



Antenna Model:

TFU-29JTH/VP-R 4C200

Proposal Number: C-70475
Date: 15-Mar-17
Customer: Nexstar
Location: Binghamton, NY

Electrical Specifications

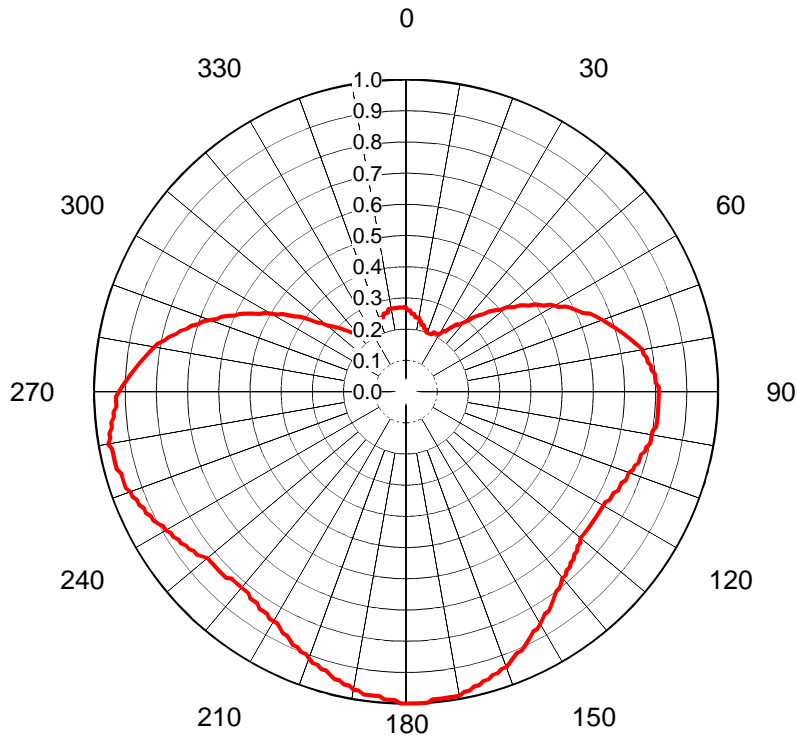
Polarization: Elliptical
Azimuth Pattern: Directional
Antenna Input: 3-1/8" 50 Ohm EIA/DCA
VSWR: Channel 1.08 : 1
Bandwidth: 6 MHz
Rated Input Power: 20 kW (13.01 dBk) Maximum Average Power

Mechanical Specifications

Mounting: Top Mounted
Environmental Protection: Full Radome
Height: 54.7 ft (16.7m) less Lightning Protector 58.7 ft (17.9m) with Lightning Protector
Weight: 9730 lb (4.4t)
Effective Projected Area: 70.6 ft² (6.6m²) TIA/EIA-222-F **Basic Wind Speed:** 70 m/h (112.7 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
WIVT	27	551 MHz	298 kW (24.74 dBk)	65.4 kW (18.16 dBk)	8.3 kW (9.17 dBk)	42.22 (16.26dB)	9.27 (9.67dB)	26.09 (14.16dB)	5.73 (7.58dB)



AZIMUTH PATTERN Horizontal Polarization

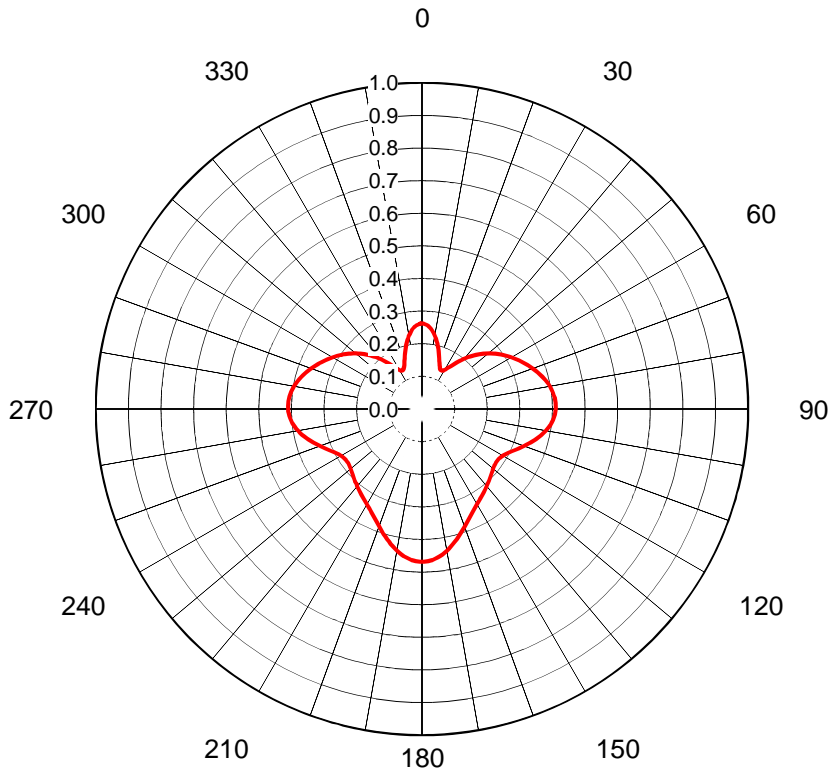
Proposal No. **C-70475**
 Date **15-Mar-17**
 Call Letters **WIVT**
 Channel **27**
 Frequency **551 MHz**
 Antenna Type **TFU-29JTH/VP-R 4C200**
 Gain **2 (3.02dB)**
 Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.270	36	0.260	72	0.690	108	0.770	144	0.810	180	1.000	216	0.830	252	0.950	288	0.700
1	0.260	37	0.270	73	0.700	109	0.770	145	0.820	181	1.000	217	0.830	253	0.950	289	0.690
2	0.260	38	0.270	74	0.710	110	0.760	146	0.830	182	0.990	218	0.820	254	0.950	290	0.670
3	0.260	39	0.280	75	0.720	111	0.760	147	0.840	183	0.990	219	0.820	255	0.960	291	0.650
4	0.250	40	0.290	76	0.730	112	0.760	148	0.840	184	0.990	220	0.820	256	0.960	292	0.640
5	0.250	41	0.300	77	0.740	113	0.750	149	0.850	185	0.980	221	0.820	257	0.960	293	0.620
6	0.250	42	0.320	78	0.750	114	0.750	150	0.860	186	0.980	222	0.820	258	0.960	294	0.600
7	0.240	43	0.330	79	0.760	115	0.750	151	0.870	187	0.980	223	0.820	259	0.960	295	0.590
8	0.240	44	0.340	80	0.770	116	0.740	152	0.870	188	0.980	224	0.830	260	0.970	296	0.570
9	0.240	45	0.350	81	0.770	117	0.740	153	0.880	189	0.970	225	0.830	261	0.960	297	0.550
10	0.240	46	0.370	82	0.780	118	0.740	154	0.890	190	0.970	226	0.830	262	0.960	298	0.530
11	0.230	47	0.380	83	0.780	119	0.730	155	0.900	191	0.960	227	0.830	263	0.950	299	0.520
12	0.230	48	0.390	84	0.790	120	0.730	156	0.910	192	0.960	228	0.830	264	0.950	300	0.500
13	0.220	49	0.400	85	0.790	121	0.730	157	0.910	193	0.950	229	0.830	265	0.940	301	0.480
14	0.220	50	0.420	86	0.800	122	0.730	158	0.920	194	0.950	230	0.830	266	0.940	302	0.470
15	0.220	51	0.430	87	0.800	123	0.730	159	0.930	195	0.940	231	0.840	267	0.930	303	0.450
16	0.210	52	0.440	88	0.800	124	0.730	160	0.940	196	0.930	232	0.850	268	0.930	304	0.430
17	0.210	53	0.460	89	0.810	125	0.730	161	0.940	197	0.930	233	0.850	269	0.930	305	0.420
18	0.210	54	0.470	90	0.810	126	0.730	162	0.950	198	0.920	234	0.860	270	0.920	306	0.400
19	0.200	55	0.480	91	0.810	127	0.730	163	0.950	199	0.920	235	0.860	271	0.910	307	0.380
20	0.200	56	0.500	92	0.810	128	0.730	164	0.960	200	0.910	236	0.870	272	0.900	308	0.360
21	0.200	57	0.510	93	0.810	129	0.730	165	0.960	201	0.900	237	0.870	273	0.890	309	0.350
22	0.200	58	0.520	94	0.810	130	0.730	166	0.970	202	0.900	238	0.880	274	0.880	310	0.330
23	0.200	59	0.540	95	0.810	131	0.740	167	0.970	203	0.890	239	0.880	275	0.870	311	0.320
24	0.200	60	0.550	96	0.810	132	0.740	168	0.980	204	0.890	240	0.890	276	0.860	312	0.310
25	0.210	61	0.560	97	0.810	133	0.750	169	0.980	205	0.880	241	0.890	277	0.850	313	0.300
26	0.210	62	0.580	98	0.810	134	0.750	170	0.990	206	0.870	242	0.900	278	0.840	314	0.290
27	0.210	63	0.590	99	0.800	135	0.760	171	0.990	207	0.870	243	0.910	279	0.830	315	0.280
28	0.210	64	0.600	100	0.800	136	0.760	172	0.990	208	0.860	244	0.910	280	0.820	316	0.270
29	0.210	65	0.610	101	0.800	137	0.770	173	0.990	209	0.850	245	0.920	281	0.810	317	0.260
30	0.210	66	0.620	102	0.800	138	0.770	174	0.990	210	0.850	246	0.920	282	0.790	318	0.250
31	0.220	67	0.640	103	0.790	139	0.780	175	0.990	211	0.850	247	0.930	283	0.780	319	0.240
32	0.230	68	0.650	104	0.790	140	0.780	176	1.000	212	0.840	248	0.930	284	0.760	320	0.230
33	0.230	69	0.660	105	0.780	141	0.790	177	1.000	213	0.840	249	0.940	285	0.750	321	0.230
34	0.240	70	0.670	106	0.780	142	0.800	178	1.000	214	0.840	250	0.940	286	0.730	322	0.230
35	0.250	71	0.680	107	0.780	143	0.800	179	1.000	215	0.830	251	0.950	287	0.720	323	0.230

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AZIMUTH PATTERN Vertical Polarization

Proposal No. **C-70475**
 Date **15-Mar-17**
 Call Letters **WIVT**
 Channel **27**
 Frequency **551 MHz**
 Antenna Type **TFU-29JTH/VP-R 4C200**
 Gain **2.1 (3.22dB)**
 Calculated



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.262	36	0.172	72	0.370	108	0.344	144	0.320	180	0.469	216	0.320	252	0.344	288	0.370
1	0.262	37	0.179	73	0.374	109	0.338	145	0.322	181	0.468	217	0.317	253	0.350	289	0.366
2	0.260	38	0.186	74	0.378	110	0.332	146	0.325	182	0.467	218	0.315	254	0.355	290	0.362
3	0.259	39	0.193	75	0.382	111	0.327	147	0.328	183	0.466	219	0.312	255	0.361	291	0.358
4	0.256	40	0.201	76	0.386	112	0.321	148	0.331	184	0.464	220	0.309	256	0.366	292	0.353
5	0.253	41	0.208	77	0.389	113	0.316	149	0.334	185	0.461	221	0.305	257	0.372	293	0.349
6	0.249	42	0.215	78	0.392	114	0.310	150	0.337	186	0.458	222	0.304	258	0.377	294	0.344
7	0.245	43	0.221	79	0.396	115	0.305	151	0.341	187	0.455	223	0.301	259	0.381	295	0.340
8	0.240	44	0.228	80	0.398	116	0.301	152	0.345	188	0.451	224	0.299	260	0.386	296	0.335
9	0.234	45	0.235	81	0.401	117	0.297	153	0.349	189	0.446	225	0.296	261	0.390	297	0.330
10	0.228	46	0.241	82	0.403	118	0.293	154	0.353	190	0.441	226	0.294	262	0.394	298	0.326
11	0.222	47	0.247	83	0.405	119	0.290	155	0.357	191	0.436	227	0.291	263	0.397	299	0.321
12	0.215	48	0.253	84	0.407	120	0.287	156	0.362	192	0.431	228	0.289	264	0.400	300	0.316
13	0.208	49	0.259	85	0.408	121	0.284	157	0.367	193	0.425	229	0.287	265	0.403	301	0.311
14	0.200	50	0.265	86	0.410	122	0.283	158	0.372	194	0.419	230	0.285	266	0.405	302	0.307
15	0.193	51	0.271	87	0.410	123	0.281	159	0.378	195	0.413	231	0.283	267	0.407	303	0.302
16	0.185	52	0.276	88	0.411	124	0.281	160	0.383	196	0.407	232	0.282	268	0.408	304	0.297
17	0.178	53	0.281	89	0.411	125	0.280	161	0.389	197	0.401	233	0.281	269	0.410	305	0.292
18	0.170	54	0.287	90	0.410	126	0.280	162	0.395	198	0.395	234	0.280	270	0.410	306	0.287
19	0.163	55	0.292	91	0.410	127	0.281	163	0.401	199	0.389	235	0.280	271	0.411	307	0.281
20	0.156	56	0.297	92	0.408	128	0.282	164	0.407	200	0.383	236	0.281	272	0.411	308	0.276
21	0.150	57	0.302	93	0.407	129	0.283	165	0.413	201	0.378	237	0.281	273	0.410	309	0.271
22	0.144	58	0.307	94	0.405	130	0.285	166	0.419	202	0.372	238	0.283	274	0.410	310	0.265
23	0.140	59	0.311	95	0.403	131	0.287	167	0.425	203	0.367	239	0.284	275	0.408	311	0.259
24	0.136	60	0.316	96	0.400	132	0.289	168	0.431	204	0.362	240	0.287	276	0.407	312	0.253
25	0.134	61	0.321	97	0.397	133	0.291	169	0.436	205	0.357	241	0.290	277	0.405	313	0.247
26	0.132	62	0.326	98	0.394	134	0.294	170	0.441	206	0.353	242	0.293	278	0.403	314	0.241
27	0.132	63	0.330	99	0.390	135	0.296	171	0.446	207	0.349	243	0.297	279	0.401	315	0.235
28	0.133	64	0.335	100	0.386	136	0.299	172	0.451	208	0.345	244	0.301	280	0.398	316	0.228
29	0.135	65	0.340	101	0.381	137	0.301	173	0.455	209	0.341	245	0.305	281	0.396	317	0.221
30	0.138	66	0.344	102	0.377	138	0.304	174	0.458	210	0.337	246	0.310	282	0.392	318	0.215
31	0.142	67	0.349	103	0.372	139	0.307	175	0.461	211	0.334	247	0.316	283	0.389	319	0.208
32	0.147	68	0.353	104	0.366	140	0.309	176	0.464	212	0.331	248	0.321	284	0.386	320	0.201
33	0.153	69	0.358	105	0.361	141	0.312	177	0.466	213	0.328	249	0.327	285	0.382	321	0.193
34	0.159	70	0.362	106	0.355	142	0.315	178	0.467	214	0.325	250	0.332	286	0.378	322	0.186
35	0.166	71	0.366	107	0.350	143	0.317	179	0.468	215	0.322	251	0.338	287	0.374	323	0.179

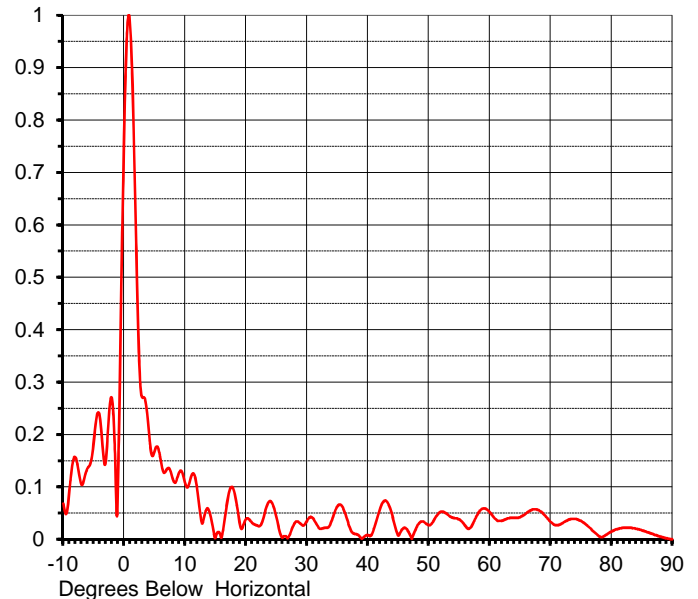
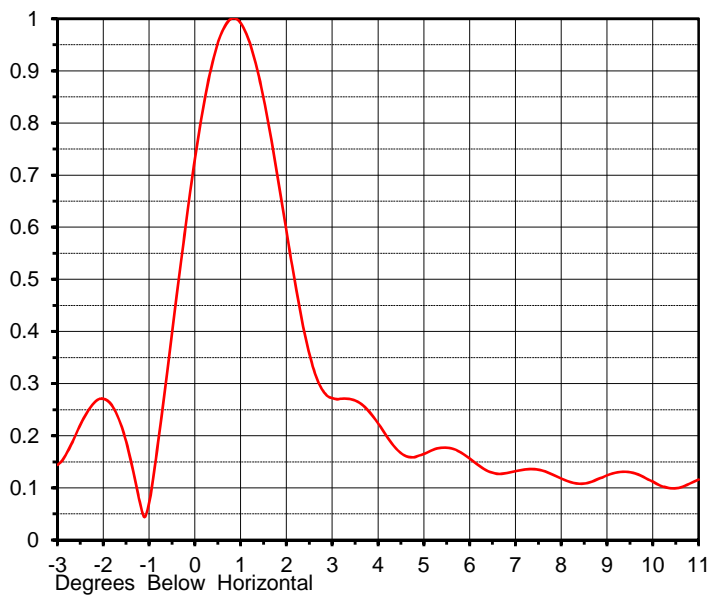
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ELEVATION PATTERN

Proposal No. **C-70475**
 Date **15-Mar-17**
 Call Letters **WIVT**
 Channel **27**
 Frequency **551 MHz**
 Antenna Type **TFU-29JTH/VP-R 4C200**

RMS Directivity at Main Lobe **25.5 (14.07 dB)**
 RMS Directivity at Horizontal **13.6 (11.34 dB)**
Calculated

Beam Tilt **0.75 deg**
 Pattern Number **29J255075**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.068	10.0	0.107	30.0	0.035	50.0	0.027	70.0	0.033
-9.0	0.093	11.0	0.120	31.0	0.040	51.0	0.040	71.0	0.027
-8.0	0.156	12.0	0.093	32.0	0.021	52.0	0.053	72.0	0.031
-7.0	0.104	13.0	0.037	33.0	0.022	53.0	0.048	73.0	0.038
-6.0	0.136	14.0	0.052	34.0	0.034	54.0	0.041	74.0	0.039
-5.0	0.187	15.0	0.004	35.0	0.063	55.0	0.038	75.0	0.035
-4.0	0.232	16.0	0.004	36.0	0.057	56.0	0.025	76.0	0.026
-3.0	0.152	17.0	0.078	37.0	0.023	57.0	0.025	77.0	0.015
-2.0	0.267	18.0	0.093	38.0	0.010	58.0	0.048	78.0	0.005
-1.0	0.124	19.0	0.027	39.0	0.001	59.0	0.059	79.0	0.008
0.0	0.786	20.0	0.039	40.0	0.008	60.0	0.051	80.0	0.015
1.0	0.976	21.0	0.031	41.0	0.021	61.0	0.038	81.0	0.020
2.0	0.539	22.0	0.025	42.0	0.059	62.0	0.035	82.0	0.022
3.0	0.270	23.0	0.048	43.0	0.073	63.0	0.040	83.0	0.022
4.0	0.211	24.0	0.073	44.0	0.045	64.0	0.041	84.0	0.020
5.0	0.169	25.0	0.040	45.0	0.007	65.0	0.042	85.0	0.017
6.0	0.150	26.0	0.003	46.0	0.022	66.0	0.050	86.0	0.013
7.0	0.134	27.0	0.005	47.0	0.006	67.0	0.057	87.0	0.009
8.0	0.114	28.0	0.031	48.0	0.023	68.0	0.056	88.0	0.005
9.0	0.127	29.0	0.029	49.0	0.034	69.0	0.046	89.0	0.002
								90.0	0.000

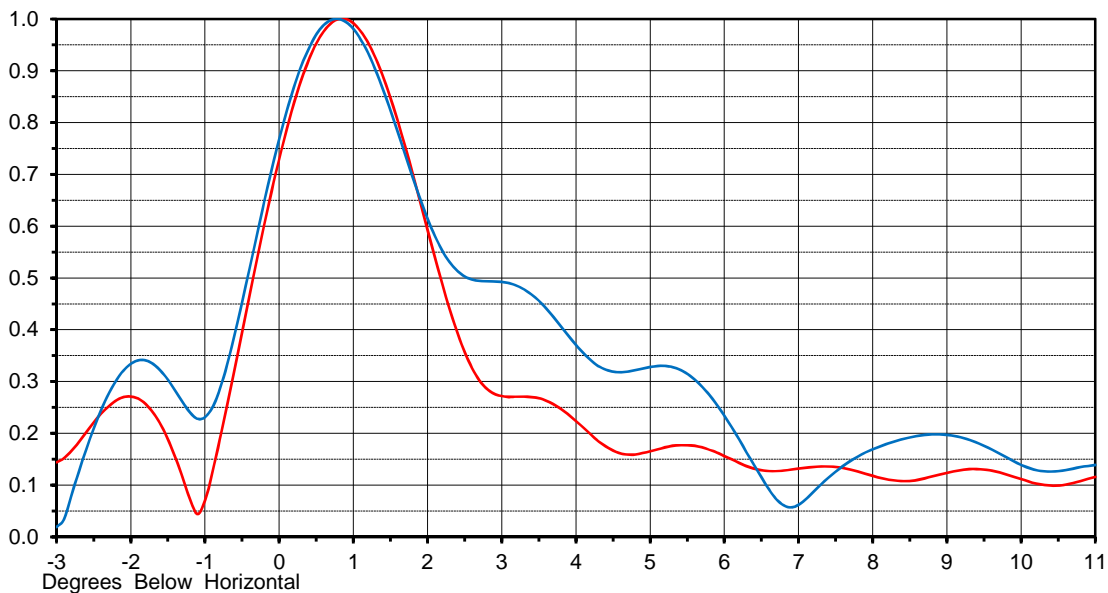
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***FutureFill** refers to broadband panels or limited bandwidth slotted coaxial antennas that can be modified in the field to provide the flexibility to customize the null structure at a future date.*

FutureFill OVERLAY

Proposal No. **C-70475**
 Date **15-Mar-17**
 Call Letters **WIVT**
 Channel **27**
 Frequency **551 MHz**
 Antenna Type **TFU-29JTH/VP-R 4C200**

RMS Directivity 25.5 **(14.07dB)** Beam Tilt 0.75 Pattern No. 29J255075 **Red**
 RMS Directivity 19.0 **(12.79dB)** Beam Tilt 0.80 Pattern No. 29J25507-FF **Blue**
 Calculated



Tabulations for 29J25507-FF

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.087	10.0	0.139	30.0	0.044	50.0	0.050	70.0	0.045
-9.0	0.068	11.0	0.139	31.0	0.057	51.0	0.032	71.0	0.014
-8.0	0.198	12.0	0.082	32.0	0.051	52.0	0.045	72.0	0.013
-7.0	0.227	13.0	0.090	33.0	0.064	53.0	0.045	73.0	0.033
-6.0	0.257	14.0	0.114	34.0	0.038	54.0	0.045	74.0	0.043
-5.0	0.345	15.0	0.085	35.0	0.018	55.0	0.048	75.0	0.045
-4.0	0.378	16.0	0.096	36.0	0.063	56.0	0.031	76.0	0.040
-3.0	0.019	17.0	0.024	37.0	0.091	57.0	0.008	77.0	0.032
-2.0	0.334	18.0	0.054	38.0	0.090	58.0	0.044	78.0	0.024
-1.0	0.231	19.0	0.125	39.0	0.083	59.0	0.068	79.0	0.019
0.0	0.768	20.0	0.151	40.0	0.094	60.0	0.075	80.0	0.019
1.0	0.981	21.0	0.137	41.0	0.070	61.0	0.076	81.0	0.020
2.0	0.614	22.0	0.118	42.0	0.013	62.0	0.077	82.0	0.022
3.0	0.492	23.0	0.045	43.0	0.037	63.0	0.078	83.0	0.021
4.0	0.371	24.0	0.055	44.0	0.054	64.0	0.077	84.0	0.019
5.0	0.328	25.0	0.074	45.0	0.059	65.0	0.081	85.0	0.016
6.0	0.234	26.0	0.058	46.0	0.052	66.0	0.092	86.0	0.013
7.0	0.062	27.0	0.049	47.0	0.048	67.0	0.098	87.0	0.009
8.0	0.169	28.0	0.068	48.0	0.073	68.0	0.092	88.0	0.005
9.0	0.197	29.0	0.045	49.0	0.078	69.0	0.073	89.0	0.002
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No.	C-70475
Date	15-Mar-17
Call Letters	WIVT
Channel	27
Frequency	551 MHz
Antenna Type	TFU-29JTH/VP-R 4C200

Preliminary Specifications

Top Mounted

Without ice TIA/EIA-222-F

Height AGL	520 ft (158.5 m)
Basic Wind Speed	70 m/h (112.7 km/h)

Mechanical Specifications

Height with Lightning Protector	H4	58.7 ft (17.9m)
Height less Lightning Protector	H2	54.7 ft (16.7m)
Height of Center of Radiation	H3	27.4 ft (8.4m)
Force Coeff. x Projected Area	CaAc	70.6 ft ² (6.6m ²)
Moment Arm	D1	28.9 ft (8.8m)

Weight	W	9730 lb (4.4t)
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Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA/EIA-222-F

Prepared by:	KLP	Date:	15-Mar-17	ME:	EE:
	jls	Date:	15-Mar-17		

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Summary

Proposal No. **C-70475**
Date **15-Mar-17**
Call Letters **WIVT**
Channel **27**
Frequency **551 MHz**
Antenna Type **TFU-29JTH/VP-R 4C200**

Antenna

	Hpol	Vpol
ERP:	298 kW (24.74 dBk)	65.4 kW (18.16 dBk)
Peak Gain*	42.22 (16.26 dB)	9.27 (9.67 dB)

Antenna Input Power **7.1 kW (8.49 dBk)**

Transmission Line

Type:	Rigid	Attenuation:	(0.68 dB)
Size:	6-1/8"	Efficiency:	85.5%
Impedance:	75 Ohm		
Length:	595 ft	181.4 m	

Transmitter Output

8.3 kW (9.17 dBk)

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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