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**MBC GRAND BROADCASTING COMPANY, INCORPORATED**

**PERMITTEE OF**

**K22JN-D CHANNEL 22**

**GRAND JUNCTION, COLORADO**

**FCC FACILITY ID # 182118**

**APPLICATION FOR A**

**MINOR MODIFICATION OF CP FOR A NEW LOW POWER DIGITAL TV**

**STATION ON CHANNEL 22 FOR GRAND JUNCTION, COLORADO**

**ENGINEERING EXHIBIT 14**

**November 12, 2012**

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**MBC BROADCASTING COMPANY, INCORPORATED**

**GRAND JUNCTION, COLORADO**

**APPLICATION FOR A MINOR MODIFICATION OF CONSTRUCTION PERMIT FOR**

**A NEW LPTV STATION ON CHANNEL 22**

**FOR GRAND JUNCTION, CO**

**EXHIBIT 14**

There are no directional AM stations within 3.2 km, nor any non-directional AM stations within 0.5 km of the K22JN-D digital LPTV on Channel 22 transmitter site. The instant application is excluded under 1.1306. There are no physical changes proposed to the existing pre 1986 tower or immediate surrounding area. The proposed replacement translator is located at a multi-user site.

Using the procedures outlined in OET Bulletin 65, Edition 97-01 and specifically Appendix A, Table 1 and Equation 10, Page 21, I have evaluated the RFR energy from the antenna system of K22JN-D as follows:

**K22JN-D:** K22JN-D, Channel 22 is proposing a new digital LPTV station on Channel 22 and utilizing an ERP of 4.0 kilowatts average digital power with a directional antenna and horizontal polarization. The proposed Channel 22 transmitting antenna is a medium gain unit with an elevation power gain of at least 8x side mounted with a C/R 37 meters up the tower.

K22JN-D CH 22 is not the only facility at this general location required to be considered by 47 CFR 1.1307(b). However, as shown below, K22JN-D will contribute less than 5% of the allowable RFR energy to persons on the ground and outside the secured and marked tower structure.

K22JN-D is proposing to operate on Channel 22 utilizing a maximum ERP of 4.0 kilowatts average power with a directional antenna and horizontal polarization. The proposed Channel 22 PSI Model PSILP8BA-22 transmitting antenna is a medium gain unit with an elevation power gain of 8x side mounted with a C/R 37 meters up the tower. With the resulting elevation gain, the RFR energy at steep angles below the horizon are expected to be at least 10 dB (10%) below that of the main lobe. Utilizing Appendix A, Table 1 the maximum occupational/controlled exposure level at CH 22 is  $1.7 \text{ mW/cm}^2$ . Using Equation 10, Page 21 of OET-65, the distance to the  $1.7 \text{ mW/cm}^2$  contour is 2.8 meters. For general population/uncontrolled environment the maximum exposure level is  $348 \text{ uW/cm}^2$ . Again using Equation 10, the calculated distance to the  $348 \text{ uW/cm}^2$  contour is 5.9 meters. Since the base of the antenna is approximately 35 meters above the ground, the height of the structure limits the possible excessive radiation values to at least 29 meters above the ground.

Again using Equation 10, the predicted RFR energy levels at 2 meters above ground is calculated at  $12.3 \text{ uW/cm}^2$  or 3.5% of the FCC allowable for the general public/uncontrolled environment per CC OET-65.

## **CONCLUSIONS ON RFR ANALYSIS**

Therefore the level of RFR energy from proposed K22JN-D at all points on the ground are below that required for protection of both the employees and the general public as required by ANSI 95.1-1992 or FCC OET 65, Edition 97-01. Since K22JN-D is calculated to produce less than 5% of the OET-65 levels anywhere that the general public or untrained individuals can

have access, the K22JN-D facility is exempt from RFR requirements as to the sum of any other contributions from this site.

At those locations where RFR energy fields in excess of FCC guidelines are predicted to be encountered (up on the tower and very near the station's transmission antenna), signs and protective devices secure the area affected from the general public. With respect to direct employees of this licensee, OSHA RFR guidelines will be observed. Contractors and other outside workers potentially exposed to such areas on the tower shall be advised of the hazard by posted notices or other means. The station will reduce power or cease operation, if necessary, in order to protect workers on the tower.

With these procedures in place, we believe the proposed, as modified herein, K22JN-D digital operation is in compliance with the RFR energy requirements of 47 CFR 1.1307(b).