

WVMK-LP Section 73.870(a)(1) Supplemental Showing Longley-Rice Service Area Interference Study

This Supplemental Showing is provided to demonstrate compliance with 73.870(a)(1) where a minor change application to a non-adjacent or non-IF frequency is allowed provided the new frequency reduces the interference to the LPFM's service area. The supplemental showing uses the licensed and proposed facility's Longley-Rice coverage calculated using 50% of locations for 50% of time. The interfering stations' Longley-Rice signals were calculated using 50% of locations for 10% of time for the surrounding co-channel, first and second adjacent stations.

Exhibit A is a map demonstrating the current population and area that currently receive interference from surrounding stations. On WVMK-LP's current channel (channel 245), it is predicted that 421 people in an area of 8.0 sq. km currently receive interference.

Exhibit A-1 is the tabulation of interference results from the map in Exhibit A.

Exhibit B is a map demonstrating the proposed channel's population and area that would receive interference from surrounding stations. On WVMK-LP's proposed channel (channel 263), it is predicted that 132 people in an area of 1.5 sq. km currently receive interference.

Exhibit B-1 is the tabulation of interference results from the map in Exhibit A.

Based on the above, there would be a net reduction of 289 people that would receive interference (a 68.6% reduction) and a net reduction in the interference area of 6.5 sq. km (an 81.3% reduction). Therefore, it is believed that the proposed application is in compliance with Section 73.870(a)(1).

Longley-Rice Signal Strength

■ > 60.0 dBuV/m

EXHIBIT A

WVMK-LP (Licensed) - Channel 245L1 - Vicksburg, MS
Supplemental Showing - Section 73.870(a)(1)
Longley-Rice 60 dBu Signal Strength Interference Study
Interference Population: 421; Interference Area: 8.0 sq.

WVMK-LP (Licensed)

Class: L1
Latitude: 32-20-17.70 N
Longitude: 090-51-46.40 W
ERP: 0.046 kW
HAAT: 43.74 m
Channel: 245
Frequency: 96.9 MHz
AMSL Height: 95.0 m
Elevation: 78.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: Longley-Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 9.1 m
Receiver Gain: 0 dB
Time Variability: 50.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
Terrain: NED 3 Second US Terrain
Cell Size: 0.1
Profile Increment: 0.1

F(50,50) 60 dBu

Vicksburg

WVMK-LP (Licensed)

Delta

Interferers Considered

- KWCL-FM (244)
- KZMZ (245)
- WTCD (245)

Scale 1:79,554

0 1 2 3 km

Exhibit A-1
Vicksburgs Voice for Education and Health
WVMK-LP (Facility ID: 197563)

Population Database: 2010 US Census (PL)

V-Soft Communications Population Report

WVMK-LP (Licensed) (245) Vicksburg, MS - BLL20150626AAO
Lat: 32-20-17.70 N Lng: 090-51-46.40 W ERP: 0.046 kW AMSL: 95.0 m
FM Interference Study
Protected: FCC F(50-50): 60 dBu
Interference considered within distance based on interfering
station's power and channel relationship.
Signal Resolution: 0.1 km

Study Date: 8/9/2016
FM Database Date: 8/7/2016

D/U Ratios Used:

Co: 20.0 dB
First Adj: 6.0 dB
Second Adj: -40.0 dB
Third Adj: -40.0 dB

Threshold for reception: 60.0 dBu.

Primary Terrain: NED 3 Second US Terrain
Secondary Terrain: FCC 30 Second US Database

Population Database: 2010 US Census (PL)

Percentages calculated using a baseline population of 21,190.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
KWCL-FM (244)	185	342	1.614	6.56
KZMZ (245)	112	221	1.043	3.73
WTCD (245)	63	125	0.590	1.46

Masking Summary:

Call Letters	Total Interference		Unique Interference	
	Population	%	Population	%
KWCL-FM (244)	342	1.614	200	0.944
KZMZ (245)	221	1.043	79	0.373
WTCD (245)	125	0.590	0	0.000

Stations considered which do not cause interference:

KAMD-FM (246)
K245BA (245)
WEZB (246)
WUSJ (242)
WCKK (244)
WFFF-FM (244)
WSMP-LP (245)
W245AH (245)
W245AB (245)
WTSY-LP (246)
WOKK (246)

Totals for WVMK-LP (Licensed) (245)

	Population	Area
Calculation Area Population:	21,962	[109.5 sq. km]
Not Affected by Terrain Loss:	21,190	[99.1 sq. km]
<u>Interfered Population:</u>	421	[8.0 sq. km]
Interference Free:	20,769	[91.2 sq. km]
Percent Interference:	1.99 %	

Longley-Rice Signal Strength

■ > 60.0 dBuV/m

EXHIBIT B

WVMK-LP (Proposed) - Channel 263L1 - Vicksburg, MS
Supplemental Showing - Section 73.870(a)(1)
Longley-Rice 60 dBu Signal Strength Interference Study
Interference Population: 132; Interference Area: 1.5 sq.

WVMK-LP (Proposed)

Class: L1
Latitude: 32-20-17.70 N
Longitude: 090-51-46.40 W
ERP: 0.046 kW
HAAT: 43.74 m
Channel: 263
Frequency: 100.5 MHz
AMSL Height: 95.0 m
Elevation: 78.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: Longley-Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 9.1 m
Receiver Gain: 0 dB
Time Variability: 50.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
Terrain: NED 3 Second US Terrain
Cell Size: 0.1
Profile Increment: 0.1

F(50,50) 60 dBu

Vicksburg

WVMK-LP (Proposed)

Delta

Interferers Considered

- WRTM-FM (263)
- WRTM-FM.C (263)
- WDMS (264)

Scale 1:79,554

0 1 2 3 km

Exhibit B-1
Vicksburgs Voice for Education and Health
WVMK-LP (Facility ID: 197563)

Population Database: 2010 US Census (PL)

V-Soft Communications Population Report

WVMK-LP (263) Vicksburg, MS - BLL20150626AAO
Lat: 32-20-17.70 N Lng: 090-51-46.40 W ERP: 0.046 kW AMSL: 95.0 m
FM Interference Study
Protected: FCC F(50-50): 60 dBu
Interference considered within distance based on interfering
station's power and channel relationship.
Signal Resolution: 0.1 km

Study Date: 8/11/2016
FM Database Date: 8/7/2016

D/U Ratios Used:
Co: 20.0 dB
First Adj: 6.0 dB
Second Adj: -40.0 dB
Third Adj: -40.0 dB

Threshold for reception: 60.0 dBu.

Primary Terrain: NED 3 Second US Terrain
Secondary Terrain: FCC 30 Second US Database

Population Database: 2010 US Census (PL)

Percentages calculated using a baseline population of 21,216.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
WRTM-FM (263)	63	131	0.617	1.17
WRTM-FM.C (263)	48	98	0.462	0.94
WDMS (264)	1	1	0.005	0.47

Masking Summary:

Call Letters	Total Interference		Unique Interference	
	Population	%	Population	%
WRTM-FM (263)	131	0.617	33	0.156
WRTM-FM.C (263)	98	0.462	0	0.000
WDMS (264)	1	0.005	1	0.005

Stations considered which do not cause interference:

WJQX (263)
KZHE (263)
KRRV-FM (262)
KZBL (264)
WTGE (264)
WNSL (262)
WFOI-LP (263)
WBLE (263)
W263CF (263)

Totals for WVMK-LP (263)

	Population	Area
Calculation Area Population:	21,962	[109.5 sq. km]
Not Affected by Terrain Loss:	21,216	[99.4 sq. km]
Interfered Population:	132	[1.5 sq. km]
Interference Free:	21,084	[97.9 sq. km]
Percent Interference:	0.62 %	