ENGINEERING EXHIBIT

Application for Construction Permit

prepared for

Television Station WTCN LLC
WTCN-CA Palm Beach, FL
Facility ID 70865
Ch. 43 150 kW

Television Station WTCN LLC ("WTCN") is the licensee of Class A Television station WTCN-CA, Channel 43, Palm Beach, FL, Facility ID 70865 (BLTTA-20021101AAX). WTCN-CA employs a directional transmitting antenna in common with WWHB-CA (Ch. 48, Stuart, FL), licensed to *Television Station WWHB LLC* under common control with WTCN-CA.

Recent inspections of the common antenna system revealed damage to components of the antenna, most probably sustained during severe weather. Further investigation indicated that the directional pattern of the antenna might not have conformed to the licensed directional patterns of WTCN-CA and WWHB-CA. As this panel antenna is no longer supported by its supplier, and the available directional pattern data is inconsistent, the licensee evaluated use of a new, replacement antenna system. This option was thwarted by structural loading issues with the tower on which the antenna is mounted. Subsequently, the licensee contracted with Dielectric Communications to evaluate and repair the existing antenna system to assure compliance with the licensed parameters of both stations. Unfortunately, the calculated pattern of the repaired antenna could not be made to suppress the station's signal as tightly as the licensed pattern requires to the east, resulting in some contour extension along azimuths towards the Atlantic Ocean. This contour extension would not comply with the Commission's August 3, 2004 "freeze" concerning expansion in service area.[1]

WTCN seeks a Construction Permit herein to modify WTCN-CA to employ the slightly modified antenna pattern utilizing the current antenna system as repaired by Dielectric. The licensed directional pattern has a sharp suppression towards the east in between the major lobes which are

[1] *Public Notice* "Freeze on the Filing of Certain TV and DTV Requests for Allotment or Service Area Changes," DA 04-2446, released August 3, 2004.

oriented north and south along the Florida coastline. The licensed pattern minimum brings the protected contour nearly to the transmitter site. **Figure 1** depicts a contour comparison of the licensed and proposed WTCN-CA facilities. Although the proposed Class A station protected contour encompasses new land area, the involved land area is otherwise totally bounded by the existing Class A protected contour and the ocean. **Figure 2** provides the proposed directional antenna's azimuth pattern and associated data.

A waiver of the August 3, 2004 freeze is requested due to the extension in protected contour. The proposed contour extension would involve land area which is completely bounded by the existing contour and the ocean, resulting in negligible preclusive effect. The site is less than 5 miles from the ocean. In all other directions (up and down along the coast, as well as towards inland areas) there would be no contour extension.

Further, as due diligence, representatives of the licensee have determined that the as-built antenna radiation center height is 8.2 meters below the licensed value, which is more than the permitted tolerance (+2 and -4 meters). The instant proposal also specifies a one-second coordinate correction to conform to the associated Antenna Structure Registration (# 1018573). Licensed and proposed parameters are supplied below.

Facility Data	**Licensed**	**Proposed**
Coordinates (NAD-27)	27° 01' 32" N-Lat 80° 10' 43" W-Lon	27° 01' 31" N-Lat 80° 10' 43" W-Lon
Antenna C/R height AGL	279.5 m	271.3 m

Thus, the instant proposal modifies the licensed facility by specifying changes in the directional antenna pattern, a reduction in antenna height, and a one-second correction in coordinates. The antenna is side-mounted and no change in overall structure height or maximum effective radiated power will result. A request for *Special Temporary Authorization* is being filed contemporaneously with the instant application, to authorize use of the facilities specified herein.

Allocation Considerations

The instant proposal complies with the Commission's standard contour overlap protection requirements towards all NTSC, television translator, LPTV, and Class A stations except those summarized in **Table 1**. A detailed interference study was conducted in accordance with the terrain dependent Longley-Rice point-to-point propagation model, per the Commission's Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69")[2]. The interference study examined the change in interference as experienced by the stations subject to overlap that would result from the proposed facility, as well as any pertinent DTV facilities. The results, summarized in **Table 1**, show that any new interference does not exceed the Commission's 0.5 percent rounding tolerance.

Accordingly, the instant proposal complies with §§73.6011 – 73.6014 regarding interference protection to analog and digital television, low power television, television translator, and Class A television facilities.

The nearest FCC monitoring station is at Vero Beach, FL, at a distance of 78.6 km from the site. As provided in §73.1030(c), the predicted F(50,50) 10 mV/m (80 dBμ) signal level resulting from the proposed operation falls well short of the monitoring station location, so no further consideration should be necessary. The site is located outside the areas specified in §73.1030(a)(1) and §73.1030(b). Thus, notification of the instant proposal to the National Radio Astronomy Observatory at Green Bank, West Virginia, or the Table Mountain Radio Receiving Zone in Boulder County, Colorado is not required. There are authorized no AM broadcast stations located within 3.2 km (2 miles) of the proposed site, according to information extracted from the Commission's engineering database.[3] The site is located well beyond the border zones that would trigger international coordination.

[2]The implementation of OET-69 for this study followed the guidelines of OET-69 as specified therein. A cell size of 1 km was employed. Comparisons of various results of this computer program (run on a Sun Sparc processor) to the Commission's implementation of OET-69 show excellent correlation.

[3]An application is pending (BNP-20040130BCN) for a new directional AM station on 1110 kHz at Palm Beach Gardens, FL. However this facility has not been authorized and therefore should not result in a pattern disturbance

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The transmitting antenna is side-mounted on an existing antenna support structure. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. No change in structure height is proposed, thus no change in current structure marking and lighting requirements is anticipated. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. Based on OET-65 equation (10), and considering 20 percent antenna relative field in downward elevations (pattern data shows less than 20 percent relative field at angles 10 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 1.4 $\mu W/cm^2$, which is 0.3 percent of the general population/uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

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condition for the instant proposal.

Certification

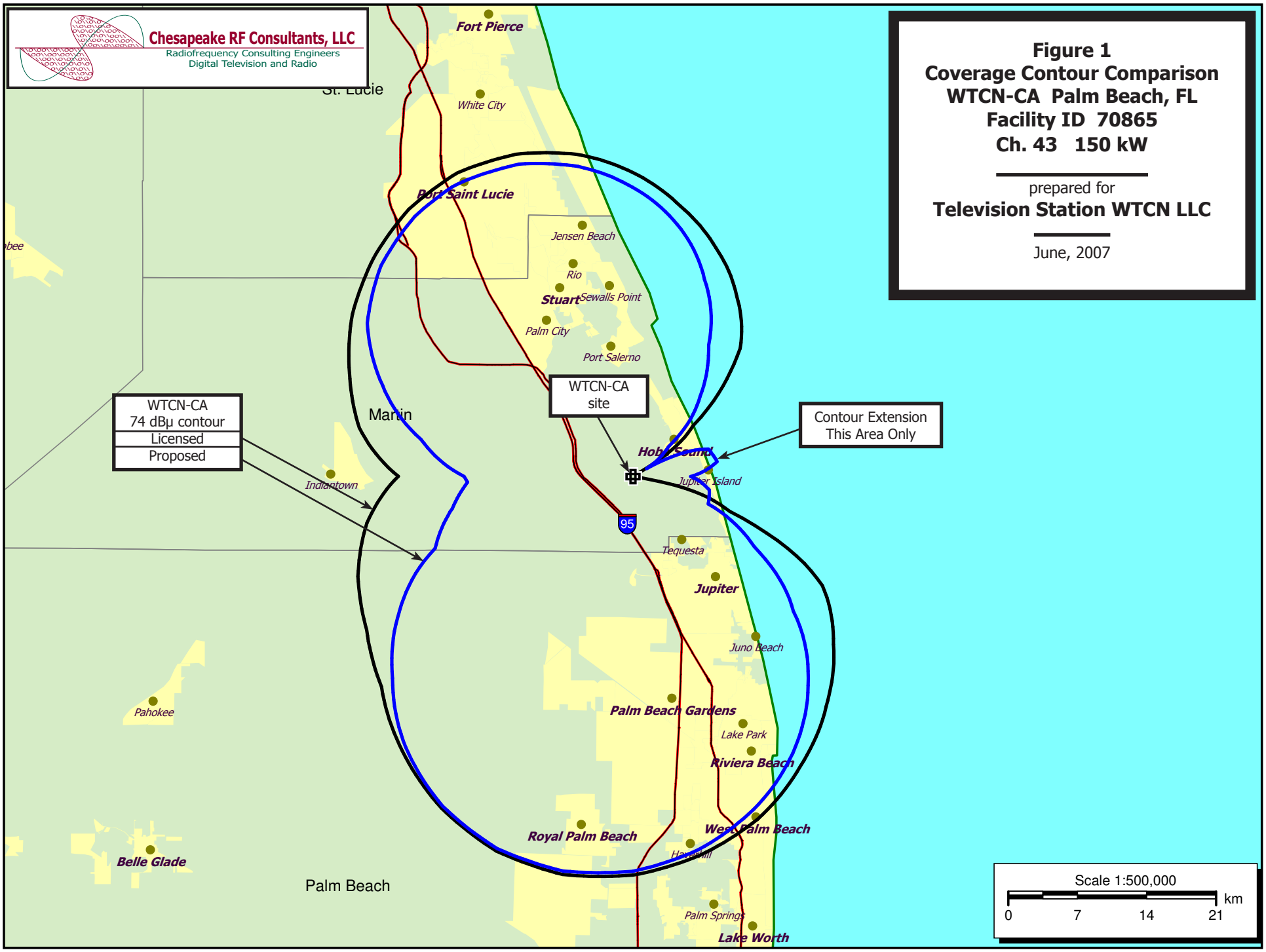
The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direction, and that they are true and correct to the best of his knowledge and belief.

Joseph M. Davis, P.E.
June 7, 2007

Chesapeake RF Consultants, LLC
11993 Kahns Road
Manassas, VA 20112
703-650-9600

List of Attachments

Figure 1	Coverage Contour Comparison
Figure 2	Proposed Directional Antenna Pattern
Table 1	Interference Analysis Results Summary
Form 301-CA	Saved Version of Engineering Sections from FCC Form at Time of Upload


Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 1
Coverage Contour Comparison
WTCN-CA Palm Beach, FL
Facility ID 70865
Ch. 43 150 kW
prepared for
Television Station WTCN LLC
June, 2007
WTCN-CA
74 dBµ contour
Licensed
Proposed
WTCN-CA
site
Contour Extension
This Area Only
Fort Pierce
St. Lucie
White City
Port Saint Lucie
Jensen Beach
Rio
Stuart
Sewalls Point
Palm City
Port Salerno
Martin
Hobe Sound
Jupiter Island
Indiantown
95
Tequesta
Jupiter
Juno Beach
Pahokee
Palm Beach Gardens
Lake Park
Riviera Beach
Royal Palm Beach
West Palm Beach
Belle Glade
Palm Beach
Palm Springs
Lake Worth
Scale 1:500,000
km
0
7
14
21

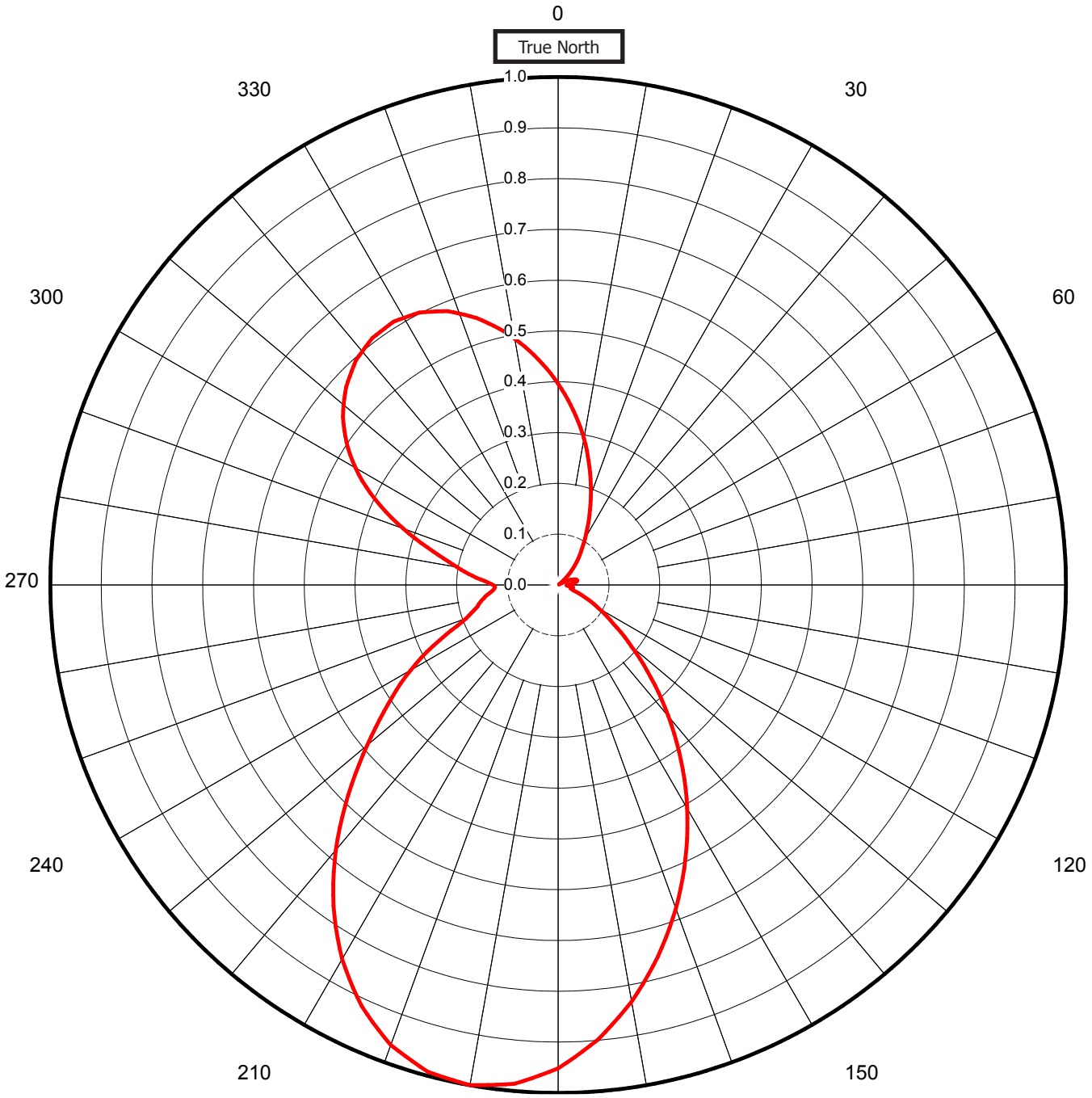
Dielectric

Figure 2
Antenna Horizontal Plane Pattern
(page 1 of 2)

Proposal Number	**C-00891**	Revision:	
Date			
Call Letters	**WTCN**	Channel	
Location	**Palm Beach, FL**		
Customer			
Antenna Type	**SP-UP-WTCN Antenna M**		

AZIMUTH PATTERN

Gain	**4.40** **(6.43 dB)**	Frequency	**647.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**ATU-P2SP-6470**



Dielectric

Figure 2
Antenna Horizontal Plane Pattern
(page 2 of 2)

Proposal Number	**C-00891**	Revision:	**1**
Date			
Call Letters	**WTCN**	Channel	**43**
Location	**Palm Beach, FL**		
Customer			
Antenna Type	**SP-UP-WTCN Antenna Mod**		

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **ATU-P2SP-6470**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.396	45	0.031	90	0.018	135	0.259	180	0.952	225	0.584	270	0.128	315	0.581
1	0.386	46	0.027	91	0.017	136	0.274	181	0.958	226	0.565	271	0.133	316	0.585
2	0.375	47	0.022	92	0.017	137	0.290	182	0.965	227	0.546	272	0.138	317	0.590
3	0.365	48	0.018	93	0.017	138	0.306	183	0.972	228	0.527	273	0.144	318	0.595
4	0.355	49	0.016	94	0.018	139	0.322	184	0.979	229	0.509	274	0.153	319	0.598
5	0.345	50	0.013	95	0.019	140	0.338	185	0.986	230	0.491	275	0.161	320	0.600
6	0.334	51	0.011	96	0.021	141	0.354	186	0.989	231	0.473	276	0.169	321	0.603
7	0.324	52	0.008	97	0.023	142	0.371	187	0.991	232	0.456	277	0.177	322	0.606
8	0.314	53	0.006	98	0.026	143	0.388	188	0.994	233	0.440	278	0.185	323	0.608
9	0.303	54	0.006	99	0.028	144	0.405	189	0.997	234	0.424	279	0.194	324	0.609
10	0.293	55	0.005	100	0.030	145	0.422	190	1.000	235	0.408	280	0.202	325	0.609
11	0.282	56	0.005	101	0.029	146	0.439	191	0.998	236	0.394	281	0.211	326	0.610
12	0.271	57	0.005	102	0.028	147	0.456	192	0.997	237	0.380	282	0.220	327	0.610
13	0.260	58	0.005	103	0.027	148	0.474	193	0.995	238	0.366	283	0.231	328	0.611
14	0.249	59	0.002	104	0.026	149	0.491	194	0.994	239	0.351	284	0.242	329	0.609
15	0.239	60	0.003	105	0.025	150	0.508	195	0.992	240	0.335	285	0.255	330	0.607
16	0.229	61	0.006	106	0.026	151	0.525	196	0.986	241	0.320	286	0.268	331	0.605
17	0.218	62	0.009	107	0.028	152	0.542	197	0.981	242	0.305	287	0.282	332	0.604
18	0.208	63	0.013	108	0.029	153	0.559	198	0.975	243	0.290	288	0.296	333	0.602
19	0.198	64	0.016	109	0.031	154	0.576	199	0.970	244	0.274	289	0.310	334	0.598
20	0.189	65	0.019	110	0.032	155	0.593	200	0.964	245	0.258	290	0.325	335	0.594
21	0.179	66	0.022	111	0.038	156	0.610	201	0.954	246	0.243	291	0.339	336	0.589
22	0.170	67	0.024	112	0.043	157	0.627	202	0.945	247	0.228	292	0.354	337	0.585
23	0.160	68	0.027	113	0.049	158	0.644	203	0.935	248	0.214	293	0.368	338	0.581
24	0.152	69	0.029	114	0.054	159	0.661	204	0.925	249	0.203	294	0.383	339	0.575
25	0.144	70	0.032	115	0.059	160	0.678	205	0.915	250	0.193	295	0.397	340	0.569
26	0.135	71	0.033	116	0.066	161	0.694	206	0.903	251	0.186	296	0.411	341	0.562
27	0.127	72	0.035	117	0.073	162	0.710	207	0.890	252	0.180	297	0.424	342	0.556
28	0.119	73	0.036	118	0.079	163	0.726	208	0.877	253	0.174	298	0.437	343	0.549
29	0.113	74	0.037	119	0.085	164	0.742	209	0.864	254	0.169	299	0.449	344	0.542
30	0.106	75	0.038	120	0.092	165	0.758	210	0.851	255	0.164	300	0.461	345	0.534
31	0.100	76	0.038	121	0.100	166	0.773	211	0.835	256	0.162	301	0.472	346	0.526
32	0.093	77	0.038	122	0.108	167	0.788	212	0.820	257	0.159	302	0.483	347	0.518
33	0.087	78	0.038	123	0.116	168	0.803	213	0.804	258	0.155	303	0.493	348	0.510
34	0.082	79	0.037	124	0.124	169	0.818	214	0.788	259	0.152	304	0.503	349	0.501
35	0.077	80	0.036	125	0.132	170	0.833	215	0.771	260	0.148	305	0.512	350	0.492
36	0.072	81	0.035	126	0.143	171	0.846	216	0.754	261	0.145	306	0.521	351	0.483
37	0.067	82	0.034	127	0.155	172	0.859	217	0.736	262	0.141	307	0.529	352	0.474
38	0.062	83	0.032	128	0.166	173	0.872	218	0.718	263	0.137	308	0.538	353	0.465
39	0.058	84	0.030	129	0.177	174	0.885	219	0.700	264	0.133	309	0.545	354	0.455
40	0.053	85	0.028	130	0.189	175	0.899	220	0.681	265	0.130	310	0.551	355	0.445
41	0.049	86	0.026	131	0.202	176	0.909	221	0.662	266	0.127	311	0.558	356	0.436
42	0.044	87	0.024	132	0.216	177	0.920	222	0.642	267	0.126	312	0.565	357	0.426
43	0.039	88	0.022	133	0.230	178	0.930	223	0.623	268	0.124	313	0.571	358	0.416
44	0.035	89	0.020	134	0.244	179	0.941	224	0.604	269	0.125	314	0.576	359	0.406

Table 1

Interference Analysis Results Summary
Television Station WTCN LLC
WTCN-CA Palm Beach, FL

Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Ch.	Call	City/State	Dist (km)	Status	Application Ref. No.	---Population (1990 Census)---- Baseline	New Interference
29	WFLX	WEST PALM BEACH FL	50.2	LIC	BLCT-19860514KH	---	none
42	WXEL-TV	WEST PALM BEACH FL	50.2	LIC	BLET-20041005ACB	---	none
43	W43CB	MATECUMBE FL	167.6	LIC	BLTTL-20041025ACG	1,009,027	0 (000%)
43	WOTF-TV	MELBOURNE FL	195.0	LIC	BLCT-20060817AEK	---	none

Section III - Engineering (Analog)

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. All items must be completed. The response "on file" is not acceptable.

NOTEC: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

TECH BOX

1. Channel:
43

2. Frequency Offset: ○ No offset ○ Zero offset ○ Plus offset ◉ Minus offset

3. Antenna Location Coordinates: (NAD 27)
Latitude:
Degrees 27 Minutes 01 Seconds 31 ◉ North ○ South

Longitude:
Degrees 80 Minutes 10 Seconds 43 ◉ West ○ East

4. Antenna Structure Registration Number: 1018573
☐ Not Applicable [Exhibit 5] ☐ Notification filed with FAA

5.	Antenna Location Site Elevation Above Mean Sea Level:	4.9 meters
6.	Overall Tower Height Above Ground Level:	311.5 meters
7.	Height of Radiation Center Above Ground Level:	271.3 meters
8.	Maximum Effective Radiated Power (ERP) Towards Radio Horizon:	150 kW
9.	Maximum ERP in any Horizontal and Vertical Angle:	150 kW

10. Transmitting Antenna:
Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under CDBS Public Access (http://svartifoss2.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search.
○ Nondirectional ○ Directional "Off-the-shelf" ◉ Directional composite

Manufacturer SUP Model UP-10-SPN

Directional Antenna Relative Field Values: ☐ N/A (Nondirectional or Directional "Off-the-shelf")
Rotation (Degrees): ☑ No Rotation

Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0	0.396	10	0.293	20	0.189	30	0.106	40	0.053	50	0.013
60	0.003	70	0.032	80	0.036	90	0.018	100	0.030	110	0.032
120	0.092	130	0.189	140	0.338	150	0.508	160	0.678	170	0.833
180	0.952	190	1	200	0.964	210	0.851	220	0.681	230	0.491
240	0.335	250	0.193	260	0.148	270	0.128	280	0.202	290	0.325
300	0.461	310	0.551	320	0.6	330	0.607	340	0.569	350	0.492
Additional Azimuths		328	0.611								

Relative Field Polar Plot

CERTIFICATION

11.	**Interference** : The proposed facility complies with all of the following applicable rule sections. 47.C.F.R Sections 73.6011, 73.6012, 73.6013, 73.6014, 73.6020, 73.1030 and 74.709.	◉ Yes ○ No See Explanation in [Exhibit 6]
12.	**Environmental Protection Act.** The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., the facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance, an **Exhibit is required.** By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.	◉ Yes ○ No See Explanation in [Exhibit 7]

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name JOSEPH M. DAVIS, P.E.		Relationship to Applicant (e.g., Consulting Engineer) CONSULTING ENGINEER
Signature		Date 06/07/2007
Mailing Address CHESAPEAKE RF CONSULTANTS LLC 11993 KAHNS ROAD		
City MANASSAS	State or Country (if foreign address) VA	Zip Code 20112-
Telephone Number (include area code) 7036509600	E-Mail Address (if available) JOSEPH.DAVIS@RF-CONSULTANTS.COM	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

Exhibits