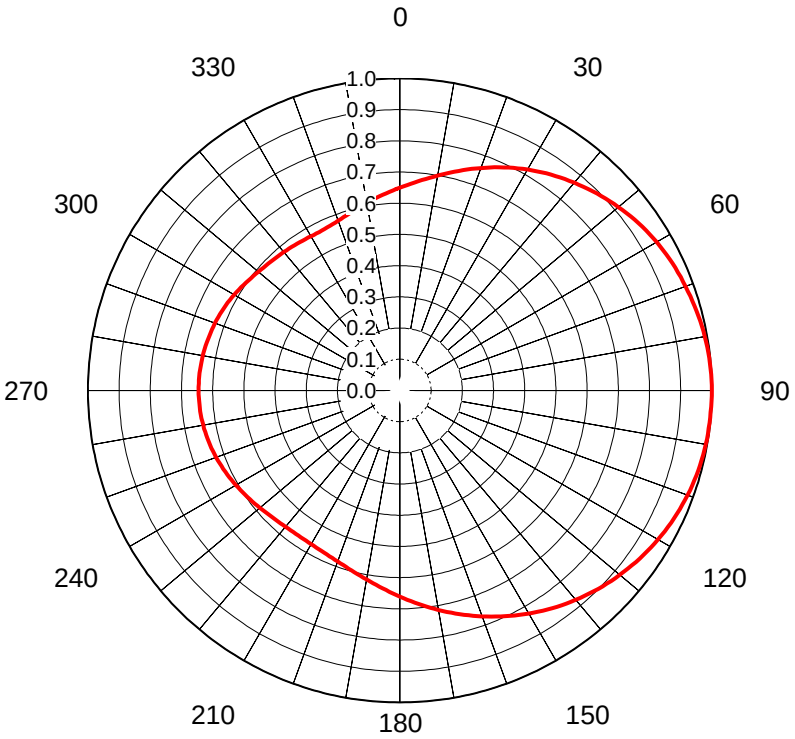
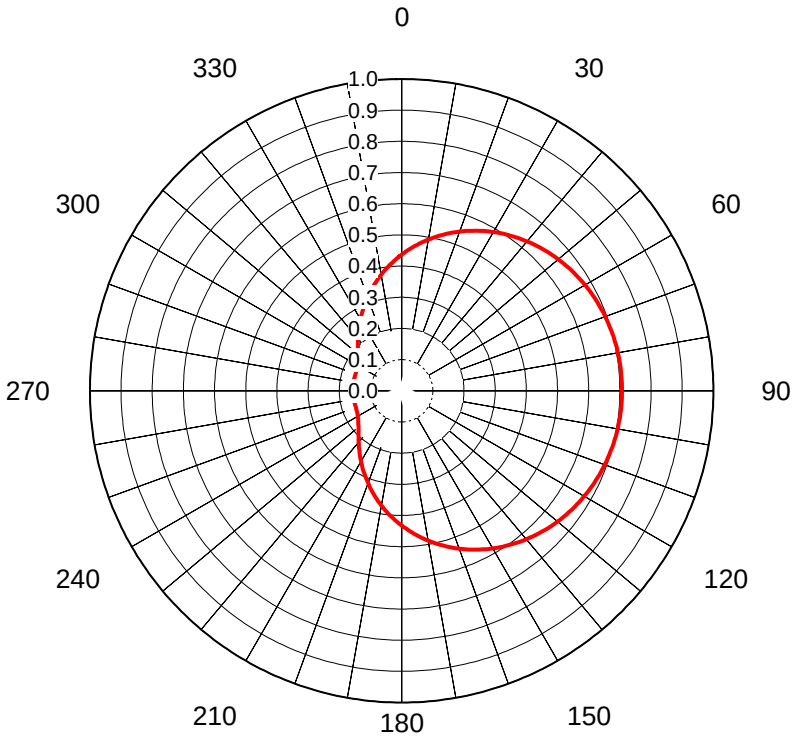


AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-71279-4**
Date	**30-Oct-19**
Call Letters	**WPBN**
Channel	**18**
Frequency	**497 MHz**
Antenna Type	**TLP-4B/VP-R**
Gain	**1.76 (2.45dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.650	36	0.849	72	0.979	108	0.985	144	0.857	180	0.661	216	0.568	252	0.630	288	0.633	324	0.575
1	0.654	37	0.854	73	0.980	109	0.983	145	0.852	181	0.656	217	0.569	253	0.632	289	0.632	325	0.574
2	0.659	38	0.859	74	0.982	110	0.981	146	0.847	182	0.651	218	0.569	254	0.633	290	0.631	326	0.573
3	0.663	39	0.864	75	0.984	111	0.979	147	0.842	183	0.646	219	0.570	255	0.634	291	0.629	327	0.572
4	0.668	40	0.869	76	0.986	112	0.977	148	0.836	184	0.641	220	0.571	256	0.636	292	0.628	328	0.572
5	0.673	41	0.874	77	0.988	113	0.975	149	0.831	185	0.637	221	0.572	257	0.637	293	0.626	329	0.571
6	0.678	42	0.879	78	0.990	114	0.972	150	0.826	186	0.632	222	0.573	258	0.638	294	0.625	330	0.570
7	0.683	43	0.883	79	0.991	115	0.970	151	0.820	187	0.628	223	0.574	259	0.639	295	0.623	331	0.570
8	0.688	44	0.888	80	0.993	116	0.967	152	0.815	188	0.624	224	0.575	260	0.640	296	0.621	332	0.570
9	0.694	45	0.893	81	0.994	117	0.964	153	0.810	189	0.619	225	0.577	261	0.641	297	0.619	333	0.570
10	0.699	46	0.897	82	0.995	118	0.961	154	0.804	190	0.615	226	0.578	262	0.642	298	0.618	334	0.570
11	0.705	47	0.902	83	0.996	119	0.958	155	0.799	191	0.612	227	0.580	263	0.643	299	0.616	335	0.571
12	0.711	48	0.906	84	0.997	120	0.955	156	0.793	192	0.608	228	0.582	264	0.643	300	0.613	336	0.572
13	0.716	49	0.910	85	0.998	121	0.952	157	0.787	193	0.604	229	0.584	265	0.644	301	0.611	337	0.573
14	0.722	50	0.914	86	0.999	122	0.949	158	0.782	194	0.601	230	0.586	266	0.644	302	0.609	338	0.575
15	0.728	51	0.919	87	0.999	123	0.946	159	0.776	195	0.597	231	0.588	267	0.645	303	0.607	339	0.577
16	0.734	52	0.923	88	0.999	124	0.942	160	0.771	196	0.594	232	0.590	268	0.645	304	0.605	340	0.579
17	0.740	53	0.927	89	1.000	125	0.939	161	0.765	197	0.591	233	0.592	269	0.645	305	0.602	341	0.581
18	0.747	54	0.930	90	1.000	126	0.935	162	0.759	198	0.589	234	0.594	270	0.645	306	0.600	342	0.584
19	0.753	55	0.934	91	1.000	127	0.932	163	0.754	199	0.586	235	0.596	271	0.645	307	0.598	343	0.587
20	0.759	56	0.938	92	0.999	128	0.928	164	0.748	200	0.583	236	0.598	272	0.645	308	0.596	344	0.590
21	0.765	57	0.941	93	0.999	129	0.924	165	0.742	201	0.581	237	0.600	273	0.645	309	0.594	345	0.593
22	0.771	58	0.944	94	0.999	130	0.920	166	0.737	202	0.579	238	0.603	274	0.645	310	0.592	346	0.596
23	0.777	59	0.948	95	0.998	131	0.916	167	0.731	203	0.577	239	0.605	275	0.644	311	0.590	347	0.600
24	0.783	60	0.951	96	0.998	132	0.912	168	0.726	204	0.575	240	0.607	276	0.644	312	0.589	348	0.603
25	0.789	61	0.954	97	0.998	133	0.908	169	0.720	205	0.574	241	0.609	277	0.643	313	0.587	349	0.607
26	0.795	62	0.956	98	0.997	134	0.904	170	0.714	206	0.573	242	0.611	278	0.643	314	0.586	350	0.610
27	0.801	63	0.959	99	0.996	135	0.899	171	0.709	207	0.571	243	0.614	279	0.642	315	0.584	351	0.614
28	0.806	64	0.962	100	0.996	136	0.895	172	0.703	208	0.570	244	0.616	280	0.641	316	0.583	352	0.618
29	0.812	65	0.964	101	0.995	137	0.890	173	0.698	209	0.569	245	0.618	281	0.640	317	0.582	353	0.622
30	0.817	66	0.966	102	0.994	138	0.886	174	0.692	210	0.569	246	0.619	282	0.640	318	0.581	354	0.625
31	0.823	67	0.968	103	0.993	139	0.881	175	0.687	211	0.568	247	0.621	283	0.639	319	0.580	355	0.629
32	0.828	68	0.971	104	0.992	140	0.876	176	0.682	212	0.568	248	0.623	284	0.638	320	0.579	356	0.633
33	0.834	69	0.973	105	0.990	141	0.872	177	0.676	213	0.568	249	0.625	285	0.637	321	0.578	357	0.637
34	0.839	70	0.975	106	0.989	142	0.867	178	0.671	214	0.568	250	0.627	286	0.636	322	0.577	358	0.641
35	0.844	71	0.977	107	0.987	143	0.862	179	0.666	215	0.568	251	0.628	287	0.634	323	0.576	359	0.646

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AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-71279-4**
Date	**30-Oct-19**
Call Letters	**WPBN**
Channel	**18**
Frequency	**497 MHz**
Antenna Type	**TLP-4B/VP-R**
Gain	**2.22 (3.47dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.437	36	0.611	72	0.697	108	0.696	144	0.607	180	0.432	216	0.232	252	0.156	288	0.157	324	0.235
1	0.442	37	0.615	73	0.699	109	0.695	145	0.604	181	0.426	217	0.227	253	0.156	289	0.157	325	0.240
2	0.448	38	0.619	74	0.700	110	0.693	146	0.600	182	0.421	218	0.223	254	0.156	290	0.157	326	0.245
3	0.454	39	0.622	75	0.701	111	0.692	147	0.596	183	0.415	219	0.219	255	0.156	291	0.158	327	0.250
4	0.459	40	0.626	76	0.701	112	0.691	148	0.592	184	0.409	220	0.215	256	0.156	292	0.158	328	0.255
5	0.465	41	0.629	77	0.702	113	0.689	149	0.588	185	0.403	221	0.211	257	0.156	293	0.159	329	0.260
6	0.471	42	0.632	78	0.703	114	0.687	150	0.584	186	0.397	222	0.207	258	0.156	294	0.159	330	0.265
7	0.476	43	0.636	79	0.704	115	0.686	151	0.580	187	0.391	223	0.203	259	0.156	295	0.160	331	0.270
8	0.482	44	0.639	80	0.704	116	0.684	152	0.575	188	0.385	224	0.199	260	0.156	296	0.160	332	0.275
9	0.487	45	0.642	81	0.705	117	0.682	153	0.571	189	0.380	225	0.196	261	0.157	297	0.161	333	0.281
10	0.492	46	0.645	82	0.705	118	0.680	154	0.567	190	0.374	226	0.193	262	0.157	298	0.162	334	0.286
11	0.498	47	0.648	83	0.706	119	0.679	155	0.562	191	0.368	227	0.190	263	0.157	299	0.163	335	0.291
12	0.503	48	0.651	84	0.706	120	0.677	156	0.558	192	0.362	228	0.187	264	0.157	300	0.164	336	0.297
13	0.508	49	0.653	85	0.707	121	0.675	157	0.553	193	0.356	229	0.184	265	0.157	301	0.166	337	0.303
14	0.513	50	0.656	86	0.707	122	0.672	158	0.548	194	0.350	230	0.181	266	0.157	302	0.167	338	0.308
15	0.519	51	0.659	87	0.707	123	0.670	159	0.544	195	0.344	231	0.178	267	0.157	303	0.169	339	0.314
16	0.524	52	0.661	88	0.707	124	0.668	160	0.539	196	0.338	232	0.176	268	0.157	304	0.170	340	0.320
17	0.529	53	0.664	89	0.707	125	0.666	161	0.534	197	0.333	233	0.174	269	0.157	305	0.172	341	0.325
18	0.534	54	0.666	90	0.707	126	0.663	162	0.529	198	0.327	234	0.172	270	0.157	306	0.174	342	0.331
19	0.539	55	0.668	91	0.707	127	0.661	163	0.524	199	0.321	235	0.170	271	0.157	307	0.176	343	0.337
20	0.543	56	0.671	92	0.707	128	0.658	164	0.519	200	0.315	236	0.168	272	0.157	308	0.179	344	0.343
21	0.548	57	0.673	93	0.707	129	0.656	165	0.514	201	0.310	237	0.166	273	0.157	309	0.181	345	0.349
22	0.553	58	0.675	94	0.706	130	0.653	166	0.509	202	0.304	238	0.165	274	0.157	310	0.184	346	0.355
23	0.557	59	0.677	95	0.706	131	0.650	167	0.504	203	0.298	239	0.164	275	0.157	311	0.186	347	0.360
24	0.562	60	0.679	96	0.706	132	0.647	168	0.498	204	0.293	240	0.162	276	0.157	312	0.189	348	0.366
25	0.567	61	0.681	97	0.705	133	0.644	169	0.493	205	0.287	241	0.161	277	0.157	313	0.192	349	0.372
26	0.571	62	0.683	98	0.705	134	0.641	170	0.488	206	0.282	242	0.160	278	0.157	314	0.196	350	0.378
27	0.575	63	0.685	99	0.704	135	0.638	171	0.482	207	0.277	243	0.160	279	0.157	315	0.199	351	0.384
28	0.580	64	0.686	100	0.703	136	0.635	172	0.477	208	0.271	244	0.159	280	0.157	316	0.203	352	0.390
29	0.584	65	0.688	101	0.703	137	0.632	173	0.471	209	0.266	245	0.158	281	0.157	317	0.206	353	0.396
30	0.588	66	0.690	102	0.702	138	0.629	174	0.466	210	0.261	246	0.158	282	0.157	318	0.210	354	0.402
31	0.592	67	0.691	103	0.701	139	0.625	175	0.460	211	0.256	247	0.157	283	0.157	319	0.214	355	0.408
32	0.596	68	0.692	104	0.700	140	0.622	176	0.455	212	0.251	248	0.157	284	0.157	320	0.218	356	0.414
33	0.600	69	0.694	105	0.699	141	0.618	177	0.449	213	0.246	249	0.157	285	0.157	321	0.222	357	0.419
34	0.604	70	0.695	106	0.698	142	0.615	178	0.443	214	0.241	250	0.156	286	0.157	322	0.226	358	0.425
35	0.608	71	0.696	107	0.697	143	0.611	179	0.438	215	0.236	251	0.156	287	0.157	323	0.231	359	0.431

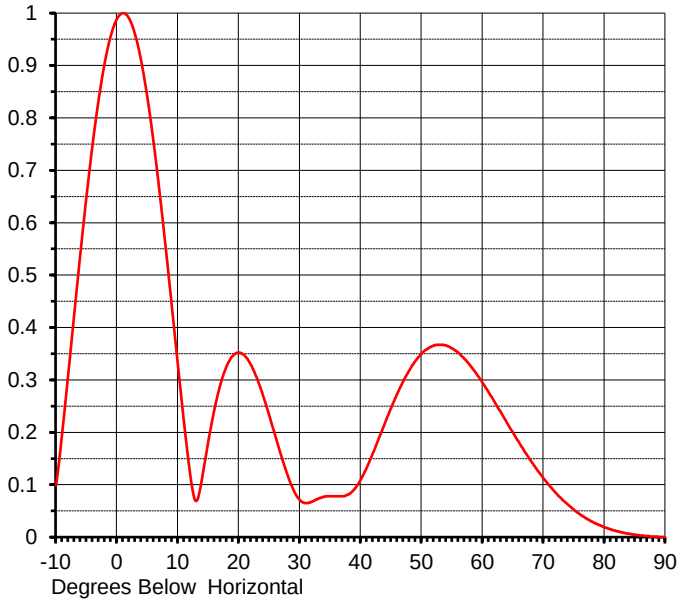
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ELEVATION PATTERN

Proposal No.	**C-71279-4**
Date	**30-Oct-19**
Call Letters	**WPBN**
Channel	**18**
Frequency	**497 MHz**
Antenna Type	**TLP-4B/VP-R**

RMS Directivity at Main Lobe	**4.0 (6.00 dB)**	Beam Tilt	**1.00 deg**
RMS Directivity at Horizontal	**3.9 (5.91 dB)**	Pattern Number	**4L040100**
	Calculated		





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.099	10.0	0.326	30.0	0.071	50.0	0.350	70.0	0.112
-9.0	0.200	11.0	0.217	31.0	0.065	51.0	0.360	71.0	0.098
-8.0	0.313	12.0	0.119	32.0	0.068	52.0	0.366	72.0	0.084
-7.0	0.430	13.0	0.069	33.0	0.073	53.0	0.367	73.0	0.072
-6.0	0.544	14.0	0.116	34.0	0.077	54.0	0.366	74.0	0.062
-5.0	0.653	15.0	0.185	35.0	0.078	55.0	0.360	75.0	0.052
-4.0	0.751	16.0	0.245	36.0	0.078	56.0	0.352	76.0	0.043
-3.0	0.837	17.0	0.293	37.0	0.078	57.0	0.340	77.0	0.036
-2.0	0.907	18.0	0.327	38.0	0.082	58.0	0.327	78.0	0.029
-1.0	0.958	19.0	0.346	39.0	0.092	59.0	0.311	79.0	0.024
0.0	0.990	20.0	0.352	40.0	0.110	60.0	0.294	80.0	0.019
1.0	1.000	21.0	0.345	41.0	0.133	61.0	0.276	81.0	0.015
2.0	0.989	22.0	0.328	42.0	0.161	62.0	0.257	82.0	0.011
3.0	0.957	23.0	0.302	43.0	0.190	63.0	0.238	83.0	0.009
4.0	0.906	24.0	0.268	44.0	0.219	64.0	0.218	84.0	0.006
5.0	0.837	25.0	0.231	45.0	0.247	65.0	0.199	85.0	0.005
6.0	0.752	26.0	0.192	46.0	0.274	66.0	0.180	86.0	0.003
7.0	0.655	27.0	0.153	47.0	0.298	67.0	0.161	87.0	0.002
8.0	0.550	28.0	0.118	48.0	0.319	68.0	0.144	88.0	0.001
9.0	0.438	29.0	0.089	49.0	0.337	69.0	0.127	89.0	0.000
								90.0	0.000

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