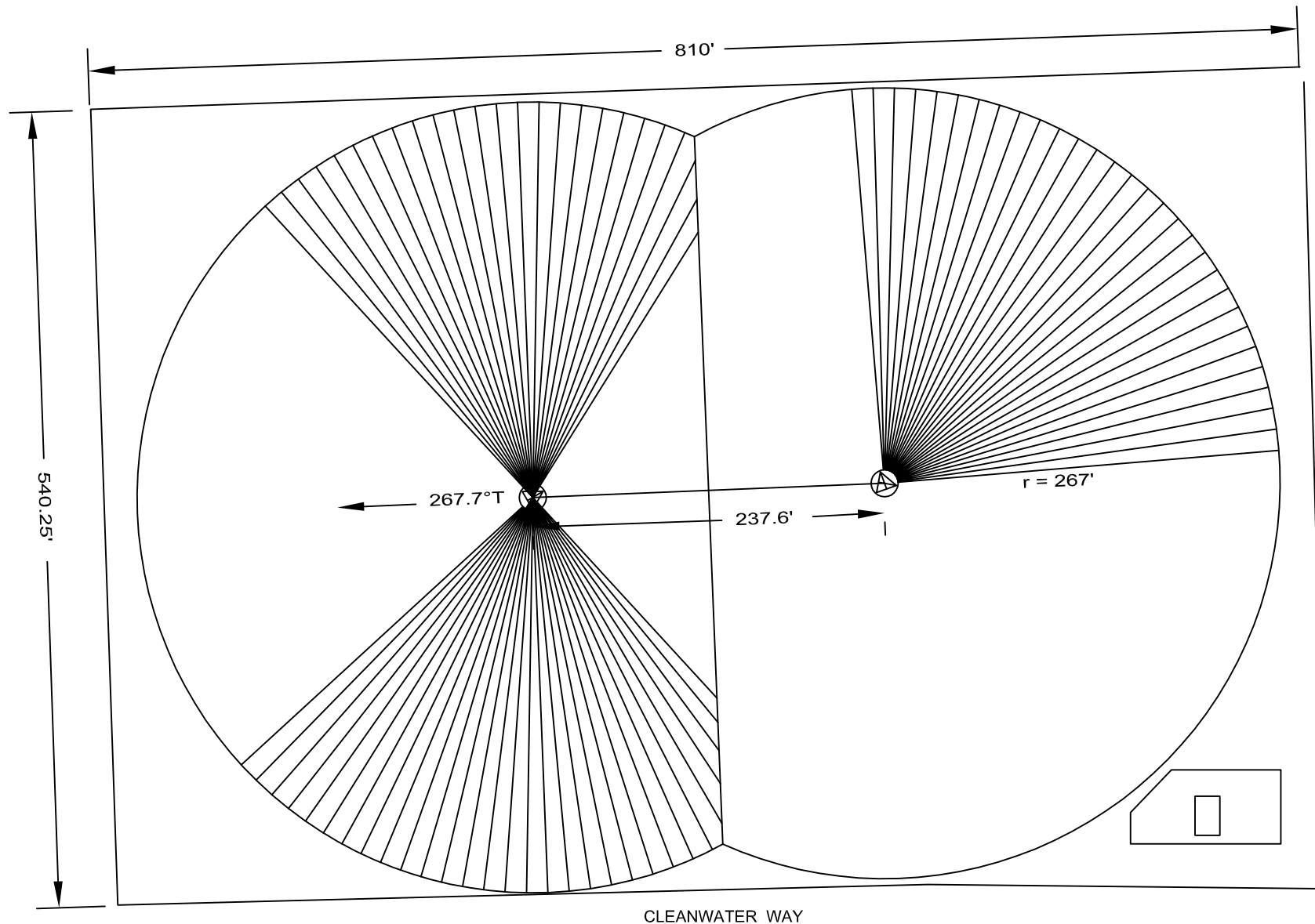
The area within the proposed 1 V/m contours is unpopulated, thus meeting the requirements of §73.24(g).

## Main Studio

The KIHM studios are located at 3256 Penryn Road, Suite 100, Loomis, CA. IHR was granted a main studio waiver in 2009, file number 20070305ADN.

## Antenna Tower Access

Antenna tower access will be restricted by fences with locked gates that will be least 2 meters from the antenna bases, as required by OET-65. The antennas will be posted with warning signs, and all station personnel and contractors will be required to follow appropriate safety procedures before any work is commenced on the antenna towers, including reduction in power or discontinuance of operation before any maintenance work is undertaken.



Bob Allen, H&D

4/2/2013 2:11 PM

KSGG KIHM gnd.dwg

0 FEET 50 100 200

**HATFIELD & DAWSON**  
CONSULTING ENGINEERS

**EXHIBIT 13-1**  
**GROUND SYSTEM DIAGRAM**

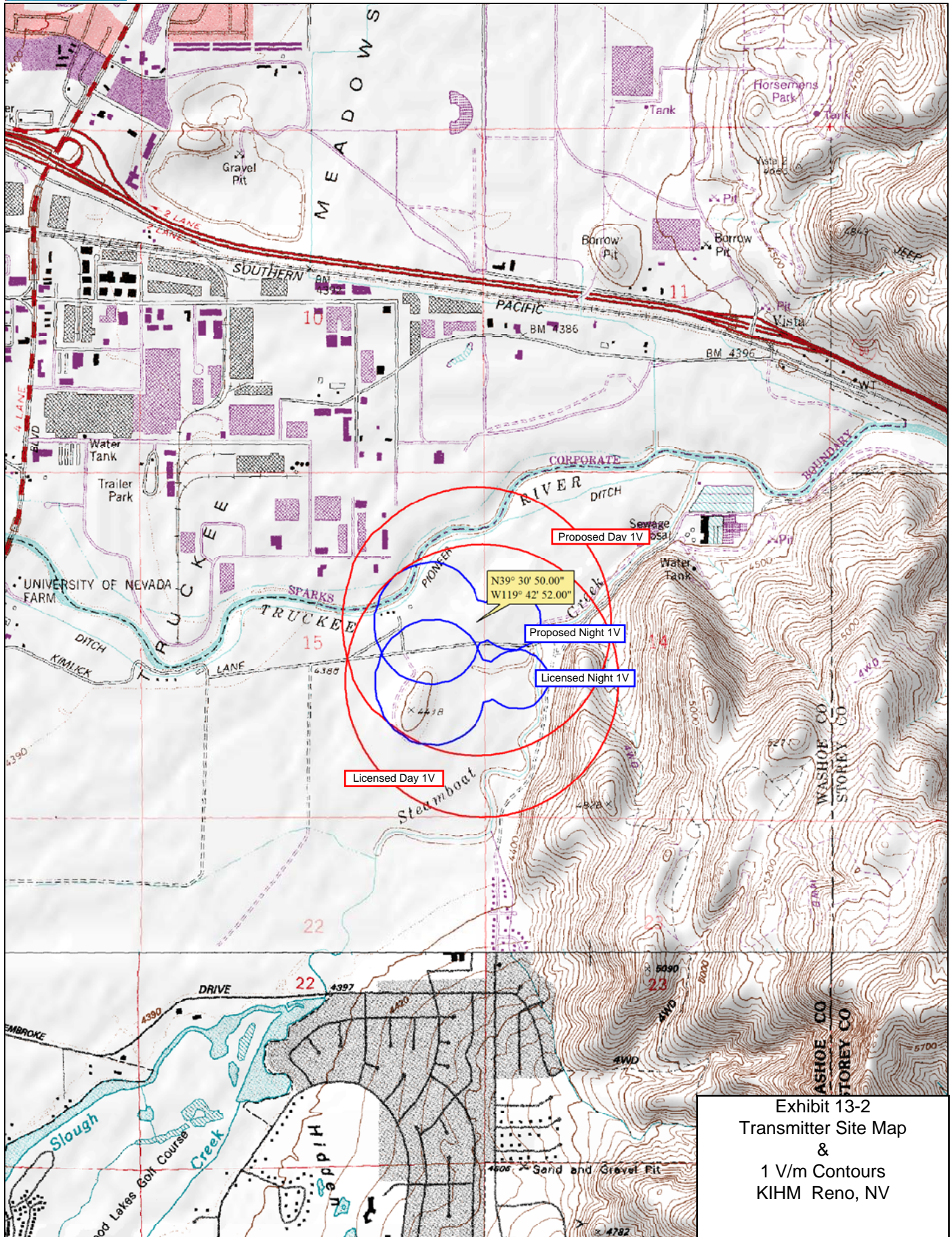
KSGG / KIHM

RENO, NV

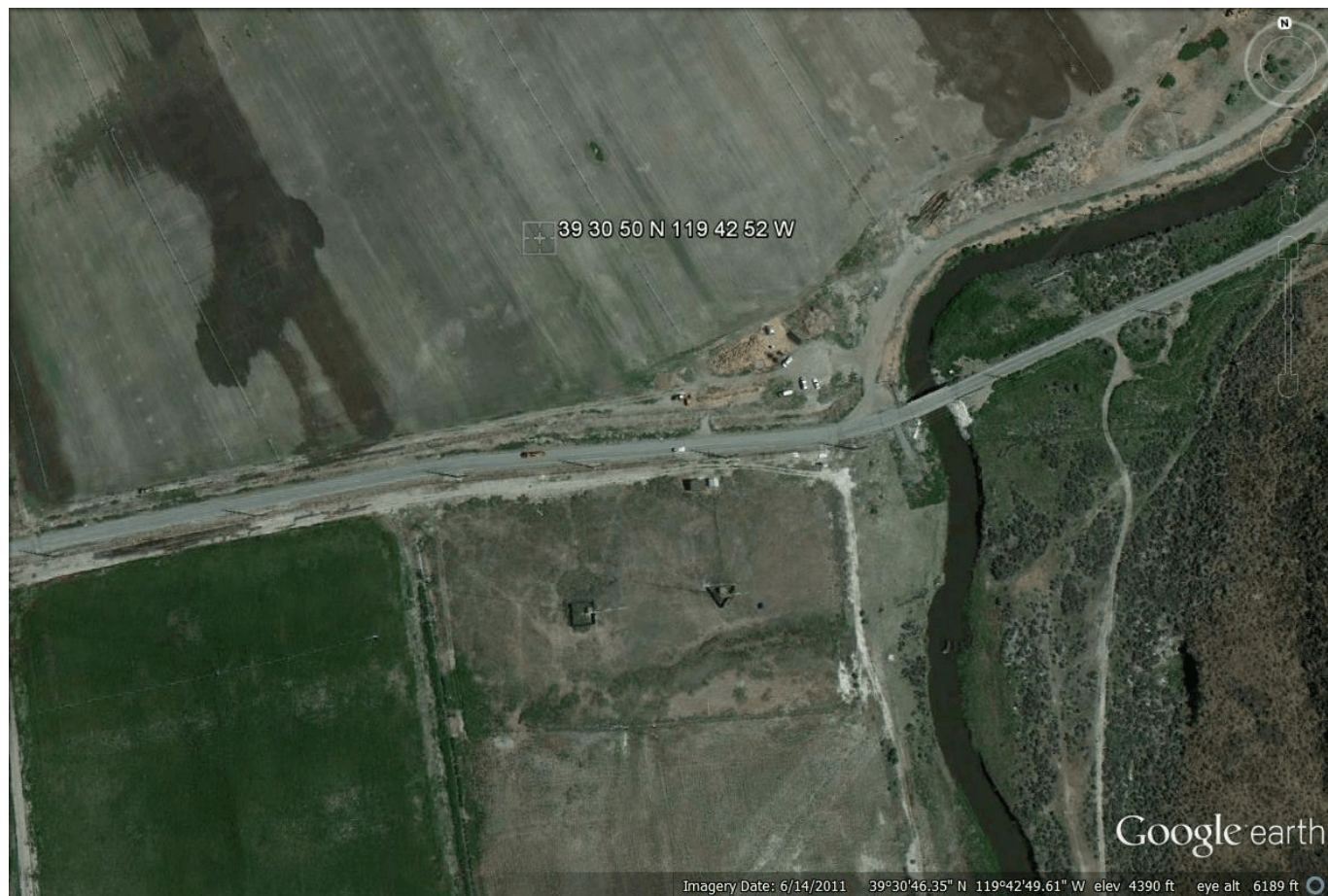
04/2013

GROUND SYSTEM CONSISTS OF 120 #10 COPPER  
RADIALS SPACED EVERY THREE DEGREES ABOUT  
TOWER BASES 267' IN LENGTH EXCEPT WHERE  
INTERSECTING COMMON CHORD BETWEEN TOWERS.









NOTE: COORDINATES ARE NAD 83

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CONSULTING ENGINEERS

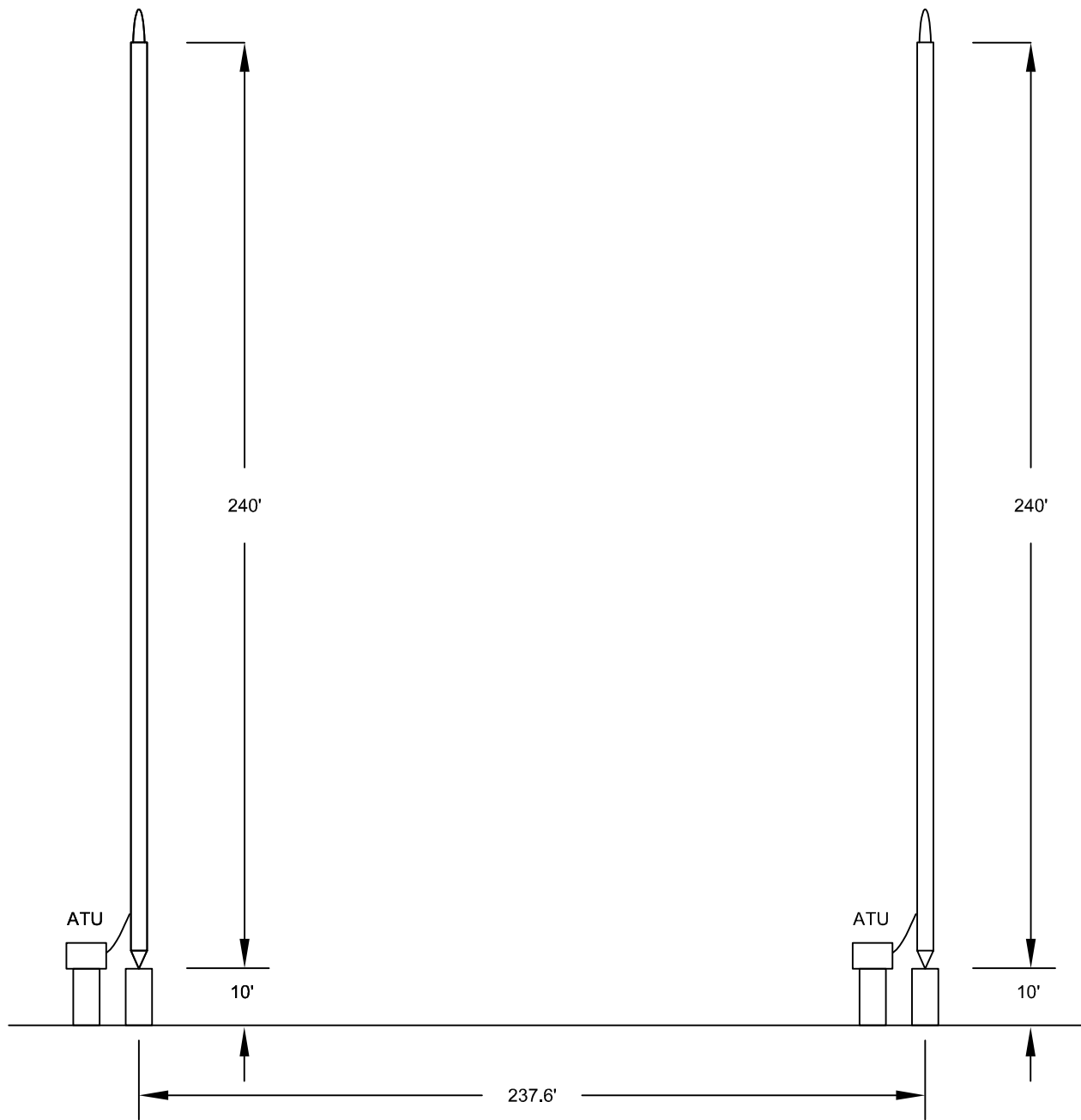
KIHM(AM)

EXHIBIT 13-3  
TRANSMITTER SITE PHOTO

RENO, NV

04/2013





SCALE APPROXIMATE  
NOT FOR CONSTRUCTION

Bob Allen, H&D

4/2/2013 2:55 PM

KSGG KIHM TOWER.dwg

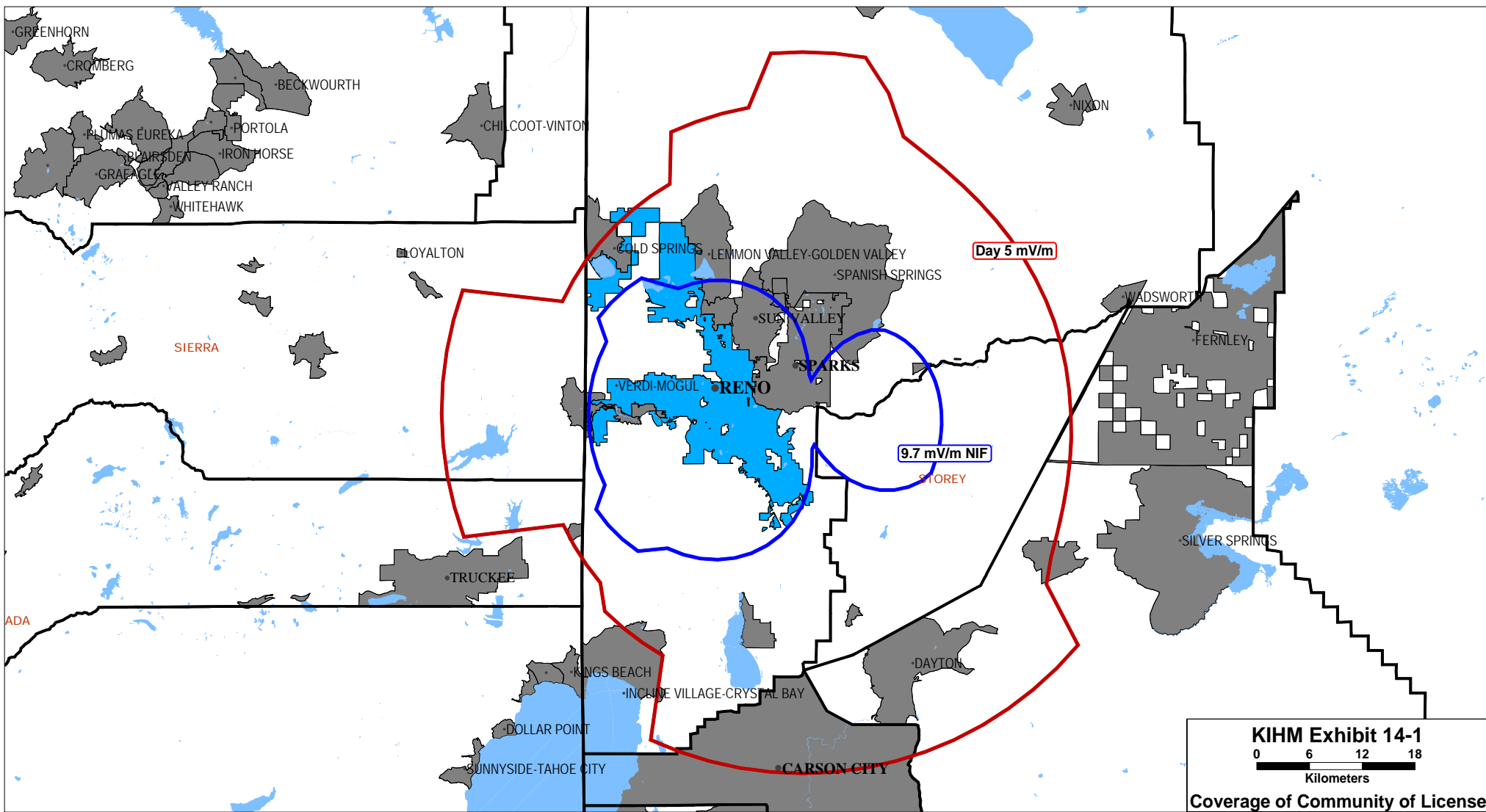
**HATFIELD & DAWSON**  
CONSULTING ENGINEERS

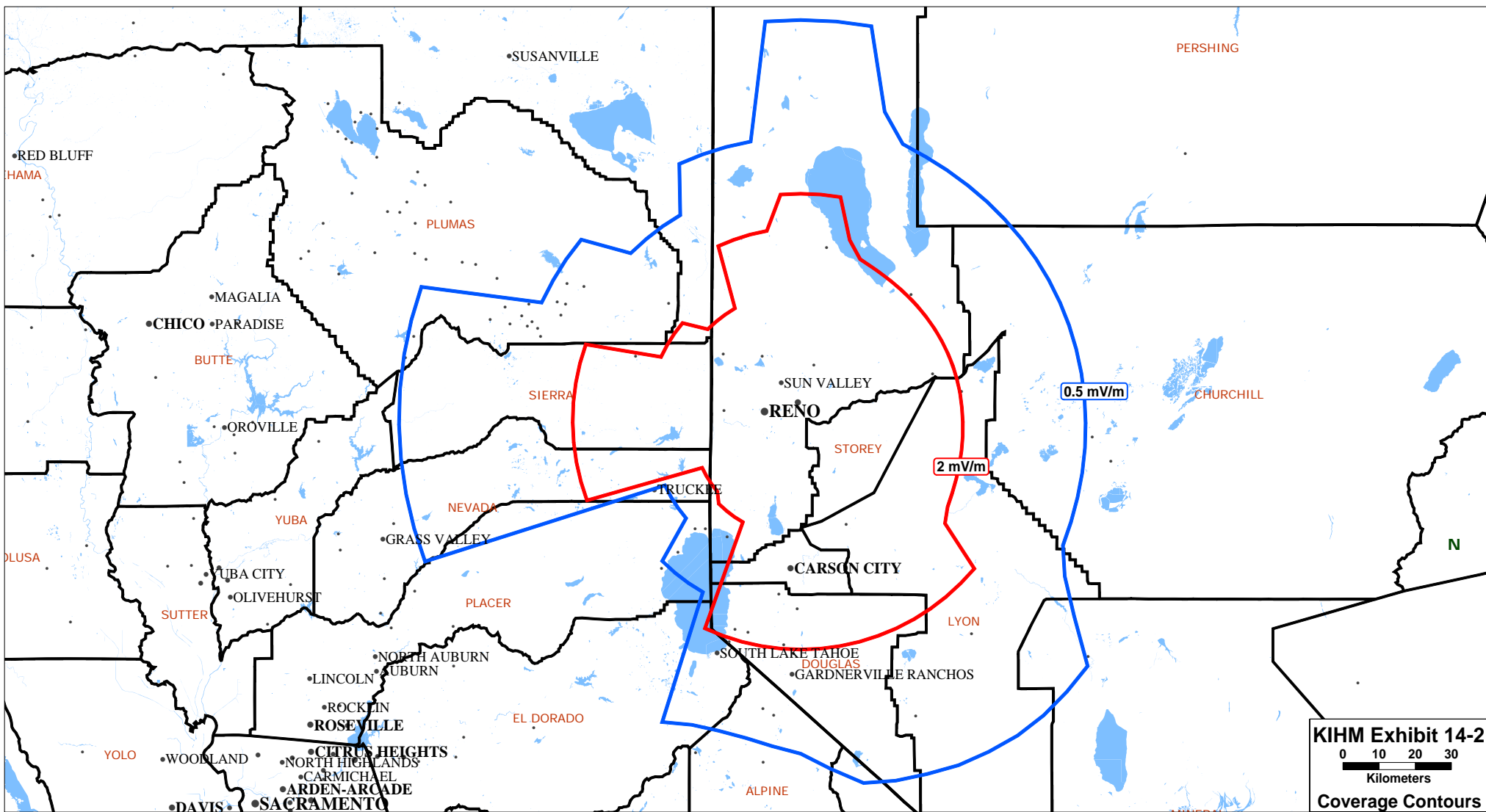
EXHIBIT 13-4 VERTICAL SKETCH PLAN  
KSGG (1230 kHz) & KIHM (920 kHz)

KSGG / KIHM

RENO, NV

04/2013





KIHM

Freq: 920 kHz

Class: B

Latitude: 39-30-50 N

Longitude: 119-42-52 W

Power: 4.8 kW

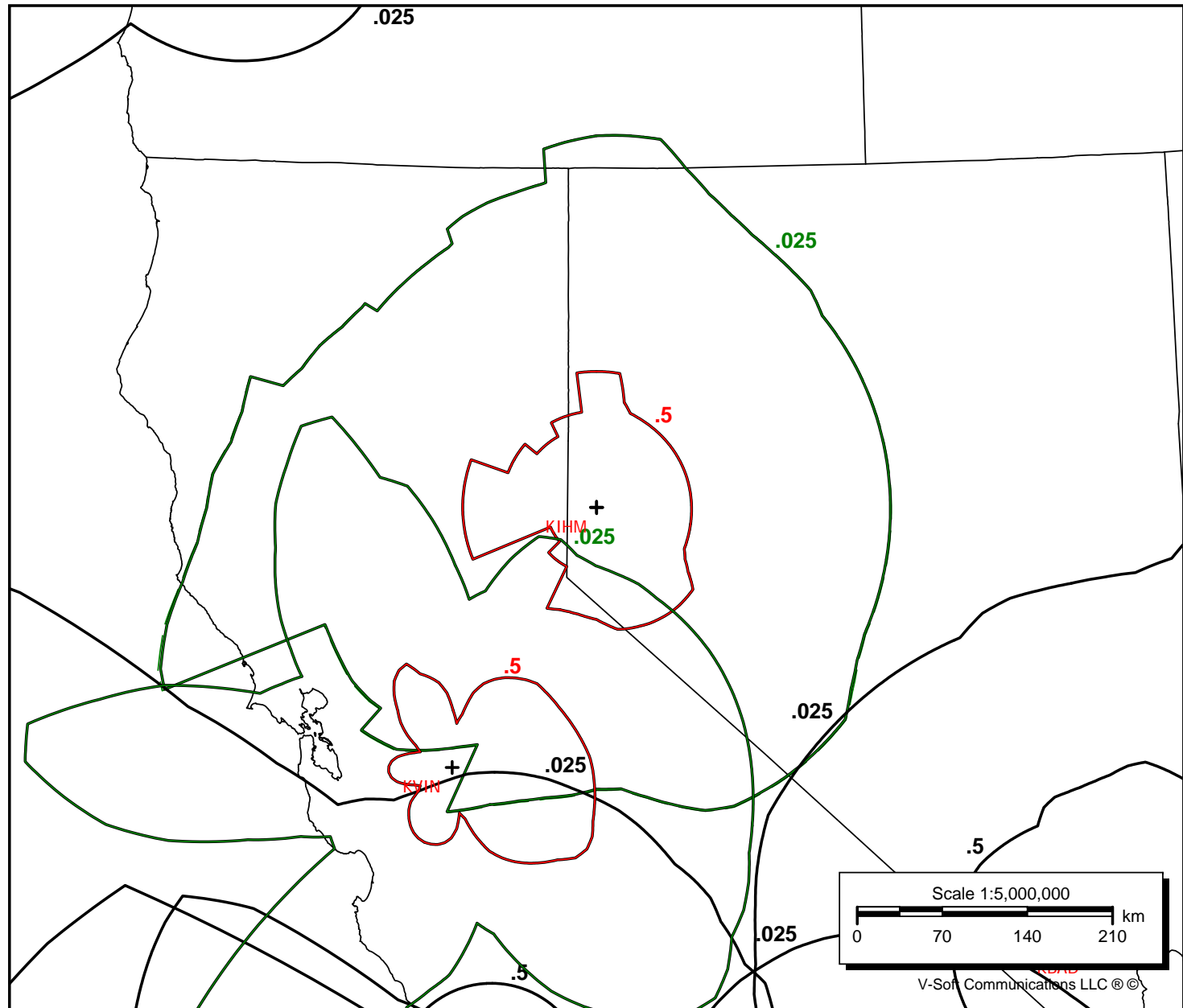
RMS: 299.606 mV/m @1km

# Towers: 1

# Aucs: 0

Co-Channel  
Allocation Study

KIHM  
Reno, NV



KIHM

Freq: 920 kHz

Class: B

Latitude: 39-30-50 N

Longitude: 119-42-52 W

Power: 4.8 kW

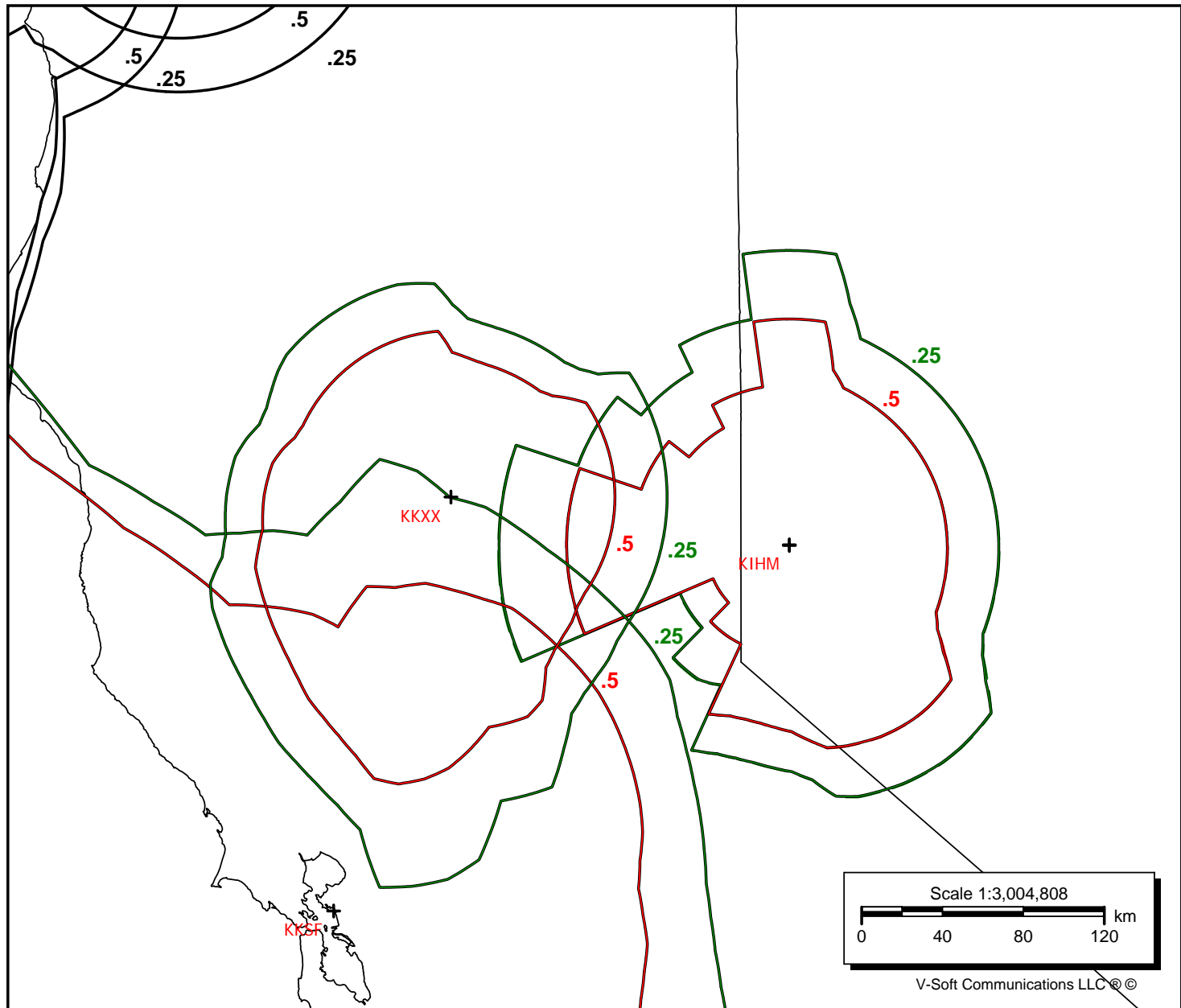
RMS: 299.606 mV/m @1km

# Towers: 1

# Augs: 0

1st-Adjacent Channel  
Allocation Study

KIHM  
Reno, NV





## Site to Site RSS Calculations

### KIHM Reno, NV

Call: KVIN  
 Freq: 920 kHz  
 CERES, CA, US  
 Hours: N  
 Lat: 37-37-55 N  
 Lng: 120-45-06 W  
 Power: 2.5 kW  
 Theo RMS: 449.23 mV/m @ 1km @ 2.5 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
<b>KIHM-LIC0920</b>	<b>RENO</b>		<b>NV</b>	<b>US</b>	<b>227.6</b>	<b>203.7</b>	<b>31.8</b>	<b>45.9</b>	<b>230.32</b>	<b>271.95</b>	<b>12.527</b>	<b>100.0</b>	<b>12.527</b>
KVEC	0920	SAN LUIS OBISPO	CA	US	259.4	358.5	28.4	42.1	171.73	243.61	8.367	66.8	15.065
KBAD	0920	LAS VEGAS	NV	US	520.8	289.6	14.3	23.5	283.98	115.24	6.545	43.4	16.425
KXLY	0920	SPOKANE	WA	US	1142.8	195.2	4.6	9.2	781.00	32.03	5.002	30.5	17.170
KSHO	0920	LEBANON	OR	US	792.9	166.0	8.5	15.0	289.88	61.41	3.560	20.7	17.535
KPSI	0920	PALM SPRINGS	CA	US	568.8	318.7	12.9	21.5	148.38	103.33	3.066	17.5	17.801
XEBH/A	0920	HERMOSILLO	SO	MX	1321.0	318.8	3.2	7.3	308.25	30.24	1.864	10.5	17.899

Hatfield & Dawson Consulting Engineers

Call: KVIN  
 Freq: 920 kHz  
 CERES, CA, US  
 Hours: N  
 Lat: 37-37-55 N  
 Lng: 120-45-06 W  
 Power: 2.5 kW  
 Theo RMS: 449.23 mV/m @ 1km @ 2.5 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
<b>KIHM-PRO0920</b>	<b>0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>	<b>227.8</b>	<b>203.6</b>	<b>31.8</b>	<b>45.8</b>	<b>225.97</b>	<b>271.73</b>	<b>12.280</b>	<b>100.0</b>	<b>12.280</b>
KVEC	0920	SAN LUIS OBISPO	CA	US	259.4	358.5	28.4	42.1	171.73	243.61	8.367	68.1	14.860
KBAD	0920	LAS VEGAS	NV	US	520.8	289.6	14.3	23.5	283.98	115.24	6.545	44.0	16.237
KXLY	0920	SPOKANE	WA	US	1142.8	195.2	4.6	9.2	781.00	32.03	5.002	30.8	16.991
KSHO	0920	LEBANON	OR	US	792.9	166.0	8.5	15.0	289.88	61.41	3.560	21.0	17.360
KPSI	0920	PALM SPRINGS	CA	US	568.8	318.7	12.9	21.5	148.38	103.33	3.066	17.7	17.628
XEBH/A	0920	HERMOSILLO	SO	MX	1321.0	318.8	3.2	7.3	308.25	30.24	1.864	10.6	17.727

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Call: KVEC  
 Freq: 920 kHz  
 SAN LUIS OBISPO, CA, US  
 Hours: N  
 Lat: 35-17-58 N  
 Lng: 120-40-24 W  
 Power: 0.5 kW  
 Theo RMS: 288.07 mV/m @ 1km @ 1kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta Min (deg)	Max (deg)	Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	(%)	RSS Limit (mV/m)
<b>KIHM-LIC0920</b>	<b>RENO</b>		<b>NV</b>	<b>US</b>	<b>475.9</b>	<b>190.5</b>	<b>15.8</b>	<b>25.6</b>	<b>207.92</b>	<b>129.02</b>	<b>5.365</b>	<b>100.0</b>	<b>5.365</b>
KPSI	0920	PALM SPRINGS	CA	US	414.7	293.9	18.2	29.0	122.44	152.13	3.726	69.4	6.532
KXLY	0920	SPOKANE	WA	US	1395.5	192.5	2.7	6.6	785.65	23.36	3.671	56.2	7.493
KBAD	0920	LAS VEGAS	NV	US	505.7	260.3	14.7	24.1	134.62	120.05	3.232	43.1	8.160
KSHO	0920	LEBANON	OR	US	1048.8	168.7	5.4	10.5	308.80	40.35	2.492	30.5	8.532
XESDA/A	0920	ENSENADA	BN	MX	532.7	316.8	13.9	23.0	105.63	112.66	2.380	27.9	8.858
XEBH/A	0920	HERMOSILLO	SO	MX	1152.5	309.6	4.5	9.1	307.56	38.23	2.352	26.6	9.165
KKSF	0910	OAKLAND	CA	US	324.1	152.5	23.2	35.7	488.64	198.42	1.939	21.2	9.368
KVIN	0920	CERES	CA	US	259.4	178.4	28.4	42.1	39.62	243.61	1.931	20.6	9.565
KQBU	0920	EL PASO	TX	US	1382.0	290.5	2.8	6.7	275.71	27.85	1.536	16.1	9.687
KARN	0920	LITTLE ROCK	AR	US	2579.6	279.5	0.0	0.0	902.70	8.22	1.485	15.3	9.800
KVEL	0920	VERNAL	UT	US	1134.1	243.0	4.7	9.3	176.75	36.08	1.276	13.0	9.883
KHJ	0930	LOS ANGELES	CA	US	258.9	302.1	28.5	42.1	235.84	242.51	1.144	11.6	9.949

Hatfield & Dawson Consulting Engineers

Call: KVEC  
 Freq: 920 kHz  
 SAN LUIS OBISPO, CA, US  
 Hours: N  
 Lat: 35-17-58 N  
 Lng: 120-40-24 W  
 Power: 0.5 kW  
 Theo RMS: 288.07 mV/m @ 1km @ 1kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
<b>KIHM-PRO0920</b>	<b>RENO</b>		<b>NV</b>	<b>US</b>	<b>476.1</b>	<b>190.5</b>	<b>15.7</b>	<b>25.6</b>	<b>205.57</b>	<b>128.93</b>	<b>5.301</b>	<b>100.0</b>	<b>5.301</b>
KPSI	0920	PALM SPRINGS	CA	US	414.7	293.9	18.2	29.0	122.44	152.13	3.726	70.3	6.479
KXLY	0920	SPOKANE	WA	US	1395.5	192.5	2.7	6.6	785.65	23.36	3.671	56.7	7.447
KBAD	0920	LAS VEGAS	NV	US	505.7	260.3	14.7	24.1	134.62	120.05	3.232	43.4	8.118
KSHO	0920	LEBANON	OR	US	1048.8	168.7	5.4	10.5	308.80	40.35	2.492	30.7	8.492
XESDA/A	0920	ENSENADA	BN	MX	532.7	316.8	13.9	23.0	105.63	112.66	2.380	28.0	8.819
XEBH/A	0920	HERMOSILLO	SO	MX	1152.5	309.6	4.5	9.1	307.56	38.23	2.352	26.7	9.127
KKSF	0910	OAKLAND	CA	US	324.1	152.5	23.2	35.7	488.64	198.42	1.939	21.2	9.331
KVIN	0920	CERES	CA	US	259.4	178.4	28.4	42.1	39.62	243.61	1.931	20.7	9.529
KQBU	0920	EL PASO	TX	US	1382.0	290.5	2.8	6.7	275.71	27.85	1.536	16.1	9.652
KARN	0920	LITTLE ROCK	AR	US	2579.6	279.5	0.0	0.0	902.70	8.22	1.485	15.4	9.765
KVEL	0920	VERNAL	UT	US	1134.1	243.0	4.7	9.3	176.75	36.08	1.276	13.1	9.848
KHJ	0930	LOS ANGELES	CA	US	258.9	302.1	28.5	42.1	235.84	242.51	1.144	11.6	9.914

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Call: KKSF  
 Freq: 910 kHz  
 OAKLAND, CA, US  
 Hours: N  
 Lat: 37-53-45 N  
 Lng: 122-19-25 W  
 Power: 5.0 kW  
 Theo RMS: 653.40 mV/m @ 1km @ 5.0 kW  
 # of Augmentations: 19

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KVIN	0920	CERES	CA	US	141.2	282.5	45.2	59.1	417.03	360.30	3.005	100.0	3.005
<b>KIHM</b>	<b>LIC0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>	<b>289.0</b>	<b>232.4</b>	<b>25.8</b>	<b>38.9</b>	<b>370.92</b>	<b>221.90</b>	<b>1.646</b>	<b>54.8</b>	<b>3.426</b>
XEAO/A	0910	MEXICALI	BN	MX	850.4	315.3	7.7	13.8	128.82	59.15	1.524	44.5	3.750
KBIF	0900	FRESNO	CA	US	269.5	300.6	27.5	41.0	267.51	236.23	1.264	33.7	3.957
KPOF	0910	DENVER	CO	US	1509.9	267.3	2.0	5.6	292.64	21.20	1.241	31.4	4.147
HJMY-A	0910	RAD INSULAR		CO	4901.7	312.4	0.0	0.0	1694.98	3.10	1.051	25.3	4.278
KGME	0910	PHOENIX	AZ	US	1040.0	300.7	5.5	10.6	120.61	43.20	1.042	24.4	4.403
KKSN	0910	VANCOUVER	WA	US	852.0	179.1	7.7	13.7	91.47	54.36	0.994	22.6	4.514
KOXR	0910	OXNARD	CA	US	493.7	325.4	15.1	24.7	38.38	123.72	0.950	21.0	4.613
KWDZ	0910	SALT LAKE CITY	UT	US	934.6	255.2	6.6	12.2	95.69	48.43	0.927	20.1	4.705
XEW1/A	0900	MEXICO CITY	DF	MX	3048.9	317.5	0.0	0.0	5724.20	7.69	0.881	18.7	4.787
KECR	0910	EL CAJON	CA	US	740.3	320.2	9.3	16.2	59.66	72.29	0.863	18.0	4.864
KRIO	0910	MCALLEN	TX	US	2600.3	305.7	0.0	0.0	467.36	9.10	0.850	17.5	4.938
KRAK	0910	HESPERIA	CA	US	589.9	312.8	12.4	20.7	40.22	98.42	0.792	16.0	5.001
KVEC	0920	SAN LUIS OBISPO	CA	US	324.1	333.5	23.2	35.7	181.86	198.42	0.722	14.4	5.053
XENAY1/A	0910	BUCERIAS	NA	MX	2514.1	323.0	0.0	0.0	304.33	11.05	0.672	13.3	5.097
XEMST/A	0910	MASCOTA	JA	MX	2565.1	322.6	0.0	0.0	294.51	10.67	0.628	12.3	5.136
XENVA2/A	0910	NOGALES	SO	MX	1269.3	308.3	3.6	7.8	96.33	31.80	0.613	11.9	5.172

Hatfield & Dawson Consulting Engineers



Call: KKSF  
 Freq: 910 kHz  
 OAKLAND, CA, US  
 Hours: N  
 Lat: 37-53-45 N  
 Lng: 122-19-25 W  
 Power: 5.0 kW  
 Theo RMS: 653.40 mV/m @ 1km @ 5.0 kW  
 # of Augmentations: 19

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KVIN	0920	CERES	CA	US	141.2	282.5	45.2	59.1	417.03	360.30	3.005	100.0	3.005
<b>KIHM-PRO</b>	<b>0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>	<b>289.1</b>	<b>232.3</b>	<b>25.8</b>	<b>38.9</b>	<b>359.00</b>	<b>221.79</b>	<b>1.592</b>	<b>53.0</b>	<b>3.401</b>
XEAO/A	0910	MEXICALI	BN	MX	850.4	315.3	7.7	13.8	128.82	59.15	1.524	44.8	3.727
KBIF	0900	FRESNO	CA	US	269.5	300.6	27.5	41.0	267.51	236.23	1.264	33.9	3.935
KPOF	0910	DENVER	CO	US	1509.9	267.3	2.0	5.6	292.64	21.20	1.241	31.5	4.126
HJMY-A	0910	RAD INSULAR		CO	4901.7	312.4	0.0	0.0	1694.98	3.10	1.051	25.5	4.258
KGME	0910	PHOENIX	AZ	US	1040.0	300.7	5.5	10.6	120.61	43.20	1.042	24.5	4.384
KKSN	0910	VANCOUVER	WA	US	852.0	179.1	7.7	13.7	91.47	54.36	0.994	22.7	4.495
KOXR	0910	OXNARD	CA	US	493.7	325.4	15.1	24.7	38.38	123.72	0.950	21.1	4.594
KWDZ	0910	SALT LAKE CITY	UT	US	934.6	255.2	6.6	12.2	95.69	48.43	0.927	20.2	4.687
XEW1/A	0900	MEXICO CITY	DF	MX	3048.9	317.5	0.0	0.0	5724.20	7.69	0.881	18.8	4.769
KECR	0910	EL CAJON	CA	US	740.3	320.2	9.3	16.2	59.66	72.29	0.863	18.1	4.846
KRIO	0910	MCALLEN	TX	US	2600.3	305.7	0.0	0.0	467.36	9.10	0.850	17.5	4.920
KRAK	0910	HESPERIA	CA	US	589.9	312.8	12.4	20.7	40.22	98.42	0.792	16.1	4.983
KVEC	0920	SAN LUIS OBISPO	CA	US	324.1	333.5	23.2	35.7	181.86	198.42	0.722	14.5	5.035
XENAY1/A	0910	BUCERIAS	NA	MX	2514.1	323.0	0.0	0.0	304.33	11.05	0.672	13.4	5.080
XEMST/A	0910	MASCOTA	JA	MX	2565.1	322.6	0.0	0.0	294.51	10.67	0.628	12.4	5.119
XENVA2/A	0910	NOGALES	SO	MX	1269.3	308.3	3.6	7.8	96.33	31.80	0.613	12.0	5.155

Hatfield & Dawson Consulting Engineers

Call: KBAD  
 Freq: 920 kHz  
 LAS VEGAS, NV, US  
 Hours: N  
 Lat: 36-11-25 N  
 Lng: 115-10-35 W  
 Power: 0.5 kW - Custom Q Value Used: 10.0  
 Theo RMS: 206.20 mV/m @ 1km @ 0.5 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KVEC	0920	SAN LUIS OBISPO	CA	US	505.7	77.1	14.7	24.1	194.67	120.05	4.674	100.0	4.674
KPSI	0920	PALM SPRINGS	CA	US	285.7	24.5	26.1	39.3	96.24	223.39	4.300	92.0	6.351
KXLY	0920	SPOKANE	WA	US	1282.3	171.1	3.5	7.7	783.98	26.29	4.123	64.9	7.572
<b>KIHM-LIC0920</b>	<b>0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>	<b>543.0</b>	<b>131.4</b>	<b>13.6</b>	<b>22.5</b>	<b>184.48</b>	<b>108.53</b>	<b>4.004</b>	<b>52.9</b>	<b>8.566</b>
XEBH/A	0920	HERMOSILLO	SO	MX	889.1	334.3	7.2	13.0	305.40	55.98	3.419	39.9	9.223
KVEL	0920	VERNAL	UT	US	686.2	227.6	10.3	17.6	212.46	77.57	3.296	35.7	9.794
KQBU	0920	EL PASO	TX	US	950.3	303.8	6.5	12.0	287.96	50.07	2.883	29.4	10.210
XESDA/A	0920	ENSENADA	BN	MX	499.5	15.5	14.9	24.4	105.07	122.06	2.565	25.1	10.527
KARN	0920	LITTLE ROCK	AR	US	2077.1	281.0	0.0	1.9	887.43	12.35	2.192	20.8	10.753
KVIN	0920	CERES	CA	US	520.8	106.2	14.3	23.5	94.33	115.24	2.174	20.2	10.971
KFLB	0920	ODESSA	TX	US	1270.1	296.0	3.6	7.8	271.86	31.48	1.712	15.6	11.103
KLMR	0920	LAMAR	CO	US	1132.0	263.0	4.7	9.4	220.78	35.98	1.589	14.3	11.216
XEQD/A	0920	EJIDO ROBINSON	CH	MX	1204.6	316.6	4.1	8.5	172.26	35.12	1.210	10.8	11.281
KYST	0920	TEXAS CITY	TX	US	2030.8	297.0	0.0	2.1	415.22	14.04	1.166	10.3	11.342

Hatfield & Dawson Consulting Engineers

Call: KBAD  
 Freq: 920 kHz  
 LAS VEGAS, NV, US  
 Hours: N  
 Lat: 36-11-25 N  
 Lng: 115-10-35 W  
 Power: 0.5 kW - Custom Q Value Used: 10.0  
 Theo RMS: 206.20 mV/m @ 1km @ 0.5 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KVEC	0920	SAN LUIS OBISPO	CA	US	505.7	77.1	14.7	24.1	194.67	120.05	4.674	100.0	4.674
KPSI	0920	PALM SPRINGS	CA	US	285.7	24.5	26.1	39.3	96.24	223.39	4.300	92.0	6.351
KXLY	0920	SPOKANE	WA	US	1282.3	171.1	3.5	7.7	783.98	26.29	4.123	64.9	7.572
<b>KIHM-PRO0920</b>	<b>RENO</b>		<b>NV</b>	<b>US</b>	<b>543.2</b>	<b>131.4</b>	<b>13.6</b>	<b>22.5</b>	<b>183.82</b>	<b>108.48</b>	<b>3.988</b>	<b>52.7</b>	<b>8.558</b>
XEBH/A	0920	HERMOSILLO	SO	MX	889.1	334.3	7.2	13.0	305.40	55.98	3.419	40.0	9.216
KVEL	0920	VERNAL	UT	US	686.2	227.6	10.3	17.6	212.46	77.57	3.296	35.8	9.788
KQBU	0920	EL PASO	TX	US	950.3	303.8	6.5	12.0	287.96	50.07	2.883	29.5	10.203
XESDA/A	0920	ENSENADA	BN	MX	499.5	15.5	14.9	24.4	105.07	122.06	2.565	25.1	10.521
KARN	0920	LITTLE ROCK	AR	US	2077.1	281.0	0.0	1.9	887.43	12.35	2.192	20.8	10.747
KVIN	0920	CERES	CA	US	520.8	106.2	14.3	23.5	94.33	115.24	2.174	20.2	10.965
KFLB	0920	ODESSA	TX	US	1270.1	296.0	3.6	7.8	271.86	31.48	1.712	15.6	11.097
KLMR	0920	LAMAR	CO	US	1132.0	263.0	4.7	9.4	220.78	35.98	1.589	14.3	11.211
XEQD/A	0920	EJIDO ROBINSON	CH	MX	1204.6	316.6	4.1	8.5	172.26	35.12	1.210	10.8	11.276
KYST	0920	TEXAS CITY	TX	US	2030.8	297.0	0.0	2.1	415.22	14.04	1.166	10.3	11.336

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Call: KSHO  
 Freq: 920 kHz  
 LEBANON, OR, US  
 Hours: U  
 Lat: 44-34-30 N  
 Lng: 122-55-15 W  
 Power: 1.0 kW - Custom Q Value Used: 10.0  
 Theo RMS: 317.04 mV/m @ 1km @ 1.0 kW  
 # of Augmentations: 4

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit		RSS Limit (mV/m)
							Min (deg)	Max (deg)			(mV/m)	(%)	
KXLY	0920	SPOKANE	WA	US	544.5	233.8	13.6	22.5	728.21	94.99	13.834	100.0	13.834
<b>KIHM-LIC0920</b>	<b>RENO</b>		<b>NV</b>	<b>US</b>	<b>622.0</b>	<b>335.9</b>	<b>11.6</b>	<b>19.6</b>	<b>274.68</b>	<b>86.43</b>	<b>4.748</b>	<b>34.3</b>	<b>14.626</b>
KVIN	0920	CERES	CA	US	792.9	347.5	8.5	15.0	286.85	61.41	3.523	24.1	15.045
KVEC	0920	SAN LUIS OBISPO	CA	US	1048.8	350.2	5.4	10.5	202.46	40.35	1.634	10.9	15.133

Hatfield & Dawson Consulting Engineers

Call: KSHO  
 Freq: 920 kHz  
 LEBANON, OR, US  
 Hours: U  
 Lat: 44-34-30 N  
 Lng: 122-55-15 W  
 Power: 1.0 kW - Custom Q Value Used: 10.0  
 Theo RMS: 317.04 mV/m @ 1km @ 1.0 kW  
 # of Augmentations: 4

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit		RSS Limit (mV/m)
							Min (deg)	Max (deg)			(mV/m)	(%)	
KXLY	0920	SPOKANE	WA	US	544.5	233.8	13.6	22.5	728.21	94.99	13.834	100.0	13.834
<b>KIHM-PRO0920</b>	<b>RENO</b>		<b>NV</b>	<b>US</b>	<b>621.7</b>	<b>335.9</b>	<b>11.6</b>	<b>19.6</b>	<b>269.27</b>	<b>86.48</b>	<b>4.657</b>	<b>33.7</b>	<b>14.597</b>
KVIN	0920	CERES	CA	US	792.9	347.5	8.5	15.0	286.85	61.41	3.523	24.1	15.016
KVEC	0920	SAN LUIS OBISPO	CA	US	1048.8	350.2	5.4	10.5	202.46	40.35	1.634	10.9	15.105

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Call: KVEL  
 Freq: 920 kHz  
 VERNAL, UT, US  
 Hours: N  
 Lat: 40-29-30 N  
 Lng: 109-31-45 W  
 Power: 1.0 kW  
 Theo RMS: 281.64 mV/m @ 1km @ 1.0 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KXLY	0920	SPOKANE	WA	US	1008.4	138.8	5.8	11.1	776.84	36.24	5.631	100.0	5.631
KBAD	0920	LAS VEGAS	NV	US	686.2	44.1	10.3	17.6	284.98	77.57	4.421	78.5	7.159
<b>KIHM-LIC0920</b>	<b>0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>	<b>873.7</b>	<b>79.6</b>	<b>7.4</b>	<b>13.3</b>	<b>305.87</b>	<b>52.54</b>	<b>3.214</b>	<b>44.9</b>	<b>7.848</b>
KPSI	0920	PALM SPRINGS	CA	US	960.9	37.9	6.4	11.8	255.95	47.52	2.433	31.0	8.216
KARN	0920	LITTLE ROCK	AR	US	1645.7	297.8	1.3	4.5	682.76	17.68	2.414	29.4	8.563
KFLB	0920	ODESSA	TX	US	1154.8	328.6	4.5	9.1	295.50	35.29	2.085	24.4	8.814
XEBH/A	0920	HERMOSILLO	SO	MX	1277.7	5.2	3.5	7.7	308.12	30.99	1.910	21.7	9.018
KQBU	0920	EL PASO	TX	US	1013.7	344.7	5.8	11.0	214.07	43.88	1.879	20.8	9.212
KYST	0920	TEXAS CITY	TX	US	1807.6	316.8	0.5	3.5	529.35	16.35	1.731	18.8	9.373
KSEI	0930	POCATELLO	ID	US	368.9	137.1	20.5	32.1	496.49	166.96	1.658	17.7	9.519
KVEC	0920	SAN LUIS OBISPO	CA	US	1134.1	56.1	4.7	9.3	202.76	36.08	1.463	15.4	9.630
KYFR	0920	SHENANDOAH	IA	US	1205.3	274.0	4.1	8.5	227.39	28.32	1.288	13.4	9.716

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Call: KVEL  
 Freq: 920 kHz  
 VERNAL, UT, US  
 Hours: N  
 Lat: 40-29-30 N  
 Lng: 109-31-45 W  
 Power: 1.0 kW  
 Theo RMS: 281.64 mV/m @ 1km @ 1.0 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KXLY	0920	SPOKANE	WA	US	1008.4	138.8	5.8	11.1	776.84	36.24	5.631	100.0	5.631
KBAD	0920	LAS VEGAS	NV	US	686.2	44.1	10.3	17.6	284.98	77.57	4.421	78.5	7.159
<b>KIHM-PRO0920</b>	<b>0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>	<b>873.7</b>	<b>79.6</b>	<b>7.4</b>	<b>13.3</b>	<b>299.84</b>	<b>52.54</b>	<b>3.151</b>	<b>44.0</b>	<b>7.822</b>
KPSI	0920	PALM SPRINGS	CA	US	960.9	37.9	6.4	11.8	255.95	47.52	2.433	31.1	8.191
KARN	0920	LITTLE ROCK	AR	US	1645.7	297.8	1.3	4.5	682.76	17.68	2.414	29.5	8.540
KFLB	0920	ODESSA	TX	US	1154.8	328.6	4.5	9.1	295.50	35.29	2.085	24.4	8.791
XEBH/A	0920	HERMOSILLO	SO	MX	1277.7	5.2	3.5	7.7	308.12	30.99	1.910	21.7	8.996
KQBU	0920	EL PASO	TX	US	1013.7	344.7	5.8	11.0	214.07	43.88	1.879	20.9	9.190
KYST	0920	TEXAS CITY	TX	US	1807.6	316.8	0.5	3.5	529.35	16.35	1.731	18.8	9.352
KSEI	0930	POCATELLO	ID	US	368.9	137.1	20.5	32.1	496.49	166.96	1.658	17.7	9.497
KVEC	0920	SAN LUIS OBISPO	CA	US	1134.1	56.1	4.7	9.3	202.76	36.08	1.463	15.4	9.609
KYFR	0920	SHENANDOAH	IA	US	1205.3	274.0	4.1	8.5	227.39	28.32	1.288	13.4	9.695

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Call: KXLY  
 Freq: 920 kHz  
 SPOKANE, WA, US  
 Hours: N  
 Lat: 47-36-31 N  
 Lng: 117-22-25 W  
 Power: 5.0 kW  
 Theo RMS: 352.45 mV/m @ 1km @ 1kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KSEI	0930	POCATELLO	ID	US	641.9	325.3	11.2	19.0	934.60	73.92	1.382	100.0	1.382
KYFR	0920	SHENANDOAH	IA	US	1920.8	301.2	0.0	2.8	664.99	9.21	1.225	88.6	1.846
KVEC	0920	SAN LUIS OBISPO	CA	US	1395.5	10.3	2.7	6.6	203.39	23.36	0.950	51.5	2.077
KBAD	0920	LAS VEGAS	NV	US	1282.3	352.6	3.5	7.7	157.48	26.29	0.828	39.9	2.236
KPSI	0920	PALM SPRINGS	CA	US	1530.6	357.5	1.9	5.4	193.66	19.96	0.773	34.6	2.366
KDHL	0920	FARIBAULT	MN	US	1892.0	289.8	0.1	2.9	463.75	7.97	0.739	31.2	2.478
KSHO	0920	LEBANON	OR	US	544.5	49.8	13.6	22.5	38.76	94.99	0.736	29.7	2.585
KMPT	0930	EAST MISSOULA	MT	US	261.8	289.6	28.2	41.8	160.82	221.07	0.711	27.5	2.681
XEBH/A	0920	HERMOSILLO	SO	MX	2137.3	346.6	0.0	1.6	308.96	11.32	0.700	26.1	2.771
KVEL	0920	VERNAL	UT	US	1008.4	324.3	5.8	11.1	91.64	36.24	0.664	24.0	2.850
KWAD	0920	WADENA	MN	US	1684.9	282.8	1.1	4.3	340.45	9.61	0.654	23.0	2.924
ZP 1-A	0920	ASUNCION		PA	10057.2	324.4	0.0	0.0	3071.20	1.05	0.645	22.1	2.994
KYST	0920	TEXAS CITY	TX	US	2790.7	322.7	0.0	0.0	513.47	5.92	0.608	20.3	3.055
KFLB	0920	ODESSA	TX	US	2163.1	328.5	0.0	1.4	297.51	9.98	0.594	19.4	3.112
KQBU	0920	EL PASO	TX	US	1995.5	335.3	0.0	2.3	242.89	12.02	0.584	18.8	3.167
KARN	0920	LITTLE ROCK	AR	US	2522.8	312.1	0.0	0.0	479.75	6.08	0.583	18.4	3.220
KLMR	0920	LAMAR	CO	US	1595.0	316.1	1.6	4.9	177.56	15.66	0.556	17.3	3.268
CKCQ/	0920	QUESNEL	BC	CA	695.7	146.4	10.1	17.4	48.65	53.78	0.523	16.0	3.309
YVQX-A	0920	PORLAMAR		VE	6423.3	320.1	0.0	0.0	2188.21	1.14	0.498	15.0	3.347

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CJCA/A	0930	EDMONTON	AB	CA	684.1	203.7	10.3	17.7	435.10	52.30	0.455	13.6	3.377
CKDQ/A	0910	DRUMHELLER	AB	CA	482.6	219.3	15.5	25.2	233.01	97.40	0.454	13.4	3.408
KKSN	0910	VANCOUVER	WA	US	451.9	57.9	16.6	26.8	186.81	121.38	0.454	13.3	3.438
<b>KIHM-PRO0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>		<b>919.4</b>	<b>11.0</b>	<b>6.8</b>	<b>12.5</b>	<b>46.30</b>	<b>44.88</b>	<b>0.416</b>	<b>12.1</b>	<b>3.463</b>
XESDA/A	0920	ENSENADA	BN	MX	1751.1	358.2	0.8	3.8	109.43	16.11	0.353	10.2	3.481

Call: KSVB  
 Freq: 920 kHz  
 ALBUQUERQUE, NM, US  
 Hours: N  
 Lat: 35-07-56 N  
 Lng: 106-37-18 W  
 Power: 0.13 kW  
 Theo RMS: 284.57 mV/m @ 1km @ 1kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KFLB	0920	ODESSA	TX	US	535.4	314.6	13.8	22.8	264.86	111.76	5.920	100.0	5.920
KQBU	0920	EL PASO	TX	US	378.3	356.6	20.0	31.4	175.35	168.66	5.915	99.9	8.368
KARN	0920	LITTLE ROCK	AR	US	1309.5	275.9	3.3	7.4	936.43	28.72	5.379	64.3	9.948
XEBH/A	0920	HERMOSILLO	SO	MX	786.0	29.6	8.6	15.1	303.89	66.88	4.065	40.9	10.746
KBAD	0920	LAS VEGAS	NV	US	781.4	96.1	8.7	15.2	285.99	66.00	3.775	35.1	11.390
KLMR	0920	LAMAR	CO	US	487.1	228.3	15.4	25.0	131.82	124.22	3.275	28.8	11.852
KPSI	0920	PALM SPRINGS	CA	US	915.3	78.3	6.9	12.6	305.99	52.79	3.231	27.3	12.284
KVEL	0920	VERNAL	UT	US	648.2	155.9	11.1	18.8	181.24	84.04	3.046	24.8	12.656
KYST	0920	TEXAS CITY	TX	US	1267.6	303.1	3.6	7.8	470.50	31.90	3.001	23.7	13.007
KXLY	0920	SPOKANE	WA	US	1648.4	143.4	1.3	4.5	787.53	16.20	2.552	19.6	13.255
XEQD/A	0920	EJIDO ROBINSON	CH	MX	725.5	355.3	9.6	16.6	170.04	74.82	2.545	19.2	13.497
WGNU	0920	GRANITE CITY	IL	US	1524.3	259.8	2.0	5.5	462.22	20.71	1.915	14.2	13.633
XEQD/A	0920	CHIHUAHUA	CH	MX	727.5	356.5	9.6	16.5	125.43	74.55	1.870	13.7	13.760
<b>KIHM-PRO</b>	<b>0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>	<b>1254.3</b>	<b>108.7</b>	<b>3.7</b>	<b>8.0</b>	<b>282.83</b>	<b>30.59</b>	<b>1.730</b>	<b>12.6</b>	<b>13.869</b>
XECQ/A	0920	CULIACAN	SI	MX	1149.2	3.9	4.5	9.2	207.38	39.53	1.640	11.8	13.965
WMOK	0920	METROPOLIS	IL	US	1627.8	267.5	1.4	4.7	425.65	18.77	1.598	11.4	14.056
XEBM/A	0920	SAN LUIS POTOSI	SL	MX	1544.6	340.3	1.8	5.3	301.74	25.32	1.528	10.9	14.139
XEMJ/A	0920	PIEDRAS NEGRAS	CI	MX	915.0	322.8	6.9	12.6	135.63	53.45	1.450	10.3	14.213
XEOK/A	0920	MONTERREY	NL	MX	1212.9	331.5	4.0	8.4	202.15	35.33	1.428	10.0	14.285

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Call: KYFR  
 Freq: 920 kHz  
 SHENANDOAH, IA, US  
 Hours: N  
 Lat: 40-37-22 N  
 Lng: 095-14-42 W  
 Power: 2.5 kW  
 Theo RMS: 451.47 mV/m @ 1km @ 2.5 kW

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
WGKA	0920	ATLANTA	GA	US	1224.4	311.4	3.9	8.3	304.03	29.64	1.802	100.0	1.802
KARN	0920	LITTLE ROCK	AR	US	701.8	338.8	10.0	17.2	106.80	72.95	1.558	86.5	2.382
YVQX-A	0920	PORLAMAR		VE	4513.1	322.6	0.0	0.0	2188.21	3.40	1.489	62.5	2.809
KXLY	0920	SPOKANE	WA	US	1920.8	105.7	0.0	2.8	788.10	9.21	1.451	51.7	3.162
CKNX/A	0920	WINGHAM	ON	CA	1197.0	257.4	4.2	8.6	262.88	24.63	1.295	40.9	3.417
KQBU	0920	EL PASO	TX	US	1402.6	42.1	2.7	6.5	257.17	24.94	1.283	37.5	3.650
KFLB	0920	ODESSA	TX	US	1170.7	31.3	4.4	8.9	178.26	33.81	1.205	33.0	3.844
KDHL	0920	FARIBAULT	MN	US	435.8	202.4	17.3	27.8	45.63	128.69	1.175	30.6	4.019
WOKY	0920	MILWAUKEE	WI	US	649.7	248.7	11.0	18.7	79.17	73.37	1.162	28.9	4.184
ZP 1-A	0920	ASUNCION		PA	8292.1	331.3	0.0	0.0	3071.20	1.83	1.122	26.8	4.331
WMOK	0920	METROPOLIS	IL	US	689.8	306.1	10.2	17.5	73.52	72.69	1.069	24.7	4.461
KYST	0920	TEXAS CITY	TX	US	1246.1	358.8	3.8	8.0	171.13	31.01	1.061	23.8	4.586
CFLS/U	0920	LEVIS	QC	CA	2045.4	259.1	0.0	2.0	762.15	6.63	1.011	22.0	4.696
WKY	0930	OKLAHOMA CITY	OK	US	596.4	18.7	12.2	20.5	543.86	92.16	1.002	21.3	4.802
WKVA	0920	LEWISTOWN	PA	US	1489.4	276.0	2.2	5.8	265.77	17.42	0.926	19.3	4.890
KLMR	0920	LAMAR	CO	US	692.3	63.9	10.2	17.5	63.20	72.73	0.919	18.8	4.976
XEBH/A	0920	HERMOSILLO	SO	MX	1915.9	43.7	0.0	2.8	308.96	14.83	0.916	18.4	5.060
WSUI	0910	IOWA CITY	IA	US	329.2	253.5	22.9	35.2	231.36	185.23	0.857	16.9	5.132
KPSI	0920	PALM SPRINGS	CA	US	2019.1	62.0	0.0	2.2	337.64	12.43	0.839	16.4	5.200

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CBO/A	0920	OTTAWA	ON	CA	1662.0	259.1	1.2	4.4	353.11	11.78	0.832	16.0	5.266
WBAA	0920	WEST LAFAYETTE	IN	US	707.5	275.2	9.9	17.1	61.94	66.85	0.828	15.7	5.331
WTAD	0930	QUINCY	IL	US	334.2	285.3	22.5	34.8	220.88	184.45	0.815	15.3	5.393
KWOC	0930	POPLAR BLUFF	MO	US	606.0	317.2	12.0	20.2	458.66	88.56	0.812	15.1	5.453
KWAD	0920	WADENA	MN	US	639.0	180.7	11.3	19.1	56.16	71.87	0.807	14.8	5.513
XEBM/A	0920	SAN LUIS POTOSI	SL	MX	2121.8	13.3	0.0	1.6	301.94	13.26	0.801	14.5	5.571
HCCM1-A	0920	QUITO		EC	4855.8	341.6	0.0	0.0	978.69	3.93	0.768	13.8	5.623
XEOK/A	0920	MONTERREY	NL	MX	1725.7	14.4	0.9	4.0	204.22	18.50	0.756	13.4	5.674
WYBY	0920	CORTLAND	NY	US	1598.4	268.7	1.5	4.9	253.39	14.11	0.715	12.6	5.719
XERE/A	0920	SALVATIERRA	GT	MX	2320.1	12.0	0.0	0.6	305.52	11.47	0.701	12.3	5.762
XEMJ/A	0920	PIEDRAS NEGRAS	CI	MX	1409.4	18.6	2.7	6.4	136.98	25.50	0.699	12.1	5.804
XEQH1/A	0920	IXMIQUILPAN	HG	MX	2267.5	8.7	0.0	0.9	283.33	11.92	0.676	11.6	5.843
KVEL	0920	VERNAL	UT	US	1205.3	84.7	4.1	8.5	118.79	28.32	0.673	11.5	5.882
XEQD/A	0920	EJIDO ROBINSON	CH	MX	1652.4	33.4	1.3	4.5	172.71	19.42	0.671	11.4	5.920
XEZAR/A	0920	CHOLULA	PU	MX	2417.3	6.2	0.0	0.2	303.11	10.79	0.654	11.0	5.956
<b>KIHM-PRO0920</b>	<b>RENO</b>		<b>NV</b>	<b>US</b>	<b>2078.9</b>	<b>78.7</b>	<b>0.0</b>	<b>1.9</b>	<b>305.58</b>	<b>10.29</b>	<b>0.629</b>	<b>10.6</b>	<b>5.989</b>
XE/A	0920	YOGOPE	VC	MX	2564.1	0.6	0.0	0.0	305.50	9.91	0.606	10.1	6.020
WGNU	0920	GRANITE CITY	IL	US	490.3	296.6	15.3	24.9	26.00	116.48	0.606	10.1	6.050

Call: KLMR  
 Freq: 920 kHz  
 LAMAR, CO, US  
 Hours: N  
 Lat: 38-06-53 N  
 Lng: 102-37-16 W  
 Power: 0.5 kW  
 Theo RMS: 219.68 mV/m @ 1km @ 0.5 kW  
 # of Augmentations: 12

Standard: FCC Rules (1992 Skywave Propagation Model) [ 10% ]

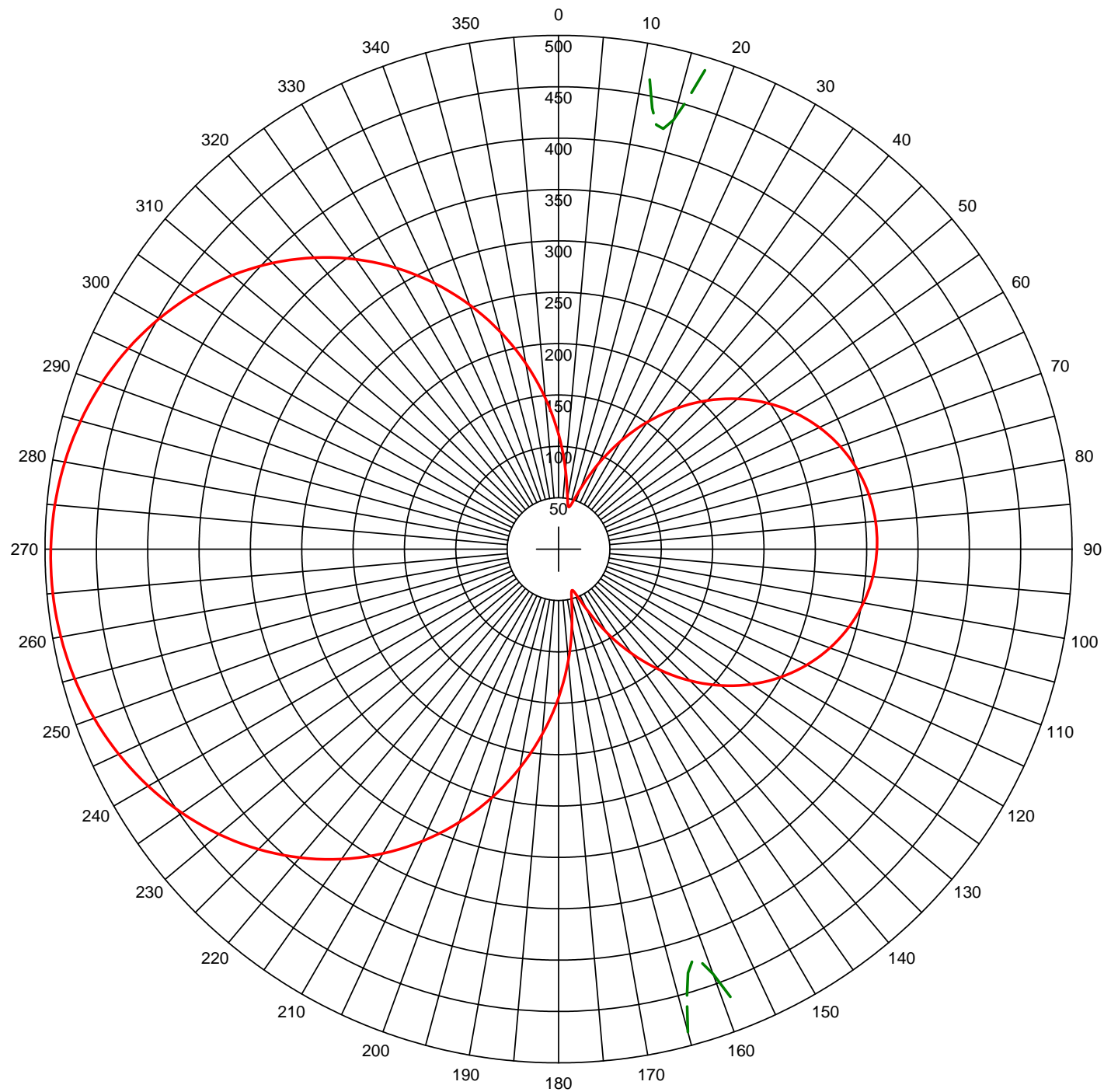
Contributors:

Call	Freq (kHz)	City	St	Ct	Dist (km)	Azi (deg)	Theta		Max V-Rad (mV/m)	SW Mult (uV/m)	Limit (mV/m)	Limit (%)	RSS Limit (mV/m)
							Min (deg)	Max (deg)					
KARN	0920	LITTLE ROCK	AR	US	998.9	294.9	5.9	11.2	715.77	43.46	6.221	100.0	6.221
KFLB	0920	ODESSA	TX	US	700.0	358.6	10.0	17.3	262.06	77.07	4.039	64.9	7.418
KVEL	0920	VERNAL	UT	US	650.2	111.8	11.0	18.7	209.54	81.39	3.411	46.0	8.164
KYST	0920	TEXAS CITY	TX	US	1198.7	325.8	4.1	8.6	493.06	34.09	3.362	41.2	8.829
KQBU	0920	EL PASO	TX	US	787.2	24.7	8.6	15.1	249.27	65.22	3.252	36.8	9.409
KYFR	0920	SHENANDOAH	IA	US	692.3	248.6	10.2	17.5	218.34	72.73	3.176	33.8	9.931
WGNU	0920	GRANITE CITY	IL	US	1096.3	270.2	5.0	9.8	375.33	35.20	2.643	26.6	10.276
KXLY	0920	SPOKANE	WA	US	1595.0	126.0	1.6	4.9	787.24	15.66	2.466	24.0	10.568
XEBH/A	0920	HERMOSILLO	SO	MX	1264.1	35.0	3.6	7.9	308.07	31.86	1.963	18.6	10.749
KPSI	0920	PALM SPRINGS	CA	US	1333.1	65.2	3.2	7.2	333.69	28.08	1.874	17.4	10.911
WMOK	0920	METROPOLIS	IL	US	1234.9	279.2	3.9	8.2	315.41	29.27	1.846	16.9	11.066
XEQD/A	0920	EJIDO ROBINSON	CH	MX	1099.0	15.5	5.0	9.8	172.02	39.86	1.371	12.4	11.150
<b>KIHM-PRO</b>	<b>0920</b>	<b>RENO</b>	<b>NV</b>	<b>US</b>	<b>1486.7</b>	<b>90.6</b>	<b>2.2</b>	<b>5.8</b>	<b>309.22</b>	<b>21.54</b>	<b>1.332</b>	<b>11.9</b>	<b>11.230</b>
KOGA	0930	OGALLALA	NE	US	345.5	193.3	21.8	33.9	362.80	181.51	1.317	11.7	11.307
YVQX-A	0920	PORLAMAR		VE	4894.4	314.8	0.0	0.0	2188.21	3.01	1.317	11.6	11.383
WKY	0930	OKLAHOMA CITY	OK	US	536.1	303.5	13.8	22.8	541.80	108.94	1.180	10.4	11.444

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AM Directional Pattern



Theo RMS: 296.082 mV/m@1km  
Std RMS: 311.09 mV/m@1km  
Q: 10.719 mV/m@1km

Standard Horizontal Plane Pattern

— Pattern (mV/m @ 1km)  
- - - Pattern X10

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Switch	TL Switch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	80.8	0	0	0.0	0.0	0.0	0.0
2	0.880	-158.0	80.0	267.7	80.8	0	0	0.0	0.0	0.0	0.0

Call: KIHM  
Freq: 920 kHz  
RENO, NV, US  
Hours: N  
Lat: 39-30-50 N  
Lng: 119-42-52 W  
Power: 0.85 kW  
Theo RMS: 296.08 mV/m@1km  
                  @ 0.85 kW

Tabulation of Nighttime Directional Antenna Radiation Pattern  
KHIM-AM Reno, NV

Call: KIHM  
 Freq: 920 kHz  
 RENO, NV, US  
 Hours: N  
 Lat: 39-30-50 N  
 Lng: 119-42-52 W  
 Power: 0.85 kW - Custom Q Value Used: 11.41  
 Theo RMS: 296.08 mV/m @ 1km @ 0.85 kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swrch	TL Swrch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	80.8	0	0	0.0	0.0	0.0	0.0
2	0.880	-158.0	80.0	267.7	80.8	0	0	0.0	0.0	0.0	0.0

-----  
 Standard Horizontal Plane Pattern

Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	111.82	120.0	249.45	240.0	461.27
5.0	77.86	125.0	229.31	245.0	472.41
10.0	50.40	130.0	206.48	250.0	481.21
15.0	43.43	135.0	181.14	255.0	487.75
20.0	62.63	140.0	153.55	260.0	492.10
25.0	91.44	145.0	124.17	265.0	494.30
30.0	121.77	150.0	93.86	270.0	494.39
35.0	151.26	155.0	64.76	275.0	492.35
40.0	179.01	160.0	44.20	280.0	488.18
45.0	204.54	165.0	48.83	285.0	481.81
50.0	227.58	170.0	75.32	290.0	473.19
55.0	247.94	175.0	109.00	295.0	462.25
60.0	265.50	180.0	144.70	300.0	448.90
65.0	280.21	185.0	180.68	305.0	433.07
70.0	292.01	190.0	216.07	310.0	414.70
75.0	300.89	195.0	250.30	315.0	393.78
80.0	306.86	200.0	282.93	320.0	370.30
85.0	309.89	205.0	313.63	325.0	344.34
90.0	310.01	210.0	342.16	330.0	316.00
95.0	307.21	215.0	368.32	335.0	285.46
100.0	301.48	220.0	391.99	340.0	252.97
105.0	292.83	225.0	413.12	345.0	218.86
110.0	281.26	230.0	431.69	350.0	183.54
115.0	266.79	235.0	447.72	355.0	147.59

Standard Pattern Calculated at 5.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	111.30	120.0	246.86	240.0	457.85
5.0	77.63	125.0	226.89	245.0	468.92
10.0	50.34	130.0	204.26	250.0	477.66
15.0	43.10	135.0	179.13	255.0	484.17
20.0	61.84	140.0	151.80	260.0	488.49
25.0	90.29	145.0	122.69	265.0	490.68
30.0	120.31	150.0	92.69	270.0	490.77
35.0	149.52	155.0	63.94	275.0	488.74
40.0	177.02	160.0	43.83	280.0	484.59
45.0	202.34	165.0	48.76	285.0	478.27
50.0	225.18	170.0	75.11	290.0	469.70
55.0	245.37	175.0	108.51	295.0	458.83
60.0	262.79	180.0	143.89	300.0	445.56
65.0	277.38	185.0	179.55	305.0	429.84
70.0	289.09	190.0	214.62	310.0	411.61
75.0	297.90	195.0	248.54	315.0	390.84
80.0	303.82	200.0	280.89	320.0	367.55
85.0	306.83	205.0	311.34	325.0	341.79
90.0	306.95	210.0	339.63	330.0	313.68
95.0	304.16	215.0	365.58	335.0	283.40
100.0	298.48	220.0	389.07	340.0	251.19
105.0	289.90	225.0	410.04	345.0	217.38
110.0	278.42	230.0	428.48	350.0	182.38
115.0	264.06	235.0	444.40	355.0	146.74

Standard Pattern Calculated at 10.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	109.75	120.0	239.23	240.0	447.73
5.0	76.95	125.0	219.76	245.0	458.58
10.0	50.14	130.0	197.70	250.0	467.16
15.0	42.14	135.0	173.22	255.0	473.55
20.0	59.53	140.0	146.62	260.0	477.79
25.0	86.91	145.0	118.33	265.0	479.95
30.0	116.01	150.0	89.23	270.0	480.03
35.0	144.41	155.0	61.53	275.0	478.04
40.0	171.17	160.0	42.75	280.0	473.96
45.0	195.82	165.0	48.56	285.0	467.75
50.0	218.09	170.0	74.49	290.0	459.35
55.0	237.77	175.0	107.03	295.0	448.68
60.0	254.77	180.0	141.47	300.0	435.69
65.0	269.01	185.0	176.17	305.0	420.29
70.0	280.44	190.0	210.32	310.0	402.45
75.0	289.06	195.0	243.35	315.0	382.15
80.0	294.83	200.0	274.87	320.0	359.40
85.0	297.78	205.0	304.55	325.0	334.25
90.0	297.89	210.0	332.14	330.0	306.84
95.0	295.17	215.0	357.47	335.0	277.32
100.0	289.62	220.0	380.42	340.0	245.93
105.0	281.24	225.0	400.92	345.0	213.01
110.0	270.03	230.0	418.95	350.0	178.93
115.0	256.01	235.0	434.54	355.0	144.25

Standard Pattern Calculated at 15.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	107.21	120.0	226.91	240.0	431.25
5.0	75.82	125.0	208.24	245.0	441.75
10.0	49.82	130.0	187.11	250.0	450.06
15.0	40.68	135.0	163.70	255.0	456.25
20.0	55.86	140.0	138.28	260.0	460.37
25.0	81.50	145.0	111.31	265.0	462.46
30.0	109.11	150.0	83.68	270.0	462.54
35.0	136.17	155.0	57.71	275.0	460.61
40.0	161.73	160.0	41.11	280.0	456.66
45.0	185.32	165.0	48.25	285.0	450.63
50.0	206.64	170.0	73.46	290.0	442.49
55.0	225.51	175.0	104.61	295.0	432.18
60.0	241.82	180.0	137.52	300.0	419.62
65.0	255.48	185.0	170.68	305.0	404.76
70.0	266.47	190.0	203.32	310.0	387.57
75.0	274.74	195.0	234.92	315.0	368.02
80.0	280.30	200.0	265.09	320.0	346.15
85.0	283.13	205.0	293.52	325.0	322.01
90.0	283.24	210.0	319.98	330.0	295.71
95.0	280.63	215.0	344.30	335.0	267.43
100.0	275.29	220.0	366.36	340.0	237.39
105.0	267.23	225.0	386.09	345.0	205.89
110.0	256.46	230.0	403.47	350.0	173.32
115.0	243.01	235.0	418.51	355.0	140.18

Standard Pattern Calculated at 20.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	103.73	120.0	210.44	240.0	409.01
5.0	74.23	125.0	192.86	245.0	419.01
10.0	49.39	130.0	173.00	250.0	426.95
15.0	38.94	135.0	151.02	255.0	432.87
20.0	51.13	140.0	127.20	260.0	436.81
25.0	74.36	145.0	102.01	265.0	438.81
30.0	99.96	150.0	76.38	270.0	438.89
35.0	125.23	155.0	52.76	275.0	437.04
40.0	149.17	160.0	39.14	280.0	433.25
45.0	171.31	165.0	47.83	285.0	427.50
50.0	191.36	170.0	72.00	290.0	419.72
55.0	209.12	175.0	101.30	295.0	409.88
60.0	224.50	180.0	132.16	300.0	397.93
65.0	237.39	185.0	163.25	305.0	383.81
70.0	247.76	190.0	193.88	310.0	367.49
75.0	255.58	195.0	223.55	315.0	348.98
80.0	260.84	200.0	251.90	320.0	328.30
85.0	263.52	205.0	278.66	325.0	305.51
90.0	263.62	210.0	303.60	330.0	280.73
95.0	261.15	215.0	326.55	335.0	254.11
100.0	256.10	220.0	347.41	340.0	225.87
105.0	248.48	225.0	366.09	345.0	196.29
110.0	238.31	230.0	382.58	350.0	165.73
115.0	225.62	235.0	396.88	355.0	134.65

Standard Pattern Calculated at 25.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	99.39	120.0	190.57	240.0	381.75
5.0	72.18	125.0	174.33	245.0	391.14
10.0	48.85	130.0	156.01	250.0	398.60
15.0	37.15	135.0	135.78	255.0	404.17
20.0	45.72	140.0	113.92	260.0	407.89
25.0	65.94	145.0	90.92	265.0	409.78
30.0	89.05	150.0	67.75	270.0	409.85
35.0	112.12	155.0	47.08	275.0	408.11
40.0	134.09	160.0	37.09	280.0	404.54
45.0	154.46	165.0	47.32	285.0	399.12
50.0	172.94	170.0	70.11	290.0	391.81
55.0	189.35	175.0	97.15	295.0	382.57
60.0	203.57	180.0	125.53	300.0	371.37
65.0	215.52	185.0	154.13	305.0	358.16
70.0	225.14	190.0	182.31	310.0	342.94
75.0	232.39	195.0	209.64	315.0	325.71
80.0	237.27	200.0	235.80	320.0	306.49
85.0	239.76	205.0	260.52	325.0	285.36
90.0	239.86	210.0	283.59	330.0	262.43
95.0	237.56	215.0	304.87	335.0	237.83
100.0	232.87	220.0	324.24	340.0	211.78
105.0	225.80	225.0	341.64	345.0	184.53
110.0	216.37	230.0	357.02	350.0	156.41
115.0	204.61	235.0	370.38	355.0	127.82

Standard Pattern Calculated at 30.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	94.27	120.0	168.16	240.0	350.38
5.0	69.67	125.0	153.46	245.0	359.05
10.0	48.16	130.0	136.91	250.0	365.95
15.0	35.55	135.0	118.70	255.0	371.10
20.0	40.10	140.0	99.09	260.0	374.55
25.0	56.74	145.0	78.60	265.0	376.30
30.0	76.95	150.0	58.29	270.0	376.37
35.0	97.48	155.0	41.14	275.0	374.75
40.0	117.17	160.0	35.23	280.0	371.44
45.0	135.51	165.0	46.70	285.0	366.42
50.0	152.20	170.0	67.79	290.0	359.67
55.0	167.06	175.0	92.24	295.0	351.14
60.0	179.95	180.0	117.82	300.0	340.83
65.0	190.79	185.0	143.59	305.0	328.70
70.0	199.53	190.0	169.00	310.0	314.75
75.0	206.14	195.0	193.68	315.0	299.00
80.0	210.58	200.0	217.33	320.0	281.49
85.0	212.85	205.0	239.71	325.0	262.27
90.0	212.94	210.0	260.66	330.0	241.45
95.0	210.84	215.0	280.01	335.0	219.17
100.0	206.57	220.0	297.67	340.0	195.61
105.0	200.14	225.0	313.56	345.0	171.01
110.0	191.57	230.0	327.65	350.0	145.64
115.0	180.89	235.0	339.92	355.0	119.89

Standard Pattern Calculated at 35.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	88.45	120.0	144.15	240.0	315.92
5.0	66.69	125.0	131.15	245.0	323.76
10.0	47.29	130.0	116.55	250.0	330.02
15.0	34.31	135.0	100.54	255.0	334.70
20.0	34.81	140.0	83.41	260.0	337.83
25.0	47.34	145.0	65.69	265.0	339.43
30.0	64.28	150.0	48.61	270.0	339.49
35.0	82.00	155.0	35.49	275.0	338.02
40.0	99.20	160.0	33.78	280.0	335.01
45.0	115.32	165.0	45.93	285.0	330.45
50.0	130.04	170.0	65.02	290.0	324.32
55.0	143.17	175.0	86.67	295.0	316.61
60.0	154.60	180.0	109.22	300.0	307.30
65.0	164.23	185.0	131.94	305.0	296.38
70.0	172.00	190.0	154.35	310.0	283.86
75.0	177.88	195.0	176.15	315.0	269.75
80.0	181.84	200.0	197.08	320.0	254.10
85.0	183.86	205.0	216.94	325.0	236.98
90.0	183.94	210.0	235.55	330.0	218.47
95.0	182.08	215.0	252.78	335.0	198.71
100.0	178.27	220.0	268.55	340.0	177.86
105.0	172.54	225.0	282.79	345.0	156.12
110.0	164.92	230.0	295.44	350.0	133.74
115.0	155.44	235.0	306.48	355.0	111.04

Standard Pattern Calculated at 40.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	82.04	120.0	119.52	240.0	279.43
5.0	63.24	125.0	108.32	245.0	286.36
10.0	46.17	130.0	95.78	250.0	291.91
15.0	33.47	135.0	82.11	255.0	296.07
20.0	30.41	140.0	67.61	260.0	298.85
25.0	38.41	145.0	52.88	265.0	300.27
30.0	51.73	150.0	39.35	270.0	300.33
35.0	66.43	155.0	30.70	275.0	299.02
40.0	80.97	160.0	32.79	280.0	296.34
45.0	94.73	165.0	44.94	285.0	292.29
50.0	107.36	170.0	61.79	290.0	286.86
55.0	118.68	175.0	80.50	295.0	280.03
60.0	128.55	180.0	99.92	300.0	271.81
65.0	136.89	185.0	119.47	305.0	262.20
70.0	143.63	190.0	138.79	310.0	251.20
75.0	148.74	195.0	157.60	315.0	238.85
80.0	152.18	200.0	175.69	320.0	225.19
85.0	153.94	205.0	192.88	325.0	210.28
90.0	154.01	210.0	209.04	330.0	194.21
95.0	152.39	215.0	224.05	335.0	177.10
100.0	149.08	220.0	237.81	340.0	159.07
105.0	144.10	225.0	250.27	345.0	140.31
110.0	137.49	230.0	261.37	350.0	121.03
115.0	129.28	235.0	271.10	355.0	101.49

Standard Pattern					
Calculated at 45.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	75.12	120.0	95.26	240.0	241.96
5.0	59.30	125.0	85.90	245.0	247.94
10.0	44.70	130.0	75.48	250.0	252.73
15.0	32.91	135.0	64.22	255.0	256.33
20.0	27.32	140.0	52.45	260.0	258.74
25.0	30.67	145.0	40.90	265.0	259.97
30.0	40.02	150.0	31.26	270.0	260.02
35.0	51.50	155.0	27.26	275.0	258.89
40.0	63.29	160.0	32.18	280.0	256.57
45.0	74.61	165.0	43.62	285.0	253.06
50.0	85.10	170.0	58.08	290.0	248.37
55.0	94.55	175.0	73.83	295.0	242.48
60.0	102.82	180.0	90.12	300.0	235.41
65.0	109.83	185.0	106.50	305.0	227.16
70.0	115.51	190.0	122.70	310.0	217.76
75.0	119.82	195.0	138.50	315.0	207.22
80.0	122.73	200.0	153.73	320.0	195.60
85.0	124.21	205.0	168.24	325.0	182.96
90.0	124.27	210.0	181.90	330.0	169.36
95.0	122.90	215.0	194.63	335.0	154.92
100.0	120.11	220.0	206.33	340.0	139.75
105.0	115.91	225.0	216.95	345.0	123.98
110.0	110.34	230.0	226.45	350.0	107.81
115.0	103.43	235.0	234.79	355.0	91.43

Standard Pattern					
Calculated at 50.0 Degrees Elevation					
Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)	Azimuth (Deg)	Field (mV/m @1km)
0.0	67.78	120.0	72.28	240.0	204.55
5.0	54.88	125.0	64.77	245.0	209.55
10.0	42.79	130.0	56.49	250.0	213.56
15.0	32.42	135.0	47.66	255.0	216.58
20.0	25.63	140.0	38.72	260.0	218.61
25.0	24.89	145.0	30.55	265.0	219.65
30.0	29.98	150.0	25.11	270.0	219.69
35.0	38.02	155.0	25.32	275.0	218.73
40.0	46.95	160.0	31.71	280.0	216.78
45.0	55.80	165.0	41.88	285.0	213.84
50.0	64.14	170.0	53.87	290.0	209.90
55.0	71.71	175.0	66.73	295.0	204.98
60.0	78.39	180.0	79.97	300.0	199.08
65.0	84.07	185.0	93.29	305.0	192.22
70.0	88.68	190.0	106.47	310.0	184.42
75.0	92.19	195.0	119.34	315.0	175.70
80.0	94.56	200.0	131.77	320.0	166.12
85.0	95.77	205.0	143.64	325.0	155.71
90.0	95.82	210.0	154.85	330.0	144.56
95.0	94.70	215.0	165.31	335.0	132.74
100.0	92.42	220.0	174.97	340.0	120.36
105.0	89.00	225.0	183.75	345.0	107.51
110.0	84.48	230.0	191.63	350.0	94.35
115.0	78.88	235.0	198.57	355.0	81.04

Standard Pattern					
Calculated at 55.0 Degrees Elevation					
Azimuth	Field	Azimuth	Field	Azimuth	Field
(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)
0.0	60.10	120.0	51.50	240.0	168.15
5.0	49.95	125.0	45.81	245.0	172.18
10.0	40.32	130.0	39.65	250.0	175.42
15.0	31.69	135.0	33.30	255.0	177.86
20.0	24.96	140.0	27.31	260.0	179.50
25.0	21.57	145.0	22.78	265.0	180.34
30.0	22.53	150.0	21.48	270.0	180.37
35.0	26.87	155.0	24.55	275.0	179.60
40.0	32.79	160.0	31.07	280.0	178.02
45.0	39.14	165.0	39.58	285.0	175.64
50.0	45.33	170.0	49.16	290.0	172.47
55.0	51.06	175.0	59.28	295.0	168.50
60.0	56.17	180.0	69.66	300.0	163.76
65.0	60.55	185.0	80.09	305.0	158.26
70.0	64.12	190.0	90.42	310.0	152.02
75.0	66.85	195.0	100.53	315.0	145.07
80.0	68.69	200.0	110.30	320.0	137.45
85.0	69.64	205.0	119.66	325.0	129.21
90.0	69.68	210.0	128.52	330.0	120.39
95.0	68.80	215.0	136.82	335.0	111.07
100.0	67.03	220.0	144.49	340.0	101.32
105.0	64.37	225.0	151.49	345.0	91.24
110.0	60.86	230.0	157.79	350.0	80.92
115.0	56.55	235.0	163.35	355.0	70.49

Standard Pattern					
Calculated at 60.0 Degrees Elevation					
Azimuth	Field	Azimuth	Field	Azimuth	Field
(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)	(Deg)	(mV/m @1km)
0.0	52.13	120.0	33.79	240.0	133.64
5.0	44.51	125.0	29.90	245.0	136.73
10.0	37.20	130.0	25.89	250.0	139.23
15.0	30.44	135.0	22.13	255.0	141.11
20.0	24.63	140.0	19.31	260.0	142.38
25.0	20.37	145.0	18.40	265.0	143.03
30.0	18.44	150.0	20.12	270.0	143.05
35.0	19.15	155.0	24.22	275.0	142.45
40.0	21.86	160.0	29.94	280.0	141.24
45.0	25.57	165.0	36.63	285.0	139.40
50.0	29.58	170.0	43.91	290.0	136.96
55.0	33.49	175.0	51.52	295.0	133.91
60.0	37.07	180.0	59.29	300.0	130.28
65.0	40.18	185.0	67.09	305.0	126.07
70.0	42.76	190.0	74.83	310.0	121.31
75.0	44.73	195.0	82.40	315.0	116.02
80.0	46.08	200.0	89.75	320.0	110.24
85.0	46.77	205.0	96.79	325.0	104.00
90.0	46.79	210.0	103.48	330.0	97.34
95.0	46.16	215.0	109.76	335.0	90.33
100.0	44.86	220.0	115.58	340.0	83.00
105.0	42.94	225.0	120.90	345.0	75.44
110.0	40.41	230.0	125.71	350.0	67.71
115.0	37.33	235.0	129.96	355.0	59.91



# **Tabulation of Ground Conductivity Data** **KIHM Reno, NV**

Latitude: 39-30-50 N  
Longitude: 119-42-52 W

Conductivity Database Used: M3 (USA)

Ground Conductivity Data:								
Region conductivity in mS/m followed by distance in km								
Azimuth	to the end of region. E - map data; M - measurement data.							
0.0	8.0E	252.7	4.0E	630.0	15.0E	674.4	4.0E	880.6
	4.0E	1054.0	1.0E	1056.6	2.0E	1300.0		
5.0	8.0E	261.0	4.0E	658.6	15.0E	701.7	4.0E	867.0
	4.0E	1058.7	1.0E	1300.0				
10.0	8.0E	264.2	4.0E	758.1	15.0E	784.5	8.0E	876.4
	1.0E	1300.0						
15.0	8.0E	31.6	4.0E	77.9	8.0E	267.9	4.0E	772.8
	1.0E	915.4	4.0E	1098.4	1.0E	1300.0		
20.0	8.0E	19.9	4.0E	112.6	8.0E	273.8	4.0E	757.4
	1.0E	858.8	4.0E	1134.9	1.0E	1217.1	20.0E	1300.0
25.0	8.0E	17.5	4.0E	144.0	8.0E	281.9	4.0E	506.7
	4.0E	1116.2	8.0E	1185.4	40.0E	1300.0		
30.0	8.0E	15.8	4.0E	169.9	8.0E	291.6	4.0E	528.6
	4.0E	1066.1	8.0E	1141.2	15.0E	1254.0	20.0E	1300.0
35.0	8.0E	14.4	4.0E	183.8	8.0E	304.3	4.0E	544.1
	4.0E	1065.6	8.0E	1151.8	15.0E	1191.5	8.0E	1300.0
40.0	8.0E	13.4	4.0E	193.2	8.0E	313.6	4.0E	544.8
	4.0E	1126.1	15.0E	1300.0				
45.0	8.0E	12.6	4.0E	198.7	8.0E	315.0	4.0E	549.0
	4.0E	1007.5	2.0E	1026.8	8.0E	1300.0		
50.0	8.0E	12.0	4.0E	480.6	8.0E	859.7	4.0E	970.0
	8.0E	1300.0						
55.0	8.0E	11.5	4.0E	473.1	8.0E	848.4	2.0E	1013.1
60.0	8.0E	11.1	4.0E	472.1	8.0E	830.5	2.0E	888.5
	2.0E	981.8	8.0E	1195.8	15.0E	1256.4	8.0E	1300.0
65.0	8.0E	10.8	4.0E	474.9	8.0E	606.1	15.0E	626.3
	15.0E	929.2	2.0E	988.1	15.0E	1300.0		
70.0	8.0E	10.7	4.0E	481.9	8.0E	591.6	15.0E	683.2
	15.0E	1245.5	8.0E	1247.3	15.0E	1294.1	8.0E	1300.0
75.0	8.0E	10.6	4.0E	494.6	8.0E	577.6	15.0E	683.9
	2.0E	789.0	15.0E	834.1	8.0E	926.0	15.0E	1078.7
	15.0E	1220.3	8.0E	1300.0				
80.0	8.0E	10.6	4.0E	521.3	8.0E	552.0	15.0E	693.3
	2.0E	767.9	15.0E	906.2	8.0E	974.5	15.0E	995.1
	2.0E	1164.0	8.0E	1300.0				
85.0	8.0E	10.7	4.0E	495.3	15.0E	710.3	4.0E	856.2
	2.0E	1160.4	8.0E	1197.0	15.0E	1300.0		
90.0	8.0E	11.0	4.0E	468.7	15.0E	654.4	8.0E	738.7
	4.0E	877.4	15.0E	1005.9	8.0E	1067.2	2.0E	1175.7
	15.0E	1300.0						
95.0	8.0E	11.5	4.0E	468.1	15.0E	629.3	8.0E	726.2
	4.0E	1052.2	2.0E	1176.7	4.0E	1251.0	2.0E	1300.0
100.0	8.0E	12.2	4.0E	476.9	15.0E	631.3	8.0E	812.5
	4.0E	1196.3	2.0E	1300.0				
105.0	8.0E	13.1	4.0E	489.3	15.0E	614.6	30.0E	726.0
	15.0E	853.3	8.0E	899.0	15.0E	1262.3	4.0E	1289.4

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110.0	8.0E	14.3	4.0E	496.4	15.0E	598.8	30.0E	698.8	8.0E	743.7
	15.0E	827.2	8.0E	1163.4	15.0E	1300.0				
115.0	8.0E	15.8	4.0E	491.9	15.0E	621.1	8.0E	765.5	15.0E	923.6
	8.0E	974.0	15.0E	1033.3	8.0E	1227.0	15.0E	1300.0		
120.0	8.0E	17.8	4.0E	62.7	8.0E	75.9	4.0E	481.8	15.0E	633.8
	8.0E	896.5	15.0E	1038.6	4.0E	1201.6	8.0E	1231.8	4.0E	1300.0
125.0	8.0E	21.3	4.0E	46.8	8.0E	81.6	4.0E	464.3	8.0E	473.6
	15.0E	658.9	8.0E	1292.7	4.0E	1300.0				
130.0	8.0E	86.8	4.0E	439.8	8.0E	521.6	15.0E	723.3	8.0E	987.2
	15.0E	1149.4	8.0E	1300.0						
135.0	8.0E	88.8	4.0E	419.8	8.0E	592.0	15.0E	1158.6	8.0E	1226.6
	4.0E	1300.0								
140.0	8.0E	90.7	4.0E	450.2	8.0E	720.4	15.0E	927.5	8.0E	963.1
	15.0E	1095.4	4.0E	1300.0						
145.0	8.0E	91.0	4.0E	489.0	8.0E	737.4	15.0E	901.7	8.0E	972.8
	4.0E	1102.1	5000.0E	1108.9	4.0E	1300.0				
150.0	8.0E	89.2	4.0E	482.3	8.0E	718.6	2.0E	721.3	15.0E	862.6
	3.0E	900.2	4.0E	983.6	5000.0E	1300.0				
155.0	8.0E	87.4	4.0E	482.8	8.0E	630.2	4.0E	671.5	2.0E	713.7
	4.0E	835.6	3.0E	1300.0						
160.0	8.0E	83.7	4.0E	233.4	2.0E	404.2	4.0E	489.5	8.0E	598.6
	4.0E	660.1	8.0E	817.3	3.0E	1022.3	5000.0E	1035.6	3.0E	1065.2
	5000.0E	1065.6	3.0E	1070.0	5000.0E	1109.0	3.0E	1123.1	5000.0E	1133.1
	3.0E	1144.9	5000.0E	1300.0						
165.0	8.0E	80.9	4.0E	169.5	2.0E	401.5	4.0E	505.0	8.0E	565.2
	4.0E	615.5	8.0E	649.8	15.0E	684.5	5000.0E	1300.0		
170.0	8.0E	76.7	4.0E	120.7	2.0E	346.7	15.0E	357.5	2.0E	372.9
	8.0E	492.5	4.0E	573.0	8.0E	613.5	15.0E	616.8	5000.0E	1300.0
175.0	8.0E	73.5	4.0E	83.7	2.0E	245.3	8.0E	318.8	15.0E	471.4
	8.0E	508.3	4.0E	569.7	8.0E	600.3	5000.0E	1300.0		
180.0	8.0E	69.8	2.0E	212.9	8.0E	276.4	15.0E	288.9	8.0E	486.9
	4.0E	565.5	8.0E	567.0	5000.0E	1300.0				
185.0	8.0E	66.5	2.0E	189.9	8.0E	254.0	15.0E	285.1	8.0E	478.2
	4.0E	507.0	8.0E	563.2	5000.0E	1300.0				
190.0	8.0E	63.9	2.0E	175.6	8.0E	231.6	15.0E	283.3	8.0E	493.0
	5000.0E	1300.0								
195.0	8.0E	63.3	2.0E	162.1	8.0E	218.6	15.0E	288.0	8.0E	462.3
	5000.0E	1300.0								
200.0	8.0E	64.5	2.0E	147.9	8.0E	207.9	15.0E	293.2	8.0E	436.8
	5000.0E	1300.0								
205.0	8.0E	69.2	2.0E	132.8	8.0E	198.2	15.0E	284.7	8.0E	356.4
	15.0E	412.2	5000.0E	1300.0						
210.0	8.0M	23.0	5.0M	32.0	2.0M	65.0	8.0E	75.3	2.0E	119.1
	8.0E	187.8	15.0E	279.8	8.0E	341.0	15.0E	393.9	5000.0E	1300.0
215.0	8.0M	23.0	5.0M	32.0	2.0M	65.0	8.0E	86.7	2.0E	107.5
	8.0E	176.8	15.0E	295.2	8.0E	341.1	5000.0E	1300.0		
220.0	8.0M	23.0	5.0M	32.0	2.0M	65.0	8.0E	166.1	15.0E	298.9
	30.0E	301.2	8.0E	350.3	5000.0E	1300.0				
225.0	8.0M	23.0	5.0M	32.0	2.0M	65.0	8.0E	157.4	15.0E	203.2
	30.0E	232.1	15.0E	296.2	30.0E	302.3	5000.0E	308.0	8.0E	337.0
	5000.0E	1300.0								
230.0	10.0M	30.0	2.0M	40.0	1.0M	55.0	8.0E	150.7	15.0E	190.8
	30.0E	250.1	15.0E	290.9	30.0E	296.2	5000.0E	304.4	8.0E	320.1
	5000.0E	1300.0								
235.0	10.0M	30.0	2.0M	40.0	1.0M	55.0	8.0E	146.8	15.0E	183.9
	30.0E	250.7	8.0E	276.1	5000.0E	296.3	30.0E	310.5	5000.0E	1300.0
240.0	10.0M	30.0	2.0M	40.0	1.0M	55.0	8.0E	144.5	15.0E	179.6
	30.0E	237.3	8.0E	282.6	30.0E	322.4	5000.0E	328.2	30.0E	328.5
	5000.0E	1300.0								

245.0	10.0M	30.0	2.0M	40.0	1.0M	55.0	8.0E	143.2	15.0E	176.8
	30.0E	231.0	8.0E	278.9	30.0E	315.8	5000.0E	1300.0		
250.0	8.0E	142.4	15.0E	177.0	30.0E	229.2	8.0E	280.1	30.0E	320.7
	5000.0E	1300.0								
255.0	8.0E	141.6	15.0E	179.2	30.0E	229.1	8.0E	285.4	30.0E	335.0
	5000.0E	1300.0								
260.0	8.0E	141.9	15.0E	182.5	30.0E	227.9	8.0E	297.5	30.0E	352.3
	5000.0E	1300.0								
265.0	8.0E	143.4	15.0E	183.4	30.0E	226.1	8.0E	315.2	4.0E	348.9
	5000.0E	1300.0								
270.0	8.0E	145.9	15.0E	185.8	30.0E	224.5	8.0E	260.3	4.0E	351.9
	5000.0E	1300.0								
275.0	8.0E	153.9	15.0E	187.7	30.0E	223.9	8.0E	248.1	4.0E	353.5
	5000.0E	1300.0								
280.0	8.0E	197.1	30.0E	212.8	8.0E	249.0	4.0E	378.0	5000.0E	1300.0
285.0	8.0E	254.1	4.0E	410.8	5000.0E	1300.0				
290.0	8.0E	266.8	4.0E	411.2	5000.0E	1300.0				
295.0	10.0M	30.0	4.0M	70.0	8.0E	143.1	4.0E	185.9	8.0E	266.5
	4.0E	409.8	5000.0E	1300.0						
300.0	10.0M	30.0	4.0M	70.0	8.0E	133.4	4.0E	193.8	8.0E	256.3
	4.0E	421.3	5000.0E	1300.0						
305.0	10.0M	30.0	4.0M	70.0	8.0E	125.7	4.0E	198.8	8.0E	217.6
	4.0E	458.8	5000.0E	1300.0						
310.0	10.0M	30.0	4.0M	70.0	8.0E	123.5	4.0E	507.3	5000.0E	1300.0
315.0	7.0M	30.0	3.0M	70.0	8.0E	126.2	4.0E	550.8	5000.0E	1300.0
320.0	7.0M	30.0	3.0M	70.0	8.0E	128.3	4.0E	574.5	5000.0E	576.7
	4.0E	578.0	5000.0E	1300.0						
325.0	7.0M	30.0	3.0M	70.0	8.0E	131.5	4.0E	619.7	5000.0E	1300.0
330.0	7.0M	30.0	3.0M	70.0	8.0E	138.6	4.0E	278.5	8.0E	342.2
	4.0E	687.3	5000.0E	1300.0						
335.0	7.0M	30.0	6.0M	60.0	4.0M	70.0	8.0E	165.9	4.0E	290.3
	8.0E	383.7	4.0E	781.1	5000.0E	1300.0				
340.0	7.0M	30.0	6.0M	60.0	4.0M	70.0	8.0E	179.6	4.0E	317.7
	8.0E	357.0	4.0E	789.3	5000.0E	789.6	4.0E	854.6	2.0E	1058.3
	5000.0E	1101.1	1.0E	1130.5	5000.0E	1133.7	1.0E	1300.0		
345.0	7.0M	30.0	6.0M	60.0	4.0M	70.0	8.0E	185.0	4.0E	849.4
	2.0E	876.0	8.0E	888.9	2.0E	900.7	8.0E	909.4	2.0E	913.5
	8.0E	914.8	2.0E	933.7	8.0E	937.5	2.0E	996.5	5000.0E	1040.1
	4.0E	1054.9	5000.0E	1078.4	4.0E	1087.0	5000.0E	1155.9	1.0E	1185.6
	5000.0E	1196.3	1.0E	1300.0						
350.0	7.0M	30.0	6.0M	60.0	4.0M	70.0	8.0E	197.9	4.0E	556.1
	8.0E	686.4	4.0E	1113.5	1.0E	1300.0				
355.0	8.0E	225.7	4.0E	594.5	8.0E	598.3	15.0E	657.2	8.0E	711.6
	4.0E	1058.7	1.0E	1163.5	2.0E	1300.0				

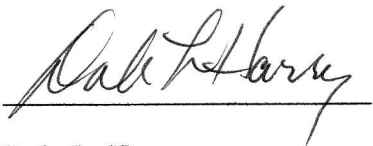
### Statement of Qualifications

I, Dale L. Harry, have fifty years of experience in the installation, adjustment, measurement, and maintenance of AM broadcast station antenna systems.

I am the Technical Director of Sierra Broadcast Service, a contract engineering service for broadcast stations. I am certified as a Professional Broadcast Engineer by the Society of Broadcast Engineers and hold a lifetime FCC Radiotelephone Operator License.

The Field Strength Measurements submitted herewith for radio stations KIHM and KJFK were taken by me personally or by my associate Robert A. Kay, Jr. under my direct supervision. Robert Kay is known to me to be a qualified broadcast engineer.

All of the Field Strength Measurements submitted herewith were taken using Potomac Instruments model FIM-41 Field Strength Meter, serial number 1597. This instrument was calibrated on May 25, 2011 by Potomac Instruments.

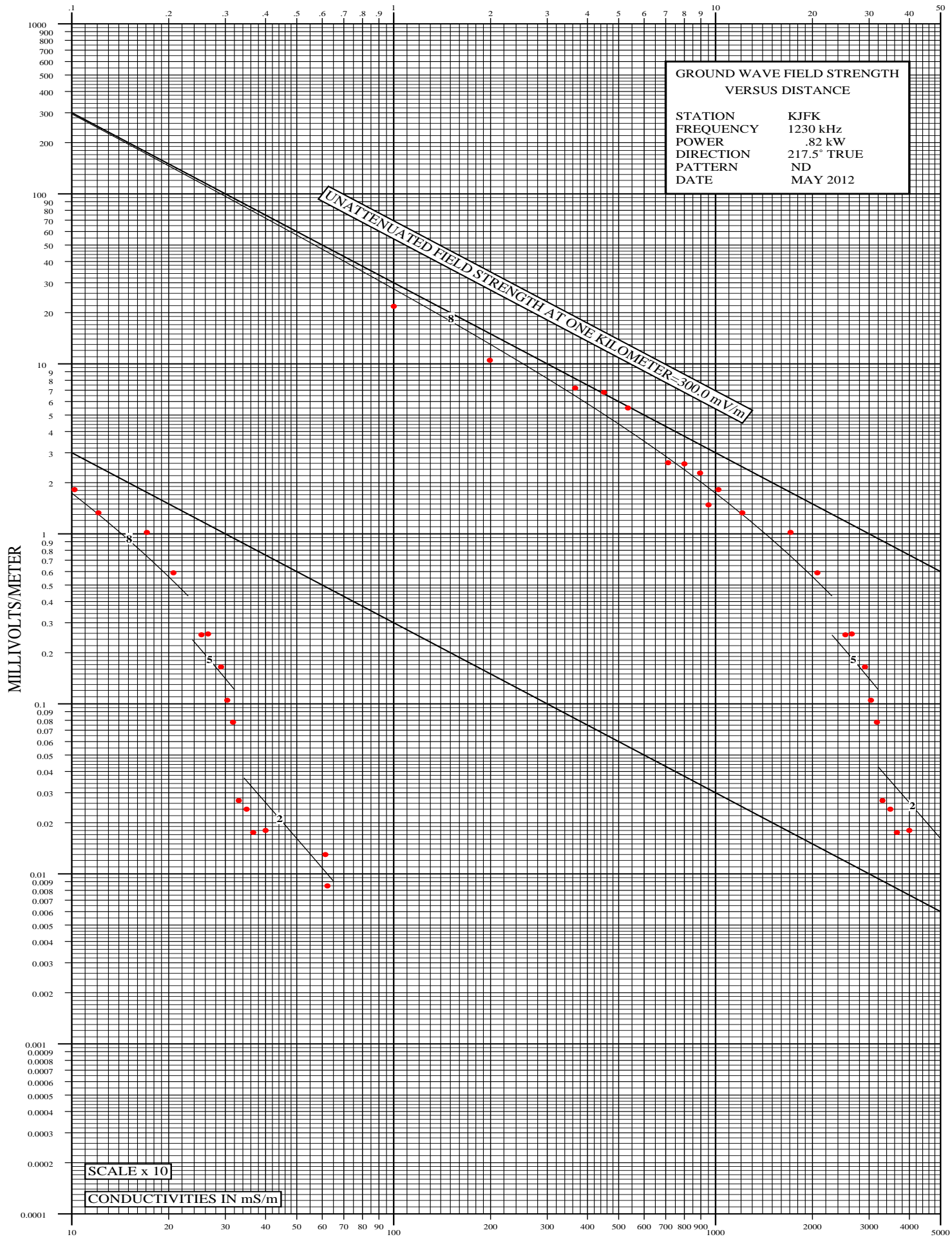
A handwritten signature in cursive script, reading "Dale L. Harry", written over a horizontal line.

Dale L. Harry

Radio Station KJFK, Reno, Nevada  
 1230 Khz. 0.82 Kw. Non-Directional  
 Field Strength Measurements  
 217.5° Radial

Distance Km.	Date	Time	Field Strength mV/m
1.00	4/24/2012	1402	218
1.99	4/24/2012	1337	105
3.66	4/24/2012	1320	72
4.50	4/24/2012	1422	68
5.34	4/24/2012	1433	55
7.12	4/24/2012	1446	26.2
8.00	4/24/2012	1455	25.8
8.95	4/24/2012	1503	22.8
9.51	4/24/2012	1511	14.8
10.2	4/24/2012	1519	18.2
12.1	4/24/2012	1540	13.3
17.1	4/24/2012	1610	10.2
20.7	4/24/2012	1623	5.90
25.3	4/24/2012	1644	2.55
26.5	4/24/2012	1653	2.58
29.1	4/24/2012	1703	1.65
30.4	4/24/2012	1708	1.05
31.7	4/24/2012	1714	0.78
33.0	4/24/2012	1720	0.27
34.9	4/24/2012	1727	0.24
36.6	4/24/2012	1733	0.175
40.0	4/24/2012	1743	0.18
61.3	4/23/2012	1103	0.13
62.2	4/23/2012	1115	0.085

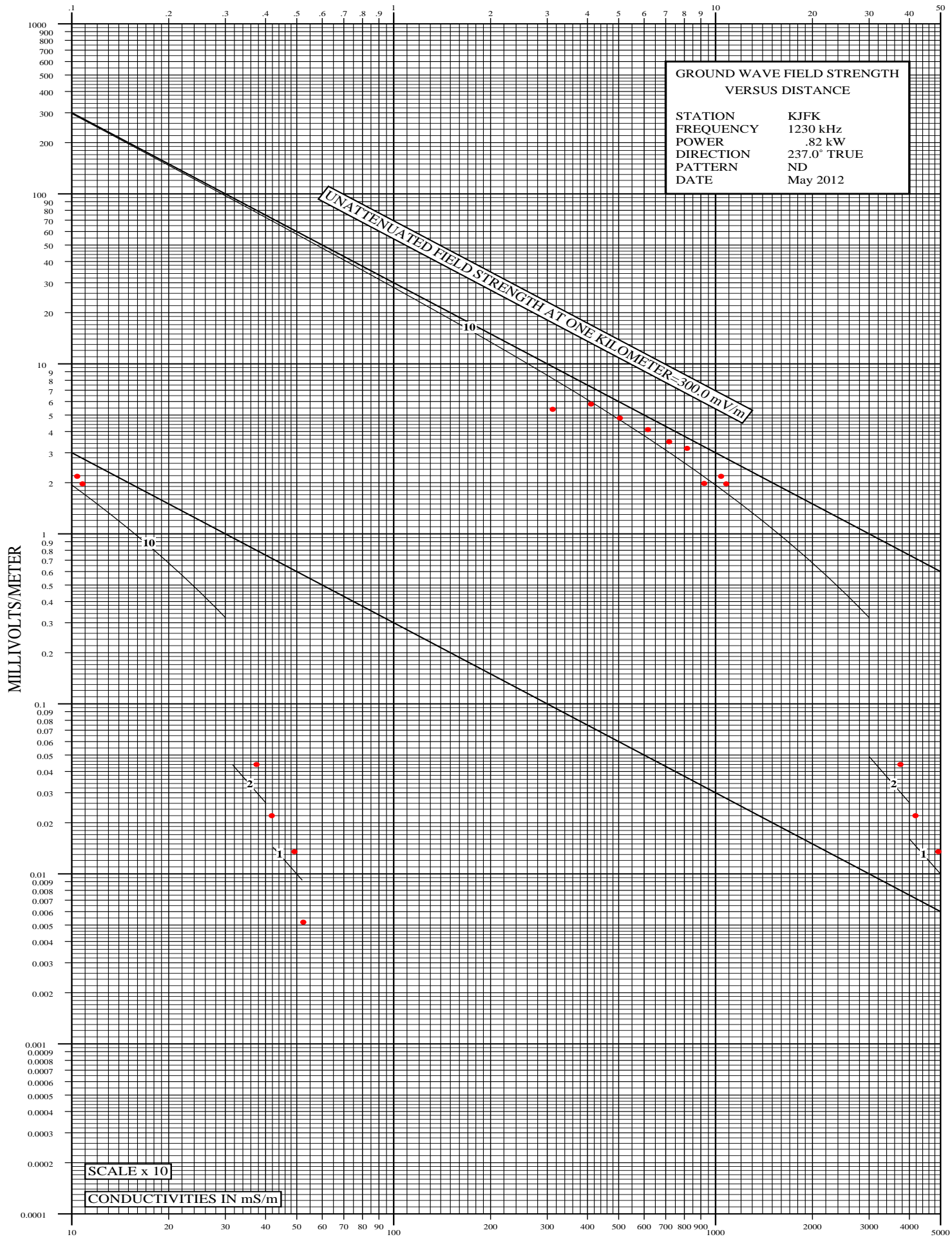
# KILOMETERS FROM ANTENNA



Radio Station KJFK, Reno, NV  
1230 KHz, 0.82 Kw. Non-Directional  
Field Strength Measurements  
237° Radial

Distance Km.	Date	Time	Field Strength mV/m
3.12	5/2/2012	1736	54
4.10	5/2/2012	1740	58
5.04	5/3/2012	0849	48
6.16	5/3/2012	0906	41
7.17	5/3/2012	0916	34.8
8.16	5/3/2012	0926	31.8
9.22	5/3/2012	0935	19.8
10.4	5/3/2012	0946	21.8
10.8	5/3/2012	1003	19.7
37.5	5/3/2012	1542	0.44
41.8	5/3/2012	1215	0.220
49.2	5/3/2012	1302	0.135
52.4	5/3/2012	1327	0.052

# KILOMETERS FROM ANTENNA

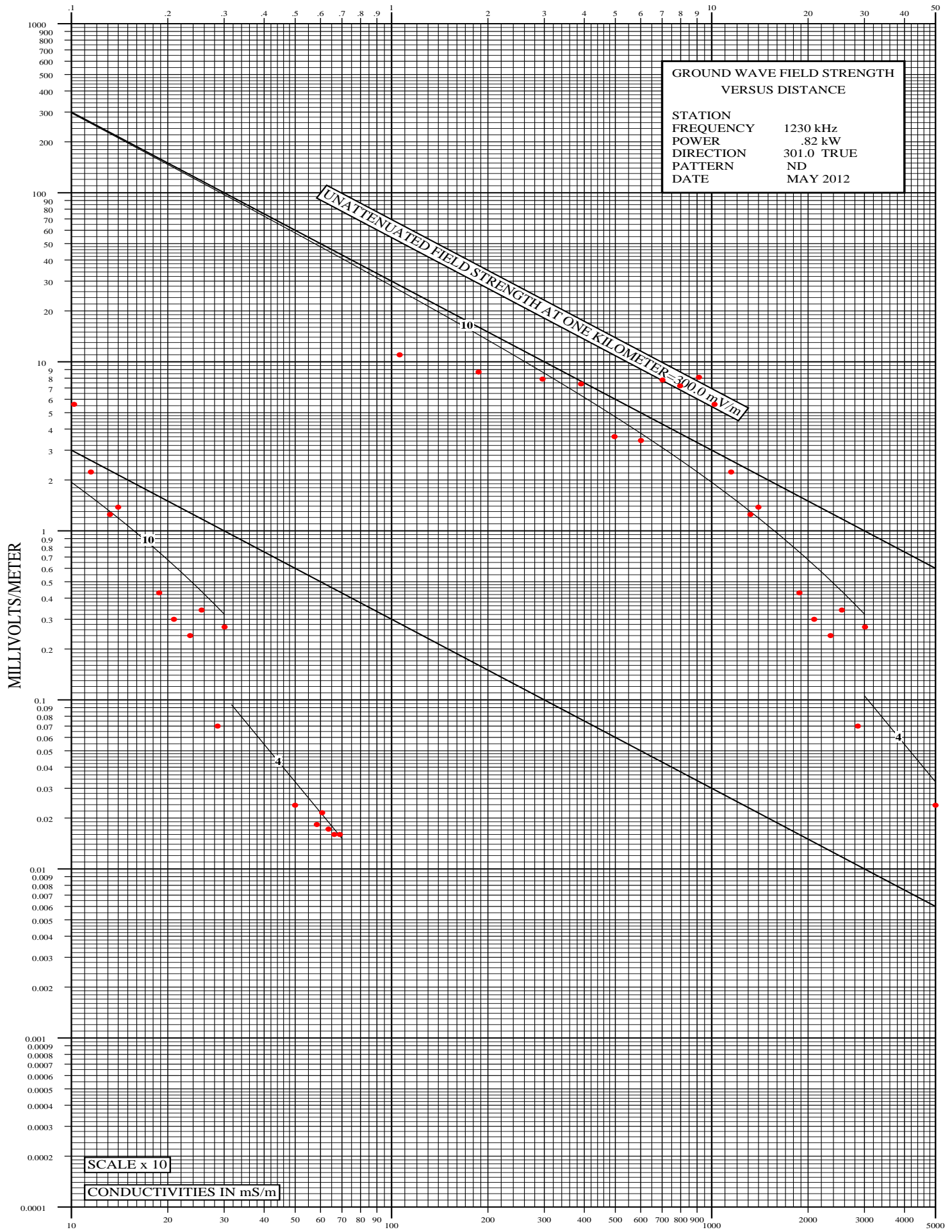




Radio Station KJFK, Reno, NV  
1230 KHz, 0.82 Kw. Non-Directional  
Field Strength Measurements  
301° Radial

Distance Km.	Date	Time	Field Strength mV/m
1.06	5/1/2012	1306	110
1.87	5/1/2012	1331	87
2.96	5/1/2012	1402	79
3.91	5/1/2012	1416	74
4.97	5/1/2012	1427	36.1
6.01	5/1/2012	1441	34.2
7.02	5/1/2012	1457	78
7.97	5/1/2012	1512	72
9.12	5/1/2012	1529	81
10.2	5/1/2012	1537	56
11.5	5/1/2012	1557	22.3
13.2	5/1/2012	1608	12.5
14.0	5/1/2012	1631	13.8
18.8	5/2/2012	1606	4.3
20.9	5/2/2012	1539	3.00
23.5	5/2/2012	1515	2.40
25.5	5/2/2012	1441	3.40
28.6	5/2/2012	1339	0.70
30.1	5/2/2012	1326	2.70
50.0	5/2/2012	1230	0.238
58.4	5/2/2012	1116	0.183
60.7	5/2/2012	1106	0.215
63.5	5/2/2012	1057	0.172
66.2	5/2/2012	1040	0.160
68.9	5/2/2012	1051	0.160

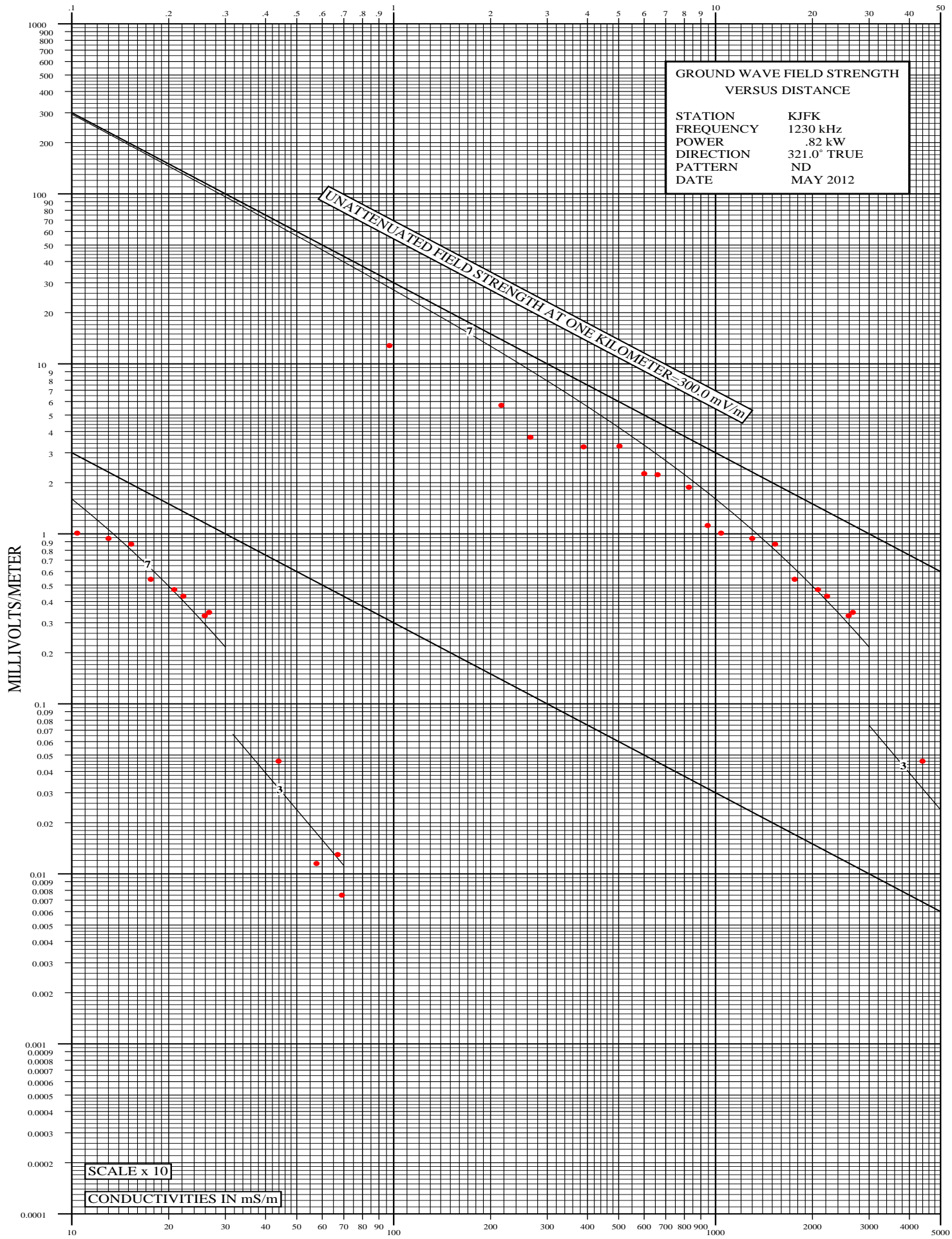
# KILOMETERS FROM ANTENNA



Radio Station KJFK, Reno, NV  
 1230 KHz, 0.82 Kw. Non-Directional  
 Field Strength Measurements  
 321° Radial

Distance Km.	Date	Time	Field Strength mV/m
0.97	4/24/2012	0841	128
2.16	4/24/2012	0852	57
2.66	4/24/2012	0902	37
3.89	4/24/2012	0912	32.5
5.03	4/24/2012	0921	32.8
6.00	4/24/2012	0930	22.6
6.61	4/24/2012	1245	22.3
8.27	4/24/2012	0944	18.8
9.45	4/24/2012	0955	11.2
10.4	4/24/2012	1005	10.1
13.0	4/24/2012	1016	9.4
15.3	4/24/2012	1026	8.7
17.6	4/24/2012	1046	5.4
20.8	4/24/2012	1101	4.7
22.2	4/24/2012	1118	4.3
25.9	4/24/2012	1154	3.3
26.7	4/24/2012	1147	3.45
43.9	4/23/2012	1532	0.46
57.6	4/23/2012	1607	0.115
67.0	4/23/2012	1628	0.13
69.0	4/23/2012	1637	0.075

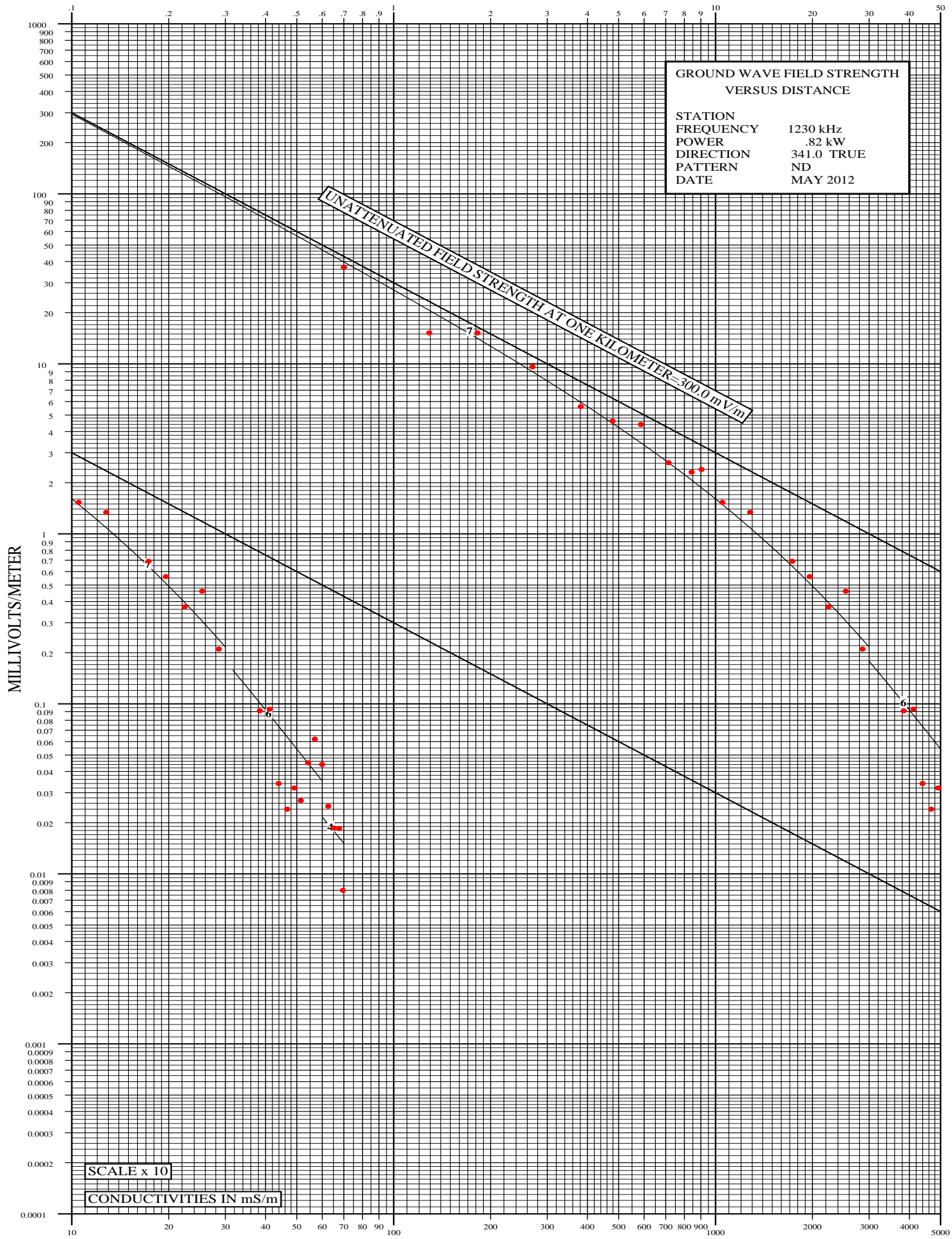
# KILOMETERS FROM ANTENNA



Radio Station KJFK, Reno, NV  
1230 KHz, 0.82 Kw. Non-Directional  
Field Strength Measurements  
341° Radial

Distance Km.	Date	Time	Field Strength mV/m
0.7	5/3/2012	1722	370
1.29	5/3/2012	1730	152
1.82	5/3/2012	1739	152
2.7	5/3/2012	1750	96
3.81	5/4/2012	0824	56
4.78	5/4/2012	0838	46
5.86	5/4/2012	0945	44
7.14	5/4/2012	1001	26.2
8.42	5/4/2012	1019	23.1
9.04	5/4/2012	1058	23.9
10.5	5/4/2012	1039	15.3
12.8	5/4/2012	1138	13.4
17.3	5/4/2012	1222	6.9
19.6	5/4/2012	1241	5.6
22.4	5/4/2012	1310	3.72
25.4	5/4/2012	1350	4.6
28.6	5/4/2012	1414	2.10
38.4	5/4/2012	1515	0.91
41.2	5/4/2012	1530	0.93
43.9	5/4/2012	1540	0.34
46.7	5/4/2012	1550	0.24
49.1	5/4/2012	1705	0.32
51.5	5/5/2012	1106	0.27
54.2	5/5/2012	1351	0.45
56.9	5/5/2012	1338	0.62
59.9	5/5/2012	1325	0.44
62.6	5/5/2012	1312	0.25
65.1	5/5/2012	1258	0.186
67.7	5/5/2012	1248	0.185
69.5	5/5/2012	1237	0.08

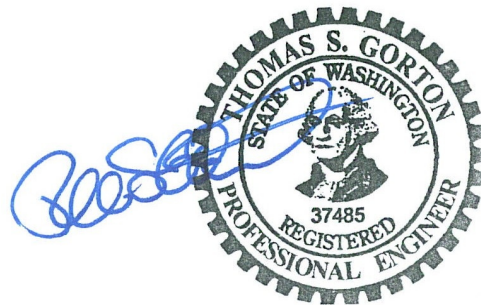
# KILOMETERS FROM ANTENNA



## Statement of Engineer

This Engineering Report, relative to application for a new transmitter site for KIHM-AM, Reno, Nevada has been prepared by the undersigned. All representations contained herein are true to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am an engineer in the firm of Hatfield and Dawson Consulting Engineers and am Registered as a Professional Engineer in the States of Washington and Oregon.

Signed this 4th day of April 2013



Thomas S. Gorton, P.E.

Hatfield & Dawson Consulting Engineers