



TFU-24JTH/VP-R O4

Proposal Number: C-700247
Date: 15-Feb-17
Customer: WFSG
Location: Panama City, FL

Electrical Specifications

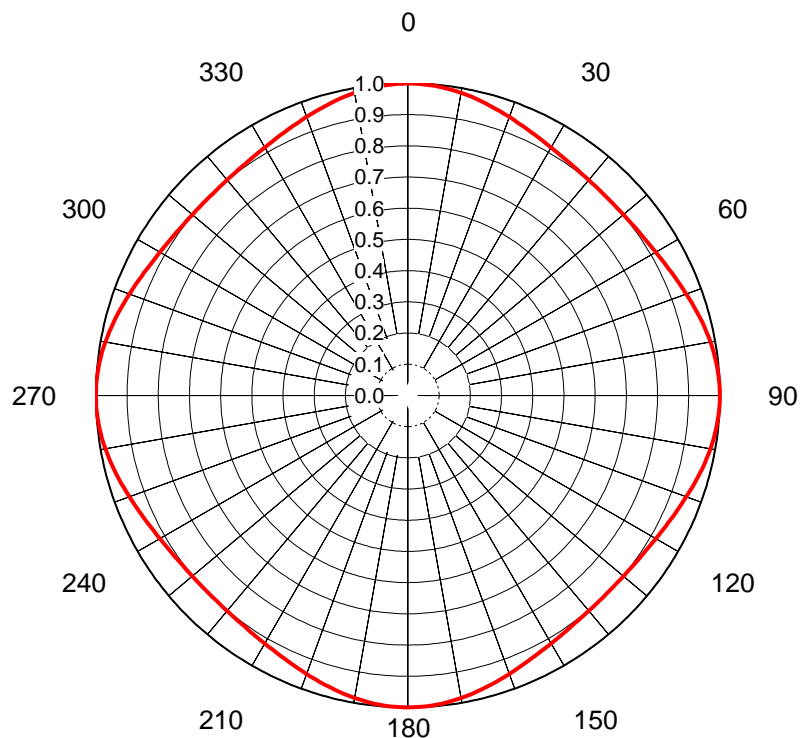
Polarization	Elliptical				
Azimuth Pattern	Omni				
Antenna Input	3-1/8"	50 Ohm	EIA/DCA		
VSWR	Channel	1.08 : 1		Band	1.08 : 1
Bandwidth	6 MHz				
Rated Input Power	20 kW	(13.01 dBk)	Maximum Average Power		

Mechanical Specifications

Mounting	Top Mounted			
Environmental Protection	Full Radome			
Height	45.3 ft (13.8m)	less Lightning Protector	49.3 ft (15m)	with Lightning Protector
Weight	9200 lb (4.2t)			
Effective Projected Area	51.6 ft ² (4.8m ²)	TIA-222-G	Basic Wind Speed	125 m/h (201.2 km/h)

Channel Specifications

Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	RMS Main Lobe Hpol Gain	RMS Main Lobe Vpol Gain	RMS at Horizontal Hpol Gain	RMS at Horizontal Vpol Gain
WFSG	28	557 MHz	128.0 kW (21.07 dBk)	128.0 kW (21.07 dBk)	13.3 kW (11.25 dBk)	11.75 (10.70dB)	11.75 (10.70dB)	10.21 (10.09dB)	10.21 (10.09dB)

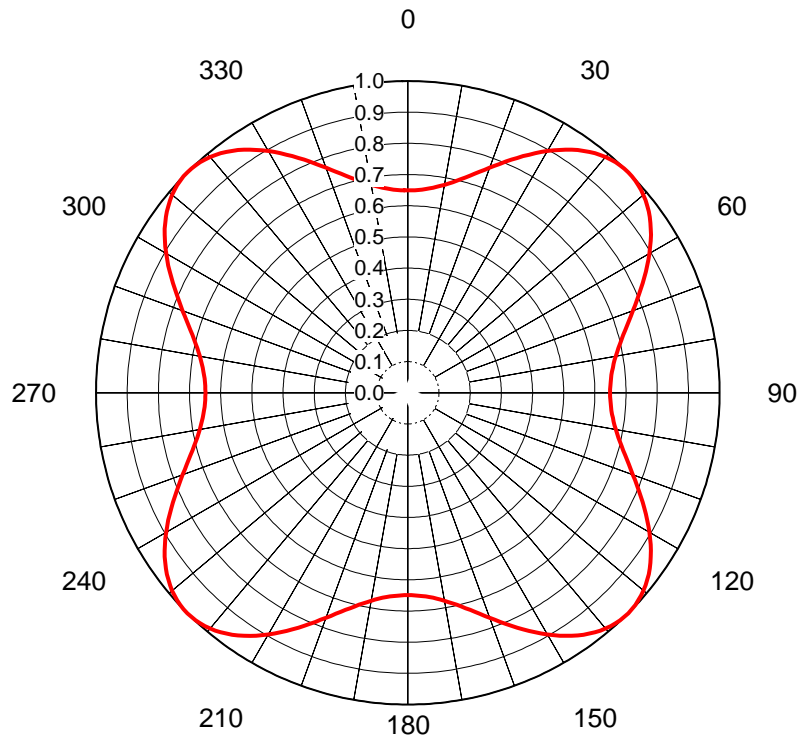


AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-700247**
 Date **15-Feb-17**
 Call Letters **WFSG**
 Frequency **557 MHz**
 Channel **28**
 Antenna Type **TFU-24JTH/VP-R O4**
 Gain **1.12 (0.48dB)**
 Circularity **Calculated**
 Drawing # **+/- 1.0 dB**
TFU-O4-D28

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.906	72	0.957	108	0.957	144	0.906	180	1.000	216	0.906	252	0.957	288	0.957
1	1.000	37	0.905	73	0.961	109	0.954	145	0.908	181	1.000	217	0.905	253	0.961	289	0.954
2	0.999	38	0.903	74	0.965	110	0.950	146	0.909	182	0.999	218	0.903	254	0.965	290	0.950
3	0.998	39	0.903	75	0.968	111	0.946	147	0.911	183	0.998	219	0.903	255	0.968	291	0.946
4	0.997	40	0.902	76	0.972	112	0.943	148	0.913	184	0.997	220	0.902	256	0.972	292	0.943
5	0.996	41	0.901	77	0.975	113	0.939	149	0.916	185	0.996	221	0.901	257	0.975	293	0.939
6	0.994	42	0.900	78	0.979	114	0.936	150	0.918	186	0.994	222	0.900	258	0.979	294	0.936
7	0.992	43	0.900	79	0.982	115	0.932	151	0.920	187	0.992	223	0.900	259	0.982	295	0.932
8	0.990	44	0.900	80	0.985	116	0.929	152	0.923	188	0.990	224	0.900	260	0.985	296	0.929
9	0.987	45	0.900	81	0.987	117	0.926	153	0.926	189	0.987	225	0.900	261	0.987	297	0.926
10	0.985	46	0.900	82	0.990	118	0.923	154	0.929	190	0.985	226	0.900	262	0.990	298	0.923
11	0.982	47	0.900	83	0.992	119	0.920	155	0.932	191	0.982	227	0.900	263	0.992	299	0.920
12	0.979	48	0.900	84	0.994	120	0.918	156	0.936	192	0.979	228	0.900	264	0.994	300	0.918
13	0.975	49	0.901	85	0.996	121	0.916	157	0.939	193	0.975	229	0.901	265	0.996	301	0.916
14	0.972	50	0.902	86	0.997	122	0.913	158	0.943	194	0.972	230	0.902	266	0.997	302	0.913
15	0.968	51	0.903	87	0.998	123	0.911	159	0.946	195	0.968	231	0.903	267	0.998	303	0.911
16	0.965	52	0.903	88	0.999	124	0.909	160	0.950	196	0.965	232	0.903	268	0.999	304	0.909
17	0.961	53	0.905	89	1.000	125	0.908	161	0.954	197	0.961	233	0.905	269	1.000	305	0.908
18	0.957	54	0.906	90	1.000	126	0.906	162	0.957	198	0.957	234	0.906	270	1.000	306	0.906
19	0.954	55	0.908	91	1.000	127	0.905	163	0.961	199	0.954	235	0.908	271	1.000	307	0.905
20	0.950	56	0.909	92	0.999	128	0.903	164	0.965	200	0.950	236	0.909	272	0.999	308	0.903
21	0.946	57	0.911	93	0.998	129	0.903	165	0.968	201	0.946	237	0.911	273	0.998	309	0.903
22	0.943	58	0.913	94	0.997	130	0.902	166	0.972	202	0.943	238	0.913	274	0.997	310	0.902
23	0.939	59	0.916	95	0.996	131	0.901	167	0.975	203	0.939	239	0.916	275	0.996	311	0.901
24	0.936	60	0.918	96	0.994	132	0.900	168	0.979	204	0.936	240	0.918	276	0.994	312	0.900
25	0.932	61	0.920	97	0.992	133	0.900	169	0.982	205	0.932	241	0.920	277	0.992	313	0.900
26	0.929	62	0.923	98	0.990	134	0.900	170	0.985	206	0.929	242	0.923	278	0.990	314	0.900
27	0.926	63	0.926	99	0.987	135	0.900	171	0.987	207	0.926	243	0.926	279	0.987	315	0.900
28	0.923	64	0.929	100	0.985	136	0.900	172	0.990	208	0.923	244	0.929	280	0.985	316	0.900
29	0.920	65	0.932	101	0.982	137	0.900	173	0.992	209	0.920	245	0.932	281	0.982	317	0.900
30	0.918	66	0.936	102	0.979	138	0.900	174	0.994	210	0.918	246	0.936	282	0.979	318	0.900
31	0.916	67	0.939	103	0.975	139	0.901	175	0.996	211	0.916	247	0.939	283	0.975	319	0.901
32	0.913	68	0.943	104	0.972	140	0.902	176	0.997	212	0.913	248	0.943	284	0.972	320	0.902
33	0.911	69	0.946	105	0.968	141	0.903	177	0.998	213	0.911	249	0.946	285	0.968	321	0.903
34	0.909	70	0.950	106	0.965	142	0.903	178	0.999	214	0.909	250	0.950	286	0.965	322	0.903
35	0.908	71	0.954	107	0.961	143	0.905	179	1.000	215	0.908	251	0.954	287	0.961	323	0.905

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-700247**
 Date **15-Feb-17**
 Call Letters **WFSG**
 Frequency **557 MHz**
 Channel **28**
 Antenna Type **TFU-24JTH/VP-R O4**
 Gain **1.48 (1.71dB)**
 Calculated
 Circularity **+/- 2.0 dB**
 Drawing # **TFU-O4-V-Ch28**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.649	36	0.959	72	0.746	108	0.746	144	0.959	180	0.649	216	0.959	252	0.746	288	0.746
1	0.649	37	0.967	73	0.735	109	0.757	145	0.950	181	0.649	217	0.967	253	0.735	289	0.757
2	0.650	38	0.975	74	0.725	110	0.768	146	0.940	182	0.650	218	0.975	254	0.725	290	0.768
3	0.651	39	0.981	75	0.715	111	0.780	147	0.930	183	0.651	219	0.981	255	0.715	291	0.780
4	0.653	40	0.987	76	0.706	112	0.793	148	0.919	184	0.653	220	0.987	256	0.706	292	0.793
5	0.656	41	0.992	77	0.698	113	0.805	149	0.907	185	0.656	221	0.992	257	0.698	293	0.805
6	0.659	42	0.995	78	0.691	114	0.818	150	0.895	186	0.659	222	0.995	258	0.691	294	0.818
7	0.663	43	0.998	79	0.684	115	0.831	151	0.883	187	0.663	223	0.998	259	0.684	295	0.831
8	0.667	44	0.999	80	0.678	116	0.844	152	0.870	188	0.667	224	0.999	260	0.678	296	0.844
9	0.672	45	1.000	81	0.672	117	0.857	153	0.857	189	0.672	225	1.000	261	0.672	297	0.857
10	0.678	46	0.999	82	0.667	118	0.870	154	0.844	190	0.678	226	0.999	262	0.667	298	0.870
11	0.684	47	0.998	83	0.663	119	0.883	155	0.831	191	0.684	227	0.998	263	0.663	299	0.883
12	0.691	48	0.995	84	0.659	120	0.895	156	0.818	192	0.691	228	0.995	264	0.659	300	0.895
13	0.698	49	0.992	85	0.656	121	0.907	157	0.805	193	0.698	229	0.992	265	0.656	301	0.907
14	0.706	50	0.987	86	0.653	122	0.919	158	0.793	194	0.706	230	0.987	266	0.653	302	0.919
15	0.715	51	0.981	87	0.651	123	0.930	159	0.780	195	0.715	231	0.981	267	0.651	303	0.930
16	0.725	52	0.975	88	0.650	124	0.940	160	0.768	196	0.725	232	0.975	268	0.650	304	0.940
17	0.735	53	0.967	89	0.649	125	0.950	161	0.757	197	0.735	233	0.967	269	0.649	305	0.950
18	0.746	54	0.959	90	0.649	126	0.959	162	0.746	198	0.746	234	0.959	270	0.649	306	0.959
19	0.757	55	0.950	91	0.649	127	0.967	163	0.735	199	0.757	235	0.950	271	0.649	307	0.967
20	0.768	56	0.940	92	0.650	128	0.975	164	0.725	200	0.768	236	0.940	272	0.650	308	0.975
21	0.780	57	0.930	93	0.651	129	0.981	165	0.715	201	0.780	237	0.930	273	0.651	309	0.981
22	0.793	58	0.919	94	0.653	130	0.987	166	0.706	202	0.793	238	0.919	274	0.653	310	0.987
23	0.805	59	0.907	95	0.656	131	0.992	167	0.698	203	0.805	239	0.907	275	0.656	311	0.992
24	0.818	60	0.895	96	0.659	132	0.995	168	0.691	204	0.818	240	0.895	276	0.659	312	0.995
25	0.831	61	0.883	97	0.663	133	0.998	169	0.684	205	0.831	241	0.883	277	0.663	313	0.998
26	0.844	62	0.870	98	0.667	134	0.999	170	0.678	206	0.844	242	0.870	278	0.667	314	0.999
27	0.857	63	0.857	99	0.672	135	1.000	171	0.672	207	0.857	243	0.857	279	0.672	315	1.000
28	0.870	64	0.844	100	0.678	136	0.999	172	0.667	208	0.870	244	0.844	280	0.678	316	0.999
29	0.883	65	0.831	101	0.684	137	0.998	173	0.663	209	0.883	245	0.831	281	0.684	317	0.998
30	0.895	66	0.818	102	0.691	138	0.995	174	0.659	210	0.895	246	0.818	282	0.691	318	0.995
31	0.907	67	0.805	103	0.698	139	0.992	175	0.656	211	0.907	247	0.805	283	0.698	319	0.992
32	0.919	68	0.793	104	0.706	140	0.987	176	0.653	212	0.919	248	0.793	284	0.706	320	0.987
33	0.930	69	0.780	105	0.715	141	0.981	177	0.651	213	0.930	249	0.780	285	0.715	321	0.981
34	0.940	70	0.768	106	0.725	142	0.975	178	0.650	214	0.940	250	0.768	286	0.725	322	0.975
35	0.950	71	0.757	107	0.735	143	0.967	179	0.649	215	0.950	251	0.757	287	0.735	323	0.967

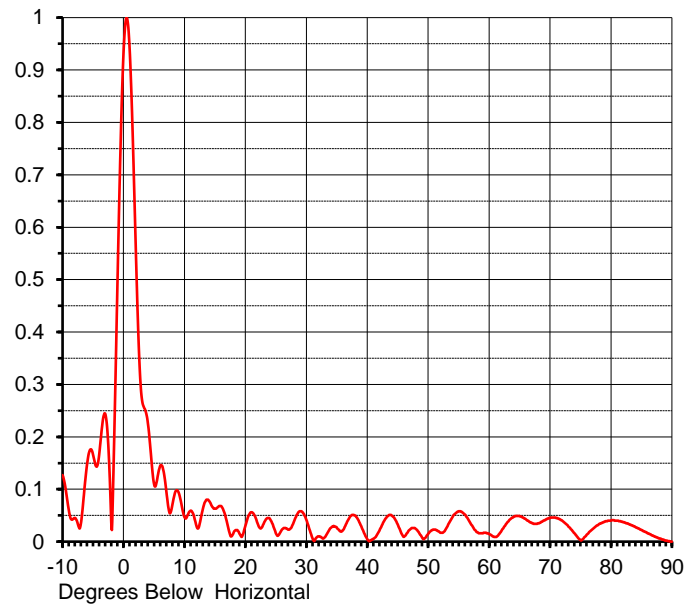
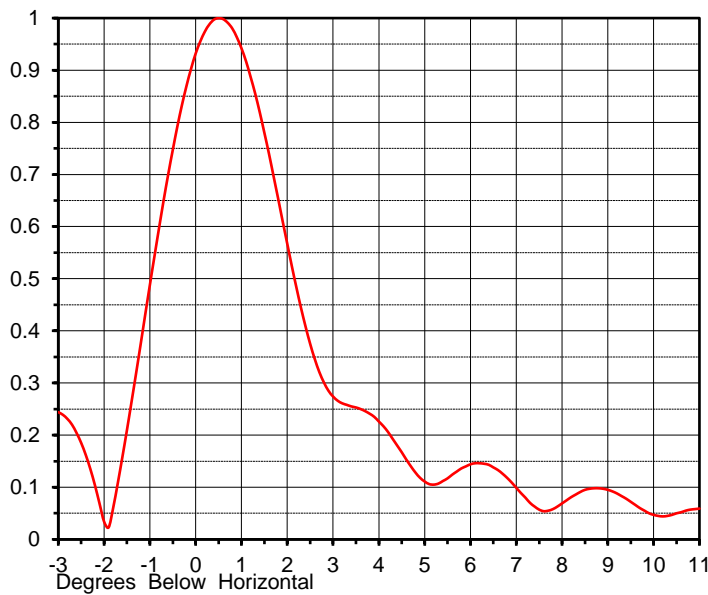
This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

ELEVATION PATTERN

Proposal No. **C-700247**
 Date **15-Feb-17**
 Call Letters **WFSG**
 Frequency **557 MHz**
 Channel **28**
 Antenna Type **TFU-24JTH/VP-R O4**

RMS Directivity at Main Lobe **23.50 (13.71 dB)**
 RMS Directivity at Horizontal **20.40 (13.10 dB)**
Calculated

Beam Tilt **0.50 deg**
 Drawing Number **24J235050**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.127	10.0	0.047	30.0	0.042	50.0	0.015	70.0	0.045
-9.0	0.062	11.0	0.059	31.0	0.007	51.0	0.023	71.0	0.045
-8.0	0.045	12.0	0.029	32.0	0.010	52.0	0.017	72.0	0.040
-7.0	0.034	13.0	0.061	33.0	0.008	53.0	0.026	73.0	0.029
-6.0	0.146	14.0	0.078	34.0	0.026	54.0	0.047	74.0	0.016
-5.0	0.166	15.0	0.063	35.0	0.027	55.0	0.058	75.0	0.003
-4.0	0.165	16.0	0.068	36.0	0.022	56.0	0.052	76.0	0.013
-3.0	0.244	17.0	0.036	37.0	0.044	57.0	0.034	77.0	0.024
-2.0	0.034	18.0	0.015	38.0	0.050	58.0	0.018	78.0	0.033
-1.0	0.488	19.0	0.016	39.0	0.030	59.0	0.016	79.0	0.038
0.0	0.932	20.0	0.030	40.0	0.005	60.0	0.015	80.0	0.040
1.0	0.942	21.0	0.056	41.0	0.005	61.0	0.009	81.0	0.040
2.0	0.567	22.0	0.035	42.0	0.021	62.0	0.020	82.0	0.037
3.0	0.274	23.0	0.034	43.0	0.044	63.0	0.037	83.0	0.033
4.0	0.226	24.0	0.044	44.0	0.050	64.0	0.047	84.0	0.028
5.0	0.111	25.0	0.016	45.0	0.033	65.0	0.049	85.0	0.022
6.0	0.144	26.0	0.023	46.0	0.009	66.0	0.043	86.0	0.016
7.0	0.099	27.0	0.023	47.0	0.023	67.0	0.036	87.0	0.011
8.0	0.069	28.0	0.039	48.0	0.024	68.0	0.035	88.0	0.006
9.0	0.095	29.0	0.058	49.0	0.008	69.0	0.040	89.0	0.002
								90.0	0.000

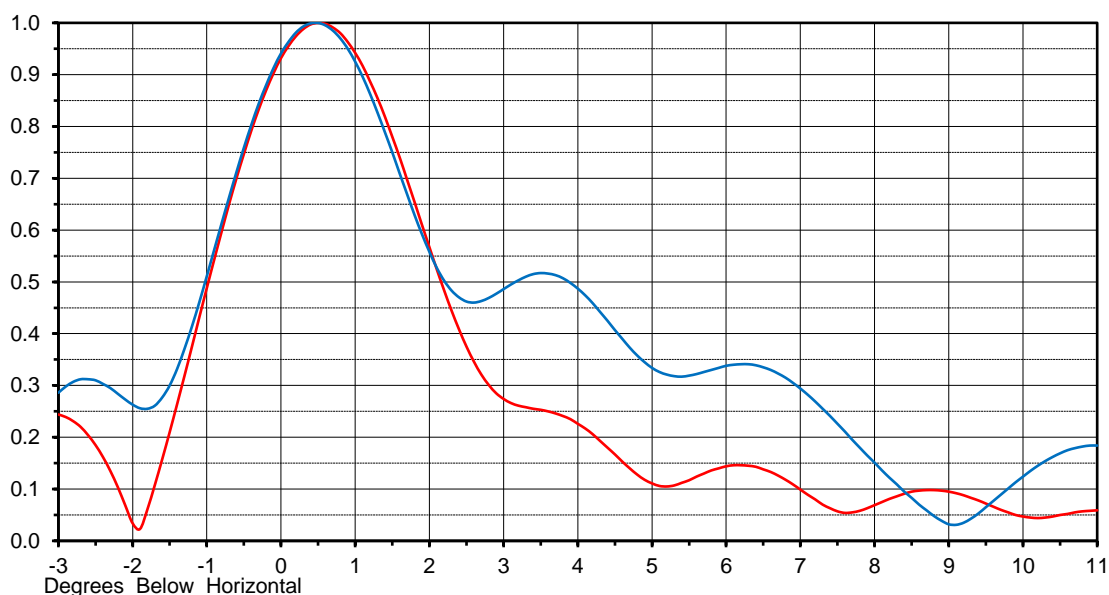
This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

FutureFill refers to the use of predetermined illuminations with 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-700247**
 Date **15-Feb-17**
 Call Letters **WFSG**
 Frequency **557 MHz**
 Channel **28**
 Antenna Type **TFU-24JTH/VP-R O4**

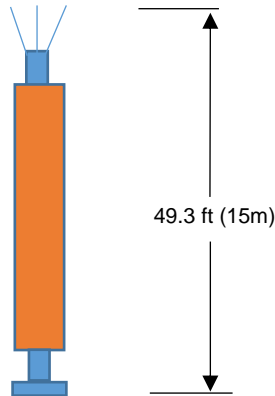
RMS Directivity 23.50 (13.7 dB) Beam Tilt 0.50 Drawing No. 24J235050 **Red**
 RMS Directivity 15.22 (11.8 dB) Beam Tilt 0.45 Drawing No. 24J235050_FF **Blue**
 Calculated



Tabulations for 24J235050_FF

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.282	10.0	0.124	30.0	0.091	50.0	0.071	70.0	0.037
-9.0	0.258	11.0	0.184	31.0	0.056	51.0	0.073	71.0	0.049
-8.0	0.188	12.0	0.132	32.0	0.061	52.0	0.055	72.0	0.053
-7.0	0.236	13.0	0.117	33.0	0.049	53.0	0.050	73.0	0.049
-6.0	0.368	14.0	0.145	34.0	0.021	54.0	0.083	74.0	0.041
-5.0	0.313	15.0	0.126	35.0	0.009	55.0	0.113	75.0	0.034
-4.0	0.027	16.0	0.102	36.0	0.046	56.0	0.122	76.0	0.031
-3.0	0.286	17.0	0.053	37.0	0.075	57.0	0.113	77.0	0.033
-2.0	0.263	18.0	0.034	38.0	0.072	58.0	0.094	78.0	0.037
-1.0	0.511	19.0	0.035	39.0	0.038	59.0	0.075	79.0	0.040
0.0	0.941	20.0	0.052	40.0	0.003	60.0	0.065	80.0	0.042
1.0	0.925	21.0	0.071	41.0	0.005	61.0	0.072	81.0	0.041
2.0	0.558	22.0	0.024	42.0	0.023	62.0	0.090	82.0	0.038
3.0	0.486	23.0	0.057	43.0	0.061	63.0	0.106	83.0	0.034
4.0	0.487	24.0	0.093	44.0	0.082	64.0	0.111	84.0	0.028
5.0	0.334	25.0	0.070	45.0	0.075	65.0	0.102	85.0	0.022
6.0	0.338	26.0	0.043	46.0	0.050	66.0	0.079	86.0	0.017
7.0	0.294	27.0	0.068	47.0	0.027	67.0	0.049	87.0	0.011
8.0	0.151	28.0	0.110	48.0	0.024	68.0	0.016	88.0	0.006
9.0	0.032	29.0	0.124	49.0	0.048	69.0	0.016	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.



MECHANICALS

Proposal No. **C-700247**
 Date **15-Feb-17**
 Call Letters **WFSG**
 Frequency **557 MHz**
 Channel **28**
 Antenna Type **TFU-24JTH/VP-R O4**

Preliminary Specifications

Top Mounted

Mechanical Specification without ice TIA-222-G

Basic Wind Speed 125 m/h (201.2 km/h)

Structure Class II
 Exposure Category C
 Topography Category 1
 Height of Crest 40 ft (12.2 m)

Not to scale

Mechanical Specifications

Height with Lightning Protector	H4	49.3 ft (15m)
Height less Lightning Protector	H2	45.3 ft (13.8m)
Height of Center of Radiation	H3	22.65 ft (6.9m)
Effective Projected Area	(EPA) _S	51.6 ft ² (4.8m ²)
Moment Arm	D1	24.2 ft (7.4m)

Weight	W	9200 lb (4.2t)
--------	---	----------------

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

Prepared by:

Date: 15-Feb-17

ME:

EE:

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.

Summary

Proposal No.	C-700247
Date	15-Feb-17
Call Letters	WFSG
Frequency	557 MHz
Channel	28
Antenna Type	TFU-24JTH/VP-R 04

Antenna

	Hpol	Vpol
ERP:	128.0 kW (21.07 dBk)	128.0 kW (21.07 dBk)
RMS Gain*	11.75 (10.70 dB)	11.75 (10.70 dB)

Antenna Input Power **10.9 kW (10.37 dBk)**

Transmission Line

Type	Rigid	Attenuation	(0.88 dB)
Size	4-1/16"	Efficiency	81.7%
Impedance	50 Ohm		
Length	550 ft	167.6 m	

Transmitter Output

13.3 kW (11.25 dBk)

Transmitter filter losses not included

* Directivity and Gain are with respect to half wave dipole. Includes losses within antenna.

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.