

**ENGINEERING EXHIBIT  
IN SUPPORT OF AN  
APPLICATION FOR CONSTRUCTION PERMIT  
KAAY – LITTLE ROCK, ARKANSAS  
1090 kHz – 50.0 kW DAY/0.08 kW NIGHT - ND-2  
FACILITY ID: 33253**

Applicant: Radio License Holding CBC, LLC

February, 2022



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I am a Consulting Engineer, an employee in the firm of Carl T. Jones Corporation, with offices located in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission. I am a Registered Professional Engineer in the Commonwealth of Virginia, Registration No. 0402027914.

GENERAL

This office has been authorized by Radio License Holding CBC, LLC (“RLH”), licensee of Standard Broadcast Station KAAY, Little Rock, Arkansas to prepare this Engineering Statement, FCC Form 301 (Section III), and the attached figures in support of an Application for Construction Permit to change the nighttime directional antenna system to a non-directional antenna system and reduce the nighttime power accordingly to meet allocation protections, resulting in KAAY being reclassified as a Class D station. The coordinates for the day and night nondirectional tower will be modified slightly to agree with the FCC’s Tower Registration.



KAA Y is a Class A station, presently licensed to operate on 1090 kHz with a power of 50.0 kW day and 50.0 kW night. The day mode uses a nondirectional antenna system while the night uses a three tower directional antenna system.

KAA Y has been operating pursuant to an STA to operate nondirectional during nighttime hours using the same during employed by KAA Y for the nondirectional day operation.<sup>1</sup> The instant application proposes to operate with a nondirectional antenna at a daytime power of 50.0 kW and a nighttime power of 0.08 kW. The #2 tower (center tower) will be employed for the proposed night non-directional facility. The #2 tower is currently employed for the nondirectional daytime operation. KAA Y will be re-classified as a Class D facility.

#### ANTENNA SYSTEM AND GROUND SYSTEM

The proposed KAA Y nondirectional antenna is an existing, guyed, uniform cross-section, triangular, guyed, base-insulated tower. The antenna structure is 199.0 electrical degrees tall at the frequency of 1090 kHz. This corresponds to a radiator height of 152.0 meters.

The existing ground system consists of 240 evenly spaced, buried, copper wire radials about the base of the tower. The radials are 137.2 meters in length except where

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<sup>1</sup>BSTA-20200528AAR, last extended by BESTA-20220104AAH.

the radials meet the intersecting copper strap where the radials from the other towers join.

#### FAA NOTIFICATION AND TOWER REGISTRATION

The overall height of the existing antenna structure is 155.7 meters AGL (232.8 meters AMSL). Since KAAY is proposing to utilize an existing tower structure without physical modification, it is believed that no further notification to the Federal Aviation Administration (FAA) is necessary. The proposed transmitting antenna is an existing, registered tower structure, ASR #1049577.

#### SITE AND SURROUNDING TERRAIN

The proposed antenna/transmitter location and surrounding terrain characteristics are on file with the FCC and the FAA as the actual physical location has not changed. The corrected tower coordinates (NAD-27) for the present nondirectional daytime operation and the proposed nondirectional nighttime operation are:

North Latitude: 34 - 36 - 02  
West Longitude: 92 - 13 - 24

These coordinates differ slightly from the licensed coordinates of KAAY as they pertain to the specific location of the tower that will be employed as the nondirectional antenna for the day and proposed night operations and agrees with ASR data on file.

### OTHER RELATED ISSUES

The corrected tower coordinates result in less than a 0.165 kilometer distance separation. Due to the fact that the difference is so slight, it is believed that the daytime allocation considerations are not a concern and the predicted daytime coverages remain essentially the same as that on file with the Commission and therefore are not included herein.

Blanketing and station interactions is not applicable as KAAY is not changing sites and the proposed nighttime power level and coverage will be significantly less than that of the current facility.

One of the existing nighttime directional towers collapsed.<sup>2</sup> At this time, the remaining tower of the nighttime array will not be dismantled but will be detuned to avoid any interaction with the tower that will be employed for the nondirectional operation.

### NIGHTTIME COVERAGE CONTOURS

The proposed nighttime service contour along with the nighttime interference-free contour is shown on the map of Figure 1.<sup>3</sup> The proposed nighttime interference-free contour is the 2.6 mV/m contour. In the instance where the nighttime interference-free

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<sup>2</sup> BSTA-20200528AAR, last extended by BESTA-20220104AAH.

<sup>3</sup> The present nighttime service contour of KAAY is not shown. For a Class A station the service contour would be the 0.5 mV/m-50% skywave contour.

contour is less than a 5.0 mV/m, the 5.0 mV/m is considered to be the nighttime service contour. The proposed 5.0 mV/m night contour encompasses 0% of the population and 0.56% of the area of the city of license, Little Rock, Arkansas, respectively. Because KAAY is an existing, licensed AM station, coverage of the city of license is not a requirement during nighttime hours for any proposed change to the nighttime facilities. Furthermore, the reclassification of KAAY as a Class D station eliminates the coverage requirement of the city of license during nighttime hours as protection is no longer afforded KAAY during nighttime hours.

#### NIGHTTIME ALLOCATION STUDY

Figure 2 contains tabulations of the proposed RSS calculations for co-channel and first-adjacent channel stations that may be impacted by the instant proposal. Any protection towards a station resulting in a proposed margin greater than 1000 mV/m is not included in Figure 2. Based on the results from the nighttime interference study, it is concluded that proposed nighttime facility of KAAY will not raise the 25% or 50% RSS limit of any domestic station or the 50% RSS limit of any foreign station.

Figure 2 contains a tabulation of the KAAY 0.025 mV/m - 10% skywave interfering fields along US Class A station WBAL's 0.5 mV/m - 50% skywave protected contour. The present KAAY 0.025 mV/m - 10% skywave interfering contour overlaps a portion of the WBAL's 0.5 mV/m - 50% skywave protected contour. The proposed KAAY nighttime facility will reduce the amount of existing overlap, but not entirely eliminate, to the

nighttime skywave contour of WBAL. In addition, the proposed KAA Y 0.025 mV/m - 10% skywave interfering contour fully protects Mexican Class A stations XEPRS/A, Rosarito, BN, Mexico and XEPRS/O, Rancho Del Mar, BN, Mexico WBAL's 0.5 mV/m - 50% skywave protected contour or 0.5 mV/m groundwave contour within the land boundaries of Mexico.

The present KAA Y 0.25 mV/m-10% skywave contour overlaps the 0.5 mV/m nighttime groundwave contour of first-adjacent Class A station KRLD on 1080 kHz. There is no present overlap with first-adjacent Class A station WTAM on 1100 kHz. Neither the proposed KAA Y 0.25 mV/m-10% skywave contour nor the 0.25 mV/m nighttime groundwave contours overlap the 0.5 mV/m nighttime groundwave contours of first adjacent Class A stations KRLD or WTAM as evidenced in Figure 2 by the positive margins. The proposed KAA Y nighttime facility will eliminate all existing overlap with KRLD.

Based on the studies, the proposed KAA Y nighttime facility is compliant with all current domestic and international nighttime allocations standards.

### ENVIRONMENTAL IMPACT

The proposal described herein will not result in human exposure to radio-frequency radiation in excess of the standards specified in Section 1.1307(b). The applicant has determined that under the provisions of Section 1.1306, the proposal is excluded from environmental processing because no new construction will occur.

### RADIO-FREQUENCY IMPACT

On January 1, 1986, the FCC amended its Rules to implement the National Environmental Policy Act of 1969 (NEPA). This amendment established RF radiation protection guidelines to be used to determine if potentially harmful RF exposure is possible from an FCC-regulated transmission facility. Effective October 15, 1997, the FCC adopted revised guidelines and procedures for evaluating environmental effects of RF emissions. These revised guidelines incorporate two tiers of exposure limits based on whether exposure occurs in a “controlled” (occupational) situation or an “uncontrolled” (general population) situation. The FCC has also revised OET Bulletin No. 65 entitled, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields,” to aid the radiation exposure analysis. This bulletin, as well as other current literature, provides detailed information for conducting an analysis including mathematical equations that can be used to determine compliance with the Commission’s guidelines.

### CALCULATION METHODS

Verification of compliance with FCC specified guidelines for human exposure to RF radiation was obtained from OET Bulletin No. 65.

The proposed KAAY facility will operate on 1090 kHz with a daytime power of 50.0 kW and a nighttime power level of 0.08 kW. To determine distance to compliance with the guidelines, Tables 3 and 4 of Supplement A (Edition 97-01) to OET Bulletin 65 was

used. A minimum fence requirement of 4 meters from the base of the tower would be compliant with the radio-frequency energy requirements of the FCC regarding the occupational/controlled and the general population/uncontrolled MPE limits. Any existing fencing around the base of the tower will be expanded if necessary to meet the requirements. Since the proposed nighttime power level is significantly less than the present daytime power level, it can be deduced that the nighttime proposal will have no impact on the RFR considerations.

It is submitted that the proposed KAA Y station will not constitute a potential hazard to the quality of the human environment. Accordingly, the KAA Y proposal, as described herein, should be categorically excluded from RF environmental processing under Section 1.1307(b) of the Rules.

#### OCCUPATIONAL SAFETY

Access to the area immediately surrounding the KAA Y supporting tower base will be restricted to authorize maintenance personnel only. KAA Y ensures protection to station personnel or tower contractors working in the vicinity of the tower. Procedures will be followed during times of service or maintenance of the transmission system when necessary to avoid potentially harmful exposure to personnel.

CONCLUSION

This statement and Section III of FCC Form 301 and the attached figures were prepared by me or under my direct supervision and are believed to be true and correct.

It is submitted that the proposed operation described herein complies with the technical standards of the Rules and Regulations of the Commission.

DATED: February 3, 2022

