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### **Technical Statement for Construction Permit Minor Modification:**

**Northstar Houston License, LLC  
Station KYAZ, Facility ID 31870  
Channel 25  
Katy, TX**

### **Modification of Construction Permit in File No. 0000028359**

#### ***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 0000028359 granted on July 27, 2017 and expiring on April 12, 2019. The current application for modification of the KYAZ facilities on Channel 25 in Katy, TX seeks to maintain the authorized post-repack antenna and to increase the station's Effective Radiated Power (ERP) to maximize the service that KYAZ can deliver to the public. The antenna to be used by KYAZ is a broadband panel array having a cardioid shape that will be shared by KYAZ with two other stations. The plan is to move KYAZ back to the ERP of 1 MW with which it has operated on Channel 39 before the FCC reassigned it to Channel 25 in the Spectrum Repack. 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 resonant dipoles) antennas. Due to the change in 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 & Largest-In-Market Comparison***

The antenna currently authorized for use by KYAZ on Channel 25 post-repack has a “cardioid” azimuth pattern shape and uses elliptical polarization. The station seeks to upgrade by increasing power while keeping the same pattern that it currently has authorized. Therefore the relative field pattern plots will remain unchanged, but since a power increase is proposed, there will be changes in the required pattern plots showing power in dBk. Consequently, a new set of pattern plots has been uploaded to the LMS and is found in the file named <RFS PEPL42C for ATC Houston Plots for FCC Application Attachment at 1MW ERP v3.pdf>. With the increase in power proposed, new predicted interference also is possible, so new interference studies were conducted. The results of the recent interference studies are described in the following section of this Technical Statement.

In running the predicted-interference studies using the Commission’s TVStudy software, TVStudy reported that the “ERP exceeds maximum. ERP: 1000kW. ERP maximum: 333 kW.” Indeed, the FCC rules, in §73.622(f)(8) do specify that, for an antenna radiation center HAAT of 595 m, the ERP is limited to 333 kW. But the rules also specify, in §73.622(f)(5), that stations may request facilities “up to that needed to provide the same geographic coverage area as the largest station within their market ....” The “market” is defined elsewhere in the rules as the “DMA.” In the Houston DMA, Station KPRC operates on Channel 35 at 1000 kW ERP and at a lower HAAT than does KYAZ. Comparing the service areas of KPRC as licensed and KYAZ as proposed in the current application, KPRC has a service area within its 40.8 dBu dipole-factor-adjusted noise-limited contour of 45,520.95 km<sup>2</sup>, while KYAZ, upon grant of its application, would have a service area within its 39.9 dBu dipole-factor-adjusted noise-limited contour of 37,732.55 km<sup>2</sup>. Since the proposed KYAZ facilities would not equal or exceed in contour-contained area the facilities of KPRC, KYAZ is entitled under §73.622(f)(5) to even larger facilities than it currently is requesting. On that basis, the facilities requested by KYAZ, even though they exceed the provisions of §73.622(f)(8), must be allowed under the provisions of §73.622(f)(5). Analysis of the service areas was carried out using SignalPro software from EDX Wireless and azimuth pattern data for 360 bearings spaced at 1-degree increments provided for each channel by the antenna manufacturer.

## ***Interference Analysis***

As a result of the proposed 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 change. 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 four records requiring analysis, representing the respective licensed facilities of two full-service and the Construction Permit and Baseline facilities of one Class A station. The station, records, and results are included in the following table.

Call	Chan	Svc	Status	City, State	File Number	Dist. km	IX % Incr.
KETH-TV	D24	DT	LIC	HOUSTON, TX	BLEDT20101019ABX	1.0	0.00
KHPZ-CD	D25	DC	CP	ROUND ROCK, TX	BLANK0000027658	236.8	0.00
KHPZ-CD	D25	DC	BL	ROUND ROCK, TX	DTVBL35910	236.8	0.00
KRIV	D26	DT	LIC	HOUSTON, TX	BLCDT20111212AHM	2.1	0.03

As can be seen in the table, all of the records show either zero or near-zero increases in predicted interference from the proposed power increase of KYAZ. 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 <KYAZ Ch25 RFS PEPL42C 1MW tvixstudy.pdf>.

***Environmental Impact/Radio Frequency Radiation***

The power increase alters 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 increased power level, and the results are reported in the file < Environmental Impact - Radio Frequency Radiation - KYAZ Houston - 592mAGL 1000kW Hpol + 30% Vpol v2.pdf>, which has been uploaded to the LMS record for this application.