

NEW FM APPLICATION
THRESHOLD COMMUNICATIONS
NEW FM STATION
CH 225C3 - 92.9 MHZ - 2.65 KW
FORDS PRAIRIE, WASHINGTON
June 2011

EXHIBIT B

Radio Frequency Assessment

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. As the proposed new FM antenna is being mounted on a relatively short tower with a several other TV transmitters, it was not possible to use the worksheets to verify that the proposed new FM facility is in compliance with the Commission's radio frequency exposure limits. This study considers all nearby stations, specifically the co-located KSWs, K220HE, KCKA-DT, K25CH and K42CM, and KMNT, K211AP and K29IA which are located on a tower within 315 meters¹, and utilizes the appropriate formulas contained in the OET Bulletin.²

The proposed new FM antenna system is to be mounted with its center of radiation 18.3 meters (60.0 feet) above the ground at the tower location and will operate with an effective radiated power of 2.65 kilowatts in the horizontal and vertical planes (circularly polarized). The proposed new FM antenna is to be a Electronics Research, Inc. rototiller style two bay, half

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- 1) KMNT, K211AP and K29IA will be considered co-located for the purposes of this RF review.
 - 2) The contributions of the FM facilities were calculated using the FMModel program. A single bay EPA dipole antenna was used for calculation purposes. In cases where the number of bays of the antenna was known, this data was used in the FMModel program.

wavelength spaced antenna system (FCC/EPA Type #3). At 2.0 meters above the ground at the base of the tower, the height of an average person, the new FM antenna system will contribute 0.0593 mw/cm².³ Based on exposure limitations for a controlled environment, 5.9% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 29.7% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower.

The authorized KSWS antenna system is mounted with its center of radiation 34.0 meters (112.0 feet) above the ground at the tower location and operates with an effective radiated power of 1.0 kilowatts 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 KSWS antenna system contributes 0.0393 mw/cm².⁴ Based on exposure limitations for a controlled environment, 3.9% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 19.7% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower.

The authorized K220HE antenna system is mounted with its center of radiation 39.0 meters (128.0 feet) above the ground at the tower location and operates with an effective radiated power of 0.13 kilowatt in the vertical plane. At 2.0 meters above the ground at the base of the tower, the height of an average person, the K220HE antenna system contributes 0.0003 mw/cm².⁵

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- 3) This level of field occurs at 33.0 meters out from the base of the tower and is considered worst case.
 - 4) This level of field occurs at 9.0 meters out from the base of the tower and is considered worst case.
 - 5) This level of field occurs at 9.0 meters out from the base of the tower and is considered worst case.

Based on exposure limitations for a controlled environment, <0.1% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 0.2% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower.

The KMNT FM antenna system is mounted with its center of radiation 37.0 meters (121.0 feet) above the ground at the adjacent tower location and operates with an effective radiated power of 2.35 kilowatts in the horizontal and vertical planes (circularly polarized). The authorized KMNT antenna is a Electronics Research, Inc. rototiller style antenna (FCC/EPA Type #3) three bay, half wavelength spaced. At 2.0 meters above the ground at the base of the tower, the height of an average person, the KMNT FM antenna system contribute 0.0055 mw/cm².⁶ Based on exposure limitations for a controlled environment, 0.6% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 2.8% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower.

The authorized K211AP antenna system is mounted with its center of radiation 12.2 meters (40.0 feet) above the ground at the adjacent tower location and operates with an effective radiated power of 0.019 kilowatts 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 K211AP antenna system contributes 0.0073 mw/cm².⁷ Based on exposure limitations for a

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- 6) This level of field occurs at 103.0 meters out from the base of the tower and is considered worst case.
 - 7) This level of field occurs at 3.0 meters out from the base of the tower and is considered worst case.

controlled environment, 0.7% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower. For uncontrolled environments, 3.7% of the allowable limit is reached at 2.0 meters above the ground at the base of the tower.

The authorized KCKA-DT Channel 19 digital antenna system is be mounted with its center of radiation 59.0 meters (193.0 feet) above ground and operates with an effective radiated power of 187.0 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiated field of 0.1. As such, the calculations of the KCKA-DT antenna are based on a power of 1.87 kilowatts. At 2.0 meters above the ground at the base of the tower, the KCKA-DT antenna system contributes 0.0077 mw/cm². Based on exposure limitations for a controlled environment, 0.5% of the allowable ANSI limit is reached at 2.0 meters above the ground. For the uncontrolled environment, 2.3% of the limit is reached at 2.0 meters above the ground.

The authorized K25CH Channel 25 analog antenna system is be mounted with its center of radiation 39.0 meters (128.0 feet) above ground and operates with an effective radiated power of 6.1 kilowatts in the horizontal plane.⁸ As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiated field of 0.1. As such, the calculations of the K25CH antenna are based on a power of 0.061 kilowatts. At 2.0 meters above the ground at the base of the tower, the K25CH antenna system contributes 0.0009 mw/cm².

8) There is also an outstanding permit for K25CH to transition to digital on the same channel, height and power. Therefore, the analog facility was considered as a worst case facility based on the additional aural carrier in use.

Based on exposure limitations for a controlled environment, 0.1% of the allowable ANSI limit is reached at 2.0 meters above the ground. For the uncontrolled environment, 0.3% of the limit is reached at 2.0 meters above the ground.

The authorized K42CM Channel 42 analog antenna system is be mounted with its center of radiation 46.0 meters (151.0 feet) above ground and operates with an effective radiated power of 10.2 kilowatts in the horizontal plane.⁹ As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiated field of 0.1. As such, the calculations of the K42CM antenna are based on a power of 0.102 kilowatt. At 2.0 meters above the ground at the base of the tower, the K42CM antenna system contributes 0.0011 mw/cm². Based on exposure limitations for a controlled environment, 0.1% of the allowable ANSI limit is reached at 2.0 meters above the ground. For the uncontrolled environment, 0.3% of the limit is reached at 2.0 meters above the ground.

The authorized K29IA Channel 29 digital antenna system is be mounted with its center of radiation 14.0 meters (46.0 feet) above ground on the adjacent tower and operates with an effective radiated power of 1.2 kilowatts in the horizontal plane. As denoted in OET Bulletin #65, Supplement A, Page 31, the typical UHF antenna system has a downward radiated field of 0.1. As such, the calculations of the K29IA antenna are based on a power of 0.012 kilowatts. At 2.0 meters above the ground at the base of the tower, the K29IA antenna system contributes

9) There is an outstanding permit for K42CM to transition to digital operation at the same height and channel, with a lower power. Therefore, the licensed facility was considered as a worst case contributor.

0.0011 mw/cm². Based on exposure limitations for a controlled environment, 0.1% of the allowable ANSI limit is reached at 2.0 meters above the ground. For the uncontrolled environment, 0.3% of the limit is reached at 2.0 meters above the ground.

Combining the contributions of the new FM, KSWs, K220HE, KMNT, K211AP, KCKA-DT, K25CH, K42CM and K29IA, a total of 59.3% of the limit for an uncontrolled environments is reached at 2.0 meters above the ground at the base of the tower. Since this contribution level is less than the ANSI limits, it is believed the proposed new FM facility is in compliance with the radio frequency radiation exposure limits, as required by the Federal Communications Commission. TC will also insure that warning signs have been posted in the vicinity of the tower warning of potential radio frequency radiation hazards at the site. In addition, TC will reduce the power of the 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.