



ENGINEERING STATEMENT
OF
BENJAMIN L. PIDEK, P.E.
IN SUPPORT OF
APPLICATION FOR LICENSE TO COVER
CONSTRUCTION PERMIT BPEDT-20090902ABF
WQLN-DT
ERIE, PA

Background

Public Broadcasting of Northwest Pennsylvania, Inc. (PBNP) is the licensee of WQLN which has been granted a Construction Permit to operate the WQLN full-service digital facility on Channel 50 (BPEDT-20090902ABF) at Erie, PA, with a directional ERP of 300 kW at an HAAT of 270.7m. The tower is located at the following coordinates:

(NAD27)
42° 02' 34" N
80° 03' 56" W

PBNP has completed construction of the WQLN facility with some minor variations from the parameters authorized in the construction permit.

**PROVIDING COMMUNICATION
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The Dielectric TFU-10JTH-R 4C170 directional antenna specified on the WQLN Construction Permit is only capable of horizontal polarization. After further consideration, PBNP determined that adding vertically polarized power to the WQLN facility could help improve the coverage of the facility. Therefore, PBNP has installed the elliptically polarized Dielectric TFU-13JTT/VP-R 4C170 antenna instead of the horizontally polarized Dielectric TFU-10JTH-R 4C170 antenna (as specified on the CP). Both directional antennas have the exact same azimuth pattern and, for reference, the azimuth and elevation pattern data is attached (including tabulations). The vertically polarized radiation component does not exceed the authorized horizontally polarized component in any azimuth.

The changes between the authorized facility (CP) and the "as-built" facility include the model number of the antenna (TFU-13JTT/VP-R 4C170 instead of TFU-10JTH-R 4C170) and the antenna polarization (elliptical instead of horizontal). All other parameters of the WQLN facility match the parameters specified on the construction permit.

Environmental/RFR

This report addresses only the conditions specified in 47CFR1.1307 that deal with Radio Frequency Radiation (RFR). Any other non-RFR conditions that might require the preparation of an EA are beyond the scope of this report; however, since the structure is existing and registered, such conditions should not be an issue requiring further consideration as there will be no increase in height or change in width of the tower structure.

The location of the proposed construction is a multi-user site and it is assumed that the site is currently "in compliance" with FCC guidelines for human exposure to RFR (as defined in OET-65). The additional worst case ground level RFR contributed to the site by this proposal in public areas is calculated to be 0.009913 mW/cm², which is less than 5% of the MPE for public

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exposure (0.459333 mW/cm²) at Ch. 50 (686-692 MHz); therefore, the contribution to the overall RFR from the proposed facility is negligible.

PBNP agrees to comply with the Commission's requirements regarding power adjustments or cessation of operation as may be necessary to ensure a compliant environment for worker access. Workers will be trained on RFR issues and encouraged to wear personal RFR monitors when on the structure. The tower base is enclosed by a locked security fence and appropriate signage warning of potential RFR hazards is posted.

Certification

I hereby certify that the foregoing report or statement was prepared by me but may include work performed by others under my supervision or direction. The statements of fact contained therein are believed to be true and correct based on personal knowledge, information and belief unless otherwise stated; with respect to facts not known of my own personal knowledge, I believe them to be true and correct based on their origin from sources known to me to be generally reliable and accurate. I have prepared this document with due care and in accordance with applicable standards of professional practice.

A handwritten signature in black ink, appearing to read "B. L. Pidek", is written over a horizontal line.

Benjamin L. Pidek, P.E.
May 30, 2013

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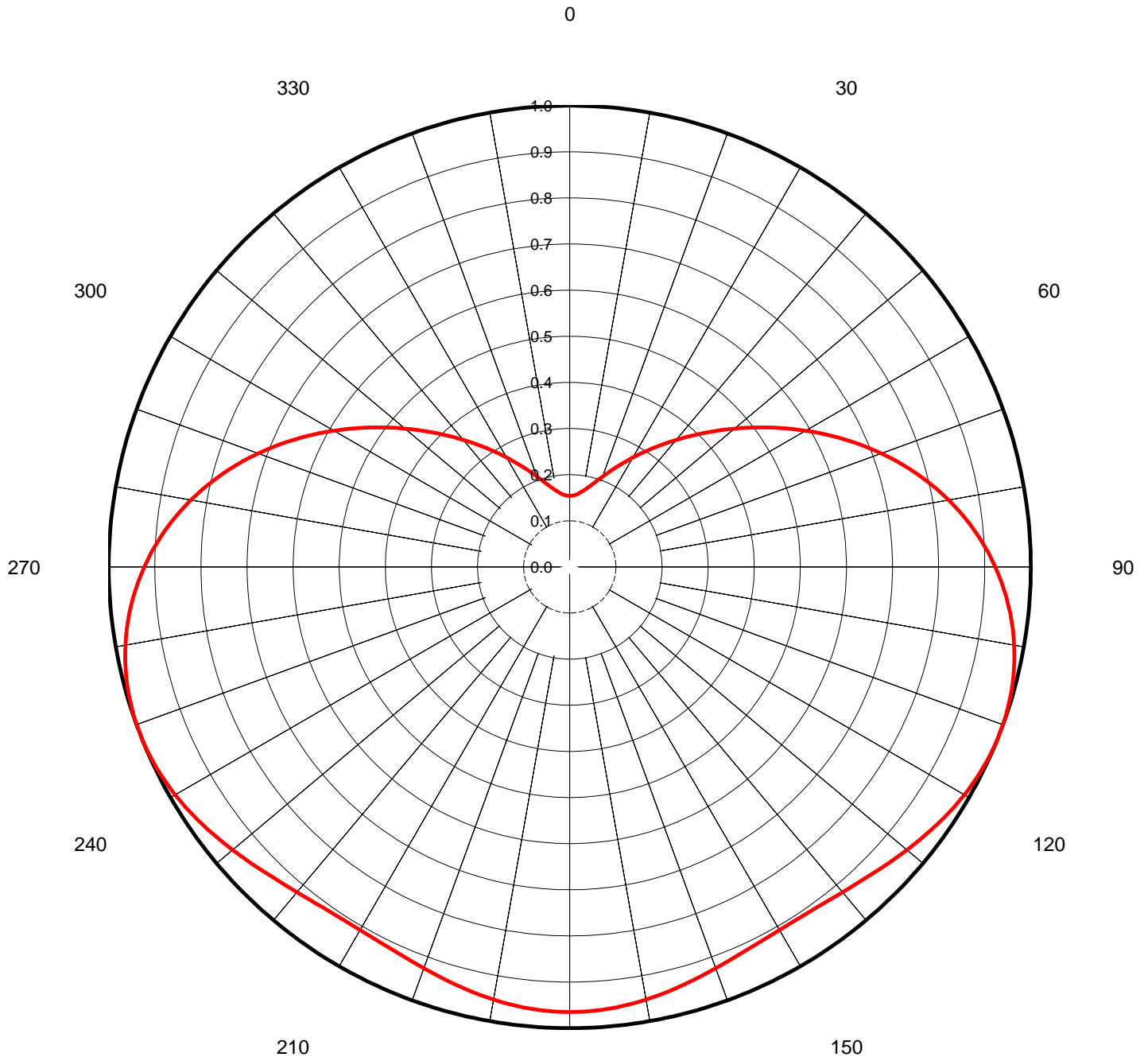
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Proposal Number	C-04446	Revision:	5
Date	10-Aug-12		
Call Letters	WQLN	Channel	50
Location	Erie, PA		
Customer	PBS		
Antenna Type	TFU-13JTT/VP-R 4C170		

AZIMUTH PATTERN

Gain **1.70** **(2.30 dB)**
 Calculated / Measured **Calculated**

Frequency **689.00 MHz**
 Drawing # **4C170-HPOL**





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Location	Erie, PA		
Customer	PBS		
Antenna Type	TFU-13JTT/VP-R 4C170		

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **4C170-HPOL**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.154	45	0.410	90	0.923	135	0.936	180	0.965	225	0.936	270	0.923	315	0.410
1	0.154	46	0.421	91	0.930	136	0.933	181	0.965	226	0.940	271	0.915	316	0.400
2	0.154	47	0.432	92	0.937	137	0.929	182	0.965	227	0.943	272	0.908	317	0.389
3	0.155	48	0.443	93	0.943	138	0.926	183	0.964	228	0.947	273	0.900	318	0.379
4	0.156	49	0.455	94	0.949	139	0.923	184	0.963	229	0.951	274	0.891	319	0.369
5	0.157	50	0.466	95	0.955	140	0.921	185	0.962	230	0.955	275	0.882	320	0.360
6	0.159	51	0.478	96	0.961	141	0.918	186	0.961	231	0.958	276	0.874	321	0.350
7	0.161	52	0.490	97	0.965	142	0.916	187	0.959	232	0.962	277	0.864	322	0.341
8	0.163	53	0.502	98	0.970	143	0.914	188	0.957	233	0.966	278	0.855	323	0.332
9	0.165	54	0.514	99	0.975	144	0.912	189	0.955	234	0.970	279	0.844	324	0.323
10	0.167	55	0.527	100	0.979	145	0.911	190	0.953	235	0.973	280	0.834	325	0.314
11	0.170	56	0.539	101	0.982	146	0.910	191	0.950	236	0.976	281	0.824	326	0.306
12	0.173	57	0.552	102	0.986	147	0.909	192	0.948	237	0.980	282	0.813	327	0.297
13	0.177	58	0.565	103	0.989	148	0.909	193	0.945	238	0.983	283	0.802	328	0.289
14	0.181	59	0.578	104	0.991	149	0.909	194	0.943	239	0.986	284	0.791	329	0.281
15	0.185	60	0.591	105	0.993	150	0.909	195	0.940	240	0.988	285	0.779	330	0.274
16	0.189	61	0.604	106	0.996	151	0.910	196	0.937	241	0.991	286	0.768	331	0.266
17	0.193	62	0.617	107	0.997	152	0.911	197	0.934	242	0.993	287	0.756	332	0.259
18	0.198	63	0.630	108	0.998	153	0.912	198	0.931	243	0.995	288	0.744	333	0.252
19	0.203	64	0.643	109	0.999	154	0.913	199	0.929	244	0.996	289	0.732	334	0.245
20	0.208	65	0.655	110	1.000	155	0.915	200	0.926	245	0.998	290	0.719	335	0.238
21	0.214	66	0.668	111	1.000	156	0.917	201	0.923	246	0.999	291	0.707	336	0.232
22	0.220	67	0.681	112	1.000	157	0.919	202	0.921	247	0.999	292	0.694	337	0.226
23	0.226	68	0.694	113	0.999	158	0.921	203	0.919	248	1.000	293	0.681	338	0.220
24	0.232	69	0.707	114	0.999	159	0.923	204	0.917	249	1.000	294	0.668	339	0.214
25	0.238	70	0.719	115	0.998	160	0.926	205	0.915	250	1.000	295	0.655	340	0.208
26	0.245	71	0.732	116	0.996	161	0.929	206	0.913	251	0.999	296	0.643	341	0.203
27	0.252	72	0.744	117	0.995	162	0.931	207	0.912	252	0.998	297	0.630	342	0.198
28	0.259	73	0.756	118	0.993	163	0.934	208	0.911	253	0.997	298	0.617	343	0.193
29	0.266	74	0.768	119	0.991	164	0.937	209	0.910	254	0.996	299	0.604	344	0.189
30	0.274	75	0.779	120	0.988	165	0.940	210	0.909	255	0.993	300	0.591	345	0.185
31	0.281	76	0.791	121	0.986	166	0.943	211	0.909	256	0.991	301	0.578	346	0.181
32	0.289	77	0.802	122	0.983	167	0.945	212	0.909	257	0.989	302	0.565	347	0.177
33	0.297	78	0.813	123	0.980	168	0.948	213	0.910	258	0.986	303	0.552	348	0.173
34	0.306	79	0.824	124	0.976	169	0.950	214	0.910	259	0.982	304	0.539	349	0.170
35	0.314	80	0.834	125	0.973	170	0.953	215	0.911	260	0.979	305	0.527	350	0.167
36	0.323	81	0.844	126	0.970	171	0.955	216	0.912	261	0.975	306	0.514	351	0.165
37	0.332	82	0.855	127	0.966	172	0.957	217	0.914	262	0.970	307	0.502	352	0.163
38	0.341	83	0.864	128	0.962	173	0.959	218	0.916	263	0.965	308	0.490	353	0.161
39	0.350	84	0.874	129	0.958	174	0.961	219	0.918	264	0.961	309	0.478	354	0.159
40	0.360	85	0.882	130	0.955	175	0.962	220	0.921	265	0.955	310	0.466	355	0.157
41	0.369	86	0.891	131	0.951	176	0.963	221	0.923	266	0.949	311	0.455	356	0.156
42	0.379	87	0.900	132	0.947	177	0.964	222	0.926	267	0.943	312	0.443	357	0.155
43	0.389	88	0.908	133	0.943	178	0.965	223	0.929	268	0.937	313	0.432	358	0.154
44	0.400	89	0.915	134	0.940	179	0.965	224	0.933	269	0.930	314	0.421	359	0.154

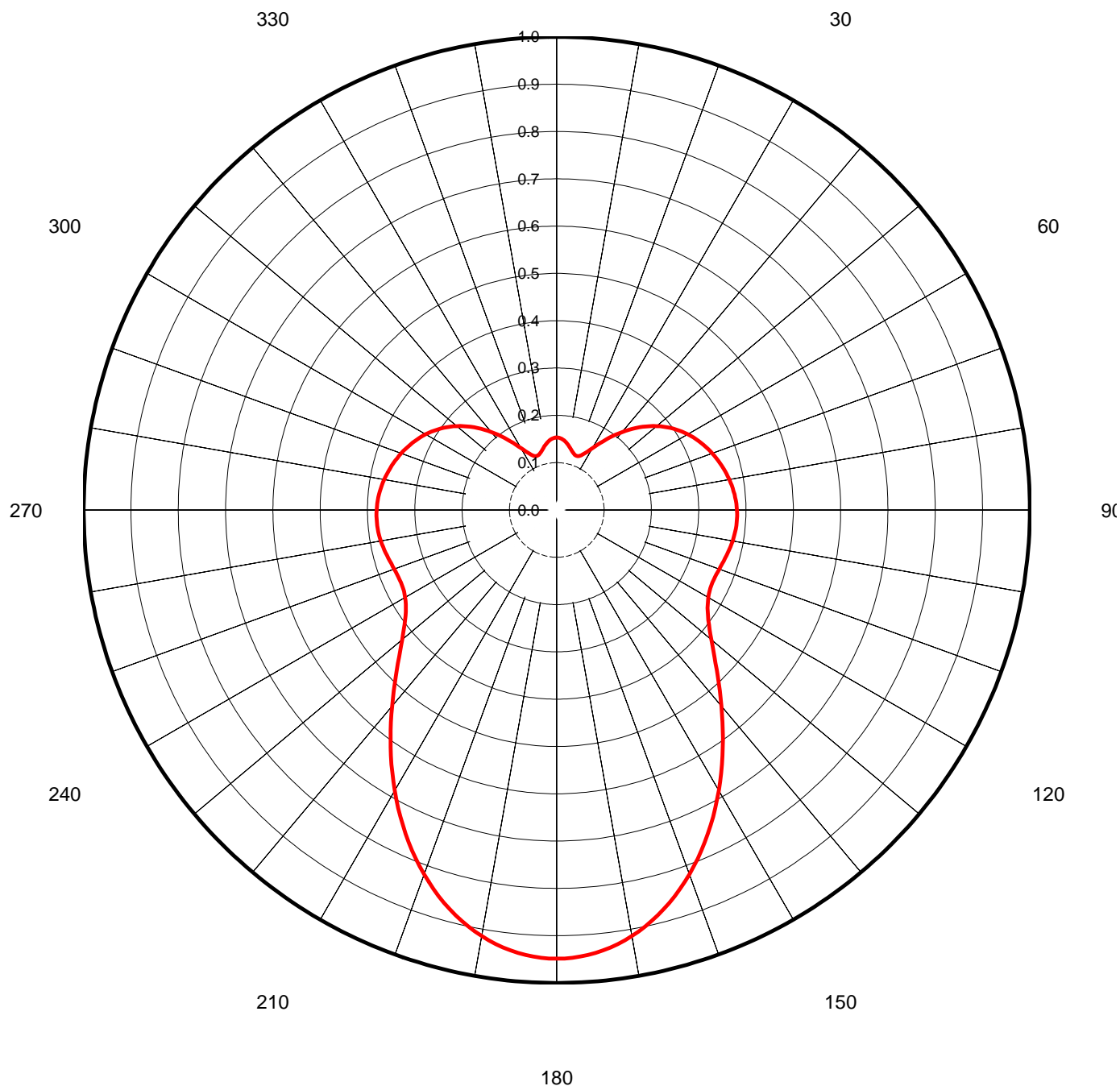
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Proposal Number	C-04446	Revision:	5
Date	10-Aug-12		
Call Letters	WQLN	Channel	50
Location	Erie, PA		
Customer	PBS		
Antenna Type	TFU-13JTT/VP-R 4C170		

AZIMUTH PATTERN/VERTICAL POLARIZATION

Gain	4.00	(6.02 dB)	Frequency	689.00 MHz
Calculated / Measured	Calculated		Drawing #	4C400-VPOL

0

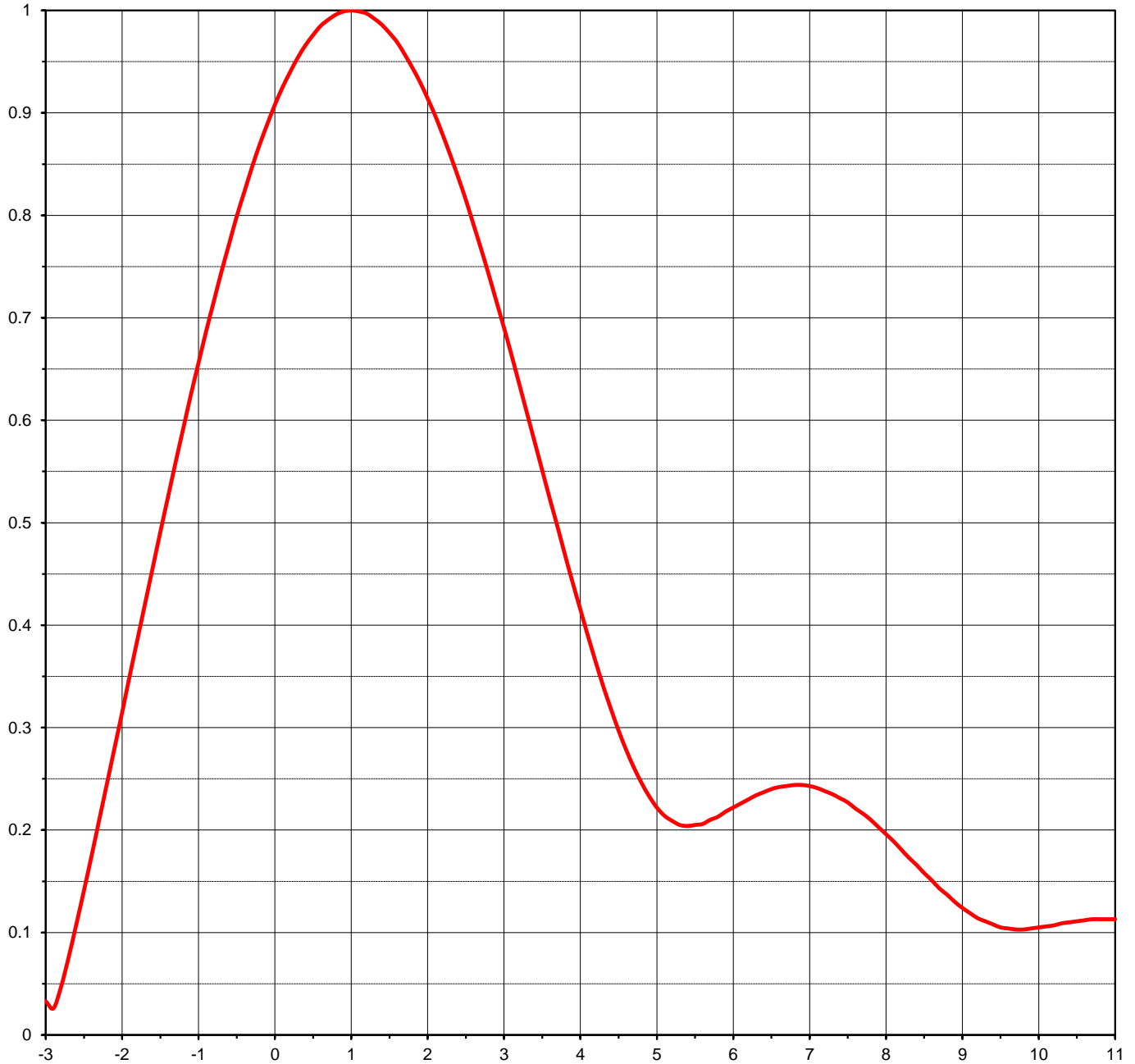




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ELEVATION PATTERN

RMS Gain at Main Lobe	12.50 (10.97 dB)	Beam Tilt	1.00 deg
RMS Gain at Horizontal	10.30 (10.13 dB)	Frequency	689.00 MHz
Calculated / Measured	Calculated	Drawing #	13J125100



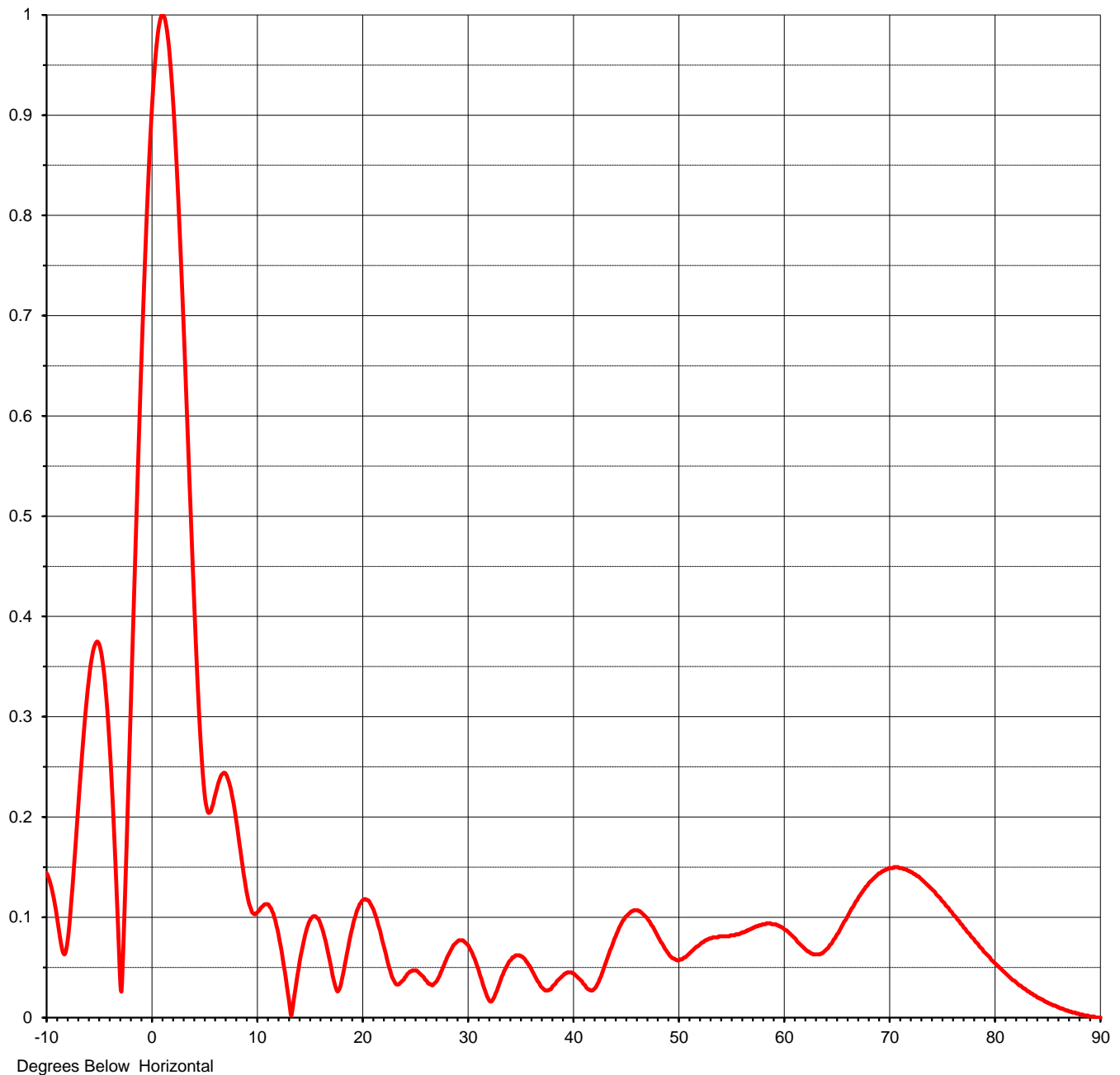
Degrees Below Horizontal



Proposal Number	C-04446	Revision:	5
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Call Letters	WQLN	Channel	50
Location	Erie, PA		
Customer	PBS		
Antenna Type	TFU-13JTT/VP-R 4C170		

ELEVATION PATTERN

RMS Gain at Main Lobe	12.50 (10.97 dB)	Beam Tilt	1.00 deg
RMS Gain at Horizontal	10.30 (10.13 dB)	Frequency	689.00 MHz
Calculated / Measured	Calculated	Drawing #	13J125100-90





Proposal Number **C-04446** Revision: **5**
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Call Letters **WQLN** Channel **50**
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Customer **PBS**
Antenna Type **TFU-13JTT/VP-R 4C170**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **13J125100-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.144	2.4	0.837	10.6	0.111	30.5	0.064	51.0	0.063	71.5	0.148
-9.5	0.128	2.6	0.791	10.8	0.113	31.0	0.050	51.5	0.068	72.0	0.145
-9.0	0.099	2.8	0.742	11.0	0.113	31.5	0.033	52.0	0.072	72.5	0.142
-8.5	0.067	3.0	0.690	11.5	0.106	32.0	0.019	52.5	0.076	73.0	0.138
-8.0	0.077	3.2	0.635	12.0	0.088	32.5	0.019	53.0	0.079	73.5	0.133
-7.5	0.136	3.4	0.579	12.5	0.059	33.0	0.032	53.5	0.080	74.0	0.128
-7.0	0.210	3.6	0.523	13.0	0.024	33.5	0.046	54.0	0.081	74.5	0.122
-6.5	0.280	3.8	0.468	13.5	0.014	34.0	0.056	54.5	0.081	75.0	0.116
-6.0	0.336	4.0	0.415	14.0	0.048	34.5	0.061	55.0	0.082	75.5	0.110
-5.5	0.369	4.2	0.364	14.5	0.076	35.0	0.062	55.5	0.083	76.0	0.103
-5.0	0.372	4.4	0.318	15.0	0.095	35.5	0.058	56.0	0.084	76.5	0.097
-4.5	0.339	4.6	0.278	15.5	0.101	36.0	0.050	56.5	0.086	77.0	0.090
-4.0	0.268	4.8	0.246	16.0	0.096	36.5	0.040	57.0	0.089	77.5	0.084
-3.5	0.162	5.0	0.222	16.5	0.079	37.0	0.031	57.5	0.091	78.0	0.078
-3.0	0.033	5.2	0.209	17.0	0.055	37.5	0.027	58.0	0.093	78.5	0.071
-2.8	0.047	5.4	0.204	17.5	0.031	38.0	0.029	58.5	0.094	79.0	0.065
-2.6	0.108	5.6	0.206	18.0	0.032	38.5	0.036	59.0	0.093	79.5	0.060
-2.4	0.175	5.8	0.213	18.5	0.058	39.0	0.041	59.5	0.092	80.0	0.054
-2.2	0.245	6.0	0.222	19.0	0.085	39.5	0.045	60.0	0.089	80.5	0.049
-2.0	0.315	6.2	0.230	19.5	0.105	40.0	0.044	60.5	0.085	81.0	0.044
-1.8	0.386	6.4	0.237	20.0	0.116	40.5	0.040	61.0	0.080	81.5	0.039
-1.6	0.456	6.6	0.242	20.5	0.117	41.0	0.034	61.5	0.074	82.0	0.035
-1.4	0.525	6.8	0.244	21.0	0.110	41.5	0.028	62.0	0.069	82.5	0.031
-1.2	0.592	7.0	0.243	21.5	0.095	42.0	0.028	62.5	0.065	83.0	0.027
-1.0	0.656	7.2	0.238	22.0	0.075	42.5	0.036	63.0	0.063	83.5	0.024
-0.8	0.716	7.4	0.231	22.5	0.054	43.0	0.050	63.5	0.063	84.0	0.020
-0.6	0.772	7.6	0.221	23.0	0.038	43.5	0.065	64.0	0.067	84.5	0.018
-0.4	0.823	7.8	0.210	23.5	0.033	44.0	0.079	64.5	0.074	85.0	0.015
-0.2	0.869	8.0	0.196	24.0	0.038	44.5	0.091	65.0	0.083	85.5	0.012
0.0	0.908	8.2	0.181	24.5	0.045	45.0	0.100	65.5	0.092	86.0	0.010
0.2	0.940	8.4	0.166	25.0	0.047	45.5	0.105	66.0	0.101	86.5	0.008
0.4	0.966	8.6	0.151	25.5	0.044	46.0	0.107	66.5	0.110	87.0	0.006
0.6	0.985	8.8	0.137	26.0	0.038	46.5	0.105	67.0	0.119	87.5	0.005
0.8	0.996	9.0	0.124	26.5	0.033	47.0	0.100	67.5	0.127	88.0	0.003
1.0	1.000	9.2	0.114	27.0	0.035	47.5	0.092	68.0	0.134	88.5	0.002
1.2	0.997	9.4	0.108	27.5	0.045	48.0	0.083	68.5	0.139	89.0	0.001
1.4	0.986	9.6	0.104	28.0	0.057	48.5	0.074	69.0	0.144	89.5	0.000
1.6	0.969	9.8	0.103	28.5	0.068	49.0	0.065	69.5	0.147	90.0	0.000
1.8	0.944	10.0	0.104	29.0	0.075	49.5	0.059	70.0	0.149		
2.0	0.914	10.2	0.106	29.5	0.077	50.0	0.057	70.5	0.150		
2.2	0.878	10.4	0.109	30.0	0.073	50.5	0.059	71.0	0.149		

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