

AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-70447-6**
 Date **13-Apr-18**
 Call Letters **KARZ**
 Channel **28**
 Frequency **557 MHz**
 Antenna Type **TFU-29JTH/VP-R O6SP**
 Gain **1.48 (1.69dB)**
 Calculated

TFU-O6SP

.35 deg mech tilt at 80 deg

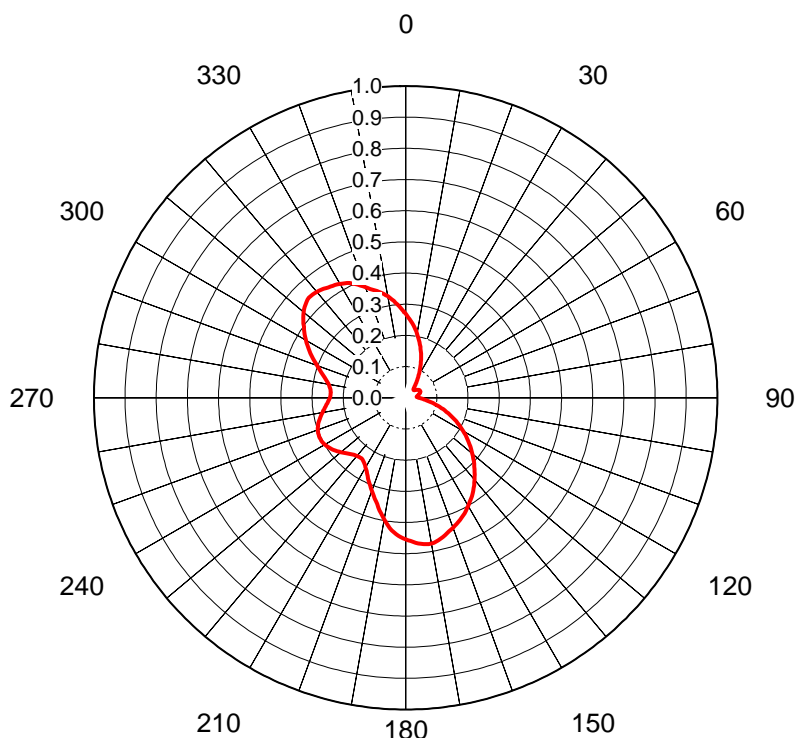
Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.751	36	0.829	72	0.701	108	0.862	144	0.887	180	0.869	216	0.785	252	0.873	288	0.693
1	0.751	37	0.823	73	0.704	109	0.860	145	0.897	181	0.858	217	0.792	253	0.872	289	0.689
2	0.752	38	0.816	74	0.708	110	0.856	146	0.907	182	0.847	218	0.799	254	0.870	290	0.687
3	0.754	39	0.810	75	0.711	111	0.852	147	0.916	183	0.836	219	0.806	255	0.869	291	0.684
4	0.758	40	0.803	76	0.715	112	0.847	148	0.926	184	0.825	220	0.812	256	0.867	292	0.683
5	0.761	41	0.795	77	0.720	113	0.842	149	0.935	185	0.815	221	0.818	257	0.865	293	0.683
6	0.766	42	0.788	78	0.725	114	0.837	150	0.944	186	0.805	222	0.824	258	0.862	294	0.684
7	0.771	43	0.781	79	0.730	115	0.831	151	0.952	187	0.793	223	0.829	259	0.860	295	0.685
8	0.777	44	0.774	80	0.735	116	0.825	152	0.960	188	0.781	224	0.834	260	0.857	296	0.688
9	0.783	45	0.767	81	0.741	117	0.819	153	0.968	189	0.769	225	0.839	261	0.854	297	0.691
10	0.790	46	0.760	82	0.747	118	0.813	154	0.974	190	0.758	226	0.843	262	0.850	298	0.696
11	0.796	47	0.754	83	0.754	119	0.808	155	0.980	191	0.748	227	0.848	263	0.847	299	0.701
12	0.804	48	0.747	84	0.760	120	0.802	156	0.984	192	0.739	228	0.851	264	0.843	300	0.707
13	0.811	49	0.741	85	0.767	121	0.797	157	0.989	193	0.731	229	0.855	265	0.839	301	0.714
14	0.818	50	0.735	86	0.774	122	0.792	158	0.992	194	0.725	230	0.858	266	0.834	302	0.722
15	0.825	51	0.730	87	0.781	123	0.788	159	0.994	195	0.718	231	0.861	267	0.829	303	0.730
16	0.832	52	0.725	88	0.788	124	0.784	160	0.996	196	0.717	232	0.863	268	0.824	304	0.739
17	0.837	53	0.720	89	0.796	125	0.781	161	0.997	197	0.716	233	0.865	269	0.818	305	0.749
18	0.842	54	0.715	90	0.803	126	0.779	162	0.997	198	0.716	234	0.867	270	0.812	306	0.762
19	0.847	55	0.711	91	0.810	127	0.777	163	0.999	199	0.717	235	0.869	271	0.806	307	0.775
20	0.851	56	0.708	92	0.816	128	0.777	164	1.000	200	0.720	236	0.870	272	0.799	308	0.789
21	0.854	57	0.704	93	0.823	129	0.777	165	1.000	201	0.722	237	0.872	273	0.792	309	0.802
22	0.857	58	0.701	94	0.829	130	0.779	166	0.998	202	0.727	238	0.873	274	0.785	310	0.816
23	0.859	59	0.699	95	0.836	131	0.781	167	0.997	203	0.731	239	0.874	275	0.778	311	0.830
24	0.860	60	0.697	96	0.841	132	0.785	168	0.993	204	0.736	240	0.874	276	0.771	312	0.843
25	0.861	61	0.695	97	0.847	133	0.788	169	0.990	205	0.740	241	0.875	277	0.763	313	0.857
26	0.861	62	0.694	98	0.851	134	0.794	170	0.984	206	0.744	242	0.875	278	0.756	314	0.870
27	0.861	63	0.692	99	0.855	135	0.800	171	0.975	207	0.747	243	0.876	279	0.748	315	0.883
28	0.860	64	0.692	100	0.859	136	0.808	172	0.964	208	0.750	244	0.876	280	0.741	316	0.893
29	0.859	65	0.692	101	0.862	137	0.815	173	0.954	209	0.754	245	0.876	281	0.734	317	0.901
30	0.856	66	0.692	102	0.864	138	0.824	174	0.942	210	0.758	246	0.876	282	0.727	318	0.907
31	0.853	67	0.692	103	0.866	139	0.834	175	0.930	211	0.762	247	0.876	283	0.720	319	0.914
32	0.849	68	0.694	104	0.866	140	0.844	176	0.917	212	0.767	248	0.875	284	0.714	320	0.919
33	0.845	69	0.695	105	0.867	141	0.854	177	0.904	213	0.771	249	0.875	285	0.708	321	0.924
34	0.840	70	0.697	106	0.866	142	0.865	178	0.890	214	0.775	250	0.874	286	0.702	322	0.927
35	0.835	71	0.699	107	0.864	143	0.875	179	0.880	215	0.779	251	0.874	287	0.697	323	0.930

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AZIMUTH PATTERN Vertical Polarization

Proposal No. **C-70447-6**
 Date **13-Apr-18**
 Call Letters **KARZ**
 Channel **28**
 Frequency **557 MHz**
 Antenna Type **TFU-29JTH/VP-R O6SP**
 Gain **2.63 (4.21dB)**
 Calculated

o6sp-V



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.270	36	0.055	72	0.048	108	0.132	144	0.369	180	0.454	216	0.241	252	0.296	288	0.290
1	0.264	37	0.051	73	0.047	109	0.139	145	0.375	181	0.451	217	0.241	253	0.293	289	0.296
2	0.258	38	0.048	74	0.046	110	0.145	146	0.380	182	0.447	218	0.241	254	0.291	290	0.303
3	0.252	39	0.045	75	0.045	111	0.152	147	0.385	183	0.443	219	0.242	255	0.288	291	0.309
4	0.246	40	0.042	76	0.043	112	0.159	148	0.391	184	0.439	220	0.243	256	0.285	292	0.316
5	0.240	41	0.040	77	0.042	113	0.165	149	0.396	185	0.434	221	0.245	257	0.281	293	0.323
6	0.234	42	0.038	78	0.041	114	0.172	150	0.401	186	0.428	222	0.247	258	0.278	294	0.330
7	0.228	43	0.037	79	0.040	115	0.179	151	0.406	187	0.421	223	0.249	259	0.275	295	0.337
8	0.222	44	0.036	80	0.039	116	0.186	152	0.411	188	0.413	224	0.252	260	0.271	296	0.343
9	0.216	45	0.036	81	0.038	117	0.192	153	0.416	189	0.405	225	0.255	261	0.268	297	0.350
10	0.209	46	0.036	82	0.037	118	0.199	154	0.420	190	0.397	226	0.258	262	0.264	298	0.357
11	0.203	47	0.036	83	0.036	119	0.206	155	0.425	191	0.388	227	0.261	263	0.261	299	0.364
12	0.197	48	0.037	84	0.036	120	0.213	156	0.429	192	0.379	228	0.264	264	0.258	300	0.370
13	0.190	49	0.038	85	0.036	121	0.219	157	0.433	193	0.371	229	0.268	265	0.255	301	0.376
14	0.184	50	0.039	86	0.036	122	0.226	158	0.437	194	0.362	230	0.271	266	0.252	302	0.382
15	0.178	51	0.040	87	0.037	123	0.233	159	0.440	195	0.353	231	0.275	267	0.249	303	0.388
16	0.171	52	0.041	88	0.038	124	0.240	160	0.444	196	0.345	232	0.278	268	0.247	304	0.393
17	0.164	53	0.042	89	0.040	125	0.247	161	0.447	197	0.338	233	0.282	269	0.245	305	0.399
18	0.158	54	0.043	90	0.042	126	0.253	162	0.451	198	0.331	234	0.285	270	0.243	306	0.405
19	0.151	55	0.045	91	0.045	127	0.260	163	0.455	199	0.324	235	0.288	271	0.242	307	0.411
20	0.144	56	0.046	92	0.048	128	0.266	164	0.459	200	0.317	236	0.291	272	0.241	308	0.417
21	0.138	57	0.047	93	0.051	129	0.273	165	0.462	201	0.310	237	0.293	273	0.241	309	0.422
22	0.131	58	0.048	94	0.055	130	0.280	166	0.466	202	0.304	238	0.296	274	0.241	310	0.427
23	0.125	59	0.049	95	0.059	131	0.286	167	0.469	203	0.297	239	0.298	275	0.241	311	0.431
24	0.119	60	0.050	96	0.063	132	0.293	168	0.471	204	0.291	240	0.300	276	0.242	312	0.436
25	0.112	61	0.050	97	0.068	133	0.299	169	0.474	205	0.285	241	0.301	277	0.244	313	0.439
26	0.106	62	0.051	98	0.073	134	0.306	170	0.475	206	0.279	242	0.303	278	0.246	314	0.443
27	0.100	63	0.051	99	0.078	135	0.312	171	0.475	207	0.273	243	0.303	279	0.248	315	0.445
28	0.094	64	0.051	100	0.084	136	0.318	172	0.474	208	0.267	244	0.304	280	0.251	316	0.447
29	0.089	65	0.052	101	0.089	137	0.325	173	0.473	209	0.262	245	0.304	281	0.255	317	0.446
30	0.083	66	0.051	102	0.095	138	0.331	174	0.471	210	0.257	246	0.304	282	0.259	318	0.446
31	0.078	67	0.051	103	0.101	139	0.338	175	0.469	211	0.253	247	0.303	283	0.263	319	0.445
32	0.073	68	0.051	104	0.107	140	0.344	176	0.466	212	0.249	248	0.303	284	0.268	320	0.444
33	0.068	69	0.050	105	0.113	141	0.350	177	0.463	213	0.246	249	0.301	285	0.273	321	0.442
34	0.063	70	0.050	106	0.119	142	0.357	178	0.460	214	0.244	250	0.300	286	0.278	322	0.440
35	0.059	71	0.049	107	0.126	143	0.363	179	0.457	215	0.242	251	0.298	287	0.284	323	0.437

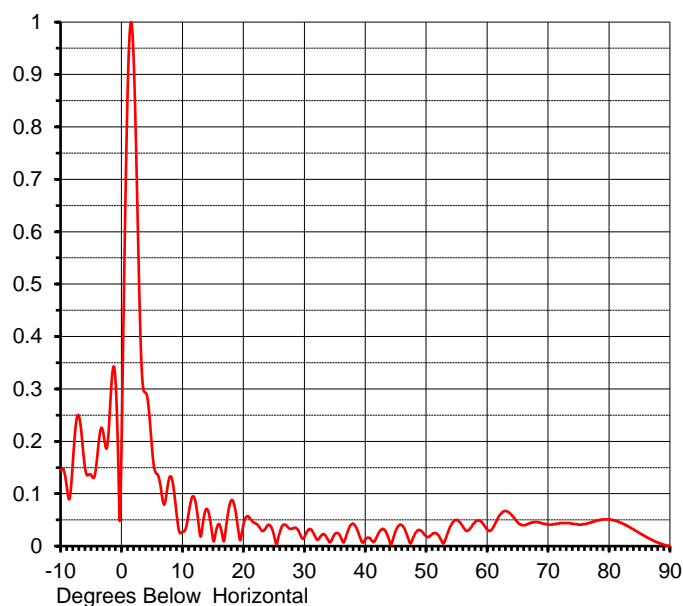
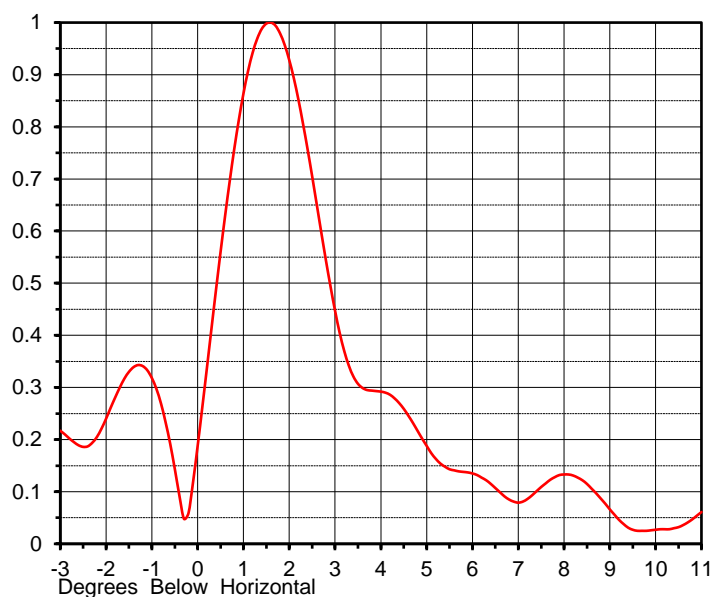
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ELEVATION PATTERN

Proposal No. **C-70447-6**
 Date **13-Apr-18**
 Call Letters **KARZ**
 Channel **28**
 Frequency **557 MHz**
 Antenna Type **TFU-29JTH/VP-R O6SP**

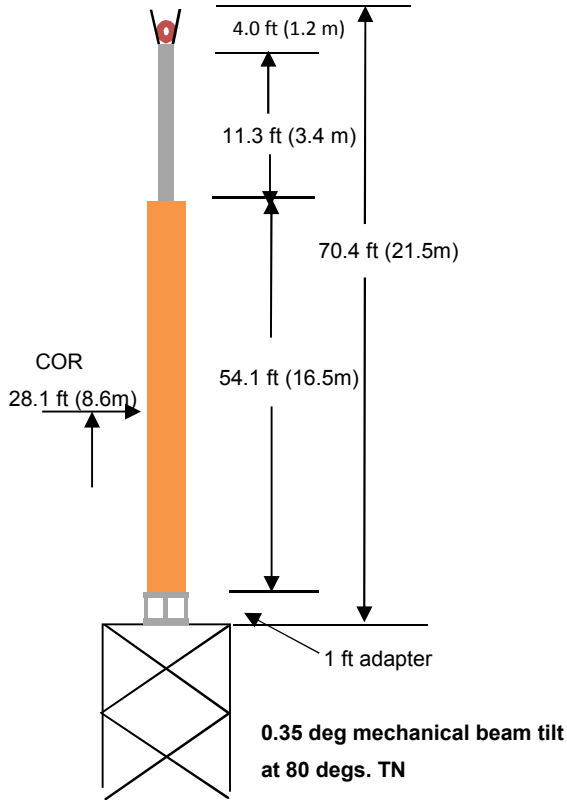
RMS Directivity at Main Lobe **25.0 (13.98 dB)**
 RMS Directivity at Horizontal **1.7 (2.30 dB)**
Calculated

Beam Tilt **1.50 deg**
 Pattern Number **29J250150**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.145	10.0	0.028	30.0	0.019	50.0	0.018	70.0	0.041
-9.0	0.106	11.0	0.068	31.0	0.032	51.0	0.024	71.0	0.042
-8.0	0.175	12.0	0.087	32.0	0.012	52.0	0.019	72.0	0.044
-7.0	0.244	13.0	0.023	33.0	0.023	53.0	0.011	73.0	0.044
-6.0	0.143	14.0	0.070	34.0	0.008	54.0	0.040	74.0	0.043
-5.0	0.134	15.0	0.009	35.0	0.024	55.0	0.050	75.0	0.041
-4.0	0.180	16.0	0.041	36.0	0.014	56.0	0.036	76.0	0.042
-3.0	0.210	17.0	0.031	37.0	0.027	57.0	0.032	77.0	0.045
-2.0	0.261	18.0	0.088	38.0	0.042	58.0	0.047	78.0	0.049
-1.0	0.297	19.0	0.036	39.0	0.018	59.0	0.046	79.0	0.051
0.0	0.261	20.0	0.045	40.0	0.014	60.0	0.031	80.0	0.051
1.0	0.907	21.0	0.053	41.0	0.010	61.0	0.038	81.0	0.048
2.0	0.893	22.0	0.043	42.0	0.023	62.0	0.059	82.0	0.044
3.0	0.405	23.0	0.029	43.0	0.032	63.0	0.067	83.0	0.038
4.0	0.290	24.0	0.040	44.0	0.005	64.0	0.058	84.0	0.031
5.0	0.174	25.0	0.017	45.0	0.032	65.0	0.044	85.0	0.024
6.0	0.132	26.0	0.031	46.0	0.039	66.0	0.040	86.0	0.018
7.0	0.081	27.0	0.039	47.0	0.013	67.0	0.044	87.0	0.012
8.0	0.133	28.0	0.034	48.0	0.022	68.0	0.046	88.0	0.006
9.0	0.056	29.0	0.028	49.0	0.030	69.0	0.043	89.0	0.002
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No. **C-70447-7**
 Date **10-Sep-18**
 Call Letters **KARZ**
 Channel **28**
 Frequency **557 MHz**
 Antenna Type **TFU-29JTH/VP-R O6SP**

Preliminary Specifications

Top Mount

With ice TIA-222-G

Height AGL(z) 1200 ft (365.8 m)
 Basic Wind Speed 89 m/h (143.2 km/h)

Structure Class II
 Exposure Category B
 Topography Category 4
 Height of Crest 600 ft (182.9 m)

Design Ice 1 in $t_{iz} = 2.92$ in
 Wind Speed w/Ice 30 m/h (48.3 km/h)

Mechanical Specifications		without ice	with ice	full stack	full stack with ice
Height with Lightning Protector	H4	58.1 ft (17.7m)		70.4 ft (21.5m)	
Height less Lightning Protector	H2	54.1 ft (16.5m)		66.4 ft (20.2m)	
Height of Center of Radiation	H3	28.1 ft (8.6m)		28.1 ft (8.6m)	
Effective Projected Area	(EPA) _S	91 ft ² (8.5m ²)	231.9 ft ² (21.5m ²)	ft ² (m ²)	ft ² (m ²)
Moment Arm	D1	28.1 ft (8.6m)	29.2 ft (8.9m)	ft (m)	ft (m)

Weight W 12500 lb (5.7t) 20900 lb (9.5t) lb (t) lb (t)

Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA-222-G

Prepared by: JBC Date: 10-Sep-18 ME: EE:
 Rev. No.7 by: JBC Date: 10-Sep-18

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