

**MINOR CHANGE APPLICATION**  
**COLORADO RADIO MARKETING, LLC**  
**K299AC FM TRANSLATOR STATION**  
**CH 299D - 107.7 MHZ - 0.10 KW (DA)**  
**GLENWOOD SPRINGS, COLORADO**  
**October 2006**

**EXHIBIT C**

As the proposed K299AC is co-located with and near other FM translators and LPTV/TV translators, a study has been made to determine whether this proposal is in compliance with 47 C.F.R. §1.1307 of the Commission's rules and with OET Bulletin #65, dated August 1997 ("Bulletin"), regarding human exposure to radio frequency radiation in the vicinity of broadcast towers. This study considers all nearby contributing stations, specifically authorized FM translator stations K202AB and K252BX, and TV stations K44DF, K14MK, K39IC, K42EV, K05HE and K06LX,<sup>1</sup> and utilizes the appropriate formulas contained in the OET Bulletin.<sup>2</sup>

The proposed K299AC antenna system is/will be mounted with its center of radiation 12.2 meters (40.0 feet) above the ground at the existing tower location and will operate with an effective radiated power of 0.10 kilowatt in the horizontal and vertical planes (circularly polarized). At 2.0 meters above the ground at the base of the tower, the height of an average person, the K299AC antenna system will contribute 0.0386 mw/cm<sup>2</sup>.<sup>3</sup> Based on exposure

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- 1) TV stations K11DI and K09DC are within 315.0 meters of the site; however, their respective centers of radiation above mean sea level are nearly 1000 feet below the K299AC site elevation. As such, they are, based on power and vertical distance, not considered viable RF contributors at the K299AC site.
  - 2) The FMModel Program was used for all calculations for the FM station contributions. The EPA single bay dipole antenna was used unless otherwise noted.
  - 3) This level of field occurs at 3.0 meters out from the base of the tower and is considered worst case.

limitations for a controlled environment, 3.9% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 19.3% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The authorized K202AB antenna system is mounted with its center of radiation 20.6 meters (67.6 feet) above the ground at the existing tower location and operates with an effective radiated power of 0.005 kilowatt in the horizontal plane. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K202AB antenna system contributes  $0.0001 \text{ mw/cm}^2$ .<sup>4</sup> Based on exposure limitations for a controlled environment, <0.1% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, <0.1% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The authorized K252BX antenna system is mounted with its center of radiation 27.6 meters (90.6 feet) above the ground at the existing tower location and operates with an effective radiated power of 0.047 kilowatt in the horizontal plane. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K252BX antenna system contributes  $0.0007 \text{ mw/cm}^2$ .<sup>5</sup> Based on exposure limitations for a controlled environment, <0.1% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 0.4% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

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4) This level of field occurs at 10.0 meters out from the base of the tower and is considered worst case.

5) This level of field occurs at 15.0 meters out from the base of the tower and is considered worst case.

The K44DF Channel 44 antenna system is mounted with its center of radiation 22.0 meters (72.2 feet) above the ground at the existing tower location and operates with an effective radiated power of 10.0 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiation field of 0.1. As such, the K44DF antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.1 kilowatt. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K44DF antenna system contributes 0.0052 mw/cm<sup>2</sup>. Based on exposure limitations for a controlled environment, 0.2% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 1.2% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The K14MK Channel 14 antenna system is mounted with its center of radiation 22.4 meters (73.5 feet) above the ground at the existing tower location and operates with an effective radiated power of 10.0 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiation field of 0.1. As such, the K14MK antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.1 kilowatt. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K14MK antenna system contributes 0.0050 mw/cm<sup>2</sup>. Based on exposure limitations for a controlled environment, 0.3% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 1.6% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.



The K39IC Channel 39 antenna system is mounted with its center of radiation 22.4 meters (73.5 feet) above the ground at the existing tower location and operates with an effective radiated power of 0.25 kilowatt in the horizontal plane. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K39IC antenna system contributes 0.0124 mw/cm<sup>2</sup>. Based on exposure limitations for a controlled environment, 0.6% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 3.0% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The K42EV Channel 42 antenna system is mounted with its center of radiation 26.8 meters (88.0 feet) above the ground at the existing tower location and operates with an effective radiated power of 1.23 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiation field of 0.1. As such, the K42EV antenna system radio frequency radiation calculations were made based on an effective radiated power of 0.0123 kilowatt. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K42EV antenna system contributes 0.0004 mw/cm<sup>2</sup>. Based on exposure limitations for a controlled environment, <0.1% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 0.1% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The K05HE Channel 5 antenna system is mounted with its center of radiation 17.0 meters (55.8 feet) above the ground at the existing tower location and operates with an effective radiated

power of 0.019 kilowatt in the horizontal plane. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K05HE antenna system contributes 0.0017 mw/cm<sup>2</sup>. Based on exposure limitations for a controlled environment, 0.2% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 0.8% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

The K06LX Channel 6 antenna system is mounted with its center of radiation 18.0 meters (59.0 feet) above the ground at the existing tower location and operates with an effective radiated power of 0.019 kilowatt in the horizontal plane. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K06LX antenna system contributes 0.0015 mw/cm<sup>2</sup>. Based on exposure limitations for a controlled environment, 0.1% of the allowable ANSI limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 0.7% of the ANSI limit is reached at 2.0 meters above the ground at the base of the tower.

Combining the contributions of K299AC, K202AB, K252BX, K44DF, K14MK, K39IC, K42EV, K05HE and K06LX, a total of 27.2% of the uncontrolled limit is reached at 2.0 meters above the ground at the base of the tower. Since this level for uncontrolled environments is well below the 100% limit defined by the Commission, the proposed K299AC translator is believed to be in compliance with the radio frequency radiation exposure limits as required by the Federal Communications Commission. Further, CRM will insure that warning signs in the vicinity of

the tower warning of potential radio frequency radiation hazards at the site. In addition, CRM will reduce the power of the proposed facility or cease operation in cooperation and coordination with other tower users, as necessary, to protect persons having access to the site, tower or antenna from radio frequency radiation in excess of FCC guidelines.