

LCG-----RF INCREASE OR DECREASE?

**RF INCREASES OVER 270 DEGREE ARC AROUND
TOWER:**

1936 RESIDENCES WITHIN 2 MILES

**RF DECREASES OVER 90 DEGREE ARC TO WEST OF
TOWER:**

304 RESIDENCES WITHIN 2 MILES

**MANY MORE RESIDENCES WOULD EXPERIENCE
INCREASE THAN DECREASE**

**RESIDENTIAL INFORMATION PROVIDED BY COUNTY
ASSESSOR'S OFFICE**

RF Increase or Decrease Overall

The question has been raised as to whether the LCG proposal would result in an “overall” increase or decrease in RF radiation. Mr. Hart stated at the LCG hearing that the RF radiation would go down overall, whereas I believe it would go up. This difference of opinion may have been due to the fact that Mr. Hart did not consider where RF might be decreasing or increasing. My calculations indicate that the LCG proposal would result in RF decreases in some areas and increases in others. Those areas where RF power densities decrease have few exposed residences, whereas many areas where RF would increase are heavily populated.

Ideally, in order to determine whether the LCG proposal would increase or decrease “overall” RF levels with respect to populated areas, one would calculate RF power densities for conditions both “before” and “after” implementation of the LCG proposal for every residence and business (or perhaps for every building). Since all other emitters in the area would remain the same (or at least not change on account of the LCG proposal), calculations would involve no emitters other than the four existing LCG emitters and the eight proposed LCG emitters. The amounts of the increases or decreases for all the buildings would then be totaled, and the result would either be positive or negative, yielding the answer as to whether RF would go up or down overall. Thus, the RF increases and decreases would be “integrated” over the populated areas surrounding the proposed tower. For example, if ten homes experienced an RF increase of 1 microwatt/cm², and one home experienced a decrease of 10 microwatt/cm², the proposal would be considered RF “neutral,” having no net RF increase or decrease.

The performance of such an extensive series of calculations would be a daunting task, especially considering the limited time before the next scheduled hearing. However, some very reasonable conclusions can be obtained from a limited number of calculations and observations.

The accompanying map shows a circle of 2 mile radius centered at the proposed LCG tower site. Radiating from the LCG site are shown the relative field lines typical of the directional LCG antenna patterns. The lengths of the lines represent the strength of the fields in the direction of the lines.

One can see that in the quadrant extending from 225 degrees to 315 degrees, the field lines are short. In this quadrant, one would expect RF power reductions from Channels 7 & 9, whose antenna patterns would be converted from omnidirectional to directional on the proposed tower. New stations that would be added as a result of the proposal would also be expected to produce reduced additional RF power density in this quadrant. One thing that is evident from the map is that there are few roads in this quadrant. Another feature of this quadrant is variability in exposure to the antennas. Some homes high on Colorow Road currently have high exposures and would benefit from the directional antennas, but many of the roads in this quadrant are shadowed from the towers by intervening terrain, and would not benefit from reductions suggested by the new proposal. This can be verified by viewing terrain profiles on a computerized TOPO map.

