Dielectric®

Antenna Model: **TFU-14ETT/VP-R C210**

Proposal Number:	**C-70936-4**
Date:	**1-Feb-19**
Customer:	**Fox**
Location:	**Chicago, Il**

Electrical Specifications

Polarization:	**Elliptical**		
Azimuth Pattern:	**Directional**		
Antenna Input:	**6-1/8"**	**75 Ohm**	**EIA/DCA**
VSWR:	Channel	**1.08 : 1**	
Bandwidth:	**6 MHz**		
Rated Input Power:	**50 kW**	**(16.99 dBk)**	**Maximum Average Power**

Mechanical Specifications

Mounting:	**Top of Stack**				
Environmental Protection:	**Full Radome**				
Height:	**31.4 ft (9.6m)**	less Lightning Protector	**35.4 ft (10.8m)**	with Lightning Protector	
Weight:		Excludes Mounts			
Effective Projected Area:		**TIA-222-G**	Basic Wind Speed:	**90 m/h (144.8 km/h)**	

Channel Specifications

Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak Main Lobe Vpol Gain	Peak at Horizontal Hpol Gain	Peak at Horizontal Vpol Gain
WFLD	24	533 MHz	1000 kW (30.00 dBk)	500 kW (26.99 dBk)	49.2 kW (16.92 dBk)	22.44 (13.51dB)	11.22 (10.50dB)	20.12 (13.04dB)	10.06 (10.03dB)

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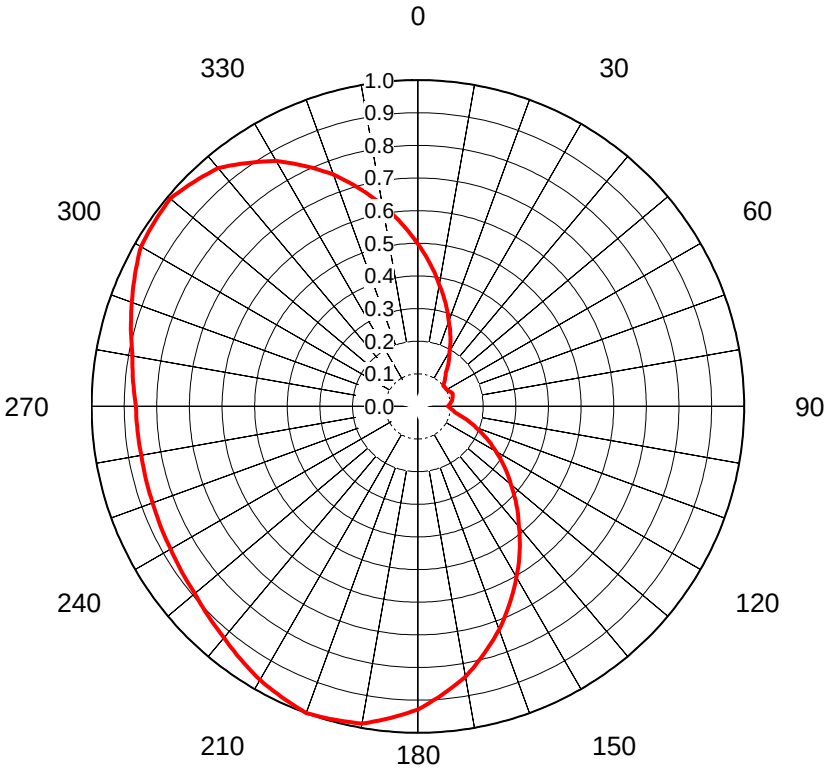

AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-70936-4**
Date	**1-Feb-19**
Call Letters	**WFLD**
Channel	**24**
Frequency	**533 MHz**
Antenna Type	**TFU-14ETT/VP-R C210**
Gain	**2.08 (3.18dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.497	36	0.158	72	0.113	108	0.176	144	0.531	180	0.929	216	0.942	252	0.864	288	0.924	324	0.919
1	0.486	37	0.151	73	0.112	109	0.183	145	0.544	181	0.935	217	0.938	253	0.864	289	0.928	325	0.911
2	0.474	38	0.145	74	0.111	110	0.190	146	0.556	182	0.941	218	0.934	254	0.863	290	0.933	326	0.903
3	0.462	39	0.139	75	0.110	111	0.199	147	0.568	183	0.946	219	0.929	255	0.863	291	0.938	327	0.894
4	0.450	40	0.133	76	0.109	112	0.207	148	0.580	184	0.952	220	0.925	256	0.862	292	0.942	328	0.886
5	0.438	41	0.130	77	0.109	113	0.216	149	0.592	185	0.958	221	0.922	257	0.862	293	0.947	329	0.877
6	0.426	42	0.127	78	0.108	114	0.225	150	0.605	186	0.964	222	0.918	258	0.862	294	0.952	330	0.869
7	0.414	43	0.124	79	0.107	115	0.233	151	0.617	187	0.970	223	0.915	259	0.861	295	0.956	331	0.858
8	0.402	44	0.120	80	0.106	116	0.242	152	0.629	188	0.975	224	0.912	260	0.861	296	0.961	332	0.846
9	0.390	45	0.117	81	0.105	117	0.250	153	0.642	189	0.981	225	0.908	261	0.861	297	0.966	333	0.835
10	0.378	46	0.114	82	0.103	118	0.259	154	0.654	190	0.987	226	0.905	262	0.861	298	0.971	334	0.824
11	0.368	47	0.111	83	0.102	119	0.268	155	0.666	191	0.988	227	0.902	263	0.862	299	0.975	335	0.812
12	0.358	48	0.108	84	0.101	120	0.276	156	0.678	192	0.990	228	0.898	264	0.862	300	0.980	336	0.801
13	0.348	49	0.104	85	0.099	121	0.286	157	0.691	193	0.991	229	0.895	265	0.862	301	0.981	337	0.790
14	0.338	50	0.101	86	0.098	122	0.295	158	0.703	194	0.992	230	0.892	266	0.863	302	0.982	338	0.778
15	0.328	51	0.101	87	0.096	123	0.305	159	0.715	195	0.993	231	0.890	267	0.863	303	0.983	339	0.767
16	0.318	52	0.101	88	0.095	124	0.315	160	0.728	196	0.995	232	0.888	268	0.863	304	0.984	340	0.756
17	0.308	53	0.101	89	0.093	125	0.324	161	0.739	197	0.996	233	0.887	269	0.864	305	0.985	341	0.743
18	0.297	54	0.102	90	0.092	126	0.334	162	0.750	198	0.997	234	0.885	270	0.864	306	0.987	342	0.730
19	0.287	55	0.102	91	0.095	127	0.344	163	0.762	199	0.999	235	0.883	271	0.866	307	0.988	343	0.717
20	0.277	56	0.102	92	0.097	128	0.353	164	0.773	200	1.000	236	0.882	272	0.869	308	0.989	344	0.704
21	0.269	57	0.102	93	0.100	129	0.363	165	0.784	201	0.997	237	0.880	273	0.871	309	0.990	345	0.691
22	0.261	58	0.102	94	0.103	130	0.372	166	0.796	202	0.994	238	0.878	274	0.873	310	0.991	346	0.678
23	0.252	59	0.102	95	0.105	131	0.383	167	0.807	203	0.990	239	0.877	275	0.876	311	0.987	347	0.665
24	0.244	60	0.102	96	0.108	132	0.394	168	0.818	204	0.987	240	0.875	276	0.878	312	0.983	348	0.652
25	0.236	61	0.103	97	0.110	133	0.405	169	0.830	205	0.984	241	0.874	277	0.881	313	0.980	349	0.640
26	0.227	62	0.105	98	0.113	134	0.416	170	0.841	206	0.981	242	0.873	278	0.883	314	0.976	350	0.627
27	0.219	63	0.106	99	0.116	135	0.427	171	0.850	207	0.978	243	0.872	279	0.885	315	0.972	351	0.614
28	0.211	64	0.107	100	0.118	136	0.438	172	0.858	208	0.974	244	0.871	280	0.888	316	0.968	352	0.601
29	0.203	65	0.108	101	0.125	137	0.449	173	0.867	209	0.971	245	0.870	281	0.892	317	0.964	353	0.588
30	0.194	66	0.109	102	0.133	138	0.460	174	0.876	210	0.968	246	0.869	282	0.897	318	0.961	354	0.575
31	0.188	67	0.111	103	0.140	139	0.471	175	0.885	211	0.964	247	0.868	283	0.901	319	0.957	355	0.562
32	0.182	68	0.112	104	0.147	140	0.482	176	0.894	212	0.959	248	0.867	284	0.906	320	0.953	356	0.549
33	0.176	69	0.113	105	0.154	141	0.495	177	0.903	213	0.955	249	0.866	285	0.910	321	0.945	357	0.536
34	0.170	70	0.114	106	0.161	142	0.507	178	0.911	214	0.951	250	0.865	286	0.915	322	0.936	358	0.523
35	0.164	71	0.113	107	0.169	143	0.519	179	0.920	215	0.946	251	0.864	287	0.919	323	0.928	359	0.510

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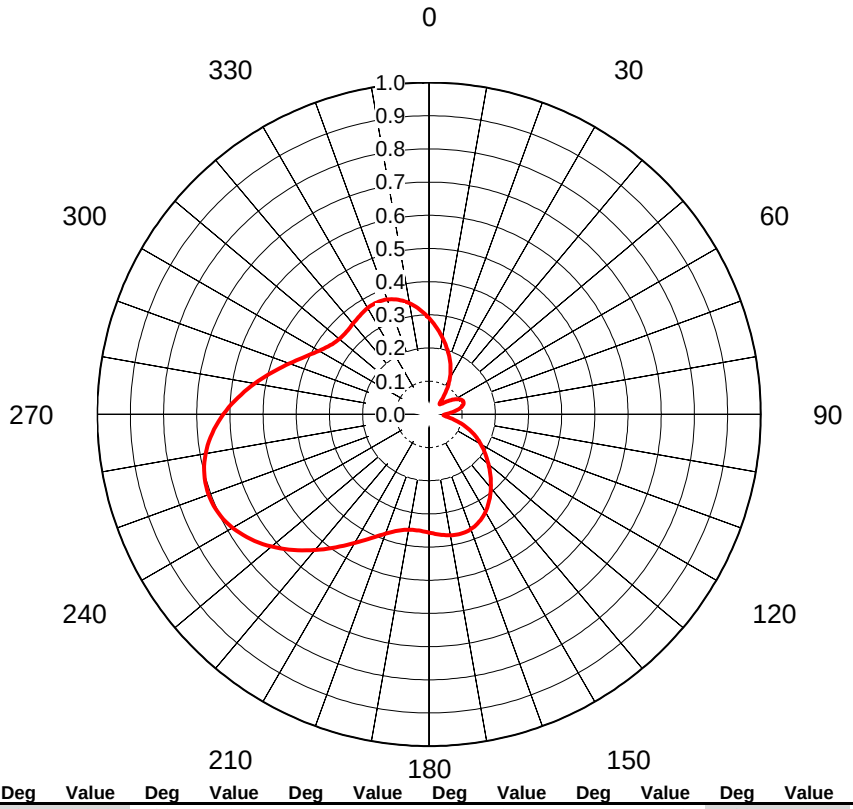


AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-70936-4**
Date	**1-Feb-19**
Call Letters	**WFLD**
Channel	**24**
Frequency	**533 MHz**
Antenna Type	**TFU-14ETT/VP-R C210**
Gain	**3.49 (5.42dB)**
	Calculated

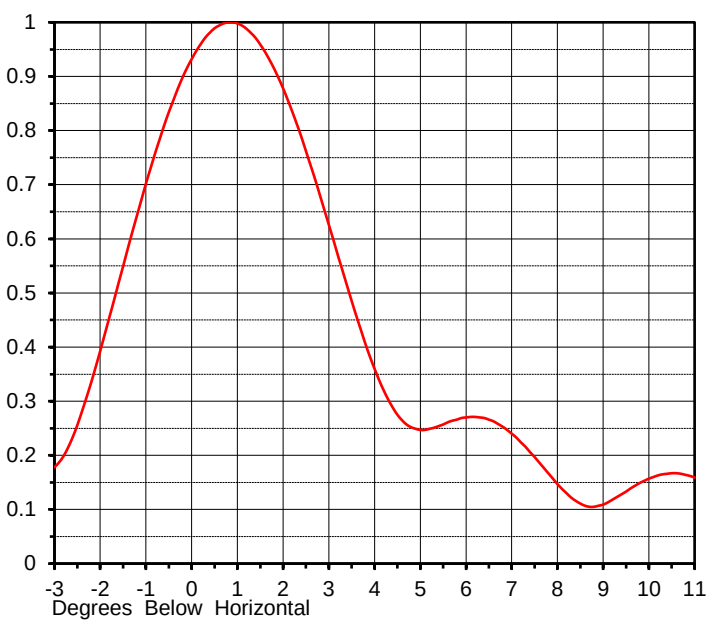
Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.290	36	0.089	72	0.110	108	0.114	144	0.312	180	0.356	216	0.498	252	0.706	288	0.464	324	0.362
1	0.285	37	0.083	73	0.109	109	0.120	145	0.317	181	0.355	217	0.507	253	0.705	289	0.456	325	0.364
2	0.279	38	0.077	74	0.107	110	0.126	146	0.322	182	0.354	218	0.516	254	0.703	290	0.448	326	0.365
3	0.273	39	0.071	75	0.105	111	0.131	147	0.327	183	0.353	219	0.525	255	0.701	291	0.440	327	0.366
4	0.268	40	0.066	76	0.103	112	0.137	148	0.331	184	0.352	220	0.534	256	0.698	292	0.433	328	0.368
5	0.262	41	0.061	77	0.101	113	0.143	149	0.336	185	0.352	221	0.543	257	0.695	293	0.425	329	0.369
6	0.256	42	0.056	78	0.098	114	0.149	150	0.340	186	0.351	222	0.552	258	0.692	294	0.418	330	0.370
7	0.251	43	0.052	79	0.095	115	0.154	151	0.344	187	0.351	223	0.561	259	0.688	295	0.412	331	0.371
8	0.245	44	0.048	80	0.091	116	0.160	152	0.348	188	0.352	224	0.569	260	0.684	296	0.405	332	0.371
9	0.240	45	0.046	81	0.087	117	0.165	153	0.351	189	0.352	225	0.578	261	0.679	297	0.399	333	0.372
10	0.234	46	0.044	82	0.083	118	0.170	154	0.355	190	0.353	226	0.587	262	0.674	298	0.393	334	0.372
11	0.229	47	0.044	83	0.079	119	0.176	155	0.358	191	0.354	227	0.595	263	0.668	299	0.388	335	0.372
12	0.223	48	0.045	84	0.075	120	0.181	156	0.360	192	0.356	228	0.604	264	0.662	300	0.383	336	0.372
13	0.218	49	0.047	85	0.070	121	0.186	157	0.363	193	0.358	229	0.612	265	0.656	301	0.378	337	0.371
14	0.213	50	0.050	86	0.066	122	0.192	158	0.365	194	0.360	230	0.620	266	0.649	302	0.374	338	0.371
15	0.207	51	0.053	87	0.061	123	0.197	159	0.367	195	0.363	231	0.628	267	0.642	303	0.370	339	0.370
16	0.202	52	0.057	88	0.057	124	0.202	160	0.368	196	0.366	232	0.635	268	0.635	304	0.366	340	0.368
17	0.197	53	0.061	89	0.053	125	0.207	161	0.370	197	0.370	233	0.642	269	0.628	305	0.363	341	0.367
18	0.192	54	0.066	90	0.050	126	0.213	162	0.371	198	0.374	234	0.649	270	0.620	306	0.360	342	0.365
19	0.186	55	0.070	91	0.047	127	0.218	163	0.371	199	0.378	235	0.656	271	0.612	307	0.358	343	0.363
20	0.181	56	0.075	92	0.045	128	0.223	164	0.372	200	0.383	236	0.662	272	0.604	308	0.356	344	0.360
21	0.176	57	0.079	93	0.044	129	0.229	165	0.372	201	0.388	237	0.668	273	0.595	309	0.354	345	0.358
22	0.170	58	0.083	94	0.044	130	0.234	166	0.372	202	0.393	238	0.674	274	0.587	310	0.353	346	0.355
23	0.165	59	0.087	95	0.046	131	0.240	167	0.372	203	0.399	239	0.679	275	0.578	311	0.352	347	0.351
24	0.160	60	0.091	96	0.048	132	0.245	168	0.371	204	0.405	240	0.684	276	0.569	312	0.352	348	0.348
25	0.154	61	0.095	97	0.052	133	0.251	169	0.371	205	0.412	241	0.688	277	0.561	313	0.351	349	0.344
26	0.149	62	0.098	98	0.056	134	0.256	170	0.370	206	0.418	242	0.692	278	0.552	314	0.351	350	0.340
27	0.143	63	0.101	99	0.061	135	0.262	171	0.369	207	0.425	243	0.695	279	0.543	315	0.352	351	0.336
28	0.137	64	0.103	100	0.066	136	0.268	172	0.368	208	0.433	244	0.698	280	0.534	316	0.352	352	0.331
29	0.131	65	0.105	101	0.071	137	0.273	173	0.366	209	0.440	245	0.701	281	0.525	317	0.353	353	0.327
30	0.126	66	0.107	102	0.077	138	0.279	174	0.365	210	0.448	246	0.703	282	0.516	318	0.354	354	0.322
31	0.120	67	0.109	103	0.083	139	0.285	175	0.364	211	0.456	247	0.705	283	0.507	319	0.355	355	0.317
32	0.114	68	0.110	104	0.089	140	0.290	176	0.362	212	0.464	248	0.706	284	0.498	320	0.356	356	0.312
33	0.108	69	0.110	105	0.095	141	0.296	177	0.361	213	0.472	249	0.707	285	0.489	321	0.358	357	0.307
34	0.102	70	0.111	106	0.102	142	0.301	178	0.359	214	0.481	250	0.707	286	0.481	322	0.359	358	0.301
35	0.095	71	0.110	107	0.108	143	0.307	179	0.358	215	0.489	251	0.707	287	0.472	323	0.361	359	0.296

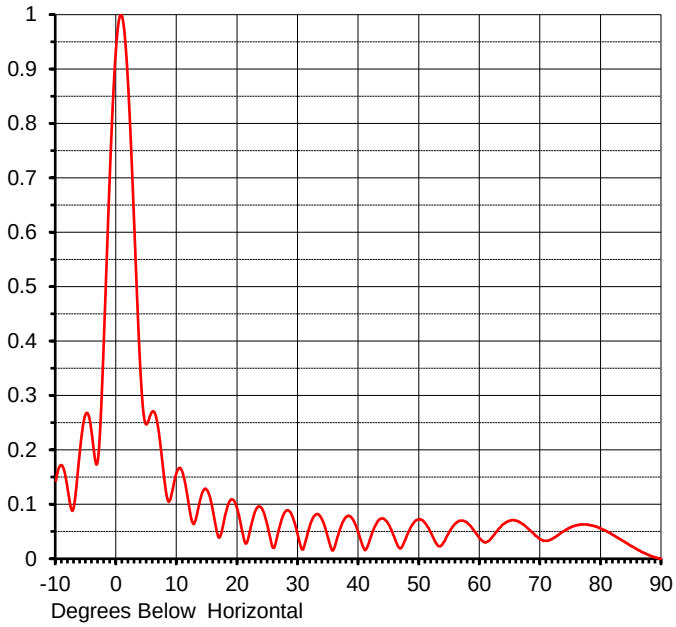
ELEVATION PATTERN

Proposal No.	**C-70936-4**
Date	**1-Feb-19**
Call Letters	**WFLD**
Channel	**24**
Frequency	**533 MHz**
Antenna Type	**TFU-14ETT/VP-R C210**

RMS Directivity at Main Lobe	**14.0 (11.46 dB)**	Beam Tilt	**0.75 deg**
RMS Directivity at Horizontal	**12.6 (11.00 dB)**	Pattern Number	**14E140075**

Calculated





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.143	10.0	0.160	30.0	0.041	50.0	0.073	70.0	0.036
-9.0	0.172	11.0	0.156	31.0	0.023	51.0	0.065	71.0	0.033
-8.0	0.125	12.0	0.096	32.0	0.063	52.0	0.046	72.0	0.037
-7.0	0.097	13.0	0.069	33.0	0.082	53.0	0.025	73.0	0.044
-6.0	0.201	14.0	0.115	34.0	0.071	54.0	0.030	74.0	0.052
-5.0	0.267	15.0	0.126	35.0	0.036	55.0	0.050	75.0	0.058
-4.0	0.225	16.0	0.084	36.0	0.021	56.0	0.065	76.0	0.062
-3.0	0.187	17.0	0.039	37.0	0.057	57.0	0.070	77.0	0.063
-2.0	0.424	18.0	0.082	38.0	0.077	58.0	0.065	78.0	0.062
-1.0	0.730	19.0	0.109	39.0	0.073	59.0	0.052	79.0	0.060
0.0	0.947	20.0	0.090	40.0	0.046	60.0	0.037	80.0	0.055
1.0	0.994	21.0	0.039	41.0	0.016	61.0	0.030	81.0	0.050
2.0	0.857	22.0	0.049	42.0	0.040	62.0	0.039	82.0	0.044
3.0	0.598	23.0	0.089	43.0	0.066	63.0	0.053	83.0	0.037
4.0	0.339	24.0	0.093	44.0	0.074	64.0	0.064	84.0	0.030
5.0	0.247	25.0	0.058	45.0	0.062	65.0	0.070	85.0	0.023
6.0	0.271	26.0	0.020	46.0	0.036	66.0	0.070	86.0	0.017
7.0	0.233	27.0	0.061	47.0	0.020	67.0	0.064	87.0	0.011
8.0	0.138	28.0	0.088	48.0	0.044	68.0	0.055	88.0	0.006
9.0	0.113	29.0	0.079	49.0	0.065	69.0	0.045	89.0	0.002
								90.0	0.000

Summary

Proposal No.	**C-70936-4**
Date	**1-Feb-19**
Call Letters	**WFLD**
Channel	**24**
Frequency	**533 MHz**
Antenna Type	**TFU-14ETT/VP-R C210**

Antenna

	Hpol		Vpol	
ERP:	**1000 kW**	**(30.00 dBk)**	**500 kW**	**(26.99 dBk)**
Peak Gain*	22.44	(13.51 dB)	11.22	(10.50 dB)

Antenna Input Power **44.6 kW** **(16.49 dBk)**

Transmission Line

Type:	**Rigid**	Attenuation:		**(0.39 dB)**
Size:	**7-3/16"**	Efficiency:	**91.5%**	
Impedance:	**75 Ohm**			
Length:	**400 ft**	**121.9 m**		

40 ft of 6-1/8 in 75 Ohm feed through

Attenuation		(0.04 dB)
Efficiency	99.1%	

Transmitter Output

49.2 kW **(16.92 dBk)**

Transmitter filter losses not included

* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses