

Comprehensive Technical Statement

Central Baptist Theological Seminary of Minneapolis, Licensee

Minor Modification to K250BY

FCC Facility ID # 202408, Plymouth, MN

Introduction

The following changes are proposed:

- Transmitter location
- Antenna height
- Antenna configuration and directional pattern
- Community

No change is proposed to the primary station, WCTS (AM), Maplewood, MN, FCC Facility ID # 12114. The proposed changes will continue to result in fill-in service for WCTS.

KQEP-LP

This proposal does not protect co-channel station KQEP-LP, St. Paul, MN, FCC Facility ID # 196883. As of the date of filing of this application, no license renewal application has appeared in LMS for this station, whose license expired at 3:00 AM local time on April 1, 2021.

Because the license has expired, KQEP-LP no longer requires protection.

Data Sources

Distances were calculated using the FCC method defined in 73.208 of the Commission's Rules, which is equivalent to the distance calculation method specified in the US-Canada Working Agreement.

All FM contours shown in this report were generated using antenna center above mean sea level, NAD-83 coordinates, and the USGS03 terrain dataset

Dates shown on the maps represent the last change date in the LMS downloads in use at the time this statement was prepared.

Detailed Interference Study

The following collection of maps and the narrative accompanying each show that no prohibited overlap will occur between the proposed facility and any potentially conflicting co-channel or first-adjacent facility or proposal.

A third-adjacent interference showing is provided with respect to KTIS-FM.

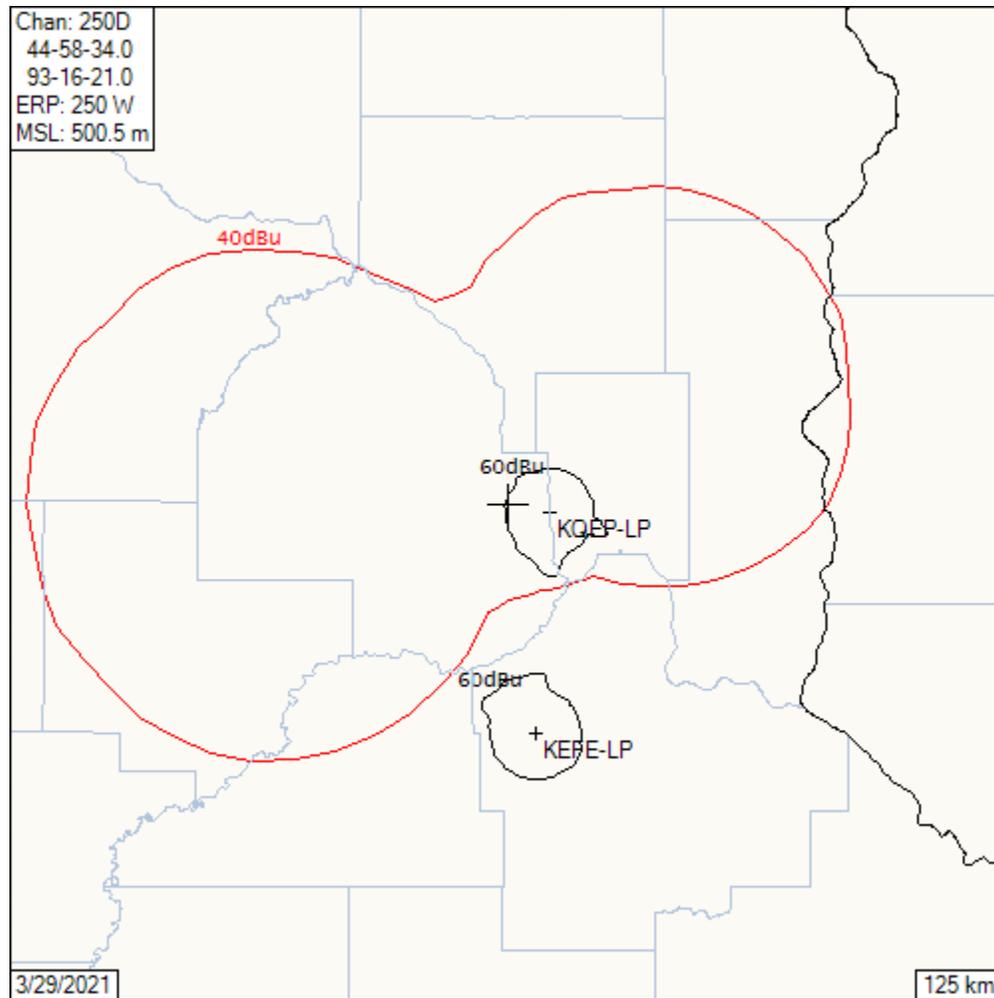
Interfering f(50,10) contours are shown as red polygons, and protected f(50,50) contours are shown as black polygons.

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PO Box 12666, Portland, OR 97212
401-354-2400

<http://www.skywaves.com>

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Map 1 – Co-channel Outbound Interference



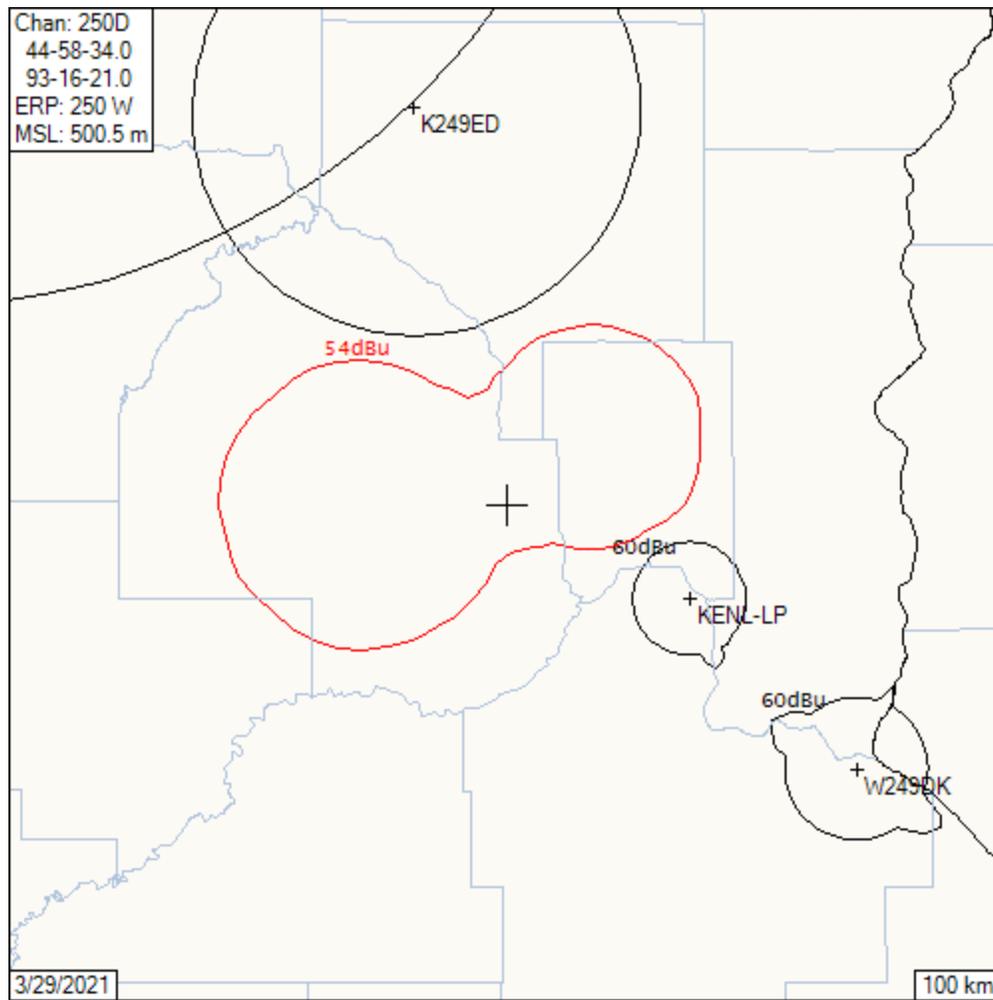
There is no overlap of the proposed interfering contour with the protected contour of any station or proposal other than to the aforementioned KQEP-LP, whose license has expired.

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Map 2 – First Adjacent Outbound Interference



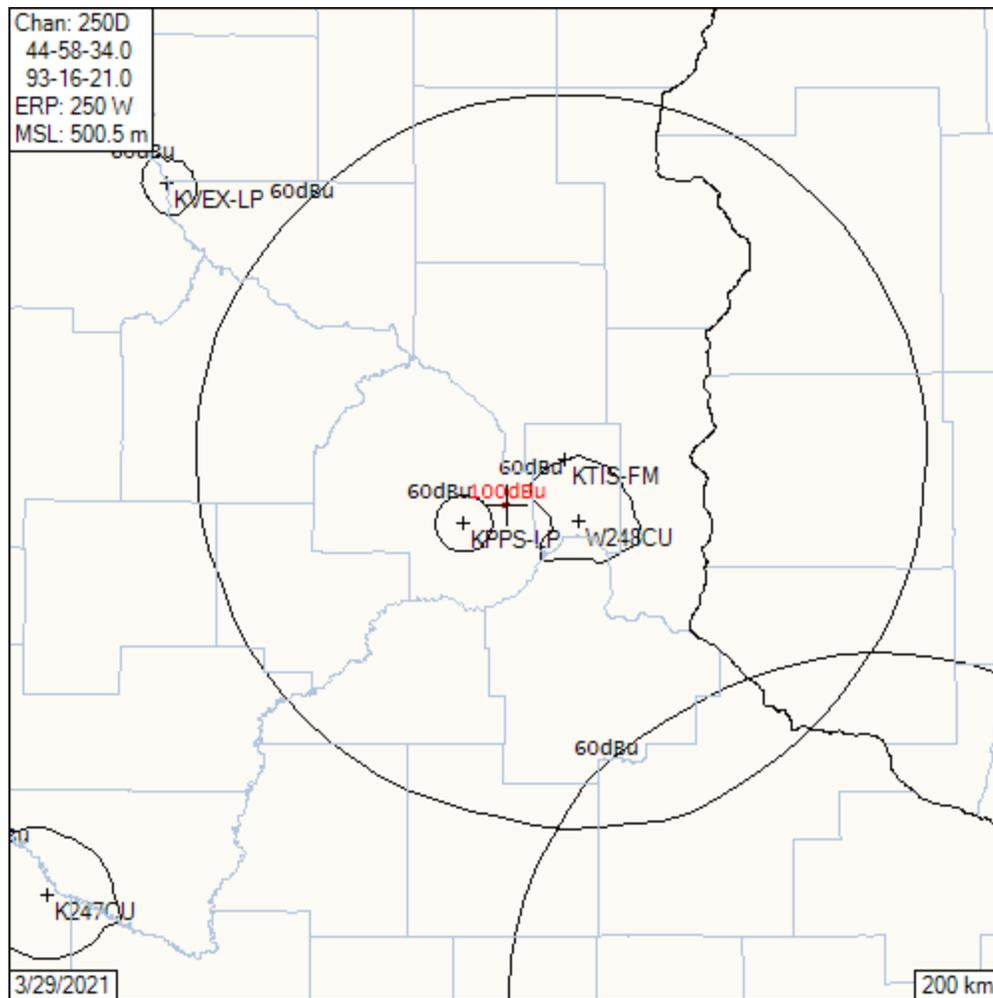
There is no overlap of the proposed interfering contour with the protected contour of any first-adjacent station or proposal.

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Map 3 – Second/Third Adjacent Outbound Interference Detail



The proposed site is within the protected service contour of third-adjacent station KTIS-FM. It is not located within the protected service contour of any other adjacent-frequency station.

The KTIS f(50,50) signal at the proposed site is 93.74 dBu, making the free-space interfering signal level 133.74 dBu. At the maximum proposed ERP of 250 W, the free-space distance to this signal level is 22.8 m.

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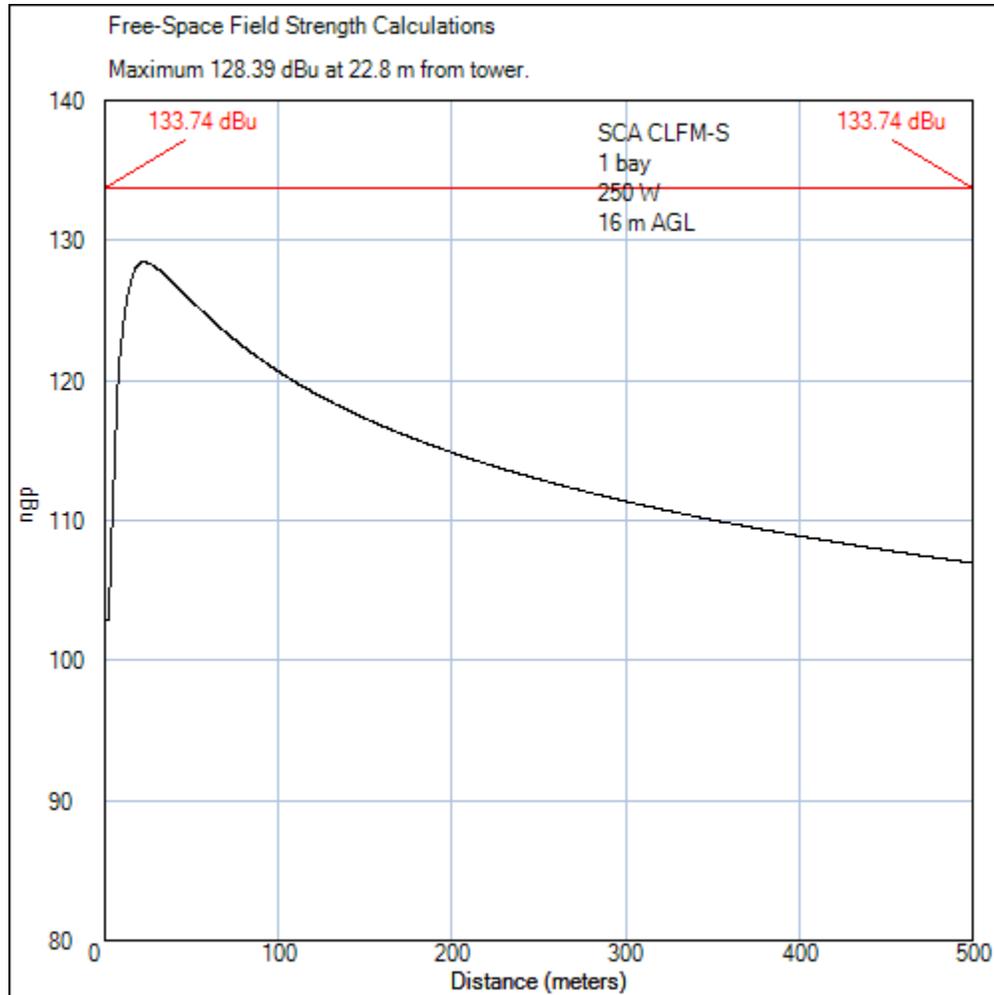
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The proposed site is the roof of the IDS Center, a long-established broadcasting and communications location.

The antenna will be mounted 4 m above the roof. Below the roof are two unoccupied mechanical floors of 6 m height each. The highest occupied floor is below the lower mechanical space. Adding the 4 m height above the roof and two 6 m mechanical floors produces 16 m above the ceiling of the highest occupied floor.

Due to the directional characteristics of the antenna, the maximum free-space signal on the lower mechanical floor 128.39 dBu, more than 5 dB below the allowable interference limit:

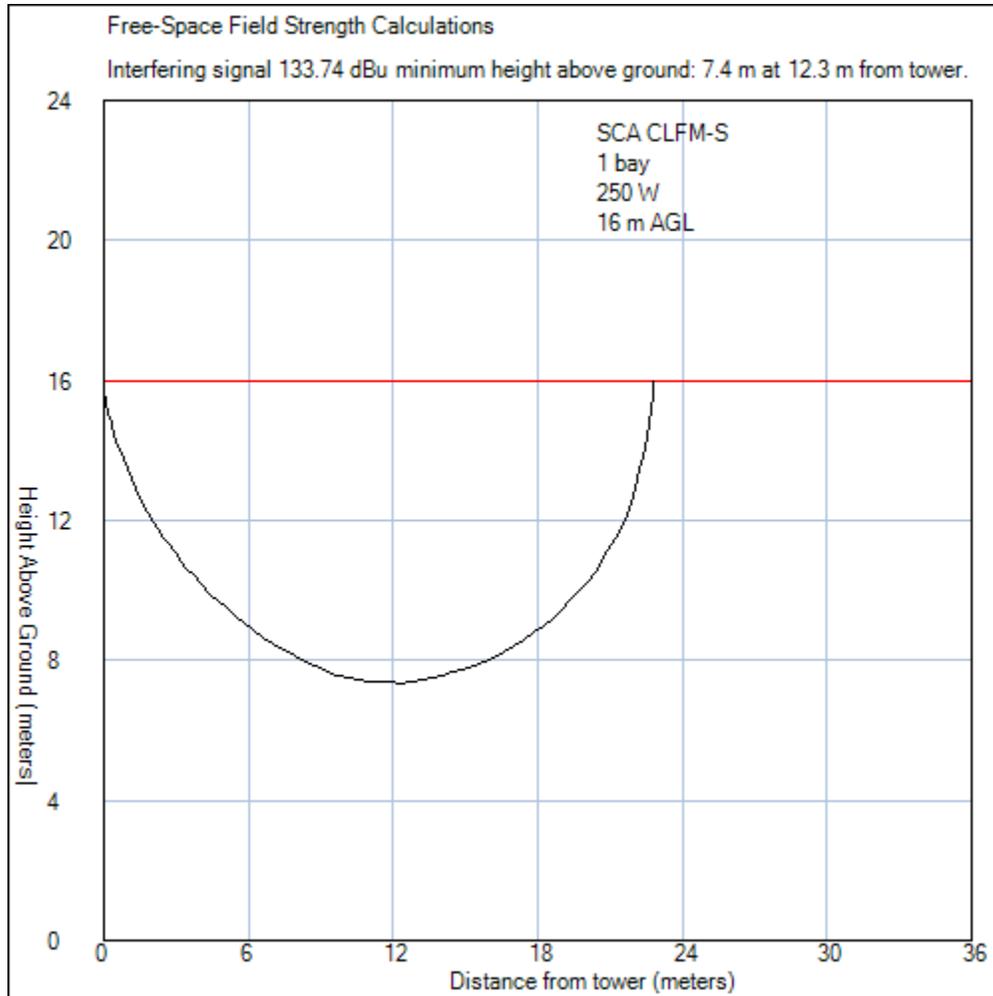


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Stated another way, the interfering signal will be at least 7 m above the floor of the lower mechanical space, which is the ceiling of the highest occupied floor:



Therefore, it is respectfully submitted that the proposal comports with the requirements of §74.1204(d) in that no population exists within the interference area.

IF Separation requirements

There are no IF separation requirements with respect to channel 250.

Channel 6 Interference

The proposed facility is not on a channel that is implicated in channel 6 interference.

International

The FM Agreements with Canada and Mexico require evaluation and potential coordination of any proposal within 320 km of the border.

The distance to the nearest point along the US/Canada border is 365 km. Coordination with Canada is not required.

The distance to the nearest point along the US/Mexico border is 1,833 km. Coordination with Mexico is not required.

Quiet Zones

The proposed site is outside the National Radio Quiet Zone (National Radio Astronomy Observatory Notification Area) in West Virginia.

The proposed site is outside the Arecibo Observatory notification area in Puerto Rico.

The proposed site is not within a 100 km extension of the Table Mountain Radio Receiving Zone in Colorado.

Protected Monitoring Stations

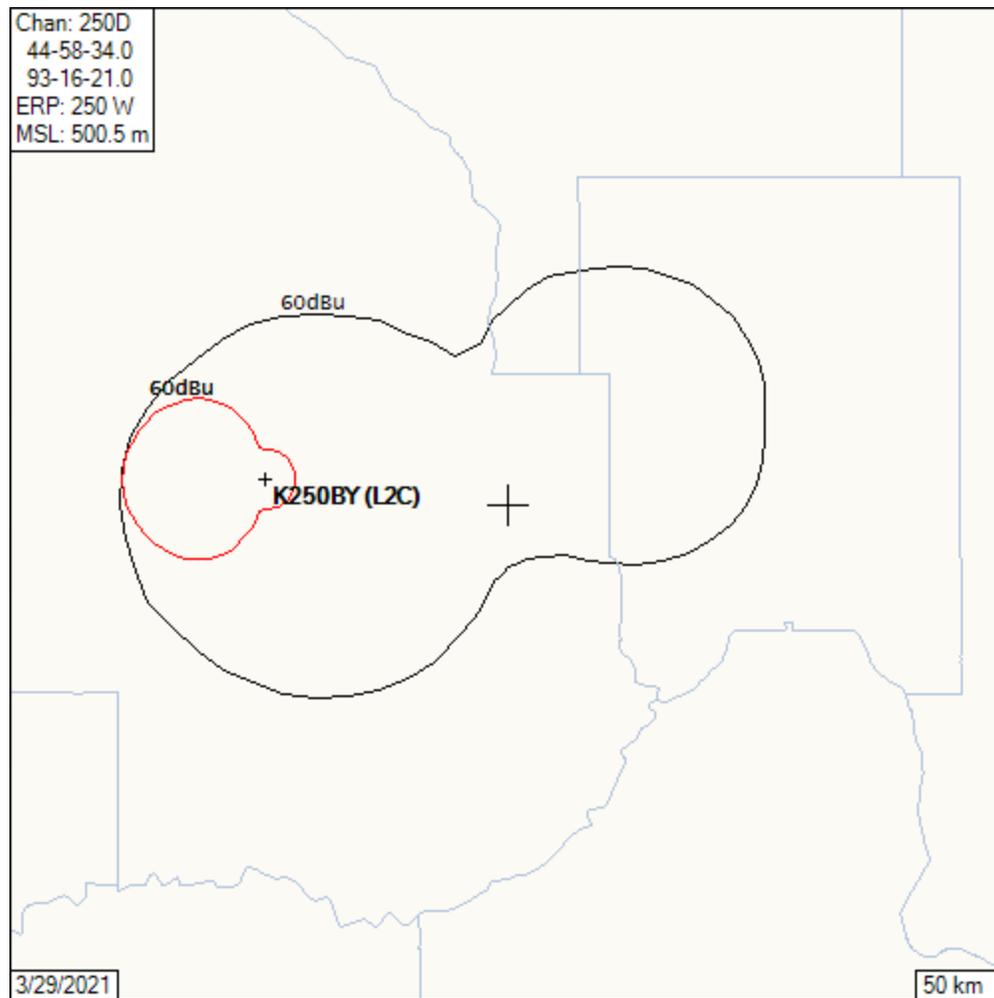
The nearest Protected Monitoring Station is 615 km distant, in Grand Island, NE. This is well beyond any potential 80 dBu contour.

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Minor Change

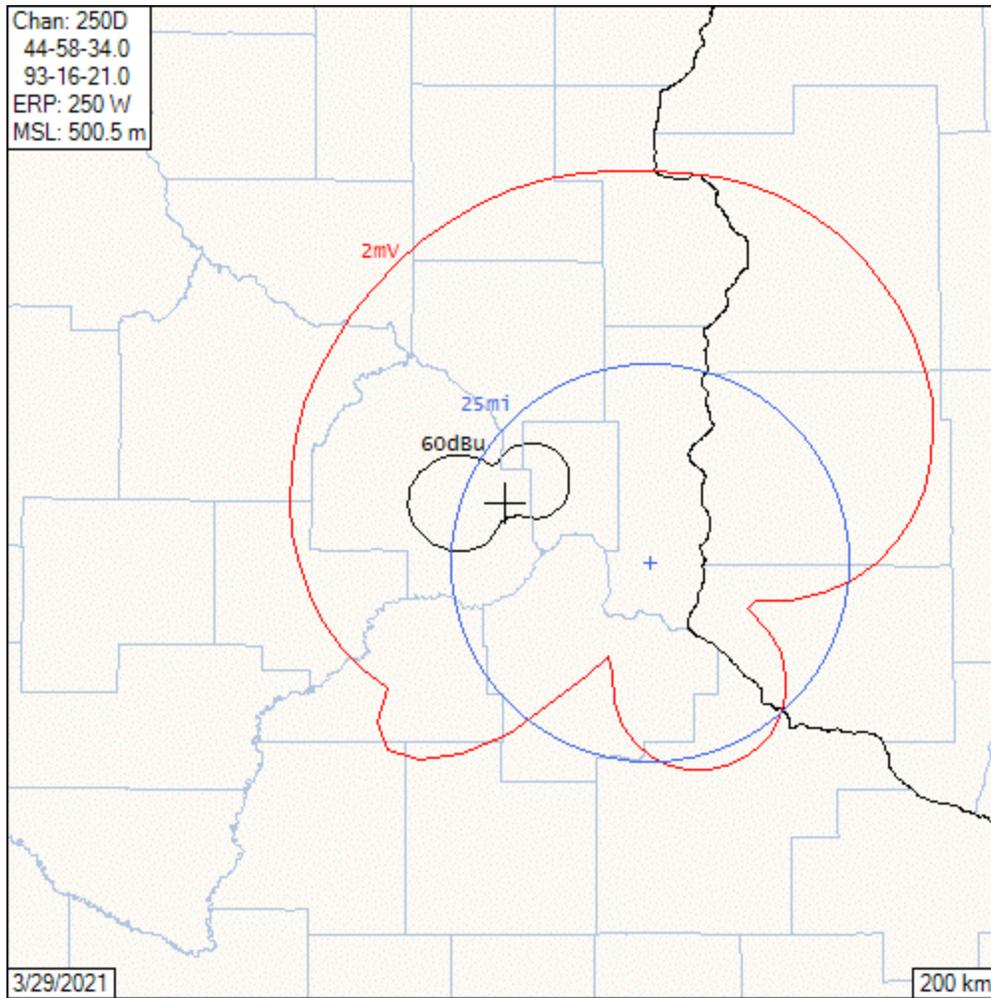


The 60 dBu f(50,50) contour of the licensed facility is plotted as a red polygon. The proposed 60 dBu f(50,50) contour is plotted as a black polygon.

The contours intersect, and no change in frequency is proposed.

Therefore, the proposal is for a minor change.

Fill-In Translator



The primary station is WCTS (AM), Maplewood, MN, FCC Facility ID # 12114.

The proposed 60 dBu f(50,50) contour is shown as a black polygon. The WCTS 2 mV/m contour is shown as a red polygon. The 25 mile circle around the WCTS transmitter is shown in blue.

The proposed 60 dBu f(50,50) contour falls entirely within the WCTS 2 mV/m contour. The translator is commonly owned with the primary station. The proposal therefore qualifies as fill-in service.

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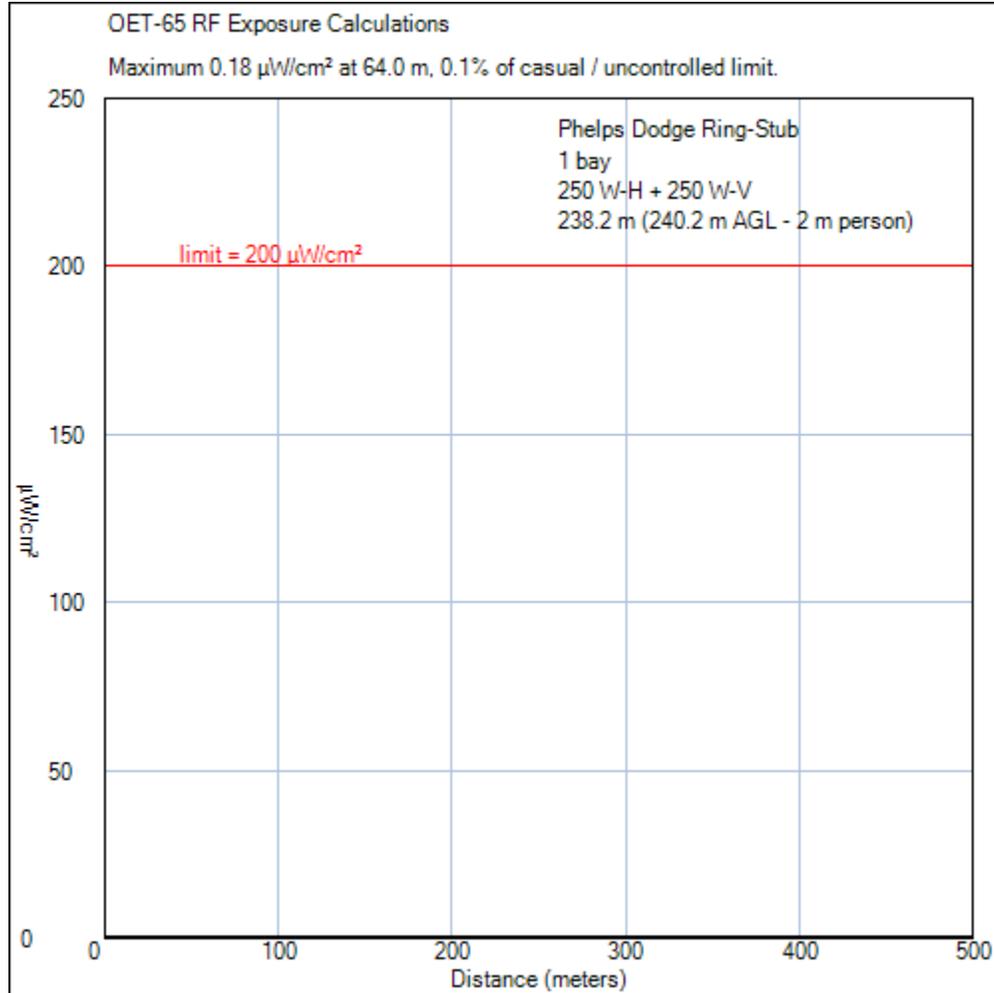
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Environmental

The proposed effective radiated power is 250 W-H + 250 W-V. The antenna will be mounted 240.2 m above ground level.

Assuming one bay of the worst-case OET Type 1 antenna model, the OET-65 algorithm returns a maximum exposure of 0.1% of the limit for casual / uncontrolled exposure:

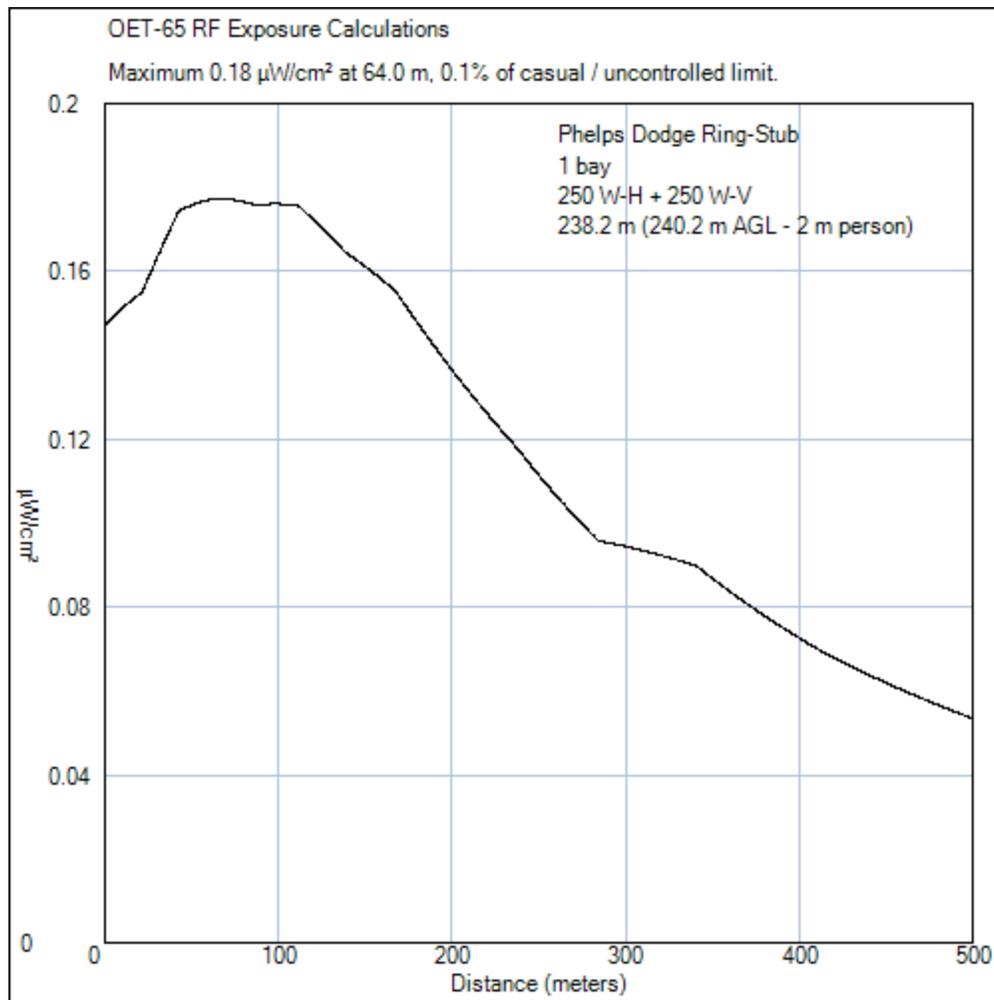


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An expanded scale is required to show the exposure level:



The proposed site is an existing communications site of long standing. RF exposure measurements are taken regularly on the roof and in the building.

Appropriate access controls and safety signage are provided. The applicant agrees to coordinate with other users of the site to reduce power or shut down in order to protect workers at the site.

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LMS Engineering Data

Channel	250
Coordinates (NAD-83)	44 58 34.0 N Lat 93 16 21.0 W Lon
ASR	1029019
Overall Tower Height AGL	270.1 m
Site Elevation AMSL	260.3 m
Radiation Center AGL	240.2 m
Radiation Center AMSL	500.5 m
Effective Radiated Power	250 W-H + 250W-V
Antenna type	Directional
Primary Station	Call Sign WCTS Facility ID 12114 City, State Maplewood, MN
Delivery Method	Internet
Antenna	
Type	Directional (pattern is provided on the next page)
Manufacturer	Scala
Model	CLFM-S
# Bay levels	1
Description	Two slant-polarized elements, oriented toward 270° and 050° (75%/25% power split)

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Directional Pattern

az	eRel	az	eRel	az	eRel	az	eRel
0	0.246	90	0.365	180	0.036	270	1.000
10	0.350	100	0.260	190	0.048	280	0.963
20	0.436	110	0.170	200	0.122	290	0.865
30	0.517	120	0.093	210	0.254	300	0.729
40	0.577	130	0.048	220	0.410	310	0.581
50	0.601	140	0.039	230	0.589	320	0.401
60	0.583	150	0.034	240	0.738	330	0.251
70	0.529	160	0.031	250	0.872	340	0.163
80	0.451	170	0.033	260	0.967	350	0.165
Supplemental Radials							
none							

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