

## Horizontal Polarization AZIMUTH PATTERN

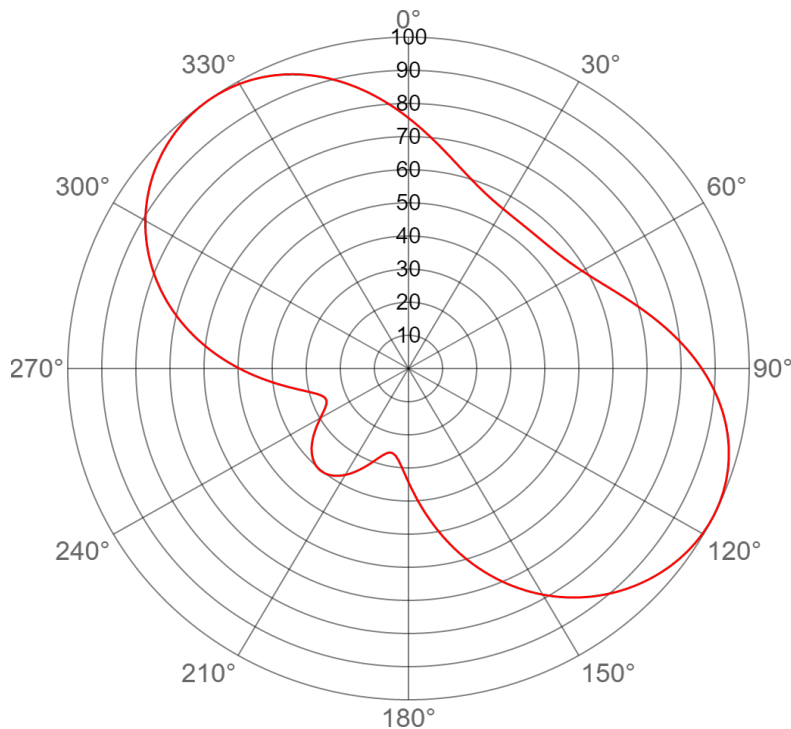


Exhibit No.

Date

30 Mar 2018

Call Letters

KKCF-LD

Channel

23

Antenna Type

J

Location

Atascadero, CA

Customer

Gain

2.0 (3.01 dB)

Calculated

Drawing #

j-pattern\_ch30

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.756	36	0.549	72	0.676	108	0.986	144	0.854	180	0.343	216	0.397	252	0.267	288	0.764	324	1.000
1	0.746	37	0.549	73	0.685	109	0.989	145	0.844	181	0.330	217	0.399	253	0.273	289	0.776	325	1.000
2	0.735	38	0.548	74	0.695	110	0.992	146	0.834	182	0.318	218	0.401	254	0.279	290	0.788	326	0.999
3	0.725	39	0.548	75	0.705	111	0.994	147	0.823	183	0.307	219	0.401	255	0.287	291	0.800	327	0.998
4	0.715	40	0.548	76	0.715	112	0.996	148	0.812	184	0.296	220	0.402	256	0.296	292	0.812	328	0.996
5	0.705	41	0.548	77	0.725	113	0.998	149	0.800	185	0.287	221	0.401	257	0.307	293	0.823	329	0.994
6	0.695	42	0.548	78	0.735	114	0.999	150	0.788	186	0.279	222	0.401	258	0.318	294	0.834	330	0.992
7	0.685	43	0.549	79	0.746	115	1.000	151	0.776	187	0.273	223	0.399	259	0.330	295	0.844	331	0.989
8	0.676	44	0.549	80	0.756	116	1.000	152	0.764	188	0.267	224	0.397	260	0.343	296	0.854	332	0.986
9	0.667	45	0.550	81	0.767	117	1.000	153	0.751	189	0.263	225	0.394	261	0.357	297	0.864	333	0.982
10	0.658	46	0.551	82	0.778	118	0.999	154	0.738	190	0.260	226	0.391	262	0.371	298	0.874	334	0.978
11	0.649	47	0.552	83	0.788	119	0.998	155	0.725	191	0.260	227	0.386	263	0.386	299	0.883	335	0.973
12	0.641	48	0.553	84	0.799	120	0.997	156	0.711	192	0.259	228	0.382	264	0.401	300	0.892	336	0.969
13	0.633	49	0.554	85	0.810	121	0.995	157	0.697	193	0.261	229	0.376	265	0.416	301	0.900	337	0.963
14	0.626	50	0.556	86	0.820	122	0.993	158	0.683	194	0.263	230	0.371	266	0.432	302	0.909	338	0.958
15	0.619	51	0.558	87	0.830	123	0.990	159	0.668	195	0.268	231	0.365	267	0.448	303	0.916	339	0.951
16	0.612	52	0.560	88	0.841	124	0.988	160	0.654	196	0.272	232	0.358	268	0.464	304	0.924	340	0.945
17	0.606	53	0.563	89	0.851	125	0.984	161	0.639	197	0.278	233	0.351	269	0.480	305	0.931	341	0.938
18	0.599	54	0.565	90	0.861	126	0.981	162	0.624	198	0.284	234	0.344	270	0.496	306	0.938	342	0.931
19	0.594	55	0.568	91	0.870	127	0.976	163	0.608	199	0.291	235	0.337	271	0.513	307	0.944	343	0.923
20	0.589	56	0.572	92	0.880	128	0.972	164	0.593	200	0.298	236	0.329	272	0.529	308	0.951	344	0.915
21	0.584	57	0.576	93	0.889	129	0.967	165	0.577	201	0.306	237	0.321	273	0.545	309	0.956	345	0.907
22	0.579	58	0.579	94	0.898	130	0.962	166	0.561	202	0.313	238	0.313	274	0.561	310	0.962	346	0.898
23	0.576	59	0.584	95	0.907	131	0.956	167	0.545	203	0.321	239	0.306	275	0.577	311	0.967	347	0.889
24	0.572	60	0.589	96	0.915	132	0.951	168	0.529	204	0.329	240	0.298	276	0.593	312	0.972	348	0.880
25	0.568	61	0.594	97	0.923	133	0.944	169	0.513	205	0.337	241	0.291	277	0.608	313	0.976	349	0.870
26	0.565	62	0.599	98	0.931	134	0.938	170	0.496	206	0.344	242	0.284	278	0.624	314	0.981	350	0.861
27	0.563	63	0.606	99	0.938	135	0.931	171	0.480	207	0.351	243	0.278	279	0.639	315	0.984	351	0.851
28	0.560	64	0.612	100	0.945	136	0.924	172	0.464	208	0.358	244	0.272	280	0.654	316	0.988	352	0.841
29	0.558	65	0.619	101	0.951	137	0.916	173	0.448	209	0.365	245	0.268	281	0.668	317	0.990	353	0.830
30	0.556	66	0.626	102	0.958	138	0.909	174	0.432	210	0.371	246	0.263	282	0.683	318	0.993	354	0.820
31	0.554	67	0.633	103	0.963	139	0.900	175	0.416	211	0.376	247	0.261	283	0.697	319	0.995	355	0.810
32	0.553	68	0.641	104	0.969	140	0.892	176	0.401	212	0.382	248	0.259	284	0.711	320	0.997	356	0.799
33	0.552	69	0.649	105	0.973	141	0.883	177	0.386	213	0.386	249	0.260	285	0.725	321	0.998	357	0.788
34	0.551	70	0.658	106	0.978	142	0.874	178	0.371	214	0.391	250	0.260	286	0.738	322	0.999	358	0.778
35	0.550	71	0.667	107	0.982	143	0.864	179	0.357	215	0.394	251	0.263	287	0.751	323	1.000	359	0.767

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## Vertical Polarization AZIMUTH PATTERN

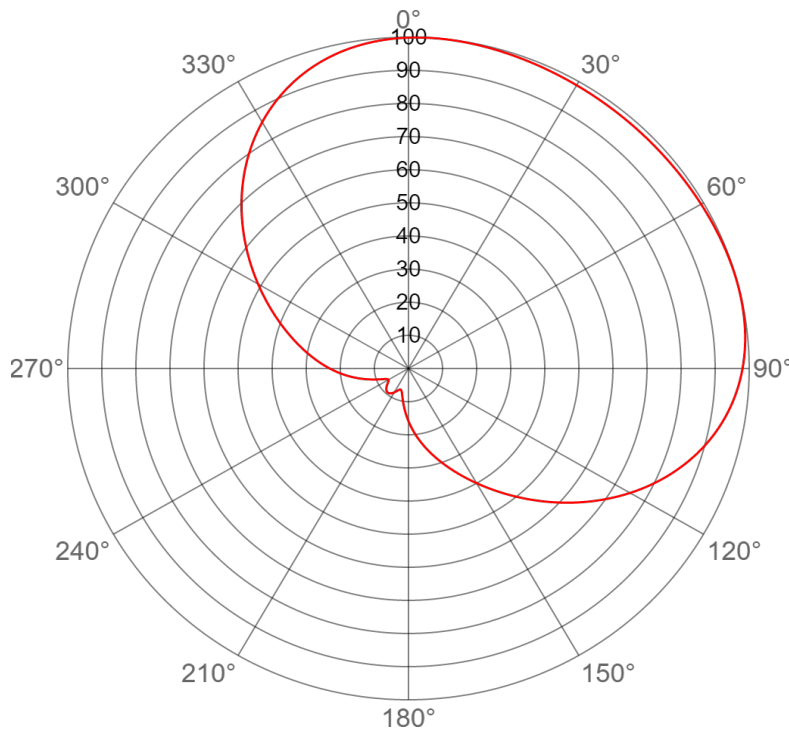


Exhibit No.

Date

**30 Mar 2018**

Call Letters

**KKCF-LD**

Channel

**23**

Antenna Type

**J**

Location

**Atascadero, CA**

Customer

Gain

**2.0 (3.01 dB)**
**Calculated**

Drawing #

**j-pattern\_ch30**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.999	36	0.986	72	0.998	108	0.875	144	0.463	180	0.159	216	0.093	252	0.107	288	0.381	324	0.798
1	0.999	37	0.986	73	0.999	109	0.866	145	0.452	181	0.152	217	0.094	253	0.113	289	0.391	325	0.809
2	1.000	38	0.986	74	0.999	110	0.857	146	0.441	182	0.145	218	0.094	254	0.120	290	0.401	326	0.819
3	1.000	39	0.986	75	0.999	111	0.848	147	0.430	183	0.138	219	0.095	255	0.126	291	0.411	327	0.829
4	1.000	40	0.986	76	0.999	112	0.838	148	0.420	184	0.132	220	0.095	256	0.132	292	0.421	328	0.839
5	1.000	41	0.986	77	0.999	113	0.828	149	0.410	185	0.125	221	0.095	257	0.139	293	0.431	329	0.849
6	1.000	42	0.986	78	0.999	114	0.818	150	0.400	186	0.119	222	0.094	258	0.146	294	0.442	330	0.859
7	1.000	43	0.986	79	0.998	115	0.807	151	0.390	187	0.113	223	0.094	259	0.152	295	0.453	331	0.868
8	0.999	44	0.986	80	0.998	116	0.796	152	0.380	188	0.107	224	0.093	260	0.159	296	0.464	332	0.877
9	0.999	45	0.986	81	0.997	117	0.785	153	0.371	189	0.101	225	0.092	261	0.166	297	0.475	333	0.885
10	0.998	46	0.986	82	0.996	118	0.774	154	0.361	190	0.096	226	0.090	262	0.173	298	0.486	334	0.894
11	0.998	47	0.986	83	0.995	119	0.763	155	0.352	191	0.091	227	0.089	263	0.180	299	0.498	335	0.902
12	0.997	48	0.986	84	0.994	120	0.751	156	0.343	192	0.086	228	0.087	264	0.187	300	0.510	336	0.909
13	0.997	49	0.987	85	0.992	121	0.740	157	0.334	193	0.082	229	0.085	265	0.195	301	0.521	337	0.917
14	0.996	50	0.987	86	0.990	122	0.728	158	0.325	194	0.078	230	0.083	266	0.202	302	0.533	338	0.924
15	0.996	51	0.987	87	0.988	123	0.716	159	0.317	195	0.075	231	0.081	267	0.209	303	0.545	339	0.930
16	0.995	52	0.988	88	0.986	124	0.704	160	0.308	196	0.072	232	0.079	268	0.216	304	0.557	340	0.937
17	0.994	53	0.988	89	0.983	125	0.692	161	0.300	197	0.070	233	0.077	269	0.224	305	0.569	341	0.943
18	0.994	54	0.989	90	0.981	126	0.679	162	0.292	198	0.069	234	0.075	270	0.231	306	0.582	342	0.948
19	0.993	55	0.989	91	0.977	127	0.667	163	0.284	199	0.068	235	0.073	271	0.239	307	0.594	343	0.954
20	0.992	56	0.990	92	0.974	128	0.655	164	0.276	200	0.068	236	0.072	272	0.246	308	0.606	344	0.959
21	0.992	57	0.990	93	0.970	129	0.642	165	0.268	201	0.068	237	0.070	273	0.254	309	0.619	345	0.963
22	0.991	58	0.991	94	0.966	130	0.630	166	0.261	202	0.069	238	0.069	274	0.261	310	0.631	346	0.968
23	0.991	59	0.991	95	0.962	131	0.617	167	0.253	203	0.070	239	0.068	275	0.269	311	0.644	347	0.972
24	0.990	60	0.992	96	0.957	132	0.605	168	0.245	204	0.071	240	0.068	276	0.277	312	0.656	348	0.975
25	0.989	61	0.992	97	0.952	133	0.593	169	0.238	205	0.073	241	0.068	277	0.285	313	0.668	349	0.979
26	0.989	62	0.993	98	0.947	134	0.580	170	0.231	206	0.075	242	0.069	278	0.293	314	0.681	350	0.982
27	0.988	63	0.994	99	0.941	135	0.568	171	0.223	207	0.077	243	0.071	279	0.301	315	0.693	351	0.985
28	0.988	64	0.994	100	0.935	136	0.556	172	0.216	208	0.079	244	0.073	280	0.309	316	0.705	352	0.987
29	0.988	65	0.995	101	0.929	137	0.544	173	0.209	209	0.081	245	0.075	281	0.318	317	0.717	353	0.989
30	0.987	66	0.996	102	0.922	138	0.532	174	0.201	210	0.083	246	0.079	282	0.326	318	0.729	354	0.991
31	0.987	67	0.996	103	0.915	139	0.520	175	0.194	211	0.085	247	0.082	283	0.335	319	0.741	355	0.993
32	0.987	68	0.997	104	0.908	140	0.508	176	0.187	212	0.087	248	0.087	284	0.344	320	0.753	356	0.995
33	0.986	69	0.997	105	0.900	141	0.497	177	0.180	213	0.089	249	0.091	285	0.353	321	0.764	357	0.996
34	0.986	70	0.998	106	0.892	142	0.485	178	0.173	214	0.090	250	0.096	286	0.362	322	0.776	358	0.997
35	0.986	71	0.998	107	0.884	143	0.474	179	0.166	215	0.092	251	0.102	287	0.371	323	0.787	359	0.998

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## ELEVATION PATTERN

Exhibit No.

Date **30 Mar 2018**

Call Letters **KKCF-LD**

Channel **23**

Antenna Type **J**

Location **Atascadero, CA**

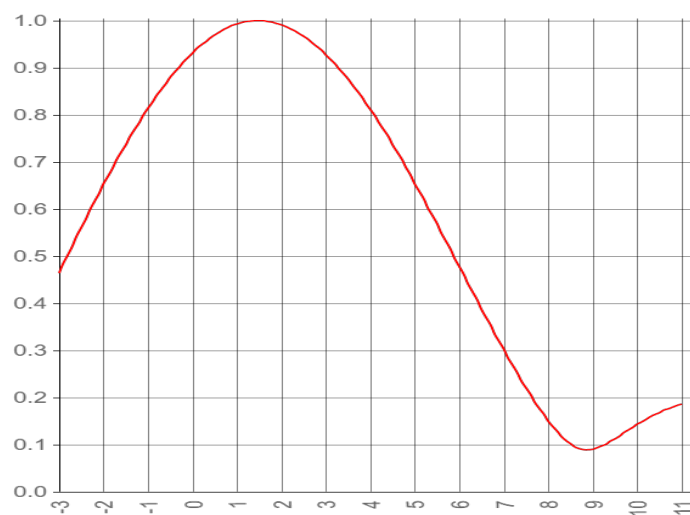
Customer

RMS Gain at Main Lobe **8.0 (9.03 dB)**

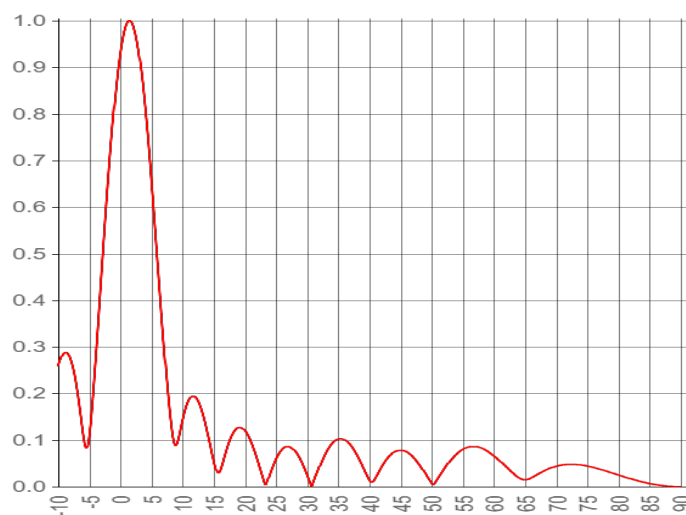
RMS Gain at Horizontal **6.9 (8.42 dB)**
**Calculated**

Beam Tilt **1.5 Degrees**

Drawing #



Degrees below horizontal



Degrees below horizontal

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10	0.258	10	0.143	30	0.025	50	0.007	70	0.044
-9	0.287	11	0.186	31	0.010	51	0.018	71	0.047
-8	0.273	12	0.193	32	0.044	52	0.038	72	0.048
-7	0.213	13	0.166	33	0.073	53	0.056	73	0.048
-6	0.117	14	0.115	34	0.093	54	0.070	74	0.047
-5	0.111	15	0.056	35	0.102	55	0.080	75	0.044
-4	0.271	16	0.034	36	0.101	56	0.085	76	0.041
-3	0.464	17	0.078	37	0.088	57	0.086	77	0.038
-2	0.652	18	0.112	38	0.068	58	0.083	78	0.034
-1	0.814	19	0.127	39	0.041	59	0.076	79	0.029
0	0.932	20	0.120	40	0.015	60	0.066	80	0.025
1	0.993	21	0.095	41	0.020	61	0.055	81	0.021
2	0.991	22	0.058	42	0.044	62	0.042	82	0.017
3	0.928	23	0.015	43	0.063	63	0.030	83	0.013
4	0.811	24	0.027	44	0.074	64	0.019	84	0.010
5	0.655	25	0.060	45	0.078	65	0.015	85	0.007
6	0.478	26	0.080	46	0.075	66	0.019	86	0.004
7	0.301	27	0.086	47	0.064	67	0.027	87	0.003
8	0.150	28	0.077	48	0.048	68	0.034	88	0.001
9	0.090	29	0.055	49	0.028	69	0.040	89	0.000

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