

TECHNICAL NARRATIVE

**Modify FM Translator K284CH
Channel 284D - 104.7 MHz 0.052 kW - Kansas City, MO
to
Proposed CH 284D – 104.7 MHz – 0.099 kW – Kansas City, MO**

May 1, 2022

This Technical Narrative and attached exhibits were prepared on behalf of Alpine Broadcasting Corporation, (“Alpine”). Alpine is the licensee of K284CH, Facility ID Number 153375, Kansas City, Missouri.

Alpine proposes to modify K284CH by co-locating to the antenna currently broadcasting K295CH, Kansas City, MO. Alpine is modifying K284CH by moving to a different existing antenna on the same tower where it is currently licensed. The proposed K284CH would diplex its signal with co-owned FM translator K295CH, Facility ID No. 36259, Kansas City, KS. The modified K284CH will be used as a fill-in translator for KCXL(AM), 1140 kHz, Facility ID Number 1162, licensed to Liberty, Missouri. Alpine is also the licensee of KCXL(AM).

The proposed K284CH is located at 39° 00' 56.5" North Latitude, 94° 30' 25.0" West Longitude (NAD 27). The transmit location is an existing tower, 335.9 meters in overall height. The tower is registered with Antenna Structure Registration (ASR) number 1003006. K284CH would operate with 99 watts ERP directional at 279 meters height above ground level and 277.09 meters HAAT.

An exhibit demonstrates compliance with FCC Section 74.1201(g). The proposed K284CH FCC F(50,50) 60 dBu contour is contained inside the primary station KCXL(AM) 2.0 mV/m daytime contour.

A channel study using Section 73.207 spacings for Class A FM stations is included as an exhibit. The channel study is provided as a convenience to FCC staff. FCC Section 74.1204 contour protection exhibits are included for second adjacent full power FM stations KBEQ-FM, Channel 282C0, Kansas City, MO and KCJK, Channel 286C1, Garden City, MO, co-channel full power FM station KRES, Channel 284C, Moberly, MO, co-channel FM translator K284BS, Channel 284D, Lawrence, KS, co-channel full power FM station KVCY, Channel 284C3, Fort Scott, KS and full power FM station KXBZ, Channel 284C2, Manhattan, KS.

KOJH-LP, Channel 284L1, Kansas City, MO was granted construction permit 0000189072 on April 13, 2022. Alpine respectfully requests this K284CH minor modification application be held in queue until KOJH-LP has commenced operation on Channel 263L1.

Because there is no change in the transmit location an exhibit showing compliance with Section 74.1233(a) "Common Overlap" is not included.

A study has been undertaken to show the proposed K284CH facility is in compliance with the Commission's radio frequency emission limits and are attached as exhibits.

K284CH

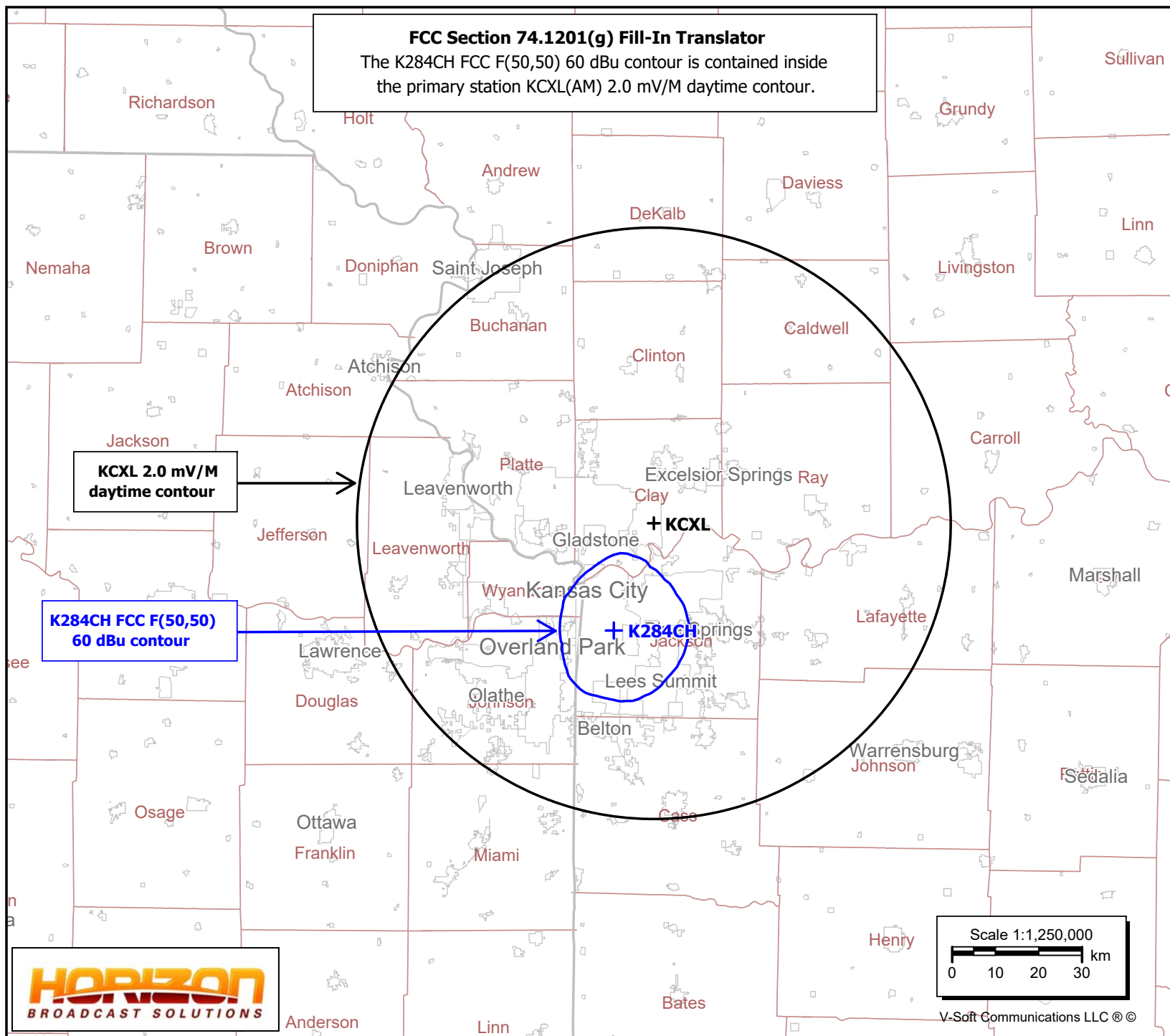
Kansas City, KS
BLFT20180521AAS
Latitude: 39-00-56.50 N
Longitude: 094-30-25 W
ERP: 0.099 kW
HAAT: 277.02
Channel: 284
Frequency: 104.7 MHz
AMSL Height: 550.3 m
Elevation: 271.3 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

KCXL

Liberty, MO
Type: AM
Channel: 1140
Power: 4.0 kW Daytime
Latitude: 39-14-18 N
Longitude: 094-23-59 W

FCC Section 74.1201(g) Fill-In Translator

The K284CH FCC F(50,50) 60 dBu contour is contained inside the primary station KCXL(AM) 2.0 mV/M daytime contour.



K284CH Channel Study

REFERENCE		CLASS = A Int = AA		DISPLAY DATES	
39 00 56.5 N.		Current Spacings to 3rd Adj.		DATA 04-30-22	
94 30 25.0 W.		Channel 284 - 104.7 MHz		SEARCH 04-30-22	

Call	Channel	Location	Azi	Dist	FCC
Lat.	Lng.	Ant	Power	HAAT	Margin

K284CH	LIC-D 284D	Kansas City	MO 0.0	0.0	84.5
39 00 56.5	94 30 25.0	DVN	0.099 kW	0 M	-84.5
		Alpine Broadcasting Corpor	BLFT20161108AAA		
KBEQ-FM	LIC 282C0	Kansas City	MO 16.9	7.8	85.5
39 04 59.0	94 28 49.8	CN	100.000 kW	301 M	-77.7
		Mgtf Media Company, LLC	BLH19850813KT		
Note: See Section 74.1202 Contour Protection: KBEQ-FM & KCJK					
KCJK	LIC 286C1	Garden City	MO 20.0	8.8	74.5
39 05 26.0	94 28 18.8	CN	72.000 kW	346 M	-65.7
		Cmp Houston-Kc, LLC	BLH20120515AFS		
Note: See Section 74.1202 Contour Protection: KBEQ-FM & KCJK					
KRES	LIC 284C	Moberly	MO 71.8	163.4	225.5
39 27 35.1	92 42 07.6	CN	100.000 kW	311 M	-62.1
		Alpha Media Licensee LLC	BLH19830124BA		
Note: See Section 74.1202 Contour Protection: KRES, K284BS, KVCY & KXBZ					
KOJH-LP	LIC 284L1	Kansas City	MO 330.7	11.2	66.5
39 06 11.7	94 34 13.4	CN	0.033 kW	52 M	-55.3
		Mutual Musicians Foundatio	BLL20171208AAY		
Note: KOJH-FM was granted CP 0000189072 for CH263L1 on 04/13/2022					
K284BS	LIC 284D	Lawrence	KS 257.2	59.4	84.5
38 53 46.0	95 10 30.0	CN	0.050 kW	0 M	-25.1
		Footprint Radio Broadcasti	BLFT20190429AAZ		
Note: See Section 74.1202 Contour Protection: KRES, K284BS, KVCY & KXBZ					
KFKF-FM	LIC 231C0	Kansas City	KS 16.4	0.0	24.5
39 00 57.0	94 30 24.8	CN	100.000 kW	303 M	-24.5
		Mgtf Media Company, LLC	BLH19870507LI		
Note: Licensee acknowledges 99 watt ERP Limit due to IF spacing to KFKF-FM					
KVCY	LIC 284C3	Fort Scott	KS 188.6	127.6	141.5
37 52 43.1	94 43 24.9	CN	16.000 kW	125 M	-13.9
		Vcy AMerica, Inc.	BLED19970929KE		
Note: See Section 74.1202 Contour Protection: KRES, K284BS, KVCY & KXBZ					
KXBZ	LIC-Z 284C2	Manhattan	KS 279.9	171.6	165.5
39 15 54.8	96 27 58.5	ZCN	50.000 kW	149 M	6.2
		Manhattan Broadcasting Co.	BMLH20111114BIR		
Note: See Section 74.1202 Contour Protection: KRES, K284BS, KVCY & KXBZ					
KXEA	LIC-N 285A	Lowry City	MO 142.3	120.9	71.5
38 09 08.1	93 39 43.8	NCN	1.100 kW	127 M	49.4
		Radford Media Group, LLC	BLH20100616ACP		

Section 74.1204 Contour Protection KBEQ-FM and KCJK

This comprehensive exhibit has been prepared to demonstrate that the K284CH modification will not cause prohibited interference to KCJK, Channel 286C1, Garden City, Missouri or KBEQ-FM, Channel 282C0, Kansas City, Missouri. This statement demonstrates that a lack of population and/or other factors allow this proposal to be compliant with Section 74.1204. The process commonly called “Living Way,” allows for the use of U/D Analysis, also known as “signal strength ratio methodology.” In this instant case the facilities to be protected are second adjacent and are afforded protection from signals 40 dB stronger than they present in the location of the proposed antenna location.

The KBEQ-FM F(50,50) protected contour at the K284CH application site is 103.8 dBu. Therefore, the K284CH F(50,10) interfering contour with respect to KBEQ-FM is the 143.8 dBu contour. The KCJK F(50,50) protected contour at the K284CH application site is 101.7 dBu. Therefore, the K284CH F(50,10) interfering contour with respect to KCJK is the 141.6 dBu contour. Because K284CH will cause greater interference to KCJK, the KCJK interference will be calculated to determine Section 74.1204 contour protection for both stations. Using the FCC's FM propagation curves program (see attached) the 141.6 dBu contour was calculated to extend just 6 meters from the K284CH antenna. The K284CH transmit antenna will be located 279 meters above ground level on an existing guyed tower. There are no high rise buildings in the area of the tower. The interfering contour does not reach the ground. It is believed that K284CH is in compliance with FCC Section 74.1204 contour protection with respect to KCJK.

K284CH

Kansas City, MO
Latitude: 39-00-56.50 N
Longitude: 094-30-25 W
ERP: 0.099 kW
HAAT: 277.09
Channel: 284
Frequency: 104.7 MHz
AMSL Height: 550.3 m
Elevation: 271.3 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KBEQ-FM

Kansas City, MO
BLH19850813KT
Latitude: 39-04-59 N
Longitude: 094-28-49.80 W
ERP: 100.00 kW
HAAT: 301.0
Channel: 282
Frequency: 104.3 MHz
AMSL Height: 562.0 m
Elevation: 252.0 m
Horiz. Pattern: Omni
Vert. Pattern: No

KCJK

Garden City, MO
BLH20120515AFS
Latitude: 39-05-26 N
Longitude: 094-28-18.80 W
ERP: 72.00 kW
HAAT: 346.0
Channel: 286
Frequency: 105.1 MHz
AMSL Height: 610.0 m
Elevation: 269.0 m
Horiz. Pattern: Omni
Vert. Pattern: No

Section 74.1204 Contour Protection

KBEQ-FM Channel 284C0 Kansas City, Missouri
KCJK Channel 286C1 Garden City, Missouri

KBEQ-FM FCC F(50,50)
103.8 dBu contour

KCJK FCC F(50,50)
101.6 dBu contour

+K284CH

HORIZON
BROADCAST SOLUTIONS

Scale 1:35,000
0 0.47 0.93 1.4 km

V-Soft Communications LLC ©

FM and TV Propagation Curves

Databases & Searches

AM Query

Antenna Height Above Average
Terrain (HAAT) Calculator

Antenna Structure Registration
(ASRN) Records Within A Radius

Broadcast Station Mailing
Address Search

Call Sign Reservation and
Authorization System (CSRS)

CDBS Database Public Files

Children's Educational
Television Reporting - Form
2100, Schedule H

Children's Programming Query

COLORIT HTML Color Generator

Degrees Minutes Seconds
to/from Decimal Degrees

Distance and Azimuths
Between Two Sets of
Coordinates

Electioneering Communications
Database

EEO Filing Search

This Javascript calculator uses the FM or TV propagation curves to find the distance to a service or interfering contour, or the corresponding field strength at a given contour distance. [More after the form.](#)

Select Contour Type:

F(50,50) Service Contour -- FM and NTSC (analog) TV
F(50,10) Interfering Contour
F(50,90) Digital TV Service Contour

Select Channel Range:
(not TV Virtual Channel)

FM Radio or TV Transmit Channels 2-6
TV Transmit Channels 7-13
TV Transmit Channels 14-69

Find This:

Field Strength, given a Distance (in km)
Distance, Given a Field Strength (in dBu)
FM ERP, given Distance and Field Strength [F(50,50) Service Contour]

.099

ERP (kW)

Distance (km)

277.09

HAAT (meters)

141.06

Field (dBu)

Find Result

Clear Form

Results:

Calculated Distance = 0.006 km

Free Space equation used to compute distance.

K284CH

Kansas City, MO
Latitude: 39-00-56.50 N
Longitude: 094-30-25 W
ERP: 0.099 kW
HAAT: 277.09
Channel: 284
Frequency: 104.7 MHz
Antenna Pattern: Directional

KRES

Moberly, MO
BLH19830124BA
Latitude: 39-27-35.10 N
Longitude: 092-42-07.60 W
ERP: 100.00 kW
HAAT: 311.0
Channel: 284
Frequency: 104.7 MHz

K284BS

Lawrence, KS
BLFT20190429AAZ
Latitude: 38-53-46 N
Longitude: 095-10-30 W
ERP: 0.05 kW
HAAT: 0.0
Channel: 284
Frequency: 104.7 MHz

KVCY

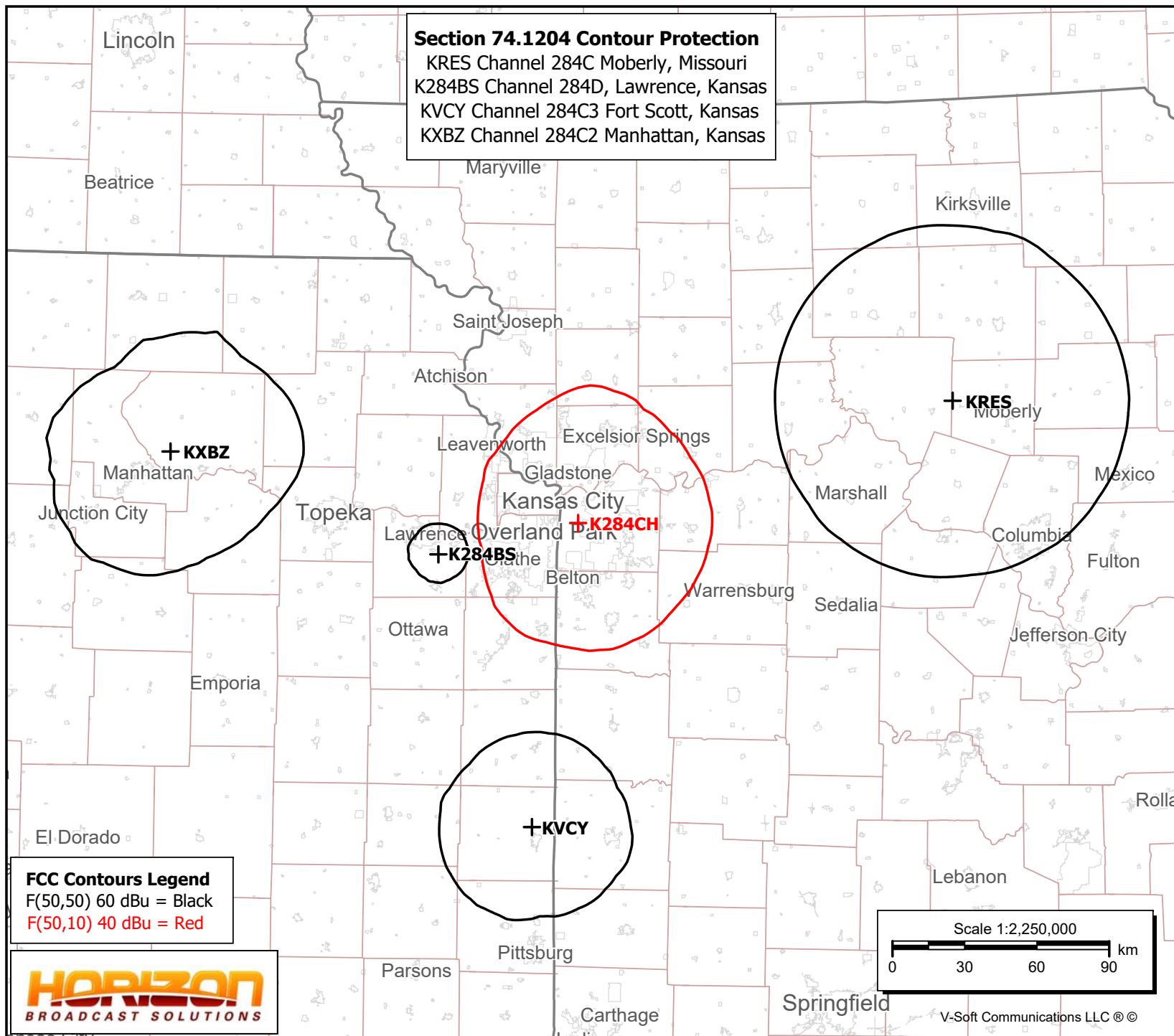
Fort Scott, KS
BLED19970929KE
Latitude: 37-52-43.10 N
Longitude: 094-43-24.90 W
ERP: 16.00 kW
HAAT: 125.0
Channel: 284
Frequency: 104.7 MHz

KXKB

Manhattan, KS
BMLH20111114BIR
Latitude: 39-15-54.80 N
Longitude: 096-27-58.50 W
ERP: 50.00 kW
HAAT: 148.8
Channel: 284
Frequency: 104.7 MHz

Section 74.1204 Contour Protection

KRES Channel 284C Moberly, Missouri
K284BS Channel 284D, Lawrence, Kansas
KVCY Channel 284C3 Fort Scott, Kansas
KXKB Channel 284C2 Manhattan, Kansas



**Human Exposure to Radiofrequency Electromagnetic Field
&
Section 106 Compliance
(Environmental)**

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, regarding human exposure to radio frequency radiation in the vicinity of broadcast towers. Alpine Broadcasting Corporation seeks to modify K284CH Channel 284D (104.7 MHz) Facility ID# 153375, Kansas City, MO by relocating to a different transmit antenna on the same tower as its licensed facility, changing the ERP to 99 watts directional. The tower is located at 39° 00 56.5" N ~ 94° 30' 25.0" W (NAD 83). The tower is 335.9 meters in overall height and is registered with Antenna Registration Structure (ASR) number 1003006. The antenna will be a Nicom BKG77 circularly polarized one bay directional antenna with a center of radiation of 279 meters AGL. This is also the transmit antenna of co-owned FM translator K295CH, Facility ID No. 36259, Kansas City, KS. Alpine will conduct a spurious harmonics study and submit the report as an accompanying exhibit with the K284CH license application. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of § 1.1306 of the FCC Rules. Because K284CH proposes to operate from an existing tower and no modification of the tower is being made, it is believed to be exempt from a Section 106 review by the SHPO/THPO.

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. The Nicom antenna is listed in the Commission's Revised FM Model for Windows Program under EPA Type 2, Opposed "V" dipole. Using the EPA Type 2 element the maximum calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $0.0254 \mu\text{W}/\text{cm}^2$ at 275 meters, which is 0.013 percent of the general population uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in 1.1307(b) regarding sites with multiple emitters, which excludes applicant from responsibility for taking any corrective action in areas where the proposal's contribution is less than five percent.

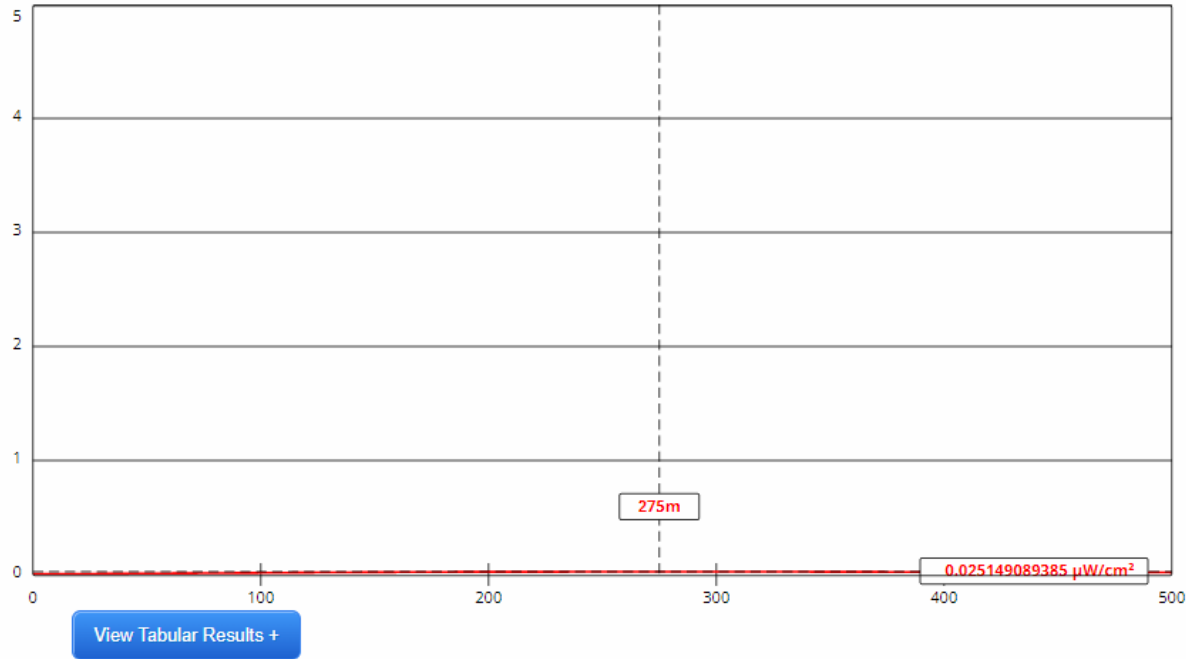
The applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

FM Model

- Radio Frequency Safety
- FCC Policy on Human Exposure
- RF Safety FAQ
- Body Tissue Dielectric Parameters
- RF Safety Highlighted Releases
- FM Model

The FM Model calculator determines the potential exposure from radiofrequency (RF) electromagnetic fields produced by FM broadcast station antennas at ground level. The FM Model software was originally developed by the FCC in 1997 as a standalone executable program and this improved version provides more precise predictions and runs via a JavaScript enabled web browser. The FM Model is originally based on measured data published in 1985 by the EPA.

Show More....



Channel Selection	Channel 284 (104.7 MHz) ▼		
Antenna Type +	EPA Type 2: Opposed V Dipole ▼		
Height (m)	271	Distance (m)	500
ERP-H (W)	99	ERP-V (W)	99
Num of Elements	1	Element Spacing (°)	1
Num of Points	500	Apply	