

EVA LLC - EMERGENCY VEHICLE ALERT SYSTEM



Connecting with safety



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ATTACHMENT TO FCC FORM 422

File #: 0175-EX-PL-2003

Calculations for Frequency conflict questions.

(for details see the file named: [EVA_Power.xls](#).)

The requested frequencies could conflict with on broadcast TV signals of Channel 7.

TV channel 7 uses the following frequencies to broadcast: 175.2500 MHz for video; 178.8295 MHz for chroma and 179.7500 MHz for sound.

There is NO channel 7 in use in Kentucky; the Channel 7 nearest to Louisville KY is in Evansville Indiana (Frankfort KY is farther away from Evansville). The coordinates of Evansville are approximately:

37° 58' 29"N 87° 33' 21"W

(Evansville South 37.975°N 87.556°W)

Summary: Since the straight line distance (160 km) between the test transmitter and the sites of possible interference is greater than the Radio Horizon (41 km MAX) by a factor of about 4, the test signals should not be received in Evansville, IN at all. Curvature of the signal path over ground is negligible due to the frequencies involved. At these frequencies, the signal path over ground is line-of-sight.

While straight-line signal path calculations show that the received signal level (121.77 microVolts/m) in Evansville, IN could exceed the sensitivity (50 microVolts) of most off-the-air TV receivers, and could cause interference, **a straight-line path is not possible.**

There is a very, very slight chance that the test signals at these frequencies could travel by skip at night. If they did, the received power and voltage levels would be so reduced as to virtually guarantee no interference. Since propagation is difficult to predict, there may be some possibility of interference to fringe areas. To eliminate that possibility, **we will test only during daylight hours.**

Parameters Signal Tests: Frequency of operation: Approximately 178 MHz range (TV Channel 7). Vertical Antenna Gain (over Isotropic): Approximately 2 dB. Maximum Power Output: 25 Watts (ERP 39.6 Watts) Expected Power Output: < 10 Watts (ERP 15.9 Watts). Location of Operation: Louisville KY vicinity and Frankfort KY vicinity. Known nearest possible commercial interference: Evansville, Indiana vicinity (WTVW coverage area.) Distance between Louisville operation and possible interference sites: Approximately 100 miles (169 km) straight-line distance.

Calculations: Radio Horizon: Approximately 25.3 miles (41 km) [Assuming 2 meter transmitting antenna height (vehicle mounted) and 30 meter receiving antenna height (tower mounted).]

Assuming Straight-line Signal Path: Power Density of test signals **if received** at Evansville, IN:

At Maximum Power: 186 picoWatts per square meter.

At Expected Power: 49 picoWatts per square meter.

Voltage Levels of test signals **if received** at Evansville, IN (into 300 Ohm load):

At Maximum Power: 237 microVolts/meter.

At Expected Power: 122 microVolts/meter.

A work sheet with details and calculations for Frankfort KY is also attached.

See the file named: [EVA_Power.xls](#).