

ENGINEERING STATEMENT
IN SUPPORT OF AMENDMENT OF
APPLICATION FOR LICENSE
FOR AUXILIARY ANTENNA
RADIO STATION KKHK(FM)
DENVER, COLORADO

This Engineering Statement was prepared on behalf of radio station KKHK(FM), Denver, Colorado, in support of an amendment to its pending application for license for an auxiliary antenna that was formerly licensed as a main antenna for KKHK(FM) (See FCC File No. BMLH-20000825AHL). KKHK(FM) is currently authorized for operation at the Lookout Mountain antenna farm near Golden, Colorado, on Channel 258C with a maximum effective radiated power (ERP) of 100 kW and antenna height above average terrain (HAAT) of 495 m. The proposed auxiliary antenna is currently mounted on the existing KCFR(AM) tower located at 1601 West Jewel Avenue in Denver. The proposed auxiliary antenna will employ the formerly licensed KKHK(FM) main antenna mounted at the same height, but with a nominal ERP reduced to 21.0 kW (H&V). The antenna HAAT remains unchanged at 85 m (280 ft).

Proposed Facilities

The existing transmitting antenna has been re-designated with the original antenna manufacturer's current make and model specification. The antenna is equivalent to an EPA Type 3 antenna. The particulars of the proposed operation are summarized in the table below:

Parameter	Proposed
Channel	258
Frequency	99.5 MHz
Antenna location coordinates (NAD27)	39°41'00"N 105°00'24"W
Antenna structure registration number (ASRN)	1041185
Site elevation above mean sea level	1642.8 m
Overall tower height above ground	121.3 m
Antenna radiation center height above ground	107 m (H), 107 m (V)
Antenna radiation center height above average terrain	85 m (H), 85 m (V)
Effective radiated power	21.0 kW (H), 21.0 kW (V)
Antenna type	non-directional
Antenna make and model	ERI, SHP-10AC (EPA Type 3)
Transmitter power output	6.98 dBk (5.0 kW)
Combiner insertion loss	0.50 dB
Iso-coupler insertion loss	0.20 dB
Transmission line loss	0.60 dB
Total transmission loss	1.30 dB (74.1% efficiency)
Antenna input power	5.68 dBk
Antenna gain at 99.5 MHz	7.54 dB (5.68)
Maximum effective radiated power	13.22 dBk (21.0 kW)

The existing antenna is mounted on a base-insulated AM tower that is employed by KCFR(AM) (1340 kHz) and KLVZ(AM) (1220 kHz). Also, the proposed transmitting antenna will be shared by KKHK(FM) sister station, KOSI(FM), which

operates at 101.1 MHz. The diplexer and iso-coupler transmission losses have been accounted for as indicated above. No adverse electromagnetic impact is expected with respect to these facilities. However, the applicant recognizes its responsibility to correct objectionable electromagnetic interference problems that result from its proposed operation.

With respect to compliance with Section 73.1692(a) concerning mounting on an existing AM antenna, it is noted that the existing antenna to be employed by KKHK(FM) has been present on the KCFR(AM) / KLVZ(AM) tower for at least 25 years. There will be no changes above the base of the KCFR(AM) / KLVZ(AM) tower that would result in an impedance change. Both KCFR(AM) and KLVZ(AM) have prepared applications for license for the existing operation as recently as 1998. See BL-19981028AC and BL-19980423KB, for KCFR(AM) and KLVZ(AM), respectively. Therefore, it is concluded that since there are no changes above the base that would affect the KCFR(AM) or KLVZ(AM) operation, no further action is required with respect to Section 73.1692(a).

Tower Registration

As indicated above, the antenna structure has been registered with the FCC. The antenna structure registration number is 1041185. The structure is located at 1601 West Jewell Avenue, Denver, Colorado. There will be no change in the overall structure height as a result of the instant proposal.

Predicted Coverage Contours

The predicted 60 dBu coverage contours for the licensed and proposed facilities were calculated in accordance the FCC Rules. The 3-16 km terrain data were obtained through use of the U.S.G.S. 3-second computer database. The predicted coverage contours are projected on a map included herein as Figure 1.

Environmental Considerations

The proposed facility is believed to be categorically excluded from environmental processing pursuant to Section 1.1306 of the FCC Rules. With respect to the potential for human exposure to radio frequency (RF) radiation, the KCFR(AM) / KLVZ(AM) transmission tower is restricted from access with a fence not less than 10 m from the base of the tower in any direction.^{*} According to Supplement A of FCC Bulletin OET-65 (Edition 97-01), locations outside of the fenced area will not exceed a combined electric field level of 49 V/m and a combined magnetic field level of 0.02 A/m.[†] This is equivalent to 8.0% and 1.2%, respectively, of the FCC limits for uncontrolled environments. A conservative calculation of the FM energy in the downward direction indicates a combined RF level for both KKKH(FM) and KOSI(FM) of no greater than 15.5% of the FCC uncontrolled standard.[‡] Therefore, since the total RF exposure outside the fenced area will not exceed 23.5% of the FCC limit for uncontrolled environments, the proposal complies with the FCC limits for human exposure to RF radiation and it is categorically excluded from environmental processing. The applicant shall reduce power or cease operation as necessary to protect persons having access to fenced area around the tower from RF energy in excess of the FCC guidelines.

Louis Robert du Treil, Jr.

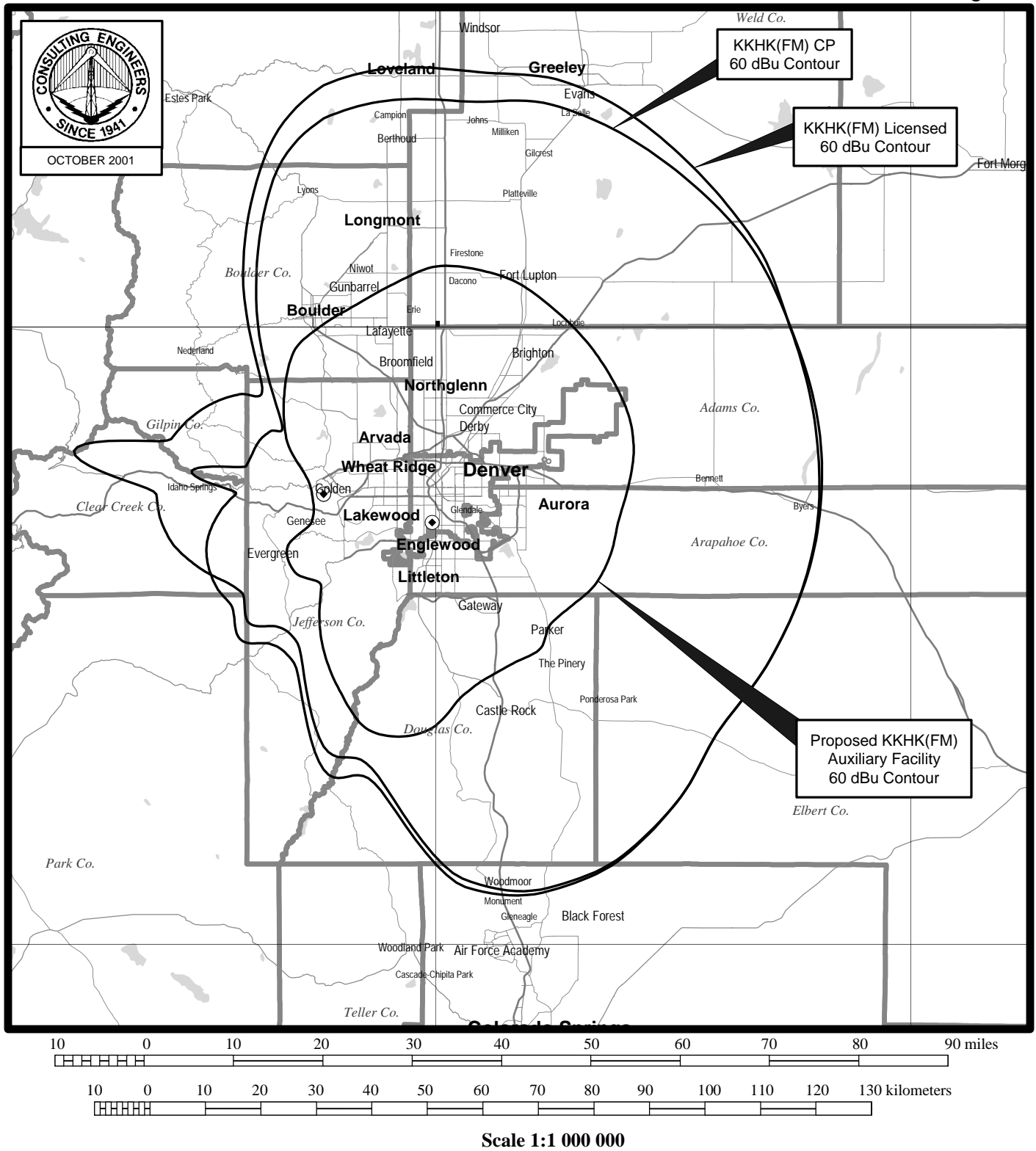
October 30, 2001

^{*} See FCC File No. BP-971021AC concerning the KLVZ(AM) facility on 1220 kHz.

[†] This is based on an AM radiator of approximately 0.5 wavelength with a power of 1.0 kW for KCFR(AM) and 0.66 kW for KLVZ(AM).

[‡] This is based on the KKKH(FM)/KOSI(FM) antenna radiation center height above ground of 107 m; effective radiated power in each polarization plane of 21.0 kW, for both KKKH(FM) and KOSI(FM); and, a downward relative field factor of 0.35. Calculations were made at 2-m AGL according to procedures outlined in FCC OET Bulletin No. 65.

Figure 1



PREDICTED 60 dBu COVERAGE COMPARISON

KKHK(FM) AUXILIARY FACILITY DENVER, COLORADO

du Treil, Lundin & Rackley, Inc. Sarasota, Florida