

ENGINEERING EXHIBIT  
AMENDMENT OF APPLICATION FOR  
CONSTRUCTION PERMIT  
TELEVISION STATION WWAC-DT  
ATLANTIC CITY, NEW JERSEY

March 5, 2001

CHANNEL 50 60 KW (MAX-DA) 147 M

ENGINEERING EXHIBIT  
AMENDMENT OF APPLICATION FOR CONSTRUCTION PERMIT  
TELEVISION STATION WWAC-DT  
ATLANTIC CITY, NEW JERSEY  
CHANNEL 50 60 KW (MAX-DA) 147 M

Table of Contents

Engineering Statement

Figure 1	Tabulation of Average Elevations and Distances to Predicted 41 dBu Coverage Contour
Figure 2	Predicted 41 dBu Coverage Contour
Figure 3	Summary of Allocation Analysis

ENGINEERING EXHIBIT  
AMENDMENT OF APPLICATION FOR CONSTRUCTION PERMIT  
TELEVISION STATION WWAC-DT  
ATLANTIC CITY, NEW JERSEY  
CHANNEL 50 60 KW (MAX-DA) 147 M

Engineering Statement

This Engineering Exhibit was prepared on behalf of digital television broadcast station WWAC-DT, Atlantic City, New Jersey, in support of an amendment to its pending application for construction permit (See FCC File No. BPCDT-19990604KF). The purpose of this amendment is to specify a lesser antenna height in accordance with the final FCC tower registration for the proposed antenna structure. Also, the coordinates of the proposed transmitter site have been revised to agree with the tower registration coordinates considering the proper geographic datum conversion. There is no change in the proposed antenna radiation pattern. However, the maximum effective radiated power (ERP) has been adjusted to 60 kW in keeping with FCC de minimis interference requirements.

Proposed Facilities

The proposed transmitting antenna will be side-mounted at the top of a proposed tower to be located near Malaga, New Jersey. The antenna center of radiation will be located at 146 m above ground level (178 m AMSL). The proposed facility will operate on Channel 50 with a maximum directional average ERP of 17.8 dBk (60 kW) and an antenna radiation center HAAT of 147 m. The proposal meets the maximum permissible ERP requirements pursuant to Section 73.622(f) of the FCC Rules.

The proposed facility provides minimum 41 dBu, f(50,90), coverage of Atlantic City.\* Figure 1 herein is a tabulation of the calculated distances to the predicted WWAC-DT 41 dBu f(50,90) coverage contour. Figure 2 herein is a map depicting the predicted 41 dBu coverage contour of the proposed facility.

#### Tower Registration

The proposed antenna structure has been registered with the FCC. The FCC antenna structure registration number is 1045051. There will be no change in the overall height of the antenna structure as a result of the instant proposal.

#### Allocation Considerations

The proposed WWAC-DT Channel 50 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other existing NTSC facilities and DTV allotments and assignments. Longley-Rice interference analyses were conducted pursuant to the requirements of the FCC Rules; OET Bulletin No. 69; and published FCC guidelines for preparation of such interference analyses. The Longley-Rice interference analyses were conducted using the software developed by du Treil, Lundin & Rackley, Inc. based on the FCC published software routines.† Stations selected for analysis were determined pursuant to the distance requirements outlined in the FCC DTV Processing Guidelines Public Notice. Accordingly, co-channel DTV and NTSC stations within 429 km and 407 km, respectively, were examined for potential interference; and first-adjacent DTV and NTSC stations within 229 km and 207 km, respectively, were examined for potential interference. Analog taboo-related

---

\* Minimum 41 dBu f(50,90) coverage of the city of license is sufficient. Compliance with the revised Section 73.625(a)(1) of the FCC Rules, as recently adopted by the FCC in MM Docket No. 00-39, is not required for commercial stations until December 31, 2004.

† The duTreil, Lundin & Rackley, Inc. DTV interference analysis program is a precise implementation of the 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.

NTSC stations within 142 km were examined for potential interference. The results of the interference analyses for the proposed WWAC-DT facility are summarized herein at Figure 3. As indicated therein, the proposed facility will meet the 2%/10% criterion outlined in the FCC Rules and published guidelines<sup>‡</sup> with respect to all considered stations with the exception of a pending expansion application for WACI-DT, Atlantic City, New Jersey (FCC File No. BPCDT-19991019ABE). The WWAC-DT proposal is mutually-exclusive with the WACD-DT expansion application.

With respect to Class A TV station protection, the proposal has been evaluated according to the requirements of Section 73.623(c)(5) of the FCC Rules. The analysis reveals no spacing violations or contour overlap to Class A stations.

#### Environmental Considerations

With respect to the potential for human exposure to radio frequency (RF) radiation, calculations prepared in accordance with FCC Bulletin OET-65 (Edition 97-01) indicate that the proposal will not result in human exposure to RF radiation at ground level in excess of FCC standards. Power density calculations were conducted at 2-m above ground<sup>§</sup> based on the following conservative assumptions, with the following results:

Call Sign	Channel	Peak Visual ERP or Average ERP (kW)	Aural ERP (kW)	Relative Field Factor **	FCC Limit <sup>††</sup> (mW/cm <sup>2</sup> )	Percentage of Limit
WWAC-DT	50	60	--	0.20	0.459	0.84%

<sup>‡</sup> Interference analysis results reflect the net change in interference to a given station considering the interference predicted to occur from all other stations (i.e. "masking") including the allotment facility for WWAC-DT. This properly reflects the net interference change for determining compliance with the FCC DTV2%/10% *de minimis* standard.

<sup>§</sup> The antenna radiation center height above ground is 146 m.

<sup>\*\*</sup> This is a conservative estimate of the relative field factor in the downward direction.

<sup>††</sup> for general population/uncontrolled environments

As indicated above, the total exposure to RF radiation at 2-m above ground level will not exceed 0.84% of the FCC limit for general population / uncontrolled exposure.

Therefore, the proposal complies with the FCC limits for human exposure to RF radiation and it is categorically excluded from environmental processing. The applicant, in coordination with other users of the transmission facility, shall reduce power or cease operation as necessary to protect persons having access to the WWAC-DT tower or antenna from radio frequency radiation in excess of the FCC guidelines.

Louis Robert du Treil, Jr.

March 5, 2001

ENGINEERING EXHIBIT  
 AMENDMENT OF APPLICATION FOR CONSTRUCTION PERMIT  
 TELEVISION STATION WWAC-DT  
 ATLANTIC CITY, NEW JERSEY  
 CHANNEL 50 60 KW (MAX-DA) 147 M

Tabulation of Average Elevations and  
Distances to Predicted 41 dBu Coverage Contour

Azimuth (deg.T)	3-16 km Average Terrain (m)	Antenna HAAT (m)	ERP (kW)	41 dBu f(50,90) Contour (km)
0	32	146	53.5	63.5
10	34	144	50.6	63.1
20	38	140	48.7	62.5
30	39	139	48.1	62.4
40	36	142	49.5	62.8
50	33	145	50.9	63.1
60	32	146	53.2	63.5
70	31	147	56.9	63.8
80	31	147	59.4	64.1
90	32	146	58.2	63.9
100	33	145	53.0	63.3
110	32	146	44.9	62.7
120	32	146	36.0	61.6
130	32	146	28.1	60.4
140	31	147	21.1	59.2
150	29	149	14.8	57.7
160	30	148	9.2	55.4
170	29	149	4.7	52.3
180	27	151	2.3	49.0
190	19	159	2.0	48.8
200	21	157	3.1	50.7
210	27	151	4.0	51.6
220	29	149	3.1	50.3
230	29	149	2.0	48.1
240	30	148	2.3	48.7
250	30	148	4.6	52.2
260	30	148	9.3	55.4
270	30	148	15.1	57.7

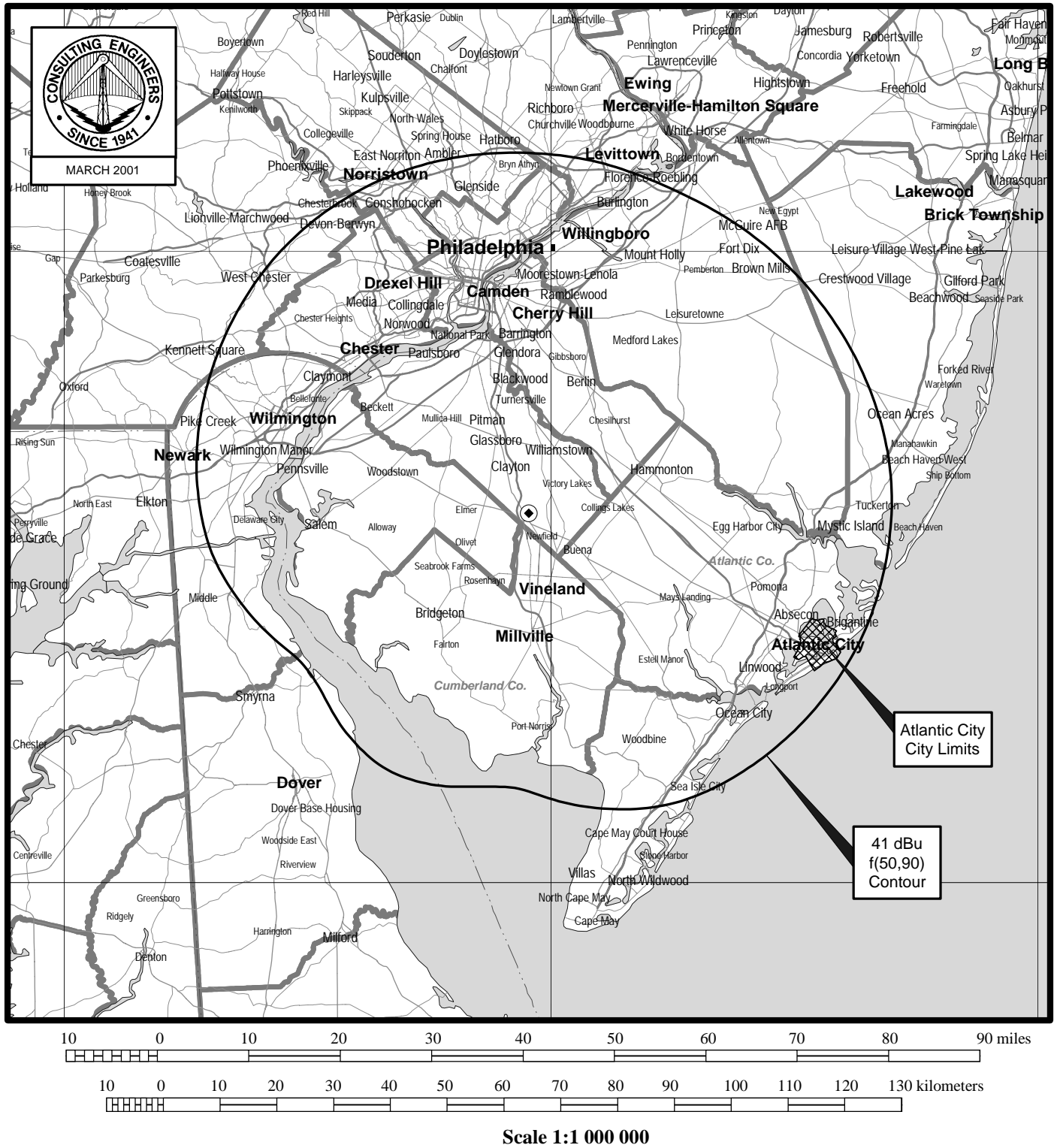
Figure 1

Azimuth (deg.T)	3-16 km Average Terrain (m)	Antenna HAAT (m)	ERP (kW)	41 dBu f(50,90) Contour (km)
280	30	148	21.5	59.3
290	30	148	28.4	60.6
300	30	148	36.3	61.8
310	30	148	45.7	62.9
320	30	148	54.3	63.7
330	30	148	59.2	64.1
340	30	148	59.8	64.2
350	30	148	57.2	63.9

Note: The 3-16-km average terrain is 31 m based on the eight conventional radials (0°, 45°, 90°, etc.). The overall antenna radiation center height above average terrain is 178 m based on the eight conventional radials.



Figure 2



## PREDICTED 41 dBu COVERAGE CONTOUR

TELEVISION STATION WWAC-DT  
ATLANTIC CITY, NEW JERSEY  
CHANNEL 50 60 KW (MAX-DA) 147 M

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

ENGINEERING EXHIBIT  
AMENDMENT OF APPLICATION FOR CONSTRUCTION PERMIT  
TELEVISION STATION WWAC-DT  
ATLANTIC CITY, NEW JERSEY  
CHANNEL 50 60 KW (MAX-DA) 147 M

Summary of Allocation Analysis

Stations Potentially Affected by Proposed Station							
Facility Number	Channel	Call	City State	Distance (km)	Status	Application Prefix	Application Reference Number
1	35	WYBE	PHILADELPHIA PA	53.3	LIC	BLCT	19900612KE
2	43	WPMT	YORK PA	141.5	LIC	BLCT	19840905KI
3	43	WPMT	YORK PA	141.5	CP	BPCT	19960724KK
4	47	WMDT	SALISBURY MD	134.3	LIC	BLCT	19910607KF
5	47	WMDT	SALISBURY MD	134.2	APP	BPCT	20001101AAI
6	48	WGTW	BURLINGTON NJ	53.7	LIC	BLCT	19920821KF
7	49	WACI-DT	ATLANTIC CITY NJ	59.5	APP	BPCDT	19991019ABE
8	49	WACI-DT	ATLANTIC CITY NJ	67	PLN	DTVPLN	DTVP1358
9	49	WGCB-TV	RED LION PA	136.1	CP	BPCT	20000105AAM

Stations Potentially Affected by Proposed Station							
Facility Number	Channel	Call	City State	Distance (km)	Status	Application Prefix	Application Reference Number
10	49	WGCB-TV	RED LION PA	136.1	LIC	BLCT	19790419KG
11	49	WNEP-DT	SCRANTON PA	190.9	APP	BPCDT	19990729KF
12	49	WNEP-DT	SCRANTON PA	190.9	PLN	DTVPLN	DTVP1361
13	50	WBDC-TV	WASHINGTON DC	188.7	CP	BPCT	20000619AEP
14	50	WBDC-TV	WASHINGTON DC	183.9	LIC	BLCT	19880519KI
15	50	WNJN	MONTCLAIR NJ	159.3	LIC	BLET	19860805KG
16	50	WNJN	MONTCLAIR NJ	159.3	CP	BPET	19891219KE
17	50	WYPX-DT	AMSTERDAM NY	384.7	APP	BPCDT	19990924AAR
18	50	WOCD-DT	AMSTERDAM NY	384.8	PLN	DTVPLN	DTVP1384
19	50	WYDC-DT	CORNING NY	331.8	APP	BPCDT	19991029AID
20	50	WYDC-DT	CORNING NY	331.8	PLN	DTVPLN	DTVP1385
21	50	WPCB-DT	GREENSBURG PA	413.1	APP	BPCDT	19991026ABB
22	50	WPCB-DT	GREENSBURG PA	413	PLN	DTVPLN	DTVP1390
23	50	WGNT	PORTSMOUTH VA	332.1	APP	BPRM	20000413AAH
24	51	WBDC-DT	WASHINGTON DC	188.7	APP	BPCDT	19990915ATL
25	51	WBDC-DT	WASHINGTON DC	183.9	PLN	DTVPLN	DTVP1402

Stations Potentially Affected by Proposed Station							
Facility Number	Channel	Call	City State	Distance (km)	Status	Application Prefix	Application Reference Number
26	51	WNJN-DT	MONTCLAIR NJ	159.3	APP	BPEDT	20000425AAH
27	51	WNJN-DT	MONTCLAIR NJ	159.3	PLN	DTVPLN	DTVP1416
28	51	WTVE	READING PA	99.7	CP MOD	BMPCT	19940811KL
29	51	940630KG	READING PA	106.5	APP	BPCT	19940630KG
30	51	WTVE	READING PA	112.2	LIC	BLCT	19800521KW
31	52	WNJT	TRENTON NJ	83.4	LIC	BLET	19850913KE
32	53	WWAC-TV	ATLANTIC CITY NJ	55.8	LIC	BLCT	19880315KI
33	57	WPSG	PHILADELPHIA PA	53.1	CP	BPCT	19960628KI
34	57	WPSG	PHILADELPHIA PA	53.1	LIC	BLCT	19851120KG
35	58	WNJB	NEW BRUNSWICK NJ	124.1	LIC	BLET	19860618KE

Summary of Interference Analysis for Worst-Case Scenarios							
Facility Number	Interference Population Before Analysis	Interference Population After Analysis	Baseline Population	Net Change in Interference	Percent of Baseline	Permissible Percent of Baseline	Result
1	--	--	--	--	0.00	--	pass
2	--	--	--	--	0.00	--	pass

Summary of Interference Analysis for Worst-Case Scenarios							
Facility Number	Interference Population Before Analysis	Interference Population After Analysis	Baseline Population	Net Change in Interference	Percent of Baseline	Permissible Percent of Baseline	Result
3	--	--	--	--	0.00	--	pass
4	--	--	--	--	0.00	--	pass
5	--	--	--	--	0.00	--	pass
6	--	--	--	--	0.00	--	pass
7	34427	89236	1021034	54809	5.37	2.0	fail <sup>††</sup>
8	1691	17178	1021034	15487	1.52	2.0	pass
9	--	--	--	--	0.00	--	pass
10	--	--	--	--	0.00	--	pass
11	--	--	--	--	0.00	--	pass
12	--	--	--	--	0.00	--	pass
13	--	--	--	--	0.00	--	pass
14	559947	561274	5966790	1327	0.02	2.0	pass
15	388722	406532	16018357	17810	0.11	2.0	pass
16	463964	483303	16018357	19339	0.12	2.0	pass
17	--	--	--	--	0.00	--	pass
18	--	--	--	--	0.00	--	pass
19	--	--	--	--	0.00	--	pass

<sup>††</sup> The proposal is mutually-exclusive with WACI-DT application for “expansion” of its facility.

Summary of Interference Analysis for Worst-Case Scenarios							
Facility Number	Interference Population Before Analysis	Interference Population After Analysis	Baseline Population	Net Change in Interference	Percent of Baseline	Permissible Percent of Baseline	Result
20	--	--	--	--	0.00	--	pass
21	--	--	--	--	0.00	--	pass
22	--	--	--	--	0.00	--	pass
23	--	--	--	--	0.00	--	pass
24	--	--	--	--	0.00	--	pass
25	--	--	--	--	0.00	--	pass
26	--	--	--	--	0.00	--	pass
27	--	--	--	--	0.00	--	pass
28	2546608	2553141	7220973	6533	0.09	2.0	pass
29	--	--	--	--	0.00	--	pass
30	--	--	--	--	0.00	--	pass
31	--	--	--	--	0.00	--	pass
32	--	--	--	--	0.00	--	pass
33	--	--	--	--	0.00	--	pass
34	--	--	--	--	0.00	--	pass
35	--	--	--	--	0.00	--	pass