

**FM AUXILIARY ANTENNA  
KIHT 29.8 KW 164 M HAAT CH. 242C1  
ST. LOUIS, MISSOURI**

**TECHNICAL PROPOSAL**

The applicant, Emmis Radio License, LLC, requests authority to modify the existing FM auxiliary station authorized under Broadcast License BMLH-19960730KB for KIHT, Channel 242C1, in St. Louis, MO - Facility ID No. 27022. Specifically, the application seeks to replace the existing back-up antenna with a new nondirectional broadband system, reduce radiation center height above average terrain (HAAT) to 164 meters, and decrease effective radiated power (ERP) to 29.8 kW. The purpose of the proposal is to equip the existing KIHT back-up facility with a new broadband antenna system that can also accommodate the FM auxiliary operation of co-owned station KSHE in Crestwood, MO. Accordingly, station KSHE will obtain separate authority to combine an auxiliary facility signal into the new KIHT back-up antenna.

The above modifications to the KIHT auxiliary station will not result in extension of the licensed main facility 1.0 mV/m contour in any direction as required in Section 73.1675(a) of the Commission's rules. Attached to this statement as Figure 1 is a contour map demonstrating compliance of the no coverage extension requirement.

**ENVIRONMENTAL PROCESSING**

The applicant intends to replace the licensed auxiliary antenna with a similar broadband model without initiating any change in location or supporting structure. Like the former system the replacement antenna will be a six-bay rototiller type with full wave spacing. The antenna structure is an existing FCC registered tower, ASRN 1007729, and

the recorded date of construction is November 15, 1981. Since no apparent visual effect to the supporting tower is anticipated and human exposure to radio-frequency (RF) energy will not exceed the safety standards as detailed below, the requested license modification does require further environmental evaluation.

## **GROUND LEVEL EXPOSURE**

Operation of the new auxiliary antenna will not result in RF contributions exceeding the *RF Radiation Exposure Limits* specified in Section 1.1310. The back-up facility transmits on FM Channel 242, 96.3 MHz, and the maximum permissible exposure (MPE) limits for the assigned frequency are 200  $\mu\text{W}/\text{cm}^2$  for general (uncontrolled) exposure and 1,000  $\mu\text{W}/\text{cm}^2$  for occupational (controlled) exposure. Compliance with these limits has been established based on a “worst case” estimation of ground-level power density using the Commission's *FM Model* software, Version 2.10 Beta, which is designed to calculate power density levels accessible at locations two meters above ground for certain approved FM antenna types.

The applicant plans to install a circularly polarized ERI Rototiller antenna with six full-wave spaced elements at a center of radiation height of 181 meters above ground level. The ERI Rototiller series is classified by the Commission as a Type 3 FM radiator and is approved for evaluation using the *FM Model* software. Attached as Figure 2 is a power density versus distance graph depicting a worst case ground-level power density of 4.2  $\mu\text{W}/\text{cm}^2$  at a horizontal distance of 57 meters. Since this estimated level is less than 5% of the MPE limits for both uncontrolled and controlled exposure, the applicant is not required to further evaluate the antenna location with respect to other RF contributors.

## **OCCUPATIONAL EXPOSURE**

It has been demonstrated that the proposal will comply with the occupational exposure limit at any ground-level location. At higher elevations on the antenna structure workers will be protected from excessive exposure to RF fields in accordance with the methods recommended in *OET Bulletin No. 65, Version 97-01*. All maintenance and other related work involving exposure at elevations above ground level will be coordinated to effectively control RF fields from exceeding the occupational limit. Preventative steps to protect workers during such scheduled events shall include reducing power or shutting down facilities.

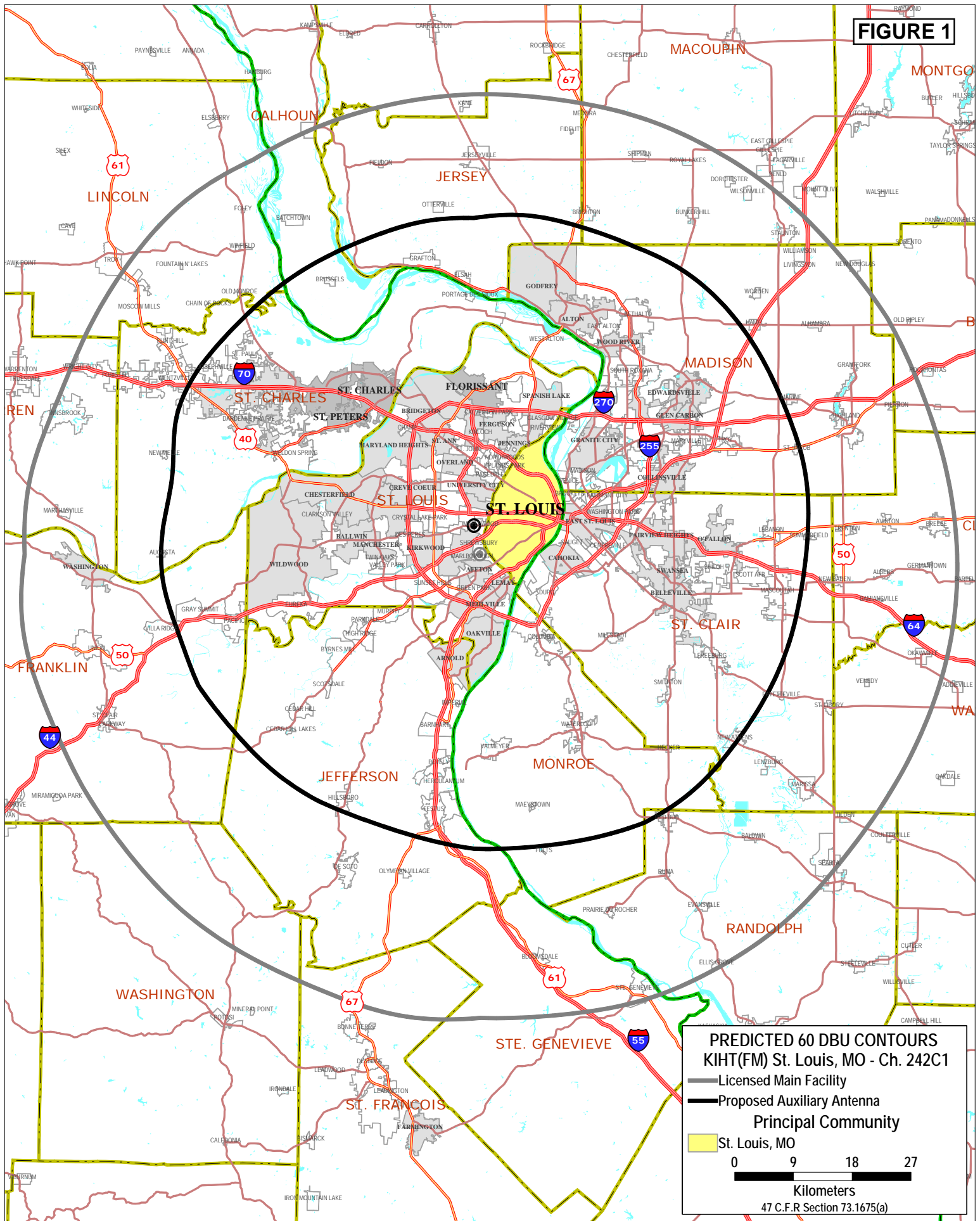
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August 2006

**FIGURE 1**



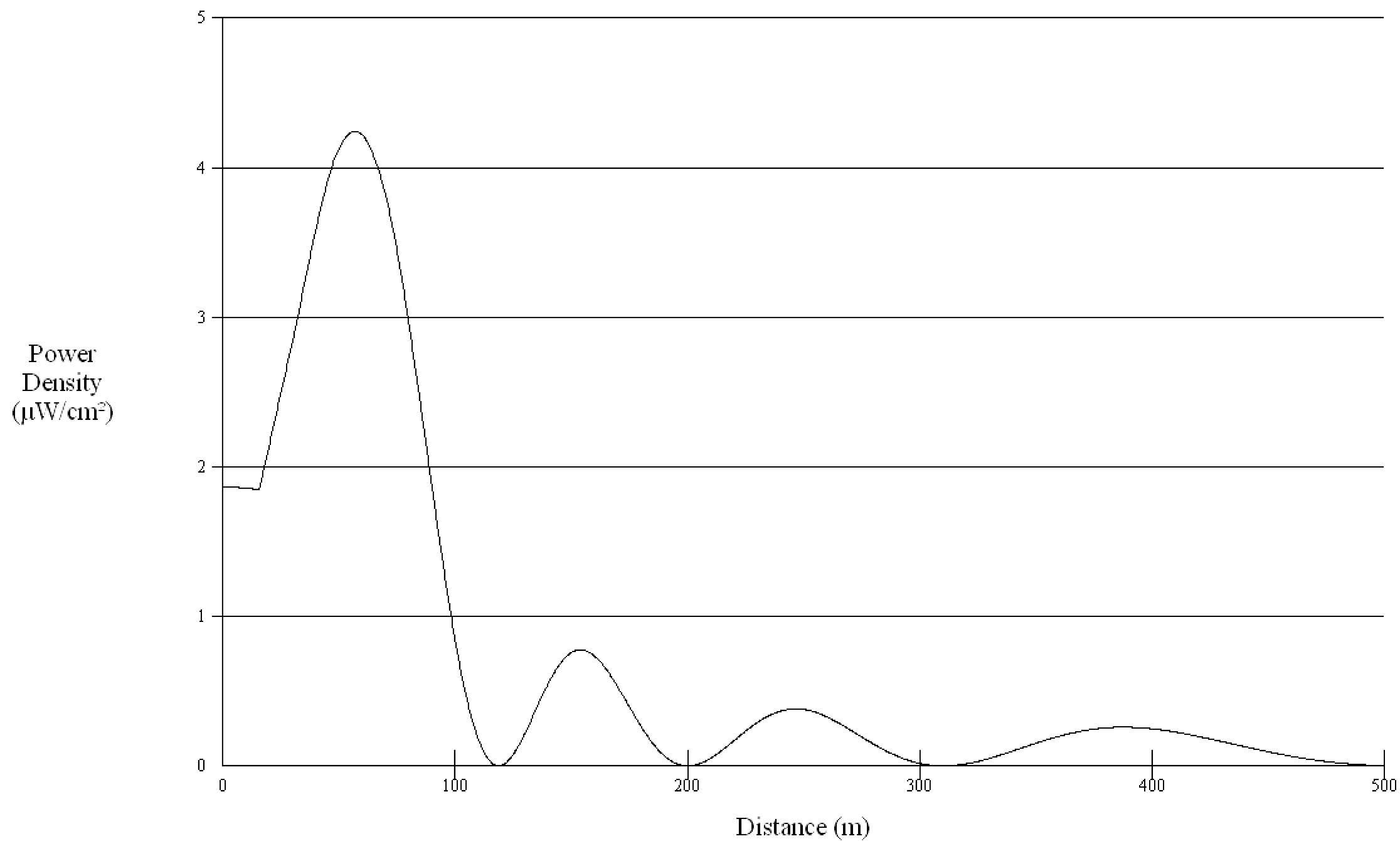
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Power Density vs Distance



Office of Engineering and Technology

Distance (m):  Antenna Type:

Horizontal ERP (W):

Vertical ERP (W):

Antenna Height (m):

Number of Elements:

Element Spacing:

FIGURE 2