

## AZIMUTH PATTERN Horizontal Polarization

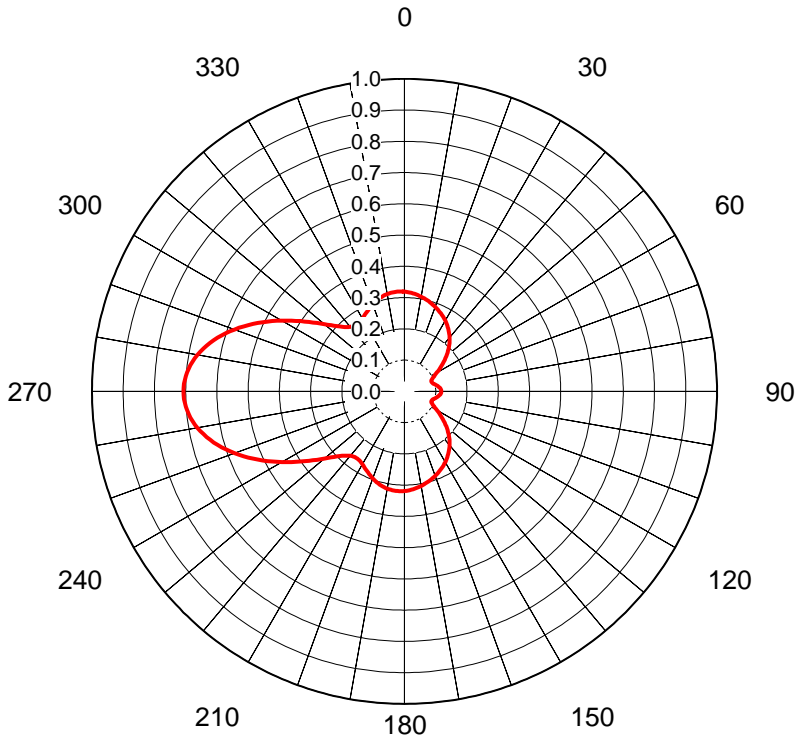
Proposal No. **C-71828-4**  
 Date **28-Apr-22**  
 Call Letters **KMPH**  
 Channel **28**  
 Frequency **557 MHz**  
 Antenna Type **TFU-21ETT/VP-R 4C170**  
 Gain **1.52 (1.81dB)**  
 Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.979	36	0.641	72	0.224	108	0.224	144	0.641	180	0.979	216	0.980	252	0.971	288	0.971
1	0.973	37	0.632	73	0.220	109	0.228	145	0.650	181	0.980	217	0.978	253	0.974	289	0.969
2	0.968	38	0.623	74	0.216	110	0.232	146	0.659	182	0.982	218	0.975	254	0.976	290	0.967
3	0.962	39	0.614	75	0.212	111	0.244	147	0.668	183	0.983	219	0.973	255	0.978	291	0.964
4	0.956	40	0.605	76	0.208	112	0.257	148	0.677	184	0.985	220	0.970	256	0.980	292	0.962
5	0.951	41	0.595	77	0.204	113	0.269	149	0.686	185	0.986	221	0.967	257	0.982	293	0.959
6	0.945	42	0.584	78	0.200	114	0.282	150	0.695	186	0.987	222	0.964	258	0.985	294	0.956
7	0.939	43	0.574	79	0.196	115	0.294	151	0.706	187	0.989	223	0.961	259	0.987	295	0.953
8	0.933	44	0.563	80	0.192	116	0.307	152	0.718	188	0.990	224	0.958	260	0.989	296	0.951
9	0.928	45	0.553	81	0.192	117	0.319	153	0.729	189	0.992	225	0.956	261	0.989	297	0.948
10	0.922	46	0.543	82	0.193	118	0.332	154	0.741	190	0.993	226	0.953	262	0.990	298	0.945
11	0.911	47	0.532	83	0.193	119	0.345	155	0.752	191	0.994	227	0.950	263	0.990	299	0.943
12	0.899	48	0.522	84	0.194	120	0.357	156	0.763	192	0.994	228	0.947	264	0.991	300	0.940
13	0.888	49	0.511	85	0.194	121	0.371	157	0.775	193	0.995	229	0.944	265	0.991	301	0.940
14	0.877	50	0.501	86	0.194	122	0.386	158	0.786	194	0.995	230	0.941	266	0.991	302	0.940
15	0.865	51	0.487	87	0.195	123	0.400	159	0.798	195	0.996	231	0.941	267	0.992	303	0.940
16	0.854	52	0.472	88	0.195	124	0.415	160	0.809	196	0.997	232	0.941	268	0.992	304	0.940
17	0.843	53	0.458	89	0.196	125	0.429	161	0.820	197	0.997	233	0.941	269	0.993	305	0.941
18	0.832	54	0.443	90	0.196	126	0.443	162	0.832	198	0.998	234	0.941	270	0.993	306	0.941
19	0.820	55	0.429	91	0.196	127	0.458	163	0.843	199	0.998	235	0.941	271	0.993	307	0.941
20	0.809	56	0.415	92	0.195	128	0.472	164	0.854	200	0.999	236	0.940	272	0.992	308	0.941
21	0.798	57	0.400	93	0.195	129	0.487	165	0.865	201	0.999	237	0.940	273	0.992	309	0.941
22	0.786	58	0.386	94	0.194	130	0.501	166	0.877	202	0.998	238	0.940	274	0.991	310	0.941
23	0.775	59	0.371	95	0.194	131	0.511	167	0.888	203	0.998	239	0.940	275	0.991	311	0.944
24	0.763	60	0.357	96	0.194	132	0.522	168	0.899	204	0.997	240	0.940	276	0.991	312	0.947
25	0.752	61	0.345	97	0.193	133	0.532	169	0.911	205	0.997	241	0.943	277	0.990	313	0.950
26	0.741	62	0.332	98	0.193	134	0.543	170	0.922	206	0.997	242	0.945	278	0.990	314	0.953
27	0.729	63	0.319	99	0.192	135	0.553	171	0.928	207	0.996	243	0.948	279	0.989	315	0.956
28	0.718	64	0.307	100	0.192	136	0.563	172	0.933	208	0.996	244	0.951	280	0.989	316	0.958
29	0.706	65	0.294	101	0.196	137	0.574	173	0.939	209	0.995	245	0.953	281	0.987	317	0.961
30	0.695	66	0.282	102	0.200	138	0.584	174	0.945	210	0.995	246	0.956	282	0.985	318	0.964
31	0.686	67	0.269	103	0.204	139	0.595	175	0.951	211	0.993	247	0.959	283	0.982	319	0.967
32	0.677	68	0.257	104	0.208	140	0.605	176	0.956	212	0.990	248	0.962	284	0.980	320	0.970
33	0.668	69	0.244	105	0.212	141	0.614	177	0.962	213	0.988	249	0.964	285	0.978	321	0.973
34	0.659	70	0.232	106	0.216	142	0.623	178	0.968	214	0.985	250	0.967	286	0.976	322	0.975
35	0.650	71	0.228	107	0.220	143	0.632	179	0.973	215	0.983	251	0.969	287	0.974	323	0.978

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## AZIMUTH PATTERN Vertical Polarization

Proposal No. **C-71828-4**  
Date **28-Apr-22**  
Call Letters **KMPH**  
Channel **28**  
Frequency **557 MHz**  
Antenna Type **TFU-21ETT/VP-R 4C170**  
Gain **4.18 (6.21dB)**  
Calculated



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.319	36	0.241	72	0.092	108	0.092	144	0.241	180	0.319	216	0.263	252	0.601	288	0.601	324	0.263
1	0.318	37	0.237	73	0.093	109	0.091	145	0.244	181	0.319	217	0.264	253	0.612	289	0.590	325	0.263
2	0.318	38	0.233	74	0.094	110	0.091	146	0.248	182	0.320	218	0.265	254	0.622	290	0.579	326	0.263
3	0.317	39	0.229	75	0.096	111	0.092	147	0.251	183	0.320	219	0.267	255	0.632	291	0.567	327	0.264
4	0.316	40	0.224	76	0.098	112	0.093	148	0.255	184	0.320	220	0.269	256	0.641	292	0.555	328	0.266
5	0.315	41	0.220	77	0.100	113	0.095	149	0.258	185	0.320	221	0.273	257	0.650	293	0.542	329	0.267
6	0.313	42	0.216	78	0.102	114	0.097	150	0.261	186	0.319	222	0.277	258	0.658	294	0.530	330	0.269
7	0.312	43	0.211	79	0.104	115	0.100	151	0.264	187	0.319	223	0.281	259	0.665	295	0.517	331	0.272
8	0.311	44	0.206	80	0.106	116	0.103	152	0.267	188	0.318	224	0.287	260	0.672	296	0.504	332	0.274
9	0.309	45	0.201	81	0.108	117	0.106	153	0.270	189	0.317	225	0.293	261	0.679	297	0.491	333	0.277
10	0.308	46	0.196	82	0.110	118	0.111	154	0.273	190	0.316	226	0.300	262	0.685	298	0.478	334	0.279
11	0.306	47	0.191	83	0.112	119	0.115	155	0.275	191	0.315	227	0.308	263	0.690	299	0.465	335	0.282
12	0.304	48	0.186	84	0.113	120	0.120	156	0.278	192	0.313	228	0.316	264	0.694	300	0.452	336	0.285
13	0.302	49	0.180	85	0.115	121	0.125	157	0.280	193	0.312	229	0.325	265	0.698	301	0.440	337	0.288
14	0.300	50	0.175	86	0.116	122	0.130	158	0.283	194	0.310	230	0.335	266	0.701	302	0.427	338	0.291
15	0.298	51	0.169	87	0.117	123	0.135	159	0.285	195	0.308	231	0.345	267	0.704	303	0.414	339	0.294
16	0.296	52	0.163	88	0.118	124	0.141	160	0.288	196	0.306	232	0.355	268	0.706	304	0.402	340	0.296
17	0.294	53	0.158	89	0.118	125	0.146	161	0.290	197	0.304	233	0.366	269	0.707	305	0.390	341	0.299
18	0.292	54	0.152	90	0.118	126	0.152	162	0.292	198	0.301	234	0.378	270	0.707	306	0.378	342	0.301
19	0.290	55	0.146	91	0.118	127	0.158	163	0.294	199	0.299	235	0.390	271	0.707	307	0.366	343	0.304
20	0.288	56	0.141	92	0.118	128	0.163	164	0.296	200	0.296	236	0.402	272	0.706	308	0.355	344	0.306
21	0.285	57	0.135	93	0.117	129	0.169	165	0.298	201	0.294	237	0.414	273	0.704	309	0.345	345	0.308
22	0.283	58	0.130	94	0.116	130	0.175	166	0.300	202	0.291	238	0.427	274	0.701	310	0.335	346	0.310
23	0.280	59	0.125	95	0.115	131	0.180	167	0.302	203	0.288	239	0.440	275	0.698	311	0.325	347	0.312
24	0.278	60	0.120	96	0.113	132	0.186	168	0.304	204	0.285	240	0.452	276	0.694	312	0.316	348	0.313
25	0.275	61	0.115	97	0.112	133	0.191	169	0.306	205	0.282	241	0.465	277	0.690	313	0.308	349	0.315
26	0.273	62	0.111	98	0.110	134	0.196	170	0.308	206	0.279	242	0.478	278	0.685	314	0.300	350	0.316
27	0.270	63	0.106	99	0.108	135	0.201	171	0.309	207	0.277	243	0.491	279	0.679	315	0.293	351	0.317
28	0.267	64	0.103	100	0.106	136	0.206	172	0.311	208	0.274	244	0.504	280	0.672	316	0.287	352	0.318
29	0.264	65	0.100	101	0.104	137	0.211	173	0.312	209	0.272	245	0.517	281	0.665	317	0.281	353	0.319
30	0.261	66	0.097	102	0.102	138	0.216	174	0.313	210	0.269	246	0.530	282	0.658	318	0.277	354	0.319
31	0.258	67	0.095	103	0.100	139	0.220	175	0.315	211	0.267	247	0.542	283	0.650	319	0.273	355	0.320
32	0.255	68	0.093	104	0.098	140	0.224	176	0.316	212	0.266	248	0.555	284	0.641	320	0.269	356	0.320
33	0.251	69	0.092	105	0.096	141	0.229	177	0.317	213	0.264	249	0.567	285	0.632	321	0.267	357	0.320
34	0.248	70	0.091	106	0.094	142	0.233	178	0.318	214	0.263	250	0.579	286	0.622	322	0.265	358	0.320
35	0.244	71	0.091	107	0.093	143	0.237	179	0.318	215	0.263	251	0.590	287	0.612	323	0.264	359	0.319

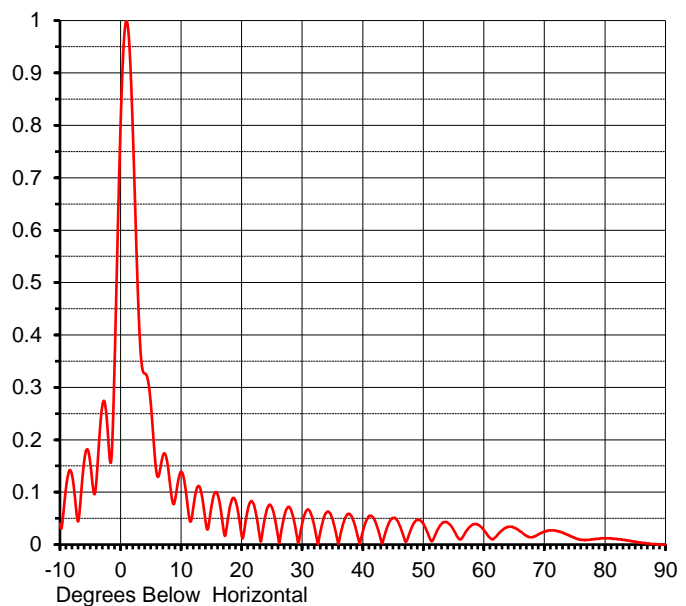
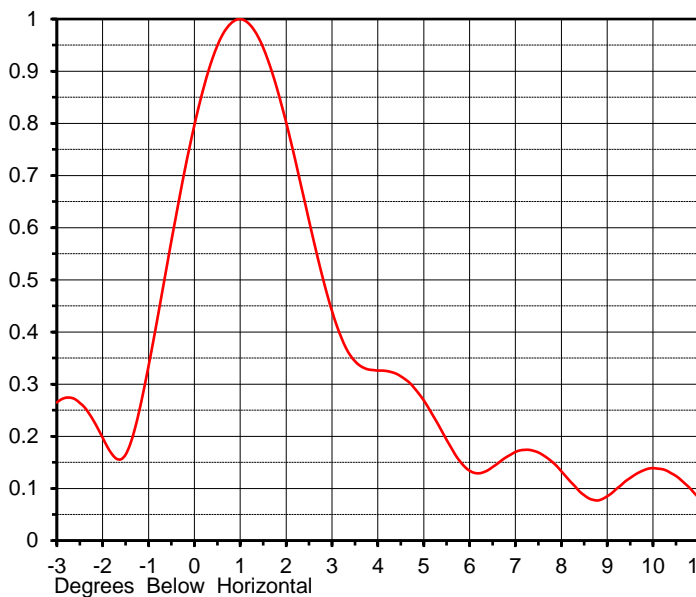
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## ELEVATION PATTERN

Proposal No. **C-71828-4**  
 Date **28-Apr-22**  
 Call Letters **KMPH**  
 Channel **28**  
 Frequency **557 MHz**  
 Antenna Type **TFU-21ETT/VP-R 4C170**

RMS Directivity at Main Lobe **20.0 ( 13.01 dB )**  
 RMS Directivity at Horizontal **12.7 ( 11.04 dB )**  
**Calculated**

Beam Tilt **1.00 deg**  
 Pattern Number **21E200100**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.040	10.0	0.139	30.0	0.040	50.0	0.040	70.0	0.025
-9.0	0.108	11.0	0.082	31.0	0.067	51.0	0.014	71.0	0.027
-8.0	0.132	12.0	0.069	32.0	0.035	52.0	0.019	72.0	0.026
-7.0	0.044	13.0	0.111	33.0	0.024	53.0	0.039	73.0	0.023
-6.0	0.159	14.0	0.048	34.0	0.061	54.0	0.042	74.0	0.018
-5.0	0.156	15.0	0.071	35.0	0.049	55.0	0.028	75.0	0.013
-4.0	0.119	16.0	0.097	36.0	0.001	56.0	0.010	76.0	0.009
-3.0	0.265	17.0	0.029	37.0	0.048	57.0	0.024	77.0	0.009
-2.0	0.197	18.0	0.068	38.0	0.056	58.0	0.037	78.0	0.010
-1.0	0.335	19.0	0.083	39.0	0.024	59.0	0.038	79.0	0.011
0.0	0.797	20.0	0.018	40.0	0.024	60.0	0.028	80.0	0.012
1.0	1.000	21.0	0.066	41.0	0.054	61.0	0.013	81.0	0.012
2.0	0.802	22.0	0.077	42.0	0.046	62.0	0.015	82.0	0.011
3.0	0.440	23.0	0.014	43.0	0.009	63.0	0.027	83.0	0.009
4.0	0.326	24.0	0.059	44.0	0.032	64.0	0.034	84.0	0.007
5.0	0.269	25.0	0.071	45.0	0.051	65.0	0.032	85.0	0.005
6.0	0.134	26.0	0.016	46.0	0.039	66.0	0.025	86.0	0.004
7.0	0.170	27.0	0.052	47.0	0.007	67.0	0.017	87.0	0.002
8.0	0.133	28.0	0.070	48.0	0.030	68.0	0.014	88.0	0.001
9.0	0.085	29.0	0.024	49.0	0.047	69.0	0.019	89.0	0.000
								90.0	0.000

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