ENGINEERING EXHIBIT

Application for Class A Television
Flash-Cut Digital Construction Permit

prepared for

CBS Operations Inc.
WBXI-CA Indianapolis, IN
Facility ID 70416
Ch. 47 (digital) 7.8 kW

CBS Operations Inc. ("CBS") is the licensee of Class A television station WBXI-CA, Channel 47, Indianapolis, IN, Facility ID 70416 (BLTTA-20010226AAI). *CBS* proposes herein to "flash cut" WBXI-CA to digital operation at its licensed site location.

The proposed facility will operate on the current WBXI-CA Channel 47 using a "stringent" out of channel emission mask at 7.8 kW effective radiated power with the currently licensed directional antenna. **Figure 1** depicts the 51 dBμ coverage contour of the proposed facility as well as the 74 dBμ contour of the licensed analog operation. The use of the same transmitter site and the service area overlap shown demonstrates compliance with §73.3572 for a minor change.

The proposed antenna is the existing Bogner directional model B8UA employed by the licensed WBXI-CA facility. The rotation angle of this "off the shelf" antenna will remain at 355 degrees as currently licensed. The WBXI-CA antenna supporting structure corresponds to FCC Antenna Structure Registration ("ASR") number 1227948, a rooftop structure atop the Chase Tower building in downtown Indianapolis. No change to the overall structure height will result from this proposal. The antenna's radiation center height above ground level is corrected herein to 245.7 meters, from 254.7 meters, to conform to ASR data.

Interference studies per OET Bulletin 69[1] show that the proposal complies with the Commission's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations. The results, summarized in **Table 1**, show that any new interference does not exceed the Commission's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations) to any facility.

The WBXI-CA site is located 349 km from the U.S. – Canadian border. The worst-case 12.4 dBμ F(50,10) co-channel DTV-to-DTV interfering contour is depicted in **Figure 2** and does not extend across the border. Thus it is believed that the instant proposal complies with all international agreements at this time.

The nearest FCC monitoring station is 315 km distant at Allegan, MI. This exceeds the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with "quiet" zones specified in §73.1030(a) and (b). There are no AM stations within 3.2 kilometers of the site, based on information contained within the Commission's database.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The proposal involves an existing transmitting antenna which is on a rooftop 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.

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 the worst-case of 100% field at downward elevations, the calculated signal density near the Chase Tower at two meters above ground level attributable to the proposed facility is 4.4 $\mu W/cm^2$, which is 1.0 percent of the general population/uncontrolled maximum permitted exposure limit.

[1]FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). 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.

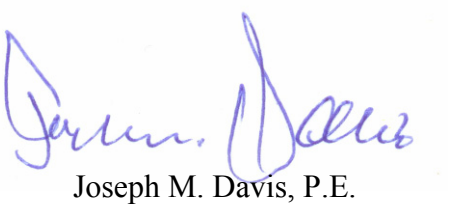
This is below the five percent threshold limit described in §1.1307(b)(3) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent. When the antenna's elevation pattern is considered, the level of RF exposure will be much lower.

Access to the Chase Tower rooftop, antenna support structure, and any areas within the building that may exceed exposure limits is strictly controlled by the building owner. *CBS* will continue to participate in the building's RF exposure safety program along with the other broadcasters and FCC licensees that utilize the Chase Tower as a transmission site. As necessary, based on calculations or actual measurements considering all emitters, exposure abatement procedures will be confirmed and amended as necessary. The RF safety program will be employed to protect maintenance and installation workers from excessive exposure when work must be performed in locations where high RF levels may be present. Such areas have been placed under strict restricted access and properly identified.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. 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, mast or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

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.



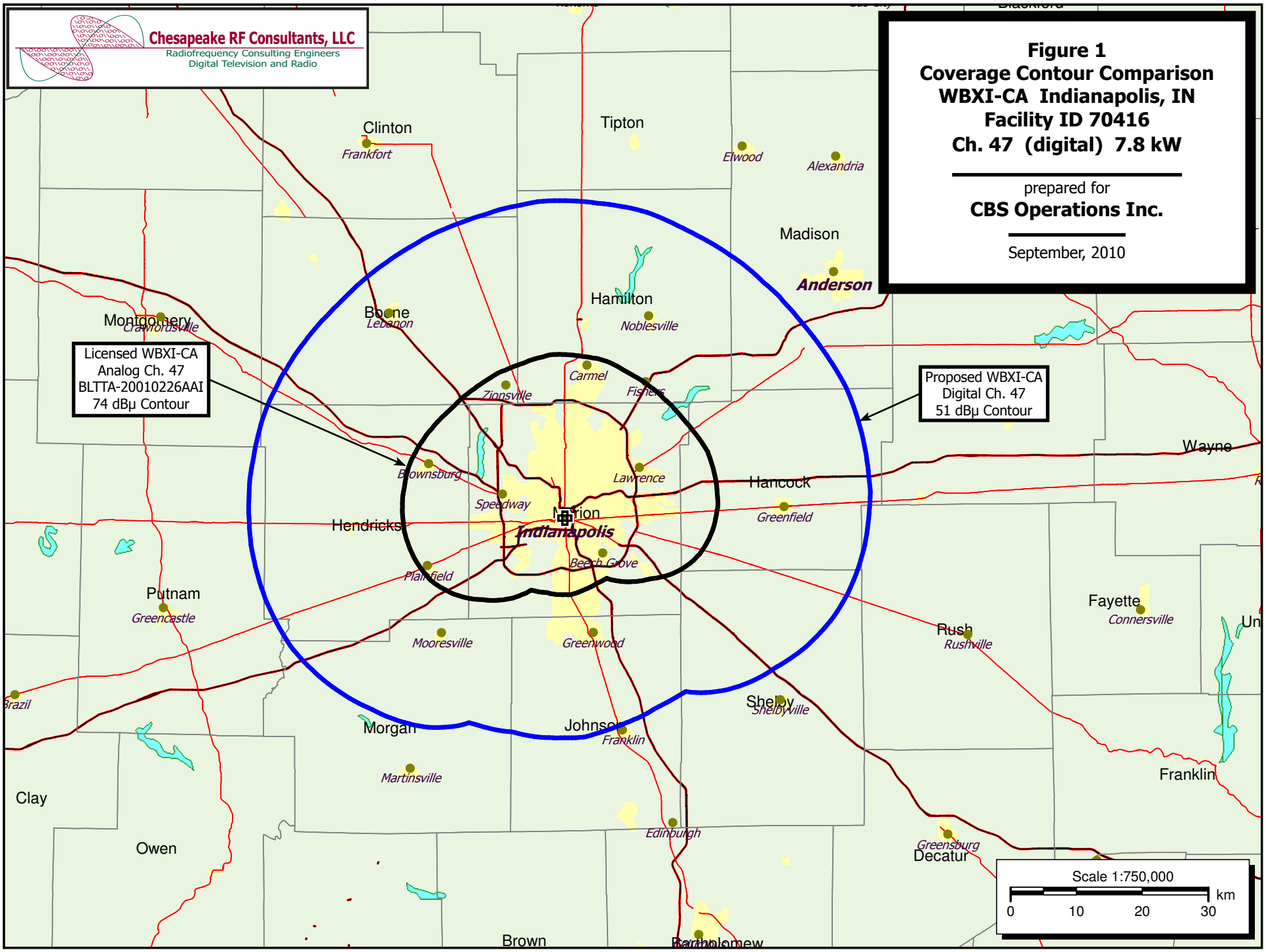
Joseph M. Davis, P.E.
September 1, 2010

Chesapeake RF Consultants, LLC
PO Box 1088
Yorktown, VA 23692
703-650-9600

List of Attachments

Figure 1	Coverage Contour Comparison
Figure 2	Interfering Contour to Canada
Table 1	Interference Analysis Results Summary
Form 301-CA	Saved Version of Engineering Sections from FCC Form at Time of Upload

This material was entered September 1, 2010 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's account number and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.


Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
Figure 1
Coverage Contour Comparison
WBXI-CA Indianapolis, IN
Facility ID 70416
Ch. 47 (digital) 7.8 kW
prepared for
CBS Operations Inc.
September, 2010
Licensed WBXI-CA
Analog Ch. 47
BLTTA-20010226AAI
74 dBµ Contour
Proposed WBXI-CA
Digital Ch. 47
51 dBµ Contour
Clinton
Frankfort
Tipton
Elwood
Alexandria
Madison
Anderson
Hamilton
Noblesville
Boone
Lebanon
Montgomery
Crawfordsville
Carmel
Zionsville
Fishers
Wayne
Brownsburg
Lawrence
Hancock
Speedway
Marion
Indianapolis
Greenfield
Hendricks
Beech Grove
Plainfield
Putnam
Greencastle
Mooresville
Greenwood
Rush
Rushville
Fayette
Connersville
Shelby
Shelbyville
Morgan
Johnson
Franklin
Martinsville
Clay
Owen
Edinburgh
Greensburg
Decatur
Brown
Scale 1:750,000
km
0
10
20
30

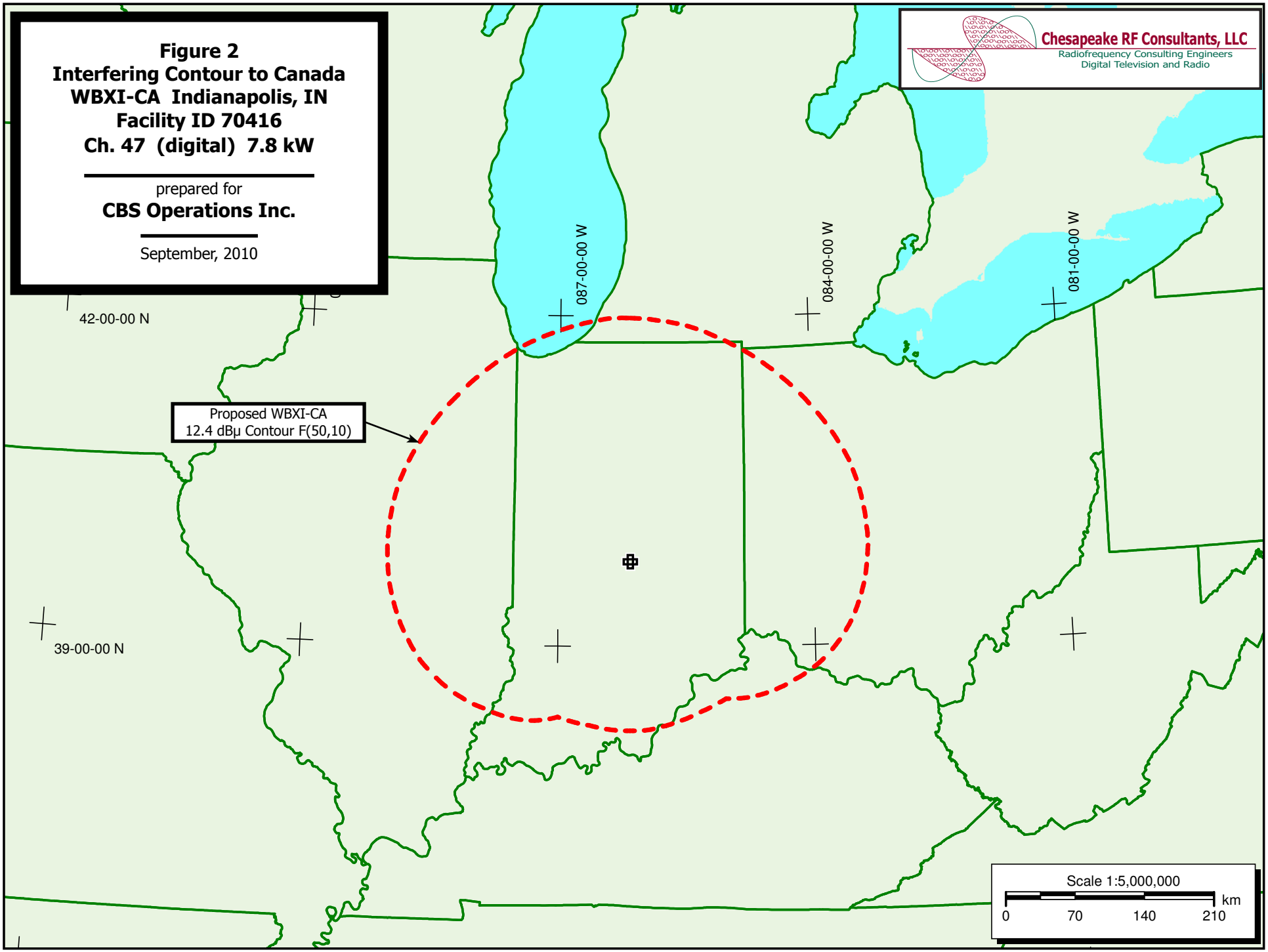


Figure 2
Interfering Contour to Canada
WBXI-CA Indianapolis, IN
Facility ID 70416
Ch. 47 (digital) 7.8 kW
prepared for
CBS Operations Inc.
September, 2010
Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio
087-00-00 W
084-00-00 W
081-00-00 W
42-00-00 N
39-00-00 N
Proposed WBXI-CA
12.4 dBµ Contour F(50,10)
Scale 1:5,000,000
km
0
70
140
210

Table 1

Interference Analysis Results Summary

prepared for

CBS Operations Inc.

WBXI-CA Indianapolis, IN

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

```
WBXI-CA  USERRECORD-01                INDIANAPOLIS          IN US
Channel 47 ERP 7.8    kW   HAAT  235. m  RCAMSL 00464 m STRINGENT MASK
Latitude 039-46-11  Longitude 0086-09-26
Dir Antenna Make CDB  Model 00000000018179  Beam tilt N  Ref Azimuth 355.
```

Ch.	Call	City/State	Dist (km)	Status	Application Ref. No.	---Population (2000 Census)---- Baseline	New Interference
32	WKMF-LP	SULLIVAN IN	129.5	LIC	BLTTL-20060905AAC	---	none
43	WAJN-LP	BROOKSTON IN	133.2	LIC	BLTTL-20050422AEH	---	none
43	W43BV	TERRE HAUTE IN	114.0	LIC	BLTT-20010713AAI	---	none
46	WBXC-CA	CHAMPAIGN, ETC. IL	181.8	LIC	BLTTA-20040723ABO	---	none
46	WWJS-CA	CLARKSVILLE IN	158.2	APP	BSTA-20090114AAE	---	none
46	WALV-CA	INDIANAPOLIS IN	17.8	CP	BDISTTA-20081208AAT	1,172,147	3,002 (0.26%)
46	WHME-TV	SOUTH BEND IN	202.9	APP	BPCDT-20090716AAZ	---	none
46	WHME-DR	SOUTH BEND IN	202.9	APP	BPRM-20080619AET	---	none
47	WTTW	CHICAGO IL	265.4	LIC	BLEDT-20020408ABK	---	none
47	WRBU	EAST ST. LOUIS IL	403.9	LIC	BLCDT-20020510ABC	---	none
47	WRBU	EAST ST. LOUIS IL	403.9	CP	BPCDT-20080620AGT	---	none
47	NEW	ROCKFORD IL	376.9	APP	BMJADTL-20100519ABD	---	none
47	WKUG-LP	BOWLING GREEN KY	314.1	CP	BDISDTL-20090908AEU	---	none
47	WAVE	LOUISVILLE KY	158.2	LIC	BLCDT-20030306ABQ	1,677,467	0 (0.00%)
47	W66BV	DETROIT MI	386.2	CP	BDISDTT-20070105AAR	---	none
47	W66BV	DETROIT MI	386.2	APP	BDISDTT-20060214ADU	---	none
47	K47FB	CAPE GIRARDEAU MO	396.2	APP	BPTTL-20020927ABL	---	none
47	WBQC-LD	CINCINNATI OH	159.4	LIC	BLDTL-20081201DCM	---	none
47	W47DI-D	COLUMBUS OH	268.2	CP	BDCCDTL-20061012ACV	---	none
47	WLMO-LP	LIMA OH	203.3	CP	BDISDTL-20090623AAZ	---	none
47	W47AB-D	MANSFIELD OH	328.4	LIC	BLDTT-20100322ACB	---	none
47	W47AB-D	MANSFIELD OH	328.5	APP	BMPDTT-20090602AAH	---	none
47	WTAS-LP	WAUKESHA WI	393.8	LIC	BLTTL-20071001ACM	---	none
48	WCIA	CHAMPAIGN IL	198.9	CP MOD	BMPCDT-20050701ACC	---	none
48	W48CU	CHAMPAIGN/URBANA IL	174.0	LIC	BLTTL-20041122AIX	---	none
48	WTTV	BLOOMINGTON IN	40.3	APP	BPCDT-20100324AAF	2,290,702	7,179 (0.31%)
48	WTTV	BLOOMINGTON IN	40.3	CP MOD	BMPCDT-20080619AKO	2,291,887	7,754 (0.34%)
48	WTTV	BLOOMINGTON IN	40.3	LIC	BLCDT-20060630ACD	2,072,897	10,270 (0.495%)
48	WHME-TV	SOUTH BEND IN	202.9	APP	BPCDT-20080619ABC	---	none
50	WALV-CA	INDIANAPOLIS IN	17.8	LIC	BLTTA-20020621AAJ	---	none
50	WKGK-LP	KOKOMO IN	73.7	LIC	BLTTA-20041122AIH	---	none
51	WIPX-LP	INDIANAPOLIS IN	0.0	LIC	BLTTL-19970918JR	---	none
51	W51DU	LAFAYETTE IN	91.5	LIC	BLTT-20061005ADX	---	none
54	WVGO-LP	SULLIVAN IN	129.5	LIC	BLTTL-20050817AAK	---	none

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	Relationship to Applicant (e.g., Consulting Engineer)
JOSEPH M. DAVIS, P.E.	CONSULTING ENGINEER
Signature	Date
	9/1/2010

Mailing Address		
CHESAPEAKE RF CONSULTANTS LLC PO BOX 1088		
City	State or Country (if foreign address)	Zip Code
YORKTOWN	VA	23692-
Telephone Number (include area code)	E-Mail Address (if available)	
7036509600	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).

SECTION III - Engineering (Digital)

TECHNICAL SPECIFICATIONS

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

NOTE: 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 Number:
47

2. Antenna Location Coordinates: (NAD 27)
Latitude:
Degrees 39 Minutes 46 Seconds 11 (•) North ( ) South

Longitude:
Degrees 86 Minutes 9 Seconds 26 (•) West ( ) East

3. Antenna Structure Registration Number: 1227948
☐ Not Applicable [Exhibit 8] ☐ Notification filed with FAA

4.	Antenna Location Site Elevation Above Mean Sea Level:	218.5 meters
5.	Overall Tower Height Above Ground Level:	253 meters
6.	Height of Radiation Center Above Ground Level:	245.7 meters
7.	Maximum Effective Radiated Power (ERP):	7.8 kW
8.	Transmitter Output Power:	0.56 kW

9. a. Transmitting Antenna:
Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under CDBS Public Access (http://licensing.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 BOG Model B8UA

b. Electrical Beam Tilt: degrees ☑ Not Applicable

c. Directional Antenna Relative Field Values: ☑ N/A (Nondirectional or Directional "Off-the-shelf")

Rotation (Degrees): 355 ☐ No Rotation

Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0		10		20		30		40		50	
60		70		80		90		100		110	
120		130		140		150		160		170	
180		190		200		210		220		230	
240		250		260		270		280		290	
300		310		320		330		340		350	
Additional Azimuths											

Relative Field Polar Plot

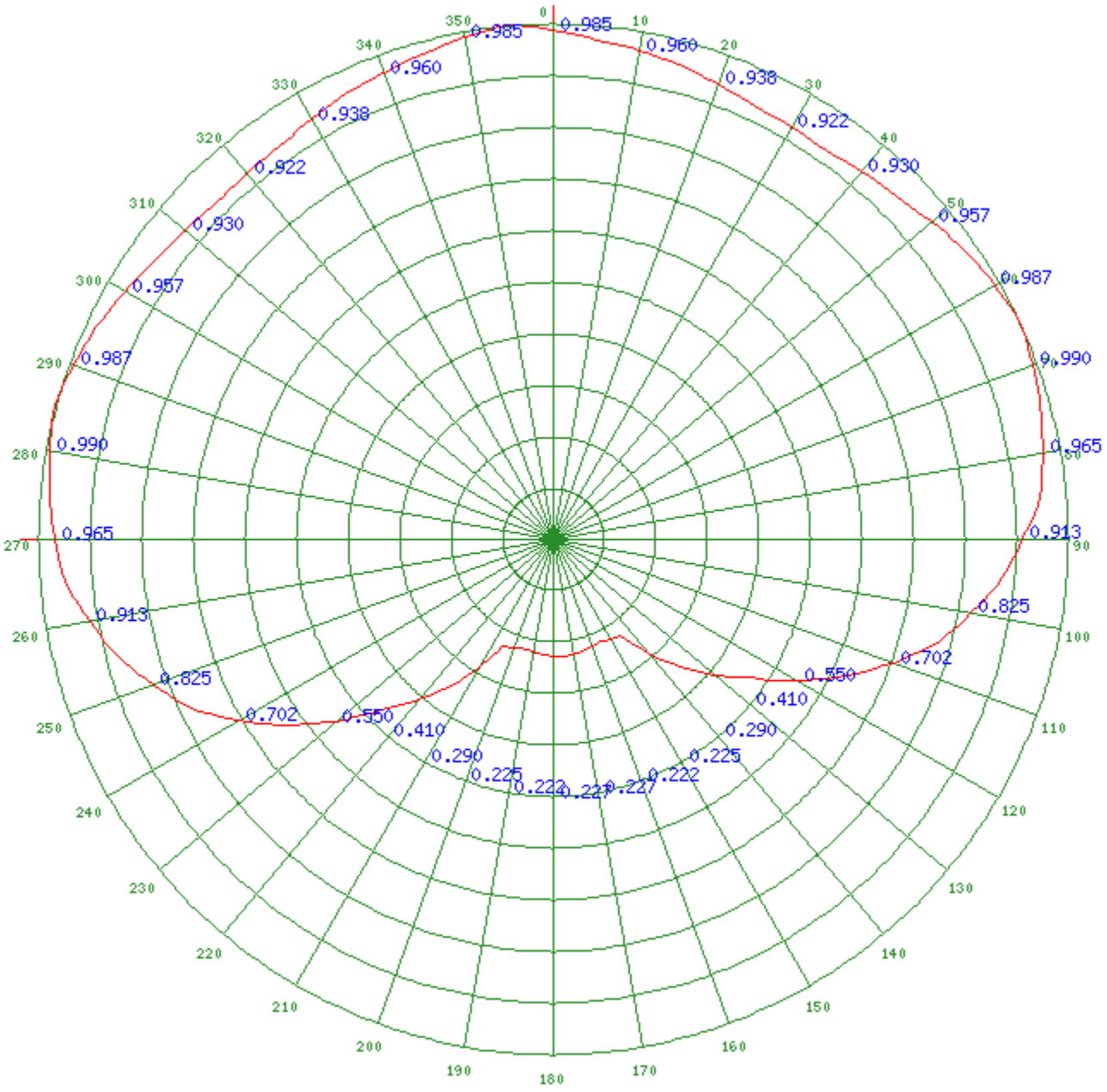
NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

10.	**Out-of-channel Emission Mask:** ○ Simple ◉ Stringent	
CERTIFICATION		
11.	**Interference.** The proposed facility complies with all of the following applicable rule sections. 47.C.F.R Sections 73.6016, 73.6017, 73.6018, 73.6019, 73.6020, 73.6027 and 74.794(b).	◉ Yes ○ No See Explanation in [Exhibit 9]
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 10]
13.	**Channels 52-59.** If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable: ☐ The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available. ☐ Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.	

PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.

Any specified rotation has already been applied to the plotted pattern.
Field strength values shown on a rotated pattern may differ from the listed values because intermediate azimuths are interpolated between entered azimuths.

Close Window



FM Query FCC TV Query