

Radio Frequency Electromagnetic (RF) Field Strength Measurement Study

Prepared For:

KCAQ-FM

Point Four LLC

BPH-20110415ABA

One Orcutt Canyon Road

Santa Paula, California

Site Location: 34-25-20.0 N 119-02-04.0 W (NAD 27)

Site Location: 34-25-20.0 N 119-02-07.4 W (Converted to NAD 83)

Effective Radiated Power: 18 kW

Transmitter Operating Power for 18 kW ERP: 14.7 kW

Antenna Center HAAT: 252 m

Antenna Center AMSL: 899 m

Antenna Center HAG: 24 m

May 10, 2014

Measurements Performed By:

Richard A. Rudman, CPBE (#952)

Remote Possibilities

1046 Corte La Brisa, Santa Paula, CA 93060

Qualifications of Richard A. Rudman

Richard Rudman is the principal and founder of Remote Possibilities, which provides installation, construction, maintenance, operational, measurement, technical due diligence, and other technical services related to all phases of radio broadcast engineering and operations. Mr. Rudman is a Certified Professional Broadcast Engineer (CPBE) holding certificate number 952 from the Society of Broadcast Engineers (SBE). He formed Remote Possibilities following his retirement from a 27 year career as the Director of Engineering at CBS/Infinity for KFWB, Los Angeles, California. At KFWB, he was responsible for all studio and transmitter technical matters as well as FCC compliance. He served as the National President of the Society of Broadcast Engineers (SBE) in 1985 and as an SBE Fellow in 1987. In November 2002, he received a lifetime achievement award from the SBE for his contributions to emergency public information, EBS and EAS, and for his contributions to broadcast auxiliary spectrum coordination. He has conducted numerous electromagnetic emission (EME) measurements and certifications for radio broadcast facilities.

Purpose

This Study was conducted on May 10, 2014 by Mr. Rudman to measure radio frequency electromagnetic field strength (RFR) at KCAQ's newly constructed transmitter site in the vicinity of Orcutt Canyon in Ventura County, California (the Site) to verify that the newly constructed KCAQ transmitter site will operate within the safe exposure limits of applicable FCC rules.

Site Description

The Site is located in a privately owned and gated oil field, operated by a subsidiary of Occidental Petroleum, and is distantly adjacent to privately owned, gated and unimproved ranchland. Public access to the oil field and ranchland is not permitted. There are no structures in the vicinity of the Site other than the KCAQ transmitter building. The wells in the oil field are at least a quarter mile away from the Site, so human visitation to the immediate vicinity of the Site is infrequent and quite transitory in duration, and consists primarily of oil field workers occasionally driving in between well sites from time to time. The Site is one of the most isolated (from human intrusion) of the transmitter sites visited by Mr. Rudman in his long experience as a broadcast engineer.

Test Equipment Used

To conduct the Study, Mr. Rudman used a NARDA Model NBM-550 Electromagnetic Monitor (serial Number E-1035) and a NARDA Measurement Probe, Model 2402/07B (Serial Number 01101) to make the measurements. The NBM-550 Monitor was recently calibrated on 11/25/13, and the Probe was recently calibrated on 12/3/13.

On the day of the measurements, the NARDA Probe and Meter were connected successfully, the battery voltage was checked and the percentage of charge was 100%, and the outdoor temperature and relative humidity (RH) were 24.0 degrees Centigrade and 35% RH respectively.

Measurement Procedure

Measurements for this Study are made by first taking peak level readings at each location with the NARDA Probe in various horizontal (H) and vertical (V) orientations to catch the maximum possible level regardless of orientation or elevation. For each location (if any) where the peak reading suggests that field strength might possibly exceed a threshold of 5% of the permitted public exposure level (a small fraction of the maximum amount permitted under applicable rules), a more detailed and precise reading is then made at that location using spacial averaging techniques to determine the actual field strength level at that location, by moving the Probe from a point 6 inches above the ground slowly up to a point about 6 feet above the ground. For each location (if any) that such spacial averaging techniques indicate a field strength exceeding 5% of the permitted public exposure level, then the resulting field strength at that location would be studied to determine the appropriate action (if any) that might be necessary to comply with applicable FCC rules.

Areas Investigated

The Site and its vicinity were measured throughout their geographic extent, consisting of the following four areas:

North Ridge Area: The north vicinity of the Site consists of a ridge and steep and overgrown dirt path to a power pole on the ridge.

Access Road: A dirt oil field access road along the northern boundary of the Site from its Northwest corner to its Northeast corner.

South Slope Area: Unoccupied ranchland area to the south of the Site.

Transmitter Site: The immediate Site area enclosed by a six-foot tall chain link fence and security gate. The fence and gate are topped with strands of barbed wire.

Results

The foregoing areas were slowly and completely traversed with the NARDA NBM-550 Meter and Probe using the measurement procedure described above.

North Ridge Area:

The EME in this North Ridge Area is in compliance with applicable FCC rules and standards for RF field strength exposure.

Spacial averaging readings were necessary to employ after peak readings in only a small portion of this area, comprised of approximately 30 feet along an overgrown dirt path to the power pole (the "Path Segment"). After such peak and spacial averaging measurements were completed, all locations in this North Ridge Area were determined to be below 5% of the public exposure limit.

Access Road:

The EME in this Access Road Area is in compliance with applicable FCC rules and standards for RF field strength exposure.

Spacial averaging readings were necessary to employ after peak readings in only a small portion of this area, comprised of a short segment of the dirt Access Road where such road is closest to the Site (the "Dirt Access Road Segment"). After such peak and spacial averaging measurements were completed, all locations in this Access Road Area were determined to be below 5% of the public exposure limit.

South Slope Area:

The EME in this Slope Area is in compliance with applicable FCC rules and standards for RF field strength exposure.

Spacial averaging readings were not necessary to employ after peak readings in any portion of this Slope Area, as all were determined to be below 5% of the public exposure limit.

Transmitter Site:

The EME in the Transmitter Site Area is in compliance with applicable FCC rules and standards for RF field strength exposure provided that certain fencing, signage and operational rules are utilized.

Spacial averaging readings were necessary to employ after peak readings in only a small portion of this area, comprised of the concrete slab foundation for the tower base and its immediate vicinity. After such peak and spacial averaging measurements were made, all but a few of the locations therein were determined to have RF field strengths below 5% of the public exposure limit. Those that were above 5% of the public exposure limit were determined to be below 14% of the

public exposure limit and were determined to be typical for radio station tower installations and are controllable with secure fencing, signage, time-of-exposure limitations, and power-reduction rules (when personnel are in these locations) in order to comply with applicable FCC rules and standards for RF field strength.

Mitigation Actions:

North Ridge Area:

No action is necessary under FCC Rules and Procedures for RF field strength exposure.

Access Road:

No action is necessary under FCC Rules and Procedures for RF field strength exposure.

Slope:

No action is necessary under FCC Rules and Procedures for RF field strength exposure.

Tower Base Area:

Placement of a locked and secure fence for the Transmitter Site Area.

Placement of “Yellow” EME hazard signs in two languages on the periphery of the Tower Base Area.

Placement of Signage on the Transmitter Site access gate stating that all personnel at the Transmitter Site must be trained on proper EME safety procedures.

Transmitter Site Outside Tower Base Area:

No action is necessary under FCC Rules and Procedures for RF field strength exposure.

In General:

Placement of signage indicating that station transmitted power must be reduced when personnel are present in the Tower Base for any amount of time exceeding FCC standards, and that such power must be either lowered or turned off completely when any tower climbing is necessary (depending on the working height), and that all personnel in the Tower Base must be trained on proper EME safety procedures and wear personal EME monitors while power is applied to the station’s antenna, with such signage including site management contact numbers in the event that power reduction or shut down become necessary when tower work is being performed.