



Antenna Model:

TFU-16WB-R S230 OS

Proposal Number: **C-71240-1**
Date: **1-Nov-18**
Customer: **Nexstar**
Location: **Erie, PA**

Electrical Specifications

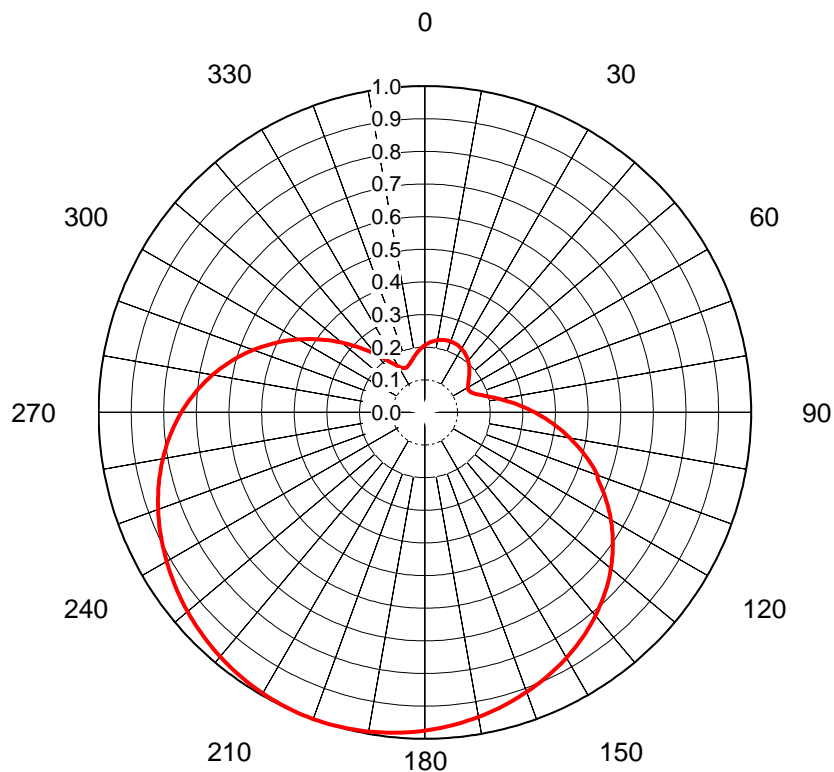
Polarization: **Horizontal**
Azimuth Pattern: **Directional**
Antenna Input: **6-1/8"** **50 Ohm** **EIA/DCA**
VSWR: **Channel** **1.15 : 1** **Band** **1.15 : 1**
Bandwidth: **470-698 MHz**
Rated Input Power: **40 kW** **(16.02 dBk)** **Maximum combined average power**

Mechanical Specifications

Mounting: **Side Mounted**
Environmental Protection: **Full Radome**
Height: **28.9 ft (8.8m)**
Weight: **1300 lb (0.6t)** **Excludes Mounts**
Effective Projected Area: **42.8 ft² (4m²)** **TIA-222-G** **Basic Wind Speed: 89 m/h (143.2 km/h)**

Channel Specifications

	Call	CH	Freq	Hpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak at Horizontal Hpol Gain
1	WJET	24	533 MHz	400 kW (26.02 dBk)	14.6 kW (11.65 dBk)	34.68 (15.40dB)	31.76 (15.02dB)
2	WJET	28	557 MHz	850 kW (29.29 dBk)	30.1 kW (14.79 dBk)	36.03 (15.57dB)	32.72 (15.15dB)



AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. **C-71240-1**
 Date **1-Nov-18**
 Call Letters **WJET**
 Channel **24**
 Frequency **533 MHz**
 Antenna Type **TFU-16WB-R S230 OS**
 Gain **2.41 (3.82dB)**
 Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.206	36	0.215	72	0.176	108	0.542	144	0.837	180	0.975	216	0.985	252	0.860	288	0.581	324	0.198
1	0.208	37	0.213	73	0.181	109	0.553	145	0.842	181	0.977	217	0.983	253	0.855	289	0.570	325	0.191
2	0.210	38	0.211	74	0.188	110	0.564	146	0.848	182	0.979	218	0.981	254	0.850	290	0.560	326	0.184
3	0.213	39	0.209	75	0.194	111	0.567	147	0.853	183	0.982	219	0.979	255	0.844	291	0.549	327	0.178
4	0.215	40	0.206	76	0.202	112	0.578	148	0.858	184	0.983	220	0.976	256	0.839	292	0.538	328	0.173
5	0.217	41	0.204	77	0.209	113	0.588	149	0.863	185	0.985	221	0.974	257	0.833	293	0.527	329	0.168
6	0.219	42	0.201	78	0.217	114	0.599	150	0.868	186	0.987	222	0.972	258	0.827	294	0.516	330	0.163
7	0.220	43	0.198	79	0.226	115	0.609	151	0.873	187	0.989	223	0.969	259	0.821	295	0.504	331	0.159
8	0.222	44	0.196	80	0.235	116	0.619	152	0.878	188	0.990	224	0.967	260	0.815	296	0.493	332	0.156
9	0.223	45	0.193	81	0.244	117	0.629	153	0.882	189	0.992	225	0.964	261	0.809	297	0.482	333	0.153
10	0.225	46	0.190	82	0.253	118	0.639	154	0.887	190	0.993	226	0.961	262	0.803	298	0.470	334	0.151
11	0.226	47	0.187	83	0.263	119	0.649	155	0.891	191	0.994	227	0.958	263	0.796	299	0.459	335	0.150
12	0.227	48	0.184	84	0.273	120	0.658	156	0.895	192	0.995	228	0.955	264	0.789	300	0.447	336	0.149
13	0.228	49	0.181	85	0.283	121	0.668	157	0.900	193	0.996	229	0.952	265	0.783	301	0.436	337	0.149
14	0.229	50	0.178	86	0.294	122	0.677	158	0.904	194	0.997	230	0.949	266	0.776	302	0.424	338	0.149
15	0.230	51	0.175	87	0.304	123	0.686	159	0.908	195	0.998	231	0.946	267	0.769	303	0.413	339	0.150
16	0.230	52	0.171	88	0.315	124	0.695	160	0.912	196	0.999	232	0.943	268	0.761	304	0.401	340	0.151
17	0.231	53	0.169	89	0.326	125	0.703	161	0.916	197	0.999	233	0.939	269	0.754	305	0.390	341	0.152
18	0.231	54	0.166	90	0.337	126	0.712	162	0.920	198	0.999	234	0.936	270	0.746	306	0.378	342	0.154
19	0.231	55	0.163	91	0.348	127	0.720	163	0.923	199	1.000	235	0.933	271	0.738	307	0.367	343	0.157
20	0.231	56	0.160	92	0.359	128	0.728	164	0.927	200	1.000	236	0.929	272	0.731	308	0.356	344	0.159
21	0.231	57	0.158	93	0.371	129	0.736	165	0.931	201	1.000	237	0.925	273	0.722	309	0.344	345	0.162
22	0.231	58	0.156	94	0.382	130	0.744	166	0.934	202	1.000	238	0.922	274	0.714	310	0.333	346	0.164
23	0.231	59	0.154	95	0.394	131	0.752	167	0.938	203	0.999	239	0.918	275	0.706	311	0.322	347	0.167
24	0.230	60	0.153	96	0.405	132	0.759	168	0.941	204	0.999	240	0.914	276	0.697	312	0.311	348	0.170
25	0.230	61	0.152	97	0.417	133	0.767	169	0.944	205	0.998	241	0.910	277	0.688	313	0.300	349	0.173
26	0.229	62	0.151	98	0.428	134	0.774	170	0.947	206	0.998	242	0.906	278	0.679	314	0.290	350	0.176
27	0.228	63	0.151	99	0.440	135	0.781	171	0.951	207	0.997	243	0.902	279	0.670	315	0.279	351	0.180
28	0.227	64	0.151	100	0.451	136	0.788	172	0.954	208	0.996	244	0.897	280	0.661	316	0.269	352	0.183
29	0.226	65	0.152	101	0.463	137	0.794	173	0.957	209	0.995	245	0.893	281	0.651	317	0.259	353	0.186
30	0.225	66	0.154	102	0.474	138	0.801	174	0.960	210	0.994	246	0.889	282	0.642	318	0.250	354	0.189
31	0.224	67	0.156	103	0.486	139	0.807	175	0.962	211	0.993	247	0.884	283	0.632	319	0.240	355	0.192
32	0.222	68	0.159	104	0.497	140	0.813	176	0.965	212	0.991	248	0.879	284	0.622	320	0.231	356	0.195
33	0.221	69	0.162	105	0.509	141	0.819	177	0.968	213	0.990	249	0.875	285	0.612	321	0.222	357	0.198
34	0.219	70	0.166	106	0.520	142	0.825	178	0.970	214	0.988	250	0.870	286	0.602	322	0.214	358	0.200
35	0.217	71	0.171	107	0.531	143	0.831	179	0.973	215	0.986	251	0.865	287	0.591	323	0.206	359	0.203

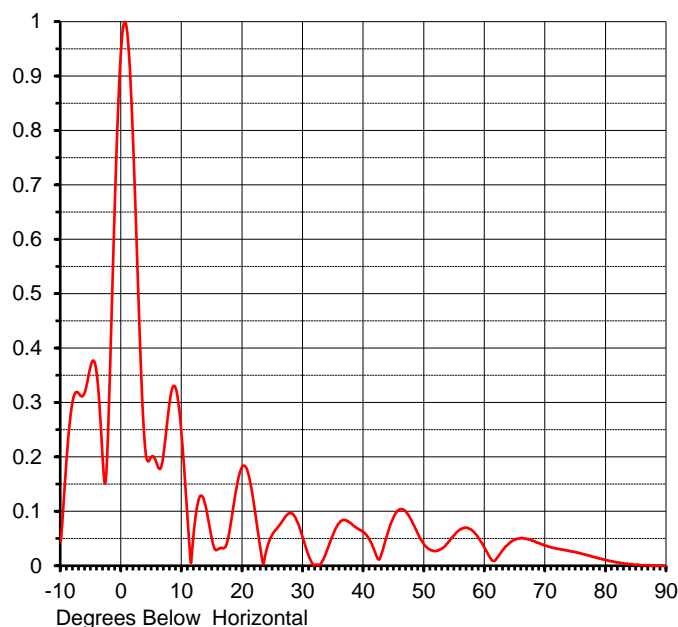
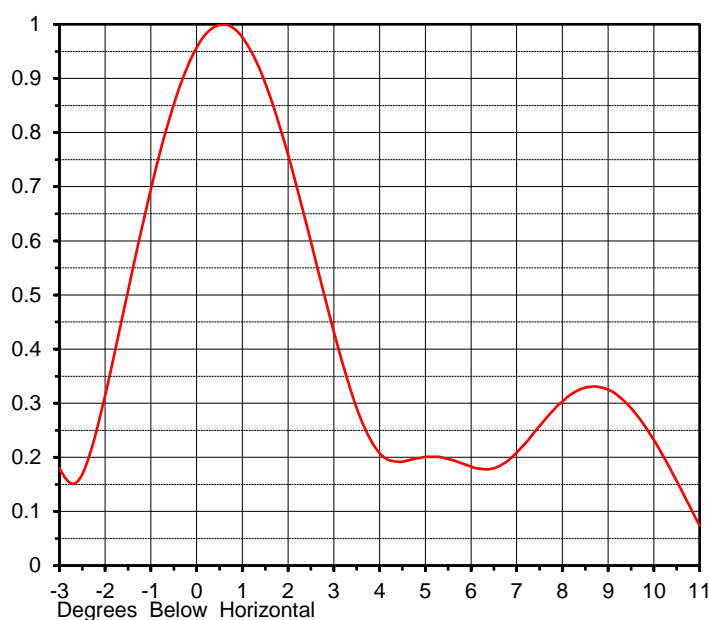
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ELEVATION PATTERN

Proposal No. **C-71240-1**
 Date **1-Nov-18**
 Call Letters **WJET**
 Channel **24**
 Frequency **533 MHz**
 Antenna Type **TFU-16WB-R S230 OS**

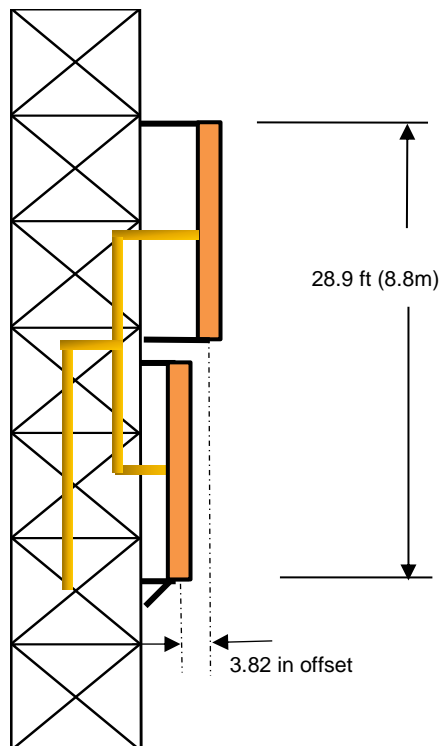
RMS Directivity at Main Lobe **14.4 (11.58 dB)**
 RMS Directivity at Horizontal **13.2 (11.21 dB)**
Calculated

Beam Tilt **0.55 deg**
 Pattern Number **16W144055**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.045	10.0	0.232	30.0	0.050	50.0	0.039	70.0	0.037
-9.0	0.203	11.0	0.074	31.0	0.016	51.0	0.029	71.0	0.034
-8.0	0.305	12.0	0.067	32.0	0.002	52.0	0.027	72.0	0.031
-7.0	0.316	13.0	0.128	33.0	0.005	53.0	0.032	73.0	0.029
-6.0	0.320	14.0	0.105	34.0	0.030	54.0	0.044	74.0	0.027
-5.0	0.370	15.0	0.046	35.0	0.059	55.0	0.057	75.0	0.025
-4.0	0.346	16.0	0.031	36.0	0.079	56.0	0.067	76.0	0.022
-3.0	0.180	17.0	0.033	37.0	0.084	57.0	0.070	77.0	0.019
-2.0	0.315	18.0	0.074	38.0	0.077	58.0	0.064	78.0	0.016
-1.0	0.696	19.0	0.143	39.0	0.068	59.0	0.050	79.0	0.013
0.0	0.957	20.0	0.183	40.0	0.061	60.0	0.032	80.0	0.010
1.0	0.976	21.0	0.167	41.0	0.047	61.0	0.013	81.0	0.008
2.0	0.759	22.0	0.104	42.0	0.021	62.0	0.014	82.0	0.006
3.0	0.432	23.0	0.028	43.0	0.024	63.0	0.029	83.0	0.004
4.0	0.208	24.0	0.031	44.0	0.061	64.0	0.041	84.0	0.003
5.0	0.201	25.0	0.059	45.0	0.091	65.0	0.048	85.0	0.002
6.0	0.183	26.0	0.073	46.0	0.104	66.0	0.051	86.0	0.001
7.0	0.209	27.0	0.089	47.0	0.099	67.0	0.049	87.0	0.001
8.0	0.303	28.0	0.097	48.0	0.081	68.0	0.046	88.0	0.000
9.0	0.325	29.0	0.082	49.0	0.058	69.0	0.041	89.0	0.000
								90.0	0.000

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MECHANICAL SPECIFICATIONS

Proposal No. **C-71240-1**
 Date **1-Nov-18**
 Call Letters **WJET**
 Channel **24**
 Frequency **533 MHz**
 Antenna Type **TFU-16WB-R S230 OS**

Preliminary Specifications

Side Mounted

With ice TIA-222-G

Height AGL(z) 575 ft (175.3 m)
 Basic Wind Speed 89 m/h (143.2 km/h)

Structure Class II
 Exposure Category C
 Topography Category 1

Design Ice 0.75 in $t_{iz} = 2.30$ in
 Wind Speed w/Ice 40 m/h (64.4 km/h)

Mechanical Specifications

		without ice	with ice	
Height	H2	28.9 ft (8.8m)		
Height of Center of Radiation	H3	ft (m)		
Effective Projected Area	(EPA) _A	42.8 ft ² (4m ²)	84.8 ft ² (7.9m ²)	Mounts Excluded
Weight	W	1300 lb (0.6t)	2750 lb (1.2t)	Mounts Excluded

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

Prepared by: JBC

Date: 1-Nov-18

ME:

EE:

Rev. No.1 by: JBC

Date: 1-Nov-18

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Summary

Proposal No.	C-71240-1
Date	1-Nov-18
Call Letters	WJET
Channel	24
Frequency	533 MHz
Antenna Type	TFU-16WB-R S230 OS

Antenna

		Hpol
ERP:	400 kW	(26.02 dBk)
Peak Gain*	34.68	(15.40 dB)

Antenna Input Power	11.5 kW	(10.62 dBk)
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Transmission Line

Type:	Rigid	Attenuation:	(1.04 dB)
Size:	4-1/16"	Efficiency:	78.8%
Impedance:	50 Ohm		
Length:	665 ft	202.7 m	

Transmitter Output

14.6 kW	(11.65 dBk)
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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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