

Antenna Model: **TFU-16WB-R C160**

Reference Number: **20191220WTG**
 Date: **20-Dec-19**
 Customer: **TEGNA**
 Location: **Moline, IL**

Electrical Specifications

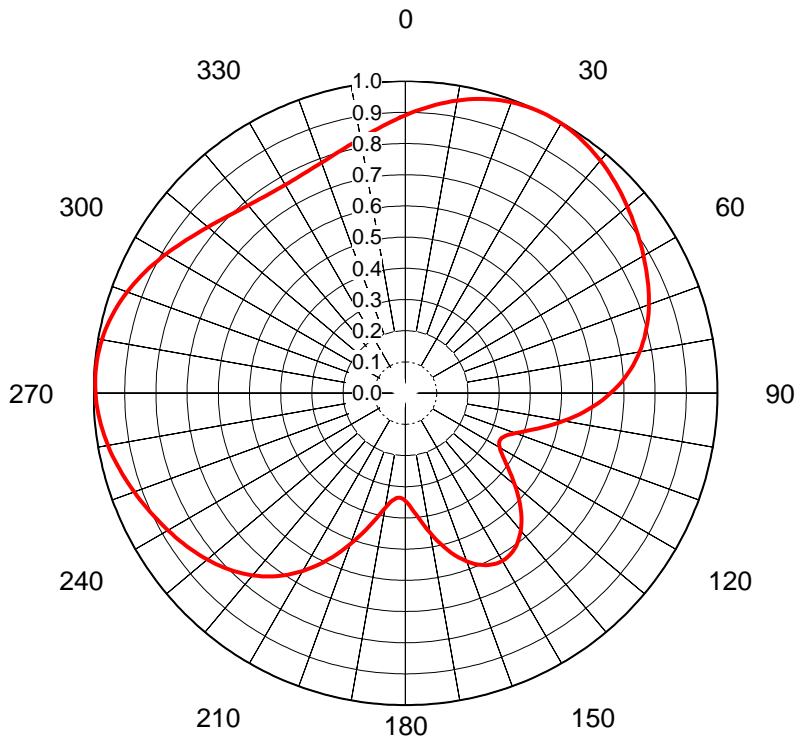
Polarization: **Horizontal**
 Azimuth Pattern: **C160**
 Antenna Input: **6-1/8 in 50 Ohm EIA/DCA**
 VSWR: **Channel 1.15:1 Band 1.15:1**
 Bandwidth: **470-698 MHz**
 Rated Input Power: **40 kW (16.02 dBk) Maximum Average Power**

Mechanical Specifications

Mounting: **Side Mounted**
 Environmental Protection: **Full Radome**
 Height: **28.9 ft (8.8m)**
 Weight: **1260 lb (572 kg) mounts excluded**
 Effective Projected Area: **61.1 ft² (5.7m²)**

Channel Specifications

Call	Ch	Freq	Hpol ERP	TPO	Peak Gain Main Lobe Hpol	Peak Gain at Horizontal Hpol
WQAD	31	575	955 kW (29.80 dBk)	53.3 kW (17.27 dBk)	24.10 (13.82dB)	22.48 (13.52dB)



AZIMUTH PATTERN Horizontal Polarization

Proposal No. **20191220WTG**
 Date **20-Dec-19**
 Call Letters **WQAD**
 Channel **31**
 Frequency **575 MHz**
 Antenna Type **TFU-16WB-R C160**
 Gain **1.67 (2.22dB)**
 Calculated

Pattern Number **WB-C160-31 Hpol**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.891	36	0.986	72	0.819	108	0.398	144	0.604	180	0.346	216	0.726	252	0.935	288	0.959	324	0.776
1	0.897	37	0.983	73	0.813	109	0.386	145	0.609	181	0.341	217	0.736	253	0.939	289	0.954	325	0.775
2	0.904	38	0.979	74	0.806	110	0.375	146	0.613	182	0.337	218	0.745	254	0.944	290	0.949	326	0.773
3	0.910	39	0.976	75	0.800	111	0.365	147	0.617	183	0.336	219	0.754	255	0.948	291	0.944	327	0.772
4	0.917	40	0.972	76	0.793	112	0.357	148	0.619	184	0.336	220	0.763	256	0.952	292	0.938	328	0.772
5	0.923	41	0.969	77	0.786	113	0.350	149	0.620	185	0.338	221	0.771	257	0.956	293	0.932	329	0.771
6	0.929	42	0.965	78	0.778	114	0.344	150	0.621	186	0.342	222	0.778	258	0.961	294	0.926	330	0.771
7	0.935	43	0.960	79	0.770	115	0.340	151	0.620	187	0.347	223	0.786	259	0.964	295	0.920	331	0.771
8	0.941	44	0.956	80	0.762	116	0.339	152	0.619	188	0.355	224	0.793	260	0.968	296	0.914	332	0.772
9	0.947	45	0.952	81	0.753	117	0.338	153	0.616	189	0.363	225	0.800	261	0.972	297	0.908	333	0.772
10	0.952	46	0.947	82	0.744	118	0.340	154	0.613	190	0.373	226	0.806	262	0.975	298	0.901	334	0.774
11	0.958	47	0.943	83	0.735	119	0.344	155	0.608	191	0.385	227	0.813	263	0.978	299	0.895	335	0.775
12	0.963	48	0.938	84	0.725	120	0.349	156	0.603	192	0.397	228	0.819	264	0.981	300	0.889	336	0.777
13	0.967	49	0.933	85	0.715	121	0.355	157	0.597	193	0.410	229	0.824	265	0.984	301	0.882	337	0.779
14	0.972	50	0.929	86	0.704	122	0.363	158	0.590	194	0.424	230	0.830	266	0.986	302	0.876	338	0.781
15	0.976	51	0.924	87	0.693	123	0.373	159	0.582	195	0.438	231	0.835	267	0.989	303	0.869	339	0.783
16	0.980	52	0.919	88	0.682	124	0.383	160	0.574	196	0.453	232	0.841	268	0.991	304	0.863	340	0.786
17	0.983	53	0.914	89	0.670	125	0.394	161	0.564	197	0.468	233	0.846	269	0.992	305	0.857	341	0.789
18	0.987	54	0.910	90	0.657	126	0.406	162	0.554	198	0.483	234	0.851	270	0.994	306	0.851	342	0.793
19	0.990	55	0.905	91	0.645	127	0.419	163	0.543	199	0.499	235	0.856	271	0.995	307	0.845	343	0.796
20	0.992	56	0.900	92	0.631	128	0.431	164	0.532	200	0.514	236	0.860	272	0.995	308	0.839	344	0.800
21	0.994	57	0.895	93	0.618	129	0.445	165	0.520	201	0.530	237	0.865	273	0.996	309	0.833	345	0.804
22	0.996	58	0.890	94	0.604	130	0.458	166	0.508	202	0.545	238	0.870	274	0.996	310	0.828	346	0.809
23	0.998	59	0.886	95	0.590	131	0.471	167	0.495	203	0.560	239	0.875	275	0.995	311	0.822	347	0.814
24	0.999	60	0.881	96	0.575	132	0.484	168	0.482	204	0.575	240	0.879	276	0.994	312	0.817	348	0.819
25	1.000	61	0.876	97	0.560	133	0.497	169	0.469	205	0.590	241	0.884	277	0.993	313	0.812	349	0.824
26	1.000	62	0.871	98	0.545	134	0.510	170	0.455	206	0.604	242	0.888	278	0.992	314	0.808	350	0.829
27	1.000	63	0.866	99	0.530	135	0.522	171	0.442	207	0.618	243	0.893	279	0.990	315	0.803	351	0.835
28	1.000	64	0.861	100	0.514	136	0.534	172	0.429	208	0.632	244	0.898	280	0.988	316	0.799	352	0.840
29	0.999	65	0.856	101	0.499	137	0.545	173	0.416	209	0.645	245	0.902	281	0.986	317	0.795	353	0.846
30	0.998	66	0.851	102	0.484	138	0.556	174	0.403	210	0.658	246	0.907	282	0.983	318	0.792	354	0.852
31	0.997	67	0.846	103	0.468	139	0.566	175	0.391	211	0.671	247	0.912	283	0.980	319	0.788	355	0.859
32	0.995	68	0.841	104	0.453	140	0.575	176	0.380	212	0.682	248	0.916	284	0.976	320	0.785	356	0.865
33	0.993	69	0.836	105	0.439	141	0.583	177	0.370	213	0.694	249	0.921	285	0.972	321	0.783	357	0.871
34	0.991	70	0.830	106	0.425	142	0.591	178	0.360	214	0.705	250	0.926	286	0.968	322	0.780	358	0.878
35	0.988	71	0.824	107	0.411	143	0.598	179	0.352	215	0.716	251	0.930	287	0.964	323	0.778	359	0.884

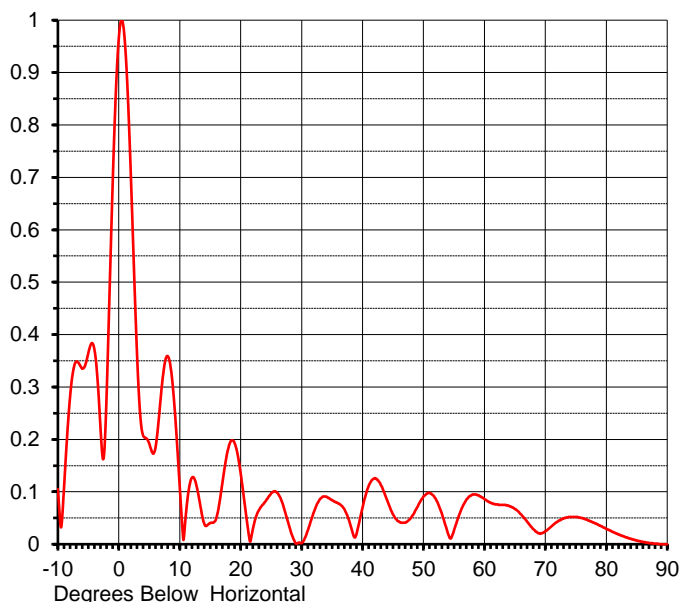
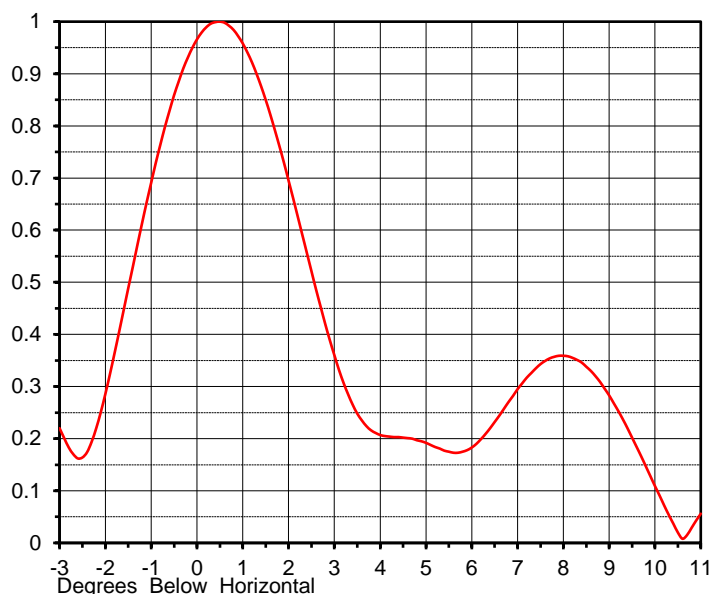
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ELEVATION PATTERN

Proposal No. **20191220WTG**
 Date **20-Dec-19**
 Call Letters **WQAD**
 Channel **31**
 Frequency **575 MHz**
 Antenna Type **TFU-16WB-R C160**

RMS Directivity at Main Lobe **14.5 (11.60 dB)**
 RMS Directivity at Horizontal **13.5 (11.30 dB)**
Calculated

Beam Tilt **0.55 deg**
 Pattern Number **16W145055-31**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.105	10.0	0.109	30.0	0.002	50.0	0.091	70.0	0.025
-9.0	0.106	11.0	0.056	31.0	0.026	51.0	0.098	71.0	0.034
-8.0	0.281	12.0	0.127	32.0	0.061	52.0	0.087	72.0	0.043
-7.0	0.348	13.0	0.098	33.0	0.086	53.0	0.059	73.0	0.049
-6.0	0.335	14.0	0.040	34.0	0.091	54.0	0.021	74.0	0.052
-5.0	0.365	15.0	0.040	35.0	0.084	55.0	0.026	75.0	0.052
-4.0	0.371	16.0	0.050	36.0	0.078	56.0	0.060	76.0	0.050
-3.0	0.220	17.0	0.117	37.0	0.067	57.0	0.084	77.0	0.046
-2.0	0.286	18.0	0.184	38.0	0.037	58.0	0.094	78.0	0.041
-1.0	0.691	19.0	0.193	39.0	0.019	59.0	0.093	79.0	0.035
0.0	0.966	20.0	0.135	40.0	0.070	60.0	0.086	80.0	0.029
1.0	0.958	21.0	0.046	41.0	0.111	61.0	0.079	81.0	0.024
2.0	0.695	22.0	0.029	42.0	0.126	62.0	0.076	82.0	0.019
3.0	0.360	23.0	0.065	43.0	0.113	63.0	0.075	83.0	0.014
4.0	0.207	24.0	0.081	44.0	0.085	64.0	0.073	84.0	0.010
5.0	0.192	25.0	0.097	45.0	0.057	65.0	0.067	85.0	0.007
6.0	0.183	26.0	0.098	46.0	0.043	66.0	0.057	86.0	0.004
7.0	0.295	27.0	0.073	47.0	0.041	67.0	0.043	87.0	0.002
8.0	0.359	28.0	0.033	48.0	0.051	68.0	0.029	88.0	0.001
9.0	0.283	29.0	0.002	49.0	0.071	69.0	0.021	89.0	0.000
						90.0	0.000	90.0	0.000

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Summary

Proposal No.	20191220WTG
Date	20-Dec-19
Call Letters	WQAD
Channel	31
Frequency	575 MHz
Antenna Type	TFU-16WB-R C160

Antenna

		Hpol
ERP:	955 kW	(29.80 dBk)
Peak Gain	24.10	(13.82 dBd)

Antenna Input Power	39.6 kW	(15.98 dBk)
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Transmission Line

Type:	Rigid	Attenuation:	(1.29 dB)
Size:	6-1/8"	Efficiency:	74.4%
Impedance:	75 Ohm		
Length:	1100 ft	335.3 m	

Transmitter Output

53.3 kW	(17.27 dBk)
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Transmitter filter losses not included

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