

Engineering Exhibit
KLLP-FM (Facility ID: 8413)
KPKY-FM (Facility ID: 30246)
Intermodulation Report
December 5, 2006

Introduction: This report is to show compliance with FCC rules 73.317 (b) through (d) for radio stations KLLP-FM and KPKY-FM. Both stations are utilizing the same antenna in diplexed operations at the “Howard Mountain” facility in Pocatello, Idaho. The measurements and report were prepared by Erik Kuhlmann, Regional Vice President of Engineering for Clear Channel Radio.

Intermodulation: Intermodulation products result from inadequate transmitter-to-transmitter isolation. Intermodulation products are commonly generated from transmitters operating into multiplexed facilities and congested antenna transmission sites. The phenomenon is well studied, understood and documented.

The Multiplexed System: At the time of the measurements two FM stations were operating from the combined antenna system. The 98.5 MHz KLLP-FM and 94.9 MHz KPKY-FM multiplexed system is fundamentally comprised of antenna, feed line and multiplexer unit. A Dielectric DCRM-8B85 8 bay branch fed antenna and a Dielectric 3-port branch fed combiner system designed specifically for this application. The feed line is Andrew 3-1/8” Heliax air dielectric coax. This system was fitted with a Bird line directional sampling coupler fitted into the output line section of the combining system. This is to facilitate intermodulation proof measurements.

Intermodulation Study: Prior to recording measurements, both stations were confirmed to be operating at the full licensed power level. All measurements were made utilizing the above mentioned directional coupler using an Agilent 4402 spectrum analyzer connected to the directional coupler forward sample of -55dB with a shielded coaxial cable. 20 dB of external attenuation was utilized in all measurements. The amplitude calibration of the instrument was electronically adjusted to account for this attenuation. The relative output signal of each stations forward carrier was recorded. The resulting signal levels of these measurements will be used as the reference level for each carrier and to confirm that no significant levels of spurious energy, referenced to each carrier, are present from any transmitter operating in the multiplexed system.

Once the reference level was set on the analyzer, double-cavity notch filters, one for each stations carrier, were inserted in cascade following the attenuators and ahead of the spectrum analyzer to observe any spurious signals. The filters, model 6367-2, made by the Microwave Filter Company were inserted into the line between the coupler and the analyzer. This reduction of the fundamental carrier level allows increased dynamic range on the analyzer. The fundamental signal levels were reduced by an additional -47 dB on

94.9MHz and -55dB on 98.5MHz while passing all other channels to be measured with no appreciable attenuation. Frequencies specifically observed and measured were determined by intermodulation study software. In addition, a thorough sweep was made of other frequencies in the 80 to 1200 MHz range with the analyzer.

Tabulation of measurements: The following is a tabulation of the results of this study. Several signals were discovered, but nearly all were identified and those not identified were below the FCC limit of -80dBc referenced to the peak carrier level of the two stations being studied. It is believed that most of these signals were coming back down the transmission line from the common antenna. Other FM broadcast stations from nearby sites were also seen at this directional coupler port. To confirm, one of the two transmitters under study was turned off and the result observed on the analyzer. In no case did the signal in question diminish as a result therefore was not likely to originate from the measurement location.

Adjusted Carrier Reference Levels:

<u>Carrier (MHz)</u>	<u>Pad (dB)</u>	<u>Measured Value (dB)</u>	<u>Adjusted</u>
<u>Level (dB)</u>			
KLLP (98.5)	20	-29.08	-9.08
KPKY (94.9)	20	-19.97	0.03

Products Observed:

<u>Frequency (MHz)</u>	<u>Pad (dB)</u>	<u>Measured Value (dB)</u>	<u>Adjusted</u>
<u>Level (dB)</u>			
91.3	20	-106.1	-126.1
102.1	20	-105.2	-125.2

Results of Measurements: The results of this study demonstrate that KLLP-FM and KPKY-FM are in full compliance with section 73.317 (b) – (d) of the commission’s rules.