

## **ENGINEERING EXHIBIT**

### **Digital Television Translator Station Application for Minor Modification of Licensed Facility** prepared for

**University of North Carolina**  
W30CS-D Zionville, NC  
Facility ID 69374  
Ch. 30 1.5 kW Directional

*University of North Carolina (“UNC”)* is the licensee of digital television translator station W30CS-D, Channel 30, Facility ID 69374, Zionville NC. W30CS-D is licensed to operate (file# BLDTT-20090615AAL) with 0.6 kW effective radiated power (“ERP”), directional. *UNC* herein seeks a minor modification Construction Permit to increase W30CS-D’s ERP to 1.5 kW and to specify corrected antenna beamtilt information. No change in the actual antenna, site location, or antenna height is proposed.

The W30CS-D antenna supporting structure is not registered as the overall structure height does not exceed 61 meters above ground and passes the FCC’s TOWAIR program for the location. The proposed facility will employ the licensed W30CS-D antenna and no change to the overall structure height is proposed.

The proposed ERP is 1.5 kW using a “full service” out of channel emission mask. The W30CS-D transmitting antenna is a side-mounted Scala model 4DR-8-2HW having horizontal polarization and oriented at 330°T. A plot of the directional antenna’s azimuthal pattern is supplied in Figure 1. The antenna’s beamtilt characterization of 3.0 degrees is corrected herein to indicate that it is accomplished with mechanical tilt (at 330°T) rather than electrical tilt. Figure 2 depicts the 51 dBμ coverage contours of the proposed and licensed facilities. The use of the same site and corresponding service area overlap demonstrate compliance with §73.3572 for a minor change.

Interference study per OET Bulletin 69<sup>1</sup> shows that the proposal complies with the FCC's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations. FCC processing of this proposal is requested using a **1.0 km cell size and 0.2 km terrain profile increment**. The results, summarized in Table 1, show that any new interference does not exceed the FCC's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations) to any facility.

### **Human Exposure to Radiofrequency Electromagnetic Field**

The proposed facility was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number. 65. Based on OET-65 equation (10) and considering 30 percent antenna relative field in downward elevations (pattern data shows less than 30 percent relative field at angles 20 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  $1.5 \mu\text{W}/\text{cm}^2$ , which is 0.4 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. This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

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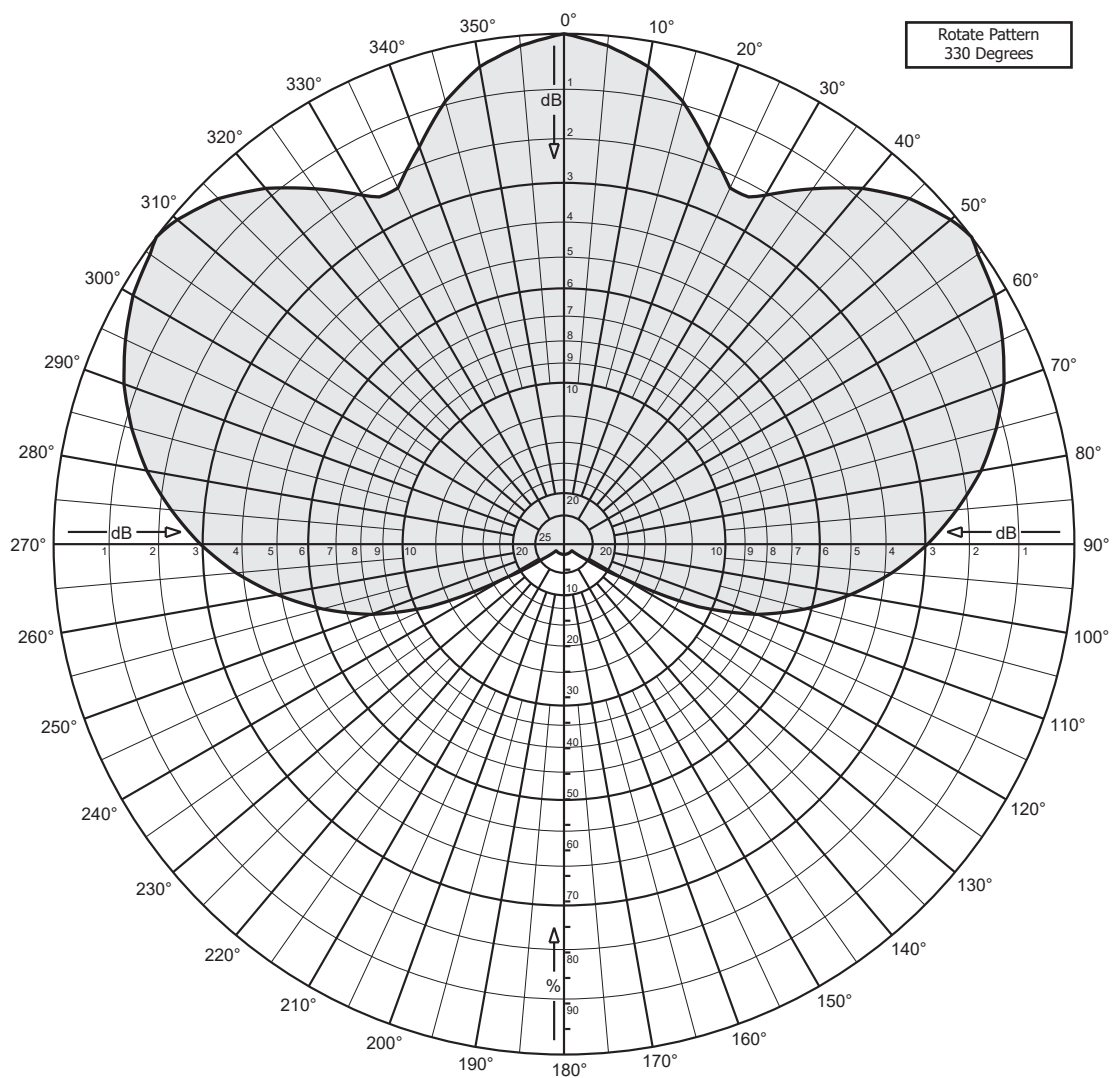
<sup>1</sup>FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 1 km cell size, and 0.2 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

List of Attachments

Figure 1	Antenna Azimuthal Pattern
Figure 2	Coverage Contour Comparison
Table 1	TVStudy Analysis of Proposal
Form 2100	Saved Version of Engineering Sections from FCC Form at Time of Upload

**Chesapeake RF Consultants, LLC**

Joseph M. Davis, P.E.	December 16, 2020	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



4DR-8-2HW

Ch-30

Maximum gain: 8.5 dBd

Horizontal polarization

Horizontal plane pattern

**KATHREIN**  
USA

**Figure 1**

**Antenna Azimuthal Pattern**

**W30CS-D Zionville, NC**

**Facility ID 69374**

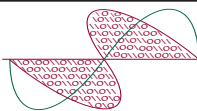
**Ch. 30 1.5 kW Directional**

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**University of North Carolina**

December, 2020



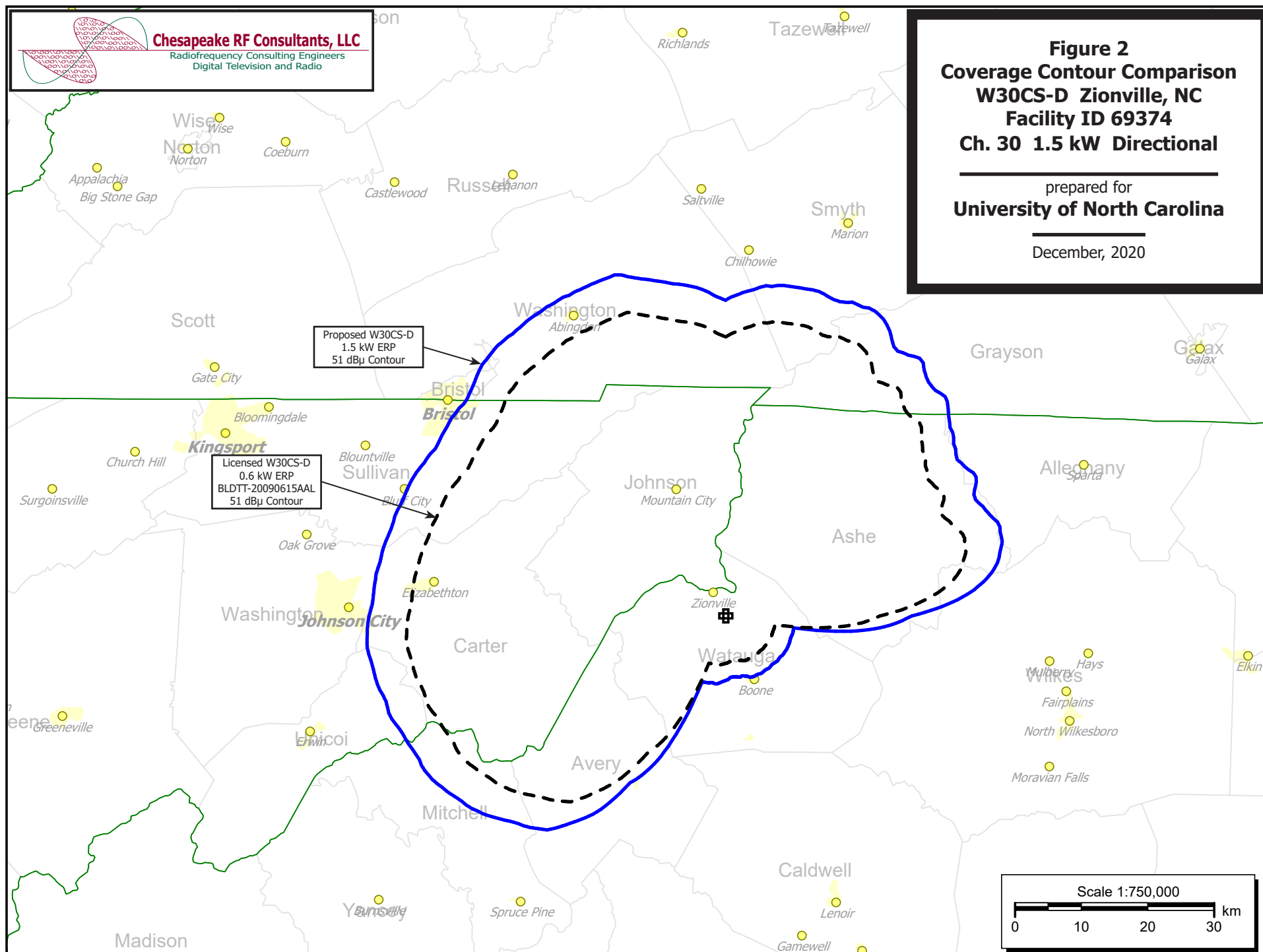


**Chesapeake RF Consultants, LLC**  
Radiofrequency Consulting Engineers  
Digital Television and Radio

**Figure 2**  
**Coverage Contour Comparison**  
**W30CS-D Zionville, NC**  
**Facility ID 69374**  
**Ch. 30 1.5 kW Directional**

prepared for  
**University of North Carolina**

December, 2020



# **Table 1 W30CS-D TVStudy Analysis of Proposal** (page 1 of 4)



tvstudy v2.2.5 (4uoc83)  
Database: localhost, Study: W30CS-D prop 1.5kW, Model: Longley-Rice  
Start: 2020.12.16 09:12:55

Study created: 2020.12.16 09:12:55

Study build station data: LMS TV 2020-12-15

Proposal: W30CS-D D30 LD APP ZIONVILLE, NC  
File number: W30CS-D prop 1.5kW  
Facility ID: 69374  
Station data: User record  
Record ID: 3407  
Country: U.S.

Build options:  
Protect pre-transition records not on baseline channel

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	W29FE-D	D29	LD	LIC	BAT CAVE, ETC., NC	BLANK0000073778	109.1 km
No	WXLV-TV	D29	DT	LIC	WINSTON-SALEM, NC	BLCDT20050624ABB	177.2
No	WSQY-LP	D29	LD	CP	SPARTANBURG, SC	BLANK0000059067	163.6
No	WKOP-TV	D29	DT	LIC	KNOXVILLE, TN	BLANK0000081273	203.4
No	WCYB-TV	D29	LD	LIC	BRISTOL, VA	BLANK0000010637	38.2
No	WCHS-TV	D29	DT	LIC	CHARLESTON, WV	BLANK0000059340	234.5
No	DW29DP-D	D29	LD	APP	WELCH, WV	BLDTT20130215AAE	126.0
No	WTBS-LD	D30	LD	LIC	ATLANTA, GA	BLDTL20110105ABR	365.5
No	WAGT-CD	D30	DC	LIC	AUGUSTA, GA	BLANK0000063630	322.1
No	WBUD-LD	D30	LD	CP	BLAIRSVILLE, GA	BLANK0000071622	365.5
No	WDGA-CD	D30	DC	LIC	DALTON, GA	BLANK0000098047	345.4
No	WMGT-TV	D30	DT	LIC	MACON, GA	BLANK0000075816	428.9
No	WKPC-TV	D30	DT	LIC	LOUISVILLE, KY	BLANK0000087420	429.5
No	WKMR	D30	DT	LIC	MOREHEAD, KY	BLANK0000075044	256.1
No	W30CR-D	D30	LD	LIC	BISCOE, NC	BLDTT20101029AAJ	204.9
No	W30DX-D	D30	LD	LIC	BRYSON CITY, ETC, NC	BLANK0000119378	188.3
Yes	W30EF-D	D30	LD	LIC	JEFFERSON, NC	BLANK0000107212	27.3
No	WAXN-TV	D30	LD	LIC	KANNAPOLIS, NC	BLANK0000119096	126.1
No	WUNU	D30	DT	LIC	LUMBERTON, NC	BLANK0000114990	294.3
No	WHIG-CD	D30	DC	CP	ROCKY MOUNT, NC	BLANK0000028657	356.8
No	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049	403.7
No	W30DH-D	D30	LD	CP	FLORENCE, SC	BNPDTL20100409ABY	325.7
Yes	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK0000081030	154.5
No	W30DP-D	D30	LD	CP	ALGOOD, TN	BNPDTL20100609AFX	332.0
No	W11DM-D	N30-	TX	LIC	COLLEGE DALE, TN	BLTTL19990802JH	334.2
Yes	W45DF-D	D30	LD	CP	KNOXVILLE, TN	BLANK0000114382	203.4
No	WNAB	D30	DT	LIC	NASHVILLE, TN	BLANK0000115868	454.4
Yes	WCYB-TV	D30	DT	APP	BRISTOL, VA	BLANK0000127663	38.2
No	WSVW-LD	D30	LD	LIC	HARRISONBURG, VA	BLANK0000120244	349.3
Yes	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000094109	171.1
No	W30DU-D	D30	LD	CP	SUTTON, WV	BNPDTL20100514AAO	272.9
No	WDKT-LD	N31-	TX	LIC	HENDERSONVILLE, NC	BLTTL19940525JJ	134.2
No	WGHP	D31	DT	LIC	HIGH POINT, NC	BLANK0000116302	177.6
No	W31DI-D	D31	LD	APP	SPRUCE PINE, NC	BLANK0000129695	58.2
No	W31DI-D	D31	LD	LIC	SPRUCE PINE, NC	BLDTT20090506ABZ	58.2
No	W31DY-D	D31	LD	LIC	PICKENS, SC	BLANK0000119379	163.6
No	WKTC	D31	DT	LIC	SUMTER, SC	BLANK0000093003	258.1
No	WBXX-TV	D31	DT	LIC	CROSSVILLE, TN	BLANK0000081641	235.6
No	WOAY-TV	D31	DT	LIC	OAK HILL, WV	BLANK0000096583	190.8

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D30  
Mask: Full Service  
Latitude: 36 18 9.40 N (NAD83)

**Table 1 W30CS-D TVStudy Analysis of Proposal**  
(page 2 of 4)



Longitude: 81 43 19.30 W  
Height AMSL: 1635.0 m  
HAAT: 0.0 m  
Peak ERP: 1.50 kW  
Antenna: SCA-4DR-8-2HW (ID 20751) 330.0 deg  
Elev Pattn: Generic  
Mech Tilt: 3.00 @ 330.0 deg

50.3 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.948 kW	497.1 m	48.5 km
45.0	1.16	431.6	47.6
90.0	0.027	584.5	28.9
135.0	0.000	572.1	10.6
180.0	0.000	506.8	10.1
225.0	0.342	645.6	45.2
270.0	1.43	678.7	54.8
315.0	1.19	671.7	53.5

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m Computed HAAT: 574 m

Distance to Canadian border: 600.2 km

Distance to Mexican border: 1842.3 km

Conditions at FCC monitoring station: Powder Springs GA  
Bearing: 226.1 degrees Distance: 384.8 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 288.8 degrees Distance: 2089.5 km

Study cell size: 1.00 km  
Profile point spacing: 0.20 km

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

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Interference to BLANK0000107212 LIC scenario 1

Desired:	Call W30EF-D	Chan D30	Svc LD	Status LIC	City, State JEFFERSON, NC	File Number BLANK0000107212	Distance		
Undesireds:	W30CS-D	D30	LD	APP	ZIONVILLE, NC	W30CS-D prop 1.5kW	27.3 km		
	WCYB-TV	D29	LD	LIC	BRISTOL, VA	BLANK0000010637	55.4		
	WAXN-TV	D30	LD	LIC	KANNAPOLIS, NC	BLANK0000119096	123.7		
	WUNU	D30	DT	LIC	LUMBERTON, NC	BLANK0000114990	288.0		
	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK0000081030	180.7		
	WCYB-TV	D30	DT	APP	BRISTOL, VA	BLANK0000127663	55.4		
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000094109	143.9		
	W31DI-D	D31	LD	APP	SPRUCE PINE, NC	BLANK0000129695	85.0		
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
10346.3	305,040	7188.3	195,299	6894.4	187,256	6807.0	185,675	1.27	0.84
Undesired				Total IX	Unique IX, before		Unique IX, after		
W30CS-D	D30	LD	APP	183.1	3,195		87.4	1,581	
WCYB-TV	D29	LD	LIC	3.0	0	0.0	0.0	0	
WAXN-TV	D30	LD	LIC	37.3	300	15.1	106	13.1	75
WUNU	D30	DT	LIC	3.0	13	0.0	0	0.0	0
WYFF	D30	DT	LIC	52.4	1,398	14.1	295	9.1	229
WCYB-TV	D30	DT	APP	113.7	1,749	48.3	536	31.1	323
WDBJ	D30	DT	LIC	199.3	6,815	127.8	5,224	94.6	4,612

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Interference to BLANK0000081030 LIC scenario 1

Call	Chan	Svc	Status	City, State	File Number	Distance
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**Table 1 W30CS-D TVStudy Analysis of Proposal**  
(page 3 of 4)



Desired:	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK0000081030	
Undesireds:	W30CS-D	D30	LD	APP	ZIONVILLE, NC	W30CS-D prop 1.5kW	154.5 km
	WYGA-CD	D29	DC	APP	ATLANTA, GA	BLANK0000127583	221.2
	WKOP-TV	D29	DT	LIC	KNOXVILLE, TN	BLANK0000081273	156.7
	WAGT-CD	D30	DC	LIC	AUGUSTA, GA	BLANK0000063630	202.5
	WMGT-TV	D30	DT	LIC	MACON, GA	BLANK0000075816	276.6
	WKMR	D30	DT	LIC	MOREHEAD, KY	BLANK0000075044	348.1
	WUNU	D30	DT	LIC	LUMBERTON, NC	BLANK0000114990	326.3
	W30CV-D	D30	DC	CP	HILTON HEAD ISLAND, SC	BLANK0000127486	359.2
	WCYB-TV	D30	DT	APP	BRISTOL, VA	BLANK0000127663	155.3
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000094109	319.3
	WKTC	D31	DT	LIC	SUMTER, SC	BLANK0000093003	201.6
	WBXX-TV	D31	DT	LIC	CROSSVILLE, TN	BLANK0000081641	191.8

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
45301.7 2,629,601	41836.8 2,438,796	41193.0 2,418,195	41190.0 2,418,050	0.01 0.01

Undesired	Total IX	Unique IX, before	Unique IX, after
W30CS-D D30 LD APP	30.9 2,507	3.0 145	
WKOP-TV D29 DT LIC	7.9 0	2.0 0	
WAGT-CD D30 DC LIC	373.9 4,471	351.1 4,019	351.1 4,019
WMGT-TV D30 DT LIC	29.8 1,031	13.9 253	13.9 253
WKMR D30 DT LIC	6.0 0	0.0 0	0.0 0
WUNU D30 DT LIC	55.8 3,874	44.8 3,519	37.9 2,668
WCYB-TV D30 DT APP	117.7 4,439	89.8 2,798	87.8 2,798
WDBJ D30 DT LIC	105.5 9,173	86.5 7,555	72.6 6,656
WKTC D31 DT LIC	2.0 35	2.0 35	2.0 35
WBXX-TV D31 DT LIC	2.0 0	0.0 0	0.0 0

Interference to BLANK0000114382 CP scenario 1

Desired:	Call W45DF-D	Chan D30	Svc LD	Status CP	City, State KNOXVILLE, TN	File Number BLANK0000114382	Distance		
Undesireds:	W30CS-D	D30	LD	APP	ZIONVILLE, NC	W30CS-D prop 1.5kW	203.4 km		
	WKOP-TV	D29	DT	LIC	KNOXVILLE, TN	BLANK0000081273	0.0		
	WKMR	D30	DT	LIC	MOREHEAD, KY	BLANK0000075044	247.4		
	WNAB	D30	DT	LIC	NASHVILLE, TN	BLANK0000115868	256.5		
	WCYB-TV	D30	DT	APP	BRISTOL, VA	BLANK0000127663	173.2		
	WBXX-TV	D31	DT	LIC	CROSSVILLE, TN	BLANK0000081641	36.5		
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
7406.2	863,951	6705.2	836,438	5493.1	703,741	5493.1	703,741	0.00	0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
W30CS-D D30 LD APP	1.0 0	0.0 0	
WKOP-TV D29 DT LIC	1033.9 113,166	526.8 58,897	526.8 58,897
WKMR D30 DT LIC	1.0 0	0.0 0	0.0 0
WNAB D30 DT LIC	1.0 0	0.0 0	0.0 0
WCYB-TV D30 DT APP	322.4 39,664	84.7 10,324	84.7 10,324
WBXX-TV D31 DT LIC	484.7 48,293	60.4 4,422	60.4 4,422

Interference to BLANK0000127663 APP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance		
Desired:	WCYB-TV	D30	DT	APP	BRISTOL, VA	BLANK0000127663			
Undesireds:	W30CS-D	D30	LD	APP	ZIONVILLE, NC	W30CS-D prop 1.5kW	38.2 km		
	WKOP-TV	D29	DT	LIC	KNOXVILLE, TN	BLANK0000081273	173.2		
	WAGT-CD	D30	DC	LIC	AUGUSTA, GA	BLANK0000063630	339.2		
	WKPC-TV	D30	DT	LIC	LOUISVILLE, KY	BLANK0000087420	391.7		
	WKMR	D30	DT	LIC	MOREHEAD, KY	BLANK0000075044	223.6		
	WUNU	D30	DT	LIC	LUMBERTON, NC	BLANK0000114990	332.1		
	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK0000125049	386.8		
	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK0000081030	155.3		
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000094109	192.4		
	WBXX-TV	D31	DT	LIC	CROSSVILLE, TN	BLANK0000081641	203.4		
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
42775.2	1,866,500	35038.3	1,352,777	33925.4	1,321,077	33727.3	1,314,481	0.58	0.50



**Table 1 W30CS-D TVStudy Analysis of Proposal**  
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Undesired		Total IX	Unique IX, before	Unique IX, after
W30CS-D D30 LD APP	381.0	10,359		198.1 6,596
WKOP-TV D29 DT LIC	76.7	6,440	38.3 3,690	34.3 3,299
WAGT-CD D30 DC LIC	3.0	0	0.0 0	0.0 0
WKPC-TV D30 DT LIC	1.0	0	0.0 0	0.0 0
WKMR D30 DT LIC	141.9	3,008	69.3 1,722	65.3 1,602
WUNU D30 DT LIC	22.2	459	4.0 124	0.0 0
WHIZ-TV D30 DT LIC	2.0	22	0.0 0	0.0 0
WYFF D30 DT LIC	331.7	6,386	166.0 3,487	122.8 2,744
WDBJ D30 DT LIC	730.3	16,252	562.5 12,284	497.2 11,163
WBXX-TV D31 DT LIC	71.7	6,385	35.3 3,659	35.3 3,659

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Interference to BLANK0000094109 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000094109	
Undesireds:	W30CS-D	D30	LD	APP	ZIONVILLE, NC	W30CS-D prop 1.5kW	171.1 km
	WXLV-TV	D29	DT	LIC	WINSTON-SALEM, NC	BLCDDT20050624ABB	150.5
	WCHS-TV	D29	DT	LIC	CHARLESTON, WV	BLANK0000059340	204.2
	WIAV-CD	D30	DC	LIC	WASHINGTON, DC	BLANK00000119221	331.6
	WKMR	D30	DT	LIC	MOREHEAD, KY	BLANK0000075044	305.9
	WUNU	D30	DT	LIC	LUMBERTON, NC	BLANK00000114990	284.6
	WHIZ-TV	D30	DT	LIC	ZANESVILLE, OH	BLANK00000125049	342.8
	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK0000081030	319.3
	WCYB-TV	D30	DT	APP	BRISTOL, VA	BLANK00000127663	192.4
	WGHP	D31	DT	LIC	HIGH POINT, NC	BLANK00000116302	156.2
	WOAY-TV	D31	DT	LIC	OAK HILL, WV	BLANK0000096583	121.9
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	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	46731.6 1,625,661	42478.9	1,482,955	41602.4	1,458,881	41588.3 1,457,703	0.03 0.08

Undesired		Total IX	Unique IX, before	Unique IX, after
W30CS-D D30 LD APP	51.3	3,474		14.1 1,178
WXLV-TV D29 DT LIC	130.8	7,624	66.4 3,544	66.4 3,544
WCHS-TV D29 DT LIC	6.1	108	0.0 0	0.0 0
WIAV-CD D30 DC LIC	3.0	0	3.0 0	3.0 0
WKMR D30 DT LIC	46.3	3,186	11.0 241	11.0 241
WUNU D30 DT LIC	142.7	3,626	61.3 1,243	59.2 1,044
WHIZ-TV D30 DT LIC	29.3	1,804	4.0 261	4.0 261
WYFF D30 DT LIC	110.6	4,568	34.2 1,937	29.2 1,075
WCYB-TV D30 DT APP	558.5	11,304	476.9 7,364	473.9 7,335
WGHP D31 DT LIC	44.3	3,447	1.0 37	1.0 37
WOAY-TV D31 DT LIC	77.9	3,708	35.4 467	35.4 467

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Interference to proposal scenario 1

\*\*MX: 3.59% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	W30CS-D	D30	LD	APP	ZIONVILLE, NC	W30CS-D prop 1.5kW	
Undesireds:	WCYB-TV	D29	LD	LIC	BRISTOL, VA	BLANK0000010637	38.2 km
	W30EF-D	D30	LD	LIC	JEFFERSON, NC	BLANK00000107212	27.3
	WAXN-TV	D30	LD	LIC	KANNAPOLIS, NC	BLANK00000119096	126.1
	WYFF	D30	DT	LIC	GREENVILLE, SC	BLANK0000081030	154.5
	WCYB-TV	D30	DT	APP	BRISTOL, VA	BLANK00000127663	38.2
	WDBJ	D30	DT	LIC	ROANOKE, VA	BLANK0000094109	171.1
	W31DI-D	D31	LD	APP	SPRUCE PINE, NC	BLANK00000129695	58.2
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	Service area	Terrain-limited		IX-free		Percent IX	
	5379.6 225,447	3828.8	113,616	3584.0	109,541	6.39 3.59	

Undesired		Total IX	Unique IX	Prcnt Unique IX
WCYB-TV D29 LD LIC	2.0	0	0.0 0	0.00 0.00
W30EF-D D30 LD LIC	121.8	2,247	79.5 2,021	2.08 1.78
WAXN-TV D30 LD LIC	17.1	236	4.0 154	0.11 0.14
WYFF D30 DT LIC	7.0	15	0.0 0	0.00 0.00
WCYB-TV D30 DT APP	133.0	1,564	96.8 1,383	2.53 1.22
WDBJ D30 DT LIC	36.3	501	6.1 136	0.16 0.12

**Channel and Facility Information**

Section	Question	Response
Facility ID	69374	
State	North Carolina	
City	ZIONVILLE	
LPT Channel	30	

**Antenna Location Data**

Section	Question	Response
<b>Antenna Structure Registration</b>	Do you have an FCC Antenna Structure Registration (ASR) Number?	No
	ASR Number	
<b>Coordinates (NAD83)</b>	Latitude	36° 18' 09.4" N+
	Longitude	081° 43' 19.3" W-
	Structure Type	LTOWER-Lattice Tower
	Overall Structure Height	61 meters
	Support Structure Height	61 meters
	Ground Elevation (AMSL)	1578 meters
<b>Antenna Data</b>	Height of Radiation Center Above Ground Level	57 meters
	Height of Radiation Center Above Mean Sea Level	1635 meters
	Effective Radiated Power	1.5 kW

**Antenna  
Technical Data**

Section	Question	Response
<b>Antenna Type</b>	Antenna Type	Off the Shelf
	Do you have an Antenna ID?	Yes
	Antenna ID	20751
<b>Antenna Manufacturer and Model</b>	Manufacturer:	SCA
	Model	4DR-8-2HW
	Rotation	330 degrees
	Electrical Beam Tilt	Not Applicable
	Mechanical Beam Tilt	3
	toward azimuth	330
	Polarization	Horizontal
<b>Elevation Radiation Pattern</b>	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	
	Out-of-Channel Emission Mask:	Full Service

**Directional Antenna Relative Field Values (Pre-rotated Pattern)**

Degree	Value	Degree	Value	Degree	Value	Degree	Value
0	1	90	0.715	180	0.02	270	0.71
10	0.945	100	0.58	190	0.02	280	0.825
20	0.83	110	0.41	200	0.02	290	0.915
30	0.795	120	0.135	210	0.02	300	0.975
40	0.925	130	0.02	220	0.02	310	0.983
50	0.995	140	0.02	230	0.02	320	0.895
60	0.975	150	0.02	240	0.13	330	0.784
70	0.92	160	0.02	250	0.395	340	0.827
80	0.835	170	0.02	260	0.56	350	0.955

**Additional Azimuths**

Degree	V <sub>A</sub>
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