EXHIBIT E

ENGINEERING STATEMENT
APPLICATION FOR MODIFICATION OF
CONSTRUCTION PERMIT (FCC FILE NO. 0000034896)
TO CHANGE DIPLEXED ANTENNA
FOR REPACKED FACILITIES
WZVN-TV, NAMPLES, FLORIDA
CH. 28 1000 KW HORIZONTAL AND 230 KW VERTICAL
MAX ERP DA 454.5 METERS HAAT

FEBRUARY 2019

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President, Secretary and Treasurer of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1420 N Street, N.W., Suite One, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714

Subscribed and sworn to before me this 25th day of February, 2019.

CAROLYN L. LYONS NOTARY PUBLIC DISTRICT OF COLUMBIA EXPIRES FEB. 28, 2023

Notary Public

My Commission Expires: 2/28/2023

Introduction

This engineering statement has been prepared on behalf of Montclair Communications, licensee of TV station WZVN-TV, Naples, Florida, in support of an application to modify outstanding construction permit (FCC File No. 0000034896) for Channel 28 to specify a change in diplexed antenna type. No other change is requested.

At present, WZVN-TV operates on Channel 41 (632-638 MHz) with 1000 kW effective radiated power ("ERP") and 453.9[1] meters antenna height above average terrain ("HAAT") using a diplexed directional TV antenna vended by Andrew. The proposed WZVN-TV Channel 28 operation is 1000 kW maximum horizontal and 230 kW vertical ERP at 454.5[2] meters HAAT. It is proposed to replace the existing authorized antenna with a Dielectric antenna, Model No. TUM30-P4-14/42H-1-R, in order to accommodate the channel change.

Diplexed Antenna Compliance With FCC Rules

The existing granted construction permit (LMS 0000034896) provides for replacement of the existing diplexed antenna with a new AB Dick diplexed antenna. This application proposes to go forward with a new diplexed antenna but with a different make and model.

Section 73.3700(b)(ii)(B) of the FCC Rules states "will not extend a full power television station's noise-limited contour or a Class A television station's protected contour by more than one percent in any direction; and "(C) will not cause new interference other than a rounding tolerance of 0.5 percent to any other broadcast television station." The current diplexed antenna operates 1000 kW on UHF Channel 41 and 15. Channel 41's incentive reassignment channel is 28. The current diplexed antenna cannot be reconfigured to effectively operate on Channel 28. The current Channel 41 and Channel 15 directional patterns were previously generally designed

[1]The slight HAAT difference licensed versus proposed is that licensed data is based on 7.5 minute quadrangle maps and the proposed operation is based on 1-second terrain data.

[2]Ibid.

to restrict the signal in areas of sparse population. The Dielectric patterns for Channel 28 and Channel 15 are based on numerous calculations performed by the manufacturer to conform the Channel 28 construction permit pattern while matching to the degree possible the licensed Channel 15 directional pattern.

Exhibit E-6 provides a comparison of predicted proposed WZVN coverage in relation to the licensed WBBH coverage contour.

Based on TVStudy 2.2, the proposed Dielectric patterns for Channel 28 and Channel 15 will not extend the normally protected contour by more than one percent in any direction and for construction permit Channel 28 and Channel 15 will not cause more than 0.5% new interference to any other broadcast television station. Furthermore, the proposed Channel 28 pattern achieves 99.5% of the construction permit population and Channel 15 achieves 98.6% of the licensed population.

Therefore, based on the above, the proposed Dielectric diplexed patterns are in compliance with the FCC technical and service criteria.

Antenna Site

It is proposed to replace the existing diplexed broadband antenna on Channel 41 that currently transmits the WZVN signal. The current TV antenna is also used by the licensed Channel 15 DTV operation of WBBH-DT and will also operate from the new antenna. The WBBH technical information is provided in a supplement entitled, E-5.

The geographic coordinates (NAD-27) of the existing tower are as follows:

North Latitude: 26° 49' 21"

West Longitude: 81° 45' 54"

(NAD-27)

North Latitude: 26° 49' 22.4"

West Longitude: 81° 45' 53.6"

(NAD-83)

Exhibit E-1 provides a sketch of the tower. The antenna registration number 1231697.

The following data shows the pertinent information concerning the proposed DTV operation.

RF System

Antenna:	Dielectric, Model TUM30-P4-14/42H-1-R (or equivalent) elliptically polarized directional antenna with 0.75º electrical beam tilt. The azimuth and vertical plane patterns and other exhibits required by Section 73.625(c) are included in Exhibit E-2
Transmission Line:	1500 feet (457.2 meters) EIA/DCA rigid EHT 7-3/16" hard copper 75 ohm with total loss 1.48 dB

Power Data

Transmitter Output past filter		32.3 kW	15.09 dBk
Transmission Line efficiency/loss		71.1%	1.48 dB
Antenna Power Input		23 kW	13.61 dBk
Antenna Peak Power Gain	Horiz	43.52	16.39 dB
	Vert	10.01	10.00 dB
Effective Radiated Power	Horiz	1000 kW	30 dBk
	Vert	230 kW	23.62 dBk

Elevation Data

Vertical dimension of Channel 28 top-mounted antenna with beacon (including lightning protection)	16.9 meters 55.4 feet
Elevation of site above mean sea level	10.1 meters 33 feet
Overall height above ground of existing tower structure and appurtenances (including lightning protection)	462.1 meters 1516.1 feet
Overall height above mean sea level of existing tower and appurtenances (including lightning protection)	472.2 meters 1549.2 feet

Center of radiation of Channel 28 antenna above ground	453.1 meters 1486.5 feet
Center of radiation of Channel 28 antenna above mean sea level	463.2 meters 1519.3feet
Antenna height above average terrain	454.5 meters

NOTE: Slight height differences result due to conversion to metric.

Allocation and Interference Analysis

A DTV allocation study from the existing site has been performed for the proposed operation. Exhibit E-3 provides the allocation study based on TVStudy 2.2. As noted, the existing site is over 1000 km from the common U.S.-Canadian or U.S.-Mexican borders, therefore, no Canadian nor Mexican coordination is required.

The Longley-Rice program is contained in TVStudy 2.2 for which the source data has been posted by the Commission on its website at **http://www.fcc.gov/oet/oet/TVStudy**. Best efforts have been made to use data and calculation identical to the FCC's program. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 2 sq. km. Using one-second terrain data sampled approximately every 1.0 km at one-degree azimuth intervals with 2010 census centroids, all studies are based upon data in the current LMS database update of the FCC's engineering database. A Longley-Rice study was performed with the proposed digital facilities and all relevant stations listed in the FCC data base.

Coverage

The average elevation data for 3.2 to 16.1 km along each radial equally spaced at every 10 degrees has been determined based upon 1-second NGDC terrain data as determined by TVStudy 2.2 The F(50,90) coverage contours (48 dBu and 41 dBu) have been computed from reference to the propagation data for Channel 28 as modeled using specially developed software using Figures 10b and 10c of Section 73.699 of the FCC Rules.

Table I provides as tabulation by azimuth angle every 10 degrees beginning with True North, effective antenna height in meters, effective radiated power and distance in km to each contour.

Utilizing the formula in Section 73.625(b)(2) of the Rules for the effective heights, it is found that the depression angle, $A_{h,}$ varies from 0.588 to 0.593 degrees. The relative field in the vertical plane is greater than 90% for all calculated depression angles and the maximum power was used to determine the distance to the DTV noise limited contour. A map is included as Exhibit E-4 showing the proposed contour. This map shows the computed coverage contour by the proposed operation encompasses the city of license.

Environmental Statement

The RFF contribution of each station will be calculated using the following formula:

$$S = \frac{33.4(F^2)\ \text{Total ERP}}{R^2}$$

where:

S = power density in μW/cm²
F = relative field factor
Total ERP = ERP Horizontal Polarization + ERP Vertical Polarization
R = RCAGL - 2 meters

ERP = RMS ERP in watts for DTV Stations

WZVN

An evaluation has been made to determine compliance with the Commission's specified standards for human exposure to RF fields at set forth in the OET Bulletin No. 65 dated August 1997. For a maximum effective radiated power of 1000 kW (H) and 230 kW (V) and a radiation center of 453.1 meters above ground level, the proposed DTV operation would have a ratio less than 0.090 (10 to 90º below the horizon) would have a calculated level of less than 2 microwatts per square centimeter (μW/cm²) RF field at 2 meters toward the base of the tower. The Commission's guidelines for Channel 28 TV operation are 1857 μW/cm² for the

occupational/controlled and 371 μW/cm² for the general population/uncontrolled environment. The RF field contributed by WZVN-TV toward the ground would be less than one percent of the Commission's guidelines for the general population/uncontrolled environment for Channel 28.

Therefore, the proposed operation of WZVN-TV complies with the Commission's guidelines with respect to RF fields exposure to members of the public and personnel working around the proposed WZVN-TV, Channel 28 DTV facility. With respect to work performed on the tower, station WZVN-TV, in coordination with the other station, will establish procedures to ensure that workers are not exposed to RF fields above the Commission's guidelines, by reducing or turning off the power, as appropriate.

WBBH

WBBH-TV will also operate into the diplexed antenna. For a maximum effective radiated power of 1000 kW (H) and 230 kW (V) and a radiation center of 453.1 meters above ground level, the proposed DTV operation would have a ratio less than 0.091 (10° to 90° below the horizon) would have a calculated level of less than 2 microwatts per square centimeter (μW/cm²) RF field at 2 meters toward the base of the tower. The Commission's guidelines for Channel 15 TV operation are 1596 μW/cm² for the occupational/controlled and 319 μW/cm² for the general population/uncontrolled environment. The RF field contributed by WBBH-TV towards the ground would be less than one percent of the Commission's guidelines for the general population/uncontrolled environment for Channel 15.

RFF Summary

Therefore, the total contribution for the general population/uncontrolled environment is less than two percent. There are no other broadcast stations in the required distance.

Environmental Assessment

An environmental assessment ("EA") is categorically excluded under Section 1.1306 of the FCC Rules and Regulations because the tower structure is existing and will not be modified so as to invoke the need for environmental analysis. The existing tower is registered with the FCC, and approved by the FAA, and neither the ASR nor FAA approval will require modification. It was not constructed during 2001-2005 and thus is not a "twilight tower."

While some structural reinforcement of the tower may be required to support additional weight, there will be no material change in visual appearance.

Compliance with OET Bulletin No. 65 (non-ionizing radiation) is discussed in the previous section of this exhibit.

ABOVE MEAN SEA LEVEL

ABOVE GROUND

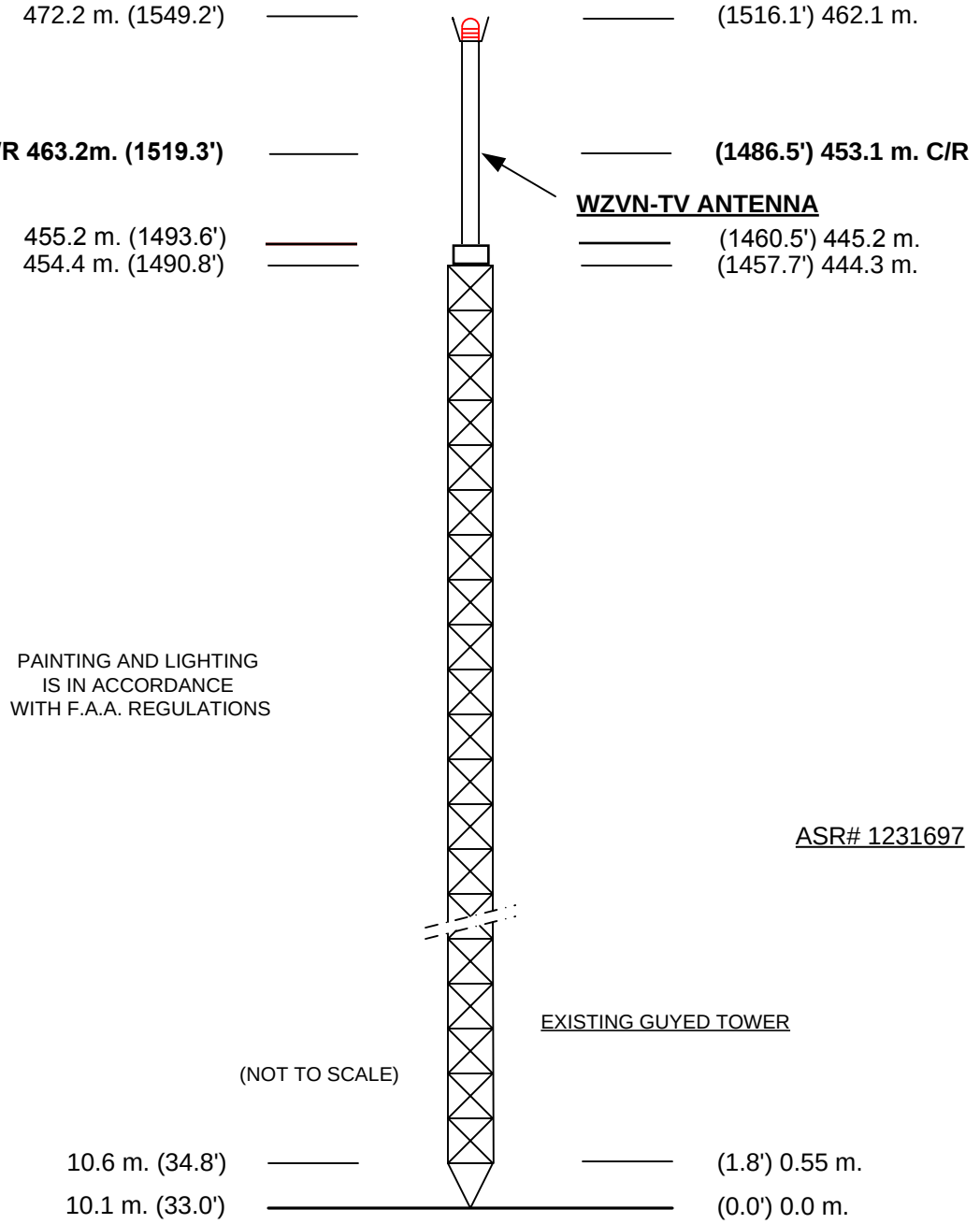


EXHIBIT E - 1
VERTICAL SKETCH
FOR THE REPACKING OPERATION OF
WZVN-TV, NAPLES, FLORIDA
CHANNEL 28 1000 kW ERP 454.5 METERS HAAT
FEBRUARY 2019

COHEN, DIPPELL and EVERIST, P.C. CONSULTING ENGINEERS

EXHIBIT E-2

WZVN

ANTENNA MANUFACTURER DATA

Dielectric®

Antenna Model: **TUM30-P4-14/42H-1-R**

Proposal Number:	**C-70877-6**
Date:	**31-Jan-19**
Customer:	**Montcair Communications**
Location:	**Naples, FL**

Electrical Specifications

Polarization:	**Elliptical**				
Azimuth Pattern:	**Directional**				
Antenna Input:	**7-3/16"**	**75 Ohm**	**EIA/DCA**		
VSWR:	Channel	**1.08 : 1**		Band	**1.08 : 1**
Bandwidth:	**120 MHz**				
Rated Input Power:	**70 kW**	**(18.45 dBk)**	**Maximum combined average power**		

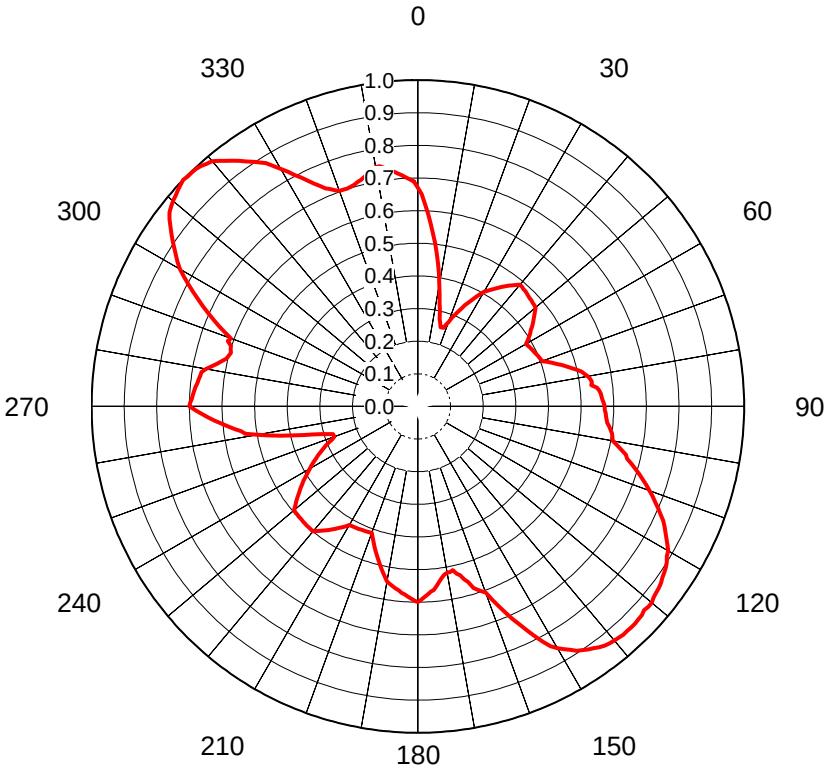
Mechanical Specifications

Mounting:	**Top Mounted**				
Environmental Protection:	**Full Radome**				
Height:	**51.4 ft (15.7m)**	less Lightning Protector	**55.4 ft (16.9m)**	with Lightning Protector	
Weight:	**13800 lb (6.3t)**				
Effective Projected Area:	**129.9 ft² (12.1m²)**	**TIA-222-G**	Basic Wind Speed:	**130 m/h (209.2 km/h)**	

Channel Specifications

	Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak Main Lobe Vpol Gain	Peak at Horizontal Hpol Gain	Peak at Horizontal Vpol Gain
1	WZVN	28	557 MHz	1,000 kW (30.00 dBk)	230 kW (23.62 dBk)	32.3 kW (15.09 dBk)	43.52 (16.39dB)	10.01 (10.00dB)	27.50 (14.39dB)	6.33 (8.01dB)
2	WBBH	15	479 MHz	1,000 kW (30.00 dBk)	230 kW (23.62 dBk)	34.7 kW (15.40 dBk)	39.43 (15.96dB)	9.07 (9.58dB)	28.09 (14.49dB)	6.46 (8.10dB)

Dielectric®



AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WZVN**
Channel	**28**
Frequency	**557 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**
Gain	**2.46 (3.91dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.670	36	0.455	72	0.432	108	0.725	144	0.916	180	0.600	216	0.468	252	0.273	288	0.602	324	0.930
1	0.651	37	0.463	73	0.446	109	0.740	145	0.909	181	0.595	217	0.476	253	0.290	289	0.616	325	0.917
2	0.622	38	0.471	74	0.459	110	0.755	146	0.901	182	0.589	218	0.484	254	0.307	290	0.610	326	0.904
3	0.592	39	0.479	75	0.473	111	0.771	147	0.893	183	0.584	219	0.492	255	0.333	291	0.634	327	0.892
4	0.562	40	0.487	76	0.486	112	0.785	148	0.880	184	0.578	220	0.500	256	0.362	292	0.657	328	0.879
5	0.533	41	0.486	77	0.500	113	0.800	149	0.868	185	0.573	221	0.500	257	0.396	293	0.680	329	0.860
6	0.503	42	0.484	78	0.513	114	0.815	150	0.855	186	0.567	222	0.499	258	0.430	294	0.703	330	0.841
7	0.473	43	0.483	79	0.520	115	0.830	151	0.840	187	0.562	223	0.499	259	0.467	295	0.727	331	0.822
8	0.443	44	0.481	80	0.530	116	0.841	152	0.817	188	0.556	224	0.498	260	0.500	296	0.750	332	0.803
9	0.413	45	0.479	81	0.535	117	0.852	153	0.791	189	0.551	225	0.498	261	0.535	297	0.773	333	0.788
10	0.380	46	0.477	82	0.539	118	0.863	154	0.764	190	0.545	226	0.497	262	0.547	298	0.796	334	0.770
11	0.348	47	0.476	83	0.535	119	0.874	155	0.738	191	0.532	227	0.497	263	0.566	299	0.820	335	0.754
12	0.322	48	0.474	84	0.552	120	0.886	156	0.712	192	0.518	228	0.496	264	0.585	300	0.841	336	0.740
13	0.300	49	0.473	85	0.558	121	0.890	157	0.686	193	0.505	229	0.496	265	0.605	301	0.859	337	0.726
14	0.276	50	0.471	86	0.562	122	0.900	158	0.659	194	0.492	230	0.495	266	0.624	302	0.874	338	0.719
15	0.264	51	0.462	87	0.564	123	0.906	159	0.633	195	0.479	231	0.484	267	0.643	303	0.890	339	0.710
16	0.253	52	0.453	88	0.566	124	0.911	160	0.607	196	0.465	232	0.473	268	0.662	304	0.906	340	0.703
17	0.253	53	0.445	89	0.570	125	0.915	161	0.599	197	0.452	233	0.462	269	0.681	305	0.922	341	0.703
18	0.253	54	0.436	90	0.573	126	0.921	162	0.590	198	0.439	234	0.450	270	0.700	306	0.937	342	0.702
19	0.265	55	0.427	91	0.573	127	0.925	163	0.582	199	0.426	235	0.439	271	0.697	307	0.953	343	0.704
20	0.275	56	0.418	92	0.576	128	0.927	164	0.560	200	0.412	236	0.428	272	0.693	308	0.966	344	0.707
21	0.290	57	0.410	93	0.577	129	0.930	165	0.549	201	0.413	237	0.417	273	0.690	309	0.973	345	0.712
22	0.303	58	0.401	94	0.580	130	0.936	166	0.533	202	0.414	238	0.405	274	0.687	310	0.980	346	0.716
23	0.316	59	0.392	95	0.583	131	0.936	167	0.526	203	0.415	239	0.394	275	0.684	311	0.984	347	0.723
24	0.329	60	0.383	96	0.590	132	0.933	168	0.513	204	0.415	240	0.383	276	0.680	312	0.990	348	0.730
25	0.342	61	0.385	97	0.596	133	0.938	169	0.517	205	0.416	241	0.372	277	0.677	313	0.995	349	0.737
26	0.354	62	0.387	98	0.601	134	0.939	170	0.517	206	0.417	242	0.361	278	0.674	314	1.000	350	0.745
27	0.367	63	0.390	99	0.604	135	0.941	171	0.522	207	0.418	243	0.350	279	0.671	315	0.997	351	0.745
28	0.380	64	0.392	100	0.606	136	0.941	172	0.530	208	0.418	244	0.339	280	0.660	316	0.997	352	0.738
29	0.393	65	0.394	101	0.622	137	0.941	173	0.541	209	0.419	245	0.328	281	0.643	317	0.996	353	0.731
30	0.406	66	0.396	102	0.638	138	0.941	174	0.553	210	0.420	246	0.317	282	0.629	318	0.992	354	0.724
31	0.414	67	0.399	103	0.654	139	0.939	175	0.565	211	0.428	247	0.306	283	0.617	319	0.985	355	0.717
32	0.422	68	0.401	104	0.661	140	0.936	176	0.569	212	0.436	248	0.293	284	0.605	320	0.981	356	0.710
33	0.430	69	0.403	105	0.677	141	0.934	177	0.577	213	0.444	249	0.282	285	0.600	321	0.968	357	0.703
34	0.438	70	0.405	106	0.694	142	0.930	178	0.584	214	0.452	250	0.272	286	0.596	322	0.955	358	0.696
35	0.447	71	0.419	107	0.710	143	0.924	179	0.592	215	0.460	251	0.273	287	0.600	323	0.943	359	0.689

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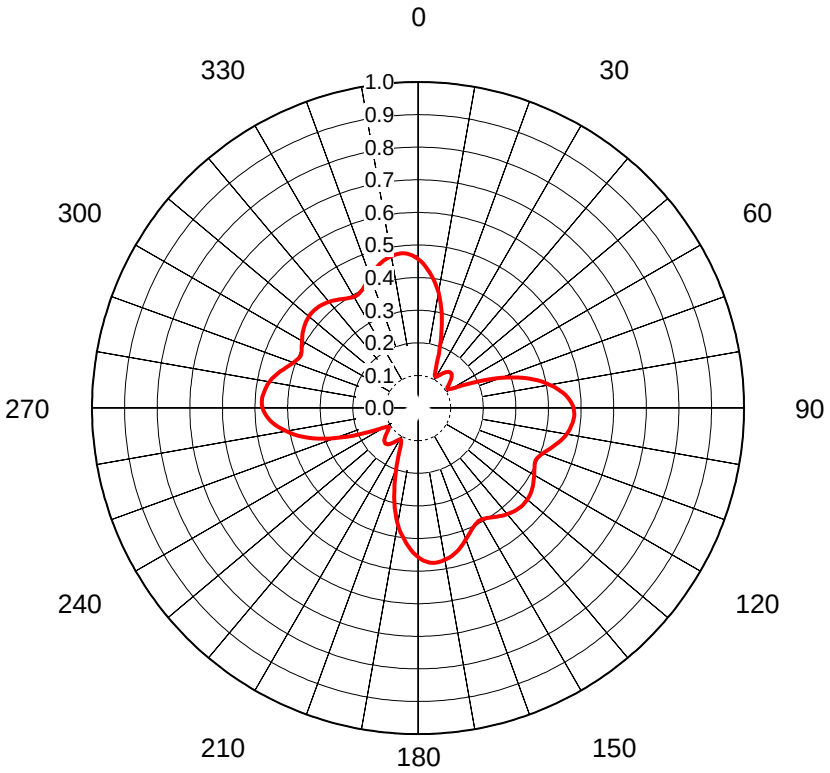


AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WZVN**
Channel	**28**
Frequency	**557 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**
Gain	**1.73 (2.38dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.457	36	0.132	72	0.304	108	0.418	144	0.412	180	0.457	216	0.132	252	0.304	288	0.418	324	0.412
1	0.451	37	0.136	73	0.320	109	0.412	145	0.408	181	0.451	217	0.136	253	0.320	289	0.412	325	0.408
2	0.443	38	0.140	74	0.336	110	0.407	146	0.405	182	0.443	218	0.140	254	0.336	290	0.407	326	0.405
3	0.435	39	0.143	75	0.351	111	0.403	147	0.401	183	0.435	219	0.143	255	0.351	291	0.403	327	0.401
4	0.426	40	0.145	76	0.365	112	0.399	148	0.398	184	0.426	220	0.145	256	0.365	292	0.399	328	0.398
5	0.416	41	0.147	77	0.378	113	0.396	149	0.396	185	0.416	221	0.147	257	0.378	293	0.396	329	0.396
6	0.406	42	0.148	78	0.389	114	0.395	150	0.394	186	0.406	222	0.148	258	0.389	294	0.395	330	0.394
7	0.396	43	0.148	79	0.400	115	0.395	151	0.393	187	0.396	223	0.148	259	0.400	295	0.395	331	0.393
8	0.385	44	0.147	80	0.409	116	0.398	152	0.394	188	0.385	224	0.147	260	0.409	296	0.398	332	0.394
9	0.373	45	0.146	81	0.420	117	0.401	153	0.396	189	0.373	225	0.146	261	0.420	297	0.401	333	0.396
10	0.360	46	0.144	82	0.430	118	0.404	154	0.399	190	0.360	226	0.144	262	0.430	298	0.404	334	0.399
11	0.347	47	0.141	83	0.439	119	0.408	155	0.402	191	0.347	227	0.141	263	0.439	299	0.408	335	0.402
12	0.332	48	0.138	84	0.447	120	0.411	156	0.407	192	0.332	228	0.138	264	0.447	300	0.411	336	0.407
13	0.316	49	0.134	85	0.454	121	0.415	157	0.412	193	0.316	229	0.134	265	0.454	301	0.415	337	0.412
14	0.299	50	0.130	86	0.460	122	0.418	158	0.417	194	0.299	230	0.130	266	0.460	302	0.418	338	0.417
15	0.282	51	0.125	87	0.466	123	0.422	159	0.423	195	0.282	231	0.125	267	0.466	303	0.422	339	0.423
16	0.265	52	0.121	88	0.470	124	0.425	160	0.429	196	0.265	232	0.121	268	0.470	304	0.425	340	0.429
17	0.247	53	0.117	89	0.474	125	0.428	161	0.435	197	0.247	233	0.117	269	0.474	305	0.428	341	0.435
18	0.229	54	0.113	90	0.477	126	0.430	162	0.441	198	0.229	234	0.113	270	0.477	306	0.430	342	0.441
19	0.211	55	0.110	91	0.479	127	0.433	163	0.446	199	0.211	235	0.110	271	0.479	307	0.433	343	0.446
20	0.194	56	0.108	92	0.480	128	0.435	164	0.451	200	0.194	236	0.108	272	0.480	308	0.435	344	0.451
21	0.177	57	0.107	93	0.480	129	0.436	165	0.456	201	0.177	237	0.107	273	0.480	309	0.436	345	0.456
22	0.162	58	0.109	94	0.479	130	0.437	166	0.461	202	0.162	238	0.109	274	0.479	310	0.437	346	0.461
23	0.147	59	0.112	95	0.477	131	0.438	167	0.465	203	0.147	239	0.112	275	0.477	311	0.438	347	0.465
24	0.135	60	0.118	96	0.475	132	0.438	168	0.468	204	0.135	240	0.118	276	0.475	312	0.438	348	0.468
25	0.125	61	0.127	97	0.472	133	0.438	169	0.470	205	0.125	241	0.127	277	0.472	313	0.438	349	0.470
26	0.118	62	0.138	98	0.470	134	0.437	170	0.472	206	0.118	242	0.138	278	0.470	314	0.437	350	0.472
27	0.114	63	0.152	99	0.467	135	0.436	171	0.475	207	0.114	243	0.152	279	0.467	315	0.436	351	0.475
28	0.111	64	0.167	100	0.463	136	0.434	172	0.477	208	0.111	244	0.167	280	0.463	316	0.434	352	0.477
29	0.110	65	0.183	101	0.458	137	0.433	173	0.478	209	0.110	245	0.183	281	0.458	317	0.433	353	0.478
30	0.111	66	0.199	102	0.453	138	0.430	174	0.477	210	0.111	246	0.199	282	0.453	318	0.430	354	0.477
31	0.113	67	0.217	103	0.448	139	0.428	175	0.476	211	0.113	247	0.217	283	0.448	319	0.428	355	0.476
32	0.116	68	0.234	104	0.442	140	0.425	176	0.475	212	0.116	248	0.234	284	0.442	320	0.425	356	0.475
33	0.120	69	0.252	105	0.436	141	0.422	177	0.472	213	0.120	249	0.252	285	0.436	321	0.422	357	0.472
34	0.124	70	0.270	106	0.430	142	0.419	178	0.468	214	0.124	250	0.270	286	0.430	322	0.419	358	0.468
35	0.128	71	0.287	107	0.424	143	0.415	179	0.463	215	0.128	251	0.287	287	0.424	323	0.415	359	0.463

Dielectric®

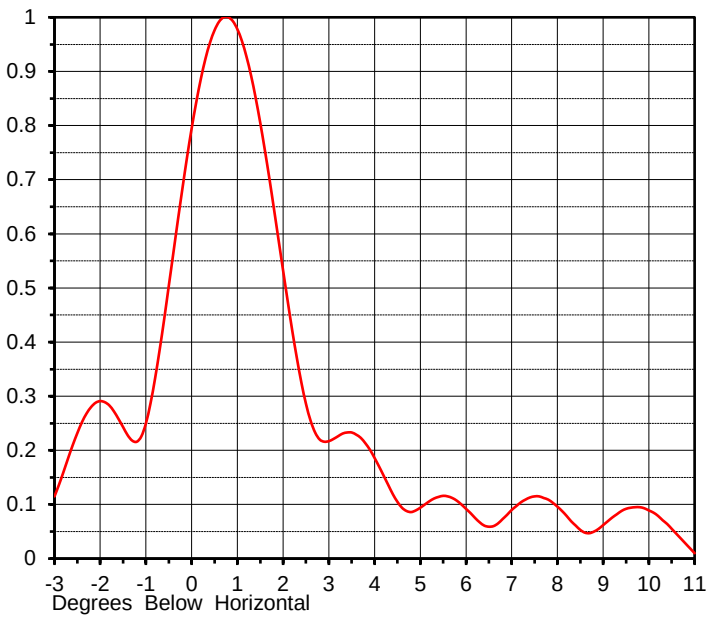
ELEVATION PATTERN

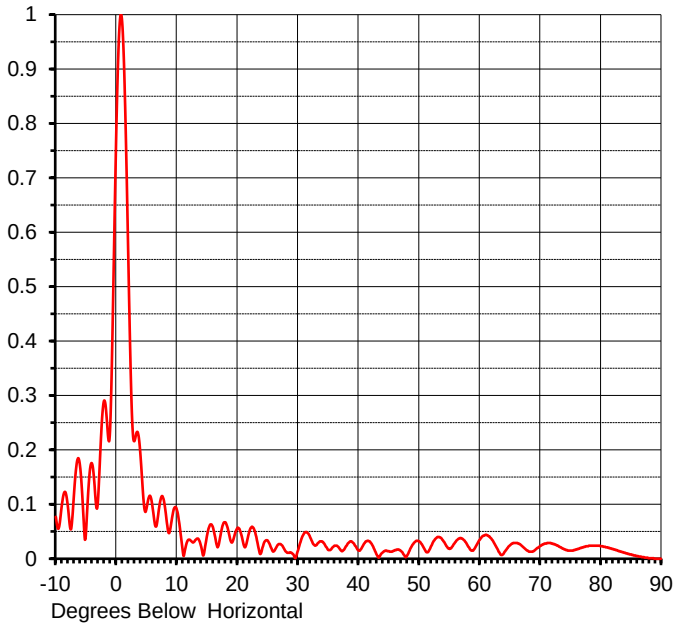
Faces A and C

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WZVN**
Channel	**28**
Frequency	**557 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**

RMS Directivity at Main Lobe	**29.7 (14.73 dB)**	Beam Tilt	**0.75 deg**
RMS Directivity at Horizontal	**18.8 (12.74 dB)**	Pattern Number	**14U279075**

Calculated





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.077	10.0	0.089	30.0	0.016	50.0	0.032	70.0	0.024
-9.0	0.099	11.0	0.010	31.0	0.047	51.0	0.015	71.0	0.028
-8.0	0.095	12.0	0.035	32.0	0.039	52.0	0.024	72.0	0.028
-7.0	0.119	13.0	0.034	33.0	0.025	53.0	0.040	73.0	0.023
-6.0	0.170	14.0	0.022	34.0	0.031	54.0	0.032	74.0	0.017
-5.0	0.053	15.0	0.045	35.0	0.016	55.0	0.018	75.0	0.015
-4.0	0.174	16.0	0.055	36.0	0.024	56.0	0.031	76.0	0.017
-3.0	0.115	17.0	0.032	37.0	0.016	57.0	0.037	77.0	0.021
-2.0	0.291	18.0	0.067	38.0	0.024	58.0	0.024	78.0	0.024
-1.0	0.250	19.0	0.030	39.0	0.030	59.0	0.017	79.0	0.024
0.0	0.795	20.0	0.057	40.0	0.015	60.0	0.035	80.0	0.023
1.0	0.978	21.0	0.026	41.0	0.029	61.0	0.044	81.0	0.021
2.0	0.532	22.0	0.052	42.0	0.029	62.0	0.035	82.0	0.018
3.0	0.217	23.0	0.044	43.0	0.007	63.0	0.016	83.0	0.014
4.0	0.186	24.0	0.015	44.0	0.012	64.0	0.011	84.0	0.011
5.0	0.094	25.0	0.033	45.0	0.014	65.0	0.025	85.0	0.008
6.0	0.092	26.0	0.014	46.0	0.016	66.0	0.029	86.0	0.005
7.0	0.090	27.0	0.027	47.0	0.014	67.0	0.023	87.0	0.003
8.0	0.096	28.0	0.013	48.0	0.006	68.0	0.014	88.0	0.001
9.0	0.062	29.0	0.010	49.0	0.027	69.0	0.015	89.0	0.000
								90.0	0.000

Dielectric®

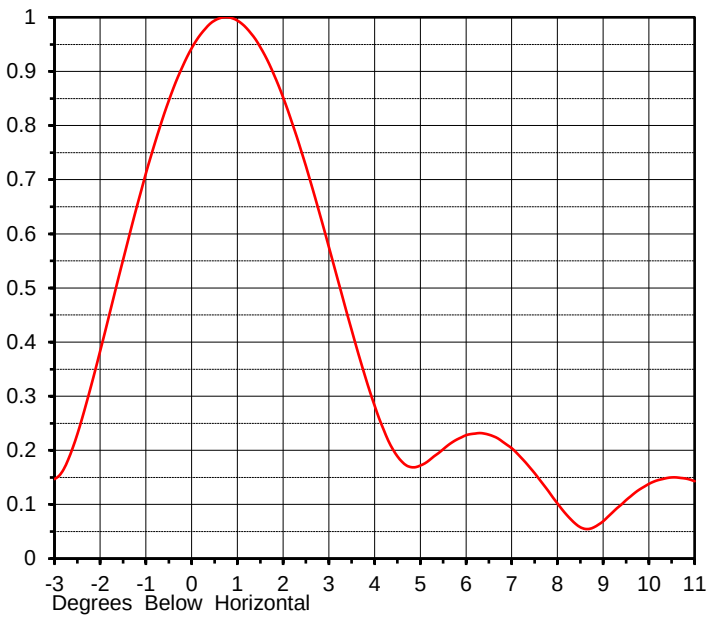
ELEVATION PATTERN

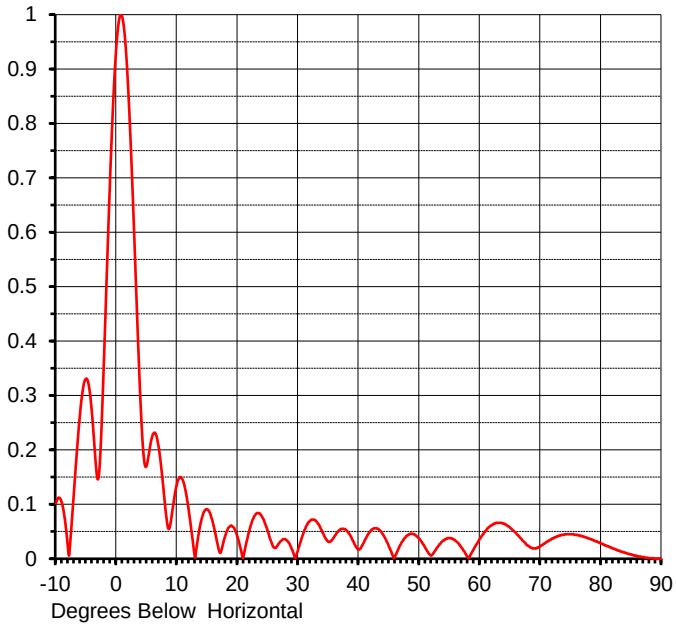
Faces B and D

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WZVN**
Channel	**28**
Frequency	**557 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**

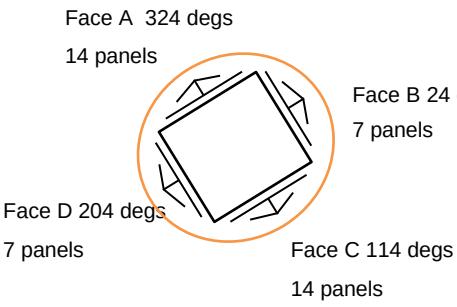
RMS Directivity at Main Lobe	**15.0 (11.76 dB)**	Beam Tilt	**0.75 deg**
RMS Directivity at Horizontal	**13.3 (11.24 dB)**	Pattern Number	**07U150075**

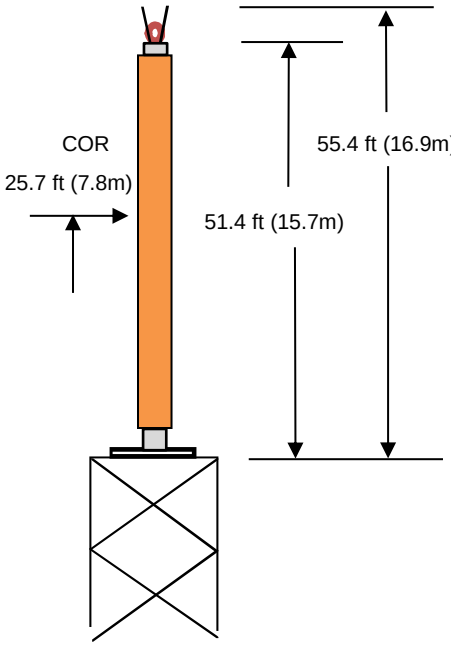
Calculated





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.102	10.0	0.138	30.0	0.017	50.0	0.037	70.0	0.023
-9.0	0.103	11.0	0.143	31.0	0.051	51.0	0.020	71.0	0.031
-8.0	0.020	12.0	0.084	32.0	0.070	52.0	0.006	72.0	0.037
-7.0	0.124	13.0	0.002	33.0	0.069	53.0	0.021	73.0	0.042
-6.0	0.267	14.0	0.070	34.0	0.049	54.0	0.034	74.0	0.045
-5.0	0.331	15.0	0.091	35.0	0.031	55.0	0.038	75.0	0.045
-4.0	0.263	16.0	0.063	36.0	0.041	56.0	0.033	76.0	0.044
-3.0	0.147	17.0	0.013	37.0	0.054	57.0	0.020	77.0	0.041
-2.0	0.384	18.0	0.043	38.0	0.052	58.0	0.003	78.0	0.037
-1.0	0.712	19.0	0.061	39.0	0.034	59.0	0.018	79.0	0.033
0.0	0.943	20.0	0.040	40.0	0.017	60.0	0.037	80.0	0.028
1.0	0.994	21.0	0.006	41.0	0.034	61.0	0.052	81.0	0.023
2.0	0.852	22.0	0.054	42.0	0.052	62.0	0.062	82.0	0.019
3.0	0.576	23.0	0.082	43.0	0.056	63.0	0.066	83.0	0.015
4.0	0.283	24.0	0.078	44.0	0.045	64.0	0.064	84.0	0.011
5.0	0.172	25.0	0.050	45.0	0.022	65.0	0.057	85.0	0.008
6.0	0.228	26.0	0.021	46.0	0.004	66.0	0.047	86.0	0.005
7.0	0.204	27.0	0.031	47.0	0.028	67.0	0.034	87.0	0.003
8.0	0.102	28.0	0.035	48.0	0.043	68.0	0.024	88.0	0.001
9.0	0.069	29.0	0.017	49.0	0.045	69.0	0.019	89.0	0.000
								90.0	0.000





MECHANICAL SPECIFICATIONS

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WZVN**
Channel	**28**
Frequency	**557 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**

Preliminary Specifications

Top Mounted

Without ice TIA-222-G (Assumed)

Basic Wind Speed	130 m/h (209.2 km/h)
Structure Class	II
Exposure Category	C
Topography Category	1

Mechanical Specifications

Height with Lightning Protector	H4	55.4 ft (16.9m)
Height less Lightning Protector	H2	51.4 ft (15.7m)
Height of Center of Radiation	H3	25.7 ft (7.8m)
Effective Projected Area	$(EPA)_S$	129.9 ft² (12.1m²)
Moment Arm	D1	26.2 ft (8m)
Weight	W	13800 lb (6.3t)

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

Prepared by:	JBC	**Date:**	31-Jan-19	**ME:**	**EE:**
Rev. No.6 by:	JBC	**Date:**	31-Jan-19		

Summary

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WZVN**
Channel	**28**
Frequency	**557 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**

Antenna

	Hpol		Vpol	
ERP:	**1,000 kW**	**(30.00 dBk)**	**230 kW**	**(23.62 dBk)**
Peak Gain*	43.52	(16.39 dB)	10.01	(10.00 dB)

Antenna Input Power

23.0 kW **(13.61 dBk)**

Transmission Line

Type:	**Rigid EHT**	Attenuation:		**(1.48 dB)**
Size:	**7-3/16"**	Efficiency:	**71.1%**	
Impedance:	**75 Ohm**			
Length:	**1500 ft**	**457.2 m**		

Transmitter Output

32.3 kW **(15.09 dBk)**

Transmitter filter losses not included

* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses

EXHIBIT E-3

ALLOCATION STUDY

tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: TUM-P4-WZVN2, Model: Longley-Rice
Start: 2019.02.14 16:45:34

Study created: 2019.02.14 16:45:33

Study build station data: LMS TV 2019-01-29

    Proposal: WZVN-TV D28 DT APP NAPLES, FL
 File number: TUM-P4-WZVN2
 Facility ID: 19183
Station data: User record
   Record ID: 185
     Country: U.S.
        Zone: III

Search options:
Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WSFL-TV	D27	DT	CP	MIAMI, FL	BLANK0000036065	180.6 km
No	WRDQ	D27	DT	LIC	ORLANDO, FL	BLCDT20111011AJM	206.3
Yes	WHFT-TV	D28	DT	CP	MIAMI, FL	BLANK0000028120	183.3
Yes	WRBW	D28	DT	CP	ORLANDO, FL	BLANK0000034527	208.9
Yes	WRBW	D28	DT	APP	ORLANDO, FL	BLANK0000064099	208.9
Yes	WXPX-TV	D29	DT	CP	BRADENTON, FL	BLANK0000034359	121.1
No	WMVJ-CD	D29	DC	LIC	MELBOURNE, FL	BLDTA20121120AEA	173.4
No	WPBT	D29	DT	CP	MIAMI, FL	BLANK0000024658	182.0

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

    Channel: D28
   Latitude: 26 49 22.40 N (NAD83)
  Longitude: 81 45 53.60 W
Height AMSL: 463.1 m
       HAAT: 454.5 m
   Peak ERP: 1000 kW

Antenna: TUM-P4-WZVN 0.0 deg
Elev Pattrn: Generic
Elec Tilt: 0.70

40.1 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	449 kW	451.9 m	104.7 km
45.0	229	450.2	98.2
90.0	328	454.1	101.8
135.0	876	457.2	111.9
180.0	360	458.7	103.1
225.0	248	456.3	99.3
270.0	490	455.0	105.8
315.0	994	452.8	112.8

ERP exceeds maximum
ERP: 1000 kW ERP maximum: 649 kW

Distance to Canadian border: 1652.0 km

Distance to Mexican border: 1511.3 km

Conditions at FCC monitoring station: Vero Beach FL
Bearing: 51.8 degrees Distance: 141.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 310.3 degrees Distance: 2616.4 km

Study cell size: 2.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

Interference to BLANK0000028120 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WHFT-TV	D28	DT	CP	MIAMI, FL	BLANK0000028120	

Undesireds:	WZVN-TV	D28	DT	BL	NAPLES, FL	DTVBL19183	183.3 km
	WZVN-TV	D28	DT	APP	NAPLES, FL	TUM-P4-WZVN2	183.3
	WSFL-TV	D27	DT	CP	MIAMI, FL	BLANK0000036065	5.5
	WRBW	D28	DT	CP	ORLANDO, FL	BLANK0000034527	303.8
	WPBT	D29	DT	CP	MIAMI, FL	BLANK0000024658	5.4

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
21510.4	5,417,409	21510.4	5,417,409	20886.6	5,417,382	20862.5	5,417,382	0.12	0.00

Undesired	Total IX		Unique IX, before		Unique IX, after	
WZVN-TV D28 DT BL	619.7	27	619.7	27		
WZVN-TV D28 DT APP	643.9	27			643.9	27
WSFL-TV D27 DT CP	4.0	0	0.0	0	0.0	0
WPBT D29 DT CP	4.0	0	0.0	0	0.0	0

Interference to BLANK0000034527 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WRBW	D28	DT	CP	ORLANDO, FL	BLANK0000034527	
Undesireds:	WZVN-TV	D28	DT	BL	NAPLES, FL	DTVBL19183	208.9 km
	WZVN-TV	D28	DT	APP	NAPLES, FL	TUM-P4-WZVN2	208.9
	WRDQ	D27	DT	LIC	ORLANDO, FL	BLCDT20111011AJM	5.0
	WXPX-TV	D29	DT	CP	BRADENTON, FL	BLANK0000034359	144.3
	WMVJ-CD	D29	DC	LIC	MELBOURNE, FL	BLDTA20121120AEA	73.8

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
38678.4	4,041,495	38658.2	4,037,063	37208.8	3,864,040	37200.8	3,863,470	0.02	0.01

Undesired	Total IX		Unique IX, before		Unique IX, after	
WZVN-TV D28 DT BL	1218.9	121,239	935.6	64,005		
WZVN-TV D28 DT APP	1235.0	130,170			943.5	64,575
WRDQ D27 DT LIC	8.1	21	8.1	21	8.1	21
WXPX-TV D29 DT CP	461.2	94,461	177.8	37,227	169.8	28,866
WMVJ-CD D29 DC LIC	44.6	14,536	44.6	14,536	44.6	14,536

Interference to BLANK0000064099 APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WRBW	D28	DT	APP	ORLANDO, FL	BLANK0000064099	

	Call	Chan	Svc	Status	City, State	File Number	Distance
Undesireds:	WZVN-TV	D28	DT	BL	NAPLES, FL	DTVBL19183	208.9 km
	WZVN-TV	D28	DT	APP	NAPLES, FL	TUM-P4-WZVN2	208.9
	WRDQ	D27	DT	LIC	ORLANDO, FL	BLCDT20111011AJM	5.0
	WXPX-TV	D29	DT	CP	BRADENTON, FL	BLANK0000034359	144.3
	WMVJ-CD	D29	DC	LIC	MELBOURNE, FL	BLDTA20121120AEA	73.8

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
39690.1	4,080,267	39669.9	4,077,341	38218.0	3,937,094	38234.5	3,940,435	-0.04	-0.08

Undesired	Total IX		Unique IX, before		Unique IX, after	
WZVN-TV D28 DT BL	1290.1	115,373	1018.9	66,251		
WZVN-TV D28 DT APP	1289.9	112,298			1002.4	62,910
WRDQ D27 DT LIC	8.1	21	8.1	21	8.1	21
WXPX-TV D29 DT CP	404.7	67,163	133.4	18,041	117.2	17,775
WMVJ-CD D29 DC LIC	20.3	6,812	20.3	6,812	20.3	6,812

Interference to BLANK0000034359 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WXPX-TV	D29	DT	CP	BRADENTON, FL	BLANK0000034359	
Undesireds:	WZVN-TV	D28	DT	BL	NAPLES, FL	DTVBL19183	121.1 km
	WZVN-TV	D28	DT	APP	NAPLES, FL	TUM-P4-WZVN2	121.1
	WRBW	D28	DT	CP	ORLANDO, FL	BLANK0000034527	144.3
	WGFL	D29	DT	CP	HIGH SPRINGS, FL	BLANK0000034417	203.5
	WMVJ-CD	D29	DC	LIC	MELBOURNE, FL	BLDTA20121120AEA	157.7
	WEFS	D30	DT	LIC	COCOA, FL	BLEDT20130801ABM	146.8

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
31093.2	4,594,588	31085.1	4,592,639	30069.3	4,441,656	30025.6	4,437,945	0.15	0.08

Undesired	Total IX		Unique IX, before		Unique IX, after	
WZVN-TV D28 DT BL	79.5	3,824	79.5	3,824		
WZVN-TV D28 DT APP	123.2	7,535			123.2	7,535
WRBW D28 DT CP	718.8	142,178	690.5	139,737	690.5	139,737
WGFL D29 DT CP	197.2	5,265	189.1	4,939	189.1	4,939
WMVJ-CD D29 DC LIC	44.6	51	28.4	42	28.4	42
WEFS D30 DT LIC	16.1	2,432	0.0	0	0.0	0

Interference to BLANK0000034359 CP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WXPX-TV	D29	DT	CP	BRADENTON, FL	BLANK0000034359	
Undesireds:	WZVN-TV	D28	DT	BL	NAPLES, FL	DTVBL19183	121.1 km
	WZVN-TV	D28	DT	APP	NAPLES, FL	TUM-P4-WZVN2	121.1
	WRBW	D28	DT	APP	ORLANDO, FL	BLANK0000064099	144.3
	WGFL	D29	DT	CP	HIGH SPRINGS, FL	BLANK0000034417	203.5
	WMVJ-CD	D29	DC	LIC	MELBOURNE, FL	BLDTA20121120AEA	157.7
	WEFS	D30	DT	LIC	COCOA, FL	BLEDT20130801ABM	146.8

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
31093.2	4,594,588	31085.1	4,592,639	30024.8	4,440,083	29981.1	4,436,372	0.15	0.08

Undesired		Total IX		Unique IX, before		Unique IX, after	
WZVN-TV D28 DT BL	79.5	3,824	79.5	3,824			
WZVN-TV D28 DT APP	123.2	7,535			123.2	7,535	
WRBW D28 DT APP	763.3	143,751	735.0	141,310	735.0	141,310	
WGFL D29 DT CP	197.2	5,265	189.1	4,939	189.1	4,939	
WMVJ-CD D29 DC LIC	44.6	51	28.4	42	28.4	42	
WEFS D30 DT LIC	16.1	2,432	0.0	0	0.0	0	

Interference to proposal scenario 1
3.55% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WZVN-TV	D28	DT	APP	NAPLES, FL	TUM-P4-WZVN2	
Undesireds:	WHFT-TV	D28	DT	CP	MIAMI, FL	BLANK0000028120	183.3 km
	WRBW	D28	DT	CP	ORLANDO, FL	BLANK0000034527	208.9
	WXPX-TV	D29	DT	CP	BRADENTON, FL	BLANK0000034359	121.1

Service area		Terrain-limited		IX-free		Percent IX	
32994.3	1,981,488	32994.3	1,981,488	30830.1	1,911,069	6.56	3.55

Undesired		Total IX		Unique IX		Prcnt Unique IX	
WHFT-TV D28 DT CP	1227.9	562	1227.9	562	3.72	0.03	
WRBW D28 DT CP	554.3	21,336	432.9	19,132	1.31	0.97	
WXPX-TV D29 DT CP	503.4	50,725	382.0	48,521	1.16	2.45	

Interference to proposal scenario 2

**MX: 3.75% interference received

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WZVN-TV	D28	DT	APP	NAPLES, FL	TUM-P4-WZVN2	
Undesireds:	WHFT-TV	D28	DT	CP	MIAMI, FL	BLANK0000028120	183.3 km
	WRBW	D28	DT	APP	ORLANDO, FL	BLANK0000064099	208.9
	WXPX-TV	D29	DT	CP	BRADENTON, FL	BLANK0000034359	121.1

Service area		Terrain-limited		IX-free		Percent IX	
32994.3	1,981,488	32994.3	1,981,488	30770.4	1,907,232	6.74	3.75

Undesired	Total IX		Unique IX		Prcnt Unique IX	
WHFT-TV D28 DT CP	1227.9	562	1227.9	562	3.72	0.03
WRBW D28 DT APP	626.1	25,173	492.6	22,969	1.49	1.16
WXPX-TV D29 DT CP	503.4	50,725	370.0	48,521	1.12	2.45

TABLE I
COMPUTED COVERAGE DATA
FOR THE PROPOSED DTV OPERATION OF
WZVN-TV, NAPLES, FLORIDA
CHANNEL 28 1000 KW HORIZONTAL AND
230 KW VERTICAL MAX ERP 454.5 METERS HAAT
FEBRUARY 2019

Radial Bearing (N ° E, T)	Average* Elevation 3.2 to 16.1 km meters	Effective Height meters	Depression Angle degrees	Effective Radiated Power kW	Distance to Contour F(50/90) 48 dBu City Grade km	41 dBu Noise-Limited km
0	11.2	451.9	0.589	448.85	89.3	102.7
10	11.6	451.5	0.589	144.41	81.7	92.8
20	12.0	451.1	0.588	75.63	77.5	88.1
30	12.3	450.8	0.588	164.85	82.5	93.8
40	12.7	450.4	0.588	237.19	84.9	96.8
50	12.5	450.6	0.588	221.82	84.5	96.2
60	11.6	451.5	0.589	146.69	81.8	92.9
70	10.7	452.4	0.589	164.02	82.6	93.9
80	9.9	453.2	0.590	280.93	86.2	98.5
90	9.0	454.1	0.590	328.32	87.3	99.9
100	8.3	454.8	0.591	367.20	88.1	101.0
110	7.7	455.4	0.591	570.03	91.3	105.4
120	7.0	456.1	0.592	785.05	93.7	108.7
130	6.3	456.8	0.592	876.19	94.7	109.8
140	5.8	457.3	0.592	876.19	94.7	109.9
150	5.4	457.7	0.593	730.97	93.3	108.1
160	5.1	458.0	0.593	368.47	88.3	101.3
170	4.7	458.4	0.593	267.30	86.1	98.4
180	4.4	458.7	0.593	360.00	88.2	101.2
190	4.9	458.2	0.593	297.03	86.8	99.4
200	5.5	457.6	0.593	169.75	83.0	94.5
210	6.0	457.1	0.592	176.40	83.3	94.8
220	6.5	456.6	0.592	249.98	85.6	97.7
230	6.9	456.2	0.592	245.02	85.4	97.5
240	7.2	455.9	0.591	146.69	82.0	93.2
250	7.5	455.6	0.591	73.98	77.5	88.2
260	7.8	455.3	0.591	249.98	85.5	97.6

TABLE I
COMPUTED COVERAGE DATA
FOR THE PROPOSED DTV OPERATION OF
WZVN-TV, NAPLES, FLORIDA
CHANNEL 28 1000 KW HORIZONTAL AND
230 KW VERTICAL MAX ERP 454.5 METERS HAAT
FEBRUARY 2019

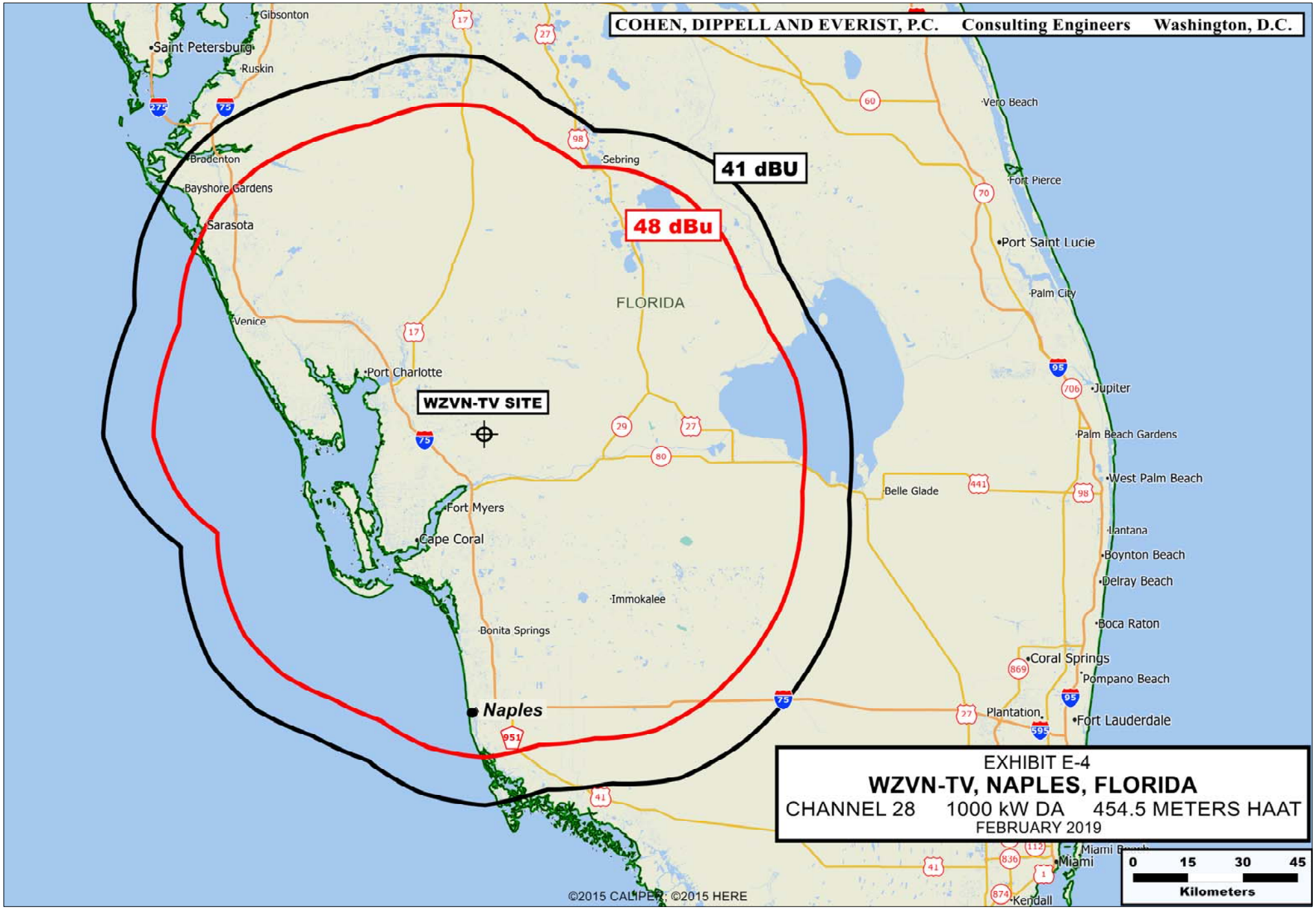
Radial Bearing (N ° E, T)	Average* Elevation 3.2 to 16.1 km meters	Effective Height meters	Depression Angle degrees	Effective Radiated Power kW	Distance to Contour F(50/90) 48 dBu City Grade km	41 dBu Noise-Limited km
270	8.1	455.0	0.591	490.00	90.1	103.8
280	8.6	454.5	0.591	435.61	89.3	102.6
290	9.1	454.0	0.590	372.13	88.1	101.1
300	9.6	453.5	0.590	707.29	92.8	107.4
310	10.1	453.0	0.590	960.51	95.2	110.5
320	10.4	452.7	0.589	962.28	95.1	110.5
330	10.6	452.5	0.589	707.29	92.7	107.3
340	10.8	452.3	0.589	494.20	90.1	103.7
350	11.0	452.1	0.589	555.01	90.9	104.8

*Based on data from FCC one-second data base.

DTV Channel 28 (554-560 MHz)
Average Elevation 3.2 to 16.1 km [10.1] meters AMSL
Center of Radiation [463.1] meters AMSL
Effective Radiated Power 1000 kW (30 dBk) Horizontal
230 kW (23.62 dBk) Vertical Max.
Antenna Height Above Average Terrain [454.5] meters

North Latitude: 26˚ 49' 21"
West Longitude: 81˚ 45' 54"

(NAD-27)


COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.
41 dBU
48 dBu
WZVN-TV SITE
FLORIDA
Gibsonton
Saint Petersburg
Ruskin
Bradenton
Bayshore Gardens
Sarasota
Venice
Port Charlotte
Sebring
Vero Beach
Fort Pierce
Port Saint Lucie
Palm City
Jupiter
Palm Beach Gardens
West Palm Beach
Belle Glade
Lantana
Boynton Beach
Delray Beach
Boca Raton
Coral Springs
Pompano Beach
Fort Lauderdale
Plantation
Miami
Miami Beach
Kendall
Fort Myers
Cape Coral
Immokalee
Bonita Springs
Naples
EXHIBIT E-4
WZVN-TV, NAPLES, FLORIDA
CHANNEL 28 1000 kW DA 454.5 METERS HAAT
FEBRUARY 2019
0 15 30 45
Kilometers
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COHEN, DIPPELL AND EVERIST, P.C.

EXHIBIT E-5

SUPPLEMENT TO DIPLEXED ANTENNA

DIELECTRIC, MODEL TUM30-P4-14/42H-1-R

Dielectric®

Antenna Model: **TUM30-P4-14/42H-1-R**

Proposal Number:	**C-70877-6**
Date:	**31-Jan-19**
Customer:	**Montcair Communications**
Location:	**Naples, FL**

Electrical Specifications

Polarization:	**Elliptical**				
Azimuth Pattern:	**Directional**				
Antenna Input:	**7-3/16"**	**75 Ohm**	**EIA/DCA**		
VSWR:	Channel	**1.08 : 1**		Band	**1.08 : 1**
Bandwidth:	**120 MHz**				
Rated Input Power:	**70 kW**	**(18.45 dBk)**	**Maximum combined average power**		

Mechanical Specifications

Mounting:	**Top Mounted**				
Environmental Protection:	**Full Radome**				
Height:	**51.4 ft (15.7m)**	less Lightning Protector	**55.4 ft (16.9m)**	with Lightning Protector	
Weight:	**13800 lb (6.3t)**				
Effective Projected Area:	**129.9 ft² (12.1m²)**	**TIA-222-G**	Basic Wind Speed:	**130 m/h (209.2 km/h)**	

Channel Specifications

	Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak Main Lobe Vpol Gain	Peak at Horizontal Hpol Gain	Peak at Horizontal Vpol Gain
1	WZVN	28	557 MHz	1,000 kW (30.00 dBk)	230 kW (23.62 dBk)	32.3 kW (15.09 dBk)	43.52 (16.39dB)	10.01 (10.00dB)	27.50 (14.39dB)	6.33 (8.01dB)
2	WBBH	15	479 MHz	1,000 kW (30.00 dBk)	230 kW (23.62 dBk)	34.7 kW (15.40 dBk)	39.43 (15.96dB)	9.07 (9.58dB)	28.09 (14.49dB)	6.46 (8.10dB)

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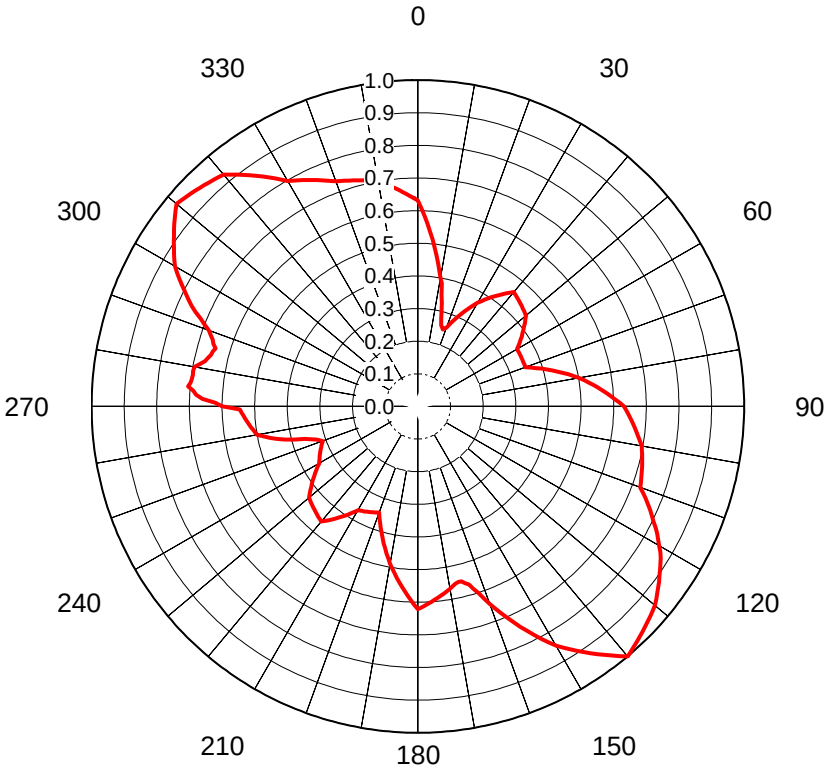

AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WBBH**
Channel	**15**
Frequency	**479 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**
Gain	**2.52 (4.02dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.631	36	0.421	72	0.381	108	0.720	144	0.939	180	0.622	216	0.423	252	0.327	288	0.661	324	0.875
1	0.607	37	0.430	73	0.396	109	0.723	145	0.923	181	0.608	217	0.433	253	0.343	289	0.671	325	0.862
2	0.584	38	0.439	74	0.411	110	0.726	146	0.908	182	0.595	218	0.442	254	0.362	290	0.682	326	0.849
3	0.561	39	0.448	75	0.426	111	0.739	147	0.893	183	0.582	219	0.451	255	0.390	291	0.701	327	0.837
4	0.538	40	0.457	76	0.442	112	0.753	148	0.877	184	0.569	220	0.460	256	0.420	292	0.717	328	0.824
5	0.515	41	0.455	77	0.457	113	0.766	149	0.862	185	0.556	221	0.458	257	0.443	293	0.741	329	0.811
6	0.491	42	0.452	78	0.472	114	0.779	150	0.847	186	0.542	222	0.455	258	0.462	294	0.759	330	0.798
7	0.468	43	0.450	79	0.487	115	0.791	151	0.827	187	0.529	223	0.453	259	0.481	295	0.776	331	0.791
8	0.445	44	0.447	80	0.503	116	0.803	152	0.806	188	0.516	224	0.450	260	0.501	296	0.793	332	0.785
9	0.422	45	0.445	81	0.515	117	0.818	153	0.786	189	0.503	225	0.448	261	0.506	297	0.809	333	0.779
10	0.398	46	0.442	82	0.528	118	0.831	154	0.766	190	0.489	226	0.445	262	0.511	298	0.826	334	0.772
11	0.384	47	0.440	83	0.541	119	0.842	155	0.746	191	0.475	227	0.443	263	0.516	299	0.843	335	0.766
12	0.350	48	0.437	84	0.554	120	0.854	156	0.726	192	0.461	228	0.440	264	0.521	300	0.860	336	0.759
13	0.325	49	0.435	85	0.567	121	0.867	157	0.705	193	0.447	229	0.438	265	0.526	301	0.870	337	0.753
14	0.298	50	0.432	86	0.580	122	0.878	158	0.685	194	0.432	230	0.435	266	0.531	302	0.881	338	0.747
15	0.277	51	0.424	87	0.593	123	0.887	159	0.665	195	0.418	231	0.427	267	0.536	303	0.892	339	0.740
16	0.258	52	0.416	88	0.606	124	0.895	160	0.645	196	0.404	232	0.418	268	0.541	304	0.902	340	0.734
17	0.253	53	0.408	89	0.619	125	0.904	161	0.623	197	0.389	233	0.410	269	0.546	305	0.913	341	0.730
18	0.248	54	0.400	90	0.632	126	0.913	162	0.601	198	0.375	234	0.401	270	0.601	306	0.924	342	0.727
19	0.253	55	0.392	91	0.638	127	0.922	163	0.585	199	0.361	235	0.392	271	0.621	307	0.934	343	0.724
20	0.257	56	0.384	92	0.645	128	0.931	164	0.568	200	0.346	236	0.384	272	0.661	308	0.945	344	0.721
21	0.268	57	0.376	93	0.651	129	0.940	165	0.561	201	0.348	237	0.375	273	0.681	309	0.955	345	0.717
22	0.279	58	0.368	94	0.658	130	0.949	166	0.553	202	0.351	238	0.367	274	0.691	310	0.966	346	0.714
23	0.290	59	0.359	95	0.664	131	0.954	167	0.553	203	0.353	239	0.358	275	0.707	311	0.962	347	0.711
24	0.301	60	0.351	96	0.671	132	0.959	168	0.555	204	0.355	240	0.349	276	0.701	312	0.958	348	0.707
25	0.312	61	0.351	97	0.677	133	0.964	169	0.561	205	0.357	241	0.345	277	0.698	313	0.954	349	0.704
26	0.323	62	0.351	98	0.684	134	0.969	170	0.568	206	0.359	242	0.342	278	0.697	314	0.950	350	0.701
27	0.334	63	0.351	99	0.690	135	0.974	171	0.573	207	0.361	243	0.338	279	0.697	315	0.946	351	0.694
28	0.345	64	0.351	100	0.697	136	0.980	172	0.578	208	0.363	244	0.334	280	0.695	316	0.943	352	0.687
29	0.356	65	0.351	101	0.700	137	0.985	173	0.584	209	0.365	245	0.330	281	0.681	317	0.939	353	0.680
30	0.367	66	0.351	102	0.703	138	0.990	174	0.589	210	0.367	246	0.326	282	0.667	318	0.935	354	0.673
31	0.376	67	0.351	103	0.705	139	0.995	175	0.595	211	0.377	247	0.322	283	0.661	319	0.931	355	0.666
32	0.385	68	0.351	104	0.708	140	1.000	176	0.600	212	0.386	248	0.318	284	0.653	320	0.927	356	0.659
33	0.394	69	0.350	105	0.711	141	0.985	177	0.605	213	0.395	249	0.314	285	0.651	321	0.914	357	0.652
34	0.403	70	0.350	106	0.714	142	0.969	178	0.611	214	0.405	250	0.310	286	0.645	322	0.901	358	0.645
35	0.412	71	0.366	107	0.717	143	0.954	179	0.616	215	0.414	251	0.319	287	0.656	323	0.888	359	0.638

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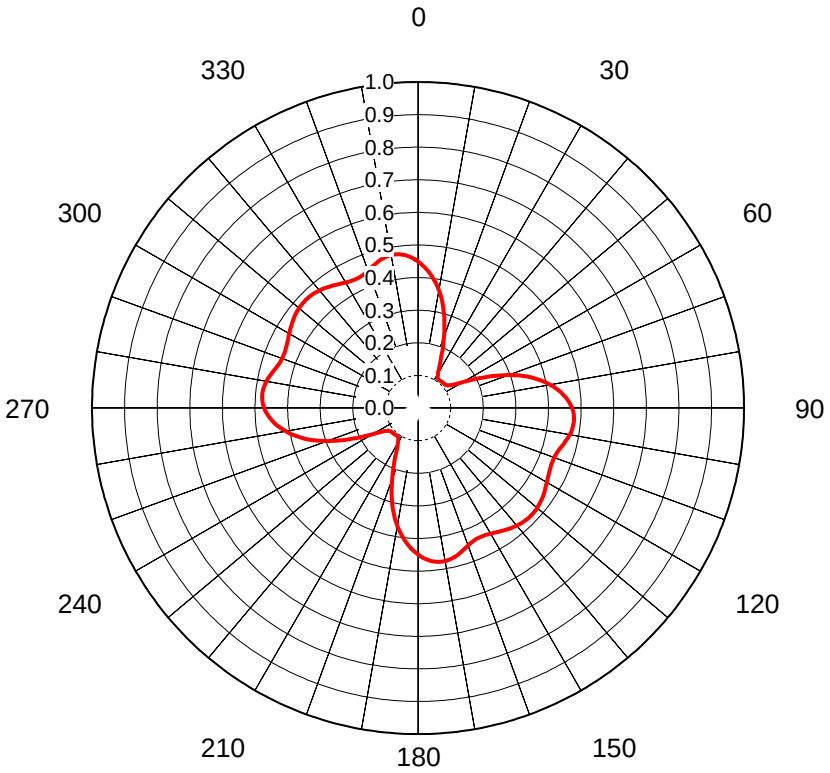


AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WBBH**
Channel	**15**
Frequency	**479 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**
Gain	**1.57 (1.96dB)**
	Calculated

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.449	36	0.107	72	0.324	108	0.447	144	0.461	180	0.449	216	0.107	252	0.324	288	0.447	324	0.461
1	0.443	37	0.107	73	0.337	109	0.445	145	0.458	181	0.443	217	0.107	253	0.337	289	0.445	325	0.458
2	0.437	38	0.107	74	0.349	110	0.444	146	0.455	182	0.437	218	0.107	254	0.349	290	0.444	326	0.455
3	0.430	39	0.107	75	0.361	111	0.443	147	0.452	183	0.430	219	0.107	255	0.361	291	0.443	327	0.452
4	0.422	40	0.108	76	0.372	112	0.443	148	0.450	184	0.422	220	0.108	256	0.372	292	0.443	328	0.450
5	0.414	41	0.108	77	0.383	113	0.444	149	0.447	185	0.414	221	0.108	257	0.383	293	0.444	329	0.447
6	0.406	42	0.108	78	0.393	114	0.445	150	0.445	186	0.406	222	0.108	258	0.393	294	0.445	330	0.445
7	0.397	43	0.109	79	0.402	115	0.446	151	0.443	187	0.397	223	0.109	259	0.402	295	0.446	331	0.443
8	0.388	44	0.109	80	0.411	116	0.447	152	0.441	188	0.388	224	0.109	260	0.411	296	0.447	332	0.441
9	0.378	45	0.109	81	0.420	117	0.449	153	0.440	189	0.378	225	0.109	261	0.420	297	0.449	333	0.440
10	0.367	46	0.109	82	0.428	118	0.452	154	0.439	190	0.367	226	0.109	262	0.428	298	0.452	334	0.439
11	0.356	47	0.109	83	0.436	119	0.454	155	0.439	191	0.356	227	0.109	263	0.436	299	0.454	335	0.439
12	0.345	48	0.110	84	0.443	120	0.456	156	0.440	192	0.345	228	0.110	264	0.443	300	0.456	336	0.440
13	0.332	49	0.110	85	0.449	121	0.459	157	0.441	193	0.332	229	0.110	265	0.449	301	0.459	337	0.441
14	0.319	50	0.111	86	0.455	122	0.461	158	0.443	194	0.319	230	0.111	266	0.455	302	0.461	338	0.443
15	0.305	51	0.112	87	0.460	123	0.464	159	0.445	195	0.305	231	0.112	267	0.460	303	0.464	339	0.445
16	0.291	52	0.113	88	0.465	124	0.466	160	0.448	196	0.291	232	0.113	268	0.465	304	0.466	340	0.448
17	0.277	53	0.116	89	0.469	125	0.468	161	0.452	197	0.277	233	0.116	269	0.469	305	0.468	341	0.452
18	0.262	54	0.119	90	0.472	126	0.471	162	0.456	198	0.262	234	0.119	270	0.472	306	0.471	342	0.456
19	0.247	55	0.123	91	0.475	127	0.472	163	0.459	199	0.247	235	0.123	271	0.475	307	0.472	343	0.459
20	0.232	56	0.128	92	0.477	128	0.474	164	0.463	200	0.232	236	0.128	272	0.477	308	0.474	344	0.463
21	0.218	57	0.134	93	0.479	129	0.475	165	0.467	201	0.218	237	0.134	273	0.479	309	0.475	345	0.467
22	0.204	58	0.142	94	0.479	130	0.477	166	0.470	202	0.204	238	0.142	274	0.479	310	0.477	346	0.470
23	0.190	59	0.150	95	0.480	131	0.477	167	0.472	203	0.190	239	0.150	275	0.480	311	0.477	347	0.472
24	0.178	60	0.160	96	0.479	132	0.478	168	0.474	204	0.178	240	0.160	276	0.479	312	0.478	348	0.474
25	0.166	61	0.171	97	0.478	133	0.478	169	0.476	205	0.166	241	0.171	277	0.478	313	0.478	349	0.476
26	0.155	62	0.183	98	0.477	134	0.478	170	0.477	206	0.155	242	0.183	278	0.477	314	0.478	350	0.477
27	0.145	63	0.195	99	0.475	135	0.478	171	0.477	207	0.145	243	0.195	279	0.475	315	0.478	351	0.477
28	0.136	64	0.209	100	0.472	136	0.477	172	0.476	208	0.136	244	0.209	280	0.472	316	0.477	352	0.476
29	0.129	65	0.223	101	0.469	137	0.476	173	0.475	209	0.129	245	0.223	281	0.469	317	0.476	353	0.475
30	0.123	66	0.237	102	0.466	138	0.474	174	0.474	210	0.123	246	0.237	282	0.466	318	0.474	354	0.474
31	0.118	67	0.252	103	0.463	139	0.473	175	0.471	211	0.118	247	0.252	283	0.463	319	0.473	355	0.471
32	0.114	68	0.267	104	0.459	140	0.471	176	0.468	212	0.114	248	0.267	284	0.459	320	0.471	356	0.468
33	0.111	69	0.281	105	0.455	141	0.469	177	0.464	213	0.111	249	0.281	285	0.455	321	0.469	357	0.464
34	0.109	70	0.296	106	0.452	142	0.466	178	0.460	214	0.109	250	0.296	286	0.452	322	0.466	358	0.460
35	0.108	71	0.310	107	0.449	143	0.464	179	0.455	215	0.108	251	0.310	287	0.449	323	0.464	359	0.455

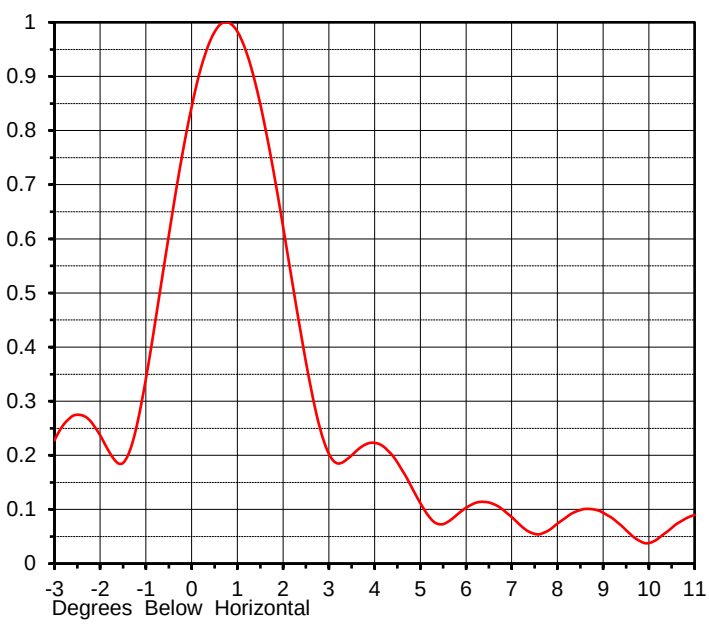
ELEVATION PATTERN

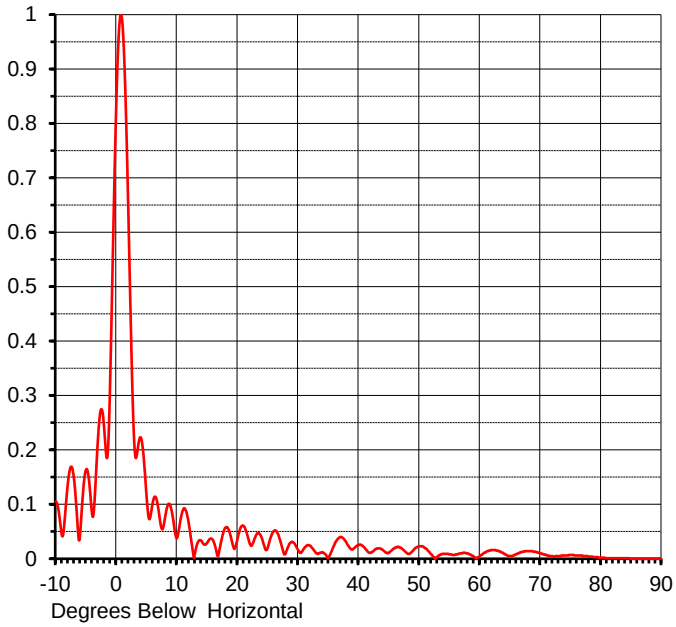
Faces A and C

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WBBH**
Channel	**15**
Frequency	**479 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**

RMS Directivity at Main Lobe	**25.3 (14.03 dB)**	Beam Tilt	**0.75 deg**
RMS Directivity at Horizontal	**18.0 (12.55 dB)**	Pattern Number	**14U253075**

Calculated





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.105	10.0	0.038	30.0	0.016	50.0	0.023	70.0	0.010
-9.0	0.043	11.0	0.090	31.0	0.019	51.0	0.019	71.0	0.007
-8.0	0.140	12.0	0.061	32.0	0.024	52.0	0.008	72.0	0.005
-7.0	0.147	13.0	0.012	33.0	0.010	53.0	0.004	73.0	0.005
-6.0	0.044	14.0	0.033	34.0	0.012	54.0	0.009	74.0	0.006
-5.0	0.164	15.0	0.030	35.0	0.001	55.0	0.008	75.0	0.007
-4.0	0.081	16.0	0.033	36.0	0.026	56.0	0.008	76.0	0.006
-3.0	0.228	17.0	0.016	37.0	0.040	57.0	0.010	77.0	0.005
-2.0	0.237	18.0	0.057	38.0	0.029	58.0	0.010	78.0	0.004
-1.0	0.342	19.0	0.035	39.0	0.017	59.0	0.004	79.0	0.003
0.0	0.844	20.0	0.037	40.0	0.025	60.0	0.005	80.0	0.002
1.0	0.983	21.0	0.060	41.0	0.020	61.0	0.012	81.0	0.001
2.0	0.622	22.0	0.028	42.0	0.011	62.0	0.016	82.0	0.001
3.0	0.203	23.0	0.042	43.0	0.019	63.0	0.015	83.0	0.001
4.0	0.223	24.0	0.038	44.0	0.016	64.0	0.009	84.0	0.001
5.0	0.112	25.0	0.021	45.0	0.011	65.0	0.005	85.0	0.000
6.0	0.103	26.0	0.051	46.0	0.020	66.0	0.008	86.0	0.000
7.0	0.086	27.0	0.035	47.0	0.020	67.0	0.013	87.0	0.000
8.0	0.074	28.0	0.012	48.0	0.010	68.0	0.014	88.0	0.000
9.0	0.094	29.0	0.031	49.0	0.015	69.0	0.013	89.0	0.000
								90.0	0.000

Dielectric®

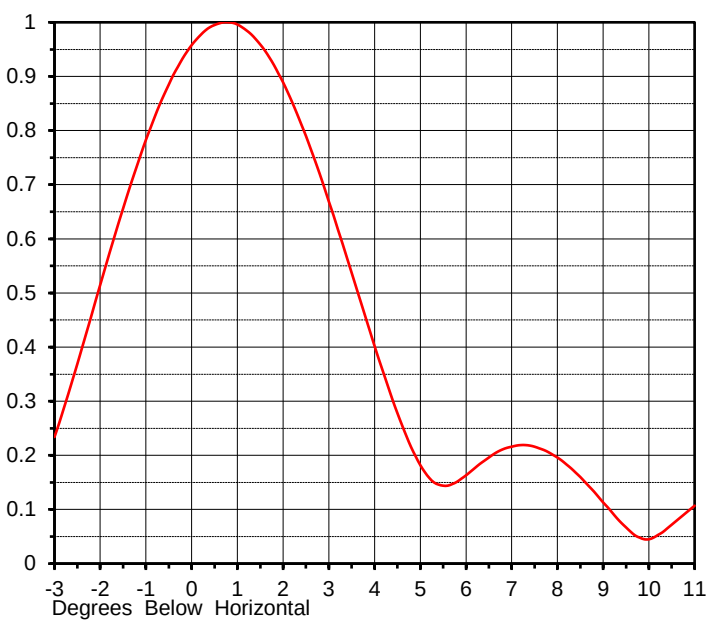
ELEVATION PATTERN

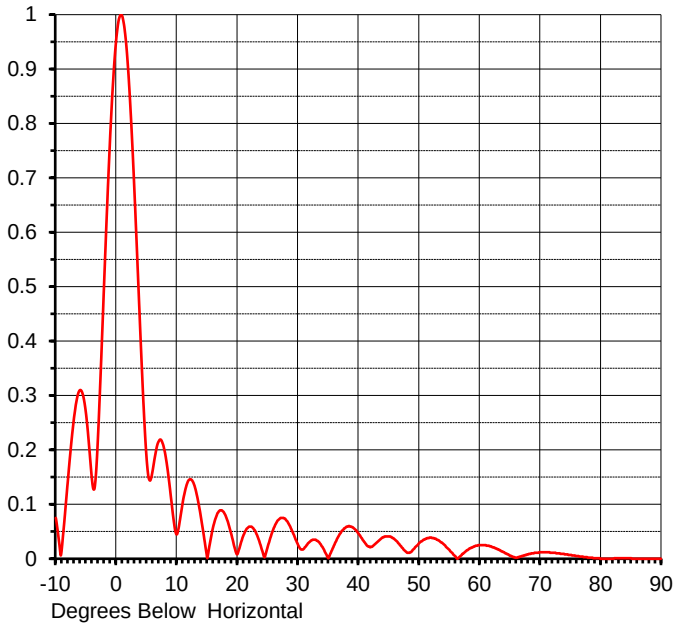
Faces B and D

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WBBH**
Channel	**15**
Frequency	**479 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**

RMS Directivity at Main Lobe	**13.4 (11.27 dB)**	Beam Tilt	**0.75 deg**
RMS Directivity at Horizontal	**12.3 (10.90 dB)**	Pattern Number	**07U134075**

Calculated





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.075	10.0	0.045	30.0	0.025	50.0	0.029	70.0	0.012
-9.0	0.020	11.0	0.107	31.0	0.019	51.0	0.036	71.0	0.012
-8.0	0.145	12.0	0.145	32.0	0.032	52.0	0.039	72.0	0.011
-7.0	0.259	13.0	0.130	33.0	0.034	53.0	0.035	73.0	0.010
-6.0	0.310	14.0	0.073	34.0	0.022	54.0	0.027	74.0	0.008
-5.0	0.265	15.0	0.001	35.0	0.001	55.0	0.016	75.0	0.007
-4.0	0.142	16.0	0.060	36.0	0.026	56.0	0.004	76.0	0.005
-3.0	0.234	17.0	0.088	37.0	0.047	57.0	0.007	77.0	0.004
-2.0	0.515	18.0	0.080	38.0	0.059	58.0	0.016	78.0	0.002
-1.0	0.783	19.0	0.044	39.0	0.058	59.0	0.022	79.0	0.001
0.0	0.958	20.0	0.009	40.0	0.046	60.0	0.025	80.0	0.000
1.0	0.996	21.0	0.044	41.0	0.030	61.0	0.025	81.0	0.000
2.0	0.889	22.0	0.059	42.0	0.022	62.0	0.022	82.0	0.000
3.0	0.669	23.0	0.049	43.0	0.030	63.0	0.017	83.0	0.001
4.0	0.402	24.0	0.017	44.0	0.039	64.0	0.012	84.0	0.001
5.0	0.182	25.0	0.023	45.0	0.041	65.0	0.006	85.0	0.001
6.0	0.163	26.0	0.057	46.0	0.035	66.0	0.002	86.0	0.000
7.0	0.216	27.0	0.074	47.0	0.023	67.0	0.005	87.0	0.000
8.0	0.196	28.0	0.071	48.0	0.011	68.0	0.008	88.0	0.000
9.0	0.113	29.0	0.051	49.0	0.017	69.0	0.011	89.0	0.000
								90.0	0.000

Summary

Proposal No.	**C-70877-6**
Date	**31-Jan-19**
Call Letters	**WBBH**
Channel	**15**
Frequency	**479 MHz**
Antenna Type	**TUM30-P4-14/42H-1-R**

Antenna

	Hpol		Vpol	
ERP:	**1,000 kW**	**(30.00 dBk)**	**230 kW**	**(23.62 dBk)**
Peak Gain*	39.43	(15.96 dB)	9.07	(9.58 dB)

Antenna Input Power

25.4 kW **(14.04 dBk)**

Transmission Line

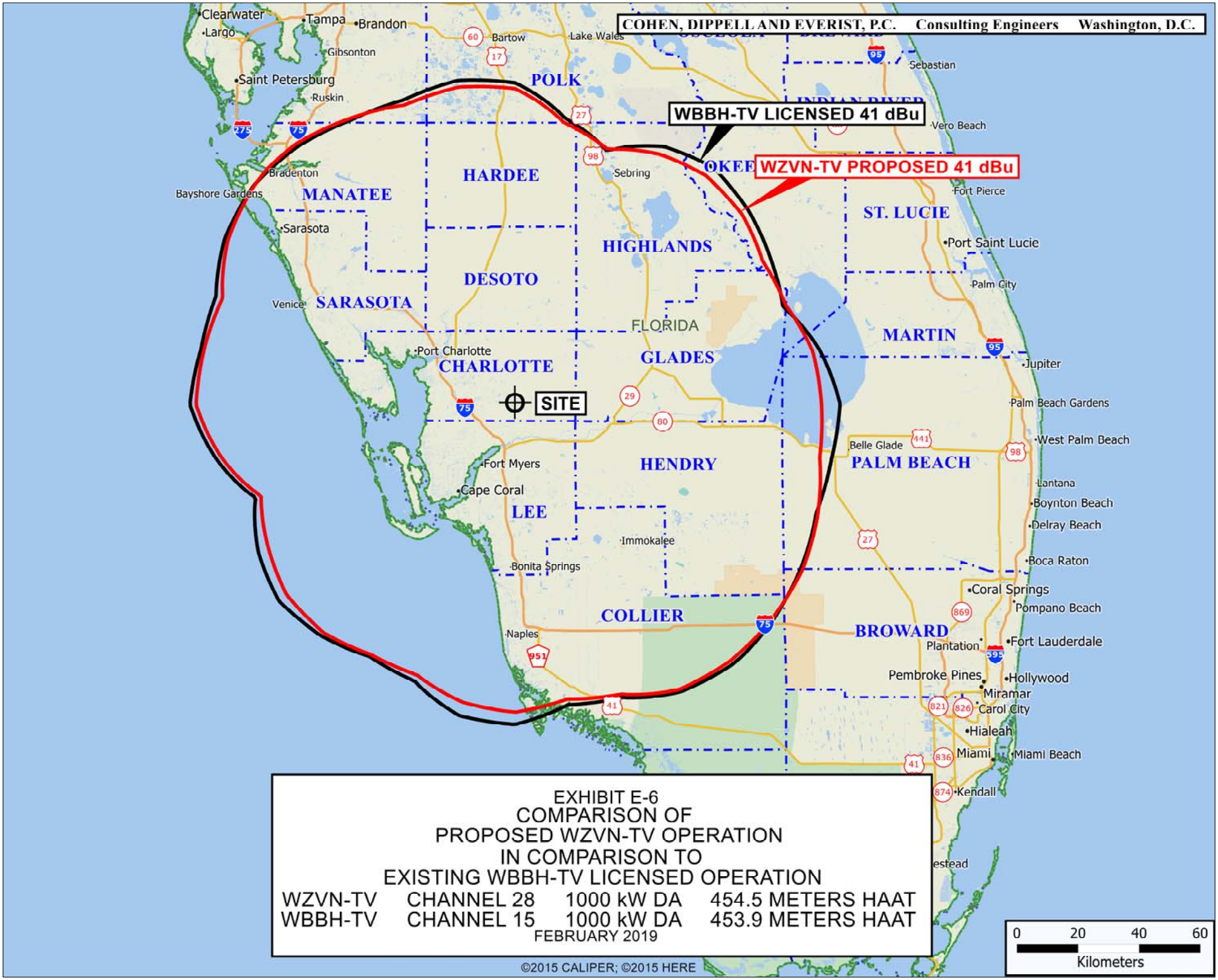
Type:	**Rigid EHT**	Attenuation:	**(1.36 dB)**
Size:	**7-3/16"**	Efficiency:	**73.1%**
Impedance:	**75 Ohm**		
Length:	**1500 ft**	**457.2 m**	

Transmitter Output

34.7 kW **(15.40 dBk)**

Transmitter filter losses not included

* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses


COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.
WBBH-TV LICENSED 41 dBu
WZVN-TV PROPOSED 41 dBu
SITE
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HARDEE
MANATEE
DESOTO
HIGHLANDS
SARASOTA
CHARLOTTE
GLADES
HENDRY
LEE
COLLIER
OKEE
ST. LUCIE
MARTIN
PALM BEACH
BROWARD
FLORIDA
Clearwater
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Brandon
Gibsonton
Saint Petersburg
Ruskin
Bradenton
Bayshore Gardens
Sarasota
Venice
Port Charlotte
Fort Myers
Cape Coral
Immokalee
Bonita Springs
Naples
Bartow
Lake Wales
Sebring
Sebastian
Vero Beach
Fort Pierce
Port Saint Lucie
Palm City
Jupiter
Palm Beach Gardens
West Palm Beach
Belle Glade
Lantana
Boynton Beach
Delray Beach
Boca Raton
Coral Springs
Pompano Beach
Fort Lauderdale
Plantation
Pembroke Pines
Hollywood
Miramar
Carol City
Hialeah
Miami
Miami Beach
Kendall
EXHIBIT E-6
COMPARISON OF
PROPOSED WZVN-TV OPERATION
IN COMPARISON TO
EXISTING WBBH-TV LICENSED OPERATION
WZVN-TV CHANNEL 28 1000 kW DA 454.5 METERS HAAT
WBBH-TV CHANNEL 15 1000 kW DA 453.9 METERS HAAT
FEBRUARY 2019
©2015 CALIPER; ©2015 HERE
0 20 40 60
Kilometers