

ENGINEERING STATEMENT

This engineering data contained herein have been prepared on behalf of ENLANCE ADVENTISTA, licensee of an LPFM station on Channel 251 in St. Paul, Minnesota, in support of this Application for Construction Permit to operate at a new site. The applicant continues to request a waiver of the Commission's 2<sup>nd</sup>-adjacent-channel spacing Rules with regard to KTIS-FM, Channel 253C0 in Minneapolis, Minnesota.

It is proposed to mount the licensed antenna on a 13-foot pole on top of the roof of the church that is owned by the licensee. The new site is only 3.3 kilometers from that licensed to KENL-LP. The predicted service contour of the newly proposed facility is plotted in Exhibit B. Exhibit C is a graph and tabulation of the elevation pattern for the proposed antenna.

The newly proposed LPFM site is located 19.7 kilometers from that of KTIS-FM, as shown in Exhibit C-1. Since the required spacing to this station is 84 kilometers, a waiver of the Commission's spacing rules with regard to this station is requested and believed to be justified for the reasons stated below.

In Exhibit C-2, we have plotted the newly proposed LPFM site. As shown, the 89.6 dBu contour of KTIS-FM passes close to the proposed site. Based on the 40 dB desired-to-undesired ratio applied to second-adjacent-channel situations such as this, we have determined that the interference contour extends only 23 meters from the antenna, if one assumes an ERP of 100 watts at all elevation angles. As shown in Exhibit C-3, there are no other residences or buildings within 23 meters of the proposed tower site. In addition, it should be noted that the interference contour extends only 18 meters from the antenna location, when calculated at ground level, which means the interference contour is located nearly completely on church property owned by the licensee.

**SMITH AND FISHER**

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EXHIBIT A

It is also important to note that this distance occurs at the steeper vertical angles of the antenna's elevation pattern, meaning that there will be significantly less than 100 watts of power radiated in the directions of concern. Finally, consideration should be given that KENL-LP has operated from its present transmitter location for the last four months without resulting in any known interference issue to KTIS-FM. As a result, a waiver of the FCC's 2<sup>nd</sup>-adjacent-channel spacing Rule with regard to KTIS-FM is respectfully requested and believed to be justified.

A power density calculation is provided in Exhibit D.

I declare under penalty of perjury that the foregoing statements and the attached exhibits, which were prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.



KEVIN T. FISHER

February 23, 2016

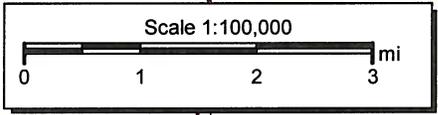
**CONTOUR POPULATION  
2010 U.S. CENSUS DATA  
84,912 (36,295 HH)**



**Proposed Site**  
BLL-20151016AGE  
Latitude: 44-53-30.40 N  
Longitude: 093-02-25.40 W  
ERP: 0.10 kW  
Channel: 251  
Frequency: 98.1 MHz  
AMSL Height: 269.1 m  
Elevation: 244.659 m



**FCC 60 DBU  
CONTOUR**



**EXHIBIT B  
PREDICTED SERVICE CONTOUR  
PROPOSED LPFM STATION KENL-LP  
CH. 251L1 - ST. PAUL, MINNESOTA**

Exhibit C-1  
Proposed KENL-LP, Channel 251L1, St. Paul, Minnesota

REFERENCE		DISPLAY DATES
44 53 30.4 N.	CLASS = L1	DATA 02-19-16
93 02 25.4 W.	Current Spacings to 2nd Adj.	SEARCH 02-22-16
----- Channel 251 - 98.1 MHz -----		

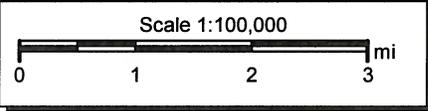
Call	Channel	Location	Azi	Dist	FCC	Margin
KTIS-FM	LIC 253C0	Minneapolis	MN 340.4	19.65	83.5	-63.9
KENL-LP	LIC 251L1	St. Paul	MN 64.7	3.34	23.5	-20.2
KQEP-LP	CP 250L1	St. Paul	MN 302.7	15.46	13.5	2.0
WRYA-LP	CP 250L1	Minneapolis	MN 297.2	17.49	13.5	4.0
WWJO	LIC 251C0	St. Cloud	MN 323.4	128.43	121.5	6.9
W280AA	APP 250D	Hastings	MN 135.7	24.00	14.5	9.5
KEFE-LP	LIC 250L1	Lakeville	MN 217.4	24.47	13.5	11.0
K249ED	CP 249D	Albertville	MN 331.0	56.64	20.5	36.1
K249ED	LIC 249D	Albertville	MN 331.2	56.82	20.5	36.3
WISM-FM	LIC-D 251C3	Altoona	WI 95.3	124.45	77.5	47.0

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All separation margins include rounding



KTIS-FM  
89.6 DBU  
CONTOUR

**EXHIBIT C-2**  
**SECOND-ADJACENT CHANNEL**  
**WAIVER REQUEST TO KTIS-FM**  
**PROPOSED LPFM STATION KENL-LP**  
**CH. 251L1 - ST. PAUL, MINNESOTA**



### EXHIBIT C-3

23-METER INTERFERENCE ARC  
(IN RED) FROM PROPOSED SITE.  
NOTE: COORDINATES ON MAP  
ARE IN TERMS OF NAD83.

#### Legend

- 44-53-30.4 N, 93-02-25.4 (NAD27)
- Iglesia Adventista Del Septimo Dia South St Paul

44 53 30.3 N, 93 02 26.2 W

Google earth

30 m



POWER DENSITY CALCULATION  
PROPOSED LPFM STATION KENL-LP  
CHANNEL 251L1 – ST. PAUL, MINNESOTA

Employing the methods set forth in *OET Bulletin No. 65* and considering a main-lobe effective radiated power of 100 watts (horizontal and vertical), an antenna radiation center located 14.3 meters above ground level, and assuming a vertical relative field value of 40 percent at the steeper elevation angles for the proposed antenna, maximum power density two meters above ground of  $0.0070 \text{ mW/cm}^2$  is calculated to near the base of the church building. Since this value is only 3.5 percent of the  $0.20 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating in the FM band, a grant of this proposal may be considered a minor environmental action with respect to public exposure to non-ionizing electromagnetic radiation.

Further, the station owner will take whatever precautionary steps are necessary, such as reducing power or leaving the air temporarily, to ensure that workers operating in the vicinity of the antenna are not exposed to excessive non-ionizing electromagnetic radiation.