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ENGINEERING EXHIBIT EE:

RADIO STATION KKLB (FM)
ELGIN FM LIMITED PARTNERSHIP
ELGIN, TEXAS

Ch. 223A 3.5 KW 135 M HAAT

OCTOBER 17, 2002

ENGINEERING STATEMENT IN SUPPORT OF
AN APPLICATION FOR A
MODIFICATION OF AN EXISTING FM STATION

File No. BLH-19920824KD - Facility ID: 19223

ATTACHED TO EXHIBIT 24 OF FCC FORM 301

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TABLE OF CONTENTS:

1. F.C.C. Form 301.
2. Declaration of Engineer
3. Narrative Statement
4. Figure 1, Topographic Map Showing Proposed Site.
5. Figure 2, Proposed Coverage Map.
6. Figure 3, Vertical Tower Sketch.
7. Figure 4, Channel Allocation.
8. Figure 5, Contour Protection Map.
9. Figure 6, Horizontal Radiation Pattern - Relative Field.

Declaration

I, John J. Mullaney, declare and state that I am a graduate electrical engineer with a B.E.E. and my qualifications are known to the Federal Communications Commission, and that I am an principal engineer in the firm of Mullaney Engineering, Inc., and that I have provided engineering services in the area of telecommunications since 1977. My qualifications as an expert in radio engineering are a matter of record with the Federal Communications Commission.

The firm of Mullaney Engineering, Inc., has been requested by Elgin FM Limited Partnership, to prepare the instant engineering exhibit in support of an application for Construction Permit for a modified FM radio station KKLB, licensed to Elgin, Texas (FCC Facility ID Number: 19223).

All facts contained herein are true of my own knowledge except where stated to be on information or belief, and as to those facts, I believe them to be true. I declare under penalty of perjury that the foregoing is true and correct.

/s/ John J. Mullaney

John J. Mullaney, Consulting Engineer

Executed on the 17th day of October 2002.

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RADIO STATION KKLB (FM)
ELGIN FM LIMITED PARTNERSHIP
ELGIN, TEXAS

Ch. 223A 3.5 KW 135 M HAAT

NARRATIVE STATEMENT:

I. General:

This engineering statement has been prepared on behalf of Elgin FM Limited Partnership, licensee of KKLB (FM). The purpose of this statement is to request a Construction Permit authorizing a modification to its existing FM broadcast facility on Channel 223A at Elgin, Texas. KKLB proposes to operate with an ERP of 3.5 KW-DA and an HAAT of 135 Meters. This application proposes facilities which are in compliance with the contour protection requirements of Section 73.215. In addition, this application relies on a mutual interference agreement (73.213(c)) with KBLK which operates on Ch. 223A at Burnet, TX.

The application is not a major environmental action, as defined by Section 1.1307 of the Commission's Rules. The proposed facility is in full compliance with both the "controlled" & "un-controlled" FCC Radiation Guidelines. Since the proposed facility contributes less than 5% of the "controlled" standard it is **categorically excluded** from further consideration.

Answers to questions contained in F.C.C. Form 301, are incorporated in the following paragraphs and figures.

II. Engineering Discussion:

A. Proposed Location:

KKLB proposes to locate the tower approximately 14 kilometers south of Elgin, TX. Figure 1 is a topographic map showing the proposed site. The NAD-27 geographic coordinates are:

Latitude:	30°	13'	07"
Longitude:	97°	24'	03"

The Regional Office of the FAA was notified of this proposal on October 17, 2002. The current Antenna Structure Registration number will be filed for upon receipt of FAA approval.

B. Antenna System and Tower:

A dual polarized 3-bay FM antenna will be side mounted near the top of a new tower. Figure 3 is a sketch of the proposed tower. The antenna has an estimated directional power gain of 2.0 H/V.

Figure 6 is a polar plot & tabulation of the relative horizontal field pattern. The antenna will be mounted in accordance with recommendations from the directional antenna manufacturer. In addition, no top mounted platforms or other antennas will exist in close proximity of the FM antenna unless approved by the antenna manufacturer.

The antenna will be fed by 152.4 Meters (500 Feet) of f" coaxial cable, with a rated efficiency of 66.8 percent for this length..

C. Transmitter:

KKLB plans to install a type accepted 3.5 KW FM transmitter. The transmitter will be operated at 2.6 KW which is within its rated power.

D. Effective Radiated Power:

Giving consideration for the maximum antenna gain, transmitter power and line loss, the maximum Effective Radiated Power is 3.5 KW for the Horizontal and 3.5 KW for the Vertical Component.

A Class-A FM station is restricted to a maximum of 6 KW (ERP) up to a maximum Height Above Average Terrain (HAAT) of 100 Meters. This proposal will operate with an HAAT that exceeds the maximum and consequently must reduce its ERP in order to obtain equivalent coverage within the 1.0 mV/m contour.

Current F.C.C. policy permits stations that are beyond 320 kilometers from the Mexican or Canadian Borders to use the F(50,50) curves to determine what reduced power at their HAAT will provide the equivalent maximum 1.0 mV/M coverage allowed.

Using the curve, it was determined that Class A operations at an HAAT of 135 Meters requires the ERP to be no greater than 3.5 KW.

E. Channel Allocation:

Figure 4 is a channel allocation study from the proposed site. The proposed site is short spaced under the 6 KW rules to two stations. The first short spacing of -16.2 kilometers is to KYKM on 223A at Yoakum, TX. The second short spacing

of 7.7 to 9.1 kilometers is to KBLK on 223A at Burnet, TX (Lic & CP/App). In all other respects this application is in compliance with Section 73.207(a).

KKLB & KYKM have entered into a **mutual interference agreement** whereby each will be permitted to operate with maximum Class A facilities towards the other as permitted by Section 73.213(c) of the rules.

1. Contour Protection - Section 73.215:

Figure 5 is a map of the protected 60 dBu and the co-channel interfering 40 dBu contour proposed by this application. In addition, the map shows the same protected & interfering contours for KYKM except that they are based upon maximum permissible ERP and HAAT for their respective Class. The map also shows the amount of permissible overlap which will exists with KBLK.

As can be seen, through use of a directional antenna system, no prohibited overlap with KYKM occurs. All contours are based upon terrain radials spaced every 5 degrees.

F. Terrain Profile Data & Coverage:

Terrain profile data was extracted from the NGDC 30 Second Digitized Terrain Data Base provided out of Boulder, Colorado. At least twenty-four bearings (every 15 degrees) were used to obtain the proposed coverage data. The standard eight bearings (every 45 degrees) were used to obtain the proposed HAAT.

The predicted service contours, as shown in the attached report, were computed using a mathematical model adapted for computer use of data shown in Figure 1

of Section 73.333. This is the Commission's computer program TV FM FS REPORT RS-76-01, dated January 1976.

G. Terrain Profile to City of License:

The N-10-E radial is the direct path to the City of License. From the proposed site the 3.16 mV/M or 70 dBu City Grade Contour will completely encompass the City of License without major terrain obstruction.

H. Coverage Area and Population:

The area contained within the 60 dBu (1.0 mV/M) contour has been computed mathematically. The population within this contour was obtained through a computerized analysis of the census designated places population data contained in the 2000 census.

I. FM Blanketing Contour:

KKLB recognizes its obligation to resolve related interference complaints for a one year period within its 115 dBu "FM Blanketing Contour" as required by Section 73.318 of the FCC Rules.

The radius around the base of the tower in which Blanketing interference is possible is fairly small (0.74 km) and is in a sparsely populated area. Given the height of the proposed antenna, no problems are anticipated.

J. Other Services in Area:

There are no known AM Broadcast Stations within 3.2 kilometers of the proposed site.

There are no known transmission facilities within 60 meters (197 feet) of the proposed antenna.

There are no other known FM or TV transmitters within 10 kilometers (6.2 miles) of the proposed site, however, based upon the type of transmitter proposed, and the frequency & power involved no intermodulation interference problems with existing transmitting facilities is expected. In the unlikely event some problems would occur, KKLB will investigate and correct such cases in accordance with the Commission's Rules.

K. Environmental Assessment Statement:

KKLB believes its proposal will not significantly affect the environment since it does not meet any of the criteria specified in Section 1.1307 of the rules. Specifically the proposed facility:

1) Will NOT be located in an officially designated wilderness area.
2) Will NOT be located in an officially designated wildlife preserve.
3) Will NOT affect districts, sites, buildings, structures or objects, significant in American history, architecture, archeology or culture, that are listed in the National Register of Historic places or are eligible for such listing.
4) Will NOT be located in a floodplain.
5) Will NOT result in construction that will involve a significant change in the surface features (eg. wetland fill, deforestation or water diversion).
6) Will NOT involve the use of high intensity white lights on a structure located in a residential neighborhood, as defined by the applicable zoning laws.
7) Will NOT involve the exposure of workers or the general public to levels of Radio Frequency radiation in excess of the guidelines recommended by the

FCC - OET Bulletin 65 (August 25, 1997).

The following is a more detailed discussion of this protection standard:

A. <u>National Environmental Policy Act of 1969</u>:

In 1969, Congress enacted the National Environmental Policy Act (NEPA), which requires the FCC to evaluate the potential environmental significance of the facilities it regulates and authorizes. Human exposure to Radio Frequency (RF) radiation had been identified as an issue that the FCC must consider.

Beginning with the filing of applications after January 1, 1986, broadcast stations were required to "certify compliance" with FCC prescribed guidelines on human exposure to RF radiation. The FCC standard was based upon the American National Standards Institute's (ANSI) RF radiation protection guides (ANSI C95.1-1982). These exposure limits are expressed in terms of milli-watts per square centimeter.

In October 1997, the FCC implemented a two tier evaluation criteria utilizing recommendations of the National Council on Radiation Protection and Measurement (NCRP). The "controlled" tier involves areas which have restricted access while the "un-controlled" tier involves areas which have unrestricted access. The Maximum Permissible Exposure (MPE) limits for "controlled" areas are the same as adopted in 1985, while the "un-controlled" limits for FM and TV frequencies are one-fifth or 20% of the limits for "controlled" areas.

These exposure limits are time-averaged over any six minute period and vary depending upon the frequency involved. The following are the Maximum

Permissible Exposure (MPE) limits for "controlled" areas:

Frequency Range (MHz)	Power Density (mW/sq.cm)
0.3 to 3	100 AM
3 to 30	$900/(Freq^2)$
30 to 300	1.0 VHF TV & FM
300 to 1,500	Freq/300 UHF TV
1500 to 100,000	5.0

KKLB recognizes that compliance with the above criteria at sites involving multiple AM, FM and/or TV facilities is based upon the contributions of all such facilities. At the site discussed in this application, **the only significant facility** that will exist is the proposed FM facility.

FM Broadcast Stations

For FM Broadcast Stations the following formula is used:

$$D = \frac{SQRT(F2 * [HERP + VERP])}{1.667 * SQRT(PD) * 3.2808}$$

Where:

D = the closest distance in meters that a human should come to an operating antenna (To obtain feet multiply by 3.2808)
F = typical relative field factor in downward direction (F=1 is worst case main lobe)
HERP = Horizontal ERP in watts (above a dipole)
VERP = Vertical ERP in watts (above a dipole)
PD = highest Power Density in milli-watts/cm^2
SQRT = Square Root
Freq = Frequency in mega-cycles/sec. (MHz)

The vertical radiation pattern of the FM antenna specified in this application is narrow and, therefore, the power density as seen by an observer on the ground near the base of the tower will be less than 20 percent of the total ERP.

The application of the above equation (assuming maximum ERP), in our case, for a frequency of 92.5 MHz and an "un-controlled" Power Density of 0.2 milli-watts results in a minimum distance of 34.3 meters (113 feet) from the antenna. Inasmuch as the lowest element on the proposed antenna will be approximately 137.2 meters (450 feet) above the ground level, it is self-evident that no hazard from radiation will exist to persons at ground level. At approximately 2 meters above the ground and assuming maximum downward radiation, the proposed FM facility contributes 1.2% of the FCC "controlled" standard. For FM, the "un-controlled" standard is 20% and, therefore, this proposal is in full compliance and is **categorically excluded** from further consideration since it is less than 5%.

The tower will be surrounded by a locked fence to limit access.

Workers employed to climb the tower or work in a potential overexposure location will not be permitted to enter the work area until cleared by the station manager or other responsible person. Appropriate warning signs will be posted to ensure safety. In addition, KKLB will establish and enforce work rules and safety procedures applicable in a potential over-exposure area. The rules will establish how close a worker can get to the antenna when it is operating at normal power and specify the power reduction required in order to make other locations safe. It is recognized that maintenance or installation work on or near the antenna may require the station to completely shutdown or switch

temporarily to an auxiliary antenna or an auxiliary transmitter site. All employees, contract and other persons having access to areas of potential exposure will be required to sign a site management guide indicating they are aware of and will comply with all safety rules. In the instance of a multiple use site, a single site access policy incorporating the above philosophy will be established. All procedures will be reviewed & updated as necessary.

III. SUMMARY:

Elgin FM Limited Partnership requests a modification of KKLB on Channel 223A at Elgin, Texas. This application proposes a mutual interference agreement as permitted by 73.213(c) and contour protection as required by 73.215. This engineering proposal is in full compliance with the Commission's Rules.

/s/ John J. Mullaney

John J. Mullaney, Consulting Engineer

October 17, 2002.