

TECHNICAL EXHIBIT
APPLICATION FOR CONSTRUCTION PERMIT
(FCC FILE NO. BLTTL-19991103ABQ)
CLASS A STATION WNLO-LP
FACILITY ID 13060
NORFOLK, VIRGINIA
CH 45 120 KW (MAX-DA)

Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of an application for construction permit to modify the license of Class A TV station WNLO-LP at Norfolk, Virginia (Facility ID: 13060; File No. BLTTL-19991103ABQ). Specifically, this application proposes to change transmitter site, increase the antenna radiation center height above mean sea level from 136 meters to 236 meters, increase the effective radiated power (ERP) from 33 kW to 120 kW and modify the antenna system. No other changes are proposed, including no change in channel (45), frequency offset designation (-) or community of license (Norfolk). As detailed below, this application is considered a "minor change" in facilities pursuant to Section 73.3572.

The proposal would not be subject to environmental processing in accordance with Section 1.1306. It is proposed to side-mount the directional antenna on an existing 313 meter supporting structure (Antenna Structure Registration Number 1018104). It is believed that the instant application conforms with all other applicable rules and regulations of the Federal Communications Commission.

Minor Change Application

Figure 1 depicts the authorized and herein proposed 74 dBu contours for WNLO-LP. As indicated, the proposed 74 dBu contour encompasses a portion of the authorized 74 dBu contour. Therefore, the proposed modification is considered a "minor" change in facilities pursuant to Section 73.3572.

Analog TV Broadcast Station Protection

A study has been conducted using the provisions of Section 74.705 which indicates that the proposed WNLO-LP operation will not create prohibited interference to other existing, authorized or proposed NTSC full-power stations with the exception of the operations of WVBT, channel 43, Virginia Beach, Virginia and WPXV, channel 49, Norfolk, Virginia. Therefore, waiver of Section 74.705 is requested with respect to WVBT and WPXV. Justification for the waiver request is provided below.

Station WVBT operates on a second lower adjacent channel to the proposed WNLO-LP operation and WPXV operates on a fourth upper adjacent channel to the proposed WNLO-LP operation. Section 74.705 specifies a minimum distance separation of 32 kilometers towards WVBT and WPXV for Class A stations operating in excess of 50 kW, whereas the actual distance to the WVBT and WPXV operations is less than 32 kilometers. Therefore, the proposed WNLO-LP operation will be short-spaced to the WVBT and WPXV operations.

The 32 kilometer separation requirement between second adjacent (WVBT) and fourth adjacent (WPXV) channel full service NTSC and LPTV stations is designed to prevent "cross modulation" and "intermodulation" interference. In cross modulation interference, the modulation of the undesired channel is superimposed on the modulation of the desired channel. The potential for cross modulation interference was analyzed based on OET Bulletin No. 69 which indicates that no interference is calculated to occur to WVBT or WPXV (see Figure 2 attached).

Intermodulation interference results from the combination of the proposed WNLO-LP channel 45 and WVBT channel 43 signals, and the combination of the proposed WNLO-LP channel 45 and WPXV channel 49 signals (visual carriers only) in a receiver to generate a signal which falls within the pass-band of a "desired" third signal. For the WNLO-LP channel 45/WVBT channel 43 combination, the desired signal will not be either channel 45 or channel 43, and for the WNLO-LP channel 45/WPXV channel 49 combination the desired signal will not be either

channel 45 or channel 49. For the WNLO-LP channel 45/WVBT channel 43 combination, the intermodulation products fall on channels 41 and 47. For the WNLO-LP channel 45/WPXV channel 49 combination, the intermodulation products fall on channels 41 and 53. If there are viewable signals on those channels in the vicinity of the proposed WNLO-LP channel 45 service area there will be a potential for interference. Our studies indicate that there are no viewable full-service NTSC signals on these channels in the area and, therefore, interference is not likely to occur.

DTV Station and DTV Table of Allotments Protection

Calculations based on OET Bulletin No. 69 indicate that the proposed WNLO-LP operation on channel 45 complies with the FCC's 0.5% interference threshold criteria to all allotted, proposed or actual DTV operating facilities on channels 44, 45 and 46.¹ Figure 2 provides the output of study based on OET-69 Bulletin which demonstrates that the proposed WNLO-LP operation complies with the FCC's DTV interference criteria.

LPTV/TV Translator, Class A and Digital Class A Protection

A study has been conducted which indicates that the WNLO-LP proposal will not create prohibited interference to other existing, authorized or proposed LPTV, TV Translator, Class A and Digital Class A stations with the exception of LPTV station W67CZ on channel 30 at Norfolk, VA. However, based on the provisions of the OET-69 Bulletin as permitted by FCC rules [Section 74.707(e)], including the effect of "masking" by other full-service NTSC and DTV stations as well as the licensed WNLO-LP operation, it is believed that WNLO-LP's operation complies with the FCC's interference criteria towards W67CZ. Specifically, calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin and a 2 square kilometer grid. The results of the OET Bulletin No. 69 re tabulated on Figure 3 and, as indicated, all potential interference to W67CZ

¹ The 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. The results have been found to be in very close agreement with the results of the FCC implementation of OET Bulletin No. 69.

is "masked". Therefore, it is believed that the proposed WNLO-LP operation complies with the FCC's interference criteria towards W67CZ.

Land Mobile Station Protection

The proposed WBTD-LP operation does not cause interference to land mobile radio stations (LMRS).

Environmental Considerations

The proposed WNLO-LP television 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". The calculated power density at the base of the tower was calculated using the appropriate equation on Page 13 of the Bulletin. As shown on Figure 4, the vertical plane field values at depression angles toward the tower base (-60° to -90° elevation) are less than 0.3. Therefore, using a greater than expected vertical relative field value of 0.3, a maximum visual effective radiated power of 120 kilowatts and 10 percent aural power, the calculated power density at 2 meters above ground level at the base of the tower is 0.0035 milliwatt per square centimeter (mW/cm^2), or less than 5 percent of the Commission's recommended limit applicable to general population/uncontrolled exposure areas ($0.44\text{W}/\text{cm}^2$ for TV channel 45). Therefore, based on the new responsibility threshold of 5%, the proposal will comply with the new RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. Furthermore, as this is a multi-user site, an agreement will be in effect 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.

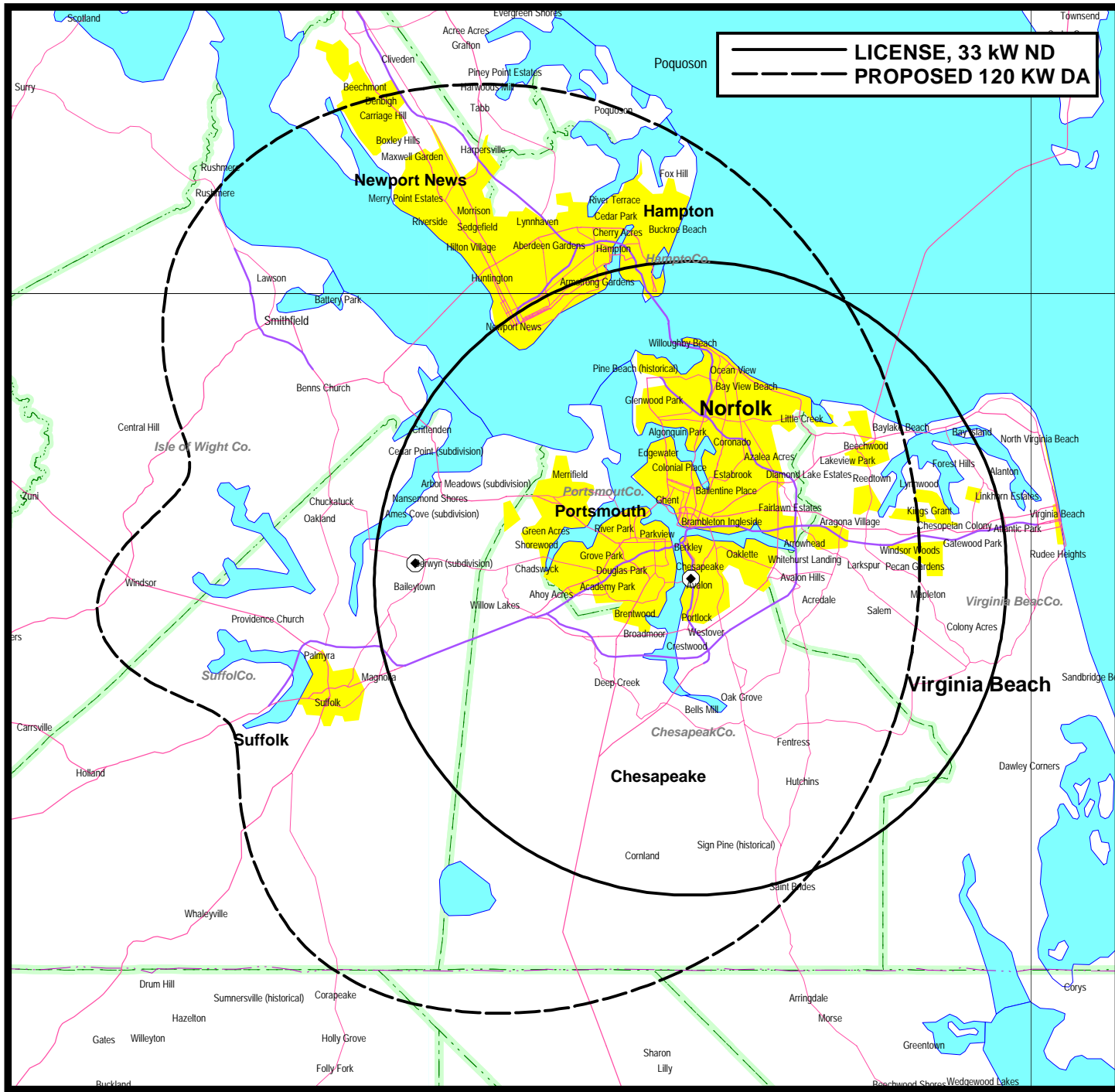
In addition, it appears that the existing tower is otherwise excluded from environmental processing as it complies with all the criteria for such an exclusion in Section 1.1306.

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FIGURE 1



**PREDICTED 74 DBU CONTOURS
LPTV STATION WNLO-LP
NORFOLK, VIRGINIA
CH 45 120 KW (MAX-DA)**

OET-69 DTV AND FULL-SERVICE NTSC INTERFERENCE CAUSED STUDY

CELL SIZE : 2.00
Using offset in determining thresholds
Per 6th Report & Order and FCC OET-69 Bulletin

WVBT3 36-49-14 076-30-41 43(+) 5000.000 kw 268 m 50.0 % 64.4 dBu
VIRGINIA BEACH VA 18847 1573 FCC NTSC BL: 1572800 FCC IX POP%: 0.0
CP BPCT19950421KE

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	18850.82	1572800
not affected by terrain losses	18850.82	1572800

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6

NORFOLK

VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -29.00

	Area	Pop
Interference	0	0

WVBT2 36-49-14 076-30-41 43(+) 2570.000 kw 229 m 50.0 % 64.4 dBu
VIRGINIA BEACH VA 18847 1573 FCC NTSC BL: 1572800 FCC IX POP%: 0.0
APP BPCT19960626KI

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	14969.86	1523206
not affected by terrain losses	14969.86	1523206

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6

NORFOLK

VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -29.00

	Area	Pop
Interference	0	0

WVBT 36-48-38 076-16-57 43(+) 933.000 kw 130 m DA 50.0 % 64.4 dBu
VIRGINIA BEACH VA 18847 1573 FCC NTSC BL: 1572800 FCC IX POP%: 0.0
LIC BLCT19941031KM

0.60	0.43	0.35	0.33	0.35	0.43	0.60	0.79	0.94	1.00	0.98	0.88
0.73	0.57	0.43	0.33	0.28	0.27	0.30	0.36	0.43	0.45	0.43	0.36
0.30	0.27	0.28	0.33	0.43	0.57	0.73	0.88	0.98	1.00	0.94	0.79

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	7112.500	1343270
not affected by terrain losses	7112.500	1343270

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -29.00

	Area	Pop
Interference	0	0

WCVW 37-30-45 077-36-05 44(N) 270.000 kw 377.5 m DA 90.0 % 41.5 dBu
RICHMOND VA 13908 945 DTVSERVICE: 945000 NTSCSERVICE: 945000
CP BPEDT20000501AGE

0.76	0.70	0.76	0.94	0.98	0.85	0.73	0.76	0.72	0.74	0.91	0.98
0.90	0.75	0.74	0.73	0.75	0.89	0.95	0.86	0.74	0.77	0.78	0.72
0.87	0.97	0.91	0.78	0.76	0.77	0.71	0.82	0.97	0.98	0.82	0.72

(325.0 1.00)

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	21566.14	1093234
not affected by terrain losses	21558.07	1093216

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00

	Area	Pop
Interference	0	0

DWCWV 37-30-46 077-36-06 44(0) 50.000 kw 360 m DA 90.0 % 41.5 dBu
RICHMOND VA 13908 945 DTVSERVICE: 945000 NTSCSERVICE: 945000

DTVALT DTV ALLOTMENT

0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	1.00	1.00	1.00	1.00
0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.98	0.98	0.98
0.98	0.97	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.98	0.99	0.99

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

USING NTSC GRADE B FOR SERVICE AREA

	Area	Pop
within Noise Limited Contour	13916.48	945131
not affected by terrain losses	13916.48	945131

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00

	Area	Pop
Interference	0	0

DWUNMT 35-06-18 077-20-15 44(0) 212.300 kw 575 m DA 90.0 % 41.5 dBu
JACKSONVILLE NC 25214 728 DTVSERVICE: 728000 NTSCSERVICE: 727000

DTVALT DTV ALLOTMENT

0.16	0.16	0.14	0.14	0.21	0.35	0.49	0.60	0.69	0.81	0.92	0.97
1.00	0.95	0.82	0.67	0.53	0.44	0.40	0.39	0.36	0.36	0.38	0.44
0.52	0.57	0.62	0.61	0.60	0.55	0.49	0.41	0.30	0.21	0.16	0.15

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	25213.83	727671
not affected by terrain losses	25213.83	727671

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00

	Area	Pop
Interference	0	0

WDPB 38-39-15 075-36-42 44(N) 26.300 kw 205 m DA 90.0 % 41.5 dBu
SEAFORD DE 4202 154 DTVSERVICE: 154000 NTSCSERVICE: 154000
CP BPEDT20000316AAN

0.22	0.26	0.51	0.66	0.83	0.92	0.96	1.00	0.96	0.92	0.83	0.66
0.51	0.35	0.27	0.22	0.20	0.18	0.18	0.19	0.21	0.23	0.26	0.27
0.28	0.29	0.28	0.27	0.26	0.23	0.21	0.19	0.18	0.18	0.20	0.20

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	8683.464	312582
not affected by terrain losses	8683.464	312582

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00

	Area	Pop
Interference	0	0

DWDPB 38-39-15 075-36-42 44(0) 50.000 kw 205 m DA 90.0 % 41.5 dBu
SEAFORD DE 4202 154 DTVSERVICE: 154000 NTSCSERVICE: 154000
DTVALT DTV ALLOTMENT

0.22	0.30	0.45	0.61	0.79	0.91	0.95	1.00	0.95	0.90	0.79	0.61
0.44	0.30	0.21	0.18	0.15	0.14	0.14	0.15	0.16	0.19	0.21	0.22
0.23	0.24	0.23	0.22	0.21	0.20	0.17	0.16	0.16	0.16	0.16	0.18

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

USING NTSC GRADE B FOR SERVICE AREA

	Area	Pop
within Noise Limited Contour	4202.433	154339
not affected by terrain losses	4202.433	154339

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -49.00

	Area	Pop
Interference	0	0

WJPM-T 34-16-47 079-44-35 45(N) 50.000 kw 269.5 m 90.0 % 41.6 dBu
FLORENCE SC 12380 382 DTVSERVICE: 382000 NTSCSERVICE: 379000
CP BPEDT20000501AGS

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	15055.28	473394
not affected by terrain losses	15031.32	472364

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6

NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00

	Area	Pop
Interference	0	0

DWJPM-T 34-16-46 079-44-37 45(0) 50.000 kw 273 m DA 90.0 % 41.6 dBu
FLORENCE SC 12380 382 DTVSERVICE: 382000 NTSCSERVICE: 379000

DTVALT DTV ALLOTMENT

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99
0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

USING NTSC GRADE B FOR SERVICE AREA

	Area	Pop
within Noise Limited Contour	12391.71	382276
not affected by terrain losses	12391.71	382276

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6

NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 2.00

	Area	Pop
Interference	0	0

DWJCB 36-48-32 076-30-13 46(0) 50.000 kw 159 m DA 90.0 % 41.7 dBu
NORFOLK VA 6111 1349 DTVSERVICE: 1349000 NTSCSERVICE: 1349000

DTVALT DTV ALLOTMENT

0.79	0.93	1.00	0.97	0.94	0.95	0.98	0.98	0.95	0.94	0.97	1.00
0.92	0.79	0.58	0.36	0.21	0.19	0.18	0.16	0.15	0.15	0.16	0.18
0.19	0.19	0.18	0.16	0.15	0.15	0.16	0.18	0.19	0.21	0.36	0.59

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

USING NTSC GRADE B FOR SERVICE AREA

	Area	Pop
within Noise Limited Contour	6110.789	1348733
not affected by terrain losses	6110.789	1348733

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA
1.00 1.00 1.00 1.00 1.00 0.98 0.94 0.89 0.83 0.76 0.69 0.60
0.48 0.34 0.23 0.19 0.22 0.29 0.32 0.29 0.22 0.19 0.23 0.34
0.48 0.60 0.69 0.76 0.83 0.89 0.94 0.98 1.00 1.00 1.00 1.00
Ref Az: 80.0
Using DEFAULT vertical antenna pattern

D/U Baseline: -48.00

	Area	Pop
Interference	0	0

WPXV3 36-48-31 076-30-13 46(N) 1000.000 kw 363 m DA 90.0 % 41.7 dBu
NORFOLK VA 6111 1349 DTVSERVICE: 1349000 NTSCSERVICE: 1349000
CP BPCDT19990212KF
0.98 1.00 0.99 0.97 0.95 0.93 0.92 0.92 0.92 0.92 0.92 0.93
0.95 0.97 0.99 1.00 0.98 0.93 0.85 0.72 0.58 0.43 0.31 0.23
0.23 0.25 0.27 0.25 0.23 0.23 0.31 0.43 0.58 0.72 0.85 0.93
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	27835.31	1644152
not affected by terrain losses	27835.31	1644152

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA
1.00 1.00 1.00 1.00 1.00 0.98 0.94 0.89 0.83 0.76 0.69 0.60
0.48 0.34 0.23 0.19 0.22 0.29 0.32 0.29 0.22 0.19 0.23 0.34
0.48 0.60 0.69 0.76 0.83 0.89 0.94 0.98 1.00 1.00 1.00 1.00
Ref Az: 80.0
Using DEFAULT vertical antenna pattern

D/U Baseline: -48.00

	Area	Pop
Interference	0	0

WHTJ2 37-58-58 078-29-00 46(N) 50.000 kw 517 m 90.0 % 41.7 dBu
CHARLOTTSVILLE VA
APP BPRM20000414AAB
Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	19029.99	518676
not affected by terrain losses	15185.55	342083

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA
1.00 1.00 1.00 1.00 1.00 0.98 0.94 0.89 0.83 0.76 0.69 0.60
0.48 0.34 0.23 0.19 0.22 0.29 0.32 0.29 0.22 0.19 0.23 0.34
0.48 0.60 0.69 0.76 0.83 0.89 0.94 0.98 1.00 1.00 1.00 1.00
Ref Az: 80.0
Using DEFAULT vertical antenna pattern

D/U Baseline: -48.00

Interference	Area 0	Pop 0
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WHTJ 37-58-59 078-29-02 46(N) 340.000 kw 499.1 m DA 90.0 % 41.7 dBu
CHARLOTTESVILLE VA
APP BPEDT20000501AHA
1.00 1.00 0.99 0.97 0.94 0.90 0.85 0.79 0.72 0.63 0.55 0.47
0.41 0.38 0.39 0.42 0.46 0.49 0.50 0.49 0.46 0.42 0.39 0.38
0.41 0.47 0.55 0.63 0.72 0.79 0.85 0.90 0.94 0.97 0.99 1.00
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	21587.26	556084
not affected by terrain losses	17581.17	386644

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA
1.00 1.00 1.00 1.00 1.00 0.98 0.94 0.89 0.83 0.76 0.69 0.60
0.48 0.34 0.23 0.19 0.22 0.29 0.32 0.29 0.22 0.19 0.23 0.34
0.48 0.60 0.69 0.76 0.83 0.89 0.94 0.98 1.00 1.00 1.00 1.00
Ref Az: 80.0
Using DEFAULT vertical antenna pattern

D/U Baseline: -48.00

Interference	Area 0	Pop 0
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WUPV 37-44-31 077-15-15 47(N) 1000.000 kw 282 m DA 90.0 % 41.7 dBu
ASHLAND VA 11365 925 DTVSERVICE: 925000 NTSCSERVICE: 908000
CP BPCDT19990928AAL
0.32 0.27 0.31 0.37 0.41 0.41 0.37 0.31 0.27 0.32 0.40 0.52
0.62 0.70 0.75 0.79 0.82 0.85 0.89 0.93 0.96 0.99 1.00 1.00
0.99 0.96 0.93 0.89 0.85 0.82 0.79 0.75 0.70 0.62 0.52 0.40
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	20497.06	1183886
not affected by terrain losses	20472.94	1183751

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA
1.00 1.00 1.00 1.00 1.00 0.98 0.94 0.89 0.83 0.76 0.69 0.60
0.48 0.34 0.23 0.19 0.22 0.29 0.32 0.29 0.22 0.19 0.23 0.34
0.48 0.60 0.69 0.76 0.83 0.89 0.94 0.98 1.00 1.00 1.00 1.00
Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 9999.00

Interference	Area 0	Pop 0

WPXV2 36-48-32 076-30-13 49(-) 501.000 kw 159 m DA 50.0 % 64.9 dBu		
NORFOLK VA 6111 1349 FCC NTSC BL: 1348733 FCC IX POP%: 0.0		
LIC BLCT19890505KE		
0.83 0.94 1.00 0.98 0.95 0.96 0.98 0.98 0.96 0.95 0.98 1.00		
0.94 0.83 0.65 0.44 0.27 0.25 0.23 0.22 0.20 0.20 0.22 0.23		
0.25 0.25 0.23 0.22 0.20 0.20 0.22 0.23 0.25 0.27 0.44 0.65		

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	6110.789	1348733
not affected by terrain losses	6110.789	1348733

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA
1.00 1.00 1.00 1.00 1.00 0.98 0.94 0.89 0.83 0.76 0.69 0.60
0.48 0.34 0.23 0.19 0.22 0.29 0.32 0.29 0.22 0.19 0.23 0.34
0.48 0.60 0.69 0.76 0.83 0.89 0.94 0.98 1.00 1.00 1.00 1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 9999.00

Interference	Area 0	Pop 0

WPXV 36-48-31 076-30-13 49(-) 5000.000 kw 379 m DA 50.0 % 64.9 dBu		
NORFOLK VA 6111 1349 FCC NTSC BL: 1348733 FCC IX POP%: 0.0		
CP MOD BMPCT19981019KE		
0.99 1.00 0.98 0.94 0.89 0.86 0.84 0.85 0.91 0.96 0.99 0.96		
0.90 0.85 0.83 0.85 0.88 0.93 0.97 0.99 0.98 0.92 0.84 0.71		
0.55 0.36 0.19 0.28 0.37 0.28 0.19 0.33 0.53 0.71 0.85 0.94		

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	21272.37	1597345
not affected by terrain losses	21268.36	1597345

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6
NORFOLK VA
1.00 1.00 1.00 1.00 1.00 0.98 0.94 0.89 0.83 0.76 0.69 0.60
0.48 0.34 0.23 0.19 0.22 0.29 0.32 0.29 0.22 0.19 0.23 0.34
0.48 0.60 0.69 0.76 0.83 0.89 0.94 0.98 1.00 1.00 1.00 1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 9999.00

Interference	Area 0	Pop 0
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SUMMARY OF CALCULATIONS

Facility	Channel	Type	Baseline	Permissible	IX	%Base
WVBT3, VIRGINIA BEACH,	43	TV	1572800	0.5	0	0.00
WVBT2, VIRGINIA BEACH,	43	TV	1572800	0.5	0	0.00
WVBT, VIRGINIA BEACH, V	43	TV	1572800	0.5	0	0.00
WCVW, RICHMOND, VA	44	DTV	945000	0.5	0	0.00
DWCWV, RICHMOND, VA	44	DTV	945000	0.5	0	0.00
DWUNMT, JACKSONVILLE, N	44	DTV	728000	0.5	0	0.00
WDPB, SEAFORD, DE	44	DTV	154000	0.5	0	0.00
DWDPB, SEAFORD, DE	44	DTV	154000	0.5	0	0.00
WJPM-T, FLORENCE, SC	45	DTV	382000	0.5	0	0.00
DWJPMT, FLORENCE, SC	45	DTV	382000	0.5	0	0.00
DWJCB, NORFOLK, VA	46	DTV	1349000	0.5	0	0.00
WPXV3, NORFOLK, VA	46	DTV	1349000	0.5	0	0.00
WHTJ2, CHARLOTTESVILLE,	46	DTV	1349000	0.5	0	0.00
WHTJ, CHARLOTTESVILLE,	46	DTV	1349000	0.5	0	0.00
WUPV, ASHLAND, VA	47	DTV	925000	0.5	0	0.00
WPXV2, NORFOLK, VA	49	TV	1348733	0.5	0	0.00
WPXV, NORFOLK, VA	49	TV	1348733	0.5	0	0.00

OET-69 LPTV NTSC INTERFERENCE RECEIVED STUDY

CELL SIZE : 2.00
Using offset in determining thresholds
Per 6th Report & Order and FCC OET-69 Bulletin

W67CZ 36-46-32 076-23-11 30(+) 25.700 kw 125 m DA 50.0 % 73.3 dBu
NORFOLK VA
CP BPTTL19981124JB

0.60	0.71	0.82	0.89	0.97	0.99	1.00	0.98	0.98	1.00	0.98	0.98
1.00	0.99	0.97	0.89	0.82	0.71	0.60	0.40	0.23	0.08	0.07	0.06
0.05	0.05	0.04	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.23	0.40

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	771.8541	519336
not affected by terrain losses	771.8541	519336

WNLO-P 36-49-14 076-30-41 45(-) 120.000 kw 236 m DA 10.0 % 74.6 dBu
NORFOLK VA

1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.89	0.83	0.76	0.69	0.60
0.48	0.34	0.23	0.19	0.22	0.29	0.32	0.29	0.22	0.19	0.23	0.34
0.48	0.60	0.69	0.76	0.83	0.89	0.94	0.98	1.00	1.00	1.00	1.00

Ref Az: 80.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -9.00

	Area	Pop
Interference	28.14	3196(0.6)

WHRO-T 36-48-32 076-30-12 15(Z) 2880.000 kw 301 m DA 10.0 % 61.8 dBu
HAMPTON-NORFOLK VA 17265 1537 FCC NTSC BL: 1537273 FCC IX POP%: 0.0
LIC BLETL19980608KE

1.00	1.00	0.98	0.95	0.92	0.88	0.84	0.81	0.78	0.74	0.69	0.60
0.49	0.38	0.28	0.28	0.34	0.40	0.43	0.40	0.34	0.27	0.28	0.36
0.49	0.60	0.69	0.74	0.78	0.81	0.84	0.88	0.92	0.95	0.97	1.00

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 9999.00

	Area	Pop
Interference	0	0

DWRIC 37-30-46 077-36-06 22(0) 520.700 kw 387 m DA 10.0 % 39.5 dBu
PETERSBURG VA 27478 1244 DTVSERVICE: 1244000 NTSCSERVICE: 1178000
DTVALT DTV ALLOTMENT

0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94
------	------	------	------	------	------	------	------	------	------	------	------

0.94 0.94 0.94 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.96 0.96
0.97 0.98 0.99 1.00 0.99 0.97 0.96 0.96 0.95 0.95 0.95 0.95
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

D/U Baseline: -32.00

	Area	Pop
Interference	0	0

WCVE-T 37-30-46 077-36-06 23(Z) 2950.000 kw 393 m 10.0 % 62.6 dBu
RICHMOND VA 21868 1106 FCC NTSC BL: 1108667 FCC IX POP%: 0.0
LIC BLET19940816KE
Using DEFAULT vertical antenna pattern

D/U Baseline: -30.00

	Area	Pop
Interference	0	0

WGNT 36-48-43 076-27-49 27(Z) 2340.000 kw 302 m 10.0 % 63.0 dBu
PORTSMOUTH VA 18925 1566 FCC NTSC BL: 1566121 FCC IX POP%: 0.1
LIC BLCT2010
Using DEFAULT vertical antenna pattern

D/U Baseline: -33.00

	Area	Pop
Interference	0	0

DWVBT 36-49-14 076-30-41 29(0) 133.300 kw 268 m DA 10.0 % 40.2 dBu
VIRGINIA BEACH VA 18835 1572 DTVSERVICE: 1572000 NTSCSERVICE: 1573000
DTVALT DTV ALLOTMENT
1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
1.00 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99
0.99 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.99 0.99 1.00
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

D/U Baseline: -14.00

	Area	Pop
Interference	28.14	3196(0.6)

WVIR-T 37-59-00 078-28-54 29(-) 5000.000 kw 530 m 10.0 % 63.2 dBu
CHARLOTTESVILLE VA 20736 649 FCC NTSC BL: 860293 FCC IX POP%: 4.9
LIC BLCT19930210KE
Using DEFAULT vertical antenna pattern

D/U Baseline: -15.00

	Area	Pop
Interference	0	0

WRAY-T 35-49-53 078-08-50 30(-) 1820.000 kw 604 m DA 10.0 % 63.3 dBu
WILSON NC 21978 1266 FCC NTSC BL: 1281906 FCC IX POP%: 2.5
LIC BLCT19981014KE
0.89 0.93 0.97 1.00 1.00 0.98 0.94 0.86 0.77 0.66 0.53 0.39
0.26 0.20 0.24 0.31 0.34 0.31 0.25 0.20 0.24 0.36 0.50 0.64
0.75 0.85 0.92 0.98 1.00 1.00 0.98 0.94 0.90 0.88 0.87 0.87
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

D/U Baseline: 28.00

	Area	Pop
Interference	0	0

DWNVT 38-37-42 077-26-20 30(0) 50.000 kw 309 m DA 10.0 % 40.3 dBu
GOLDVEIN VA 14199 3791 DTVSERVICE: 3791000 NTSCSERVICE: 2821000
DTVALT DTV ALLOTMENT
0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.99 0.99 1.00 1.00 1.00
1.00 1.00 1.00 0.99 0.99 0.98 0.98 0.98 0.97 0.97 0.97 0.97
0.97 0.98 0.98 0.99 0.99 0.99 0.99 0.99 0.99 0.98 0.98 0.98
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

D/U Baseline: 34.00

	Area	Pop
Interference	0	0

DWSFXT 34-07-51 078-11-16 30(0) 212.700 kw 515 m DA 10.0 % 40.3 dBu
WILMINGTON NC 22230 481 DTVSERVICE: 481000 NTSCSERVICE: 480000
DTVALT DTV ALLOTMENT
0.25 0.30 0.39 0.57 0.75 0.86 0.85 0.71 0.53 0.36 0.26 0.22
0.18 0.15 0.13 0.13 0.14 0.17 0.19 0.24 0.35 0.55 0.78 0.96
1.00 0.88 0.67 0.44 0.28 0.19 0.15 0.13 0.12 0.14 0.16 0.20
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

D/U Baseline: 34.00

	Area	Pop
Interference	0	0

DWSLST 37-12-02 080-08-55 30(0) 773.700 kw 1196 m DA 10.0 % 40.3 dBu
ROANOKE VA 33596 1141 DTVSERVICE: 1141000 NTSCSERVICE: 1092000
DTVALT DTV ALLOTMENT
0.74 0.70 0.68 0.66 0.64 0.64 0.65 0.66 0.69 0.73 0.77 0.81
0.83 0.83 0.85 0.88 0.89 0.91 0.91 0.93 0.94 0.94 0.95 0.95
0.96 1.00 1.00 0.99 0.98 0.95 0.93 0.89 0.87 0.84 0.81 0.76
(255.0 1.00)(256.0 1.00)(257.0 1.00)(258.0 1.00)(259.0 1.00)
Ref Az: 0.0
Using DEFAULT vertical antenna pattern

D/U Baseline: 34.00

	Area	Pop
Interference	0	0

DWGCBT 39-54-18 076-35-00 30(0) 50.000 kw 370 m DA 10.0 % 40.3 dBu
RED LION PA 9595 1498 DTVSERVICE: 1498000 NTSCSERVICE: 1319000

DTVALT DTV ALLOTMENT

0.99 0.99 0.99 1.00 1.00 1.00 0.99 0.99 0.98 0.97 0.97 0.97

0.96 0.96 0.95 0.95 0.94 0.93 0.92 0.92 0.93 0.93 0.93 0.94

0.94 0.95 0.95 0.96 0.96 0.97 0.97 0.98 0.98 0.98 0.98 0.98

(45.0 1.00)(46.0 1.00)

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

D/U Baseline: 34.00

	Area	Pop
Interference	0	0

DWAVYT 36-49-14 076-30-41 31(0) 729.000 kw 313 m DA 10.0 % 40.4 dBu
PORTSMOUTH VA 28891 1778 DTVSERVICE: 1778000 NTSCSERVICE: 1652000

DTVALT DTV ALLOTMENT

0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.99 0.99

0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99

1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.99 0.99 0.99

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -17.00

	Area	Pop
Interference	28.14	3196(0.6)

WTVZ-T 36-48-32 076-30-13 33(Z) 5000.000 kw 283 m 10.0 % 63.6 dBu
NORFOLK VA 14074 1498 FCC NTSC BL: 1497526 FCC IX POP%: 0.0

LIC BLCT19820219KG

Using DEFAULT vertical antenna pattern

D/U Baseline: -34.00

	Area	Pop
Interference	12.06	845(0.2)

DWTVZ 36-48-32 076-30-13 38(0) 226.800 kw 283 m DA 10.0 % 41.0 dBu
NORFOLK VA 14070 1498 DTVSERVICE: 1498000 NTSCSERVICE: 1498000

DTVALT DTV ALLOTMENT

0.48 0.49 0.44 0.36 0.27 0.23 0.29 0.52 0.75 0.94 1.00 0.95

0.83 0.67 0.47 0.33 0.21 0.14 0.11 0.10 0.10 0.10 0.10 0.10

0.09 0.11 0.13 0.14 0.14 0.13 0.16 0.20 0.24 0.30 0.37 0.44

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -43.00

	Area	Pop
Interference	0	0

DWCVW 37-30-46 077-36-06 44(0) 50.000 kw 360 m DA 10.0 % 41.5 dBu
 RICHMOND VA 13908 945 DTVSERVICE: 945000 NTSCSERVICE: 945000
 DTVALT DTV ALLOTMENT
 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 1.00 1.00 1.00 1.00
 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.99 0.98 0.98 0.98 0.98
 0.98 0.97 0.97 0.97 0.97 0.97 0.98 0.98 0.98 0.98 0.99 0.99

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

D/U Baseline: -33.00

	Area	Pop
Interference	0	0

WNLO-L 36-48-38 076-16-57 45(-) 33.000 kw 136 m 10.0 % 74.6 dBu
 NORFOLK VA
 LIC BLTTL19991103ABQ

Using DEFAULT vertical antenna pattern

D/U Baseline: -9.00

	Area	Pop
Interference	32.16	8594(1.7)

lost to NTSC IX	32.16	8594
lost to additional IX by DTV	0.00	0
total lost to DTV IX	28.14	3196

CallSign	No.cells	Unq Area	Unq Pop
WNLO-L	1	4.020073	5398

lost to all IX	32.16	8594
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Total SERVICE	739.69	510742
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All interference from the study station was masked.



ANDREW

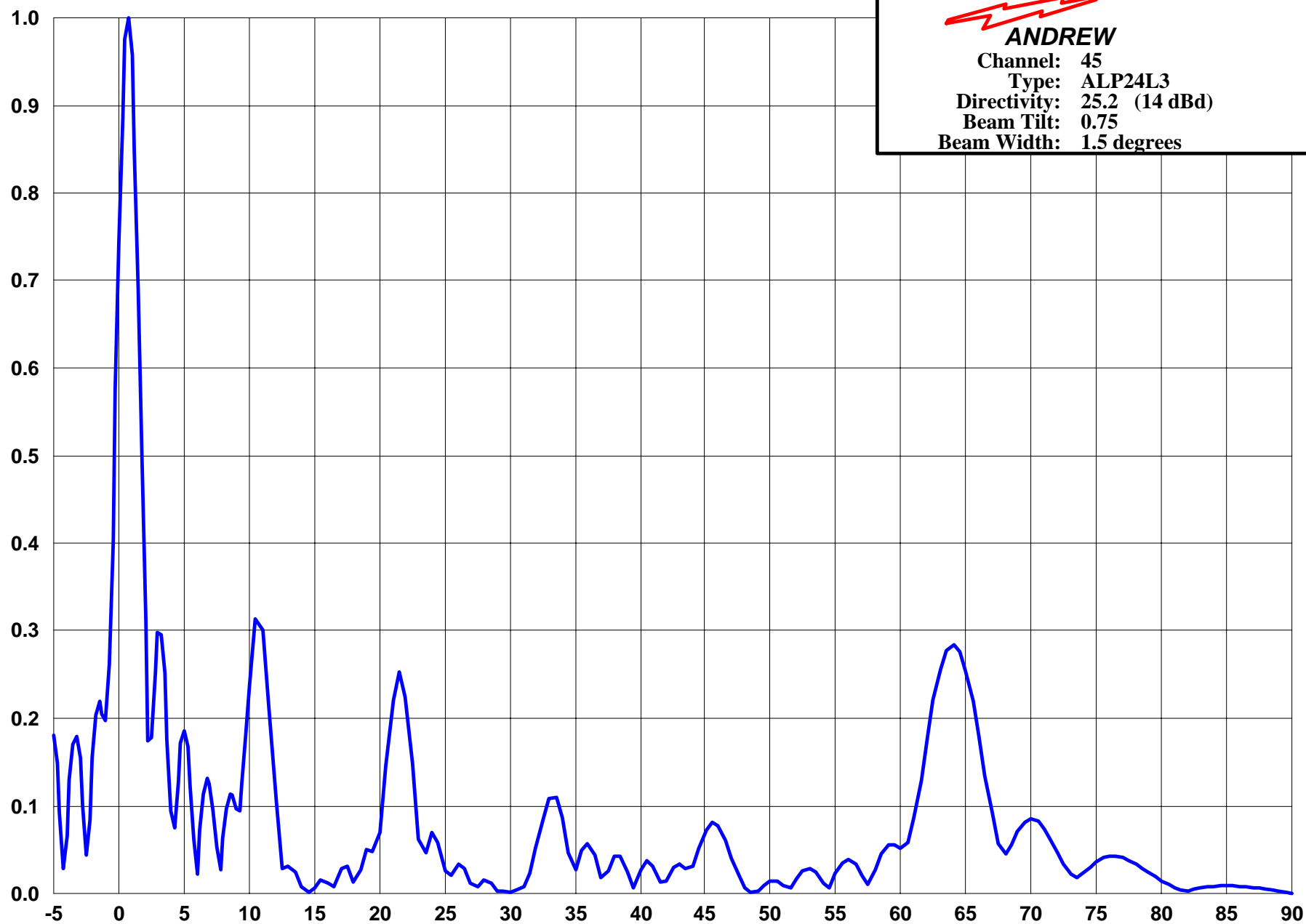
Channel: 45

Type: ALP24L3

Directivity: 25.2 (14 dBd)

Beam Tilt: 0.75

Beam Width: 1.5 degrees



ANDREW CORPORATION
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FIGURE 4