

## RF EXPOSURE SURVEY, KLLC-FM KIFR-FM SAN FRANCISCO, CA (AUXILLIARY ANTENNA)

KLLC-FM and KIFR-FM are both licensed to San Francisco, California, and have their transmitting facilities located on Mount Beacon, in Marin County, just north of the city. Both stations hold a construction permit to build a combined auxiliary antenna system to operate at 3 KW ERP. Construction of the auxiliary antenna system has been completed. A condition on the construction permit requires that an assessment of the RF exposure condition, due to the auxiliary antenna be made, before the facility will be licensed for use. Those measurements have been completed, and the purpose of this report is to document the conditions found.

The RF exposure survey was conducted on Thursday, July 13, 2006. The meter used was a Narda Electromagnetic Monitor, Model number 8718, serial number 02068, and a Narda Isotropic Conformal Electric Field Probe, Model number A8722D, serial number 01004. The manufacturer last calibrated the meter and probe in November, 2005.

The conformal probe is particularly useful in making measurements in a mixed signal environment, that is, where signals are present that have different exposure limitations. Using a flat response probe would require that all emitters at a site turn their transmitters on one at a time, while a measurement of the exposure is taken. At each location a calculation would have to be performed to determine what percentage of the maximum exposure limitation is present for each emitter, then all the percentages would have to be added up to determine if that location is in compliance with the exposure guidelines, and, if compliance could not be demonstrated, what remedial action would have to be taken when work is required to be performed at that location. Since the conformal probe responds to the shape of the exposure limitation VS frequency curve, the different exposure limitations at the different frequencies are accounted for in the probe, and the meter simply reads out in a percentage of the maximum allowable exposure. For uncontrolled environments, the maximum allowable exposure would be 20%.

It was decided that before measurements were made with the stations operating from the newly constructed auxiliary antenna for the purposes of making RF exposure measurements, that measurements would first be made with all stations operating normally, to establish a base line. Measurements were made by walking all around the compound, inside the fence in a zigzag pattern. The meter was recording the maximum exposure found, while the reading on the meter was observed, to get a feel for the average exposure. The maximum reading noted inside the compound was 75.3 %, with the average reading being 30% to 40% in the “hottest” areas. Walking around the outside of the perimeter fence (i.e., a “public” area), most readings were comfortably under the public exposure limitation of 20%, except one area to the right of the entrance gate. Discussions with station personnel indicated that this location is known to be the “hottest” area outside the compound fence. More detailed measurements were made in this area, to determine the base line RF exposure conditions. Seven specific locations in

this “hot” area were measured using the meters “whole body average” function, with the results listed below.

Location 1.....	Average, 16.7%, Maximum, 27.2%
Location 2.....	Average, 11.5%, Maximum, 20.3%
Location 3.....	Average, 7.8%, Maximum, 11.7%
Location 4.....	Average, 19.5%, Maximum, 29.2%
Location 5.....	Average, 12.2%, Maximum, 17.4%
Location 6.....	Average, 18.9%,Maximum, 25.7%
Location 7.....	Average, 11.3%, Maximum, 14.9%

These measurements agree with previous measurements at the site, which indicate that, although close to the public limit, the site is in compliance with the public RF exposure limitations. It should also be noted that this site (and therefore the “hot spot”) is located in a hilly area covered in brush, and is not frequented by the public.

At this point, KIFR turned off its main analog transmitter, and operated its auxiliary analog transmitter into the auxiliary antenna. KLLC continued to operate its main analog transmitter into its main antenna, and fed a digital signal into the auxiliary antenna at the power level that the CP authorizes for analog use. Since KLLC analog was still operating on its main antenna, this configuration would actually be worse than both stations operating simultaneously in the analog mode from the auxiliary antenna.

The RF exposure measurements were repeated. Inside the compound fence, the maximum reading recorded was 40.6. In the area under and immediately adjacent to the auxiliary antenna tower, the average reading noted was around 15%. Of course, if anybody climbs on the auxiliary antenna tower, the antenna should be de-energized.

Outside the tower fence in the public area, the maximum reading recorded was 13.4%.

The conclusion of this survey is that KLLC-FM and KIFR-FM are in compliance with the Federal Communications Commissions RF exposure guidelines while operating from their newly constructed auxiliary antenna.

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