

TECHNICAL EXHIBIT
MINOR CHANGE APPLICATION FOR
MODIFICATION OF CONSTRUCTION PERMIT
LPTV STATION WTNC-LP
FACILITY ID 70112
DURHAM, NORTH CAROLINA
CH 26 150 KW (MAX-DA) 270 M (RCAMSL)

Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of a minor change application for modification of construction permit for Low Power TV station WTNC-LP at Durham, North Carolina (Facility ID: 70112; File No. BPTTL-20010116AHZ). Specifically, this application only proposes to change the directional antenna system. This application is considered a "minor change" in facilities pursuant to Section 73.3572(a)(2), as there will be no change in frequency (output channel) and the proposed 74 dBu contour will overlap a portion of the authorized 74 dBu contour (Figure 1).

It is proposed to operate on channel 26 (542-548 MHz) with a "zero" carrier frequency offset employing an RFS RD16Q directional antenna system oriented at 100° true. The maximum directional effective radiated power (ERP) will be 150 kilowatts and the antenna radiation center height above mean sea level (RCAMSL) will be 270 m.

TV Broadcast Analog Protection

A study has been conducted using the provisions of Section 74.705 which indicates that the proposed WTNC-LP operation will not create prohibited interference to other existing, authorized or proposed NTSC full-power stations, except with respect to NTSC station WSFX-TV on channel 26 at Wilmington, North Carolina and station WUNL-TV on channel 26 at Winston-Salem, North Carolina. However, with respect to these stations, interference calculations have been made using the

procedures outlined in the FCC's OET-69 Bulletin.¹ The interference calculations are summarized below.

Protected NTSC Station	FCC Service Population	Proposed Interference Population
WSFX-TV, Ch. 26, Wilmington, NC Licensed Operation	--	No Interference Caused
WUNL-TV, Ch. 26, Winston-Salem, NC Licensed Operation	1,771,431	6,084 (0.3%)

Results of the OET Bulletin No. 69 interference analysis indicate that the proposed WTNC-LP operation complies with the FCC's 0.5% "rounding allowance" for such calculations (see paragraph 78 of MM Docket No. 00-10). Thus, it is believed that the proposed WTNC-LP operation complies with the FCC's interference standards towards all NTSC stations and allotments. Figure 2 is a printout of the OET-69 interference calculations with respect to the stations tabulated above.

DTV Station Protection

Calculations based on OET Bulletin No. 69 indicate that the proposed WTNC-LP operation on channel 26 will not cause any (0.0%) prohibited interference to any allotted, proposed or actual DTV operating facilities on channels 25, 26 or 27. Interference calculations for the proposed WTNC-LP operation are summarized below.

Protected DTV Station	FCC Service Population	Proposed Interference Population
WRLH-DT, Ch. 26, Richmond, VA Authorized CP Operation	1,089,000	3,102 (0.3%)
WRDC-DT, Ch. 27, Durham, NC Authorized CP Operation	--	No Interference Caused

As shown above, the proposed operation complies with the FCC's 0.5% "rounding allowance" for such calculations (see paragraph 78 of MM Docket No. 00-10). Thus, it is believed that the proposed WTNC-LP operation complies with the FCC's interference standards towards all DTV stations and allotments. Figure 2 is a printout of the OET-69 interference calculations with respect to the stations tabulated above.

¹The du Treil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 2 km was employed. An Alpha based processor computer system was employed.

Class A/LPTV/TV Translator Protection

A study has been conducted using the provisions of Section 74.707 which indicates that the WTNC-LP proposal will not create prohibited interference to other existing, authorized or proposed Class A, LPTV or TV translator stations.

Response to Paragraph 14 - Environmental Protection Act

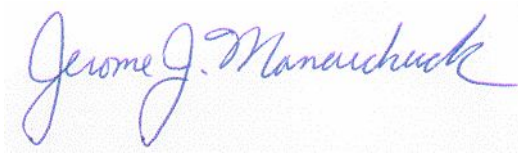
The proposed WTNC-LP LPTV facilities were evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation."² The calculated power density at the base of the tower was calculated using the appropriate equation on Page 13 of the Bulletin. Figure 3 shows the vertical antenna pattern for the proposed RFS antenna. Based on a conservative relative field factor of 0.2 (for angles below 60 degrees downward), a maximum visual effective radiated power of 150 kilowatts and 22 percent aural power, the calculated power density at 2 meters above ground level at the base of the tower is 0.0072 milliwatt per square centimeter (mW/cm²), or less than 5 percent of the Commission's recommended limit applicable to general population/uncontrolled exposure areas (0.36 mW/cm² for TV channel 26). Therefore, based on the responsibility threshold of 5%, the proposal will comply with the FCC'S RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. Furthermore, in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down.

It is noted that this technical exhibit only addresses the potential for radiofrequency electromagnetic

² See Report and Order in ET Docket 93-62, FCC 96-326, adopted August 1, 1996, 11 FCC Rcd 15123 (1997). See also First Memorandum Opinion and Order, ET Docket 93-62, FCC 96-487, adopted December 23, 1996, 11 FCC Rcd 17512 (1997), and Second Memorandum Opinion and Order and Notice of Proposed Rulemaking, ET Docket 93-62, FCC 97-303, adopted August 25, 1997.

field exposure. All other aspects of the environmental processing analysis will be provided to the FCC by the tower owner as part of the tower registration process.

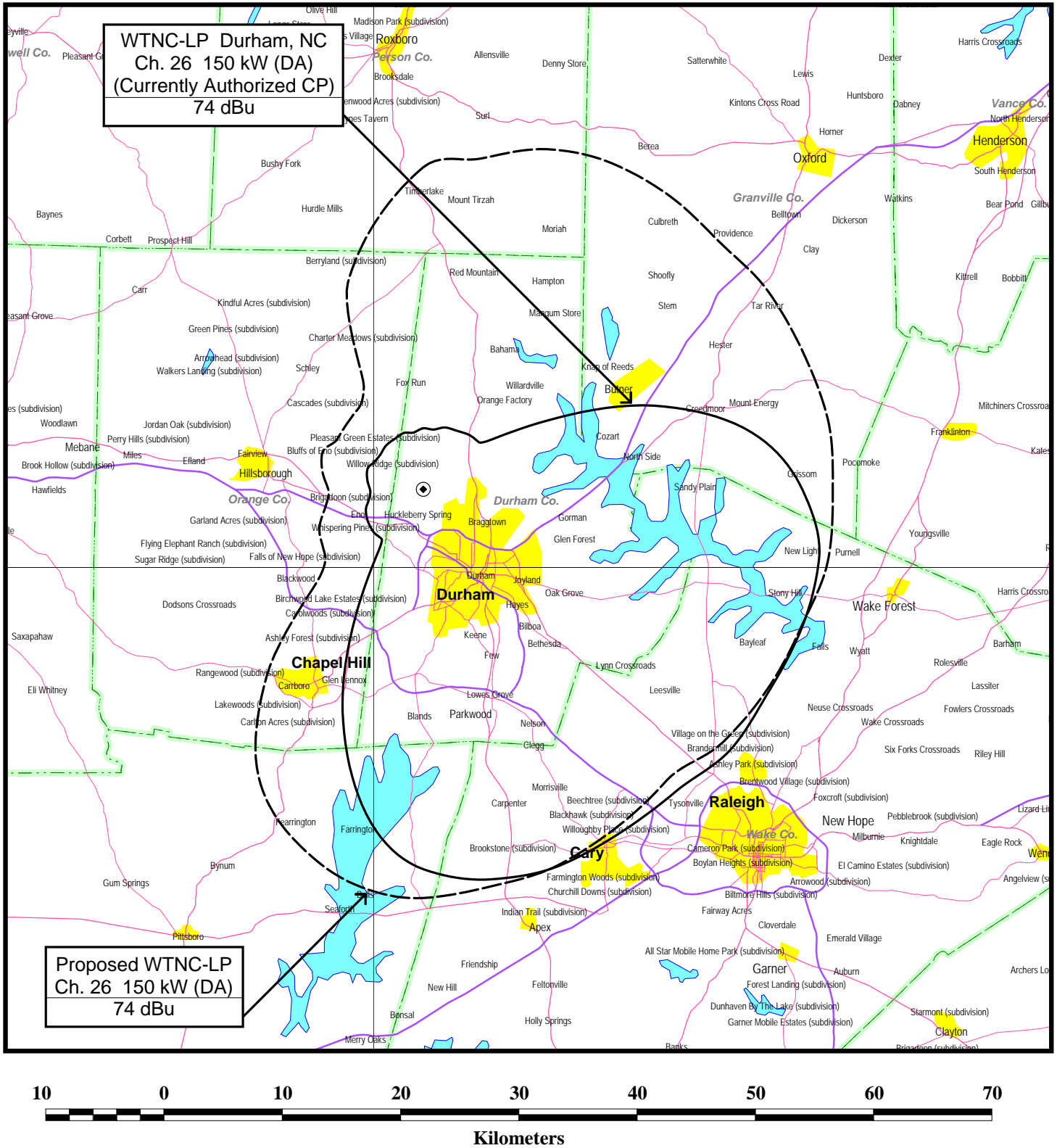


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Figure 1



FCC PREDICTED 74 dBu CONTOURS

LPTV STATION WTNC-LP
 DURHAM, NORTH CAROLINA
 CH 26 150 KW (DA)

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

OET 69 NTSC/DTV Interference Caused Study

Study Date: 20040323
Study Start: _____
INTERFERENCE CAUSED
CELL SIZE : 2.00
Using offset in determining thresholds

WSFX-T 34-07-51 078-11-16 26(-) 2190.000 kw 515 m DA 50.0 % 62.9 dBu
WILMINGTON NC 22206 480 FCC NTSC BL: 480733 FCC IX POP%: 0.0
LIC BLCT20000120AAF
0.97 0.95 0.93 0.91 0.88 0.84 0.78 0.70 0.59 0.47 0.37 0.32
0.34 0.40 0.46 0.47 0.46 0.40 0.34 0.32 0.37 0.47 0.59 0.70
0.78 0.84 0.88 0.91 0.93 0.95 0.97 0.99 1.00 1.00 1.00 0.99
Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	22893.83	449729
not affected by terrain losses	22889.84	449729

WTNC-L 36-03-33 078-57-14 26(Z) 150.000 kw 270 m DA 10.0 % 72.9
DURHAM NC
CP BPTTL20010116AHZ
1.00 0.98 0.95 0.91 0.90 0.93 0.97 1.00 0.97 0.91 0.80 0.64
0.40 0.13 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.13
0.40 0.64 0.80 0.91 0.97 1.00 0.97 0.93 0.90 0.91 0.95 0.98
Ref Az: 100.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00

	Area	Pop
Interference	0	0

WUNL-T 36-22-34 080-22-14 26(+) 5000.000 kw 825 m DA 50.0 % 62.9 dBu
WINSTON-SALEM NC 23447 1642 FCC NTSC BL: 1771431 FCC IX POP%: 0.1
LIC BLETT19951030KG
0.34 0.31 0.24 0.20 0.25 0.37 0.52 0.65 0.76 0.86 0.93 0.98
1.00 1.00 0.98 0.93 0.89 0.87 0.87 0.87 0.89 0.93 0.98 1.00
1.00 0.98 0.93 0.86 0.76 0.65 0.52 0.37 0.25 0.20 0.24 0.31
Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	27378.32	1768117
not affected by terrain losses	24433.51	1705135

WTNC-L 36-03-33 078-57-14 26(Z) 150.000 kw 270 m DA 10.0 % 72.9
DURHAM NC
CP BPTTL20010116AHZ
1.00 0.98 0.95 0.91 0.90 0.93 0.97 1.00 0.97 0.91 0.80 0.64
0.40 0.13 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.13
0.40 0.64 0.80 0.91 0.97 1.00 0.97 0.93 0.90 0.91 0.95 0.98
Ref Az: 100.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00

	Area	Pop
Interference	191.79	6084(0.3%)

Figure 2
Sheet 2 of 2

OET 69 NTSC/DTV Interference Caused Study

WRLH-T 37-30-45 077-36-05 26(N) 800.000 kw 385.5 m 90.0 % 39.9 dBu
RICHMOND VA 22035 1068 DTVSERVICE: 1068000 NTSCSERVICE: 1089000
CP MOD BMPCDT20020114AAR
Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	30908.08	1383704
not affected by terrain losses	30565.51	1356723

WTNC-L 36-03-33 078-57-14 26(Z) 150.000 kw 270 m DA 10.0 % 72.9
DURHAM NC

CP BPTTL20010116AHZ

1.00	0.98	0.95	0.91	0.90	0.93	0.97	1.00	0.97	0.91	0.80	0.64
0.40	0.13	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.13
0.40	0.64	0.80	0.91	0.97	1.00	0.97	0.93	0.90	0.91	0.95	0.98

Ref Az: 100.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00

	Area	Pop
Interference	64.48	3102(0.3%)

WRDC 35-40-28 078-31-40 27(N) 915.000 kw 690 m DA 90.0 % 40.0 dBu
DURHAM NC 33775 2032 DTVSERVICE: 2032000 NTSCSERVICE: 2096000
CP BPCDT19991029ACD

0.98	0.95	0.92	0.94	0.99	0.99	0.94	0.92	0.95	0.98	0.95	0.92
0.94	0.99	0.92	0.94	0.92	0.95	0.98	0.95	0.92	0.94	0.99	0.99
0.94	0.92	0.95	0.98	0.95	0.92	0.94	0.99	0.99	0.94	0.92	0.95

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	46456.73	2459412
not affected by terrain losses	46255.39	2455854

WTNC-L 36-03-33 078-57-14 26(Z) 150.000 kw 270 m DA 10.0 % 72.9
DURHAM NC

CP BPTTL20010116AHZ

1.00	0.98	0.95	0.91	0.90	0.93	0.97	1.00	0.97	0.91	0.80	0.64
0.40	0.13	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.13
0.40	0.64	0.80	0.91	0.97	1.00	0.97	0.93	0.90	0.91	0.95	0.98

Ref Az: 100.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -48.00

	Area	Pop
Interference	0	0

Interference Summary:

Facility	Channel	Type	Baseline	Permissible	IX	%Base
WSFX-T, WILMINGTON, NC	26	TV	480733	0.5	0	0.00
WUNL-T, WINSTON-SALEM,	26	TV	1771431	0.5	6084	0.34
WRLH-T, RICHMOND, VA	26	DTV	1089000	0.5	3102	0.28
WRDC, DURHAM, NC	27	DTV	2096000	0.5	0	0.00

Figure 3



**Radio Frequency
Systems, Inc.**
Cablewave Systems Division

B16U Series

0 Degree Beam Tilt
Gain 18.8 (12.7 dBd)

