

ENGINEERING EXHIBIT
DIGITAL COMPANION CHANNEL APPLICATION
SARKES TARZIAN, INC.
STATION K43DB, STATELINE, ETC., CALIFORNIA

Sarkes Tarzian, Inc. is the licensee of analog television translator Station K43DB, Stateline, Etc., California. Station K43DB is authorized for operation on Channel 43+ (644-650 MHz) with maximum peak visual effective radiated power of 0.408 kW, horizontally polarized. The aural effective radiated power is 10 % of the peak visual effective radiated power.

A short Form 346 application for a construction permit for operation on Channel 40 for a digital companion channel is pending in Auction No. 85. The FCC has determined that the application is a singleton. In consonance with the announced procedures for singleton applications in the Public Notice of August 31, 2006, DA 06-1748, the instant Engineering Exhibit is submitted in support of the long Form 346 application.

The proposed transmitter is at the same site as for analog Station K43DB. The NAD 27 geographic coordinates are 38° 54' 37" north latitude; 120° 02' 05" west longitude. The proposed antenna radiation center height above ground level is 22 meters. A directional antenna is to be employed. The antenna will consist of two Scala, Model CL-1483, antennas that are skewed with respect to one another. One antenna is to be oriented 59° true and the second antenna is to be oriented 166° true. Ninety percent of the power is to be directed to the antenna that is oriented at 59° true, and the remaining ten percent of the power is to be directed to the antenna that is oriented at 166° true.

A transmitter having a power output rating of 30 watts (-15.23 dBk) will be employed. The transmission system will include a 90/10 power splitter with an efficiency of 88 % (insertion loss of 0.56 dB) and a 24.4 meter length of Andrew, type LDF4-50A, coaxial transmission line having an efficiency of 72.6 % (insertion loss of 1.39 dB) at Channel 40. The maximum power gain for each antenna is 7.08 (8.5 dBd).

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With 90 % of the power directed to antenna #1, and 10 % of the power directed to antenna #2, the composite result will be maxima of 0.122 kW at 59° true and 0.014 kW at 166° true.

Studies have been made using a Sunblade computer with the FCC's "tv_process_dlptv" program to determine if the proposed operation is likely to cause objectionable interference to any full service analog, or digital television station; Class A television station; and low power analog, or digital television station. No changes were made to the basic FCC settings. In all, 59 stations were reviewed. The results indicated that no interference would be caused to any facility.

Environmental impact concerns for the proposed digital companion channel operation for Station K43DB have been considered. Since the site from which the present analog and proposed digital operations will emanate is used for broadcasting purposes, the only environmental concern that is of interest, from among the list of environmentally sensitive concerns that are listed in Section 1.1307 of the FCC Rules, is the one relating to radiofrequency radiation (rfr) exposure of persons in uncontrolled and controlled locations. As explained later, there are no controlled locations for the proposed Station K43DB Channel 40 digital companion channel workplace.

The Station K43DB analog transmitting antenna is mounted with the radiation center 24 meters above ground level. Television translator Station K33CN, South Lake Tahoe, California, is at the same location and its antenna radiation center is 26 meters above ground level. Station K33CN operates on Channel 33 (584-590 MHz) with maximum peak visual effective radiated power of 0.398 kW, horizontally polarized. The antenna is directional. The antenna consists of two Scala, Model CL-1483, log-periodic antennas that are skewed with respect to one another. These are the same model antennas

that are to be employed for the Station K43DB digital companion channel operation, but with slightly different orientations.

A third station that is located at the same site is FM translator Station K220CO, South Lake Tahoe, Etc., California. Station K220CO operates on Channel 220 (91.9 MHz) with effective radiated power of 0.156 kW, vertically polarized. A directional antenna, consisting of two Scala, Model CA5-150V, antennas that are skewed in the horizontal plane is employed. One antenna is oriented at 56° true and the other antenna is oriented at 357° true. The radiation center is 14.6 meters above ground level.

The undersigned has performed power density calculations for the three stations, and for the proposed digital companion, Channel 40, operation for Station K43DB using procedures set forth in the FCC's OET Bulletin 65, Edition 97-01 to determine if compliance with the FCC's maximum permissible exposure (MPE) for uncontrolled, general public, access is achieved. The results are set forth in Figure 1 and demonstrate that compliance with the MPE is achieved.

The calculation made for each station assumed a worst-case condition with the maximum effective radiated power directed downward to a target that is located 2 meters above ground level at the supporting structure base. The two-meter height simulates the height of a standing person's head. The location at the structure base represents the closest that a member of the public can be positioned to the radiation source. A 1.6 ground reflection factor was employed. The calculation result for each station represents, very conservatively, the highest exposure level that can be experienced anywhere on the ground by the general public.

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For the assumed worst-case conditions that were used for the calculations, the sum of contributions did not exceed 25 % of the MPE. Compliance with the FCC's MPE limit is achieved.

As to worker protection from overexposure to rfr, the following is germane. There is no fence surrounding the antenna supporting structure. Thus, the area is not a controlled location. However, a radiation hazard warning sign is posted on the transmitter housing enclosure, which is located immediately adjacent to the antenna supporting structure. The sign purpose is to alert workers (and the public) of the potential for excessive radiation exposure. Whenever it is necessary to perform maintenance work on an antenna, excitation to that antenna must be terminated, and, depending on the antenna that is being worked on, power to a nearby antenna needs to be reduced or terminated to avoid overexposure of the worker to rfr.

The foregoing discussion demonstrates that the proposed digital companion Channel 40 operation of Station K43DB complies with the adopted guidelines for the avoidance of overexposure of the public and workers to rfr.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 20, 2006.

Bernard R. Segal, P.E.
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FIGURE 1

UNCONTROLLED LOCATION
RFR EXPOSURE ANALYSIS RESULTS
FOR K43DB, STATELINE, ETC., CALIFORNIA
DIGITAL COMPANION CHANNEL APPLICATION

A: K43DB, Channel 43, 0.408 kW Max. (Pk. Vis.); 0.041 kW Max. (Aur.)
(Worst case calculation)

<u>Horizontal Distance From Base</u>	<u>Depression Angle To Target</u>	<u>Vertical Plane Rel. Field</u>	<u>Distance To Target</u>	<u>Power Density At Target</u>	<u>Contribution To MPE</u>
(meters)	(degrees)		(meters)	(mW/cm ²)	(percent)
0	90	1.00	22	0.014	3.3

B: K33CN, Channel 33, 0.398 kW Max. (Pk. Vis.); 0.040 kW Max. (Aur.)
(Worst case calculation)

0	90	1.00	24	0.011	2.9
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C: K220CO, Channel 220, 0.156 kW (V. Pol.)
(Worst case calculation)

0	90	1.00	12.6	0.033	16.4
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D: Proposed K43DB Companion Channel Application, Channel 40, 0.122 kW (Avg.)
(Worst case calculation)

0	90	1.00	20.0	0.010	2.4
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Sum of contributions 25.0

Notes: A ground reflection factor of 1.6 was used in the calculations as recommended in FCC OET Bulletin 65, Edition 97-01.

The MPE at Channel 43 (647 MHz) is 0.43 mW/cm².

The MPE at Channel 33 (587 MHz) is 0.39 mW/cm².

The MPE at Channel 220 (91.9 MHz) is 0.2 mW/cm².

The MPE at Channel 40 (629 MHz) is 0.42 mW/cm².