



Antenna Model:

TFU-24ETT/VP-R P280

Proposal Number: C-70509
Date: 16-Mar-17
Customer: Nexstar
Location: Waco, TX

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: 15 kW (11.76 dBk) Maximum Average Power

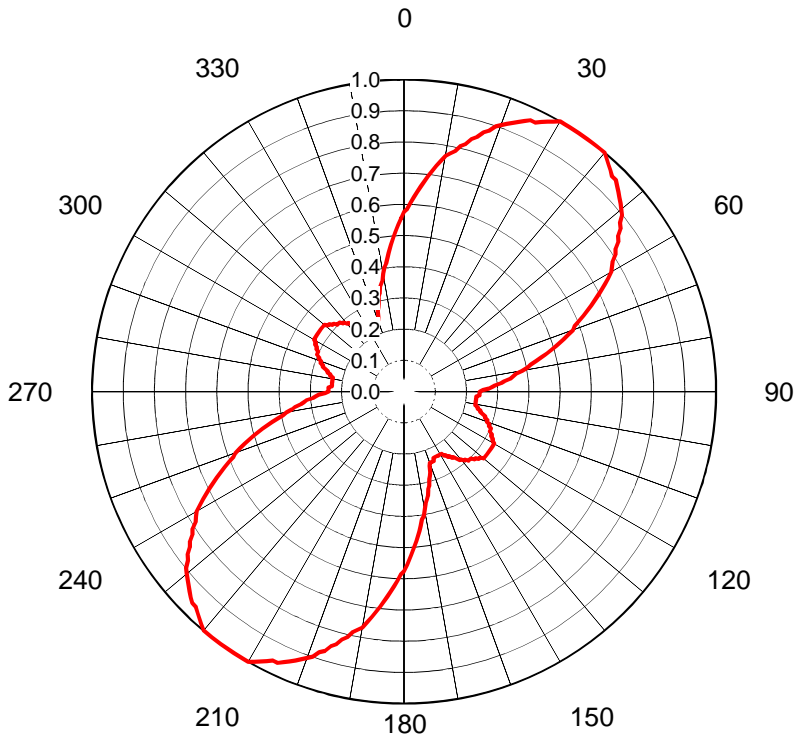
Mechanical Specifications

Mounting: Top Mounted
Environmental Protection: Full Radome
Height: 47.8 ft (14.6m) less Lightning Protector 51.8 ft (15.8m) with Lightning Protector
Weight: 4580 lb (2.1t)
Effective Projected Area: 42.9 ft² (4m²) 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
KWKT	28	557 MHz	98.2 kW (19.92 dBk)	17.3 kW (12.39 dBk)	4.1 kW (6.09 dBk)	46.76 (16.70dB)	8.25 (9.17dB)	34.51 (15.38dB)	6.09 (7.85dB)

AZIMUTH PATTERN Horizontal Polarization



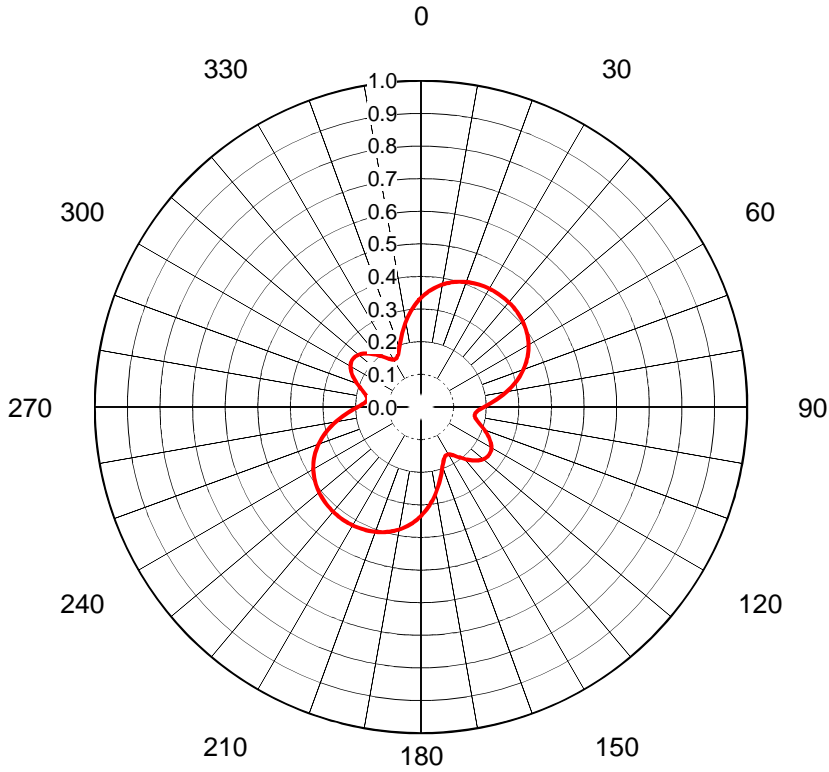
Proposal No. **C-70509**
 Date **16-Mar-17**
 Call Letters **KWKT**
 Channel **28**
 Frequency **557 MHz**
 Antenna Type **TFU-24ETT/VP-R P280**
 Gain **2.85 (4.54dB)**
 Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.576	36	1.000	72	0.535	108	0.273	144	0.263	180	0.576	216	1.000	252	0.535	288	0.273
1	0.586	37	1.000	73	0.515	109	0.283	145	0.253	181	0.586	217	1.000	253	0.515	289	0.283
2	0.606	38	1.000	74	0.495	110	0.283	146	0.253	182	0.606	218	1.000	254	0.495	290	0.283
3	0.626	39	1.000	75	0.475	111	0.293	147	0.242	183	0.626	219	1.000	255	0.475	291	0.293
4	0.646	40	1.000	76	0.455	112	0.293	148	0.242	184	0.646	220	1.000	256	0.455	292	0.293
5	0.667	41	0.990	77	0.434	113	0.303	149	0.232	185	0.667	221	0.990	257	0.434	293	0.303
6	0.687	42	0.980	78	0.414	114	0.303	150	0.232	186	0.687	222	0.980	258	0.414	294	0.303
7	0.707	43	0.970	79	0.404	115	0.303	151	0.232	187	0.707	223	0.970	259	0.394	295	0.303
8	0.727	44	0.960	80	0.384	116	0.313	152	0.232	188	0.727	224	0.960	260	0.384	296	0.313
9	0.747	45	0.960	81	0.364	117	0.313	153	0.232	189	0.747	225	0.960	261	0.364	297	0.313
10	0.768	46	0.949	82	0.354	118	0.323	154	0.232	190	0.768	226	0.949	262	0.354	298	0.323
11	0.778	47	0.939	83	0.343	119	0.323	155	0.232	191	0.778	227	0.939	263	0.333	299	0.323
12	0.788	48	0.929	84	0.323	120	0.333	156	0.232	192	0.788	228	0.929	264	0.323	300	0.333
13	0.808	49	0.919	85	0.313	121	0.333	157	0.242	193	0.808	229	0.919	265	0.313	301	0.333
14	0.818	50	0.909	86	0.293	122	0.333	158	0.242	194	0.818	230	0.909	266	0.293	302	0.333
15	0.838	51	0.899	87	0.283	123	0.333	159	0.242	195	0.838	231	0.899	267	0.283	303	0.333
16	0.848	52	0.879	88	0.273	124	0.333	160	0.242	196	0.848	232	0.879	268	0.273	304	0.333
17	0.869	53	0.869	89	0.253	125	0.333	161	0.253	197	0.869	233	0.869	269	0.253	305	0.333
18	0.879	54	0.848	90	0.242	126	0.333	162	0.273	198	0.879	234	0.848	270	0.242	306	0.333
19	0.899	55	0.838	91	0.242	127	0.333	163	0.283	199	0.899	235	0.838	271	0.242	307	0.333
20	0.909	56	0.818	92	0.242	128	0.333	164	0.293	200	0.909	236	0.818	272	0.242	308	0.333
21	0.919	57	0.808	93	0.242	129	0.333	165	0.313	201	0.919	237	0.808	273	0.242	309	0.333
22	0.929	58	0.788	94	0.232	130	0.333	166	0.323	202	0.929	238	0.788	274	0.232	310	0.333
23	0.939	59	0.778	95	0.232	131	0.323	167	0.343	203	0.939	239	0.778	275	0.232	311	0.323
24	0.949	60	0.768	96	0.232	132	0.323	168	0.354	204	0.949	240	0.768	276	0.232	312	0.323
25	0.960	61	0.747	97	0.232	133	0.313	169	0.364	205	0.960	241	0.747	277	0.232	313	0.313
26	0.960	62	0.727	98	0.232	134	0.313	170	0.384	206	0.960	242	0.727	278	0.232	314	0.313
27	0.970	63	0.707	99	0.232	135	0.303	171	0.404	207	0.970	243	0.707	279	0.232	315	0.303
28	0.980	64	0.687	100	0.232	136	0.303	172	0.414	208	0.980	244	0.687	280	0.232	316	0.303
29	0.990	65	0.667	101	0.232	137	0.303	173	0.434	209	0.990	245	0.667	281	0.232	317	0.303
30	1.000	66	0.646	102	0.242	138	0.293	174	0.455	210	1.000	246	0.646	282	0.242	318	0.293
31	1.000	67	0.626	103	0.242	139	0.293	175	0.475	211	1.000	247	0.626	283	0.242	319	0.293
32	1.000	68	0.606	104	0.253	140	0.283	176	0.495	212	1.000	248	0.606	284	0.253	320	0.283
33	1.000	69	0.586	105	0.253	141	0.283	177	0.515	213	1.000	249	0.586	285	0.253	321	0.283
34	1.000	70	0.576	106	0.263	142	0.273	178	0.535	214	1.000	250	0.576	286	0.263	322	0.273
35	1.000	71	0.556	107	0.273	143	0.263	179	0.556	215	1.000	251	0.556	287	0.273	323	0.273

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

AZIMUTH PATTERN Vertical Polarization

Proposal No. **C-70509**
 Date **16-Mar-17**
 Call Letters **KWKT**
 Channel **28**
 Frequency **557 MHz**
 Antenna Type **TFU-24ETT/VP-R P280**
 Gain **1.89 (2.77dB)**
 Calculated



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.334	36	0.420	72	0.322	108	0.197	144	0.187	180	0.334	216	0.420	252	0.322	288	0.197	324	0.187
1	0.340	37	0.420	73	0.316	109	0.203	145	0.183	181	0.340	217	0.420	253	0.316	289	0.203	325	0.183
2	0.345	38	0.420	74	0.309	110	0.208	146	0.179	182	0.345	218	0.420	254	0.309	290	0.208	326	0.179
3	0.351	39	0.419	75	0.302	111	0.213	147	0.175	183	0.351	219	0.419	255	0.302	291	0.213	327	0.175
4	0.356	40	0.419	76	0.295	112	0.218	148	0.172	184	0.356	220	0.419	256	0.295	292	0.218	328	0.172
5	0.361	41	0.418	77	0.288	113	0.223	149	0.169	185	0.361	221	0.418	257	0.288	293	0.223	329	0.169
6	0.365	42	0.418	78	0.281	114	0.228	150	0.168	186	0.365	222	0.418	258	0.281	294	0.228	330	0.168
7	0.369	43	0.417	79	0.274	115	0.232	151	0.167	187	0.369	223	0.417	259	0.274	295	0.232	331	0.167
8	0.374	44	0.416	80	0.266	116	0.236	152	0.166	188	0.374	224	0.416	260	0.266	296	0.236	332	0.166
9	0.378	45	0.415	81	0.258	117	0.240	153	0.167	189	0.378	225	0.415	261	0.258	297	0.240	333	0.167
10	0.381	46	0.414	82	0.251	118	0.244	154	0.169	190	0.381	226	0.414	262	0.251	298	0.244	334	0.169
11	0.385	47	0.412	83	0.243	119	0.247	155	0.171	191	0.385	227	0.412	263	0.243	299	0.247	335	0.171
12	0.388	48	0.411	84	0.236	120	0.249	156	0.174	192	0.388	228	0.411	264	0.236	300	0.249	336	0.174
13	0.391	49	0.409	85	0.228	121	0.251	157	0.178	193	0.391	229	0.409	265	0.228	301	0.251	337	0.178
14	0.394	50	0.408	86	0.221	122	0.253	158	0.183	194	0.394	230	0.408	266	0.221	302	0.253	338	0.183
15	0.397	51	0.406	87	0.214	123	0.254	159	0.188	195	0.397	231	0.406	267	0.214	303	0.254	339	0.188
16	0.399	52	0.404	88	0.207	124	0.255	160	0.194	196	0.399	232	0.404	268	0.207	304	0.255	340	0.194
17	0.402	53	0.402	89	0.200	125	0.255	161	0.200	197	0.402	233	0.402	269	0.200	305	0.255	341	0.200
18	0.404	54	0.399	90	0.194	126	0.255	162	0.207	198	0.404	234	0.399	270	0.194	306	0.255	342	0.207
19	0.406	55	0.397	91	0.188	127	0.254	163	0.214	199	0.406	235	0.397	271	0.188	307	0.254	343	0.214
20	0.408	56	0.394	92	0.183	128	0.253	164	0.221	200	0.408	236	0.394	272	0.183	308	0.253	344	0.221
21	0.409	57	0.391	93	0.178	129	0.251	165	0.228	201	0.409	237	0.391	273	0.178	309	0.251	345	0.228
22	0.411	58	0.388	94	0.174	130	0.249	166	0.236	202	0.411	238	0.388	274	0.174	310	0.249	346	0.236
23	0.412	59	0.385	95	0.171	131	0.247	167	0.243	203	0.412	239	0.385	275	0.171	311	0.247	347	0.243
24	0.414	60	0.381	96	0.169	132	0.244	168	0.251	204	0.414	240	0.381	276	0.169	312	0.244	348	0.251
25	0.415	61	0.378	97	0.167	133	0.240	169	0.258	205	0.415	241	0.378	277	0.167	313	0.240	349	0.258
26	0.416	62	0.374	98	0.166	134	0.236	170	0.266	206	0.416	242	0.374	278	0.166	314	0.236	350	0.266
27	0.417	63	0.369	99	0.167	135	0.232	171	0.274	207	0.417	243	0.369	279	0.167	315	0.232	351	0.274
28	0.418	64	0.365	100	0.168	136	0.228	172	0.281	208	0.418	244	0.365	280	0.168	316	0.228	352	0.281
29	0.418	65	0.361	101	0.169	137	0.223	173	0.288	209	0.418	245	0.361	281	0.169	317	0.223	353	0.288
30	0.419	66	0.356	102	0.172	138	0.218	174	0.295	210	0.419	246	0.356	282	0.172	318	0.218	354	0.295
31	0.419	67	0.351	103	0.175	139	0.213	175	0.302	211	0.419	247	0.351	283	0.175	319	0.213	355	0.302
32	0.420	68	0.345	104	0.179	140	0.208	176	0.309	212	0.420	248	0.345	284	0.179	320	0.208	356	0.309
33	0.420	69	0.340	105	0.183	141	0.203	177	0.316	213	0.420	249	0.340	285	0.183	321	0.203	357	0.316
34	0.420	70	0.334	106	0.187	142	0.197	178	0.322	214	0.420	250	0.334	286	0.187	322	0.197	358	0.322
35	0.420	71	0.328	107	0.192	143	0.192	179	0.328	215	0.420	251	0.328	287	0.192	323	0.192	359	0.328

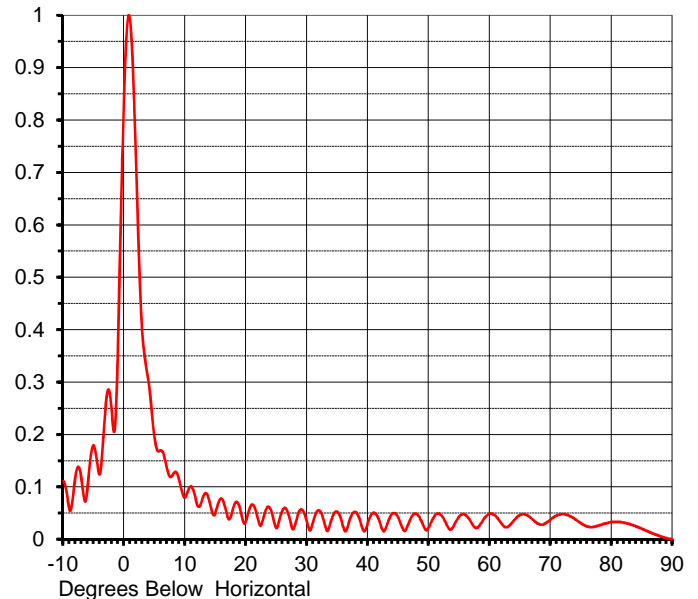
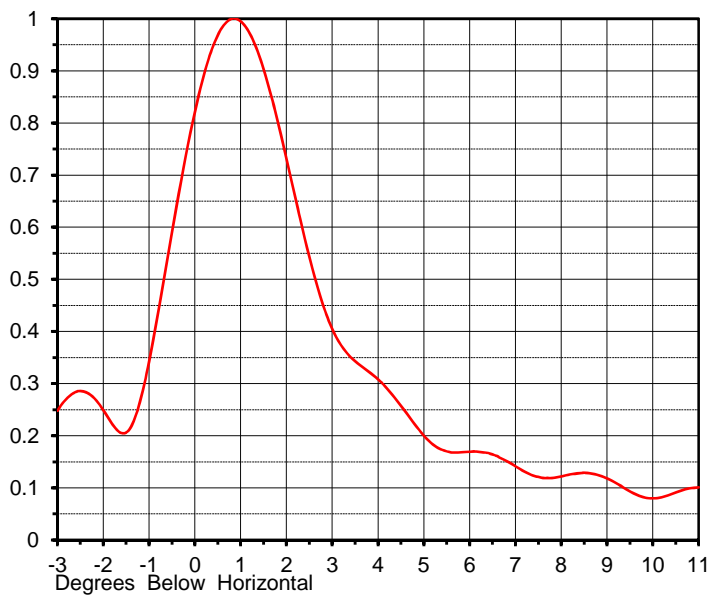
This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

ELEVATION PATTERN

Proposal No. **C-70509**
 Date **16-Mar-17**
 Call Letters **KWKT**
 Channel **28**
 Frequency **557 MHz**
 Antenna Type **TFU-24ETT/VP-R P280**

RMS Directivity at Main Lobe **20.8 (13.18 dB)**
 RMS Directivity at Horizontal **15.3 (11.85 dB)**
Calculated

Beam Tilt **0.75 deg**
 Pattern Number **24E208075**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.111	10.0	0.080	30.0	0.032	50.0	0.023	70.0	0.038
-9.0	0.057	11.0	0.101	31.0	0.034	51.0	0.046	71.0	0.046
-8.0	0.121	12.0	0.065	32.0	0.055	52.0	0.046	72.0	0.048
-7.0	0.113	13.0	0.083	33.0	0.025	53.0	0.026	73.0	0.045
-6.0	0.102	14.0	0.072	34.0	0.037	54.0	0.024	74.0	0.038
-5.0	0.179	15.0	0.052	35.0	0.052	55.0	0.044	75.0	0.030
-4.0	0.124	16.0	0.077	36.0	0.022	56.0	0.046	76.0	0.024
-3.0	0.261	17.0	0.041	37.0	0.037	57.0	0.031	77.0	0.024
-2.0	0.236	18.0	0.064	38.0	0.052	58.0	0.022	78.0	0.027
-1.0	0.388	19.0	0.058	39.0	0.024	59.0	0.039	79.0	0.030
0.0	0.859	20.0	0.035	40.0	0.032	60.0	0.049	80.0	0.033
1.0	0.986	21.0	0.066	41.0	0.051	61.0	0.044	81.0	0.033
2.0	0.693	22.0	0.035	42.0	0.030	62.0	0.029	82.0	0.032
3.0	0.387	23.0	0.048	43.0	0.024	63.0	0.024	83.0	0.029
4.0	0.300	24.0	0.058	44.0	0.049	64.0	0.037	84.0	0.025
5.0	0.191	25.0	0.021	45.0	0.041	65.0	0.047	85.0	0.020
6.0	0.170	26.0	0.056	46.0	0.016	66.0	0.046	86.0	0.015
7.0	0.136	27.0	0.045	47.0	0.039	67.0	0.038	87.0	0.010
8.0	0.124	28.0	0.026	48.0	0.048	68.0	0.029	88.0	0.006
9.0	0.114	29.0	0.057	49.0	0.028	69.0	0.030	89.0	0.002
								90.0	0.000

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

MECHANICAL SPECIFICATIONS

Proposal No.	C-70509
Date	16-Mar-17
Call Letters	KWKT
Channel	28
Frequency	557 MHz
Antenna Type	TFU-24ETT/VP-R P280

Preliminary Specifications

Top Mounted

Without ice TIA/EIA-222-F

Basic Wind Speed	70 m/h (112.7 km/h)
-------------------------	---------------------

Mechanical Specifications

Height with Lightning Protector	H4	51.8 ft (15.8m)
Height less Lightning Protector	H2	47.8 ft (14.6m)
Height of Center of Radiation	H3	23.9 ft (7.3m)
Force Coeff. x Projected Area	CaAc	42.9 ft ² (4m ²)
Moment Arm	D1	26.1 ft (8m)

Weight	W	4580 lb (2.1t)
--------	---	----------------

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

Prepared by:	KLP	Date:	16-Mar-17	ME:	EE:
	jls	Date:	23-Mar-17		

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric. Mechanical data is based on listed criteria and should be verified by the tower engineer.

Summary

Proposal No.	C-70509
Date	16-Mar-17
Call Letters	KWKT
Channel	28
Frequency	557 MHz
Antenna Type	TFU-24ETT/VP-R P280

Antenna

	Hpol	Vpol
ERP:	98.2 kW (19.92 dBk)	17.3 kW (12.39 dBk)
Peak Gain*	46.76 (16.70 dB)	8.25 (9.17 dB)

Antenna Input Power	2.1 kW (3.22 dBk)
----------------------------	----------------------------

Transmission Line

Type:	Rigid	Attenuation:	(2.87 dB)
Size:	4-1/16"	Efficiency:	51.6%
Impedance:	50 Ohm		
Length:	1805 ft	550.2 m	

Transmitter Output

4.1 kW (6.09 dBk)

Transmitter filter losses not included

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

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.