Dielectric

Proposal #: **C-04604** Antenna Type: **TLP-8F/VP-R** Channel: **25 DTV**

Call Letters: **KPXH-LP** Location: **Ft. Collins, CO.**

Electrical Specifications		**Value** Ratio	dBd	**Remarks**
RMS Gain at Main Lobe over Halfwave Dipole	Hpol			
	Vpol			
RMS Gain at Horizontal over Halfwave Dipole	Hpol			
	Vpol			
Peak Directional Gain over Halfwave Dipole	Hpol	19.4	12.88	
	Vpol	9.7	9.87	
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol	16.3	12.12	
	Vpol	8.2	9.14	
Circularity Directional		dB		
Axial Ratio		dB		
Beam Tilt		1.50 deg		
Average Power		5 kW	6.99 dBk	
Antenna Input: T/L		1-5/8 in	50.0 ohm	Type: EIA/DCA
Maximum Antenna Input VSWR		Channel	1.10 : 1	Notes:
Patterns	Azimuth	TLP-F	TLP-F_VPOL	
	Elevation	08L080150	08L080150-90	

Mechanical Specifications		**Metric**	**English**	**Preliminary**
Height with Lightning Protector	H4	m	ft	**Side mounted**
Height Less Lightning Protector	H2	5.0 m	16.5 ft	TIA/EIA-222-F.
Height of Center of Radiation	H3	2.5 m	8.3 ft	
Basic Wind Speed	V	136.8 km/h	85 mi/h	
Force Coeff. x Projected Area	CaAc	1.9 m²	20.3 ft²	Excludes Mounts
Moment Arm	D1	m	ft	
Force Coeff. x Projected Area	CaAc	m²	ft²	
Moment Arm	D3	m	ft	
Pole Bury Length	D2	m	ft	
Weight	W	0.1 t	200 lbs	Excludes Mounts
Radome				

Antenna designed in accordance with AISC specifications for design of structural steel for building as prescribed by TIA/EIA-222-F. **Mechanical Loads Exclude Mounts**

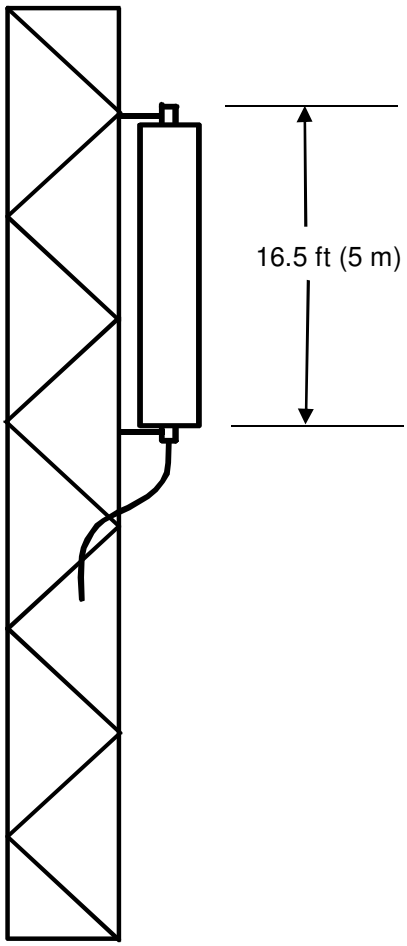
NOTE:

Prepared By : JBC RMS Rick Smart Approved By : Paul Jones PSJ

Original Date : 12-Apr-11

Dielectric

Proposal #:	C-04604	Antenna Type:	TLP-8F/VP-R	Channel:	25 DTV
Call Letters:	KPXH-LP	Location:	Ft. Collins, CO.		



Mechanical Specifications
TIA/EIA-222-F. @ 85 mi/h (136.8 km/h)

CaAc = 20.3 ft²(1.9 m²)
W = 200 lbs(0.1 t)

TLP-8F/VP-R
Channel: D25

JBC-041211-0 Not to Scale

Proposal Number	**C-04604**		
Date	**12-Apr-11**		
Call Letters	**KPXH-LP**	Channel	**25**
Location	**Ft. Collins, CO.**		
Customer			
Antenna Type	**TLP-8F/VP-R**		

SYSTEM SUMMARY

Antenna:

			H Pol		V Pol	
Type:	**TLP-8F/VP-R**	ERP:	**15.0 kW**	**(11.76 dBk)**	**7.5 kW**	**(8.75 dBk)**
Channel:	**25**	Peak Gain*:	**19.4**	**(12.87 dB)**	**9.7**	**(9.86 dB)**
Location:	**Ft. Collins, CO.**	Input Power:	**0.77 kW**	**-(1.11 dBk)**		

Transmission Line:

Type:	**EIA/DCA**	Attenuation:		**0.50 dB**
Size:	**1-5/8 in**	Efficiency:	**89.2%**	
Impedance:	**50 ohm**			
Length:	**100 ft**	**30.5 m**		

Transmitter:

Power Required:	**0.87 kW**	**-(0.61 dBk)**

* Gain is with respect to half wave dipole.

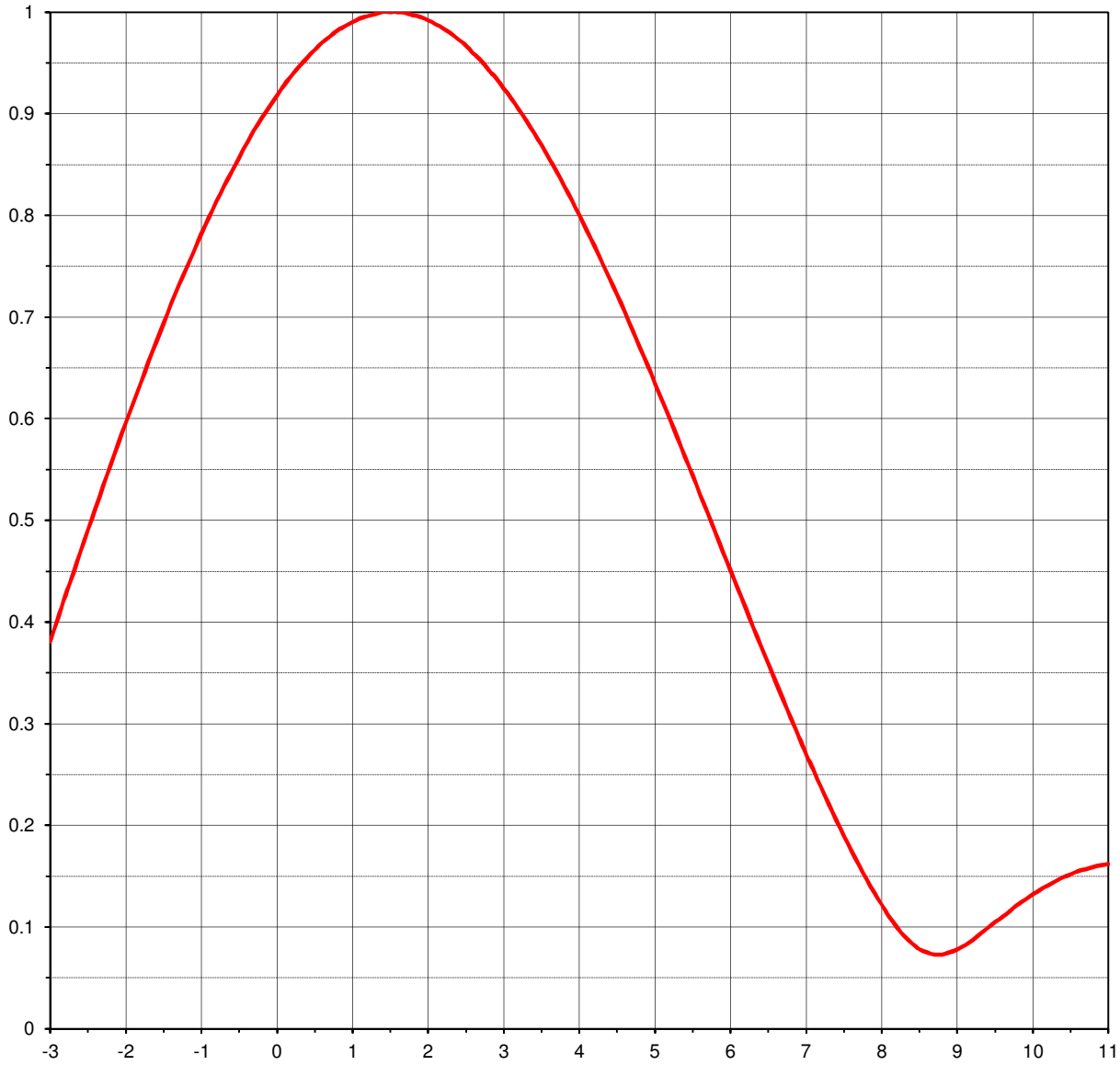
Dielectric

Proposal Number	**C-04604**		
Date	**12-Apr-11**		
Call Letters	**KPXH-LP**	Channel	**25**
Location	**Ft. Collins, CO.**		
Customer			
Antenna Type	**TLP-8F/VP-R**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**8.00**	**(9.03 dB)**	
RMS Gain at Horizontal	**6.70**	**(8.26 dB)**	
Calculated / Measured	**Calculated**		

Beam Tilt	**1.50 deg**
Frequency	**539.00 MHz**
Drawing #	**08L080150**



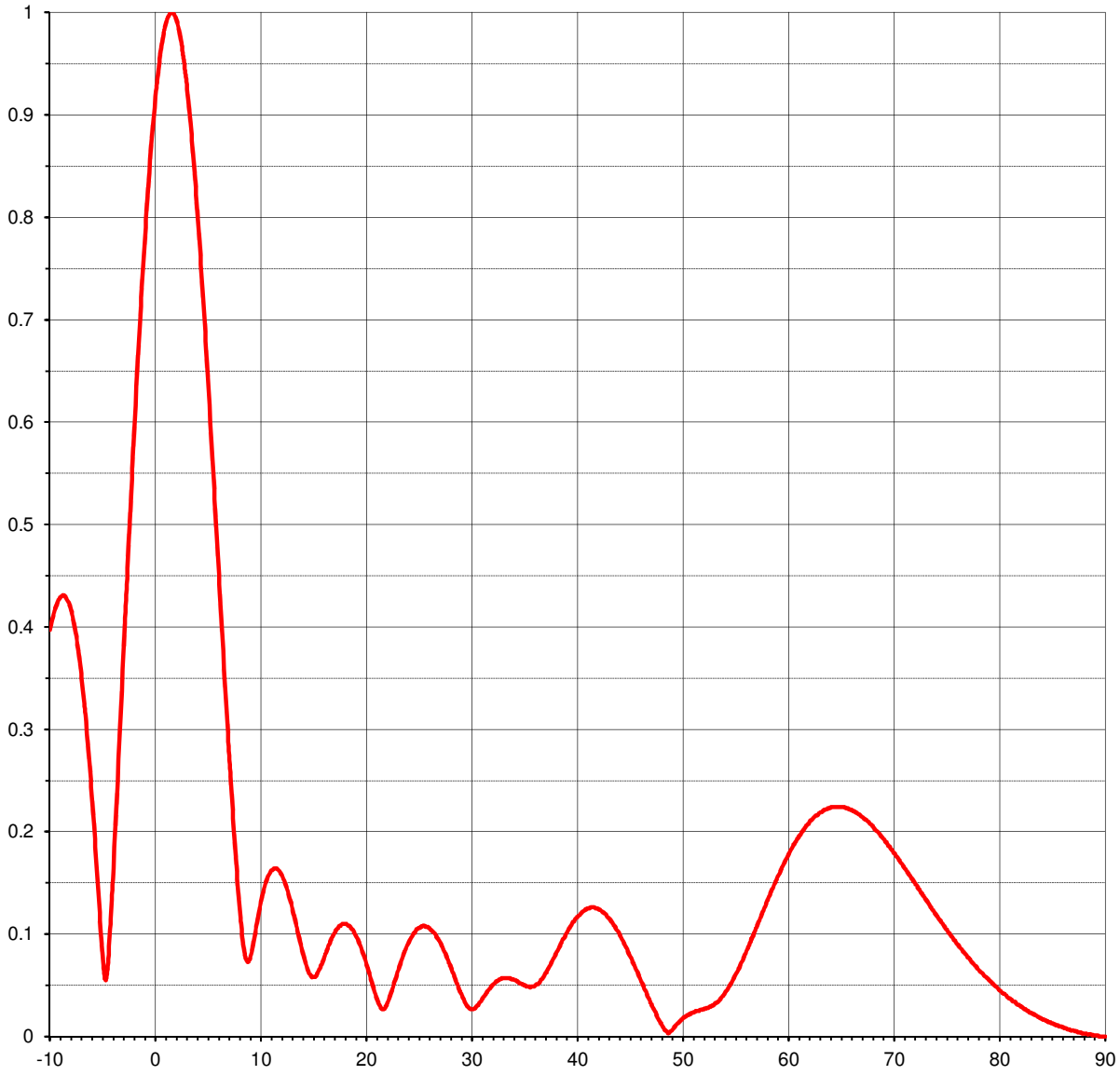
Degrees Below Horizontal

Dielectric

Proposal Number	**C-04604**		
Date	**12-Apr-11**		
Call Letters	**KPXH-LP**	Channel	**25**
Location	**Ft. Collins, CO.**		
Customer			
Antenna Type	**TLP-8F/VP-R**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**8.00**	**(9.03 dB)**	Beam Tilt	**1.50 deg**
RMS Gain at Horizontal	**6.70**	**(8.26 dB)**	Frequency	**539.00 MHz**
Calculated / Measured	**Calculated**		Drawing #	**08L080150-90**



Dielectric

Proposal Number	**C-04604**		
Date	**12-Apr-11**		
Call Letters	**KPXH-LP**	Channel	**25**
Location	**Ft. Collins, CO.**		
Customer			
Antenna Type	**TLP-8F/VP-R**		

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **08L080150-90**

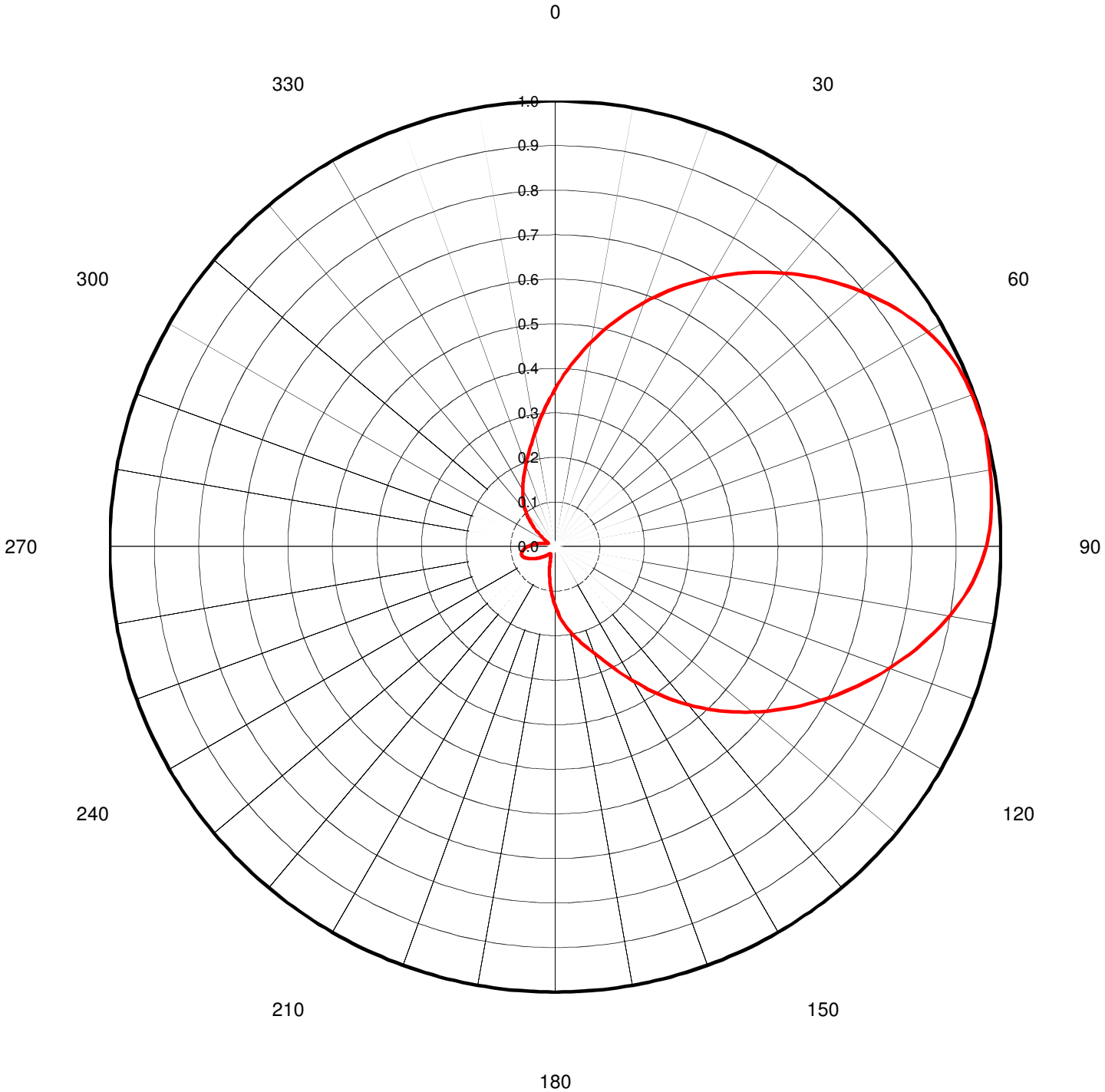
Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.397	2.4	0.973	10.6	0.152	30.5	0.029	51.0	0.023	71.5	0.157
-9.5	0.418	2.6	0.959	10.8	0.157	31.0	0.036	51.5	0.025	72.0	0.149
-9.0	0.429	2.8	0.943	11.0	0.161	31.5	0.043	52.0	0.027	72.5	0.141
-8.5	0.429	3.0	0.925	11.5	0.164	32.0	0.050	52.5	0.028	73.0	0.134
-8.0	0.416	3.2	0.904	12.0	0.159	32.5	0.054	53.0	0.031	73.5	0.126
-7.5	0.390	3.4	0.881	12.5	0.146	33.0	0.057	53.5	0.035	74.0	0.118
-7.0	0.350	3.6	0.856	13.0	0.128	33.5	0.057	54.0	0.042	74.5	0.111
-6.5	0.296	3.8	0.829	13.5	0.106	34.0	0.056	54.5	0.050	75.0	0.104
-6.0	0.230	4.0	0.800	14.0	0.084	34.5	0.053	55.0	0.059	75.5	0.097
-5.5	0.153	4.2	0.770	14.5	0.066	35.0	0.050	55.5	0.070	76.0	0.090
-5.0	0.076	4.4	0.738	15.0	0.058	35.5	0.049	56.0	0.081	76.5	0.083
-4.5	0.072	4.6	0.705	15.5	0.063	36.0	0.049	56.5	0.093	77.0	0.077
-4.0	0.164	4.8	0.670	16.0	0.075	36.5	0.053	57.0	0.106	77.5	0.071
-3.5	0.271	5.0	0.635	16.5	0.089	37.0	0.061	57.5	0.118	78.0	0.065
-3.0	0.381	5.2	0.599	17.0	0.100	37.5	0.070	58.0	0.131	78.5	0.060
-2.8	0.426	5.4	0.562	17.5	0.108	38.0	0.080	58.5	0.143	79.0	0.055
-2.6	0.469	5.6	0.525	18.0	0.110	38.5	0.090	59.0	0.155	79.5	0.050
-2.4	0.512	5.8	0.488	18.5	0.108	39.0	0.100	59.5	0.166	80.0	0.045
-2.2	0.555	6.0	0.451	19.0	0.100	39.5	0.109	60.0	0.176	80.5	0.041
-2.0	0.596	6.2	0.414	19.5	0.089	40.0	0.116	60.5	0.186	81.0	0.037
-1.8	0.636	6.4	0.377	20.0	0.074	40.5	0.121	61.0	0.194	81.5	0.033
-1.6	0.675	6.6	0.341	20.5	0.056	41.0	0.125	61.5	0.202	82.0	0.029
-1.4	0.713	6.8	0.305	21.0	0.039	41.5	0.126	62.0	0.208	82.5	0.026
-1.2	0.748	7.0	0.270	21.5	0.027	42.0	0.125	62.5	0.214	83.0	0.023
-1.0	0.782	7.2	0.237	22.0	0.031	42.5	0.121	63.0	0.218	83.5	0.020
-0.8	0.814	7.4	0.205	22.5	0.045	43.0	0.116	63.5	0.221	84.0	0.017
-0.6	0.843	7.6	0.175	23.0	0.062	43.5	0.109	64.0	0.223	84.5	0.015
-0.4	0.871	7.8	0.147	23.5	0.077	44.0	0.101	64.5	0.224	85.0	0.013
-0.2	0.896	8.0	0.122	24.0	0.090	44.5	0.091	65.0	0.224	85.5	0.011
0.0	0.918	8.2	0.100	24.5	0.100	45.0	0.080	65.5	0.223	86.0	0.009
0.2	0.938	8.4	0.084	25.0	0.106	45.5	0.069	66.0	0.221	86.5	0.007
0.4	0.955	8.6	0.075	25.5	0.108	46.0	0.057	66.5	0.218	87.0	0.006
0.6	0.970	8.8	0.073	26.0	0.106	46.5	0.045	67.0	0.214	87.5	0.004
0.8	0.982	9.0	0.078	26.5	0.101	47.0	0.033	67.5	0.210	88.0	0.003
1.0	0.990	9.2	0.087	27.0	0.093	47.5	0.023	68.0	0.205	88.5	0.002
1.2	0.996	9.4	0.099	27.5	0.082	48.0	0.013	68.5	0.199	89.0	0.001
1.4	1.000	9.6	0.110	28.0	0.070	48.5	0.005	69.0	0.193	89.5	0.000
1.6	1.000	9.8	0.116	28.5	0.056	49.0	0.006	69.5	0.186	90.0	0.000
1.8	0.997	10.0	0.127	29.0	0.043	49.5	0.012	70.0	0.179		
2.0	0.992	10.2	0.137	29.5	0.032	50.0	0.017	70.5	0.172		
2.2	0.984	10.4	0.145	30.0	0.027	50.5	0.021	71.0	0.164		

Dielectric

Proposal Number	**C-04604**		
Date	**12-Apr-11**		
Call Letters	**KPXH-LP**	Channel	**25**
Location	**Ft. Collins, CO.**		
Customer			
Antenna Type	**TLP-8F/VP-R**		

AZIMUTH PATTERN

Gain	**3.60**	**(5.56 dB)**	
Calculated / Measured	**Calculated**		
Frequency	**539.00 MHz**		
Drawing #	**TLP-F**		



Dielectric

Proposal Number	**C-04604**
Date	**12-Apr-11**
Call Letters	**KPXH-LP** Channel **25**
Location	**Ft. Collins, CO.**
Customer	
Antenna Type	**TLP-8F/VP-R**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **TLP-F**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.354	45	0.849	90	0.968	135	0.521	180	0.133	225	0.028	270	0.062	315	0.080
1	0.365	46	0.858	91	0.963	136	0.509	181	0.127	226	0.030	271	0.060	316	0.085
2	0.376	47	0.867	92	0.958	137	0.498	182	0.120	227	0.031	272	0.058	317	0.090
3	0.387	48	0.876	93	0.952	138	0.486	183	0.114	228	0.033	273	0.055	318	0.094
4	0.398	49	0.885	94	0.946	139	0.475	184	0.108	229	0.034	274	0.053	319	0.099
5	0.409	50	0.893	95	0.939	140	0.463	185	0.101	230	0.036	275	0.051	320	0.104
6	0.420	51	0.901	96	0.932	141	0.452	186	0.095	231	0.038	276	0.048	321	0.108
7	0.432	52	0.909	97	0.924	142	0.440	187	0.089	232	0.039	277	0.046	322	0.112
8	0.443	53	0.917	98	0.916	143	0.428	188	0.084	233	0.041	278	0.043	323	0.117
9	0.455	54	0.925	99	0.907	144	0.417	189	0.078	234	0.043	279	0.041	324	0.121
10	0.466	55	0.932	100	0.899	145	0.405	190	0.072	235	0.045	280	0.039	325	0.125
11	0.478	56	0.940	101	0.889	146	0.393	191	0.067	236	0.047	281	0.036	326	0.129
12	0.489	57	0.947	102	0.880	147	0.382	192	0.062	237	0.048	282	0.034	327	0.134
13	0.501	58	0.953	103	0.870	148	0.370	193	0.057	238	0.050	283	0.032	328	0.138
14	0.513	59	0.959	104	0.860	149	0.359	194	0.053	239	0.052	284	0.030	329	0.142
15	0.525	60	0.965	105	0.850	150	0.348	195	0.049	240	0.054	285	0.028	330	0.146
16	0.536	61	0.971	106	0.840	151	0.337	196	0.045	241	0.056	286	0.026	331	0.151
17	0.548	62	0.976	107	0.830	152	0.326	197	0.041	242	0.058	287	0.024	332	0.155
18	0.559	63	0.980	108	0.819	153	0.316	198	0.038	243	0.060	288	0.023	333	0.159
19	0.571	64	0.984	109	0.809	154	0.306	199	0.035	244	0.062	289	0.021	334	0.164
20	0.583	65	0.987	110	0.798	155	0.296	200	0.033	245	0.064	290	0.020	335	0.168
21	0.594	66	0.990	111	0.788	156	0.287	201	0.030	246	0.066	291	0.019	336	0.173
22	0.606	67	0.992	112	0.777	157	0.278	202	0.028	247	0.068	292	0.018	337	0.178
23	0.617	68	0.993	113	0.766	158	0.270	203	0.026	248	0.069	293	0.018	338	0.183
24	0.629	69	0.995	114	0.755	159	0.262	204	0.025	249	0.071	294	0.017	339	0.188
25	0.640	70	0.996	115	0.745	160	0.255	205	0.023	250	0.073	295	0.017	340	0.194
26	0.651	71	0.997	116	0.734	161	0.248	206	0.022	251	0.074	296	0.017	341	0.199
27	0.663	72	0.997	117	0.723	162	0.241	207	0.021	252	0.075	297	0.018	342	0.205
28	0.674	73	0.998	118	0.712	163	0.235	208	0.020	253	0.076	298	0.019	343	0.211
29	0.685	74	0.998	119	0.701	164	0.228	209	0.020	254	0.077	299	0.020	344	0.217
30	0.696	75	1.000	120	0.690	165	0.223	210	0.019	255	0.077	300	0.021	345	0.224
31	0.707	76	0.998	121	0.678	166	0.217	211	0.019	256	0.078	301	0.023	346	0.230
32	0.718	77	0.996	122	0.667	167	0.211	212	0.019	257	0.078	302	0.026	347	0.237
33	0.729	78	0.994	123	0.656	168	0.206	213	0.019	258	0.078	303	0.028	348	0.245
34	0.739	79	0.993	124	0.645	169	0.200	214	0.019	259	0.077	304	0.031	349	0.252
35	0.750	80	0.991	125	0.634	170	0.195	215	0.019	260	0.077	305	0.035	350	0.260
36	0.760	81	0.990	126	0.623	171	0.189	216	0.020	261	0.076	306	0.038	351	0.268
37	0.771	82	0.988	127	0.611	172	0.184	217	0.020	262	0.075	307	0.042	352	0.277
38	0.781	83	0.987	128	0.600	173	0.178	218	0.021	263	0.074	308	0.047	353	0.286
39	0.791	84	0.985	129	0.589	174	0.172	219	0.022	264	0.072	309	0.051	354	0.295
40	0.801	85	0.983	130	0.578	175	0.165	220	0.023	265	0.071	310	0.055	355	0.304
41	0.811	86	0.981	131	0.566	176	0.159	221	0.024	266	0.069	311	0.060	356	0.314
42	0.821	87	0.978	132	0.555	177	0.153	222	0.025	267	0.068	312	0.065	357	0.324
43	0.830	88	0.975	133	0.544	178	0.146	223	0.026	268	0.066	313	0.070	358	0.334
44	0.840	89	0.972	134	0.532	179	0.140	224	0.027	269	0.064	314	0.075	359	0.344

Dielectric

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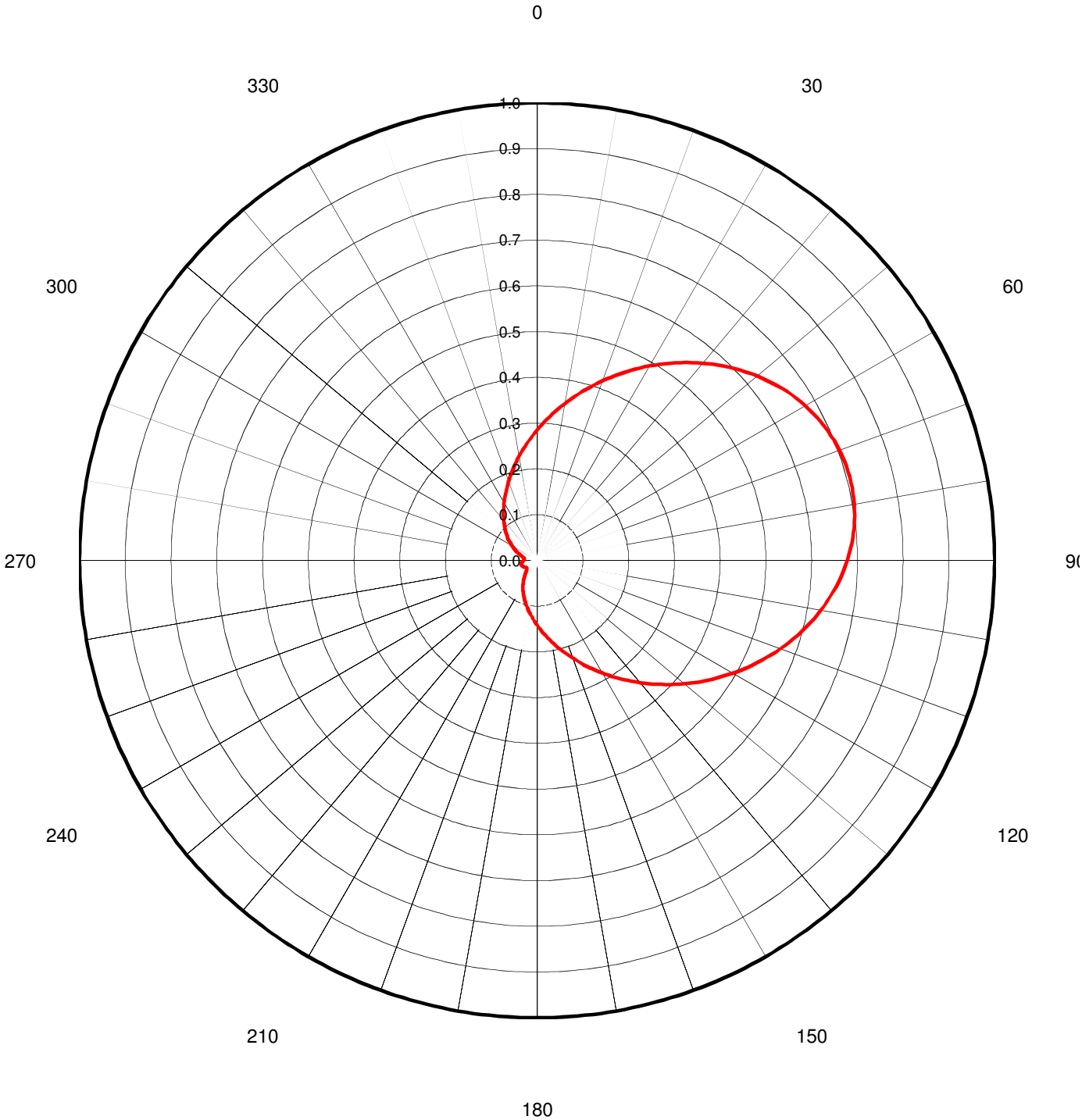
Date	**12-Apr-11**		
Call Letters	**KPXH-LP**	Channel	**25**
Location	**Ft. Collins, CO.**		
Customer			
Antenna Type	**TLP-8F/VP-R**		

AZIMUTH PATTERN/VERTICAL POLARIZATION

Gain	**3.70**	**(5.68 dB)**	Frequency	**539.00 MHz**
Calculated / Measured		**Calculated**	Drawing #	**TLP-F_VPOL**



Dielectric

Proposal Number	**C-04604**		
Date	**12-Apr-11**		
Call Letters	**KPXH-LP**	Channel	**25**
Location	**Ft. Collins, CO.**		
Customer			
Antenna Type	**TLP-8F/VP-R**		

TABULATION OF AZIMUTH PATTERN/VERTICAL POLARIZATION

Azimuth Pattern Drawing #: **TLP-F_VPOL**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.285	45	0.596	90	0.678	135	0.383	180	0.141	225	0.034	270	0.029	315	0.099
1	0.291	46	0.603	91	0.674	136	0.376	181	0.138	226	0.032	271	0.029	316	0.102
2	0.297	47	0.609	92	0.670	137	0.369	182	0.135	227	0.031	272	0.028	317	0.105
3	0.303	48	0.615	93	0.666	138	0.362	183	0.131	228	0.030	273	0.028	318	0.107
4	0.309	49	0.621	94	0.661	139	0.356	184	0.128	229	0.030	274	0.028	319	0.110
5	0.316	50	0.627	95	0.656	140	0.349	185	0.125	230	0.029	275	0.028	320	0.113
6	0.322	51	0.633	96	0.651	141	0.342	186	0.122	231	0.028	276	0.028	321	0.116
7	0.328	52	0.639	97	0.646	142	0.335	187	0.119	232	0.028	277	0.028	322	0.119
8	0.335	53	0.644	98	0.641	143	0.329	188	0.116	233	0.028	278	0.028	323	0.122
9	0.342	54	0.649	99	0.635	144	0.322	189	0.113	234	0.028	279	0.028	324	0.125
10	0.348	55	0.654	100	0.630	145	0.315	190	0.110	235	0.028	280	0.029	325	0.128
11	0.355	56	0.659	101	0.624	146	0.309	191	0.108	236	0.028	281	0.030	326	0.131
12	0.362	57	0.664	102	0.618	147	0.303	192	0.105	237	0.029	282	0.031	327	0.134
13	0.368	58	0.668	103	0.612	148	0.296	193	0.102	238	0.029	283	0.032	328	0.138
14	0.375	59	0.672	104	0.606	149	0.290	194	0.100	239	0.030	284	0.033	329	0.141
15	0.382	60	0.676	105	0.599	150	0.284	195	0.097	240	0.030	285	0.034	330	0.144
16	0.389	61	0.680	106	0.593	151	0.278	196	0.094	241	0.031	286	0.036	331	0.148
17	0.396	62	0.684	107	0.586	152	0.272	197	0.092	242	0.031	287	0.037	332	0.151
18	0.403	63	0.687	108	0.579	153	0.266	198	0.089	243	0.032	288	0.039	333	0.155
19	0.410	64	0.690	109	0.573	154	0.260	199	0.087	244	0.032	289	0.041	334	0.159
20	0.418	65	0.693	110	0.566	155	0.255	200	0.085	245	0.033	290	0.042	335	0.163
21	0.425	66	0.696	111	0.559	156	0.249	201	0.082	246	0.033	291	0.044	336	0.166
22	0.432	67	0.698	112	0.552	157	0.244	202	0.080	247	0.034	292	0.046	337	0.170
23	0.439	68	0.700	113	0.545	158	0.238	203	0.077	248	0.034	293	0.048	338	0.175
24	0.447	69	0.702	114	0.537	159	0.233	204	0.075	249	0.035	294	0.050	339	0.179
25	0.454	70	0.703	115	0.530	160	0.228	205	0.073	250	0.035	295	0.052	340	0.183
26	0.461	71	0.705	116	0.523	161	0.222	206	0.071	251	0.035	296	0.055	341	0.187
27	0.469	72	0.706	117	0.516	162	0.217	207	0.068	252	0.036	297	0.057	342	0.192
28	0.476	73	0.706	118	0.508	163	0.212	208	0.066	253	0.036	298	0.059	343	0.196
29	0.483	74	0.707	119	0.501	164	0.207	209	0.064	254	0.036	299	0.061	344	0.201
30	0.491	75	0.707	120	0.494	165	0.203	210	0.062	255	0.036	300	0.063	345	0.205
31	0.498	76	0.707	121	0.486	166	0.198	211	0.059	256	0.036	301	0.066	346	0.210
32	0.505	77	0.707	122	0.479	167	0.193	212	0.057	257	0.036	302	0.068	347	0.215
33	0.513	78	0.706	123	0.471	168	0.189	213	0.055	258	0.035	303	0.070	348	0.220
34	0.520	79	0.705	124	0.464	169	0.184	214	0.053	259	0.035	304	0.072	349	0.225
35	0.527	80	0.704	125	0.456	170	0.180	215	0.051	260	0.035	305	0.075	350	0.230
36	0.534	81	0.703	126	0.449	171	0.176	216	0.049	261	0.034	306	0.077	351	0.235
37	0.542	82	0.701	127	0.442	172	0.172	217	0.047	262	0.034	307	0.079	352	0.240
38	0.549	83	0.699	128	0.434	173	0.168	218	0.045	263	0.033	308	0.082	353	0.245
39	0.556	84	0.697	129	0.427	174	0.164	219	0.043	264	0.033	309	0.084	354	0.251
40	0.563	85	0.694	130	0.420	175	0.160	220	0.041	265	0.032	310	0.087	355	0.256
41	0.570	86	0.691	131	0.412	176	0.156	221	0.040	266	0.032	311	0.089	356	0.262
42	0.577	87	0.688	132	0.405	177	0.152	222	0.038	267	0.031	312	0.092	357	0.268
43	0.583	88	0.685	133	0.398	178	0.148	223	0.036	268	0.030	313	0.094	358	0.273
44	0.590	89	0.682	134	0.391	179	0.145	224	0.035	269	0.030	314	0.097	359	0.279