MORE ON PART 15 GUIDANCE, continued ...

by Richard J. Fry, CPBE

This is a response to the reply by Larry Wilkins published in the Radio World edition dated June 5, 2020 (https://www.radioworld.com/columns-and-views/readers-forum/more-on-part-15-guidance), which includes the statement, *"This will render an approximate maximum AM coverage radius of 200 feet, according to the FCC July 24, 1991 Public Notice (still in effect)."*

The information in FCC Public Notice #14089 referenced above does not supersede the requirements of 47 CFR §15.219, which define and govern the legal use of unlicensed transmit systems operating in the AM broadcast band (530-1700 kHz).

Following is an engineering analysis showing that an unlicensed AM transmitting system strictly meeting U.S. 47 CFR §15.219 can produce a useful coverage area having a radius in excess of 500 meters (1,640 feet). The analysis is based on the use of NEC4.2, which use is accepted by the FCC even for the design and documentation of the directional arrays they require of some licensed AM broadcast stations.

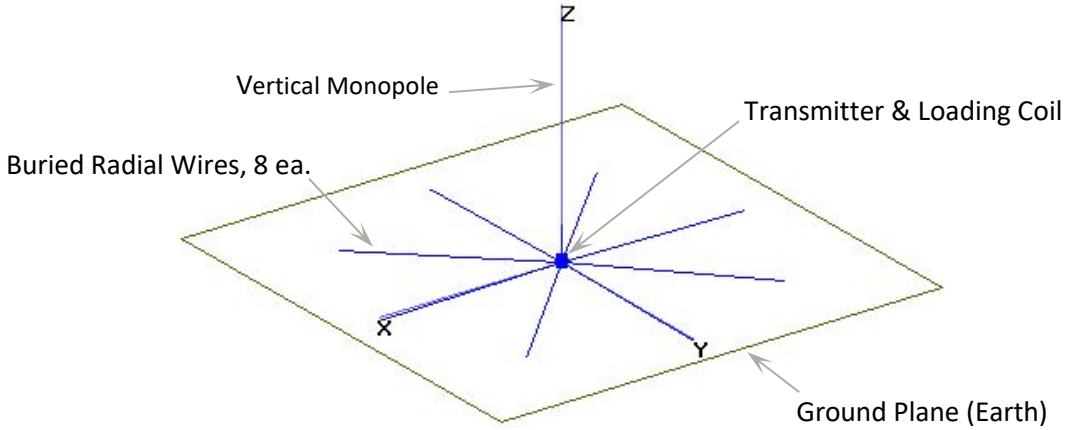
Such an unlicensed, FCC-compliant AM system easily should provide service to cars in a very large parking lot, as might be useful to some religious organizations and other entities during the COVID-19 pandemic, for example.

GROUNDWAVE FIELD INTENSITY vs. DISTANCE FROM ANTENNA
— TRANSMIT SYSTEM ANALYSIS USING NEC4.2 —
Part 15 AM Compliance Reference: U.S. 47 CFR §15.219

SYSTEM CONFIGURATION

- Carrier Frequency = 1650 kHz
- D-C Input Power to Final R-F Amplifier Stage of Transmitter = 100 mW, unmodulated
- R-F Output Power from Final R-F Amplifier of Transmitter, Including the Power Lost in the Loading Coil and R-F Ground System = 90 mW (Class E Amplifier)
- R-F Ground Configuration = 8 Buried Radial Wires; 3 meters in length, each
- Vertical Monopole Length = 2.8 meters
- R-F Resistance of Loading Coil at Antenna System Resonance = 15 ohms
- Conductor Length, Transmitter "Ground" Terminal to Common Point of Buried Radial Wires = 0.1 meter
- Earth Conductivity at/near the Antenna Site = 8 mS/m, d.c. 13 (average Earth)

INSTALLATION LAYOUT SKETCH



FIELD INTENSITY VALUES FOR THE ABOVE CONDITIONS, ONLY

Field at 1,609 meters (1 mile) ≈ 0.109 mV/m, which *may* provide useful reception to a good receive system at receiver locations with low radio noise and low interference.