

TECHNICAL STATEMENT
SUPPORTING REQUEST FOR AUTHORIZATION TO
ESTABLISH ATSC 3.0 SERVICE AND ATSC 1.0 SIMULCAST HOST
WEDN, NORWICH, CT (FACILITY ID NO. 13607) (LIGHTHOUSE)
WEDH, HARTFORD, CT (FACILITY ID NO. 13602) (HOST)
HARTFORD & NEW HAVEN DMA

Background

This statement was prepared on behalf of Connecticut Public Broadcasting, Inc. ('CPB'), licensee of stations WEDN, Norwich, CT; and WEDH, Hartford, CT. CPB requests authorization for ATSC 3.0 NextGen television service on WEDN (RF Channel 9) with WEDH (RF Channel 30) to be established as an ATSC 1.0 simulcast host station. The technical facilities of the WEDH host station are detailed herein. Both WEDH and WEDN are PBS affiliated stations.

Compliance with Coverage Requirements

The proposal is compliant with the coverage requirements for an ATSC 3.0 simulcast signal as outlined in Section 73.3801(c) of the FCC Rules. Specifically,

- (1) the WEDH predicted 48 dBu, f(50,90), principal community contour encompasses the WEDN city of license of Norwich, CT; and,
- (2) both WEDN and WEDH are licensed to the same Nielsen Designated Market Area (DMA), which is Hartford & New Haven.

Expedited Processing

The instant proposal does not qualify for expedited processing according to the requirements outlined in Section 73.3801(f)(5) of the FCC Rules. When calculated based on the noise-limited service contours using 2020 Census block data, the predicted replication population of WEDN by the WEDH facility is 75.9%, which falls short of the

FCC's minimum 95% requirement.* However, as demonstrated herein, there is 100% replication of the WEDN predicted service within the Hartford & New Haven DMA; and, when calculated using the FCC's *TVStudy* Longley-Rice prediction methodology, the replication level is actually a much higher calculated level of 87.5%.†

The FCC's *TVStudy* service and interference prediction analysis tool (version 2.2.5) was employed to determine the predicted service and interference of the WEDN licensed facility. The predicted interference received from other licensed DTV facilities was taken into consideration to predict the actual service of WEDN. There is over 21% net predicted interference to WEDN from the licensed facilities of WMUR-TV (Ch. 9), WBPH-TV (Ch. 9) and WTNH (Ch. 10). Using the WEDN service cells thus established, a determination of those predicted service cells within the WEDH predicted service contour was made to determine the WEDH service replication level, which was calculated to be 87.5%.‡

There is an exhibit attached hereto showing the predicted service analysis under the *TVStudy* analysis procedure for WEDN taking into consideration the predicted interference from other DTV stations. Also attached hereto is an exhibit entitled '*Predicted Coverage Analysis Map*' that shows the WEDN predicted service cells based on the *TVStudy* analysis that includes the predicted service contours of WEDN and WEDH.

A study was conducted of other PBS affiliated stations in the vicinity of the WEDN non-replicated service area. It was determined that the PBS affiliated station WSBE-TV, Providence, Rhode Island, provides predicted service to the 100% of the population within the non-replicated area. (There is only a small wedge-shaped area of the WEDN non-replicated area that is completely over sea water that is not covered by WSBE-TV.) The above referenced map exhibit shows the predicted noise-limited service contour of WSBE-TV in relation to the WEDN non-replicated service area.

* Based on 2020 Census block data, the population within the WEDN 36 dBu noise-limited service contour is 3,518,418. The portion of the population that would be within the WEDH noise-limited service contour is 2,671,914. This results in a WEDN ATSC 1.0 non-replicated population of 846,504 and a calculated replication percentage of 75.9%.

† The predicted WEDN ATSC 1.0 non-replicated population under the *TVStudy* analysis procedure is 259,521.

‡ The predicted WEDN service population based on the *TVStudy* analysis study is 2,069,993. Of that population, 1,810,472 would be replicated by the WEDH host ATSC 1.0 station.

Regarding the possibility of other DTV stations serving as ATSC 1.0 host stations for WEDN, a study was conducted of all DTV stations in the Hartford & New Haven DMA. A listing of all the stations falling into this category is attached hereto. The respective predicted noise-limited service contour of every station listed in the tabulation was examined. No stations on the list were found to provide superior replication of the WEDN facility relative to the chosen WEDH host station.



Louis R. du Treil, Jr., P.E.

du Treil, Lundin & Rackley, Inc.
5212 Station Way
Sarasota, Florida 34233

January 12, 2023

TV Inquiry LMS

TECHNICAL FACILITIES OF ATSC 1.0 HOST STATION

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

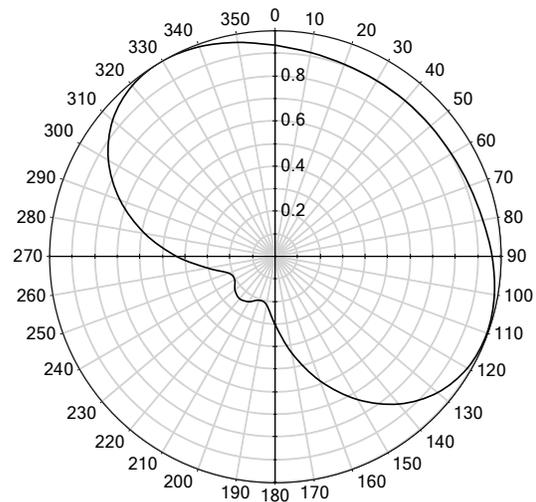


Callsign: WEDH **Service:** DTV **Status:** L2C **App. Status:** GRA **Rec. Type:** C
Channel: 30 **Zone:** 1 **Application File No.:** 0000080371 **Chan Share Host:** Y
Fac. ID: 13602 **FRN:** 0003574662 **Loc. Record ID:** 25076f916c859828016c868307e30229 **DT Emission Mask:**
City: HARTFORD **State:** CT **Country:** US **CP Expiration Date:** 2023-04-01
Party Name: CONNECTICUT PUBLIC BROADCASTING, INC. **Last Change Date:** 2019-08-16

Latitude (NAD 83): 041-42-13 **Height AGL (m):** 388 **Polarization:** E
Longitude (NAD 83): 072-49-55 **Overall Height AGL (m):** 408.1 **Electrical Tilt (°):** 1
RCMSL (m): 604.4 **ERP (kW):** 497 **Mechanical Tilt (°):**
Site Elevation AMSL (m): 216.4 **Maximum ERP (kW):**
HAAT (m): 506 **Maximum ERP (dBk):**
Degrees True (°):

Ant Type: DIR **Antenna ID:** 1002375 **Rotation (°):** 0

0° 0.936	90° 0.963	180° 0.302	270° 0.437
10° 0.917	100° 0.988	190° 0.218	280° 0.588
20° 0.905	110° 1.000	200° 0.207	290° 0.733
30° 0.900	120° 0.987	210° 0.232	300° 0.854
40° 0.899	130° 0.940	220° 0.245	310° 0.940
50° 0.900	140° 0.854	230° 0.232	320° 0.987
60° 0.905	150° 0.733	240° 0.207	330° 1.000
70° 0.917	160° 0.588	250° 0.218	340° 0.988
80° 0.936	170° 0.437	260° 0.302	350° 0.963



Antenna Make: DIE

Antenna Model: TFU-16DSC/VP-R C170

Last Change Date: 2019-08-12 12:17:13.726

Ant. Record ID: 25076f916c859828016c868307e4022a

Note: Rotation or tilt is not applied to the pattern shown

Type:	ASRN: 1041624	FAA Study No.: 83-ANE-0395-OE	Structure Height (m): 393.8
Latitude (NAD 83): 41-42-13.0	Date Received: 08/24/2015		Structure Height (ft): 1292.0
Longitude (NAD 83): 072-49-55.0	Date Entered: 08/24/2015		Ground Elevation (m): 216.4
	Date Issued: 08/24/2015		Ground Elevation (ft): 710.0
	Date Constructed: 09/01/1984		Overall Height AGL (m): 408.1
	Date Dismantled:		Overall Height AGL (ft): 1338.9
Struct. Address:			Overall Height AMSL (m): 624.5
200 COLT HIGHWAY RT. 6			Overall Height AMSL (ft): 2048.9
FARMINGTON	CT		

Entity Name: Communications Site Management, LLC

PREDICTED SERVICE ANALYSIS FOR WEDN, NORWICH, CT (CHANNEL 9)

tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: wedn_lic, Model: Longley-Rice

Study build station data: LMS TV 2022-03-09

Proposal: WEDN D9 DT LIC NORWICH, CT
File number: BLEDT20090618ACB
Facility ID: 13607
Station data: LMS TV 2022-03-09
Record ID: 2ba20eb68ee04bcda488cf6212b6c0ea
Country: U.S.
Zone: I

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WNJB	D8	DT	LIC	NEW BRUNSWICK, NJ	BLANK0000040678	219.8 km
No	WXXA-TV	D8	DT	LIC	ALBANY, NY	BLANK0000117263	195.5
No	WXXA-TV	D8	DT	LIC	ALBANY, NY	BLANK0000185800	195.5
No	WMEB-TV	D9	DT	LIC	ORONO, ME	BLEDT20020508AAS	433.4
Yes	WMUR-TV	D9	DT	LIC	MANCHESTER, NH	BLANK0000143119	169.4
Yes	WMUR-TV	D9	DT	APP	MANCHESTER, NH	BLANK0000145084	169.4
Yes	WBPH-TV	D9	DT	APP	BETHLEHEM, PA	BPCDT20110518ADP	294.2
Yes	WBPH-TV	D9	DD	APP	BETHLEHEM, PA	BLANK0000063055	294.2
Yes	WBPH-TV	D9	DT	LIC	BETHLEHEM, PA	BLANK0000064341	294.2
Yes	WBPH-TV	D9	DT	CP	BETHLEHEM, PA	BLANK0000067446	294.2
Yes	WBPH-TV	D9	DD	APP	BETHLEHEM, PA	BLANK0000067447	294.2
No	W09DJ-D	D9-	DC	LIC	WILKES-BARRE, ETC., PA	BLANK0000113176	306.8
Yes	WTNH	D10	DT	LIC	NEW HAVEN, CT	BLANK0000160005	66.2
Yes	WWDP	D10	DT	LIC	NORWELL, MA	BLANK0000059580	107.8
No	WVER	D10	DD	LIC	RUTLAND, VT	BLANK0000123122	249.8

Record parameters as studied:

Channel: D9
Latitude: 41 31 14.00 N (NAD83)
Longitude: 72 10 1.00 W
Height AMSL: 284.0 m
HAAT: 192.0 m
Peak ERP: 4.20 kW
Antenna: DIE-TLS-V4 (ID 91371) 0.0 deg
Elev Pattn: Generic

36.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	3.51 kW	196.8 m	78.4 km
45.0	4.18	210.7	80.8
90.0	3.22	237.0	80.6
135.0	1.71	225.9	74.8
180.0	1.44	190.6	70.9
225.0	1.74	162.2	69.8
270.0	1.41	147.2	66.2
315.0	1.91	168.7	71.3

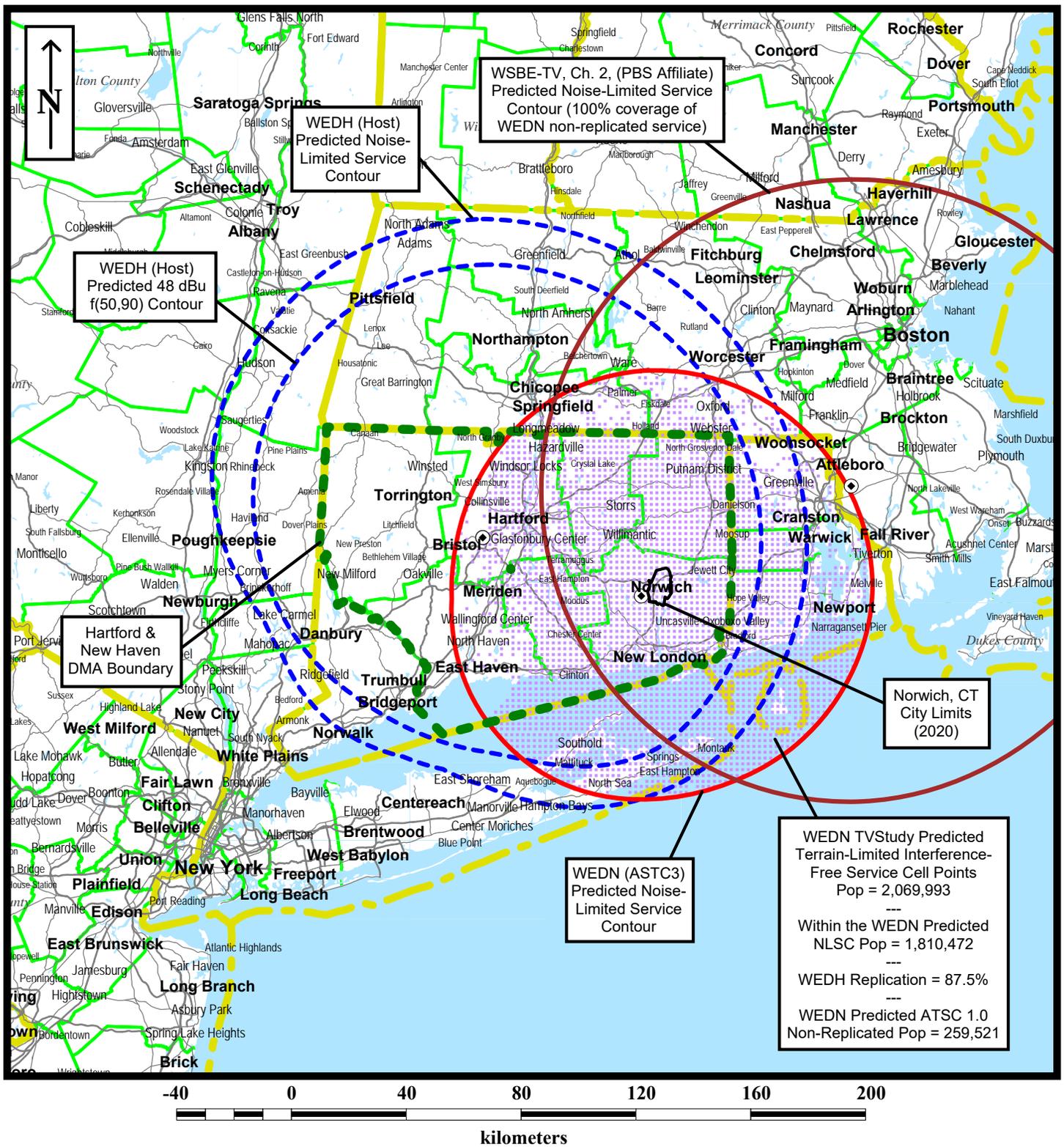
Study cell size: 2.00 km
Profile point spacing: 1.00 km

Interference to proposal scenario 5
21.69% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WEDN	D9	DT	LIC	NORWICH, CT	BLEDT20090618ACB	
Undesireds:	WMUR-TV	D9	DT	LIC	MANCHESTER, NH	BLANK0000143119	169.4 km
	WBPH-TV	D9	DT	LIC	BETHLEHEM, PA	BLANK0000064341	294.2
	WTNH	D10	DT	LIC	NEW HAVEN, CT	BLANK0000160005	66.2
	WWDP	D10	DT	LIC	NORWELL, MA	BLANK0000059580	107.8

Service area	Terrain-limited	IX-free	Percent IX
17351.3	3,451,170	15938.0	2,643,344
14228.3	2,069,993	10.73	21.69

Undesired	Total IX	Unique IX	Prcnt Unique IX
WMUR-TV D9 DT LIC	1087.3	369,875	995.0
WBPH-TV D9 DT LIC	157.3	95,697	12.0
WTNH D10 DT LIC	646.5	216,236	513.2
WWDP D10 DT LIC	32.1	17,253	0.0
			309,245
			2,606
			149,047
			0
			6.24
			0.08
			3.22
			0.00
			11.70
			0.10
			5.64
			0.00



PREDICTED COVERAGE ANALYSIS MAP

duTrel, Lundin & Rackley, Inc. Sarasota, Florida

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ELIGIBLE STATIONS CONSIDERED AS ALTERNATIVE ATSC 1.0 HOST STATIONS



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

Listed stations are within 100 km of the point at 041-31-13.6 072-10-02.7 (WEDN) and within Hartford & New Haven DMA.

Callsign	Chan.	Type	Zone	Service	Status	City	State	Latitude	Longitude	Distance (km)		
ARN			DA	Ant. ID	Rotation	ERP (kW)	HAAT (m)	RCAMSL (m)	Rec. Type	Facility ID	Bearing (deg)	/2/ /3/
WCTX	10	GRA	1	DTV	L2C	NEW HAVEN	CT	041-25-22.2	072-57-04.9	66.38	1,532,328	
0000055647			DIR	1003911	0	20.5	342	439.7	C	33081	260.82	26.0% loss
WTNH	10	GRA	1	DTV	MOD	NEW HAVEN	CT	041-25-22.2	072-57-04.9	66.38	1,532,328	
0000160005			DIR	65037	0	20.5	342	439.7	C	74109	260.82	26.0% loss
WUVN	22	GRA	1	DTV	L2C	HARTFORD	CT	041-42-30	072-28-32	33.09	1,124,021	
0000086825			DIR	1002324	295	15		274.7	C	3072	309.3	45.7% loss
WHPX-TV	28	GRA	1	DTV	L2C	NEW LONDON	CT	041-42-13	072-49-55	59.01	1,791,680	
0000080171			DIR	1005372	0	500	504.83	603.45	C	51980	290.46	13.4% loss
WVIT	31	GRA	1	DTV	MOD	NEW BRITAIN	CT	041-42-02	072-49-55	58.89	1,692,277	
0000184710			NDIR	1005076	0	374	450	548.6	C	74170	290.15	18.2% loss
WCCT-TV/1/	33	GRA	1	DTV	MOD	WATERBURY	CT	041-42-13	072-49-55	59.01	1,686,062	
0000159940			NDIR	1001301		220	517	615.4	C	14050	290.46	18.5% loss
WTIC-TV	34	GRA	1	DTV	MOD	HARTFORD	CT	041-42-13	072-49-55	59.01	1,801,513	
0000159941			DIR	1008705	0	526	507	605.4	C	147	290.46	13.0% loss
WFSB	36	GRA	1	DTV	MOD	HARTFORD	CT	041-46-30	072-48-18.3	60.18	1,623,373	
0000159868			DIR	1008704	0	1000	289	375.8	C	53115	298.32	21.6% loss

Notes:

/1/ - NextGen ATSC 3.0 Station

/2/ - Predicted service population of WEDN replicated by station based on TVStudy service cells for WEDN.

/3/ - Service loss percentage based on WEDN TVStudy service cell population of 2,069,993. For reference, the WEDH facility covers a population of 1,810,472, which is equivalent to a service loss of 12.5% -- the lowest of the eligible stations in the market.

Station	NLSC Coverage of WEDN NLSC	WEDN NLSC Service Loss	Percentage Service Loss
WCTX	2,249,735	1,268,683	36.1%
WTNH	2,249,735	1,268,683	36.1%
WUVN	1,543,203	1,975,215	56.1%
WHPX	2,648,257	870,161	24.7%
WVIT	2,505,824	1,012,594	28.8%
WCCT	2,496,562	1,021,856	29.0%
WTIC	2,658,483	859,935	24.4%
WFSB	2,417,885	1,100,533	31.3%
WEDH	2,671,914	846,504	24.1%
WEDN NLSC	3,518,418		