Antenna Model: **TFU-26GTH-R O4**

Proposal Number:	C-70182-2
Date:	24-Jul-18
Customer:	TEGNA
Location:	Greensboro, NC

Electrical Specifications

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

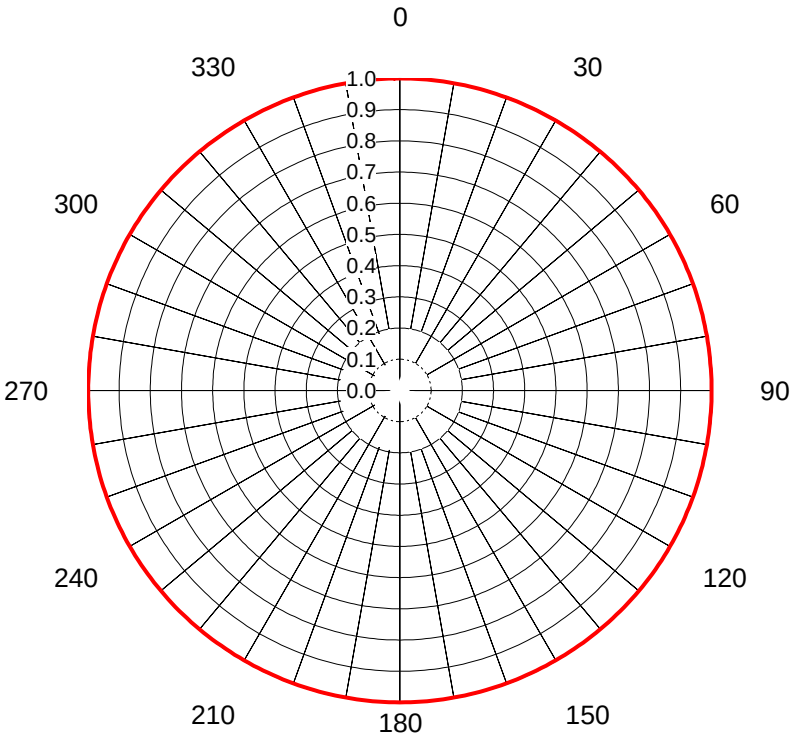
Mechanical Specifications

Mounting:	Top of Stack			
Environmental Protection:	Full Radome			
Height:	45.2 ft (13.8m)	less Lightning Protector	49.2 ft (15m)	with Lightning Protector
Weight:	4250 lb (1.9t)			
Effective Projected Area:	50.7 ft² (4.7m²)	TIA-222-G	**Basic Wind Speed:**	90 m/h (144.8 km/h)

Channel Specifications

Call	CH	Freq	Hpol ERP	TPO	RMS Main Lobe Hpol Gain	RMS at Horizontal Hpol Gain
WFMY	35	599 MHz	743.0 kW (28.71 dBk)	47.9 kW (16.80 dBk)	24.00 (13.80dB)	17.87 (12.52dB)

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
Horizontal Polarization

Proposal No.	**C-70182-2**
Date	**24-Jul-18**
Call Letters	**WFMY**
Channel	**35**
Frequency	**599 MHz**
Antenna Type	**TFU-26GTH-R O4**
Gain	**1 (0dB)**
	Calculated
Circularity	**+/- 1.0 dB**
Drawing #	**H14-O6-CH35**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.999	72	1.000	108	1.000	144	0.999	180	1.000	216	0.999	252	1.000	288	1.000	324	0.999
1	1.000	37	0.999	73	1.000	109	1.000	145	0.999	181	1.000	217	0.999	253	1.000	289	1.000	325	0.999
2	1.000	38	0.999	74	0.999	110	1.000	146	0.999	182	1.000	218	0.999	254	0.999	290	1.000	326	0.999
3	1.000	39	0.999	75	0.999	111	1.000	147	0.999	183	1.000	219	0.999	255	0.999	291	1.000	327	0.999
4	1.000	40	0.999	76	0.999	112	1.000	148	0.999	184	1.000	220	0.999	256	0.999	292	1.000	328	0.999
5	1.000	41	0.999	77	0.999	113	1.000	149	0.999	185	1.000	221	0.999	257	0.999	293	1.000	329	0.999
6	1.000	42	0.999	78	0.999	114	1.000	150	0.999	186	1.000	222	0.999	258	0.999	294	1.000	330	0.999
7	1.000	43	0.999	79	0.999	115	1.000	151	0.999	187	1.000	223	0.999	259	0.999	295	1.000	331	0.999
8	1.000	44	0.999	80	0.999	116	1.000	152	0.999	188	1.000	224	0.999	260	0.999	296	1.000	332	0.999
9	1.000	45	0.999	81	0.999	117	1.000	153	0.999	189	1.000	225	0.999	261	0.999	297	1.000	333	0.999
10	1.000	46	0.999	82	0.999	118	1.000	154	0.999	190	1.000	226	0.999	262	0.999	298	1.000	334	0.999
11	1.000	47	1.000	83	0.999	119	1.000	155	0.999	191	1.000	227	1.000	263	0.999	299	1.000	335	0.999
12	1.000	48	1.000	84	0.999	120	1.000	156	0.999	192	1.000	228	1.000	264	0.999	300	1.000	336	0.999
13	1.000	49	1.000	85	0.999	121	1.000	157	0.999	193	1.000	229	1.000	265	0.999	301	1.000	337	0.999
14	0.999	50	1.000	86	0.999	122	1.000	158	0.999	194	0.999	230	1.000	266	0.999	302	1.000	338	0.999
15	0.999	51	1.000	87	0.999	123	1.000	159	0.999	195	0.999	231	1.000	267	0.999	303	1.000	339	0.999
16	0.999	52	1.000	88	0.999	124	1.000	160	0.999	196	0.999	232	1.000	268	0.999	304	1.000	340	0.999
17	0.999	53	1.000	89	0.999	125	1.000	161	0.999	197	0.999	233	1.000	269	0.999	305	1.000	341	0.999
18	0.999	54	1.000	90	0.999	126	1.000	162	0.999	198	0.999	234	1.000	270	0.999	306	1.000	342	0.999
19	0.999	55	1.000	91	0.999	127	1.000	163	0.999	199	0.999	235	1.000	271	0.999	307	1.000	343	0.999
20	0.999	56	1.000	92	0.999	128	1.000	164	0.999	200	0.999	236	1.000	272	0.999	308	1.000	344	0.999
21	0.999	57	1.000	93	0.999	129	1.000	165	0.999	201	0.999	237	1.000	273	0.999	309	1.000	345	0.999
22	0.999	58	1.000	94	0.999	130	1.000	166	0.999	202	0.999	238	1.000	274	0.999	310	1.000	346	0.999
23	0.999	59	1.000	95	0.999	131	1.000	167	1.000	203	0.999	239	1.000	275	0.999	311	1.000	347	1.000
24	0.999	60	1.000	96	0.999	132	1.000	168	1.000	204	0.999	240	1.000	276	0.999	312	1.000	348	1.000
25	0.999	61	1.000	97	0.999	133	1.000	169	1.000	205	0.999	241	1.000	277	0.999	313	1.000	349	1.000
26	0.999	62	1.000	98	0.999	134	0.999	170	1.000	206	0.999	242	1.000	278	0.999	314	0.999	350	1.000
27	0.999	63	1.000	99	0.999	135	0.999	171	1.000	207	0.999	243	1.000	279	0.999	315	0.999	351	1.000
28	0.999	64	1.000	100	0.999	136	0.999	172	1.000	208	0.999	244	1.000	280	0.999	316	0.999	352	1.000
29	0.999	65	1.000	101	0.999	137	0.999	173	1.000	209	0.999	245	1.000	281	0.999	317	0.999	353	1.000
30	0.999	66	1.000	102	0.999	138	0.999	174	1.000	210	0.999	246	1.000	282	0.999	318	0.999	354	1.000
31	0.999	67	1.000	103	0.999	139	0.999	175	1.000	211	0.999	247	1.000	283	0.999	319	0.999	355	1.000
32	0.999	68	1.000	104	0.999	140	0.999	176	1.000	212	0.999	248	1.000	284	0.999	320	0.999	356	1.000
33	0.999	69	1.000	105	0.999	141	0.999	177	1.000	213	0.999	249	1.000	285	0.999	321	0.999	357	1.000
34	0.999	70	1.000	106	0.999	142	0.999	178	1.000	214	0.999	250	1.000	286	0.999	322	0.999	358	1.000
35	0.999	71	1.000	107	1.000	143	0.999	179	1.000	215	0.999	251	1.000	287	1.000	323	0.999	359	1.000

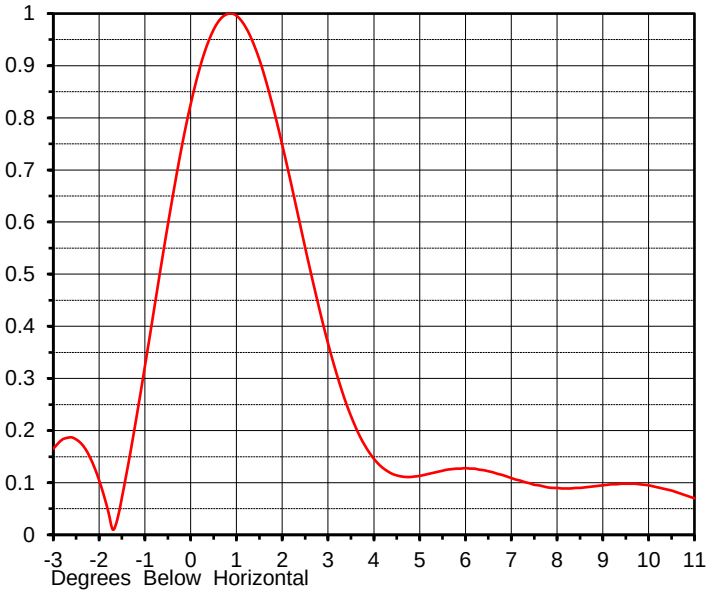
This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

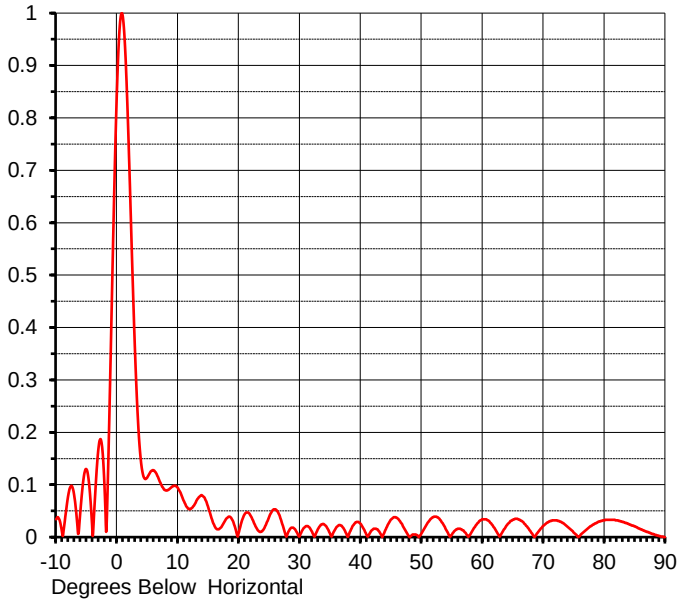
ELEVATION PATTERN

Proposal No.	**C-70182-2**
Date	**24-Jul-18**
Call Letters	**WFMY**
Channel	**35**
Frequency	**599 MHz**
Antenna Type	**TFU-26GTH-R O4**

RMS Directivity at Main Lobe **24.0 (13.80 dB)**
RMS Directivity at Horizontal **16.4 (12.15 dB)**
Calculated

Beam Tilt **0.75 deg**
Drawing Number **26G240075**





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.034	10.0	0.093	30.0	0.003	50.0	0.008	70.0	0.022
-9.0	0.006	11.0	0.068	31.0	0.021	51.0	0.028	71.0	0.030
-8.0	0.081	12.0	0.054	32.0	0.010	52.0	0.039	72.0	0.032
-7.0	0.076	13.0	0.069	33.0	0.016	53.0	0.033	73.0	0.028
-6.0	0.053	14.0	0.079	34.0	0.024	54.0	0.014	74.0	0.019
-5.0	0.129	15.0	0.055	35.0	0.005	55.0	0.006	75.0	0.008
-4.0	0.002	16.0	0.021	36.0	0.019	56.0	0.016	76.0	0.003
-3.0	0.175	17.0	0.018	37.0	0.019	57.0	0.010	77.0	0.014
-2.0	0.077	18.0	0.036	38.0	0.004	58.0	0.006	78.0	0.023
-1.0	0.377	19.0	0.031	39.0	0.026	59.0	0.024	79.0	0.029
0.0	0.863	20.0	0.010	40.0	0.025	60.0	0.034	80.0	0.032
1.0	0.987	21.0	0.045	41.0	0.003	61.0	0.031	81.0	0.033
2.0	0.710	22.0	0.039	42.0	0.015	62.0	0.016	82.0	0.032
3.0	0.335	23.0	0.015	43.0	0.011	63.0	0.005	83.0	0.029
4.0	0.136	24.0	0.014	44.0	0.013	64.0	0.023	84.0	0.025
5.0	0.115	25.0	0.040	45.0	0.034	65.0	0.033	85.0	0.020
6.0	0.127	26.0	0.053	46.0	0.036	66.0	0.033	86.0	0.015
7.0	0.106	27.0	0.029	47.0	0.019	67.0	0.024	87.0	0.010
8.0	0.089	28.0	0.007	48.0	0.000	68.0	0.008	88.0	0.006
9.0	0.096	29.0	0.017	49.0	0.005	69.0	0.008	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.

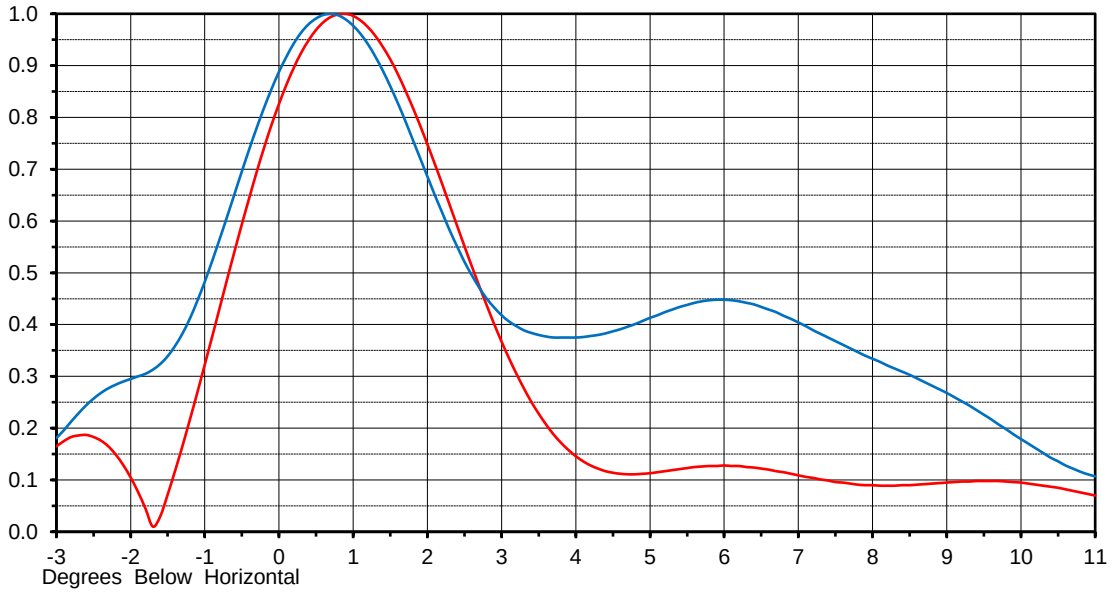
Dielectric®

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-70182-2**
Date	**24-Jul-18**
Call Letters	**WFMY**
Channel	**35**
Frequency	**599 MHz**
Antenna Type	**TFU-26GTH-R O4**

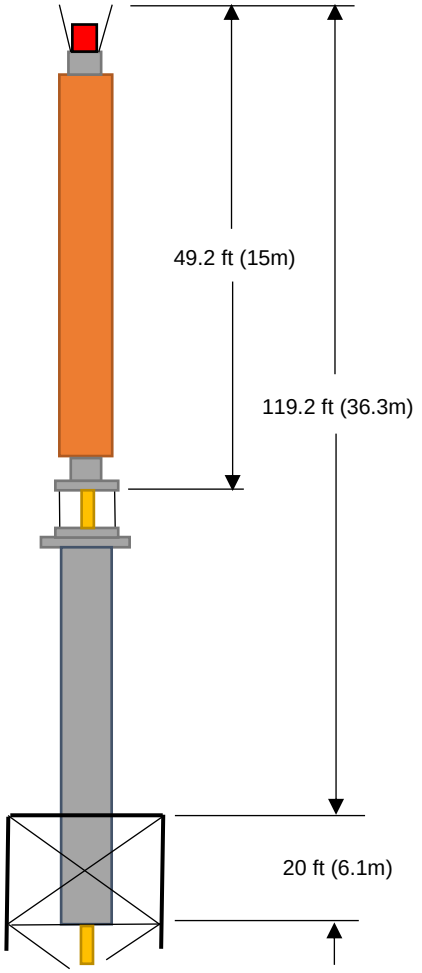
RMS Directivity	24.0	**(13.80dB)**	Beam Tilt	0.75	Drawing No. 26G240075	Red
RMS Directivity	14.4	**(11.58dB)**	Beam Tilt	0.70	Drawing No. 26G24007-FF	Blue
Calculated						



Tabulations for 26G24007-FF

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.155	10.0	0.179	30.0	0.092	50.0	0.052	70.0	0.034
-9.0	0.206	11.0	0.107	31.0	0.099	51.0	0.060	71.0	0.031
-8.0	0.317	12.0	0.088	32.0	0.085	52.0	0.085	72.0	0.036
-7.0	0.289	13.0	0.092	33.0	0.099	53.0	0.098	73.0	0.041
-6.0	0.293	14.0	0.136	34.0	0.110	54.0	0.093	74.0	0.041
-5.0	0.425	15.0	0.140	35.0	0.080	55.0	0.077	75.0	0.039
-4.0	0.291	16.0	0.101	36.0	0.047	56.0	0.065	76.0	0.037
-3.0	0.181	17.0	0.080	37.0	0.048	57.0	0.072	77.0	0.037
-2.0	0.295	18.0	0.083	38.0	0.047	58.0	0.094	78.0	0.038
-1.0	0.483	19.0	0.058	39.0	0.042	59.0	0.113	79.0	0.039
0.0	0.888	20.0	0.006	40.0	0.027	60.0	0.117	80.0	0.039
1.0	0.977	21.0	0.037	41.0	0.014	61.0	0.105	81.0	0.037
2.0	0.686	22.0	0.013	42.0	0.029	62.0	0.086	82.0	0.035
3.0	0.418	23.0	0.036	43.0	0.021	63.0	0.081	83.0	0.031
4.0	0.375	24.0	0.054	44.0	0.018	64.0	0.095	84.0	0.026
5.0	0.413	25.0	0.077	45.0	0.038	65.0	0.109	85.0	0.021
6.0	0.448	26.0	0.118	46.0	0.032	66.0	0.111	86.0	0.015
7.0	0.404	27.0	0.116	47.0	0.016	67.0	0.099	87.0	0.010
8.0	0.334	28.0	0.079	48.0	0.044	68.0	0.077	88.0	0.006
9.0	0.268	29.0	0.068	49.0	0.058	69.0	0.052	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-70182-2**
Date	**24-Jul-18**
Call Letters	**WFMY**
Channel	**35**
Frequency	**599 MHz**
Antenna Type	**TFU-26GTH-R O4**

Preliminary Specifications

Top of Stack

With ice TIA-222-G

Basic Wind Speed	90 m/h (144.8 km/h)	
Structure Class	II	
Exposure Category	C	
Topography Category	1	
Earthquake Site Class	D	Ss = 0.23
Design Ice	0.75 in	t_{iz} = 2.10 in
Wind Speed w/Ice	30 m/h (48.3 km/h)	

Mechanical Specifications		**without ice**	**with ice**	**full stack**	**full stack with ice**	
Height with Lightning Protector	H4	49.2 ft (15m)		119.2 ft (36.3m)		
Height less Lightning Protector	H2	45.2 ft (13.8m)		115.2 ft (35.1m)		
Height of Center of Radiation	H3	22.6 ft (6.9m)		92.6 ft (28.2m)		
Effective Projected Area	$(EPA)_S$	50.7 ft² (4.7m²)	134.9 ft² (12.5m²)	196.3 ft² (18.2m²)	381.2 ft² (35.4m²)	
Moment Arm	D1	24.2 ft (7.4m)	25.2 ft (7.7m)	49.5 ft (15.1m)	58.56 ft (17.8m)	
Effective Projected Area	$(EPA)_S$			38.3 ft² (3.6m²)	46.6 ft² (4.3m²)	below tower top
Moment Arm	D3			9.8 ft (3m)	9.9 ft (3m)	below tower top
Pole Bury Length	D2			20 ft (6.1m)	20 ft (6.1m)	below tower top
Weight	W	4250 lb (1.9t)	7650 lb (3.5t)	31925 lb (14.5t)	44050 lb (20t)	

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

Prepared by:	jls	**Date:**	24-Jul-18	**ME:**	SPJC **EE:**
Rev. No.2 by:	JBC	**Date:**	24-Jul-18		

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-70182-2**
Date	**24-Jul-18**
Call Letters	**WFMY**
Channel	**35**
Frequency	**599 MHz**
Antenna Type	**TFU-26GTH-R O4**

Antenna

	Hpol	
ERP:	**743.0 kW**	**(28.71 dBk)**
RMS Gain*	24.00	(13.80 dB)

Antenna Input Power **31.0 kW** **(14.91 dBk)**

Transmission Line

Type:	**Rigid**	Attenuation:		**(1.89 dB)**
Size:	**7-3/16"**	Efficiency:	**64.7%**	
Impedance:	**75 Ohm**			
Length:	**1840 ft**	**560.8 m**		

Transmitter Output

47.9 kW **(16.80 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.