Application for Modification
Post – Repack Construction Permit
Engineering Exhibit

KSPX-TV – Sacramento, CA

Facility ID: 52953

Licensee “ION MEDIA SACRAMENTO LICENSE, INC” is currently authorized to operate on Post-Repack DTV channel 21. The Antenna Structure Registration Number is 1015686 with a Latitude of 35° 15’ 54.0” N+ and a Longitude of 121° 29’ 28.0” W-.

The purpose of this application is to request authority to modify the construction permit (0000030649) to operate from Antenna Structure Registration Number 1012855 with a Latitude of 38° 14’ 50.0” N+ and a Longitude of 121° 30’ 7.0” W-. The HAAT is 444.6 m (AGL 446.9 m) with an AMSL of 446.9 m. An ERP of 1000 kW will be utilized.

Antenna System

A top mounted directional antenna will be utilized. It will be affixed to an existing guyed tower structure and will not increase the overall height of the structure. Any vertical component will not exceed the horizontal pattern in any direction. Elevation and Azimuth patterns are attached.

RF Hazard (Environmental)

Human Exposure measurements were calculated using the OET- 65 equation and the outcome is compliant with FCC 1.1310. Furthermore, the calculation is under 5% of the limit categorically excluding the application from further environmental evaluations.

Calculated Maximum	Calculated Exposure	Percent of Limit
mW/cm²	mW/cm²	
0.343	0.004752	1.38%

The station will coordinate with other(s) to comply with access, antenna and/or tower issues related to RF Exposure

Broadcast Facility

§73.616 Interference Caused

A calculation using *TVStudy* version 2.2.5 using an LMS database dated 2019-03-12 indicates that there is no excessive new interference created. This study used cell spacing of 2 km and a profile spacing of .5 km. The baseline record was excluded if the station has an approved CP.

Interference failures in the TVStudy analysis are less than or equal to those contemplated by the station’s approved CP. These levels were accepted in a supplemental interference agreement with K20JX-D, which is attached for reference, and by KDTV-DT via a MX interference acceptance in its approved CP filing (FCC LMS File No. 0000034452). These arrangements were part of a multi-market resolution for an unable to construct filing.

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§73.622 Maximum ERP and Antenna Height

This application does exceed the maximum ERP for the specified HAAT. However, this application is compliant with the "Largest Station in the Market" provision. KVIE-TV has a service area of 48,007.5 sq. km. and KSPX-TV would be compliant with a service area of 36,567.6 sq. km.

Contour Loss Analysis

This applications contour creates very minimal areas of contour expansion and no areas of retraction. As such, no loss areas are created. RF coverage analysis attached.

§73.623 DTV Allotments

The application does not change the DTV Table of Allotments.

§73.625 Coverage of Principal Community

The application's ERP will sufficiently cover Sacramento, California. RF coverage analysis attached.

§73.1030 Radio, Research and Receiving Locations

A calculation using *TVStudy* version 2.2.5 using an LMS database dated 2019-03-12 indicates that no excessive interference to any "protected" locations. As such, no coordination or notification is required.

A calculation using *TVStudy* version 2.2.5 using an LMS database dated 2019-03-12 indicates that this application is 62.1 km away from the FCC Monitoring Station (Livermore, CA). Calculated field strength at this monitoring station is .6 mV/m which is well under the coordination limit.

§73.1650 International Agreements

The application's transmit location is 1121.1 km from Canada. As such, no coordination or notification is required.

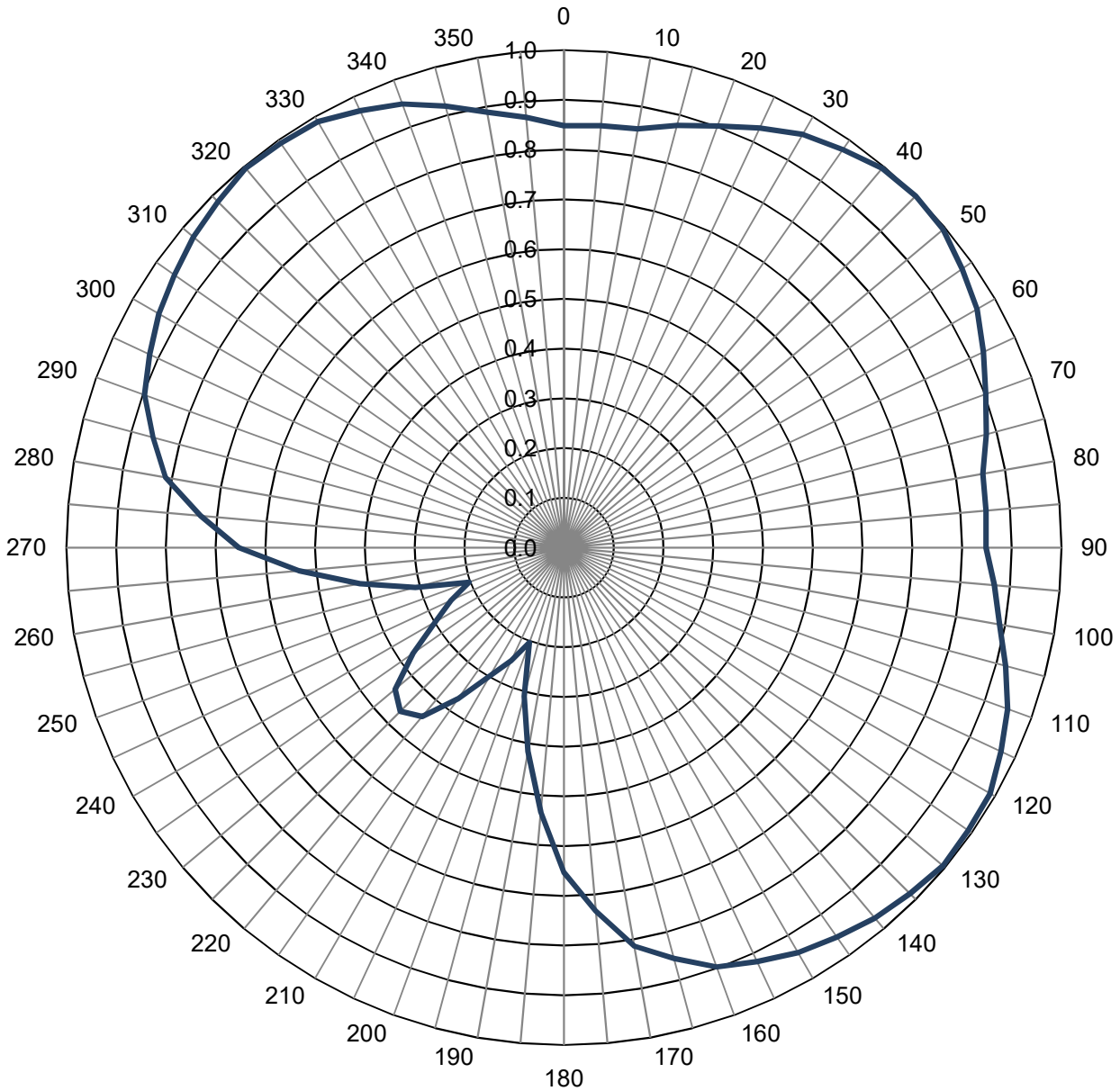
The application's transmit location is 727.3 km from Mexico. As such, no coordination or notification is required.

Azimuth Pattern

Type:	ATW-CX		**Polarization:**	Horizontal
Directivity:	1.50 numeric	(1.76 dB)	**Frequency:**	21 (ATSC)
Peak(s) at:			**Location:**	Sacramento, CA

NOTE: Pattern shape and directivity may vary with channel and mounting configuration.

Relative Field



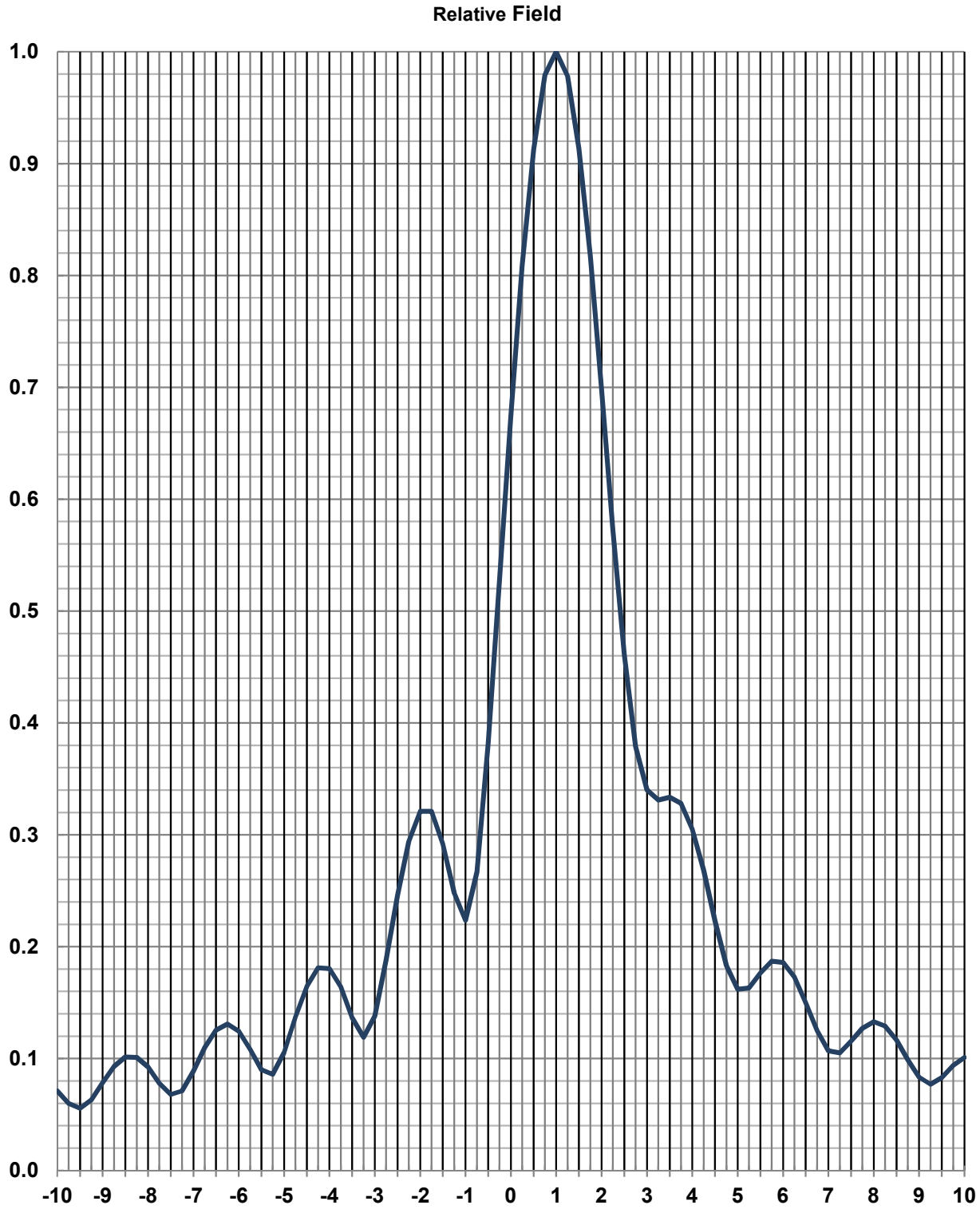
Tabulated Data for Azimuth Pattern

Type: ATW-CX

Angle	Field	dB
0	0.848	-1.43
2	0.849	-1.42
4	0.851	-1.40
6	0.852	-1.39
8	0.854	-1.37
10	0.855	-1.36
12	0.864	-1.27
14	0.874	-1.17
16	0.883	-1.08
18	0.893	-0.99
20	0.902	-0.90
22	0.913	-0.79
24	0.925	-0.68
26	0.936	-0.57
28	0.948	-0.47
30	0.959	-0.36
32	0.966	-0.30
34	0.973	-0.23
36	0.981	-0.17
38	0.988	-0.11
40	0.995	-0.04
42	0.997	-0.03
44	0.999	-0.01
46	0.999	-0.01
48	0.997	-0.03
50	0.995	-0.04
52	0.988	-0.11
54	0.981	-0.17
56	0.973	-0.23
58	0.966	-0.30
60	0.959	-0.36
62	0.948	-0.47
64	0.936	-0.57
66	0.925	-0.68
68	0.913	-0.79
70	0.902	-0.90
72	0.893	-0.99
74	0.883	-1.08
76	0.874	-1.17
78	0.864	-1.27
80	0.855	-1.36
82	0.854	-1.37
84	0.852	-1.39
86	0.851	-1.40
88	0.849	-1.42
90	0.848	-1.43
92	0.856	-1.35
94	0.864	-1.27
96	0.873	-1.18
98	0.881	-1.10
100	0.889	-1.02
102	0.901	-0.91
104	0.913	-0.79
106	0.925	-0.68
108	0.937	-0.57
110	0.949	-0.45
112	0.957	-0.38
114	0.965	-0.31
116	0.973	-0.24
118	0.981	-0.17
120	0.989	-0.10
122	0.990	-0.09
124	0.991	-0.08
126	0.993	-0.06
128	0.994	-0.05
130	0.995	-0.04
132	0.990	-0.08
134	0.986	-0.12
136	0.981	-0.16
138	0.977	-0.21
140	0.972	-0.25
142	0.966	-0.30
144	0.959	-0.36
146	0.953	-0.42
148	0.946	-0.48
150	0.940	-0.54
152	0.931	-0.62
154	0.923	-0.70
156	0.914	-0.78
158	0.906	-0.86
160	0.897	-0.94
162	0.880	-1.11
164	0.863	-1.28
166	0.847	-1.45
168	0.830	-1.62
170	0.813	-1.80
172	0.781	-2.15
174	0.749	-2.51
176	0.717	-2.89
178	0.685	-3.29
180	0.653	-3.70
182	0.606	-4.36
184	0.558	-5.06
186	0.511	-5.83
188	0.463	-6.68
190	0.416	-7.62
192	0.373	-8.56
194	0.331	-9.61
196	0.288	-10.81
198	0.246	-12.20
200	0.203	-13.85
202	0.222	-13.07
204	0.241	-12.36
206	0.260	-11.70
208	0.279	-11.09
210	0.298	-10.52
212	0.327	-9.71
214	0.356	-8.97
216	0.385	-8.29
218	0.414	-7.66
220	0.443	-7.07
222	0.452	-6.90
224	0.461	-6.73
226	0.461	-6.73
228	0.452	-6.90
230	0.443	-7.07
232	0.414	-7.66
234	0.385	-8.29
236	0.356	-8.97
238	0.327	-9.71
240	0.298	-10.52
242	0.279	-11.09
244	0.260	-11.70
246	0.241	-12.36
248	0.222	-13.07
250	0.203	-13.85
252	0.246	-12.20
254	0.288	-10.81
256	0.331	-9.61
258	0.373	-8.56
260	0.416	-7.62
262	0.463	-6.68
264	0.511	-5.83
266	0.558	-5.06
268	0.606	-4.36
270	0.653	-3.70
272	0.685	-3.29
274	0.717	-2.89
276	0.749	-2.51
278	0.781	-2.15
280	0.813	-1.80
282	0.830	-1.62
284	0.847	-1.45
286	0.863	-1.28
288	0.880	-1.11
290	0.897	-0.94
292	0.906	-0.86
294	0.914	-0.78
296	0.923	-0.70
298	0.931	-0.62
300	0.940	-0.54
302	0.946	-0.48
304	0.953	-0.42
306	0.959	-0.36
308	0.966	-0.30
310	0.972	-0.25
312	0.977	-0.21
314	0.981	-0.16
316	0.986	-0.12
318	0.990	-0.08
320	0.995	-0.04
322	0.994	-0.05
324	0.993	-0.06
326	0.991	-0.08
328	0.990	-0.09
330	0.989	-0.10
332	0.981	-0.17
334	0.973	-0.24
336	0.965	-0.31
338	0.957	-0.38
340	0.949	-0.45
342	0.937	-0.57
344	0.925	-0.68
346	0.913	-0.79
348	0.901	-0.91
350	0.889	-1.02
352	0.881	-1.10
354	0.873	-1.18
356	0.864	-1.27
358	0.856	-1.35
360	0.848	-1.43

Elevation Pattern

Type:	ATW26H4H		**Polarization:**	Horizontal
Directivity:			**Frequency:**	21 (ATSC)
Main Lobe:	26.00 numeric	(14.15 dB)	**Location:**	Sacramento, CA
Horizontal:	11.86 numeric	(10.74 dB)	**Beam Tilt:**	1.00 degrees



Tabulated Data for Elevation Pattern

Type: ATW26H4H

-10 to 10 degrees in 0.25 degree increments.
10 to 90 degrees in 0.50 degree increments.

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-10.00	0.071	-22.97	2.25	0.573	-4.84	19.00	0.054	-25.35	43.50	0.035	-29.12	68.00	0.041	-27.85
-9.75	0.060	-24.44	2.50	0.461	-6.73	19.50	0.042	-27.54	44.00	0.025	-32.04	68.50	0.048	-26.38
-9.50	0.056	-25.11	2.75	0.379	-8.43	20.00	0.038	-28.52	44.50	0.021	-33.56	69.00	0.053	-25.60
-9.25	0.063	-24.01	3.00	0.340	-9.37	20.50	0.047	-26.56	45.00	0.029	-30.75	69.50	0.054	-25.35
-9.00	0.079	-22.10	3.25	0.331	-9.60	21.00	0.051	-25.85	45.50	0.038	-28.52	70.00	0.053	-25.60
-8.75	0.093	-20.63	3.50	0.334	-9.54	21.50	0.043	-27.33	46.00	0.040	-28.07	70.50	0.049	-26.29
-8.50	0.102	-19.87	3.75	0.328	-9.68	22.00	0.034	-29.50	46.50	0.034	-29.37	71.00	0.042	-27.54
-8.25	0.101	-19.91	4.00	0.305	-10.31	22.50	0.039	-28.18	47.00	0.025	-32.22	71.50	0.034	-29.37
-8.00	0.093	-20.68	4.25	0.268	-11.44	23.00	0.047	-26.56	47.50	0.021	-33.76	72.00	0.027	-31.54
-7.75	0.078	-22.16	4.50	0.223	-13.03	23.50	0.044	-27.13	48.00	0.029	-30.75	72.50	0.021	-33.56
-7.50	0.068	-23.35	4.75	0.183	-14.75	24.00	0.034	-29.37	48.50	0.038	-28.52	73.00	0.022	-33.35
-7.25	0.071	-22.97	5.00	0.162	-15.81	24.50	0.032	-29.90	49.00	0.041	-27.74	73.50	0.027	-31.37
-7.00	0.089	-21.01	5.25	0.163	-15.76	25.00	0.041	-27.74	49.50	0.037	-28.75	74.00	0.035	-29.24
-6.75	0.110	-19.17	5.50	0.177	-15.07	25.50	0.045	-27.03	50.00	0.027	-31.37	74.50	0.042	-27.64
-6.50	0.126	-18.03	5.75	0.187	-14.56	26.00	0.037	-28.64	50.50	0.021	-33.76	75.00	0.048	-26.47
-6.25	0.131	-17.65	6.00	0.186	-14.61	26.50	0.029	-30.90	51.00	0.025	-32.04	75.50	0.053	-25.60
-6.00	0.125	-18.10	6.25	0.173	-15.24	27.00	0.034	-29.37	51.50	0.035	-29.12	76.00	0.056	-25.04
-5.75	0.108	-19.33	6.50	0.150	-16.48	27.50	0.042	-27.64	52.00	0.042	-27.64	76.50	0.058	-24.73
-5.50	0.090	-20.92	6.75	0.125	-18.06	28.00	0.041	-27.85	52.50	0.042	-27.64	77.00	0.058	-24.73
-5.25	0.086	-21.31	7.00	0.107	-19.41	28.50	0.031	-30.17	53.00	0.035	-29.12	77.50	0.057	-24.88
-5.00	0.106	-19.53	7.25	0.105	-19.58	29.00	0.027	-31.37	53.50	0.025	-32.04	78.00	0.055	-25.27
-4.75	0.137	-17.27	7.50	0.116	-18.75	29.50	0.035	-29.12	54.00	0.020	-33.98	78.50	0.051	-25.85
-4.50	0.165	-15.68	7.75	0.127	-17.92	30.00	0.041	-27.74	54.50	0.027	-31.37	79.00	0.047	-26.56
-4.25	0.181	-14.85	8.00	0.133	-17.52	30.50	0.037	-28.64	55.00	0.037	-28.75	79.50	0.043	-27.43
-4.00	0.181	-14.87	8.25	0.129	-17.79	31.00	0.028	-31.21	55.50	0.043	-27.43	80.00	0.038	-28.52
-3.75	0.164	-15.70	8.50	0.117	-18.67	31.50	0.027	-31.54	56.00	0.044	-27.23	80.50	0.033	-29.76
-3.50	0.137	-17.30	8.75	0.099	-20.09	32.00	0.036	-28.87	56.50	0.038	-28.40	81.00	0.029	-30.90
-3.25	0.119	-18.49	9.00	0.084	-21.57	32.50	0.040	-27.96	57.00	0.029	-30.75	81.50	0.024	-32.40
-3.00	0.138	-17.20	9.25	0.077	-22.27	33.00	0.035	-29.12	57.50	0.022	-33.35	82.00	0.021	-33.76
-2.75	0.188	-14.52	9.50	0.083	-21.62	33.50	0.026	-31.87	58.00	0.024	-32.58	82.50	0.018	-35.14
-2.50	0.246	-12.18	9.75	0.094	-20.54	34.00	0.026	-31.70	58.50	0.033	-29.76	83.00	0.015	-36.48
-2.25	0.294	-10.63	10.00	0.101	-19.91	34.50	0.035	-29.12	59.00	0.042	-27.64	83.50	0.014	-37.08
-2.00	0.321	-9.87	10.50	0.096	-20.35	35.00	0.039	-28.18	59.50	0.046	-26.74	84.00	0.013	-37.72
-1.75	0.321	-9.87	11.00	0.071	-23.04	35.50	0.034	-29.37	60.00	0.046	-26.84	84.50	0.013	-37.72
-1.50	0.292	-10.69	11.50	0.065	-23.81	36.00	0.025	-32.22	60.50	0.040	-27.96	85.00	0.013	-37.72
-1.25	0.248	-12.11	12.00	0.081	-21.88	36.50	0.025	-32.22	61.00	0.032	-30.03	85.50	0.013	-37.72
-1.00	0.224	-13.01	12.50	0.082	-21.72	37.00	0.034	-29.37	61.50	0.024	-32.58	86.00	0.012	-38.42
-0.75	0.267	-11.47	13.00	0.064	-23.94	37.50	0.039	-28.18	62.00	0.022	-33.15	86.50	0.012	-38.42
-0.50	0.382	-8.36	13.50	0.053	-25.60	38.00	0.035	-29.12	62.50	0.029	-30.75	87.00	0.011	-39.17
-0.25	0.527	-5.56	14.00	0.066	-23.68	38.50	0.026	-31.87	63.00	0.039	-28.18	87.50	0.010	-40.00
0.00	0.676	-3.41	14.50	0.072	-22.91	39.00	0.023	-32.96	63.50	0.046	-26.74	88.00	0.008	-41.94
0.25	0.809	-1.84	15.00	0.060	-24.51	39.50	0.031	-30.17	64.00	0.050	-26.11	88.50	0.007	-43.10
0.50	0.913	-0.80	15.50	0.046	-26.74	40.00	0.039	-28.29	64.50	0.049	-26.29	89.00	0.005	-46.02
0.75	0.979	-0.18	16.00	0.054	-25.43	40.50	0.038	-28.52	65.00	0.044	-27.13	89.50	0.003	-50.46
1.00	1.000	0.00	16.50	0.063	-24.01	41.00	0.029	-30.75	65.50	0.036	-28.87	90.00	0.001	-60.00
1.25	0.978	-0.19	17.00	0.057	-24.96	41.50	0.022	-33.35	66.00	0.028	-31.21			
1.50	0.914	-0.79	17.50	0.043	-27.33	42.00	0.026	-31.70	66.50	0.022	-33.35			
1.75	0.817	-1.76	18.00	0.044	-27.13	42.50	0.036	-29.00	67.00	0.024	-32.58			
2.00	0.698	-3.12	18.50	0.055	-25.27	43.00	0.039	-28.18	67.50	0.032	-29.90			

KSPX-Application
Latitude: 38-14-50 N
Longitude: 121-30-07 W
ERP: 1000.00 kW
Channel: 21
Frequency: 515.0 MHz
AGL: 446.87 m
HAAT: 444.54 m
AMSL: 446.87 m
Horiz. Pattern: Directional
Vert. Pattern: Yes
Elec Tilt: 1.0
Prop Model: None

Reno
Storey
Nevada
Yuba
Colusa
Yuba City
Lake
Sutter
Placer
Carson City
Douglas
Rocklin
El Dorado
COL
Sacramento
Alpine
Sonoma
Napa
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KSPX-License
Rohnert Park
Napa
Solano
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