

**WCRN-LD MINOR MODIFICATION TO CONSTRUCTION PERMIT FOR CH 30 15 kW DIRECTIONAL
FACILITY ID 9154 FILE NUMBER 0000071754
ENGINEERING NARRATIVE AND RF RADIATION ENVIRONMENTAL ANALYSIS
SEPTEMBER 2019**

WCRN-LD is authorized for operation on CH 30. This application proposes a minor change to those CP facilities, 0000071754. The proposed facility qualifies as a minor change as there is no change in channel of operation, there is no change in site location or ERP and thus believed to be in compliance with 74.787 (b) (iii). FCC TVStudy software was utilized to determine the interference levels associated with the proposed WCRN-LD facility and they are pasted in below.

The applicant proposes herein to remain at FCC Tower Registration ASR 1002111. The proposed antenna system consists of an ATC model ATC-BPEC4C1S-25 panel antenna with a cardioid pattern oriented at 60 degrees True. The antenna is a UHF panel antenna, elliptically polarized with 0.75 degrees of beam tilt. The maximum relative field in the elevation pattern across the depression angle range of 30 to 90 degrees is less than or equal to 0.31 with a radiation center 143 meters above ground. Utilizing formula 10 OF OET Bulletin No. 65, Edition 97-01, a value F of 0.31 has been used to calculate the power density 2 meters above ground. The maximum power density is 3.1 uw/cm squared calculated for an ERP OF 15,000 watts H. polarization and 3,750 watts V. polarization. This value is 0.8% of the Public Exposure MPE per section 1.1310. Based on this analysis it is believed that the proposed facility follows OET-65 Guidelines.

The applicant will reduce power or cease transmission as required to meet FCC OET-65 Guidelines.

The proposed tower is existing along with the transmitter building, access road and power.

Below is a copy of the TVStudy interference analysis for CH 30 based on the facilities described above with the antenna orientation of 200 degrees true. As can be seen at the conclusion of the report there is no impermissible ISIX interference. It is believed that the proposed facility provides full protection to other television facilities based on the following:

TVStudy Report: Proposed facility

Study created: 2019.09.04 20:55:02

Study build station data: LMS TV 2019-09-04

Proposal: WCRN-LD D30+ LD CP BOSTON, MA
File number: BLANK0000071754
Facility ID: 9154
Station data: User record
Record ID: 309
Country: U.S.

Search options:

Non-U.S. records included

Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WTTX-LD	D29	LD	CP	SPRINGFIELD, MA	BLANK0000053148	133.7 km
No	WNEU	D29	DT	CP	MERRIMACK, NH	BLANK0000034700	23.9
No	WLNY-TV	D29	DT	LIC	RIVERHEAD, NY	BLANK0000080208	193.4
Yes	WEDH	D30	DT	LIC	HARTFORD, CT	BLANK0000080371	139.5
No	WCKD-LP	N30	TX	LIC	BANGOR, ME	BLTT20140930AJL	362.7
No	W30AZ-D	D30	LD	LIC	ELLENVILLE, NY	BLDTL20141229AGO	290.1
No	WNJJ-LD	D30	LD	CP	New York, NY	BLANK0000054813	290.9
No	WNYN-LD	D30	LD	CP	NEW YORK, NY	BLANK0000078764	304.7
No	WUTR	D30	DT	LIC	UTICA, NY	BLCDT20040217ADC	343.1
No	W43CO-D	D30	LD	CP	KINGSTON, PA	BLANK0000054197	396.1
No	KYW-TV	D30	DT	CP	PHILADELPHIA, PA	BLANK0000033618	406.3
No	W30DM-D	D30	LD	LIC	MANCHESTER, ETC., VT	BLDTT20111118ARB	194.7

No	WVIT	D31	DT	LIC	NEW BRITAIN, CT	BLANK0000079823	139.6
No	WCSH	D31	DT	CP	PORTLAND, ME	BLANK0000034813	200.4
Yes	WLEK-LD	D31	LD	CP	CONCORD, NH	BLANK0000071854	52.4
No	WMPX-LP	N33z	TX	LIC	DENNIS, MA	BLTTL20041202ACZ	86.0
No	CFKS-DT	D30	DT	LIC	SHERBROOKE, QC	BLANKCANADA312	366.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D30+
Mask: Full Service
Latitude: 42 5 44.10 N (NAD83)
Longitude: 71 13 48.60 W
Height AMSL: 260.9 m
HAAT: 0.0 m
Peak ERP: 15.0 kW
Antenna: ATC-BPE4C1S-25
Elev Pattn: Generic
Elec Tilt: 0.75

50.3 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	5.95 kW	198.5 m	45.8 km
45.0	14.4	208.6	50.9
90.0	11.9	191.6	48.9
135.0	2.97	212.8	43.0
180.0	0.084	208.5	24.4
225.0	0.000	175.9	2.1
270.0	0.000	182.7	2.1
315.0	0.365	209.8	31.9

Database HAAT does not agree with computed HAAT

Database HAAT: 0 m Computed HAAT: 199 m

Distance to Canadian border: 325.1 km

Distance to Mexican border: 2948.5 km

Conditions at FCC monitoring station: Belfast ME
Bearing: 32.9 degrees Distance: 313.7 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 277.2 degrees Distance: 2835.7 km

Study cell size: 0.50 km
Profile point spacing: 0.10 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

---- Below is IX received by proposal BLANK0000071754 ----

Proposal receives 25.48% interference from scenario 1
No IX check failures found.

Tvix

Interference to BLANK0000080371 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WEDH	D30	DT	LIC	HARTFORD, CT	BLANK0000080371	
Undesireds:	WCRN-LD	D30+	LD	CP	BOSTON, MA	BLANK0000071754	139.5 km
	WNEU	D29	DT	CP	MERRIMACK, NH	BLANK0000034700	148.0
	WLNY-TV	D29	DT	LIC	RIVERHEAD, NY	BLANK0000080208	89.9
	WUTR	D30	DT	LIC	UTICA, NY	BLCDT20040217ADC	250.3
	KYW-TV	D30	DT	CP	PHILADELPHIA, PA	BLANK0000033618	274.1
	WVIT	D31	DT	LIC	NEW BRITAIN, CT	BLANK0000079823	0.3
	WPXN-TV	D31	DT	LIC	NEW YORK, NY	BLANK0000037694	147.9

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
32652.9 5,333,780	29740.2 4,855,509	29284.4 4,727,410	29272.4 4,722,666	0.04 0.10
Undesired	Total IX	Unique IX, before	Unique IX, after	
WCRN-LD D30+ LD CP	25.8 18,600		11.9 4,744	
WNEU D29 DT CP	51.5 20,289	51.5 20,289	37.6 6,433	
WLNY-TV D29 DT LIC	268.5 74,529	176.8 47,549	176.8 47,549	
WUTR D30 DT LIC	5.7 124	5.2 84	5.2 84	
KYW-TV D30 DT CP	206.4 53,959	105.4 23,244	105.4 23,244	
WVIT D31 DT LIC	2.0 1,208	1.7 863	1.7 863	
WPXN-TV D31 DT LIC	88.3 31,487	6.9 1,396	6.9 1,396	

Interference to BLANK0000071854 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WLEK-LD	D31	LD	CP	CONCORD, NH	BLANK0000071854	
Undesireds:	WCRN-LD	D30+	LD	CP	BOSTON, MA	BLANK0000071754	52.4 km
	WVIT	D31	DT	LIC	NEW BRITAIN, CT	BLANK0000079823	178.0
	WCSH	D31	DT	CP	PORTLAND, ME	BLANK0000034813	149.1
	W31EF-D	D31+	LD	CP	West Orange, NJ	BLANK0000078132	316.9
	W31BP	D31+	LD	CP	BURLINGTON, ETC., NY	BLANK0000054409	340.6
	WGBX-TV	D32	DT	CP	BOSTON, MA	BLANK0000073038	32.1

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
4985.4 3,103,705	4921.3 3,064,361	4027.2 2,617,773	4027.2 2,617,773	0.00 0.00
Undesired	Total IX	Unique IX, before	Unique IX, after	
WCRN-LD D30+ LD CP	33.8 23,426		0.0 0	
WVIT D31 DT LIC	13.9 6,935	0.0 0	0.0 0	
WCSH D31 DT CP	446.2 177,157	133.4 17,291	132.9 16,763	
WGBX-TV D32 DT CP	758.0 428,760	444.5 268,537	440.5 265,137	

Interference to proposal scenario 1
25.48% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WCRN-LD	D30+	LD	CP	BOSTON, MA	BLANK0000071754	
Undesireds:	WNEU	D29	DT	CP	MERRIMACK, NH	BLANK0000034700	23.9 km
	WEDH	D30	DT	LIC	HARTFORD, CT	BLANK0000080371	139.5
	WLEK-LD	D31	LD	CP	CONCORD, NH	BLANK0000071854	52.4

Service area	Terrain-limited	IX-free	Percent IX
4146.3 2,978,094	4100.9 2,950,419	3424.1 2,198,719	16.50 25.48

Undesired	Total IX	Unique IX	Prcnt Unique IX
WNEU D29 DT CP	655.4 741,027	605.1 715,208	14.75 24.24
WEDH D30 DT LIC	57.6 14,868	18.4 4,178	0.45 0.14
WLEK-LD D31 LD CP	19.1 25,108	3.0 6,495	0.07 0.22

The foregoing was prepared on behalf of Tyche Media, LLC by Clarence M. Beverage of *Communications Technologies, Inc.*, Marlton, New Jersey, whose qualifications are a matter of record with the Federal Communications Commission. The statements herein are true and correct of his own knowledge, except such statements made on information and belief, and as to these statements she believes them to be true and correct.



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