

ENGINEERING EXHIBITS
IN SUPPORT OF COMMENTS OF
THE AM RADIO PRESERVATION ALLIANCE
IN MB DOCKET NO. 13-249

KMOX(AM), St. Louis, Missouri

JANUARY 2019

The attached engineering exhibits have been prepared on behalf of the AM Radio Preservation Alliance (AMRPA) to document the impact on AM radio service during nighttime, critical hours and daytime operations, respectively, if certain changes to the AM protection rules currently enforced by the Federal Communication Commission (FCC), under consideration in MB Docket No. 13-249, were adopted.¹ These exhibits clearly validate that there would be minimal theoretical gains in radio service provided by other AM stations at the expense of new interference to vastly more populations currently reached by established Class A AM radio service.

In this set of engineering exhibits, interference and coverage studies were conducted analyzing Class A AM Station KMOX, St. Louis, Missouri, FCC Facility ID No. 9638, in regard to its nighttime (Figures 1.1-N through 11-N), critical hours (Figures 1.1-C through 2.3-C) and daytime operations (Figures 1-D through 7-D), applying the FCC's reduced protection requirements to Class A AM stations as proposed in the *SFNPRM*.²

As detailed further below, Figure 1.1-N documents the negative impact on the studied Class A AM station's nighttime signal from nearby non-Class A AM stations adding nighttime coverage assuming the *SFNPRM*'s Alternative 1 for nighttime hours protection to Class A AM stations (protection of 0.5 mV/m groundwave contour) was adopted, while Figures 2-N through 11-N show the theoretical additional service if neighboring non-Class A AM stations were to add nighttime coverage under Nighttime

¹ See *Revitalization of the AM Radio Service*, Second Further Notice of Proposed Rulemaking, FCC 18-139, MB Docket No. 13-249 (rel. Oct. 5, 2018) ("*SFNPRM*").

² These interference studies were conducted using computer software V-Soft AMpro2's incoming interference study program, combining interfering signal strength using the RSS methodology with a 50% minimum level for inclusion and a buffer grid size of 500x500.

Alternative 1. Following these figures are contour maps (prepared by iHeartMedia's engineering staff) mapping these non-Class A AM station's theoretical nighttime AM gain areas in comparison with such station's licensed or permitted FM translator service area (60 dBu contour), where applicable,³ along with a chart summarizing the actual FM translator population served in contrast to the theoretical nighttime AM gains coming at the expense of more interference on the AM band.

Figure 1.2-N conducts a similar analysis to that shown in Figure 1.1-N by documenting the negative impact on KMOX's nighttime signal from nearby non-Class A AM stations adding nighttime coverage, but for Figure 1.2-N, the protection is that proposed by Alternative 2 of the *SFNPRM* (nighttime interference to the Class A AM station could not be increased above the greater of the 0.5 mV/m nighttime groundwave contour or the 50 percent exclusion RSS NIF level (calculated using the multiple station method).)

Figures 1.1-C, 1.2-C and 1.3-C address the studied Class A AM station during critical hours periods under Alternative 1 (Class A AM stations afforded no protection from other AM stations during critical hours). Figures 2.1-C, 2.2-C and 2.3-C document the studied Class A AM station during critical hours periods under Alternative 2 of the *SFNPRM* (protection of a Class A AM station during critical hours only to its 0.5 mV/m groundwave contour by amending 47 C.F.R. Section 73.190 critical hours figures to reference the distance from the Class A AM station's 0.5 mV/m contour in lieu of its 0.1 mV/m contour). These Critical Hours Alternative 1 and Alternative 2 studies reflect

³ In situations where the non-Class A AM station has more than one FM translator authorization, only the FM translator facility closest to the theoretical nighttime AM gain area has been mapped.

increasing interference (shaded red) to currently served populations by the studied Class A AM station at the intervals of one-hour, one-half hour, and one-quarter hour before sunset.

Daytime operations under the *SFNPRM* proposal are addressed in Figures 1-D through 7-D. Figure 1-D documents the daytime operations of the studied Class A AM station as currently protected (to its 0.1 mV/m daytime groundwave contour), as well as the predicted interference within that contour that would result if nearby AM stations operated with the maximum powers permitted in the direction of the studied Class A AM station as proposed in the *SFNPRM* (protecting only the 0.5 mV/m daytime groundwave contour of the Class A AM station). Figures 2-D through 7-D document the potential daytime population gain – solely in the direction of the studied Class A AM station as other stations may limit power gains in other directions – for the individual interfering stations, assuming the daytime protection to only the 0.5 mV/m groundwave contour was adopted as proposed in the *SFNPRM*.

Following the Figures are charts tabulating the results of these nighttime, critical hours and daytime studies.

In addition, the summary pages of the “Grid Based Incoming Interference Population Report(s)” conducted for the nighttime, critical hours and daytime analysis of the studied Class A AM station are also attached. Due to their length, only the summaries, and not the entire Grid Based Incoming Interference Population Report(s) are attached; the entire Report(s) are available upon the request of the FCC or any interested party.

Below is a summary of the methodology of the conducted coverage and interference studies in regard to the studied Class A AM station as documented in the attached figures and charts:

Nighttime

Figure 1.1-N maps the studied Class A AM station's nighttime 0.5 mV/m 50% skywave contour (red line), which is currently protected, along with the Class A AM station's nighttime 0.5 mV/m groundwave contour (blue line) which is proposed to be protected under Nighttime Alternative 1 of the *SFNPRM*. The resulting zone subject to new interference from co-channel Class D stations adding nighttime operations is shown in red shading, and the currently-served population and population subject to such new interference are detailed on Figure 1.1-N. In determining the interference to the studied Class A AM station, the nighttime operation for each impinging Class D AM station is based on protecting the 0.5 mV/m groundwave contour of the studied Class A AM station pursuant to Nighttime Alternative 1 of the *SFNPRM*. Generally, the impinging Class D AM stations are non-directional. In those few instances where the Class D AM station employs a directional pattern, the presumed Class D AM station power has been limited in the direction of the studied Class A AM station's 0.5 mV/m groundwave contour and has not been verified for protection limits in other directions.

Figures 2-N through 11-N show the nighttime interference-free contour for each co-channel Class D interfering AM station assuming nighttime operations with maximum permissible power, while protecting only the nighttime 0.5 mV/m groundwave contour of the studied Class A AM station pursuant to Nighttime Alternative 1 of the *SFNPRM*. The potential nighttime population and area gains resulting from such co-channel Class D stations operating with maximum allowed power in the direction of the studied Class A AM station's protected 0.5 mV/m groundwave contour is also detailed in the box in the upper right-hand of each figure. A tabulation of the nighttime study results is provided following all the figures.

Figure 1.2-N, as does Figure 1.1-N, maps the studied Class A AM station's nighttime 0.5 mV/m 50% skywave contour (red line), which is currently protected, and also maps the Class A AM station's nighttime 1.77 mV/m groundwave NIF contour (blue line), which would be the protected contour under the interference proposal of Nighttime Alternative 2 of the *SFNPRM*. The resulting zone subject to new interference from co-channel Class D stations adding nighttime operations is shown in red shading, and the currently-served population and population subject to such new interference are detailed on Figure 1.2-N. In determining the interference to the studied Class A AM station, the nighttime operation for each impinging Class D AM station is based on nighttime interference to the Class A not being increased above the greater of the 0.5 mV/m nighttime groundwave contour or the 50 percent exclusion RSS NIF level (calculated using the multiple station method).

Critical Hours

Figures 1.1-C through 1.3-C and Figures 2.1-C through 2.3-C each show the daytime 0.1 mV/m groundwave contour (blue line) and the 0.5 mV/m groundwave contour (red line) of the studied Class A AM station. There are three studies in each set, employing skywave diurnal factors (FCC Section 73.190 Figure 13) for the time frames of (i) one hour prior to sunset (SS-1), (ii) ½ hour prior to sunset (SS-0.5), and (iii) ¼ hour prior to sunset (SS-0.25). Predicted interference within the respective contours is shown in red shading.

Under Critical Hours Alternative 1 of the *SFNPRM*, neighboring stations to a Class A AM station (which in this instance are Class D stations) could continue to operate at full daytime power during critical hours. The interference to the studied Class A AM station from such unrestricted power operations of its neighbors during critical hours per Alternative 1 of the *SFNPRM* is documented in red shading on Figures 1.1-C (plus Figure 1.1-C Detail), 1.2-C and 1.3-C, for each respective time period (one hour, ½ hour and ¼ hour prior to sunset).

Pursuant to Critical Hours Alternative 2 of the *SFNPRM*, the Commission would change the vertical axis reference for application of Figures 9, 10 and 11 of 47 C.F.R. Section 73.190 from “Distance from 0.1 mV/m Contour in Miles” to “Distance from 0.5 mV/m Contour in Miles.” The interference to the studied Class A AM station from such revised permissible power calculations for its neighbors during critical hours per Alternative 2 of the *SFNPRM* is documented in red shading on Figures 2.1-C, 2.2-C and 2.3-C, for each respective time period (one hour, ½ hour and ¼ hour prior to sunset).

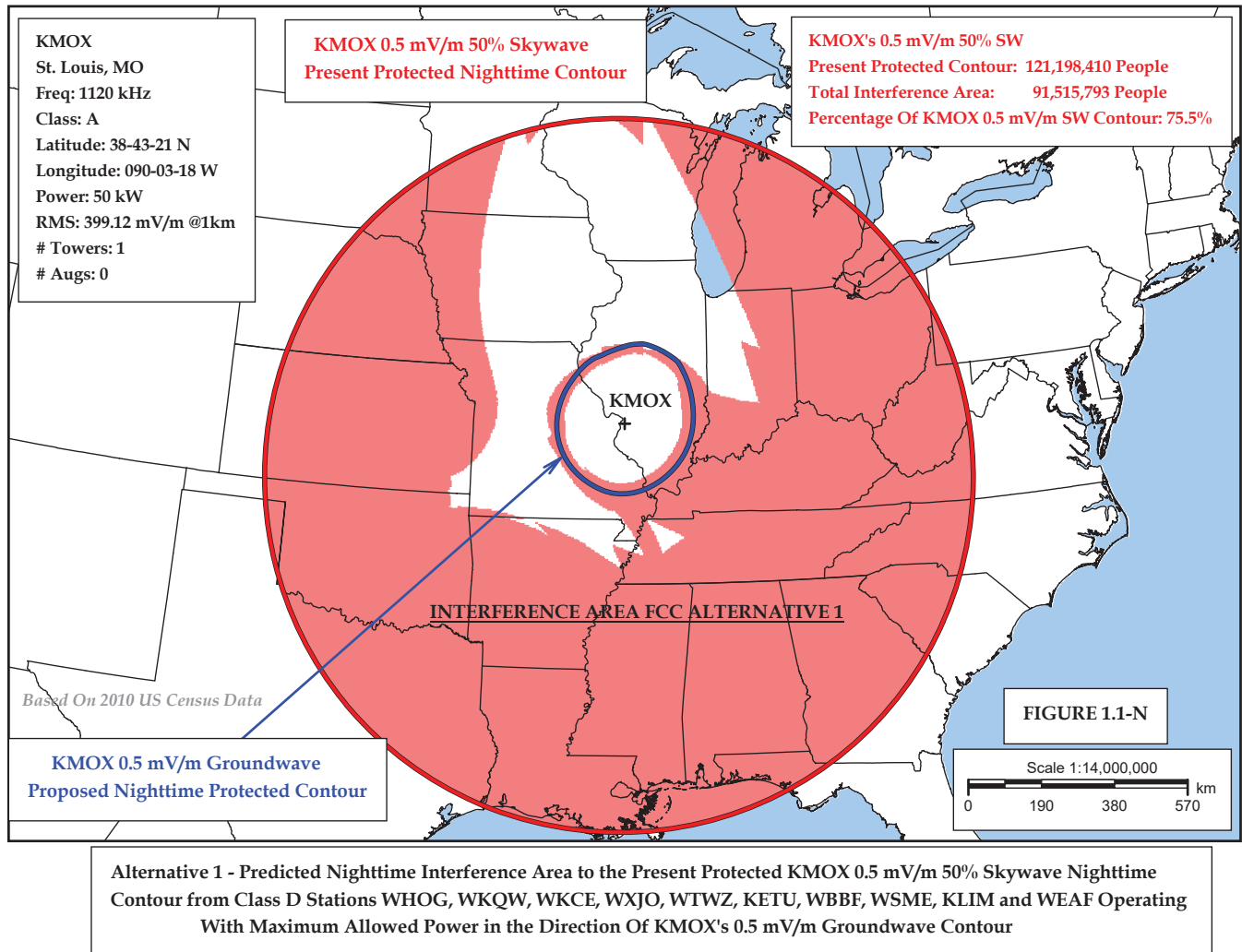
The box on the upper left-hand corner of each Critical Hours figure sets forth the data for the population, area and percentage impact of the resulting interference under the reviewed Critical Hours Alternative on the studied Class A AM station’s 0.1 mV/m contour; the box on the upper right-hand corner, on the studied Class A AM station’s 0.5 mV/m contour. A tabulation of the critical hours study results is provided following all the figures.

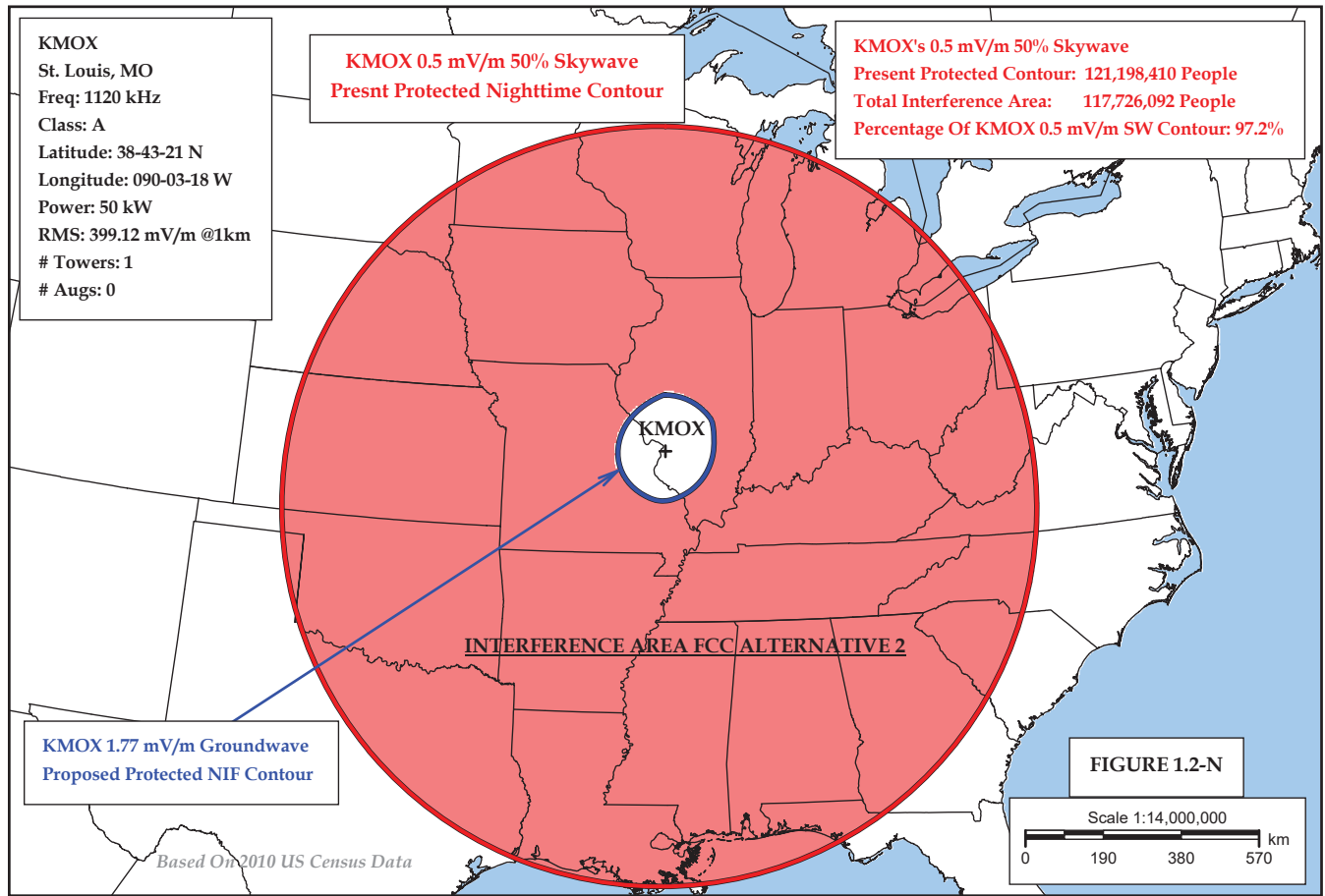
Daytime

For the studied Class A AM station, Figure 1-D maps the present daytime protected 0.1 mV/m groundwave contour (blue line) as well as the less-encompassing daytime 0.5 mV/m groundwave contour (red line) proposed to be protected from co-channel interference in the *SFNPRM*. The interference area resulting from nearby co-channel stations (typically Class D AM stations) operating with maximum potential power (up to 50 kW) in the direction of the studied Class A AM daytime 0.5 mV/m groundwave contour is shown in red shading. The box at the upper right-hand corner of Figure 1-D details the currently protected population within the studied Class A AM station’s daytime 0.1 mV/m groundwave contour, the population within that contour that would be

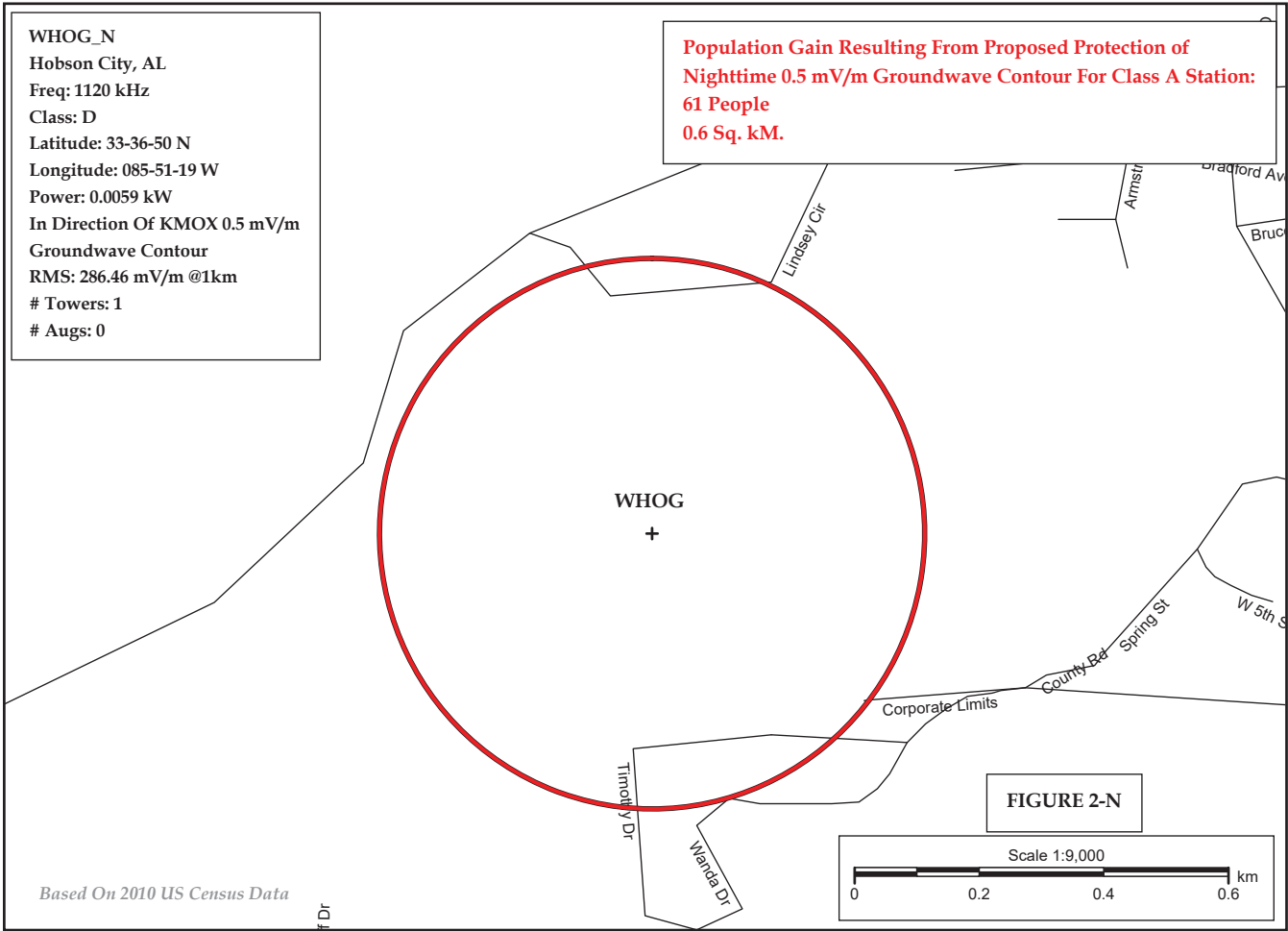
subject to interference if only the daytime 0.5 mV/m groundwave contour is protected as proposed in the *SFNPRM*, and the percentage of the current population now served that such interference zone encompasses.

Figures 2-D through 6-D document the potential daytime population gain for the individual interfering stations in the direction of the studied Class A AM station with daytime protection to the Class A AM station's 0.5 mV/m groundwave contour, as proposed in the *SFNPRM*. The boundaries for the gain areas are the difference between the licensed and potential 0.5 mV/m groundwave contours of the interfering station through the arc of the Class A AM station's protected 0.5 mV/m groundwave contour, as detailed on each of Figures 2-D through 6-D. Individually and collectively, the potential daytime population gains by the interfering stations in the direction of the now-limiting Class A AM station under the *SFNPRM* daytime proposal constitutes a tiny percentage of the population that would be subject to new interference to their daytime reception of the studied Class A AM station. A tabulation of the daytime study results is provided following all the figures.

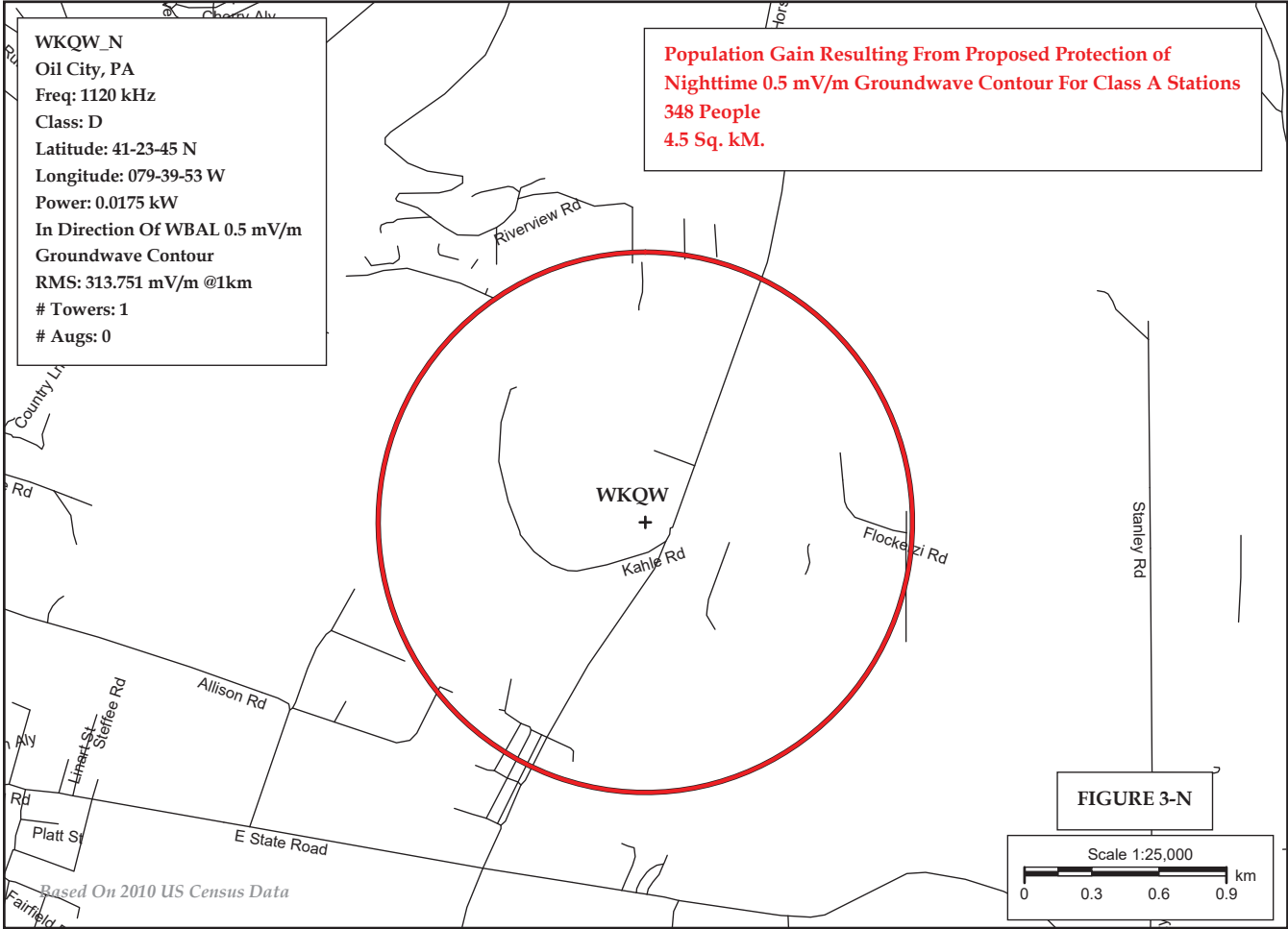




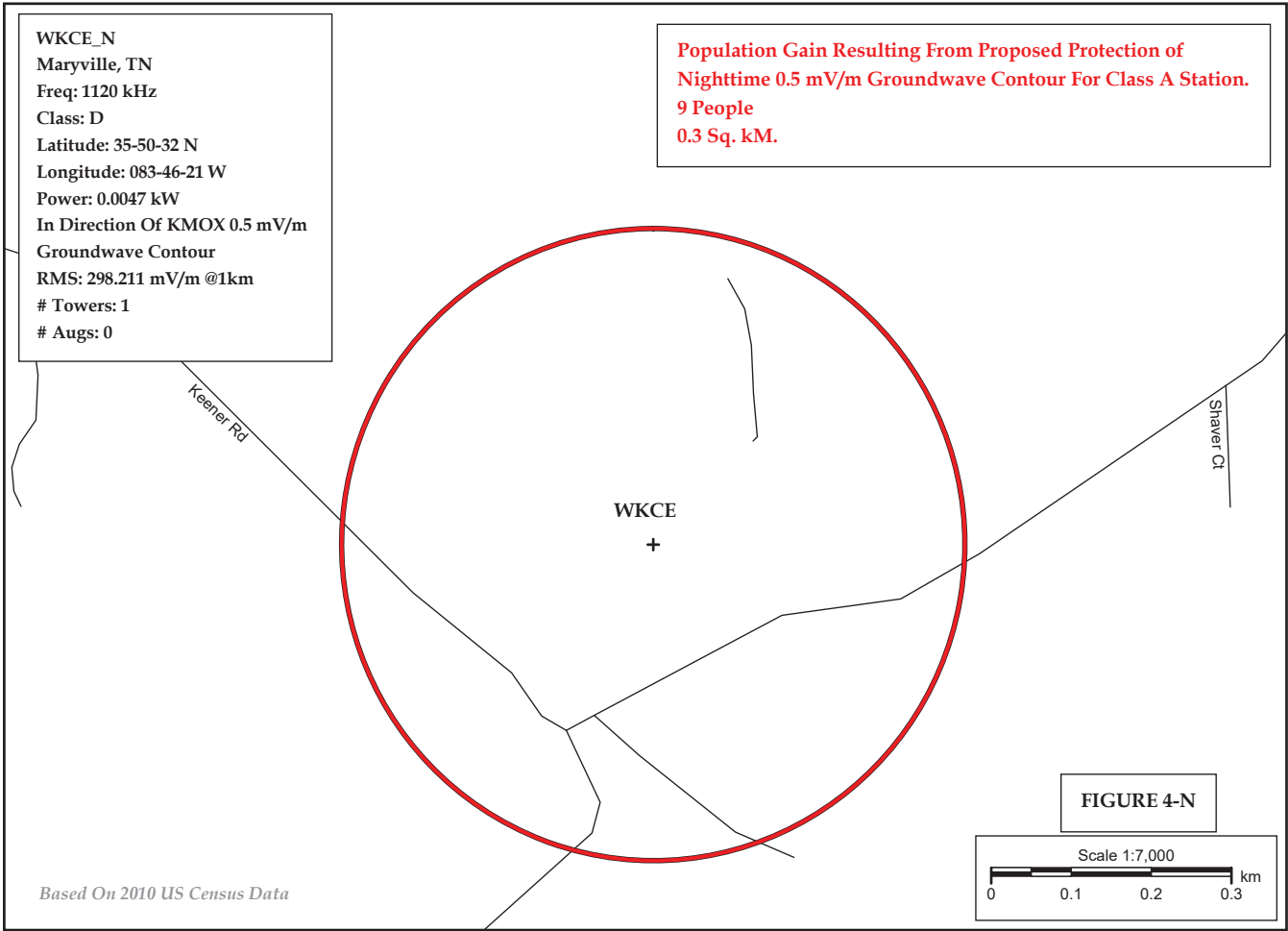
Alternative 2 - Predicted Nighttime Interference Area to the Present Protected KMOX 0.5 mV/m 50% Skywave Nighttime Contour From Class D Stations WHOG, WKQW, WKCE, WXJO, WTWZ, KETU, WBBF, WSME, KLIM and WFAF Operating With Maximum Allowed Power in the Same Manner as Class B AM Stations are Protected in the Direction of KMOX's Nighttime NIF Contour



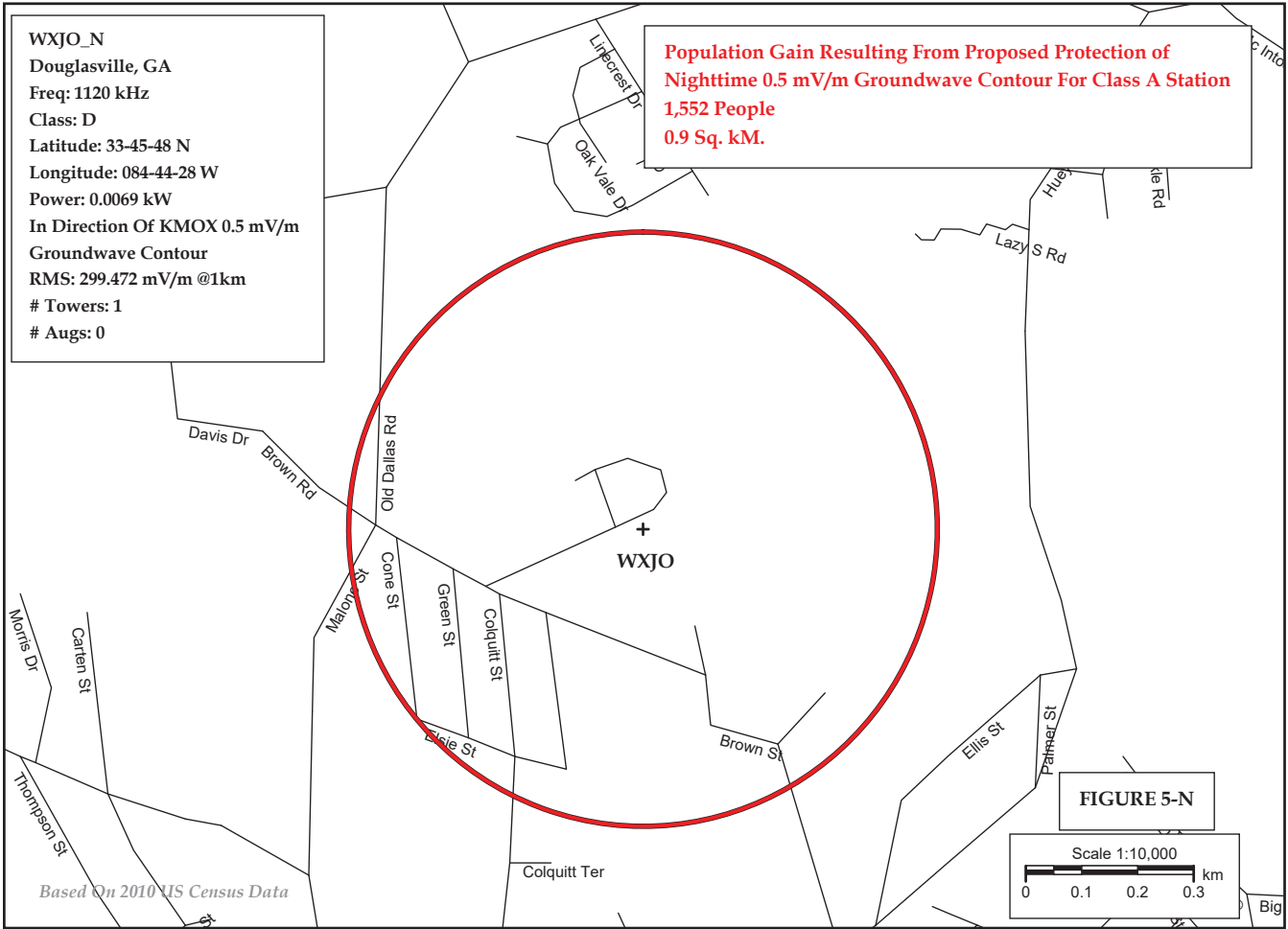
WHOG NIF 40.5 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour



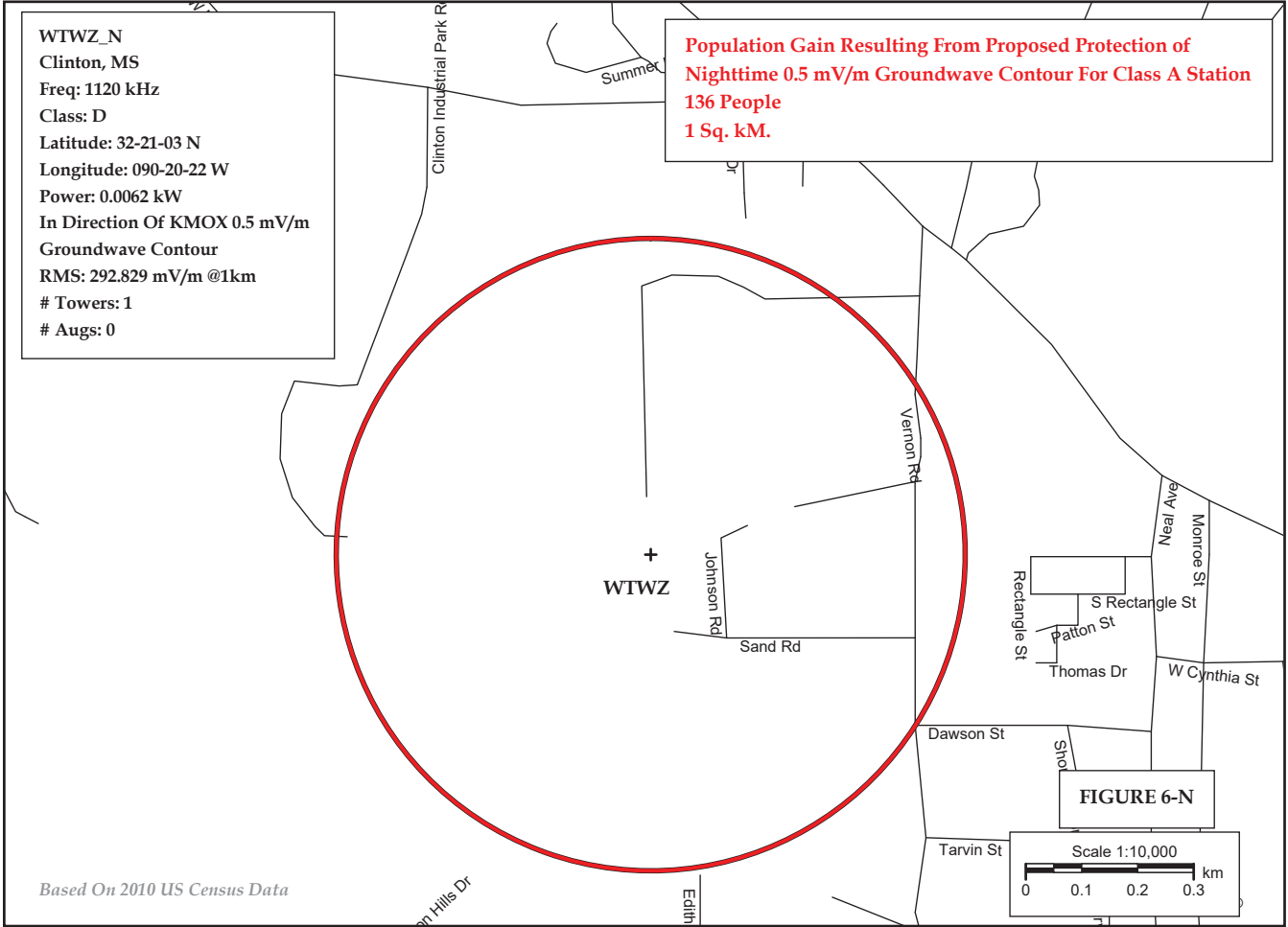
WKQW NIF 23.2 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour



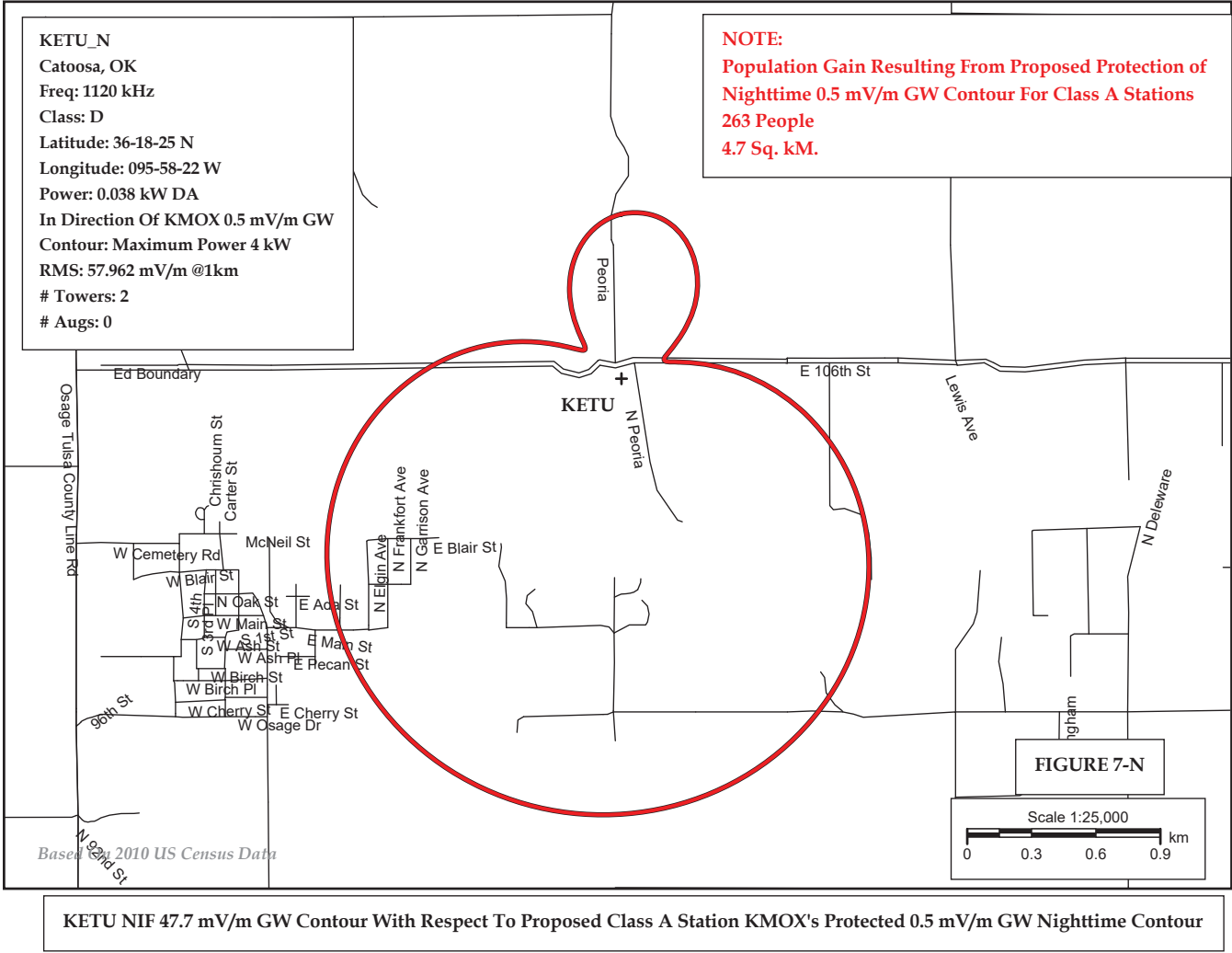
WKCE NIF 42.8 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

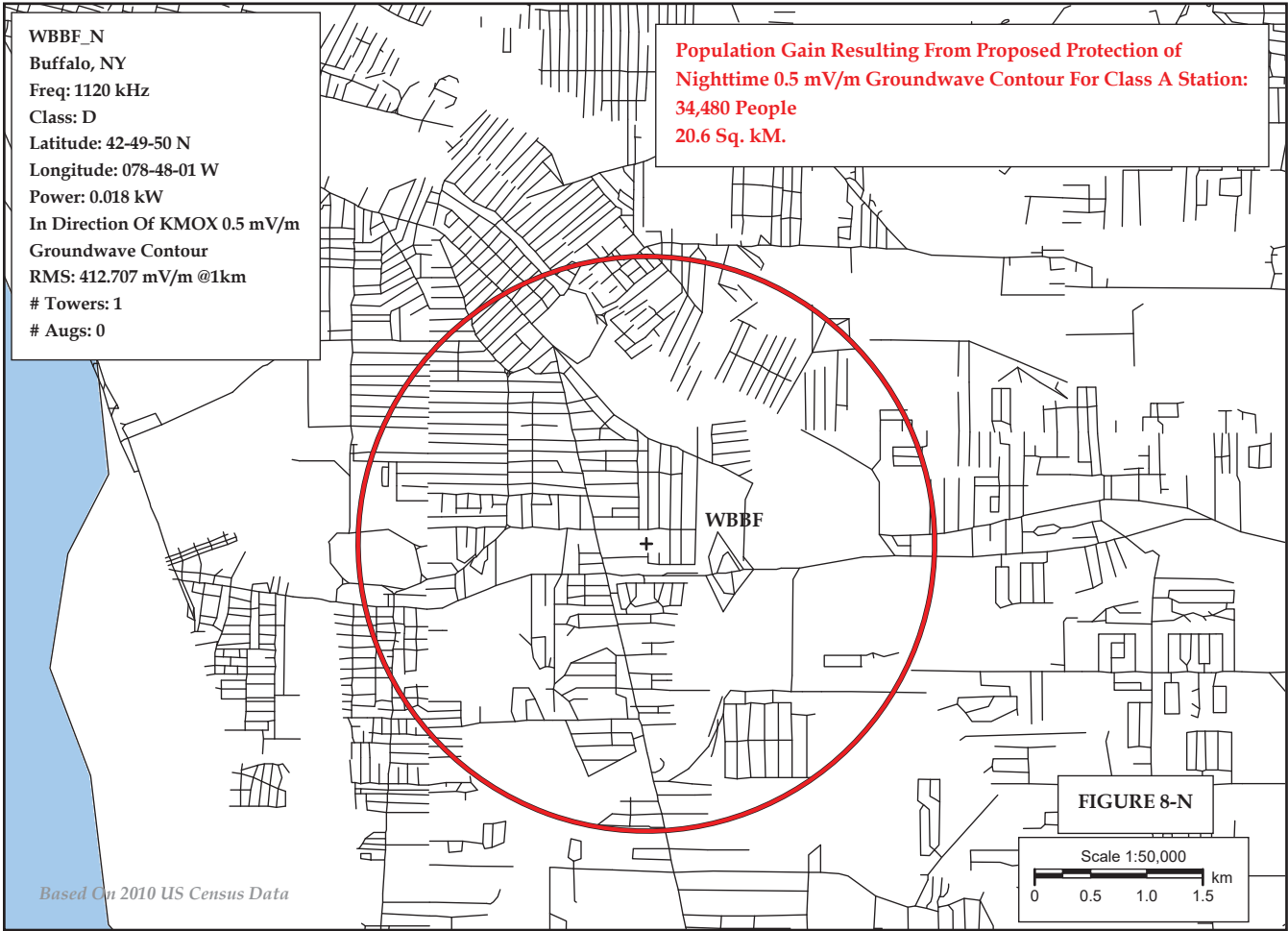


WXJO NIF 37.1 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

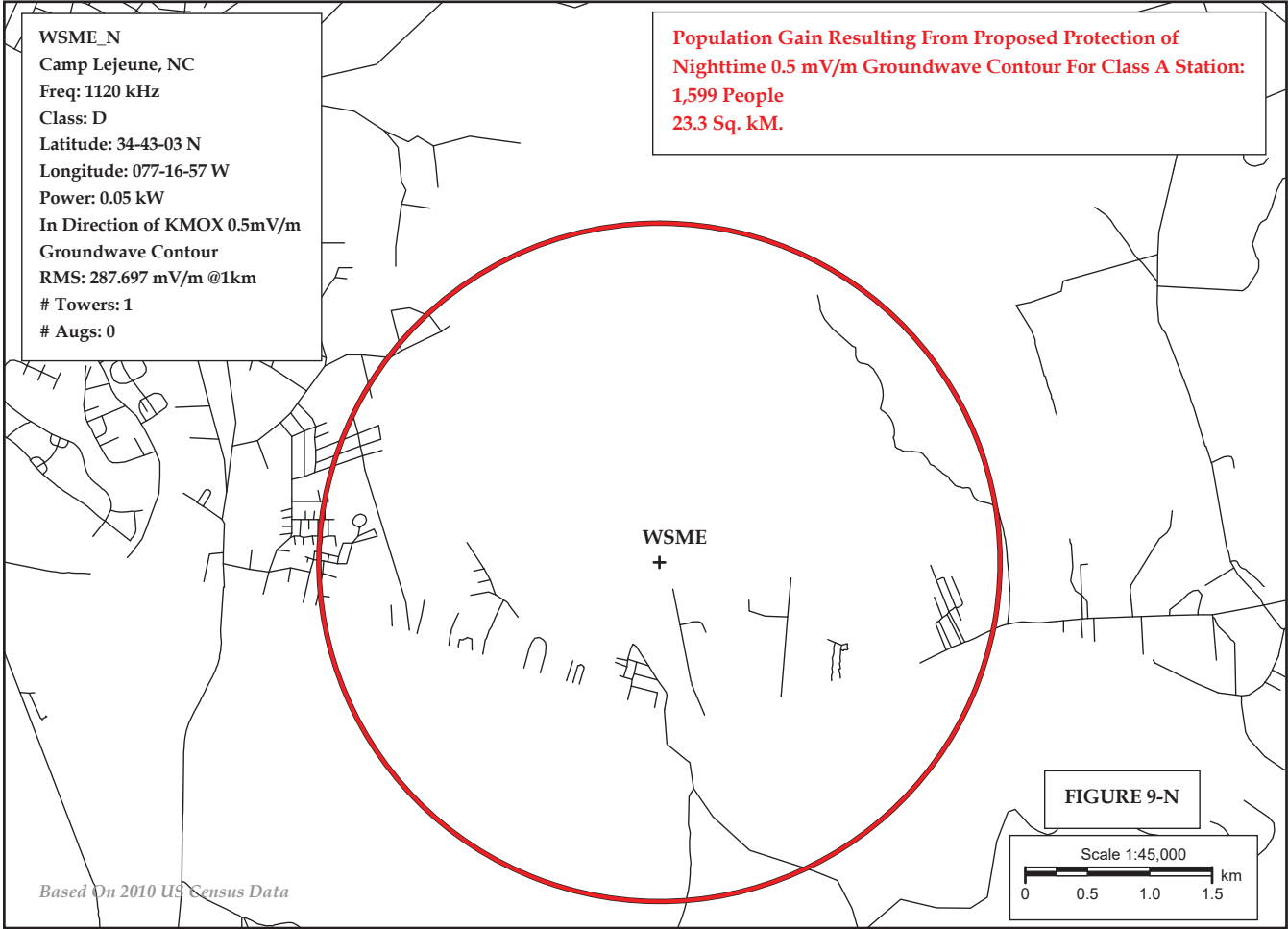


WTWZ NIF 39 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

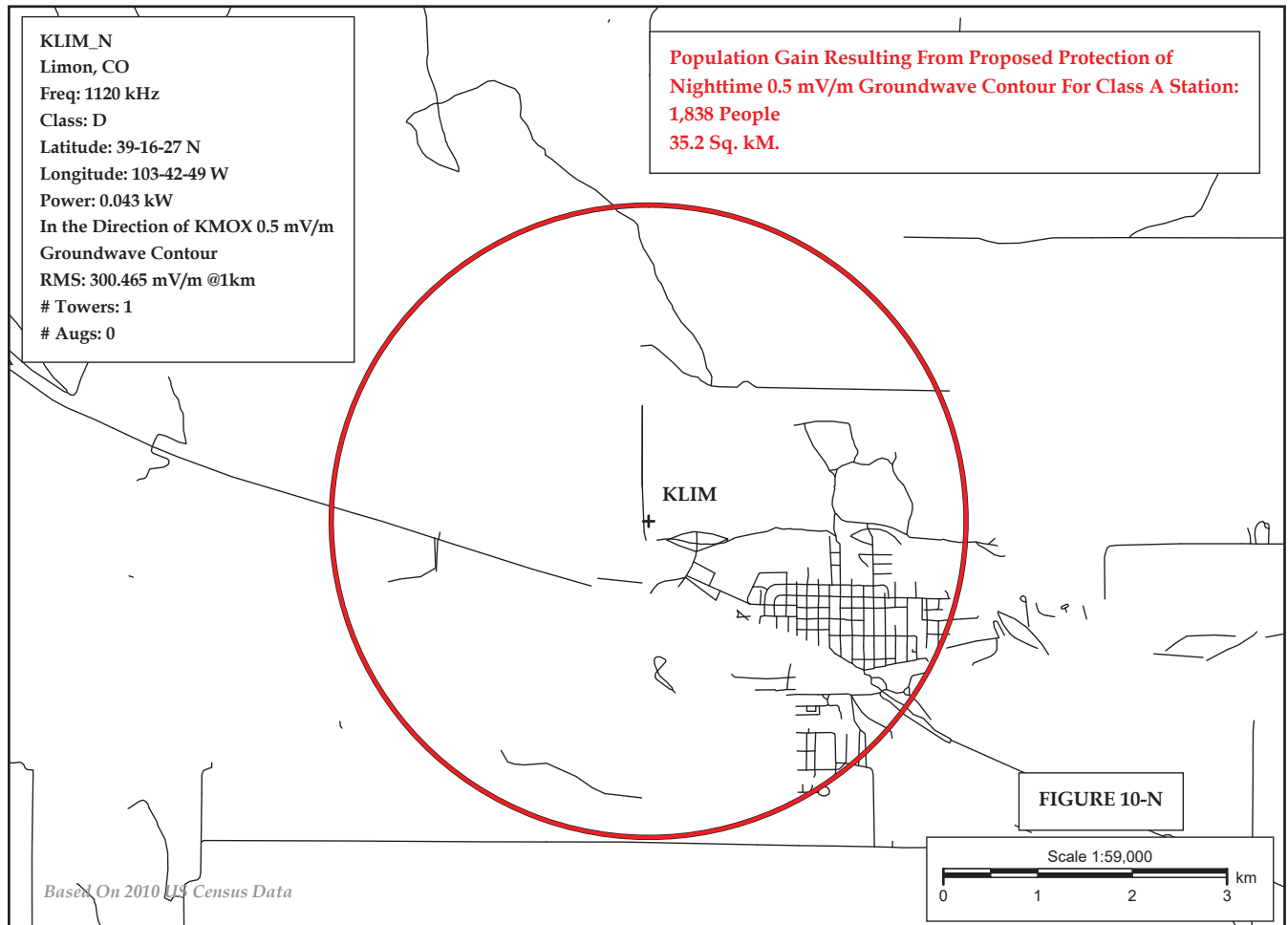




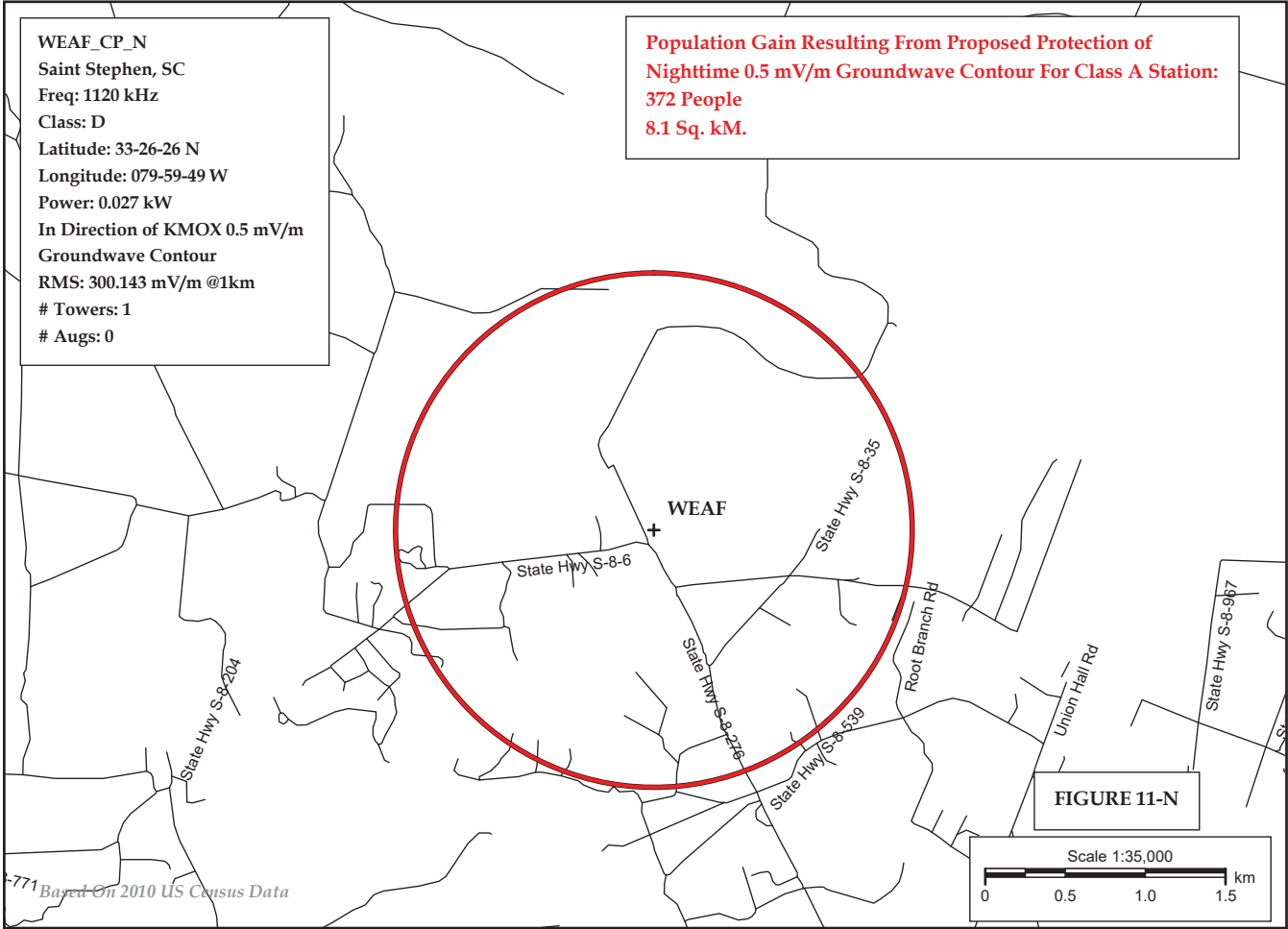
WBBF NIF 18.5 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour



WSME NIF 16.6 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

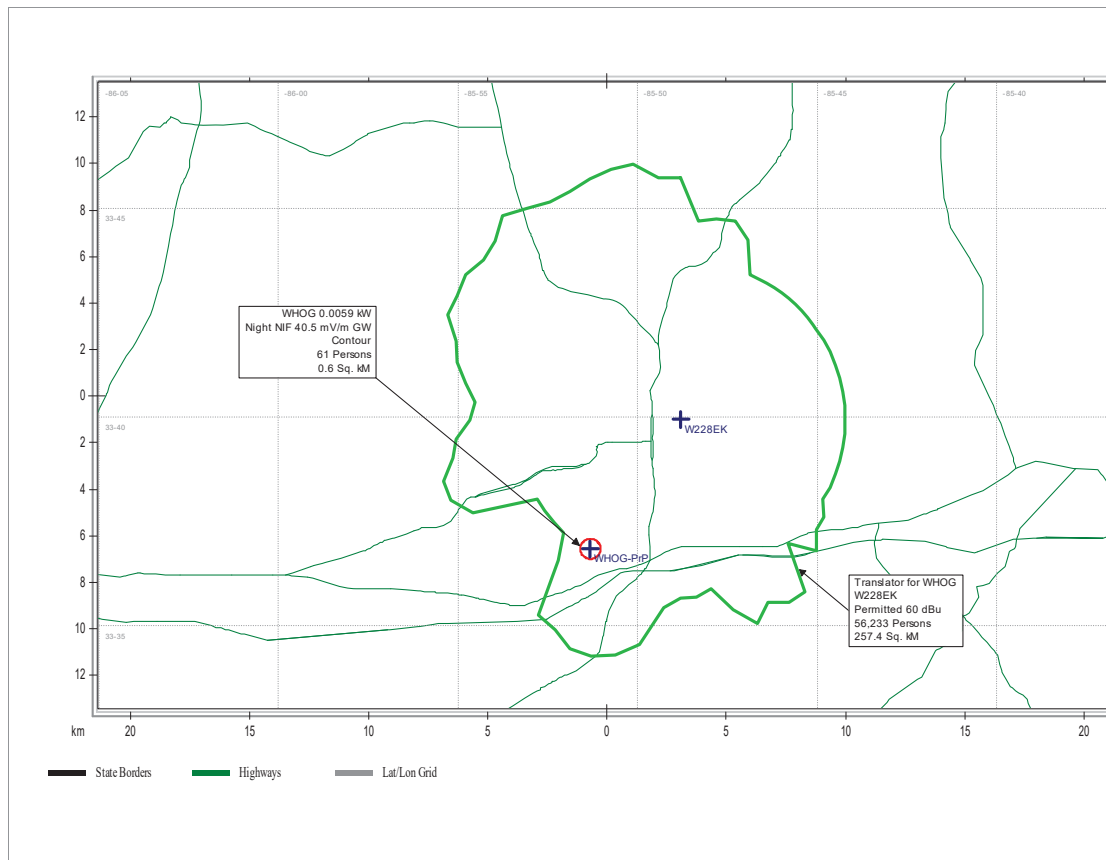


KLIM NIF 16.9 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

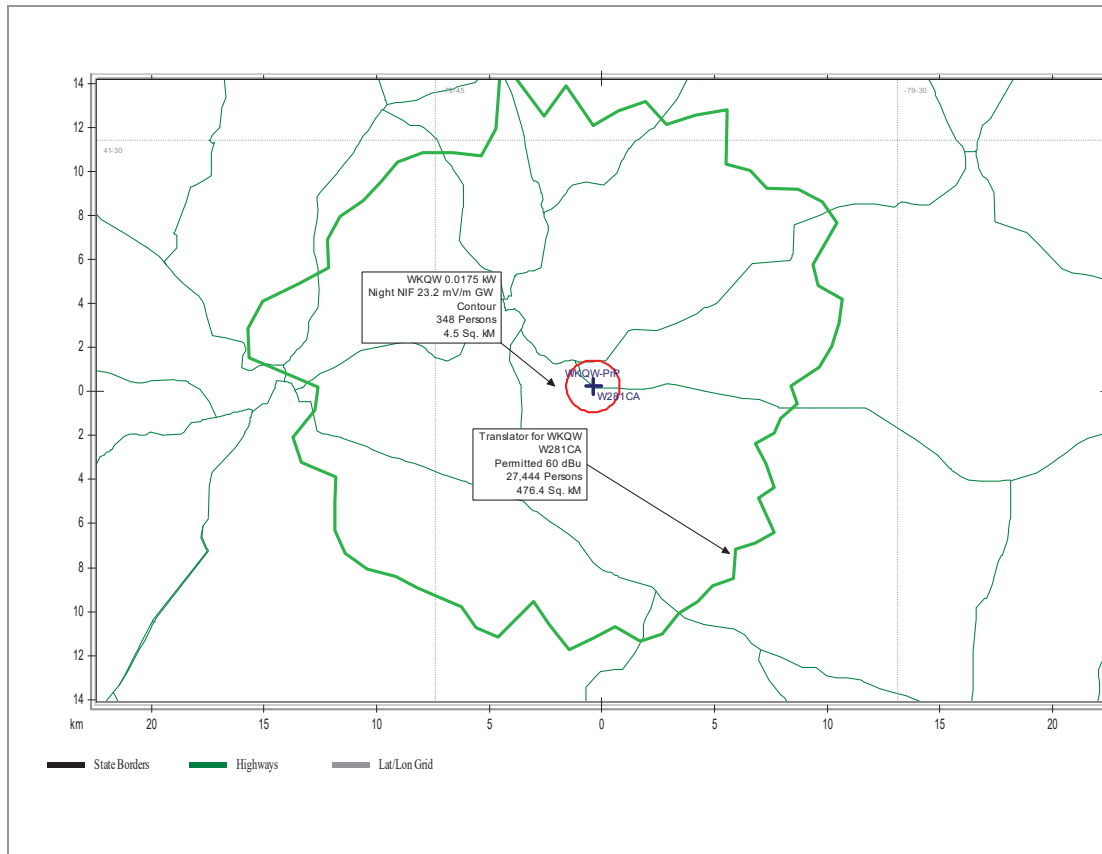


WEAF NIF 24.2 mV/m Groundwave Contour With Protection To Class A Station KMOX's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

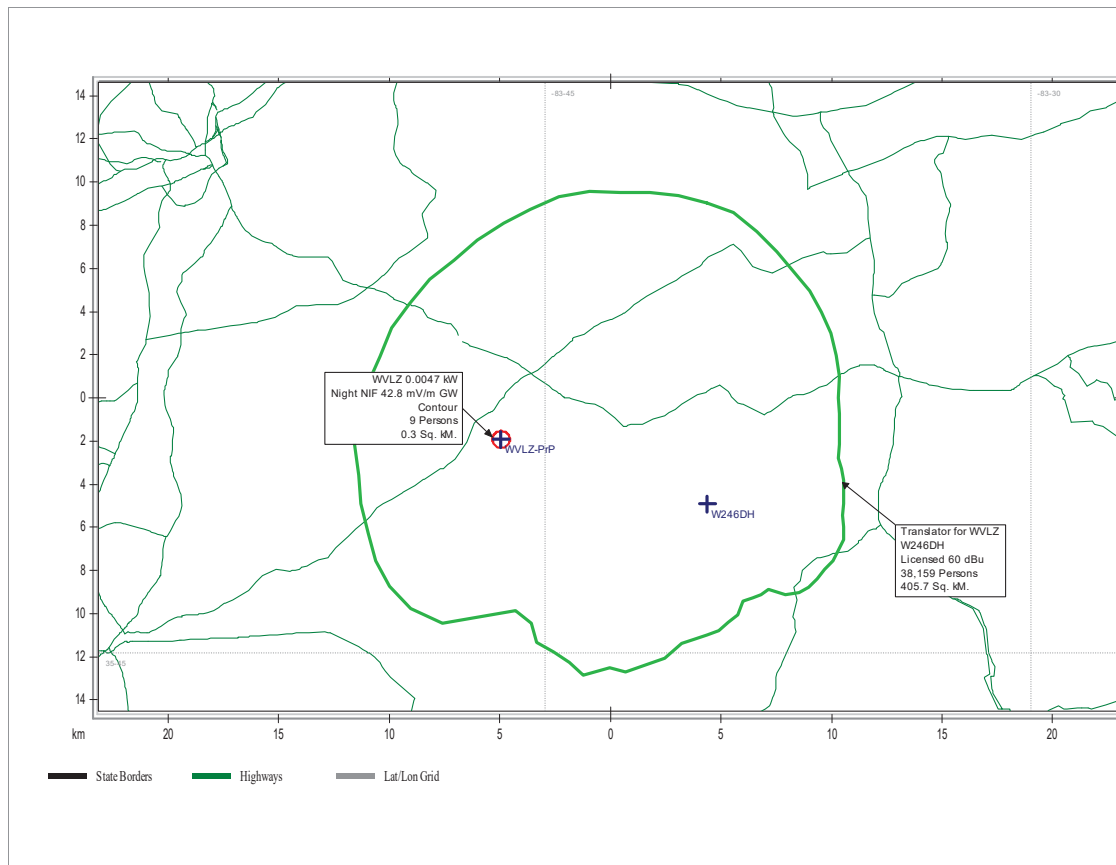
WHOG



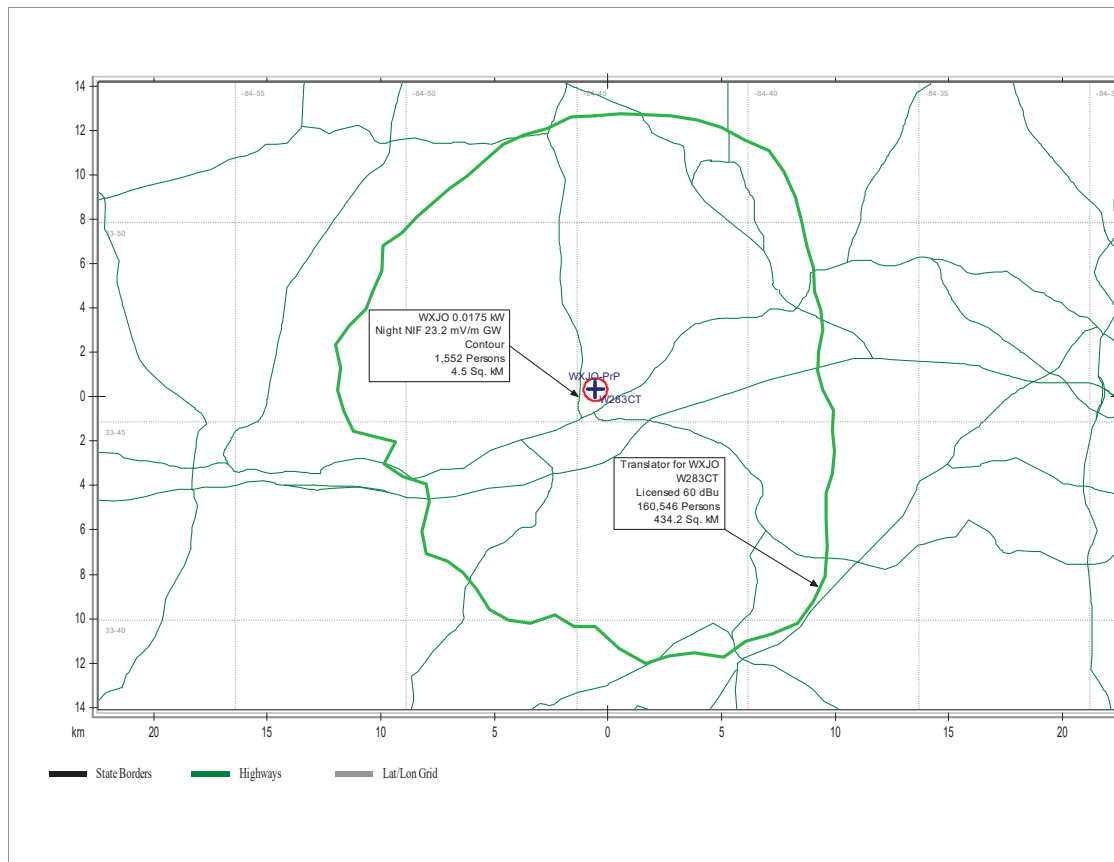
WKQW



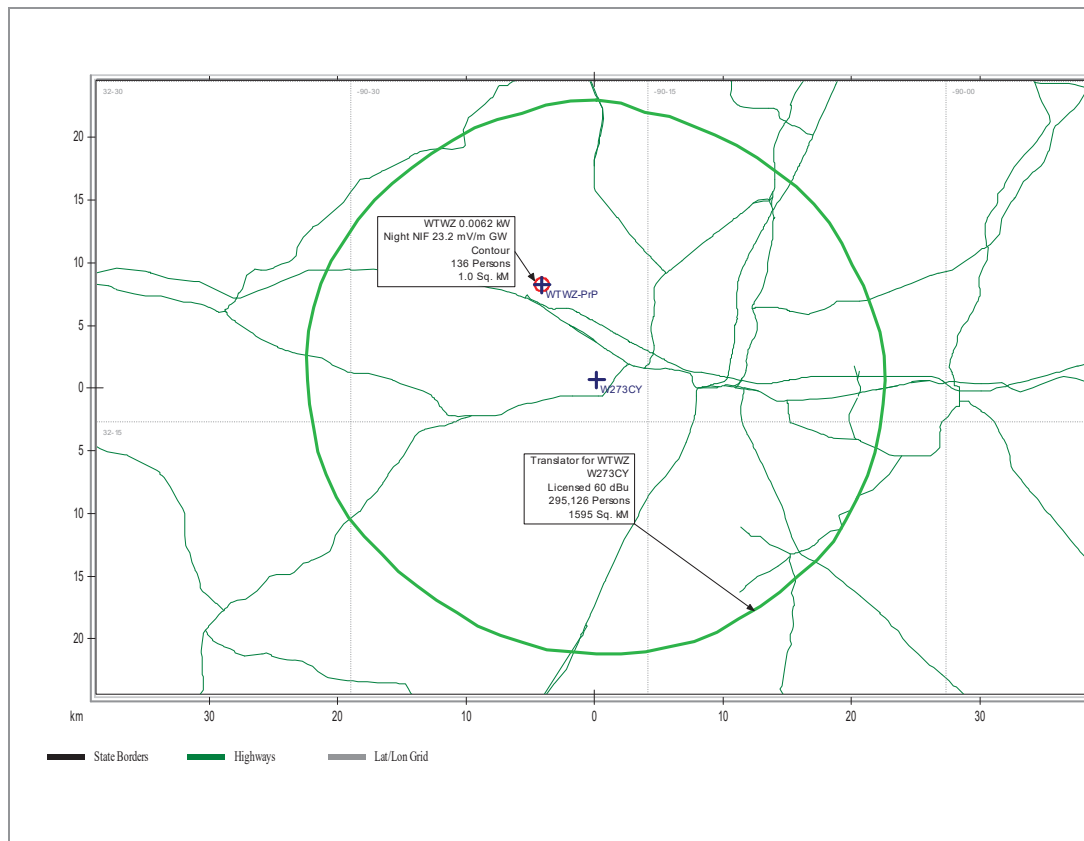
WVLZ (Prior Call Sign: WKCE)



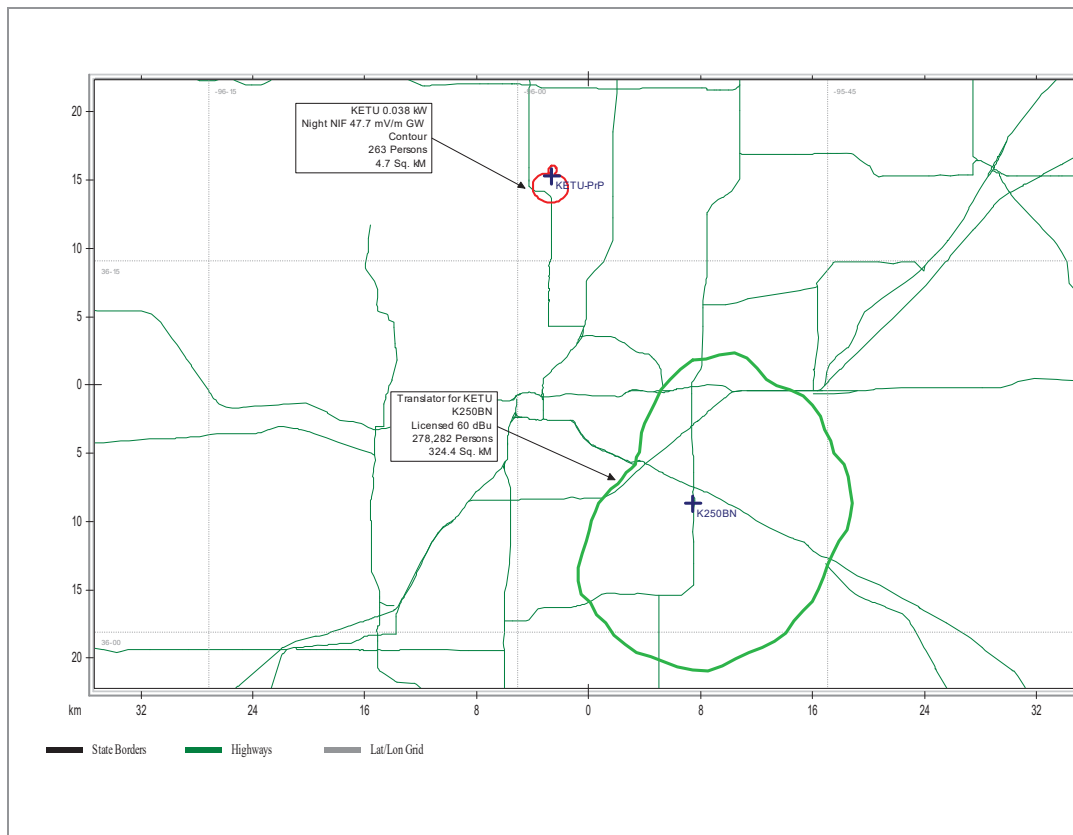
WXJO



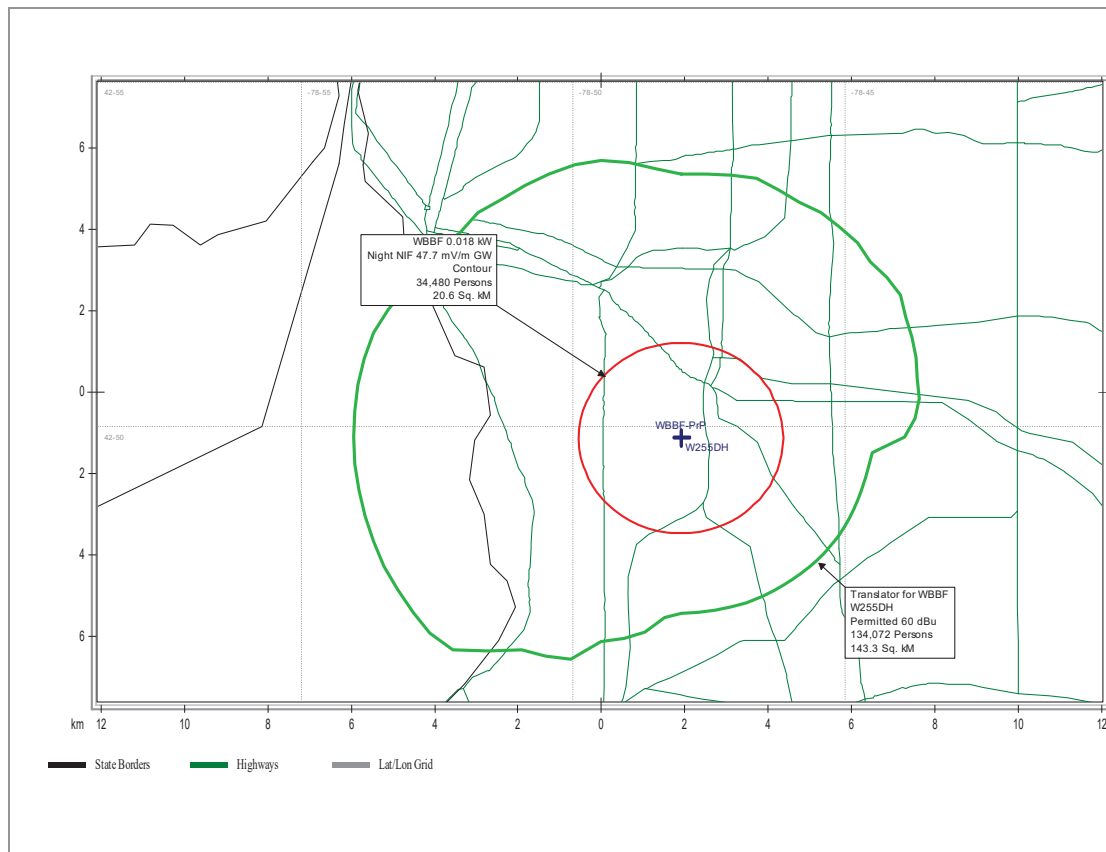
WTWZ



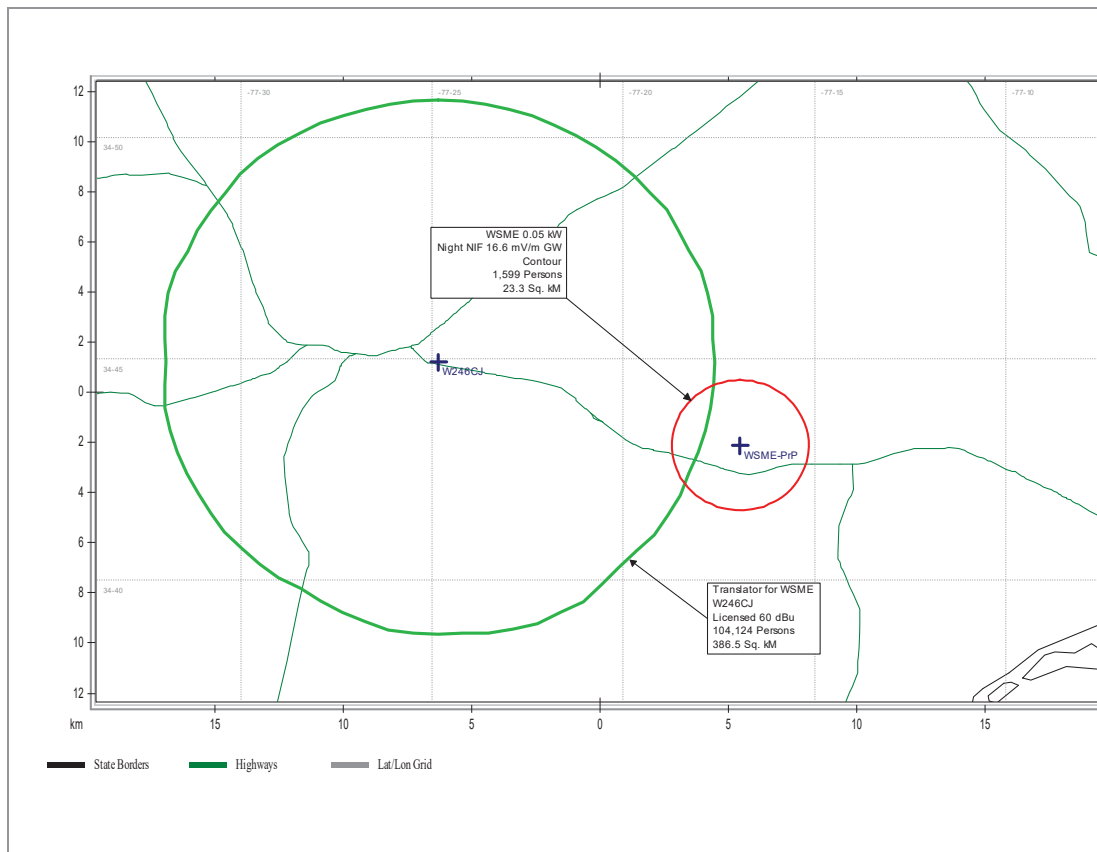
KETU



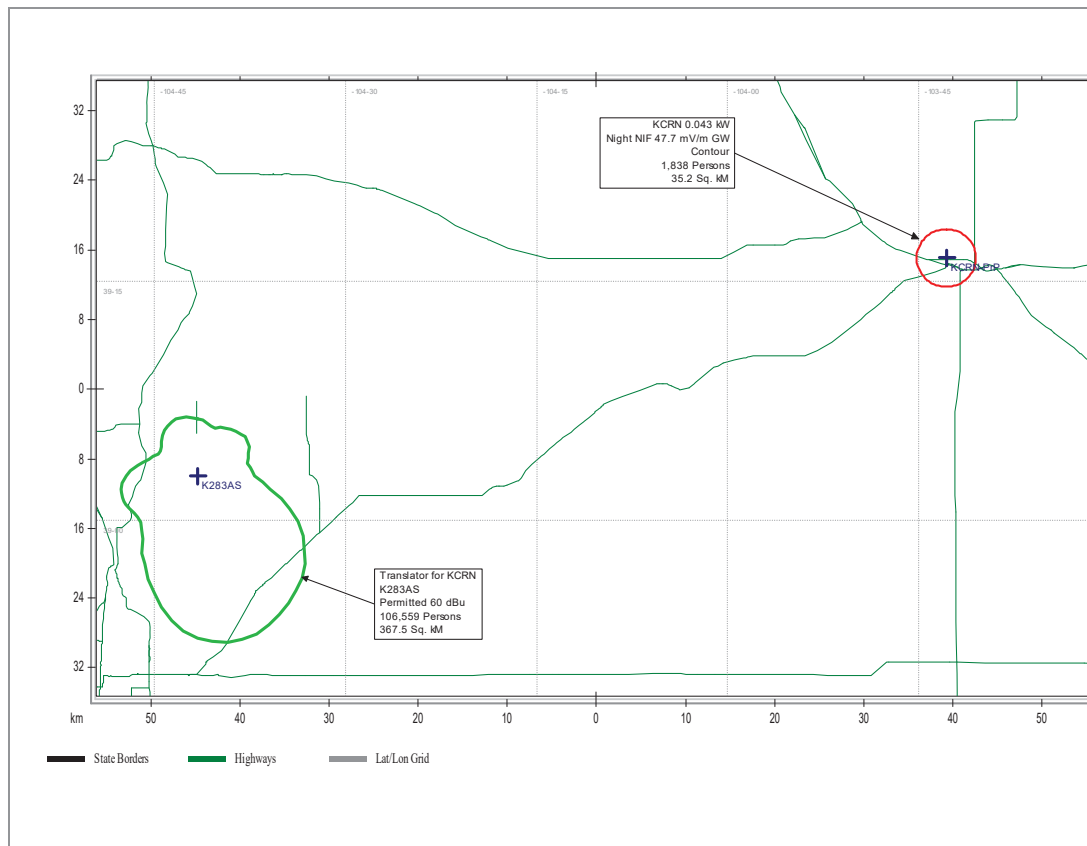
WBBF



WSME



KCRN (Prior Call Sign: KLIM)

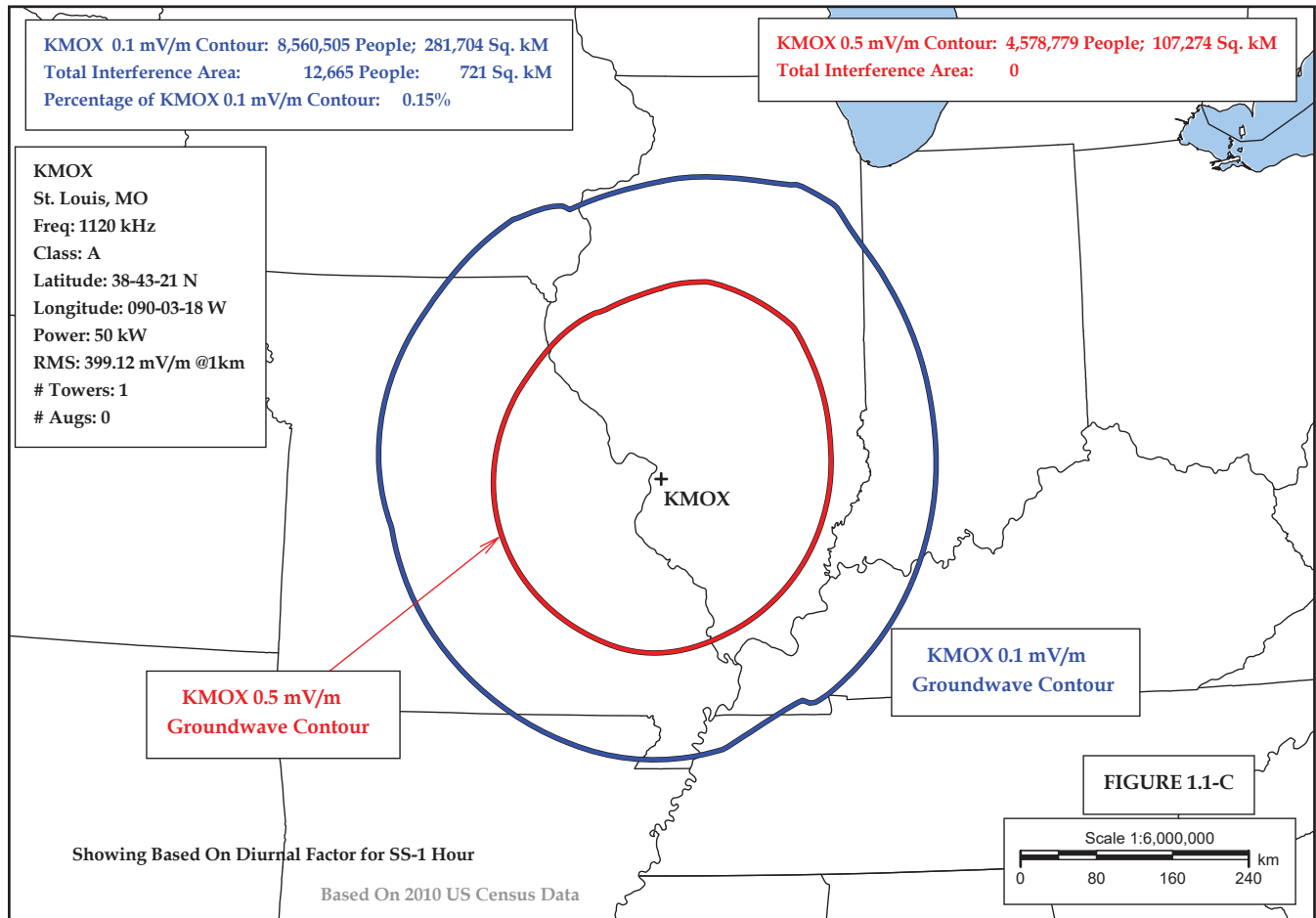


No FM Translator:

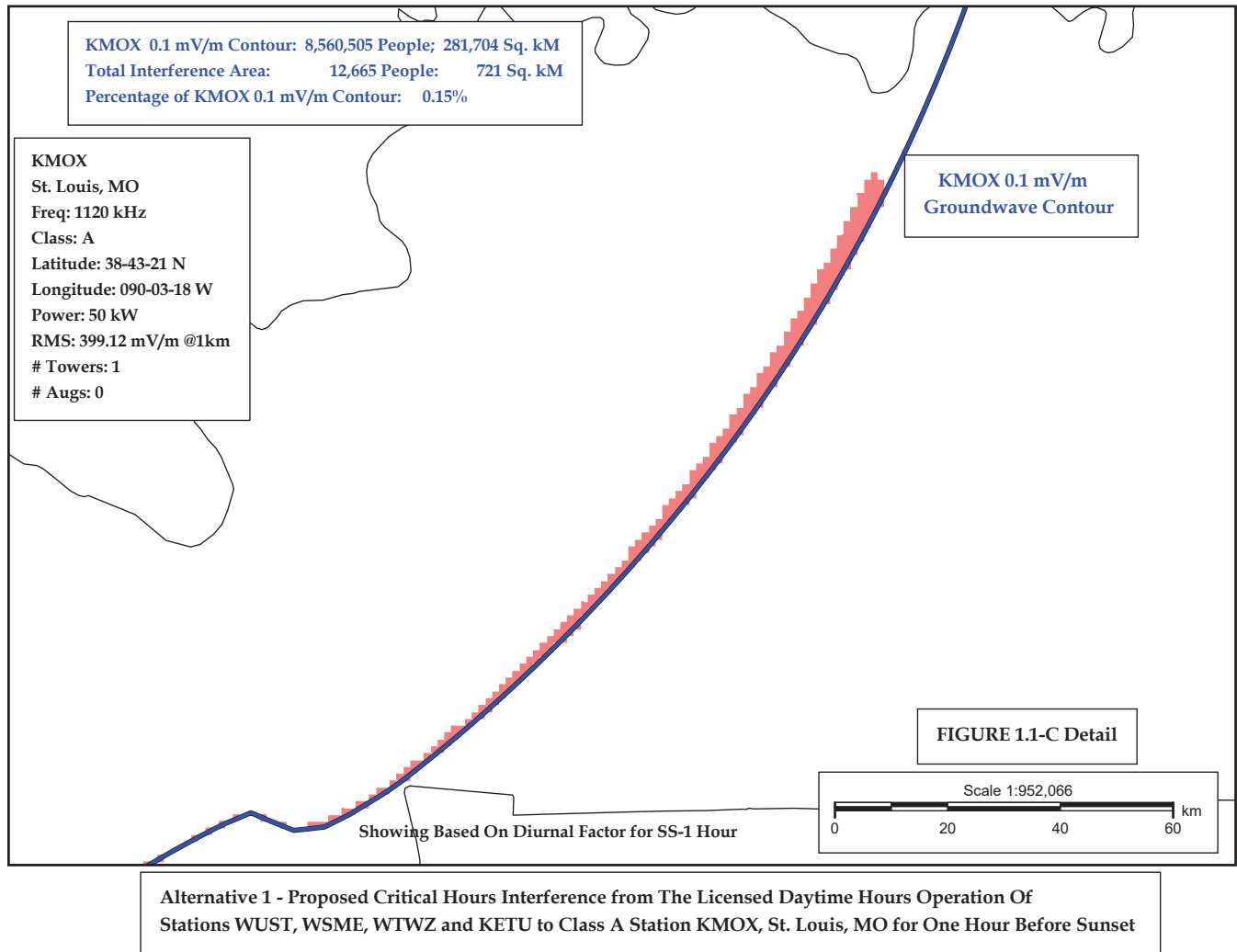
WEAF

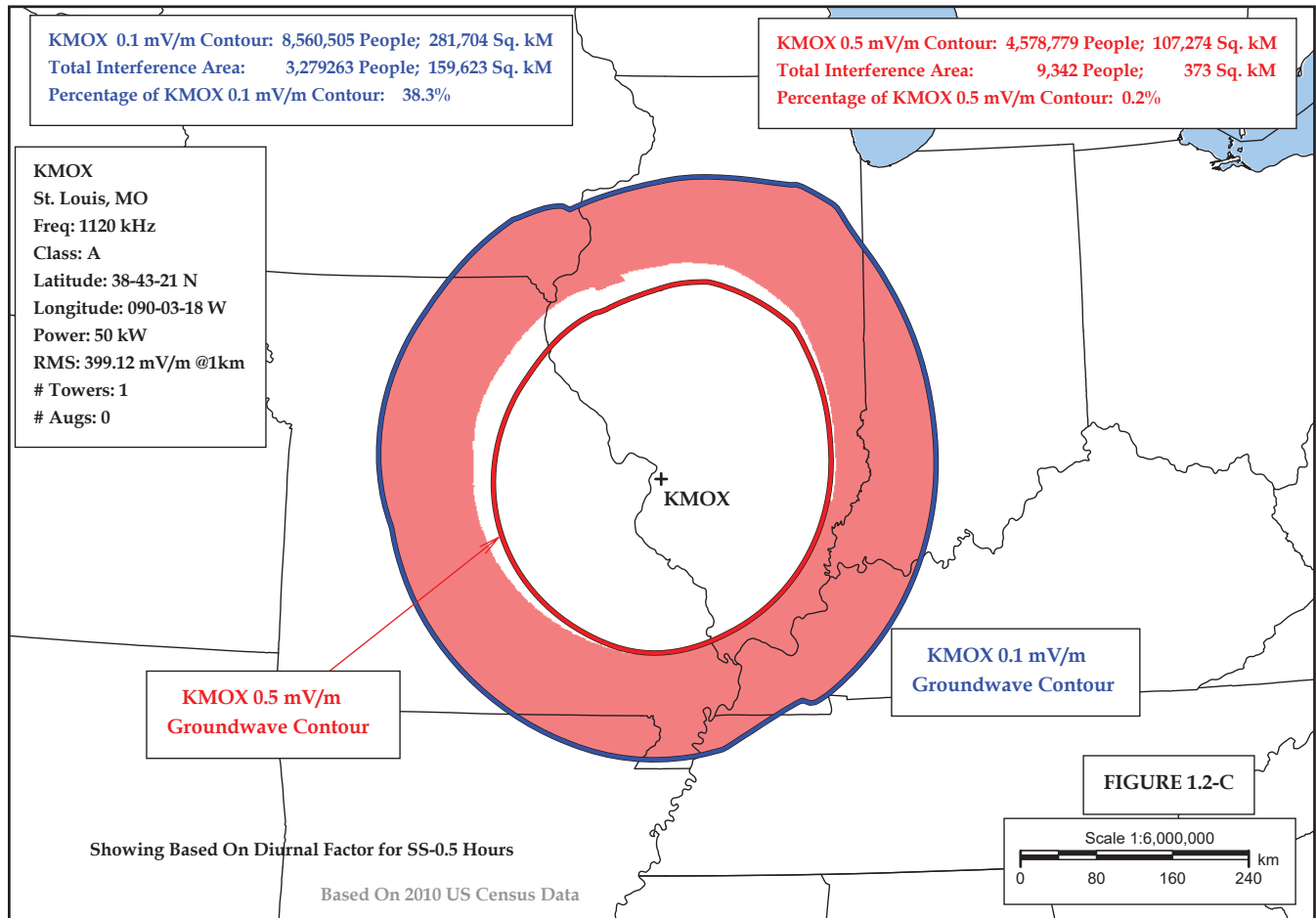
Summary of FM Translator Studies/KMOX

Class D AM Station Causing Interference to Class A Station KMOX if Class D Operates with Maximum Power Per Nighttime Alternative 1	FM Translator (License or Permit) Associated with Class D Station	Population Within FM Translator's 60 dBu Contour	Population Within Class D Station's Potential Nighttime Interference Free Contour Under Nighttime Alternative 1
WHOG	W228EK	56,233	61
WKQW	W281CA	27,444	348
WVLZ (formerly WKCE)	W246DH	38,159	9
WXJO	W283CT	160,546	1,552
WTWZ	W273CY	295,126	136
KETU	K250BN	278,282	263
WBBF	W255DH	134,072	34,480
WSME	W246CJ	104,124	1,599
KCRN (formerly KLIM)	K283AS	106,559	1,838
WEAF	N/A	N/A	372
Cumulative Sum:		1,200,545	40,658

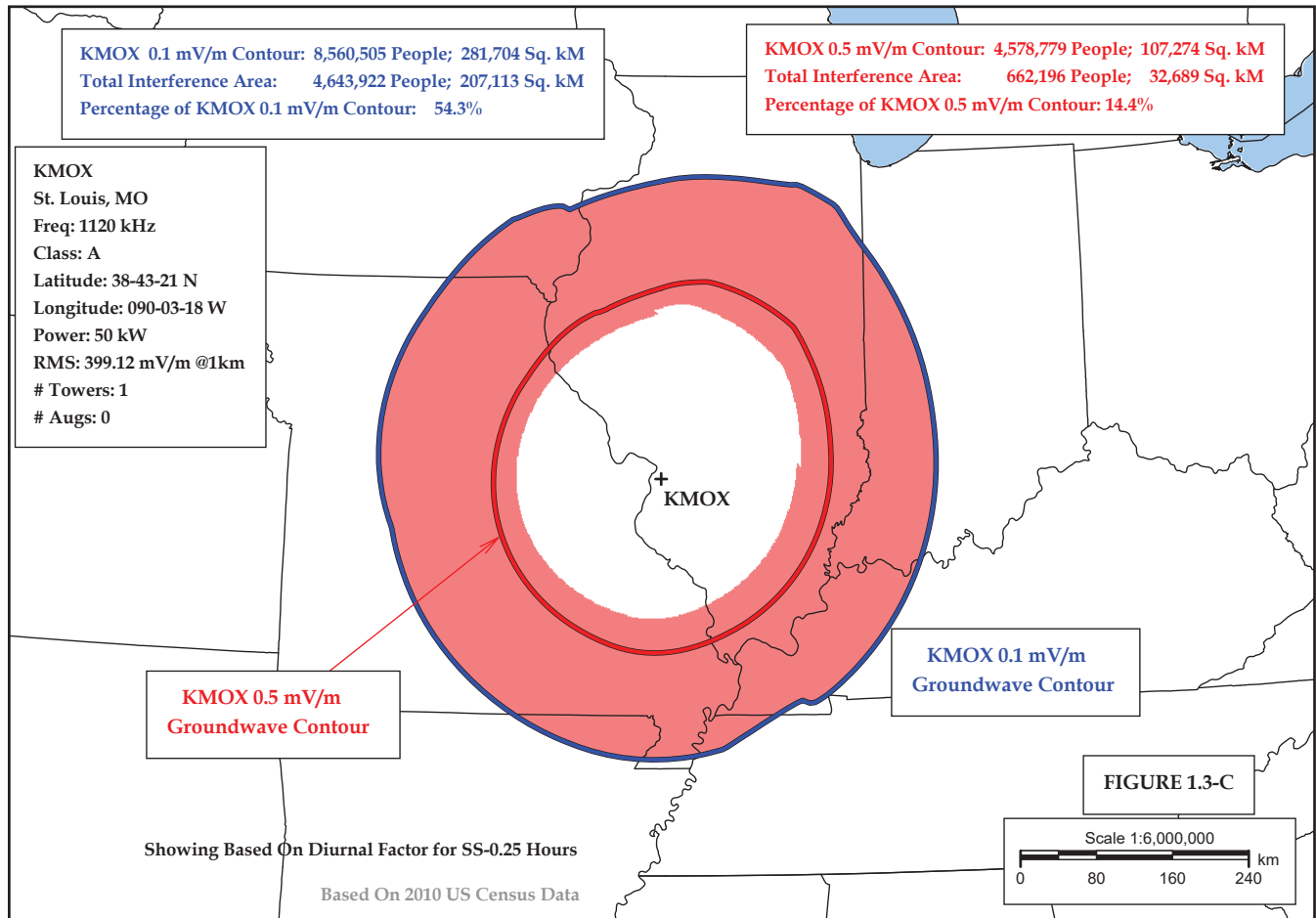


Alternative 1 - Proposed Critical Hours Interference from The Licensed Daytime Hours Operation Of Stations WUST, WSME, WTWZ and KETU to Class A Station KMOX, St. Louis, MO for One Hour Before Sunset

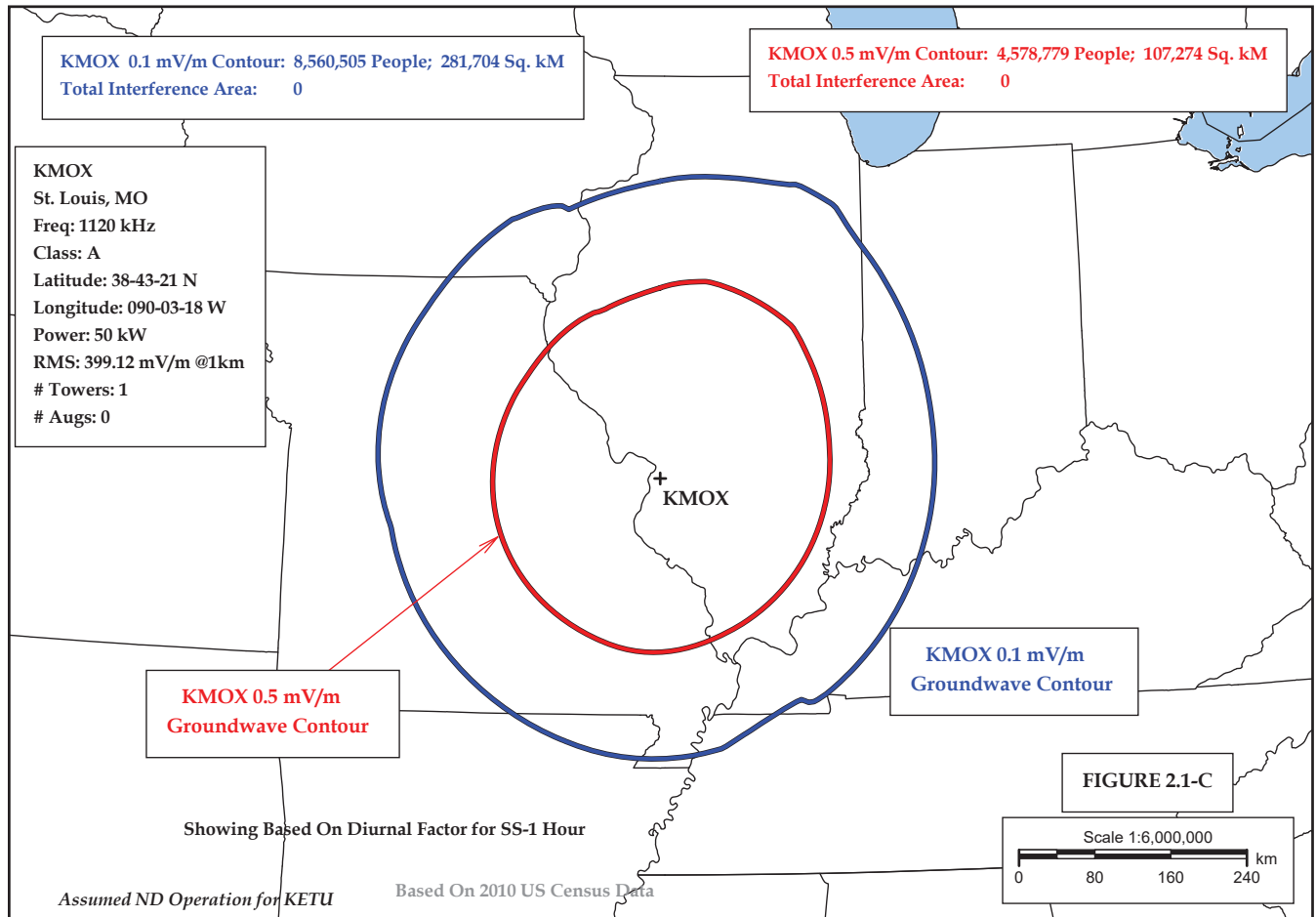




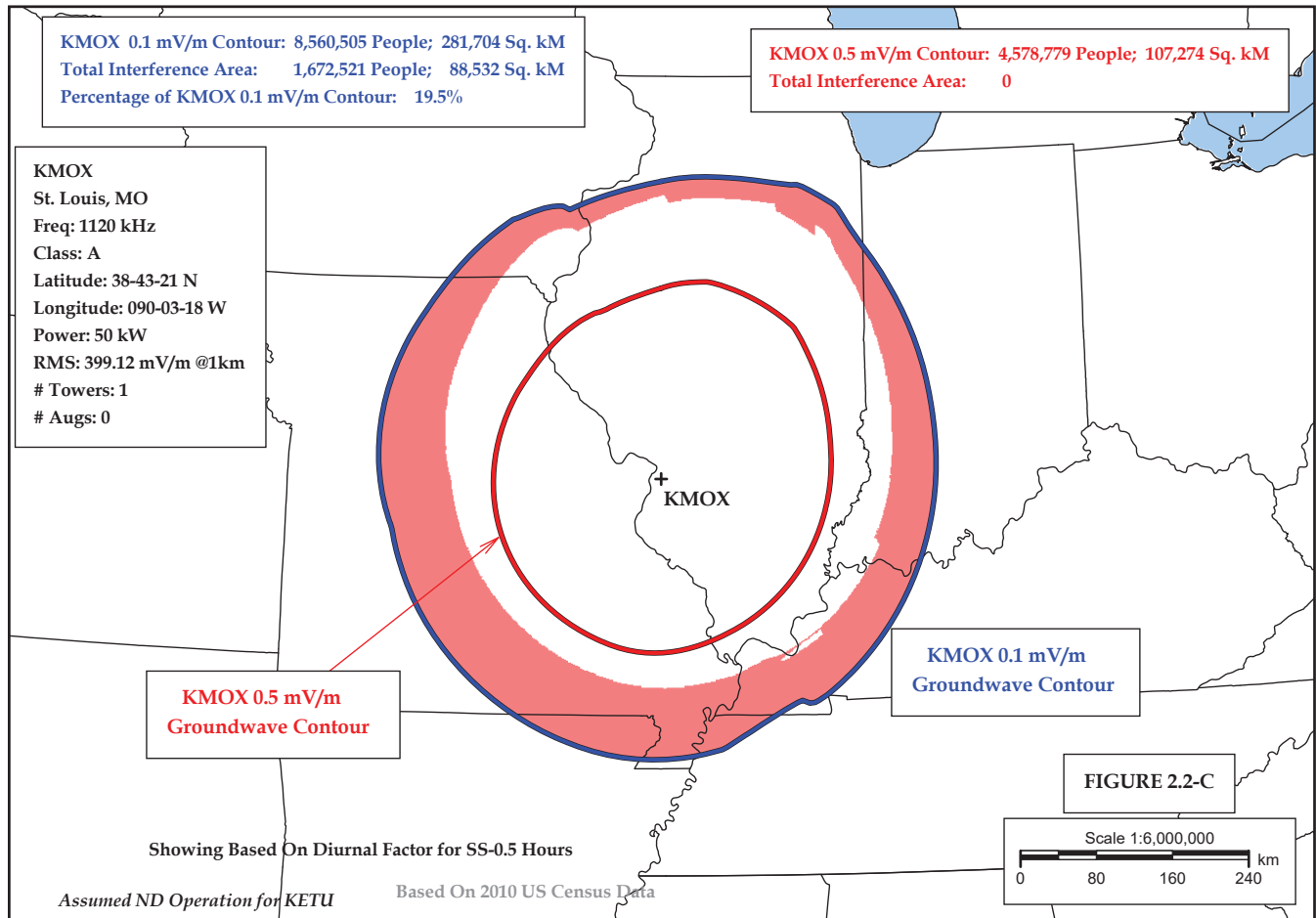
Alternative 1 - Proposed Critical Hours Interference from The Licensed Daytime Hours Operation of Stations WUST, WSME, WTWZ and KETU to Class A Station KMOX, St. Louis, MO for One-Half Hour Before Sunset



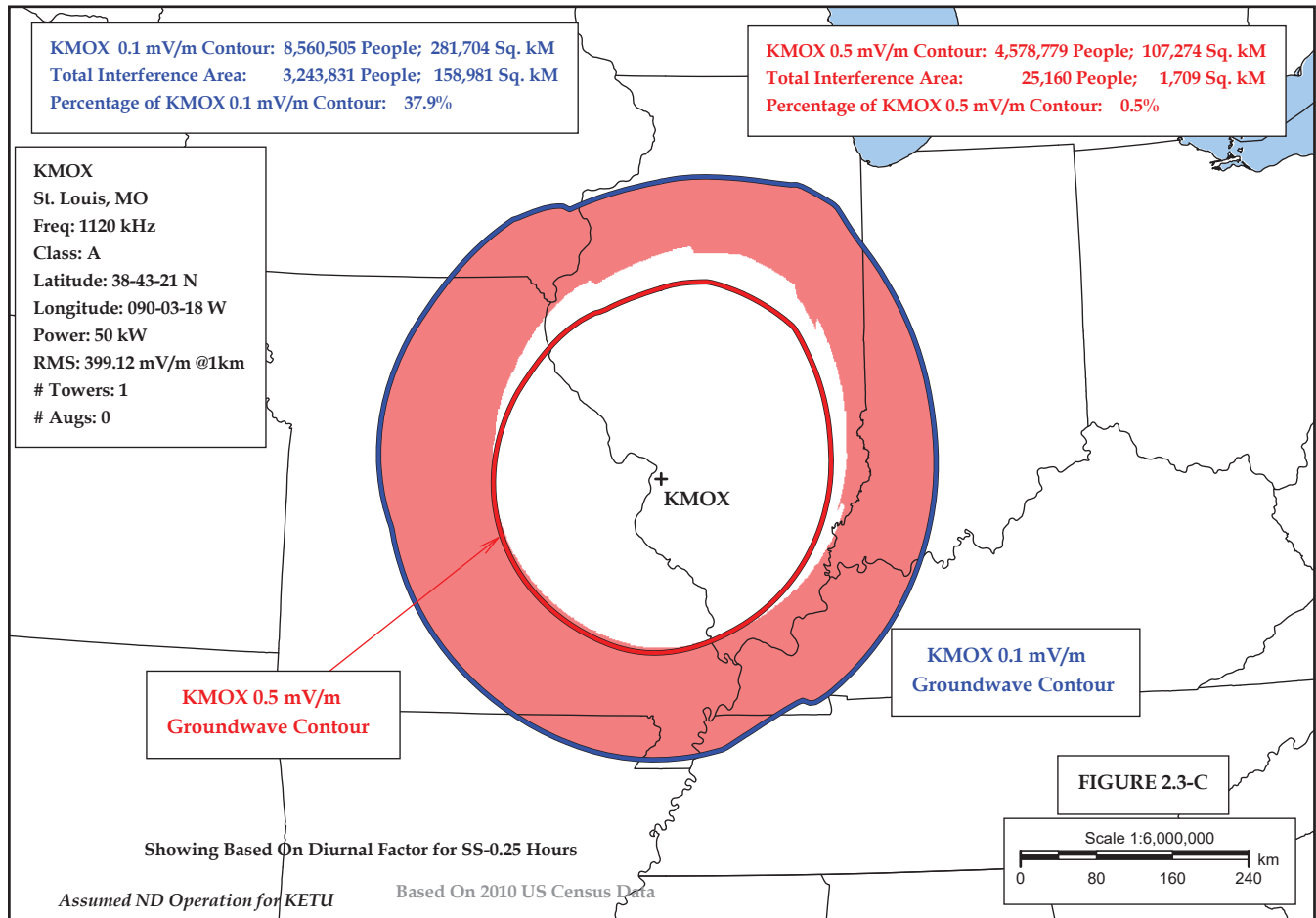
Alternative 1 - Proposed Critical Hours Interference from The Licensed Daytime Hours Operation of Stations WUST, WSME, WTWZ and KETU to Class A Station KMOX, St. Louis, MO for One-Quarter Hour Before Sunset



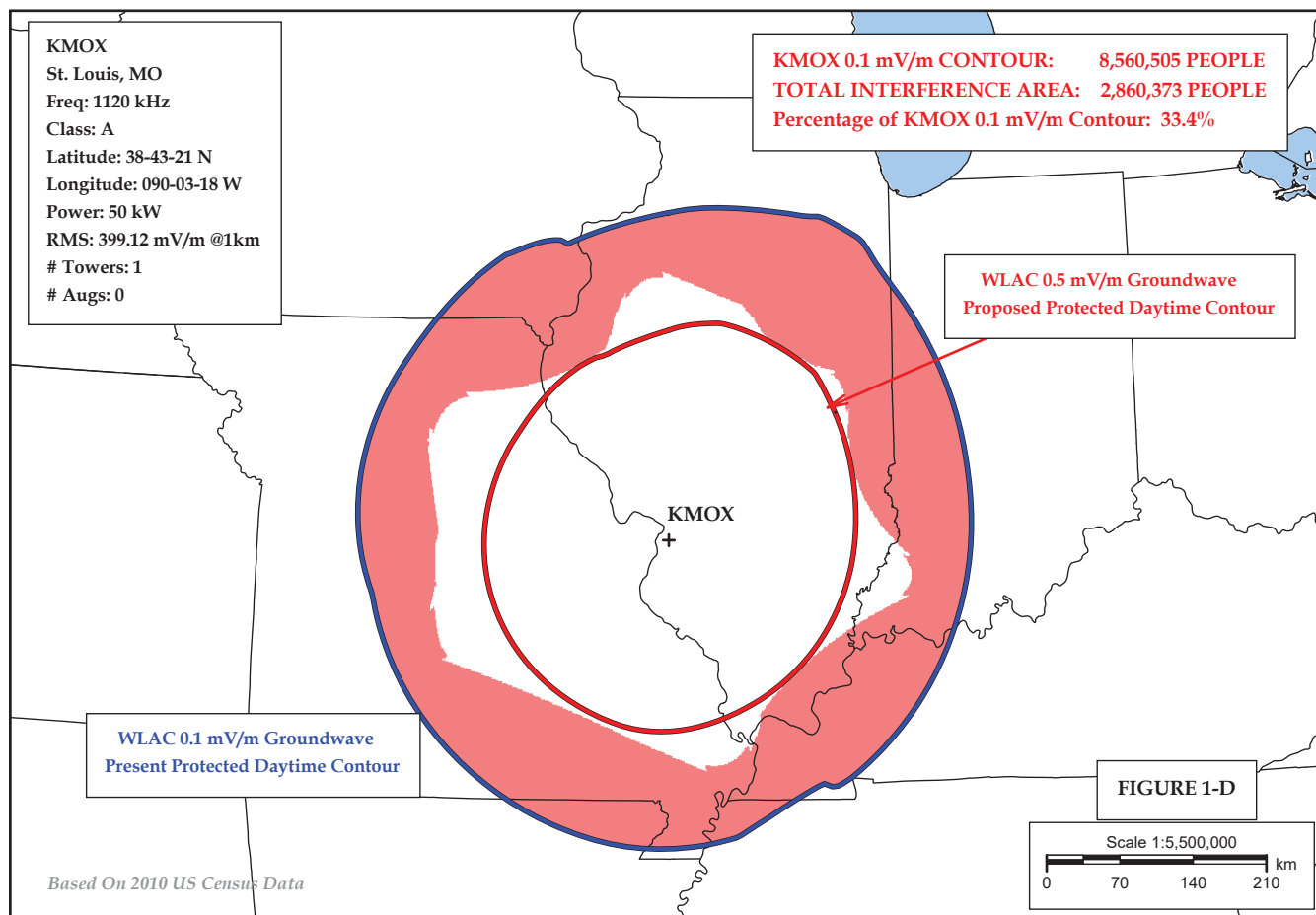
Alternative 2 - Proposed Critical Hours Interference from Potential Critical Hours Operation of Stations WUST, WSME, WTWZ and KETU to Class A Station KMOX, St. Louis, MO for One Hour Before Sunset



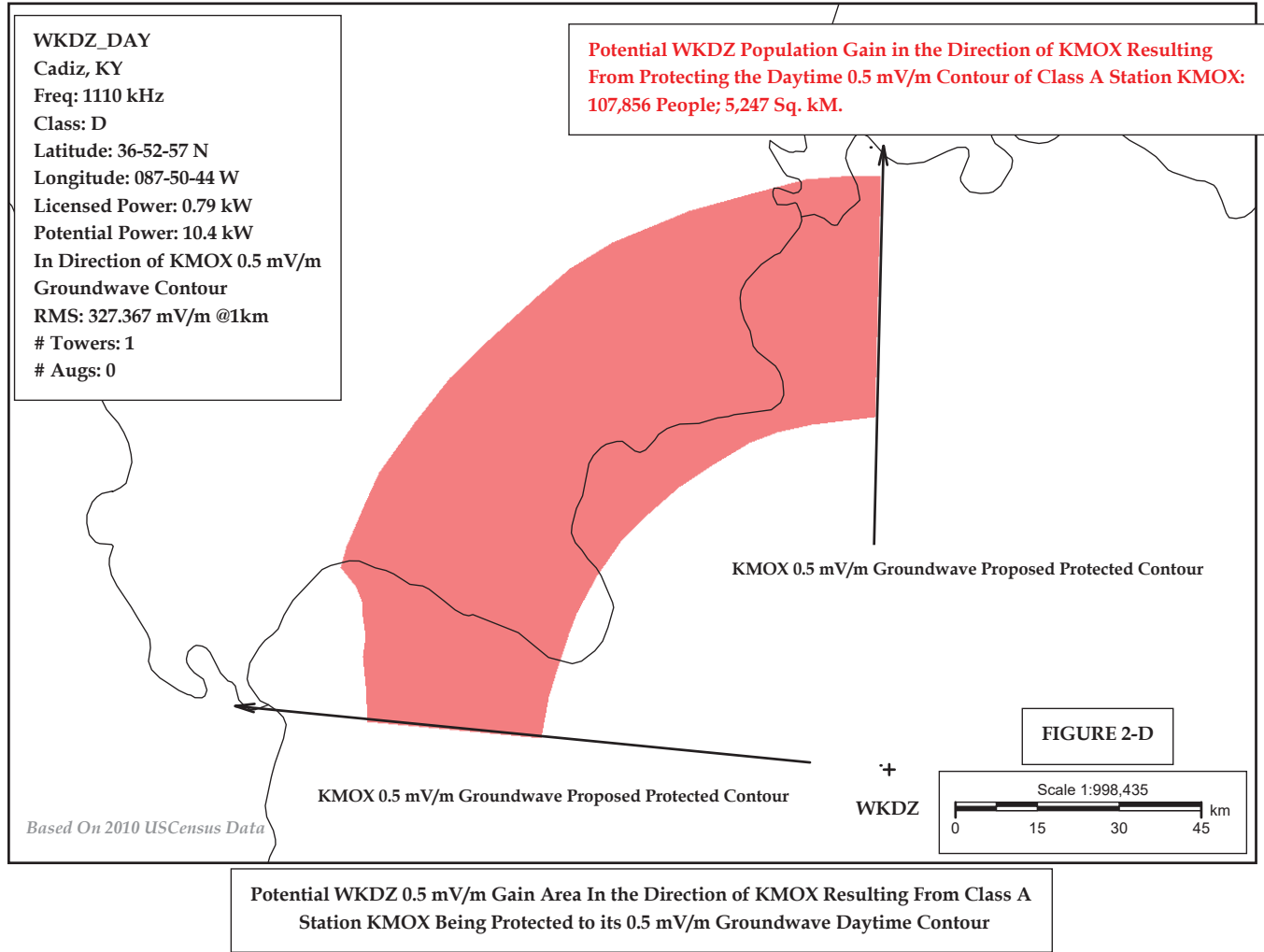
Alternative 2 - Proposed Critical Hours Interference from Potential Critical Hours Operation of Stations WUST, WSME, WTWZ and KETU to Class A Station KMOX, St. Louis, MO for One-Half Hour Before Sunset

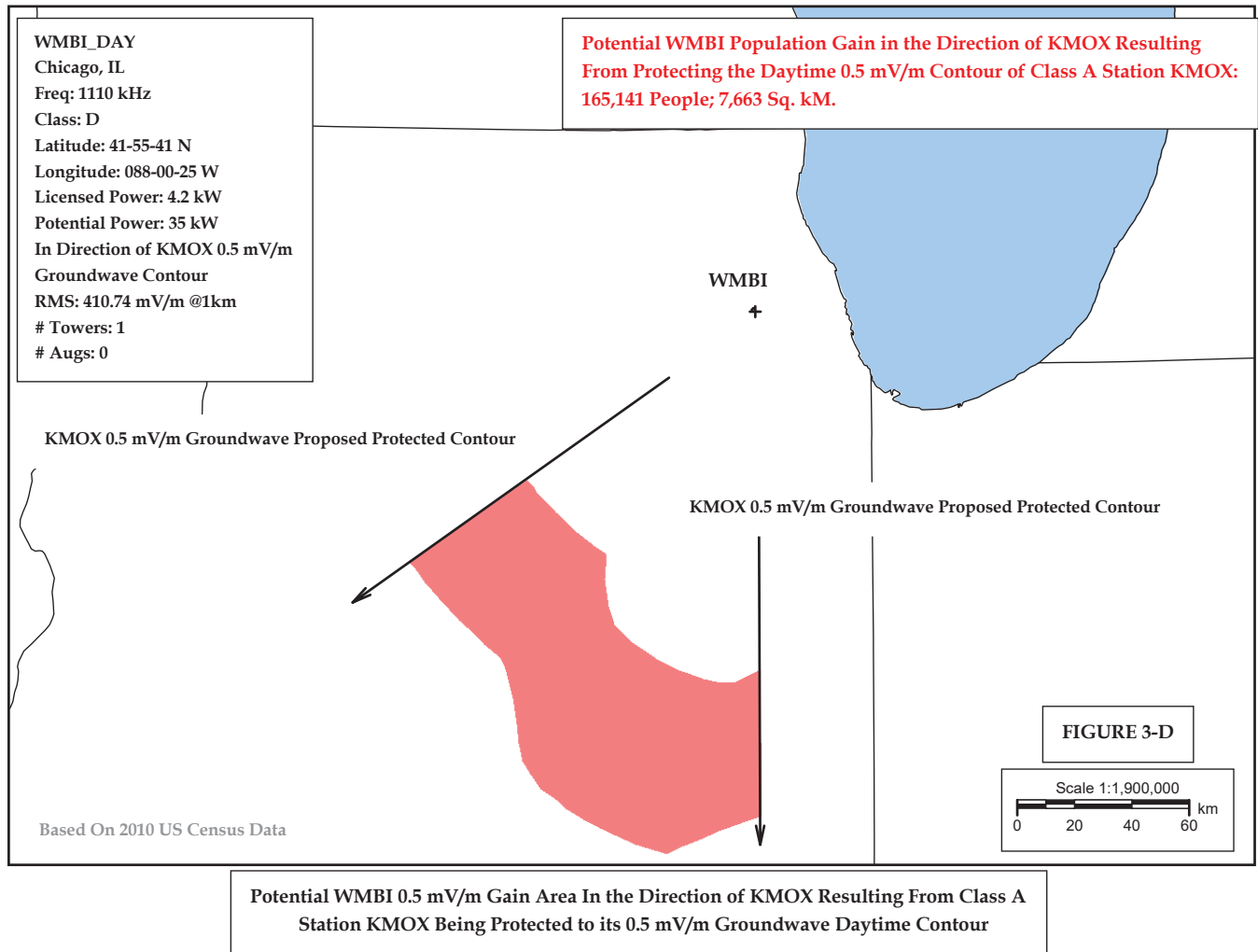


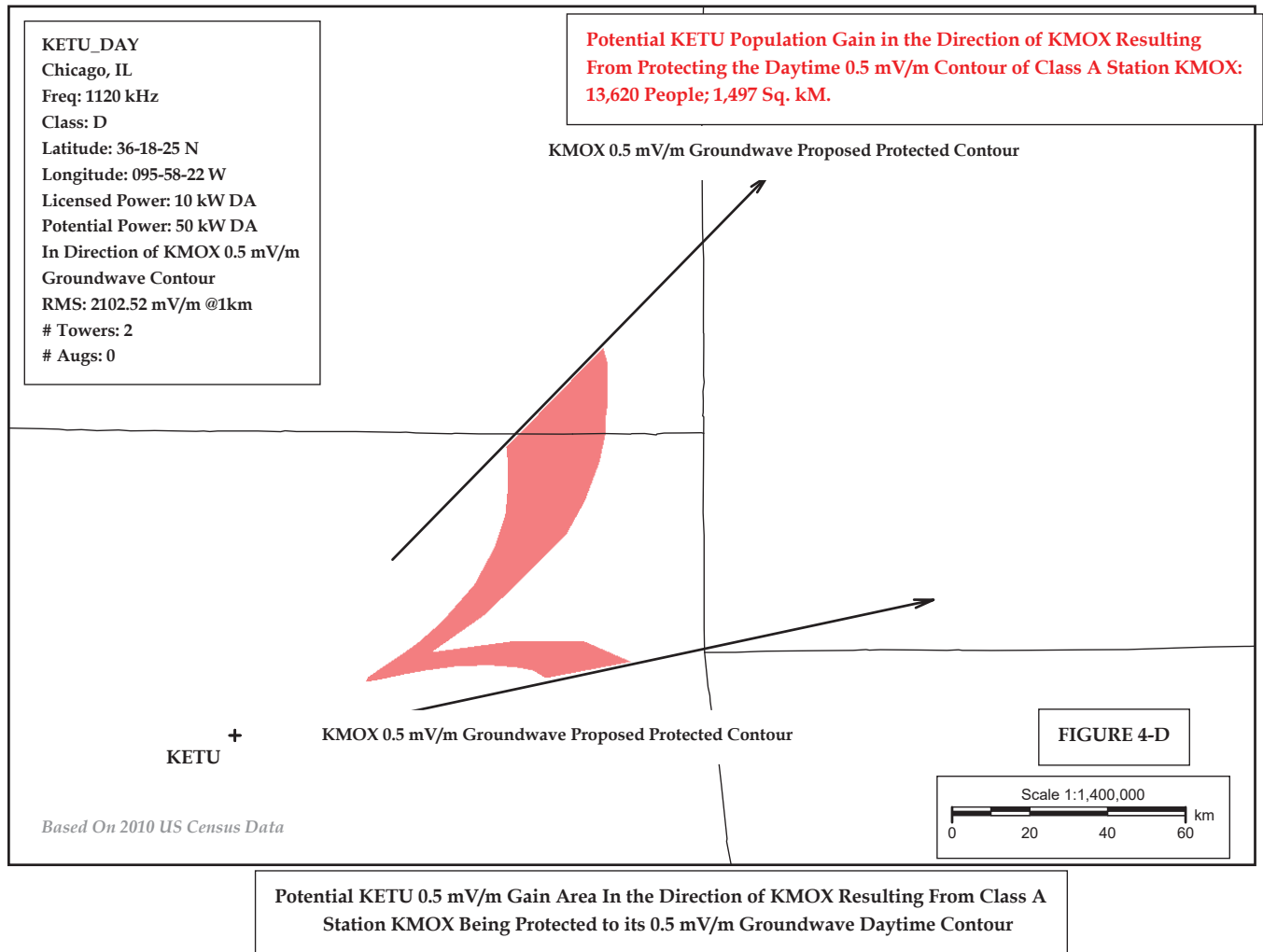
Alternative 2 - Proposed Critical Hours Interference from Potential Critical Hours Operation of Stations WUST, WSME, WTWZ and KETU to Class A Station KMOX, St. Louis, MO for One-Quarter Hour Before Sunset

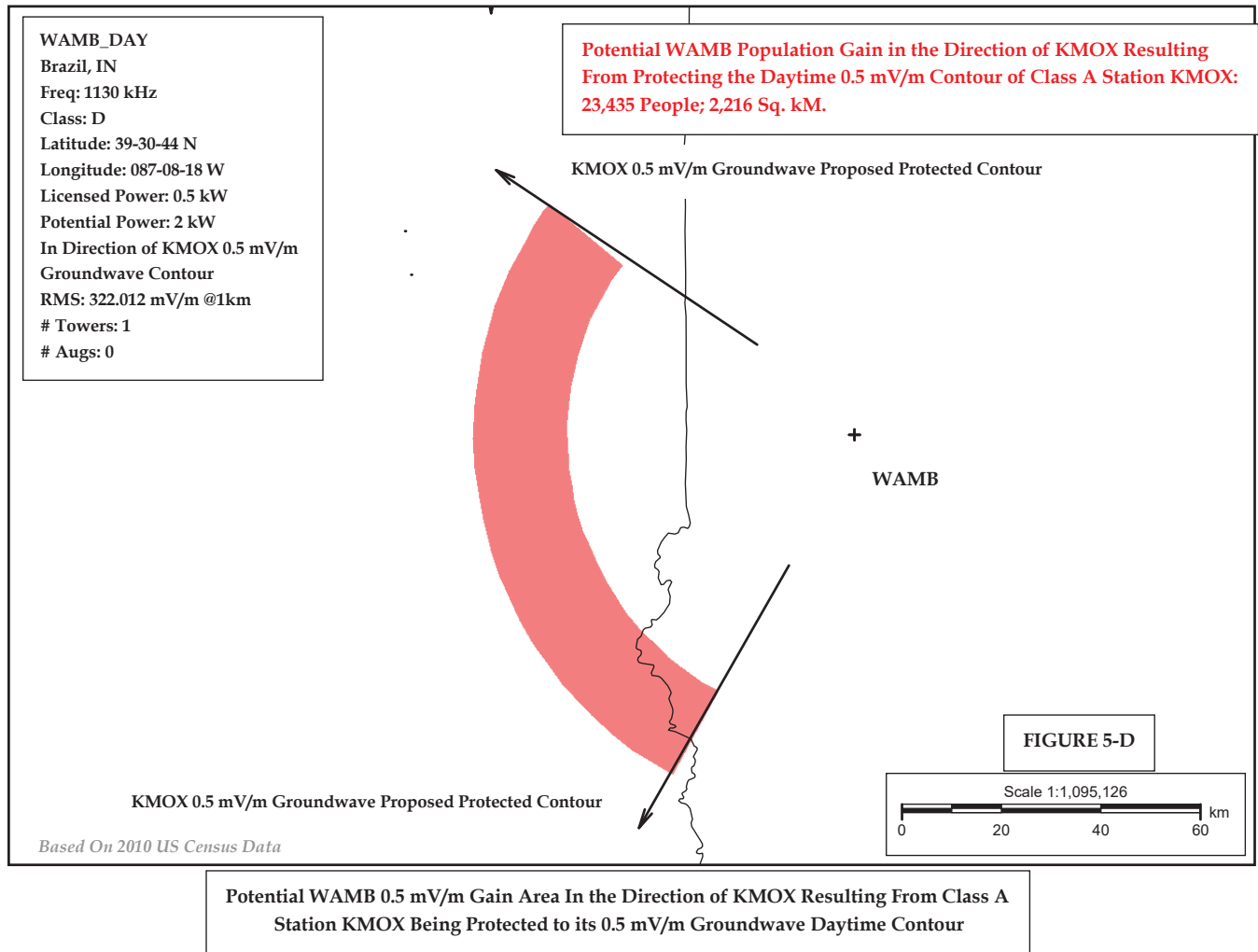


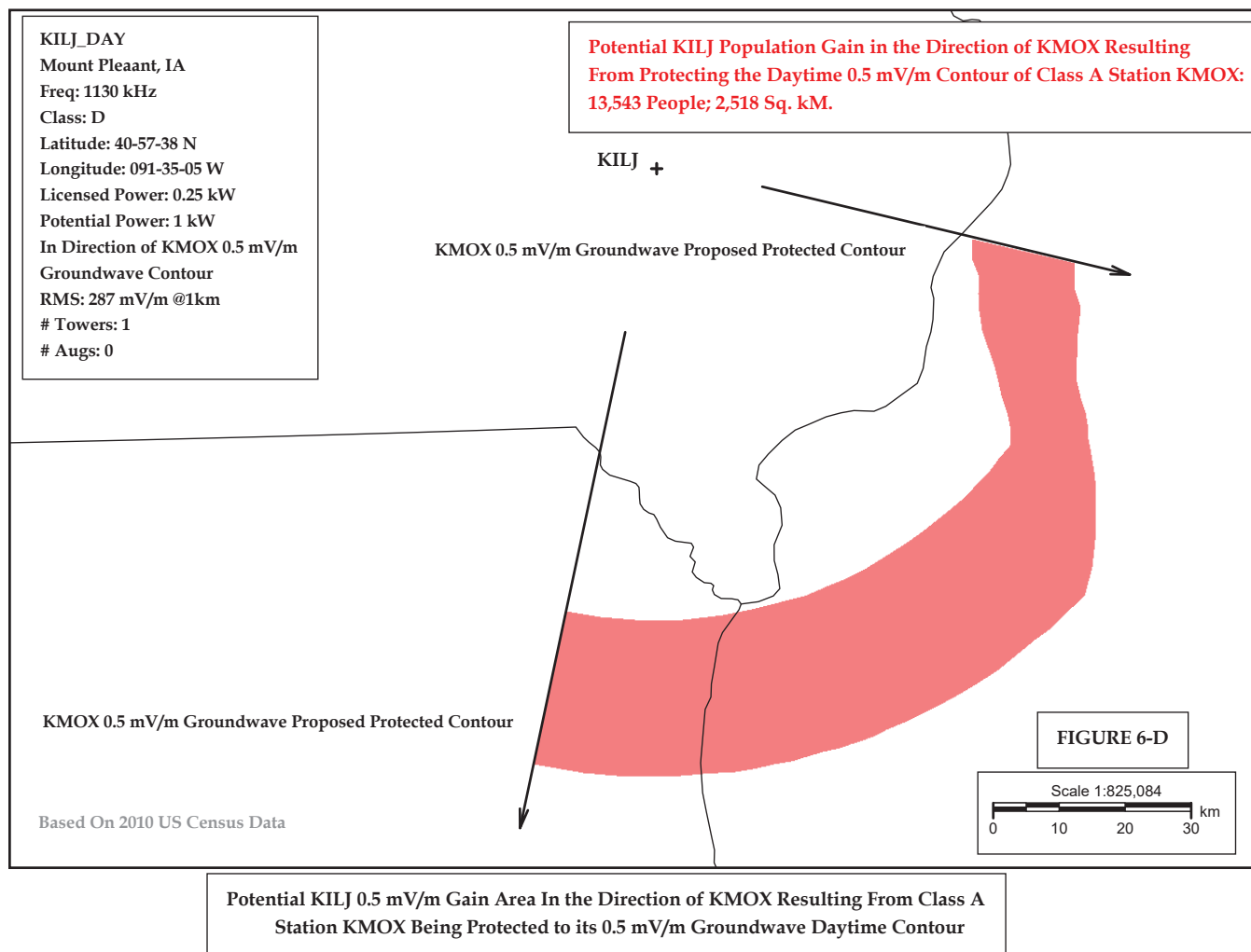
Red Shaded Area is Predicted Daytime Interference Area within KMOX's 0.1 mV/m Contour From Nearby Class D Stations WKDZ, WMBI, KETU, WAMB, KILJ and KAAB Operating With Maximum Power in Direction of KMOX

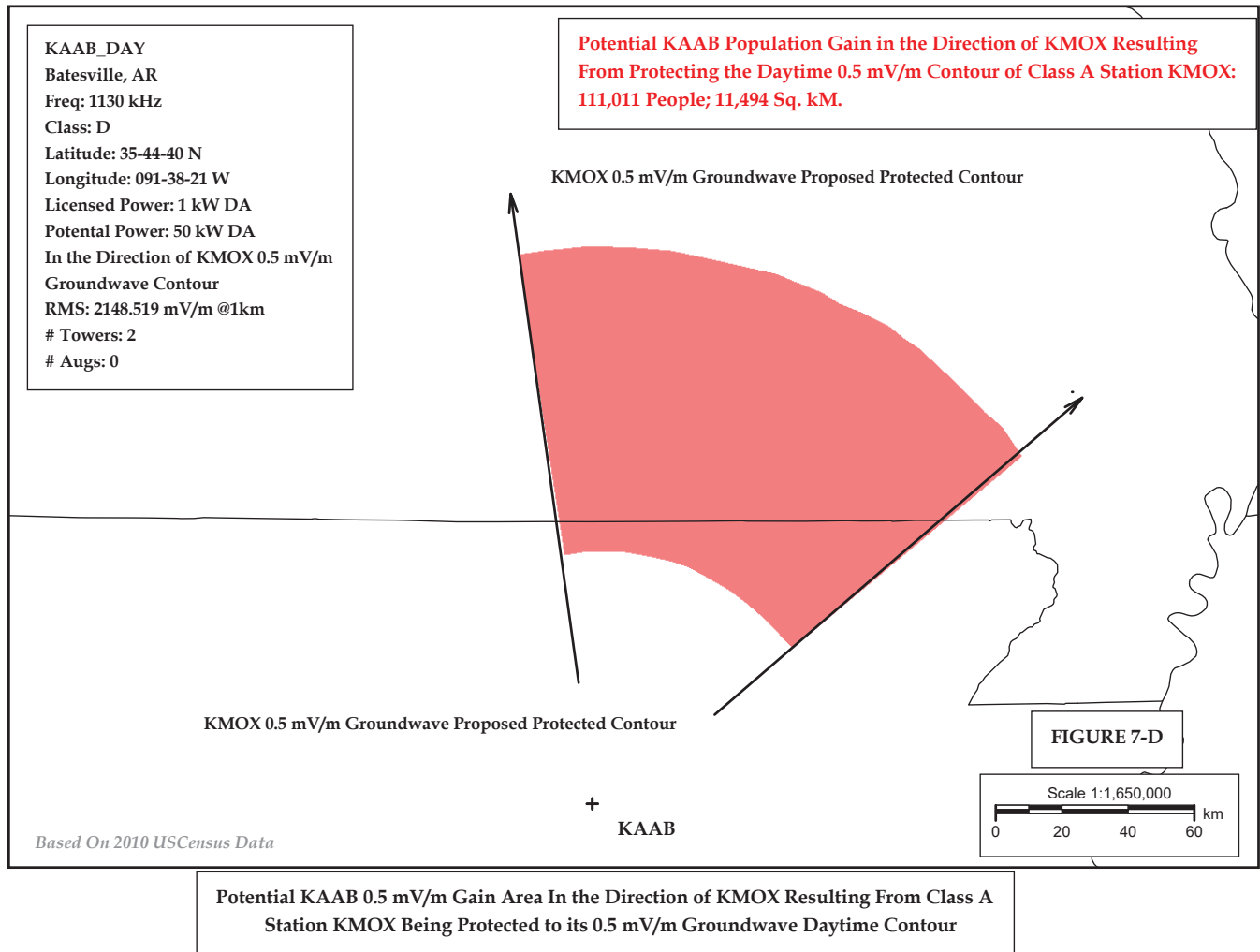












KMOX, St. Louis, Missouri
1120 kHz 50 kW ND
JANUARY 2019

KMOX NIGHTTIME OPERATION

0.5 mV/m 50% Skywave (Presently Protected Contour) Current Population	Interference Caused to 0.5 mV/m 50% Skywave by Maximized Class D Nighttime Operations Per <i>SFNPRM</i> Nighttime Alternative 1 (Figure 1.1-N) and <i>SFNPRM</i> Nighttime Alternative 2 (Figure 1.2-N)	
	Population:	Percentage of Interference to Population Within 0.5 mV/m 50% Skywave:
121,198,410	<i>SFNPRM</i> ALTERNATIVE 1: 91,515,793	<i>SFNPRM</i> ALTERNATIVE 1: 75.5%
121,198,410	<i>SFNPRM</i> ALTERNATIVE 2: 117,726,092	<i>SFNPRM</i> ALTERNATIVE 2: 97.2%

GAIN IN CLASS D STATION'S NIGHTTIME INTERFERENCE FREE CONTOUR SERVICE
WITH MAXIMUM POWER IN THE DIRECTION OF KMOX UNDER *SFNPRM* NIGHTTIME
ALTERNATIVE 1 (Figures 2-N through 11-N)

Maximizing Class D Station	Gain by Population (Persons) and Area (square kilometers)	Figure
WHOG	61/0.6	2-N
WKQW	348/4.5	3-N
WKCE	9/0.3	4-N
WXJO	1,552/0.9	5-N
WTWZ	136/1	6-N
KETU	263/4.7	7-N
WBBF	34,480/20.6	8-N
WSME	1,599/23.3	9-N
KLIM	1,838/35.2	10-N
WEAF	372/8.1	11-N
COLLECTIVE GAIN:	40,658/99.2	

NET LOSS IN SERVICE FROM *SFNPRM* NIGHTTIME ALTERNATIVE 1 (CLASS A
AM STATION LOSS MINUS COLLECTIVE GAIN IN CLASS D SERVICE):

91,515,793 (Loss of Class A AM Service) – 40,658 (Collective Class D Gain) = 91,475,135 persons Net
Loss

KMOX, St. Louis, Missouri
1120 kHz 50 kW ND
JANUARY 2019

KMOX CRITICAL HOURS OPERATION

SENPRM Alternative 1: No Critical Hours Protections To Class A AM Stations

Critical Hours Time Period	Interference Caused Within Class A 0.1 mV/m Groundwave Contour By Class D Operations With Full Daytime Power			Interference Caused Within Class A 0.5 mV/m Groundwave Contour By Class D Operations With Full Daytime Power		
	Population:	Area (square kilometers):	Percentage of Interference to Population Within 0.1 mV/m Groundwave Contour:	Population:	Area (square kilometers):	Percentage of Interference to Population Within 0.5 mV/m Groundwave Contour:
One Hour Before Sunset (Figure 1.1-C)	12,6650	721	0.15%	0	0	0%
One-Half Hour Before Sunset (Figure 1.2-C)	3,279,263	159,623	38.3%	9,342	373	0.2%
One-Quarter Hour Before Sunset (Figure 1.3-C)	4,643,922	207,113	54.3%	662,196	32,689	14.4%

KMOX CRITICAL HOURS OPERATION

**SFNPRM Alternative 2: Section 73.190 Critical Hours Figures Revised to Reference Distance From 0.5 mV/m Contour
(in Lieu of 0.1 mV/m Contour) of Class A AM Stations**

Critical Hours Time Period	Interference Caused Within Class A 0.1 mV/m Groundwave Contour By Class D Operations Per Alternative 2			Interference Caused Within Class A 0.5 mV/m Groundwave Contour By Class D Operations Per Alternative 2		
	Population:	Area (square kilometers):	Percentage of Interference to Population Within 0.1 mV/m Groundwave Contour:	Population:	Area (square kilometers):	Percentage of Interference to Population Within 0.5 mV/m Groundwave Contour:
One Hour Before Sunset (Figure 2.1-C)	0	0	0%	0	0	0%
One-Half Hour Before Sunset (Figure 2.2-C)	1,672,521	88,532	19.5%	0	0	0%
One-Quarter Hour Before Sunset (Figure 2.3-C)	3,243,831	158,981	37.9%	25,160	1,709	0.5%

KMOX, St. Louis, Missouri
1120 kHz 50 kW ND
JANUARY 2019

KMOX DAYTIME OPERATION

0.1 mV/m Groundwave (Presently Protected Contour)	Interference Caused to Class A 0.1 mV/m Groundwave Contour By Maximized Class D Daytime Operations Per <i>SFNPRM</i> Daytime Proposal (Figure 1-D)	
Population:	Population:	Percentage of Interference to Population Within 0.1 mV/m Groundwave Contour:
8,560,505	2,860,373	33.4%

**GAIN IN CLASS D STATION'S DAYTIME OPERATION IN THE DIRECTION OF KMOX
WITH MAXIMUM POWER IN THE DIRECTION OF KMOX (Figures 2-D through 7-D)**

Maximizing Class D Station	Gain by Population (Persons) and Area (square kilometers)	Figure
WKDZ	107,856/5,247	2-D
WMBI	165,141/7,663	3-D
KETU	13,620/1,497	4-D
WAMB	23,435/2,216	5-D
KILJ	13,543/2,518	6-D
KAAB	111,011/11,494	7-D
COLLECTIVE GAIN:	434,606/30,635	

**NET LOSS IN SERVICE FROM *SFNPRM* DAYTIME PROPOSAL (CLASS A AM STATION
LOSS MINUS COLLECTIVE GAIN IN CLASS D SERVICE):**

2,860,373 (Loss of Class A AM Service) – 434,606 (Collective Class D Gain) = 2,425,767 persons Net Loss¹

¹ This figure represents the net loss assuming upgrades by the listed neighboring Class D stations. Potentially different populations within the studied Class A AM station could be subject to interference depending upon future neighboring upgrades, with up to 3,981,726 persons subject to loss of service (KMOX's 0.1 mV/m daytime contour population of 8,560,505 minus KMOX's 0.5 mV/m daytime contour population of 4,578,779 = 3,981,726).

Grid Based Incoming Interference Population Report

Station Information:

Call: KMOX
Freq: 1120 kHz
ST. LOUIS, MO, US
Hours: N
Lat: 38-43-21 N
Lng: 090-03-18 W
Power: 50.0 kW
Theo RMS: 399.12 mV/m @ 1km @ 1kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swch	TL Swch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	192.7	0	0	0.0	0.0	0.0	0.0

Study Information:

Calculation Area: SkyWave 500.0 uV/m
Grid Size: 500 x 500
Reference Propagation Model: Groundwave + Skywave
Interference Propagation Model: Groundwave + Skywave
Ratios:

Co-channel: 20.0
First Adjacent: 1.0
Second Adjacent: 0.033
Third Adjacent: 0.033
Ix signals combined using RSS methodology: Yes
RSS Cutoff Percentage: 50.0
Threshold for reception: 0.1 mV/m
Population Database: 2010 US Census (PL)

Summary:

Total Station Coverage: 121,198,410 (2686542.8 sq. km)
Total Interference: 91,515,793 (2138971.0 sq. km)
Interference Free Coverage: 29,682,617 (547588.9 sq. km)

Stations Causing Interference:

Call Letters	Area (sq. km)	Housing Units	Population
WEAF_CP_N	572,072	13,577,668	30,480,123
KETU_N	984,411	13,008,530	30,369,647
WKQW_N	432,034	13,406,004	30,057,947
WSME_N	463,263	12,533,669	28,296,566

WBBF_N	371,258	12,076,983	27,132,620
WHOG_N	387,555	7,819,038	17,873,353
WXJO_N	403,610	6,779,378	15,047,223
WTWZ_N	424,575	4,989,427	11,382,602
WKCE_N	185,465	3,714,082	8,393,046
KLIM_N	448,923	3,373,180	7,695,178
WUST_N	(Not Considered In Report)		

Interference Free Breakdown:

White:	21,976,053	[74.0%]
Black:	3,161,415	[10.7%]
Hispanic:	2,923,445	[9.8%]
Native American:	99,961	[0.3%]
Asian:	1,019,959	[3.4%]
Pacific Islander:	10,515	[0.0%]
Mixed Race:	459,270	[1.5%]
Other:	31,999	[0.1%]

Total: 29,682,617

	Housing Units	Population	%
Alabama			
Autauga County			
Total	22,135	54,571	
KMOX Coverage	22,135	54,571	
	White:	42,154	[77.2%]
	Black:	9,595	[17.6%]
	Hispanic:	1,310	[2.4%]
	Native American:	217	[0.4%]
	Asian:	467	[0.9%]
	Pacific Islander:	22	[0.0%]
	Mixed Race:	761	[1.4%]
	Other:	45	[0.1%]
WHOG_N	22,135	54,571	100.00
	White:	42,154	[77.2%]
	Black:	9,595	[17.6%]
	Hispanic:	1,310	[2.4%]
	Native American:	217	[0.4%]
	Asian:	467	[0.9%]
	Pacific Islander:	22	[0.0%]
	Mixed Race:	761	[1.4%]
	Other:	45	[0.1%]
WXJO_N	22,135	54,571	100.00
	White:	42,154	[77.2%]

Grid Based Incoming Interference Population Report

Station Information:

Call: KMOX
Freq: 1120 kHz
ST. LOUIS, MO, US
Hours: N
Lat: 38-43-21 N
Lng: 090-03-18 W
Power: 50.0 kW
Theo RMS: 399.12 mV/m @ 1km @ 1kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swch	TL Swch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	192.7	0	0	0.0	0.0	0.0	0.0

Study Information:

Calculation Area: SkyWave 500.0 uV/m
Grid Size: 500 x 500
Reference Propagation Model: Groundwave + Skywave
Interference Propagation Model: Groundwave + Skywave
Ratios:

Co-channel: 20.0
First Adjacent: 1.0
Second Adjacent: 0.033
Third Adjacent: 0.033
Ix signals combined using RSS methodology: Yes
RSS Cutoff Percentage: 50.0
Threshold for reception: 0.1 mV/m
Population Database: 2010 US Census (PL)

Summary:

Total Station Coverage: 121,198,410 (2686542.8 sq. km)
Total Interference: 117,726,267 (2636144.3 sq. km)
Interference Free Coverage: 3,472,143 (50397.3 sq. km)

Stations Causing Interference:

Call Letters	Area (sq. km)	Housing Units	Population
WKQW_NRSS	604,110	20,186,242	46,325,294
WBBF_NRSS	603,547	19,695,564	45,300,742
KETU_NRSS	1,381,084	17,936,571	41,512,022
WSME_NRSS	493,416	13,443,560	30,624,101

WEAF_CP_NRSS	575,384	13,091,506	29,409,860
WHOG_NRSS	434,656	8,144,971	18,618,347
KLIM_NRSS	742,121	7,324,210	16,750,276
WXJO_NRSS	418,190	7,032,281	15,574,469
WTWZ_NRSS	483,338	5,619,121	12,682,083
WKCE_NRSS	218,622	4,277,502	9,680,807
WHOG_N	(Not Considered In Report)		
WKQW_N	(Not Considered In Report)		
WKCE_N	(Not Considered In Report)		
WXJO_N	(Not Considered In Report)		
WTWZ_N	(Not Considered In Report)		
KETU_N	(Not Considered In Report)		
WBBF_N	(Not Considered In Report)		
WSME_N	(Not Considered In Report)		
KLIM_N	(Not Considered In Report)		
WUST_N	(Not Considered In Report)		
WEAF_CP_N	(Not Considered In Report)		

Interference Free Breakdown:

White:	2,704,549	[77.9%]
Black:	555,126	[16.0%]
Hispanic:	82,538	[2.4%]
Native American:	6,998	[0.2%]
Asian:	64,681	[1.9%]
Pacific Islander:	1,088	[0.0%]
Mixed Race:	53,677	[1.5%]
Other:	3,486	[0.1%]
Total:	3,472,143	

	Housing Units	Population	%
Alabama			
Autauga County			
Total	22,135	54,571	
KMOX Coverage	22,135	54,571	
White:	42,154	[77.2%]	
Black:	9,595	[17.6%]	
Hispanic:	1,310	[2.4%]	
Native American:	217	[0.4%]	
Asian:	467	[0.9%]	
Pacific Islander:	22	[0.0%]	
Mixed Race:	761	[1.4%]	
Other:	45	[0.1%]	
WHOG_NRSS	22,135	54,571	100.00
White:	42,154	[77.2%]	
Black:	9,595	[17.6%]	

Grid Based Incoming Interference Population Report

Station Information:

Call: KMOX
Freq: 1120 kHz
ST. LOUIS, MO, US
Hours: D
Lat: 38-43-21 N
Lng: 090-03-18 W
Power: 50.0 kW
Theo RMS: 399.12 mV/m @ 1km @ 1kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swch	TL Swch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	192.7	0	0	0.0	0.0	0.0	0.0

Study Information:

Calculation Area: GW 0.1 mV/m
Grid Size: 500 x 500
Reference Propagation Model: Groundwave
Interference Propagation Model: Groundwave
Ratios:
 Co-channel: 20.0
 First Adjacent: 1.0
 Second Adjacent: 0.033
 Third Adjacent: 0.033
Ix signals combined using RSS methodology: Yes
 RSS Cutoff Percentage: 50.0
Threshold for reception: 0.1 mV/m
Population Database: 2010 US Census (PL)

Summary:

Total Station Coverage: 8,560,505 (281704.2 sq. km)
Total Interference: 2,860,373 (139856.5 sq. km)
Interference Free Coverage: 5,700,132 (141837.7 sq. km)

Stations Causing Interference:

Call Letters	Area (sq. km)	Housing Units	Population
WKDZ_DAY	27,050	384,224	846,823
WMBI_DAY	28,817	343,240	802,359
WAMB_DAY	22,410	263,483	601,569
KAAB_DAY	33,183	179,730	387,583

KILJ_DAY	24,570	141,454	311,682
KETU_DAY_DA	19,038	134,860	239,254
KETU_DAY	(Not Considered In Report)		

Interference Free Breakdown:

White:	4,627,188	[81.2%]
Black:	712,821	[12.5%]
Hispanic:	142,469	[2.5%]
Native American:	12,664	[0.2%]
Asian:	106,648	[1.9%]
Pacific Islander:	2,068	[0.0%]
Mixed Race:	90,605	[1.6%]
Other:	5,669	[0.1%]

Total: 5,700,132

	Housing Units	Population	%
Arkansas			
Clay County			
Total	8,031	16,083	
KMOX Coverage	8,031	16,083	
White:	15,577	[96.9%]	
Black:	56	[0.3%]	
Hispanic:	217	[1.3%]	
Native American:	40	[0.2%]	
Asian:	18	[0.1%]	
Pacific Islander:	1	[0.0%]	
Mixed Race:	170	[1.1%]	
Other:	4	[0.0%]	
KAAB_DAY	8,031	16,083	100.00
White:	15,577	[96.9%]	
Black:	56	[0.3%]	
Hispanic:	217	[1.3%]	
Native American:	40	[0.2%]	
Asian:	18	[0.1%]	
Pacific Islander:	1	[0.0%]	
Mixed Race:	170	[1.1%]	
Other:	4	[0.0%]	
Fulton County			
Total	6,778	12,245	
KMOX Coverage	1,623	2,595	
White:	2,504	[96.5%]	
Black:	17	[0.7%]	
Hispanic:	15	[0.6%]	