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Technical Statement for Construction Permit Minor Modification:

Cox Media Group Northeast, LLC
Station WFXT, Facility ID 6463
Channel 34
Boston, MA

Modification of Construction Permit in File No. 0000027179

Introduction

This Technical Statement provides supplemental technical data and information associated with an application for a Minor Modification of the FCC Construction Permit (CP) for Minor Modification of a Licensed Facility associated with the Commission's Broadcast Television Spectrum Repack, in File Number 0000027179 granted on July 24, 2017 and expiring on August 2, 2019. The current application for modification of the WFXT facilities on Channel 34 in Boston, MA seeks to replace the previously approved antenna and to increase the station's Effective Radiated Power (ERP) to maximize the service that WFXT can deliver to the public. The antenna proposed initially for WFXT is a broadband panel array that would be shared with several other stations. It was constrained to the pattern of WFXT of the current WFXT facilities on Channel 31. As a result of the ongoing spectrum repack, the potential exists to significantly improve service from WFXT in significant portions of the Boston market that the station could not reach in the past due to interference limitations. The new spectrum configuration enables a much more complete service to the Boston region without causing harm to spatially and spectrally neighboring stations. Taking advantage of the new arrangement of the spectrum will benefit not only WFXT but also all of the other stations that will share the antenna, as they would have been limited to the constraints of the current WFXT antenna pattern. With the changes proposed, WFXT will be able to operate at an ERP of 1 MW while meeting all of the requirements for interference protection of other stations. The higher power is more appropriate since many consumers today do not install the sorts of big outdoor antennas that inspired the "dipole factor" power adjustment built into the Commission's rules and OET Bulletin No. 69. For small and indoor antennas, pure power is most important, and all

channels are about equal when delivering signals to relatively small (compared to the size of a resonant dipole) antennas. Due to the changes in antenna pattern and power, several of the attachments to the original CP application are updated with the filing of the current application, and the updates are described in the following sections.

Facilities

The antenna currently authorized for use by WFXT on Channel 34 post-repack has a "squashed cardioid" azimuth pattern shape and uses elliptical polarization. The station seeks to upgrade by moving to a pattern much closer to omnidirectional and increasing power. Since the antenna will be a broadband panel array, which naturally has "scallops" in its azimuth pattern, advantage is taken of the shape to place the naturally occurring nulls where they will provide interference protection to other stations requiring such protection. Two stations require specific protection from WFXT, and the depths of the nulls are increased slightly in those directions to provide the needed signal reductions and corresponding interference protection. While WFXT will seek to license the antenna as directional, the nulls are sufficiently shallow that other station using the antenna legitimately can treat it as non-directional and seek to license it as such. As a consequence of the new antenna pattern, a new set of pattern plots is supplied with the current application. It has been uploaded to the LMS and is found in the file named <DIE TUM-AP-O4-14-56H-2-T 593MHz Plots for FCC Application Attachment v3.pdf>. With the change in antenna pattern and increase in power proposed, new predicted interference was possible, of course, so new predicted-interference studies were conducted. The results of the recent interference studies are described in the following section of this Technical Statement.

Interference Analysis

As a result of the proposed antenna pattern modification and power increase described in the preceding section, interference studies were conducted to confirm that interference protection to neighboring stations would be maintained after the proposed changes. The studies were conducted using the Commission's TVStudy software, version 2.2.3. The Licensing and Management System (LMS) database dated October 26, 2017 was applied.

TVStudy found sixteen records requiring analysis, representing the respective Construction Permit and Baseline facilities of seven full-service television stations. There also were four records with Application status in the currently open filing window. The station, records, and results are included in the following table.

Call	Chan	Svc	Status	City, State	File Number	Dist. km	IX % Incr.
WCCT-TV	D33	DT	CP	WATERBURY, CT	BLANK0000025071	149.0	-0.01
WCCT-TV	D33	DT	APP	WATERBURY, CT	BLANK0000034241	149.0	0.02
WCCT-TV	D33	DT	BL	WATERBURY, CT	DTVBL14050	149.0	-0.01
WCVB-TV	D33	DT	APP	BOSTON, MA	BLANK0000024905	1.7	0.06
WCVB-TV	D33	DT	BL	BOSTON, MA	DTVBL65684	1.7	0.07
WTIC-TV	D34	DT	CP	HARTFORD, CT	BLANK0000025068	149.0	0.21
WTIC-TV	D34	DT	BL	HARTFORD, CT	DTVBL147	149.0	0.20
WPXT	D34	DT	CP	PORTLAND, ME	BLANK0000026107	186.7	0.20
WPXT	D34	DT	BL	PORTLAND, ME	DTVBL53065	186.7	0.03
WPXN-TV	D34	DT	CP	NEW YORK, NY	BLANK0000027363	292.1	0.00
WPXN-TV	D34	DT	BL	NEW YORK, NY	DTVBL73356	292.1	0.00
WFXV	D34	DT	APP	UTICA, NY	BLANK0000029986	336.4	0.01
WFXV	D34	DT	CP	UTICA, NY	BLANK0000028407	336.4	0.01
WFXV	D34	DT	BL	UTICA, NY	DTVBL43424	336.4	0.04
WHDH	D35	DT	APP	BOSTON, MA	BLANK0000024842	0.9	0.05
WHDH	D35	DT	BL	BOSTON, MA	DTVBL72145	1.0	0.05

As can be seen in the table, thirteen of the sixteen records show either zero or near-zero increases in predicted interference from the proposed antenna pattern change and power increase of WFXT. The other three records fall at values of 0.20- or 0.21-percent increases in predicted interference. With a permissible increase in the level of predicted interference of 0.5 percent, there is no impermissible new interference predicted to be caused. Complete data from the interference studies described are provided in a file uploaded to the LMS record named <WFXT Ch34 DIE TUM O4SP-593H 1MW tvixstudy.pdf>.

Environmental Impact/Radio Frequency Radiation

The proposed antenna pattern change and power increase impact the determination of predicted Radio Frequency Radiation (RFR) previously made and filed with the Commission. Consequently, the RFR percentage of the Maximum Permissible Exposure (MPE) has been recalculated using the proposed pattern and the increased power level, and the results are reported in the file <Environmental Impact - Radio Frequency Radiation - WFXT Boston - DIE TUM 347mAGL 1000kW Hpol + 30% Vpol - Shared BB v3.pdf>, which has been uploaded to the LMS record for this application.

Other Changes

The recent run of TVStudy regarding WFXT produced a slightly different value for Height Above Average Terrain (HAAT) for the Center of Radiation of the antenna than was in the LMS database previously. Consequently, the value in the LMS record has been updated to the value computed by TVStudy.