

ENGINEERING EXHIBIT

Application for Modification of Digital Low Power Television Station Construction Permit

prepared for

Lowcountry 34 Media, LLC

WCGZ-LD La Grange, GA

Facility ID 182074

Ch. 20 2 kW Directional

Lowcountry 34 Media, LLC (“*Lowcountry*”) is the licensee of Low Power Television station WCGZ-LD, Channel 21, La Grange, GA, Facility ID 182074 (file# BLDTL-20140226AGJ). As a result of the Special Displacement Window,¹ a Construction Permit (“CP” file# 0000120840) authorizes WCGZ-LD to operate on Channel 20 and relocate 23.6 km (14.6 miles) from the licensed transmitting site. *Lowcountry* proposes herein a minor modification of the displacement CP to specify use of an alternate transmitting location.

As proposed herein, WCGZ-LD will be utilize an existing tower structure located 14.9 km (9.2 miles) from the licensed WCGZ-LD site. The proposed antenna will be side-mounted on the tower associated with FCC Antenna Structure Registration number 1209663. No change to the overall structure height is proposed.

The proposed WCGZ-LD facility will operate at 2 kW effective radiated power (“ERP”) using a “full service” out of channel emission mask. The proposed antenna is an elliptically polarized directional PSI model PSILP8POI-20-EP (30 percent vertical polarization). The horizontally polarized ERP is 2 kW and the vertically polarized ERP is 0.6 kW. A plot of the directional antenna’s azimuthal pattern is supplied in Figure 1. Figure 2 depicts the 51 dBμ coverage contour of the licensed Channel 21 facility and those of the Channel 20 CP and proposed facilities, demonstrating compliance with §73.3572 for a minor change.

¹“*Incentive Auction Task Force and Media Bureau Announce Post-Incentive Auction Special Displacement Window April 10, 2018, through May 15, 2018, and Make Location and Channel Data Available,*” Public Notice, DA 18-124, released February 9, 2018.

Interference study per OET Bulletin 69² shows that the proposal complies with the FCC's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations (existing and post-auction). 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 (Environmental)

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 15 percent antenna relative field in downward elevations (pattern data shows less than 15 percent relative field at angles 15 – 90 degrees below the horizontal), the calculated power density attributable to the proposed facility at locations near the transmitter site at a height of two meters above ground level is 11.2 $\mu\text{W}/\text{cm}^2$, which is 3.3 percent of the general population / uncontrolled maximum permissible exposure limit. This is 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.

²FCC 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 1 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.

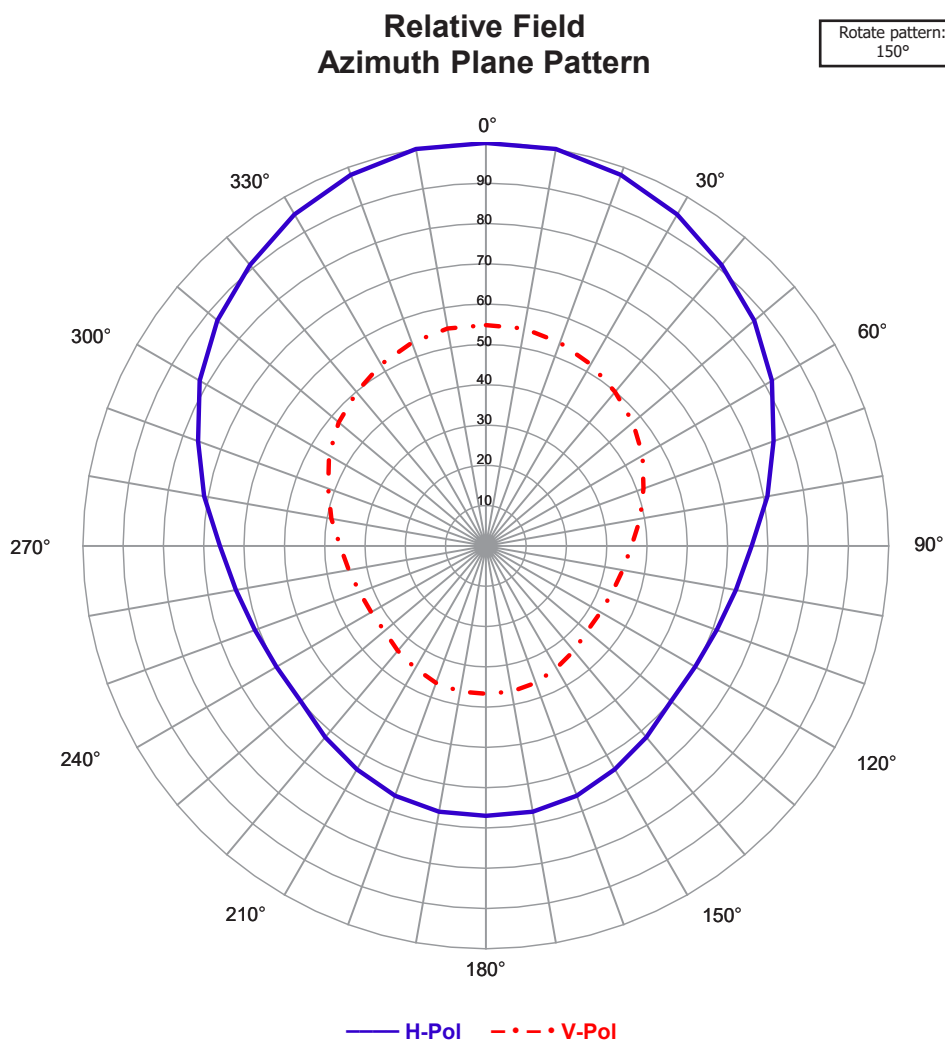
List of Attachments

Figure 1 Antenna Azimuthal Pattern
Figure 2 Coverage Contour Comparison
Table 1 TVStudy Analysis of Proposal

Chesapeake RF Consultants, LLC

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207 Old Dominion Road Yorktown, VA 23692

703-650-9600



Pattern Type:	Relative Field	Type:	UHF Slot Antenna
Antenna Model:	PSILP8POI-20-EP	Pattern:	Omnioid (OI)
Polarization:	Elliptical	Number of Bays:	8
Gain (h-pol):	12.16 (10.85 dB)	Channel:	20/21
Gain (v-pol):	3.65 (5.62 dB)	Date:	4/9/2020



Figure 1
Antenna Azimuthal Pattern
WCGZ-LD La Grange, GA
Facility ID 182074
Ch. 20 2 kW Directional

prepared for
Lowcountry 34 Media, LLC

October, 2020



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

Figure 2
Coverage Contour Comparison
WCGZ-LD La Grange, GA
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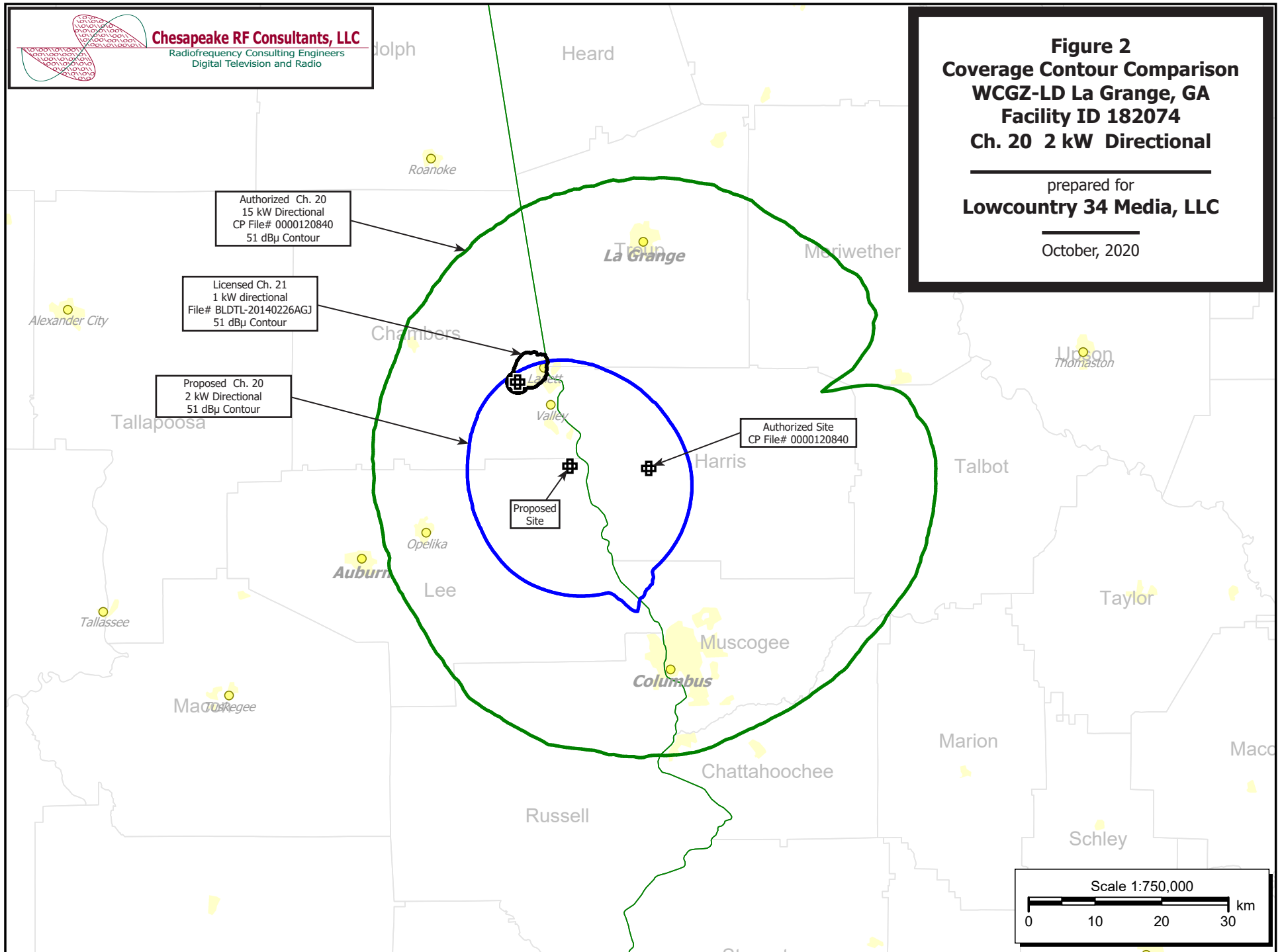


Table 1 WCGZ-LD TVStudy Analysis of Proposal (page 1 of 4)



tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: WCGZ-LD prop, Model: Longley-Rice
Start: 2020.10.05 12:09:35

Study created: 2020.10.05 12:09:35

Study build station data: LMS TV 2020-10-05

Proposal: WCGZ-LD D20 LD APP LA GRANGE, GA
File number: WCGZ-LD prop
Facility ID: 182074
Station data: User record
Record ID: 3231
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	WOTM-LD	D19	LD	LIC	Birmingham, AL	BLANK0000004826	162.7 km
No	WIIQ	D19	DT	LIC	DEMOPOLIS, AL	BLEDT20090511AHE	258.8
No	WHNT-TV	D19	DT	LIC	HUNTSVILLE, AL	BLCDT20111118COZ	256.8
No	WIYC	D19	DT	LIC	TROY, AL	BLANK0000120197	106.3
No	WGCL-TV	D19	DT	LIC	ATLANTA, GA	BLANK0000087085	140.9
No	WTLH	D19	DT	LIC	BAINBRIDGE, GA	BLANK0000119592	254.0
No	W19DW-D	D19	LD	CP	COLUMBUS, GA	BLANK0000015603	25.4
No	WANX-LP	N19+	TX	LIC	COLUMBUS, GA	BLTTL20070813AAT	43.2
No	W19DN-D	D19	LD	CP	MACON, GA	BLANK0000036282	148.6
Yes	WABM	D20	DT	CP	BIRMINGHAM, AL	BLANK0000034382	175.4
Yes	WABM	D20	DT	LIC	BIRMINGHAM, AL	BLANK0000123838	175.4
No	W20DE-D	D20	LD	LIC	BIRMINGHAM, AL	BLDTL20120222AAL	177.9
No	WJNN-LD	D20	LD	LIC	DOTHAN, AL	BLANK0000122171	166.8
No	WKRQ-TV	D20	DT	LIC	MOBILE, AL	BLANK0000120975	340.7
No	W20DF-D	D20	LD	LIC	RUSSELLVILLE, AL	BLANK0000004499	310.5
No	W20EP-D	D20	LD	CP	TROY, AL	BLANK0000071948	105.3
No	WCWJ	D20	DT	LIC	JACKSONVILLE, FL	BLANK0000097952	436.9
No	W20ET-D	D20	LD	CP	MADISON, FL	BNPDTL20090825AHV	298.1
No	W20DX-D	D20	LD	CP	PANAMA CITY, FL	BLANK0000036245	285.8
No	W20EQ-D	D20	LD	CP	ATHENS, GA	BNPDTL20090825AJQ	240.1
No	WANN-CD	D20	DC	LIC	ATLANTA, GA	BLANK0000092680	140.9
No	DWCZC-LD	D20	LD	LIC	AUGUSTA, GA	BLDTL20150112ACR	283.0
No	W20DZ-D	D20	LD	CP	BYRON, GA	BNPDTL20100510AFP	132.5
No	WDNN-CD	D20	DC	LIC	DALTON, GA	BLANK0000098043	222.4
No	W20DL-D	D20	LD	CP	MACON, GA	BNPDTL20100205ACG	148.8
No	WHDS-LD	D20	LD	LIC	Savannah, GA	BLANK0000101192	385.6
No	WCTV	D20	DT	LIC	THOMASVILLE, GA	BLANK0000121784	256.4
No	W20CY	D20	LD	CP	TIFTON, GA	BDFCDTL20091118AGP	211.0
No	W20CY	N20	TX	LIC	TIFTON, GA	BLTTL20121211ABO	211.0
No	W20EC-D	D20	LD	CP	VIDALIA, GA	BDCCDTL20121001AGL	278.8
No	W20EK-D	D20	LD	LIC	ANDREWS, ETC, NC	BLANK0000120275	306.8
No	WUNF-TV	D20	DD	LIC	ASHEVILLE, NC	BLANK0000093577	365.7
No	WZTV	D20	DT	LIC	NASHVILLE, TN	BLANK0000115725	420.1
No	WDHN	D21	DT	LIC	DOTHAN, AL	BLCDT20090303ACR	166.9
No	WTO	D21	DT	CP	HOMEWOOD, AL	BLANK0000029999	175.4
No	WETU-LD	D21	LD	CP	MONTGOMERY, AL	BLANK0000054278	115.7
No	WPBA	D21	DT	LIC	ATLANTA, GA	BLEDT20041013ABK	136.6
No	WANX-LP	D21+	LD	CP	COLUMBUS, GA	BLANK0000071786	42.6
No	W21DA-D	D21	LD	LIC	DUBLIN, GA	BLANK0000080614	148.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D20
Mask: Full Service
Latitude: 32 44 7.60 N (NAD83)

Table 1 WCGZ-LD TVStudy Analysis of Proposal
(page 2 of 4)



Longitude: 85 8 54.50 W
Height AMSL: 192.0 m
HAAT: 0.0 m
Peak ERP: 2.00 kW
Antenna: PSILPxxOI omnioid 150.0 deg
Elev Pattn: Generic
Elec Tilt: 1.00

49.4 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.819 kW	4.3 m	17.6 km
45.0	0.769	-1.7	17.3
90.0	1.34	-11.8	19.9
135.0	1.96	24.4	21.7
180.0	1.80	16.4	21.3
225.0	1.08	-11.1	18.9
270.0	0.720	-26.4	17.0
315.0	0.884	-2.4	18.0

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: -1 m

Distance to Canadian border: 1017.4 km

Distance to Mexican border: 1364.6 km

Conditions at FCC monitoring station: Powder Springs GA
Bearing: 17.4 degrees Distance: 131.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 300.3 degrees Distance: 1968.2 km

No land mobile station failures found

Study cell size: 1.00 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 BLANK0000034382 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WABM	D20	DT	CP	BIRMINGHAM, AL	BLANK0000034382	
Undesireds:	WCGZ-LD	D20	LD	APP	LA GRANGE, GA	WCGZ-LD prop	175.4 km
	WIIQ	D19	DT	LIC	DEMOPOLIS, AL	BLEDT20090511AHE	159.6
	WHNT-TV	D19	DT	LIC	HUNTSVILLE, AL	BLCDT20111118COZ	141.7
	WIYC	D19	DT	LIC	TROY, AL	BLANK0000120197	177.4
	WKRG-TV	D20	DT	LIC	MOBILE, AL	BLANK0000120975	325.3
	WANN-CD	D20	DC	LIC	ATLANTA, GA	BLANK0000092680	231.1
	WDNN-CD	D20	DC	LIC	DALTON, GA	BLANK0000098043	215.4
	WMPN-TV	D20	DT	LIC	JACKSON, MS	BLEDT20080807AAP	365.5
	WZTV	D20	DT	LIC	NASHVILLE, TN	BLANK0000115725	308.9
	WTTO	D21	DT	CP	HOMEWOOD, AL	BLANK0000029999	0.0

	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	32553.5 1,772,566	31307.1	1,744,805	30574.4	1,727,669	30560.5 1,727,403	0.05 0.02
Undesired			Total IX	Unique IX, before		Unique IX, after	
WCGZ-LD D20 LD APP			27.9 439			13.9 266	
WIIQ D19 DT LIC			118.0 1,006	57.0	421	57.0 421	
WHNT-TV D19 DT LIC			58.0 1,617	28.0	741	28.0 741	
WIYC D19 DT LIC			19.0 552	12.0	424	12.0 424	
WKRG-TV D20 DT LIC			374.4 3,856	285.4	2,784	285.4 2,784	
WANN-CD D20 DC LIC			45.7 1,357	38.8	758	25.8 586	
WDNN-CD D20 DC LIC			24.7 2,129	15.8	1,379	15.8 1,379	
WMPN-TV D20 DT LIC			61.7 646	31.8	332	31.8 332	

Table 1 WCGZ-LD TVStudy Analysis of Proposal
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WZTV D20 DT LIC	82.5	2,669	47.6	1,559	47.6	1,559
WTTT D21 DT CP	88.4	6,040	88.4	6,040	88.4	6,040

Interference to BLANK0000123838 LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WABM	D20	DT	LIC	BIRMINGHAM, AL	BLANK0000123838	
Undesireds:	WCGZ-LD	D20	LD	APP	LA GRANGE, GA	WCGZ-LD prop	175.4 km
	WIIQ	D19	DT	LIC	DEMOPOLIS, AL	BLEDT20090511AHE	159.6
	WHNT-TV	D19	DT	LIC	HUNTSVILLE, AL	BLCDT20111118COZ	141.7
	WIYC	D19	DT	LIC	TROY, AL	BLANK0000120197	177.4
	WKRQ-TV	D20	DT	LIC	MOBILE, AL	BLANK0000120975	325.3
	WANN-CD	D20	DC	LIC	ATLANTA, GA	BLANK0000092680	231.1
	WDNN-CD	D20	DC	LIC	DALTON, GA	BLANK0000098043	215.4
	WMPN-TV	D20	DT	LIC	JACKSON, MS	BLEDT20080807AAP	365.5
	WZTV	D20	DT	LIC	NASHVILLE, TN	BLANK0000115725	308.9
	WTTT	D21	DT	CP	HOMEWOOD, AL	BLANK0000029999	0.0

	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	32553.5	1,772,566	31307.1	1,744,805	30574.4	1,727,669	30560.5 1,727,403 0.05 0.02

Undesired	Total IX	Unique IX, before	Unique IX, after
WCGZ-LD D20 LD APP	27.9 439	13.9 266	
WIIQ D19 DT LIC	118.0 1,006	57.0 421	
WHNT-TV D19 DT LIC	58.0 1,617	28.0 741	
WIYC D19 DT LIC	19.0 552	12.0 424	
WKRQ-TV D20 DT LIC	374.4 3,856	285.4 2,784	
WANN-CD D20 DC LIC	45.7 1,357	38.8 758	
WDNN-CD D20 DC LIC	24.7 2,129	15.8 1,379	
WMPN-TV D20 DT LIC	61.7 646	31.8 332	
WZTV D20 DT LIC	82.5 2,669	47.6 1,559	
WTTT D21 DT CP	88.4 6,040	88.4 6,040	

Interference to proposal scenario 1
8.16% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WCGZ-LD	D20	LD	APP	LA GRANGE, GA	WCGZ-LD prop	
Undesireds:	W19DW-D	D19	LD	CP	COLUMBUS, GA	BLANK0000015603	25.4 km
	WABM	D20	DT	CP	BIRMINGHAM, AL	BLANK0000034382	175.4
	WJUN-LD	D20	LD	LIC	DOETHAN, AL	BLANK0000122171	166.8
	W20EP-D	D20	LD	CP	TROY, AL	BLANK0000071948	105.3
	WANN-CD	D20	DC	LIC	ATLANTA, GA	BLANK0000092680	140.9
	WCTV	D20	DT	LIC	THOMASVILLE, GA	BLANK0000121784	256.4
	W20CY	D20	LD	CP	TIFTON, GA	BDFCDTL20091118AGP	211.0
	WANX-LP	D21+	LD	CP	COLUMBUS, GA	BLANK0000071786	42.6

	Service area	Terrain-limited		IX-free		Percent IX	
	1158.1	51,121	1116.1	49,683	1007.9	45,630	9.69 8.16

Undesired	Total IX	Unique IX	Prcnt Unique IX
W19DW-D D19 LD CP	16.0 963	6.0 38	0.54 0.08
WABM D20 DT CP	87.1 3,912	58.1 1,557	5.20 3.13
WJUN-LD D20 LD LIC	1.0 144	0.0 0	0.00 0.00
W20EP-D D20 LD CP	25.0 533	10.0 52	0.90 0.10
WANN-CD D20 DC LIC	5.0 261	0.0 0	0.00 0.00
WCTV D20 DT LIC	21.0 1,481	2.0 0	0.18 0.00

Interference to proposal scenario 2
8.16% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WCGZ-LD	D20	LD	APP	LA GRANGE, GA	WCGZ-LD prop	
Undesireds:	W19DW-D	D19	LD	CP	COLUMBUS, GA	BLANK0000015603	25.4 km
	WABM	D20	DT	LIC	BIRMINGHAM, AL	BLANK0000123838	175.4
	WJUN-LD	D20	LD	LIC	DOETHAN, AL	BLANK0000122171	166.8
	W20EP-D	D20	LD	CP	TROY, AL	BLANK0000071948	105.3

Table 1 WCGZ-LD TVStudy Analysis of Proposal
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WANN-CD	D20	DC	LIC	ATLANTA, GA	BLANK0000092680	140.9
WCTV	D20	DT	LIC	THOMASVILLE, GA	BLANK0000121784	256.4
W20CY	D20	LD	CP	TIFTON, GA	BDFCDTL20091118AGP	211.0
WANX-LP	D21+	LD	CP	COLUMBUS, GA	BLANK0000071786	42.6

Service area		Terrain-limited		IX-free		Percent IX	
1158.1	51,121	1116.1	49,683	1007.9	45,630	9.69	8.16
Undesired		Total IX		Unique IX		Prcnt Unique IX	
W19DW-D	D19 LD CP	16.0	963	6.0	38	0.54	0.08
WABM	D20 DT LIC	87.1	3,912	58.1	1,557	5.20	3.13
WJJN-LD	D20 LD LIC	1.0	144	0.0	0	0.00	0.00
W20EP-D	D20 LD CP	25.0	533	10.0	52	0.90	0.10
WANN-CD	D20 DC LIC	5.0	261	0.0	0	0.00	0.00
WCTV	D20 DT LIC	21.0	1,481	2.0	0	0.18	0.00