



Antenna Model:

TFU-30DSC/VP-R CT170

Proposal Number: C-70485-1
Date: 14-Mar-17
Customer: Nexstar
Location: Gulf Shores, AL

Electrical Specifications

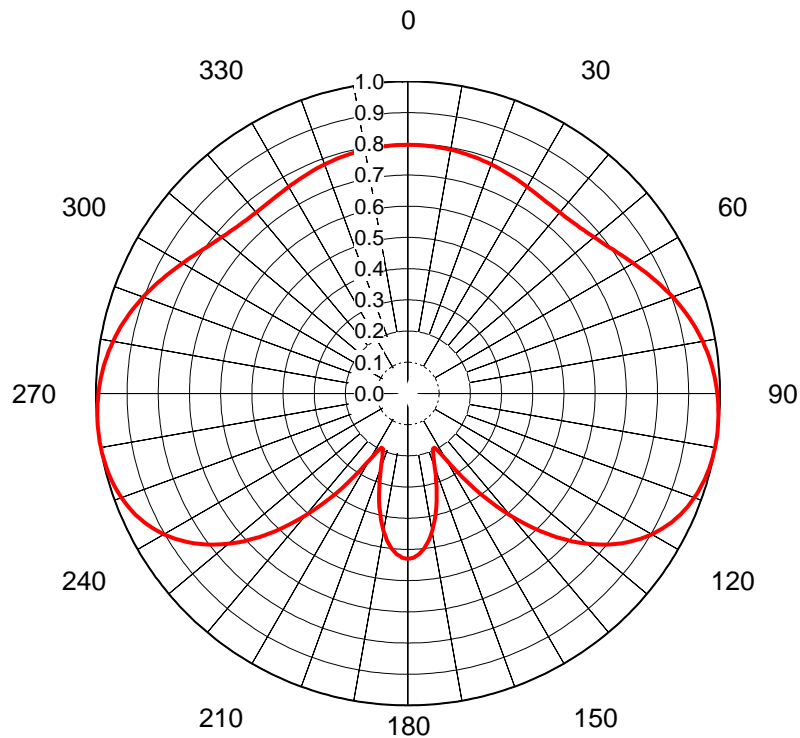
Polarization: Elliptical
Azimuth Pattern: Directional
Antenna Input: 6-1/8" 75 Ohm EIA/DCA
VSWR: Channel 1.08 : 1
Bandwidth: 6 MHz
Rated Input Power: 40 kW (16.02 dBk) Maximum Average Power

Mechanical Specifications

Mounting: Side Mounted
Environmental Protection: Full Radome
Height: 59.1 ft (18m)
Weight: 2100 lb (1t) Excludes Mounts
Effective Projected Area: 143.5 ft² (13.3m²) TIA/EIA-222-F Basic Wind Speed: 100 m/h (160.9 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
WFNA	27	551 MHz	1000 kW (30.00 dBk)	250 kW (23.98 dBk)	51.9 kW (17.15 dBk)	26.41 (14.22dB)	6.60 (8.20dB)	23.79 (13.76dB)	5.95 (7.74dB)



AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. **C-70485-1**
 Date **14-Mar-17**
 Call Letters **WFNA**
 Channel **27**
 Frequency **551 MHz**
 Antenna Type **TFU-30DSC/VP-R CT170**
 Gain **1.67 (2.22dB)**
 Calculated

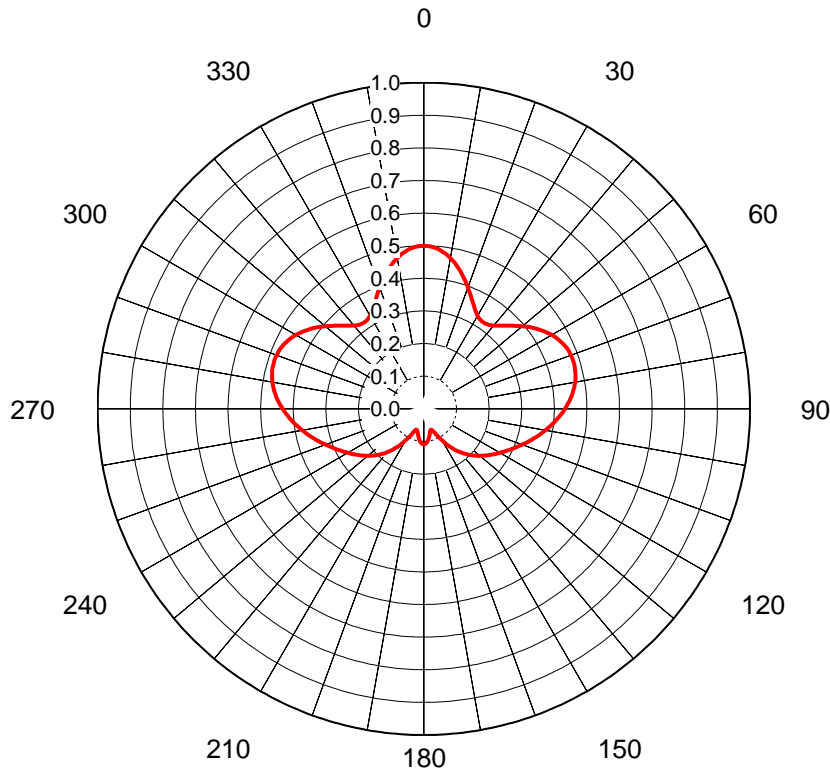
Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.797	36	0.758	72	0.916	108	0.985	144	0.401	180	0.530	216	0.401	252	0.985	288	0.916
1	0.797	37	0.757	73	0.922	109	0.981	145	0.373	181	0.528	217	0.428	253	0.988	289	0.910
2	0.797	38	0.757	74	0.928	110	0.977	146	0.346	182	0.527	218	0.456	254	0.991	290	0.903
3	0.797	39	0.757	75	0.934	111	0.972	147	0.320	183	0.522	219	0.484	255	0.993	291	0.896
4	0.796	40	0.757	76	0.940	112	0.968	148	0.293	184	0.516	220	0.511	256	0.995	292	0.890
5	0.796	41	0.758	77	0.945	113	0.961	149	0.270	185	0.508	221	0.538	257	0.997	293	0.883
6	0.796	42	0.759	78	0.950	114	0.955	150	0.247	186	0.500	222	0.564	258	0.998	294	0.876
7	0.795	43	0.760	79	0.955	115	0.948	151	0.229	187	0.488	223	0.590	259	0.999	295	0.869
8	0.795	44	0.762	80	0.960	116	0.941	152	0.211	188	0.477	224	0.615	260	1.000	296	0.862
9	0.794	45	0.764	81	0.964	117	0.932	153	0.202	189	0.462	225	0.639	261	1.000	297	0.855
10	0.793	46	0.766	82	0.968	118	0.923	154	0.193	190	0.448	226	0.663	262	1.000	298	0.848
11	0.792	47	0.769	83	0.972	119	0.913	155	0.194	191	0.431	227	0.686	263	1.000	299	0.841
12	0.791	48	0.772	84	0.976	120	0.903	156	0.196	192	0.414	228	0.708	264	0.999	300	0.834
13	0.790	49	0.775	85	0.979	121	0.891	157	0.207	193	0.395	229	0.729	265	0.999	301	0.828
14	0.789	50	0.779	86	0.982	122	0.879	158	0.218	194	0.376	230	0.750	266	0.998	302	0.821
15	0.788	51	0.783	87	0.985	123	0.866	159	0.235	195	0.356	231	0.768	267	0.997	303	0.815
16	0.787	52	0.788	88	0.987	124	0.852	160	0.253	196	0.335	232	0.787	268	0.995	304	0.809
17	0.785	53	0.793	89	0.990	125	0.837	161	0.273	197	0.314	233	0.805	269	0.994	305	0.803
18	0.784	54	0.798	90	0.992	126	0.822	162	0.293	198	0.293	234	0.822	270	0.992	306	0.798
19	0.783	55	0.803	91	0.994	127	0.805	163	0.314	199	0.273	235	0.837	271	0.990	307	0.793
20	0.781	56	0.809	92	0.995	128	0.787	164	0.335	200	0.253	236	0.852	272	0.987	308	0.788
21	0.779	57	0.815	93	0.997	129	0.768	165	0.356	201	0.235	237	0.866	273	0.985	309	0.783
22	0.778	58	0.821	94	0.998	130	0.750	166	0.376	202	0.218	238	0.879	274	0.982	310	0.779
23	0.776	59	0.828	95	0.999	131	0.729	167	0.395	203	0.207	239	0.891	275	0.979	311	0.775
24	0.775	60	0.834	96	0.999	132	0.708	168	0.414	204	0.196	240	0.903	276	0.976	312	0.772
25	0.773	61	0.841	97	1.000	133	0.686	169	0.431	205	0.194	241	0.913	277	0.972	313	0.769
26	0.771	62	0.848	98	1.000	134	0.663	170	0.448	206	0.193	242	0.923	278	0.968	314	0.766
27	0.769	63	0.855	99	1.000	135	0.639	171	0.462	207	0.202	243	0.932	279	0.964	315	0.764
28	0.768	64	0.862	100	1.000	136	0.615	172	0.477	208	0.211	244	0.941	280	0.960	316	0.762
29	0.766	65	0.869	101	0.999	137	0.590	173	0.488	209	0.229	245	0.948	281	0.955	317	0.760
30	0.765	66	0.876	102	0.998	138	0.564	174	0.500	210	0.247	246	0.955	282	0.950	318	0.759
31	0.763	67	0.883	103	0.997	139	0.538	175	0.508	211	0.270	247	0.961	283	0.945	319	0.758
32	0.762	68	0.890	104	0.995	140	0.511	176	0.516	212	0.293	248	0.968	284	0.940	320	0.757
33	0.761	69	0.896	105	0.993	141	0.484	177	0.522	213	0.320	249	0.972	285	0.934	321	0.757
34	0.759	70	0.903	106	0.991	142	0.456	178	0.527	214	0.346	250	0.977	286	0.928	322	0.757
35	0.759	71	0.910	107	0.988	143	0.428	179	0.528	215	0.373	251	0.981	287	0.922	323	0.757

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AZIMUTH PATTERN Vertical Polarization

In Free Space

Proposal No. **C-70485-1**
Date **14-Mar-17**
Call Letters **WFNA**
Channel **27**
Frequency **551 MHz**
Antenna Type **TFU-30DSC/VP-R CT170**
Gain **2.09 (3.2dB)**
Calculated



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.500	36	0.322	72	0.481	108	0.332	144	0.149	180	0.109	216	0.149	252	0.332	288	0.481	324	0.322
1	0.500	37	0.324	73	0.481	109	0.326	145	0.143	181	0.108	217	0.156	253	0.338	289	0.481	325	0.322
2	0.499	38	0.327	74	0.481	110	0.321	146	0.137	182	0.108	218	0.162	254	0.344	290	0.480	326	0.322
3	0.497	39	0.330	75	0.480	111	0.315	147	0.131	183	0.107	219	0.168	255	0.349	291	0.479	327	0.322
4	0.495	40	0.334	76	0.479	112	0.310	148	0.124	184	0.105	220	0.173	256	0.355	292	0.478	328	0.324
5	0.492	41	0.338	77	0.477	113	0.305	149	0.118	185	0.103	221	0.179	257	0.361	293	0.476	329	0.327
6	0.489	42	0.343	78	0.475	114	0.299	150	0.111	186	0.101	222	0.185	258	0.367	294	0.474	330	0.330
7	0.485	43	0.348	79	0.473	115	0.294	151	0.105	187	0.099	223	0.190	259	0.373	295	0.471	331	0.334
8	0.480	44	0.354	80	0.471	116	0.289	152	0.099	188	0.096	224	0.195	260	0.379	296	0.468	332	0.339
9	0.475	45	0.361	81	0.468	117	0.284	153	0.094	189	0.093	225	0.200	261	0.384	297	0.465	333	0.344
10	0.470	46	0.367	82	0.465	118	0.279	154	0.088	190	0.090	226	0.205	262	0.390	298	0.462	334	0.351
11	0.463	47	0.374	83	0.462	119	0.274	155	0.083	191	0.086	227	0.210	263	0.396	299	0.457	335	0.357
12	0.457	48	0.380	84	0.459	120	0.270	156	0.079	192	0.083	228	0.215	264	0.402	300	0.453	336	0.364
13	0.450	49	0.387	85	0.455	121	0.265	157	0.075	193	0.080	229	0.220	265	0.407	301	0.448	337	0.372
14	0.443	50	0.394	86	0.451	122	0.260	158	0.072	194	0.077	230	0.224	266	0.412	302	0.443	338	0.379
15	0.435	51	0.401	87	0.447	123	0.256	159	0.070	195	0.074	231	0.229	267	0.418	303	0.438	339	0.387
16	0.428	52	0.407	88	0.442	124	0.251	160	0.068	196	0.071	232	0.233	268	0.423	304	0.432	340	0.395
17	0.420	53	0.414	89	0.438	125	0.247	161	0.068	197	0.069	233	0.238	269	0.428	305	0.426	341	0.404
18	0.412	54	0.420	90	0.433	126	0.242	162	0.068	198	0.068	234	0.242	270	0.433	306	0.420	342	0.412
19	0.404	55	0.426	91	0.428	127	0.238	163	0.069	199	0.068	235	0.247	271	0.438	307	0.414	343	0.420
20	0.395	56	0.432	92	0.423	128	0.233	164	0.071	200	0.068	236	0.251	272	0.442	308	0.407	344	0.428
21	0.387	57	0.438	93	0.418	129	0.229	165	0.074	201	0.070	237	0.256	273	0.447	309	0.401	345	0.435
22	0.379	58	0.443	94	0.412	130	0.224	166	0.077	202	0.072	238	0.260	274	0.451	310	0.394	346	0.443
23	0.372	59	0.448	95	0.407	131	0.220	167	0.080	203	0.075	239	0.265	275	0.455	311	0.387	347	0.450
24	0.364	60	0.453	96	0.402	132	0.215	168	0.083	204	0.079	240	0.270	276	0.459	312	0.380	348	0.457
25	0.357	61	0.457	97	0.396	133	0.210	169	0.086	205	0.083	241	0.274	277	0.462	313	0.374	349	0.463
26	0.351	62	0.462	98	0.390	134	0.205	170	0.090	206	0.088	242	0.279	278	0.465	314	0.367	350	0.470
27	0.344	63	0.465	99	0.384	135	0.200	171	0.093	207	0.094	243	0.284	279	0.468	315	0.361	351	0.475
28	0.339	64	0.468	100	0.379	136	0.195	172	0.096	208	0.099	244	0.289	280	0.471	316	0.354	352	0.480
29	0.334	65	0.471	101	0.373	137	0.190	173	0.099	209	0.105	245	0.294	281	0.473	317	0.348	353	0.485
30	0.330	66	0.474	102	0.367	138	0.185	174	0.101	210	0.111	246	0.299	282	0.475	318	0.343	354	0.489
31	0.327	67	0.476	103	0.361	139	0.179	175	0.103	211	0.118	247	0.305	283	0.477	319	0.338	355	0.492
32	0.324	68	0.478	104	0.355	140	0.173	176	0.105	212	0.124	248	0.310	284	0.479	320	0.334	356	0.495
33	0.322	69	0.479	105	0.349	141	0.168	177	0.107	213	0.131	249	0.315	285	0.480	321	0.330	357	0.497
34	0.322	70	0.480	106	0.344	142	0.162	178	0.108	214	0.137	250	0.321	286	0.481	322	0.327	358	0.499
35	0.322	71	0.481	107	0.338	143	0.156	179	0.108	215	0.143	251	0.326	287	0.481	323	0.324	359	0.500

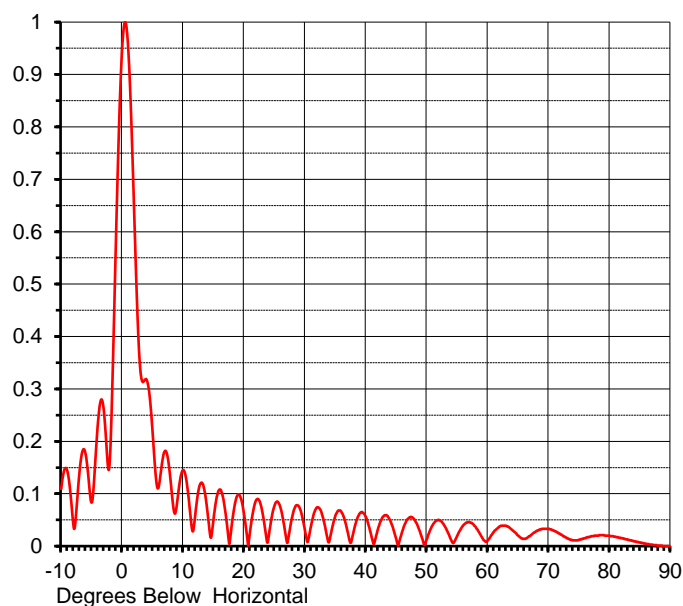
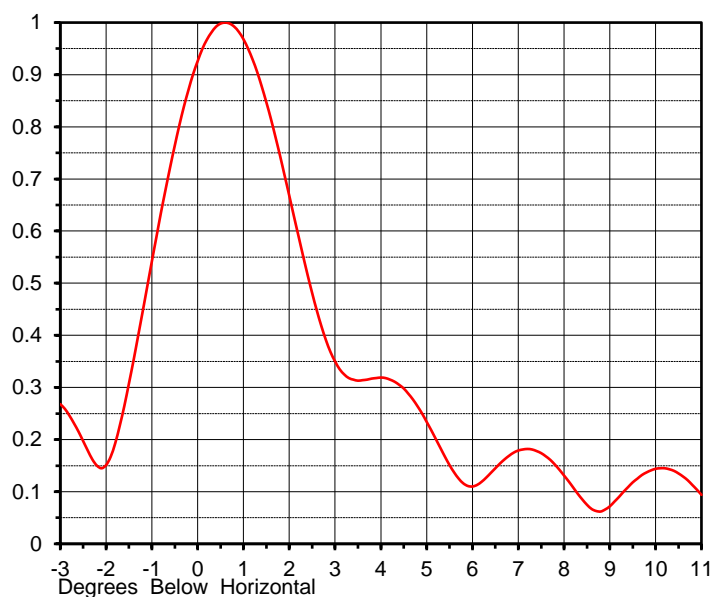
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ELEVATION PATTERN

Proposal No. **C-70485-1**
 Date **14-Mar-17**
 Call Letters **WFNA**
 Channel **27**
 Frequency **551 MHz**
 Antenna Type **TFU-30DSC/VP-R CT170**

RMS Directivity at Main Lobe **19.0 (12.79 dB)**
 RMS Directivity at Horizontal **16.3 (12.12 dB)**
Calculated

Beam Tilt **0.50 deg**
 Pattern Number **20E190050**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.109	10.0	0.145	30.0	0.031	50.0	0.013	70.0	0.033
-9.0	0.144	11.0	0.083	31.0	0.038	51.0	0.041	71.0	0.029
-8.0	0.041	12.0	0.059	32.0	0.074	52.0	0.050	72.0	0.022
-7.0	0.140	13.0	0.121	33.0	0.053	53.0	0.037	73.0	0.015
-6.0	0.176	14.0	0.066	34.0	0.009	54.0	0.012	74.0	0.011
-5.0	0.083	15.0	0.051	35.0	0.058	55.0	0.020	75.0	0.012
-4.0	0.231	16.0	0.108	36.0	0.065	56.0	0.040	76.0	0.015
-3.0	0.259	17.0	0.061	37.0	0.028	57.0	0.046	77.0	0.019
-2.0	0.167	18.0	0.041	38.0	0.028	58.0	0.037	78.0	0.020
-1.0	0.589	19.0	0.098	39.0	0.062	59.0	0.018	79.0	0.021
0.0	0.949	20.0	0.062	40.0	0.056	60.0	0.011	80.0	0.020
1.0	0.950	21.0	0.028	41.0	0.015	61.0	0.027	81.0	0.018
2.0	0.629	22.0	0.088	42.0	0.033	62.0	0.038	82.0	0.015
3.0	0.335	23.0	0.066	43.0	0.058	63.0	0.039	83.0	0.012
4.0	0.318	24.0	0.014	44.0	0.049	64.0	0.031	84.0	0.009
5.0	0.218	25.0	0.077	45.0	0.013	65.0	0.020	85.0	0.007
6.0	0.113	26.0	0.073	46.0	0.029	66.0	0.014	86.0	0.004
7.0	0.181	27.0	0.010	47.0	0.053	67.0	0.020	87.0	0.003
8.0	0.120	28.0	0.060	48.0	0.050	68.0	0.029	88.0	0.001
9.0	0.081	29.0	0.076	49.0	0.023	69.0	0.033	89.0	0.000
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No.	C-70485-1
Date	14-Mar-17
Call Letters	WFNA
Channel	27
Frequency	551 MHz
Antenna Type	TFU-30DSC/VP-R CT170

Preliminary Specifications

Side Mounted

Without ice TIA/EIA-222-F

Basic Wind Speed	100 m/h (160.9 km/h)
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Mechanical Specifications

Height	H2	59.1 ft (18m)	
Height of Center of Radiation	H3	29.55 ft (9m)	
Force Coeff. x Projected Area	CaAc	143.5 ft ² (13.3m ²)	Mounts Excluded
Weight	W	2100 lb (1t)	Mounts Excluded

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

Prepared by:	KLP	Date:	14-Mar-17	ME:	EE:
Rev. No.1 by:	CAB	Date:	5-Jul-17		

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Summary

Proposal No.	C-70485-1
Date	14-Mar-17
Call Letters	WFNA
Channel	27
Frequency	551 MHz
Antenna Type	TFU-30DSC/VP-R CT170

Antenna

	Hpol		Vpol	
ERP:	1000 kW	(30.00 dBk)	250 kW	(23.98 dBk)
Peak Gain*	26.41	(14.22 dB)	6.60	(8.20 dB)

Antenna Input Power	37.9 kW	(15.78 dBk)
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Transmission Line

Type:	Rigid	Attenuation:	(1.37 dB)
Size:	6-1/8"	Efficiency:	72.9%
Impedance:	75 Ohm		
Length:	1200 ft	365.8 m	

Transmitter Output

51.9 kW	(17.15 dBk)
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Transmitter filter losses not included

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

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